AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D. C. 20523

BIBLIOGRAPHIC INPUT SHEET

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1. SUBJECT CLASSIFICATION

A. PRIMARY
Agriculture

B. SECONDARY
Cereal Crops

2. TITLE AND SUBTITLE
Results of the Ninth International Spring Wheat Yield Nursery (9th. ISWYN) 1972 - 1973

3. AUTHOR(S)
CIMMYT STAFF

4. DOCUMENT DATE	5. NUMBER OF PAGES	6. ARC NUMBER
November 1974	136p	ARC

7. REFERENCE ORGANIZATION NAME AND ADDRESS
International Maize and Wheat Improvement Center
Londres 40, Apartado Postal 6-641
Mexico 6, D.F., Mexico

8. SUPPLEMENTARY NOTES *(Sponsoring Organization, Publishers, Availability)*

Texts in English, Spanish and French

9. ABSTRACT
The Ninth International Spring Wheat Yield Nursery (ISWYN) was composed of 50 spring wheat varieties representative of the major spring wheat types. Data, received from 73 locations throughout the spring wheat regions of the world, included yield, agronomic traits and disease reactions. Location summaries with statistical analyses are presented for all traits measured at each reporting location. Most productive wheats were Meng-8156, Condor (UG 105), Siete Cerros (8156-Cross), Tanori 71 and Cajeme 71.

10. CONTROL NUMBER
PN-AAB-242

11. PRICE OF DOCUMENT

12. DESCRIPTORS
Varieties, Spring Wheat, Yield, Agronomic Traits, Disease Reactions, Statistical Analysis

13. PROJECT NUMBER
931-11-110-840

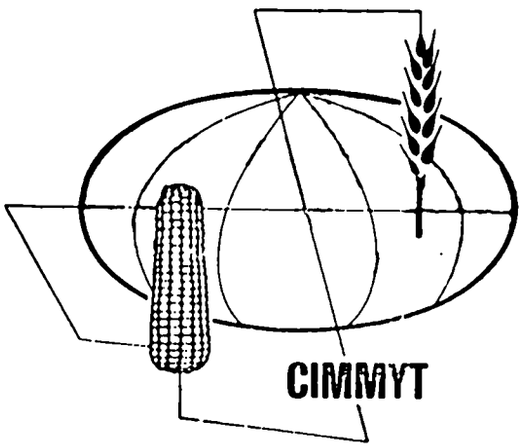
14. CONTRACT NUMBER
PASA-TA-1083

15. TYPE OF DOCUMENT
Research Report

AID 590-1 (4-74)

CIMMYT Information Bulletin No. 16 November, 1974

Results of the Ninth International Spring Wheat Yield Nursery (ISWYN) 1972 - 1973



Texts in English, Spanish and French
Textos en inglés, español y francés
Textes en Anglais, Espagnol et Français

Centro Internacional de Mejoramiento de Maíz y Trigo
International Maize and Wheat Improvement Center
Londres 40 Apartado Postal 6-641 México 6, D. F., México

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RESULTS OF THE NINTH INTERNATIONAL SPRING WHEAT YIELD NURSERY (9th. ISWYN)

1972 - 1973

ABSTRACT

The Ninth International Spring Wheat Yield Nursery (ISWYN) was composed of 50 spring wheat varieties representative of the major spring wheat types. Data, received from 73 locations throughout the spring wheat regions of the world, included yield, agronomic traits and disease reactions. Location summaries with statistical analyses are presented for all traits measured at each reporting location. Most productive wheats were Meng-6156, Condor (UQ 105), Siete Cerros (8156-Cross), Tanori 71 and Cajeme 71.

INTRODUCTION

The International Spring Wheat Yield Nursery provides a vehicle by which varieties from various countries can be tested for width of adaptability on a world wide scale. The results give the same information in one year that would be given by testing within a National Program over many years. When varieties perform well over a wide range of conditions, the individual breeder in any country can select those varieties for direct use in production or for further breeding with much increased confidence provided the particular variety does well in that country. Such varieties can be expected to produce well under variations of weather which are met with from year to year.

For example, the Mexican semidwarf and dwarf varieties have obtained a certain prominence in most wheat growing areas of the world. The International Spring Wheat Yield Nursery (ISWYN) has been one of the important tools to demonstrate the adaptability of Mexican types.

Region wide tests had indicated in the early 1960's that certain lines had a broad adaptation. In 1964 the first world-wide yield trial was sent to selected countries.

This nursery continues to provide to cooperating and interested plant breeders:

I basic information and data exchange on important spring wheats
II parental material in crossing work, (sources of resistance)
III new variety candidates, in countries with limited programs
IV yard stick of progress in International and National Programs

The nursery may be considered as a vehicle to reach higher levels of yield performance than the Mexican varieties.

Each year requests are circulated to the breeders of cooperating countries to submit two kilograms of their more promising materials for possible inclusion in this test. All such submitted materials are grown in increase plots at Ciudad Obregon and assessed for their possibilities as entrants to the ISWYN. Selection is made both on suitability and for as wide range of country representation as possible. Each year much more entries than can be accomodated in the trial are grown. Consequently, CIMMYT cannot place all varieties submitted in this trial. Certain long term checks are included while others under test for some years are deleted to make room for new entries.

Widely adapted wheats such as Pitic 62 and Siete Cerros (Mexipak, Kalyansona) have been included from the beginning, and continue to be among the highest yielders, despite their increased susceptibility to rusts. Table A shows the mean grain yield and rank averaged over a wide range of environmental conditions for those varieties entered in 5 consecutive International Spring Wheat Nurseries.

TABLE A. Mean and rank for grain yield in (kg/ha) for each of the varieties entered in 5 consecutive International Spring Wheat Yield Nurseries. (1966-67

VARIETY NAME	ORIGIN	3rd. ISWYN 1966 - 67 62 Locations		4th. ISWYN 1967 - 68 63 Locations		5th. ISWYN 1968 - 69 63 Locations		6th. ISWYN 1969 - 70 60 Locations		7th. ISWYN 1970 - 71 67 Locations		Rank Average 315 Loc.
		YIELD		IN	KILOGRAMS	PER	HECTARE	AND		RANK		
Pitic 62	MEXICO	3500	1	3499	2	3032	3	3289	6	3902	7	3.8
Siete Cerros	MEXICO	3203*	8	3485	3	3016	4	3301	4	3931	5	4.8
Penjamo 62	MEXICO	3407	3	3474	4	3055	1	3273	9	3824	15	6.4
Inia 66	MEXICO	3355	5	3502	1	2937	6	3307	3	3691	24	7.8
Lerma Rojo 64	MEXICO	3461	2	3225	15	2917	7	3138	15	3751	18	11.4
Tobari 66	MEXICO	3178	10	3275	11	2849	12	3296	5	3691	25	12.6
Nainari 60	MEXICO	3244	7	3214	17	2833	15	3040	19	3541	32	18.0
Crespo 63	COLOMBIA	3259	6	3215	16	2743	20	3501	18	3581	30	18.0
Huelquen	CHILE	3058	10	3157	19	2804	16	3015	20	3487	36	20.2
Napo 63	COLOMBIA	3149	12	3230	14	2733	21	2969	22	3416	39	21.6
Bonza 55	COLOMBIA	2770	28	2933	26	2301	36	2519	36	3021	44	34.0
C-306	INDIA	2853	23	2631	33	2519	32	2312	43	2899	46	35.4
Carazinho	BRAZIL	2610	36	2708	32	2246	40	2501	37	2929	45	38.2
Gaboto	ARGENTINA	2634	34	2532	40	2264	38	2310	44	3039	43	39.8
Chris	U. S. A.	2488	43	2404	44	2244	41	2281	46	2823	48	44.4
Selkirk	CANADA	2019	48	1974	49	1628	48	1737	49	2307	50	48.8

* = Penjamo Sib-Gabo 55 in 1966 - 1967.

The excellent cooperation received from all the participants in the International Yield Nurseries has led to a steady expansion in the size, number and type of nurseries. Table B shows the number of different materials (yield nurseries, screening nurseries, segregating materials and advanced lines, sent by the International Nurseries Department from the Wheat, Barley and Triticale Programs from 1970 - 1974. All this germplasm was initiated by the ISWYN's.

TABLE B. Increase in the number of experiments and nurseries of Bread Wheats, Durum Wheats, Barley and Triticale from 1970 - 74.

	1970	1971	1972	1973	1974
BREAD WHEAT	301	243	358	630	671
DURUM WHEAT	82	138	134	248	264
TRITICALE	52	82	145	221	329
BARLEY				41	80
Totals:	435	463	637	1140	1344

For a rapid look on the performance of the variety in each location Table C shows the grain yield of the top and low variety, the grand mean for each location (the mean which is the mean of means of the varieties in kg/ha) and the moisture in mm. of the reported varieties.

MATERIALS AND METHODS

Forty nine varieties representing the major spring wheat areas of the world were selected for the Ninth International Spring Wheat Yield Nursery. The seed was multiplied during 1971-72 growing season at the Centro de Investigaciones Agrícolas del Noroeste (CIANO), Sonora, Mexico. Observations made in CIANO on plant height, days to flowering and disease resistance were used in the variety descriptions. The seed was treated with a mixture of Vitavax (registered trademark for 5, 6-dihydro-2, methyl-1, 4 oxathiin-3-carboxanilide) and Tillantina (Mercuric Phenyl Acetate-2.0%, Lindane-0.4%, Inert-97.6%), before it was packed. Instructions for the management of the International Yield Nurseries, the sheet for general notes to be taken, as well as the data sheets were included in each box. All the nurseries were sent out from Mexico and shipped by air.

The nursery consisted of a randomized complete block design with three replications and each plot consisted of 6 rows, 2.5 meters long with 30 cm spacing between rows. (Some cooperators changed the plot size). The yield trials were conducted under both rainfed and irrigated conditions, both fertilized and unfertilized with latitudes ranged from 40°S to 55°N and with elevations from 5 meters above sea level to 2640 meters above sea level. For each location latitude, moisture, fertilizer level and other information are presented in the tables, as far as available.

TABLE C. Yield grain range, grand mean and moisture by location entered in the Ninth International Spring Wheat Yield Nursery. (1972 - 73).

Table number and location		TOP VARIETY Name	Yield Kg/ha	LOW VARIETY Name	Yield Kg/ha	Grand Mean	Moisture mm.
	AFRICA						
1	Alger, ALGERIA.	-----	----	-----	----	----	---
2	Setif, ALGERIA.	Jaral "S" (C)	4808	Iassul 20	2366	3816	547
3	Huambo, ANGOLA.	Meng-8156	4288	Ariana 66	1066	2783	464
4	Bahtim, EGYPT.	Cajeme 71	7843	Chris	3382	5781	---
5	Sakha, EGYPT.	Cajeme 71	7538	LR - N10B x An_E^3	2144	5640	200
6	Shoa, ETHIOPIA.	Cajeme 71	2903	Ariana 66	958	1807	---
7	Rift Valley, KENYA.	Inia 66	3285	Mexico 120	75	1263	496
8	Tripoli, LIBYA.	UQ 105 = Condor "S"	5410	Chenab 70	0	3466	350
9	Kenitra, MOROCCO.	Parana 68/1116	2105	El Gau-Son64 x 7C-Napo 63	0	1490	340
10	Marrakech, MOROCCO.	Sonalika	6548	Iassul 20	1419	4735	146
11	Salisbury, RHODESIA.	Cajeme 71	6971	Iassul 20	2380	5098	730
12	Transvaal, SOUTH AFRICA.	LR - N10B x An_E^3	5055	Iassul 20	2128	3906	816
13	Blue Nile Province, SUDAN.	LR - N10B x An_E^3	3920	El Gau-Son64 x 7C-Napo 63	662	3051	---
14	Kassala, SUDAN.	Local Check (Not reported)	4250	El Gau-Son64 x 7C-Napo 63	947	3360	---
15	Beja, TUNISIA.	LR - N10B x An_E^3	5600	Iassul 20	2500	4155	---
	ASIA						
16	Kabul, AFGHANISTAN.	Bb - Inia	5168	Ariana 66	530	3658	379
17	Dacca, BANGLADESH.	Mexico 226	2369	Lagoa Vermelha (C-17)	547	1305	432
18	Gujarat, INDIA.	UQ 105 = Condor "S"	3891	El Gau-Son64 x 7C-Napo 63	615	2790	---
19	Maharastra, INDIA.	Soltane	3699	Ariana 66	612	2408	---
20	New Pusa Delhi, INDIA.	Tob-8156	4492	El Gau-Son64 x 7C-Napo 63	0	3255	---
21	Rajasthan, INDIA.	Tanori 71	5398	Era	0	3798	174
22	Hokkaido, JAPAN.	3400-1-3	4054	Ariana 66	1934	3259	260
23	Kwang Ju, SOUTH KOREA.	Meng-8156	6499	BT 2288	2576	4325	820
24	Kathmandu, NEPAL.	Meng-8156	6659	Lagoa Vermelha (C-17)	3517	5039	187
25	Punjab, PAKISTAN.	Yecora 70	7021	Lagoa Vermelha (C-17)	1833	4695	508
26	Sind, PAKISTAN.	Chenab 70	4409	El Gau-Son64 x 7C-Napo 63	1133	2995	---
	CENTRAL AMERICA						
27	Quezaltenango, GUATEMALA.	Soltane	4547	Ariana 66	0	3080	867
	EUROPE						
28	Tolbukhin, BULGARIA.	Tob-8156	4000	LR - N10B x An_E^3	2222	3188	199
29	Cambridgeshire, ENGLAND.	Pitic 62	8063	Mexico 120	3130	6332	229
30	Seine et Marne, FRANCE.	Siete Cerros 66	4202	Iassul 20	2407	3514	69
31	Schleswig-Holstein, W. GERMANY.	Local Check (Not reported)	10208	Mexico 120	5333	7937	329
32	Rome, ITALY.	Siete Cerros 66	6613	Lagoa Vermelha (C-17)	3180	5221	385
33	Alentejo, PORTUGAL.	Siete Cerros 66	5445	Iassul 20	2239	4551	351
34	Jud. Cluj., ROMANIA.	(21931/Ch53-An x Gb56)An 64	4383	Ariana 66	1494	2808	316
35	Landskrona, SWEDEN.	Siete Cerros 66	6783	Mexico 120	2216	4619	203
36	Croatia, YUGOSLAVIA.	Iassul 20	2566	Parana 68/1116	1333	1954	238
37	Voyvodina, YUGOSLAVIA.	Siete Cerros 66	5950	Ariana 66	2550	4474	240

Cont'd. Table C.

Table number and location		TOP VARIETY Name	Yield Kg/ha	LOW VARIETY Name	Yield Kg/ha	Grand Mean	Moisture mm.
	MIDDLE EAST						
38	Gorgan, IRAN.	Moti	6721	Iassul 20	3321	5600	384
39	Kuzestan, IRAN.	Siete Cerros 66	4599	Iassul 20	1999	3393	147
40	Baghdad, IRAQ.	Tanori 71	5300	Iassul 20	916	3787	400
41	Sulaimaniya, IRAQ.	Pitic 62	2721	Iassul 20	955	1981	662
42	R.D.S. de Gat, ISRAEL.	Yecora 70	9674	Iassul 20	2621	7396	322
43	Jordan, JORDAN.	Meng-8156	6266	Iassul 20	622	3664	187
44	Beirut, LEBANON.	Bb "S" Reselection	2620	Zipa 68	439	1574	375
45	North Coastal Province, LEBANON.	UQ 105 = Condor "S"	6586	Lagoa Vermelha (C-17)	2197	4958	500
46	Adana, TURKEY.	Pitic 62	4583	Zaafrane	1183	3337	324
47	Adapazari, TURKEY.	T-64-2-W	7432	Parana 68/1116	3910	5751	296
48	Eskisehir, TURKEY.	Jaral "S" (C)	6566	Ariana 66	841	4731	594
	NORTH AMERICA						
49	Manitoba, CANADA.	Cajeme 71	4722	Ariana 66	0	3579	290
50	Saskatchewan, CANADA.	UQ 105 = Condor "S"	3566	Local Check (Manitou)	2282	3060	157
51	Mexico, El Batán, MEXICO.	Tanori 71	4833	Local Check (Not reported)	----	3007	---
52	Mexico, Toluca-Atizapan, MEXICO.	-----	----	-----	----	----	---
53	Sinaloa, C.I.A.S., MEXICO.	Meng-8156	7389	Iassul 20	2679	4919	---
54	Sonora, C.I.A.N.O., MEXICO.	Meng-8156	8458	Era	3423	5831	110
55	Sonora, C.I.A.N.O., MEXICO.	Siete Cerros 66	7924	Iassul 20	3028	6115	110
56	Alaska, U. S. A.	Siete Cerros 66	1434	Parana 68/1116	482	921	184
57	Arizona, U. S. A.	Siete Cerros 66	6717	Iassul 20	2538	4860	---
58	California, U. S. A.	Tanori 71	4950	Giza 155	2099	3747	850
59	Colorado, U. S. A.	Era	3560	Bb "S" Reselection	1726	2592	250
60	North Dakota, U. S. A.	3400-1-3	8146	Ariana 66	3048	6663	203
61	Idaho, U. S. A.	Local Check (Borah)	7436	Iassul 20	3074	5960	---
62	Montana, U. S. A.	Meng-8156	4527	Ariana 66	0	3756	178
63	Washington, U. S. A.	El Gau-Son64 x 7C-Napo 63	4935	Iassul 20	3364	3999	---
	OCEANIA						
64	Manawatu, NEW ZEALAND.	Local Check (Karamu)	7790	Iassul 20	671	5406	185
	SOUTH AMERICA						
65	Buenos Aires, ARGENTINA.	LR - N10B x An_E^3	2627	Bb "S" Reselection	272	1318	471
66	Buenos Aires, ARGENTINA.	BT 2281	2233	Local Check (Not reported)	----	1580	1387
67	Rio Grande do Sul, BRAZIL.	Iassul 20	2208	El Gau-Son64 x 7C-Napo 63	200	1021	700
68	Rio Grande do Sul, BRAZIL.	Lagoa Vermelha (C-17)	2077	El Gau-Son64 x 7C-Napo 63	177	1344	970
69	Santiago, CHILE.	Jaral "S" (B)	5949	Iassul 20	2755	4535	227
70	Cundinamarca, COLOMBIA.	Cajeme 71	7599	Moti	2305	4895	350
71	Ancash, PERU.	Jaral "S" (C)	5078	Ariana 66	1565	3174	---
72	Junin, PERU.	Pitic 62	4238	UP 301	1405	2586	---
73	Colonia, URUGUAY.	Tob-8156	3163	Chenab 70	1571	2081	588

VARIETIES CONTRIBUTED BY AFRICAN COUNTRIES

EGYPT

Giza 155: Regent-Giza 139^2/Mida x Cadet. CI 12441 x $H62^2$. A grain of high test weight. It flowers in 86 days and has a height of 115 cms. It is resistant to stem and stripe rust under most conditions. Leaf rust resistance is limited in several locations. It yields well in high temperatures with good irrigation applications. White grain. (Variety 29).

ETHIOPIA

Tob-8156: 22964-3Y-5M-0Y. Mexican advanced line identified in Ethiopia as resistant to rusts and *Sept. tritici*. It is also resistant to stem rust and leaf rust in Mexico, but moderately susceptible to stripe rust. It has good yield potential, has a height of 85 cm and flowers in 82 days. Red grain. (Variety 43).

SOUTH AFRICA

3400-1-3: It looks similar in plant type to Penjamo 62, with erect leaf. It flowers in 83 days, and has a plant height of 100 cms under northern Mexican conditions. It is resistant to leaf rust but susceptible to stem rust in the Yaqui Valley (Mexico) and very susceptible to stripe rust in Middle East. White grain. (Variety 24).

SUDAN

Lee-N10B x Gb55/56: A semidwarf advanced line which flowers generally in 84 days. It is fairly resistant to stem and leaf rust. The variety WW 15 was included in Australia since the seed source was that country, however, it was brought to our attention that Sudan was the first country who released the variety on a commercial scale. White grain. (Variety 37).

TUNISIA

Ariana 66: (Kenya 338 x Etoile de Choisy). It flowers in 118 days and has a height of 110 cms. It is resistant to stem and leaf rust under Mexican conditions. Stripe rust resistance is excellent worldwide in leaf and head. Red grain. (Variety 12).

T-64-2-W: Kenya 338-Etoile de Choisy x Koudiat 17-Kt-Y. A variety which shows a high level of resistance to stem rust but a high level of susceptiblity to leaf rust under Mexican conditions. It is moderately resistant to *Septoria spp*. It flowers in 79 days and has a height of 110 cms. It is somewhat more susceptible by stripe rust and much more susceptible to leaf rust and stem rust than Ariana 66. Red grain. (Variety 4).

Soltane: = BT 2296 = Son 64 - Klein Rendidor. II-19975-68Y-1J-6Y-1J-3Y. This variety flowers in 77 days and has a height of 100 cms. It is resistant to stem rust and very susceptible to leaf rust. It combines good levels of *Septoria* resistance with tolerance to drought in some seasons in Tunisia. Red grain. (Variety 9).

BT 2288: Tacuari-Penjamo 62. A good yielding line, semidwarf with long spikes. It shows a high level of resistance to all three rusts under Mexican conditions. It flowers in 85 days and has a height of 85 cms. Red grain. (Variety 5).

BT 2281: Tzpp-Son 64 x LR 64 - Son 64/Son 64A x SK_E^3-An. This is an advanced

line showing good resistance to two rusts: stripe rust and stem rust. It is a two gene dwarf with 90 cms of height. It yields about the same as Inia 66 in North Africa. It flowers in 85 days. White grain. (Variety 23).

Zaafrane: Son 64-Klein Rendidor. 19975-68Y-1J-1Y-1J-5Y-1T. The variety originated from the same cross as Soltane. It was selected in Argentina and Mexico in subsequent generations. The final bulking was done in Tunisia. It is resistant to stem rust but susceptible to leaf and stripe rust in Mexico. It has good levels of tolerance to Septoria tritici in Tunisia. It is also a sister line of Marcos Juarez Inta and Mex 226. Red grain. (Variety 44).

VARIETIES CONTRIBUTED BY ASIAN COUNTRIES

INDIA

Moti: = HD 1949 = Pitic "S" - NP 852. This 3-gene dwarf is highly susceptible to all 3 rusts in Mexico. It has outstanding plant type with semi-erect leaf and closed crown. It has very high yield potential in a rust-free area under optimum agronomic management. It flowers in 79 days under Mexican conditions. White grain. (Variety 45).

Sonalika: II-53-288-Andes x Pitic "S" - LR 64/B4946 -A4-18-2.1-Y53 x Y50^3. II-8427-4R-1M. It is a semidwarf variety that has high yield potential and excellent grain type. It is susceptible to Septoria spp. It flowers in 87 days and has a height of 90 cms. It shows resistance to stem rust, but is susceptible to leaf rust under Mexican conditions. It is known in Pakistan as Blue Silver. It covers the second largest wheat acreage in Northern India after Kalyansona (approx. 3 million hectares). White grain. (Variety 28).

UP 301: LR 64 - Son 64. It is a triple dwarf variety that yields well in good environments. It is resistant to stem and leaf rust. It is susceptible to Septoria. It flowers in 90 days and has a height of 60 cms. White grain. (Variety 26).

PAKISTAN

Chenab 70: C-271 x Willet (E) - Son 64. PK 146-12A-4A-1A. It is a semidwarf variety with soft grain type. It is now susceptible to stripe, leaf and stem rust, under many conditions. It flowers in 86 days and has a height of 100 cms. It is very high yielding in Egypt and Pakistan under irrigated conditions. White grain. (Variety 31).

Bb "S" Reselection: = Cno "S" x Son 64 - Klein Rendidor/815). 23584-303M-0Y-IIA-8A-2304. It is an advanced line, resistant to stem rust and leaf rust in Pakistan. It is a sister line of Pari 73. It is a 3 gene dwarf which flowers in 82 days. White grain. (Variety 42).

VARIETIES CONTRIBUTED BY EUROPEAN COUNTRIES

YUGOSLAVIA

715/70: This is an advanced line produced at Zagreb, Yugoslavia, with good levels of resistance to the three rusts. It also has excellent powdery mildew resistance. It is short statured (85 cms) and very late in maturity. Red grain. (Variety 36).

VARIETIES CONTRIBUTED BY MIDDLE EASTERN COUNTRIES

IRAQ

Mexico 226: Son 64 - Kl. Rend. II 19975-68Y-1J-6Y-3J-2Y. This variety was selected in Iraq from a Mexican cross that shows a high level of resistance to stem and leaf rust. It has only moderate resistance to stripe rust. It flowers in 74 days and has a height of 90 cms under Mexican conditions. It is a sister line to M.J. Inta, Soltane and Zaafrane. Red grain. (Variety 7).

ISRAEL

(21931/Ch 53 - An x Gb 56) An 64: = Hazera 112. II-2985-5H-2H-11H. It is an advanced line selected in Israel, having high yield potential with good stripe rust resistance, but susceptible to both stem and leaf rust. It has a height of 95 cm and flowers in 85 days. Red grain. (Variety 48).

VARIETIES CONTRIBUTED BY NORTH AMERICAN COUNTRIES

MEXICO

Bb - Inia: = Torim 73. 26591-1T-7M-0Y-55Y-0M. It is one of the shortest Mexican varieties that shows a high level of resistance to stem rust. It is resistant to leaf rust and stripe rust. It flowers in 82 days and has a height of 70 cms. It is a triple dwarf with erect spikes and high test weight. White grain. (Variety 8).

Cajeme 71: = Bluebird # 4 = Cno "S" x Son 64 - Kl. Rend. /8156. II 23584-26Y-2M-3Y-2M 0Y. It was released in Mexico during 1971 as a commercial variety. It is a sister line of Yecora 70. It is a dwarf variety of 75-85 cms and flowers in 90 days. It has strong gluten. It is resistant to stem rust and moderately susceptible to leaf rust in Mexico, but leaf rust resistance is very good elsewhere, while stem and stripe rust resistance have broken down in other areas in the world. Red grain. (Variety 21).

Calidad: = Tzpp - Son 64/LR 64A - Tzpp x An_E. 22429-16M-1Y-1M-0Y. It is a Mexican variety that shows a fair level of resistance to stem rust. It flowers in 75 days and has a height of 90 cms. It has tolerance to Septoria in Tunisia. Red grain. (Variety 14).

Inia 66: Lerma Rojo 64 - Son 64. 19008-83M-100Y-100M-100Y-100C. It is a semidwarf Mexican variety and has shown excellent bread making qualities and good yield potential and high test weight. (See Table A). It shows a high level of resistance to many races of stem rust. It is susceptible to leaf rust and to stripe rust races as well as to bunt and barley yellow dwarf. It has a height of 100 cms and flowers in 80 days. Red grain. (Variety 17).

Meng-8156: = H-223-64-1Y-6C-1Y-1C-4Y-3C-1Y-2B-300Y-0Y. It is an advanced line from Mexico having high yield potential with wide adaptation. It has late maturity (average one week later than Siete Cerros). It has good levels of resistance to stem rust and leaf rust in many locations. It also has the good powdery mildew resistance of Siete Cerros, In many environments it is shorter than Siete Cerros, is more resistant to shattering. Red grain. (Variety 35).

Penjamo 62: (Frontana x Kenya 58 - Newthatch) Norin 10 Brevor. II-7078-1R-6M-1R-1M. One of the first Mexican semidwarf wheats (single dwarf). It is grown in a number of countries (Turkey has the largest acreage) and has broad adaptation. (See Table A). The spike is white, fusiform and resistant to shattering. It flowers in 82 days and has a height of 105 cms. It has adult plant resistance to leaf rust but is tolerant to stem, stripe rust and Septoria spp. Red grain. (Variety 13).

Pitic 62: Yaktana 54 x N10B-26-1C. 7064-1Y-1H-1R-2M. First semidwarf variety released in Mexico. This high yielding variety has done well in the Inter-American Nurseries, all 3 Near East-American Nurseries and continues among the best entries in ISV/YN. (See Table A). It has low test weight and susceptibility to current races of stem rust, leaf rust and stripe rust. It is being grown commercially in some countries. It flowers in 95 days and has a height of 100 cms. It is very widely adapted and yields well even under certain drought conditions. Red grain. (Variety 10)

Saric 70: = Bluebird # 3 = Cno "S" x Sonora 64 - Klein Rendidor/8156. II 23584-26Y-2M-2Y-0M. It is a Mexican triple dwarf variety of the Bluebird family (Cajeme 71, Yecora 70, Nuri 70) with strong short straw, with a good test weight and strong elastic gluten. It is resistant to stem rust, but highly susceptible to some leaf rust races, and moderately susceptible to stripe rust. Red grain. (Variety 49).

Siete Cerros 66: = Penjamo 62 "S" - Gabo 55. II 8156-1M-2R-4M. A semidwarf variety of very high yield potential and broad adaptation. (See Table A). This variety and its red seeded sister, Super X, and reselections are referred to by more than 40 names, including 8156, Kalyansona, S-227, PV-18, Indus 66, Mexipak, Laketch, etc. These are widely grown over 13 million hectares in India, Pakistan, Middle East and North Africa. It is susceptible to the 3 rusts, but continues among the highest yielding varieties in almost all locations. It has a good level of powdery mildew resistance. It also yields well under certain moisture stress conditions. White grain. (Variety 32).

Tanori 71: Son 64 - Cno "S" x Inia. 25717-11Y-3M-1Y-0M. It is an early variety like Inia 66 with strong short straw (2 gene-dwarf), red grain with very high hectoliter weight. It shows an effective level of resistance to stem and leaf rust and stripe rust in many parts of the world including Mexico, India, Pakistan and Egypt. It flowers in 85 days and has 90 cms height. It has shown high yield potential in many countries. Red grain. (Variety 2).

Tobari 66: Tzpp-Son 64A. 19201-4M-3Y-102M-100Y-101C. It is a Mexican semidwarf variety. It has excellent overall resistance to stem and leaf rust and stripe rust. It flowers in 84 days a few days later than Inia 66. Red grain. (Variety 15).

Yecora 70: = Bluebird # 2 = Cno "S" - Son 64 - Kl. Rend./8156. 23584-26Y-2M-1Y-0M. A triple dwarf variety released in Mexico during 1970. The variety is a sister line to Cajeme 71, Saric 70 and Nuri 70. It has strong straw with strong elastic gluten. It has given excellent yield in Mexico. There it is resistant to stem rust, moderately susceptible to leaf rust and Septoria. However, many leaf rust races elsewhere do not attack it. It heads in 78 days and has short strong straw with a height of 70-80 cms. The spike is white, awned, fusiform and resistant to shattering. The kernel is of medium size. White grain. (Variety 19).

U. S. A.

Chris: = Frontana - Thatcher x II 44-29-Thatcher^2 - II 53-525-1. CI 13751. A Variety developed in Minnesota with excellent quality having good resistance to stem rust with fair resistance to Septoria. Leaf rust resistance is excellent, but several stripe rust races can attack it. It is widely grown in the United States and Canada. It flowers in 91 days and has a normal height of 120 cms. Red grain. (Variety 1).

Bonanza: Pi 62 - Chris "S" x Son 64. II-19957. CI 14077. This is a variety from U.S.A. having high levels of resistance to all three rusts in Mexico and elsewhere. It also shows some level of resistance to Fusarium nivale in Toluca Valley. It has a height of 95 cms and flowers in 82 days. Bonanza was selected in a segregating F_5 population from the same cross as Ciano 67, Azteca 67, Ahome 70, Chaparral and Lapacho. Red grain. (Variety 46).

El Gaucho - Son 64 x 7 C - Napo 63: 6W00890-25-11-12-21-11-2B. An advanced line from U.S.A., having Siete Cerros plant type, resistant to all 3 rusts under Mexican conditions but very late in maturity. It has height 110 cms. It has shown some tolerance to Septoria tritici in Algeria, and also powdery mildew resistance. White grain. (Variety 39).

Era: A semidwarf variety developed by the University of Minnesota using parents Thatcher, FK58N, Pembina, Mida Kenya 117A, and Lee in a complex cross. It shows high levels of resistance to leaf and stem rust, in many parts of the world including Mexico, U.S.A. and Kenya. It flowers in 136 days and has a height of 100 cms. It is one of the major spring wheat varieties in Northern U.S.A. Fletcher and Wared are sister lines of Era. Red grain. (Variety 6).

Son 64 x Tzpp - Y54/Justin^3: = Soty - Justin^3. 70ESP29. An advanced line from U.S.A. with excellent resistance to 3 rusts. It has a plant height of 85 cms and flowers in 78 days under Mexican conditions. Red grain. (Variety 40).

VARIETIES CONTRIBUTED BY AUSTRALIA

UQ 105: = Condor "S" = WW 15^2/Pj 62 - Gb 56 x Tzpp - Nai 60. It is an advanced line having high yield potential with broad adaptation. Its plant type is very similar to WW 15 (Anza). It has good levels of resistance to leaf rust, stripe rust and Sept. tritici, but is highly susceptible to stem rust under Mexican conditions. It has a height of 85 cms and flowers in 93 days. White grain. (Variety 41).

Mexico 120: = (Pitic "S") = Yt 54 - N10B. II 7074. A three gene dwarf that has shown wide adaptability. Reported to perform well under dry conditions in Australia. Susceptible to stem, leaf and stripe rust. It shows Septoria resistance in some parts of the world. It flowers in 85 days and has a height of 60 cms under Mexican conditions. White grain. (Variety 20).

LR - N10B x An$_E$^{3}: = Mexicani = WW 15 = Karamu = Anza. This wheat was tested under several names, given in different countries, Sudan, Australia, New Zealand, California. It appears that these are very close in their disease reaction. It gives excellent yields in many environments, but it is susceptible to stem and leaf rust. In many countries stripe rust resistance is adequate. Red grain. (Variety 11).

VARIETIES CONTRIBUTED BY SOUTH AMERICAN COUNTRIES

ARGENTINA

Gaboto: Bagé 2018 x H44 - Sinvalocho Mag/Bagé 1971/37. It is one of the most important soft grained varieties in the Northern part of the Argentine wheat belt. It is considered resistant to Septoria spp., Fusarium spp., and all 3 rusts. It flowers in 103 days and has a height of 120 cms Red grain. (Variety 22).

Jaral "S" (C): Son 64 x Tzpp - Nai 60. 18889-101M-1R-3C-1T-2B-0Y. It is a promising high yielding line selected in Argentina. It flowers in 83 days and has a height of 90 cms under Mexican conditions. This has now been named Leones Inta. In two seasons leaf rust resistance was excellent and stem rust and stripe rust resistance fairly good. Red grain. (Variety 25).

Jaral "S" (B): = Son 64 x Tzpp - Nai 60. II 18889-6T-4T-2T-1T-2B. This is an advanced line from Argentina, however the original cross was made in Mexico, but the later selections until bulking were done in Argentina. It flowers in 86 days and has a height of 95 cms. It is resistant to all 3 rusts under Mexican conditions, as well as in many other wheat areas. Red grain. (Variety 30).

Marcos Juarez Inta: = Son 64 - Kl. Rend. II 19975-68Y-1J-6Y-1J-4Y-1J-0B. It is a commercial variety, having promising yield potential, and broad disease resistance to the three rusts especially leaf rust as well as Septoria tritici. The original cross was made in Mexico and subsequent selections were made in Mexico and Argentina, which resulted in its having broad adaptation. Many sister selections of this variety have been tested such as Soltane, Zaafrane and Mexico 226. It is of intermediate maturity, semidwarf with some cold tolerance, and has good kernel size, Red grain. (Variety 18).

Parana 68/1116: This is an advanced line having good level of resistance to stem rust and leaf rust. It has also some tolerance to Septoria spp. It has a height of 85 cm and flowers in 78 days. Red grain. (Variety 47).

Pato: = Tzpp - Son 64A x Nar 59. II 21974-4R-4M-2B-0Y-0P-0Y. It is a semidwarf stiff-strawed variety with resistance to all three rusts and Sept. spp. It flowers in 91 days and has a height of 90 cms under Mexican conditions. It is also resistant to water logging. The original cross was made in Mexico, and an advanced line bulk in F_6 was sent to Argentina, where it was further reselected and bulked and named "Pato" because of its unusual survival under constant flooding conditions. White grain. (Variety 16).

BRAZIL

Iassul 20: (Frontana x Kenya 58) x Colonias. A variety released in 1963. A tall variety, very resistant to Septoria spp. in many parts of the world. It has a height of 130 cms. It is resistant to leaf rust, moderately susceptible to stripe rust and is possibly a slow ruster for stem rust. It is resistant to aluminum toxicity under Brazilian conditions. Red grain. (Variety 3).

Lagoa Vermelha (C-17): = Veranopolis x Mida - N^2. A tall variety with good levels of Sept. resistance and tolerance to aluminum toxicity. It is resistant to some races of stem rust, moderately susceptible to leaf rust and highly susceptible to stripe rust under Mexican conditions. It flowers in 89 days and has good leaves. Red grain. (Variety 33).

CHILE

Huelquen: This is a widely grown commercial variety in Chile. It is tall and flowers in 75 days under Mexican conditions. It is susceptible to both, stem and leaf rust in Mexico. Stripe rust resistance is good. Red grain. (Variety 27).

COLOMBIA

Samaca 68: = Bza x AfM^2. II 13022-9B-1T-2B-1T. This is a tall variety which flowers in 84 days in Mexican conditions. It is resistant to all 3 rusts both in Mexican and Colombian conditions. Recently a leaf rust race attacked Samaca 68, in seedling stage but it remained resistant in the adult stage, indicating adult-plant resistance. This variety invariably manifests genetic necrotic spots on the leaf most probably inherited from Africa Mayo. Samaca 68 is one of the best generalized rust resistant parents for the breeding program. Red grain. (Variety 38).

Zipa 68: = F-Y48 x AfM^2. II-12924-20B-3T-2B-1T. It is a tall wheat having good levels of resistance to stripe rust and stem rust in Colombia and Mexico. It flowers in 87 days under Mexican conditions. Red grain. (Variety 34).

METHODS IN DATA PROCESSING

The coefficients of disease infection have been analyzed statistically as well as correlated with other traits (e.g., yield). However, for tabular presentation in this report, the standard rust scale notes from the first replication at each location are presented since it is easier to visualize from this the response of a particular variety. The mean rust reaction by location is presented as an index of the amount of rust at that location. Relatively low mean rust values indicate low incidence and/or virulence of the pathogen. Higher means are indicative of a higher incidence and/or virulence. These means provide a relative location comparison and a reflection of the degree of infection of that pathogen in that nursery under the environmental conditions that existed.

Other indices of varietal performance were analyzed whenever possible and are presented in the tables. Most of these values were percentages. Several indices were transformed to percent.

The variables for each variety are collected and the mean value is calculated. The yields are ranked in descending order.

The mean values for yield and other variables are obtained for each variety. Then, the mean of the means is calculated for every variable. This is called the grand mean, and is written under each variable column.

The remaining sequences for standard error of the grand mean, coefficient of variation (CV), and LSD .05 are all called analysis of variance, which has been calculated only when there are two or more replications of data.

The analysis of variance for yield illustrate the point, and this procedure is applicable for any variable of ISWYN, when it is replicated two or three times.

In the previous nursery reports, when the coefficient of variation (CV) was greater than 75%, the data for that specific variable were deleted and the column was not printed. This event occurred with variables other than yield. Wheat scientists have requested that variables with (CV) greater than 75% be printed. Consequently, we may see in some tables a few variables with high (CV). A high (CV) results from high standard error and low mean values. This occurs when data is omitted, numerous zero values are recorded, difference in estimating values for variables between replicates, or it is due to natural variation in environment. Therefore, estimated error of variances were computed directly for all traits reported. The (CV) is expressed in percentage (ratio of standard error to grand mean times 100 by square root) or, nr (where n = number of varieties and r = number of replications). The (CV) is used for observing the variation between two variables among locations.

The least significant difference (LSD) is calculated at the 5% level. The advantage of (LSD) is that it is easy to use for making comparison between two means for two locations.

Considerable insight into factors influencing yield can sometimes be gained by correlation studies. Correlations were performed on all possible pairs of factors by location using the mean value for each trait reported. Correlations were computed on the replication means rather than the raw values because some types of data were frequently reported for only one replication. The population size is fairly small for this type of analysis and some spurious correlations may be encountered. Discretion is advised in interpretation of these values. Many workers find correlation analyses interesting and useful and they are presented as part of the summary table for each location with an awareness of their limitations.

The overall location means were computed for each variable and are presented herein where the number of observations justified inclusion. With the exception of the rust data, the reported units are those used throughout this report. For arithmetic purposes the mean rust reactions were computed on the coefficient of infection values (CI). A comparison of relative CIs is suggested for selecting potentially useful rust resistant varieties. Average values of less than 10 can be considered as quite resistant while varieties with values greater than 20 might be considered susceptible.

Many problems have been encountered in the analyses and summary of these data. It has been our attempt to provide the reader with the maximum amount of usable information and yet not confuse the picture with a great deal of computation detail.

RESULTS AND DISCUSSION

Data from 73 locations representing 11 countries of Africa, 7 countries of Asia, 1 country of Central America, 9 countries of Middle East, 3 countries of North America, 1 country of Oceania and 6 countries of South America, were returned to CIMMYT for the analysis of the Ninth International Spring Wheat Yield Nursery (1972-73). The reporting locations with the corresponding table number is shown in Figure 1. The growing season and elevation at each site is presented in Figure 2.

Northern locations (Japan, Alaska, Europe) and in several countries in the Southern Hemisphere as well as locations at several higher elevations closer to the equator, plant the experiments in true spring conditions. Elsewhere the period that nurseries are in the field tend to be longer due to winter planting. North Africa, Near and Middle East as well as India and Pakistan and Southern Europe are in this situation. (See Figure 2).

Tables 1 to 73 give the performance of the varieties for grain yield as well as agronomic and disease data for each location. The tables are grouped into 8 geographic regions. The overall mean over locations for 20 variables measured is given in Table 74. Since not all the variables were measured in each location, the number of reporting locations is given on the bottom of each column in Table 74.

Grain quality data for the varieties entered in the Ninth International Spring Wheat Yield Nursery are given in Table 75. A brief description of the characteristics tested is also included.

The top variety for grain yield at all locations (73) was a Mexican line Meng-8156 with a mean average of 4286.63 kg/ha. The varieties UQ 105 (Condor), 7 Cerros, Tanori 71 and Cajeme 71, ranked second, third, fourth and fifth respectively. However, the mean yield difference between Meng-8156 (rank 1) and Cajeme 71 (rank 5) is only 129.43 kg/ha. From the above group, four were contributed by Mexico and one was contributed by Australia. Siete Cerros (Penjamo "S" x Gb 55, 8156-cross) with a yield mean of 4261.90 kg/ha and, in the 8th. ISWYN 1971-72 with 4017.30 kg/ha is the most widely grown Mexican wheat in the world.

Tanori 71 (4157.60 kg/ha and Cajeme 71 (4157.20 kg/ha) were identical for yield.

A very similar yield was observed between the 8th. and 9th. ISWYN for the variety Cajeme 71 with a mean of 3956.13 kg/ha and 4157.20 kg/ha respectively.

From the top 10 varieties six of them were contributed directly by Mexico and all are from the Mexican germplasm pool. This group represent semidwarf spring wheats having certain degree of resistance to lodging with a mean height for all locations of 73.67 cms. On the other hand the lowest 10 varieties for grain yield are mostly tall and susceptible to lodging with a mean value for height of 98.38 cms.

Four triple dwarf varieties (Mexico 120, Moti, Bb Resel. and UP 301) yielded almost the same on the average, but in the lower part of the list (rank 37, 39, 40 and 41). This very short plant type has not shown the same adaptation as the taller types in the top group.

The most susceptible varieties for stem rust were Anza, BT2288, Pitic 62, Iassul 20 and Mexico 120. Also Chenab 70 and Siete Cerros were susceptible to stem rust in several reporting locations. On the other hand excellent stem rust resistance was reported for Era, Chris, Bonanza, UP 301, Samaca 68, Jaral "S", Parana 68 y Tob-8156. The best stripe rust resistance as indicated by low coefficients of infection were Condor "S", Inia 66, Pato, BT 2281, Tobari, Tanori 71 and Zipa 68.

The best leaf rust resistance was reported for Bonanza, Era, Tobari 66, BT 2288, Bb-Inia, Marcos Juarez INTA, Chris, Bb Resel and Gaboto. As can be seen some of these varieties have resistance to more than one rust. It is encouraging to see resistance to rusts in so many different types of germplasm.

Powdery mildew resistance of varieties like Siete Cerros from the 8156-cross has been good. In this ISWYN the varieties 715/70, El Gaucho-Son 64 x 7C-Napo, Meng-8156, Era averaged lower readings than Siete Cerros.

A review of the top yielders in each location in this ISWYN shows that Siete Cerros (Cross 8156) was most frequently in first place, in particular in European tests.

Also in North West Mexico it was the top performer in the 8th and 9th ISWYN.

A cross of 8156 with the Australian variety Mengavi (Variety 35) has also occupied the highest rank in many tests: Angola, South Korea, Nepal, Jordan, North West Mexico (earlier planting) and in Montana, U.S.A. This represents an enormous altitude, and longitude range. The variety is somewhat later in maturity than cross 8156, (Siete Cerros, Kalyansona) but tends to have better stem rust resistance.

A third wheat with top performance in many locations is LR-N10B x An_E^3, now known as Mexicani, WW15, Anza and Karamu. It occupied the first place in South Africa, Sudan, Tunisia, Argentina and New Zealand. In the 8th. ISWYN it was also the top yielder in Alaska.

A cross of LR-N10B x An_E^3 and Pj 62 - Gb 56 x Tzpp - Nai 60 made in Australia now named Condor "S" (UQ 105) has also shown very good results in places such as Libya, Gujarat India, Saskatchewan and Coastal Lebanon.

Chenab 70 from Pakistan was six times the top yielder in the 8th ISWYN. However, in the 9th. ISWYN it was the first in only one location in Pakistan.

The Bluebird varieties Cajeme 71 and Yecora 70 ranked first in seven tests, especially

where conditions were favorable for very high yields i.e. Egypt, Rhodesia and Colombia for Cajeme 71 and in Israel for Yecora 70.

The local check Borah in Idaho outyielded all entries. In Schleswig-Holstein, West Germany the check yielded over 10 tons per hectare. In the 8th ISWYN Minnesota (Variety II-64-33) West Germany, (Variety Kolibri) Holland, (Variety Toro) and Norway (Variety Funer) showed the local checks to be the top yielder.

It is of interest to mention some varieties that have frequently been in the last position for yield.

In 1972-73 IASSUL 20 was in 20 tests the lowest yielding variety, and Ariana 66 in 14 locations. Other varieties in the lowest place have been El Gaucho-Son 64 x 7C-Napo 63 and Lagoa Vermelha.

In the 8th ISWYN (1971-72) Manitou and Manitou (daylength insensitive) were on the bottom of the variety list in 34 out of 83 locations around the world. Iassul 20 was again the lowest in many tests (11) and Ariana 66 (11 times). Daylength sensitivity and/or cold temperature requirement are involved in many of these responses.

In the 9th ISWYN Manitou was not included, except as the check variety in Saskatchewan, where it was in bottom place. (Table 50).

TECHNOLOGICAL GRAIN QUALITY CHARACTERISTICS OF THE WHEATS VARIETIES ENTERED IN THE NINTH INTERNATIONAL SPRING WHEAT YIELD NURSERY 1972 - 1973

The CIMMYT Wheat Technology laboratory has determined a number of flour characteristics for many years. Seed for the flour tests for the 9th. ISWYN was obtained from Yaqui Valley, 1972-73 Mexico. This area is an irrigation district where intensive agronomic management is common. (See Table 53 for description of location).

Table 75 presents information on various flour characteristics of the 49 entries of the 9th. ISWYN and the standard check flour, Gold Medal. A short description of each measured characteristic follows, for those wheat scientists not very familiar with wheat technology methods.

TEST WEIGHT

Grain density is commonly measured as the weight (kilograms) per volume (in Hectoliters). For cooperators more accustomed to test weight expressed in pounds per bushel, 75 Kg/Hl is roughly equivalent to 60 Lbs/bu. Seed size and 1000 kernel weight are related to test weight values.

MICRO-PELSHENKE (PK)

This test, sometimes referred to as the wheat meal fermentation-time test, is used to determine

gluten strength. It is based on the time needed for gas developed by yeasting to break free from a ball made with 3 gr. of whole wheat flour having a certain strength due to its gluten characters. Lines with values of more than 100 minutes can be considered as having strong gluten.

SEDIMENTATION

Like the micro-Pelshenke test, the sedimentation value is largely influenced by the quality of the grain protein. Sedimentation values of 30 cc are typical of lines with weak gluten while values of 40 cc or above suggest strong gluten.

FLOUR YIELD

The relative milling capacity of different selections is expressed as the percentage flour yield from a known quantity of grain. This important figure is related to the test weight of the seed lot. shrivelled samples tend to have lower flour yield.

PROTEIN

Nitrogen determination was performed in the samples by the Kjeldahl method and the Nitrogen values were multiplied by 5.7, the factor for the conversion of N to protein.

ALVEOGRAM

The gluten characteristics of tenacity and extensibility are determined by the alveogram method. Dough tenacity or resistance to extension is expressed as "P" and dough expansion or extensibility is indicated by "G". The rates "P/G can be used as a guide in selecting bread wheats of well balanced gluten in both soft and hard wheats. The area under the alveogram curve is indicated as "W" and gives an indication of gluten strength. Bread wheats with "W" values about 300 are considered to have strong gluten. Wheats of less than 200 have weak gluten.

MIXING TIME

Bakers like to have flours that require fair periods of mixing. The time in minutes required for mixing dough to optimum consistency, identifies those lines with desirable characteristics for bread making. A certain amount of flour is mixed with water to develop a curve and the time needed to reach the highest point of the curve is recorded as mixing time. Very short or very long mixing time are undesirable.

WATER ABSORPTION

To obtain the loaf volume a certain amount of water was added. This quantity of water required is given in percent.

LOAF VOLUME

This is the final baked bread volume measured in cubic centimeters, from 100 grams of flour as determined by the standard methods described by the American Association of Cereal Chemists. Strong gluten wheats tend to have high loaf volume, while soft wheats usually give smaller loaves and are more often used for pastry or other products.

RESULTADOS DEL NOVENO ENSAYO INTERNACIONAL DE TRIGOS DE PRIMAVERA (9o. ISWYN)

1972 - 1973

RESUMEN

El noveno Ensayo Internacional de Rendimiento de Trigos de Primavera (ISWYN) estuvo compuesto por 50 variedades de trigo de primavera, representantes de los principales tipos de trigos de primavera. Los datos, procedentes de 73 localidades ubicadas en las regiones productoras de trigos de primavera de todo el mundo, incluyeron rendimiento, características agronómicas y reacción a las enfermedades. Se presentan aquí los resúmenes por localidad, con el análisis estadístico para todas las características que se midieran en cada localidad que envió datos. Los trigos más productivos fueron Meng-8156, Condor (UQ 105), Siete Cerros (cruza 8156), Tanori 71 y Cajeme 71.

INTRODUCCION

El Ensayo Internacional de Rendimiento de Trigos de Primavera constituye un vehículo mediante el cual las variedades de varios países se pueden probar a nivel mundial con respecto a amplia adaptabilidad. Los resultados dan en un año la misma información que la que se obtendría de pruebas realizadas durante muchos años dentro de los programas nacionales. Cuando las variedades se comportan bien en una amplia gama de condiciones, el fitomejorador de cualquier país puede seleccionar variedades para usarlas directamente en programas de producción o emplearlas en programas de mejoramiento con mucha mayor confianza, siempre y cuando la variedad en particular se comporte bien en ese país. Puede esperarse que tales variedades produzcan bien bajo las diferentes condiciones climáticas que se presentan de un año a otro.

Por ejemplo, las variedades mexicanas semienanas y enanas han logrado una cierta prominencia en la mayoría de las regiones productoras de trigo del mundo. El Ensayo Internacional de Rendimiento de Trigos de Primavera (ISWYN) ha sido un importante medio para demostrar la adaptabilidad de los trigos de tipo mexicano.

Algunas pruebas a nivel regional habían indicado a principios de la década de 1960 que ciertas líneas tenían una daptación amplia. En 1964, el primer ensayo de rendimiento de tipo mundial fue enviado a algunos países seleccionados.

Este tipo de ensayos continúa suministrando a los participantes y fitomejoradores interesados:

I Información básica e intercambio de resultados sobre trigos de primavera importantes
II Material progenitor para trabajo de cruzamientos (fuentes de resistencia)
III Posibles nuevas variedades para países con programas limitados
IV Una medida del avance de los programas nacionales e internacionales.

El ensayo puede considerarse como medio para alcanzar mayores niveles de rendimiento que los obtenidos con las variedades mexicanas.

Cada año se solicita a los fitomejoradores de los países cooperadores que envíen dos kilogramos de semilla de sus materiales más promisorios para su posible inclusión en este ensayo. Todos los materiales recibidos se siembran en parcelas de multiplicación de semilla en Ciudad Obregón, donde se evalúan sus posibilidades de entrada al ISWYN. La selección se hace con respecto a adecuacidad, a la vez que se procura que estén representados tantos países como sea posible. Cada año se siembran un número de entradas mucho mayor que el que se pueda incluir en el ensayo. Por consiguiente, el CIMMYT no puede incluir en él todas las variedades que recibe. En el ensayo figuran ciertos testigos por períodos largos, en tanto que se sacan otros ya probados por algunos años para dar oportunidad a nuevas entradas.

Trigos ampliamente adaptados tales como Pitic 62 y Siete Cerros (Mexipak, Kalyansona) han sido incluidos desde el principio, y continúan figurando entre los más rendidores, pese a su creciente susceptibilidad a las royas. El cuadro A muestra el rendimiento medio de grano y la posición promediados sobre una amplia gama de condiciones ambientales para las variedades que entraron en cinco Ensayos Internacionales de Trigos de Primavera consecutivos.

CUADRO A. Media y posición de rendimiento de grano en kg/ha para cada una de las variedades incluídas en cinco Ensayos Internacional de Rendimiento de Trigos de Primavera consecutivos. 1966-67

VARIEDAD	ORIGEN	3er. ISWYN 1966-67 62 Loc.		4o. ISWYN 1967-68 63 Loc.		5o. ISWYN 1968-69 63 Loc.		6o. ISWYN 1969-70 60 Loc.		7o. ISWYN 1970-71 67 Loc.		Posición Promedio 315 Loc.
		RENDIMIENTO EN KILOGRAMOS POR HECTAREA Y RANGO										
Pitic 62	MEXICO	3500	1	3499	2	3032	3	3289	6	3902	7	3.8
Siete Cerros	MEXICO	3203*	8	3485	3	3016	4	3301	4	3931	5	4.8
Penjamo 62	MEXICO	3407	3	3474	4	3055	1	3273	9	3824	15	6.4
Inia 66	MEXICO	3355	5	3502	1	2937	6	3307	3	3691	24	7.8
Lerma Rojo 64	MEXICO	3461	2	3225	15	2917	7	3138	15	3751	18	11.4
Tobari 66	MEXICO	3178	10	3275	11	2849	12	3296	5	3691	25	12.6
Nainari 60	MEXICO	3244	7	3214	17	2833	15	3049	19	3541	32	18.0
Crespo 63	COLOMBIA	3259	6	3215	16	2743	20	3501	18	3581	30	18.0
Huelquen	CHILE	3058	10	3157	19	2804	16	3015	20	3487	36	20.2
Napo 63	COLOMBIA	3149	12	3230	14	2733	21	2969	22	3416	39	21.6
Bonza 55	COLOMBIA	2770	28	2933	26	2301	36	2519	36	3021	44	34.0
C-306	INDIA	2853	23	2631	33	2519	32	2312	43	2899	46	35.4
Carazinho	BRASIL	2610	36	2708	32	2246	40	2501	37	2929	45	38.2
Gaboto	ARGENTINA	2634	34	2532	40	2264	38	2310	44	3039	43	39.8
Chris	E.U.A.	2488	43	2404	44	2244	41	2281	46	2823	48	44.4
Selkirk	CANADA	2019	48	1974	49	1628	48	1737	49	2307	50	48.8

* = Penjamo Sib-Gabo 55 en 1966-1967

La estupenda cooperación recibida de todos los participantes en los ensayos internacionales de rendimiento ha propiciado una constante expansión en el tamaño, número y tipo de los ensayos. El cuadro B muestra el número de los diferentes materiales (ensayos de rendimiento, viveros de selección, materiales segregantes y líneas avanzadas) enviados por el Departamento de Ensayos Internacionales de los Programas de Trigo, Cebada y Triticale de 1970 a 1974. Todo este germoplasma fue iniciado por los ISWYN.

CUADRO B. Incremento en el número de experimentos y ensayos de trigos harineros, trigos cristalinos, cebada y triticale de 1970 a 1974.

	1970	1971	1972	1973	1974
TRIGO HARINERO	301	243	358	630	671
TRIGO DURO	82	138	134	248	264
TRITICALE	52	82	145	221	329
CEBADA				41	80
Totales:	435	463	637	1140	1344

Para dar una apreciación somera sobre el comportamiento de las variedades en cada localidad, en el Cuadro C se nuestran el rendimiento de grano de las variedades con el mayor y menor rendimiento, la gran media para cada localidad (la media de las medias de todas las variedades en kg/ha) y la precipitación de cada localidad en mm, para las variedades reportadas.

MATERIALES Y METODOS

Para el Noveno Ensayo Internacional de Rendimiento de Trigos de Primavera se seleccionaron 49 variedades, que representan a las principales regiones productoras de trigo de primavera del mundo. La semilla se multiplicó durante el ciclo 1971-72 en el Centro de Investigaciones Agrícolas del Noroeste (CIANO), Sonora, México. Las observaciones hechas en el CIANO sobre altura de plantas, días a la floración y resistencia a enfermedades se utilizaron en la descripción de las variedades. La semilla se trató con una mezcla de Vitavax (marca registrada para 5, 6-dihidro-2, metil 1, 4 Oxathiin-3-carboxanilida) y Tillantina (Fenil acetado mercúrico - 0.2%, Lindano-0.4%, inerte-97.6%) antes de empacarse. En cada caja se incluyeron instrucciones para el manejo de los ensayos internacionales de rendimiento, las notas generales que habrían de tomar se, y las hojas para anotar los datos. Todas las cajas de semillas se enviaron desde México por vía área.

El ensayo consistió de un diseño de bloques completamente al azar con tres repeticiones. Las parcelas fueron de seis hileras de 2.5 m de largo, con un espaciamiento de 30 cm entre hileras (algunos cooperadores cambiaron el tamaño de las parcelas). Los ensayos se llevaron a cabo tanto bajo condiciones de riego como de temporal, con y sin fertilizantes. Las localidades estuvieron ubicadas entre los 40° de latitud Sur y 55° de latitud Norte, y desde elevaciones de 5 m bajo el nivel del mar hasta 2640 m sobre el nivel del mar. En los cuadros se presenta la información sobre latitud, humedad, nivel de fertilización y otros datos para cada localidad, en la medida en que se dispuso de esta información.

CUADRO C. Posición por rendimiento de grano, gran media y humedad por localidad para el Noveno Ensayo Internacional de Trigos de Primavera. (1972-73)

No. de tabla y localidad		VARIEDAD SUPERIOR Nombre	Rendimiento kg/ha	VARIEDAD INFERIOR Nombre	Rendimiento kg/ha	Gran media	Humedad mm
	AFRICA						
1	Argel, ARGELIA	-----	----	-----	----	----	---
2	Setif, ARGELIA	Jaral "S" (C)	4808	Iassul 20	2366	3816	547
3	Huambo, ANGOLA	Meng-8156	4288	Ariana 66	1066	2783	464
4	Bahtim, EGIPTO	Cajeme 71	7843	Chris	3382	5781	---
5	Sakha, EGIPTO	Cajeme 71	7538	LR - N10B x An_E^3	2144	5640	200
6	Shoa, ETIOPIA	Cajeme 71	2903	Ariana 66	958	1807	---
7	Valle del Rift, KENYA	Inia 66	3285	Mexico 120	75	1263	496
8	Tripoli, LIBIA	UQ 105 = Condor "S"	5410	Chenab 70	0	3466	350
9	Kenitra, MARRUECOS	Parana 68/1116	2105	El Gau-Son64 x 7C-Napo 63	0	1490	340
10	Marrakech, MARRUECOS	Sonalika	6548	Iassul 20	1419	4735	146
11	Salisbury, RODESIA	Cajeme 71	6971	Iassul 20	2380	5098	730
12	Transvaal, SURAFRICA	LR - N10B x An_E^3	5055	Iassul 20	2128	3906	816
13	Prov. del Nilo Azul, SUDAn	LR - N10B x An_E^3	3920	El Gau-Son64 x 7C-Napo 63	662	3051	---
14	Kassala, SUDAN	Local Check (Not reported)	4250	El Gau-Son64 x 7C-Napo 63	947	3360	---
15	Beja, TUNISIA	LR - N10B x An_E^3	5600	Iassul 20	2500	4155	---
	ASIA						
16	Kabul, AFGANISTAN	Bb - Inia	5168	Ariana 66	530	3658	379
17	Dacca, BANGLADESH	Mexico 226	2369	Lagoa Vermelha (C-17)	547	1305	432
18	Gujarat, INDIA	UQ 105 = Condor "S"	3891	El Gau-Son64 x 7C-Napo 63	615	2790	---
19	Maharastra, INDIA	Soltane	3699	Ariana 66	612	2408	---
20	Nueva Delhi, INDIA	Tcb-8156	4492	El Gau-Son64 x 7C-Napo 63	0	3255	---
21	Rajasthan, INDIA	Tanori 71	5398	Era	0	3798	174
22	Hokkaido, JAPON	3400-1-3	4054	Ariana 66	1934	3259	260
23	Kwang Ju, COREA DEL SUR	Meng-8156	6499	BT 2288	2576	4325	820
24	Kathmandu, NEPAL	Meng-8156	6659	Lagoa Vermelha (C-17)	3517	5039	187
25	Punjab, PAKISTAN	Yecora 70	7021	Lagoa Vermelha (C-17)	1833	4695	508
26	Sind, PAKISTAN	Chenab 70	4409	El Gau-Son64 x 7C-Napo 63	1133	2995	---
	CENTROAMERICA						
27	Quenzaltenango, GUATEMALA	Soltane	4547	Ariana 66	0	3080	867
	EUROPE						
28	Tolburkhin, BULGARIA	Tob-8156	4000	LR - N10B x An_E^3	2222	3188	199
29	Cambridgeshire, INGLATERRA	Pitic 62	8063	Mexico 120	3130	6332	229
30	Seine et Marne, FRANCIA	Siete Cerros 66	4202	Iassul 20	2407	3514	69
31	Schleswig-Holstein, ALEMANIA F.	Local Check (Not reported)	10208	Mexico 120	5333	7937	329
32	Roma, ITALIA	Siete Cerros 66	6613	Lagoa Vermelha (C-17)	3180	5221	385
33	Alentejo, PORTUGAL	Siete Cerros 66	5445	Iassul 20	2239	4551	351
34	Jud. Cluj, RUMANIA	(21931/Ch53-An x Gb56)An 64	4383	Ariana 66	1494	2808	316
35	Landskrona, SUIZA	Siete Cerros 66	6783	Mexico 120	2216	4619	203
36	Croatia, YUGOESLAVIA	Iassul 20	2566	Parana 68/1116	1333	1954	238
37	Voyvodina, YUGOESLAVIA	Siete Cerros 66	5950	Ariana 66	2550	4474	240

Cont. Cuadro C.

No. de tabla y localidad		VARIEDAD SUPERIOR Nombre	Rendimiento kg/ha	VARIEDAD INFERIOR Nombre	Rendimiento kg/ha	Gran media	Humedad mm
	MEDIO ORIENTE						
38	Gorgan, IRAN	Moti	6721	Iassul 20	3321	5600	384
39	Kuzestan, IRAN.	Siete Cerros 66	4599	Iassul 20	1999	3393	147
40	Baghdad, IRAQ.	Tanori 71	5300	Iassul 20	916	3787	400
41	Sulaimaniya, IRAQ.	Pitic 62	2721	Iassul 20	955	1981	662
42	R.D.S. de Gat., ISRAEL	Yecora 70	9674	Iassul 20	2621	7396	322
43	Jordan, JORDAN.	Meng-8156	6266	Iassul 20	622	3664	187
44	Beirut, LIBANO	Bb "S" Reselection	2620	Zipa 68	439	1574	375
45	Prov. de la Costa Norte, LIBANO	UQ 105 = Condor "S"	6586	Lagoa Vermelha (C-17)	2197	4958	500
46	Adana, TURQUIA	Pitic 62	4583	Zaafrane	1183	3337	324
47	Adapazari, TURQUIA	T-64-2-W	7432	Parana 68/1116	3910	5751	296
48	Eskisehir, TURQUIA	Jaral "S" (C)	6566	Ariana 66	841	4731	594
	NORTEAMERICA						
49	Manitoba, CANADA.	Cajeme 71	4722	Ariana 66	0	3579	290
50	Saskatchewan, CANADA.	UQ 105 = Condor "S"	3566	Local Check (Manitou)	2282	3060	157
51	Mexico, El Batán, MEXICO.	Tanori 71	4833	Local Check (Not reported)	----	3007	---
52	Mexico, Toluca-Atizapan, MEXICO.	-----	----	-----	----	----	---
53	Sinaloa, C.I.A.S., MEXICO.	Meng-8156	7389	Iassul 20	2679	4919	---
54	Sonora, C.I.A.N.O., MEXICO.	Meng-8156	8458	Era	3423	5831	110
55	Sonora, C.I.A.N.O., MEXICO.	Siete Cerros 66	7924	Iassul 20	3028	6115	110
56	Alaska. E.U.A.	Siete Cerros 66	1434	Parana 68/1116	482	921	184
57	Arizona, E.U.A.	Siete Cerros 66	6717	Iassul 20	2538	4860	---
58	California, E.U.A.	Tanori 71	4950	Giza 155	2099	3747	850
59	Colorado, E.U.A.	Era	3560	Bb "S" Reselection	1726	2592	250
60	North Dakota, E.U.A.	3400-1-3	8146	Ariana 66	3048	6663	203
61	Idaho, E.U.A.	Local Check (Borah)	7436	Iassul 20	3074	5960	---
62	Montana, E.U.A.	Meng-8156	4527	Ariana 66	0	3756	178
63	Washington, E.U.A.	El Gau-Son64 x 7C-Napo 63	4935	Iassul 20	3364	3999	---
	OCEANIA						
64	Manawatu, NUEVA ZELANDIA	Local Check (Karamu)	7790	Iassul 20	671	5406	185
	SUDAMERICA						
65	Buenos Aires, ARGENTINA	LR - N10B x An_E^3	2627	Bb "S" Reselection	272	1318	471
66	Buenos Aires, ARGENTINA	BT 2281	2233	Local Check (Not reported)	----	1580	1387
67	Rio Grande do Sul, BRASIL	Iassul 20	2208	El Gau-Son64 x 7C-Napo 63	200	1021	700
68	Rio Grande do Sul, BRASIL	Lagoa Vermelha (C-17)	2077	El Gau-Son64 x 7C-Napo 63	177	1344	970
69	Santiago, CHILE	Jaral "S" (B)	5949	Iassul 20	2755	4535	227
70	Cundinamarca, COLOMBIA	Cajeme 71	7599	Moti	2305	4895	350
71	Ancash, PERU	Jaral "S" (C)	5078	Ariana 66	1565	3174	---
72	Junin, PERU	Pitic 62	4238	UP 301	1405	2586	---
73	Colonia, URUGUAY	Tob-8156	3163	Chenab 70	1571	2081	588

VARIEDADES APORTADAS POR PAISES AFRICANOS

EGIPTO

Giza 155: Regent-Giza 139^2/Mida x Cadet. CI 12441 x $H62^2$. Variedad con grano de alto peso hectolítrico. Florece a los 86 días y tiene una altura de 115 cm. Es resistente a las royas del tallo y lineal bajo la mayoría de las condiciones. Su resistencia a la roya de la hoja es limitada en varias localidades. Rinde bien en zonas con altas temperaturas con buena irrigación. Tiene grano blanco. (Variedad 29).

ETIOPIA

Tob-8156: 22964-3Y-5M-0Y. Línea mexicana avanzada identificada en Etiopía como resistente a las royas y a Septoria tritici. También es resistente a la roya del tallo y de la hoja en México, pero es moderadamente susceptible a la roya lineal. Tiene buen potencial de rendimiento, una altura de 85 cm, y florece a los 82 días. Es de grano rojo. (Variedad 43).

SUDAFRICA

3400-1-3: Línea con tipo de planta similar a Pénjamo 62 y con hojas erectas. Florece a los 83 días, y tiene una altura de 100 cm bajo las condiciones del norte de México. Es resistente a la roya de la hoja pero susceptible a la roya del tallo en el Valle del Yaqui (México), y muy susceptible a la roya lineal en el Medio Oriente. Tiene grano blanco (Variedad 24).

SUDAN

Lee-N10B x Gb55/56: Línea avanzada semienana que florece generalmente a los 84 días. Es moderadamente resistente a la royas del tallo y de la hoja. La variedad WW 15 fue incluída en Australia dado que la fuente de semilla procedía de ese país; sin embargo, llamó la atención que Sudán fuese el primer país que lanzó la variedad a escala comercial. Tiene grano blanco. (Variedad 37).

TUNEZ

Ariana 66: (Kenya 338 x Etoile de Choisy). Florece a los 118 días y tiene una altura de 110 cm. Es resistente a la roya del tallo y a la roya de la hoja bajo las condiciones de México. Su resistencia a la roya lineal es excelente a nivel mundial, tanto en la hoja como en la espiga. Tiene grano rojo. (Variedad 12).

T-64-2-W: Kenya 338-Etoile de Choisy x Koudiat 17-Kt-Y. Variedad que muestra un alto nivel de resistencia a la roya del tallo pero un alto nivel de susceptibilidad a la roya de la hoja bajo las condiciones de México. Es moderadamente resistente a Septoria spp. Florece a los 79 días y tiene una altura de 110 cm. Es algo más susceptible a la roya lineal y mucho más susceptible a la roya de la hoja y del tallo que Ariana 66. Tiene grano rojo. (Variedad 4).

Soltane: = BT 2296 = Son 64 - Klein Rendidor. II-19975-68Y-1J-6Y-1J-3Y. Variedad que florece a los 77 días y que tiene una altura de 100 cm. Es resistente a la roya del tallo y muy susceptible a la roya de la hoja. En algunas estaciones en Túnez combina los buenos niveles de resistencia a Septoria con tolerancia a sequía. Tiene grano rojo. (Variedad 3).

BT 2288: Tacuari-Pénjamo 62. Línea de buen rendimiento, semienana con espigas largas. Muestra un alto nivel de resistencia a las tres royas bajo las condiciones de México.

Florece a los 85 días y tiene una altura de 85 cm. Es de grano rojo (Variedad 5).

BT 2281: Tzpp-Son 64 x LR 64- Son 64/Son 64A x SK_E^3 -An. Línea avanzada que muestra buena resistencia a la roya del tallo y a la roya lineal. Es doble enana y tiene 90 cm de altura. En el Norte de Africa rinde casi lo mismo que Inia 66. Florece a los 85 días. Tiene grano blanco. (Variedad 23).

Zaafrane: Son 64-Klein Rendidor. 19975-68Y-IJ-IY-IJ-5Y-1T. Variedad originada de la misma cruza que Soltane. Fue seleccionada en Argentina y México en generaciones subsecuentes. El incremento final se hizo en Túnez. Es resistente a la roya del tallo pero susceptible a la roya de la hoja y a la roya lineal en México. Tiene buenos niveles de tolerancia a Septoria tritici en Túnez. Es también una línea hermana de Marcos Juárez Inta y Mex 226. Tiene grano rojo. (Variedad 44).

VARIEDADES APORTADAS POR PAISES ASIATICOS

INDIA

Moti: = HD 1949 = Pitic "S" - NP 852. Variedad triple enana altamente susceptible a las tres royas en México. Tiene un tipo de planta sobresaliente, con hojas semierectas y corona cerrada. Tiene un potencial de rendimiento muy alto en las regiones libres de royas y bajo manejo agrónomico óptimo. Florece a los 79 días bajo las condiciones de México. Tiene grano blanco (Variedad 45).

Sonalika: II-53-288-Andes x Pitic "S" - LR 64/B4946 -A4-18-2.1-Y53 x $Y50^3$. II-8427 4R-1M. Variedad semienana con alto potencial de rendimiento y un excelente tipo de grano. Florece a los 87 días y tiene una altura de 90 cm. Es susceptible a Septoria spp, muestra resistencia a la roya del tallo, pero es susceptible a la roya de la hoja bajo las condiciones de México. En Pakistá se le conoce como Blue Silver. Ocupa el segundo lugar, después de Kalyansona en cuanto a extensión sembrada en el norte de India (Aprox. 3 millones de hectáreas). Tiene grano blanco. (Variedad 28).

UP 301: LR 64 - Son 64. Variedad triple enana que rinde bien bajo buenas condiciones ambientales. Es resistente a la roya del tallo y a la roya de la hoja, pero es susceptible a Septoria. Florece a los 90 días y tiene una altura de 60 cm. Es de grano blanco. (Variedad 26).

PAKISTAN

Chenab 70: C-271 x Willet (E) - Son 64. PK 146-12A-4A-1A. Variedad semienana con grano de tipo suave. Es ahora susceptible a las tres royas bajo muchas condiciones. Florece a los 86 días y tiene una altura de 100 cm. Es muy rendidora en Egipto y Pakistán bajo condiciones de riego. Tiene grano blanco. (Variedad 31).

Reselección Bb "S": = Cno "S" x Son 64 - Klein Rendidor/8156. 23584-303M-0Y-IIA-8A-2304. Línea avanzada triple enana, hermana de la línea Pari 73. Es resistente a la roya del tallo y de la hoja en Pakistán. Florece a los 82 días y tiene grano blanco. (Variedad 42).

VARIEDADES APORTADAS POR PAISES EUROPEOS

YUGOSLAVIA

715/70: Línea avanzada obtenida en Zagreb, Yugoslavia. Tiene buenos niveles de re-

sistencia a las tres royas, y una excelente resistencia al mildiú polvoriento. Es de madurez muy tardía y tiene una altura de 85 cm. Es de grano rojo. (Variedad 36).

VARIEDADES APORTADAS POR PAISES DEL MEDIO ORIENTE.

IRAK

México 226: Son 64 - Kl. Rend. II 19975-68Y-1J-6Y-3J-2Y. Variedad seleccionada en Irak a partir de cruzas mexicanas. Es una línea hermana de M. J. Inta, Soltane y Zaafrane. Muestra un alto nivel de resistencia a las royas del tallo y de la hoja, y sólo una resistencia moderada a la roya lineal. Florece a los 74 días y tiene una altura de 90 cm bajo las condiciones de México. Es de grano rojo. (Variedad 7).

ISRAEL.

(21931/Ch 53 - An x Gb 56) An 64: = Hazera 112. II-2985-5H-2H-11H. Línea avanzada seleccionada en Israel, con un alto potencial de rendimiento. Tiene buena resistencia a la roya lineal, pero es susceptible a la roya del tallo y de la hoja. Florece a los 85 días y tiene una altura de 95 cm. Es de grano rojo. (Variedad 48).

VARIEDADES APORTADAS POR PAISES DE NORTEAMERICA

MEXICO

Bb - Inia: Torim 73. 26591 - 1T-7M-0Y-55Y-0M. Una de las variedades mexicanas triple enanas de paja más corta, con espigas erectas y un grano de alto peso hectolítrico. Muestra un alto nivel de resistencia a la roya del tallo. Es resistente a la roya de la hoja y lineal. Florece a los 82 días y tiene una altura de 79 cm. Es de grano blanco. (Variedad 8).

Cajeme 71: = Bluebird # + = Cno "S" x Son 64-Kl. Rend./8156. II 23584-26Y-2M-3Y-2M 0Y. Se lanzó en México en 1971 como variedad comercial. Es una línea hermana de Yécora 70. Es triple enana, de 75-85 cm. de altura. Florece a los 90 días. Tiene gluten fuerte. Es resistente a la roya del tallo y moderadamente susceptible a la roya de la hoja en México, y aunque su resistencia a la roya de la hoja es muy buena en otros países ha perdido su resistencia a la roya del tallo y lineal en varias áreas del mundo. Tiene grano rojo. (Variedad 21).

Calidad: = Tzpp - Son 64/LR 64A - Tzpp x An_E. 22429-16M-1Y-1M-0Y. Variedad mexicana que muestra un nivel regular de resistencia a la roya del tallo. En Túnez es tolerante a Septoria. Florece a los 75 días y tiene una altura de 90 cm. Es de grano rojo. (Variedad 14).

Inia 66: Lerma Rojo 64 - Son 64. 19008-83M-100Y-100M-100Y-100C. Variedad mexicana semienana que muestra una excelente calidad panadera, buen potencial de rendimiento y alto peso hectolítrico (vease el Cuadro A). Tiene alto nivel de resistencia a muchas razas de roya del tallo. Es susceptible a muchas razas de royas de la hoja y lineal, al carbón y al achaparramiento amarillo de la cebada. Florece a los 80 días y tiene una altura de 100 cm. Es de grano rojo. (Variedad 17).

Meng - 8156: = H-223-64-1Y-6C-1Y-1C-4Y-3C-1Y-2B-300Y-0Y. Línea mexicana avanzada que muestra un alto potencial de rendimiento y una amplia adaptación. Tiene madurez tardía (en promedio una semana más tarde que Siete Cerros). Tiene buenos niveles de resistencia a las royas del tallo y de la hoja en muchas localidades, y tiene también la buena resistencia de Siete Cerros al mildiú polvoriento. Bajo muchas condiciones ambientales es más corta que

Siete Cerros y más resistente al desgrane. Tiene grano rojo. (Variedad 35).

Pénjamo 62: (Frontana x Kenya 58 - Newthatch) Norin 10 Brevor. II-7078-1R-6M-1R 1M. Uno de los primeros trigos semienanos mexicanos (simple enano). Tiene una amplia adaptación (ver Cuadro A), y se le cultiva en numerosos países (Turquía tiene la mayor superficie). Tiene la espiga blanca, fusiforme y resistente al desgrane. Florece a los 82 días y tiene una altura de 105 cm. Tiene resistencia de planta adulta y a la roya de la hoja, y es tolerante a las royas del tallo y lineal, y a Septoria spp. Es de grano rojo. (Variedad 13).

Pitic 62: Yaktana 54 x N10B-26-1C. 7064-1Y-1H-1R-2M. Primera variedad semienana lanzada en México. Esta variedad de alto rendimiento ha tenido buen comportamiento en los ensayos interamericanos, en los tres Ensayos Cercano Oriente-Americanos y continúa figurando entre las mejores entradas en el ISWYN (ver Cuadro A). Tiene un peso hectolítrico bajo. Es susceptible a las razas prevalentes de la roya del tallo, de la hoja y lineal. Florece a los 95 días y tiene una altura de 100 cm. Tiene amplia adaptación y rinde bien bajo ciertas condiciones de sequía. Todavía se le siembra comercialmente en algunos países. Es de grano rojo. (Variedad 10

Saric 70: = Bluebird # 3 = Cno "S" x Sonora 64 - Klein Rendidor/8156. II 23584-26Y-2M-2Y-0M. Variedad triple enana mexicana de la familia de los Bluebird (Cajeme 71, Yecora 70, Nuri 70) de paja corta y fuerte, con buen peso hectolítrico y gluten elástico y fuerte. Es resistente a la roya del tallo, pero altamente susceptible a algunas razas de roya de la hoja, y moderadamente susceptible a la roya lineal. Tiene grano rojo. (Variedad 49).

Siete Cerros 66: = Pénjamo 62 "S" - Gabo 55. II 8156-1M-2R-4M. Variedad semienana de muy alto potencial de rendimiento y amplia adaptación (ver Cuadro A). Esta variedad y su hermana de grano rojo, Super X, y algunas reselecciones se conocen con más de 40 nombres, entre otros 8156, Kalyansona, S-227, PV-18, Indus 66, Mexipak, Laketch, etc. que se siembran ampliamente en más de 13 millones de hectáreas en India, Pakistán, Medio Oriente y Africa del Norte. Es susceptible a las tres royas, pero prosigue figurando entre las variedades de mayores rendimientos en casi todas las localidades. Tiene un buen nivel de resistencia al mildiú polvoriento. También rinde bien bajo ciertas condiciones de sequía. Es de grano blanco. (Variedad 32).

Tanori 71: Son 64 - Cno "S" x Inia. 25717-11Y-3M-1Y-0M. Es una variedad precoz como Inia 66, doble enana de paja corta y fuerte, con alto peso hectolítrico. Muestra un nivel efectivo de resistencia a las royas del tallo y lineal en muchas regiones del mundo, inclusive México, India, Pakistán, y Egipto. Florece a los 85 días y tiene una altura de 90 cm. Ha mostrado un alto potencial de rendimiento en muchos países. Es de grano rojo. (Variedad 2)

Tobari 66: Tzpp-Son 64A. 19201-4M-3Y-102M-100Y-101C. Variedad semienana mexicana. Posee una excelente resistencia a las royas del tallo, de la hoja y lineal. Florece a los 84 días, unos pocos días más tarde que Inia 66. Tiene grano rojo. (Variedad 15).

Yecora 70: = Bluebird # 2 = Cno "S" - Son 64 - Kl. Rend./8156. 23584-26Y-2M-1Y-0M. Variedad triple enana lanzada en México en 1970. Tiene paja corta y fuerte, y grano con gluten fuerte y elástico. Ha dado excelentes rendimiento en México donde es resistente a la roya del tallo y moderadamente susceptible a la roya de la hoja y a Septoria. Sin embargo, en muchas regiones no la atacan muchas razas de roya de la hoja. Espiga a los 78 días y tiene una altura de 70-80 cm. La espiga es blanca, barbada, fusiforme y resistente al desgrane. El grano es blanco de tamaño medio. (Variedad 19).

E. U. A.

Chris: = Frontana - Thatcher x II 44-29-Thatcher^2 - II 53-525-1. Cl 13751. Variedad de excelente calidad, desarrollada en Minnesota. Tiene buena resistencia a la roya del tallo, resistencia moderada a Septoria, excelente resistencia a la roya de la hoja, pero varias razas de roya lineal pueden atacarla. Esta ampliamente difundida en los E.U.A. y Canadá. Florece a los 91 días y tiene una altura normal de 120 cm. Es de grano rojo. (Variedad 1).

Bonanza: Pi 62 - Chris "S" x Son 64. II-19957. Cl 14077. Variedad de los E.U.A. con altos niveles de resistencia a las tres royas en México y algunas otras regiones. También muestra algún nivel de resistencia a Fusiarium nivale en el Valle de Toluca. Fue seleccionada de poblaciones segregantes F5 de las mismas cruzas que Ciano 67, Azteca 67, Ahome 70, Chaparral y Lapacho. Florece a los 82 días y tiene una altura de 95 cm. Es de grano rojo. (Variedad 46)

El Gaucho - Son 64 x 7 C - Napo 63: 6W00890-25-11-12-21-11-2B. Línea avanzada de los E.U.A., que tiene el tipo de planta de Siete Cerros. Es resistente a las tres royas bajo las condiciones de México, pero madura muy tarde. Ha mostrado alguna tolerancia a Septoria tritici en Argelia, y también resistencia al mildiú polvoriento. Tiene una altura de 110 cm. Es de grano blanco. (Variedad 39).

Era: Variedad semienana desarrollada por la Universidad de Minnesota, usando como progenitores a Thatcher, FK58N, Pembina, Mida Kenya 117A y Lee en una cruza compleja. Muestra altos niveles de resistencia a la roya del tallo y de la hoja en muchas partes del mundo, inclusive México, los E.U.A. y Kenya. Florece a los 136 días y tiene una altura de 100 cm. Es una de las principales variedades de trigo de primavera en el norte de los E.U.A. Fletcher y Wared son líneas hermanas de Era. Tiene grano rojo. (Variedad 6).

Son 64 x Tzpp - Y54/Justin^3: = Soty - Justin^3.70ESP29. Línea avanzada de los E.U.A. con excelente resistencia a las tres royas. Florece a los 78 días y tiene una altura de 85 cm. bajo las condiciones de México. Tiene grano rojo. (Variedad 40).

VARIEDADES APORTADAS POR AUSTRALIA

UQ 105: = Condor "S" = WW 15^2 /Pj 62 - Gb 56 x Tzpp- Nai 60. Línea avanzada, con alto nivel potencial de rendimiento y amplia adaptación. Su tipo de planta es muy similar a WW 15 (Anza). Tiene buenos niveles de resistencia a la roya de la hoja y lineal, y a Septoria tritici, pero es altamente susceptible a la roya del tallo bajo las condiciones de México. Florece a los 93 días y tiene una altura de 85 cm. Es de grano blanco. (Variedad 41).

México 120: = (Pitic "S") = Yt 54 - N10B. II 7074. Línea triple enana que ha mostrado amplia adaptabilidad. Según informes, se comporta bien bajo condiciones secas en Australia Es susceptible a las royas del tallo, de la hoja y lineal. Muestra resistencia a Septoria en algunas partes del mundo. Florece a los 85 días y tiene una altura de 60 cm bajo las condiciones de México. Tiene grano blanco. (Variedad 20).

LR-N10B x An_E^3: = Mexicani = WW 15 = Karamu = Anza. Esta línea se ha probado bajo varios nombres, dados en diferentes países, Sudán, Australia, Nueva Zelanda, California. Parece que es muy estrecha en cuanto a su reacción a enfermedades. Da excelentes rendimientos en muchas regiones pero es susceptible a la roya del tallo y de la hoja. Su resistencia a la roya lineal es satisfactoria. Tiene grano rojo. (Variedad 11).

VARIEDADES APORTADAS POR PAISES SUDAMERICANOS

ARGENTINA

Gaboto: Bagé 2018 x H44 - Sinvalocho Mag/Bagé 1971/37. Es una de las más importantes variedades de grano suave en la parte norte de la faja triguera de Argentina. Se le considera resistente a Septoria spp., Fusarium spp., y a las tres royas. Florece a los 103 días y tiene una altura de 120 cm. Es de grano rojo. (Variedad 22).

Jaral "S" (C) : Son 64 x Tzpp - Nai 60. 18889-101M-1R-3C-1T-2B-0Y. Línea prometedora de alto rendimiento, seleccionada en Argentina. Actualmente se le ha denominado Leones Inta. En dos estaciones mostró excelente resistencia a la roya de la hoja y resistencia moderadamente buena a la roya del tallo y lineal. Florece a los 83 días y tiene una altura de 90 cm bajo las condiciones de México. Tiene grano rojo. (Variedad 25).

Jaral "S" (B): = Son 64 x Tzpp - Nai 60. II 18889-6T-4T-2T-1T-2B. Línea avanzada derivada de cruzas hechas en México, pero cuyas selecciones avanzadas e incremento final fueron efectuadas en Argentina. Es resistente a las tres royas bajo las condiciones de México y de muchas otras áreas trigueras. Florece a los 86 días y tiene una altura de 95 cm. Es de grano rojo. (Variedad 30).

Marcos Juárez Inta: = Son 64 - Kl. Rend. II 19975-68Y-1J-6Y-1J-4Y-1J-0B . Variedad comercial, con un potencial de rendimiento promisorio y una amplia resistencia a las tres royas, especialmente a la roya de la hoja, y también a Septoria tritici . Las cruzas iniciales se hicieron en México y las subsecuentes selecciones se efectuaron tanto en México como en Argentina, lo cual le propició una adaptación amplia. Se han probado muchas selecciones hermanas de esta variedad, tales como Soltane, Zaafrane y México 226. Es semienana, de madurez intermedia, y tiene alguna tolerancia al frío y un grano de buen tamaño. Es de grano rojo. (Variedad 18).

Paraná 68/1116: Línea avanzada, con un buen nivel de resistencia a la roya del tallo y de la hoja. También tiene cierta tolerancia a Septoria spp. Florece a los 78 días y tiene una altura de 85 cm. Es de grano rojo. (Variedad 47).

Pato: = Tzpp - Son 64A x Nar 59. II 21974-4R-4M-2B-0Y-0P-0Y. Variedad semienana de paja fuerte, con resistencia a las tres royas y a Septoria spp. También es resistente al exceso de agua, Las cruzas originales se hicieron en México, y a Argentina se envió una línea avanzada F6, donde fue reseleccionada e incrementada. Se le denominó "Pato" debido a su poco usual capacidad de sobrevivir bajo condiciones de constante anegamiento. Florece a los 91 días y tiene una altura de 90 cm bajo las condiciones de México. Es de grano blanco (Variedad 16).

BRASIL

Iassul 20: (Frontana x Kenya 58) x Colonias. Variedad lanzada en Brasil en 1973. Es una variedad alta, con una altura de 130 cm. Es muy resistente a Septoria spp en muchas partes del mundo; y resistente a la roya de la hoja, moderadamente susceptible a la roya lineal, y es posiblemente un trigo de arrogamiento lento para la roya del tallo. Es resistente a la toxicidad del aluminio bajo las condiciones de Brasil. Tiene grano rojo. (Variedad 3).

Lagos Vermelha (C - 17): = Veranopolis x Mida - N^2. Variedad alta con buenos niveles de resistencia a Septoria y tolerancia a la toxicidad del aluminio. Es resistente a algunas razas de roya del tallo, moderadamente susceptible a la roya de la hoja y altamente susceptible a la roya lineal bajo las condiciones de México. Florece a los 89 días y tiene buenas hojas. Es de

grano rojo. (Variedad 33).

CHILE

Huelquén: Variedad comercial ampliamente sembrada en Chile. Es alta y florece a los 75 días bajo las condiciones de México. Es susceptible a las royas del tallo y de la hoja en México. Tiene buena resistencia a la roya lineal. Es de grano rojo. (Variedad 27).

COLOMBIA

Samaca 68: = Bza y AfM^2. II 13022-9B-1T-2B-1T. Variedad alta que florece a los 84 días bajo las condiciones de México. Es resistente a las tres royas tanto en México como en Colombia. Recientemente una raza de roya de la hoja atacó a esta variedad en el estado de plántula, pero permaneció resistente en el estado adulto, lo cual indica resistencia de planta adulta. Esta variedad muestra invariablemente manchas necróticas de origen genético, caracter heredado probablemente la variedad Africa Mayo. Samaca 68 es uno de los mejores progenitores de resistencia generalizada a las royas para los programas de mejoramiento. Tiene grano rojo. (Variedad 38).

Zipa 68: = F-Y48 x AfM^2. II-12924-20B-3T-2B-1T. Variedad alta, con buenos niveles de resistencia a la roya lineal y del tallo en Colombia y México. Florece a los 87 días bajo las condiciones de México. Tiene grano rojo. (Variedad 34).

METODOS EMPLEADOS EN EL PROCESAMIENTO DE LOS DATOS

Los coeficientes de infección de enfermedades se analizaron estadísticamente y también se correlacionaron con otras características (por ejemplo, con rendimiento). Sin embargo, para la presentación tabular en este informe, se dan las notas según la escala estándar de roya de la primera repetición de cada localidad, puesto que a partir de esta escala es más fácil visualizar las respuestas de una variedad particular. La reacción media a la roya por localidad se presenta como un índice de la cantidad de roya en ese localidad. Los valores medios de roya relativamente bajos indican baja incidencia y/o virulencia. Las medias más altas indican mayor incidencia y lo virulencia. Estas medias proveen una comparación relativa por localidad y reflejan el grado de infección de ese patógeno en ese ensayo bajo las condiciones ambientales que prevalecieron.

Otros índices del comportamiento varietal se analizaron siempre que fue posible y se presentan en los Cuadros. La mayoría de estos valores fueron porcentuales. Varios índices se transformaron a porcentajes.

Las variables para cada variedad se colectaron y luego se calculó el valor de la media. Los rendimientos se ordenaron en forma decreciente.

Se obtuvieron valores medios del rendimiento y otras variables para cada variedad. Luego, se calculó la media de las medias para cada variable. A ésta se le llama gran media, y se consigna bajo la columna de cada variable.

A las secuencias restantes para el error estándar de la gran media, coeficiente de variación (CV) y diferencia mínima significativa (DMS) de .05, se les llama análisis de varianza, que se calculó sólo cuando se tuvieron dos o más repeticiones de datos.

El análisis de varianza para el rendimiento ilustra el punto, y este procedimiento es aplicable para cualquier variable del ISWYN, cuando está repetida dos o tres veces.

En los informes de ensayos anteriores, cuando el coeficiente de variación (CV) era mayor de 75%, los datos de esa variable específica se eliminaban y la columna no se imprimía. Esto ocurría con otras variables que no fueron la variable rendimiento. Los especialistas en trigo han solicitado que se impriman las variables con CV mayores del 75%. Por consiguiente, en algunos cuadros se observan algunas variables con altos CV. Un alto CV se origina de un alto error estándar y valores bajos de la media. Esto ocurre cuando se omiten datos, se registran numerosos valores de cero, hay diferencia de los valores estimados entre repeticiones, o se debe a la variación natural en el ambiente que se establecieron los experimentos. Por tanto, el error estimado de la varianza se computó directamente para todas las características reportadas. El CV se expresa en porcentaje (razón de error estándar/gran media x 100 x la raíz cuadrada) ó nr (donde n = número de variedades y r = número de repeticiones). El CV se emplea para obsér var la variación entre dos variables entre localidades.

La diferencia mínima significativa (DMS) se calculó al nivel del 5%. La ventaja de la DMS es que es fácil usarla para hacer comparaciones entre dos medias para dos localidades.

Algunas veces, mediante estudios de correlación se puede obtener considerable información acerca de los factores que influyen en el rendimiento. Se hicieron correlaciones sobre todos los posibles pares de factores por localidad, utilizando el valor de la media para cada característica reportada. Estas correlaciones se computaron sobre las medias de la repeticiones más bien que sobre los valores individuales, debido a que algunos datos se reportaron a menudo para solamente una repetición. El tamaño de las poblaciones es más bien pequeño para este tipo de análisis, de manera que es posible encontrar algunas correlaciones espurias.

Se recomienda cierta precaución al interpretar estos valores. Muchos investigadores encuentran útiles los análisis de correlación, y por tal razón se presentan éstos como parte del Cuadro de resumen para cada localidad, aunque se hace una advertencia sobre sus limitaciones.

Las medias generales por localidades se calcularon para cada variable y se presentan aquí cuando el número de observaciones justificó su inclusión. Con la excepción de los datos sobre roya, las unidades reportadas son las que se utilizan en todo este informe. Con propósitos aritméticos, las medias de reacciones a la roya se calcularon sobre los valores del coeficiente de infección (CI). Se sugiere una comparación de los CI relativos para seleccionar variedades resistentes a la roya que sean potencialmente útiles. Las variedades con valores promedio menores de 10 se pueden considerar como un tanto resistentes, mientras que las variedades con valores mayores de 20 podrían considerarse susceptibles.

Al analizar y resumir estos datos se han encontrado muchos problemas. Nuestro intento es suministrar al lector la cantidad máxima posible de información útil, y de paso, no confundirlo con muchos detalles de la computación.

RESULTADOS Y DISCUSION

Para el análisis del Noveno Ensayo Internacional de Rendimiento de Trigos de Primavera (ISWYN) (1972 - 73) se contó con datos de 73 localidades, que presentaron once países de Afri

ca, siete de Asia, uno de Centroamérica, nueve del Medio Oriente, tres de Norteamérica, uno de Oceanía y seis de Sudamérica. La Figura 1 muestra las localidades que reportaron datos, con el correspondiente número de cuadro. La Figura 2 presenta el ciclo de cultivo y la altitud de cada localidad.

En las localidades del norte (Japón, Alaska, Europa), en varios países del hemisferio sur y a variadas altitudes cerca del ecuador, los experimentos se desarrollaron bajo verdaderas condiciones de primavera. En otras partes, el período durante el cual los ensayos estuvieron en el campo tendió a ser más largo debido a que las siembras se efectuaron en invierno. En esta situación estuvieron Africa del Norte, el Cercano y Medio Oriente, la India, Pakistán y el Sur de Europa. (veáse la Figura 2).

Los Cuadros 1 a 73 presentan el comportamiento de las variedades con respecto a rendimiento, características agronómicas y resistencia a enfermedades para cada localidad. Los Cuadros se agruparon en ocho regiones geográficas. La media general sobre localidades para las 20 variables medidas se dá en el Cuadro 74. Puesto que no se midieron todas las variables en cada sitio, al final de cada columna del Cuadro 74 se indica el número de localidades que reportaron datos.

En el Cuadro 75 se dan los datos de calidad de grano para las variedades que entraron en el Noveno ISWYN. También se incluye una breve descripción de las características sometidas a prueba.

La variedad que ocupó el primer lugar en rendimiento de grano en todos los sitios (73) fue la línea mexicana Meng-8156, cuyo rendimiento promedio fue de 4,286.63 kg/ha. Las variedades IQ 105 (Cóndor), Siete Cerros, Tanori 71 y Cajeme 71, ocuparon del segundo al quinto lugar respectivamente. Sin embargo, la diferencia de rendimiento promedio entre Meng-8156 (primer lugar) y Cajeme 71 (quinto lugar) es de sólo 129.43 kg/ha. De las variedades anteriores, cuatro fueron aportadas por México y la otra por Australia. Siete Cerros (Pénjamo "S" x Gb 55, 8156-cruza) con un rendimiento promedio de 4261.90 kg/ha, y en el Octavo ISWYN (1971 - 72) con 4017.30 kg/ha, es la variedad mexicana de trigo más ampliamente distribuída en el mundo.

Tánori 71 (4,157.60 kg/ha) y Cajeme 71 (4,157.20 kg/ha) dieron rendimientos idénticos.

Para la variedad Cajeme 71 se observó un rendimiento muy similar en el Octavo y Noveno ISWYN, con una media de 3,956.13 kg/ha y 4,157.20 kg/ha respectivamente.

De las 10 variedades que ocuparon los primeros lugares, seis de ellas fueron aportadas por México y todas proceden del complejo germoplásmico mexicano. Este grupo representa trigos de primavera semienanos que tienen un cierto grado de resistencia al acame, con una altura promedio para todas las localidades de 73.67 cm. Por otra parte, las 10 variedades inferiores en to a rendimiento de grano son en su mayoría altas y susceptibles al acame, con una altura de 98.38 cm.

Cuatro variedades triple enanas (México 120, Moti, Resel Bb y UP 301) rindieron casi lo mismo en promedio, pero ocuparon las posiciones bajas de la lista (lugares 37, 39, 40 y 41). Este tipo muy corto de planta no muestra la misma adaptación que los tipos más altos del grupo de los primeros lugares.

Las variedades más susceptibles a la roya del tallo fueron Anza, BT2288, Pitic 62, Iassul 20 y México 120. También Chenab 70 y Siete Cerros fueron susceptibles a la roya del tallo

en varias localidades. Por otra parte, se reportó una excelente resistencia a la roya del tallo para Era, Chris, Bonanza, UP 301, Samanca 68, Jaral "S" , Paraná 68 y Tob-8156. La mejor resistencia a la roya lineal, indicada por bajos coeficientes de infección, la mostraron las variedades Cóndor "S" , Inia 66, Pato, BT 2281, Tobari, Tanori 71 y Zipa 68.

La mejor resistencia a la roya de la hoja fue reportada para Bonanza, Era, Tobari 66, BT 2288, Bb - Inia, Marcos Juárez Inta, Chris, Bb Resel y Gaboto, Como puede observarse, algunas de estas variedades tienen resistencia a más de una roya. Es alentador encontrar resistencia a las royas en tantos tipos diferentes de germoplasma.

La resistencia al mildiú de variedades tales como Siete Cerros de la cruza 8156 ha sido buena. En este ISWYN las variedades 715/70, El Gaucho-Son 64 x 7C-Napo, Meng-8156 y Era, tuvieron lecturas promedio más bajas que Siete Cerros.

Al revisar las variedades de más altos rendimientos en cada localidad en este ISWYN, se observa que Siete Cerros (cruza 8156) figuró con mayor frecuencia en primer lugar, particularmente en las localidades europeas. También en el noroeste de México estuvo en el primer lugar tanto en el Octavo como en el Noveno ISWYN.

Una cruza de 8156 con la variedad australiana Mengavi (Variedad 35) también ha ocupado los primeros puestos en muchas pruebas: Angola, Corea del Sur, Nepal, Jordania, noroeste de México (siembras tempranas) y en Montana (E.U.A.). Esto representa una amplia gama en altitud y longitud. La variedad es algo más tardía en madurez que la cruza 8156 (Siete Cerros y Kalyansona), pero tiende a tener mejor resistencia a la roya del tallo.

Un tercer trigo de comportamiento superior en muchas localidades es LR-N10B x An_E^3 conocido actualmente como Mexicani, WW15, Anza y Karamu. Ocupó el primer lugar en Africa del Sur, Sudán, Túnez, Argentina y Nueva Zelanda. En el Octavo ISWYN también ocupó el primer lugar en Alaska.

Una cruza de LR-N10B x An_E^3 y Pj 62-Gb 56 x Tzpp - Nai 60 hecha en Australia, actualmente llamada Cóndor "S" (UQ 105), también ha mostrado muy buen comportamiento en lugares como Libia, Gujarat, (India), Saskatchewan y la costa de Líbano.

Chenab 70, de Pakistán, figuró seis veces en el primer lugar en el Octavo ISWYN. Sin embargo, en el Noveno ISWYN ocupó el primer lugar sólo en una localidad en Pakistán.

Las variedades Bluebird, Cajeme 71 y Yecora 70, estuvieron en primer lugar en siete localidades, especialmente donde las condiciones fueron favorables para rendimientos muy altos, por ejemplo, en Egipto, Rodesia, y Colombia para Cajeme 71, e Israel para Yécora 70.

En Idaho, E.U.A. el testigo local Borah superó el rendimiento de todas las entradas. En Schleswig-Holstein, Alemania Federal, el testigo rindió más de 10 ton/ha. En el Octavo ISWYN, en Minnesota (Variedad II-64-33), Alemania Federal (Variedad Kolibrí), Holanda (Variedad Toro) y Noruega (Variedad Funer) los testigos locales dieron los mayores rendimientos.

Es de interés mencionar algunas variedades que frecuentemente han ocupado los últimos lugares para rendimiento.

En 1972-73, Iassul 20 dió los rendimientos más bajos en 20 localidades y Ariana 66 en 14 localidades. Otras variedades en los últimos lugares fueron: El Gaucho-Son 64 x 7C-Napo 63

y Lagoa Vermelha.

En el Octavo ISWYN (1971-72), Manitou y Manitou-insensible al fotoperiodo figuraron al final de la lista en 34 de las 83 localidades alrededor del mundo. De nuevo Iassul 20 y Ariana 66 fueron las de menor rendimiento en muchas localidades, once veces cada una. La sensibilidad al largo del día y/o el requerimiento de temperatura fría son responsables de muchas de estas respuestas.

En el Noveno ISWYN no se incluyó Manitou, excepto como variedad testigo en Saskatchewan, donde ocupó el último lugar (Cuadro 50).

CARACTERISTICAS DE CALIDAD INDUSTRIAL DEL GRANO DE LAS VARIEDADES DE TRIGO QUE ENTRARON EN EL NOVENO ENSAYO INTERNACIONAL DE RENDIMIENTO DE TRIGOS DE PRIMAVERA 1972-1973

El laboratorio de calidad industrial de trigo del CIMMYT ha determinado numerosas características harineras durante muchos años. El grano para las pruebas harineras de las variedades del Noveno ISWYN se obtuvo en el Valle del Yaqui, México, 1972-73. Esta localidad está ubicada en un distrito de riego, donde es común un manejo agronómico intensivo (vease Cuadro 53 para la descripción de la localidad).

El Cuadro 75 presenta la información sobre varias características harineras de las 49 entradas del Noveno ISWYN y del testigo harinero estándar, Gold Medal. Sigue a continuación una breve descripción de cada característica medida, la cual puede ser util para los científicos en trigo que no están muy familiarizados con los métodos sobre calidad tecnológica del trigo.

PESO HECTOLITRICO

La densidad del grano se mide ordinariamente por el peso (kilogramos) por volumen (hectólitros). Para los cooperadores más acostumbrados a expresar el peso hectolítrico en libras por bushel, 75 kg/hl equivalen aproximadamente a 60 lb/bu. El tamaño del grano y el peso de 1000 granos se relacionan con los valores del peso hectolítrico.

MICRO - PELSHENKE (PK)

Esta determinación referida algunas veces como la determinación del tiempo de fermentación de la harina del trigo, se usa para estimar la fuerza del gluten. La prueba se basa en el tiempo necesario para que el gas desarrollado por las levaduras rompa una bola hecha con 3 g de harina de trigo que tiene cierta fuerza debido a las características de su gluten. Se puede considerar que las líneas con valores mayores de 100 minutos tienen un gluten fuerte.

SEDIMENTACION

Como ocurre con la prueba del micro - Palshenke, la sedimentación es grandemente influida por

la calidad de la proteína del grano. Valores de sedimentación de 30 cc son típicos de variedades con gluten débil, mientras que valores de 40 cc o mayores sugieren un gluten fuerte.

RENDIMIENTO DE HARINA

La capacidad relativa de molienda de las diferentes selecciones se expresa como porcentaje de rendimiento de harina a partir de una cantidad conocida de grano. Este importante valor se relaciona con el peso hectolítrico de todo el grano. Los granos arrugados tienden a producir rendimientos menores de harina.

PROTEINA

La determinación de nitrógeno se efectúo mediante el método de Kjeldahl, y el valor de nitrógeno se multiplico por 5.7, el factor para la conversión del nitrógeno a proteína.

ALVEOGRAMA

Las características de tenacidad y elasticidad del gluten se determinan por el método del alveograma. La tenacidad de la masa o resistencia a la extensión se expresa como "P" y la expansión de la misma o elasticidad se indica como "G" . La relación P/G puede usarse como guía en la selección de trigos harineros de gluten bien balanceado, tanto en trigos suaves como en duros. El área bajo la curva del alveograma se expresa como "W" , y dá una indicación de la fuerza del gluten. Los trigos harineros con valores W cercanos a 300 se considera como de gluten fuerte. Los trigos con valores inferiores a 200 poseen un gluten débil.

TIEMPO DE AMASADO

Los panaderos prefieren contar con harinas que requieran períodos aceptables de amasado, El tiempo - en minutos - necesario para amasar la masa a la consistencia óptima, identifica a aquellas líneas con características deseables para panificación. Para efectuar esta determinación se procede a mezclar cierta cantidad de harina con agua con el fin de desarrollar una curva, y el tiempo necesario para alcanzar el punto más alto de dicha curva se registra como el tiempo de amasado. Son indeseables tiempos de amasado muy cortos o muy largos.

ABSORCION DE AGUA

Para obtener un volúmen óptimo de pan se añade cierta cantidad de agua. Esta cantidad de agua requerida corresponde al agua absorbida y se expresa como porcentaje.

VOLUMEN

Este es el volumen final del pan cocido -medido en centímetros cúbicos- que se obtiene de los 100 gramos de harina, determinado según los métodos estándar descritos por la Asociación Americana de Químicos Cerealistas.* Los trigos con gluten fuerte tienden a dar un volumen alto, mientras que los trigos blandos usualmente dan volumenes menores y se usan más a menudo para pastelería y galletas.

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*American Association of Cereal Chemists

RESULTATS DE LA NEUVIEME PEPINIERE INTERNATIONALE SUR LE RENDEMENT DES BLES DE PRINTEMPS

1972 - 1973

RESUME

La neuvième Pépinière Internationale sur le Rendement des Blés de Printemps (ISWYN) a été constituée par 50 variétés de blés qui représentent les principaux types de printemps. Les données de 73 sites, représentant les régions productrices de blés de printemps du monde entier, ont été recues, y étaient inclus, le rendement, les caracteristiques agronomiques et les réactions aux diverses maladies. Les résumés des localités avec les analyses statistiques pour les caracteristiques mesurées sont présentés pour chaque site. Les variétés les plus productrices furent: Meng - 8156, Condor (UQ 105), Siete Cerros (8156-Cross), Tanori 71, et Cajeme 71.

INTRODUCTION

La Pépinière Internationale sur le Rendement des Blés de Printemps fournit un moyen par laquel les variétés de différents pays peuvent être testées pour grande adaptabilité sur une longue échelle du monde. Les résultats donnent la même information dans une année qu'ils auraient donné en testant dans un Programme Nationale sur plusieurs années. Quand les variétés se comportent bien sur une longue étendue de conditions, le sélectionneur , dans n'importe quel pays peut sélectionner celles-ci pour une utilisation directe dans la production ou pour une sélection future avec plus de confiance pourvu que la variété déterminée soit bonne dans ce pays. Telles variétés peuvent être attendues à produire bien sous des conditions variables de temps qu'elles ont rencontrées d'une année à l'autre.

Par exemple, les variétés semi-naine et naine du Mexique ont acquis de l'importance dans les regions du monde où la culture du blé est pratiquée. La Pépinière Internationale sur le Rendement des Blés de Printemps (ISWYN) a été l'on de plus importants outils à démontrer l'adaptabilité des types mexicains.

Les tests pour les longues régions ont indiqué dans le début de 1960, que certaines lignées ont une large adaptation. En 1964, le prémier le plus vaste essai sur le rendement avait été envoyé aux pays choisis.

Cette pépinière continue à fournir aux coopérants et aux sélectionneurs intéresés:

I. Information de base et echange des données des blés de printemps
II. Du matériel parental dans le travail de croisement (source de résistance)
III. De nouvelles variétés dans les pays ayant des programmes limités
IV. E valuation de progrès dans les programmes internationaux et nationaux

La pépinière peut être considerée comme un vehicule pour atteindre de performance des rendements à plus haut niveau que les variétés mexicaines.

Chaque année, les demandes sont communiqués aux sélectionneurs des pays coopérants pour présenter deux Kilogrammes de leur plus prometteurs matériels pour être inclus dans ce test. Tous les materiels soumis sont plantés dans multiples parcelles dans la ville de Obregon et sont évalués pour leurs possibilités comme des introductions à l'ISWYN. La sélection est faite sur la convenance et pour une distribution aussi large que possible. Chaque année, beaucoup plus d'entrées pouvant être intéressantes dans l'essai sont plantées. En conséquence, CIMMYT ne peut pas placer toutes les variétés soumises dans cet essai. Certains témoins à long terme sont inclus, tandis que les autres sous test pour quelques années sont supprimés pour laisser la place aux nouvelles entrées.

Les blés largement adaptés tels que Pitic 62 et Siete Cerros (Mexipak, Kalyanzona) ont été inclus des le début, et continnuent à être parmi les producteurs les plus elevés, malgré leur susceptibilité très élevée aux rouilles. Table A montre les rendements moyens en grains et les moyennes de groupes sur une large étendue de conditions d'envisonement pour les variétés qui ont été utilisés dans les cinq consécutives pépinières des blés de printemps.

TABLE A. Grande moyeene du rendement du grain en kg/ha de chaque varieté compris dans cinq Pépinière Internationales du Rendement du Blés du Printemps consecutives

VARETE	ORIGINE	3ème ISWYN 1966-67 62 Loc.		4ème ISWYN 1967-68 63 Loc.		5ème ISWYN 1968-69 63 Loc.		6ème ISWYN 196 -70 60 Loc.		7ème ISWYN 1970-71 67 Loc.		Moyenne de position 315 Loc.
		RENDEMENT EN KILOGRAMMES PAR HECTARE ET POSITION										
Pitic 62	MEXIQUE	3500	1	3499	2	3032	3	3289	6	3902	7	3.8
Siete Cerros	MEXIQUE	3203*	8	3485	3	3016	4	3301	4	3931	5	4.8
Penjamo 62	MEXIQUE	3407	3	3474	4	3055	1	3273	9	3824	15	6.4
Inia 66	MEXIQUE	3355	5	3502	1	2937	6	3307	3	3691	24	7.8
Lerma Rojo 64	MEXIQUE	3461	2	3225	15	2917	7	3138	15	3751	18	11.4
Tobari 66	MEXIQUE	3178	10	3275	11	2849	12	3296	5	3691	25	12.6
Nainari 60	MEXIQUE	3244	7	3214	17	2833	15	3040	19	3541	32	18.0
Crespo 63	COLOMBIE	3259	6	3215	16	2743	20	3501	18	3581	30	18.0
Huelquen	CHILE	3058	10	3157	19	2804	16	3015	20	3487	36	20.2
Napo 63	COLOMBIE	3149	12	3230	14	2733	21	2969	22	3416	39	21.6
Bonza 55	COLOMBIE	2770	28	2933	26	2301	36	2519	36	3021	44	34.0
C-306	INDE	2853	23	2631	33	2519	32	2312	43	2899	46	35.4
Carazinho	BRESIL	2610	36	2708	32	2246	40	2501	37	2929	45	38.2
Gaboto	ARGENTINE	2634	34	2532	40	2264	38	2310	44	3039	43	39.8
Chris	ETTAS UNIS	2488	43	2404	44	2244	41	2281	46	2823	48	44.4
Selkirk	CANADA	2019	48	1974	49	1628	48	1737	49	2307	50	48.8

* Penjamo Sib-Gabo 55 en 1966-67

L'excellente coopération de tous les participants aux pépinières internationales sur le rendement à conduit à une solide expansion dans le volume, dans le nombre et les types des pepinières. Table B montre les différents matériels, les rendements de pépinières, la protection des pepinières, dissociation des materiels et lignées avancées, envoyés par le Département International des Pépinières pour les Programmes de Blé, Orge, et Triticale de 1970 à 1974 Tous ces germoplasmes étaient annoncés par ISWYN.

TABLEAU B. Augmentation dans les numero d'experiments et pépinières du Bles de Printemps, Bles Durs, Orge et Triticale du 1970-74.

	1970	1971	1972	1973	1974
BLES DE PRINTEMPS	301	243	358	630	671
BLES DURS	82	138	134	248	264
TRITICALE	52	82	145	221	329
ORGE				41	80
Totaux	435	463	637	1140	1344

Table C donne un aperçu général sur la performance des variétés dans chaque localité et sur les rendements en grains. Des variétés, la grande moyenne pour chaque localité (cette moyenne est la moyenne des moyennes des variétés en kg/ha) et humidité en mm des variétés exposées.

MATERIELS ET METHODES

Quarante-neuf variétés représentant la majeure superficie des blés de printemps dans le monde étaient sélectionnées pour la Neuvième Pépinière Internationale sur le Rendement des Blés de Printemps. La semence a été multipliée durant le cycle cultural 1971-72 au Centre de Recherches Agricoles du Nord-Ouest (CIANO) Sonora, Mexique. Les observations faites à CIANO sur la hauteur des plants, durée de floraison et résistance aux maladies, ont été employées dans les descriptions des variétés. La semence a été traitée avec un mélange de Vitavax (marque enregistrée pour 6,5-dihydro-2, méthyl-1,4 oxathiin-3-carboxinilida) et Tillantina (Phenyl acetate de mercure 2.0%; Lindane 04%, Inerte 97.6%)avant la mise en paquets.

Les instructions sur le maniement des pépinieres internationales sur le rendement sur les feuilles pour les données génerales à prendre, aussi que les feuilles des données ont été incluses dans chaque boite. Toutes les bortes de semences ont été expédiées par avion.

Dans chaque pepinière, la repartition des objets a été faite au hasard avec trois répétitions et chaque parcelle comprenait 6 lignes de 2.5 m de long; l'écartement entre les lignés etait de 30 cm (certains coopérants avaient changé la grandeur des parcelles.) Les essais sur les rendements ont été conduits sous les conditions de pluie et d'irrigation, avec ou sans engrais, avec les latitudes variant entre 40° S et 55° N, et les altitudes allant de cinq à 2 640 m au dessous du niveau de la mer. Pour chaque localité, la latitude, humidité, niveaux d'engrais et autres informations sont présentés dans les tables.

TABLE C. Position par rendement du grain, Grande Moyenne et humidité par location compris dans la Neuvième Pepinière Internationale du Blés de Printemps. (1972-73).

Numéro de table et location	VARIETE SUPERIEURE Nom	Rendement Kg/ha	VARIETE INFERIEURE Nom	Rendement Kg/ha	Grande Moyenne	Humidité mm
AFRIQUE						
1 Alger, ALGERIE	-----	----	-----	----	----	---
2 Setif, ALGERIE	Jaral "S" (C)	4808	Iassul 20	2366	3816	547
3 Huambo, ANGOLIE	Meng-8156	4288	Ariana 66	1066	2783	464
4 Bahtim, EGYPTE	Cajeme 71	7843	Chris	3382	5781	---
5 Sakha, EGYPTE	Cajeme 71	7538	LR - N10B x An_E^3	2144	5640	200
6 Shoa, ETHIOPIE	Cajeme 71	2903	Ariana 66	958	1807	---
7 Rift Valley, KENYA	Inia 66	3285	Mexico 120	75	1263	496
8 Tripoli, LIBIE	UQ 105 = Condor "S"	5410	Chenab 70	0	3466	350
9 Kenitra, MAROC	Parana 68/1116	2105	El Gau-Son64 x 7C-Napo 63	0	1490	340
10 Marrakech, MAROC	Sonalika	6548	Iassul 20	1419	4735	146
11 Salisbury, RHODESIE	Cajeme 71	6971	Iassul 20	2380	5098	730
12 Transvaal, AFRIQUE DU SUD	LR - N10B x An_E^3	5055	Iassul 20	2128	3906	816
13 Blue Nile Provence, SOUDAN	LR - N10B x An_E^3	3920	El Gau-Son64 x 7C-Napo 63	662	3051	---
14 Kassala, SOUDAN	Local Check (Not reported)	4250	El Gau-Son64 x 7C-Napo 63	947	3360	---
15 Beja, TUNISIE	LR - N10B x An_E^3	5600	Iassul 20	2500	4155	---
ASIE						
16 Kabul, AFGHANISTAN	Bb - Inia	5168	Ariana 66	530	3658	379
17 Dacca, BANGLADESH	Mexico 226	2369	Lagoa Vermelha (C-17)	547	1305	432
18 Gujarat, INDE	UQ 105 = Condor "S"	3891	El Gau-Son64 x 7C-Napo 63	615	2790	---
19 Maharastra, INDE	Soltane	3699	Ariana 66	612	2408	---
20 New Pusa Delhi, INDE	Tob-8156	4492	El Gau-Son64 x 7C-Napo 63	0	3255	---
21 Rajasthan, INDE	Tanori 71	5398	Era	0	3798	174
22 Hokkaido, JAPON	3400-1-3	4054	Ariana 66	1934	3259	260
23 Kwang Ju, COREE	Meng-8156	6499	BT 2288	2576	4325	820
24 Kathmandu, NEPAL	Meng-8156	6659	Lagoa Vermelha (C-17)	3517	5039	187
25 Punjab, PAKISTAN.	Yecora 70	7021	Lagoa Vermelha (C-17)	1833	4695	508
26 Sind, PAKISTAN	Chenab 70	4409	El Gau-Son64 x 7C-Napo 63	1133	2995	---
AMERIQUE CENTRALE						
27 Quetzaltenango, GUATEMALA	Soltane	4547	Ariana 66	0	3080	867
EUROPE						
28 Tolbukhin, BULGARIE	Tob-8156	4000	LR - N10B x An_E^3	2222	3188	199
29 Cambridgeshire, ANGLETERRE	Pitic 62	8063	Mexico 120	3130	6332	229
30 Saine et Marne, FRANCE	Siete Cerros 66	4202	Iassul 20	2407	3514	69
31 Schleswig-Holstein, ALLEMAGNE DE L'OUEST	Local Check (Not reported)	10208	Mexico 120	5333	7937	329
32 Rome, ITALIE	Siete Cerros 66	6613	Lagoa Vermelha (C-17)	3180	5221	385
33 Alentejo, PORTUGAL	Siete Cerros 66	5445	Iassul 20	2239	4551	351
34 Jud. Cluj. ROMANIE	(21931/Ch53-An x Gb56)An 64	4383	Ariana 66	1494	2808	316
35 Landskrona, SUEDE	Siete Cerros 66	6783	Mexico 120	2216	4619	203
36 Croatia, YUGOSLAVIE	Iassul 20	2566	Parana 68/1116	1333	1954	238
37 Voyvodina, YUGOSLAVIE	Siete Cerros 66	5950	Ariana 66	2550	4474	240

Cnt'd. Table C.

Numéro de table et location	VARIETE SUPERIEURE Nom	Rendement Kg/ha	VARIETE INFERIEURE Nom	Rendement Kg/ha	Grande Moyenne	Humidité mm
MOYEN-ORIENT						
38 Gorgan, IRAN	Moti	6721	Iassul 20	3321	5600	384
39 Kuzestan, IRAN	Siete Cerros 66	4599	Iassul 20	1999	3393	147
40 Baghdad, IRAK	Tanori 71	5300	Iassul 20	916	3787	400
41 Sakimaniya, IRAK	Pitic 62	2721	Iassul 20	955	1981	662
42 R. D. S. de Gat, ISRAEL	Yecora 70	9674	Iassul 20	2621	7396	322
43 Jordan, JORDANIE	Meng-8156	6266	Iassul 20	622	3664	187
44 Beirut, LIBAN	Bb "S" Reselection	2620	Zipa 68	439	1574	375
45 North Coastal Province, LIBAN	UQ 105 = Condor "S"	6586	Lagoa Vermelha (C-17)	2197	4958	500
46 Adana, TURQUIE	Pitic 62	4583	Zaafrane	1183	3337	324
47 Adapazari, TURQUIE	T-64-2-W	7432	Parana 68/1116	3910	5751	296
48 Eskisehir, TURQUIE	Jaral "S" (C)	6566	Ariana 66	841	4731	594
AMERIQUE DU NORD						
49 Manitoba, CANADA	Cajeme 71	4722	Ariana 66	0	3579	290
50 Saskatchewan, CANADA	UQ 105 = Condor "S"	3566	Local Check (Manitou)	2282	3060	157
51 Mexico, El Batán, MEXIQUE	Tanori 71	4833	Local Check (Not reported)	----	3007	---
52 Mexico, Toluca-Atizapán, MEXIQUE	-----	----	-----	----	----	---
53 Sinaloa, C.I.A.S., MEXIQUE	Meng-8156	7389	Iassul 20	2679	4919	---
54 Sonora, C.I.A.N.O., MEXIQUE	Meng-8156	8458	Era	3423	5831	110
55 Sonora, C.I.A.N.O., MEXIQUE	Siete Cerros 66	7924	Iassul 20	3028	6115	110
56 Alaska, ETATS UNIS	Siete Cerros 66	1434	Parana 68/1116	482	921	184
57 Arizona, ETATS UNIS	Siete Cerros 66	6717	Iassul 20	2538	4860	---
58 California, ETATS UNIS	Tanori 71	4950	Giza 155	2099	3747	850
59 Colorado, ETATS UNIS	Era	3560	Bb "S" Reselection	1726	2592	250
60 North Dakota, ETATS UNIS	3400-1-3	8146	Ariana 66	3048	6663	203
61 Idaho, ETATS UNIS	Local Check (Borah)	7436	Iassul 20	3074	5960	---
62 Montana, ETATS UNIS	Meng-8156	4527	Ariana 66	0	3756	178
63 Washington, ETATS UNIS	El Gau-Son64 x 7C-Napo 63	4935	Iassul 20	3364	3999	---
OCEANIE						
64 - Manawatu, NOUVELLE ZELANDIE	Local Check (Karamu)	7790	Iassul 20	671	5406	185
AMERIQUE DU SUD						
65 Buenos Aires, ARGENTINE	LR - N10B x An_E^3	2627	Bb "S" Reselection	272	1318	471
66 Buenos Aires, ARGENTINE	BT 2281	2233	Local Check (Not reported)	----	1580	1387
67 Rio Grande do Sul, BRESIL	Iassul 20	2208	El Gau-Son64 x 7C-Napo 63	200	1021	700
68 Rio Grande do Sul, BRESIL	Lagoa Vermelha (C-17)	2077	El Gau-Son64 x 7C-Napo 63	177	1344	970
69 Santiago, CHILI	Jaral "S" (B)	5949	Iassul 20	2755	4535	227
70 Cundinamarca, COLOMBIE	Cajeme 71	7599	Moti	2305	4895	350
71 Ancash, PEROU	Jaral "S" (C)	5078	Ariana 66	1565	3174	---
72 Junín, PEROU	Pitic 62	4238	UP 301	1405	2586	---
73 Colonia, URUGUAY	Tob-8156	3163	Chenab 70	1571	2081	588

VARIETES APPORTES PAR DES PAYS D'AFRIQUE

EGYPTE

Giza 155: Regent-Giza 139^2/Mida x Cadet. CI 12441 x $H62^2$. Variété d'un grand test du poids. Elle fleurit en 86 jours et atteint 115 cm de hauteur. Elle est résistante à la rouille noire et à la rouille jaune sous diverses conditions. La résistance à la rouille brune est limitée dans plusieurs localités. Elle donne de bons rendements dans de bonnes conditions de température et d'irrigation. Le grain est blanc. (Variété 29).

ETHIOPIE

Tob-8156: 22964-3Y-5M-0Y. C'est une lignée mexicaine avancée, identifiée en Ethiopie comme étant résistante aux rouilles et à Septoria tritici. Au Mexique, cette lignée est résistante aux rouilles noire et brune, mais modérement susceptible à la rouille jaune. Elle a un bon rendement potentiel, mesure 85 cm de haut, et fleurit au bout de 82 jours. Le grain est rouge. (Variété 43).

AFRIQUE DU SUD

3400-1-3: Dans le type de plante, elle est similaire à la variété Penjamo 62 avec des feuilles données. Elle fleurit au bout de 82 jours, et elle a une hauteur de 100 cm dans les conditions du Nord Mexique. Elle est résistante à la rouille brune, mais susceptible à la rouille noire dans la Vallée Yaqui (Mexique) et très susceptible à la rouille jaune dans le Moyen Orient. Le grain est blanc. (Variété 24).

SOUDAN

Lee-N10B x Gb 55/56: C'est une lignée semi-naine avancée qui fleurit généralement au bout de 84 jours. Elle est relativement résistante aux rouilles brune et noire. La variété WW 15 était introduite en Australie; la source de la semence était ce pays, toutefois, il est bien de noter que le London fut le premier pays à diffuser cette lignée sur une grande échelle commerciale. Le grain est blanc. (Variété 37).

TUNISIE

Ariana 66: (Kenya 338 x Etoile de Choisy). Cette variété mesure 110 cm de haut, fleurit au bout de 188 jours. Elle est résistante à la rouille brune et à la rouille noire dans les conditions du Mexique. La résistance à la rouille jaune est excellente. Le grain est rouge. (Variété 12).

T-64-2-W: Kenya 338-Etoile de Choisy x Koudiat 17-Kt-Y. C'est une variété qui montre un haut niveau de résistance à la rouille noire mais très susceptible à la rouille brune, sous les conditions du Mexique. Elle est modérement résistante à la Septoria spp. Elle atteint sa floraison en 79 jours et mesure 100 cm de haut. Elle est quelque peu plus susceptible à la rouille jaune et beaucoup susceptible à la rouille brune et noire que la variété Ariana66. Le grain est rouge. (Variété 4).

Soltane: BT 2296 - Son 64 - Klein Rendidor. II-19975-68Y-1J-6Y-1J-3Y. Cette variété arrive en floraison au bout de 77 jours et mesure 110 cm de haut. Elle est résistante à la rouille noire, mais très susceptible à la rouille brune. Elle combine les bruns niveaux

de résistance à Septoria avec la tolérance a la sécheresse de certaines saisons de la Tunisie. Le grain est rouge. (Variété 9).

BT 2288: Tacuari-Penjamo 62. C'est une lignée qui donne de bons rendements semi-naine avec longs épis. Elle montre un haut niveau de résistance aux trois rouilles dans les conditions mexicaines. Elle fleurit au bout de 85 jours et atteint une hauteur de 85 cm. Le grain est rouge. (Variété 5).

BT 2281 : Tzpp-Son 64 x LR 64 - Son 64/Son 64A x SK_E^3 - An. C'est une lignée avancée montrant une bonne résistance aux rouilles jaune et noire. Elle possède deux gênes nains. Elle donne environ les mêmes rendements que Inia 66 en Afrique du Nord. Elle arrive en floraison au bout de 85 jours, mesure 90 cm. Le grain est blanc. (Variété 23).

Zaafrane : Son 64 - Klein Rendidor. 19975-68Y-1J-1Y-1J-5Y-1T. Cette variété provient du même croisement que la variété Soltane. Elle a été sélectionnée en Argentine et Mexique dans les générations ulterieures. Le dernier mélange a été fait en Tunisie. Elle est résistante à la rouille noire, mais au Mexique elle est susceptible aux rouilles jaune et brune. Elle possede un bon niveau de tolérance à la Septoria tritici en Tunisie. Elle est aussi la lignée sœur de Marcos Juarez Inta et Mex 226. Le grain est rouge. (Variété 44).

VARIETES APPORTES PAR DES PAYS ASIATIQUES

INDE

Moti: HD 1949 = Pitic "S" - NP 852. Cette variété naine a trois gênes est hautement susceptible aux trois rouilles au Mexique. Elle a un type de plant très remarquable avec des feuilles semi-dresées et une couronne fermée. Elle aun bon rendement potentiel dans une superficie n'ayant pas incidence de rouilles sous les conditions optimes d'amenagement. Elle fleurit en 79 jours au Mexique. Le grain est blanc. (Variété 45).

Sonalika : II-53-288-Andes x Pitic "S" - LR 64/B4946 -A4-18-2.1-Y53 x $Y50^3$ II-8427-4R-1M. C'est une variété semi-naine à un haut rendement potentiel et un excellent type de grain. Elle est susceptible à la rouille brune dans les conditions du Mexique. Au Pakistan, elle est connue comme Argent bleu (Blue Silver). Elle est la seconde variété de blés la plus cultivée dans le Nord de l'Inde après Kalyansona. (Environ 3 millions hectares). Le grain est blanc. (Variété 28).

UP 301: LR 64 - Son 64. C'est une variété triple naine que produit bien dans de bonnes conditions d'environement. Elle est susceptible à la rouille noire et à la rouille brune, et aussi à Septoria. Elle arrive en floraison au bout de 90 jours et atteint 60 cm de hauteur. Variété à grain blanc. (Variété 26).

PAKISTAN

Chenab 70: C-271 x Willet (E) - Son 64. PK 146-12A-4A-1A. C'est une variété semi-naine avec un type de grain nou. Elle est maintenant susceptible à la rouille jaune et aux rouilles brune et noire dans diverses conditions. Elle fleurit en 86 jours et atteint 100 cm de hauteur. Elle donne de très bons rendements en Egypte et au Pakistan dans les conditions d'irrigation. Le grain est blanc. (Variété 31).

Bb "S" Résélection: Cno "S" x Son 64 - Klein Rendidor/8156. 23584-303M-0Y-IIA-8A-2304. C'est une lignée avancée, résistante aux rouilles noire et brune au Pakistan. Elle est la lignée sœur de Pari 73. Elle a trois gênes nains. Fleurit en 82 jours. Le grain est blanc. (Variété 42).

VARIETES APPORTEES DES PAYS EUROPEENNES

YUGOSLAVIE

715/70: C'est une lignée avancée produite à Zagreb, Yugoslavie, possédante une bonne résistance aux rouilles. Elle possède aussi un excellent pouvoir de résister au Mildew C'est une lignée courte (85 cm) à maturité tardive. Le grain est rouge. (Variete 36).

VARIETES APPORTES PAR DES PAYS DU MOYEN ORIENT

IRAQ

Mexico 226: Son 64 - Kl. Rend. II 19975-68Y-1J-6Y-3J-2Y. Cette variété a été sélectionnée en Iraq à partir de croisement mexicain; montre un niveau de résistance aux rouilles noire et brune, mais modérement résistante à la rouille jaune. Elle fleurit en 74 jours et atteint 90 cm de hauteur dans les conditions du Mexique. Elle est la lignée sœur de M. J. Inta, Soltane et Zaafrane. Le grain est rouge. (Variété 7).

ISRAEL

(21931/Ch53- An x Gb 56) An 64: = Hazera 112. II 2985-5H-2H-11H. C'est une lignée avancée, sélectionnée en Israël, ayant un haut rendement potentiel et une bonne résistance à la rouille jaune, mais susceptible aux deux rouilles noire et brune. Elle mesure 95 cm et fleurit en 85 jours. Le grain est rouge. (Variété 48).

VARIETES APPORTES PAR DES PAYS NORD AMERICAINES

MEXIQUE

Bb-Inia: = Torim 73. 26591-1T-7M-0Y-55Y-0M. C'est une de plus courtes variétés mexicaines montrant un haut niveau de résistance à la rouille noire. Elle est résistante à la rouille brune et à la rouille jaune. Elle fleurit en 82 jours et mesure 70 cm. C'est un triple naine avec épis dresés et un haut test du poids. Le grain est blanc. (Variété 8).

Cajeme 71: Bluebird #4 = Cno "S" x Son 64 - Kl. Rend./8156. II 23586-26Y-2M-3Y-2M-0Y. Elle était diffusée au Mexique en 1971 comme variété commerciale. Elle est lignée sœur de Yecora 70. Variété naine de 75 - 85 cm, fleurit en 90 jours. Elle a un dur gluten. Elle est résistante à la rouille noire, modérement susceptible à la rouille brune au Mexique, mais par ailleurs, sa résistance à la rouille jaune s'affaiblit dans les autres aires du monde. Le grain est rouge. (Variété 21).

Calidad: = Tzpp - Son 64/LR 64A - Tzpp x An_E. 22429-16M-1Y-1M-0Y. C'est une variété mexicaine montrant une legère résistance à la rouille noire. Elle fleurit au bout de 75 jours et mesure 90 cm. Elle est tolérante à la Septoria en Tunisie. Grain rouge. (Variété 14).

Inia 66: Lerma Rojo 64-Son 64..19008-83M-100Y-100M-100Y-100C. C'est une variété mexicaine semi-naine et a montré d'excellentes qualités dans la fabrication du pain. Elle a un bon rendement potentiel et un haut test du poids. (Voir Table A). Elle montre un haut niveau de résistance à plusieurs races de rouilles noires. Susceptible à la rouille brune et aux différentes rouilles jaunes, aussi bien qu'au bunt et l'orge nain jaune. Elle mesure 100 cm et fleurit au bout de 80 jours. Grain rouge. (Variété 17).

Meng-8156: H-223-64-1Y-6C-1Y-1C-4Y-3C-1Y-2B-300Y-0Y. C'est une lignée mexicaine avancée, possedant un haut rendement potentiel avec de large adaptation. Sa maturité est tardive(en moyenne, une semaine plus tardive que Siete Cerros). Bonne résistance aux rouilles noires et brunes dans plusieurs localités. Elle a aussi une bonne résistance au Mildew. Dans différents endroits, elle est plus courte que Siete Cerros et plus résistante a l'engrainage. Grain rouge. (Variété 35).

Penjamo 62: (Frontana x Kenya 58 - Newthatch) Norin 10 Brevor. II-7078-1R-6M-1R-1M. L'un des premiers semi-nains blés mexicaines(simple nain). Cette variété est cultivée dans plusieurs pays (la Tunisie a la plus grande superficie emblavée) et a une large adaptation. (Voir Table 1). L'épi est blanc, fusiforme et résistante à l'éngrainage. Elle fleurit en 82 jours et mesure 105 cm. Le plant adulte possede une résistance à la rouille brune, mais tolérante à larouille noire, la rouille jaune et à la Septoria spp. Grain rouge. (Variété 13).

Pitic 62 : Yaktana 54 x N10B-26-1C. 7064-1Y-1H-1R-2M. Première variété semi-naine diffusée au Mexique. Cette variété à haut rendement s'était bien comportée dans les Pépinières Inter - Américaines, dans toutes les trois pépinières du proche Orient Américain, et reste parmi les meilleures entrées de ISWYN (Voir Table A). Elle a un faible test de poids et est susceptible aux différentes races de rouilles noire, brune et jaune. Elle est actuellement cultivée commercialement dans quelques pays. Elle fleurit en 95 jours et atteint 100 cm de hauteur. Elle est très largement adaptée et donne de bons rendements même sous certaines conditions de sécheresse. Grain rouge. (Variété 10).

Saric 70: = Bluebird # 3 = Cno "S" x Sonora 64 - Klein Rendidor/8156.II 23584-26Y-2M-2Y-0M. C'est une variété mexicaine triple naine de la famille de Bluebird (Cajeme71, Yecora 70, Nuri 70) avec robuste courte paille, bon test de poids et possède un gluten fort élastique. Elle est résistante à la rouille noire, mais hautement susceptible à quelques races de rouille brune et modérement susceptible à la rouille jaune. Le grain est rouge. (Variété 49).

Siete Cerros 66: =Penjamo 62 "S" - Gabo 55. II 8156-1M-2R-4M. C'est une variété semi-naine de très haut rendement potentiel et de large adaptation (Voir Table A). Cette variété et ses sœurs à grain rouge, Super X et resélections sont attachées à plus de 40 noms, incluant 8156, Kalyansona, S-227, PV-18, Indus 66, Mexipak, Laketch, etc. Celles-ci sont largement cultivées sur 13 millions d'hectares en Inde, Pakistan, Moyen Orient et Afrique du Nord. Siete Cerros 66 est susceptible aux trois rouilles, mais continue à figurer parmi les plus intéressantes variétés dans presque toutes les localités. Elle a un bon niveau de résistance au Mildew. Elle donne de bons rendements dans les conditions difficiles d'humidité. Le grain est blanc. (Variété 32).

Tanori 71: Son 64 - Cno "S" x Inia. 25717-11Y-3M-1Y-0M. C'est une variété précoce comme Inia 66 avec robuste courte paille (2 genes-nain), grain rouge avec un haut poids hectolitrique. Elle montre un efficace niveau de résistance aux rouilles noire, brune et jaune dans plusieurs parties du monde, y compris le Mexique, l'Inde, le Pakistan et l'Egypte. Elle fleurit en 85 jours et mesure 90 cm. Elle a montré un haut rendement potentiel dans plusieurs pays. Le grain est rouge. (Variété 2).

Tobari 66 : Tzpp-Son 64A. 19201-4M-3Y-102M-100Y-101C. C'est une variété mexicaine semi-naine. Elle a une excellente résistance totale aux rouilles noire, brune et jaune. Elle fleurit en 84 jours, un retard de quelques jours que Inia 66. Le grain est rouge. (Variété 15).

Yecora 70 : = Bluebird # 2 = Cno "S"- Son 64 - Kl. Rend. /8156. 23584 - 26Y-2M-1Y-0M. Une variété triple naine diffusée en 1970. La variété est une lignée sœur de Cajeme 71, Saric 70, et Nuri 70. Elle possède une forte paille avec un gluten fort élastique. Elle a donné de très bons rendements au Mexique et est résistante a la rouille noire, modérement susceptible à la rouille brune et à la Septoria. Toutefois ailleurs, plusieurs races de rouille brune ne l'attaquent pas. Elle fleurit en 78 jours et possède une robuste courte paille, mesure 70-80 cm. L'épi est blanc, barbu, fusiforme et résistant à l'égrainage. Le grain est de dimension moyenne. Le grain est blanc. (Variété 19).

ETATS UNIS D'AMERIQUE

Chris : = Frontana - Thatcher x II 44-29 - Thatcher^2 - II 53-525-1. CI 13751. Une variété développée à Minnesota avec excellente qualité, ayant une bonne résistance à la rouille noire et de faible résistance à la Septoria. La résistance à la rouille brune est excellente, mais plusieurs races de rouille jaune peuvent l'attaquer. Elle est largement cultivée aux Etats Unis et au Canada. Elle fleurit en 91 jours et possede une taille normale de 1.20 m. Le grain est rouge. (Variété 1).

Bonanza: Pi 62 - Chris "S" x Son 64. II-19957. CI 14077. C'est une variété des Etats Unis ayant un haut niveau de résistance à toutes les trois rouilles au Mexique et ailleurs. Elle montre aussi quelques traits de résistance au Fusarium nivale dans la Vallée de Toluca. Elle a une taille de 95 cm et fleurit en 82 jours. Bonanza a été sélectionnée dans une dissociation de population en F5 du même croisement que CIANO 67, Azteca 67, Ahome 70, Chaparral, et Lapacho. Le grain est rouge. (Variété 46).

El Gaucho - Son 64 x 7C - Napo 63 : 6W00890-25-11-12-21-11-2B. C'est une lignée avancée des Etats Unis, ayant un type de plant de Siete Cerros, résistante à toutes les trois rouilles dans les conditions du Mexique, mais elle est très tardive. Elle mesure 100 cm, montre une certain tolérance à Septoria tritici en Algérie et elle est aussi résistante au Mildew. Le grain est blanc. (Variété 39).

Era: Variété semi-naine développée par l'Université de Minnesota, utlilisant comme parents Thatcher, FK 58N , Pembina, Mida Kenya 117A et Lee dans un croisement complexe. Elle se montre résistante à la rouille noire et à la rouille brune dans plusieurs parties du monde. Y compris le Mexique, les Etats Unis, et le Kenya. Elle fleurit au bout de 136 jours et elle a une taille de 100 cm. C'est une des principales variétés de blé de printemps dans le N. des Etats Unis. Fletcher et Wared sont les lignées sœurs de Era. Grain rouge. (Variété 6).

Son 64 x Tzpp-Y54/Justin3: = Soty - Justin3. 70 ESP29. Une lignée avancée des Etats Unis possédant une excellente résistance aux trois rouilles. Taille du plant 85 cm, fleurit en 78 jours dans les conditions mexicaines. Le grain est rouge. (Variété 40).

VARIETES APPORTES PAR AUSTRALIE

UQ 105: Condor "S" = WW 152/Pj 62 - Gb 56 x Tzpp - Nai 60. C'est une lignée ayant un haut rendement potentiel et de large adaptation. Son type de plant est très similaire à WW15 (Anza). Elle a un bonne résistance à la rouille brune, à la rouille jaune, et à la Septoria tritici, mais très susceptible à la rouille noire dans le climat du Mexique. Elle mesure 85 cm et fleurit en 93 jours. Le grain est blanc. (Variété 41).

Mexico 120: = (Pitic "S") = Yt 54 - N10B. II 7074. C'est une variété naine à 3 gênes montrant une large adaptabilité. Elle se compor te bien dans les conditions sèches d'Australie, elle est susceptible aux trois rouilles. Se montre résistante à la Septoria dans certaines parties du monde. Fleurit en 85 jours et mesure 60 cm dans le climat du Mexique. Le grain est blanc. (Variété 20).

LR-N10B x An_E^3: = Mexicani = WW 15 = Karamu = Anza. Ce blé a été testé sous plusieurs noms donnés par différents pays. Soudan, Australie, Nouvelle Zélande, Californie. Il aparait que celles-ci sont très étroites dans leur réaction aux maladies. Elle donne d'excellents rendements dans plusieurs pays, la résistance à la rouille jaune est adéquate. Le grain est rouge. (Variété 11).

VARIETES APPORTES PAR DES PAYS SUD-AMERICAINES

ARGENTINE

Gaboto: Bagé 2018 x H 44 - Sinvalocho Mag/Bagé 1971/37. C'est une de plus importantes variétés à grain mou dans la partie Nord de la Ceinture de Blé de l'Argentine. Elle est considérée comme étant résistante à Septoria spp., Fusarium spp. et à toutes les trois rouilles. Elle fleurit en 103 jours et atteint 120 cm de hauteur. Le grain est rouge. (Variété 22).

Jaral "S" (C): Son 64 x Tzpp - Nai 60. 18889-101M-1R-3C-1T-2B-0Y. C'est une lignée très prometteuse sélectionnée en Argentine ayant un bon rendement. Elle fleurit au bout de 83 jours et sa taille est de 90 cm dans le climat du Mexique. Maintenant, elle est designée Leones Inta. Dans deux saisons, la résistance à la rouille brune a été excellente, tandis qu'a la résistance aux rouilles noire et jaune a été légèrement bonne. Grain rouge. (Variété 25).

Jaral "S" (B): Son 64 x Tzpp - Nai 60. II 18889-6T-4T-2T-1T-2B. C'est une lignée avancée d'Argentine, toute fois le croisement original a été fait au Mexique, mais les sélections ultérieurs jusqu'au mélange ont été accomplies en Argentine. Elle fleurit en 86 jours et a une taille de 95 cm. Elle est résistante à toutes les trois rouilles dans les conditions du Mexique, aussi bien que dans beaucoup d'autres endroits ou le blé est cultivé. Le grain est rouge. (Variété 30).

Marcos Juarez Inta: = Son 64 - KL.Rend. II 19975-68Y-1J-6Y-1J-4Y-1J-0B. C'est une variété commerciale ayant un prometteur rendement potentiel, une large résistance aux maladies, aux trois rouilles particulièrement à la rouille brune et à la Septoria tritici. Le croisement de départ a été fait au Mexique, les sélections ulterieures ont été faites dans ce pays et en Argentine. Ce qui a donné à cette variété une large adaptation. Plusieurs sélections sœurs de cette variété ont été testées, telles que Soltane, Zaafrane et Mexico 226. Elle a une maturité intermédiaire, elle est semi-naine, possédent une tolérance au froid et une bonne dimension du grain. Le grain est rouge. (Variété 18).

Parana 68/1116: C'est une lignée avancée ayant un bon niveau de résistance à la rouille noire et à la rouille brune. Elle a aussi une certaine tolérance à la Septoria spp. Sa taille est de 85 cm. Le grain est rouge. (Variété 47).

Pato: = Tzpp - Son 64A x Nar 59. II 21974-4R-4M-2B-0Y-0P-0Y. C'est une variété semi-naine avec rude paille, résistante à toutes les trois rouilles et à Septoria spp. Elle fleurit en 81 jours et atteint une taille de 90 cm dans les conditions du Mexique. Elle résiste aussi à l'eau stagnante. Le croisement de départ a été réalisé au Mexique et une lignée avancée en F_6 a été envoyée en Argentine où elle était ensuite résélectionnée, mélangée et baptisée Pato à cause de son inhabituelle survie dans les conditions constantes d'innondation. Le grain est blanc. (Variété 16).

BRESIL

Iassul 20: (Frontana x Kenya 58) x Colonias. Une variété de grande taille, très résistante à Septoria spp dans plusieurs parties du monde. La taille est de 130 cm. Elle résiste à la rouille brune, modérement susceptible à la rouille jaune et est probablement un agent lent pour la rouille noire. Elle est résistante à la toxicité d'aluminum dans les conditions du Brésil. Le grain est rouge. (Variété 3).

Lagoa Vermelha (C-17): = Veranopolis x Mida - N^2. C'est une variété de grande taille possédant une bonne résistance à Septoria et une tolérance à la toxicité d'aluminium. Elle est résistante à certaines races de rouille noire, modérement susceptible à la rouille brune et hautement susceptible à la rouille jaune dans le climat du Mexique. Elle fleurit au bout de 89 jours et possède de bonnes feuilles. Le grain est rouge. (Variété 33).

CHILI

Huelquen: C'est une variété commerciale largement cultivée au Chili. Elle est de grande taille et fleurit en 75 jours dans le climat du Mexique. Au Mexique, cette variété est susceptible aux rouilles noire et brune. La résistance a la rouille jaune est bonne. Le grain est rouge. (Variété 27).

COLOMBIE

Samaca 68: = Bza x AfM^2. II 13022-9B-1T-2B-1T. C'est une variété de grande taille qui fleurit au bout de 84 jours dans les conditions du Mexique. Elle est résistante à tous les trois rouilles dans le climat du Mexique et celui de la Colombie. Récemment, une rouille brune l'a attaqué dans le jeune âge, mais elle était restée résistante dans le stage adulte montrant de ce fait, une résistance du plant adulte. Cette variété manifieste invariablement

sur la feuille, des tâches nécrotiques génétiques probablement héritées de Africa Mayo. Samaca 68 est un des meilleurs parents résistant aux rouilles utilisé dans le programme de sélection. Le grain est rouge. (Variété 38).

Zipa 68: = F-Y48 x AfM2. II-12924-20B-3T-2B-1T. C'est un blé de grande taille ayant de bons niveaux de résistance à la rouille jaune et à la rouille noire en Colombie et au Mexique. Elle fleurit en 87 jours dans les conditions du Mexique. Le grain est rouge. (Variété 34).

METHODES D'INTERPRETATION DES DONNEES

Les coefficients d'infection de maladies ont été analysés statistiquement et aussi mis en correlation avec d'autres caracteristiques(exemple, le rendement). Cependant, pour la présentation tabulaire de ce rapport, nous donnons les notes à l'échelle standard de la rouille pour la première répétition de chaque site, puisqu'à partir de celle-ci, il est plus facile d'entrevoir la réplique d'une variété en particulier. La réaction moyenne à la rouille par localité est presentée comme un indice de la quantité de rouille de cette localité. Les valeurs moyennes de rouille rélativement basses indiquent une faible incidence et/ou la virulence du pathogène. Les moyennes plus élevées indiquent une plus grande incidence ou virulence. Ces moyennes constituent une comparaison relative par localité, et refétent le degré d'infection de ce pathogène dans cet essai, sous les conditions existantes.

D'autres indices de comportement de variété ont été analysés chaque fois que cela était possible, et sont présentés dans des tableaux. La majorité de ces valeurs furent des pourcentages. Plusieurs indices étaient transformés en pourcentages.

Les variables pour chaque variété ont été rassemblées, ensuite on a calculé la valeur de la moyenne. Les rendements sont classés par ordre de grandeur décroissante.

Les valeurs moyennes pour le rendement et les autres variables ont été obtenues pour chaque variété. Ensuite, la moyenne des moyennes a été calculée pour chaque variable. Celle-ci, est appelée Grande Moyenne et est inscrite sous chaque colonne de variables.

Les séquences restantes pour l'erreur standard de la grande moyenne, coefficient de variation (CV) et la plus petite différence significative LSD .05 sont appelés analyses de variance on les calcule seulement quand il y a deux ou plusieurs répétitions de données.

L'analyse de la variance pour le rendement illustre la question, et ce procédé est applicable pour n'importe quelle variable de ISWYN, quand il se répéte deux ou trois fois.

Dans les rapports des essais précédents, quand le coefficient de variation (CV) était plus grand que 75%, les données de cette variable spécifique étaient éliminées et n'étaient pas imprimées. Ceci est arrivé pour les variables autres que celles du rendement.

Les spécialistes du blé ont sollicité l'apparition des variables avec un CV supérieur à 75%. Par conséquent, on peut observer sur certains tableaux, quelques variables de hauts coefficients de variation. Un coefficient de variation élevé provient de l'erreur standard élevé et de valeurs basses de la moyenne.

Ceci arrive lorsque les données sont omises, plusieurs valeurs zéro sont enregistrés, qu'il y a une différence dans l'estimation des valeurs entre les répétitions, ou est dû à la variation naturelle des conditions environnantes. Par conséquent, l'erreur estimée de la variance a été calculée directement pour toutes les caracteristiques reportées. Le coefficient de variation (CV) est exprimé en pourcentage (raison d'erreur standard grande moyenne x 100 x racine carrée) où nr (ou n= nombre des variétés, et r = nombre des répétitions). Le coefficient de variation entre deux variables parmi les localités.

La plus petite différence significative (LSD) est calculée au niveau 5%. L'avantage de la plus petite différence significative (LSD) est qu'il est facile d'utiliser pour faire des comparaisons entre deux moyennes de deux localités.

Bon nombre des facteurs inaperçues influençant le rendement peuvent quelquefois être obtenus par études de correlation. Des correlations ont été faites pour toutes les paires de facteurs possibles, par localité et en utilisant la valeur de la moyenne pour chaque caracteristique reportée. On a computé plus de corrélations sur les moyennes de répétitions que sur les valeurs enregistrés, car quelques données se rapportaient fréquemment a une seule répétition. La grandeur de la population est légèrement petite pour ce genre d'analyse et quelques fausses corrélations peuvent être rencontrées. Il est recommandé d'interpréter ces valeurs avec quelque précaution. Plusieurs chercheurs trouvent les analyses de corrélation intéressantes et utiles et elles sont présentées dans le tableau de résumé pour chaque localité, mais cela est sous toutes réserves.

Les moyennes générales par localité ont été calculées pour chaque variable ici où le nombre d'observations ont justifié l'inclusion. A l'exception des données sur la rouille, les unités rapportées sont celles utilisées dans tout ce rapport. Pour des raisons mathématiques, les moyennes des réactions à la rouille ont été calculées sur les valeurs du coefficient d'infection (CI). On sugère une comparaison entre les CI rélatifs pour sélectionner des variétés résistantes à la rouille, potentiellement utiles. Les matériels avec des valeurs appréciables, inférieures à 10, peuvent être considérés comme résistants, tandis que les variétés avec des valeurs supérieures à 20, pourraient être considérés comme susceptibles.

De nombreux problèmes ont été rencontrés dans l'analyse et résumé de cordonnées. Notre intention est de fournir au lecteur le maximum d'information utile, sans toutefois le troubler avec beaucoup de détails sur la computation.

RESULTATS ET DISCUSSION

Les données de 73 localités, représentant 11 pays d'Afrique, 7 pays d'Asie, 1 pays d'Amérique Centrale, 9 pays du Moyen Orient, 3 pays de l'Amérique du Nord, 1 pays de l'Océanie et 6 pays de l'Amérique du Sud, ont été envoyées au CIMMYT pour analyse à la Neuvième Pépinière Internationale sur le Rendement des Blés de Printemps (1972-73). Les différentes localités avec le numéro du tableau correspondant sont présentées dans la figure 1. La saison culturale et l'altitude pour chaque site sont indiqueés dans la figure 2.

Les localités de l'extreme Nord (Japon, Alaska, Europe) et aussi dans plusieurs pays de l'hémisphere Sud, les localités à plusieurs altitudes très élevées situées tout près de l'Equateur, effectuent leurs essais dans les vrais conditions du printemps. Par ailleurs la période où les pépinièrs sont plantées tend a être longue à cause du semis d'hiver. L'Afrique du Nord, le Proche et Moyen Orient, y compris l'Inde, le Pakistan et l'Europe du Sud, sont dans la même situation.

Les tableaux 1 à 73 donnent le comportement des variétés pour le rendement en grain, les caractéristiques agronomiques, les données sur les maladies pour chaque localité. Les tableaux sont groupés en huit régions géografiques. La moyenne globale des localité · pour vingt variables a été mesurée et donnée dans le tableau 74. Puisque dans chaque localité toutes les variables n'ont pas été mesurées, le nombre des localités reportées est donnée en dessous de chaque colonne du tableau 74.

Les données pour la qualité du grain des variétés employées à la Neuvième Pépinière Internationale sur le Rendement des Blés de Printemps (ISWYN) sont présentées dans le tableau 75. Une breve description des caracteristiques testées a été aussi annexée.

La première variété du point de vue rendement dans toutes les localités a été une lignée mexicaine Meng - 8156 avec un rendement moyen de 4286,63 Kg/ha. Les variétés telles que UQ 105, Condor, Siete Cerros, Tanori 71 et Cajeme 71 se sont classées deuxième, troisième, quatrième et cinquième. Cependant, la différence du rendement moyen entre Meng - 8156 (clasée deuxième) et Cajeme 71 (clasée cinquième) est seulement de ---- 129,43 Kg/ha. De ces variétés, 4 viennent du Mexique, et une d'Australie. Siete Cerros (Penjamo "S" x Gb 55, 8156 cross) avec un rendement moyen de 4261,90 Kg/ha et dans la huitieme ISWYN, 4017,30 Kg/ha est le blé mexicain le plus largement cultivé dans le monde.

Tanori 71, (4157,60 Kg/ha) et Cajeme 71 (4157,20 Kg/ha) ont donnée des rendements identiques. Une similitude de rendement a été observé entre la huitième et la neuvième ISWYN, pour la variété Cajeme 71 avec des moyennes respectives de 3956,13 Kg/ha et 4157.20 Kg/ha.

Parmi les 10 variétés classées en tête, 6 viennent directement du Mexique et font partie du germoplasme mexicain. Ce groupe répresente les blés semi-nains du printemps ayant un certain degrée de résistance à la verse et ont une hauteur moyenne de 73.67 cm dans toutes les localités. Par contre, les 10 variétés se classant du bas de la liste du point de vue rendement sont principalement de grande taille et susceptibles à la verse et ont une hauteur moyenne de 98.38 cm.

Quatre variétés triple nain (Mexico 120, Roti, Bb Resel et UP 301) ont prèsque donné les mêmes rendements moyens, mais très loin dans le classement (rangées 37-39-40-41). Ces blés ne sont pas adaptés de la même façon avec ceux de grande taille classées premiers.

Les variétés les plus susceptibles à la rouille noire ont été Anza, BT 2288, Pitic 62, Iassul 20 et Mexico 120. Les variétés Chenab 70 et Siete Cerros ont été aussi susceptibles à la rouille noire dans plusieurs localités étudiées. Par contre, une excellente résistance à la rouille noire a été signalée pour les variétés suivantes: Era, Chris, Bonanza, UP 301, Samaca 68, Jaral "S", Parana 68 et Tob - 8156. La meilleure résistance à la rouille jaune comme indiqué par le faible coefficient d'infection a été signalée pour les variétés Condor "S", Inia 66, Pato, BT 2281, Tobari, Tanori 71 et Zipa 68.

La meilleure résistance à la rouille brune a été observé dans les variétés Bonanza, Era, Tobari 66, BT 2288, Bb-Inia, Marcos Juarez, Inta, Chris, Bb Resel et Gaboto. Comme on le voit, quelques unes de ces variétés sont résistantes à plusieurs rouilles à la fois. Il est encourageant de constater que différents types de germoplasmes résistants à plusieurs genres de rouille.

La résistance au Mildew des variétés telles que Siete Cerros (Cross 8156) a

été fréquemment classée en premiere place, en particulair dans les tests des pays européens.

Dans le Nord-ouest du Mexique, elle a aussi été la meilleure dans la huitième et neuvieme ISWYN.

Un croisement de 8156 avec la variété australienne Mengavi (Variété 35) a aussi occupé la plus haute place dans beaucoup de tests: Angola, Corée du Sud, Népal, Jordanie, Nord-ouest du Mexique(semi précoce) et à Montana aux Etats Unis. Ceci réprésente une énorme différence d'altitude et de longitude. La variéte a quelque peu une maturité tardive par rapport à Cross 8156 (Siete Cerros, Kalyansona) mais tend a avoir une meilleure résistance à la rouille noire.

Un troisième blé avec haut rendement dans plusieurs localités est LR-N10B x An_E^3, maintenant connu comme Mexicani, WW 15, Anza et Karmu. Elle a occupé la première place en Afrique du Sud, au Soudan, en Tunisie, en Argentine et en Nouvelle Zélande. Dans la huitième ISWYN, elle a été variété élite à Alaska.

Un croisement de LR-NWB x An_E^3 et Pj 62 - Gb 56 x Tzpp - Nai 60 fait en Australie, maintenant connu sous le nom de Condor "S (UP 105) a aussi montré de très bons résultats dans le classement en Lybie, à Gujarat en Inde, à Saskatchewan, et à Coastal Lebanon.

Chenab 70 du Pakistan a été six fois la meilleure variété dans la huitième ... ISWYN. Cependant, dans la neuvième ISWYN, elle a été prémière seulement dans une localité au Pakistan.

Les variétés Bluebird, Cajeme 71 et Yecora 70 ont été rangées premières dans sept tests surtout là où les conditions étaient favorables pour de très hauts rendements, par exemple, Egypte, Rhodhesie et Colombie pour la variété Cajeme 71, Israël pour la variété Yecora 70.

La variété locale Barah (témoin) à Idaho a surpassé toutes les entrées. A Schleswig-Holstein en Allemagne de l'Ouest, le témoin a donné un rendement au-dessous de 10 tonnes par hectare, dans la huitième ISWYN, les témoins suivants:

Minnesota (Variété II-64-33), Allemagne de l'Ouest (Variété Kolibri), Hollande (Variété Toro) et Norvège (Variété Funer) se sont révélés meilleurs producteurs.

Il est bon de citer quelques variétés qui ont été fréquemment classées en dernière position du point de vue rendement.

En 1972-73, Iassul 20 a été dans 20 tests des variétés à faible rendement, Ariana 66 dans 14 locations. D'autres variétés occupent les places inférieures ont été El Gaucho Son 64 x 7C - Napo 63 et Lagoa.

Dans la huitième ISWYN (1971-72) Manitou et Manitou (insensibles à la longueur du jour) ont été en bas de la liste dans 34 localités sur 83 dans le monde. Iassul 20 a été encore la variété médiocre dans plusieurs tests (11) et Ariana 66 (11 fois). La sensibilité à la longueur du jour et/ou l'exigence de température froide sont impliquées dans beaucoup de ces réponses.

Dans la neuvième ISWYN, Manitou n'était pas inclue, excepté comme variété

témoin a Saskatchewan où elle était classée en bas de la liste. (Table 50).

CARACTERISTIQUES TECHNOLOGIQUES SUR LA QUALITE DU GRAIN DES VARIETES DU BLES ENTRANT DANS LA NEUVIEME PEPINIERE INTERNATIONALE SUR LE RENDEMENT DE BLES DE PRINTEMPS 1972-1973

Le laboratoire du CIMMYT sur la technologie des blés a détérminé beaucoup de caracteristiques de farine sur plusieurs années. La semence pour les tests de la farine pour la neuvième ISWYN, a été obtenue de la Vallée Yaqui, 1972-73 Mexique. Cette superficie se trouve dans le district où l'on pratique l'irrigation et/ou les méthodes d'amenagement très intensives sont communes. (Voir tableau 53 pour la description des localités).

Le tableau 75 présente des informations sur diverses caractéristiques de farine de 49 entrées de la neuvième ISWYN et la farine standard témoin est Gold Medal.

A l'intention des spécialistes du blé qui ne sont pas très familièrs avec les méthodes de technologie du blé, nous donnons une breve description de chaque caracteristique mesurée.

TESTE DU POIDS

Densité du grain est communement mesurée comme le poids (Kg) par le volume (en hectolitres). Pour les coopérateurs plus habitués au test du poids exprimé en pounds par bushel, 75 Kg/Hl est grossièrement equivalent à 60 Lbs/bu. La dimension de la semence et le poids de 1 000 grains sont rapportés aux valeurs du test du poids.

MICRO-PELSHENKE (PK)

Ce test, parfois fait allusion au test de la durée de fermentation pour le blé de repas est employé pour déterminer la force du gluten. Il est basé sur le temps nécessaire pour que le gaz développé par la fermentation de la levure soit liberé d'une balle faite avec 3 grammes de toute la farine de blé ayant une certaine force due à ses caractères de gluten. Les lignées avec des valeurs supérieures à 100 minutes peuvent être considérées comme ayant un fort gluten.

SEDIMENTATION

Comme le test Micro-Pelshenke, la valeur de la sédimentation est largement influencée par la qualité de la protéine du grain. Les valeurs de sédimentation de 30 cc sont typiques pour les lignées à faible gluten, tandis que les valeurs de 40 cc ou au-dessous, suggèrent un fort gluten.

RENDEMENT EN FARINE

La capacité relative de mouture de différentes sélectiones est.exprimée comme le pourcentage de rendement en farine d'une quantité connue de grains. Cette importante information est rapportée en test du poids du lot de semence. Les échantillons avec des grains ridés, rotatinés tend à avoir un faible rendement en farine.

PROTEINE

La détermination de l'azote a été réalisée dans les échantillons par la méthode de Kjeldahl et les valeurs de l'azote ont été multipliés par 5, 7 le facteur de conversion de l'azote en protéine.

ALVEOGRAME

Les caractéristiques du gluten de tenacité et extensibilité sont déterminées par la méthode de Alveogram. La tenacité ou la résistance de la pâte est indiquée par "G". Le rapport P/G peut être employé comme guide dans la sélection des blés pour le grain avec un bon équilibre en gluten dans les blés durs et dans les blés tendres.La superficie en dessous de la courbe Alveographe est indiquée par "W" et donne une indication sur la force du gluten. Les blés pour le pain avec les valeurs de W environ 300 sont considérés comme ayant un fort gluten. Les blés ayant des valeurs inférieures à 200, ont un faible gluten.

DUREE DE MELANGE

Les boulangers préferent avoir une farine qui demande des périodes idéales de mélange. Le temps, en minutes, exigé pour le mélange de la pâte a une consistence optimale, identifie les lignées avec les caractéristiques désirables pour le fabrication du pain. Une certain quantité de farine est mélangée avec l'eau pour développer une courbe et le temps exigé pour atteindre le point le plus élevé de la courbe est enregistré comme durée de mélange. Les durées de mélange trop longues ou trop courtes sont indesirables.

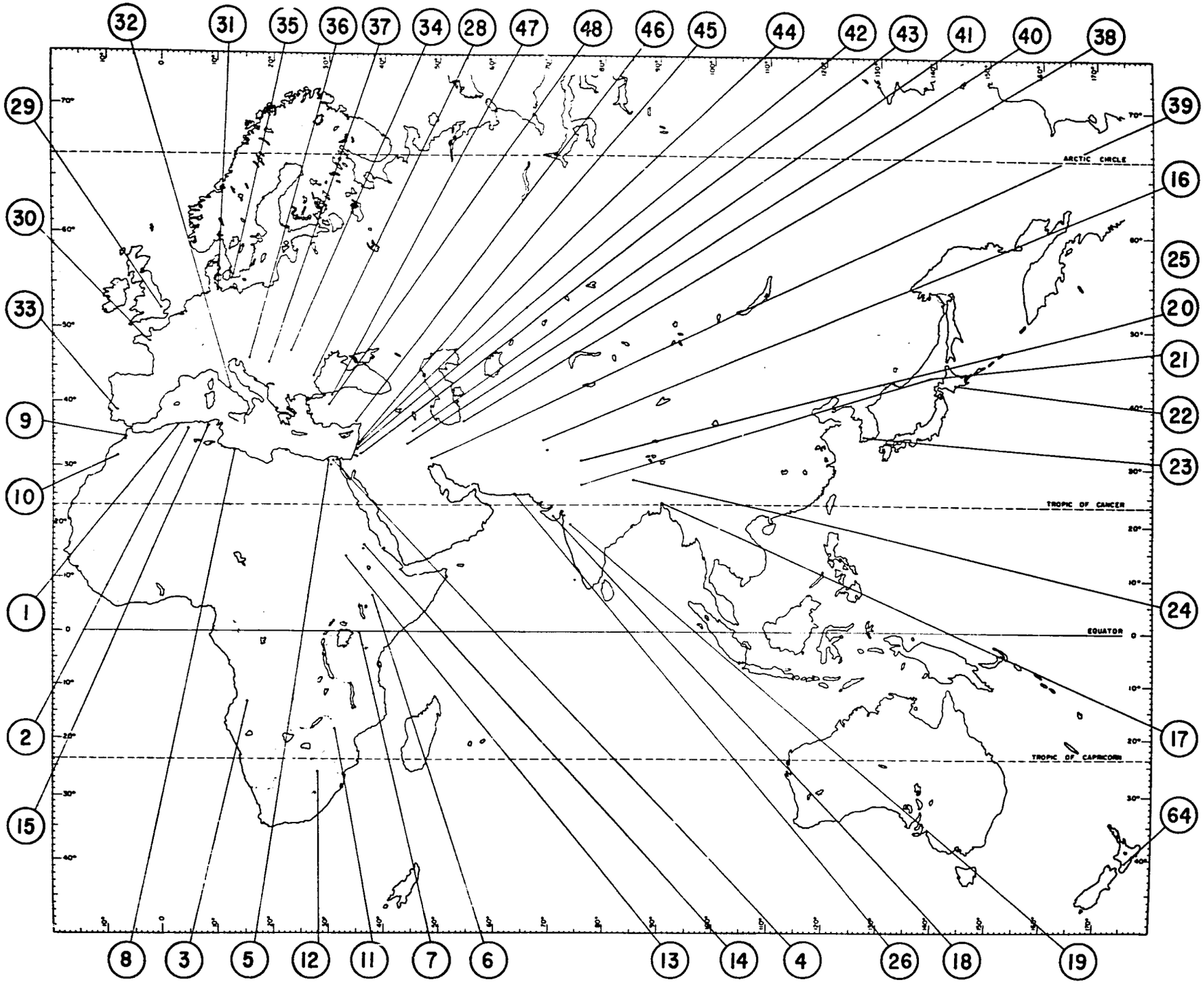
ABSROPTION D'EAU

Pour obtenir le volume du pain, une certaine quantité d'eau exigée est exprimée en pourcentage.

VOLUME DU PAIN

C'est le volume final du pain cuit mesuré en centimetres cubes (cm^3) de 100 grammes de farine comme déterminé par les méthodes standards décrites par l'Association des Chimistes Américaines des Céréales. Les blés avec un dur gluten tendent à avoir un volume du pain élevé, tandis que les blés tendres donnent habituellement de petits pains et sont plus souvent en pâtisserie ou pour autres produits.

FIGURES AND TABLES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ARCTIC CIRCLE
TROPIC OF CANCER
EQUATOR
TROPIC OF CAPRICORN

FIGURE I

Cont'd. FIG. I

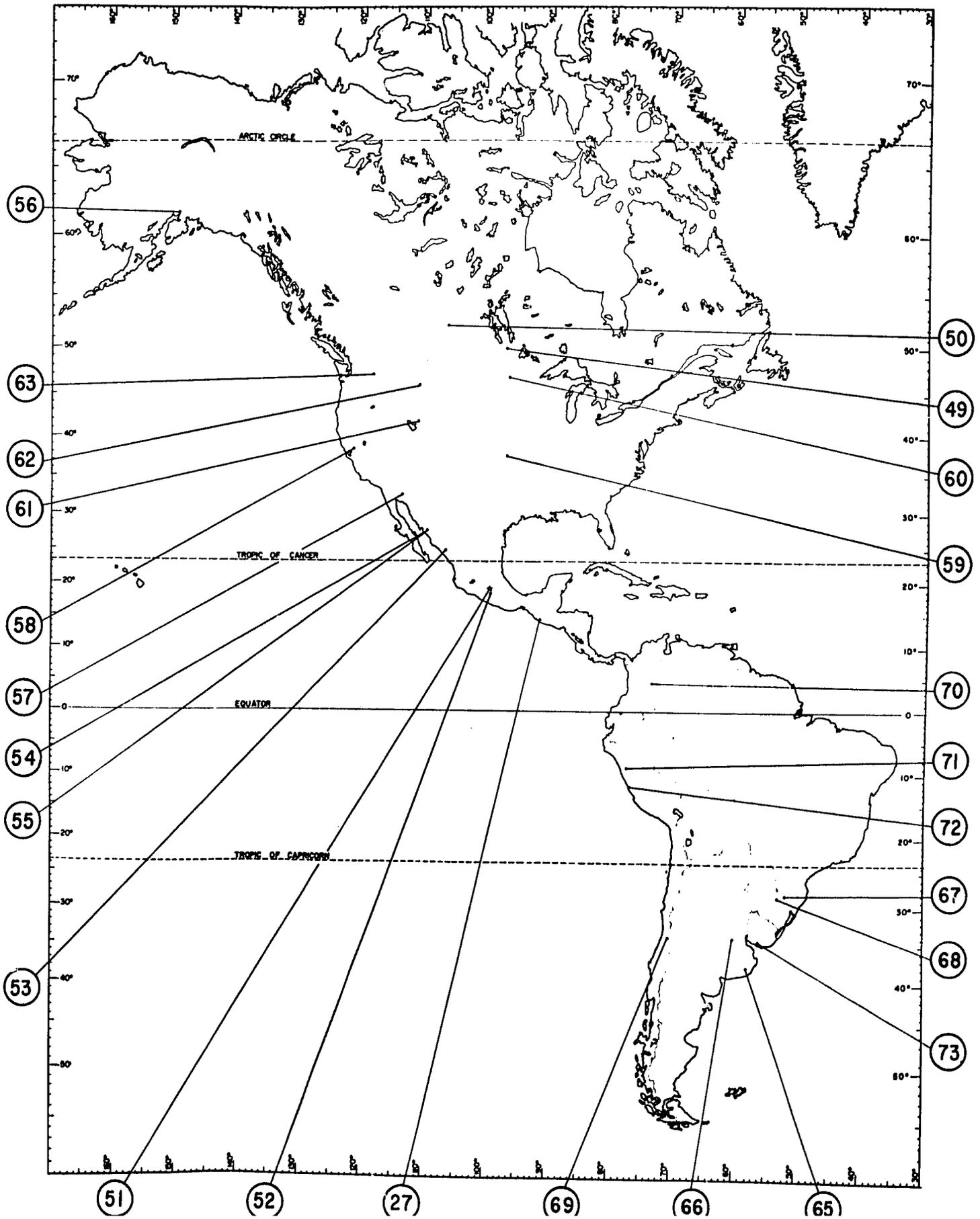
ARCTIC CIRCLE
TROPIC OF CANCER
EQUATOR
TROPIC OF CAPRICORN
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FIGURE 2

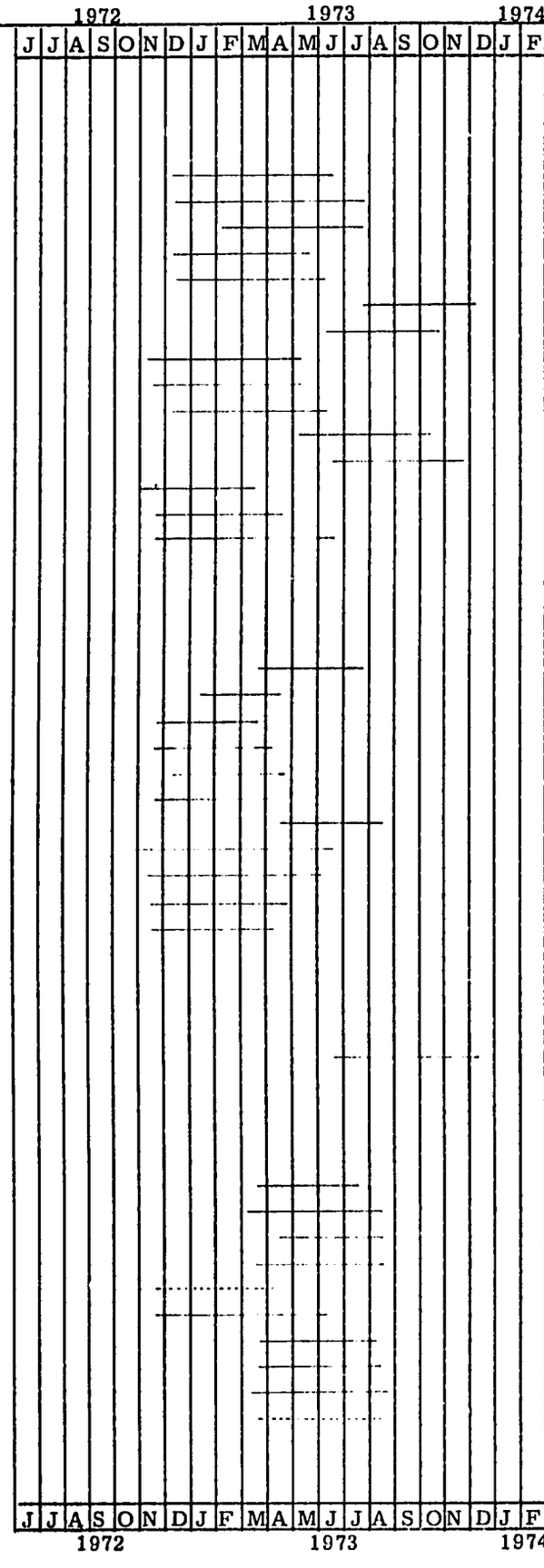
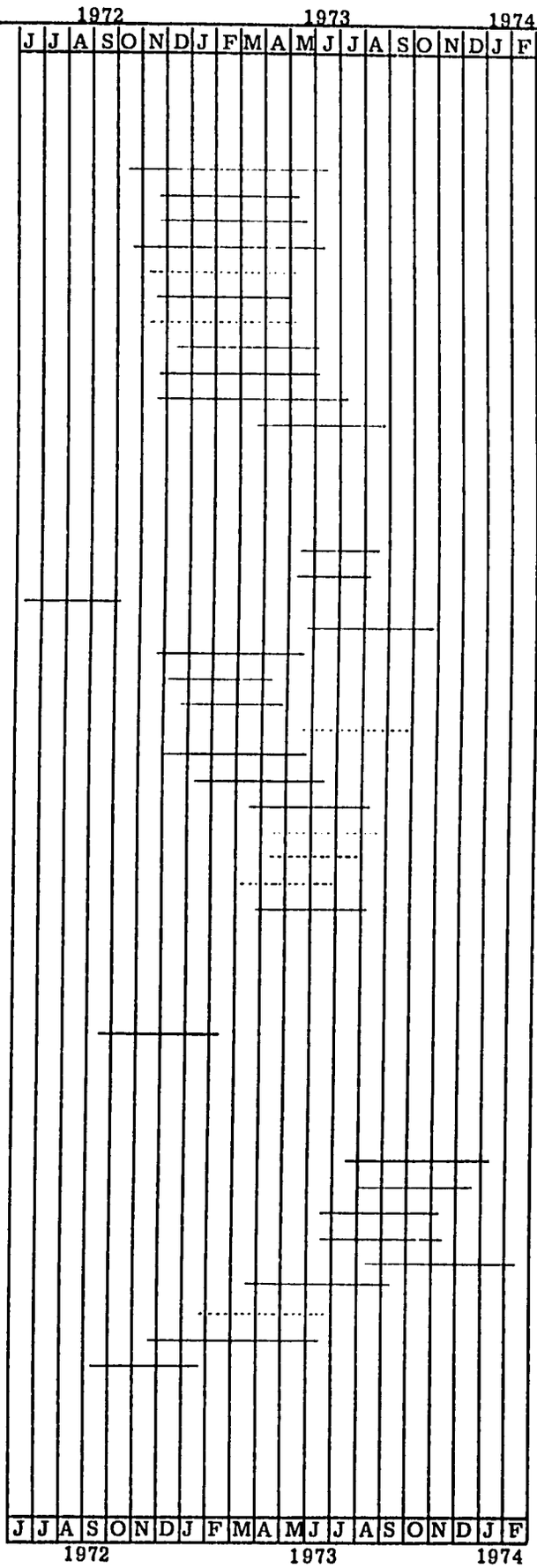


Table No.		ELEVATION (meters)
	AFRICA	
1	Alger, ALGERIA.	48
2	Setif, ALGERIA.	640
3	Huambo, ANGOLA.	1700
4	Bahtim, EGYPT.	21
5	Sakha, EGYPT.	21
6	Shoa, ETHIOPIA.	2100
7	Rift Valley, KENYA.	2164
8	Tripoli, LIBYA.	10
9	Kenitra, MOROCCO.	84
10	Marrakech, MOROCCO.	464
11	Salisbury, RHODESIA.	1506
12	Transvaal, SOUTH AFRICA.	1164
13	Blue Nile Province, SUDAN.	411
14	Kassala, SUDAN.	400
15	Beja, TUNISIA.	161
	ASIA	
16	Kabul, AFGHANISTAN.	1803
17	Dacca, BANGLADESH.	7
18	Gujarat, INDIA.	137
19	Maharastra, INDIA.	549
20	New Pusa Delhi, INDIA.	229
21	Rajasthan, INDIA.	450
22	Hokkaido, JAPAN.	196
23	Kwang Ju, SOUTH KOREA.	40
24	Kathmandu, NEPAL.	1360
25	Punjab, PAKISTAN.	213
26	Sind, PAKISTAN.	19
	CENTRAL AMERICA	
27	Quezaltenango, GUATEMALA.	2407
	EUROPE	
28	Tolbukhin, BULGARIA.	236
29	Cambridgeshire, ENGLAND.	20
30	Seine et Marne, FRANCE.	53
31	Schleswig-Holstein, WEST GERMANY.	5
32	Rome, ITALY. *	402
33	Alentejo, PORTUGAL.	208
34	Jud. Cluj., ROMANIA.	428
35	Landskrona, SWEDEN.	5
36	Croatia, YUGOSLAVIA.	116
37	Voyvodina, YUGOSLAVIA. *	84

* Date harvested not reported

Cont'd. FIGURE 2

Table No.		ELEVATION (meters)
	MIDDLE EAST	
38	Gorgan, IRAN.	50
39	Kuzestan, IRAN.	20
40	Baghdad, IRAQ.	34
41	Sulaimaniya, IRAQ.	700
42	R. D. S. de Gat, ISRAEL. *	120
43	Jordan, JORDAN.	224
44	Beirut, LEBANON. *	995
45	North Coastal Province, LEBANON.	10
46	Adana, TURKEY.	20
47	Adapazari, TURKEY.	33
48	Eskisehir, TURKEY.	789
	NORTH AMERICA	
49	Manitoba, CANADA.	235
50	Saskatchewan, CANADA.	508
51	Mexico, El Batán, MEXICO.	2249
52	Mexico, Toluca-Atizapán, MEXICO.	2640
53	Sinaloa, C.I.A.S., MEXICO.	15
54	Sonora, C.I.A.N.O., MEXICO. 1st. date.	40
55	Sonora, C.I.A.N.O., MEXICO. 2nd. date.	40
56	Alaska, U. S. A. *	61
57	Arizona, U. S. A.	46
58	California, U. S. A.	16
59	Colorado, U. S. A.	1524
60	North Dakota, U. S. A.	285
61	Idaho, U. S. A. *	1219
62	Montana, U. S. A. *	1463
63	Washington, U. S. A.	762
	OCEANIA	
64	Manawatu, NEW ZEALAND.	30
	SOUTH AMERICA	
65	Buenos Aires, Balcarce, ARGENTINA.	135
66	Buenos Aires, Pergamino, ARGENTINA.	66
67	Rio Grande do Sul, Passo Fundo, BRAZIL.	700
68	Rio Grande do Sul, Pesquisas, BRAZIL.	473
69	Santiago, CHILE.	625
70	Cundinamarca, COLOMBIA.	2640
71	Ancash, PERU. *	2600
72	Junín, PERU.	2345
73	Colonia, URUGUAY.	81



* Date harvested not reported

TABLE 1 AFRICA ALGERIA ALGER

MAHDI BOLALEM (ALGIERS-INRAA).
COOPERATORS CEREAL PROJECT-INRAA-CIMMYT.

LATITUDE 036 43'N
LONGITUDE 003 08'E
ELEVATION +00048 M.ABOVE S.L.

DATE PLANTED 12/10/72
DATE HARVESTED 06/16/73
AMOUNT OF MOISTURE 1092 MM

NITROGEN 110.0 KG/HA
PHOSPHORUS 090.0 KG/HA
POTASIUM 050.0 KG/HA

COMPLETELY DRY UNTIL LATE NOVEMBER. RAINFALL SINCE NURSERY WAS PLANTED UNTIL MARCH. HOT WINDS CAUSED PREMATURE RIPENING. PLOTS WERE CONTINUALLY UNDER WATER. VERY LATE DEVELOPMENT OF SEPTORIA AND LEAF RUST. NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	DAYS TO FLOWER	HEIGHT CM.	SEPTORIA TRITICI
6	ERA	U.S.A.	121	80	11
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	119	83	11
3	IASSUL-20	BRAZIL	111	115	33
34	ZIPA 68	COLOMBIA	111	98	27
22	GABOTO	ARGENTINA	110	106	27
41	UQ-115 = CONDOR	AUSTRALIA	110	70	22
35	MENG-8156	MEXICO	109	60	66
11	WW15 = ANZA	AUSTRALIA	109	78	16
1	CHRIS	U.S.A.	109	113	16
27	HUFLQUEN	CHILE	108	100	33
50	LOCAL CHECK		108	95	44
32	7 CERROS	MEXICO	107	83	33
36	715/70	YUGOSLAVIA	107	70	44
38	SAMACA 68	COLOMBIA	107	95	33
10	PITIC 62	MEXICO	106	85	44
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	105	88	38
12	ARIANA 66	TUNISIA	105	96	38
33	LAGOA VERMELHA (C-17)	BRAZIL	104	110	55
46	BONANZA	U.S.A.	103	85	77
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	103	85	33
13	PENJAMO 62	MEXICO	103	83	49
24	3400-1-3	S.AFRICA	103	76	27
26	UP-301	INDIA	102	60	77
29	GIZA 155	EGYPT	102	105	61
14	CALIDAO	MEXICO	100	90	33
37	LEE-N108 X GB 55 / GB 56	SUDAN	100	83	83
18	MARCOS JUAREZ INTA	ARGENTINA	100	90	33
9	SOLTANE = BT 2296	TUNISIA	100	90	55
44	ZAAFRANE	TUNISIA	99	88	49
7	MEXICO 226 = SON 64-KL. REND	IRAK	99	95	55
42	BB 'S' RESELECTION	PAKISTAN	99	56	88
30	JARAL 'S' (B)	ARGENTINA	99	86	61
49	SARIC 70	MEXICO	98	61	72
21	CAJEME 71	MEXICO	98	68	72
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	98	00	55
43	TOB-8156	ETHIOPIA	98	78	66
8	BB-INIA	MEXICO	98	70	88
31	CHENAB 70	PAKISTAN	97	83	77
20	MEXICO 120	AUSTRALIA	97	61	77
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	96	75	77
5	BT-2288	TUNISIA	96	85	66
2	TANORI-71	MEXICO	96	78	83
17	INIA-66	MEXICO	95	81	83
19	YECORA 70	MEXICO	95	68	83
23	BT-2281	TUNISIA	95	85	49
45	MOTI	INDIA	95	60	83
15	TOBARI 66	MEXICO	94	80	66
25	JARAL 'S'	ARGENTINA	94	83	66
28	SONALIKA	INDIA	93	78	88
47	PARANA 68 /1116	ARGENTINA	93	73	88
		GRAND MEAN	102	83	54
		STANDARD ERROR OF GRAND MEAN	0	0	0
		COEFICIENT OF VARIATION	1	8	14
		LSD VARIETY MEANS 5 PC	2	10	12

CORRELATIONS

	FLOWER	
DAYS TO HEIGHT CM.	0.32*	
SEPTORIA TRITICI	-0.79**	-0.51**

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 2 AFRICA ALGERIA SETIF

EL KHROUB (EASTERN ALGERIA-NEAR CONSTANTINE).
COOPERATORS INRAA-PROJET CEREAL-CIMMYT.

LATITUDE 036 16'N
LONGITUDE 006 42'E
ELEVATION +00640 M.ABOVE S.L.

DATE PLANTED 12/12/72
DATE HARVESTED 06/25/73
AMOUNT OF MOISTURE 0547 MM

NITROGEN 100.0 KG/HA
PHOSPHORUS 090.0 KG/HA
POTASIUM 050.0 KG/HA

VERY GOOD MOISTURE DISTRIBUTION. RAPIDLY INCREASE OF TEMPERATURE SINCE APRIL TILL HARVEST. PREMATURE RIPENING DUE TO HOT DRY SOUTHERLY WINDS. NO DISEASE DEVELOPMENT. NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK NOT REPORTED. LODGING SCALE NOT REPORTED.

VARIETY NUMBER,	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	LODGING
25	JARAL 'S'	ARGENTINA	4808	123	163	90	5
42	BB 'S' RESELECTION	PAKISTAN	4683	124	163	66	1
35	MENG-8156	MEXICO	4616	132	171	73	2
44	ZAAFRANE	TUNISIA	4563	125	163	91	2
12	ARIANA 66	TUNISIA	4538	131	168	96	2
31	CHENAB 70	PAKISTAN	4466	124	163	90	7
43	TOB-8156	ETHIOPIA	4450	127	165	85	1
29	GIZA 155	EGYPT	4366	127	170	110	8
23	BT-2281	TUNISIA	4358	124	165	88	5
9	SOLTANE = BT 2296	TUNISIA	4350	125	163	88	2
5	BT-2288	TUNISIA	4203	122	165	88	1
21	CAJEME 71	MEXICO	4191	123	163	75	1
10	PITIC 62	MEXICO	4175	128	164	91	7
28	SONALIKA	INDIA	4166	123	164	95	8
14	CALIDAD	MEXICO	4136	125	164	86	3
19	YECORA 70	MEXICO	4113	123	163	66	1
17	INIA-66	MEXICO	4108	122	163	93	2
34	ZIPA 68	COLOMBIA	4050	132	168	110	4
13	PENJAMO 62	MEXICO	4008	125	165	93	3
36	715/70	YUGOSLAVIA	3986	131	165	76	3
33	LAGOA VERMELHA (C-17)	BRAZIL	3920	128	164	116	7
37	LEE-N108 X GB 55 / GB 56	SUDAN	3916	127	170	85	1
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	3911	129	168	100	3
41	UQ-115 = CONDOR	AUSTRALIA	3896	129	167	75	1
30	JARAL 'S' (8)	ARGENTINA	3891	124	163	88	7
27	HUELQUEN	CHILE	3883	131	165	105	5
32	7 CERROS	MEXICO	3861	132	165	90	7
15	TOBARI 66	MEXICO	3858	124	163	90	2
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	3708	134	170	90	3
47	PARANA 68 /1116	ARGENTINA	3691	126	163	78	1
7	MEXICO 226 = SON 64-KL. REND	IRAK	3625	126	164	90	1
26	UP-301	INDIA	3536	125	163	66	1
49	SARIC 70	MEXICO	3511	123	163	68	1
24	3400-1-3	S.AFRICA	3496	127	163	81	5
20	MEXICO 120	AUSTRALIA	3483	124	164	61	1
2	TANORI-71	MEXICO	3466	122	163	90	1
11	WW15 = ANZA	AUSTRALIA	3458	127	163	75	1
50	LOCAL CHECK		3433	136	173	105	8
38	SAMACA 68	COLOMBIA	3433	129	163	105	3
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	3425	123	163	76	2
18	MARCOS JUAREZ INTA	ARGENTINA	3400	126	163	91	1
1	CHRIS	U.S.A.	3375	131	163	107	-
8	BB-INIA	MEXICO	3311	123	163	66	1
45	MOTI	INDIA	3266	122	163	61	1
46	BONANZA	U.S.A.	3191	129	163	80	1
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	3170	128	163	85	1
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	3166	129	163	90	4
6	ERA	U.S.A.	2955	136	171	83	1
22	GABOTO	ARGENTINA	2863	130	166	111	6
3	IASSUL-20	BRAZIL	2366	132	165	116	3
		GRAND MEAN	3816	127	165	87	
		STANDARD ERROR OF GRAND MEAN	54	0	0	0	
		COEFICIENT OF VARIATION	17	1	1	5	
		LSD VARIETY MEANS 5 PC	1091	2	3	8	

CORRELATIONS

YIELD	KG/HA				
DAYS TO	FLOWER	-0.28*			
DAYS TO	MATURITY	0.06	0.69**		
HEIGHT	CM.	-0.07	0.42**	0.29*	
LODGING		0.00	0.00	0.00	0.00

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 3 AFRICA ANGOLA HUAMBO

INSTITUTO DE INVESTIGACAC AGRONCMICA CE ANGCLA.
CGOPERATCRS VASCLEMIM GONCALVES DE MACEDC.

LATITUDE 012 44'S DATE PLANTED 02/09/73 NITROGEN 100.0 KG/HA
LONGITUDE 015 50'W DATE HARVESTED 07/23/73 PHOSPHORUS 126.0 KG/HA
ELEVATION +01700 M.ABCVE S.L. AMOUNT OF MOISTURE 0464 MM POTASIUM C96.0 KG/HA

IRREGULAR GERMINATICN. NO DISEASE CEVELOPMENT EXCEPT FOR SEPTORIA SPP.
CHEMICAL CONTROL OF INSECTS. HEAVY WEED INFESTATION CONTROLLED BY HAND.
PEST PROBLEMS NOT REPCRTED. LOCAL CHECK HUAMBC.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	STEM RUST	HEIGHT CM.	LODGING	SHATTERING	1000 GRN WGT GRMS	POWDERY MILDEW	SEPTORIA SPP.
35	MENG-8156	MEXICC	4288	81	81	127	0	73	0	0	31	20	0
36	715/70	YLGOSLAVIA	4066	83	72	125	0	68	0	8	31	0	0
3	IASSUL-20	BRAZIL	3927	80	63	110	60S	118	16	80	36	10	0
24	3400-1-3	S.AFRICA	3682	82	48	96	0	73	0	0	30	7	50
9	SOLTANF = BT 2296	TLNISIA	3621	82	52	100	60S	91	0	0	38	0	10
33	LAGOA VERMELHA (C-17)	BRAZIL	3616	84	52	105	40S	111	0	0	37	0	20
21	CAJEME 71	MEXICC	3549	83	64	118	TS	68	0	5	42	7	27
4	K338-C. DE CH. X KOUDIET 17-KT-Y	TLNISIA	3421	80	58	112	80S	101	0	0	39	0	43
49	SARIC 70	MEXICC	3405	82	60	114	0	61	0	0	36	23	17
11	WW15 = ANZA	ALSTRALIA	3266	84	50	107	TS	68	0	0	31	7	56
41	UO-115 = CONDOR	ALSTRALIA	3221	83	48	103	20S	65	0	0	31	1	50
25	JARAL 'S'	ARGENTINA	3166	82	44	92	0	73	0	5	27	0	50
7	MEXICO 226 = SON 64-KL. REND	IRAK	3133	83	44	91	20S	78	0	0	38	0	27
2	TANORI-71	MEXICC	3121	83	43	94	30S	73	0	0	33	0	60
32	7 CERROS	MEXICC	3038	82	45	96	100S	66	0	0	29	0	36
13	PENJAMO 62	MEXICC	3033	82	46	97	0	73	0	6	34	0	0
50	LOCAL CHECK		3021	84	54	107	20S	113	0	10	37	0	80
15	TOBARI 66	MEXICC	3021	83	45	94	0	70	0	0	31	0	53
10	PITIC 62	MEXICC	2999	77	64	119	10S	91	0	2	29	0	27
19	YECORA 70	MEXICO	2988	82	43	109	0	60	0	0	38	7	33
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	2977	81	47	96	100S	66	0	0	29	16	17
29	GIZA 155	EGYPT	2960	82	52	112	100S	98	0	0	34	0	66
14	CALIDAD	MEXICC	2888	83	45	92	30S	65	0	2	31	1	63
34	ZIPA 68	COLCMBIA	2883	81	49	102	30S	93	0	0	32	0	73
46	BONANZA	U.S.A.	2877	82	48	92	0	71	0	0	28	0	40
31	CHENAB 70	PAKISTAN	2866	76	52	103	80S	80	0	0	31	0	17
1	CHRIS	U.S.A.	2860	82	49	104	0	100	0	0	28	1	10
16	PATO = TZPP-SON 64 X NAP 59	ARGENTINA	2795	84	43	95	20S	66	0	5	28	10	0
44	ZAAFRANE	TUNISIA	2733	82	43	90	TS	71	0	0	36	0	30
23	BT-2281	TLNISIA	2660	83	43	101	30S	63	0	0	33	0	26
43	TOB-P156	ETHICPIA	2577	83	45	99	TMS	66	0	0	30	0	70
20	MEXICO 120	ALSTRALIA	2549	77	57	106	0	53	0	0	29	43	46
18	MARCOS JUAREZ INTA	ARGENTINA	2549	84	63	127	30S	90	0	0	39	33	6
38	SAMACA 68	COLCMBIA	2544	81	46	90	10S	83	0	1	35	0	66
30	JARAL 'S' (B)	ARGENTINA	2533	76	50	109	0	70	0	0	31	7	56
28	SONALIKA	INDIA	2521	81	41	90	TS	71	0	0	42	0	43
17	INIA-66	MEXICC	2444	83	44	90	20S	70	0	0	34	0	60
27	HUELQUEN	CHILE	2394	80	44	95	0	80	0	0	30	0	83
8	BB-INIA	MEXICC	2338	81	45	90	0	51	0	0	29	0	27
5	BT-2288	TUNISIA	2294	83	44	99	0	71	0	5	32	0	16
47	PARANA 68 /1116	ARGENTINA	2249	83	42	91	0	53	0	0	29	0	7
45	MOTI	INDIA	2244	79	44	90	100S	50	0	0	29	0	27
22	G480TO	ARGENTINA	2191	83	73	136	0	121	63	2	29	50	7
26	UP-301	INDIA	2144	80	46	97	TS	50	0	0	36	0	70
42	PB 'S' RESELECTION	PAKISTAN	2116	79	46	93	0	50	0	0	33	0	56
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	1883	79	41	97	0	56	0	0	31	0	33
6	FRA	U.S.A.	1766	80	91	153	TMS	61	0	0	31	7	0
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	1444	79	86	152	0	78	0	0	31	6	23
37	LFE-N10B X GB 55 / GB 56	SUDAN	1243	74	46	91	100S	55	0	0	26	0	17
12	APIANA 66	TUNISIA	1066	81	97	156	20S	96	0	0	38	0	0
	GRAND MEAN		2783	81	53	105	17	75	1	2	33	5	34
	STANDARD ERROR OF GRAND MEAN		31	0	0	0	1	0	0	0	0	0	2
	COEFICIENT OF VARIATION		13	1	4	3	73	5	228	122	4	188	80
	LSD VARIETY MEANS 5 PC		635	1	3	5	21	6	5	5	2	16	44

CORRELATICNS

YIELD	KG/HA										
TEST	WEIGHT	0.38**									
DAYS TO	FLOWER	-0.09	-0.11								
DAYS TO	MATURITY	-0.15	-0.07	0.95**							
STEM	RUST	0.08	-0.31*	-0.09	-0.13						
HEIGHT	CM.	0.26	0.18	0.32*	0.35*	0.16					
LODGING		-0.06	0.05	0.24	0.26	-0.01	0.44**				
SHATTER	ING	0.29*	-0.03	0.12	0.05	0.21	0.37**	0.24			
1000 GRN	WGT GRMS	0.20	0.25	0.12	0.15	0.00	0.29*	-0.08	0.14		
POWDERY	MILDEW	0.03	-0.03	0.35**	0.38**	-0.12	0.13	0.58**	0.05	-0.05	
SEPTORIA	SPP.	-0.02	0.00	-0.46**	-0.41**	-0.15	-0.08	-0.20	-0.21	-0.00	-0.27*

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 4 AFRICA EGYPT BAHTIM

BATHEEN RESEARCH STATION.
COOPERATORS S. DESSOUKI, M. SADEK AND STAFF.

LATITUDE 031 00°N
LONGITUDE 030 00°E
ELEVATION +00021 M.ABOVE S.L.

DATE PLANTED 12/08/72
DATE HARVESTED 05/20/73
AMOUNT OF MOISTURE ---- MM

NITROGEN 168.0 KG/HA
PHOSPHORUS 031.0 KG/HA
POTASIUM 000.0 KG/HA

NORMAL WEATHER CONDITIONS. GOOD NATURAL INFECTION FOR LEAF AND STEM RUST
LITTLE INFECTION FOR STRIPE RUST. INSECT AND PEST PROBLEMS NOT REPORTED.
HAND WEEDING. LOCAL CHECK L.176/3048.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	LEAF RUST	STEM RUST	HEIGHT CM.	SHATTER ING	1000 GRN WGT GRMS
21	CAJEME 71	MEXICO	7843	83	101	148	0	1MR	0	70	10	46
11	WW15 = ANZA	AUSTRALIA	7327	82	106	151	0	20MS	10MR	95	0	37
35	MENG-8156	MEXICO	7027	81	113	154	0	5MR	0	95	10	37
18	MARCOS JUAREZ INTA	ARGENTINA	6577	83	101	146	0	0	0	105	0	46
31	CHENAB 70	PAKISTAN	6963	83	95	147	5MS	20MR	R-MS	110	80	47
7	MEXICO 226 = SON 64-KL. BEND	IRAK	6804	63	95	144	0	0	0	95	10	44
13	PENJAMO 62	MEXICO	6727	83	98	147	0	MR-S	0	105	50	44
42	BB 'S' RESELECTION	PAKISTAN	6632	82	92	144	5MR	1R	0	70	40	44
19	YECORA 70	MEXICO	6571	83	96	144	0	0	10MS	75	40	46
8	BB-INIA	MEXICO	6538	84	96	144	0	0	0	75	0	42
32	7 CERROS	MEXICO	6482	82	101	149	10MS	30MS	TR	115	20	39
45	MOTI	INDIA	6466	83	98	145	0	20MS	0	70	10	43
17	INIA-66	MEXICO	6438	84	87	140	0	0	0	100	20	46
37	LFE-N10B X GB 55 / GB 56	SUDAN	6438	80	99	148	10MS	30MS	0	100	0	37
2	TANORI-71	MEXICO	6438	83	87	140	0	1MR	0	95	50	40
10	PITIC 62	MEXICO	6427	78	101	147	10MS	MS-S	0	100	0	40
20	MEXICO 120	AUSTRALIA	6404	81	96	148	0	1MR	10MS	75	30	40
14	CALIDAD	MEXICO	6316	84	97	147	0	1R	0	100	20	37
49	SARIC 70	MEXICO	6238	82	95	144	0	0	0	75	60	40
9	SOLTANE = BT 2296	TUNISIA	6027	83	96	145	0	1MR	0	100	20	46
28	SONALIKA	INDIA	6027	82	85	148	0	1R	0	105	0	55
24	3400-1-3	S.AFRICA	6016	85	94	149	1CS	MR-R	0	90	60	36
41	UQ-115 = CONDOR	AUSTRALIA	5999	83	111	145	0	1R	0	90	0	36
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	5954	84	103	149	0	10MR	0	105	10	32
5	BT-2288	TUNISIA	5938	82	86	146	0	1R	MS-S	100	10	37
25	JARAL 'S'	ARGENTINA	5882	84	89	146	0	20MR	10MS	90	60	33
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	5863	84	94	146	0	5MR	0	95	30	38
23	BT-2281	TUNISIA	5843	82	87	148	5MR	MS-S	0	95	30	38
29	GIZA 155	EGYPT	5816	84	98	149	10MS	MR-S	10MS	120	0	50
50	LOCAL CHECK		5804	83	92	146	0	R-MS	0	100	0	52
43	TOB-8156	ETHIOPIA	5743	83	97	148	0	1R	0	100	30	37
15	TOBARI 66	MEXICO	5593	84	94	148	0	0	0	100	0	37
47	PARANA 68 /1116	ARGENTINA	5521	84	92	146	0	0	0	85	0	38
26	UP-301	INDIA	5516	79	97	149	0	0	0	75	30	40
30	JARAL 'S' (B)	ARGENTINA	5488	80	99	150	0	1R	1R	105	0	44
44	ZAAFRANE	TUNISIA	5349	82	95	142	0	1R	0	100	30	40
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	5343	79	91	146	5MR	1R	0	85	0	39
46	BONANZA	U.S.A.	5299	82	96	146	0	0	0	95	0	33
4	K338-E. DE CH. X KOLDIET 17-KT-Y	TUNISIA	5127	81	100	153	10MS	50S	0	105	30	41
36	715/70	YUGOSLAVIA	5010	82	114	147	5MR	0	0	90	80	36
27	HUELQUEN	CHILE	4771	82	99	146	0	0	10MS	130	10	40
6	ERA	U.S.A.	4732	81	112	155	0	0	0	85	30	33
38	SAMACA 68	COLOMBIA	4571	81	102	146	0	10MR	0	130	10	41
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	4549	79	115	159	0	20MS	TRR	109	0	30
12	ARIANA 66	TUNISIA	4521	82	114	153	0	30MS	0	135	0	41
34	ZIPA 68	COLOMBIA	4344	80	104	150	10MS	30S	20MS	120	30	38
22	GABOTO	ARGENTINA	4312	82	108	153	0	0	0	140	10	33
33	LAGOA VERMELHA (C-17)	BRAZIL	4099	82	104	147	10MS	10MS	10MS	150	0	43
3	IASSUL-20	BRAZIL	3577	79	100	146	0	5MR	0	125	80	34
1	CHRIS	U.S.A.	3382	81	101	147	0	1R	0	130	40	31
		GRAND MEAN	5781	82	98	147	1	5	1	100	21	40
	STANDARD ERROR OF GRAND MEAN		60									
	COEFICIENT OF VARIATION		12									
	LSD VARIETY MEANS 5 PC		1200									

CORRELATIONS

YIELD	KG/HA									
TEST	WEIGHT	0.05								
DAYS TO	FLOWER	-0.29*	-0.09							
DAYS TO	MATURITY	-0.26	-0.04	0.65**						
STRIPE	RUST	-0.05	-0.01	0.05	0.17					
LEAF	RUST	-0.13	-0.05	0.28*	0.41**	0.49**				
STEM	RUST	-0.16	0.02	0.04	0.03	0.29*	0.20			
HEIGHT	CM.	-0.62**	-0.04	0.28*	0.23	0.24	0.22	0.19		
SHATTER	ING	-0.07	0.09	-0.11	-0.21	0.04	-0.05	0.03	-0.12	
1000 GRN	WGT GRMS	0.41**	0.01	-0.39**	-0.34*	0.07	-0.09	0.07	-0.06	-0.15

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 5 AFRICA EGYPT KAFR EL SHEIKH

SAKHA RESEARCH STATION.
COOPERATORS E. TALAAT, O. KHALIL AND CO. WORKERS.

LATITUDE 031 00'N DATE PLANTED 12/11/72 NITROGEN 070.0 KG/HA
LONGITUDE 031 00'E DATE HARVESTED 06/03/73 PHOSPHORUS 030.0 KG/HA
ELEVATION +00021 M.ABOVE S.L. AMOUNT OF MOISTURE 0200 MM POTASIUM 000.0 KG/HA

IDEAL WEATHER FOR WHEAT GROWING. NORMAL DISEASE DEVELOPMENT. LATE INFECTION SPECIALLY WITH YELLOW RUST. INSECT, WEED OR PEST PROBLEMS NOT REPORTED. LOCAL CHECK GIZA 156.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	LEAF RUST	STEM RUST	HEIGHT CM.	LODGING	SHATTERING
21	CAJEME 71	MEXICO	7538	100	148	10S	0	20S	85	0	50
47	PARANA 68 /1116	ARGENTINA	7211	94	143	0	0	0	80	0	10
35	MENG-8156	MEXICO	7105	109	154	1TR	0	0	90	0	25
31	CHENAB 70	PAKISTAN	7022	98	152	0	0	TR	100	0	10
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	7005	100	148	0	0	0	95	25	25
20	MEXICO 120	AUSTRALIA	6777	99	151	0	0	10S	65	0	40
9	SOLTANE = BT 2296	TUNISIA	6749	100	148	1TR	0	0	105	0	25
49	SARIC 70	MEXICO	6688	99	149	5S	0	5S	75	0	50
32	7 CERROS	MEXICO	6599	103	151	1TR.	70S	TR	110	0	40
19	YECORA 70	MEXICO	6599	98	145	5S	0	30S	80	0	30
14	CALIDAD	MEXICO	6566	102	145	0	0	0	105	0	30
44	ZAAFRANE	TUNISIA	6566	96	145	1TR.	0	0	100	10	30
41	UQ-1[illegible] = CONDOR	AUSTRALIA	6533	109	154	0	0	0	85	0	10
2	TANORI-71	MEXICO	6427	102	147	0	0	TR	105	0	0
7	MEXICO 226 = SON 64-KL. REND	IRAK	6422	98	148	0	0	0	105	0	20
45	MOTI	INDIA	6349	94	144	0	0	0	70	0	50
8	BB-INIA	MEXICO	6311	97	149	0	1TR.	0	75	0	0
28	SONALIKA	INDIA	6266	95	149	0	0	0	100	10	25
46	BONANZA	U.S.A.	6266	105	150	0	0	0	100	15	20
17	INIA-66	MEXICO	6249	95	146	1TR.	0	0	100	10	30
18	MARCOS JUAREZ INTA	ARGENTINA	6199	102	150	0	0	5MR	100	5	30
42	BB 'S' RESELECTION	PAKISTAN	6083	98	145	5S	0	0	75	0	50
24	3400-1-3	S.AFRICA	6005	107	153	20S	0	10S	90	0	20
30	JARAL 'S' (B)	ARGENTINA	5983	102	150	0	0	TR	100	0	10
36	715/70	YUGOSLAVIA	5944	112	153	1TR	0	0	85	0	30
16	PATO = TZPP-SON 64 X MAR 59	ARGENTINA	5911	108	151	0	0	TR	100	0	25
10	PITIC 62	MEXICO	5911	107	152	0	10S	5S	100	0	0
15	TOBARI 66	MEXICO	5894	100	150	0	0	0	105	0	10
25	JARAL 'S'	ARGENTINA	5733	101	148	5S	0	TR	95	0	40
43	TOB68156	ETHIOPIA	5711	99	152	1TR	1TR	0	95	0	40
29	GIZA 155	EGYPT	5644	100	150	0	30S	0	135	75	0
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	5622	97	149	1TR.	0	0	80	0	20
13	PENJAMO 62	MEXICO	5594	105	151	0	5S	50S	95	20	15
26	UP-301	INDIA	5583	108	154	1TR.	0	TR	65	0	75
37	LEE-N10B X GB 55 / GB 56	SUDAN	5377	105	154	1TR	10S	TR	95	0	30
5	BT-2288	TUNISIA	5249	94	149	0	0	TR	105	0	5
23	BT-2281	TUNISIA	5211	99	152	0	10S	TR	100	0	20
50	LOCAL CHECK		5172	102	150	5S	0	0	115	25	0
34	ZIPA 68	COLOMBIA	5111	106	150	0	10S	10S	130	20	10
27	HUELQUEN	CHILE	4999	107	150	1TR.	1S	5S	130	50	10
12	ARIANA 66	TUNISIA	4444	113	154	0	10S	10S	125	10	10
38	SANACA 68	COLOMBIA	4377	106	145	0	5MS	10S	125	25	0
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	4172	125	166	0	10R	0	95	0	10
33	LAGOA VERMELHA (C-17)	BRAZIL	4088	104	149	0	10S	20S	140	100	0
22	GABOTO	ARGENTINA	3988	111	151	0	0	TR	140	75	25
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	3927	105	150	1TR.	50S	5MR	115	0	0
3	IASSUL-20	BRAZIL	3116	111	150	0	1TR.	50S	150	50	30
1	CHRIS	U.S.A.	3094	110	149	0	0	0	135	60	0
6	ERA	U.S.A.	2455	130	164	0	0	0	105	0	20
11	NW15 = ANZA	AUSTRALIA	2144	112	166	0	10S	0	80	0	0
		GRAND MEAN	5640	103	150	1	4	4	100	11	21
	STANDARD ERROR OF GRAND MEAN		60								
	COEFICIENT OF VARIATION		13								
	LSD VARIETY MEANS 5 PC		1208								

CORRELATIONS

YIELD	KG/HA									
DAYS TO	FLOWER	-0.65**								
DAYS TO	MATURITY	-0.54**	0.77**							
STRIPE	RUST	0.18	-0.05	-0.06						
LEAF	RUST	-0.12	0.04	0.08	-0.11					
STEM	RUST	-0.15	0.08	-0.09	0.16	-0.03				
HEIGHT	CM.	-0.51**	0.27	-0.03	-0.20	0.24	0.21			
LODGING		-0.42**	0.13	-0.10	-0.13	0.07	0.27*	0.74**		
SHATTERING		0.37**	-0.17	-0.15	0.21	-0.12	0.02	-0.49**	-0.30	

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 6 AFRICA ETHIOPIA SHOA

M.A.C.U (KCKATE).
COOPERATORS KIFLE M. YESUS.

LATITUDE 006 55°N
LONGITUDE 037 50°E
ELEVATION +02100 M.ABOVE S.L.

DATE PLANTED 07/27/73
DATE HARVESTED 12/08/73
AMOUNT OF MOISTURE ---- PM

NITROGEN 016.0 KG/HA
PHOSPHORUS 046.0 KG/HA
POTASIUM 000.0 KG/HA

SHORTAGE OF RAINFALL DURING SEPTEMBER THROUGH DECEMBER.
LIGHT DEVELOPMENT OF STEM RUST. INCIDENCE OF LADY BIRD BEETLES LARVAE.
SERIOUS PROBLEM WITH WEEDS. PEST PROBLEMS NOT REPORTED. LOCAL CHECK NOT REPORTED. SCALES SCAB= 0-5. RUSTS= 0-5. BLOTCHES= 0-9.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	STEM RUST	1000 GRN WGT GRMS	LEAF BLOTCH	SCAB	GLUME BLOTCH
21	CAJEME 71	MEXICO	2903	78	113	0	44	0	0	0
50	LOCAL CHECK		2696	65	109	0	35	22	40	6
24	3400-1-3	S.AFRICA	2615	71	109	0	37	0	0	0
22	GAUCHO	ARGENTINA	2581	75	109	0	32	0	0	0
10	PITIC 62	MEXICO	2500	71	113	5MR	35	0	0	6
49	SARIC 70	MEXICO	2425	73	113	0	41	6	0	0
43	TOB-8156	ETHIOPIA	2316	67	109	0	36	11	40	11
36	715/70	YUGOSLAVIA	2271	82	126	5M	31	0	0	0
34	ZIPA 68	COLOMBIA	2243	68	111	0	37	11	40	0
1	CHRIS	U.S.A.	2215	65	113	0	31	0	20	33
2	TANORI-71	MEXICO	2208	67	108	0	35	7	0	14
41	UQ-115 = CONDOR	AUSTRALIA	2206	76	126	0	36	11	0	0
48	(21931/CH 53-AN X GB 543 AN 64	ISRAEL	2200	71	111	0	36	11	0	0
37	LEE-NLOB X GB 55 / GE 56	SUDAN	2161	67	108	0	33	0	60	0
32	7 CERROS	MEXICO	2076	76	108	0	35	11	0	0
11	NW15 = ANZA	AUSTRALIA	2065	77	120	40M	40	0	0	0
20	MEXICO 120	AUSTRALIA	2038	81	116	0	35	0	0	0
23	BT-2281	TUNISIA	2025	68	110	0	37	0	0	0
46	NONANZA	U.S.A.	2023	67	108	0	32	0	0	0
27	HUELQUEN	CHILE	1981	65	107	0	33	0	40	66
9	SULTANE = BT 2296	TUNISIA	1941	67	111	0	39	0	0	0
33	LAGOA VERMELHA (C-17)	BRAZIL	1911	65	112	0	36	0	0	0
44	ZAAFRANE	TUNISIA	1830	66	107	0	36	0	20	0
25	JARAL "S"	ARGENTINA	1813	67	106	0	31	22	0	0
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	1806	66	106	5M	31	0	0	11
29	GIZA 155	EGYPT	1791	73	113	0	37	44	0	0
4	K358-E. DE CHL X KOUDIET 17-BT-Y	TUNISIA	1745	65	116	40MR	41	0	0	0
30	JARAL "S" (8)	ARGENTINA	1726	65	113	0	39	0	0	0
19	VEGORA 70	MEXICO	1726	65	108	0	41	33	0	33
18	MARCUS JUAREZ INTA	ARGENTINA	1681	81	126	0	40	22	0	0
40	SON 64 X TZPP-V54 / JUSTIN 3	U.S.A	1648	67	107	0	36	11	0	0
13	PENJAMO 62	MEXICO	1635	65	109	0	39	11	0	0
3	IASSUL-20	BRAZIL	1623	78	116	0	37	3	0	7
8	BB-INIA	MEXICO	1616	67	109	0	34	0	0	66
6	ERA	U.S.A.	1548	87	132	0	34	0	0	0
35	MENG-6156	MEXICO	1536	84	129	5M	37	0	0	0
31	GHENAB 70	PAKISTAN	1526	65	106	0	37	0	0	0
38	SAMACA 68	COLOMBIA	1366	66	107	0	36	0	0	0
39	EL GOU-SON 64 X TC-NP 63	U.S.A.	1328	97	133	0	30	33	0	0
26	UP-301	INDIA	1305	67	109	0	38	11	60	66
7	MEXICO 226 = SON 64-KL. BENG	IRAK	1286	65	107	0	38	0	0	0
5	BT-2286	TUNISIA	1273	65	110	0	36	0	0	0
17	INIA-66	MEXICO	1270	69	107	0	36	0	0	33
14	CALIDAD	MEXICO	1245	72	107	0	33	0	0	11
45	MOTI	INDIA	1193	67	109	0	38	0	0	0
42	NB "S" RESELECTION	PAKISTAN	1136	75	108	0	37	44	0	0
15	TUBARI 66	MEXICO	1116	67	107	5MR	35	0	0	0
28	SONALIKA	INDIA	1066	66	107	0	44	11	0	44
47	PARANA 68 /1114	ARGENTINA	971	67	108	0	33	0	40	0
12	ARIANA 66	TUNISIA	958	97	133	25R	38	0	0	0
		GRAND MEAN	1807	71	112	1	36	6	7	7
	STANDARD ERROR OF GRAND MEAN		45	0	0	0	0	0	0	0
	COEFFICIENT OF VARIATION		30	5	4	33	4	30	22	28
	LSD VARIETY MEANS 5 PC		903	7	7	0	2	3	2	3

CORRELATIONS

	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	STEM RUST	1000 GRN WGT GRMS	LEAF BLOTCH	SCAB
DAYS TO FLOWER	-0.07						
DAYS TO MATURITY	-0.03	0.85**					
STEM RUST	-0.01	0.17	0.28*				
1000 GRN WGT GRMS	-0.05	-0.06	0.02	0.22			
LEAF BLOTCH	-0.09	0.13	0.06	-0.17	0.00		
SCAB	0.10	-0.28*	-0.23	-0.13	-0.11	0.03	
GLUME BLOTCH	-0.16	-0.24	-0.25	-0.12	0.01	-0.00	0.20*

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 7 AFRICA KENYA NJORO

PLANT BREEDING STATION.
COOPERATORS V.P. PATEL AND MOSSES OFONDO.

LATITUDE 000 18'S DATE PLANTED 03/08/73 NITROGEN 021.0 KG/HA
LONGITUDE 035 56'E DATE HARVESTED 10/25/73 PHOSPHORUS 028.0 KG/HA
ELEVATION +02164 M.ABOVE S.L. AMOUNT OF MOISTURE 0496 MM POTASIUM 000.0 KG/HA

VERY DRY AT THE BEGINNING BUT AFTERWARDS THE RAIN CAME REGULARLY. FAIRLY GOOD WEATHER CONDITIONS IN GENERAL. ALL DISEASE LEVELS WERE NORMAL. STEM RUST WAS HIGH. INSECT AND PEST PROBLEMS NOT REPORTED. TWO HAND WEEDINGS. LOCAL CHECK KENYA NYATI.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	LEAF RUST	STEM RUST	HEIGHT CM.	LODGING	NECK BREAK
17	INIA-66	MEXICO	3285	73	128	10MS	5MS	MS-S	96	11	0
8	BB-INIA	MEXICO	2881	77	125	5MR	5MS	50S	74	14	0
43	TOP-8156	ETHIOPIA	2752	79	131	10MS	5MS	50S	91	7	0
38	SAMACA 68	COLOMBIA	2494	78	128	10MS	40S	MS-S	115	18	0
42	BB 'S' RESELECTION	PAKISTAN	2184	81	124	20MS	10MS	40S	64	0	0
19	YECORA 70	MEXICO	2156	77	126	60MS	5MS	30MS	72	18	1
50	LOCAL CHECK		2104	85	135	12	TMS	MS-S	117	29	1
2	TANORI-71	MEXICO	2059	65	124	15MS	40S	MS-S	91	11	0
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	2010	73	126	50S	5MS	50S	71	0	0
15	TOBARI 66	MEXICO	1989	79	132	5MR	TMS	80S	97	3	0
49	SARIC 70	MEXICO	1881	88	135	60S	10MS	MS-S	75	7	0
28	SONALIKA	INDIA	1881	59	117	15MS	20MS	60S	95	18	0
30	JARAL 'S' (B)	ARGENTINA	1709	78	132	30MS	10MS	MS-S	85	0	0
26	UP-301	INDIA	1682	79	127	70S	TMS	MS-S	60	3	0
5	BT-2288	TUNISIA	1656	75	123	60S	10MS	70S	93	11	4
34	ZIPA 68	COLOMBIA	1650	82	128	TMR	5MS	50S	111	14	0
21	CAJEME 71	MEXICO	1618	88	130	50S	5MS	MS-S	77	11	4
44	ZAAFRANE	TUNISIA	1607	74	122	70S	TMS	60S	94	11	0
47	PARANA 68 /1116	ARGENTINA	1607	72	127	50MS	TMS	30MS	78	3	0
6	ERA	U.S.A.	1537	103	149	50MS	TMR	15MS	90	14	0
46	BONANZA	U.S.A.	1505	82	131	80S	TMS	15MS	91	7	7
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	1344	88	136	5MS	20S	50S	111	7	0
37	LEE-N108 X GB 55 / GB 56	SUDAN	1285	81	123	10MS	5MS	50S	82	11	8
27	HUELQUEN	CHILE	1247	79	127	10MS	TMS	50S	113	14	0
29	GIZA 155	EGYPT	1242	79	142	5MS	30MS	30S	123	18	0
14	CALIDAD	MEXICO	1150	80	130	50S	10MS	90S	92	11	0
9	SOLTANE = BT 2296	TUNISIA	1145	87	127	40MS	20MS	70S	98	11	4
32	7 CERROS	MEXICO	1139	83	124	20MS	20MS	80S	92	11	7
23	BT-2281	TUNISIA	1091	77	127	10MS	10MS	90S	89	7	0
41	HQ-115 = CONDOR	AUSTRALIA	1000	85	132	15MS	5MS	90S	83	7	0
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	946	76	125	5MS	10MS	80S	87	7	0
1	CHRIS	U.S.A.	914	84	135	40MS	TS	MS-S	136	22	1
13	PENJAMO 62	MEXICO	838	80	123	70S	5MS	60S	93	18	10
18	MARCOS JUAREZ INTA	ARGENTINA	747	88	133	30MS	TMS	40S	101	11	3
7	MEXICO 226 = SON 64-KL. REND	IRAK	725	77	117	60S	10MS	90S	97	18	2
31	CHENAB 70	PAKISTAN	688	82	122	40MS	5MS	90S	97	14	0
45	MOTI	INDIA	688	76	114	70S	5MS	60S	61	25	50
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	634	84	118	TMS	5MS	90S	91	22	6
25	JARAL 'S'	ARGENTINA	634	77	116	50S	20S	100S	87	7	30
36	715/70	YUGOSLAVIA	548	97	136	5MS	40S	60S	87	0	0
12	ARIANA 66	TUNISIA	516	123	161	5MR	5MS	MS-S	118	18	0
33	LAGOA VERMELHA (C-17)	BRAZIL	397	86	132	60S	5MS	80S	142	33	25
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	392	98	164	50S	TMS	40S	89	7	0
24	3400-1-3	S.AFRICA	349	82	121	70S	TMS	50S	84	18	31
3	IASSUL-20	BRAZIL	333	94	128	20S	10MS	90S	144	29	6
35	MENG-8156	MEXICO	327	97	131	10MS	20S	70S	88	11	3
22	GABOTO	ARGENTINA	227	98	135	50S	TMS	80S	135	22	4
11	WW15 = ANZA	AUSTRALIA	182	87	123	5MS	40S	100S	83	14	25
10	PITIC 62	MEXICO	123	91	119	20MS	10MS	100S	104	29	60
20	MEXICO 120	AUSTRALIA	75	88	113	40MS	5S	80S	65	33	86
		GRAND MEAN	1263	83	129	34	9	65	94	13	7
	STANDARD ERROR OF GRAND MEAN		28	0	0	0	0	0	0	0	0
	COEFICIENT OF VARIATION		27	3	2	26	42	12	4	44	102
	LSD VARIETY MEANS 5 PC		561	4	5	15	6	13	6	9	13

CORRELATIONS

YIELD	KG/HA								
DAYS TO	FLOWER	-0.50**							
DAYS TO	MATURITY	-0.01	0.65**						
STRIPE	RUST	-0.19	-0.06	-0.11					
LEAF	RUST	-0.02	-0.02	-0.04	-0.44**				
STEM	RUST	-0.55**	-0.02	-0.38**	-0.09	0.03			
HEIGHT	CM.	-0.22	0.28*	0.32*	-0.15	0.05	0.11		
LODGING		-0.38**	0.18	-0.16	0.07	-0.10	0.16	0.48**	
NECK	BREAK	-0.48**	0.07	-0.43**	0.21	-0.01	0.30*	-0.17	0.54

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 8 AFRICA LIBYA TRIPOLI 1

SIDI MISRY AGRICULTURAL RESEARCH CENTRE.
COOPERATORS BEC-EL-HATTY AKAFA.

LATITUDE 032 00°N
LONGITUDE 013 00°E
ELEVATION 000010 M.ABOVE S.L.

DATE PLANTED 11/12/72
DATE HARVESTED 05/12/73
AMOUNT OF MOISTURE 0350 MM

NITROGEN 140.0 KG/HA
PHOSPHORUS 140.0 KG/HA
POTASSIUM 000.0 KG/HA

NORMAL WEATHER CONDITIONS. ONE FROST IN DECEMBER. DEVELOPMENT OF LEAF AND STEM RUST. INSECTS AND WEEDS WERE MECHANICALLY CONTROLLED. PEST PROBLEMS NOT REPORTED. LOCAL CHECK SIDI MISRY I.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	HEIGHT CM.	SHATTERING	1000 GRN WGT GRMS
41	UW-115 = CONDOR	AUSTRALIA	5410	83	108	100	M	50
32	7 CERROS	MEXICO	5255	78	106	100	R	50
29	GIZA 155	EGYPT	4977	82	107	90	R	46
46	BUNANZA	U.S.A.	4855	80	104	100	M	46
19	YECORA 70	MEXICO	4632	78	93	90	M	55
40	SUN 64 X TZPP-Y54 / JUSTIN 3	U.S.A	4632	80	94	80	M	53
20	MEXICO 120	AUSTRALIA	4555	78	104	80	M	45
2	TANURI-71	MEXICO	4487	80	93	80	R	51
11	WW15 = ANZA	AUSTRALIA	4482	81	108	80	R	46
35	MENG-8156	MEXICO	4477	78	125	90	R	50
34	ZIPA 68	COLOMBIA	4077	78	108	100	R	51
10	PITIC 62	MEXICO	4055	76	105	100	R	46
24	3400-1-3	S.AFRICA	3960	84	102	90	M	45
45	MUTI	INDIA	3932	83	94	70	M	56
33	LAGOA VERMELHA (C-17)	BRAZIL	3816	80	112	140	R	51
23	BT-2281	TUNISIA	3795	82	86	100	M	53
17	INIA-66	MEXICO	3782	77	91	80	M	55
49	SARIC 70	MEXICO	3755	75	108	80	S	55
7	MEXICO 220 = SCN 64-KL. RENC	IRAK	3745	73	97	70	M	51
48	(21931/CM 53-AN X GB 56) AN 64	ISRAEL	3745	80	101	80	M	52
13	PENJAMO 62	MEXICO	3495	78	93	80	R	55
36	715/70	YUGOSLAVIA	3382	77	127	60	R	42
30	JARAL 'S' (B)	ARGENTINA	3382	80	108	100	R	56
26	UP-301	INDIA	3355	82	104	80	M	56
4	K336-E. DE CM. X KOUDIET 17-KT-Y	TUNISIA	3332	78	107	60	R	50
16	PATU = TZPP-SUN 64 X ABF 59	ARGENTINA	3332	81	105	100	R	40
9	SULTANE = BT 2296	TUNISIA	3316	80	105	90	M	56
8	BB-INIA	MEXICO	3266	82	95	70	M	56
47	PARANA 68 /1116	ARGENTINA	3166	77	91	80	M	53
38	SAMACA 68	COLOMBIA	3145	77	105	100	R	50
22	GABOTU	ARGENTINA	-	-	126	120	R	-
1	CHRIS	U.S.A.	3121	78	108	110	R	37
50	LOCAL CHECK		3066	77	108	100	R	50
27	HUELWEN	CHILE	3066	80	126	110	M	51
28	SUNALIKA	INDIA	3033	80	73	100	M	63
3	BT-2268	TUNISIA	3033	77	91	70	R	53
37	LEE-N108 X GB 55 / GB 56	SUDAN	2977	75	101	90	R	44
15	TUBARI 66	MEXICO	2855	81	91	70	M	54
43	TUB-1150	ETHIOPIA	-	-	92	80	M	-
5	LASSUL-20	BRAZIL	2733	76	110	100	M	50
44	ZAARKANE	TUNISIA	2555	82	93	60	M	52
14	CALIURO	MEXICO	2566	76	95	90	M	46
42	BB 'S' RESELECTION	PAKISTAN	2533	82	91	70	S	50
6	ERA	U.S.A.	2355	75	125	70	R	35
12	ARIANA 66	TUNISIA	1945	80	124	70	R	47
18	MARCOS JUAREZ INTA	ARGENTINA	1922	77	108	90	M	55
21	CAJEME 71	MEXICO	1744	75	106	60	M	54
25	JARAL 'S'	ARGENTINA	1066	67	83	80	M	52
39	EL GOU-SUN 64 X TC-NP 63	U.S.A.	0	0	126	100	R	0
31	CHENAB 70	PAKISTAN	0	0	104	80	R	0
		GRAND MEAN	3466	75	103	88		51
	STANDARD ERROR OF GRAND MEAN		66					
	COEFFICIENT OF VARIATION		23					
	LSD VARIETY MEANS 5 PC		1347					

CORRELATIONS

YIELD	KG/HA					
TEST	WEIGHT	0.60**				
DAYS TO	FLOWER	-0.08	-0.29			
HEIGHT	CM.	0.16	-0.06	0.29		
SHATTER	ING	0.00	0.00	0.00	0.00	
1000 GRN	WGT GRMS	0.52**	0.88**	-0.45**	-0.19	0.00

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 9 AFRICA PERECCC KENITRA

SECI KACEM EXPERIMENT STATION.
COOPERATORS A. ACOSTA AND M. ABBOUS

LATITUDE 034 13°N
LONGITUDE 006 43°W
ELEVATION 00004 M.ABOVE S.L.

DATE PLANTED 11/14/72
DATE HARVESTED 05/07/73
AMOUNT OF MOISTURE 0340 MM

NITROGEN 099.0 KG/HA
PHOSPHORUS 057.0 KG/HA
POTASSIUM 039.0 KG/HA

VERY DRY WEATHER. POOR RAINFALL DISTRIBUTION DURING THE LAST THIRD OF CYCLE. NO DISEASE DEVELOPMENT. ANT DAMAGE. WEED PROBLEM NOT REPORTED. BIRD DAMAGE. LOCAL CHECK BT-508.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	HEIGHT CM.
47	PARANA 68 /1116	ARGENTINA	2105	65
44	ZAARFANE	TUNISIA	2066	85
17	INIA-66	MEXICO	2016	85
8	66-INIA	MEXICO	1922	65
2	TANJRI-71	MEXICO	1763	75
18	MARLOS JUAREZ INTA	ARGENTINA	1714	100
21	CAJEME 71	MEXICO	1657	65
14	CALIORO	MEXICO	1666	90
28	SONALIKA	INDIA	1672	85
9	SULTANE = BT 2296	TUNISIA	1655	90
5	BT-2286	TUNISIA	1647	55
19	YECORA 70	MEXICO	1647	70
15	TOBARI 66	MEXICO	1630	85
24	3400-1-3	S.AFRICA	1627	80
38	SAMACA 68	COLOMBIA	1594	100
40	SUN 64 X TZPP-Y54 / JUSTIN 3	U.S.A	1565	65
46	BONANZA	U.S.A.	1565	80
20	MEXICO 120	AUSTRALIA	1566	65
48	(Z1931/CM 53-AN A GB 56) AN 64	ISRAEL	1566	90
49	SARIC 70	MEXICO	1564	65
7	MEXICO 226 = SON 64-RL. REND	IRAK	1558	55
43	TOB-8156	ETHIOPIA	1530	80
31	CHENAB 70	PAKISTAN	1525	90
4	K55b-E. DE CM. X ROUDIRT 17-RT-V	TUNISIA	1516	100
10	PITIC 62	MEXICO	1465	55
26	UP-301	INDIA	1477	60
36	715/70	YUGOSLAVIA	1475	70
23	BT-2281	TUNISIA	1454	85
42	BB 'S' RESELECTION	PAKISTAN	1452	55
37	LEE-N108 X GB 55 / GB 56	SUDAN	1441	75
32	7 CERROS	MEXICO	1441	85
41	UU-115 = CONDOR	AUSTRALIA	1420	80
13	PENJAMO 62	MEXICO	1388	85
45	MOTI	INDIA	1354	55
30	JARAL 'S' (8)	ARGENTINA	1350	90
16	PATO = TZPP-SON 64 / NAR 59	ARGENTINA	1341	90
29	GIZA 153	EGYPT	1333	95
25	JARAL 'S'	ARGENTINA	1322	85
50	LOCAL CHECK		-	90
6	ERA	U.S.A.	1283	80
27	HUELQUEN	CHILE	1275	100
35	MENG-8150	MEXICO	1250	80
12	ARIANA 66	TUNISIA	1208	105
11	WALD = ANKA	AUSTRALIA	1268	80
1	CHRIS	U.S.A.	1125	105
33	LAGOA VERMELHA (C-17)	BRAZIL	1100	105
3	IASSUL-20	BRAZIL	1050	115
34	ZIPA 68	COLOMBIA	967	95
22	GABUTO	ARGENTINA	957	110
39	EL GOU-SON 64 X TC-NP 63	U.S.A.	0	75
		GRAND MEAN	1490	83
	STANDARD ERROR OF GRAND MEAN		27	
	COEFFICIENT OF VARIATION		20	
	LSD VARIETY MEANS 5 PC		508	

CORRELATIONS

YIELD	KG/HA	
HEIGHT	CM.	-0.25

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 10 AFRICA PERECCCC MARRAKECH

MENAFA.
COOPERATORS A: MANCALI-A. ACUSTA.

LATITUCE 031.37°N DATE PLANTED 12/05/74 NITROGEN 120.0 KG/HA
LONGITUCE 008.61°W DATE HARVESTED 06/07/75 PHOSPHORUS 000.0 KG/HA
ELEVATICN 00464 M.ABOVE S.L. AMOUNT OF POISTURE 0146 MM POTASIUM 000.0 KG/HA

VERY DRY WEATHER WITH COOL NIGHTS. NO DISEASE DEVELOPMENT. NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK BT-SCE.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.
28	SONALIKA	INDIA	6546	98	145	108
48	(21931/CM 53-AN X GB 56) AN 64	ISRAEL	5736	110	154	106
43	TOB-8156	ETHIOPIA	5677	105	154	101
41	UQ-115 = CONDOR	AUSTRALIA	5677	110	154	86
45	MOTI	INDIA	5541	102	152	106
8	BB-INIA	MEXICO	5526	98	146	78
44	ZAAFRANE	TUNISIA	5503	102	145	101
49	SAKIC 70	MEXICO	5488	105	152	80
29	GIZA 155	EGYPT	5461	107	152	123
21	CAJEME 71	MEXICO	5355	107	152	83
20	MEXICO 120	AUSTRALIA	5363	107	152	71
27	HUELQUEN	CHILE	5306	110	154	128
31	CHENAB 70	PAKISTAN	5303	107	152	105
30	JAKAL 'S' (B)	ARGENTINA	5243	107	152	100
9	SULTANE = BT 2296	TUNISIA	5232	102	136	101
46	BUNANCA	U.S.A.	5226	110	154	101
24	3400-1-3	S.AFRICA	5201	107	152	100
32	7 CERROS	MEXICO	5181	112	154	123
35	MENO-8156	MEXICO	5050	112	154	86
37	LEE-N100 X GB 55 / GB 56	SUDAN	5063	102	145	93
11	NAIS = ANZA	AUSTRALIA	5023	107	152	90
19	YECORA 70	MEXICO	4990	106	146	78
5	BT-2286	TUNISIA	4972	102	152	110
47	PARANA 68 /1116	ARGENTINA	4963	102	152	88
14	CALIDAD	MEXICO	4946	107	146	110
4	K350-E. DE CM. X KOODIET 17-KT-Y	TUNISIA	4912	107	152	116
26	UP-301	INDIA	4895	107	152	71
15	TOBARI 66	MEXICO	4872	102	145	106
40	SUN 64 X TZPP-Y54 / JUSTIN 3	U.S.A	4715	98	145	96
13	PENJAMO 62	MEXICO	4695	102	145	106
42	BB 'S' RESELECTION	PAKISTAN	4655	102	146	83
17	INIA-66	MEXICO	4615	98	145	135
23	BT-2261	TUNISIA	4617	107	152	96
25	JAKAL 'S'	ARGENTINA	4561	102	152	103
2	TANORI-71	MEXICO	4452	102	152	98
18	MARCOS JUAREZ INTA	ARGENTINA	4466	105	146	101
16	PATO = TZPP-SUN 64 X ARF 59	ARGENTINA	4461	107	152	96
36	715/70	YUGOSLAVIA	4435	110	145	86
39	EL GOO-SUN 64 X TL-AP 63	U.S.A.	4190	118	156	100
7	MEXICO 226 = SCN 64-KL. FENG	IRAK	4124	102	145	105
10	PITIC 62	MEXICO	4112	107	149	105
6	EKA	U.S.A.	3975	143	156	110
38	SAMACA 68	COLOMBIA	3961	102	148	121
22	GARUTO	ARGENTINA	3664	112	153	140
34	ZIPA 68	COLOMBIA	3668	107	152	140
1	CHAIS	U.S.A.	3535	105	152	130
50	LOCAL CHECK		3430	107	152	145
12	ARIANA 66	TUNISIA	3395	1[illegible]	154	110
33	LAGOA VERMELHA (C-17)	BRAZIL	3195	1[illegible]5	134	125
3	IASSUL-20	BRAZIL	1415	[illegible]12	153	138
		GRAND MEAN	4735	106	150	104
	STANDARD ERROR OF GRAND MEAN		55	0	0	1
	COEFICIENT OF VARIATION		15	5	2	14
	LSD VARIETY MEANS 5 PC		1183	5	6	25

CORRELATIONS

YIELD KG/HA			
DAYS TO FLOWER	-0.27*		
DAYS TO MATURITY	0.07	0.47**	
HEIGHT CM.	-0.53**	0.11	-0.02

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 11 AFRICA RHODESIA SALISBURY

SALISBURY RESEARCH STATION.
COOPERATORS M.S. LEBLANEY.

LATITUDE 017 46'S
LONGITUDE 030 05'E
ELEVATION 01500 M.ABOVE S.L.

DATE PLANTED 05/03/73
DATE HARVESTED 10/12/73
AMOUNT OF RAINFALL 0730 MM

NITROGEN 0030.0 KG/HA
PHOSPHORUS 0030.0 KG/HA
POTASSIUM 0750.0 KG/HA

TRIAL WAS SOMEWHAT STRESSED IN EARLY GROWING STAGES DUE TO IRRIGATION SYSTEM. NO DISEASE DEVELOPMENT. NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.
21	CAJEME 71	MEXICO	6971	80	86	139	83
35	RENG-0150	MEXICO	6565	76	85	147	68
11	NW15 = ANZA	AUSTRALIA	6531	80	75	134	83
41	UQ-115 = CONDOR	AUSTRALIA	6512	81	75	135	65
10	PITIC 62	MEXICO	6483	76	81	133	97
29	GIZA 155	EGYPT	6463	77	75	132	108
36	715/70	YUGOSLAVIA	6077	77	92	136	70
49	SARIC 70	MEXICO	5946	80	82	134	78
20	MEXICO 120	AUSTRALIA	5795	77	75	134	63
37	LEE-NIOB X GB 55 / GB 56	SUDAN	5775	76	65	131	81
32	7 CERROS	MEXICO	5736	75	74	132	79
0	ERA	U.S.A.	5665	72	101	150	104
31	CHENAB 70	PAKISTAN	5532	75	73	131	89
27	HUELQUEN	CHILE	5505	76	73	129	105
24	3400-1-3	S.AFRICA	5477	80	70	129	84
16	PATO = TZPP-SON 64 X ARF 59	ARGENTINA	5435	77	71	131	77
18	MARCOS JUAREZ INTA	ARGENTINA	5406	80	83	134	102
4	K536-60 DE CH. X KOUDIET 17-RT-Y	TUNISIA	5355	76	75	135	91
39	EL 600-SON 64 X 70-NF 63	U.S.A.	5310	72	107	156	102
12	ANIANA 66	TUNISIA	5272	78	113	155	131
50	LOCAL CHECK		5143	75	68	129	64
2	TAHORI-71	MEXICO	5126	75	68	128	75
19	YECORA 70	MEXICO	5056	78	66	127	66
9	SULTANE = BT 2256	TUNISIA	5062	80	77	131	94
28	SONALIKA	INDIA	5043	75	63	129	65
30	JARAL 'S' (B)	ARGENTINA	5010	77	71	131	84
33	LAGOA VERMELHA (C-17)	BRAZIL	5063	78	80	125	115
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	4921	77	70	125	83
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A.	4656	75	61	128	68
25	JARAL 'S'	ARGENTINA	4652	77	65	127	67
23	BT-2261	TUNISIA	4663	77	66	131	84
26	UP-301	INDIA	4600	76	74	130	62
13	PENJAMO 62	MEXICO	4783	76	71	131	93
44	ZAAFRANE	TUNISIA	4653	78	66	128	82
45	MOTI	INDIA	4663	76	66	128	63
15	TOBARI 66	MEXICO	4655	75	65	128	84
6	60-INIA	MEXICO	4632	75	67	129	65
22	GABOTO	ARGENTINA	4577	76	86	142	124
43	TOB-6156	ETHIOPIA	4555	77	65	132	85
46	BONANZA	U.S.A.	4532	77	73	130	79
34	ZIPA 66	COLOMBIA	4492	74	75	132	56
7	MEXICO 226 = SON 64-KL. RENG	IRAN	4477	78	66	128	85
17	INIA-66	MEXICO	4366	76	68	125	82
38	SAMACA 68	COLOMBIA	4365	75	74	126	94
5	BT-2266	TUNISIA	4037	77	65	130	83
14	CALIDAD	MEXICO	3588	77	71	127	84
1	CHRIS	U.S.A.	3578	78	61	131	117
42	60 'S' RESELECTION	PAKISTAN	3562	75	65	129	67
47	PARANA 68 /1116	ARGENTINA	3468	75	64	127	68
3	IASSUL-20	BRAZIL	2386	75	83	130	125
		GRAND MEAN	5058	77	75	132	87
	STANDARD ERROR OF GRAND MEAN		47	0	0	0	0
	COEFFICIENT OF VARIATION		11	1	3	2	9
	LSD VARIETY MEANS 5 PC		940	2	3	4	13

CORRELATIONS

YIELD KG/HA					
TEST WEIGHT	0.16				
DAYS TO FLOWER	0.33*	-0.15			
DAYS TO MATURITY	0.40**	-0.27*	0.90**		
HEIGHT CM.	-0.08	-0.06	0.57**	0.44**	

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 14 AFRICA SOUTH AFRICA TRANSVAAL

HEDEBLAAT
COOPERATORS J. A. M. VAN DER MEY, ET AL.

LATITUDE 025 35°S
LONGITUDE 026 21°E
ELEVATION + 1164 M.ABOVE S.L.

DATE PLANTED 06/18/73
DATE HARVESTED 11/27/73
AMOUNT OF MOISTURE 0816 MM

NITROGEN 000.0 KG/HA
PHOSPHORUS 025.0 KG/HA
POTASSIUM 020.0 KG/HA

RELATIVELY MILD WINTER AND MOIST SUMMER. NO DISEASE DEVELOPMENT.
INITIAL LICE INFESTATION. WEED AND PEST PROBLEMS NOT REPORTED. LOCAL
CHECK T4.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	LODGING	1000 GRN WGT GRMS
11	NW15 = ANZA	AUSTRALIA	5055	74	95	137	74	0	31
35	MENG-0156	MEXICO	4846	75	95	138	75	0	40
31	CHENAO 70	PAKISTAN	4828	74	95	133	81	0	41
46	BONANZA	U.S.A.	4765	71	95	131	69	0	27
41	UG-115 = CONDOR	AUSTRALIA	4693	73	100	140	74	0	35
21	CAJEME 71	MEXICO	4675	70	98	133	63	0	30
45	MOTI	INDIA	4604	71	91	134	58	0	35
37	LEE-N106 X GB 55 / GE 56	SUDAN	4600	68	94	134	77	0	35
17	INIA-66	MEXICO	4575	75	89	126	76	1	30
20	MEXICO 120	AUSTRALIA	4566	70	94	135	55	0	31
50	LOCAL CHELK		4515	75	89	136	81	0	35
44	ZAAFRANE	TUNISIA	4367	73	93	131	81	0	30
32	7 CERROS	MEXICO	4321	73	95	135	85	0	34
42	BB "S" RESELECTION	PAKISTAN	4313	68	94	130	47	0	34
46	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	4296	72	93	135	77	0	30
8	BB-INIA	MEXICO	4275	70	92	129	54	0	32
30	JAKAL "S" (B)	ARGENTINA	4264	70	96	134	79	0	34
24	3400-1-3	S.AFRICA	4258	73	94	134	74	0	30
10	PITIC 62	MEXICO	4243	69	95	135	76	0	35
28	SONALIKA	INDIA	4235	74	86	131	90	0	40
25	JAKAL "S"	ARGENTINA	4227	74	98	131	78	0	30
19	YECORA 70	MEXICO	4206	70	95	130	55	0	35
49	SARIC 70	MEXICO	4162	69	97	134	64	0	36
2	TANORI-71	MEXICO	4073	72	88	127	76	0	34
9	SULTANE = BT 2296	TUNISIA	4069	73	94	131	75	0	39
43	TUB-0156	ETHIOPIA	4022	73	95	134	77	0	35
18	MARCOS JUAREZ INTA	ARGENTINA	3997	73	96	132	77	0	39
29	GIZA 155	EGYPT	3913	73	96	133	101	31	44
13	PENJAMO 62	MEXICO	3835	73	94	132	76	0	38
4	K336-E. DE CH. X KOUDIET 17-KT-V	TUNISIA	3746	70	95	136	85	0	35
7	MEXICO 220 = SCN 64-KL. RENC	IRAK	3744	75	94	129	75	0	40
12	ARIANA 66	TUNISIA	3732	74	105	147	98	1	35
36	715/70	YUGOSLAVIA	3730	70	102	137	68	0	30
26	UP-301	INDIA	3658	70	98	135	56	0	35
39	EL GOU-SON 64 X TC-AP 63	U.S.A.	3673	66	103	147	91	0	27
47	PARANA 68 /1116	ARGENTINA	3624	74	93	131	66	0	31
14	CALIDAD	MEXICO	3543	73	94	132	76	0	28
15	TUBARI 66	MEXICO	3511	72	94	133	73	0	30
16	PATU = T2PP-SON 64 X ARA 59	ARGENTINA	3453	73	99	136	78	1	26
23	BT-2281	TUNISIA	3416	71	94	134	74	0	35
6	ERA	U.S.A.	3368	73	106	146	60	0	29
27	HUELQUEN	CHILE	3284	74	95	134	91	30	34
5	BT-2286	TUNISIA	3258	72	85	132	77	0	29
38	SAMACA 68	COLOMBIA	3165	72	96	134	95	45	35
34	ZIPA 68	COLOMBIA	2615	73	95	136	100	3	35
40	SON 64 X T2PP-Y54 / JUSTIN 3	U.S.A.	2904	68	93	130	66	0	30
33	LAGOA VERMELHA (C-17)	BRAZIL	2593	73	95	133	103	91	39
1	CHRIS	U.S.A.	2535	70	97	134	94	99	28
22	GABUTO	ARGENTINA	2504	74	100	135	102	75	30
3	IAS-UL-20	BRAZIL	2128	69	99	130	95	94	40
		GRAND MEAN	3906	72	96	134	77	5	34
		STANDARD ERROR OF GRAND MEAN	36	0	0	0	0	0	0
		COEFFICIENT OF VARIATION	11	1	2	1	8	66	9
		LSD VARIETY MEANS 5 PC	729	1	3	4	11	15	2

CORRELATIONS

YIELD KG/HA						
TEST WEIGHT	0.11					
DAYS TO FLOWER	-0.22	-0.67				
DAYS TO MATURITY	-0.04	-0.06	0.76**			
HEIGHT CM.	-0.52**	0.33*	0.27*	0.27*		
LODGING	-0.69**	-0.03	0.14	-0.06	0.56**	
1000 GRN WGT GRMS	0.12	0.29*	-0.20	-0.26	0.45	0.10

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 13 AFRICA SUDAN BLUE NILE

GEZERA AGRICULTURAL RESEARCH STATION.
COOPERATORS M.H. AKASHA.

LATITUDE 014.24°N DATE PLANTED 10/31/72 NITROGEN 128.0 KG/HA
LONGITUDE 033.31°E DATE HARVESTED 03/15/73 PHOSPHORUS 000.0 KG/HA
ELEVATION +00411 M.ABOVE S.L. AMOUNT OF MOISTURE ---- MM POTASIUM 000.0 KG/HA

GENERALLY COOL WEATHER WITH HOT SPELLS. HOT WEATHER TOWARD MATURITY. NO DISEASE DEVELOPMENT. APHIDS AND STEMBORERS. CHEMICAL CONTROL OF APHIDS. WEED AND PEST PROBLEMS NOT REPORTED. LOCAL CHECK MEXICANI.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	LODGING	SHATTERING	1000 GRN WGT GRMS
11	WW15 = ANZA	AUSTRALIA	3920	58	93	66	0	1	31
20	MEXICO 120	AUSTRALIA	3890	52	91	50	0	1	34
31	CHENAB 70	PAKISTAN	3847	55	94	78	0	4	36
29	GIZA 155	EGYPT	3765	56	95	92	18	2	33
41	UQ-115 = CONDOR	AUSTRALIA	3738	54	92	61	0	2	31
13	PENJAMO 62	MEXICO	3672	51	84	70	0	7	34
37	LEE-N108 X GB 55 / GB 56	SUDAN	3639	50	83	61	0	1	28
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	3599	53	89	68	0	1	30
8	BB-INIA	MEXICO	3596	48	82	53	0	0	33
24	3400-1-3	S.AFRICA	3587	52	89	70	0	2	29
50	LOCAL CHECK		3564	54	93	65	0	1	30
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	3494	50	89	65	0	4	24
17	INIA-66	MEXICO	3452	48	82	67	0	1	33
2	TANORI-71	MEXICO	3435	46	82	73	0	0	28
32	7 CERROS	MEXICO	3424	49	80	72	0	7	31
9	SOLTANE = BT 2296	TUNISIA	3387	57	90	81	0	4	37
43	TOB-8156	ETHIOPIA	3369	49	84	68	0	6	31
45	KOYI	INDIA	3348	47	83	48	0	1	33
19	YECORA 70	MEXICO	3334	48	83	57	0	0	34
35	MENG-8156	MEXICO	3267	72	106	66	0	1	28
15	TOBARI 66	MEXICO	3197	49	83	69	0	2	29
27	HUEFLQUEN	CHILE	3195	49	81	82	21	1	32
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	3175	58	91	86	0	2	36
14	CALIDAD	MEXICO	3161	49	82	69	0	10	31
26	UP-301	INDIA	3109	50	84	52	0	3	33
28	SONALIKA	INDIA	3018	63	81	70	0	3	33
23	BT-2281	TUNISIA	3017	48	82	64	0	1	30
30	JARAL 'S' (B)	ARGENTINA	3015	56	94	70	0	1	31
49	SARIC 70	MEXICO	3010	63	94	59	0	1	32
25	JARAL 'S'	ARGENTINA	2983	46	80	71	0	1	26
10	PITIC 62	MEXICO	2956	65	97	84	0	13	27
44	ZAAFRANE	TUNISIA	2955	46	81	70	0	4	32
7	MEXICO 226 = SON 64-KL. REND	IRAK	2953	47	79	74	0	1	35
5	BT-2288	TUNISIA	2951	48	83	73	0	2	32
42	BB 'S' RESELECTION	PAKISTAN	2916	49	81	49	0	0	33
21	CAJEME 71	MEXICO	2860	64	97	62	0	4	32
36	715/70	YUGOSLAVIA	2851	69	100	63	0	2	24
46	BONANZA	U.S.A.	2844	52	83	63	0	1	26
38	SAMACA 68	COLOMBIA	2793	52	83	81	0	2	33
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	2788	44	79	51	0	0	30
47	PARANA 68 /1116	ARGENTINA	2785	44	80	57	0	0	28
34	ZIPA 68	COLOMBIA	2691	55	91	89	0	8	32
33	LAGOA VERMELHA (C-17)	BRAZIL	2687	55	89	87	35	2	34
18	MARCOS JUAREZ INTA	ARGENTINA	2606	64	106	83	0	7	33
1	CHRIS	U.S.A.	2383	53	88	88	0	6	26
12	ARIANA 66	TUNISIA	2277	89	115	99	8	2	27
22	GABOTO	ARGENTINA	1967	73	106	96	23	4	21
6	ERA	U.S.A.	1759	95	125	57	0	2	24
3	IASSUL-20	BRAZIL	1642	65	94	98	23	31	30
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	662	98	126	64	0	0	19
		GRAND MEAN	3051	56	90	70	2	3	30
		STANDARD ERROR OF GRAND MEAN	35	0	0	0	0	0	0
		COEFICIENT OF VARIATION	14	1	1	5	96	135	6
		LSD VARIETY MEANS 5 PC	719	1	1	6	4	7	3

CORRELATIONS

YIELD	KG/HA						
DAYS TO	FLOWER	-0.65**					
DAYS TO	MATURITY	-0.56**	0.96**				
HEIGHT	CM.	-0.27*	0.25	0.24			
LODGING		-0.26	0.15	0.13	0.56**		
SHATTER	ING	-0.28*	0.10	0.06	0.47**	0.30*	
1000 GRN	WGT GRMS	0.55**	-0.52**	-0.49**	-0.00	-0.01	0.01

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 14 AFRICA SUDAN KASSALA

KHASHM EL GIRBA RESEARCH STATION.
COOPERATORS DAFALLA AHMED DAFALLA.

LATITUDE 015 08'N
LONGITUDE 035 45'E
ELEVATION +00400 M.ABOVE S.L.

DATE PLANTED 11/20/72
DATE HARVESTED 04/23/73
AMOUNT OF MOISTURE ---- MM

NITROGEN 190.0 KG/HA
PHOSPHORUS 000.0 KG/HA
POTASIUM 000.0 KG/HA

WARM AT SOWING, COLD AT HEADING, WARM AND HUMID TILL RIPENING. RAPID DEVELOPMENT OF STEM RUST. SOME VARIETIES ESCAPED INFECTION. FOUR SPRAYINGS AGAINST APHIDS. THREE WEEDINGS. PEST PROBLEMS NOT REPORTED. LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	SHATTER ING	1000 GRN WGT GRMS
50	LOCAL CHECK		4250	55	89	68	0	28
20	MEXICO 120	AUSTRALIA	4248	51	94	53	0	30
11	WW15 = ANZA	AUSTRALIA	4230	69	94	65	1	28
41	UQ-115 = CONDOR	AUSTRALIA	4121	60	91	64	0	28
10	PITIC 62	MEXICO	4100	71	101	84	0	26
45	MOTI	INDIA	4040	49	85	50	0	31
31	CHENAB 70	PAKISTAN	4025	63	95	79	1	30
37	LEE-N108 X GB 55 / GB 56	SUDAN	3889	52	86	65	0	27
13	PENJAMO 62	MEXICO	3806	57	91	76	2	30
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	3802	57	86	69	0	27
32	7 CERROS	MEXICO	3786	51	84	74	5	30
19	YECORA 70	MEXICO	3768	51	83	57	0	31
8	BB-INIA	MEXICO	3765	52	85	55	0	27
9	SOLTANE = BT 2296	TUNISIA	3724	59	91	82	0	27
43	TOB-8156	ETHIOPIA	3688	50	85	69	4	29
28	SONALIKA	INDIA	3685	47	83	77	1	37
44	ZAAFRANE	TUNISIA	3670	50	84	72	8	33
24	3400-1-3	S.AFRICA	3666	60	91	77	3	26
17	INIA-66	MEXICO	3662	51	85	71	0	31
7	MEXICO 226 = SON 64-KL. REND	IRAK	3639	50	84	78	2	35
35	MENG-8156	MEXICO	3615	78	105	62	0	30
5	BT-2288	TUNISIA	3612	51	85	74	5	32
25	JARAL 'S'	ARGENTINA	3595	50	85	72	3	25
14	CALIDAD	MEXICO	3517	51	84	73	8	28
26	UP-301	INDIA	3508	56	86	55	0	33
15	TOBARI 66	MEXICO	3504	51	85	72	0	28
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	3490	52	86	65	1	24
27	HUELQUEN	CHILE	3454	51	84	88	3	28
42	BB 'S' RESELECTION	PAKISTAN	3416	53	84	55	0	30
29	GIZA 155	EGYPT	3392	62	97	94	0	28
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	3376	62	91	92	0	26
47	PARANA 68 /1116	ARGENTINA	3300	48	84	58	0	28
49	SARIC 70	MEXICO	3256	64	95	63	0	30
23	BT-2281	TUNISIA	3256	52	89	63	0	30
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	3223	48	83	57	0	32
21	CAJEME 71	MEXICO	3174	71	97	66	0	28
30	JARAL 'S' (B)	ARGENTINA	3099	63	94	67	0	28
38	SAMACA 68	COLOMBIA	3078	59	86	92	4	29
2	TANORI-71	MEXICO	3071	49	86	71	0	23
34	ZIPA 68	COLOMBIA	3018	62	91	91	10	30
33	LAGOA VERMELHA (C-17)	BRAZIL	2965	60	91	95	0	29
18	MARCOS JUAREZ INTA	ARGENTINA	2923	61	91	84	0	33
1	CHRIS	U.S.A.	2888	64	91	94	0	22
36	715/70	YUGOSLAVIA	2885	71	99	58	0	24
46	BONANZA	U.S.A.	2559	56	86	67	0	23
3	IASSUL-20	BRAZIL	2415	70	95	102	63	27
12	ARIANA 66	TUNISIA	2386	84	110	89	0	27
22	GABOTO	ARGENTINA	2132	76	103	100	28	23
6	ERA	U.S.A.	1386	94	124	65	0	16
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	947	60	96	73	0	16
		GRAND MEAN	3360	58	90	73	3	28
		STANDARD ERROR OF GRAND MEAN	28	0	0	0	0	0
		COEFICIENT OF VARIATION	10	3	1	4	118	6
		LSD VARIETY MEANS 5 PC	562	3	2	5	6	3

CORRELATIONS

YIELD	KG/HA					
DAYS TO	FLOWER	-0.50**				
DAYS TO	MATURITY	-0.50**	0.94**			
HEIGHT	CM.	-0.30*	0.30*	0.20		
SHATTER	ING	-0.26	0.19	0.10	0.46**	
1000 GRN	WGT GRMS	0.62**	-0.47**	-0.50**	-0.13	-0.05

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 15 AFRICA TUNISIA BEJA

BEJA EXPERIMENT STATION.
COOPERATORS G. VARUGHESE AND A. DAALCUL

LATITUDE 036.40°N DATE PLANTED 11/23/72 NITROGEN 100.0 KG/HA
LONGITUDE 009.10°E DATE HARVESTED 06/19/73 PHOSPHORUS 000.0 KG/HA
ELEVATION 00161 M.ABOVE S.L. AMOUNT OF MOISTURE ---- MM POTASSIUM 000.0 KG/HA

WEATHER CONDITIONS NOT REPORTED. DISEASE DEVELOPMENT NOT REPORTED.
INSECT, WEED OR PEST PROBLEMS NOT REPORTED. LOCAL CHECK SULTANE.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT
11	NW15 = ANZA	AUSTRALIA	5600	84
44	ZAAFRANE	TUNISIA	5446	83
43	TUB-8150	ETHIOPIA	5073	83
41	UQ-115 = CONDOR	AUSTRALIA	5013	82
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	4953	80
12	ARIANA 66	TUNISIA	4860	82
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	4773	81
25	JARAL "S"	ARGENTINA	4766	82
36	715/70	YUGOSLAVIA	4726	80
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	4706	82
19	YECORA 70	MEXICO	4666	82
24	3400-1-3	S.AFRICA	4613	83
13	PENJAMO 62	MEXICO	4580	82
7	MEXICO 226 = SON 64-KL. RENO	IRAK	4573	82
32	7 CERROS	MEXICO	4546	0
16	PATO = TZPP-SON 64 X NAP 55	ARGENTINA	4540	82
18	MARCOS JUAREZ INTA	ARGENTINA	4460	82
50	LOCAL CHECK		4360	82
31	CHENAB 70	PAKISTAN	4360	80
39	EL GOU-SON 64 X 70-NP 63	U.S.A.	4266	77
9	SULTANE = BT 2296	TUNISIA	4166	81
35	MENO-8156	MEXICO	4160	80
5	BT-2288	TUNISIA	4146	82
14	CALIDAD	MEXICO	4053	83
1	CHRIS	U.S.A.	4080	83
46	BONANZA	U.S.A.	4066	82
29	GIZA 155	EGYPT	4053	82
10	PITIC 62	MEXICO	4040	75
6	BB-INIA	MEXICO	4020	82
49	SARIC 70	MEXICO	4013	83
28	SONALIKA	INDIA	4013	80
38	SAMACA 68	COLOMBIA	3966	-
23	BT-2261	TUNISIA	3972	82
45	MOTI	INDIA	3966	82
27	HUELQUEN	CHILE	3913	82
26	UP-301	INDIA	3866	81
8	ERA	U.S.A.	3860	81
2	TANORI-71	MEXICO	3853	81
37	LEE-NIOB X GB 55 / GE 56	SUDAN	3753	75
15	TOBARI 66	MEXICO	3746	83
33	LAGOA VERMELHA (C-17)	BRAZIL	3633	80
30	JARAL "S" (B)	ARGENTINA	3613	81
17	INIA-66	MEXICO	3600	82
47	PARANA 68 /1116	ARGENTINA	3460	83
34	ZIPA 66	COLOMBIA	3426	78
22	GABOTO	ARGENTINA	3400	82
42	66 "S" RESELECTION	PAKISTAN	3320	81
21	CAJEME 71	MEXICO	3286	82
20	MEXICO 120	AUSTRALIA	2726	81
3	IAS SUL-20	BRAZIL	2500	78
		GRAND MEAN	4155	81
		STANDARD ERROR OF GRAND MEAN	42	0
		COEFICIENT OF VARIATION	12	1
		LSD VARIETY MEANS 5 PC	855	1

CORRELATIONS

	YIELD KG/HA
TEST WEIGHT	-0.04

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 16 ASIA AFGHANISTAN KABUL

CARUL APAN RESEARCH STATION.
COOPERATORS M. ASEF RASHID.

LATITUDE 034 33'N
LONGITUDE 069 12'E
ELEVATION 1801C3 M.ABOVE S.L.

DATE PLANTED 03/28/73
DATE HARVESTED 07/21/73
AMOUNT OF MOISTURE 0379 MM

NITROGEN 100.0 KG/HA
PHOSPHORUS 080.0 KG/HA
POTASIUM 000.0 KG/HA

HEAVY RAINFALL DURING SPRING. OPTIMUM TEMPERATURE DURING EARLY STAGE OF GROWTH. HIGH HUMIDITY BEFORE HEADING. HEAVY INFESTATION OF LEAF, STEM AND STRIPE RUST. ATTACK OF ARMY-WORM. WEED OR PEST PROBLEMS NOT REPORTED LOCAL CHECK KALYAN-227.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	LEAF RUST	STEM RUST	HEIGHT CM.
8	BB-INIA	MEXICO	5168	63	100	TR	0	0	58
31	CHENAB 70	PAKISTAN	4778	61	101	TR	15MR	10R	81
46	BONANZA	U.S.A.	4703	66	102	TR	0	0	77
43	TOB-8156	ETHIOPIA	4623	67	101	TR	0	0	76
32	7 CERROS	MEXICO	4568	67	103	0	15MS	20S	83
44	ZAAFRANE	TUNISIA	4448	63	100	10PR	0	0	80
47	PARANA 68 /1116	ARGENTINA	4361	62	103	15R	5R	0	73
7	MEXICO 226 = SON 64-KL. REND	IRAK	4346	66	102	5R	0	0	83
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	4231	61	101	TR	TR	0	71
28	SONALIKA	INDIA	4175	60	101	TR	0	0	81
13	PENJAMO 62	MEXICO	4063	66	70	TR	15MR	10MS	75
38	SAMACA 68	COLOMBIA	4053	66	101	0	0	0	96
2	TANURI-71	MEXICO	4046	60	101	0	0	0	78
15	TOBARI 66	MEXICO	4046	63	101	TR	0	0	80
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	4026	69	110	0	15MS	10R	83
35	MENG-8156	MEXICO	3993	74	100	0	TR	0	73
9	SOLTANE = BT 2296	TUNISIA	3990	66	101	5PR	0	0	83
45	MOTI	INDIA	3955	61	102	10PR	5R	15MR	58
14	CALIDAD	MEXICO	3856	63	100	0	0	0	80
5	BT-2288	TUNISIA	3856	63	101	0	0	0	76
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	3833	66	102	20R	5R	0	71
30	JARAL 'S' (B)	ARGENTINA	3826	62	101	30PS	0	0	79
25	JARAL 'S'	ARGENTINA	3818	63	105	20PS	0	0	83
24	3400-1-3	S.AFRICA	3816	63	102	30PS	10R	TR	73
41	UU-115 = CONDOR	AUSTRALIA	3805	67	110	TR	15MR	5MR	65
18	MARCOS JUAREZ INTA	ARGENTINA	3766	67	102	5R	0	0	81
19	YECORA 70	MEXICO	3710	62	101	TR	0	10MR	61
21	CAJEME 71	MEXICO	3703	66	101	TR	0	15MR	65
17	INIA-66	MEXICO	3683	60	101	0	TR	TR	76
49	SARIC 70	MEXICO	3638	66	101	10R	0	5R	70
10	PITIC 62	MEXICO	3545	69	100	15MR	30MS	40MS	78
36	715/70	YUGOSLAVIA	3513	79	109	40PS	0	0	66
27	HUELQUEN	CHILE	3508	67	104	0	0	0	99
23	BT-2281	TUNISIA	3483	63	104	0	20MS	10MS	71
26	UP-301	INDIA	3415	63	101	15R	0	0	57
29	GIZA 155	EGYPT	3395	64	103	30S	20MS	15S	95
11	WW15 = ANZA	AUSTRALIA	3345	69	104	0	20MS	10MS	66
37	LEE-N108 X GB 55 / GE 56	SUDAN	3248	66	104	30MS	15MR	10MR	68
42	BB 'S' RESELECTION	PAKISTAN	3156	66	103	10PR	0	0	53
1	CHRIS	U.S.A.	3156	67	101	0	0	0	105
16	PATO = TZPP-SON 64 X MAR 59	ARGENTINA	3056	66	101	30PR	0	0	70
22	GABOTO	ARGENTINA	3088	70	103	0	0	10MS	103
20	MEXICO 120	AUSTRALIA	3033	66	101	5R	0	0	51
6	ERA	U.S.A.	2900	72	104	TR	0	0	71
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	2698	69	106	0	15MR	20MR	86
33	LAGOA VERMELHA (C-17)	BRAZIL	2440	67	104	5R	0	0	111
34	ZIPA 68	COLOMBIA	2376	67	104	TR	TR	15MS	89
3	IASSUL-20	BRAZIL	2348	71	104	0	0	20MS	103
12	ARIANA 66	TUNISIA	530	98	118	60S	0	0	71
		GRAND MEAN	3658	66	102	5	2	3	77
		STANDARD ERROR OF GRAND MEAN	51	0	0	0	0	0	0
		COEFICIENT OF VARIATION	16	1	7	70	99	100	7
		LSD VARIETY MEANS 5 PC	1011	1	12	6	4	5	9

CORRELATIONS

YIELD	KG/HA						
DAYS TO	FLOWER	-0.67**					
DAYS TO	MATURITY	-0.39**	0.48**				
STRIPE	RUST	-0.53**	0.51**	0.32*			
LEAF	RUST	0.02	-0.00	0.01	-0.05		
STEM	RUST	-0.07	0.01	-0.08	-0.08	0.78**	
HEIGHT	CM.	-0.16	0.04	0.02	0.14	-0.02	0.14

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 17 ASIA BANGLADESH DACCA

JOYDEBPUR RESEARCH STATION, DACCA.
COOPERATORS SUFI MOHIUDDIN AHMED AND A. RAZZAQUE.

LATITUDE 023 46*N DATE PLANTED 01/12/73 NITROGEN 100.0 KG/HA
LONGITUDE 090 23*E DATE HARVESTED 04/15/73 PHOSPHORUS 100.0 KG/HA
ELEVATION +00007 M.ABOVE S.L. AMOUNT OF MOISTURE 0432 MM POTASIUM 070.0 KG/HA

AVERAGE TEMPERATURE 85 F (MAXIMUM), 64 F (MINIMUM). HUMIDITY 81
POOR DISEASE DEVELOPMENT. NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK
NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	LEAF RUST	HEIGHT CM.	LODGING
7	MEXICO 226 = SON 64-KI. BEND	IRAK	2369	47	84	0	83	0
9	SULTANE = BT 2256	TUNISIA	2341	52	84	0	87	15
44	ZAAFRANE	TUNISIA	2007	46	83	5R	78	1
20	MEXICO 120	AUSTRALIA	2007	50	84	1MS	76	0
24	3400-1-3	S.AFRICA	1707	54	86	0	80	1
43	TOP-8156	ETHIOPIA	1697	54	82	0	69	0
48	(21931/CH 53-AN X GB 56) AN o4	ISRAEL	1643	50	84	5MS	76	0
15	TOBARI 66	MEXICO	1560	50	85	0	85	1
31	CHENAB 70	PAKISTAN	1495	49	85	1MS	80	0
2	TANORI-71	MEXICO	1469	55	85	0	86	0
32	7 CERROS	MEXICO	1469	49	82	80S	74	1
6	FRA	U.S.A.	1465	52	82	0	73	0
14	CALIDAD	MEXICO	1460	49	84	0	77	0
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	1459	53	86	1MS	84	1
42	PB 'S' RESELECTION	PAKISTAN	1459	50	83	5R	79	3
35	MENG-8156	MEXICO	1452	63	84	1MS	57	0
10	PITIC 62	MEXICO	1405	53	85	TR	78	1
34	ZIPA 68	COLOMBIA	1376	57	90	10MS	97	3
25	JARAL 'S'	ARGENTINA	1340	51	83	0	83	0
26	UP-301	INDIA	1287	52	82	0	76	0
12	ARIANA 66	TUNISIA	1287	68	87	0	97	23
17	INIA-66	MEXICO	1282	47	82	1MS	70	0
19	YECORA 70	MEXICO	1276	51	85	5MS	79	1
4	K338-F. DE CH. X KOUDIET 17-KT-Y	TUNISIA	1276	56	86	1MR	82	1
38	SAMACA 68	COLOMBIA	1276	53	86	1MR	86	3
23	BT-2281	TUNISIA	1273	49	85	5MS	72	0
46	BONANZA	U.S.A.	1273	56	82	0	71	0
27	HUELQUEN	CHILE	1271	51	83	0	72	1
13	PENJAMO 62	MEXICO	1259	51	86	1MS	80	0
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	1245	56	87	1MS	77	1
5	BT-2288	TUNISIA	1223	51	84	0	90	25
36	715/70	YUGOSLAVIA	1191	56	82	20S	81	31
45	MOTI	INDIA	1159	59	87	10S	81	6
1	CHRIS	U.S.A.	1104	53	86	TR	80	13
21	CAJEME 71	MEXICO	1095	56	88	1MS	77	0
8	BB-INIA	MEXICO	1095	53	83	0	78	6
47	PARANA 68 /1116	ARGENTINA	1095	54	84	50S	78	0
11	WW15 = ANZA	AUSTRALIA	1095	52	86	5MS	70	0
28	SONALIKA	INDIA	1095	50	84	TR	82	1
22	GABOTO	ARGENTINA	1095	60	89	1MR	88	15
18	MARCOS JUAREZ INTA	ARGENTINA	1094	61	87	0	90	16
49	SARIC 70	MEXICO	1094	49	85	0	60	0
41	UQ-115 = CONDOR	AUSTRALIA	1094	49	83	10S	72	0
29	GIZA 155	EGYPT	1093	56	90	10MS	91	1
37	LFE-N108 X GB 55 / GB 56	SUDAN	913	56	87	20S	91	16
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	794	53	87	0	71	3
50	LOCAL CHECK		792	45	77	60S	70	0
3	IASSUL-20	BRAZIL	729	64	90	0	81	20
30	JARAL 'S' (B)	ARGENTINA	669	57	87	0	87	10
33	LAGOA VERMELHA (C-17)	BRAZIL	547	60	86	10S	75	30
		GRAND MEAN	1305	53	85	7	79	5
	STANDARD ERROR OF GRAND MEAN		49	0	0	1	1	1
	COEFICIENT OF VARIATION		43	14	4	218	17	310
	LSD VARIETY MEANS 5 PC		935	12	5	25	23	26

CORRELATIONS

YIELD	KG/HA					
DAYS TO	FLOWER	-0.35**				
DAYS TO	MATURITY	-0.26	0.58**			
LEAF	RUST	-0.32*	-0.20	-0.37**		
HEIGHT	CM.	0.03	0.33*	0.50**	-0.15	
LODGING		-0.32*	0.54**	0.25	0.03	0.42**

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 18 ASIA INDIA GUJARAT

JUNAGADH
COOPERATORS V. J. PATEL.

LATITUDE 021 30°N
LONGITUDE 070 28°E
ELEVATION +00137 M.ABOVE S.L.

DATE PLANTED 11/28/72
DATE HARVESTED 03/23/73
AMOUNT OF MOISTURE 0000 MM

NITROGEN 134.0 KG/HA
PHOSPHORUS 068.0 KG/HA
POTASIUM 000.0 KG/HA

DRY CROP SEASON DUE TO THE FAILURE OF MONSOON RAINS. NEGLIGIBLE DISEASE DEVELOPMENT. INSECT, WEED OR PEST PROBLEMS NOT REPORTED. LOCAL CHECK NOT REPORTED. XX= ALTERNARIA. ALTERNARIA SCALE S= SUSCEPTIBLE, F= FREE.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	LEAF RUST	HEIGHT CM.	1000 GRN WGT GRMS	ALTNARIA
41	UQ-115 = CONDOR	AUSTRALIA	3891	61	103	1R	77	30	F
2	TANORI-71	MEXICO	3840	54	103	0	86	35	F
44	ZAAFRANE	TUNISIA	3761	53	104	0	75	37	F
11	WW15 = ANZA	AUSTRALIA	3623	68	111	5MR	75	33	F
50	LOCAL CHECK		3587	63	114	0	84	36	S
9	SULTANE = BT 2296	TUNISIA	3550	63	104	0	83	37	F
13	PUNJAMO 62	MEXICO	3478	58	97	0	87	37	F
8	BB-INIA	MEXICO	3478	56	100	0	59	36	S
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	3391	64	104	1R	81	33	F
45	MOTI	INDIA	3362	57	103	0	54	38	F
37	LEF-N108 X GB 55 / GB 56	SUDAN	3311	58	103	1R	69	35	F
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	3297	49	100	1R	64	36	F
5	BT-2288	TUNISIA	3260	55	104	0	81	36	S
24	3400-1-3	S.AFRICA	3159	60	103	0	74	33	F
32	7 CERROS	MEXICO	3130	56	95	1R	72	36	F
31	CHENAB 70	PAKISTAN	3079	66	104	1R	77	36	F
43	TOB-8156	ETHIOPIA	3079	53	100	0	79	39	S
47	PAHANA 68 /1116	ARGENTINA	3072	54	103	0	68	31	F
17	INIA-66	MEXICO	3043	54	100	0	71	39	F
46	BONANZA	U.S.A.	3021	59	104	0	77	29	F
7	MEXICO 226 = SON 64-KL. REND	IRAK	2971	53	98	0	84	39	F
19	YECORA 70	MEXICO	2971	53	91	0	49	39	F
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	2898	68	112	1R	89	32	F
10	PITIC 62	MEXICO	2858	68	111	1R	81	31	F
42	BB 'S' RESELECTION	PAKISTAN	2833	58	102	0	53	39	S
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	2826	55	97	0	69	31	F
14	CALIDAD	MEXICO	2826	54	93	0	77	35	F
30	JARAL 'S' (B)	ARGENTINA	2811	65	107	0	74	36	F
20	MEXICO 120	AUSTRALIA	2797	68	105	0	48	28	F
23	BT-2281	TUNISIA	2782	51	103	1R	68	37	F
15	TOBARI 66	MEXICO	2753	56	100	0	75	32	F
26	UP-301	INDIA	2746	59	104	0	55	38	F
35	MENG-8156	MEXICO	2731	70	111	1R	74	33	F
29	GIZA 155	EGYPT	2731	63	113	1R	110	35	S
38	SAMACA 68	COLOMBIA	2703	58	101	0	93	34	F
28	SONALIKA	INDIA	2674	49	98	1R	79	52	F
34	ZIPA 68	COLOMBIA	2471	62	103	1R	89	33	F
1	CHRIS	U.S.A.	2391	64	108	0	105	28	S
33	LAGOA VERMELHA (C-17)	BRAZIL	2369	61	100	1R	105	36	F
25	JARAL 'S'	ARGENTINA	2362	51	94	0	71	32	F
3	IASSUL-20	BRAZIL	2318	68	104	1R	111	32	F
27	HUELQUEN	CHILE	2297	55	102	0	95	38	S
36	715/70	YUGOSLAVIA	2181	77	112	0	56	26	S
49	SARIC 70	MEXICO	2108	72	112	1R	65	35	S
21	CAJEME 71	MEXICO	2065	71	111	0	64	31	S
22	CABOTO	ARGENTINA	1826	74	113	0	81	28	F
18	MARCOS JUAREZ INTA	ARGENTINA	1666	70	110	0	68	33	S
12	ARIANA 66	TUNISIA	1492	89	123	0	82	34	S
6	ERA	U.S.A.	978	94	123	0	54	24	S
39	FL GOU-SON 64 X 7C-NP 63	U.S.A.	615	103	127	0	69	19	F
		GRAND MEAN	2790	62	104	0	76	34	
	STANDARD ERROR OF GRAND MEAN		14	0	0	0	0	0	
	COEFICIENT OF VARIATION		6	1	0	201	1	0	
	LSD VARIETY MEANS 5 PC		298	1	0	0	1	0	

CORRELATIONS

YIELD	KG/HA					
DAYS TO	FLOWER	-0.71**				
DAYS TO	MATURITY	-0.57**	0.88**			
LEAF	RUST	0.21	0.03	0.06		
HEIGHT	CM.	0.04	-0.07	0.02	0.01	
1000 GRN	WGT GRMS	0.48**	-0.68**	-0.57**	0.01	0.07

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 19 ASIA INDIA MAHARASTRA

AGRICULTURAL RESEARCH STATION, NIPHAD.
COOPERATORS A. K. KOLHE AND P. K. BORAMANIKAR.

LATITUDE 020 06'N
LONGITUDE 074 06'E
ELEVATION +00549 M.ABOVE S.L.

DATE PLANTED 11/21/72
DATE HARVESTED 04/05/73
AMOUNT OF MOISTURE ---- MM

NITROGEN 175.0 KG/HA
PHOSPHORUS 050.0 KG/HA
POTASIUM 000.0 KG/HA

UNUSUAL SEASON. LOWER HUMIDITY COMPARED TO NORMAL. RAPID DEVELOPMENT OF BROWN AND STEM RUST. STEMBORER NOTICED ON MANY ENTRIES. WEED AND PEST PROBLEMS NOT REPORTED. LOCAL CHECK NI-5439

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	LEAF RUST	STEM RUST	HEIGHT CM.	SHATTER ING	1000 GRN WGT GRMS
9	SOLTANE = BT 2296	TUNISIA	3609	20MR	5S	92	0	36
13	PENJAMO 62	MEXICO	3544	10MR	5MR	78	0	35
2	TANORI-71	MEXICO	3488	20MR	10MR	85	4	33
24	3409-1-3	S.AFRICA	3377	10MR	1R	79	0	31
25	JARAL 'S'	ARGENTINA	3346	1R	1R	79	0	31
7	MEXICO 226 = SON 64-KL. REND	IRAK	3309	20MR	0	86	0	39
17	INIA-66	MEXICO	3255	40S	1R	83	0	36
28	SONALIKA	INDIA	3145	20S	60S	86	0	47
44	ZAAFRANE	TUNISIA	3060	20MR	10S	84	0	36
32	7 CERROS	MEXICO	3055	80S	80S	85	0	31
31	CHENAB 70	PAKISTAN	3044	20S	80S	94	0	31
5	BT-2288	TUNISIA	2994	TRS	0	88	14	35
35	MENG-8156	MEXICO	2963	40S	40S	82	0	28
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	2883	20MS	10S	82	0	29
33	LAGOA VERMELHA (C-17)	BRAZIL	2844	10MR	20MS	120	0	35
11	WW15 = ANZA	AUSTRALIA	2824	20S	10S	81	0	30
41	UQ-115 = CONDOR	AUSTRALIA	2784	60S	1R	78	0	30
15	TOBARI 66	MEXICO	2710	1R	1R	82	0	34
37	LEE-N108 X GB 55 / GB 56	SUDAN	2660	80S	40S	73	0	32
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	2610	20S	60S	79	0	31
14	CALIDAD	MEXICO	2588	40S	20S	84	0	32
30	JARAL 'S' (8)	ARGENTINA	2507	1R	1R	83	0	32
36	715/70	YUGOSLAVIA	2474	0	5R	77	0	30
47	PARANA 68 /1116	ARGENTINA	2449	1R	5R	65	0	31
29	GIZA 155	EGYPT	2437	40S	10MS	110	26	38
23	BT-2281	TUNISIA	2366	1R	40S	68	0	31
10	PITIC 62	MEXICO	2363	5MR	10S	85	0	27
20	MEXICO 120	AUSTRALIA	2357	60S	10S	58	0	30
45	MOTI	INDIA	2355	10MR	40S	49	0	32
34	ZIPA 68	COLOMBIA	2247	1R	80S	103	0	33
50	LOCAL CHECK		2238	1R	60S	101	0	35
8	BB-INIA	MEXICO	2238	TRR	0	56	0	39
19	YECORA 70	MEXICO	2215	60S	80S	55	0	37
27	HUELQUEN	CHILE	2199	1R	1R	101	0	34
18	MARCOS JUAREZ INTA	ARGENTINA	2135	40S	80S	91	0	34
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	2127	10MR	10MR	66	0	36
38	SAMACA 68	COLOMBIA	2088	10MR	20S	106	14	35
1	CHRIS	U.S.A.	2016	0	0	114	48	28
46	BONANZA	U.S.A.	1888	1R	1R	73	0	27
43	TOB-8156	ETHIOPIA	1877	60S	20S	76	0	34
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	1822	20MR	10S	101	34	34
22	GABOTO	ARGENTINA	1760	1R	20S	115	0	25
42	BB 'S' RESELECTION	PAKISTAN	1755	20MR	1R	48	0	38
26	UP-301	INDIA	1683	5R	5R	51	0	36
49	SARIC 70	MEXICO	1490	20S	60S	63	0	29
3	IASSUL-20	BRAZIL	1372	10S	20S	111	75	31
21	CAJEME 71	MEXICO	1197	10S	60S	66	0	29
6	ERA	U.S.A.	1059	TRR	TRS	78	0	22
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	885	40S	10S	97	0	19
12	ARIANA 66	TUNISIA	612	20S	40S	105	0	24
		GRAND MEAN	2408	20	20	83	4	32
	STANDARD ERROR OF GRAND MEAN		51	1	1	0	0	0
	COEFICIENT OF VARIATION		26	63	78	6	75	5
	LSD VARIETY MEANS 5 PC		1023	21	25	8	5	3

CORRELATIONS

YIELD	KG/HA					
LEAF	RUST	0.04				
STEM	RUST	-0.17	0.44**			
HEIGHT	CM.	-0.01	-0.13	0.08		
SHATTER	ING	-0.22	-0.10	-0.04	0.44**	
1000 GRN	WGT GRMS	0.49**	-0.02	0.05	-0.13	-0.00

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 20 ASIA INDIA NEW PUSA DELHI

I.A.R.I. NEW DELHI.
COOPERATORS S.S. BISHT, R.K AGARWAL AND M.V RAO.

LATITUDE 028 04°N
LONGITUDE 077 01°E
ELEVATION +00229 M.ABOVE S.L.

DATE PLANTED 12/11/72
DATE HARVESTED 04/26/73
AMOUNT OF MOISTURE ---- MM

NITROGEN 134.C KG/HA
PHOSPHORUS 067.0 KG/HA
POTASIUM 040.0 KG/HA

COLD DRY WINTER SEASON FOLLOWED BY HOT SUMMER DURING MARCH AND APRIL.
MODERATE DISEASE DEVELOPMENT. NO INSECT, WEED OR PEST PROBLEMS. LOCAL
CHECK KALYANSONA.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	LEAF RUST	STEM RUST	HEIGHT CM.
43	TOB-8156	ETHIOPIA	4492	82	127	0	1R	0	95
5	BT-2289	TUNISIA	4384	68	120	0	0	0	107
2	TANORI-71	MEXICO	4333	68	113	0	1R	0	100
7	MEXICO 226 = SON 64-KL. REND	IRAK	4253	75	120	0	1S	0	97
19	YECORA 70	MEXICO	4195	89	113	0	30S	1S	80
37	LEF-N10R X GB 55 / GB 56	SUDAN	4159	82	-	20S	60S	1S	80
44	ZAAFRANE	TUNISIA	4029	82	113	0	10X	0	100
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	3978	82	120	0	0	0	92
14	CALIDAD	MEXICO	3942	82	127	1S	0	0	100
28	SONALIKA	INDIA	3884	61	113	0	0	0	107
17	INIA-66	MEXICO	3840	82	113	0	5S	1S	93
10	PITIC 62	MEXICO	3724	82	-	0	50S	1S	100
9	SOLTANE = BT 2296	TUNISIA	3710	82	120	1R	1R	0	94
45	MOTI	INDIA	3666	82	113	0	25S	0	63
13	PENJAMO 62	MEXICO	3659	82	113	0	1S	1S	86
47	PARANA 68 /1116	ARGENTINA	3572	82	113	0	20S	0	85
31	CHENAB 70	PAKISTAN	3565	82	120	0	20S	5S	98
35	MENG-8156	MEXICO	3543	96	0	0	1S	0	76
25	JARAL 'S'	ARGENTINA	3514	75	113	1S	1R	0	93
8	BB-INIA	MEXICO	3507	82	120	0	1R	0	75
42	BB 'S' RESELECTION	PAKISTAN	3492	82	120	0	1R	1R	72
26	UP-301	INDIA	3471	89	-	0	1S	0	63
20	MEXICO 120	AUSTRALIA	3456	82	113	0	1R	0	57
32	7 CERROS	MEXICO	3449	82	127	50S	60S	1S	98
21	CAJEME 71	MEXICO	3449	89	120	0	1S	0	74
30	JARAL 'S' (B)	ARGENTINA	3362	82	120	1S	0	0	90
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	3282	82	113	0	1R	0	83
19	MARCOS JUAREZ INTA	ARGENTINA	3275	89	127	1S	0	0	94
15	TOBARI 66	MEXICO	3232	82	-	0	0	0	98
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	3159	89	127	0	15S	10MR	100
23	BT-2281	TUNISIA	3159	75	120	0	20S	1S	98
29	GIZA 155	EGYPT	3123	82	0	40S	40S	20S	100
50	LOCAL CHECK		3108	89	127	1S	50S	20S	84
27	HUELQUEN	CHILE	3101	96	120	0	1R	1S	110
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	3097	68	-	0	1R	0	83
24	3400-1-3	S.AFRICA	2956	82	-	10S	0	0	88
41	UQ-115 = CONDOR	AUSTRALIA	2898	89	127	0	1R	0	81
11	WW15 = ANZA	AUSTRALIA	2862	89	127	0	30S	1S	83
46	BONANZA	U.S.A.	-	82	-	0	1R	0	94
38	SAMACA 68	COLOMBIA	2500	82	113	0	0	0	110
36	715/70	YUGOSLAVIA	2471	96	0	0	10S	0	74
12	ARIANA 66	TUNISIA	2413	76	0	0	1R	0	115
34	ZIPA 68	COLOMBIA	2326	82	113	0	0	1S	103
49	SARIC 70	MEXICO	2297	89	120	0	1R	0	74
1	CHRIS	U.S.A.	2000	82	113	0	0	1S	113
33	LAGOA VERMELHA (C-17)	BRAZIL	1913	82	120	1S	1S	20S	113
22	GABOTO	ARGENTINA	1739	96	0	0	0	0	113
6	ERA	U.S.A.	1652	96	0	0	0	0	83
3	IASSUL-20	BRAZIL	1514	82	113	0	1R	0	113
39	FL GOU-SON 64 X 7C-NP 63	U.S.A.	0	103	0	-	-	-	83
		GRAND MEAN	3255	83	118	2	9	1	91
		STANDARD ERROR OF GRAND MEAN	51						
		COEFICIENT OF VARIATION	19						
		LSD VARIETY MEANS 5 PC	1029						

CORRELATIONS

YIELD	KG/HA						
DAYS TO	FLOWER	-0.50**					
DAYS TO	MATURITY	0.50**	-0.42**				
STRIPE	RUST	0.06	-0.04	-0.11			
LEAF	RUST	0.20	0.04	0.07	0.61**		
STEM	RUST	-0.12	0.04	-0.08	0.32*	0.38**	
HEIGHT	CM.	-0.15	-0.29*	-0.01	0.06	-0.09	0.16

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 21 ASIA INDIA RAJASTHAN

BASSI EXPERIMENT STATION.
COOPERATORS S.M. GANDHI

LATITUDE 026 49'N
LONGITUDE 075 48'E
ELEVATION +00450 M.ABOVE S.L.

DATE PLANTED 11/23/72
DATE HARVESTED 04/10/73
AMOUNT OF MOISTURE 0174 MM

NITROGEN 137.0 KG/HA
PHOSPHORUS 067.0 KG/HA
POTASIUM 030.0 KG/HA

DRY WEATHER PREVAILED IN GENERAL. TEMPERATURE COMPARATIVELY HIGHER THAN LAST YEAR. NO DISEASE DEVELOPMENT. NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	LODGING	1000 GRN WGT GRMS
2	TANORI-71	MEXICO	5398	84	127	94	20	38
31	CHENAB 70	PAKISTAN	5108	94	135	92	10	38
9	SOLTANE = BT 2296	TUNISIA	4819	95	123	100	10	42
28	SONALIKA	INDIA	4637	84	117	94	23	48
37	LEE-N10B X GB 55 / GB 56	SUDAN	4565	96	130	84	0	32
13	PENJAMO 62	MEXICO	-	93	-	95	-	-
11	WW15 = ANZA	AUSTRALIA	4420	103	138	88	0	34
5	BT-2288	TUNISIA	4420	95	128	86	30	34
41	UQ-115 = CONDOR	AUSTRALIA	4420	96	127	84	5	28
44	ZAAFRANE	TUNISIA	4384	84	122	89	5	34
17	INIA-66	MEXICO	4275	89	123	92	-	38
7	MEXICO 22(= SON 64-KL, REND	IRAK	-	96	126	98	-	-
10	PITIC 62	MEXICO	4166	94	123	98	20	38
35	MENG-8156	MEXICO	4058	94	138	82	0	38
25	JARAL 'S'	ARGENTINA	4021	91	124	93	17	34
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	3949	91	122	89	20	38
32	7 CERROS	MEXICO	3949	94	127	96	5	30
23	BT-2281	TUNISIA	3913	90	127	79	0	32
24	3400-1-3	S.AFRICA	3911	91	126	85	-	30
14	CALIOAD	MEXICO	3905	94	122	98	-	40
15	TOB%I 66	MEXICO	3876	96	122	92	-	34
8	BB-INIA	MEXICO	3876	93	130	78	5	34
20	MEXICO 120	AUSTRALIA	3876	95	130	63	-	34
30	JARAL 'S' (B)	ARGENTINA	3876	87	122	83	10	30
36	715/70	YUGOSLAVIA	3768	100	138	80	0	30
26	UP-301	INDIA	3732	92	120	66	-	38
29	GIZA 155	EGYPT	3732	76	138	113	10	38
43	TOB-8156	ETHIOPIA	3732	90	125	87	0	32
18	MARCOS JUAREZ INTA	ARGENTINA	3659	90	138	88	12	38
45	MOTI	INDIA	3623	84	122	67	0	32
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	3623	93	129	110	10	42
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	3587	88	121	73	0	38
33	LAGOA VERMELHA (C-17)	BRAZIL	3550	92	122	136	86	36
27	HUELQUEN	CHILE	3514	85	127	115	-	46
46	BONANZA	U.S.A.	3442	84	121	75	-	30
1	CHRIS	U.S.A.	3260	77	129	112	-	28
3	IASSUL-20	BRAZIL	3116	94	129	150	-	38
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	3079	89	122	74	25	34
50	LOCAL CHECK		-	94	-	55	-	-
49	SARIC 70	MEXICO	3007	89	121	57	-	34
19	YECORA 70	MEXICO	2971	91	128	68	0	38
47	PARANA 68 /1116	ARGENTINA	2971	84	121	58	-	38
34	ZIPA 68	COLOMBIA	2971	91	130	99	-	34
22	GABOTO	ARGENTINA	2934	92	124	132	35	26
42	BB 'S' RESELECTION	PAKISTAN	2934	88	118	57	-	32
21	CAJEME 71	MEXICO	2898	92	122	67	0	38
38	SAMACA 68	COLOMBIA	2862	90	121	112	-	36
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	0	108	0	85	0	0
12	ARIANA 66	TUNISIA	0	103	138	96	-	0
6	ERA	U.S.A.	0	99	0	95	-	0
		GRAND MEAN	3798	91	126	89	21	35
	STANDARD ERROR OF GRAND MEAN		68	0	0	0	2	
	COEFICIENT OF VARIATION		21	0	0	3	82	
	LSD VARIETY MEANS 5 PC		1336	1	0	4	29	

CORRELATIONS

	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	LODGING	1000 GRN WGT GRMS
DAYS TO FLOWER	-0.33*					
DAYS TO MATURITY	0.65**	-0.34*				
HEIGHT CM.	0.01	-0.01	0.03			
LODGING	0.12	-0.22	0.11	0.70**		
1000 GRN WGT GRMS	0.79**	-0.49**	0.66**	0.03	0.18	

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 22 ASIA JAPAN NOKAMICU

PREFECTURAL KITAMI AGRICULTURAL EXPERIMENT STATION.
COOPERATORS SACHIO OZEKI.

LATITUDE 43° 47'N
LONGITUDE 143 42'E
ELEVATION 40.196 M.ABOVE S.L.

DATE PLANTED 04/24/73
DATE HARVESTED 08/14/73
AMOUNT OF MOISTURE 0260 MM

NITROGEN 048.0 KG/HA
PHOSPHORUS 080.0 KG/HA
POTASSIUM 040.0 KG/HA

TOO HOT AND LITTLE RAIN DURING FIRST STAGE OF GROWTH. GOOD WEATHER DURING RIPENING. NO DISEASE DEVELOPMENT, INSECT, WEED OR PEST PROBLEMS NOT REPORTED. LOCAL CHECK HARUMINORI.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	1000 GRN WGT GRMS
24	3400-1-3	S.AFRICA	4054	75	65	107	84	37
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	4034	77	67	109	75	35
29	GIZA 155	EGYPT	3945	77	63	109	96	42
46	BONANZA	U.S.A.	3945	78	67	105	84	32
10	PITIC 62	MEXICO	3754	72	68	108	90	33
31	CHENAB 70	PAKISTAN	3720	78	60	106	75	42
32	7 CERROS	MEXICO	3655	77	67	108	84	33
28	SONALIKA	INDIA	3645	75	63	107	87	42
11	WW15 = ANZA	AUSTRALIA	3642	75	68	112	69	33
17	INIA-66	MEXICO	3582	78	60	104	77	40
15	TUBARI 66	MEXICO	3575	76	65	109	82	34
25	JARAL 'S'	ARGENTINA	3556	76	64	106	66	31
16	PATU = TZPP-SON 64 X NAR 59	ARGENTINA	3554	78	65	108	72	32
43	TUB-8156	ETHIOPIA	3512	75	66	109	76	32
9	SULTANE = BT 2296	TUNISIA	3512	77	65	106	87	42
44	ZAAFRANE	TUNISIA	3508	78	63	104	86	40
20	MEXICO 120	AUSTRALIA	3455	75	67	107	53	32
41	UQ-115 = CONDOR	AUSTRALIA	3491	76	67	111	72	33
27	HUELQUEN	CHILE	3484	76	67	105	104	34
21	CAJEME 71	MEXICO	3478	76	65	105	62	42
18	MARCOS JUAREZ INTA	ARGENTINA	3445	75	66	107	67	39
6	ERA	U.S.A.	3444	77	69	109	81	29
34	ZIPA 68	COLOMBIA	3404	75	66	106	59	37
5	BT-2288	TUNISIA	3339	78	61	106	80	39
7	MEXICO 226 = SON 64-KL. RENC	IRAK	3315	78	63	106	86	42
4	K338-E. DE CH. X KOUCIET 17-RT-Y	TUNISIA	3307	74	68	111	53	37
33	LAGOA VERMELHA (C-17)	BRAZIL	3207	75	66	105	111	38
19	YECORA 70	MEXICO	3153	74	63	104	56	40
49	SARIC 70	MEXICO	3176	75	66	106	62	41
1	CHRIS	U.S.A.	3171	77	68	107	109	34
37	LEE-NIOB X GB 55 / GB 56	SUDAN	3169	72	65	107	73	31
39	EL GOU-SON 64 X TC-NP 63	U.S.A.	3163	71	67	110	84	29
14	CALIDAD	MEXICO	3121	76	64	107	76	33
40	SON 64 X TZPP-Y54 / JLSTIN 3	U.S.A	3120	76	61	105	63	38
45	MOTI	INDIA	3095	76	61	104	50	40
8	BB-INIA	MEXICO	3094	76	63	104	53	36
13	PENJAMO 62	MEXICO	3071	77	64	107	63	39
2	TANORI-71	MEXICO	3063	77	60	103	74	37
22	GABOTO	ARGENTINA	3061	76	70	109	114	27
30	JARAL 'S' (B)	ARGENTINA	2900	76	61	107	76	27
47	PARANA 68 /1116	ARGENTINA	2777	77	63	106	65	37
35	MENG-8156	MEXICO	2767	74	69	110	68	30
23	BT-2281	TUNISIA	2688	74	64	109	77	34
38	SAMACA 68	COLOMBIA	2664	76	65	102	100	39
3	IASSUL-20	BRAZIL	2636	71	71	107	116	34
26	UP-301	INDIA	2466	74	64	105	50	39
42	BB 'S' RESELECTION	PAKISTAN	2416	72	65	104	53	35
36	715/70	YUGOSLAVIA	2326	76	71	109	66	35
12	ARIANA 66	TUNISIA	1934	67	74	115	101	27
		GRAND MEAN	3259	76	65	107	80	36
	STANDARD ERROR OF GRAND MEAN		47		0	0	0	0
	COEFICIENT OF VARIATION		17		1	1	6	8
	LSD VARIETY MEANS 5 PC		929		1	2	8	4

CORRELATIONS

	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.
TEST WEIGHT	0.56**				
DAYS TO FLOWER	-0.23	-0.50**			
DAYS TO MATURITY	-0.06	-0.38**	0.64**		
HEIGHT CM.	0.10	-0.10	0.39**	0.20	
1000 GRN WGT GRMS	0.20	0.35*	-0.54**	-0.55**	-0.17

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 23 ASIA SOUTH KOREA KWANG JU

KWANGJU BRANCH STATION, CROP EXPERIMENT STATION.
COOPERATORS PYUN OK CHOI, CHANG KWAN CHO.

LATITUDE 035 00°N
LONGITUDE 127 00°E
ELEVATION 000040 M.ABOVE S.L.

DATE PLANTED 10/24/72
DATE HARVESTED 06/20/73
AMOUNT OF MOISTURE 020 MM

NITROGEN 000.0 KG/HA
PHOSPHORUS 000.0 KG/HA
POTASSIUM 000.0 KG/HA

FAVORABLE CONDITIONS FOR GROWING WHEAT. NO DISEASE DEVELOPMENT. INSECT AND PEST PROBLEMS NOT REPORTED. TWO HAND WEEDINGS. LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	LODGING	1000 GRN WGT GRMS
35	MENG-0150	MEXICO	6495	76	186	233	62	5	37
18	NAKLOS JUAREZ INTA	ARGENTINA	5874	73	164	230	81	0	43
6	ERA	U.S.A.	5672	77	194	235	74	0	32
50	LOCAL CHECK		5666	71	188	232	72	34	36
44	SAKIG 70	MEXICO	5416	76	165	229	51	0	41
43	TOB-0150	ETHIOPIA	5262	76	185	231	67	0	37
36	715/70	YUGOSLAVIA	5277	72	188	229	56	23	31
39	EL GUU-SON 64 X 76-NP 63	U.S.A.	5165	73	191	233	73	0	32
8	BO-INIA	MEXICO	5023	75	184	227	51	0	35
9	SOLTANE = BT 2296	TUNISIA	4971	77	183	229	77	0	43
15	TOBARI 66	MEXICO	4968	74	184	230	73	5	37
11	WAIS = ANZA	AUSTRALIA	4962	75	188	230	65	0	34
42	66 "S" RESELECTION	PAKISTAN	4797	76	186	228	45	0	40
21	CAJEME 71	MEXICO	4656	77	184	227	55	0	45
16	PATO = TZPP-SCN 64 A ASF 59	ARGENTINA	4663	73	186	230	66	0	33
45	MUTI	INDIA	4613	77	184	230	47	0	39
7	MEXICO 226 = SCN 64-KL. REND	IRAK	4591	74	166	228	75	0	43
41	UV-115 = CONDOR	AUSTRALIA	4416	75	188	232	60	0	36
44	SAARKANE	TUNISIA	4405	75	184	229	74	16	37
2	TANORI-71	MEXICO	4371	77	181	229	65	0	37
47	PARANA 68 /1116	ARGENTINA	4340	75	182	229	56	0	38
19	YECORA 70	MEXICO	4326	74	184	229	50	5	41
14	CALIDAU	MEXICO	4316	74	183	230	66	0	36
48	(21931/CH 55-AN X 68 SE3 AN 64	ISRAEL	4255	76	165	231	60	0	37
17	INIA-66	MEXICO	4214	76	182	229	66	0	37
32	7 CERROS	MEXICO	4155	74	167	231	72	5	34
23	BT-2201	TUNISIA	4150	71	165	231	65	23	35
37	LEE-NUOS X 68 55 / 68 56	SILLAN	4145	73	165	231	62	0	35
10	PETIC 62	MEXICO	4106	71	150	229	72	0	30
25	JARAL "S"	ARGENTINA	4065	76	181	228	65	5	32
24	3400-1-3	S.AFRICA	4060	76	165	229	71	5	35
30	JARAL "S" (8)	ARGENTINA	4065	75	183	229	66	5	42
31	CHEIHAB 70	PAKISTAN	4040	76	184	229	66	1	40
13	PENJAMO 62	MEXICO	4005	75	183	230	71	33	41
27	HUELQUEN	CHILE	3935	76	186	229	80	60	37
20	MEXICO 120	AUSTRALIA	3926	74	185	229	45	5	39
22	GABOTO	ARGENTINA	3921	75	186	229	50	6	31
46	BONANZA	U.S.A.	3856	75	186	231	64	0	28
1	CHRIS	U.S.A.	3825	67	185	232	89	6	32
38	SANALA 68	COLOMBIA	3816	76	164	229	81	0	38
26	SONALIKA	INDIA	3787	76	182	229	66	5	45
33	LAGOA VERMELHA (C-17)	BRAZIL	3751	77	184	229	95	6	41
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	3705	78	184	226	58	0	40
34	ZIPA 66	COLOMBIA	3638	72	188	231	66	8	38
3	IASSUL-20	BRAZIL	3555	75	191	231	91	10	39
28	UP-301	INDIA	3345	75	135	228	46	0	39
49	GIZA 155	EGYPT	3025	75	183	229	68	41	44
12	ANIANA 66	TUNISIA	3021	73	192	231	79	0	36
4	A556-E. DE CM. X KOUDIET 17-BT-Y	TUNISIA	2868	71	185	232	81	0	46
5	BT-2288	TUNISIA	2576	80	182	230	62	0	39
		GRAND MEAN	4325	75	185	230	68	6	36
	STANDARD ERROR OF GRAND MEAN		24	0	0	0	0	0	0
	COEFFICIENT OF VARIATION		6	4	0	0	6	114	8
	LSD VARIETY MEANS 5 PC		483	5	2	1	7	12	3

CORRELATIONS

YIELD KG/HA						
TEST WEIGHT	-0.07					
DAYS TO FLOWER	0.19	-0.41**				
DAYS TO MATURITY	0.24	-0.40**	0.65**			
HEIGHT CM.	-0.15	-0.34*	0.26	0.34*		
LODGING	-0.08	-0.15	-0.00	0.01	0.22	
1000 GRN WGT GRMS	-0.15	0.18	-0.29*	-0.34*	-0.04	0.06

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 24 ASIA NEPAL KATHMANDU

ACADEMY SECTION. KHUMALTAR.
COOPERATORS J.R. JOSHI ET AL.

LATITUDE 027 40°N
LONGITUDE 085 20°E
ELEVATION 4200 M.ABOVE SEA.

DATE PLANTED 15/10/72
DATE HARVESTED 06/01/73
AMOUNT OF RAINFALL 1187 MM

NITROGEN 100.0 KG/HA
PHOSPHORUS 060.0 KG/HA
POTASSIUM 040.0 KG/HA

FAVOURABLE WEATHER FOR PLANT GROWTH. GOOD RAINFALL AT HEADING TIME.
DROUGHTY CONDITION PREVAILED FROM FLOWERING TO MATURITY. NO DISEASE
DEVELOPMENT, NO INSECT, BIRD OR PEST PROBLEMS. LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OF CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	SHATTER ING
35	MENO-8156	MEXICO	6654	132	164	82	0
49	SARIC 70	MEXICO	6413	125	157	84	2
44	GRAFRANE	TUNISIA	5575	120	156	96	6
8	00-INIA	MEXICO	5816	117	153	78	0
21	CAJEME 71	MEXICO	5775	128	156	65	4
19	YECORA 70	MEXICO	5755	116	-	80	0
32	7 CERROS	MEXICO	5736	125	158	103	6
9	SOLIANE = ST 2296	TUNISIA	5637	127	157	99	0
43	TUG-8156	ETHIOPIA	5585	126	157	87	0
31	CHENAB 70	PAKISTAN	5555	128	156	116	0
36	715/70	YUGOSLAVIA	5541	126	160	99	7
17	INIA-00	MEXICO	5451	113	148	105	0
13	PENJAMO 62	MEXICO	5466	126	154	102	0
10	PITIC 62	MEXICO	5476	130	161	106	0
45	MUTI	INDIA	5462	117	154	72	0
42	00 "S" RESELECTION	PAKISTAN	5375	115	154	81	10
41	UW-115 = GENNOW	AUSTRALIA	5355	125	156	85	0
47	PAMPA 00 /1110	ARGENTINA	5337	123	156	90	0
2	TAMUAI-71	MEXICO	5303	120	151	98	1
4	A330-E. DE CHG A NOUCIET 17-BT-Y	TUNISIA	5253	130	155	112	0
1	MEXICO 220 = SCR 04-AL. PEAL	IRAN	5265	127	155	107	0
20	MEXICO 120	AUSTRALIA	5257	125	154	69	0
37	LEE-NIUB A 68 55 / 68 56	SUDAN	5249	125	157	84	0
28	SONALIKA	INDIA	5226	120	153	102	0
15	TUBARI 00	MEXICO	5174	127	156	104	0
20	UP-301	INDIA	5155	126	160	75	0
23	BT-2281	TUNISIA	5103	118	157	97	0
50	LOCAL CHECK		5065	127	155	100	0
16	PATU = T2PP-SUN 04 A PAP 59	ARGENTINA	4977	128	164	98	0
46	121931/CH 53-AM A 68 563 AR 64	ISRAEL	4909	127	156	89	0
24	3400-1-3	S.AFRICA	4542	121	156	91	0
14	CALIDAD	MEXICO	4966	126	154	100	6
25	JANAL "S"	ARGENTINA	4635	126	155	96	0
11	MAIS = ANZA	AUSTRALIA	4833	130	164	86	0
36	GUNANZA	U.S.A.	4775	123	156	94	0
18	MARCOS JUAREZ INTA	ARGENTINA	4725	130	155	102	0
40	SUN 04 A T2PP-Y54 / JUSTIN 3	U.S.A.	4693	118	158	86	0
27	HUCLWEN	CHILE	4611	126	156	118	0
29	GIZA 155	EGYPT	4561	127	158	106	0
30	JANAL "S" (B)	ARGENTINA	4570	122	157	93	0
34	ZIPA 08	COLOMBIA	4551	132	163	105	0
5	BT-2200	TUNISIA	4403	163	156	94	0
39	EL GOU-SUN 04 A 76-AF 63	U.S.A.	4125	132	153	86	0
6	ENA	U.S.A.	4115	142	0	92	0
22	GAUCHO	ARGENTINA	4006	125	156	128	0
38	SARACA 08	COLOMBIA	3866	130	157	106	0
3	IASSUL-20	BRAZIL	3836	132	157	138	44
12	ARIANA 00	TUNISIA	3822	139	167	110	0
1	UNRAS	U.S.A.	3702	131	157	128	0
33	LAGOA VERMELHA (6-17)	BRAZIL	3517	121	162	121	0
		GRAND MEAN	5035	126	157	97	4
	STANDARD ERROR OF GRAND MEAN		77	6	6	6	0
	COEFICIENT OF VARIATION		16	7	1	13	61
	LSD VARIETY MEANS 5 PC		1546	15	4	19	.2

CORRELATIONS

	YIELD KG/HA				
DAYS TO FLOWER	-0.354*				
DAYS TO MATURITY	0.015	-0.021			
HEIGHT CM.	-0.324**	0.022	0.006		
SHATTER ING	-0.21	0.07	0.02	0.364*	

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 29 ASIA PAKISTAN PUNJAB

AGRICULTURAL RESEARCH INSTITUTE, LYALLPUR.
COOPERATORS CEREAL BOTANIST

LATITUDE 031 30°N
LONGITUDE 073 10°E
ELEVATION 000213 M.ABOVE S.L.

DATE PLANTED 11/14/72
DATE HARVESTED 04/29/73
AMOUNT OF MOISTURE 0508 MM

NITROGEN 134.4 KG/HA
PHOSPHORUS 084.0 KG/HA
POTASIUM 000.0 KG/HA

FAVORABLE WEATHER IN EARLY GROWTH STAGES. SLOWER RISE OF TEMPERATURE IN FEBRUARY AND MARCH. DRY WINDS AFFECTED YIELD. LEAF RUST DEVELOPMENT. NO INSECT OR PEST PROBLEMS. HAND WEEDING. LOCAL CHECK PK-3563.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	LEAF RUST	HEIGHT CM.	LODGING
19	YECORA 70	MEXICO	7021	49	98	0	90	0
43	TOB-8156	ETHIOPIA	6843	53	102	TR	108	5
17	INIA-66	MEXICO	6132	48	98	TR	108	70
35	MENG-6156	MEXICO	6116	71	112	5R	110	5
21	CAJEME 71	MEXICO	6055	60	102	0	96	0
31	CHENAB 70	PAKISTAN	5955	58	102	65S	120	5
42	88 °S° RESELECTION	PAKISTAN	5566	53	99	TR	80	0
49	SARIC 70	MEXICO	5888	61	102	0	92	0
25	JARAL °S°	ARGENTINA	5777	48	94	10MR	108	0
8	66-INIA	MEXICO	5721	53	102	5R	86	0
28	SONALIKA	INDIA	5566	41	95	0	110	15
2	TANURI-71	MEXICO	5510	45	95	TR	110	30
7	MEXICO 226 = SLR 64-KL. FENG	IRAK	5343	54	99	5R	106	60
30	JARAL °S° (B)	ARGENTINA	5295	57	101	0	112	0
45	MOTI	INDIA	5277	49	101	40S	78	0
47	PARANA 68 /1116	ARGENTINA	5210	50	98	40S	100	0
18	MARCOS JUAREZ INTA	ARGENTINA	5177	94	103	TR	120	20
41	UW-115 = CONDOR	AUSTRALIA	5116	61	107	TR	100	0
32	7 CERROS	MEXICO	5043	62	104	40S	112	20
13	PENJAMO 62	MEXICO	4995	56	102	20S	110	70
50	LOCAL CHECK		4999	55	103	40S	100	0
20	MEXICO 120	AUSTRALIA	4995	58	102	40S	86	0
44	ZAARKANE	TUNISIA	4955	53	103	0	112	65
5	BT-2286	TUNISIA	4910	48	99	TR	102	45
15	TOBARI 66	MEXICO	4677	52	98	TR	110	75
6	SOLTANE = BT 2296	TUNISIA	4855	62	102	TR	106	70
36	715/70	YUGOSLAVIA	4821	77	108	10MR	106	20
24	3400-1-3	S.AFRICA	4821	58	101	0	110	30
48	(21931/CM 53-AN X GB 56) AN 64	ISRAEL	4810	60	102	0	110	40
28	UP-301	INDIA	4766	56	101	0	82	0
29	G12A 155	EGYPT	4577	55	101	40S	134	10
40	SON 64 X T2PP-Y54 / JUSTIN 3	U.S.A	4486	43	96	25MS	96	5
23	BT-2281	TUNISIA	4443	47	100	30S	110	40
37	LEE-N106 X GB 55 / GB 56	SUDAN	4377	57	102	40S	110	5
11	WW15 = ANZA	AUSTRALIA	4266	64	107	30S	100	0
46	BONANZA	U.S.A.	4244	55	100	0	106	75
10	PITIC 62	MEXICO	4244	64	103	40S	106	75
27	HUELQUEN	CHILE	4210	57	98	0	134	70
14	CALIDAD	MEXICO	4132	53	106	TR	110	75
4	K55-E. DE CM. X KOUDIET 17-KT-Y	TUNISIA	4132	62	102.	40S	125	65
16	PATO = T2PP-SON 64 X BAF 59	ARGENTINA	3666	57	102	30MS	108	60
9	ERA	U.S.A.	3288	83	113	0	104	0
34	ZIPA 68	COLOMBIA	3244	62	104	40S	130	75
12	ARIANA 66	TUNISIA	3066	81	114	5R	136	70
22	GABOTO	ARGENTINA	2844	69	102	TR	150	75
39	EL GOU-SON 64 X TC-NF 63	U.S.A.	2610	84	115	40S	116	5
38	SAMACA 68	COLOMBIA	2710	59	101	40S	132	80
3	IASSUL-20	BRAZIL	2666	67	102	0	155	90
1	CMX15	U.S.A.	2616	66	102	TR	142	95
33	LAGOA VERMELHA (L-17)	BRAZIL	1833	61	102	40S	136	90
		GRAND MEAN	4659	59	102	14	110	34
	STANDARD ERROR OF GRAND MEAN		48					
	COEFICIENT OF VARIATION		12					
	LSD VARIETY MEANS 5 PC		974					

CORRELATIONS

YIELD	KG/HA					
DAYS TO	FLOWER	-0.42**				
DAYS TO MATURITY		-0.33*	0.76**			
LEAF	RUST	-0.23	-0.61	0.10		
HEIGHT	CM.	-0.66**	0.37**	0.14	0.07	
LODGING		-0.59**	0.06	-0.10	-0.08	0.65**

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 26 ASIA PAKISTAN SIND

A.R.I. TANDOJAM.
COOPERATORS A.R. NATALI AND ANGAT STAFF.

LATITUDE 025 00°N
LONGITUDE 068 38°E
ELEVATION 40000 M.ABOVE S.L.

DATE PLANTED 11/20/72
DATE HARVESTED 04/11/73
AMOUNT OF IRRIGATION ---- MM

NITROGEN 134.4 KG/HA
PHOSPHORUS 044.6 KG/HA
POTASSIUM 000.0 KG/HA

SEVERE COLD HAVE DURING LAST WEEK OF FEBRUARY. REPEAT DEVELOPMENT OF LEAF AND STEM RUST. NO INSECT OR PEST PROBLEMS. MECHANICAL CONTROL OF WEEDS. LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	LEAF RUST	STEM RUST	HEIGHT CM.	1000 GRN WGT GRMS
31	CHENAB 70	PAKISTAN	4465	77	79	121	5MS	10MS	88	40
17	INIA-66	MEXICO	4346	79	79	113	1MR	1MR	83	42
44	ZAAFRANE	TUNISIA	4031	77	79	115	5MS	10MS	78	33
9	SULTANE = BT 2296	TUNISIA	4031	77	79	114	5S	10S	94	37
7	MEXICO 226 = SON 64-KL. RENE	IRAN	3908	77	73	115	5MS	10MS	83	32
5	BT-2288	TUNISIA	3844	77	66	120	5S	10S	83	35
45	NUTI	INDIA	3779	76	79	116	1MR	10MS	50	37
25	JARAL "S"	ARGENTINA	3716	72	66	115	1MR	1MR	76	26
13	PENJAMO 62	MEXICO	3556	77	77	115	10S	10S	83	37
14	CALIDAD	MEXICO	3556	77	77	115	5S	5MS	76	34
32	7 CERROS	MEXICO	3527	63	79	116	80S	10S	78	31
23	BT-2281	TUNISIA	3527	73	66	115	5MS	40S	73	29
2	TANURI-71	MEXICO	3464	74	66	112	1MR	1MR	71	29
43	TUB-8156	ETHIOPIA	3464	75	77	118	10MS	25MS	83	31
18	MARCOS JUAREZ INTA	ARGENTINA	3461	76	116	122	5MS	1MS	91	30
20	MEXICO 120	AUSTRALIA	3338	74	79	117	1MR	1MR	55	34
50	LOCAL CHECK		3307	77	79	115	1MR	5MS	86	43
10	PITIC 62	MEXICO	3275	71	90	118	1MS	5MS	88	30
29	GIZA 155	EGYPT	3212	78	79	121	25S	5MS	101	40
41	UG-115 = CONDOR	AUSTRALIA	3212	76	84	119	5MS	10S	71	30
4	K338-E. DE CM. X KOUDIET 17-KT-Y	TUNISIA	3149	76	69	120	25S	40S	93	36
37	LEE-N108 X GB 55 / GB 56	SUDAN	3066	70	77	121	80S	1MR	78	29
19	YECORA 70	MEXICO	3066	74	77	115	5S	10S	66	35
28	SONALIKA	INDIA	3066	78	60	112	1MR	5MS	81	45
27	HUELQUEN	CHILE	3066	77	77	115	1MR	1MR	109	33
47	PARANA 68 /1116	ARGENTINA	3023	78	64	112	1MR	1MR	66	36
46	(21931/CM 53-AN X 60 56) AN 64	ISRAEL	3023	79	75	112	10S	40S	88	36
16	PATU = TZPP-SON 64 X NAR 59	ARGENTINA	2960	77	79	120	10S	10S	76	28
38	SAMACA 68	COLOMBIA	2560	75	79	115	40S	5MS	93	32
21	CAJEME 71	MEXICO	2634	72	89	119	5S	25S	63	32
34	ZIPA 66	COLOMBIA	2634	70	84	121	40S	25S	90	29
11	NWIS = ANZA	AUSTRALIA	2771	76	84	120	25S	10S	76	30
46	BONANZA	U.S.A.	2771	76	83	115	1MR	1MR	88	30
24	3400-1-3	S.AFRICA	2771	74	77	115	1MR	5MR	71	26
49	SAKIC 70	MEXICO	2768	73	85	117	5S	25MS	60	35
42	BO "S" RESELECTION	PAKISTAN	2645	74	75	114	10MS	25MS	60	41
15	TUBARI 66	MEXICO	2645	75	73	112	1MR	1MR	76	33
6	EKA	U.S.A.	2582	72	113	128	1MR	0	71	25
26	UP-301	INDIA	2515	74	79	112	1MR	1MS	58	36
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	2456	72	64	115	1MR	25MS	66	34
30	JARAL "S" (B)	ARGENTINA	2456	72	85	123	1MR	1MS	61	35
35	MENO-8156	MEXICO	2393	66	108	128	80VS	60VS	68	21
36	715/70	YUGOSLAVIA	2330	72	89	128	60S	1MR	76	27
22	GABOTO	ARGENTINA	2141	74	84	119	5MS	1MR	124	26
8	BB-INIA	MEXICO	2015	77	75	113	5S	10MS	66	32
12	ARIANA 66	TUNISIA	2015	72	106	128	10MS	1MR	91	28
3	IASSUL-20	BRAZIL	2015	68	89	118	10S	10S	106	33
1	CHRIS	U.S.A.	1637	72	79	115	0	0	91	21
33	LAGOA VERMELHA (C-17)	BRAZIL	1574	73	84	112	10S	5MS	109	33
39	EL GOU-SON 64 X 76-HP 63	U.S.A.	1133	58	118	130	5S	5MS	81	17
		GRAND MEAN	2595	74	81	117	9	8	81	32
	STANDARD ERROR OF GRAND MEAN		54				0	0		
	COEFICIENT OF VARIATION		22				82	94		
	LSD VARIETY MEANS 5 PC		1081				12	13		

CORRELATIONS

YIELD	KG/HA							
TEST	WEIGHT	0.90**						
DAYS TO	FLOWER	-0.45**	-0.52**					
DAYS TO	MATURITY	-0.30*	-0.51**	0.78**				
LEAF	RUST	-0.08	-0.50**	0.24	0.39**			
STEM	RUST	0.06	-0.18	-0.00	0.06	0.45**		
HEIGHT	CM.	-0.11	0.04	0.15	0.08	-0.02	-0.08	
1000 GRN	WGT GRMS	0.47**	0.62**	-0.52**	-0.52**	-0.25*	-0.03	-0.04

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 27 MESOAMERICA GUATEMALA QUEZALTENANGO

LABOR OVALLE
COOPERATORS VALENTIN AZAMON AND SALVADOR CRUZ

LATITUDE 014 32°N DATE PLANTED 06/28/73 NITROGEN 140.0 KG/HA
LONGITUDE 091 30°W DATE HARVESTED 12/05/73 PHOSPHORUS 109.0 KG/HA
ELEVATION + 2407 M.ABOVE S.L. AMOUNT OF MOISTURE 0867 MM POTASIUM 022.0 KG/HA

HEAVY RAINS IN AUGUST AND OCTOBER. ATTACK OF FUSARIUM DUE TO OCTOBER RAINS. ATTACK OF PUCCINIA RECONDITA AND HEAVY ATTACK OF FUSARIUM NIVALE. WORM ATTACK. WEED AND PEST PROBLEMS NOT REPORTED. LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	LEAF RUST	STEM RUST	HEIGHT CM.	1000 GRN WGT GRMS	FUSARIUM
9	SOLTANE = BT 2296	TUNISIA	4547	69	150	20R	TMR	TMR	110	31	30
2	TANORI-71	MEXICO	4278	55	137	60MS	60MS	20MS	91	29	60
14	CALIDAD	MEXICO	4271	59	142	30MR	30MS	TMR	95	27	25
18	MARCOS JUAREZ INTA	ARGENTINA	4202	75	148	20MR	1R	TR	116	32	12
7	MEXICO 226 = SON 64-KL. PEND	IRAK	4097	58	147	50MR	TMR	TR	100	31	60
46	BONANZA	U.S.A.	3927	61	139	60MR	10MR	TR	100	31	35
34	ZIPA 68	COLOMBIA	3904	65	144	60MS	10MR	TMR	116	30	35
17	INIA-66	MEXICO	3857	56	134	80MS	60MS	30MS	98	30	70
29	GIZA 155	EGYPT	3771	64	143	60MS	30MS	TMR	121	32	20
25	JARAL 'S'	ARGENTINA	3718	59	136	1M	30MR	10MR	100	20	45
21	CAJEME 71	MEXICO	3711	74	142	30MR	20MR	TMR	88	31	45
35	MENG-8156	MEXICO	-	-	-	TR	TR	TR	-	23	-
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	3606	59	146	30R	10MS	TMR	90	24	55
44	ZAAFRANE	TUNISIA	3606	58	137	60MS	TR	TR	100	26	55
3	IASSUL-20	BRAZIL	3552	75	142	TR	20MR	TR	151	37	7
15	TOBARI 66	MEXICO	3531	63	154	40MR	30MS	TMR	100	25	60
13	PENJAMO 62	MEXICO	3526	64	147	60MS	TMR	TR	106	25	40
31	CHENAB 70	PAKISTAN	3456	63	142	100S	80S	TMS	105	24	80
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	3429	65	152	50MR	10MR	TR	96	21	70
8	BB-INIA	MEXICO	3356	60	146	80MS	30MS	TMS	75	24	95
47	PARANA 68 /1116	ARGENTINA	3259	56	151	80MS	20MS	TMR	80	27	80
36	715/70	YUGOSLAVIA	3171	89	160	TR	TR	TR	95	29	15
23	BT-2281	TUNISIA	3066	61	155	40MR	40MS	TR	96	24	45
28	SONALIKA	INDIA	3056	55	135	100S	TR	60MS	98	26	100
38	SAMACA 68	COLOMBIA	3054	57	136	80S	60S	TR	108	28	50
41	UQ-115 = CONDOR	AUSTRALIA	3031	72	165	20R	30MS	TR	85	20	50
19	YECORA 70	MEXICO	3017	57	137	100S	10MR	TMR	78	28	90
32	7 CERROS	MEXICO	2985	68	155	50MS	TR	0	95	21	85
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	2984	75	152	50MS	50MR	TMR	121	26	40
50	LOCAL CHECK		2974	56	135	50MS	80S	TMS	91	23	80
49	SARIC 70	MEXICO	2950	72	145	30MR	20MR	10MR	85	25	90
43	TOB-8156	ETHIOPIA	2837	64	143	80S	60S	TR	86	21	80
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	2779	56	136	60MS	TR	TR	76	23	90
30	JARAL 'S' (B)	ARGENTINA	2640	61	141	70MS	TMR	TMR	95	25	70
42	BB 'S' RESELECTION	PAKISTAN	2588	64	142	80S	TR	TR	70	24	95
6	ERA	U.S.A.	2573	83	164	40MR	TR	TR	111	18	30
11	WW15 = ANZA	AUSTRALIA	2573	72	152	60MS	20MS	TMR	90	16	60
10	PITIC 62	MEXICO	2471	78	150	40MR	MS-S	10MS	121	20	30
37	LEE-N108 X GB 55 / GB 56	SUDAN	2464	63	-	60MS	TR	TR	93	20	85
33	LAGOA VERMELHA (C-17)	BRAZIL	2418	70	142	60MS	40MS	10MR	146	34	10
5	BT-2288	TUNISIA	2398	67	140	80S	TR	TR	113	21	90
24	3400-1-3	S.AFRICA	2350	65	149	100S	40S	10MR	100	20	95
22	GABOTO	ARGENTINA	2199	85	143	10R	TR	TR	131	23	5
1	CHRIS	U.S.A.	2184	67	143	30MR	TMR	TR	135	24	12
26	UP-301	INDIA	2126	63	139	60MS	20MS	0	66	20	100
27	HUELQUEN	CHILE	1936	71	139	80S	10MR	TR	118	25	90
39	EL GOU-SON 64 X TC-NP 63	U.S.A.	1894	77	0	80S	TR	TR	106	16	40
45	MOTI	INDIA	1663	59	136	00VS	40MS	0	68	17	52
20	MEXICO 120	AUSTRALIA	1314	80	150	80S	80S	30MS	73	16	80
12	ARIANA 66	TUNISIA	0	0	0	-	-	-	0	0	0
		GRAND MEAN	3080	66	145	40	15	2	100	24	56
		STANDARD ERROR OF GRAND MEAN	30	0	0	1	1	0	0	0	1
		COEFICIENT OF VARIATION	12	4	2	43	82	278	7	10	29
		LSD VARIETY MEANS 5 PC	607	4	6	28	20	9	12	4	27

CORRELATIONS

YIELD	KG/HA								
DAYS TO	FLOWER	0.21							
DAYS TO	MATURITY	0.48**	0.51**						
STRIPE	RUST	-0.24	-0.11	-0.07					
LEAF	RUST	-0.08	-0.02	0.11	0.31				
STEM	RUST	-0.16	0.03	0.02	0.29*	0.47**			
HEIGHT	CM.	0.37**	0.64**	0.38**	-0.09	-0.08	-0.04		
1000 GRN	WGT GRMS	0.75**	0.37**	0.49**	-0.08	-0.06	-0.01	0.64**	
FUSARIUM		-0.08	-0.11	0.17	0.60**	0.28*	0.20	-0.35*	-0.14

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 28 EUROPE BULGARIA TOLBUKHIN

THE DOBROUDJA AGRICULTURAL RESEARCH INSTITUTE: COOPERATORS IWAN TEODOROV

LATITUDE 043 40°N
LONGITUDE 028 10°E
ELEVATION 0000.00 MONOLOVE SEA

DATE PLANTED 03/28/73
DATE HARVESTED 07/15/73
AMOUNT OF MOISTURE 0159 MM

NITROGEN 100.00 KG/HA
PHOSPHORUS 130.00 KG/HA
POTASSIUM 000.00 KG/HA

HOPIC SUMMER AND AUTUMN AND MILD WINTER. DEVELOPMENT OF LEAF RUST AND POWDERY MILDEW. NO INSECTS, WEED OR PEST PROBLEMS. LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	LEAF RUST	HEIGHT CM.	1000 GRN WGT GRMS	POWDERY MILDEW
43	TUB-8156	ETHIOPIA	4000	77	155	0	70	33	0
32	7 CERROS	MEXICO	3911	75	156	25VS	73	31	5
5	BT-2200	TUNISIA	3822	76	151	0	75	35	10
16	MARCOS JUAREZ INTA	ARGENTINA	3822	76	154	0	74	35	25
7	MEXICO 220 = SCN 64-KL: REAL	IRAN	3733	76	154	0	74	34	40
9	SULTANE = BT 2296	TUNISIA	3644	76	153	TR	74	39	40
46	BONANZA	U.S.A.	3600	76	155	0	72	29	25
19	YECORA 70	MEXICO	3600	73	151	0	56	37	40
36	SAMACA 68	COLOMBIA	3555	74	157	10R	83	36	5
10	PITIC 62	MEXICO	3555	72	159	5S	70	33	25
16	PATO = T2PP-SUN 64 X NAP 59	ARGENTINA	3466	76	154	40S	68	26	65
15	TUBARI 66	MEXICO	3466	77	153	TR	74	34	5
2	TAMURI-71	MEXICO	3422	75	150	0	67	32	65
36	715/70	YUGOSLAVIA	3422	72	162	25R	56	26	0
33	LAGOA VERMELHA (C-17)	BRAZIL	3377	73	157	5R	67	37	1
4	K350-E. DE CM. X ROUGIET 17-RT-Y	TUNISIA	3377	75	156	10S	80	30	25
6	ERA	U.S.A.	3333	75	163	0	70	26	1
48	(21951/CH 55-AN X GE 561 AN 64	ISRAEL	3333	74	157	60VS	66	28	40
3	IAS50L-20	BRAZIL	3333	73	162	TR	67	30	40
24	3400-1-3	S.AFRICA	3255	76	153	0	65	31	65
28	SONALIKA	INDIA	3255	75	150	0	70	42	40
25	JAKAL "S"	ARGENTINA	3244	77	151	0	68	25	1
44	ZAAFRANE	TUNISIA	3244	76	153	0	67	36	25
27	HUELQUEN	CHILE	3244	75	157	0	67	31	40
8	BB-INIA	MEXICO	3244	74	152	0	57	34	65
45	MOTI	INDIA	3200	76	151	TR	59	37	25
40	SUN 64 X T2PP-Y54 / JUSTIN 3	U.S.A.	3200	75	155	65VS	58	33	25
30	JAKAL "S" (8)	ARGENTINA	3200	75	153	0	66	36	1
39	EL GOU-SUN 64 X TL-NF 63	U.S.A.	3155	68	161	80VS	74	27	0
22	GABOTO	ARGENTINA	3111	76	159	0	93	28	80
34	ZIPA 68	COLOMBIA	3111	72	157	80VS	86	26	0
31	CHENAB 70	PAKISTAN	3111	75	153	15VS	60	36	40
41	UG-115 = CENDOR	AUSTRALIA	3066	75	156	30PS	59	28	40
50	LOCAL CHECK		3066	76	158	TR	71	0	65
17	INIA-66	MEXICO	3066	77	150	TR	67	36	80
13	PENJAMO 62	MEXICO	3022	75	154	TR	71	34	65
47	PARANA 68 /1116	ARGENTINA	2977	78	152	TR	63	35	5
1	CHRIS	U.S.A.	2933	76	157	0	50	28	40
35	MENO-8156	MEXICO	2865	72	160	65M	59	31	0
23	BT-2261	TUNISIA	2865	74	152	25S	68	31	65
21	CAJEME 71	MEXICO	2865	74	154	0	55	37	25
26	UP-301	INDIA	2755	72	152	40PS	51	35	80
20	MEXICO 120	AUSTRALIA	2711	73	154	5R	51	33	80
42	BB "S" RESELECTION	PAKISTAN	2711	73	155	TR	46	35	65
37	LEE-N108 X GB 55 / GB 56	SUDAN	2711	71	155	25R	63	27	5
49	SARIC 70	MEXICO	2622	71	155	0	54	34	65
29	GIZA 155	EGYPT	2577	73	154	25M	79	35	25
14	CALIDAD	MEXICO	2577	77	153	TR	71	31	100
12	ARIANA 66	TUNISIA	2266	75	165	0	70	28	40
11	NAIS = ANZA	AUSTRALIA	2222	73	156	60VS	61	-	80
		GRAND MEAN	3166	75	155	12	69	33	35
		STANDARD ERROR OF GRAND MEAN	46	0	0		0		
		COEFICIENT OF VARIATION	10	0	0		6		
		LSD VARIETY MEANS 5 PC	534	0	0		7		

CORRELATIONS

YIELD	KG/HA						
TEST	WEIGHT	0.30*					
DAYS TO	FLOWER	-0.15	-0.40**				
LEAF	RUST	-0.16	-0.47**	0.24			
HEIGHT	CM.	0.20	0.20	0.32*	-0.09		
1000 GRN	WGT GRMS	0.21	0.08	-0.43**	-0.26	-0.03	
POWDERY	MILDEW	-0.43**	0.12	0.23	-0.05	-0.20	-0.08

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 29 EUROPE ENGLAND LAMONILLOSMIX.C

PLANT BREEDING INSTITUTE.
COOPERATORS J. BINGHAM, R.S. GREGORY AND .. BLACKMAN

LATITUDE 052 10°N
LONGITUDE 000 06°E
ELEVATION +00020 M.ABOVE S.L.

DATE PLANTED 03/07/73
DATE HARVESTED 06/14/73
AMOUNT OF MOISTURE 0229 PM

NITROGEN 0000.0 KG/HA
PHOSPHORUS 0000.0 KG/HA
POTASSIUM 0000.0 KG/HA

WARM AND DRY WEATHER DURING APRIL, MAY AND EARLY JUNE. HEAVY RAIN
PERIODS IN JUNE AND JULY. AUGUST VERY HOT AND DRY. LITTLE DEVELOPMENT OF
STRIPE RUST. SEVERE ATTACK OF POWDERY MILDEW. INSECT, WEED AND PEST
PROBLEMS NOT REPORTED. LOCAL CHECK PARIS DOVE.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	STRIPE RUST	HEIGHT CM.	POWDERY MILDEW
10	PITIC 62	MEXICO	6063	93	0	92	51
32	7 CERROS	MEXICO	7522	94	15R	87	16
36	715770	YUGOSLAVIA	7855	96	TRR	72	0
41	DW-115 = CONDOR	AUSTRALIA	7602	93	TRR	76	46
6	EKA	U.S.A.	7764	95	0	87	25
28	SONALIKA	INDIA	7648	86	0	94	59
43	TUB-8150	ETHIOPIA	7648	93	10R	88	36
18	MARCOS JUAREZ INTA	ARGENTINA	7446	85	0	94	40
21	CAJEME 71	MEXICO	7375	90	TRR	75	88
44	ZAAFRANE	TUNISIA	7375	85	0	90	55
11	RW15 = ANZA	AUSTRALIA	7375	93	TRR	78	77
27	HUELQUEN	CHILE	7330	94	0	104	55
38	SAMACA 68	COLOMBIA	7147	92	5R	107	81
23	BT-2281	TUNISIA	7128	90	0	86	59
29	GIZA 155	EGYPT	7053	88	0	103	51
7	MEXICO 226 = SON 64-KL. RENO	IRAK	6584	85	0	95	59
30	JAKAL 'S' (B)	ARGENTINA	6545	87	10MR	89	48
39	EL GOU-SON 64 X 7C-NF 63	U.S.A.	6535	93	0	90	0
25	JAKAL 'S'	ARGENTINA	6657	85	5R	88	59
15	TUBARI 66	MEXICO	6658	86	-	94	29
50	LOCAL CHECK		6835	95	TRMR	96	51
9	SULIANE = BT 2296	TUNISIA	6830	85	TRR	91	55
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	6761	87	0	78	44
2	TANURI-71	MEXICO	6762	85	0	86	59
34	ZIPA 68	COLOMBIA	6573	93	0	103	48
47	PARANA 68 /1116	ARGENTINA	6357	85	0	76	56
35	MENG-8156	MEXICO	6346	96	5CMR	66	44
5	BT-2288	TUNISIA	6332	86	0	86	33
8	BB-INIA	MEXICO	6242	85	TRR	65	77
26	UP-301	INDIA	6232	90	TRR	64	46
42	BB 'S' RESELECTION	PAKISTAN	6154	91	0	61	56
17	INIA-66	MEXICO	6057	84	0	85	59
31	CHENAB 70	PAKISTAN	6040	86	25MR	84	88
13	PENJAMO 62	MEXICO	5957	90	0	89	77
37	LEE-NIOB X GB 55 / GB 56	SLEAN	5951	92	20MR	80	88
48	(21931/CM 53-AN X GB 56) AN 64	ISRAEL	5953	91	TRR	84	70
33	LAGOA VERMELHA (C-17)	BRAZIL	5741	92	10MR	106	77
24	3400-1-3	S.AFRICA	5674	90	5MR	80	85
14	CALIDAD	MEXICO	5654	85	0	91	92
19	YECORA 70	MEXICO	5635	88	0	72	56
12	ARIANA 66	TUNISIA	5255	98	0	100	55
16	PATU = TZPP-SON 64 X NAR 59	ARGENTINA	4570	85	0	85	66
1	CHRIS	U.S.A.	4932	92	0	113	59
46	BONANZA	U.S.A.	4701	92	0	83	70
22	GABUTU	ARGENTINA	4651	93	0	105	77
45	MOTI	INDIA	4462	85	0	62	56
49	SAHIC 70	MEXICO	4308	90	0	70	56
4	K338-6. DE CH. X KOUDIET 17-KT-Y	TUNISIA	4132	92	TRR	101	66
3	IASSUL-20	BRAZIL	4074	93	10MR	64	62
20	MEXICO 120	AUSTRALIA	3130	91	0	62	56
		GRAND MEAN	6332	91	2	87	64
		STANDARD ERROR OF GRAND MEAN	77	0	0	0	0
		COEFICIENT OF VARIATION	15	1	321	5	16
		LSD VARIETY MEANS 5 PC	1555	1	12	7	17

CORRELATIONS

YIELD	KG/HA					
DAYS TO	FLOWER	0.04				
STRIPE	RUST	-0.04	0.12			
HEIGHT	CM.	0.01	0.15	-0.11		
POWDERY	MILDEW	-0.47**	-0.45**	0.11	-0.19	

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 30 EUROPE FRANCE SEINE ET MARNE

CENTRE AGRONOMIQUE DE LA BROSSE. MONTCEAUX.
COOPERATORS MR. LECLERCQ AND MR. CONTY.

LATITUDE 048 25°N DATE PLANTED 04/16/73 NITROGEN 110.0 KG/HA
LONGITUDE 003 00°W DATE HARVESTED 08/14/73 PHOSPHORUS 100.0 KG/HA
ELEVATION +00053 M.ABOVE S.L. AMOUNT OF MOISTURE 0069 MM POTASIUM 100.0 KG/HA

GOOD WEATHER BUT RATHER DRY. DEVELOPMENT OF POWDERY MILDEW. NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK CESAR. XX= EARS PER SQUARE METER.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	1000 GRN WGT GRMS	POWDERY MILDEW	XX
32	7 CERROS	MEXICO	4209	0	0	0	104	33	0	424
18	MARCOS JUAREZ INTA	ARGENTINA	4132	80	55	110	99	43	33	541
10	PITIC 62	MEXICO	4071	75	59	110	105	33	33	481
28	SONALIKA	INDIA	4040	80	54	110	97	49	88	462
7	MEXICO 226 = SON 64-KL. REND	IRAK	3994	81	55	110	98	43	44	553
27	HUELQUEN	CHILE	3979	80	58	110	116	37	77	526
43	TOB-8156	ETHIOPIA	3979	81	57	110	95	35	33	527
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	3925	79	57	110	90	35	77	484
25	JARAL "S"	ARGENTINA	3902	80	54	110	94	33	55	476
15	TOBARI 66	MEXICO	3879	82	56	110	96	37	33	532
9	SOLTANE = BT 2296	TUNISIA	3864	80	55	110	94	42	66	582
41	UQ-115 = CONDOR	ALSTRALIA	3841	79	59	110	83	31	66	590
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	3802	73	59	110	96	34	11	467
6	FRA	U.S.A.	3741	81	62	110	97	32	22	542
50	LOCAL CHECK		3726	72	60	110	112	38	11	427
44	ZAAFRANE	TUNISIA	3726	80	54	110	94	38	77	604
5	BT-2288	TUNISIA	3718	80	53	110	92	36	33	520
29	GIZA 155	EGYPT	3695	80	55	110	107	41	11	608
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	3687	79	54	110	78	37	44	512
13	PENJAMO 62	MEXICO	3672	79	57	110	101	37	66	502
35	MENG-8156	MEXICO	3649	74	61	110	83	31	22	502
8	BB-INIA	MEXICO	3649	78	54	110	68	35	88	514
2	TANORI-71	MEXICO	3634	80	52	110	95	37	88	542
34	ZIPA 68	COLOMBIA	3534	77	57	110	116	36	22	499
36	715/70	YUGOSLAVIA	3503	76	62	110	80	31	11	621
38	SAMACA 68	COLOMBIA	3496	78	57	110	113	37	22	610
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	3488	78	58	110	108	40	66	472
17	INIA-66	MEXICO	3473	81	52	110	94	38	88	589
31	CHENAB 70	PAKISTAN	3461	0	0	0	94	38	0	571
21	CAJEME 71	MEXICO	3457	-	-	-	74	46	-	526
30	JARAL "S" (B)	ARGENTINA	3450	-	-	-	89	40	-	435
24	3400-1-3	S.AFRICA	3419	-	-	-	92	33	-	556
11	WW15 = ANZA	AUSTRALIA	3411	78	61	110	83	30	88	554
19	YECORA 70	MEXICO	3373	76	54	110	74	39	55	484
47	PARANA 68 /I116	ARGENTINA	3373	83	54	110	78	37	88	503
23	BT-2281	TUNISIA	3358	79	56	110	94	34	77	526
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	3335	80	55	110	95	30	88	521
37	LEE-NIOB X GB 55 / GB 56	SUDAN	3181	74	58	110	86	32	77	495
33	LAGOA VERMELHA (C-17)	BRAZIL	3166	80	56	110	131	40	22	520
42	BB "S" RESELECTION	PAKISTAN	3158	74	57	110	62	35	99	426
46	BONANZA	U.S.A.	3158	79	58	110	94	31	77	582
12	ARIANA 66	TUNISIA	3143	79	63	110	110	37	55	400
14	CALIDAD	MEXICO	3135	82	56	110	93	33	99	498
26	UP-301	INDIA	3097	75	56	110	64	38	55	460
45	MOTI	INDIA	3059	78	54	110	64	36	99	566
49	SARIC 70	MEXICO	2951	77	55	110	74	39	99	506
1	CHRIS	U.S.A.	2928	80	58	110	125	30	55	696
20	MEXICO 120	AUSTRALIA	2905	75	57	110	66	31	99	629
22	GABOTO	ARGENTINA	2752	80	62	110	130	30	88	538
3	IASSUL-20	BRAZIL	2407	77	60	110	138	35	66	448
		GRAND MEAN	3514	78	56	109	94	36	61	523
	STANDARD ERROR OF GRAND MEAN		21							4
	COEFICIENT OF VARIATION		7							10
	LSD VARIETY MEANS 5 PC		432							90

CORRELATIONS

YIELD KG/HA								
TEST WEIGHT	-0.10							
DAYS TO FLOWER	-0.16	0.96**						
DAYS TO MATURITY	-0.12	0.99**	0.98**					
HEIGHT CM.	-0.03	0.00	0.04	-0.02				
1000 GRN WGT GRMS	0.28*	-0.02	-0.14	-0.05	0.00			
POWDERY MILDEW	-0.39**	0.48**	0.39**	0.45**	-0.32*	-0.09		
XX	-0.07	0.23	0.16	0.19	-0.00	-0.20	0.09	

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 31 EUROPE GERMANY SCHLESWIG - HOLSTEIN

NORDSAAT SAATZUCHT GMBH.
COOPERATORS L. BRUCK.

LATITUDE 054 22°N
LONGITUDE 006 04°E
ELEVATION +00005 M.ABOVE S.L.

DATE PLANTED 03/20/73
DATE HARVESTED 08/15/73
AMOUNT OF MOISTURE 0329 PM

NITROGEN 110.0 KG/HA
PHOSPHORUS 210.0 KG/HA
POTASIUM 230.0 KG/HA

COLD WEATHER. JUNE AND JULY VERY DRY AND WARM. PLANTS SUFFERED BY DROUGHT. DEVELOPMENT OF POWDERY MILDEW, SEPTORIA NODORUM, FUSARIUM AND STRIPE RUST. NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK NOT REPORTED. XX= POWDERY MILDEW, INFECTION OF THE EARS.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	HEIGHT CM.	LODGING	1000 GRN WGT GRMS	POWDERY MILDEW	SEPTORIA NODORUM	XX
50	LOCAL CHECK		10208	174	93	77	45	12	22	75
41	UG-115 = CONDOR	AUSTRALIA	9999	170	65	18	39	12	40	58
32	7 LERMOS	MEXICO	9562	171	85	62	41	0	77	25
29	GIZA 155	EGYPT	9562	165	86	40	46	12	22	58
10	PITIC 62	MEXICO	9416	170	78	85	36	25	25	66
27	HUELQUEN	CHILE	9187	172	66	70	43	25	40	25
48	121931/CM 55-AN X 66 561 AN 64	ISRAEL	8999	168	70	14	35	37	55	91
15	TUBARI 66	MEXICO	8968	165	80	55	42	0	33	50
6	ERA	U.S.A.	8958	173	76	99	38	0	25	25
39	EL GOU-SUN 64 X 7L-NP 63	U.S.A.	8937	172	75	92	38	0	55	29
43	TUB-8156	ETHIOPIA	8791	168	76	22	43	0	77	50
11	WW15 = ANZA	AUSTRALIA	8770	170	69	14	39	25	33	75
23	61-2281	TUNISIA	8455	165	75	18	43	25	33	91
36	715/70	YUGOSLAVIA	8475	172	61	11	39	0	33	4
18	MARCOS JUAREZ INTA	ARGENTINA	8436	165	76	33	49	12	33	75
40	SUN 64 X TZPP-Y54 / JUSTIN 3	U.S.A.	8437	164	67	11	38	0	55	83
30	JAKAL 'S' (B)	ARGENTINA	8416	164	73	36	52	0	33	75
35	MENG-6156	MEXICO	8355	171	66	14	42	0	55	75
7	MEXICO 226 = SUN 64-KL. FENG	IRAK	8354	164	78	48	46	25	33	50
5	61-2266	TUNISIA	8354	161	75	77	42	12	55	20
13	BENJAMU 62	MEXICO	8333	165	78	99	43	25	55	85
4	K358-E. DE CHL X KOUCIET 17-BT-Y	TUNISIA	8276	149	87	51	46	25	55	50
28	SONALIKA	INDIA	8124	162	76	40	48	25	77	100
12	AHLAFA 66	TUNISIA	8104	172	86	36	44	25	33	41
47	PARANA 68 /1116	ARGENTINA	8062	165	65	11	44	12	70	100
37	LEE-MUB X GB 55 / GB 56	SUDAN	7958	168	70	11	33	12	77	100
44	ZAAFRANE	TUNISIA	7958	164	75	25	42	12	55	91
31	CHENAB 70	PAKISTAN	7906	163	75	36	42	12	70	75
34	ZIPA 68	COLOMBIA	7874	165	91	29	41	0	62	16
46	MONANZA	U.S.A.	7612	165	70	70	33	25	55	75
8	BB-INIA	MEXICO	7749	164	53	11	38	25	77	2562
38	SAMACA 68	COLOMBIA	7624	165	90	99	39	0	33	25
25	JAKAL 'S'	ARGENTINA	7541	162	70	18	37	12	48	50
2	TANURI-71	MEXICO	7495	158	73	14	41	50	62	75
9	SULTANE = BT 2296	TUNISIA	7458	165	71	25	48	25	55	75
42	BB 'S' RESELECTION	PAKISTAN	7355	166	46	11	39	12	77	100
1	CHRIS	U.S.A.	7225	170	100	77	36	50	55	58
24	3400-1-3	S.AFRICA	7166	167	66	14	33	25	55	100
19	YECORA 70	MEXICO	7166	164	56	11	49	0	62	100
16	PATO = TZPP-SUN 64 X NAR 59	ARGENTINA	7124	166	71	36	34	37	55	100
17	INIA-66	MEXICO	7083	161	71	14	44	25	62	83
26	UP-301	INDIA	6958	165	47	11	40	12	62	91
21	CAJEME 71	MEXICO	6761	165	56	18	34	0	77	100
33	LAGOA VERMELHA (C-17)	BRAZIL	6562	168	101	99	42	0	33	16
14	CALIDAD	MEXICO	6562	165	71	59	37	50	77	100
22	GABUTO	ARGENTINA	6374	171	93	70	36	25	55	75
3	IASSUL-20	BRAZIL	6270	172	106	99	42	12	25	25
45	MOTI	INDIA	6083	162	46	11	37	37	92	100
49	SARIC 70	MEXICO	5768	164	53	11	45	37	77	91
20	MEXICO 120	AUSTRALIA	5333	165	45	11	26	25	77	100
		GRAND MEAN	7937	166	73	40	41	17	53	129
	STANDARD ERROR OF GRAND MEAN		55	0	0	1	0		0	59
	COEFICIENT OF VARIATION		8	2	5	32	12		15	373
	LSD VARIETY MEANS 5 PC		1105	7	4	21	8		15	1172

CORRELATIONS

YIELD KG/HA								
DAYS TO FLOWER	0.26							
HEIGHT CM.	0.26	0.27*						
LODGING	0.17	0.35*	0.71**					
1000 GRN WGT GRMS	0.29*	-0.22	0.26	0.04				
POWDERY MILDEW	-0.32*	-0.25*	-0.07	-0.08	-0.20			
SEPTORIA NODORUM	-0.48**	-0.34**	-0.53**	-0.45**	-0.27	0.22		
XX	-0.04	-0.10	-0.24	-0.17	-0.09	0.10	0.21	

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 32 EUROPE ITALY ROME

STAZIONE FITOTECNICA DI RIETI.
COOPERATORS IST. SPERIMENTALE PER LA CEREALICOLTURA.

LATITUDE 042 24°N DATE PLANTED 11/28/72 NITROGEN 054.0 KG/HA
LONGITUDE 015 52°E DATE HARVESTED --/--/-- PHOSPHORUS 066.0 KG/HA
ELEVATION +00402 M.ABOVE S.L. AMOUNT OF MOISTURE 0385 MM POTASIUM 048.0 KG/HA

GOOD WEATHER CONDITIONS DURING CULTIVATION. DISEASE DEVELOPMENT NOT REPORTED. INSECT, WEED OR PEST PROBLEMS NOT REPORTED. LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	LEAF RUST	HEIGHT CM.	LODGING	SHATTERING	1000 GRN WGT GRMS	SEPTORIA SPP.
32	7 CERROS	MEXICO	6613	85	141	187	30MR	99	0	6	44	33
41	WO-115 = CONDOR	AUSTRALIA	6458	79	141	183	00	78	0	10	43	0
24	3400-1-3	S.AFRICA	6326	86	138	184	10R	96	0	15	42	0
43	TOB-8156	ETHIOPIA	6185	80	138	187	00	91	0	16	44	33
11	WW15 = ANZA	AUSTRALIA	6153	84	138	185	30MR	86	0	15	41	0
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	6083	77	138	183	00	91	0	13	40	0
25	JARAL 'S'	ARGENTINA	5996	84	136	183	00	93	0	15	38	25
27	HUELQUEN	CHILE	5990	83	140	183	00	120	8	25	43	0
49	SARIC 70	MEXICO	5981	77	136	182	00	72	0	13	51	0
46	BONANZA	U.S.A.	5885	80	138	183	00	91	0	6	40	0
31	CHENAB 70	PAKISTAN	5881	84	137	182	00	91	0	18	47	0
35	MENG-8156	MEXICO	5869	83	140	189	00	80	0	18	48	33
21	CAJEME 71	MEXICO	5827	84	137	182	00	73	0	15	51	0
18	MARCOS JUAREZ INTA	ARGENTINA	5774	85	138	183	00	101	0	15	48	0
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	5741	78	136	135	00	80	0	3	43	0
50	LOCAL CHECK		5689	77	137	182	80MS	100	0	10	43	0
10.	PITIC 62	MEXICO	5552	81	138	184	00	97	0	16	45	0
19	YECORA 70	MEXICO	5546	83	136	182	00	71	0	3	46	0
28	SONALIKA	INDIA	5450	83	136	183	00	100	0	21	54	0
17	INIA-66	MEXICO	5441	86	136	182	00	92	0	20	47	25
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	5427	76	140	183	10R	96	0	6	42	33
36	715/70	YUGOSLAVIA	5425	81	138	182	00	78	0	10	36	0
20	MEXICO 120	AUSTRALIA	5412	84	136	183	00	67	0	16	45	50
8	BB-INIA	MEXICO	5400	85	136	182	00	68	0	26	46	0
45	MOTI	INDIA	5395	79	136	183	00	65	0	10	44	41
42	BB 'S' RESELECTION	PAKISTAN	5383	78	137	182	00	67	0	18	49	0
44	ZAAFRANE	TUNISIA	5206	80	138	171	00	97	0	6	45	0
15	TOBARI 66	MEXICO	5195	85	137	182	00	93	0	20	43	0
13	PENJAMO 62	MEXICO	5159	84	138	182	10R	96	0	15	51	33
30	JARAL 'S' (B)	ARGENTINA	5125	83	136	183	00	90	0	15	46	0
47	PAMANA 68 /1116	ARGENTINA	5059	83	136	183	00	79	0	5	41	41
38	SAMACA 68	COLOMBIA	5021	74	138	182	00	118	0	10	42	0
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	4935	84	137	184	10R	85	0	20	35	8
7	MEXICO 226 = SON 64-KL. REND	IRAK	4914	86	138	182	00	97	0	28	51	0
22	GABOTO	ARGENTINA	4842	84	138	183	00	109	75	10	36	0
29	GIZA 155	EGYPT	4837	83	137	185	10R	108	0	3	45	33
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	4828	82	138	189	10R	116	0	23	47	0
26	UP-301	INDIA	4823	83	138	182	00	63	0	15	54	41
9	SOLTANE = BT 2296	TUNISIA	4804	86	136	182	00	89	0	15	49	0
23	BT-2281	TUNISIA	4676	84	138	184	80MS	87	0	15	41	0
5	BT-2288	TUNISIA	4611	84	136	183	00	90	0	25	43	0
34	ZIPA 68	COLOMBIA	4604	82	141	186	30MS	123	0	11	43	33
14	CALIDAD	MEXICO	4525	86	137	182	00	93	0	21	40	0
6	ERA	U.S.A.	4427	85	141	188	00	86	0	21	40	8
37	LFE-N108 X GB 55 / GB 56	SUDAN	4297	76	138	183	30MS	83	0	3	42	33
2	TANORI-71	MEXICO	4190	83	136	182	00	86	0	31	42	8
3	IASSUL-20	BRAZIL	3826	79	141	185	10R	125	91	30	41	0
12	ARIANA 66	TUNISIA	3585	83	140	190	10R	106	0	15	44	0
1	CHRIS	U.S.A.	3483	83	138	186	00	114	41	11	36	0
33	LAGOA VERMELHA (C-17)	BRAZIL	3180	81	138	182	00	128	83	10	44	0
		GRAND MEAN	5221	82	137	183	3	92	5	14	44	10
	STANDARD ERROR OF GRAND MEAN		51	0	0	0	0	0	0	0	0	0
	COEFICIENT OF VARIATION		12	1	0	1	83	4	107	45	5	73
	LSD VARIETY MEANS 5 PC		1032	1	1	4	5	6	10	11	3	12

CORRELATIONS

YIELD	KG/HA								
TEST	WEIGHT	-0.05							
DAYS TO	FLOWER	-0.04	-0.11						
DAYS TO	MATURITY	-0.09	0.10	0.45**					
LEAF	RUST	-0.02	-0.19	0.10	0.06				
HEIGHT	CM.	-0.38**	-0.03	0.37**	0.19	0.11			
LODGING		-0.50**	-0.05	0.19	0.04	-0.08	0.51**		
SHATTER	ING	-0.17	0.42**	-0.01	0.10	-0.19	0.08	0.07	
1000 GRN	WGT GRMS	0.16	0.08	-0.16	-0.14	-0.10	-0.21	-0.27	0.15
SEPTORIA	SPP.	0.06	-0.00	0.08	0.17	0.02	-0.23	-0.18	-0.26 0.10

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 33 EUROPE PORTUGAL ALENTEJO

PLANT EFFECTIVE STATION.
COOPERATORS M.T. BARRIGAS AND F. BAGULHO.

LATITUDE 038.33°N DATE PLANTED 11/27/72 NITROGEN 140.0 KG/HA
LONGITUDE 007 49°W DATE HARVESTED 06/11/73 PHOSPHORUS 063.0 KG/HA
ELEVATION 000.00 M.ABOVE SEA. AMOUNT OF RAINFALL 0351 MM POTASSIUM 048.0 KG/HA

THIS WAS SOWN IN A RICH SOIL. GOOD CLIMATE IN DECEMBER AND JANUARY.
VERY DRY WEATHER DURING FEBRUARY THROUGH APRIL ACCELERATED RIPENING.
HIGH DEVELOPMENT OF STRIPE AND POWDERY MILDEW. PARC ATTACK OF CEREALS
FLY. WEED AND PEST PROBLEMS NOT REPORTED. LOCAL CHECK MEXICANO 14E1.
XX= WINTER HARDINESS.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	HEIGHT CM.	LODGING	SHATTERING	POWDERY MILDEW	NECK BREAK	XX
32	7 HERMOS	MEXICO	5445	80	161	186	5S	101	40	33	36	44	22
43	TOD-8150	ETHIOPIA	5331	82	155	183	0	96	23	33	36	33	22
35	MONO-8150	MEXICO	5327	77	161	186	50S	91	11	50	22	11	22
6	BN-INIA	MEXICO	5321	80	151	180	0	73	3	50	61	33	33
19	YECORA 70	MEXICO	5255	78	151	176	0	72	4	0	36	44	22
21	CAJEME 71	MEXICO	5222	79	155	179	0	74	15	0	49	33	33
41	BD-115 = CONDOR	AUSTRALIA	5168	82	160	189	5S	92	8	66	36	55	44
28	SONALIKA	INDIA	5121	79	149	183	0	102	47	50	55	11	22
48	121931/CH 53-AN X GB 561 AN 64	ISRAEL	5052	79	157	182	5S	91	80	50	49	55	33
47	PARANA 68 /1116	ARGENTINA	5063	83	150	179	5S	93	3	50	44	11	11
2	TAMUKI-71	MEXICO	5056	81	150	178	5S	98	24	35	55	33	22
17	INIA-66	MEXICO	5033	82	149	178	5S	103	47	33	61	44	11
25	JARAL 'S'	ARGENTINA	5016	81	152	180	0	96	30	16	36	44	22
10	PITIC 62	MEXICO	4985	76	156	163	0	87	65	50	49	66	33
40	SUN-64 X TZPP-Y54 / JUSTIN 3	U.S.A	4575	79	150	181	0	85	15	50	27	44	11
18	MARCOS JUAREZ INTA	ARGENTINA	4558	80	156	182	0	100	37	50	44	33	11
50	LOCAL CHECK		4873	78	156	187	0	94	67	50	61	99	22
39	EL GUO-SUN 64 X TC-NF 63	U.S.A.	4653	77	172	194	0	99	22	83	11	66	11
11	RNIS = ANZA	AUSTRALIA	4842	81	159	186	0	86	0	33	33	44	33
44	ZAARKANE	TUNISIA	4638	81	155	180	0	99	12	33	49	0	11
7	MEXICO 226 = SON 64-RL. RENC	IRAK	4606	81	155	181	0	97	40	33	71	33	33
49	SAKIC 70	MEXICO	4788	79	153	179	0	74	6	16	61	33	33
5	BT-2286	TUNISIA	4775	80	150	180	0	96	40	16	36	44	22
13	PENJAMO 62	MEXICO	4768	78	156	183	0	100	67	66	49	44	22
37	LEC-NIUB X GB 55 / GB 56	SUDAN	4736	76	156	183	50S	92	10	66	55	44	22
26	UP-301	INDIA	4706	77	155	181	10S	86	1	16	36	44	33
15	TUBARI 66	MEXICO	4697	82	150	180	0	97	65	83	49	22	22
31	GIENAB 70	PAKISTAN	4672	80	155	181	0	96	20	50	36	22	11
30	JARAL 'S' (B)	ARGENTINA	4656	80	155	183	0	105	41	50	44	66	22
23	BT-2281	TUNISIA	4642	81	150	185	0	93	40	50	27	33	11
45	ROTI	INDIA	4450	79	150	180	30S	70	2	33	61	33	33
42	BB 'S' RESELECTION	PAKISTAN	4443	78	151	178	0	83	1	0	49	0	22
9	SULTANE = BT 2296	TUNISIA	4346	80	155	181	0	95	9	33	72	22	33
16	PATU = TZPP-SUN 64 X NAP 59	ARGENTINA	4241	81	159	185	0	101	13	33	61	55	22
36	715/70	YUGOSLAVIA	4216	79	160	183	40S	83	25	0	22	22	22
12	ARIANA 66	TUNISIA	4142	82	160	183	0	102	72	83	49	44	33
20	MEXICO 120	AUSTRALIA	4056	77	154	183	5S	70	4	0	61	44	33
27	HUELQUEN	CHILE	4057	81	158	188	0	116	92	83	66	33	33
24	3400-1-3	S.AFRICA	4026	81	157	184	5S	91	12	66	66	22	33
8	ERA	U.S.A.	4016	82	173	194	0	90	7	50	16	66	33
4	K336-E. DE CM. X KOUDIET 17-KT-Y	TUNISIA	4006	80	156	184	50S	104	72	100	36	22	33
29	GIZA 155	EGYPT	3994	78	157	185	0	115	80	83	44	33	0
33	LAGOA VERMELHA (C-17)	BRAZIL	3941	80	156	183	5S	126	90	33	27	66	22
46	BONANZA	U.S.A.	3899	81	157	182	0	94	17	66	49	66	11
38	SAMACA 68	COLOMBIA	3682	78	156	181	0	103	77	33	33	33	0
34	ZIPA 66	COLOMBIA	3792	79	159	187	0	106	72	50	44	44	0
14	CALIDAD	MEXICO	3656	81	156	182	5S	92	75	16	77	33	33
22	GABOTO	ARGENTINA	3550	80	161	187	0	124	100	50	49	66	33
1	CHRIS	U.S.A.	3539	79	158	186	0	124	87	66	38	11	0
3	IASSUL-20	BRAZIL	2239	78	162	183	0	123	80	16	60	33	33
		GRAND MEAN	4551	80	156	182	5	96	37	43	46	39	23
	STANDARD ERROR OF GRAND MEAN		46	0	0	0	0	0	1	1	1	1	1
	COEFICIENT OF VARIATION		12	1	0	3	104	7	41	55	26	53	61
	LSD VARIETY MEANS 5 PC		924	1	1	9	8	11	25	39	20	34	23

CORRELATIONS

YIELD	KG/HA										
TEST	WEIGHT	0.04									
DAYS TO	FLOWER	-0.35**	-0.09								
DAYS TO MATURITY		-0.25	0.17	0.64**							
STRIPE	RUST	-0.03	-0.19	0.05	0.06						
HEIGHT	CM.	-0.51**	0.14	0.29*	0.33*	-0.08					
LODGING		-0.48**	-0.05	0.18	0.09	-0.04	0.75**				
SHATTER	ING	-0.07	0.12	0.27	0.34*	0.24	0.42**	0.37**			
POWDERY	MILDEW	-0.15	0.05	-0.39**	-0.33*	-0.12	-0.06	0.09	-0.09		
NECK	BREAK	-0.01	-0.11	0.38**	0.20	-0.19	0.08	0.19	0.10	-0.10	
	XX	0.03	0.07	0.10	-0.05	0.16	-0.33*	-0.16	-0.15	0.35**	0.16

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 34 EUROPE ROMANI JUG CLUJ

STATIUNEA EXPERIMENTALA AGRICOLA TURDA
COOPERATORS TIMARIU AUREL

LATITUDE 046 36°N
LONGITUDE 023 47°E
ELEVATION 400426 M.ABOVE S.L.

DATE PLANTED 03/26/73
DATE HARVESTED 08/04/73
AMOUNT OF RAINFALL 0316 MM

NITROGEN 0720.0 KG/HA
PHOSPHORUS 000.0 KG/HA
POTASIUM 000.0 KG/HA

UNFAVORABLE WEATHER DURING PLANTING SEASON. RAINY WEATHER IN MAY AND JUNE. NO DISEASE DEVELOPMENT. INSECT, WEED AND PEST PROBLEMS NOT REPORTED. XX = PLANT STAND.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	1000 GRN WGT GRMS	XX
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	4383	52	102	65	30	221
47	PARANA 68 /1116	ARGENTINA	3763	45	95	65	31	224
49	SARIC 70	MEXICO	3430	51	101	55	33	268
3	IASSUL-20	BRAZIL	3372	56	105	112	41	156
34	ZIPA 68	COLOMBIA	3343	54	105	85	36	192
24	3400-1-3	S.AFRICA	3333	51	103	68	33	278
33	LAGOA VERMELHA (C-17)	BRAZIL	3303	54	105	105	42	174
38	SAMALA 68	COLOMBIA	3240	52	104	95	36	286
6	ERA	U.S.A.	3176	57	108	78	30	240
10	PITIC 62	MEXICO	3140	55	107	85	31	272
25	JARAL 'S'	ARGENTINA	3100	50	101	73	30	201
41	OO-115 = CONDOR	AUSTRALIA	3083	54	106	65	34	262
16	PATU = TZPP-SON 64 X NAP 59	ARGENTINA	3066	52	103	70	32	194
43	TUB-8156	ETHIOPIA	3050	53	103	65	32	169
32	7 CERROS	MEXICO	3010	51	106	70	31	170
7	MEXICO 226 = SON 64-KL. RENO	IRAK	2973	45	102	78	37	266
2	TANURI-71	MEXICO	2963	48	95	65	37	257
37	LEE-N108 X GB 55 / GB 56	SUDAN	2903	45	104	65	30	184
17	INIA-66	MEXICO	2870	48	99	72	37	276
35	MENO-8156	MEXICO	2843	57	106	62	33	210
46	BONANZA	U.S.A.	2840	54	104	72	31	167
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	2830	54	105	75	31	166
21	CAJEME 71	MEXICO	2810	52	103	56	40	235
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	2803	48	95	64	34	229
14	CALIDAD	MEXICO	2803	51	102	74	34	174
15	TUBARI 66	MEXICO	2800	51	101	75	36	274
44	ZAAFRANE	TUNISIA	2793	50	101	72	34	411
36	715/70	YUGOSLAVIA	2746	59	108	58	29	311
29	GIZA 155	EGYPT	2733	50	104	80	37	194
30	JARAL 'S' (B)	ARGENTINA	2700	45	102	70	36	175
27	HUELQUEN	CHILE	2686	55	105	90	31	192
5	BT-2288	TUNISIA	2670	50	102	72	33	172
20	MEXICO 120	AUSTRALIA	2656	52	104	45	35	220
19	YECORA 70	MEXICO	2646	45	100	56	37	221
28	SURALIKA	INDIA	2620	52	100	72	41	184
8	BB-1NLP	MEXICO	2610	45	101	55	32	225
26	UP-301	INDIA	2573	51	102	50	36	164
18	MARCOS JUAREZ INTA	ARGENTINA	2533	54	106	75	38	225
31	CHENAB 70	PAKISTAN	2526	48	102	70	36	192
9	SULTANE = BT 2296	TUNISIA	2483	52	103	75	37	256
13	PENJAMO 62	MEXICO	2466	52	104	73	32	203
50	LOCAL CHECK		2456	56	106	110	33	161
45	MUTI	INDIA	2453	48	98	45	33	078
23	BT-2281	TUNISIA	2410	53	104	68	32	250
22	GABUTU	ARGENTINA	2406	55	106	95	32	224
1	CHRIS	U.S.A.	2360	53	102	106	32	239
11	WH15 = ANZA	AUSTRALIA	2266	55	107	65	32	223
4	K338-E. DE CH. X KOUCIET 17-KT-Y	TUNISIA	2260	54	106	85	34	173
42	BB 'S' RESELECTION	PAKISTAN	1673	51	101	45	34	184
12	ARIANA 66	TUNISIA	1453	59	114	85	34	82
		GRAND MEAN	2806	52	103	72	34	
	STANDARD ERROR OF GRAND MEAN		50	0	0		0	
	COEFICIENT OF VARIATION		21	3	0		3	
	LSD VARIETY MEANS 5 PC		1004	2	0		1	

CORRELATIONS

YIELD KG/HA					
DAYS TO FLOWER	-0.15				
DAYS TO MATURITY	-0.22	0.88**			
HEIGHT CM.	0.06	0.41**	0.36**		
1000 GRN WGT GRMS	-0.04	0.17	-0.19	0.18	
XX	0.00	0.00	0.00	0.00	0.00

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 35 EUROPE SWEDEN LANDSKRONA

MERKULLSINGEN.
COOPERATORS P. FAJERSSON AND G. SVENSSON

LATITUDE 055 55°N
LONGITUDE 012 50°E
ELEVATION 00005 M.ABOVE SEA.

DATE PLANTED 05/23/73
DATE HARVESTED 08/14/73
AMOUNT OF POSTSTRE 203 MM

NITROGEN 090.0 KG/HA
PHOSPHORUS 040.0 KG/HA
POTASSIUM 040.0 KG/HA

AFTER THE EARLY PLANTING, WET AND FAIRLY COOL SPRING. UNUSUALLY WARM SUMMER, DRY IN JUNE AND FIRST PART OF JULY. MUCH WILDER. SOME STRIPE RUST AND A LATE ATTACK OF LEAF RUST. INSECT, WEED OR PEST PROBLEMS NOT REPORTED. LOCAL CHECK SHARNE.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	HEIGHT CM.	1000 GRN WGT GRMS
32	7 CERROS	MEXICO	6783	83	88	41
36	715/70	YUGOSLAVIA	6683	86	66	36
34	ZIPA 68	COLOMBIA	6663	81	95	43
39	EL GOU-SUN 64 X 7C-AP 63	U.S.A.	6600	83	83	41
10	PITIC 62	MEXICO	5883	83	81	35
50	LOCAL CHECK		5650	84	106	42
33	RENO-8156	MEXICO	5616	85	70	37
6	ERA	U.S.A.	5700	87	73	38
27	MURELGUEN	CHILE	5650	83	96	44
41	UQ-115 = LONDON	AUSTRALIA	5500	82	70	36
25	JARAL °S°	ARGENTINA	5500	78	76	35
38	SAMACA 68	COLOMBIA	5466	81	91	40
7	MEXICO 220 = SCN 64-KL. RENO	IRAK	5366	78	80	41
23	BT-2281	TUNISIA	5283	75	76	38
48	121931/CH 53-AN X GB 561 AN 64	ISRAEL	5266	80	71	35
43	TUB-8156	ETHIOPIA	5100	80	78	38
29	GIZA 155	EGYPT	5033	75	86	45
44	ZAAFRANE	TUNISIA	4900	78	76	36
9	SULTANE = BT 2296	TUNISIA	4816	75	76	39
15	TUBARI 66	MEXICO	4816	75	80	37
31	CHENAB 70	PAKISTAN	4816	77	76	40
30	JARAL °S° (61)	ARGENTINA	4716	75	76	43
16	MARCOS JUAREZ INTA	ARGENTINA	4700	75	75	42
1	CHRIS	U.S.A.	4633	82	93	36
5	BT-2288	TUNISIA	4600	77	75	37
22	GABUTO	ARGENTINA	4516	83	95	37
13	PENJAMO 62	MEXICO	4500	80	78	40
21	CAJEME 71	MEXICO	4500	78	61	43
46	BONANZA	U.S.A.	4483	83	73	30
28	SONALIKA	INDIA	4416	77	83	46
4	ASSB-E. DE CH. X KOUCIET 17-KT-V	TUNISIA	4366	82	86	46
11	HILS = ANZA	AUSTRALIA	4283	82	66	35
37	LEE-NIUB X GB 55 / GB 56	SUDAN	4250	80	71	35
33	LAGOA VERMELHA (C-17)	BRAZIL	4233	80	105	46
40	SUN 64 X T4PP-Y54 / JUSTIN 3	U.S.A	4116	77	68	34
12	ARIANA 66	TUNISIA	4100	85	88	48
47	PARANA 68 /1116	ARGENTINA	3966	78	65	36
19	VECORA 70	MEXICO	3616	78	60	37
24	3400-1-3	S.AFRICA	3816	75	75	33
14	CALIDAD	MEXICO	3816	78	80	35
42	86 °S° RESELECTION	PAKISTAN	3666	79	50	32
16	PATO = T4PP-SUN 64 X BAF 59	ARGENTINA	3616	75	75	31
26	UP-301	INDIA	3550	78	53	34
8	NW-INIA	MEXICO	3550	78	56	33
49	SAMIC 70	MEXICO	3450	78	56	39
17	INIA-66	MEXICO	3383	75	75	34
2	TAMURI-71	MEXICO	3383	76	73	37
45	MUTI	INDIA	3083	77	51	34
3	IASSUL-20	BRAZIL	2583	85	111	45
20	MEAICU 120	AUSTRALIA	2216	78	53	32
		GRAND MEAN	4615	80	76	38
	STANDARD ERROR OF GRAND MEAN		58	0	0	0
	COEFICIENT OF VARIATION		15	0	4	6
	LSD VARIETY MEANS 5 PC		1177	0	6	3

CORRELATIONS

	YIELD KG/HA	DAYS TO FLOWER	HEIGHT CM.	1000 GRN WGT GRMS
DAYS TO FLOWER	0.53**			
HEIGHT CM.	0.37**	0.45**		
1000 GRN WGT GRMS	0.26	0.20	0.62**	

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 36 EUROPE YUGOSLAVIA CROATIA

BOTINEC.
COOPERATORS DR. ZOTRAVKO MARTINIC.

LATITUDE 045.45°N DATE PLANTED 03/13/73 NITROGEN 130.0 KG/HA
LONGITUDE 015.56°E DATE HARVESTED 08/19/73 PHOSPHORUS 090.0 KG/HA
ELEVATION +00116 M.ABOVE S.L. AMOUNT OF MOISTURE 0238 MM POTASIUM 090.0 KG/HA

FAVORABLE FOR EMERGENCE. SHORTAGE OF MOISTURE IN TILLERING, BOOTING AND IN THE FILLING STAGE. TOO WET AT HARVEST TIME. UNFAVORABLE DISEASE DEVELOPMENT EXCEPT FOR ERYSIPHE. INSECT AND PEST PROBLEMS NOT REPORTED. MECHANICAL CONTROL OF WEEDS. LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	LEAF▲ RUST	STEM▲ RUST	HEIGHT CM.	LODGING	1000 GRN WGT GRMS	POWDERY MILDEW
3	IASSUL-20	BRAZIL	2566	77	61	93	1	1	100	2	44	54
34	ZIPA 68	COLOMBIA	2533	78	58	97	5	1	89	1	45	37
10	PITIC 62	MEXICO	2510	77	59	97	1	1	72	1	43	50
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	2355	80	57	97	1	1	69	1	43	58
25	JARAL 'S'	ARGENTINA	2333	80	54	94	1	1	69	1	34	62
5	BT-2288	TUNISIA	2321	79	53	96	1	1	75	1	44	41
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	2310	76	59	101	3	4	81	1	46	45
30	JARAL 'S' (B)	ARGENTINA	2277	79	54	95	1	1	69	1	47	50
27	HUELQUEN	CHILE	2244	79	58	94	3	1	82	1	44	75
41	UQ-115 = CONDOR	AUSTRALIA	2188	79	58	101	1	1	70	1	41	50
36	715/70	YUGOSLAVIA	2188	76	61	100	1	1	54	1	35	0
35	MENG-8156	MEXICO	2166	77	62	102	1	1	64	1	42	4
32	7 CERROS	MEXICO	2166	79	59	99	3	1	81	1	41	45
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	2088	81	55	95	1	1	63	1	39	58
33	LAGOA VERMELHA (C-17)	BRAZIL	2066	78	57	93	1	1	100	5	44	41
2	TANORI-71	MEXICO	2066	79	51	95	1	1	64	1	43	87
23	BT-2281	TUNISIA	2066	81	55	98	6	1	67	1	47	41
44	ZAAFRANE	TUNISIA	2055	79	54	95	1	1	72	1	45	62
38	SAMACA 68	COLOMBIA	2033	77	56	93	1	1	79	1	46	70
50	LOCAL CHECK		2022	76	62	99	4	8	62	1	34	54
43	TOB-8156	ETHIOPIA	2022	81	58	98	1	1	71	1	42	41
11	WW15 = ANZA	AUSTRALIA	2010	79	59	101	1	3	59	1	42	58
31	CHENAB 70	PAKISTAN	1988	80	53	96	1	1	73	1	45	91
21	CAJEME 71	MEXICO	1966	78	56	96	1	1	57	1	51	70
8	BB-INIA	MEXICO	1944	81	54	95	1	1	72	1	43	58
6	ERA	U.S.A.	1933	79	62	100	1	1	75	1	39	4
37	LEE-N108 X GB 55 / GB 56	SUDAN	1910	79	57	98	1	1	63	1	42	58
46	BONANZA	U.S.A.	1877	79	57	93	1	1	72	1	36	62
29	GIZA 155	EGYPT	1877	75	55	98	2	1	83	1	47	41
17	INIA-66	MEXICO	1866	80	52	93	1	1	61	2	42	07
9	SOLTANE = BT 2296	TUNISIA	1855	80	56	95	1	1	52	1	47	75
14	CALIDAD	MEXICO	1833	81	55	94	1	1	69	1	40	91
19	YECORA 70	MEXICO	1833	78	54	94	1	1	51	3	48	58
28	SONALIKA	INDIA	1610	80	52	98	1	1	73	1	58	75
1	CHRIS	U.S.A.	1788	80	58	94	1	1	88	1	38	50
15	TOBARI 66	MEXICO	1755	81	55	96	1	1	71	1	44	29
24	3400-1-3	S.AFRICA	1755	82	56	97	1	1	68	1	43	75
49	SARIC 70	MEXICO	1744	77	56	95	1	1	55	1	47	66
20	MEXI J 120	AUSTRALIA	1744	80	55	97	1	1	47	1	43	83
22	GABOTO	ARGENTINA	1710	79	60	98	1	1	89	1	37	83
7	MEXICO 226 = SON 64-KL. REND	IRAK	1699	80	55	96	1	1	80	1	48	70
26	UP-301	INDIA	1699	77	55	96	1	1	47	1	47	54
13	PENJAMO 62	MEXICO	1688	79	56	95	1	1	70	1	46	83
18	MARCOS JUAREZ INTA	ARGENTINA	1677	79	56	97	1	1	67	1	49	62
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	1677	81	53	97	1	1	62	1	47	33
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	1655	77	60	100	1	1	80	1	43	16
12	ARIANA 66	TUNISIA	1588	76	62	102	3	6	76	1	46	37
45	MOTI	INDIA	1466	80	52	95	1	1	43	1	46	79
42	88 'S' RESELECTION	PAKISTAN	1455	77	57	96	1	1	51	1	43	79
47	PARANA 68 /1116	ARGENTINA	1333	82	53	97	1	1	61	1	44	54
		GRAND MEAN	1954	79	56	96	4	4	69		44	56
	STANDARD ERROR OF GRAND MEAN		21	0	0	0	0	0	0		0	0
	COEFICIENT OF VARIATION		13	1	1	0	88	120	3		3	18
	LSD VARIETY MEANS 5 PC		430	2	0	1	7	8	4		2	17

CORRELATIONS

YIELD	KG/HA								
TEST	WEIGHT	-0.21							
DAYS TO	FLOWER	0.26	-0.52**						
DAYS TO	MATURITY	-0.01	-0.31*	0.55**					
LEAF	RUST	0.28*	-0.17	0.26	0.25				
STEM	RUST	0.08	-0.48**	0.46**	0.37**	0.48**			
HEIGHT	CM.	0.40**	-0.13	0.33*	-0.05	0.22	0.13		
LODGING		0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1000 GRN	WGT GRMS	-0.20	0.01	-0.44**	-0.08	-0.01	-0.18	-0.08	0.00
POWDERY	MILDEW	-0.24	0.34*	-0.52**	-0.53**	-0.19	-0.13	-0.18	0.00	0.21

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL
▲ SCALE 1-9

TABLE 37 EUROPE YUGOSLAVIA VOYVODINA

INST. FOR AGRICULTURAL RESEARCH, NOVI SAD.
COOPERATORS DR. SLAVKO BURDJEVIC.

LATITUDE 045 05°N DATE PLANTED 03/13/73 NITROGEN 080.0 KG/HA
LONGITUDE 019 08°E DATE HARVESTED --/--/-- PHOSPHORUS 104.0 KG/HA
ELEVATION 00084 M.ABOVE S.L. AMOUNT OF POTSTURE 0240 MM POTASSIUM 000.0 KG/HA

WEATHER CONDITIONS NOT REPORTED. DISEASE DEVELOPMENT NOT REPORTED. NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK NS-718.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	LEAF RUST	HEIGHT CM.	LODGING	1000 GRN WGT GRMS	POWDERY MILDEW
32	7 CERROS	MEXICO	5950	82	64	102	505	92	0	34	40
28	SONALIKA	INDIA	5350	81	57	98	0	90	0	42	66
10	PITIC 62	MEXICO	5275	77	62	100	0	98	13	33	40
48	(21931/CH 53-AN X GB 561 AN 44	ISRAEL	5151	81	64	102	405	79	0	35	33
39	EL GOU-SON 64 X TC-NF 63	U.S.A.	5108	78	64	102	105	86	20	35	0
7	MEXICO 226 = SON 64-KL. PENC	IRAK	4925	82	60	99	0	91	0	38	60
5	BT-2288	TUNISIA	4866	80	55	97	0	87	0	35	20
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A.	4804	81	58	98	0	78	0	33	24
30	JARAL "S" (8)	ARGENTINA	4841	81	60	99	0	79	0	38	33
34	ZIPA 66	COLOMBIA	4823	79	63	117	75	101	0	36	20
18	MARCOS JUAREZ INTA	ARGENTINA	4816	82	62	108	0	87	0	39	40
41	UW-115 = CONDOR	AUSTRALIA	4806	82	65	115	1005	70	0	34	40
43	TOB-8156	ETHIOPIA	4800	83	63	101	0	79	0	34	40
6	ERA	U.S.A.	4800	82	68	116	0	83	0	30	13
8	BB-INIA	MEXICO	4783	79	58	98	0	65	0	35	60
15	TUBARI 66	MEXICO	4775	84	61	99	0	86	0	36	20
35	MENG-6156	MEXICO	4733	80	67	114	75	69	0	35	0
47	PARANA 68 /1116	ARGENTINA	4700	84	60	100	0	69	0	36	60
36	715/70	YUGOSLAVIA	4651	81	64	114	0	64	0	33	0
11	WN15 = ANZA	AUSTRALIA	4666	80	64	103	485	75	0	30	53
50	LOCAL CHECK		4654	81	65	102	0	91	0	34	20
29	GIZA 155	EGYPT	4654	81	62	102	0	101	0	39	26
21	CAJEME 71	MEXICO	4641	81	62	100	0	69	0	39	60
38	SAMACA 68	COLOMBIA	4641	80	61	101	0	97	0	36	46
2	TANORI-71	MEXICO	4566	75	55	97	305	79	0	30	66
31	CHENAB 70	PAKISTAN	4541	81	60	99	0	84	0	34	73
25	JARAL "S"	ARGENTINA	4533	81	60	99	0	84	0	30	46
19	YECORA 70	MEXICO	4506	75	58	98	0	64	0	36	68
9	SOLTANE = BT 2296	TUNISIA	4483	81	60	99	0	85	0	38	40
44	ZAAFRANE	TUNISIA	4458	81	58	98	0	84	0	33	53
46	BUHAMZA	U.S.A.	4383	81	63	101	0	79	0	30	53
49	SANIC 70	MEXICO	4375	78	61	99	0	62	0	36	73
23	BT-2261	TUNISIA	4375	82	62	100	105	60	0	36	46
16	PATU = TZPP-SON 64 X NAF 59	ARGENTINA	4366	82	62	102	705	79	0	29	53
27	HUELQUEN	CHILE	4358	83	62	101	0	100	6	36	73
13	MENJAMO 62	MEXICO	4356	80	60	99	0	89	0	36	53
26	3400-1-3	S.AFRICA	4330	82	61	99	0	78	0	30	60
17	INIA-66	MEXICO	4341	82	55	97	0	81	0	34	100
4	K338-E. DE CH. X KOUDIET 17-BT-Y	TUNISIA	4275	80	63	102	0	101	0	38	60
37	LEE-NLOB X GB 55 / 66 SC	SUDAN	4241	75	63	100	605	72	0	31	28
33	LAGOA VERMELHA (C-17)	BRAZIL	4130	81	61	101	75	114	100	36	60
24	UP-301	INDIA	4043	77	58	98	0	58	0	34	46
14	CALIDAD	MEXICO	4004	84	55	98	705	65	6	31	86
45	NUTI	INDIA	4050	81	60	99	0	56	0	34	86
20	MEXICO 120	AUSTRALIA	3816	75	60	95	0	56	0	30	80
42	BB "S" RESELECTION	PAKISTAN	3604	77	63	101	0	56	0	35	73
1	CHRIS	U.S.A.	3375	80	63	102	0	107	66	28	46
3	IASSUL-20	BRAZIL	3275	78	64	101	0	114	43	32	40
22	GABOTU	ARGENTINA	2825	80	64	102	0	106	100	28	60
12	AKIANA 66	TUNISIA	2550	78	66	116	0	98	0	34	33
		GRAND MEAN	4474	81	61	101	4	82	7	34	48
	STANDARD ERROR OF GRAND MEAN		50	0			0	0	1	0	0
	COEFFICIENT OF VARIATION		13	1			119	3	176	5	20
	LSD VARIETY MEANS 5 PC		1002	2			9	5	20	3	14

CORRELATIONS

YIELD KG/HA		0.31*							
TEST WEIGHT		-0.16	-0.67						
DAYS TO FLOWER		-0.67	-0.67	0.72**					
DAYS TO MATURITY		0.22	-0.05	0.20	0.06				
LEAF RUST		-0.16	0.11	0.19	0.09	-0.14			
HEIGHT CM.		-0.46**	-0.10	0.14	-0.01	-0.12	0.54**		
LODGING		0.37*	0.10	-0.15	-0.06	-0.21	0.06	-0.26	
1000 GRN WGT GRMS		-0.26	0.69	-0.52**	-0.54**	-0.16	-0.16	0.03	-0.00
POWDERY MILDEW									

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 38 MIDDLE EAST IRAN GORGAN

GORGAN EXPERIMENTAL STATION.
COOPERATORS F. MCHRAIN.

LATITUDE 054 28°N
LONGITUDE 036 51°L
ELEVATION +00050 M.ABOVE S.L.

DATE PLANTED 10/10/72
DATE HARVESTED 06/16/73
AMOUNT OF MOISTURE 0384 MM

NITROGEN 120.0 KG/HA
PHOSPHORUS 045.0 KG/HA
POTASIUM 000.0 KG/HA

UNFAVORABLE WEATHER CONDITIONS FOR DISEASE DEVELOPMENT. RAINFALL WAS BELOW AVERAGE. INSECT, WEED OR PEST PROBLEMS NOT REPORTED. LOCAL CHECK AKOVA.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	LEAF RUST	STEM RUST	HEIGHT CM.	LODGING	1000 GRN WGT GRMS	POWDERY MILDEW
45	MOTI	INDIA	6721	119	176	0	0	0	65	0	34	66
9	SOLTANE = BT 2296	TUNISIA	6610	132	176	0	0	0	103	0	37	77
41	UQ-115 = CONDOR	AUSTRALIA	6466	129	173	0	30S	40S	79	0	39	0
44	ZAAFRANE	TUNISIA	6443	125	178	0	0	0	106	0	35	44
25	JARAL 'S'	ARGENTINA	6410	129	176	40S	0	0	92	0	31	0
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	6388	127	172	0	0	0	85	0	29	33
21	CAJEME 71	MEXICO	6377	133	177	0	0	0	72	0	41	55
47	PARANA 68 /1116	ARGENTINA	6354	123	173	10S	30S	40S	83	0	35	44
13	PENJAMO 62	MEXICO	6288	131	178	10MS	0	0	93	0	36	44
28	SONALIKA	INDIA	6277	122	178	0	20S	0	108	0	40	88
19	YECORA 70	MEXICO	6277	127	177	0	50S	75S	65	0	42	66
42	BB 'S' RESELECTION	PAKISTAN	6221	122	173	0	0	0	65	0	32	44
20	MEXICO 120	AUSTRALIA	6143	131	178	0	0	0	62	0	39	33
30	JARAL 'S' (B)	ARGENTINA	6132	132	177	25S	0	0	90	0	34	44
49	SARIC 70	MEXICO	6132	125	172	40S	40S	60S	70	0	38	66
15	TOBARI 66	MEXICO	6088	127	177	0	0	0	98	0	34	33
17	INIA-66	MEXICO	6077	125	177	0	0	20S	89	0	40	77
7	MEXICO 226 = SON 64-KL. REND	IRAK	6043	132	177	0	0	0	97	0	37	44
31	CHENAB TO	PAKISTAN	6043	130	176	0	0	0	80	0	32	66
10	PITIC 62	MEXICO	6021	134	178	5S	0	0	90	0	34	33
2	TANORI-71	MEXICO	6021	125	177	0	-	20S	96	0	37	66
14	CALIOAO	MEXICO	5999	133	178	1MR	20S	40S	96	0	33	22
11	WW15 = ANZA	AUSTRALIA	5977	134	177	0	20S	40S	82	0	30	22
8	BB-INIA	MEXICO	5966	125	176	0	20S	40S	75	0	35	77
18	MARCOS JUAREZ INTA	ARGENTINA	5888	134	178	5S	0	30S	97	0	38	0
36	715/70	YUGOSLAVIA	5877	138	176	0	30S	30S	82	0	37	0
23	BT-2281	TUNISIA	5877	130	179	0	0	0	85	0	34	44
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	5799	135	177	0	0	0	95	0	31	33
12	ARIANA 66	TUNISIA	5632	135	179	0	0	30S	105	0	37	33
43	TOB-8156	ETHIOPIA	5599	125	174	0	0	0	93	0	31	33
5	BT-2288	TUNISIA	5554	125	178	0	0	0	92	0	31	44
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	5532	119	172	0	0	0	85	0	31	51
4	K338-E. DE CH. X KOUDIEF 17-KT-Y	TUNISIA	5521	131	179	0	20S	30S	110	0	38	66
26	UP-301	INDIA	5499	131	177	10S	0	0	62	0	35	77
32	7 CERROS	MEXICO	5466	138	178	10S	0	40S	92	0	29	33
38	SAMACA 68	COLOMBIA	5277	130	173	0	0	0	120	0	34	22
24	3400-1-3	S.AFRICA	5155	134	177	40S	0	0	83	0	26	0
27	HUEFLQUEN	CHILE	5121	138	179	0	0	0	110	0	31	33
34	ZIPA 68	COLOMBIA	5055	137	175	0	0	0	113	0	31	33
35	MENG-8156	MEXICO	4866	138	176	5MS	30S	40S	85	0	36	0
29	GIZA 155	EGYPT	4855	134	179	30S	20S	30S	112	40	35	33
46	BONANZA	U.S.A.	4843	130	175	0	0	0	85	0	26	44
50	LOCAL CHECK		4766	131	176	0	40S	80S	130	20	38	0
33	LAGOA VERMELHA (C-17)	BRAZIL	4632	136	177	10MS	20S	40S	125	50	35	22
37	LEE-N10B X GB 55 / GB 56	SLOAN	4566	134	174	10S	0	0	98	0	24	66
1	CHRIS	U.S.A.	4344	136	178	10S	-	-	130	40	26	0
6	FRA	U.S.A.	4210	141	179	5MS	0	0	102	0	21	33
22	GABOTO	ARGENTINA	3655	139	179	0	0	0	115	60	27	0
39	FL GOU-SON 64 X 7C-NP 63	U.S.A.	3621	135	177	0	0	40S	102	0	21	44
3	IASSUL-20	BRAZIL	3321	138	178	0	-	30S	145	40	33	77
		GRAND MEAN	5600	130	176	5	8	17	93	5	33	39
	STANDARD ERROR OF GRAND MEAN		41	0	0		0	0				0
	COEFICIENT OF VARIATION		9	0	0		44	35				21
	LSD VARIETY MEANS 5 PC		824	0	2		6	10				13

CORRELATIONS

YIELD	KG/HA									
DAYS TO	FLOWER	-0.60**								
DAYS TO	MATURITY	-0.22	0.46**							
STRIPE	RUST	0.00	0.05	-0.08						
LEAF	RUST	0.03	-0.02	-0.11	0.07					
STEM	RUST	-0.08	0.04	-0.02	0.04	0.84**				
HEIGHT	CM.	-0.61**	0.43**	0.31*	-0.08	-0.02	0.06			
LODGING		-0.61**	0.35**	0.26	0.09	0.12	0.11	0.60**		
1000 GRN	WGT GRMS	0.58**	-0.33*	0.02	-0.11	0.42**	0.35**	-0.20	-0.13	
POWDERY	MILDEW	0.21	-0.45**	-0.03	-0.18	-0.09	-0.03	-0.20	-0.24	0.23

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 39 MIDDLE EAST IRAN KUZESTAN

AHWAZ AGRICULTURAL EXPERIMENT STATION.
COOPERATORS M. DADAYIN.

LATITUDE 031 20°N DATE PLANTED 11/25/72 NITROGEN 120.0 KG/HA
LONGITUDE 048 40°E DATE HARVESTED 05/10/73 PHOSPHORUS 000.0 KG/HA
ELEVATION +00020 M.ABOVE S.L. AMOUNT OF MOISTURE 0147 MM POTASIUM 000.0 KG/HA

NORMAL WEATHER DURING VEGETATION. NOT ENOUGH RAIN FOR DISEASE DEVELOPMENT. NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK SHOLEH.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	SHATTER ING	1000 GRN WGT GRMS
32	7 CERROS	MEXICO	4599	106	153	108	0	40
49	SARIC 70	MEXICO	4099	104	151	80	0	44
23	BT-2281	TUNISIA	4099	100	151	93	0	36
48	(21931/CH 53-4N X GB 56) AN 64	ISRAEL	4055	105	149	91	0	36
4	K338-E. CE CH. X KOUDIET 17-KT-Y	TUNISIA	4055	105	153	121	0	42
18	MARCOS JUAREZ INTA	ARGENTINA	4010	104	147	101	26	41
2	TANORI-71	MEXICO	3966	100	144	100	0	41
11	WW15 = ANZA	AUSTRALIA	3921	109	155	93	0	35
8	BB-INIA	MEXICO	3921	102	149	81	0	46
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	3910	104	152	100	0	31
13	PENJAMO 62	MEXICO	3899	106	150	105	0	41
21	CAJEME 71	MEXICO	3855	104	149	80	0	51
45	MOTI	INDIA	3810	100	147	68	0	42
10	PITIC 62	MEXICO	3755	104	148	96	0	42
24	3400-1-3	S.AFRICA	3732	107	149	93	0	35
7	MEXICO 226 = SON 64-KL. REND	IRAK	3688	102	147	10'	16	38
31	CHENAB 70	PAKISTAN	3666	101	150	101	20	42
42	28 'S' RESELECTION	PAKISTAN	3666	102	147	71	0	41
29	GIZA 155	EGYPT	3621	102	151	118	0	43
44	ZAAFRANE	TUNISIA	3588	103	147	100	16	38
47	PARANA 68 /1116	ARGENTINA	3588	100	147	85	0	38
9	SULTANE = BT 2296	TUNISIA	3566	102	145	93	16	40
41	UQ-115 = CONDOR	AUSTRALIA	3555	105	147	78	0	35
28	SONALIKA	INDIA	3544	96	147	103	0	52
25	JARAL 'S'	ARGENTINA	3544	97	149	95	30	35
37	IEE-N10R X GB 55 / GB 56	SUDAN	3510	103	147	88	0	35
35	MENG-8156	MEXICO	3499	116	157	85	0	40
5	BT-2288	TUNISIA	3499	96	143	96	0	37
17	INIA-66	MEXICO	3444	100	147	95	20	42
30	JARAL 'S' (B)	ARGENTINA	3410	102	147	90	0	39
40	SON 64 X T7PP-Y54 / JUSTIN 3	U.S.A	3332	98	145	86	0	40
20	MEXICO 120	AUSTRALIA	3310	102	147	70	0	40
46	BONANZA	U.S.A.	3255	104	148	100	0	37
12	ARIANA 66	TUNISIA	3255	109	152	110	0	39
19	YECORA 70	MEXICO	3177	101	147	75	0	45
15	TOBARI 66	MEXICO	3155	98	147	95	0	38
14	CALIOAD	MEXICO	3044	104	151	98	0	37
27	MUELQUEN	CHILE	3044	103	146	113	0	37
26	UP-301	INDIA	3021	102	148	73	0	42
43	TOB-8156	ETHIOPIA	3010	102	150	96	0	38
36	715/70	YUGOSLAVIA	2999	111	149	81	0	30
39	FL GOU-SON 64 X 7C-NP 63	U.S.A.	2855	130	166	100	0	29
22	GABOTO	ARGENTINA	2788	106	148	106	0	33
38	SAMACA 68	COLOMBIA	2621	105	145	110	0	35
50	LOCAL CHECK		2588	109	152	120	0	39
1	CHRIS	U.S.A.	2566	106	148	115	16	29
34	ZIPA 68	COLOMBIA	2244	106	152	115	0	34
6	FRA	U.S.A.	2199	128	160	90	0	23
33	LAGOA VERMELHA (C-17)	BRAZIL	2110	103	147	121	0	39
3	IASSUL-20	BRAZIL	1999	113	149	135	40	36
		GRAND MEAN	3393	104	149	96	4	38
	STANDARD ERROR OF GRAND MEAN		57	0	0	0	0	0
	COEFICIENT OF VARIATION		20	1	1	9	56	6
	LSD VARIETY MEANS 5 PC		1149	1	3	15	3	4

CORRELATIONS

YIELD	KG/HA					
DAYS TO	FLOWER	-0.38**				
DAYS TO	MATURITY	-0.11	0.83**			
HEIGHT	CM.	-0.36**	0.14	0.12		
SHATTER	ING	-0.11	-0.05	-0.13	0.30*	
1000 GRN	WGT GRMS	0.44**	-0.57**	-0.37**	-0.17	-0.05

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 40 MIDDLE EAST IRAQ BAGHDAD

RESEARCH STATION, ABU-GHRAIB.
COOPERATORS SALIM AL-

LATITUDE 033 20°N
LONGITUDE 044 24°E
ELEVATION +00034 M.ABOVE S.L.

DATE PLANTED 11/27/72
DATE HARVESTED 05/15/73
AMOUNT OF MOISTURE 0400 MM

NITROGEN 016.8 KG/HA
PHOSPHORUS 000.0 KG/HA
POTASIUM 000.0 KG/HA

THE SEASON WAS ABNORMALLY DRY, LOW RAINFALL, WARM, NO FROST. NO DISEASE DEVELOPMENT. MILD ATTACK OF APHIDS. WEED AND PEST PROBLEMS NOT REPORTED. LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	1000 GRN WGT GRMS
2	TANORI-71	MEXICO	5300	60	91	142	100	41
8	BB-INIA	MEXICO	5268	60	90	142	75	38
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	5132	59	89	142	80	39
21	CAJEME 71	MEXICO	5132	60	94	145	105	-
44	ZAAFRANE	TUNISIA	5080	60	90	142	100	37
14	CALIDAD	MEXICO	4952	62	100	142	105	33
13	PENJAMO 62	MEXICO	4784	58	94	142	105	39
47	PARANA 68 /1116	ARGENTINA	4716	61	98	142	90	34
11	WW15 = ANZA	AUSTRALIA	4584	60	101	142	85	33
19	YECORA 70	MEXICO	4584	61	94	145	75	41
49	SARIC 70	MEXICO	4580	60	96	142	86	41
41	UQ-115 = CONDOR	AUSTRALIA	4552	60	109	142	80	35
35	MENG-8156	MEXICO	4456	58	94	145	80	35
10	PETIC 62	MEXICO	4432	56	94	142	105	35
31	CHENAB 70	PAKISTAN	4432	59	104	145	80	31
42	BB "S" RESELECTION	PAKISTAN	4368	60	92	142	70	42
15	TOBARI 66	MEXICO	4200	61	89	142	105	36
37	LEE-N108 X GB 55 / GB 56	SUDAN	4200	58	95	142	95	36
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	4168	58	94	142	105	30
9	SOLTANE = BT 2296	TUNISIA	4152	60	90	142	100	43
25	JARAL "S"	ARGENTINA	4152	59	94	145	90	34
28	SONALIKA	INDIA	4116	59	94	145	80	49
5	BT-2288	TUNISIA	4112	60	90	142	100	38
32	7 CERROS	MEXICO	4056	60	104	145	100	32
7	MEXICO 226 = SON 64-KL, REND	IRAK	4032	60	90	142	105	41
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	3000	60	96	142	90	37
45	MOTI	INDIA	3968	60	92	142	65	37
43	TOB-8156	ETHIOPIA	3752	60	90	142	95	35
50	LOCAL CHECK		3732	60	99	142	100	35
23	BT-2281	TUNISIA	3700	59	113	145	85	35
17	INIA-6n	MEXICO	3668	62	94	145	100	36
46	BONANZA	U.S.A.	3624	60	92	142	100	31
38	SAMACA 68	COLOMBIA	3624	60	0	142	120	41
27	HUELQUEN	CHILE	3568	59	94	145	105	40
12	ARIANA 66	TUNISIA	3552	59	102	142	115	41
6	FRA	U.S.A.	3500	58	109	142	100	29
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	3356	58	101	145	95	25
36	715/70	YUGOSLAVIA	3300	59	-	142	80	31
33	LAGOA VERMELHA (C-17)	BRAZIL	3124	61	94	145	130	38
30	JARAL "S" (B)	ARGENTINA	2952	57	105	145	80	40
29	GIZA 155	EGYPT	2932	60	105	145	80	43
26	UP-301	INDIA	2832	58	94	145	60	37
1	CHRIS	U.S.A.	2824	59	102	142	130	29
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	2712	59	95	145	120	0
22	GABOTO	ARGENTINA	2468	61	113	145	120	29
24	3400-1-3	S.AFRICA	2269	61	113	145	100	33
18	MARCOS JUAREZ INTA	ARGENTINA	2032	60	102	145	90	40
34	ZIPA 68	COLOMBIA	1844	58	103	145	120	35
20	MEXICO 120	AUSTRALIA	1600	63	94	145	65	35
3	IASSUL-20	BRAZIL	916	57	101	145	145	43
		GRAND MEAN	3787	59	97	143	95	36

STANDARD ERROR OF GRAND MEAN
COEFICIENT OF VARIATION
LSD VARIETY MEANS 5 PC

COPRELATIONS

YIELD KG/HA						
TEST WEIGHT	0.08					
DAYS TO FLOWER	-0.16	-0.07				
DAYS TO MATURITY	-0.51**	-0.02	0.27			
HEIGHT CM.	-0.30*	-0.12	-0.11	-0.00		
1000 GRN WGT GRMS	0.18	0.06	-0.19	-0.08	-0.19	

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 41 MIDDLE EAST IRAQ SULAIMANIYA

FIELD CROPS RESEARCH STATION
COOPERATORS I.N. AL-SALIHY.

LATITUDE 035 05'N
LONGITUDE 046 05'E
ELEVATION + 700 M.ABOVE S.L.

DATE PLANTED 10/24/72
DATE HARVESTED 06/12/73
AMOUNT OF MOISTURE 0662 MM

NITROGEN 080.0 KG/HA
PHOSPHORUS 080.0 KG/HA
POTASIUM ---.- KG/HA

NORMAL WEATHER AT THE BEGINNING. DRY LATE IN THE SEASON. NO DISEASE DEVELOPMENT. INSECT AND PEST PROBLEMS NOT REPORTED. HAND WEEDING. LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	1000 GRN WGT GRMS
10	PITIC 62	MEXICO	2721	110	154	105	34
4	K3[illegible]3-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	2588	115	156	113	35
41	UO-115 = CONDOR	AUSTRALIA	2555	115	155	85	33
27	HUELQUEN	CHILE	2477	115	155	113	34
9	SULTANE = BT 2296	TUNISIA	2477	109	157	93	42
20	MEXICO 120	AUSTRALIA	2466	111	156	73	39
43	TOB-8156	ETHIOPIA	2399	110	155	83	32
50	LOCAL CHECK		2399	114	156	93	36
18	MARCOS JUAREZ INTA	ARGENTINA	2388	110	156	96	41
21	CAJEME 71	MEXICO	2377	115	156	86	43
12	ARIANA 66	TUNISIA	2310	118	155	115	39
34	ZIPA 68	COLOMBIA	2299	113	156	131	30
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	2288	114	156	95	30
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	2288	109	156	85	36
30	JARAL 'S' (B)	ARGENTINA	2221	109	156	90	40
22	GAROTO	ARGENTINA	2210	114	156	135	28
49	SARIC 70	MEXICO	2122	118	156	83	40
31	CHENAB 70	PAKISTAN	2099	109	155	91	41
25	JARAL 'S'	ARGENTINA	2088	110	156	90	32
36	715/70	YUGOSLAVIA	2077	116	156	63	28
47	PARANA 68 /1116	ARGENTINA	2055	109	155	83	35
24	3400-1-3	S.AFRICA	2022	108	156	83	37
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	1999	131	155	88	33
5	BT-2288	TUNISIA	1999	105	155	88	35
44	ZAAFRANE	TUNISIA	1999	109	155	98	38
7	MEXICO 226 = SON 64-KL. RENO	IRAK	1977	110	156	93	41
6	FRA	U.S.A.	1966	123	156	93	32
46	BONANZA	U.S.A.	1955	110	155	85	33
32	7 CERROS	MEXICO	1922	115	155	93	34
13	PENJAMO 62	MEXICO	1899	109	156	90	40
29	GIZA 155	EGYPT	1877	110	156	98	40
37	LEF-N108 X GB 55 / GB 56	SUDAN	1844	114	156	75	35
1	CHRIS	U.S.A.	1822	105	157	133	30
11	WW15 = ANZA	AUSTRALIA	1810	114	156	85	34
15	TOBARI 66	MEXICO	1788	110	155	91	38
38	SAMACA 68	COLOMBIA	1755	118	157	115	35
45	MOTI	INDIA	1744	110	155	63	39
26	UP-301	INDIA	1733	115	156	68	39
35	MENG-8156	MEXICO	1722	113	155	71	37
17	INIA-66	MEXICO	1722	105	155	93	40
28	SONALIKA	INDIA	1666	108	155	93	45
14	CALICAO	MEXICO	1644	109	156	81	33
2	TANORI-71	MEXICO	1622	106	155	93	36
19	YECORA 70	MEXICO	1599	111	156	68	39
40	SON 64 X TZPP-Y56 / JUSTIN 3	U.S.A	1577	109	155	83	35
23	BT-2281	TUNISIA	1544	113	156	83	35
42	BB 'S' RESELECTION	PAKISTAN	1344	109	155	63	40
8	BB-INIA	MEXICO	1333	107	157	73	38
33	LAGOA VERMELHA (C-17)	BRAZIL	1299	112	156	120	35
3	IASSUL-20	BRAZIL	955	118	156	133	34
		GRAND MEAN	1981	112	156	92	36
	STANDARD ERROR OF GRAND MEAN		27	0	0	0	0
	COEFICIENT OF VARIATION		16	4	0	3	4
	LSD VARIETY MEANS 5 PC		547	7	2	5	2

CORRELATIONS

	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.
DAYS TO FLOWER	0.10			
DAYS TO MATURITY	-0.00	0.05		
HEIGHT CM.	0.11	0.11	0.12	
1000 GRN WGT GRMS	-0.07	-0.29*	-0.10	-0.28*

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 42 MIDDLE EAST ISRAEL R.G.S. DE GAT

MIVHOR FARM.
COOPERATORS SEM Y. ATSMON.

LATITUDE 031.37°N DATE PLANTED 11/07/72 NITROGEN 000.0 KG/HA
LONGITUDE 034.47°E DATE HARVESTED --/--/-- PHOSPHORUS 040.0 KG/HA
ELEVATION +00120 M.ABOVE S.L. AMOUNT OF MOISTURE 0322 MM POTASSIUM 000.0 KG/HA

MODERATE TEMPERATURE THROUGHOUT WHEAT GROWING SEASON. MODERATE ATTACK OF STRIPE AND LEAF RUST. INSECT, WEED OR PEST PROBLEMS NOT REPORTED. LOCAL CHECK MIRIAM.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	STRIPE RUST	LEAF RUST	HEIGHT CM.	LODGING	1000 GRN WGT GRMS
19	YECORA 70	MEXICO	9674	82	98	0	0	87	3	47
8	BP-INIA	MEXICO	9386	83	100	0	0	88	0	43
41	HO-115 = CONDOR	AUSTRALIA	9287	83	114	0	5R	98	0	38
21	CAJEME 71	MEXICO	9052	82	112	50S	0	99	0	54
2	TANORI-71	MEXICO	9030	83	97	0	0	102	8	47
49	SARIC 70	MEXICO	9022	81	-	5S	5S	91	1	49
20	MEXICO 120	AUSTRALIA	8986	81	111	0	50S	83	0	42
42	EB 85 RESELECTION	PAKISTAN	8971	81	101	TS	0	79	0	46
43	TOB-B150	ETHIOPIA	8787	83	102	0	0	107	10	41
45	MOTI	INDIA	8621	81	93	0	TS	79	0	41
47	PARANA 68 /1116	ARGENTINA	8613	83	91	0	40S	89	0	43
30	JARAL 85 (8)	ARGENTINA	8598	81	-	0	30S	105	55	46
17	INIA-66	MEXICO	8537	84	94	0	0	107	26	52
28	SONALIKA	INDIA	8401	82	92	0	0	107	71	57
5	BT-2288	TUNISIA	8272	83	91	0	0	108	0	42
44	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	8174	82	103	0	5MR	104	53	42
13	BENJAMIN 62	MEXICO	8143	83	102	TR	0	108	76	47
9	SULTANE = BT 2296	TUNISIA	8121	83	109	0	0	112	53	48
32	7 CERROS	MEXICO	8105	81	107	0	-	110	41	37
24	3400-1-3	S.AFRICA	8022	82	105	60S	0	113	83	39
23	BT-2281	TUNISIA	7962	83	98	0	50S	101	33	44
26	UP-301	INDI	7901	78	111	0	0	85	0	41
50	LOCAL CHECK		7853	83	98	0	5S	107	25	49
25	JARAL 85	ARGENTINA	7878	82	94	2S	50MS	106	31	38
15	TOBARI 66	MEXICO	7689	83	94	0	0	105	26	43
18	MARCOS JUAREZ INTA	ARGENTINA	7691	83	112	2MS	0	111	30	47
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	7681	78	91	0	0	87	20	41
35	MENG-8156	MEXICO	7666	77	118	0	0	108	0	31
10	PITIC 62	MEXICO	7560	78	105	0	40S	115	75	44
11	KWIS = ANZA	AUSTRALIA	7545	78	115	0	20S	99	0	38
4	K338-C. DE CH. X KROUDIET 17-KT-Y	TUNISIA	7484	80	108	0	00VS	118	16	43
31	CHENAB 70	PAKISTAN	7469	82	106	0	70MR	114	30	42
46	SONANZA	U.S.A.	7325	82	104	0	0	108	45	37
44	ZAAFRANE	TUNISIA	6818	82	100	TMS	0	108	41	43
7	MEXICO 226 = SON 64-KL. REND	IRAK .	6643	82	100	0	0	109	6	48
29	GIZA 155	EGYPT	6590	82	104	0	40S	117	91	49
14	CALIDAD	MEXICO	6522	82	104	0	0	110	66	41
12	ATLANA 66	TUNISIA	6424	82	0	0	30S	135	33	45
38	SAMACA 68	COLOMBIA	6189	81	-	0	0	123	73	44
27	HUELQUEN	CHILE	6159	82	101	0	0	122	83	45
34	ZIPA 68	COLOMBIA	6075	81	107	0	20S	119	50	43
37	LEE-N108 X GB 55 / GB 56	SUDAN	5787	74	101	0	5MS	103	0	30
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	5742	83	101	0	1MR	108	63	37
39	S1 GDU-SON 64 X 7C-NP 63	U.S.A.	5651	75	0	0	TR	120	0	30
36	715/70	YUGOSLAVIA	5477	82	121	0	0	87	10	39
6	FRA	U.S.A.	5355	79	0	0	1MR	122	0	28
33	LAGOA VERMELHA (C-17)	BRAZIL	5302	81	104	0	30S	132	100	46
22	GABOTO	ARGENTINA	4727	82	115	30S	0	135	95	35
1	CHRIS	U.S.A.	4363	81	113	0	0	137	96	37
3	IASSIL-20	BRAZIL	2621	79	110	0	2S	143	93	46
		GRAND MEAN	7396	81	104	3	10	107	34	42
	STANDARD ERROR OF GRAND MEAN		81	0	0			0	1	0
	COEFFICIENT OF VARIATION		13	0	3			3	66	3
	LSD VARIETY MEANS 5 PC		1622	0	6			7	37	2

CORRELATIONS

YIELD	KG/HA							
TEST	WEIGHT	0.33*						
DAYS TO	FLOWER	0.19	0.22					
STRIPE	RUST	0.35	0.11	0.12				
LEAF	RUST	0.06	-0.03	0.00	-0.12			
HEIGHT	CM.	-0.72**	-0.06	-0.24	0.07	0.06		
LODGING		-0.52**	0.17	0.18	0.14	0.02	0.68**	
1000 GRN	WGT GRMS	0.34*	0.52**	0.26	0.05	0.08	-0.08	0.19

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 43 MIDDLE EAST JORDAN JORDAN

DEIR ALLA STATION.
COOPERATORS ABDEL HAMID DURGHAM ET AL.

LATITUDE 032 12°N
LONGITUDE 035 36°E
ELEVATION +00224 M.ABOVE S.L.

DATE PLANTED 11/16/72
DATE HARVESTED 04/30/73
AMOUNT OF MOISTURE 0187 MM

NITROGEN 250.0 KG/HA
PHOSPHORUS 250.0 KG/HA
POTASIUM 000.0 KG/HA

HIGH TEMPERATURE WITH HOT WINDS. SOME DISEASE DEVELOPMENT. NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	LEAF RUST	STEM RUST	HEIGHT CM.	SHATTER IAG	1000 GRN WGT GRMS
35	MENG-8156	MEXICO	6265	82	51	150	0	0	0	85	0	40
41	HD-115 = CONDOR	AUSTRALIA	5855	83	87	147	0	TR	0	81	0	40
11	WW15 = ANZA	AUSTRALIA	5521	-	87	146	0	70S	0	85	0	39
24	3400-1-3	S.AFRICA	5132	83	81	143	0	0	0	90	0	35
45	MOTI	INDIA	5066	82	73	138	0	0	0	61	3	45
20	MEXICO 120	AUSTRALIA	5010	81	83	143	60MS	40MS	0	66	0	42
30	JARAL "S" (B)	ARGENTINA	4799	79	83	148	0	1TR	0	90	0	42
50	LOCAL CHECK		4743	81	52	154	0	40MS	0	111	0	47
49	SARIC 70	MEXICO	4595	82	87	141	0	0	0	78	0	50
9	BB-INIA	MEXICO	4499	84	75	136	0	0	0	63	0	44
29	GIZA 155	EGYPT	4266	83	84	142	0	80S	0	96	0	50
12	ARIANA 66	TUNISIA	4232	82	92	151	40MS	40MS	TR	118	0	45
37	LEE-N10B X GB 55 / GB 56	SUDAN	4177	82	77	138	0	80S	0	75	0	41
48	(21931/CM 53-AN X G9 56) AN 64	ISRAEL	4077	83	81	141	TR	20MR	0	88	0	42
13	PENJAMO 62	MEXICO	4032	82	81	142	0	0	0	91	0	44
2	TANORI-71	MEXICO	4032	82	73	138	0	0R-40MS	0	83	1	43
10	PITIC 62	MEXICO	3921	82	85	140	20MR	70S	20MR	95	1	45
36	715/70	YUGOSLAVIA	3821	81	93	146	0	20MR	0	78	0	34
18	MARCOS JUAREZ INTA	ARGENTINA	3738	82	88	142	0	TR	0	98	0	45
42	BB "S" RESELECTION	PAKISTAN	3649	82	77	136	0	0	0	63	1	45
15	TORARI 66	MEXICO	3644	83	75	137	0	TR	0	86	0	42
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	3616	75	128	173	0	0	0	108	0	28
26	UP-301	INDIA	3595	82	81	139	0	40MS	0	63	0	46
9	SULTANE = BT 2256	TUNISIA	3588	83	87	139	20MR	20MR	0	93	1	45
47	PARANA 68 /1116	ARGENTINA	3566	83	73	126	0	TR	0	73	1	38
32	7 CERROS	MEXICO	3527	83	80	144	0	60S	0	88	0	41
23	BT-2281	TUNISIA	3408	83	73	140	25MR	90S	0	81	3	42
6	ERA	U.S.A.	3471	76	129	173	0	0	0	93	0	27
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A.	3455	82	71	137	0	20MR	0	70	3	44
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	3432	82	87	146	0	100S	50MS	101	0	41
34	TIPA 68	COLOMBIA	3377	80	81	146	40MS	30MS	0	93	0	43
5	BT-2288	TUNISIA	3355	82	74	143	0	1R	0	91	1	38
21	CAJEME 71	MEXICO	3310	83	87	140	60MS	TR	0	81	3	51
43	TOB-8156	ETHIOPIA	3277	84	75	140	0	0	0	80	1	39
28	SONALIKA	INDIA	3199	83	99	136	0	20MR	0	93	3	53
22	GABOTO	ARGENTINA	3177	81	91	150	40MS	60S	0	111	0	33
17	INIA-66	MEXICO	3133	84	75	136	0	TR	0	88	3	47
44	ZAAFRANE	TUNISIA	3121	81	79	138	0	0	0	83	6	40
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	3088	83	76	141	30MS	20MR	0	76	1	32
27	HUELQUEN	CHILE	3066	82	80	144	0	0	0	91	0	41
33	LAGOA VERMELHA (C-17)	BRAZIL	2966	80	85	136	0	20MR	0	116	0	41
1	CHRIS	U.S.A.	2955	81	87	146	40MS	0MR-MS	0	106	0	33
46	BONANZA	U.S.A.	2877	81	81	138	0	0	0	78	0	36
19	YECORA 70	MEXICO	2877	83	72	137	60MS	TR	0	73	18	49
38	SAMACA 68	COLOMBIA	2844	81	79	138	0	0	0	88	1	43
31	CHENAB 70	PAKISTAN	2466	82	82	140	0	40MS	0	88	3	45
14	CALIDAO	MEXICO	2277	84	75	139	0	0	0	80	6	37
7	MEXICO 226 = SON 64-KL. REND	IRAN	2266	83	75	142	0	20MR	0	85	0	44
25	JARAL "S"	ARGENTINA	2077	81	72	136	0	TR	0	86	11	33
3	IASSUL-20	BRAZIL	622	0	89	142	0	0	20MR	121	73	38
		GRAND MEAN	3664	81	83	142	5	14	2	87	3	41
	STANDARD ERROR OF GRAND MEAN		64		0	0	1	1	0	0	0	
	COEFFICIENT OF VARIATION		21		2	2	250	99	349	6	153	
	LSD VARIETY MEANS 5 PC		1291		3	4	20	24	12	8	7	

CORRELATIONS

YIELD	KG/HA										
TEST	WEIGHT	0.43**									
DAYS TO	FLOWER	0.10	-0.17								
DAYS TO	MATURITY	0.20	-0.05	0.86**							
STRIPE	RUST	-0.01	0.05	0.16	0.21						
LEAF	RUST	0.16	0.08	0.07	0.17	0.50**					
STEM	RUST	-0.24	-0.38**	0.03	0.00	0.68**	0.30*				
HEIGHT	CM.	-0.25	-0.39**	0.47**	0.43**	0.27*	0.23	0.21			
SHATTER	IAG	-0.53**	-0.93**	-0.03	-0.11	-0.06	-0.15	0.44**	0.25		
1000 GRN	WGT GRMS	0.14	0.16	-0.35**	-0.51**	0.07	0.09	0.10	-0.17	-0.04	

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 44 MICELL FAST LEBANON BEIRUT

AREC-AUE.
COOPERATORS PAKNAT G. NASM.

LATITUDE 033.55°N DATE PLANTED 11/05/74 NITROGEN 080.0 KG/HA
LONGITUDE 036.04°E DATE HARVESTED --/--/-- PHOSPHORUS 035.0 KG/HA
ELEVATION 000555 M.ABOVE S.L. AMOUNT OF RAINFALL 0375 MM POTASSIUM 000.0 KG/HA

THE RAINFALL AVERAGE HAS CONSIDERABLY BEEN REPEAT. THE IRRIGATIONS WERE DONE TO SAVE THE EXPERIMENT. NO DISEASE DEVELOPMENT. NO INSECT, WEED OR PEST PROBLEMS.LOCAL CHECK NAYAH.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	HEIGHT CM.
42	BB 'S' RESELECTION	PAKISTAN	2620	165	59
31	CHENAB 70	PAKISTAN	2381	174	76
40	SON 64 X T2PP-Y54 / JUSTIN 3	U.S.A	2364	173	72
37	LEE-NIUB X GB 55 / GB 56	SUDAN	2275	174	76
9	SOLTANE = BT 2296	TUNISIA	2271	174	81
19	YECORA 70	MEXICO	2230	174	64
17	INIA-66	MEXICO	2155	167	83
47	PARANA 68 /1116	ARGENTINA	2155	174	71
49	SARIC 70	MEXICO	2148	174	61
8	BG-INIA	MEXICO	2130	161	63
2	TANURI-71	MEXICO	2105	166	74
7	MEXICO 226 = SON 64-KL. BENC	IRAK	2087	174	76
20	MEXICO 120	AUSTRALIA	1956	174	61
18	MARCOS JUAREZ INTA	ARGENTINA	1950	174	76
30	JARAL 'S' (B)	ARGENTINA	1947	164	77
5	BT-2288	TUNISIA	1940	168	61
23	BT-2261	TUNISIA	1946	174	71
21	LAJEME 71	MEXICO	1944	174	65
12	ARIANA 66	TUNISIA	1913	178	85
45	MOFI	INDIA	1885	174	56
15	TUBARI 66	MEXICO	1846	174	61
4	K55-E. DE CM. X KOODIET 17-RT-Y	TUNISIA	1845	178	85
25	JARAL 'S'	ARGENTINA	1822	174	78
44	ZAAFRANE	TUNISIA	1672	175	73
13	PENJAMO 62	MEXICO	1636	175	78
48	(21931/CM 55-AN X GB 56) AN 64	ISRAEL	1580	174	65
11	MM15 = ANZA	AUSTRALIA	1521	176	66
28	SUNALIKA	INDIA	1514	165	62
43	TUB-8156	ETHIOPIA	1504	175	71
14	CALIDAD	MEXICO	1414	174	74
26	UP-301	INDIA	1363	175	56
50	LOCAL CHECK		1356	174	91
36	715/70	YUGOSLAVIA	1285	174	61
32	7 CERROS	MEXICO	1268	178	65
35	MENG-6156	MEXICO	1280	177	66
1	CM-15	U.S.A.	1188	178	63
10	PESIC 62	MEXICO	1176	178	73
16	PATU = T2PP-SON 64 X ARP 59	ARGENTINA	1155	176	69
46	BOMANZA	U.S.A.	1130	178	66
33	LAGOA VERMELHA (C-17)	BRAZIL	1025	178	73
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	935	181	65
41	UW-115 = CONDOR	AUSTRALIA	856	178	60
29	GIZA 155	EGYPT	864	175	77
38	SAMACA 68	COLOMBIA	662	181	78
27	HUELQUEN	CHILE	837	178	73
24	3400-1-3	S.AFRICA	763	174	68
22	GABOTU	ARGENTINA	721	147	66
3	IASSUL-20	BRAZIL	656	180	85
6	EMA	U.S.A.	522	180	65
34	ZIPA 68	COLOMBIA	435	178	74
		GRAND MEAN	1574	174	71
	STANDARD ERROR OF GRAND MEAN		25		0
	COEFICIENT OF VARIATION		23		10
	LSD VARIETY MEANS 5 PC		557		12

CORRELATIONS

	YIELD KG/HA	DAYS TO FLOWER
DAYS TO FLOWER	-0.26	
HEIGHT CM.	-0.03	0.11

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 45 MIDDLE EAST LEBANON NORTH COASTAL PROVINCE

ABO-EL AGRICULTURAL EXPERIMENT STATION.
COOPERATORS ALI CHAABAN AND G. KINGMA.

LATITUDE 030.35°N
LONGITUDE 040.50°E
ELEVATION 400010 M.ABOVE S.L.

DATE PLANTED 12/06/72
DATE HARVESTED 06/01/73
AMOUNT OF MOISTURE 0500 PM

NITROGEN 100.0 KG/HA
PHOSPHORUS 100.0 KG/HA
POTASIUM 000.0 KG/HA

FAIRLY GOOD WEATHER. DRIER THAN USUAL. LATE RAINS. FAIR-GOOD DEVELOPMENT OF YELLOW RUST. FAIR DEVELOPMENT OF POWDERY MILDEW. INSECT, WEED AND PEST PROBLEMS NOT REPORTED. LOCAL CHECK PEXIPAK 45. HEIGHT SCALE: N=NORMAL, E1>E1+>E2->E2(1M)>E3+>E3->E3. SEED GRADING: 1=EXCELLENT, 1-=LESS THAN EXCELLENT 2=MEDIUM, 2+=BETTER, 2-=POOR.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	STRIPE RUST	HEIGHT CM.	LODGING	POWDERY MILDEW	XX
41	UU-115 = CONDOR	AUSTRALIA	6566	114	0	E2-	0	0	48
13	PENJAMO 62	MEXICO	6365	107	20S	E1+	5	12	4
11	WW15 = ANZA	AUSTRALIA	6222	111	0	E2	0	0	2
48	121931/CM 53-AM X GB 561 AN 64	ISRAEL	5914	109	0	E2	0	0	2
10	PITIC 62	MEXICO	5883	111	0	E1+	0	-	4-
49	SARIC 70	MEXICO	5846	-	5S	E3	0	25	2+
37	LEE-NIOB X GB 55 / GB 56	SUDAN	5691	110	0	E2	0	-	4
50	LOCAL CHECK		5580	113	0S	E1+	0	37	2B
36	715/70	YUGOSLAVIA	5568	113	0	E2+	0	0	4
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	5518	105	0	E2	0	0	4
20	MEXICO 120	AUSTRALIA	5457	105	0	E3	0	64	2B
19	VECORA 70	MEXICO	5451	106	30S	E3	0	0	1-B
15	TUBARI 66	MEXICO	5444	105	0	E1+	0	0	2
27	HUELQUEN	CHILE	5395	110	0	N	5	37	2+
28	SONALIKA	INDIA	5383	105	0	E1	0	0	1B
12	ARIANA 66	TUNISIA	5352	113	0	N	0	0	4
47	PARANA 68 /1116	ARGENTINA	5321	104	5S	E2+	0	37	2+
9	SULTANE = BT 2296	TUNISIA	5265	108	0	E2	0	37	2+
21	CAJEME 71	MEXICO	5241	109	20S	E2+	0	-	1-
43	TUB-8156	ETHIOPIA	5222	107	0	E2	5	0	2
35	MENG-8156	MEXICO	5165	115	0	E2	0	0	2-
24	3400-1-3	S.AFRICA	5175	108	60S	E1+	0	25	2B
8	BB-INIA	MEXICO	5173	106	0	E3	0	25	2+B
4	K338-E. DE CM. X KOUDIET 17-BT-Y	TUNISIA	5160	108	0	E1-	0	12	2
18	MARCOS JUAREZ INTA	ARGENTINA	5136	107	1MR	E1	0	0	2+
16	PATO = TZPP-SON 64 X ABF 59	ARGENTINA	5117	106	0	E1+	0	25	2B
25	JARAL "S"	ARGENTINA	5092	106	10S	E1+	0	37	2
32	7 CERROS	MEXICO	5000	114	5S	E1	0	0	2+B
23	BT-2281	TUNISIA	4994	108	0	E2-	0	50	2+B
42	BB "S" RESELECTION	PAKISTAN	4986	108	65S	E3	0	25	2+B
30	JARAL "S" (B)	ARGENTINA	4963	111	0	E1+	0	0	2+
2	TANURI-71	MEXICO	4764	104	0	E2	0	-	4+
44	ZAAFRANE	TUNISIA	4753	106	0	E2	0	-	4+
7	MEXICO 226 = SON 64-KL. RENC	IRAK	4651	107	1MR	E1	0	-	2+
45	MOTI	INDIA	4595	104	0	E3	0	-	4
38	SAMACA 68	COLOMBIA	4555	108	0	E1	10	-	4
29	GIZA 155	EGYPT	4444	111	1MS	N	10	-	1-B
31	CHENAB 70	PAKISTAN	4420	106	0	E2	0	-	2+B
14	CALIDAD	MEXICO	4420	-	0	E1	0	-	2+
34	ZIPA 68	COLOMBIA	4413	112	0	E1-	0	-	4
26	UP-301	INDIA	4376	109	30S	E3	0	-	2+B
5	BT-2288	TUNISIA	4265	109	20S	E1	0	0	4+
6	ERA	U.S.A.	4095	0	10S	E1	0	-	4-
17	INIA-66	MEXICO	4074	102	0	E1+	0	-	2+
46	BONANZA	U.S.A.	4068	113	0	E2	0	-	4
1	CHRIS	U.S.A.	3969	110	0	N	30	-	4
39	EL GOU-SON 64 X TC-NF 63	U.S.A.	3864	0	5S	E1+	0	0	3
22	GABUTU	ARGENTINA	3802	113	0	N	50	-	4
3	IASSUL-20	BRAZIL	3413	114	0	N	40	25	2B
33	LAGOA VERMELHA (C-67)	BRAZIL	2197	109	0	N	40	0	2-
		GRAND MEAN	4556	108	4		3	23	
		STANDARD ERROR OF GRAND MEAN	64						
		COEFICIENT OF VARIATION	20						
		LSD VARIETY MEANS 5 PC	1682						

CORRELATIONS

YIELD	KG/HA					
DAYS TO	FLOWER	0.25				
STRIPE	RUST	0.07	-0.06			
HEIGHT	CM.	0.00	0.00	0.00		
LODGING		-0.59**	0.11	-0.13	0.00	
POWDERY	MILDEW	0.03	0.13	0.13	0.00	0.12
XX						

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 46 MIDDLE EAST TURKEY ADANA

ADANA AGRICULTURAL RESEARCH STATION.
COOPERATORS WHEAT STAFF.

LATITUDE 036 50'N DATE PLANTED 11/27/72 NITROGEN 150.0 KG/HA
LONGITUDE 034 00'E DATE HARVESTED 06/02/73 PHOSPHORUS 080.0 KG/HA
ELEVATION 00020 M.ABOVE S.L. AMOUNT OF MOISTURE 0324 MM POTASIUM 000.0 KG/HA

DROUGHTY WEATHER. NO DISEASE DEVELOPMENT. INSECT, WEED OR PEST PROBLEMS NOT REPORTED. LOCAL CHECK PJ 62.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	1000 GRN WGT GRMS
10	PITIC 62	MEXICO	4583	73	98	134	101	40
32	7 CERROS	MEXICO	4350	75	101	136	100	39
11	WW15 = ANZA	AUSTRALIA	4273	76	99	135	83	37
23	BT-2261	TUNISIA	4250	76	97	136	67	37
45	MOTI	INDIA	4113	76	97	135	71	43
26	SONALIKA	INDIA	4063	75	94	130	101	46
41	UG-115 = CONDOR	AUSTRALIA	4036	77	102	139	81	39
21	GAJERO 71	MEXICO	4000	74	98	130	75	47
13	PENJAMO 62	MEXICO	4000	75	97	133	99	45
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	3966	78	98	139	90	36
27	HUELQUEN	CHILE	3800	75	99	142	116	42
14	CALIDAD	MEXICO	3766	77	95	130	98	37
25	JARAL "S"	ARGENTINA	3740	77	96	133	95	38
7	MEXICO 226 = SON 64-KL. REND	IRAK	3720	77	96	134	94	48
30	JARAL "S" (B)	ARGENTINA	3720	76	99	136	91	41
17	INIA-66	MEXICO	3716	76	95	132	94	42
35	MENG-8156	MEXICO	3690	75	102	143	82	41
24	3400-1-3	S.AFRICA	3670	78	96	136	92	37
4	K338-E. DE CH. X KOUCIET 17-KT-1	TUNISIA	3603	76	96	138	108	41
43	TUB-8156	ETHIOPIA	3596	75	98	135	90	38
34	ZIPA 68	COLOMBIA	3570	73	102	142	113	35
9	SULTANE = BT 2296	TUNISIA	3533	77	97	133	91	45
46	MUNAIZA	U.S.A.	3530	78	101	136	94	36
31	CHENAB 70	PAKISTAN	3513	75	98	134	91	43
22	GABOTO	ARGENTINA	3500	76	100	139	121	35
18	MARCOS JUAREZ INTA	ARGENTINA	3463	77	96	133	93	49
15	TUBARI 66	MEXICO	3433	75	94	136	90	43
8	BB-INIA	MEXICO	3416	76	96	133	73	43
36	715/70	YUGOSLAVIA	3360	76	101	134	74	33
20	MEXICO 120	AUSTRALIA	3323	75	97	131	64	40
29	GIZA 155	EGYPT	3316	75	97	135	111	42
49	SARIC 70	MEXICO	3283	76	99	134	70	42
50	LOCAL CHECK		3240	74	101	140	86	43
5	BT-2286	TUNISIA	3216	78	94	132	97	39
6	ERA	U.S.A.	3206	77	108	145	94	33
37	LEE-N108 X GB 55 / GB 56	SUDAN	3140	75	99	134	90	37
1	CHRIS	U.S.A.	3116	77	100	140	121	32
38	SAMACA 68	COLOMBIA	3016	74	99	136	110	38
19	YECORA 70	MEXICO	2933	72	97	132	61	40
39	EL GOU-SON 64 X TC-NP 63	U.S.A.	2856	70	108	145	100	35
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	2850	77	98	134	65	38
28	UP-301	INDIA	2646	73	101	135	66	45
42	GB "S" RESELECTION	PAKISTAN	2620	74	99	132	62	46
2	TANURI-71	MEXICO	2566	77	95	132	84	42
12	ARIANA 66	TUNISIA	2550	76	100	134	95	44
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	2276	75	96	136	79	43
33	LAGOA VERMELHA (C-17)	BRAZIL	2120	77	98	135	119	43
3	IASSUL-20	BRAZIL	2010	73	103	146	121	37
47	PARANA 68 /1116	ARGENTINA	1183	75	96	134	71	37
44	ZAAFRANE	TUNISIA	1163	75	99	135	65	36
		GRAND MEAN	3337.	76	98	135	91	40
		STANDARD ERROR OF GRAND MEAN	41	0	0	0	0	
		COEFICIENT OF VARIATION	15	0	1	0	3	
		LSD VARIETY MEANS 5 PC	834	0	2	2	5	

CORRELATIONS

YIELD KG/HA					
TEST WEIGHT	0.14				
DAYS TO FLOWER	-0.08	-0.43**			
DAYS TO MATURITY	0.01	-0.22	0.76**		
HEIGHT CM.	0.06	0.04	0.17	0.29**	
1000 GRN WGT GRMS	0.05	0.00	-0.48**	-0.50**	-0.49

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 47 MIDDLE EAST TURKEY ADAPAZARI

AGRICULTURAL RESEARCH STATION.
COOPERATORS METIN ARICAN

LATITUDE 040 47°N DATE PLANTED 11/19/72 NITROGEN 160.0 KG/HA
LONGITUDE 029 38°E DATE HARVESTED 07/08/73 PHOSPHORUS 080.0 KG/HA
ELEVATION +00033 M.ABOVE S.L. AMOUNT OF MOISTURE 0296 MM POTASIUM 040.0 KG/HA

WEATHER UNDER THE LESS RAINY CONDITIONS COMPARED WITH NORMAL PRECIPI - TATION. NATURAL DISEASE DEVELOPMENT. NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	LEAF RUST	STEM RUST	HEIGHT CM.	LODGING	SHATTERING	1000 GRN WGT GRMS	SEPTORIA SPP.
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	7432	76	134	185	0	20S	5S	125	100	0	37	5
49	SARIC 70	MEXICO	6988	79	126	177	5MS	TMS	0	85	0	10	49	6
2	TANORI-T1	MEXICO	6843	80	126	177	0	0	0	95	0	0	43	4
28	SONALIKA	INDIA	6777	80	127	177	10S	0	0	110	0	0	54	6
36	715/70	YUGOSLAVIA	6643	78	125	176	0	5S	0	85	0	30	34	4
23	JARAL 'S'	ARGENTINA	6632	77	125	176	10S	0	0	110	0	0	38	3
35	MENG-8156	MEXICO	6621	80	129	180	0	TS	0	100	0	0	43	6
5	BT-2288	TUNISIA	6610	81	133	185	20S	0	0	100	90	0	39	5
7	MEXICO 226 = SON 64-KL. REND	IRAK	6499	81	125	176	20S	0	0	115	8	0	44	5
37	LEC-N10B X GB 55 / GB 56	SUDAN	6454	76	127	178	0	5S	0	110	0	0	36	4
11	WWIS = ANZA	AUSTRALIA	6454	80	135	188	0	10S	5S	90	0	0	35	5
24	3400-1-3	S.AFRICA	6266	81	125	176	20S	0	0	100	0	0	39	5
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	6210	78	127	177	0	0	0	110	0	0	36	5
19	YECORA 70	MEXICO	6199	79	126	177	5MS	0	0	85	0	0	50	5
10	PITIC 62	MEXICO	6099	75	133	183	0	0	5MS	110	100	0	38	4
43	TOB-8156	ETHIOPIA	6088	82	127	178	0	0	0	100	0	0	38	7
21	CAJEME 71	MEXICO	6077	79	125	176	0	0	0	95	0	20	50	5
13	PENJAMO 62	MEXICO	6021	79	125	176	5S	TMS	0	110	30	0	45	6
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	6021	79	125	176	0	0	0	95	0	0	38	6
8	BB-INIA	MEXICO	5988	81	127	178	TR	0	0	80	0	0	43	6
32	7 CERROS	MEXICO	5899	78	131	180	20S	0	10S	110	10	0	36	6
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	5810	81	127	178	0	10S	0	110	0	0	33	4
34	ZIPA 68	COLOMBIA	5799	78	127	178	0	0	0	130	0	0	39	4
20	MEXICO 120	AUSTRALIA	5799	77	125	175	10S	0	0	75	0	0	42	5
9	SULTANE = BT 2296	TUNISIA	5710	81	127	179	10MS	0	5MS	110	30	0	45	6
18	MARCOS JUAREZ INTA	ARGENTINA	5688	80	125	177	20S	0	0	110	0	0	45	3
27	HUELQUEN	CHILE	5688	78	127	177	0	0	0	125	50	0	39	5
42	LB 'S' RESELECTION	PAKISTAN	5654	78	127	177	0	0	0	80	0	10	44	5
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	5632	80	125	176	5S	0	0	100	0	0	41	5
31	CHENAB 70	PAKISTAN	5599	81	126	177	5MS	10S	0	105	0	10	46	4
29	GIZA 155	EGYPT	5599	79	127	178	0	5S	0	125	20	0	46	4
3	IASSUL-20	BRAZIL	5532	78	132	183	0	0	TS	143	100	0	43	3
17	INIA-66	MEXICO	5477	81	123	174	0	0	0	106	0	0	44	5
12	ARIANA 66	TUNISIA	5466	80	135	188	0	0	5S	125	40	0	42	4
50	LOCAL CHECK		5432	77	126	176	10S	30S	10S	125	90	0	39	6
26	UP-301	INDIA	5410	80	127	178	10S	0	0	70	0	0	43	4
14	CALIDAO	MEXICO	5355	81	125	175	10S	0	0	100	0	0	37	3
41	UQ-115 = CONDOR	AUSTRALIA	5332	81	127	178	0	0	0	85	0	0	36	6
30	JARAL 'S' (B)	ARGENTINA	5277	80	126	176	5MS	0	0	100	0	10	46	5
44	ZAAFRANE	TUNISIA	5266	74	126	176	5S	0	0	105	0	0	41	4
22	GABOTO	ARGENTINA	5255	80	127	178	5MS	0	0	143	90	0	32	4
6	ERA	U.S.A.	5188	78	135	189	5MS	0	0	115	95	0	31	6
33	LAGOA VERMELHA (C-1T)	BRAZIL	5132	79	123	174	5S	0	0	143	80	0	41	3
23	BT-2281	TUNISIA	5099	81	130	180	0	20S	10S	95	0	0	41	4
15	TOBARI 66	MEXICO	4899	81	125	175	0	0	0	110	0	0	42	4
45	MOTI	INDIA	4677	80	125	175	20S	0	0	70	0	0	44	3
38	SAMACA 68	COLOMBIA	4621	78	127	178	0	TS	0	130	30	0	41	5
46	BONANZA	U.S.A.	4366	79	125	175	0	0	0	100	10	5	31	5
1	CHRIS	U.S.A.	4066	78	130	180	0	0	0	135	100	0	32	5
47	PARANA 68 /1116	ARGENTINA	3910	83	125	176	5MS	0	0	90	0	0	45	4
		GRAND MEAN	5751	79	127	178	4	2	1	109	21	1	41	
	STANDARD ERROR OF GRAND MEAN		46	0	0	0	0			0	0	0	0	
	COEFICIENT OF VARIATION		9	2	0	0	13			0	1	4	5	
	LSD VARIETY MEANS 5 PC		922	3	1	1	1			1	0	0	3	

CORRELATIONS

YIELD	KG/HA											
TEST	WEIGHT	-0.19										
DAYS TO	FLOWER	0.16	-0.20									
DAYS TO	MATURITY	0.15	-0.16	0.98**								
STRIPE	RUST	0.08	0.17	-0.14	-0.13							
LEAF	RUST	0.11	-0.12	0.20	0.16	-0.10						
STEM	RUST	0.03	-0.14	0.44**	0.38**	0.09	0.66**					
HEIGHT	CM.	-0.13	-0.24	0.21	0.21	-0.15	0.12	0.11				
LODGING		-0.10	-0.34*	0.52**	0.51**	-0.04	0.21	0.22	0.64			
SHATTER	ING	0.15	-0.03	-0.18	-0.19	-0.15	0.01	-0.13	-0.27	-0.20		
1000 GRN	WGT GRMS	0.16	0.24	-0.29*	-0.29*	0.15	-0.14	-0.13	-0.23	-0.33*	0.10	
SEPTORIA	SPP.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 46 MIDDLE EAST TURKEY ESKISEHIR

AGRICULTURAL RESEARCH STATION
COORDINATORS FARAH ALTAY

LATITUDE 63E 45'N DATE PLANTED 03/26/73 NITROGEN 0000 KG/HA
LONGITUDE 03E 53'E DATE HARVESTED 08/20/73 PHOSPHORUS 0000 KG/HA
ELEVATION 800/85 M/ABOVE SEA AMOUNT OF POISTURE 0594 MM POTASSIUM 0000 KG/HA

VERY COLD WINTER LOW PRECIPITATION AND COOL WEATHER IN SPRING. BAD DISEASE DEVELOPMENT. INSECTS MILD OR PEST PROBLEMS NOT REPORTED. LOCAL CHECK PENJAME 62.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	HEIGHT CM.	LODGING	SHATTER ING	1000 GRN WGT GRMS
25	JARAL "S"	ARGENTINA	6366	75	56	122	0SS	82	0	0	29
30	JARAL "S" (D)	ARGENTINA	6416	77	66	121	0	81	0	0	40
28	SONMELIKA	INDIA	6333	75	51	121	0	85	0	0	45
17	INIA-66	MEXICO	6325	80	66	117	0	75	0	0	36
10	PITIC 62	MEXICO	6306	78	53	125	15	67	0	0	34
32	7 CERROS	MEXICO	5841	75	55	129	10MR	65	0	0	32
2	TANORI-71	MEXICO	5783	80	85	121	0	73	0	0	35
13	PENJAME 62	MEXICO	5666	76	86	117	25S	62	0	0	35
16	PATO = 12PP-SON 64 X NAK 59	ARGENTINA	5666	82	55	125	0	76	0	0	31
9	SOLIANE = BI 2256	TUNISIA	5556	75	65	122	0	84	0	1	35
6	BG-INIA	MEXICO	5533	81	87	117	0	58	0	0	37
21	CASEME 71	MEXICO	5506	76	64	113	40S	62	0	0	35
40	SON 64 A 12PP-Y54 / JUSTIN 3	USSR	5500	78	83	113	0	68	0	0	37
19	YECORA 70	MEXICO	5456	76	65	114	40S	57	0	0	36
46	[illegible]/CH 55-AN A 65 SE7 AN 64	ISRAEL	5450	75	51	121	0	76	0	0	33
40	[illegible]	USSR	5441	75	86	117	5MR	76	0	0	30
31	CHENAB 70	PAKISTAN	5391	75	67	121	0	77	4	0	37
20	MEXICO 120	AUSTRALIA	5356	77	95	126	15	53	0	0	34
33	MENO-6150	MEXICO	5333	77	108	137	15	62	0	13	35
5	BT-2200	TUNISIA	5291	80	92	121	10S	79	0	0	34
18	MARCOS JUAREZ INTA	ARGENTINA	5256	78	56	129	11R	66	0	0	40
7	MEXICO 220 = SON 64-KLG RENO	IRAN	5016	80	53	125	0	65	0	0	35
29	GIZA 155	EGYPT	5000	76	55	125	0	90	4	6	36
15	TOBARI 66	MEXICO	4916	81	51	121	0	76	0	0	35
37	LER-MEXO A 66 55 / GE 56	SYRIA	4891	73	87	121	1R	66	0	6	32
44	ZAMPANE	TUNISIA	4656	80	55	125	5MR	75	0	0	35
50	LOCAL CHECK		4633	76	86	117	40S	83	0	0	33
39	EL GOU-SON 64 A 76-NP 63	USSR	4616	74	55	125	10MS	64	0	0	31
14	CALIDRO	MEXICO	4575	78	89	121	15	81	0	0	35
45	MOTI	INDIA	4556	78	83	113	0	52	0	0	36
43	TOO-6150	ETHIOPIA	4541	80	96	129	-	76	0	10	32
23	BT-2201	TUNISIA	4516	75	58	125	0	74	0	0	35
47	PARANA 66 /1116	ARGENTINA	4466	61	92	121	0	65	0	0	34
24	3400-1-3	SOUTH AFRICA	4441	75	55	126	40S	62	0	0	26
41	UG-115 = CONDOR	AUSTRALIA	4391	75	93	125	0	66	0	0	32
36	715/70	YUGOSLAVIA	4391	73	55	125	-	62	0	5	25
49	SARIC 70	MEXICO	4383	75	64	114	25S	56	0	0	32
27	MUELLOLIN	CHILE	4366	77	53	123	0	100	4	16	33
38	SARAGA 66	COLOMBIA	4250	76	63	113	0	92	0	5	34
26	UP-301	INDIA	4166	76	82	113	25S	54	0	0	35
53	LAGOA VERMELHA (C-17)	BRAZIL	3858	78	53	125	10S	113	25	1	35
42	BB "S" RESELECTION	PAKISTAN	3751	76	92	121	15	56	0	0	37
4	ASSOR-66 DE CM. A KOOBIET 17-RT-Y	TUNISIA	3606	70	58	125	0	69	0	0	32
1	CRAIS	USSR	3366	78	96	126	5MS	112	25	6	25
8	ERA	USSR	3341	78	58	125	25MS	76	0	1	31
34	ZIPA 66	COLOMBIA	3275	77	55	125	0	103	0	1	32
22	GAUCHO	ARGENTINA	3250	75	55	126	10MR	111	20	10	25
11	MAIS = ANZA	AUSTRALIA	2950	78	57	125	0	65	0	3	31
3	ARSOR-20	BRAZIL	1706	74	92	125	0	116	20	40	35
12	ARIANA 66	TUNISIA	841	75	108	136	0	86	0	13	25
		GRAND MEAN	4731	78	92	122	7	78	4	2	34
	STANDARD ERROR OF GRAND MEAN		66	0	0	0	0	0	0	0	0
	COEFFICIENT OF VARIATION		17	1	2	0	109	7	219	139	4
	LSD VARIETY MEANS 5 PC		1371	2	4	1	12	5	7	5	2

CORRELATIONS

		YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	HEIGHT CM.	LODGING	SHATTER ING	1000 GRN WGT GRMS
YIELD	KG/HA		0.34*							
TEST	WEIGHT	-0.39**	-0.02							
DAYS TO	FLOWER	-0.37**	-0.03	0.97**						
DAYS TO	MATURITY	0.01	-0.25*	-0.32*	-0.35**					
STRIPE	RUST	-0.36*	0.02	0.25	0.30*	-0.14				
HEIGHT	CM.	-0.41**	-0.05	0.11	0.15	0.01	0.60**			
LODGING		-0.56**	-0.17	0.30*	0.32*	-0.16	0.44**	0.50**		
SHATTER	ING	0.42**	0.21	-0.31*	-0.33*	-0.01	-0.14	-0.20	-0.18	
1000 GRN	WGT GRMS									

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 49 NORTH AMERICA CANADA MANITOBA

AGRICULTURE CANADA RESEARCH STATION, WINNIPEG.
COOPERATORS A.E. CAMPBELL

LATITUDE 050 00'N DATE PLANTED 05/10/73 NITROGEN 049.0 KG/HA
LONGITUDE 097 00'W DATE HARVESTED 08/14/73 PHOSPHORUS 049.0 KG/HA
ELEVATION 000.25 M.ABOVE S.L. AMOUNT OF MOISTURE 0290 MM POTASIUM 000.0 KG/HA

WEATHER CONDITIONS NOT REPORTED. FERTILIZER APPLIED IN PREVIOUS AUTUMN.
LEAF AND STEM RUST DEVELOPMENT, INSECT AND PEST PROBLEMS NOT REPORTED.
HAND HEDGING. LOCAL CHECK HARVEST

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO MATURITY	LEAF RUST	STEM RUST	HEIGHT CM.	LODGING	SHATTER ING	1000 GRN WGT GRMS
21	CAJEME 71	MEXICO	4722	80	100	TR	TR	70	1	30	43
18	MARCOS JUAREZ INTA	ARGENTINA	4520	81	104	TR	5MR	91	1	6	35
28	SONALIKA	INDIA	4374	78	97	40M	1M	77	2	0	44
35	MENO-5156	MEXICO	4277	71	105	2R	TR	72	3	0	32
13	PENJAMO 62	MEXICO	4216	81	97	TR	40MS	78	2	1	37
16	PATO = TZPP-SUN 64 X NAP 59	ARGENTINA	4114	82	97	TR	5MR	74	2	0	32
49	SAKIC 70	MEXICO	4063	76	98	TR	TR	65	1	4	39
19	YECORA 70	MEXICO	4066	79	97	TR	TR	66	1	0	40
2	TANORI-71	MEXICO	4042	80	96	TR	TR	74	2	0	37
6	ERA	U.S.A.	4040	00	100	TR	TR	61	1	1	32
20	MEXICO 120	AUSTRALIA	3966	76	99	TR	60S	61	1	0	33
7	MEXICO 226 = SON 64-KL. RENC	IRAK	-	-	-	TR	20M	77	2	1	-
42	66 'S' SELECTION	PAKISTAN	3955	78	95	TR	TR	54	1	1	36
24	3400-1-3	S.AFRICA	3927	83	97	TR	70S	71	2	1	37
31	CHENAB 70	PAKISTAN	3858	80	98	30MR	60S	71	2	3	37
3	IAS.SUL-20	BRAZIL	3846	79	99	0	20M	107	4	78	41
36	715/70	YUGOSLAVIA	3805	79	104	TR	TR	68	1	1	30
10	PITIC 62	MEXICO	3784	73	100	50MS	70S	92	1	0	31
9	SOLTANE = ET 2296	TUNISIA	3703	82	99	TR	10MR	66	1	0	40
33	LAGOA VERMELHA (C-17)	BRAZIL	3655	80	98	M.1R	5M	102	5	6	38
22	GABOTO	ARGENTINA	3683	82	104	TR	5R	113	4	4	31
14	CALIDAD	MEXICO	3664	83	97	3R	20MR	75	3	2	35
15	TOBARI 66	MEXICO	3651	81	98	TR	2MR	76	2	0	36
25	JARAL 'S'	ARGENTINA	3644	80	95	TR	10R	74	1	1	31
8	66-INIA	MEXICO	3590	79	96	TR	TR	57	1	0	35
44	ZAAFRANE	TUNISIA	3557	82	95	TR	5R	76	1	1	35
38	SAMACA 68	COLOMBIA	3553	80	95	10MR	5MR	79	3	0	37
46	BONANZA	U.S.A.	3501	81	97	TR	TR	71	2	1	33
30	JARAL 'S' (B)	ARGENTINA	3463	78	97	TR	5R	70	2	0	41
23	BT-2201	TUNISIA	3425	77	99	M.40M	TR	75	1	0	32
34	ZIPA 66	COLOMBIA	3418	79	96	M.5R	5MR	85	2	4	35
41	66-115 = CONDOR	AUSTRALIA	3412	76	101	70S	10M	72	1	0	29
47	PARANA 68 /1116	ARGENTINA	3383	82	97	TR	2M	64	1	0	37
1	CHRIS	U.S.A.	3327	81	100	20MR	TR	101	5	0	32
39	EL GOU-SUN 64 X 7C-NP 63	U.S.A.	3305	71	102	TR	2R	82	2	0	30
5	BT-2286	TUNISIA	3303	82	97	TR	M.50S	76	1	1	37
27	HUELQUEN	CHILE	3270	76	97	1R	TR	83	3	0	29
26	UP-301	INDIA	3160	76	96	TR	TR	51	1	2	37
48	(21931/CH 53-AN X 66 SC) AN 64	ISRAEL	3146	77	98	30M	40MS	74	2	0	28
17	INIA-66	MEXICO	3136	81	95	60MS	TR	71	2	1	39
43	TUB-8156	ETHIOPIA	3095	78	96	TR	TR	69	2	1	29
4	K338-E. DE CH. X KOUDIET 17-AT-Y	TUNISIA	3076	74	102	10MR	30M	93	1	0	31
11	WRD = ANZA	AUSTRALIA	3023	73	100	20M	70S	73	1	0	24
32	7 CERROS	MEXICO	2955	70	97	M.1R	30M	77	2	0	26
50	LOCAL CHECK		2935	81	96	70S	5M	99	3	0	31
40	SON 64 X TZPP-Y54 / JUSTIN	U.S.A.	2888	77	96	TR	TR	61	2	0	35
29	GIZA 155	EGYPT	2757	73	102	3R	5M	82	2	0	35
45	MOTI	INDIA	2621	77	95	1R	10MS	51	1	0	32
37	LEE-NIOB X 66 55./ GE 56	SUDAN	2416	58	97	40M	5M	70	2	0	22
12	ARIANA 66	TUNISIA	0	0	0	TR	TR	65	1	0	0
		GRAND MEAN	3575	78	98	8	11	76	2	3	34
	STANDARD ERROR OF GRAND MEAN		23		0			0	0	0	0
	COEFICIENT OF VARIATION		7		1			4	16	156	3
	LSD VARIETY MEANS 5 PC		463		2			5	1	8	2

CORRELATIONS

YIELD KG/HA									
TEST WEIGHT	0.78**								
DAYS TO MATURITY	0.73**	0.90**							
LEAF RUST	-0.13	0.00	0.05						
STEM RUST	0.05	0.04	0.08	0.06					
HEIGHT CM.	-0.09	-0.13	-0.11	0.17	-0.06				
LODGING	0.01	0.16	0.12	0.06	-0.16	0.64**			
SHATTER ING	0.18	0.06	0.06	-0.10	-0.03	0.29*	0.18		
1000 GRN WGT GRMS	0.79**	0.82**	0.67**	-0.12	-0.07	-0.17	0.05	0.23	

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

SCALE 1 - 9

TABLE 50 NORTH AMERICA CANADA SASKATCHEWAN

UNIVERSITY OF SASKATCHEWAN, SASKATOON.
COOPERATORS G. K. HUGHES.

LATITUDE 052 00'N
LONGITUDE 106 00'W
ELEVATION 00050 M.ABOVE S.L.

DATE PLANTED 05/05/73
DATE HARVESTED 08/03/73
AMOUNT OF POISTURE 0157 PM

NITROGEN 006.0 KG/HA
PHOSPHORUS 027.0 KG/HA
POTASIUM 000.0 KG/HA

DRY WEATHER LAST FEW WEEKS BEFORE MATURITY. FREQUENT PERIODS OF STRONG WINDS. RAINFALL BELOW NORMAL. HOT WEATHER FROM HEAD STAGE ONWARD. NO DISEASE DEVELOPMENT. NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK MANITOU.

VARIETY NUMBER	VARIETY OR PROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	LODGING	1000 GRN WGT GRMS
41	UW-115 = GONDUR	AUSTRALIA	3566	84	55	94	60	0	32
32	7 CERROS	MEXICO	3526	83	57	96	71	4	33
8	BT-INIA	MEXICO	3416	83	54	93	54	0	37
9	SULTANE = BT 2296	TUNISIA	3356	83	58	97	71	0	38
2	TANURI-71	MEXICO	3366	83	51	92	64	0	37
19	YECORA 70	MEXICO	3378	75	54	93	51	0	37
21	CAJEME 71	MEXICO	3355	80	60	96	54	0	37
10	PITIC 62	MEXICO	3356	76	61	97	71	8	29
35	MENO-0150	MEXICO	3343	81	63	100	57	0	33
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	3322	84	54	95	69	4	34
20	MEXICO 120	AUSTRALIA	3316	75	62	99	46	0	30
15	TUBARI 66	MEXICO	3257	82	54	93	66	0	35
17	INIA-66	MEXICO	3266	84	52	92	65	0	40
49	SARIC 70	MEXICO	3252	75	58	96	50	0	36
42	CD 'S' RESELECTION	PAKISTAN	3248	82	56	93	45	0	36
11	WW15 = ANZA	AUSTRALIA	3235	82	57	94	61	0	31
29	GIZA 155	EGYPT	3234	83	54	95	76	8	40
37	LLL-NIUB X GB 55 / GB 56	SULAN	3218	77	57	95	61	0	30
6	ERA	U.S.A.	3156	83	61	95	64	0	31
25	JARAL 'S'	ARGENTINA	3176	83	54	93	66	0	33
28	SONALIKA	INDIA	3175	81	52	92	71	4	46
23	BT-2281	TUNISIA	3167	84	54	94	64	0	30
31	CHENAB 70	PAKISTAN	3161	84	53	94	67	4	39
40	SUN 64 X TZPP-Y54 / JLST-JN 3	U.S.A	3150	80	52	93	54	0	34
4	N338-L. DE CH. X KOUDIET 17-KT-Y	TUNISIA	3147	81	61	100	80	0	38
24	3400-1-3	S.AFRICA	3129	84	55	93	62	0	36
14	CALIDAD	MEXICO	3116	83	53	93	68	8	36
26	UP-301	INDIA	3117	81	55	93	48	0	40
36	715/70	YUGOSLAVI.	3093	80	68	102	52	0	29
30	JARAL 'S' (D)	ARGENTINA	3089	82	53	94	69	0	43
39	EC 000-SON 64 X 7C-NP 63	U.S.A.	3066	78	59	95	76	4	27
45	MUTI	INDIA	3063	82	53	94	46	0	40
44	ZAAFRANE	TUNISIA	3076	83	54	95	69	8	42
7	MEXICO 220 = SON 64-KL. RENC	IRAN	3029	84	53	94	70	8	46
48	(21931/CH 55-AN X GB 56) AN 64	ISRAEL	3025	82	56	93	61	0	31
13	PENJAMO 62	MEXICO	2990	80	55	93	69	14	35
47	PARANA 68 /1116	ARGENTINA	2946	84	52	93	56	0	35
18	MARCOS JUAREZ INTA	ARGENTINA	2906	83	61	100	71	4	40
43	TOB-0150	ETHIOPIA	2850	84	55	94	63	0	35
38	SAMALA 68	COLOMBIA	2763	82	54	93	69	0	36
1	CHRIS	U.S.A.	2688	81	57	96	85	0	27
12	ARIANA 66	TUNISIA	2660	82	78	122	81	0	36
3	BT-2286	TUNISIA	2653	83	53	92	66	4	38
46	DUHAMEL	U.S.A.	2615	81	55	93	59	4	30
27	HUELQUEN	CHILE	2562	81	55	95	75	0	33
22	GABOTO	ARGENTINA	2531	81	62	101	83	4	28
33	LAGOA VERMELHA (C-17)	BRAZIL	2531	81	59	96	91	20	35
34	ZIPA 56	COLOMBIA	2515	81	54	93	73	0	35
5	IAS3UL-20	BRAZIL	2315	77	62	98	87	20	33
50	LOCAL CHECK		2262	81	55	92	77	4	27
		GRAND MEAN	3066	82	56	95	66	2	35
	STANDARD ERROR OF GRAND MEAN		24		0	0	0	0	
	COEFICIENT OF VARIATION		5		2	1	4	153	
	LSD VARIETY MEANS 5 PC		450		1	2	4	6	

CORRELATIONS

YIELD KG/HA						
TEST WEIGHT	0.16					
DAYS TO FLOWER	-0.15	-0.35*				
DAYS TO MATURITY	-0.10	-0.17	0.90**			
HEIGHT CM.	-0.54**	-0.00	0.18	0.26		
LODGING	-0.38**	-0.20	0.03	0.01	0.54**	
1000 GRN WGT GRMS	0.22	0.40**	-0.36**	-0.10	-0.09	0.03

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 51 MESCAMERICA MEXICO EDO. DE MEXICO (EL BATAN)

EL BATAN EXPERIMENT STATION.
COOPERATORS CIMMYT WHEAT STAFF.

LATITUDE 019 31'N
LONGITUDE 098 50'W
ELEVATION +02249 M.ABOVE S.L.

DATE PLANTED 06/09/72
DATE HARVESTED 10/10/73
AMOUNT OF MOISTURE ---- MM

NITROGEN 170.0 KG/HA
PHOSPHORUS 300.0 KG/HA
POTASIUM 000.0 KG/HA

WET, WARM AND DUSTY WEATHER CONDITIONS. DEVELOPMENT OF STRIPE, LEAF AND STEM RUST. NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	STRIPE RUST	LEAF RUST	STEM RUST	HEIGHT CM.	LODGING
2	TANORI-71	MEXICO	4833	56	10MS	10MS	40MS	90	0
14	CALICAO	MEXICO	4715	56	10MR-MS	5MS	20MS	90	23
15	TOBARI 66	MEXICO	4650	56	20MS	TR	10MS	93	3
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	4618	54	20MS	TR	10MS	86	10
8	BB-INIA	MEXICO	4411	56	20MR-MS	TMR	20MS	71	0
42	BB 'S' RESELECTION	PAKISTAN	4337	63	20MS	TR	20MS	68	0
46	BONANZA	U.S.A.	4305	56	20MS	TR	5MS	85	11
28	SONALIKA	INDIA	4208	47	20MS	30MS	30S	91	0
29	GIZA 15!	EGYPT	4118	54	10MR-50MS	10MR	10MR	113	10
23	BT-2281	TUNISIA	4003	54	20MS	20MS	10MS	85	0
30	JARAL 'S' (B)	ARGENTINA	3878	55	30MS	10MS	30MS	86	0
12	ARIANA 66	TUNISIA	3875	-	1MR	20MR	10S	108	16
25	JARAL 'S'	ARGENTINA	3833	54	30MS	20MS	50S	88	0
44	ZAAFRANE	TUNISIA	3791	52	30MS	TR	30MS	85	0
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	3701	67	20MS	TMR	TR	103	11
17	INIA-66	MEXICO	3687	56	70S	-	20MS	96	0
7	MEXICO 226 = SON 64-KL. REND	IRAK	3666	53	30MS	TMR	50MS	98	0
34	ZIPA 68	COLOMBIA	3660	60	10MR	10MS	-	115	0
35	MENG-8156	MEXICO	3576	75	30M	TR	TS	88	13
38	SAMACA 68	COLOMBIA	3573	55	30MS	TR	5MR	98	0
5	BT-2288	TUNISIA	3554	52	20MS	TR	40S	90	0
31	CHENAB 70	PAKISTAN	3382	58	60S	-	30MS	105	0
43	TOB-8156	ETHIOPIA	3305	56	50MS	30MS	10MS	78	0
26	UP-301	INDIA	3243	55	30MS	5TS	20MS	61	0
19	YECORA 70	MEXICO	3234	51	40S	30MS	10MS	68	0
47	PARANA 68 /1116	ARGENTINA	3215	50	40MS	30MS	10MR	71	0
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	3069	51	20MS	TR	5MS	68	0
27	HUELQUEN	CHILE	3000	60	40MS	20MS	30S	106	0
13	PENJAMO 62	MEXICO	2909	57	20MS	10MR	40MS	93	0
1	CHRIS	U.S.A.	2909	60	10MR-MS	10MS	10S	126	43
9	SOLTANE = BT 2296	TUNISIA	2903	68	.5MR	20MS	30MS	100	23
32	7 CERROS	MEXICO	2721	58	40S	20MR	20S	86	0
37	LEE-N108 X GB 55 / GB 56	SUDAN	2655	57	50MS	20MS	10MS	81	16
21	CAJEME 71	MEXICO	2652	77	20MR	10MS	10MR	78	0
41	UQ-115 = CONDOR	AUSTRALIA	2262	61	30MS	10MR	60S	81	0
4	K338-E. DE CH. X KOUDIET 17-KT-Y'	TUNISIA	2187	-	20MS-S	20MS	30MS	113	3
49	SARIC 70	MEXICO	2159	77	5MR	5MR	5MR	76	3
6	ERA	U.S.A.	2152	73	10MR-30MS	TR	1MR	101	40
3	IASSUL-20	BRAZIL	2023	67	30MS	1MS	60S	136	56
45	MOTI	INDIA	1922	51	70S	-	40MS	56	0
33	LAGOA VERMELHA (C-17)	BRAZIL	1770	66	50S	20MR	10MS	131	33
24	3400-1-3	S.AFRICA	1714	59	40S	30MS	50S	86	0
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	1668	59	30MS	TR	40MS	83	0
18	MARCOS JUAREZ INTA	ARGENTINA	1652	75	20MS	TR	20MS	101	40
22	GABOTO	ARGENTINA	1416	76	30S	TR	20MS	138	43
11	WW15 = ANZA	AUSTRALIA	1305	60	20MS	10MR	50MS	80	10
36	715/70	YUGOSLAVIA	541	0	20MS	TR	20S	81	30
20	MEXICO 120	AUSTRALIA	248	77	10MR	30MS	40S	61	6
10	PITIC 62	MEXICO	152	68	30MS	20MR	50MS	101	93
50	LOCAL CHECK		-	-	-	-	-	-	-
		GRAND MEAN	3007	60	20	11	20	91	11
		STANDARD ERROR OF GRAND MEAN	54	0	1	0	0	0	0
		COEFICIENT OF VARIATION	21	3	52	87	41	5	100
		LSD VARIETY MEANS 5 PC	1071	3	17	15	14	8	18

CORRELATIONS

YIELD	KG/HA						
DAYS TO	FLOWER	0.02					
STRIPE	RUST	-0.10	0.18				
LEAF	RUST	-0.03	0.07	0.21			
STEM	RUST	-0.30*	0.13	0.21	0.25		
HEIGHT	CM.	0.14	0.37**	0.13	0.00	0.07	
LODGING		-0.43**	0.16	-0.01	-0.23	0.15	0.47**

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 52 MESOAMERICA MEXICO EDO. DE MEXICO (ATIZAPAN)

TOLUCA EXPERIMENT STATION.
COOPERATORS CIMMYT WHEAT STAFF.

LATITUDE 019 16'N
LONGITUDE 099 51'W
ELEVATION +02640 M.ABOVE S.L.

DATE PLANTED 05/28/73
DATE HARVESTED 10/26/73
AMOUNT OF MOISTURE --- MM

NITROGEN ---.- KG/HA
PHOSPHORUS --- .- KG/HA
POTASIUM ---.- KG/HA

HIGH AMOUNT OF RAIN DURING ALL THE SEASON. HIGH INCIDENCE OF LEAF RUST.
NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	DAYS TO FLOWER	STRIPE RUST	HEIGHT CM.
36	715/70	YUGOSLAVIA	101	5MR	76
22	GABOTO	ARGENTINA	94	40MS	103
20	MEXICO 120	AUSTRALIA	91	40S	61
35	MENG-8156	MEXICO	89	30MS	91
6	ERA	U.S.A.	89	50S	96
21	CAJEME 71	MEXICO	87	40MS	83
18	MARCOS JUAREZ INTA	ARGENTINA	87	30MS	98
3	IASSUL-20	BRAZIL	85	60S	115
33	LAGOA VERMELHA (C-17)	BRAZIL	85	50S	111
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	85	20MR	101
10	PITIC 62	MEXICO	84	50S	100
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	83	30MR	-
41	UQ-115 = CONDOR	AUSTRALIA	81	10MS	83
9	SOLTANE = BT 2296	TUNISIA	80	50S	96
11	WW15 = ANZA	AUSTRALIA	79	40S	80
49	SARIC 70	MEXICO	79	20MS	81
32	7 CERROS	MEXICO	77	60S	90
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	76	10MR	86
42	BB 'S' RESELECTION	PAKISTAN	76	60S	61
24	3400-1-3	S.AFRICA	76	90S	76
37	LEE-N10B X GB 55 / GB 56	SUDAN	75	50S	88
1	CHRIS	U.S.A.	75	20MR	123
27	HUELQUEN	CHILE	74	60S	98
43	TOB-B156	ETHICPIA	73	50S	91
34	ZIPA 60	COLOMBIA	73	10MR	108
38	SAMACA 68	COLOMBIA	72	20MR	108
30	JARAL 'S' (B)	ARGENTINA	72	50S	90
26	UP-301	INDIA	72	70S	63
14	CALIDAD	MEXICO	71	50S	83
29	GIZA 155	EGYPT	71	30MR	105
46	BONANZA	U.S.A.	71	10MR	93
15	TOBARI 66	MEXICO	70	40S	93
13	PENJAMO 62	MEXICO	70	60S	88
23	BT-2281	TUNISIA	70	50S	93
25	JARAL 'S'	ARGENTINA	70	70S	91
31	CHENAB 70	PAKISTAN	70	50S	98
45	MOTI	INDIA	69	90S	63
8	BB-INIA	MEXICO	69	60S	75
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	69	20MR	98
7	MEXICO 226 = SON 64-KL. REND	IRAK	69	50S	95
44	ZAAFRANE	TUNISIA	68	50S	91
19	YECORA 70	MEXICO	68	70S	81
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	67	10MR	75
5	BT-2288	TUNISIA	67	40MS	91
17	INIA-66	MEXICO	67	90S	90
47	PARANA 68 /1116	ARGENTINA	66	80S	80
2	TANORI-71	MEXICO	66	50S	91
28	SONALIKA	INDIA	65	70S	98
50	LOCAL CHECK		0	30S	0
12	ARIANA 66	TUNISIA	0	TMR	-
		GRAND MEAN	73	40	90
		STANDARD ERROR OF GRAND MEAN	0	1	0
		COEFICIENT OF VARIATION	2	25	7
		LSD VARIETY MEANS 5 PC	3	16	10

CORRELATIONS

	DAYS TO FLOWER	STRIPE RUST
STRIPE RUST	0.02	
HEIGHT CM.	0.72**	-0.02

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 53 MESOAMERICA MEXICO SINALOA

CAMPO EXPERIMENTAL DEL VALLE DEL FUERTE-CIAS.
COOPERATORS INIA-CIAS.

LATITUDE 025 48'N DATE PLANTED 11/20/72 NITROGEN 080.0 KG/HA
LONGITUDE 109 00'W DATE HARVESTED 05/15/73 PHOSPHORUS 000.0 KG/HA
ELEVATION +00015 M.ABOVE S.L. AMOUNT OF MOISTURE ---- MM POTASIUM 000.0 KG/HA

COLD TEMPERATURES IN FIRST GROWING STAGES WERE INSUFFICIENT TO OBTAIN BEST YIELDS. HIGH TEMPERATURES AND HUMIDITY WERE FAVORABLE FOR LEAF RUST DEVELOPMENT. INSECT, WEED OR PEST PROBLEMS NOT REPORTED. LOCAL CHECK ANOME S.70.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	LEAF RUST	HEIGHT CM.	LODGING
35	MENG-8156	MEXICO	7389	84	136	TR	80	0
49	SARIC 70	MEXICO	6556	78	126	60S	70	-
21	CAJEME 71	MEXICO	6407	83	134	60S	85	0
20	MEXICO 120	AUSTRALIA	6364	68	124	40S	65	-
18	MARCOS JUAREZ INTA	ARGENTINA	6352	80	126	TR	100	0
31	CHENAB 70	PAKISTAN	6185	74	-	100S	100	-
13	PENJAMO 62	MEXICO	6105	69	116	TR	65	-
2	TANORI-71	MEXICO	6012	63	112	TR	90	-
9	SOLTANE = BT 2296	TUNISIA	5852	69	119	60S	95	-
19	YECORA 70	MEXICO	5802	64	112	80S	70	0
24	3400-1-3	S.AFRICA	5790	67	121	80S	80	-
11	WW15 = ANZA	AUSTRALIA	5747	75	-	60S	85	-
37	LEE-N108 X GB 55 / GB 56	SUDAN	5735	66	120	100S	85	0
32	7 CERROS	MEXICO	5512	69	125	80S	85	0
17	INIA-66	MEXICO	5481	64	108	100S	90	-
25	JARAL 'S'	ARGENTINA	5407	65	113	20MR	85	0
36	715/70	YUGOSLAVIA	5352	92	132	TR	85	-
41	UQ-115 = CONDOR	AUSTRALIA	5321	72	126	100S	80	-
8	BB-INIA	MEXICO	5309	66	119	TR	70	-
28	SONALIKA	INDIA	5272	59	110	100S	80	-
7	MEXICO 226 = SON 64-KI. REND	IRAK	5247	65	117	100S	95	-
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	5031	68	117	100S	80	0
43	TOB-8156	ETHIOPIA	5031	66	118	100S	90	-
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	4963	79	111	TR	95	-
5	BT-2288	TUNISIA	4858	65	117	10MR	90	-
4	K338-E. DE CH. X KOLDIET 17-KT-Y	TUNISIA	4839	77	125	40S	110	-
45	MOTI	INDIA	4802	68	118	100S	60	0
44	ZAAFRANE	TUNISIA	4749	65	117	70S	95	0
42	BB 'S' RESELECTION	PAKISTAN	4704	66	117	40S	65	0
23	BT-2281	TUNISIA	4574	63	120	80S	80	-
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	4568	67	116	TR	90	-
10	PITIC 62	MEXICO	4438	71	120	60S	95	-
46	BONANZA	U.S.A.	4407	69	117	TR	85	70
50	LOCAL CHECK		4364	62	112	TR	85	-
14	CALIDAD	MEXICO	4278	67	116	TR	95	-
33	LAGOA VERMELHA (C-17)	BRAZIL	4262	73	124	100S	100	-
26	UP-301	INDIA	4204	70	123	40S	65	-
34	ZIPA 68	COLOMBIA	4197	71	120	100S	95	-
27	HUELQUEN	CHILE	4136	69	117	80S	105	-
15	TOBARI 66	MEXICO	4074	65	116	TR	90	-
30	JARAL 'S' (B)	ARGENTINA	4068	70	125	TR	85	-
12	ARIANA 66	TUNISIA	3994	109	0	TR	120	-
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	3950	61	117	TR	70	-
47	PARANA 68 /1116	ARGENTINA	3916	63	113	TR	70	-
38	SAMACA 68	COLOMBIA	3759	69	116	TR	105	-
6	ERA	U.S.A.	3734	107	0	TR	90	0
1	CHRIS	U.S.A.	3494	72	120	TR	115	-
29	GIZA 155	EGYPT	3494	74	125	40S	105	-
22	GABOTO	ARGENTINA	3203	85	129	TR	120	-
3	IASSUL-20	BRAZIL	2679	82	125	TR	135	-
		GRAND MEAN	4919	71	119	41	88	79
	STANDARD ERROR OF GRAND MEAN		52					
	COEFICIENT OF VARIATION		12					
	LSD VARIETY MEANS 5 PC		1044					

CORRELATIONS

	YIELD KG/HA				
DAYS TO FLOWER	-0.10				
DAYS TO MATURITY	0.26	-0.58**			
LEAF RUST	0.27*	-0.29*	0.19		
HEIGHT CM.	-0.47**	0.41**	-0.17	-0.16	
LODGING	-0.43**	-0.00	0.10	-0.18	0.41**

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 54 MESOAMERICA MEXICO SONORA CIANO FIRST DATE

CIANO.
COOPERATORS CIMMYT STAFF.

LATITUDE 027 20°N DATE PLANTED 12/10/72 NITROGEN 120.0 KG/HA
LONGITUDE 109 54°W DATE HARVESTED 04/13/73 PHOSPHORUS 040.0 KG/HA
ELEVATION +00040 M.ABOVE S.L. AMOUNT OF MOISTURE 0110 MM POTASIUM 000.0 KG/HA

VERY GOOD WEATHER CONDITIONS. LEAF AND STEM RUST DEVELOPMENT. NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	LEAF RUST	STEM RUST	HEIGHT CM.	LODGING	LEAF FIRE
35	MENG-8156	MEXICO	8458	70	1MS	0	E2	0	0
32	7 CERROS	MEXICO	7625	85	TRS	TR,40S	E2-	0	6
2	TAMORI-71	MEXICO	7361	78	5MR	0	E1+	0	12
21	CAJEME 71	MEXICO	7333	69	5S	0	E2+	0	12
18	MARCOS JUAREZ INTA	ARGENTINA	7313	89	1S	TR	E1	1	0
17	INIA-66	MEXICO	6972	78	20S	0	E2-	1	0
24	3400-1-3	S.AFRICA	6819	81	5MS	10S	E2	1	6
8	BB-INIA	MEXICO	6813	79	TR	TRMS	E3	0	18
13	PENJAMO 62	MEXICO	6633	82	10MS	20S	E1+	0	12
48	(21931/CH 53-AM X GB 56) AM 64	ISRAEL	6625	84	5S	20S	E2	1	18
28	SONALIKA	INDIA	6590	72	20MS	10S	E2-	1	12
11	WW15 = ANZA	AUSTRALIA	6563	93	10MS	60S	E2-	0	0
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	6528	88	TR	TR	E2-	0	0
41	UQ-115 = CONDOR	AUSTRALIA	6431	87	5MS	10MS-S	E2	0	0
31	CHENAB 70	PAKISTAN	6417	87	30S	TR	E1+	0	6
15	TOBARI 66	MEXICO	6361	79	1MS	0	E2-	0	18
30	JARAL 'S' (B)	ARGENTINA	6361	87	TRS	1MS	E2-	0	12
20	MEXICO 120	AUSTRALIA	6354	80	5MS	70S	E3-	0	18
43	TOB-8156	ETHIOPIA	6250	79	5MR	TR	E2-	0	31
44	ZAAFRANE	TUNISIA	6222	78	5MS	0	E1+	0	0
37	LEE-N108 X GB 55 / GB 56	SUDAN	6194	86	10S	TR	E2+	0	12
36	715/70	YUGOSLAVIA	6153	95	0	0	E2	0	6
46	BONANZA	U.S.A.	6139	83	TR	0	E2-	0	12
19	YECORA 70	MEXICO	6125	78	20MS	TR	E2-	0	6
49	SARIC 70	MEXICO	6083	87	10MS	TR	E3+	0	12
7	MEXICO 226 = SON 64-KL. RENO	IRAK	5896	78	10MR	10MS	E1-	0	6
14	CALIDAD	MEXICO	5875	82	11S	0	E2-	0	12
9	SOLTANE = BT 2296	TUNISIA	5826	84	5MS	10S	E1+	0	0
27	HUELQUEN	CHILE	5819	85	10S	5S	N	2	18
5	BT-2288	TUNISIA	5687	79	1S	10MS	E2-	0	6
47	PARANA 68 /1116	ARGENTINA	5667	74	1MS	0	E2+	0	0
10	PITIC 62	MEXICO	5618	83	10MS	70S	E1+	1	12
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	5576	83	30MS	20S	E1-	1	0
25	JARAL 'S'	ARGENTINA	5562	78	5MR	1MS	E2	0	25
29	GIZA 155	EGYPT	5549	86	TRR	TRS	N	2	0
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	5479	74	TR	1MR	E3-	0	12
45	MOTI	INDIA	5375	77	5S	10MR-S	E4-	0	0
26	UP-301	INDIA	5125	81	5MS	TR	E3+	0	12
23	BT-2281	TUNISIA	4833	77	5MS	0	E2+	0	0
42	BB 'S' RESELECTION	PAKISTAN	4632	79	5S	1MS	E4-	0	12
38	SAMACA 68	COLOMBIA	4472	85	0	0	N	1	12
33	LAGOA VERMELHA (C-17)	BRAZIL	4319	86	5MS-S	0	N	3	12
12	ARIANA 66	TUNISIA	4298	109	1MS	5S	N	0	12
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	4285	117	0	0	E2-	0	6
22	GABOTO	ARGENTINA	4125	96	TR	5S	N	2	0
3	IASSUL-20	BRAZIL	3986	97	5MS	10S	N	3	6
34	ZIPA 68	COLOMBIA	3916	89	5MS	TR	N	0	18
1	CHRIS	U.S.A.	3632	91	40S	0	N	3	6
6	ERA	U.S.A.	3423	118	0	0	E2-	0	18
		GRAND MEAN	5831		5	6		0	9
	STANDARD ERROR OF GRAND MEAN		44		0	0		0	0
	COEFICIENT OF VARIATION		9	6	103	122		51	58
	LSD VARIETY MEANS 5 PC		870	8	8	13		0	8

CORRELATIONS

YIELD	KG/HA						
DAYS TO	FLOWER	-0.52**					
LEAF	RUST	0.00	-0.11				
STEM	RUST	0.14	0.01	0.09			
HEIGHT	CM.	0.00	0.00	0.00	0.00		
LODGING		-0.37**	0.14	0.26	0.04	0.00	
LEAF	FIRE	-0.10	0.00	-0.09	0.03	0.00	-0.11

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 55 MESOAMERICA MEXICO SONORA CIANO SECOND DATE

CIANO
COOPERATORS CIMMYT STAFF.

LATITUDE 027 20°N
LONGITUDE 109 54°W
ELEVATION +00040 M.ABOVE S.L.

DATE PLANTED 12/20/72
DATE HARVESTED 04/25/73
AMOUNT OF MOISTURE 0110 MM

NITROGEN 120.0 KG/HA
PHOSPHORUS 040.0 KG/HA
POTASIUM 000.0 KG/HA

DRY AND SUNNY WEATHER. NO DISEASE DEVELOPMENT. NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA
92	7 CERROS	MEXICO	7924
18	MARCOS JUAREZ INTA	ARGENTINA	7521
13	PENJAMO 62	MEXICO	7479
35	MENG-8156	MEXICO	7306
30	JARAL 'S' (B)	ARGENTINA	7306
16	PATO = TZPP-SON 64 X NAP 59	ARGENTINA	7250
9	SOLTANE = BT 2296	TUNISIA	7174
2	TANORI-71	MEXICO	7097
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	7070
8	BB-INIA	MEXICO	7042
43	TOB-8156	ETHIOPIA	7042
31	CHENAB 70	PAKISTAN	7007
44	ZAAFRANE	TUNISIA	6958
24	3400-1-3	S.AFRICA	6896
28	SONALIKA	INDIA	6806
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	6806
47	PARANA 68 /1116	ARGENTINA	6799
7	MEXICO 226 = SON 64-KL. RENO	IRAK	6771
41	UQ-115 = CONDOR	AUSTRALIA	6757
11	WW15 = ANZA	AUSTRALIA	6751
21	CAJEME 71	MEXICO	6729
36	715/70	YUGOSLAVIA	6493
37	LEE-N10B X GB 55 / GB 56	SUDAN	6479
46	BONANZA	U.S.A.	6410
17	INIA-66	MEXICO	6236
15	TOBARI 66	MEXICO	6222
23	BT-2281	TUNISIA	6222
5	BT-2288	TUNISIA	6208
45	MOTI	INDIA	6160
14	CALIDAD	MEXICO	6132
29	GIZA 155	EGYPT	6118
19	YECORA 70	MEXICO	6118
49	SARIC 70	MEXICO	6042
26	UP-301	INDIA	5924
20	MEXICO 120	AUSTRALIA	5875
10	PITIC 62	MEXICO	5840
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	5542
27	HUELQUEN	CHILE	5417
25	JARAL 'S'	ARGENTINA	5396
38	SAMACA 68	COLOMBIA	5187
33	LAGOA VERMELHA (C-17)	BRAZIL	4986
22	GABOTO	ARGENTINA	4618
42	BB 'S' RESELECTION	PAKISTAN	4298
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	4285
1	CHRIS	U.S.A.	4201
34	ZIPA 68	COLOMBIA	4069
12	ARIANA 66	TUNISIA	3965
6	ERA	U.S.A.	3694
3	IASSUL-20	BRAZIL	3028

GRAND MEAN	6115
STANDARD ERROR OF GRAND MEAN	47
COEFICIENT OF VARIATION	9
LSD VARIETY MEANS 5 PC	937

CORRELATIONS

YIELD KG/HA

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 56 NORTH AMERICA U.S.A. ALASKA

INSTITUTE OF AGRICULTURAL SCIENCES,
COOPERATORS ROSCOE L. TAYLOR.

LATITUDE 061 34'N DATE PLANTED 05/23/73 NITROGEN 014.0 KG/HA
LONGITUDE 149 16'W DATE HARVESTED --/--/-- PHOSPHORUS 129.0 KG/HA
ELEVATION +00061 M.ABOVE S.L. AMOUNT OF MOISTURE 0184 MM POTASIUM 029.0 KG/HA

GENERALLY GOOD WEATHER EXCEPT FOR SLIGHTLY DRY CONDITIONS DURING EARLY GROWING SEASON. KILLING FROST ENDED GROWTH. DISEASE DEVELOPMENT NOT REPORTED. INSECT, WEED OR PEST PROBLEMS NOT REPORTED LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	HEIGHT CM.	LODGING	1000 GRN WGT GRMS
32	7 CERROS	MEXICO	1434	71	202	65	3	34
11	WW15 = ANZA	AUSTRALIA	1247	72	201	57	0	38
10	PITIC 62	MEXICO	1244	72	205	70	2	34
8	BB-INIA	MEXICO	1243	67	198	49	0	40
28	SONALIKA	INDIA	1229	75	197	68	0	49
37	LEE-NLOB X GB 55 / GB 56	SUDAN	1183	74	199	50	0	37
43	TOB-8156	ETHIOPIA	1176	72	201	58	0	35
41	UQ-115 = CONDOR	AUSTRALIA	1165	74	200	51	0	37
9	SULTANE = BT 2296	TUNISIA	1148	72	199	68	0	43
34	ZIPA 68	COLOMBIA	1129	75	197	69	0	36
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	1097	76	200	57	0	37
39	EL SOU-SON 64 X TC-NP 63	U.S.A.	1093	69	203	61	16	32
27	HUELQUEN	CHILE	1088	77	199	60	1	36
29	GIZA 155	EGYPT	1086	69	197	66	1	38
20	MEXICO 120	AUSTRALIA	1041	71	201	41	0	39
1	CHRIS	U.S.A.	1028	76	200	86	3	29
33	LAGOA VERMELHA (C-17)	BRAZIL	1021	78	199	86	20	39
13	PENJAMO 62	MEXICO	1017	73	198	63	0	43
26	UP-301	INDIA	1000	73	198	44	0	43
3	IASSUL-20	BRAZIL	979	77	205	92	17	36
36	715/70	YUGOSLAVIA	978	68	207	40	0	27
4	K33B-2. DE CH. X KOUDIET 17-KT-Y	TUNISIA	968	72	203	70	0	34
5	BT-2288	TUNISIA	947	71	197	62	0	36
31	CHENAB 70	PAKISTAN	933	81	197	54	0	39
50	LOCAL CHECK		920	78	199	77	0	25
46	BONANZA	U.S.A.	901	74	199	56	0	32
2	TANORI-71	MEXICO	901	80	197	55	0	40
6	EKA	U.S.A.	859	73	203	51	0	33
25	JARAL 'S'	ARGENTINA	853	74	198	60	0	33
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	849	71	197	46	0	40
18	MARCOS JUAREZ INTA	ARGENTINA	835	73	202	70	0	41
42	BB 'S' RESELECTION	PAKISTAN	819	69	199	42	0	41
19	YECORA 70	MEXICO	818	79	197	42	0	47
35	MENG-8156	MEXICO	815	68	209	42	0	35
7	MEXICO 226 = SON 64-KL. RENO	IRAK	802	74	198	63	0	43
30	JARAL 'S' (8)	ARGENTINA	774	68	197	60	0	40
44	ZAAFRANE	TUNISIA	768	82	198	59	0	41
24	3400-1-3	S.AFRICA	765	83	198	50	0	35
49	SARIC 70	MEXICO	753	71	199	49	0	47
38	SAMACA 68	COLOMBIA	739	81	197	67	0	37
21	CAJEME 71	MEXICO	709	81	199	49	0	50
45	MOTI	INDIA	709	82	197	39	0	44
12	ARIANA 66	TUNISIA	684	66	210	83	2	27
23	BT-2281	TUNISIA	672	75	199	55	0	38
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	665	75	198	55	0	36
15	TOBARI 66	MEXICO	641	75	199	54	0	33
14	CALIDAD	MEXICO	635	-	198	59	0	34
17	INIA-66	MEXICO	612	82	197	53	0	41
22	GABOTO	ARGENTINA	600	74	204	80	3	25
47	PARANA 68 /1116	ARGENTINA	482	0	197	38	0	37
		GRAND MEAN	921	74	200	59	1	37
	STANDARD ERROR OF GRAND MEAN		33	0	0	0	0	0
	COEFICIENT OF VARIATION		44	3	0	13	458	5
	LSD VARIETY MEANS 5 PC		671	4	2	12	11	3

CORRELATIONS

YIELD	KG/HA						
TEST	WEIGHT	0.15					
DAYS TO	FLOWER	0.11	-0.08				
HEIGHT	CM.	0.19	0.22	0.24	0.00		
LODGING		0.17	0.04	0.25	0.00	0.52**	
1000 GRN WGT GRMS		-0.00	0.10	-0.51**	0.00	-0.37**	-0.15

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 57 NORTH AMERICA U.S.A. ARIZONA

YUMA.
COOPERATORS NORTHRUP, KING AND CO.

LATITUDE 032 40°N
LONGITUDE 114 36°W
ELEVATION 00046 M.ABOVE S.L.

DATE PLANTED 11/30/72
DATE HARVESTED 05/25/73
AMOUNT OF MOISTURE ---- MM

NITROGEN 233.0 KG/HA
PHOSPHORUS 206.0 KG/HA
POTASSIUM 000.0 KG/HA

VERY COLD WEATHER DURING DECEMBER AND JANUARY. NO DISEASE DEVELOPMENT.
NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	LODGING	SHATTERING
32	7 CERROS	MEXICO	6717	78	128	7	109	0	0
21	CAJEME 71	MEXICO	6714	78	114	4	81	0	0
24	3400-1-3	S.AFRICA	6444	80	116	6	101	0	0
4	K558-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	6227	76	116	7	114	0	0
17	INIA-66	MEXICO	6160	80	108	3	106	0	0
19	YECORA 70	MEXICO	6130	80	-	4	81	0	0
10	PITIC 62	MEXICO	6125	75	115	7	105	0	0
25	JARAL "S"	ARGENTINA	6075	78	116	5	102	0	0
2	TANORI-71	MEXICO	5765	81	116	6	102	0	0
16	PATO = TZPP-SON 64 X NAP 59	ARGENTINA	5755	78	126	7	105	0	0
15	TUBARI 66	MEXICO	5681	80	110	5	97	0	0
35	MENG-6156	MEXICO	5664	74	126	8	96	0	0
18	MARCOS JUAREZ INTA	ARGENTINA	5647	78	112	5	103	12	0
29	GIZA 155	EGYPT	5597	80	110	6	120	0	0
9	SULTANE = BT 2296	TUNISIA	5482	75	112	5	99	0	0
45	MUTI	INDIA	5425	80	108	6	72	0	0
8	66-INIA	MEXICO	5337	81	110	6	75	0	0
44	ZAAFRANE	TUNISIA	5262	80	113	3	95	0	0
37	LEE-N106 X GB 55 / GB 56	SUDAN	5256	73	112	6	90	0	0
28	SONALIKA	INDIA	5216	78	108	6	100	0	0
5	BT-2288	TUNISIA	5154	75	111	5	96	0	0
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	5114	75	117	7	72	0	0
14	CALIDAD	MEXICO	5075	75	115	6	102	0	0
49	SARIC 70	MEXICO	4953	75	113	4	65	0	0
27	HUELQUEN	CHILE	4915	76	128	7	123	0	12
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	4856	78	110	5	86	0	0
46	BONANZA	U.S.A.	4868	76	126	6	89	0	0
31	CHENAB 70	PAKISTAN	4841	78	116	7	96	0	0
23	BT-2281	TUNISIA	4756	78	112	6	101	0	0
20	MEXICO 120	AUSTRALIA	4733	75	112	6	67	0	0
41	UQ-115 = CONDOR	AUSTRALIA	4648	75	127	7	78	0	0
47	PARANA 68 /1116	ARGENTINA	4572	75	109	4	69	0	0
43	TUD-6156	ETHIOPIA	4550	75	114	6	90	0	0
30	JARAL "S" (B)	ARGENTINA	4565	76	120	7	96	0	0
13	PENJAMO 62	MEXICO	4463	78	115	6	96	12	0
36	715/70	YUGOSLAVIA	4361	75	128	6	72	0	0
33	LAGOA VERMELHA (C-17)	BRAZIL	4270	75	114	4	138	37	0
34	ZIPA 68	COLOMBIA	4213	75	126	7	110	0	0
1	CHRIS	U.S.A.	4164	77	126	5	147	12	0
38	SAMACA 68	COLOMBIA	4113	77	125	6	117	0	0
7	MEXICO 226 = SON 64-KL. RENC	IRAK	3863	77	115	5	102	0	0
26	UP-301	INDIA	3804	75	116	6	67	0	0
50	LOCAL CHECK		3726	75	116	6	76	0	0
22	GABUTO	ARGENTINA	3490	78	127	6	76	0	0
11	WWIS = ANZA	AUSTRALIA	3300	73	127	6	81	0	0
39	EL GOU-SON 64 X 70-NP 63	U.S.A.	3256	56	134	8	103	0	0
42	BB "S" RESELECTION	PAKISTAN	3121	78	110	5	61	0	0
12	AKIANA 66	TUNISIA	3054	68	127	7	99	0	0
6	ERA	U.S.A.	2851	62	0	8	95	0	0
3	IASSUL-20	BRAZIL	2538	76	126	5	151	12	62
		GRAND MEAN	4860	77	117		95	1	1
	STANDARD ERROR OF GRAND MEAN		83						
	COEFICIENT OF VARIATION		21						
	LSD VARIETY MEANS 5 PC		1669						

CORRELATIONS

YIELD	KG/HA						
TEST	WEIGHT	0.50**					
DAYS TO	FLOWER	0.10	0.23				
DAYS TO MATURITY		0.00	0.00	0.00			
HEIGHT	CM.	0.00	-0.10	0.10	0.00		
LODGING		-0.17	0.07	0.04	0.00	0.50**	
SHATTER	ING	-0.31*	-0.04	0.10	0.00	0.43**	0.23

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 58 NORTH AMERICA U.S.A. CALIFORNIA

UNIVERSITY OF CALIFORNIA, DAVIS
COOPERATORS C.O. GUALSET AND M.E. VOGT

LATITUDE 036,32'N
LONGITUDE 121'45'W
ELEVATION +00016 M.ABOVE S.L.

DATE PLANTED 01/07/73
DATE HARVESTED 06/15/73
AMOUNT OF MOISTURE 0850 MM

NITROGEN 080.0 KG/HA
PHOSPHORUS 000.0 KG/HA
POTASIUM 000.0 KG/HA

VERY WET IN EARLY SEASON. POOR GRAIN FILLING CAUSED BY DRY AND HOT WEATHER. LIGHT INFECTION OF STRIPE RUST. BARLEY YELLOW DWARF VIRUS QUITE SEVERE. INSECT, WEED OR PEST PROBLEMS NOT REPORTED. LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	HEIGHT CM.	LODGING	1000 GRN WGT GRMS
2	TANORI-71	MEXICO	4950	76	113	147	0	81	0	29
49	SAKIC 70	MEXICO	4860	74	115	148	0	64	0	30
50	JARAL "S" (B)	ARGENTINA	4709	74	115	150	0	83	0	32
47	PARANA 68 /1116	ARGENTINA	4692	77	113	148	0	73	0	31
19	YECORA 70	MEXICO	4670	72	114	148	0	63	0	30
48	(21931/CM 53-AN X GB 56) AN 64	ISRAEL	4563	76	114	151	0	81	0	29
41	UQ-115 = CONDOR	AUSTRALIA	4519	77	119	153	1	72	0	25
21	CAJEME 71	MEXICO	4474	73	116	147	0	66	0	30
17	INIA-66	MEXICO	4451	77	111	146	0	83	3	31
11	WW15 = ANZA	AUSTRALIA	4435	74	122	154	0	74	0	24
25	JARAL "S"	ARGENTINA	4407	76	113	146	0	82	0	27
37	LEE-NLUB X GB 55 / GB 56	SUDAN	4367	65	119	152	60	81	0	24
32	7 CERROS	MEXICO	4306	74	119	152	10	88	0	26
31	CHENAB 70	PAKISTAN	4283	75	113	148	1	81	0	28
42	BB "S" RESELECTION	PAKISTAN	4216	74	115	149	0	58	0	33
28	SONALIKA	INDIA	4132	71	111	148	1	84	20	32
18	MARCOS JUAREZ INTA	ARGENTINA	4087	74	115	148	1	86	0	34
4	K55-6. DE CM. X KOUCIET 17-AT-V	TUNISIA	4015	71	115	152	0	92	0	33
13	PENJAMO 62	MEXICO	3998	73	115	148	1	81	0	27
40	SON 64 X T2PP-Y54 / JUSTIN 3	U.S.A.	3992	71	115	148	0	74	3	29
5	BT-2288	TUNISIA	3952	74	112	147	0	81	6	33
9	SULTANE = BT 2296	TUNISIA	3964	74	114	144	0	85	1	28
43	TUB-815.	ETHIOPIA	3959	75	115	150	70	82	0	25
39	EL GAU-SON 64 X 7C-NF 63	U.S.A.	3914	71	125	155	1	86	0	23
14	CALIUAU	MEXICO	3880	76	117	149	3	67	3	26
8	BB-INIA	MEXICO	3852	73	114	148	3	66	0	25
26	UP-301	INDIA	3841	71	117	150	0	60	0	26
7	MEXICO 226 = SON 64-KL. RENC	IRAN	3813	75	116	148	1	66	0	27
35	MENO-815.	MEXICO	3791	70	121	152	40	74	0	23
36	715/70	YUGOSLAVIA	3763	65	121	152	5	70	0	21
44	ZAAFRANE	TUNISIA	3763	75	115	148	0	82	1	30
23	BT-2281	TUNISIA	3757	74	115	150	1	77	0	28
46	BONANZA	U.S.A.	3767	73	118	150	1	80	1	29
34	ZIPA 58	COLOMBIA	3511	71	121	153	0	99	0	27
15	TUBAKI 66	MEXICO	3354	75	113	147	0	84	1	28
27	HUELQUEN	CHILE	3258	74	120	151	1	97	5	25
5	EKA	U.S.A.	3215	68	130	155	1	84	0	22
16	PATU = T2PP-SUN 64 X ABR 59	ARGENTINA	3256	72	118	150	0	85	0	16
12	ANIANA 66	TUNISIA	3167	74	122	154	0	94	0	29
20	MEXICO 120	AUSTRALIA	3068	71	115	146	60	56	0	24
45	MUTI	INDIA	2984	70	113	146	60	58	0	24
50	LOCAL CHECK	.	2984	71	110	141	70	92	53	29
22	GABUTU	ARGENTINA	2755	74	122	151	0	102	16	21
24	3400-1-3	S.AFRICA	2745	72	117	150	1	76	0	24
10	PITIC 62	MEXICO	2743	64	115	150	5	79	8	22
33	LAGOA VERMELHA (C-17)	BRAZIL	2715	72	115	149	0	103	63	25
38	SAMACA 68	COLOMBIA	2536	65	115	145	0	93	0	22
1	CHRIS	U.S.A.	2402	71	120	148	0	97	44	28
3	IAPSUL-20	BRAZIL	2375	70	124	151	1	111	26	32
29	GIZA 155	EGYPT	2095	70	114	148	0	98	6	22
		GRAND MEAN	3747	73	117	150	11	81	5	26
	STANDARD ERROR OF GRAND MEAN		33		0	0	1	0	0	
	COEFICIENT OF VARIATION		16		0	2	118	3	468	
	LSD VARIETY MEANS 5 PC		662		1	7	21	4	14	

CORRELATIONS

	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	HEIGHT CM.	LODGING	1000 GRN WGT GRMS
TEST WEIGHT	0.55**							
DAYS TO FLOWER	-0.33*	-0.45**						
DAYS TO MATURITY	0.02	-0.05	0.57**					
STRIPE RUST	-0.21	-0.30*	-0.17	-0.24				
HEIGHT CM.	-0.48**	-0.05	0.33*	0.14	-0.29*			
LODGING	-0.47**	-0.20	0.00	-0.27*	0.09	0.49**		
1000 GRN WGT GRMS	0.48**	0.42**	-0.48**	-0.19	-0.15	-0.09	-0.02	
BYDV	-0.56**	-0.37**	-0.23	-0.42**	0.40**	-0.02	0.42**	-0.16

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 59 NORTH AMERICA U.S.A. COLORADO

CARGILL INC. WHEAT RESEARCH.
COOPERATORS BYRD C. CURTIS ET AL.

LATITUDE 040 35'N DATE PLANTED 03/16/73 NITROGEN 090.0 KG/HA
LONGITUDE 105 05'E DATE HARVESTED 08/10/73 PHOSPHORUS 020.0 KG/HA
ELEVATION +01524 M.ABOVE S.L. AMOUNT OF MOISTURE 250 MM POTASIUM KG/HA

COOL UP TO FRUITING. HOT AND DRY WITH WIND DURING FRUITING CAUSED SOME SHRIVELING AND BURNING OF GRAIN. NO DISEASE DEVELOPMENT. NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK NOT REPORTED. XX= VIGOR. VIGOR SCALE A= OUTSTANDING, D= VERY POOR.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	HEIGHT CM.	XX
6	ERA	U.S.A.	3560	81	E1+	B
10	PITIC 62	MEXICO	3380	73	E1	B+
35	MENG-8156	MEXICO	3380	77	E2+	C*
39	EL GOU-SON 64 X TC-NP 63	U.S.A.	3380	74	E2	B-
29	GIZA 155	EGYPT	3344	75	E1	C*
11	NWIS = ANZA	AUSTRALIA	3165	78	E1	B+
23	BT-2281	TUNISIA	3125	78	E1+	B
22	GAUCHO	ARGENTINA	3125	76	N+	B*
24	3400-1-3	S.AFRICA	3093	80	E1+	C*
27	HUELQUEN	CHILE	2985	77	E1+	C-
13	PENJAMO 62	MEXICO	2585	77	E1+	B
25	JARAL 'S'	ARGENTINA	2877	77	E1+	C*
37	LEE-N10B X GB 55 / GB 56	SUDAN	2877	74	E2	B
15	TONAKI 66	MEXICO	2805	79	E1+	C*
9	SOLTANE = BT 2296	TUNISIA	2005	75	E1	B
2	TANURI-71	MEXICO	2765	78	E2+	C*
33	LAGOA VERMELHA (C-17)	BRAZIL	2765	78	E2-	C
32	7 CERROS	MEXICO	2765	78	E2+	C
14	CALIDAD	MEXICO	2765	79	E1+	C*
43	TOB-815.	ETHIOPIA	2765	80	E2-	C
4	K338-E, DE CM. X KOUDIET 17-KT-Y	TUNISIA	2657	77	E2-	C*
34	ZIPA 68	COLOMBIA	2661	75	E1+	C
28	SONALIKA	INDIA	2061	78	N+	C*
41	UW-115 = CONDOR	AUSTRALIA	2625	80	E2	C*
12	ARIANA 66	TUNISIA	2585	79	N	C-
47	PARANA 68 /1116	ARGENTINA	2565	80	E2	C
1	CHRIS	U.S.A.	2545	78	N	C
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	2565	76	E2-	B*
16	PATU = TZPP-SON 64 X NAP 59	ARGENTINA	2553	78	E1+	B
50	LOCAL CHECK		2535	0	E2	B+
30	JARAL 'S' (B)	ARGENTINA	2461	77	E2	C
3	IASSUL-20	BRAZIL	2481	76	N	B
7	MEXICO 226 = SCN 64-KL. BENG	IRAK	2481	78	E2-	C
5	BT-2288	TUNISIA	2445	78	E3-	C
8	BB-INIA	MEXICO	2373	76	E3	B
38	SAMACA 68	COLOMBIA	2337	74	E2-	C*
18	MARCOS JUAREZ INTA	ARGENTINA	2337	77	E1	C
49	SARIC 70	MEXICO	2153	74	E3	B
21	CAJEME 71	MEXICO	2193	77	E3-	C
19	YECORA 70	MEXICO	2157	75	E3+	C-
36	715/70	YUGOSLAVIA	2157	72	E2+	C
26	UP-301	INDIA	2086	75	E3	C
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	2050	78	E3	C
44	ZAAFRANE	TUNISIA	2014	76	E2-	C
46	BONANZA	U.S.A.	2014	75	E2	B+
20	MEXICO 120	AUSTRALIA	1906	76	E3+	C
31	CHENAB 70	PAKISTAN	1870	77	E3-	C
17	INIA-66	MEXICO	1762	78	E2	C
45	MOTI	INDIA	1724	78	E3	C
42	WW 'S' RESELECTION	PAKISTAN	1736	74	E3+	C*
		GRAND MEAN	2592	76		
		STANDARD ERROR OF GRAND MEAN	40			
		COEFICIENT OF VARIATION	18			
		LSD VARIETY MEANS 5 PC	802			

CORRELATIONS

	YIELD KG/HA	TEST WEIGHT	HEIGHT CM.	XX
TEST WEIGHT	0.05			
HEIGHT CM.	0.00	0.00		
XX	0.00	0.00	0.00	

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 60 NORTH AMERICA U.S.A. No. GAULTA

CASSELTON.
COOPERATORS CENTRAL AGRICULTURAL RESEARCH INC.

LATITUDE 047 00'N DATE PLANTED --/--/-- NITROGEN 0300.0 KG/HA
LONGITUDE 097 00'W DATE HARVESTED --/--/-- PHOSPHORUS 000.0 KG/HA
ELEVATION 00285 M.ABOVE S.L. AMOUNT OF MOISTURE 0203 MM POTASSIUM 000.0 KG/HA

NORMAL TEMPERATURES. COOLER THAN NORMAL DURING GROWING PERIOD. ABUNDANT SOIL MOISTURE. DEVELOPMENT OF LEAF, STEM RUST AND SEPTORIA SPP. NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK BALDREN.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	LEAF RUST	STEM RUST	HEIGHT CM.	LODGING	SPATTER ING	ICGC GRA MST GRMS	SEPTORIA SPP.
24	3400-1-6	S.AFRICA	8146	77	64	107	00	00	77	0	10	38	20
10	PITIC 62	MEXICO	7844	70	73	108	30S	00	90	50	1	35	1
19	YECORA 70	MEXICO	7805	72	70	104	00	00	68	0	1L	35	1
41	UU-115 = CONDOR	AUSTRALIA	7711	72	70	110	40S	00	77	0	1	33	1
35	MENO-6156	MEXICO	7573	72	74	111	20S	00	75	0	1	34	1
21	CAJEME 71	MEXICO	7387	74	69	105	00	00	73	0	1	42	20
18	MARCOS JUAREZ INTA	ARGENTINA	7326	74	68	106	00	00	84	0	1	42	20
25	JARAL 'S'	ARGENTINA	7310	75	65	105	TRS	00	80	0	10	33	30
15	TUBARI 66	MEXICO	7317	75	67	106	00	00	85	0	1	34	1
13	PENJAMO 62	MEXICO	7266	74	68	107	TRS	20S	89	0	1	38	30
6	EKA	U.S.A.	7265	75	75	113	00	00	86	50	1	32	0
39	EL GAU-SON 64 X 70-NP 63	U.S.A.	7261	68	71	-	00	00	92	0	1	39	1
43	TUB-8156	ETHIOPIA	7175	77	65	107	00	00	84	0	1	35	30
20	MEXICO 120	AUSTRALIA	7065	73	65	107	TRS	30S	61	0	1	38	1
48	(21931/CM 53-AN X GB 561 AN 64	ISRAEL	6976	73	70	107	40S	00	75	0	1	35	20
16	PATU = TZPP-SGN 64 X ABF 59	ARGENTINA	6972	75	67	104	00	00	61	0	1	32	1
28	SONALIKA	INDIA	6967	74	64	106	20S	00	65	0	1	47	1
8	68-INIA	MEXICO	6929	76	67	103	00	00	60	0	1	35	20
17	INIA-66	MEXICO	6895	76	63	101	20S	00	74	0	10	41	1
32	7 CERROS	MEXICO	6854	71	69	106	40S	00	87	90	1	30	30
14	CALIDAD	MEXICO	6808	77	68	106	TRS	TRR	85	0	1	37	0
2	TANURI-71	MEXICO	6741	74	62	104	20S	00	77	0	10	37	1
30	JARAL 'S' (B)	ARGENTINA	6694	74	66	107	00	00	79	0	1	42	20
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A.	6653	73	70	110	00	00	68	0	1	38	20
29	GIZA 155	EGYPT	6662	74	68	109	30S	00	89	90	1	40	20
9	SOLTANE = BT 2296	TUNISIA	6655	74	66	104	00	TRR	81	0	1	41	30
44	ZAAFRANE	TUNISIA	6643	74	62	105	TRS	00	80	0	10	38	20
49	SANIC 70	MEXICO	6638	74	67	104	00	00	61	0	1	42	1
31	CHENAB 70	PAKISTAN	6634	75	63	104	40S	TR	76	0	10	41	1
45	MOTI	INDIA	6626	73	64	103	30S	00	52	0	1	38	30
7	MEXICO 220 = SGN 64-KL. PENC	IRAN	6612	75	67	105	TRS	TRR	85	0	10	43	20
27	HUELQUEN	CHILE	6600	75	70	108	00	00	102	70	1	36	20
42	66 'S' RESELECTION	PAKISTAN	6564	70	70	104	00	00	55	0	50	35	30
46	BONANZA	U.S.A.	6462	74	67	105	00	00	75	0	1	31	30
23	BT-2281	TUNISIA	6455	73	70	109	30S	00	82	0	1	37	1
5	BT-2288	TUNISIA	6423	74	63	105	TRS	00	81	0	1	37	1
26	UP-301	INDIA	6416	72	70	104	00	00	59	0	1	40	1
47	PARANA 68 /1116	ARGENTINA	6375	77	68	106	TRS	00	65	0	1	38	20
33	LAGOA VERMELHA (C-17)	BRAZIL	6278	70	67	108	30S	00	103	90	1	38	0
11	WW15 = ANZA	AUSTRALIA	6273	73	70	112	40S	TRR	82	0	1	31	40
38	SAMACA 68	COLOMBIA	6205	73	66	104	TRS	00	90	0	10	35	0
50	LOCAL CHECK		6155	73	66	107	00	00	93	0	1	37	1
3	BASSUL-20	BRAZIL	6055	72	75	106	00	00	103	60	1	38	0
34	ZIPA 68	COLOMBIA	5947	72	68	106	40S	00	91	0	10	40	1
37	LEE-NLOB X GB 55 / GB 56	SLEAN	5915	65	67	105	40S	00	75	0	1	30	30
4	K358-E. DE CM. X KOUDIET 17-KT-Y	TUNISIA	5706	70	69	111	60S	00	100	0	1	35	0
36	715/70	YUGOSLAVIA	5661	72	72	109	TRR	00	68	0	10	38	1
1	CHRIS	U.S.A.	5658	73	69	106	TRS	00	100	70	1	30	1
22	GABUTO	ARGENTINA	5270	74	77	115	00	00	102	60	1	31	0
12	ARIANA 66	TUNISIA	3048	51	84	0	00	00	110	50	0	28	40
		GRAND MEAN	6063	73	68	106	11	1	81	14	3	37	12
	STANDARD ERROR OF GRAND MEAN		41										
	COEFFICIENT OF VARIATION		7										
	LSD VARIETY MEANS 5 PC		822										

CORRELATIONS

YIELD	KG/HA												
TEST	WEIGHT	0.44**											
DAYS TO	FLOWER	-0.41**	-0.61**										
DAYS TO MATURITY		0.62**	0.77**	-0.44**									
LEAF	RUST	-0.05	-0.15	-0.05	0.11								
STEM	RUST	0.12	0.02	0.00	0.03	-0.12							
HEIGHT	CM.	-0.37**	-0.25*	0.37**	-0.22	0.07	-0.13						
LODGING		-0.21	-0.24	0.42**	-0.10	0.11	-0.07	-0.30*					
SPATTER	ING	0.03	0.02	-0.14	0.01	-0.11	-0.07	-0.30*	-0.19				
ICGC GRN	MST GRMS	0.31*	0.37**	-0.44**	0.23	-0.13	0.08	-0.25	-0.29	0.18			
SEPTORIA	SPP.	-0.12	-0.21	0.02	-0.32*	-0.00	0.00	-0.12	-0.03	0.10	-0.21		

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 61 NORTH AMERICA U.S.A. BUANG

AMERDEEN, BRANCH EXPERIMENT STATION.
COOPERATORS C.W. SUNDERMAN.

LATITUDE 042 56'N DATE PLANTED 04/12/73 NITROGEN 000.0 KG/HA
LONGITUDE 112 30'W DATE HARVESTED --/--/-- PHOSPHORUS ---.- KG/HA
ELEVATION 4(1219 M.ABOVE S.L. AMOUNT OF MOISTURE ---- MM POTASSIUM ---.- KG/HA

IDEAL WEATHER CONDITIONS. NO DISEASE DEVELOPMENT. NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK BURAM. XX= STRAW STRENGTH

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST HEIGHT	DAYS TO FLOWER	HEIGHT CM.	LODGING	XX
50	LOCAL CHECK		7436	76	72	82	20	50
41	UU-115 = CONDOR	AUSTRALIA	7226	78	73	75	0	25
32	7 CERROS	MEXICO	7074	77	73	87	0	33
10	PITIC 62	MEXICO	6831	71	74	66	25	50
29	GIZA 155	EGYPT	6816	77	70	91	20	41
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	6784	73	74	83	20	41
43	TUB-8150	ETHIOPIA	6764	75	73	67	0	33
28	SONALIKA	INDIA	6738	76	68	69	12	41
30	JARAL 'S' (B)	ARGENTINA	6725	76	69	80	0	25
35	MENG-8156	MEXICO	6685	76	75	74	0	16
37	LEC-NIOB X GB 55 / GB 56	SUDAN	6496	72	72	78	0	33
25	JARAL 'S'	ARGENTINA	6356	77	71	84	0	41
24	3400-A-3	S.AFRICA	6363	78	72	83	16	50
16	MARCOS JUAREZ INTA	ARGENTINA	6322	78	70	86	12	50
48	(21531/CM 53-AN X GB 56) AN 64	ISRAEL	6303	76	72	78	16	50
44	ZAAFRANE	TUNISIA	6293	77	69	82	12	33
9	SULTANE = ST 2296	TUNISIA	6276	78	69	82	0	41
23	ST-2281	TUNISIA	6241	77	71	79	0	41
19	YECORA 70	MEXICO	6217	76	70	70	0	16
31	CHENAB 70	PAKISTAN	6158	76	67	80	0	41
11	WW15 = ANZA	AUSTRALIA	6190	77	73	75	0	16
27	MUELQUEN	CHILE	6142	77	73	101	25	50
16	PATU = TZPP-SON 64 X NAP 59	ARGENTINA	6122	77	72	79	0	50
7	MEXICO 220 = SON 64-KL. REND	IRAK	6101	78	68	84	0	41
15	TUBAKI 66	MEXICO	6031	78	70	83	0	41
13	PENJAMO 62	MEXICO	5968	76	72	86	12	50
6	BO-INIA	MEXICO	5855	77	65	84	0	25
47	PAMANA 68 /1116	ARGENTINA	5871	79	65	72	0	0
49	SAKIC 70	MEXICO	5842	76	71	68	0	16
21	CAJEME 71	MEXICO	5828	76	71	67	4	33
8	EKA	U.S.A.	5756	78	76	81	0	50
5	ST-2266	TUNISIA	5785	77	69	84	12	41
33	LAGOA VERMELHA (C-17)	BRAZIL	5768	76	72	110	33	50
46	BONANZA	U.S.A.	5742	76	73	75	20	50
14	CALIDAD	MEXICO	5736	75	70	75	12	50
4	K33N-E. DE CH. X KOUDIET 17-KI-Y	TUNISIA	5681	73	73	97	12	41
2	TANURI-71	MEXICO	5625	76	64	77	0	25
40	SUN 64 X TZPP-Y54 / JUSTIN 3	U.S.A	5530	74	69	69	0	25
20	MEXICO 120	AUSTRALIA	5520	74	71	83	0	33
45	MOTI	INDIA	5505	77	66	59	0	25
36	715/70	YUGOSLAVIA	5393	72	76	88	0	0
12	ANIANA 66	TUNISIA	5300	75	83	115	0	25
22	GABOTO	ARGENTINA	5230	77	73	108	37	50
17	INIA-66	MEXICO	5185	78	67	77	4	33
34	ZIPA 66	COLOMBIA	5181	74	72	96	0	33
42	BB 'S' RESELECTION	PAKISTAN	5065	74	70	56	0	0
26	UP-301	INDIA	5065	75	70	59	0	16
38	SAMACA 68	COLOMBIA	5063	76	72	90	16	50
1	CHRIS	U.S.A.	4938	76	74	107	33	50
3	IASSUL-20	BRAZIL	3074	75	77	114	49	50
		GRAND MEAN	5660	76	71	82	9	35
	STANDARD ERROR OF GRAND MEAN		46		0	0	0	0
	COEFICIENT OF VARIATION		10		1	4	51	30
	LSD VARIETY MEANS 5 PC		575		2	6	6	17

CORRELATIONS

YIELD KG/HA						
TEST HEIGHT	0.15					
DAYS TO FLOWER	-0.12	-0.34*				
HEIGHT CM.	-0.20	0.02	0.40**			
LODGING	-0.09	-0.03	0.23	0.08*		
XX	0.03	0.20	0.05	0.57**	0.70**	

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 62 NORTH AMERICA U.S.A. MONTANA

BOZEMAN.
COOPERATORS F.H. MCNEAL AND M.A. BERG.

LATITUDE 046 00'N
LONGITUDE 111 00'W
ELEVATION 01463 M.ABOVE S.L.

DATE PLANTED 05/03/73
DATE HARVESTED --/--/--
AMOUNT OF MOISTURE 0178 MM

NITROGEN 000.0 KG/HA
PHOSPHORUS 000.0 KG/HA
POTASIUM 000.0 KG/HA

NORMAL SUMMER. DRIER THAN USUAL DURING GROWING SEASON. NO DISEASE DEVELOPMENT. NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK NORANA.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	HEIGHT CM.	SHATTERING
35	MENG-8156	MEXICO	4527	78	70	69	5
50	LOCAL CHECK		4516	77	66	75	5
11	NW15 = ANZA	AUSTRALIA	4476	77	64	69	0
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	4360	76	62	72	0
24	3400-1-3	S.AFRICA	4371	78	61	74	10
37	LEE-NIOB X GB 55 / GB 56	SUDAN	4365	77	63	70	0
18	MARCOS JUAREZ INTA	ARGENTINA	4279	78	65	83	10
16	PATO = TZPP-SON 64 X NAP 59	ARGENTINA	4151	78	61	67	10
19	YECORA 70	MEXICO	4148	77.	61	58	0
15	TOBARI 66	MEXICO	4135	77	61	74	10
45	MOTI	INDIA	4103	78	61	52	0
41	UW-115 = CONDOR	AUSTRALIA	-	-	64	71	5
49	SARIC 70	MEXICO	4053	78	63	60	5
30	JARAL "S" (8)	ARGENTINA	4043	78	59	70	10
10	PITIC 62 ,	MEXICO	4046	76	67	78	0
32	7 CERROS	MEXICO	4040	77	64	81	10
2	TANORI-71	MEXICO	4017	75	57	64	10
13	PENJAMO 62	MEXICO	4005	78	62	77	5
36	715/70	YUGOSLAVIA	3990	78	69	63	10
47	PAKANA 68 /1116	ARGENTINA	3942	78	59	60	0
44	ZAARKANE	TUNISIA	3952	78	59	72	0
28	SUNALIKA	INDIA	3866	79	60	82	5
29	GIZA 155	EGYPT	3865	78	61	87	0
46	BONANZA	U.S.A.	3861	77	63	71	5
23	BT-2281	TUNISIA	3838	77	62	71	15
25	JARAL "S"	ARGENTINA	3827	78	61	68	5
40	SUN 64 X TZPP-Y54 / JUSTIN 3	U.S.A	3773	78	59	57	0
9	SULTANE = BT 2296	TUNISIA	3743	78	61	78	5
7	MEXICO 226 = SON 64-KL. RENO	IRAK	3739	78	59	73	10
21	CAJEME 71	MEXICO	3664	79	64	61	15
42	BB "S" RESELECTION	PAKISTAN	3625	77	63	47	5
20	MEXICO 120	AUSTRALIA	3544	78	64	55	0
31	CHENAB 70	PAKISTAN	3536	77	59	72	15
43	TUB-8156	ETHIOPIA	3502	77	63	74	15
17	INIA-66	MEXICO	3466	79	58	70	5
39	EL GOU-SON 64 X TC-NP 63	U.S.A.	3473	77	65	76	0
38	SAMACA 68	COLOMBIA	3466	78	62	85	15
6	ERA	U.S.A.	3424	77	64	73	5
4	KS36-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	3419	77	65	89	5
14	CALIDAD	MEXICO	3413	78	59	71	5
27	HUELQUEN	CHILE	3401	78	65	92	10
26	UP-301	INDIA	3391	77	62	67	5
8	BB-INIA	MEXICO	3347	78	61	53	0
5	BT-2288	TUNISIA	3287	78	59	72	5
33	LAGOA VERMELHA (C-17)	BRAZIL	3131	78	64	106	15
1	CHRIS	U.S.A.	3069	76	65	99	5
34	ZIPA 68	COLOMBIA	2803	78	62	88	15
22	GABOTO	ARGENTINA	2763	78	69	105	30
3	IASSUL-20	BRAZIL	1970	77	67	110	80
12	ARIANA 66	TUNISIA	0	0	89	93	0
		GRAND MEAN	3756	78	63	74	8
	STANDARD ERROR OF GRAND MEAN		41		0	0	
	COEFICIENT OF VARIATION		13		1	8	
	LSD VARIETY MEANS 5 PC		814		1	9	

CORRELATIONS

YIELD	KG/HA					
TEST	WEIGHT	0.73**				
DAYS TO	FLOWER	-0.63**	-0.78**			
HEIGHT	CM.	-0.48**	-0.15	0.38**		
SHATTER	ING	-0.35**	0.08	0.10	0.53**	

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 63 NORTH AMERICA U.S.A. WASHINGTON (PULLMAN

WASHINGTON STATE UNIVERSITY.
COOPERATORS C.F. KONZAK AND M.A. DAVIS.

LATITUDE 046 42'N DATE PLANTED 03/29/73 NITROGEN 056.0 KG/HA
LONGITUDE 117 08'W DATE HARVESTED / / PHOSPHORUS 000.0 KG/HA
ELEVATION +00762 M.ABOVE S.L. AMOUNT OF MOISTURE ---- MM POTASIUM 000.0 KG/HA

NORMAL RAINFALL. DRY WINDS CAUSED SEVERE SHATTERING IN SOME LINES. NO DISEASE DEVELOPMENT. NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	HEIGHT CM.	SHATTERING	1000 GRN WGT GRMS
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	4935	75	173	72	1	34
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	4699	77	173	83	4	40
35	MENG-8156	MEXICO	4560	75	174	62	1	34
10	PITIC 62	MEXICO	4542	74	173	74	5	34
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	4520	81	171	69	16	32
11	WW15 = ANZA	AUSTRALIA	4430	80	171	65	1	31
32	7 CERROS	MEXICO	4419	78	173	75	18	33
23	BT-2281	TUNISIA	4363	79	171	68	2	34
25	JARAL 'S'	ARGENTINA	4352	79	171	72	48	28
41	UQ-115 = CONDOR	AUSTRALIA	4318	81	172	64	1	33
29	GIZA 155	EGYPT	4307	79	171	88	5	38
19	YECORA 70	MEXICO	4284	79	166	53	0	35
37	LEE-N10B X GB 55 / GB 56	SUDAN	4284	74	172	65	1	28
27	HUELQUEN	CHILE	4262	78	173	85	12	34
13	PENJAMO 62	MEXICO	4251	81	170	68	32	37
50	LOCAL CHECK		4239	78	173	74	7	27
24	3400-1-3	S.AFRICA	4228	81	171	70	14	31
31	CHENAB 70	PAKISTAN	4195	81	170	67	40	35
43	TOB-8156	ETHIOPIA	4161	79	171	68	18	31
15	TOBARI 66	MEXICO	4127	79	170	68	0	35
9	SOLTANE = BT 2296	TUNISIA	4094	80	170	72	9	39
18	MARCOS JUAREZ INTA	ARGENTINA	4060	79	171	73	10	37
6	ERA	U.S.A.	4037	79	173	70	6	32
44	ZAAFRANE	TUNISIA	4026	78	167	73	32	33
8	BB-INIA	MEXICO	4015	81	167	53	1	35
28	SONALIKA	INDIA	4015	78	169	74	4	42
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	4004	79	171	68	12	28
7	MEXICO 226 = SON 64-KL. RENO	IRAK	3948	79	169	75	28	38
45	MOTI	INDIA	3937	81	167	50	1	37
5	BT-2288	TUNISIA	3892	81	167	73	10	34
12	ARIANA 66	TUNISIA	3858	74	173	87	0	33
20	MEXICO 120	AUSTRALIA	3836	79	169	47	16	33
21	CAJEME 71	MEXICO	3824	79	170	58	24	38
30	JARAL 'S' (8)	ARGENTINA	3813	78	166	73	5	42
26	UP-301	INDIA	3791	78	169	48	3	35
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	3746	77	167	59	0	31
17	INIA-66	MEXICO	3735	81	167	68	2	34
46	BONANZA	U.S.A.	3723	77	172	68	4	26
42	BB 'S' RESELECTION	PAKISTAN	3690	78	169	48	1	33
2	TANORI-71	MEXICO	3690	80	166	63	1	30
38	SANACA 68	COLOMBIA	3611	79	171	84	12	34
47	PARANA 68 /1116	ARGENTINA	3578	81	167	60	0	32
14	CALIDAD	MEXICO	3555	82	170	64	40	32
33	LAGOA VERMELHA (C-17)	BRAZIL	3544	77	172	101	2	38
49	SARIC 70	MEXICO.	3454	78	170	53	16	34
34	ZIPA 68	COLOMBIA	3421	77	173	80	4	33
1	CHRIS	U.S.A.	3409	78	173	95	6	26
22	GABOTO	ARGENTINA	3409	79	174	95	56	29
36	715/70	YUGOSLAVIA	3387	75	173	54	0	35
3	IASSUL-20	BRAZIL	3364	74	174	97	81	35
		GRAND MEAN	3999	78	170	69	12	34

STANDARD ERROR OF GRAND MEAN 29
COEFICIENT OF VARIATION 9
LSD VARIETY MEANS 5 PC 590

CORRELATIONS

YIELD	KG/HA					
TEST	WEIGHT	0.00				
DAYS TO	FLOWER	0.17	-0.52**			
HEIGHT	CM.	-0.06	-0.29*	0.52**		
SHATTER	ING	-0.20	0.02	0.19	0.32*	
1000-GRN	WGT GRMS	0.09	0.04	-0.25	0.02	-0.06

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 04 OCEANIA NEW ZEALAND MANAWATU

CHIEF RESEARCH DIVISION.
COOPERATORS J.M. MCEWEN.

LATITUDE 040 23'S DATE PLANTED 09/13/72 NITROGEN 000.0 KG/HA
LONGITUDE 175 37'E DATE HARVESTED 02/12/73 PHOSPHORUS 030.0 KG/HA
ELEVATION 00030 M.ABOVE S.L. AMOUNT OF IRRIGATION 0185 MM POTASSIUM 000.0 KG/HA

FAVORABLE CONDITIONS FOR PLANT GROWTH EARLY IN THE SEASON. UNUSUALLY DRY AFTERWARDS. LEAF RUST DEVELOPMENT. INSECT AND WEED PROBLEMS NOT REPORTED SLIGHT BIRD DAMAGE. LOCAL CHECK KAKAPO.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	LEAF RUST	HEIGHT CM.	LODGING	SHATTERING
50	LOCAL CHECK		7796	76	74	0	80	5	0
11	WW15 = ANZA	AUSTRALIA	7195	76	73	30PS	86	3	0
35	MENG-0156	MEXICO	6535	77	77	0	81	1	3
41	UG-115 = CONDOR	AUSTRALIA	6357	77	73	5PR	80	3	1
26	UP-301	INDIA	6742	75	69	0	82	0	3
6	ERA	U.S.A.	6662	79	82	0	94	20	0
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A.	6066	75	63	1PR	75	0	0
45	MUTI	INDIA	6596	77	66	0	81	0	0
30	JARAL 'S' (B)	ARGENTINA	6540	76	66	TR	88	5	0
48	(21931/CH 53-AN X 68 561 AN 64	ISRAEL	6457	76	71	5PR	84	3	20
10	PITIC 62	MEXICO	6233	75	72	10PR	96	15	3
37	LEE-N106 X GB 55./ GE 56	SUDAN	6266	76	70	20PS	86	5	10
19	YECORA 70	MEXICO	6176	75	65	0	86	0	15
49	SARIC 70	MEXICO	6045	75	70	0	80	0	3
46	BONANZA	U.S.A.	5951	78	71	0	90	3	1
16	PATO = TZPP-SON 64 X NAP 55	ARGENTINA	5932	76	67	TR	90	3	21
8	BB-INIA	MEXICO	5811	77	66	0	65	0	10
23	BT-2281	TUNISIA	5757	76	65	0	84	5	5
13	PENJAMO 62	MEXICO	5755	76	70	10PR	90	5	15
24	3400-1-3	S.AFRICA	5691	78	70	0	86	10	33
47	PARANA 68 /1116	ARGENTINA	5634	79	64	0	73	1	3
15	TUBARI 66	MEXICO	5617	76	68	0	90	5	0
21	CAJEME 71	MEXICO	5611	75	71	0	73	0	33
20	MEXICO 120	AUSTRALIA	5571	74	72	0	88	0	3
27	HUELQUEN	CHILE	5557	76	70	0	109	20	3
9	SULTANE = BT 2296	TUNISIA	5480	78	70	0	92	3	10
42	BB 'S' RESELECTION	PAKISTAN	5407	75	78	0	57	0	6
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	5366	72	77	TR	94	3	3
34	ZIPA 68	COLOMBIA	5376	75	71	TR	104	10	40
2	TANURI-71	MEXICO	5250	76	63	0	83	3	20
25	JARAL 'S'	ARGENTINA	5256	77	68	0	69	5	33
5	BT-2288	TUNISIA	5175	76	65	0	86	5	13
32	7 CERROS	MEXICO	5028	76	71	10PR	92	0	46
7	MEXICO 226 = SON 64-KL. FEND	IRAK	5017	76	65	0	93	3	16
18	MARCOS JUAREZ INTA	ARGENTINA	4992	76	72	0	96	3	10
43	TUB-8156	ETHIOPIA	4982	79	77	0	93	3	40
14	CALIDAD	MEXICO	4861	78	67	0	92	5	26
38	SAMACA 68	COLOMBIA	4860	75	69	0	101	5	16
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	4826	76	74	0GS	109	3	20
44	ZAAFRANE	TUNISIA	4680	78	65	0	93	3	26
33	LAGOA VERMELHA (C-17)	BRAZIL	4535	79	71	0	127	46	0
17	INIA-66	MEXICO	4529	77	63	1PR	66	3	46
12	ARIANA 66	TUNISIA	4516	79	95	30PS	111	1	0
36	715/70	YUGOSLAVIA	4509	75	86	0	77	0	13
29	GIZA 155	EGYPT	4451	76	68	20PS	104	10	1
1	CHRIS	U.S.A.	3579	76	73	0	117	40	1
22	GABOTO	ARGENTINA	3789	76	79	TR	122	40	0
28	SONALIKA	INDIA	3770	75	62	0	91	10	53
31	CHENAB 70	PAKISTAN	3089	76	64	1PR	88	5	33
3	IASSUL-20	BRAZIL	671	72	77	0	128	5	100
		GRAND MEAN	5406	76	71	4	89	6	16
	STANDARD ERROR OF GRAND MEAN		58		0	0	0	0	0
	COEFICIENT OF VARIATION		13		3	153	4	52	59
	LSD VARIETY MEANS 5 PC		1169		4	12	6	5	15

CORRELATIONS

YIELD	KG/HA							
TEST	WEIGHT	0.17						
DAYS TO	FLOWER	-0.08	0.00					
LEAF	RUST	0.05	-0.00	0.24				
HEIGHT	CM.	-0.59**	0.10	0.27*	0.14			
LODGING		-0.26	0.18	0.13	-0.08	0.67**		
SHATTERING		-0.67**	-0.21	-0.15	-0.13	0.29	-0.15	

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 65 SOUTH AMERICA ARGENTINA B. AIRES

EST. EXP. AGRCP. REG. BALCARCE
COOPERATORS ROBERTO ZELUGNI AND H. DELMAGRO

LATITUDE 037 45°S DATE PLANTED 07/18/73 NITROGEN 036.0 KG/HA
LONGITUDE 058 14°W DATE HARVESTED 01/08/74 PHOSPHORUS 092.0 KG/HA
ELEVATION +00135 M.ABOVE S.L. AMOUNT OF MOISTURE 0471 MM POTASSIUM 000.0 KG/HA

FOUR SERIES OF SEVERE FROSTS AT END OF OCTOBER AND BEGINNING OF NOVEMBER
DEVELOPMENT OF STRIPE AND LEAF RUSTS. SEVERE INFECTION OF SEPTORIA
TRITICI. INSECT, WEED OR PEST PROBLEMS NOT REPORTED. LOCAL CHECK SON 64
X (TZPP-NAI).

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	LEAF RUST	HEIGHT CM.	SHATTER ING.	1000 GRN WGT GRMS	SEPTORIA TRITICI	FROST DAMAGE
11	WW15 = ANZA	AUSTRALIA	2627	72	110	0	-	60MS	81	-	46	48	13
12	ARIANA 66	TUNISIA	2355	73	113	0	TR	10MR	103	-	34	51	10
27	HUELQUEN	CHILE	2344	-	105	-	5MS	30MS	105	0	35	55	16
6	ERA	U.S.A.	2277	74	87	-	20MS	-	95	-	34	46	13
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	2266	66	112	0	TMR	-	91	-	34	44	16
10	PITIC 62	MEXICO	2233	72	104	-	20MS	20MS	95	-	38	44	23
34	ZIPA 68	COLOMBIA	2110	70	110	0	-	20MS	98	-	32	55	33
4	K336-E. DE CH. X KOODIET 17>RT-Y	TUNISIA	2099	73	106	0	20MS	20MS	88	-	40	44	20
16	PATO = TZPP-SON 64 X NAP 59	ARGENTINA	1905	73	106	0	-	-	93	-	31	55	20
22	GABOTO	ARGENTINA	1866	75	105	-	20MS	40MS	108	-	31	48	36
38	SAMALA 68	COLOMBIA	1888	70	104	-	20MS	20MS	103	-	43	51	16
32	7 CERROS	MEXICO	1822	70	110	-	40MS	30MS	88	-	36	48	16
35	MENG-8156	MEXICO	1760	69	111	0	70MR	-	70	-	35	70	16
46	BONANZA	U.S.A.	1755	75	105	0	10R	-	85	-	40	55	36
41	OO-115 = CONDOR	AUSTRALIA	1755	73	113	0	30MR	10MS	75	-	37	44	26
50	LOCAL CHECK		1638	71	96	-	T	-	91	-	44	51	33
29	GIZA 155	EGYPT	1566	71	104	0	-	70S	110	-	35	62	33
2	TANORI-71	MEXICO	1459	73	97	150	5MR	5MS	81	-	40	55	30
37	LEE-N108 X GB 55 / GB 56	SUDAN	1454	-	104	0	40MR	-	76	-	40	55	23
24	3400-1-3	S.AFRICA	1477	75	103	-	40MS	TMS	81	20	35	55	20
23	BT-2281	TUNISIA	1438	-	103	0	TR	20MS	90	6	33	40	13
13	PENJAMO 62	MEXICO	1405	65	103	-	-	20MS	82	-	42	62	16
33	LAGOA VERMELHA (C-17)	BRAZIL	1405	71	110	-	90S	-	126	0	35	36	16
1	CHRIS	U.S.A.	1355	70	106	155	20MS	-	113	0	31	40	30
14	CALIDAD	MEXICO	1266	72	104	155	TMS	20MS	80	0	36	48	33
47	PARANA 69 /1116	ARGENTINA	1277	74	97	-	40MR	TMS	66	0	42	55	40
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	1166	71	104	-	TR	40MS	71	-	38	62	26
5	BT-2288	TUNISIA	1122	74	97	-	TR	10MS	82	-	38	62	16
30	JAKAL 'S' (B)	ARGENTINA	1105	71	101	-	40MR	-	83	-	43	36	20
25	JAKAL 'S'	ARGENTINA	1088	73	99	-	20MS	-	93	23	34	51	23
17	INIA-66	MEXICO	1061	74	98	-	-	70S	83	-	35	25	30
36	715/70	YUGOSLAVIA	1011	70	111	-	30MR	20MS	88	3	37	48	16
20	MEXICO 120	AUSTRALIA	988	69	101	-	20MS	-	80	-	40	51	20
26	UP-301	INDIA	972	66	105	-	-	-	63	11	36	59	36
43	TOB-8156	ETHIOPIA	927	72	98	-	70MS	-	75	16	41	41	23
9	SULTANE = BT 2296	TUNISIA	868	71	99	155	40MR	10MS	85	0	50	66	33
18	MARCOS JUAREZ INTA	ARGENTINA	855	70	101	-	40MR	-	81	-	46	44	36
44	ZAAFRANE	TUNISIA	838	70	98	152	40MR	-	76	-	36	51	20
15	TOBARI 66	MEXICO	827	71	100	-	TMS	TMS	83	0	39	51	33
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	827	73	97	153	10M	-	88	-	37	62	30
28	SUNALIKA	INDIA	822	70	98	-	20MR	20MS	90	0	55	70	23
7	MEXICO 226 = SON 64-KL. REND	IRAK	788	-	97	-	20MS	10MS	80	-	42	48	16
8	BB-INIA	MEXICO	777	72	97	-	-	-	86	0	50	66	50
31	CHENAB 70	PAKISTAN	744	66	101	0	40MR	50MS	88	-	38	73	13
45	MOTI	INDIA	454	-	97	153	60MS	TMS	50	-	42	62	33
21	CAJEME 71	MEXICO	416	0	104	-	-	-	76	-	46	66	33
3	IASSUL-20	BRAZIL	349	0	111	-	60MS	10MS	111	-	31	40	13
49	SARIC 70	MEXICO	327	0	95	-	5MR	TS	56	0	48	55	23
19	YECORA 70	MEXICO	288	-	100	153	-	5MS	63	-	46	55	46
42	BB 'S' RESELECTION	PAKISTAN	272	0	97	0	-	T	55	0	31	59	56
		GRAND MEAN	1318	71	102	151	15	17	84	20	39	53	25
	STANDARD ERROR OF GRAND MEAN		21	0			0	0	0	0	0	0	0
	COEFICIENT OF VARIATION		15	0			25	26	5	25	4	12	25
	LSD VARIETY MEANS 5 PC		127	0			6	7	8	8	2	10	[illegible]

CORRELATIONS

YIELD	KG/HA										
TEST	WEIGHT	0.59**									
DAYS TO	FLOWER	0.44**	0.08								
DAYS TO MATURITY		-0.45**	-0.15	-0.40**							
STRIPE	RUST	-0.11	-0.06	0.06	-0.12						
LEAF	RUST	0.17	0.15	0.14	-0.20	-0.19					
HEIGHT	CM.	0.49**	0.36**	0.35*	-0.23	0.25	0.16				
SHATTER	ING	-0.12	-0.21	0.30*	-0.07	0.25	-0.04	0.08			
1000 GRN	WGT GRMS	-0.31*	-0.11	-0.33*	0.31*	-0.02	0.02	-0.30*	-0.23		
SEPTORIA	TRITICI	-0.22	-0.15	-0.21	0.08	-0.22	-0.11	-0.35**	-0.19	0.32*	
FROST	DAMAGE	-0.41**	-0.30*	-0.31*	0.23	-0.26	-0.13	-0.40**	-0.20	0.18	0.21

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 66 SOUTH AMERICA ARGENTINA B. AIRES PERGAMINO

EST. EXP. REGIONAL AGR. PERGAMINO.
COOPERATORS H.C. CONTA, A.CALZOLARI AND O. POLIDORO.

LATITUDE 033 56'S DATE PLANTED 08/01/73 NITROGEN ---.- KG/HA
LONGITUDE 060 33'W DATE HARVESTED 12/24/73 PHOSPHORUS ---.- KG/HA
ELEVATION +00066 M.ABOVE S.L. AMOUNT OF MOISTURE 1387 MM POTASIUM ---.- KG/HA

LACK OF RAIN DURING THE TILLERING STAGE. NORMAL RAINFALL AFTERWARDS. HAIL DAMAGE. LOW DISEASE DEVELOPMENT. SEVERE ATTACK OF APHIDS CHEMICALLY CONTROLLED. WEED AND PEST PROBLEMS NOT REPORTED. LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	LEAF RUST	HEIGHT CM.	1000 GRN WGT GRMS	SEPTORIA TRITICI
23	BT-2281	TUNISIA	2233	82	73	128	20S	60S	80	32	22
3	IASSUL-20	BRAZIL	2188	82	84	128	5S	5S	100	32	0
43	TOB-8156	ETHIOPIA	1966	84	76	124	0	0	70	28	-
34	ZIPA 68	COLOMBIA	1955	80	79	128	0	5S	95	32	33
35	MENG-8156	MEXICO	1899	83	80	124	0	0	65	32	33
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	1866	81	79	131	0	0	80	32	11
25	JARAL 'S'	ARGENTINA	1810	82	70	124	0	TR	80	26	22
11	WW15 = ANZA	AUSTRALIA	1733	83	79	128	TS	50S	70	28	11
31	CHENAB 70	PAKISTAN	1733	80	71	124	0	30S	80	30	66
20	MEXICO 120	AUSTRALIA	1722	76	69	128	80S	20S	60	26	33
5	BT-2288	TUNISIA	1710	81	68	128	0	5MS	75	28	33
24	3400-1-3	S.AFRICA	1699	81	73	124	TS	30S	75	26	11
32	7 CERROS	MEXICO	1699	83	79	124	0	10S	85	28	33
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	1699	83	78	128	20S	80S	75	30	44
19	YECORA 70	MEXICO	1699	80	70	122	0	5S	60	32	66
27	HUELQUEN	CHILE	1677	86	78	128	0	20S	95	32	33
10	PITIC 62	MEXICO	1677	71	78	128	0	10S	80	30	22
21	CAJEME 71	MEXICO	1666	80	72	122	0	TS	60	32	33
8	BB-INIA	MEXICO	1666	80	69	120	0	TMS	55	28	44
9	SOLTANE = BT 2296	TUNISIA	1666	81	70	128	TMS	5S	70	30	22
18	MARCOS JUAREZ INTA	ARGENTINA	1644	83	71	124	TMS	5S	75	30	33
45	MOTI	INDIA	1644	82	69	128	20S	40S	50	32	66
17	INIA-66	MEXICO	1644	82	69	124	0	80S	75	32	22
46	BONANZA	U.S.A.	1622	82	79	128	0	TS	75	26	44
13	PENJAMO 62	MEXICO	1610	81	71	128	0	TMS	80	32	55
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	1599	84	76	128	0	0	75	26	22
47	PARANA 68 /1116	ARGENTINA	1577	83	70	128	TMS	0	65	28	77
12	ARIANA 66	TUNISIA	1577	76	95	131	0	TMR	90	24	11
26	UP-301	INDIA	1566	79	71	119	0	TMS	55	28	66
30	JARAL 'S' (B)	ARGENTINA	1555	79	72	129	0	0	65	28	44
7	MEXICO 226 = SON 64-KL. REND	IRAK	1544	83	71	129	0	TMS	70	30	44
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	1533	80	77	128	TS	TS	85	30	44
28	SONALIKA	INDIA	1522	81	70	126	0	5S	70	34	66
49	SARIC 70	MEXICO	1488	80	73	124	0	0	60	34	33
36	715/70	YUGOSLAVIA	1455	78	90	122	0	0	50	28	33
38	SAMACA 68	COLOMBIA	1455	78	76	128	0	0	85	28	33
42	BB 'S' RESELECTION	PAKISTAN	1444	77	69	122	0	TR	50	30	55
41	UQ-115 = CONDOR	AUSTRALIA	1388	83	78	130	TMS	10S	65	28	33
6	ERA	U.S.A.	1355	80	92	132	0	0	70	26	22
15	TOBARI 66	MEXICO	1333	84	73	128	0	TS	75	28	22
22	GABOTO	ARGENTINA	1333	84	82	128	TMS	0	100	28	33
37	LEE-N10B X GB 55 / GB 56	SUDAN	1333	77	73	128	0	5MS	65	28	66
2	TANORI-71	MEXICO	1322	78	69	128	0	5S	65	26	33
33	LAGOA VERMELHA (C-17)	BRAZIL	1322	83	80	130	5MS	5MR	100	32	11
14	CALIDAD	MEXICO	1299	81	73	128	TS	20S	70	20	22
1	CHRIS	U.S.A.	1166	81	82	132	0	0	100	24	22
44	ZAAFRANE	TUNISIA	1144	80	71	128	0	5S	70	32	55
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	1110	81	70	129	0	0	60	32	66
29	GIZA 155	EGYPT	866	83	77	130	0	40S	75	28	44
50	LOCAL CHECK		-	-	-	-	-	-	-	-	-
		GRAND MEAN	1580	81	75	126	3	11	73	29	37
		STANDARD ERROR OF GRAND MEAN	31								
		COEFICIENT OF VARIATION	23								
		LSD VARIETY MEANS 5 PC	618								

CORRELATIONS

YIELD	KG/HA								
TEST	WEIGHT	0.66**							
DAYS TO	FLOWER	0.57**	0.83**						
DAYS TO	MATURITY	0.61**	0.96**	0.87**					
STRIPE	RUST	0.17	-0.00	-0.04	0.05				
LEAF	RUST	0.18	0.11	0.00	0.08	0.30*			
HEIGHT	CM.	0.48**	0.64**	0.70**	0.67**	-0.09	0.05		
1000 GRN	WGT GRMS	0.65**	0.84**	0.66**	0.82**	-0.01	0.14	0.50**	
SEPTORIA	TRITICI	-0.01	0.24	-0.01	0.22	0.00	-0.06	-0.20	0.34

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 67 SOUTH AMERICA BRAZIL RIO GRANDE DO SUL (PASSO FUNDO)

ESTACAO EXPERIMENTAL DE PASSO FUNDO
COOPERATORS SERGIO R. LOTTO AND JOAO C. IGNACZAK.

LATITUDE 028 60'S
LONGITUDE 052 60'W
ELEVATION 400760 M.ABOVE S.L.

DATE PLANTED 06/22/73
DATE HARVESTED 11/09/73
AMOUNT OF MOISTURE 0700 MM

NITROGEN 040.0 KG/HA
PHOSPHORUS 150.0 KG/HA
POTASSIUM 040.0 KG/HA

GOOD WEATHER CONDITIONS. HIGH INCIDENCE OF LEAF RUST, SEPTORIA AND FUSARIUM. NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	LEAF RUST	HEIGHT CM.	1000 GRAIN WGT GRAMS	SEPTORIA SPP.	FUSARIUM
3	IASSUL-20	BRAZIL	2206	80	103	153	60	110	30	-	0
50	LOCAL CHECK		2175	80	98	153	60	105	32	25	0
33	LAUDA VERMELHA (G-17)	BRAZIL	1950	82	96	153	15	110	34	-	-
49	SARIC 70	MEXICO	1566	73	94	140	1	70	25	-	0
21	CAJEME 71	MEXICO	1550	73	94	140	1	70	26	0	25
19	YECORA 70	MEXICO	1441	70	90	140	1	60	25	-	-
22	GAUCHO	ARGENTINA	1400	72	103	153	0	95	22	25	0
18	MARCOS JUAREZ INTA	ARGENTINA	1351	75	98	145	5	80	26	0	0
9	SULTANE = BT 2266	TUNISIA	1305	75	94	140	40	80	26	25	-
2	TAMURI-71	MEXICO	1275	74	90	140	0	70	22	50	-
46	BONANZA	U.S.A.	1256	78	94	140	1	75	22	0	-
36	715/70	YUGOSLAVIA	1250	-	101	145	0	65	20	25	-
23	JAKAL 'S'	ARGENTINA	1241	75	90	140	0	70	19	-	-
48	(21931/CH 53-AN X GB 5E) AN 64	ISRAEL	1225	74	98	140	5	70	20	25	-
31	CHENAB 70	PAKISTAN	1166	73	94	140	10	75	22	25	-
24	3400-1-3	S.AFRICA	1150	80	94	140	5	70	23	25	-
10	PITIC 62	MEXICO	1100	66	98	145	60	65	20	25	0
38	SAMACA 68	COLOMBIA	1075	77	94	140	-	60	25	-	-
44	ZAAFRANE	TUNISIA	1066	65	90	140	1	75	19	50	0
15	TUBARI 66	MEXICO	1056	76	90	140	1	75	22	25	0
14	CELIDAD	MEXICO	1050	75	90	140	30	75	21	-	0
7	MEXICO 226 = SON 64-RL. REND	IRAK	1033	72	90	140	5	75	23	25	-
26	UP-301	INDIA	1016	-	94	140	0	55	19	25	0
16	PATU = TAPP-SUN 64 X NAP 59	ARGENTINA	983	78	94	140	0	70	19	25	-
20	MEXICO 120	AUSTRALIA	950	71	94	140	10	55	20	25	25
37	LEE-MIUB X GB 55 / GB 5E	SUDAN	950	0	0	0	5	65	0	25	-
17	INIA-66	MEXICO	941	76	90	140	10	60	22	25	-
32	7 CERROS	MEXICO	925	70	98	140	0	70	19	25	25
4	K330-E. DE CH. X KOULIET 17-KT-Y	TUNISIA	916	-	96	145	0	60	23	0	-
41	UU-115 = CONDOR	AUSTRALIA	900	72	100	140	5	60	18	-	0
28	SONALIKA	INDIA	863	65	82	140	30	60	20	30	-
8	BB-INIA	MEXICO	863	76	90	140	0	60	19	25	25
1	CHRIS	U.S.A.	841	77	98	145	5	95	19	-	50
30	JAKAL 'S' (D)	ARGENTINA	816	70	98	140	0	75	22	0	-
6	EMA	U.S.A.	816	-	99	145	0	76	19	0	-
27	HUELQUEN	CHILE	808	74	94	140	5	65	21	25	-
5	BT-2266	TUNISIA	791	-	-	-	5	75	-	25	25
42	BB 'S' RESELECTION	PAKISTAN	783	60	92	140	0	55	17	-	-
45	MOTI	INDIA	733	-	94	140	0	-	-	-	-
11	NN15 = ANZA	AUSTRALIA	725	-	100	145	70	65	18	25	-
34	ZIPA 68	COLOMBIA	716	71	98	140	0	90	19	25	-
43	TOB-8156	ETHIOPIA	700	68	94	140	0	70	15	25	-
13	PENJAMO 62	MEXICO	691	71	94	140	5	75	20	0	-
26	BT-2281	TUNISIA	683	0	90	140	30	75	21	25	-
47	PAMANA 68 /1116	ARGENTINA	583	-	90	140	0	55	20	75	-
40	SUN 64 X TAPP-Y54 / JUSTIN 3	U.S.A.	550	0	83	140	0	60	17	-	-
35	MENG-8156	MEXICO	500	-	105	140	0	80	18	25	-
12	AKIANA 66	TUNISIA	456	0	108	145	1	66	23	25	-
29	GIZA 155	EGYPT	333	0	96	140	0	70	22	-	0
39	EL GOU-SUN 64 X TC-NP 63	U.S.A.	200	0	95	145	0	0	0	0	-
		GRAND MEAN	1021	73	94	141	10	73	21	31	34
	STANDARD ERROR OF GRAND MEAN		22								
	COEFFICIENT OF VARIATION		22								
	LSD VARIETY MEANS 5 PC		443								

CORRELATIONS

	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	LEAF RUST	HEIGHT CM.	1000 GRAIN WGT GRAMS	SEPTORIA SPP.	FUSARIUM
TEST WEIGHT	0.59**								
DAYS TO FLOWER	0.65	0.26							
DAYS TO MATURITY	0.12	0.32*	0.95**						
LEAF RUST	0.37**	0.17	0.07	0.11					
HEIGHT CM.	0.94**	0.46**	0.13	0.15	0.37**				
1000 GRAIN WGT GRAMS	0.64**	0.45**	0.50**	0.57**	0.31*	0.20**			
SEPTORIA SPP.	-0.25*	-0.42**	-0.10	-0.06	-0.04	-0.27	-0.18		
FUSARIUM	0.06	0.03	-0.21	-0.11	-0.02	0.06	0.06	-0.05	

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 68 SOUTH AMERICA BRAZIL RIO GRANDE DO SUL

CENTRO DE EXPERIMENTACAO E PESQUISAS DA PECUTRIGO
COOPERATORS WHEAT STAFF.

LATITUDE 028 38°S DATE PLANTED 06/18/73 NITROGEN 060.0 KG/HA
LONGITUDE 033 36°W DATE HARVESTED 11/18/73 PHOSPHORUS 072.0 KG/HA
ELEVATION 00473 M.ABOVE S.L. AMOUNT OF POISTURE 0970 MM POTASSIUM 024.0 KG/HA

NORMAL WEATHER CONDITIONS. DEVELOPMENT OF LEAF RUST. NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK MISTURA. XX= HELMINTHOSPORIUM, XXX= GRAIN TYPE. XXXX= GIBBERELLA ZEAE SCALE 0 TO 5. 0= IMMUNE, T= TRACES, 1= RESISTANT, 2= MODERATE RESISTANT, 3= MODERATE SUSCEPTIBLE, 4=

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	LEAF RUST	HEIGHT CM.	SEPTORIA TRITICI	SEPTORIA NODORUM	XX	XXX	XXXX
33	LAGOA VERMELHA (C-17)	BRAZIL	2077	104	80S	105	20	20	T	30	.50
23	JAKAL "S"	ARGENTINA	1936	-	0	70	60	80	1	3	.10
16	MARCOS JUAREZ INTA	ARGENTINA	1675	-	40S	85	20	40	T	3	.10
21	CAJEME 71	MEXICO	1875	-	30S	60	0	60	1	40	.70
4	K350-E. DE CH. X KOUCIET 17-RT-Y	TUNISIA	1817	-	10S	95	20	60	T	40	.50
15	TUBARI 66	MEXICO	1780	-	20S	75	0	-	1	30	.50
24	3400-1-3	S.AFRICA	1753	-	20S	75	6	40	1	30	.50
3	IASSUL-70	BRAZIL	1656	-	80S	110	0	20	0	3	.00
44	ZAAFRANE	TUNISIA	1675	-	40S	80	80	40	1	3	.40
16	PATU = TZPP-SOR 64 X APR 59	ARGENTINA	1662	102	TRR	75	6	60	1	2	.70
7	MEXICO 226 = SON 64-KL. RENC	IRAK	1662	0	80S	85	40	60	T	10	.60
36	SAMACA 68	COLOMBIA	1661	-	0	85	60	-	0	30	.30
50	LOCAL CHECK		1652	0	80S	75	40	40	T	3	.30
46	GUNANCA	U.S.A.	1642	-	20S	75	40	40	0	2	.50
32	7 CERROS	MEXICO	1636	-	80S	70	-	40	T	40	.70
22	GAMUTU	ARGENTINA	1620	107	0	95	20	0	1	2	-
9	SULTANE = BT 2296	TUNISIA	1612	0	60S	85	-	40	T	3	.40
49	SAKIL 70	MEXICO	1601	104	50S	55	40	60	1	40	.70
13	PENJAMO 62	MEXICO	1583	-	60S	80	0	40	T	2	.20
10	PITIC 62	MEXICO	1524	104	80S	85	0	40	T	4	.50
2	TAMURI-71	MEXICO	1505	0	20S	75	-	60	-	3	.70
5	BT-2288	TUNISIA	1479	0	40S	70	0	-	T	2	.40
34	ZIPA 66	COLOMBIA	1475	-	40S	75	-	-	T	3	.50
14	CALIMAO	MEXICO	1465	0	80S	80	40	60	1	30	.70
19	YECORA 70	MEXICO	1422	-	10S	55	40	80	1	4	.10
17	INIA-66	MEXICO	1415	-	80S	75	0	60	1	3	.80
6	BO-INIA	MEXICO	1362	0	20S	60	40	60	1	40	.80
48	(21931/CM 53-AN X GB 56) AN 64	ISRAEL	1315	-	80S	70	-	40	T	3	.40
30	JAKAL "S" (B)	ARGENTINA	1256	104	0	75	60	60	1	4	.40
27	MUELQUEN	CHILE	1253	104	80S	80	60	80	T	40	.70
31	CHENAB 70	PAKISTAN	1250	104	10S	75	60	60	T	3	.10
1	CHRIS	U.S.A.	1230	104	60S	105	0	20	0	2	.00
47	PANAMA 66 /1116	ARGENTINA	1160	126	0	50	60	100	-	4	.10
20	MEXICO 120	AUSTRALIA	1160	102	20S	50	20	60	1	3	.90
36	715/70	YUGOSLAVIA	1135	107	0	55	-	60	T	3	.30
6	ERA	U.S.A.	1133	0	40S	60	0	0	T	5	-
25	BT-2281	TUNISIA	1056	0	50S	65	0	0	1	4	.10
43	TUB-8150	ETHIOPIA	1052	102	0	60	40	0	2	3	.70
26	UP-301	INDIA	1077	0	TS	45	60	-	3	5	.10
29	GIZA 155	EGYPT	994	-	80S	60	-	40	1	4	.10
37	LEE-MUB X GB 55 / GE 56	SUDAN	946	-	40S	60	60	60	T	5	.10
41	WW-115 = GONDUR	AUSTRALIA	913	0	50S	65	40	60	T	30	.30
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	912	0	0	60	0	-	1	5	.10
45	MUTA	INDIA	900	125	0	50	0	100	-	4	.10
12	ARIANA 66	TUNISIA	857	0	TS	85	-	0	0	5	-
28	SONALIKA	INDIA	805	0	25S	80	0	80	2	4	.10
35	MENO-8156	MEXICO	786	112	0	55	0	60	1	5	.30
11	ANIS = ANZA	AUSTRALIA	632	111	80S	65	6	60	0	5	.30
42	WW "S" MEBELKETIGI	PAKISTAN	594	102	TS	40	60	60	1	5	.10
39	EL GOU-SON 64 X 70-AF 62	U.S.A.	177	-	TRS	70	40	0	T	5	-
		GRAND MEAN	1344	103	38	72	33	57			
	STANDARD ERROR OF GRAND MEAN		41								
	COEFFICIENT OF VARIATION		19								
	LSD VARIETY MEANS 5 PC		426								

CORRELATIONS

	YIELD KG/HA	DAYS TO FLOWER	LEAF RUST	HEIGHT CM.	SEPTORIA TRITICI	SEPTORIA NODORUM	XX	XXX	XXXX
YIELD KG/HA		-0.68							
DAYS TO FLOWER			0.24	-0.01					
LEAF RUST				-0.18	-0.44**				
HEIGHT CM.					-0.14	-0.26			
SEPTORIA TRITICI			-0.00	0.14	-0.16	-0.32**	0.46		
SEPTORIA NODORUM			-0.66	0.01	-0.16	0.00	0.00	0.00	
XX			0.00	0.00	0.00	0.00	0.00	0.00	
XXX			0.00	0.00	0.00	0.00	0.00	0.00	0.00
XXXX			0.00	0.00	0.00	0.00	0.00	0.00	0.00

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 69 SOUTH AMERICA CHILE SANTIAGO (LA PLATINA)

LA PLATINA.
COOPERATORS I.RAMIREZ C. MORENO AND R. GONZALEZ.

LATITUDE 33 34'S DATE PLANTED 81/07/3 NITROGEN 128.0 KG/HA
LONGITUDE 70 38'W DATE HARVESTED 02/--/74 PHOSPHORUS 120.0 KG/HA
ELEVATION 00625 M.ABOVE S.L. AMOUNT OF MOISTURE 0227 MM POTASIUM .0 KG/HA

LONG WINTER AND DRY SPRING. EXCEPT OCTOBER. LATE DEVELOPMENT OF STRIPE RUST. GOOD DEVELOPMENT OF STEM RUST. MECHANICAL CONTROL OF WEEDS. LOCAL CHECK AURIFEN.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	STRIPE RUST	STEM RUST	HEIGHT CM.	LODGING
30	JARAL 'S' (B)	ARGENTINA	5949	91	20S	TR	101	0
21	CAJEME 71	MEXICO	5799	95	0	0	88	0
8	BB-INIA	MEXICO	5749	90	0	TR	78	0
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	5666	94	0	10S	95	0
49	SARIC 70	MEXICO	5627	92	0	0	80	0
28	SONALIKA	INDIA	5560	89	0	TMS	103	0
17	INIA-66	MEXICO	5460	88	TMS	5S	101	25
13	PENJAMO 62	MEXICO	5455	95	TS	5S	106	50
50	LOCAL CHECK		5455	93	0	TS	95	0
46	BONANZA	U.S.A.	5243	96	0	TR	96	25
19	YECORA 70	MEXICO	5166	90	0	TS	73	0
42	BB 'S' RESELECTION	PAKISTAN	5127	89	0	TMR	70	0
41	UQ-115 = CONDOR	AUSTRALIA	5105	98	0	5S	88	0
25	JARAL 'S'	ARGENTINA	5077	94	20S	0	100	0
2	TANORI-71	MEXICO	4938	88	0	5S	95	0
32	7 CERROS	MEXICO	4921	97	15S	15S	108	0
9	SOLTANE = BT 2296	TUNISIA	4916	95	5S	TR	100	0
5	BT-2288	TUNISIA	4888	90	0	TMR	101	0
7	MEXICO 226 = SON 64-KL. RENO	IRAK	4882	92	30S	TR	103	0
31	CHENAB 70	PAKISTAN	4782	94	40S	5S	103	0
47	PARANA 68 /1116	ARGENTINA	4777	89	30S	0	85	0
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	4760	88	0	0	63	0
35	MENG-8156	MEXICO	4627	100	0	0	91	0
37	LEE-N10B X GB 55 / GB 56	SUDAN	4607	94	60S	5S	100	0
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	4549	98	TS	20S	121	0
43	TOB-8156	ETHIOPIA	4538	95	70S	TS	100	0
14	CALIOAD	MEXICO	4538	94	5S	TS	103	0
29	GIZA 155	EGYPT	4488	94	0	5MS	120	50
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	4466	101	0	10MS	101	0
23	BT-2281	TUNISIA	4443	94	0	TMS	98	0
44	ZAAFRANE	TUNISIA	4421	91	20S	0	98	0
26	UP-301	INDIA	4382	93	0	0	71	0
18	MARCOS JUAREZ INTA	ARGENTINA	4349	95	TR	TR	105	25
34	ZIPA 68	COLOMBIA	4344	98	0	0	121	0
36	715/70	YUGOSLAVIA	4344	97	0	TS	86	0
11	WW15 = ANZA	AUSTRALIA	4277	98	0	40S	91	0
20	MEXICO 120	AUSTRALIA	4266	93	0	5S	70	0
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	4060	96	0	0	98	0
38	SAMACA 68	COLOMBIA	3982	98	0	5S	123	50
10	PITIC 62	MEXICO	3977	98	0	40S	106	25
15	TOBARI 66	MEXICO	3821	94	0	0	96	0
45	MOTI	INDIA	3677	89	90S	10S	68	0
24	3400-1-3	S.AFRICA	3660	95	80S	5S	93	0
27	HUELQUEN	CHILE	3660	99	0	TR	128	25
33	LAGOA VERMELHA (C-17)	BRAZIL	3233	97	70S	0	135	TS
22	GABOTO	ARGENTINA	3194	102	5S	30S	126	0
12	ARIANA 66	TUNISIA	3016	102	0	30S	118	0
6	ERA	U.S.A.	2988	99	10S	0	91	0
1	CHRIS	U.S.A.	2794	98	0	TR	136	TS
3	IASSUL-20	BRAZIL	2755	98	15MS	5S	135	75
		GRAND MEAN	4535	94	11	5	99	10
	STANDARD ERROR OF GRAND MEAN		44	0			0	
	COEFICIENT OF VARIATION		11	2			6	
	LSD VARIETY MEANS 5 PC		882	4			10	

CORRELATIONS

YIELD	KG/HA					
DAYS TO	FLOWER	-0.56**				
STRIPE	RUST	-0.22	-0.13			
STEM	RUST	-0.28*	0.43**	-0.06		
HEIGHT	CM.	-0.46**	0.56**	-0.01	0.20	
LODGING		-0.40**	0.23	0.01	-0.03	0.62**

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 70 SOUTH AMERICA COLOMBIA LONG INTERNATIONAL

TIERRITATA.
COOPERATORS R. LOPEZ, M. ZAPATA, D. VARELA.

LATITUDE 004 35'N DATE PLANTED 02/22/73 NITROGEN 000.0 KG/HA
LONGITUDE 074 04'W DATE HARVESTED 09/10/73 PHOSPHORUS 000.0 KG/HA
ELEVATION +02640 M.ABOVE S.L. AMOUNT OF MOISTURE 0350 MM POTASSIUM 000.0 KG/HA

NORMAL RAINFALL. TOO MUCH RAIN DURING HARVESTING. FAIR DEVELOPMENT OF
STRIPE RUST. NO INSECT, WEED OR PEST PROBLEMS LOCAL CHECK NOT REPORTED.
XX= ROOT ROT.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	P.STRIPE HEAD	HEIGHT CM.	LODGING	SPATTER ING	ICCC GRN WGT GRMS	SEPTORIA SPP.	XX
21	GAUCHE 71	MEXICO	7595	74	75	163	0	0	66	0	0	56	0	40
46	BONANZA	U.S.A.	7345	76	73	156	0	0	61	0	0	42	5	20
49	SAKIL 70	MEXICO	6815	74	74	156	TR	0	64	0	0	53	4	40
10	PITIC 62	MEXICO	6764	72	75	156	50MS	10	93	0	0	44	0	30
48	(21931/CM 53-AN X GB 561 AN 64	ISRAEL	6462	73	72	166	0	0	73	0	0	42	41	40
27	HUELQUEN	CHILE	6210	74	72	-	TR	0	91	0	1	48	8	20
9	SULTANE = BT 2296	TUNISIA	6193	74	70	155	40MS	40	86	0	0	49	4	30
11	WW15 = ANZA	AUSTRALIA	6121	71	79	166	TR	0	73	0	0	38	12	20
18	MARCOS JUAREZ INTA	ARGENTINA	6116	72	74	156	20MS	10	91	0	0	48	0	30
36	715/70	YUGOSLAVIA	6116	72	85	160	TR	0	85	0	0	37	12	00
30	JARAL 'S' (B)	ARGENTINA	6043	73	69	160	40S	10	76	0	0	46	6	30
25	JARAL 'S'	ARGENTINA	5771	74	69	-	20MR	20	80	0	0	37	6	30
13	PENJAMO 62	MEXICO	5721	74	72	155	0	0	75	0	0	49	-	30
20	MEXICO 120	AUSTRALIA	5666	69	71	153	0	0	81	0	0	38	-	40
4	K336-Ee DE CM. X KOODIET 17-RT	TUNISIA	5621	67	80	175	0	5	95	0	0	49	4	30
19	YECORA 70	MEXICO	5554	75	66	150	TR	0	81	0	1	52	0	00
38	SAMACA 68	COLOMBIA	5527	74	72	155	TR	0	83	0	1	55	-	40
8	BB-INIA	MEXICO	5466	75	66	151	10R	0	80	0	30	49	12	30
28	SONALIKA	INDIA	5443	73	65	156	5R	0	75	0	1	59	16	40
16	PATO = TZPP-SON 64 X NAP 59	ARGENTINA	5205	74	70	160	0	0	73	0	0	35	0	40
3	IASSUL-20	BRAZIL	5171	73	84	166	40MS	20	123	40	0	49	0	00
34	ZIPA 68	COLOMBIA	5165	74	73	158	TR	0	85	0	1	48	12	00
50	LOCAL CHECK		5027	76	71	158	5R	1	81	0	0	48	0	20
41	UG-115 = GENDOR	AUSTRALIA	4971	74	75	165	0	0	70	0	0	46	16	40
5	BT-2286	TUNISIA	4665	75	67	155	0	0	80	0	0	47	0	40
15	TUBARI 66	MEXICO	4766	77	66	153	0	0	71	0	1	48	0	40
2	TANORI-71	MEXICO	4766	74	65	161	TR	0	68	0	16	49	0	00
6	ERA	U.S.A.	4566	66	59	0	30MS	00	95	0	0	34	16	40
23	BT-2281	TUNISIA	4549	75	66	161	0	0	70	0	1	43	12	40
14	CALIDAD	MEXICO	4495	75	68	156	0	0	71	0	10	44	0	40
39	EL GUO-SON 64 X TC-NF 63	U.S.A.	4468	64	91	0	0	0	91	0	0	34	8	30
17	INIA-66	MEXICO	4477	75	65	155	5R	0	71	0	10	49	0	00
22	GABOTO	ARGENTINA	4371	70	63	173	5MS	15	115	30	0	36	0	20
7	MEXICO 220 = SON 64-KL. RENE	IRAK	4277	72	65	155	40MS	70	78	0	5	47	4	00
31	CHENAB 70	PAKISTAN	4177	69	68	151	R-MS	40	78	0	0	45	0	00
1	CHRIS	U.S.A.	4177	71	75	166	0	0	110	20	0	37	0	40
32	7 CERROS	MEXICO	4121	69	72	156	30MS	00	78	0	0	32	16	00
29	GIZA 155	EGYPT	4077	75	70	160	10MR	0	95	0	0	46	4	30
37	LEE-NIUB X GB 55 / GE 56	SUDAN	4044	68	71	-	30MS	00	71	0	0	31	0	30
26	UP-301	INDIA	4044	74	69	153	TR	0	51	0	5	47	0	30
33	LAGOA VERMELHA (C-17)	BRAZIL	3945	72	77	160	70S	40	100	20	0	44	0	30
12	ARIANA 66	TUNISIA	3694	66	101	0	0	0	120	0	0	45	0	20
43	TUB-6156	ETHIOPIA	3544	72	68	156	70S	00	70	0	0	50	0	40
44	ZAAFRANI	TUNISIA	3445	69	66	151	60MS	00	78	0	1	45	0	00
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A.	3410	71	63	145	TR	0	00	0	0	40	-	40
24	3400-1-3	S.AFRICA	3195	50	76	153	70S	90	75	0	0	38	0	00
47	PARANA 68 /1116	ARGENTINA	3055	75	63	140	10MR	1	81	0	0	43	12	30
35	MENO-6156	MEXICO	2994	68	82	163	20MS	00	75	0	0	32	12	00
42	BB 'S' RESELECTION	PAKISTAN	2538	72	65	146	0	0	45	0	30	50	0	30
45	MUFI	INDIA	2305	68	67	143	100S	100	55	0	5	37	0	00
		GRAND MEAN	4655	72	72	157	15	20	78	2	5	44	7	41
	STANDARD ERROR OF GRAND MEAN		50	0	0	0	0	1	0	0	0	0	0	1
	COEFICIENT OF VARIATION		22	7	2	3	68	77	8	474	215	8	120	33
	LSD VARIETY MEANS 5 PC		1066	6	3	5	17	26	10	18	12	6	13	28

CORRELATIONS

YIELD	KG/HA													
TEST	WEIGHT	0.41**												
DAYS TO	FLOWER	0.05	-0.36**											
DAYS TO MATURITY		0.15	0.38**	-0.03**										
STRIPE	RUST	-0.42**	-0.48**	-0.03	0.02									
P.STRIPE	HEAD	-0.51**	-0.52**	-0.03	0.05	0.09**								
HEIGHT	CM.	0.06	-0.16	0.00*	-0.25	0.00	0.00							
LODGING		-0.08	-0.01	0.25	0.14	0.19	0.19	0.62*						
SPATTER	ING	-0.25	0.14	-0.30*	0.03	-0.12	-0.14	-0.41**	-0.10					0
ICCC GRN	WGT GRMS	0.30**	0.47**	-0.32*	0.24	-0.33*	-0.41**	-0.07	-0.07	0.21				
SEPTORIA	SPP.	0.15	0.00	0.21	-0.10	-0.17	-0.10	0.00	-0.07	-0.16	-0.21			
XX		-0.41**	-0.35**	-0.20*	0.21	0.37**	0.09**	-0.25*	-0.14	0.13	-0.13	-0.03		

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 71 SOUTH AMERICA FIFE ANGASH

UNIVERSIDAD NACIONAL AGRARIA. (CEREALES).
COOPERATORS P. ROMERO COLI ET AL.

LATITUDE 09°S
LONGITUDE 077 40°W
ELEVATION 4[illegible] M.ABOVE S.L.

DATE PLANTED 01/27/73
DATE HARVESTED --/--/--
AMOUNT OF POTSTLFE ---- MM

NITROGEN 100.0 KG/HA
PHOSPHORUS 060.0 KG/HA
POTASSIUM 000.0 KG/HA

IRREGULAR RAINFALL. LACK OF HUMIDITY AT THE END OF VEGETATIVE PERIOD.
DEVELOPMENT OF STEM RUST. INSECT, WEED OR PEST PROBLEMS NOT REPORTED.
LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	STEM RUST	HEIGHT CM.	1000 GRN WGT GRMS
25	JARAL "S"	ARGENTINA	5076	72	57	20S	76	45
31	LMEHAD 70	PAKISTAN	4553	71	61	70S	81	36
15	TUBARI 66	MEXICO	4525	74	58	20S	61	50
43	TUB-8150	ETHIOPIA	4346	70	58	TS	68	31
35	MENG-0150	MEXICO	4147	67	75	TS	66	30
46	BUHAWCA	U.S.A.	4136	72	-	0	66	40
14	CALIDAD	MEXICO	3948	71	57	20S	66	50
49	SARIC 70	MEXICO	3933	63	68	50S	63	30
13	PENJAMO 62	MEXICO	3815	71	62	TS	85	45
7	MEXICO 226 = SCR 64-KL. PENC	IRAN	3775	71	58	30S	73	50
50	LOCAL CHECK		3771	70	55	TS	83	40
44	ZAAFRANE	TUNISIA	3736	68	-	20S	73	40
34	ZIPA 66	COLOMBIA	3680	70	62	40S	86	38
21	CAJEME 71	MEXICO	3675	64	72	80S	75	40
41	OG-115 = CONDOR	AUSTRALIA	3630	70	66	40S	66	35
47	PARANA 66 /1116	ARGENTINA	3565	76	56	0	61	40
23	BI-2281	TUNISIA	3535	72	58	10S	66	50
16	PATO = TZPP-SON 64 X NAP 59	ARGENTINA	3456	70	56	50S	71	40
18	MARCOS JUAREZ INTA	ARGENTINA	3466	70	68	40S	86	47
5	BI-2286	TUNISIA	3454	73	58	10S	81	50
38	SAMACA 66	COLOMBIA	3446	67	56	40S	88	31
45	(21931/CM 53-AN X GB 56) AN 64	ISRAEL	3382	65	62	50S	73	40
3	IASSUL-20	BRAZIL	3372	72	66	60S	121	40
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	3366	70	55	40S	61	50
33	LAGOA VERMELHA (C-17)	BRAZIL	3357	74	64	40S	125	45
30	JARAL "S" (B)	ARGENTINA	3246	70	62	TS	76	37
2	TANORI-71	MEXICO	3225	70	56	80S	71	50
1	CHRIS	U.S.A.	3205	72	62	TS	115	50
19	YECORA 70	MEXICO	3203	60	58	70S	60	30
24	3400-1-3	S.AFRICA	3176	65	60	70S	78	40
28	UP-301	INDIA	3144	67	60	30S	50	39
26	SONALIKA	INDIA	3125	71	55	40S	75	40
32	7 CERROS	MEXICO	3026	68	62	30S	73	37
8	BB-INIA	MEXICO	3025	69	59	TS	61	50
17	INIA-66	MEXICO	3015	72	57	40S	80	50
4	K338-E. DE CM. X KOOCIET 17-RT-Y	TUNISIA	2991	69	67	60S	92	50
22	GABOTO	ARGENTINA	2769	64	74	60S	110	30
29	GIZA 155	EGYPT	2632	72	59	30S	98	40
27	HUELQUEN	CHILE	2472	65	56	TS	85	38
20	MEXICO 120	AUSTRALIA	2417	60	68	90S	61	29
9	SOLTANE = BT 2296	TUNISIA	2171	66	67	20S	85	35
42	BB "S" RESELECTION	PAKISTAN	2133	68	68	30S	61	40
36	/15/70	YUGOSLAVIA	2051	64	76	80S	70	35
10	PITIC 62	MEXICO	1975	58	70	60S	93	40
11	WW15 = ANZA	AUSTRALIA	1937	68	65	40S	73	35
37	LEE-NLOD X GB 55 / GE 56	SUDAN	1839	64	63	50S	65	40
6	ERA	U.S.A.	1775	65	0	0	70	40
39	EL GAU-SON 64 X 76-NP 63	U.S.A.	1740	64	70	0	76	28
45	MUTI	INDIA	1668	61	58	TS	55	30
12	ARIANA 66	TUNISIA	1565	58	0	10S	95	40
		GRAND MEAN	3175	68	62	30	77	40
		STANDARD ERROR OF GRAND MEAN	60		0	1	0	
		COEFICIENT OF VARIATION	23		3	46	8	
		LSD VARIETY MEANS 5 PC	1213		3	22	11	

CORRELATIONS

YIELD	KG/HA					
TEST	WEIGHT	0.21**				
DAYS TO	FLOWER	0.21	0.10			
STEM	RUST	-0.05	-0.25	0.33*		
HEIGHT	CM.	-0.60	0.16	0.02	0.06	
1000 GRN	WGT GRMS	0.25	0.57**	-0.15	-0.18	0.15

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 72 SOUTH AMERICA PERU

ESTACION EXPERIMENTAL AGRARIA DE HUANCAYO.
COOPERATORS JOSE ANIZULA AND CARLOS LLOSA.

LATITUDE 012.00°S DATE PLANTED 11/23/72 NITROGEN 040.0 KG/HA
LONGITUDE 075.05°W DATE HARVESTED 06/15/73 PHOSPHORUS 080.0 KG/HA
ELEVATION 4.2345 M.ABOVE S.L. AMOUNT OF PRESTORE ---- PH POTASSIUM 000.0 KG/HA

NORMAL RAINS UNTIL MATURITY. DEVELOPMENT OF STRIPE RUST AND STRIPE RUST INFECTION OF THE HEAD. INSECT AND WEED PROBLEMS NOT REPORTED. MINIMUM BIRD ATTACK. LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST HEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	P.STRIPE HEAD	HEIGHT CM.	SHATTERING
10	PITIC 62	MEXICO	4238	73	81	136	0	0	93	0
4	K338-E. DE CH. X KOUCIET 17-XT-Y	TUNISIA	4077	74	74	135	0	0	97	0
11	WW15 = ANZA	AUSTRALIA	3710	72	76	137	0	0	81	0
2	TAMURI-71	MEXICO	3594	72	68	127	TS	TR	77	2
27	HUELQUEN	CHILE	3527	75	72	136	0	0	102	0
3	IASSUL-20	BRAZIL	3455	76	81	136	30S	40S	129	3
50	LOCAL CHECK		3366	66	101	C	5S	60S	151	0
48	(21931/CM 53-AN X GB 56) AN 64	ISRAEL	3171	72	72	135	0	0	77	0
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	3145	71	76	136	0	0	84	0
46	BONANZA	U.S.A.	3071	76	72	135	0	0	79	0
9	SOLTANE = BT 2296	TUNISIA	3071	72	73	133	10S	TR	90	0
25	JARAL 'S'	ARGENTINA	3021	75	-	-	5S	TR	80	1
12	ARIANA 66	TUNISIA	2868	72	0	0	0	0	98	0
35	MENG-8156	MEXICO	2627	74	84	144	0	5S	72	0
37	LEE-NIOB X GB 55 / GB 56	SUDAN	2749	71	72	140	0	10S	75	0
8	BB-INIA	MEXICO	2710	75	68	133	TS	0	68	0
36	715/70	YUGOSLAVIA	2666	74	84	141	0	0	64	1
49	SARIC 70	MEXICO	2660	73	73	134	0	0	72	0
41	UW-115 = CONDOR	AUSTRALIA	2660	75	73	135	0	0	70	0
28	SONALIKA	INDIA	2633	71	68	135	0	0	82	0
30	JARAL 'S' (B)	ARGENTINA	2571	73	69	134	0	0	81	0
13	PENJAMO 62	MEXICO	2566	71	68	132	0	TR	82	0
14	CALIDAD	MEXICO	2555	75	72	136	0	TR	82	0
43	TOB-8156	ETHIOPIA	2536	75	73	138	10S	TR	71	0
20	MEXICO 120	AUSTRALIA	2527	71	72	133	0	0	59	1
7	MEXICO 226 = SCN 64-KL. REND	IRAK	2521	72	68	131	50S	20S	87	0
47	PARANA 68 /1116	ARGENTINA	2483	77	68	131	0	5S	65	0
18	MARCOS JUAREZ INTA	ARGENTINA	2471	73	80	136	5S	10S	87	0
31	CHENAB 70	PAKISTAN	2466	72	68	135	5S	30S	75	3
5	BT-2286	TUNISIA	2460	73	68	133	0	TR	81	1
32	7 CERROS	MEXICO	2444	73	73	136	5S	5S	77	0
38	SAMACA 68	COLOMBIA	2410	72	75	134	0	0	89	0
44	ZAAFRANE	TUNISIA	2345	74	68	137	10S	5S	74	0
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A.	2327	73	68	136	0	0	60	0
6	ERA	U.S.A.	2206	73	91	141	10S	50S	83	0
33	LAGOA VERMELHA (C-17)	BRAZIL	2200	74	73	138	15S	20S	110	0
16	PATO = TZPP-SUN 64 X BAR 59	ARGENTINA	2245	74	73	135	0	0	70	0
21	CAJEME 71	MEXICO	2233	74	73	127	0	TR	70	0
29	GIZA 155	EGYPT	2216	75	70	140	0	0	90	0
23	BT-2281	TUNISIA	2166	75	69	139	0	TR	73	0
17	INIA-66	MEXICO	2138	74	68	129	0	0	67	0
19	YECORA 70	MEXICO	2010	73	68	129	0	0	59	3
15	TUBARI 66	MEXICO	1983	76	68	130	0	0	73	0
1	CHRIS	U.S.A.	1905	76	72	138	TS	0	107	0
45	MOTA	INDIA	1888	71	68	133	60S	TR	61	1
34	ZIPA 68	COLOMBIA	1838	74	73	140	0	TR	87	0
24	3400-1-3	S.AFRICA	1722	72	70	139	TS	15S	77	1
42	NW 'S' RESELECTION	PAKISTAN	1610	72	73	129	0	TR	52	5
22	GAUCHO	ARGENTINA	1468	76	81	139	0	0	105	0
26	UP-301	INDIA	1405	74	73	-	0	TR	50	2
		GRAND MEAN	2566	73	73	135	4	7	81	0
	STANDARD ERROR OF GRAND MEAN		46	0	0	0	0	0	0	0
	COEFFICIENT OF VARIATION		23	1	2	3	146	146	6	175
	LSD VARIETY MEANS 5 PC		975	1	3	7	11	14	10	1

CORRELATIONS

YIELD	KG/HA								
TEST	HEIGHT	-0.16							
DAYS TO	FLOWER	0.00	-0.04						
DAYS TO	MATURITY	-0.16	0.46**	0.39**					
STRIPE	RUST	-0.09	-0.11	0.03	0.05				
P.STRIPE	HEAD	0.08	-0.47**	0.38**	-0.30*	0.34*			
HEIGHT	CM.	0.38**	-0.11	0.16	-0.43**	0.12	0.48**		
SHATTER	ING	-0.24	-0.09	-0.01	0.07	0.15	-0.09	-0.29*	

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 73 SOUTH AMERICA URUGUAY

CENTRO INV. AGRICOLAS ALBERTO BOERGER. LA ESTANZUELA.
COOPERATORS IRENE GOTTI Y DOMINGO LUIZZI.

LATITUDE 034 27'S
LONGITUDE 057 46'W
ELEVATION +00081 M.ABOVE S.L.

DATE PLANTED 09/05/72
DATE HARVESTED 01/25/73
AMOUNT OF MOISTURE 0588 MM

NITROGEN 060.0 KG/HA
PHOSPHORUS 060.0 KG/HA
POTASIUM 000.0 KG/HA

THE RAINFALL LEVEL IN 1972 WAS ABOVE NORMAL. VERY GOOD DISEASE DEVELOPMENT. NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	LEAF RUST	STEM RUST	HEIGHT CM.	SEPTORIA SPP.
43	TOB-8156	ETHIOPIA	3163	64	10S	10S	65	12
44	ZAAFRANE	TUNISIA	2618	71	100S	0	75	-
39	EL GOU-SON 64 X 7C-NP 63	U.S.A.	2614	68	60MR	20S	80	37
35	MENG-8156	MEXICO	2517	69	0	TR	55	-
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A	2488	66	0	-	60	100
15	TOBARI 66	MEXICO	2472	65	60S	5S	75	37
5	BT-2288	TUNISIA	2366	60	20MS	-	70	37
2	TANORI-71	MEXICO	2342	65	100S	2S	60	0
46	BONANZA	U.S.A.	2324	62	60S	-	70	-
10	PITIC 62	MEXICO	2290	63	100S	-	75	25
18	MARCOS JUAREZ INTA	ARGENTINA	2284	64	80S	-	75	37
9	SOLTANE = BT 2296	TUNISIA	2279	64	80S	-	75	-
30	JARAL 'S' (B)	ARGENTINA	2278	67	0	-	70	25
22	GABOTO	ARGENTINA	2254	70	10S	40S	90	50
14	CALIDAO	MEXICO	2230	62	80S	-	70	25
8	BB-INIA	MEXICO	2230	63	20S	-	55	25
47	PARANA 68 /1116	ARGENTINA	2222	67	-	-	65	-
7	MEXICO 226 = SON 64-KL. REND	IRAK	2217	64	60S	-	75	12
41	UQ-115 = CONDOR	AUSTRALIA	2216	65	60S	-	65	43
16	PATO = TZPP-SON 64 X NAR 59	ARGENTINA	2185	62	10MS	-	65	50
26	UP-301	INDIA	2141	65	20S	-	55	87
37	LEF-N10B X GB 55 / GB 56	SUDAN	2128	62	80S	-	60	0
34	ZIPA 68	COLOMBIA	2112	67	80S	5S	80	25
48	(21931/CH 53-AN X GB 56) AN 64	ISRAEL	2064	67	100S	-	65	0
36	715/70	YUGOSLAVIA	2057	71	TRMR	-	60	25
23	BT-2281	TUNISIA	2031	62	60S	-	65	50
29	GIZA 155	EGYPT	2027	67	80S	20S	90	0
50	LOCAL CHECK		2021	68	100S	60S	80	37
1	CHRIS	U.S.A.	2019	65	80S	0	90	-
28	SONALIKA	INDIA	2019	68	100S	-	80	12
11	HW15 = ANZA	AUSTRALIA	2013	66	80S	-	55	62
19	YECORA 70	MEXICO	1998	61	80S	60S	50	37
33	LAGOA VERMELHA (C-17)	BRAZIL	1979	68	60S	5S	110	31
45	MOTI	INDIA	1945	68	-	-	55	62
38	SAMACA 68	COLOMBIA	1933	64	40S	5S	85	50
25	JARAL 'S'	ARGENTINA	1917	66	1MS	-	70	37
21	CAJEME 71	MEXICO	1901	72	80S	60S	50	-
24	3400-1-3	S.AFRICA	1878	66	80S	-	65	12
17	INIA-66	MEXICO	1848	61	100S	-	65	0
6	ERA	U.S.A.	1773	68	30MS	-	70	18
42	BB 'S' RESELECTION	PAKISTAN	1757	69	60S	80S	50	31
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNISIA	1748	65	100S	10S	85	0
20	MEXICO 120	AUSTRALIA	1699	65	100S	-	45	25
49	SARIC 70	MEXICO	1692	70	80S	80S	55	25
12	ARIANA 66	TUNISIA	1659	72	80S	10S	65	0
3	IASSUL-20	BRAZIL	1657	76	80S	TR	105	25
32	7 CERROS	MEXICO	1650	68	100S	10S	75	37
27	HUELQUEN	CHILE	1635	65	100S	-	90	-
13	PENJAMO 62	MEXICO	1592	75	80S	-	70	25
31	CHENAB 70	PAKISTAN	1571	65	100S	5S	70	50
		GRAND MEAN	2081	66	69	22	70	36
	STANDARD ERROR OF GRAND MEAN		44	0	3			2
	COEFICIENT OF VARIATION		26	8	50			51
	LSD VARIETY MEANS 5 PC		889	9	57			30

CORRELATIONS

YIELD	KG/HA					
DAYS TO	FLOWER	-0.30*				
LEAF	RUST	-0.21	-0.10			
STEM	RUST	-0.19	0.23	0.13		
HEIGHT	CM.	-0.05	0.16	0.17	-0.19	
SEPTORIA	SPP.	0.13	-0.03	-0.62**	-0.00	-0.19

* SIGNIFICANT AT THE 5 LEVEL ** SIGNIFICANT AT THE 1 LEVEL

TABLE 74. MEAN OVER ALL LOCATIONS FOR YIELD, AGRONOMIC AND DISEASE DATA FOR THE NINTH INTERNATIONAL SPRING WHEAT YIELD NURSERY.

VAR. NO.	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	STRIPE HEAD	LEAF RUST	STEM RUST	HEIGHT CM.	LODG-ING
35	MENG-8156	MEX.	4286.63	73.56	102.31	129.79	8.42	49.17	8.34	7.33	75.86	1.95
41	UQ-105 = CONDOR "S"	AUSTL.	4265.99	78.15	95.34	128.73	2.20	0.02	12.85	10.89	75.45	1.41
32	7 CERROS	MEX.	4261.90	72.24	94.79	123.96	15.31	39.17	24.34	17.44	87.99	9.84
2	TANORI-71	MEX.	4157.60	77.91	86.06	125.96	4.08	1.02	4.80	6.39	82.04	3.67
21	CAJEME 71	MEX.	4157.20	75.34	96.09	129.35	11.79	1.27	3.42	8.54	71.64	1.61
48	(21931/CH 53-AN X GB 56) AN 64	ISRL.	4121.94	77.54	93.60	124.80	4.53	5.02	15.89	15.01	80.33	9.43
9	SOLTANE = BT 2296	TUNIS	4116.65	78.13	91.83	128.28	6.38	28.35	5.28	8.89	88.70	8.48
10	PITIC 62	MEX.	4110.59	73.46	97.21	126.62	8.47	1.83	17.15	21.08	91.32	25.32
43	TOB-8156	ETHIO.	4076.38	78.34	92.13	125.66	13.25	34.61	7.43	4.70	81.49	2.81
8	BB-INIA	MEX.	4067.68	77.69	88.30	126.53	4.04	0.03	1.36	6.99	65.94	1.36
13	PENJAMO 62	MEX.	4063.93	77.16	92.47	126.88	11.01	0.02	3.46	12.53	86.39	20.60
28	SONALIKA	INDIA	4058.86	77.12	85.25	122.84	7.92	4.18	10.15	10.36	88.07	11.57
19	YECORA 70	MEX.	4056.55	74.63	88.30	126.06	11.34	0.83	8.85	13.94	66.26	1.47
25	JARAL "S"	ARGEN.	4041.98	78.14	87.94	126.16	12.14	16.70	3.63	7.74	84.26	4.05
11	NW15 = ANZA	AUSTL.	3995.05	77.03	97.88	129.51	5.11	1.68	29.86	23.14	76.88	1.62
18	MARCOS JUAREZ INTA	ARGEN.	3968.32	77.81	97.13	131.49	7.44	26.67	1.41	8.06	90.49	8.57
31	CHENAB 70	PAK.	3968.24	73.40	91.35	123.08	9.75	40.83	18.20	17.65	86.13	4.33
7	MEXICO 226 = SON 64-KL. REND.	IRAK	3957.31	77.67	88.89	126.74	11.71	45.00	4.97	8.71	88.18	7.22
49	SARIC 70	MEX.	3955.53	74.44	94.84	128.99	10.06	1.85	5.11	11.40	67.59	0.98
44	ZAAFRANE	TUNIS	3949.13	77.57	89.91	126.35	12.15	45.83	3.20	5.19	85.10	7.01
17	INIA-66	MEX.	3936.99	79.27	87.87	124.89	4.00	0.85	17.48	5.83	83.86	7.36
30	JARAL "S" (B)	ARGEN.	3936.74	74.29	91.73	124.11	10.20	10.02	2.47	1.57	83.49	5.62
15	TOBARI 66	MEX.	3906.01	78.99	88.88	127.48	1.77	0.02	0.58	5.06	85.28	8.73
24	3400-1-3	S.AFR.	3889.76	78.57	93.22	128.60	32.13	59.17	7.18	13.03	81.54	7.26
16	PATO = TZPP-SON 64 X NAR 59	ARGEN.	3831.84	78.52	93.05	125.60	1.36	0.02	4.11	8.05	82.07	9.12
5	BT-2288	TUNIS	3810.89	78.10	87.62	127.65	9.90	0.20	1.35	8.52	85.13	12.86
46	BONANZA	U.S.A.	3808.70	77.75	93.68	124.28	7.55	0.20	0.27	1.04	81.97	13.12
23	BT-2281	TUNIS	3800.16	75.74	89.05	126.44	4.75	4.20	24.08	7.83	81.00	5.46
37	LEE-N10B X GB 55 / GB 56	SUDAN	3795.09	71.33	91.56	122.35	13.62	27.50	20.83	9.78	78.44	2.79
29	GIZA 155	EGYPT	3759.55	75.39	93.29	125.62	9.07	0.02	19.98	10.61	99.70	25.66
36	715/70	YUGOS.	3751.01	75.40	101.61	130.56	5.41	0.85	6.51	9.29	71.39	4.92
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A.	3737.42	74.40	86.20	129.30	5.49	0.00	3.76	5.66	70.69	1.93
47	PARANA 68/1116	ARGEN.	3728.57	75.49	89.05	123.06	11.20	14.35	6.77	4.4[illegible]	71.13	0.69
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNIS	3716.46	75.70	94.86	129.40	12.94	1.68	26.95	22.94	99.18	11.21
27	HUELQUEN	CHILE	3714.56	77.45	94.87	125.25	5.52	0.00	6.93	5.54	101.43	27.07
14	CALIDAD	MEX.	3202.13	79.05	90.09	127.18	5.54	0.03	5.60	8.13	84.73	15.17
20	MEXICO 120	AUSTL.	3678.29	75.54	94.23	125.76	21.01	13.35	12.76	19.25	60.91	1.99
50	LOCAL CHECK		3678.18	70.68	86.60	119.44	10.18	30.33	21.79	12.36	86.20	14.75
45	MOTI	INDIA	3633.58	73.34	89.48	125.96	33.31	58.35	12.26	11.90	59.79	1.53
42	BB "S" RESELECTION	PAK.	3556.60	73.51	91.62	122.84	6.87	0.05	2.14	8.92	59.77	0.53
26	UP-301	INDIA	3507.61	75.55	91.29	124.06	9.71	0.05	4.69	1.92	60.66	0.54
34	ZIPA 68	COLM.	3449.03	75.81	95.86	127.32	4.66	0.87	20.54	9.71	100.64	9.34
38	SAMACA 68	COLM.	3447.18	76.49	92.06	126.48	5.18	1.00	6.65	3.29	99.13	17.68
39	EL GAU-SON 64 x 7C-NP 63	U.S.A.	3279.82	68.48	101.75	122.14	8.85	0.02	6.63	6.31	86.98	6.78
6	ERA	U.S.A.	3241.95	76.27	99.56	120.43	7.44	29.17	0.54	0.53	83.72	10.61
33	LAGOA VERMELHA (C-17)	BRAZIL	3149.79	77.74	95.25	125.60	26.23	50.00	12.61	15.22	114.75	53.91
1	CHRIS	U.S.A.	2987.90	77.03	95.87	139.07	5.11	0.00	1.66	0.58	110.88	42.77
22	GABOTO	ARGEN.	2983.25	77.58	101.02	127.45	8.75	29.18	2.39	10.47	110.89	44.49
12	ARIANA 66	TUNIS	2847.14	69.13	98.23	115.73	5.77	0.02	7.03	8.43	97.52	12.46
3	IASSUL-20	BRAZIL	2581.32	71.57	98.64	127.35	9.71	27.50	4.16	19.98	118.65	46.98
	NUMBER OF LOCATIONS FOR EACH VARIABLE		70	37	66	47	22	2	30	21	69	33
	SUMMARY MEANS OVER VARIETIES		3769.72	75.83	92.99	125.94	9.61	14.06	9.21	9.64	84.25	11.15

CONT'D. TABLE 74.

VAR. NO.	VARIETY OR CROSS	ORIGIN	SHATTER-ING	1000 GRN WGT GRMS	POWDERY MILDEW	SEPTORIA TRITICI	SEPTORIA NODORUM	SEPTORIA SPP.	FUSA RIUM	LEAF FIRE	FROST DAMAGE	NECK BREAK
35	MENG-8156	MEX.	6.24	34.77	10.30	42.55	57.75	22.44	15.00	0.00	16.67	7.05
41	HD-105 = CONDOR "S"	AUSTL.	5.05	34.20	27.00	34.97	50.35	22.74	25.00	0.00	26.67	28.08
32	7 CERROS	MEX.	10.26	34.08	16.50	38.67	58.85	30.21	55.00	6.25	16.67	25.87
2	TANORI-71	MEX.	8.38	37.15	60.27	53.94	61.45	20.93	55.00	12.50	30.00	16.98
21	CAJEME 71	MEX.	10.59	41.46	45.89	43.01	68.85	13.10	35.00	12.50	33.33	18.65
48	(21031/CH 53-NS X GB 56) AN 64	ISRL.	7.89	34.72	37.92	46.54	47.75	17.33	35.00	18.75	26.67	31.08
9	SOLTANI = BT 2296	TUNIS	6.52	40.72	46.31	41.07	47.75	11.64	15.00	0.00	33.33	13.27
19	PITIC 62	MEX.	4.35	34.78	30.33	27.75	32.95	14.04	15.00	12.50	23.33	63.30
13	TOB-8156	ETHIO.	10.97	34.75	20.40	47.00	38.85	28.47	40.00	31.25	23.33	16.65
8	BB-INIA	MEX.	5.44	37.43	48.96	59.95	68.85	18.25	60.00	18.75	50.00	16.82
13	PENJAMO 62	MEX.	9.87	38.96	43.44	42.09	47.75	14.83	20.00	12.50	16.67	27.20
28	SONALIKA	INDIA	7.77	46.27	49.06	56.42	78.85	19.89	75.00	12.50	23.33	5.55
19	YECORA 70	MEX.	5.61	40.18	39.04	61.34	71.45	16.19	70.00	6.25	46.67	23.03
25	JARAL "S"	ARGEN.	14.18	32.65	28.58	50.15	64.05	28.96	35.00	25.00	23.33	37.20
11	BW15 = ANZA	AUSTL.	2.56	33.33	40.52	18.96	46.65	32.78	30.00	0.00	13.33	34.70
18	MARCOS JUAREZ INTA	ARGEN.	7.55	40.58	26.55	32.75	36.65	10.69	6.25	0.00	36.67	18.32
31	CHENAB 70	PAK.	14.64	36.97	37.43	69.57	65.15	16.54	40.00	6.25	13.33	11.35
7	MEXICO 226 = SON 64-KL. REND.	IRAK	8.24	40.77	37.79	47.00	46.65	14.78	42.50	6.25	16.67	17.82
49	SARIC 70	MEX.	8.38	39.40	55.90	51.16	68.85	7.86	45.00	12.50	23.33	16.82
44	ZAAFRANE	TUNIS	9.40	37.52	34.69	59.31	47.75	19.85	27.50	0.00	20.00	0.00
17	INIA-66	MEX.	9.25	39.68	56.36	32.84	61.45	18.50	60.00	0.00	30.00	22.20
30	JARAL "S" (B)	ARGEN.	5.41	38.71	20.75	50.61	46.65	17.99	60.00	12.50	20.00	33.63
15	TOBARI 66	MEX.	5.85	36.60	18.21	35.15	46.65	19.47	30.00	18.75	33.33	11.10
24	3400-1-3	S.AFR.	11.70	33.76	46.24	24.51	47.75	17.92	47.50	6.25	20.00	26.93
16	PATO = TZPP-SON 64 X NAR 59	ARGEN.	6.65	31.17	45.42	27.75	57.75	15.10	27.50	0.00	20.00	28.08
5	BT-2288	TUNIS	5.61	36.54	21.26	40.70	57.75	13.36	57.50	6.25	16.67	24.20
46	BONANZA	U.S.A.	5.11	31.79	37.11	55.32	47.75	17.22	17.50	12.50	36.67	36.97
23	BT-2281	TUNIS	6.89	36.11	39.79	28.21	16.65	19.19	60.00	0.00	13.33	16.65
37	LEE-N10B X GB 55 / GB 56	SUDAN	5.15	32.06	35.58	67.26	78.85	18.65	55.00	12.50	23.33	26.37
29	GIZA 155	EGYPT	5.59	39.76	22.40	47.09	31.10	24.86	10.00	0.00	33.33	16.65
36	715/70	YUGOS.	11.11	31.71	3.03	46.45	46.65	10.64	7.50	6.25	16.67	11.10
40	SON 64 X TZPP-Y54 / JUSTIN 3	U.S.A.	3.56	36.76	23.03	51.80	67.75	39.44	45.00	12.50	30.00	22.20
47	PARANA 68/1116	ARGEN.	3.53	36.13	41.24	71.42	85.15	35.46	40.00	0.00	40.00	5.55
4	K338-E. DE CH. X KOUDIET 17-KT-Y	TUNIS	10.02	37.50	36.98	41.07	57.75	7.97	32.50	0.00	20.00	11.43
27	HUELQUEN	CHILE	8.66	36.48	43.99	46.45	60.35	24.86	45.00	18.75	16.67	16.65
14	CALIDAD	MEX.	9.40	35.00	61.06	35.90	68.85	18.89	12.50	12.50	33.33	16.65
20	MEXICO 120	AUSTL.	5.29	34.61	60.45	45.70	68.85	24.61	52.50	18.75	20.00	65.53
50	LOCAL CHECK		5.46	34.66	28.47	34.03	31.10	23.92	40.00	0.00	33.33	50.45
45	MOTI	INDIA	5.27	36.92	50.19	53.19	96.25	39.36	26.25	0.00	33.33	41.65
42	BB "S" RESELECTION	PAK.	11.64	38.00	49.65	65.87	78.85	27.99	47.50	12.50	56.67	0.00
26	UP-301	INDIA	7.86	38.19	41.00	65.87	71.45	37.53	50.00	12.50	36.67	22.20
34	ZIPA 68	COLM.	9.58	35.87	18.71	44.14	71.45	28.36	17.50	18.75	33.33	22.53
38	SAMACA 68	COLM.	6.32	37.30	25.60	44.60	26.65	19.44	25.00	12.50	16.67	16.65
39	EL GAU-SON 64 X 7C-NP 63	U.S.A.	5.35	27.90	8.18	26.65	27.75	17.31	20.00	6.25	16.67	33.30
6	ERA	U.S.A.	6.30	29.41	11.23	20.35	12.95	7.29	15.00	18.75	13.33	33.47
33	LAGOA VERMELHA (C-17)	BRAZIL	2.97	38.88	22.96	30.90	26.65	8.60	17.50	12.50	16.67	45.80
1	CHRIS	U.S.A.	9.53	30.43	31.01	19.89	37.75	8.19	31.25	6.25	30.00	6.38
22	GABOTO	ARGEN.	10.88	30.12	52.48	32.29	27.75	14.71	2.50	0.00	36.67	35.30
12	ARIANA 66	TUNIS	5.64	33.70	30.01	25.44	16.65	11.88	0.00	12.50	10.00	22.20
3	IASSUL-20	BRAZIL	50.04	37.50	40.88	18.50	22.95	5.61	3.75	6.25	13.33	19.98
	NUMBER OF LOCATIONS FOR EACH VARIABLE		22	41	10	4	2	7	2	1	1	2
	SUMMARY MEANS OVER VARIETIES		8.39	36.08	35.20	43.08	52.06	19.52	33.95	9.00	25.67	23.43

Table 75. Grain technology data of 49 varieties included in 9th. ISWYN, using seed from CIANO, Yaqui Valley, Mexico, (1972 - 1973) determined in CIMMYT Wheat Quality Laboratory.

	Variety Number and Name	Test Wt. Kg/hl	PK minutes	Flour Yield %	Protein % in Flour	Sedi-mentation (cc.)	Mixing Time minutes	Alveogram P/G	Alveogram W	Loaf Volume	Loaf H_2O
1	Chris	80.6	110	69.4	13.5	41	1.55	5.5	359	805	62.5
2	Tanori 71	84.0	107	71.9	11.5	40	2.35	4.3	325	760	60.3
3	Iassul 20	76.6	51	61.8	13.8	26	1.00	3.4	161	705	62.8
4	T-64-2-W	80.7	50	67.3	10.8	23	1.30	1.7	122	660	60.0
5	BT 2288	82.8	82	65.7	10.1	40	2.10	4.1	274	695	59.3
6	Era	73.6	>120	66.2	10.8	41	4.00	7.0	344	730	60.0
7	Mexico 226	83.0	>120	72.3	10.1	44	3.00	8.2	342	695	59.3
8	Bb - Inia	84.1	>120	65.8	10.1	47	3.10	4.9	332	715	59.5
9	Soltane	83.2	>120	67.1	9.4	42	3.40	10.0	295	665	59.1
10	Pitic 62	77.9	36	55.1	8.0	13	2.00	6.4	115	470	57.3
11	LR - N10B x An_E^3	82.8	58	69.4	9.3	25	1.35	7.4	202	625	58.8
12	Ariana 66	74.7	82	61.4	11.4	44	3.00	2.4	293	790	60.5
13	Penjamo 62	82.4	44	72.5	9.2	14	1.15	4.3	105	560	58.4
14	Calidad	83.7	>120	70.0	10.8	54	3.15	5.7	311	725	59.9
15	Tobari 66	82.9	>120	74.5	10.7	48	3.10	6.6	406	730	60.0
16	Pato	83.2	93	71.1	9.7	41	3.15	3.8	340	705	59.1
17	Inia 66	84.8	115	74.0	11.3	47	2.40	5.0	319	765	60.6
18	Marcos Juarez Inta	82.4	>120	67.2	10.1	41	4.00	8.9	357	640	59.4
19	Yecora 70	83.0	>120	68.0	9.7	42	3.15	7.7	414	655	59.0
20	Mexico 120	81.2	39	55.2	8.7	11	1.30	4.2	103	520	58.0
21	Cajeme 71	82.2	>120	68.5	9.4	42	4.00	6.9	287	680	58.8
22	Gaboto	81.2	105	60.3	11.6	40	1.50	4.5	243	675	60.9
23	BT 2281	82.7	79	66.8	10.1	47	2.40	2.8	265	770	59.4
24	3400-1-3	83.8	79	61.9	8.9	20	1.40	9.5	242	660	58.0
25	Jaral "S" (C)	82.0	>120	66.1	10.7	47	3.20	6.2	396	780	60.0

Cont'd. Table 75.

		Test Wt. Kg/hl	PK minutes	Flour Yield %	Protein % in Flour	Sedi-mentation (cc.)	Mixing Time minutes	Alveogram P/G	Alveogram W	Loaf Volume	Loaf H20
26	UP 301	81.7	102	62.3	10.5	35	2.30	6.0	296	715	59.7
27	Huelquen	81.7	48	59.1	9.7	30	1.30	4.6	193	635	59.1
28	Sonalika	82.5	48	68.0	10.5	23	1.00	3.8	137	695	59.7
29	Giza 155	82.8	48	68.4	10.1	28	2.00	3.6	202	710	59.3
30	Jaral "S" (B)	78.9	105	69.4	11.2	44	2.20	6.2	411	760	60.0
31	Chenab 70	82.2	46	71.0	10.0	25	2.10	4.2	191	655	59.4
32	Siete Cerros 66	82.9	47	65.3	9.1	32	2.00	9.8	225	580	58.4
33	Lagoa Vermelha (C-17)	80.9	50	59.9	9.8	20	1.10	5.8	160	615	59.1
34	Zipa 68	80.0	54	68.7	12.2	32	1.40	5.5	242	790	61.2
35	Meng-8156	80.7	42	61.9	8.8	22	1.50	3.4	130	525	58.3
36	715/70	80.1	47	64.7	9.9	22	2.50	7.0	167	510	59.1
37	Lee-N10B x Gb55/Gb56	80.1	44	64.4	9.4	34	2.20	9.2	297	645	58.8
38	Samaca 68	81.3	65	66.9	12.4	38	2.20	6.0	338	690	61.4
39	El Gaucho-Son64 x 7C-Napo63	71.7	>120	57.5	10.0	42	4.40	7.0	332	665	59.3
40	Son64 x Tzpp-Y54/Justin^3	80.6	119	70.8	10.9	61	3.40	4.8	421	740	59.9
41	UQ 105	83.7	44	67.7	8.7	26	2.20	7.3	236	605	58.0
42	Bb "S" Reselection	82.1	>120	69.9	10.4	41	3.00	4.8	298	745	59.7
43	Tob-8156	83.4	>120	67.4	9.6	37	2.50	7.9	338	655	58.8
44	Zaafrane	82.6	>120	63.4	10.1	38	3.15	9.7	399	680	59.4
45	Moti	82.1	53	68.7	10.4	33	1.55	5.3	264	720	59.7
46	Bonanza	82.4	117	61.5	11.2	49	2.50	6.8	420	805	60.1
47	Parana 68/1116	83.1	81	66.7	11.2	47	2.40	2.8	267	760	60.2
48	(21931/Ch53-AnxGb56)An 64	82.7	99	68.5	10.1	43	2.40	9.1	399	740	59.7
49	Saric 70	82.1	>120	65.7	9.0	41	3.50	8.5	326	675	58.3
	Local check (Gold Medal)				13.3	49	3.15	4.3	488	940	62.3