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RESULTS OF THE FIRST INTERNATIONAL DURUM YIELD NURSERY 1969-1970

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RESULTS OF THE FIRST INTERNATIONAL DURUM YIELD NURSERY, 1969-1970

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The excellent cooperation of all participants for conducting these experiments is greatly appreciated.

Our thanks to the staff of Centro de Investigaciones Agrícolas del Noroeste (CIANO) for increasing the seed for these experiments and to the 1969 CIMMYT Wheat trainees for their help in preparing the Nurseries.

Funds for the support of this project are received from the Rockefeller Foundation, the Ford Foundation and the United States Agency for International Development (U.S. AID).

The Return and Analysis of Data

A note from the coordinator. CIMMYT has recently completed a major review, redesign and implementation of all operations pertaining to the receipt, processing and publishing of wheat yield trial data. One sizeable result of this effort has been the development of newer and faster processing of data for publication. The following report is one of the first products of these new procedures.

Our primary aim has been to produce a clear, concise and easily understood summary of results with a minimum of delay. We are confident that the final results of any yield nursery can be processed, edited, printed and mailed 2 months from the time all results are returned.

However, all results are never returned and the reasons vary. The return of data follows a similar, but definite pattern each year. Some returns have been received as early as 7 months after shipment. The bulk of returns are in hand 20 months following shipment. A few "stragglers" are received after 20 months. Investigation of the reasons for these late reports did not reveal any acceptable reasons for their delay. Many were harvested 6 months prior to our receiving the results.

We have set the latest date for data receipt for inclusion in the final report as the end of February.

For many cooperators 22 months (20 plus 2 months preparation of the final report) is too far removed from the reality of their programs. We are therefore, prepared to issue preliminary summaries of all received data (usually 50%) during November (16 months following shipment). These limited editions will provide simple data summaries with a minimum of commentary.

Final report preparations will be initiated during February, 20 months after seed shipment with a target date for mailing final reports - April 30. We are hopeful that, with the assistance of all cooperators, we can meet this schedule.

D.R.M.

FIRST INTERNATIONAL DURUM YIELD NURSERY

PRELIMINARY YIELD SUMMARY, 1969-1970

ABSTRACT

The First International Durum Yield Nursery was composed of 16 entries including a bread wheat and "Local Variety" checks. Data, returned from 32 locations was statistically summarized by location and our locations for all traits reported.

Several Mexican advanced line durums show promise of broad adaptability combined with good levels of disease resistance.

INTRODUCTION

The International Durum Yield Nursery is one of a series of international yield trials designed to measure the performance and adaptation of cereals in a wide array of latitudes, climates, fertility conditions, water management and disease complexes. Apart from being a source of fundamental information concerning the adaptation of durum wheat, this nursery can serve as a means of testing promising material on a much broader basis than is usually available to an individual breeder. Furthermore, it allows local research and extension workers to compare the performance of durum wheat from other countries with the best of their own material. Finally, the nursery can serve as a source of new, valuable genetic variability which cooperators may use directly or in crosses.

This report presents the results of the First IDYN using the current format of the International Spring Wheat Yield Nursery reports.

METHODS and MATERIALS

Seed for the First IDYN was produced in increase plots at the Centro de Investigaciones Agrícolas del Noroeste (CIANO) at Ciudad Obregon, Sonora, Mexico, during the 1968-69 growing season. The seed was treated with Vitavax (registered trademark for 5, 6-dihydro-2-methyl-1, 4-oxathiin-3-carboxanilide) disinfectant prior to packeting.

The experimental plots usually consisted of six, 2.5 meter rows with three replications. Instructions concerning seeding, nursery managements and note-taking, as well as data sheets, were included with each set of seed.

Fourteen durum (Triticum durum) varieties from Italy, Mexico, U.S.A., Iran and India were sent to 42 different locations representing the major durum wheat areas of the world along with a bread wheat variety and space for a local check variety.

The varieties entered for testing in the First IDYN were:[1]

INDIA -

S-9: - A promising experimental dwarf line.

IRAN -

(Dur$_E$-Turg) St 464 x Tc^2: - A promising experimental dwarf line.

ITALY -

Capeiti: - A widely grown durum variety, representative of the present commercial varieties used in Italy. This was the second highest yielding variety in the International Mutant Durum Wheat Trials.

GAB-125: - A dwarf mutant derivative of Garigliano, an old Italian variety. This was the top yielding variety in the International Mutant Durum Wheat Trials from 1965-1968.

Castel del Monte[1]: (GRA-145) - A dwarf mutant derivative of Grifoni-235, an Italian variety. This was the third highest yielding variety in the International Mutant Durum Wheat Trials, yielding slightly less than Capeiti.

Gerardo VZ 466: Alex x Giorgio - A dwarf durum with Norin 10 dwarfing genes. It is a promising breeding line under widespread yield testing.

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[1] Pedigree notations are: E=dwarf and superscript numerals=number of back crosses.

MEXICO -

Inia 66: Lerma Rojo 64 x Sonora 64. 19008-83m-100y-100m-100y-100c A bread wheat of joint release from the CIMMYT and INIA programs. It is one of the earliest and the most widely cultivated varieties in Mexico. It was the top yielding variety in the 4th ISWYN. Since it is widely adapted, this may serve as a standard to measure the adaptation of the durum varieties.

Tehuacan 60: Caravaca-1.-Ld 357 x Capelli. D255-1c-1r-3m - The last tall durum variety released for cultivation in Mexico. In Mexico durums are a very minor crop. This variety is cultivated in most of the durum area.

Albatross: BY_E^2-Tc x TAC_E-Tc^3 21570-9m-6r-1m - One of the dwarf Norin 10 derivatives released for cultivation in Mexico during 1970 as Jori-C69. It is a moderately good yielder with partial light insensitivity.

Anhinga: (TM_E-Tc^2) (Z-B x W)^2 22234-52m-3y-1m-0y - It is an early light insensitive semi-dwarf. This experimental line carries a Norin 10 dwarfing gene different from all the other Mexican dwarf durums.

Brant: [(Bel_E-Tc^2) (Z-B x W)] [(TM_E-Tc^2 x Z-B x W)] 24102-9y-3m-0y - A promising Norin 10 dwarf derivative with moderately good yield under Mexican conditions.

Crane: (BY_E-Tc x Stw 63) (Z-B x W) (TM_E-Tc^2) (Z-B x W) 23055-56m-5y-1m-0y - One of the promising crosses in the CIMMYT program. It is also a Norin 10 dwarf derivative.

UNITED STATES OF AMERICA -

Wells: Sentry x (LD.379-LD.357), LD 389 - A tall light sensitive variety from North Dakota. It has good stem rust resistance. The seed size is small. It is the second most extensively cultivated durum variety in the U.S.A.

DATA SUMMARIZATION

The metric system and percentages were chosen as the units of measurement for presentation. When possible other systems were converted to the appropriate standard before computations were made. Every effort was made to assure the correctness of such conversions, as

well as the accuracy of translations of terms from other languages and interpretation of supplementary information. CIMMYT, however, takes full responsibility for any errors that may have been made. Data were neither analyzed, nor are presented, for traits when no differential effect was observed.

Yield data were requested from the four center rows of a six-row plot. Yields were converted from the units reported by the cooperator to kilograms per hectare (kg/ha). For readers more accustomed to yield in bushels per acre, 1,000 kg/ha is approximately 15 bushels per acre for wheat.

Both test weights and 1,000 grain weights were requested because some cooperators do not have test weight equipment. The weights are reported in kilograms per hectoliter (kg/hl) and 1,000 grain weights are reported in grams. For readers more accustomed to test weights expressed in pounds per bushel, 75 kg/hl is roughly equivalent to 60 pounds per bushel.

Disease[1] notes were requested from cooperators when differential reactions were observed. Rust reactions were most commonly recorded with the international rust scale noting the percentage leaf area infected and reaction type (i.e. lesion size). For statistical analyses these rust notes were converted to a coefficient of infection as used by Dr. W. Q. Loegering (USDA International Spring Wheat Rust Nursery 1959). This coefficient is calculated by multiplying the percentage of infection by a "response value" assigned to each infection type. Thus, the coefficient combines both the amount of infection and the reaction type. The response values are given in the following table:

Reaction Type	Abbreviation	Response value
0		0.0
Very resistant and resistant	VR and R	0.2
Moderately resistant	MR	0.4
Intermediate	M or X	0.6
Moderately susceptible	MS	0.8
Susceptible	S and VS	1.0

[1] For simplicity of reporting, all plant diseases are referred to by one common name. The following common names have been selected, followed by the causal agent in parentheses. Stem rust (*Puccinia graminis tritici*); leaf rust (*Puccinia recondita*); stripe rust (*Puccinia striiformis*); mildew (*Erisiphe graminis tritici*) and Septoria (*Septoria spp*). For this last disease, distinction between the causal species has not always been possible from information supplied by cooperators.

As examples, 20MS is expressed as (20 x 0.8) = 16.0 and 10MR is expressed as (10 x 0.4) = 4.0. Ranges of reaction are averaged, such that 5R-15S becomes 6.0 ($\frac{5 + 15}{2}$ = 10 and $\frac{0.2 + 1.0}{2}$ = 0.6) with 6.0 the product of 10 x 0.6.

When cooperators reported only percentage of rust, the value was used directly. Numerical rust scales were converted to per cent. Alphameric symbols that could not be transformed were only listed for the first replication and excluded from the overall summary.

Numerical rust equivalents can be 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 the coefficients are more difficult to use in visualizing the response of a particular variety. The mean rust reaction by location is presented with its related statistics 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. Thus, these means provide a relative location comparison and a reflection of the extent 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 could be transformed to percent. In those instances where the scale used by the cooperator could not be converted to per cent, the scale values are given. The percentage values were not transformed to $\sqrt{X\% + 1}$, as had been done previously. While some may consider transformation necessary, comprehension of the mean of a transformation is difficult. It was felt that it would be better to present values which were more readily comparable to the field scores used by collaborators.

The grand mean of each trait was calculated and are presented with pertinent statistics in the tables. Previously, error estimates were calculated indirectly as residuals. Since incomplete data sets are often reported, indirect estimations of the error variance can give biased or even negative values. Therefore, estimated error variances were computed directly for all traits reported. This value was then used to calculate a standard error ratio of the grand mean, a coefficient of variation (the ratio of the standard deviation to the grand mean expressed as a percentage) and the least significant difference (LSD) at the 5% level. The coefficient of variation is useful as a unit basis comparison of variation between locations. The LSD_{05} can be used to compare two variety means at the same location.

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 when the number of observations justified inclusion. With the exception of the rust data the reported units are those used throughout this report.

Many problems have been encountered in the analyses and summary of these unique 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 computational detail.

RESULTS and DISCUSSION

Twenty-nine cooperators returned data on the First IDYN. Figure 1 presents the reporting locations with the corresponding table numbers. The range of climatic conditions is indicated by the information given in Figure 2.

Inspection of individual locations (Tables 1-32) may offer readers more insight into the suitability of varieties to match specific conditions. We hope that the ISWYN format is helpful in identifying material of potential use either as direct varieties or as parents in a breeding program.

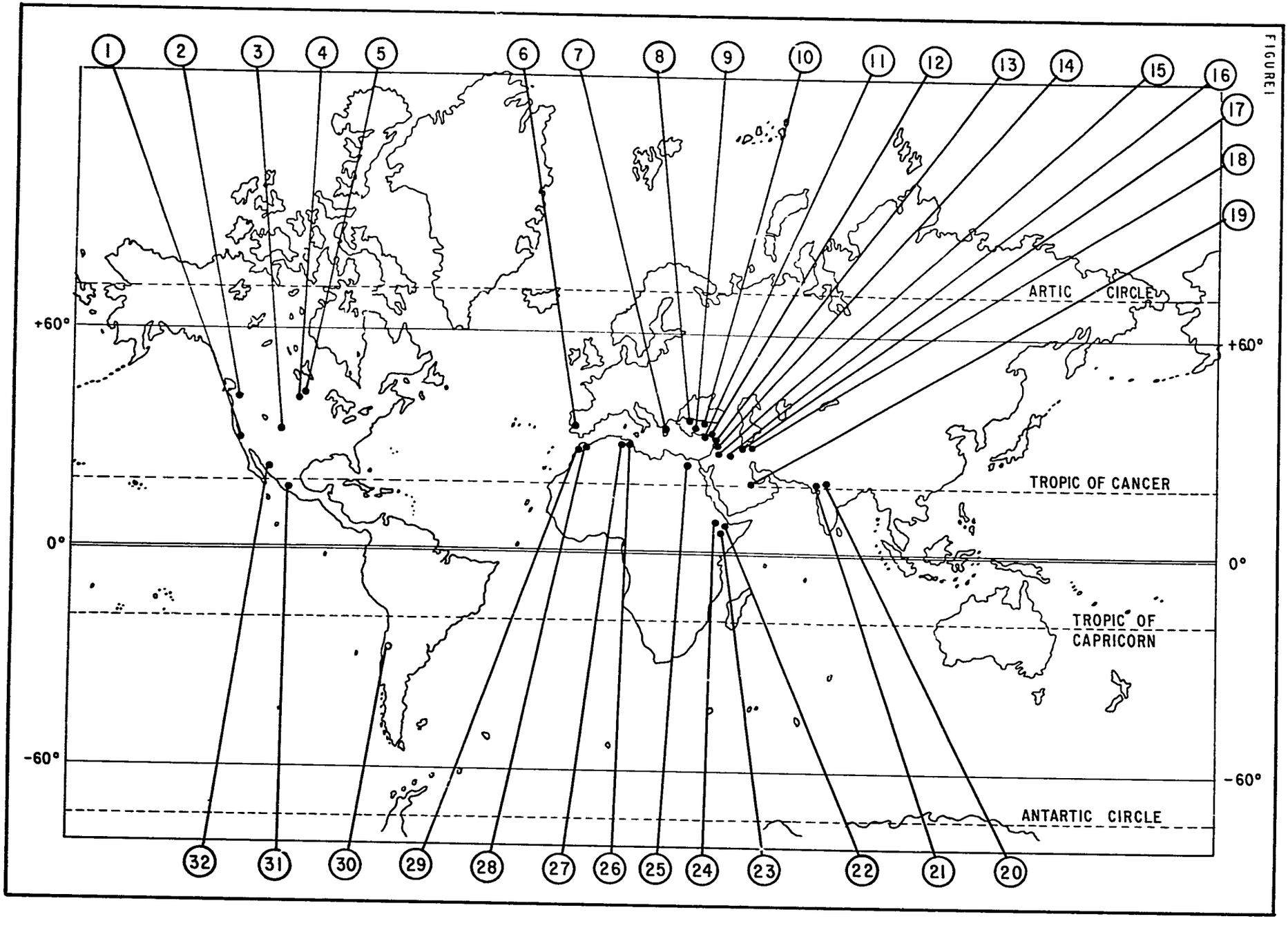
Table 33 presents the overall means of each variety for those variables recorded with sufficient frequency to justify reporting. This table is ranked in descending order for mean yield.

The highest yielding varieties over all locations are thought to be those with broad adaptability. Several advanced durum lines from the Mexican program appear to possess this trait. These results also suggest the good disease resistance of these lines.

FIGURES

AND

TABLES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+60°
0°
-60°
ARTIC CIRCLE
TROPIC OF CANCER
TROPIC OF CAPRICORN
ANTARTIC CIRCLE

FIGURE I

FIGURE II

	LOCATION	FIRST IDYN AVERAGE GROWING SEASON	ELEVATION (meters)
		1969 O N D J F M A M J J A S O N D 1971	
	NORTH AMERICA		
1.	Davis, California, U.S.A.		16
2.	Royal Slope, Washington, U.S.A.		390
3.	Ft. Collins, Colorado, U.S.A.		1,524
4.	Langdon, North Dakota, U.S.A. (1st)		273
5.	Langdon, North Dakota, U.S.A. (2nd)		273
	EUROPE		
6.	Elvas, Portugal		208
7.	Thessaloniki, Greece		10
	MIDDLE EAST		
8.	Eskisehir, Turkey		789
9.	Adapazari, Turkey		33
10.	Ankara, Turkey		850
11.	Gypsou, Cyprus		40
12.	Housh Sneid, Lebanon		995
13.	Tel-Amara, Lebanon		950
14.	Bet Dagan, Israel		28
15.	Jubeiha, Jordan		980
16.	Abu-Ghraib, Baghdad, Iraq		34
17.	Karaj, Iran		1,300
18.	Gorgan, Iran		20
19.	Kharj, Saudi Arabia		430
	ASIA		
20.	Tandojam, West Pakistan		19
21.	Lyallpur, West Pakistan		213
	AFRICA		
22.	Alemaya, Dire Dawa, Ethiopia		---
23.	Holleta, Ethiopia		2,390
24.	Paradiso, Asmara, Ethiopia		2,300
25.	Mallaway Exp. Stn., U.A.R.		---
26.	Tunis, Tunisia		10
27.	Reja, Tunisia		161
28.	Sidi Kacem, Morocco		33
29.	Merchouch, Morocco		100
	SOUTH AMERICA		
30.	La Platina, Santiago, Chile		629
	MESO AMERICA		
31.	Toluca, Mexico		2,675
32.	Cd. Obregon, Sonora, Mexico		40

* Dotted lines indicate estimated date

TABLE 1

NORTH AMERICA U.S.A. CALIFORNIA
DAVIS,UNIVERSITY OF CALIFORNIA.
LATITUDE 38 32 N LONGITUDE 121 45 W ELEVATION +00016 METERS ABOVE SEA LEVEL
COOPERATORS C.O.QUALSET,J.A.RUPERT,H.F.VOGT.
DATE PLANTED 12/01/69 DATE HARVESTED 06/ /70
NUMBER OF IRRIGATIONS CC2 RAIN TIMES AMOUNT OF MOISTURE MM
NITROGEN 085.6 KG/HA PHOSPHORUS 000.0 KG/HA POTASSIUM 000.0 KG/HA

CASTELPORZIANO WAS THE LOCAL VARIETY USED. NO BIRD, PEST OR WEED PROBLEMS. BYDV WAS PRESENT, ALSO UNIFORM LEAF SPOTTING. SEASON WAS HOT AND DRY WITH 245MM OF RAINFALL. AMOUNT OF IRRIGATION IS UNSPECIFIED. DUFUM WAS GENERALLY LATE MATURING FOR DAVIS.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	LODGING	1000 K.WGT
15	CRANE	MEXICO	7678.0	80.4	130.0	182.6	90.3	5.0	54.1
14	BRANT	MEXICO	7143.0	78.6	129.0	180.3	85.0	0.0	48.4
13	ANHINGA S	MEXICO	6773.0	83.1	130.6	182.0	108.3	80.0	51.6
6	INIA-66	MEXICO	6619.3	80.1	120.6	171.6	95.3	0.0	41.0
10	61-130 X LEEDS	U.S.A.	5737.1	78.8	151.0	184.6	95.6	0.0	37.2
12	ALBATROSS	MEXICO	5680.2	81.2	132.0	182.6	91.0	0.0	61.5
3	WELLS	U.S.A.	5344.4	80.1	152.6	184.0	135.3	76.6	28.5
7	((DURE-TURG) ST 4641TC2	IRAN	5281.8	76.7	150.6	186.3	100.0	0.0	46.7
9	S-9	INDIA	5105.4	79.1	135.0	180.3	76.0	0.0	41.2
8	TEHUACAN	MEXICO	4991.5	79.6	147.6	183.6	130.6	76.6	48.4
11	GERARDO V-Z-466	ITALY	4832.2	75.9	145.3	184.0	105.3	0.0	44.6
4	LEEDS	U.S.A.	4780.9	80.6	148.3	183.6	137.3	80.0	34.6
1	GA E-125	ITALY	4080.9	0.0	144.3	181.0	120.0	90.0	33.4
16	LOCAL CHECK		3813.4	75.9	155.6	185.3	125.0	23.3	44.5
2	CASTELDELMONTE 1	ITALY	3301.1	76.3	147.3	185.3	102.6	90.0	34.8
5	CAPEITI	ITALY	1986.3	75.6	133.0	181.0	112.6	83.3	36.5
		GRAND MEAN	5196.8	73.9	140.8	182.4	107.1	37.8	43.0
	STANDARD ERROR OF GRAND MEAN		94.1		0.1	0.2	0.4	1.0	
	COEFFICIENT OF VARIATION		12.5%		0.6%	0.8%	2.9%	19.0%	
	LSD VARIETY MEANS 5 PC		1065.2		1.3	2.3	5.0	11.7	

CORRELATIONS

YIELD	KG/HA						
TEST	WEIGHT	0.27					
DAYS TO	FLOWER	-0.46	-0.13				
DAYS TO	MATURITY	-0.29	0.07	0.78**			
HEIGHT	CM.	-0.41	-0.17	0.60*	0.31		
LODGING		-0.51*	-0.32	0.26	0.17	0.71**	
1000	K.WGT	0.51*	0.32	-0.44	-0.00	-0.47	-0.50*

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

TABLE 2

NORTH AMERICA U.S.A. WASHINGTON
ROYAL SLOPE.
LATITUDE 046 57 N LONGITUDE 119 20 W ELEVATION +00390 METERS ABOVE SEA LEVEL
COOPERATORS C.F.KONZAC,M.A.DAVIS.
DATE PLANTED 02/20/70 DATE HARVESTED 07/ /70
NUMBER OF IRRIGATIONS RAIN TIMES 0 AMOUNT OF MOISTURE 0565 MM
NITROGEN 108.0 KG/HA PHOSPHORUS 036.0 KG/HA POTASSIUM 000.0 KG/HA

WANDELL WAS THE LOCAL VARIETY USED. NO BIRD, PEST OR WEED PROBLEMS. HEAVY INFESTATION OF MILDEW ON SUSCEPTIBLE VARIETIES. EARLY IN THE SEASON IT WAS COOL DURING THE DAY AND COLD DURING THE NIGHT. LATER IT TURNED TO HOT DAYS AND COOL NIGHTS. RAINFALL WAS NEGLIGIBLE.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	HEIGHT CM.	1000 K.WGT	MILDEW	YELLOW BERRY
15	CRANE	MEXICO	3634.2	80.0	94.3	65.1	46.5	99.0	8.0
3	WELLS	U.S.A.	3398.8	81.0	98.0	90.5	36.2	60.0	11.0
6	INIA-66	MEXICO	3156.7	81.9	90.0	74.5	43.0	99.0	0.0
16	LOCAL CHECK		3021.0	79.4	95.0	61.8	33.6	1.0	20.0
13	ANHINGA S	MEXICO	2971.7	81.7	93.6	80.4	52.1	4.0	11.0
5	CAPEITI	ITALY	2932.5	80.3	92.3	74.5	51.2	99.0	8.0
2	CASTELDELMONTE 1	ITALY	2908.9	81.3	95.6	69.4	45.5	6.0	11.0
14	BRANT	MEXICO	2906.7	79.0	93.3	60.9	48.1	6.0	24.0
10	61-139 X LEEDS	U.S.A.	2876.4	80.9	97.0	67.7	44.5	6.0	14.0
7	((DURE TURG) ST 464)TC2	IRAN	2755.4	77.2	98.0	65.1	45.0	70.0	38.0
11	GERARDO V-Z-455	ITALY	2712.8	81.3	94.3	72.8	56.0	8.0	15.0
4	LEEDS	U.S.A.	2598.4	80.4	97.0	96.5	44.3	4.0	11.0
12	ALBATROSS	MEXICO	2514.4	81.5	94.0	70.2	57.6	99.0	17.0
8	TEHUACAN	MEXICO	2355.2	80.9	95.3	88.8	41.1	99.0	13.0
1	GA B-125	ITALY	2274.5	78.6	63.3	68.5	53.5	99.0	17.0
9	S-9	INDIA	2135.5	80.3	94.3	51.6	43.5	100.0	10.0
		GRAND MEAN	2822.1	80.3	92.8	72.4	46.4	53.5	14.2
		STANDARD ERROR OF GRAND MEAN	91.9		1.9	1.0			
		COEFFICIENT OF VARIATION	22.5%		14.7%	9.7%			
		LSD VARIETY MEANS 5 PC	1040.5		22.4	11.4			

CORRELATIONS

YIELD	KG/HA						
TEST	WEIGHT	0.14					
DAYS TO	FLOWER	0.33	0.26				
HEIGHT	CM.	0.10	0.39	0.14			
1000	K.WGT	-0.29	0.11	-0.36	-0.10		
MILDEW		-0.16	-0.07	-0.33	-0.09	0.12	
LO 0	YW 0	-0.22	-0.77**	0.04	-0.29	0.03	-0.20

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

TABLE 3

NORTH AMERICA U.S.A. COLORADO
FT.COLLINS,CARGILL RESEARCH FARM.
LATITUDE 40 35 N LONGITUDE 105 05 W ELEVATION 01524 METERS ABOVE SEA LEVEL
COOPERATORS B.C.CURTIS,D.A.JOHNSTON,B.J.ROBERTS.
DATE PLANTED 04/13/70 DATE HARVESTED / /70
NUMBER OF IRRIGATIONS 002 RAIN TIMES AMOUNT OF MOISTURE 0392 MM
NITROGEN 112.0 KG/HA PHOSPHORUS 000.0 KG/HA POTASSIUM 000.0 KG/HA

LOCAL VARIETY IS UNKNOWN. NO BIRD, PEST OR WEED PROBLEMS. TEST WAS INOCULATED, BUT STEM RUST AND LEAF RUST DEVELOPED SLOWLY. HIGH TEMPERATURES FOR EXTENDED PERIOD MAY HAVE CAUSED STEM RUST RESISTANCE TO BREAK DOWN-COOL EARLY, HOT MID-SEASON AND THRU HARVEST. 122MM OF RAIN.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	STEM RUST
15	CRANE	MEXICO	4506.8	77.8	TR
13	ANHINGA S	MEXICO	4449.5	81.7	TR
16	LOCAL CHECK		4365.7	79.7	TR,20MS
6	INTA-66	MEXICO	4191.7	80.4	TR
3	WELLS	U.S.A.	4124.4	81.7	5MR
14	BRANT	MEXICO	3840.2	76.5	20MS
12	ALBATROSS	MEXICO	3806.5	78.5	TR
10	61-130 X LEEDS	U.S.A.	3772.8	82.3	TR
4	LEEDS	U.S.A.	3655.4	81.7	TR
9	S-9	INDIA	3622.6	79.7	30MS
8	TEHUACAN	MEXICO	3612.6	81.0	5MS-20MS
1	GA B-125	ITALY	3441.4	79.1	20MS
7	((DURE-TURG) ST 464)TC2	IRAN	3355.8	71.4	TR
5	CAPEITI	ITALY	3327.5	79.7	20MS-S
11	GERARDO V-Z-466	ITALY	3258.3	79.7	20MS
2	CASTELDELMONTE 1	ITALY	2956.0	81.0	30MS-S
		GRAND MEAN	3767.9	79.5	9.1
		STANDARD ERROR OF GRAND MEAN	76.3		
		COEFFICIENT OF VARIATION	14.1%		
		LSD VARIETY MEANS 5 PC	863.6		

CORRELATIONS

	KG/HA	
YIELD		
TEST WEIGHT	0.15	
STEM RUST	-0.54*	0.06

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

TABLE 4

NORTH AMERICA U.S.A. N.DAKOTA
LANGDON, SPRING WHEAT RESEARCH.
LATITUDE 049 00 N LONGITUDE 098 00 W ELEVATION METERS BELOW SEA LEVEL
COOPERATORS DEKALB AGRESEARCH INC.
DATE PLANTED 05/25/70 DATE HARVESTED 09/02/70
NUMBER OF IRRIGATIONS 0 RAIN TIMES AMOUNT OF MOISTURE MM
NITROGEN 067.2 KG/HA PHOSPHORUS 019.5 KG/HA POTASSIUM 000.0 KG/HA

DEKALB*F6 3E-532718 WAS THE LOCAL VARIETY USED. NO BIRD, PEST OR WEED PROBLEMS. RUST DEVELOPMENT WAS SLOW AND SEVERITY WAS RELATIVELY LOW. RELATIVELY HIGH MOISTURE CONDITIONS EXISTED DURING THE TEST. AMOUNT OF PRECIPITATION IS UNKNOWN. FIRST PLANTING DATE.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	LEAF RUST	STEM RUST	HEIGHT CM.	LODGING	SHATRNG HEAD
10	61-130 X LEEDS	U.S.A.	3095.1	72.7	55.0	0	0	77.0	0.0	[illegible]
3	WELLS	U.S.A.	2941.8	74.0	57.0	0	0	93.0	0.0	[illegible]
4	LEEDS	U.S.A.	2851.8	75.9	55.0	0	0	96.0	0.0	[illegible]
13	ANHINGA S	MEXICO	2846.3	72.0	51.0	TRR	TRR	71.0	25.0	[illegible]
8	TEHUACAN	MEXICO	2429.7	72.0	54.0	TRR	0	86.0	50.0	[illegible]
7	((DURE-TURG) ST 464)TC2	IRAN	2428.5	66.2	54.0	0	0	69.0	0.0	[illegible]
12	ALBATROSS	MEXICO	2226.3	67.5	51.0	00	00	67.0	25.0	[illegible]
6	INIA-66	MEXICO	2079.7	72.7	49.0	30S	0	62.0	0.0	[illegible]
15	CRANE	MEXICO	1739.7	63.0	51.0	0	0	65.0	25.0	[illegible]
14	BRANT	MEXICO	1670.8	64.3	53.0	20S	40S	70.0	75.0	[illegible]
16	LOCAL CHECK		1669.7	64.3	52.0	50S	80S	71.0	25.0	[illegible]
5	CAPEITI	ITALY	1595.3	66.9	52.0	20S	50S	83.0	75.0	[illegible]
11	GERARDO V-Z-466	ITALY	1513.1	61.7	51.0	30S	60S	66.0	25.0	[illegible]
1	GA E-125	ITALY	1487.5	64.9	52.0	90S	90S	68.0	75.0	[illegible]
2	CASTELDELMONTE 1	ITALY	1114.2	62.4	54.0	TRNS	30MS	63.0	100.0	[illegible]
9	S-9	INDIA	759.8	57.9	51.0	70S	90S	59.0	0.0	[illegible]
		GRAND MEAN	2028.1	67.4	52.6	19.3	27.1	73.0	31.2	14.0
	STANDARD ERROR OF GRAND MEAN									
	COEFFICIENT OF VARIATION									
	LSD VARIETY MEANS 5 PC									

CORRELATIONS

YIELD	KG/HA							
TEST	WEIGHT	0.89**						
DAYS TO	FLOWER	0.49*	0.41					
LEAF	RUST	-0.62**	-0.50*	-0.41				
STEM	RUST	-0.75**	-0.69**	-0.30	0.89**			
HEIGHT	CM.	0.64**	0.71**	0.71**	-0.39	-0.34		
LODGING		-0.50*	-0.35	-0.03	0.14	0.32	-0.14	
SHATRNG	HEAD	0.03	0.17	-0.52*	0.03	-0.22	-0.37	-0.25

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

.2[illegible]
.4[illegible]

TABLE 5

NORTH AMERICA U.S.A. N.DAKOTA
LANGDON.
LATITUDE 046 54 N LONGITUDE 096 48 W ELEVATION +00273 METERS ABOVE SEA LEVEL
COOPERATORS J.S.QUICK,R.E.NOWATZKI.
DATE PLANTED 05/28/70 DATE HARVESTED 09/16/70
NUMBER OF IRRIGATIONS 0 RAIN TIMES AMOUNT OF MOISTURE 0356 MM
NITROGEN 000.0 KG/HA PHOSPHORUS 000.0 KG/HA POTASSIUM 000.0 KG/HA

LEEDS WAS THE LOCAL VARIETY USED. EARLY WEED PROBLEM DUE TO POOR STAND.
EXCELLENT STEM RUST AND LEAF RUST DEVELOPEMENT ON SUSCEPTIBLE VARIETIES.
LEAF SPOT DESEASES WERE ALSO OBSERVED. NO FERTILIZER USED BECAUSE SOIL
HAD MORE THAN ADEQUATE AMOUNTS OF N-P-K. A GOOD, NORMAL YEAR.
SECOND PLANTING DATE.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	HEIGHT CM.	LODGING	1000 K.WGT	PLANT STAND
3	WELLS	U.S.A.	4007.3	76.7	53.0	94.0	30.0	34.5	94.3
10	61-130 X LEEDS	U.S.A.	3734.0	75.9	53.0	65.6	1.6	43.0	76.6
14	BRANT	MEXICO	3256.3	70.3	50.3	58.6	11.6	40.3	91.6
16	LOCAL CHECK		3206.3	78.5	51.3	83.3	25.0	42.8	94.3
13	ANHINGA S	MEXICO	3085.2	74.6	48.3	66.6	5.0	46.0	90.0
4	LEEDS	U.S.A.	2681.9	78.7	51.6	90.0	13.3	40.6	70.0
6	INIA-66	MEXICO	2653.0	78.5	47.3	65.3	0.0	37.3	96.0
5	CAPEITI	ITALY	2558.6	73.5	49.0	75.3	30.0	43.0	83.3
8	TEHUACAN	MEXICO	2523.0	75.0	50.6	84.6	20.0	49.3	78.0
11	GERARDO V-Z-466	ITALY	2466.4	67.3	49.3	59.0	6.6	39.3	96.0
7	((DURE-TURG) ST 464)TC2	IRAN	2178.6	66.2	50.3	60.6	6.6	34.6	66.6
12	ALBATROSS	MEXICO	2116.4	68.6	50.3	61.3	10.0	37.0	85.0
9	S-9	INDIA	2108.6	66.9	50.0	53.3	5.0	28.5	86.6
15	CRANE	MEXICO	2105.3	67.1	49.6	50.3	13.3	35.8	78.3
1	GA B-125	ITALY	1749.8	67.5	49.0	61.0	65.0	41.2	75.0
2	CASTELDELMONTE 1	ITALY	1392.0	74.1	49.6	56.0	40.0	35.0	35.0
		GRAND MEAN	2613.9	72.5	50.1	67.8	17.7	39.2	81.0
		STANDARD ERROR OF GRAND MEAN	43.4	0.2	0.1	0.6	1.6	0.3	1.8
		COEFFICIENT OF VARIATION	11.5%	2.5%	1.7%	6.3%	64.3%	6.4%	16.0%
		LSD VARIETY MEANS 5 PC	491.9	2.9	1.3	6.9	18.5	4.1	21.2

CORRELATIONS

YIELD	KG/HA						
TEST	WEIGHT	0.54*					
DAYS TO	FLOWER	0.55*	0.26				
HEIGHT	CM.	0.56*	0.73**	0.50*			
LODGING		-0.31	-0.02	-0.01	0.15		
1000	K.WGT	0.30	0.42	-0.00	0.42	0.09	
PLANT	STAND	0.58*	0.06	-0.05	0.20	-0.36	0.13

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

TABLE 6

EUROPE PORTUGAL
ELVAS,PLANT BREEDING STATION.
LATITUDE 038 53 N LONGITUDE 007 09 W ELEVATION 00228 METERS ABOVE SEA LEVEL
COOPERATORS M.T.BARRADAS,F.BAGULHO.
DATE PLANTED 11/11/69 DATE HARVESTED 06/ /70
NUMBER OF IRRIGATIONS 0 RAIN TIMES AMOUNT OF MOISTURE 0658 MM
NITROGEN 130.0 KG/HA PHOSPHORUS 018.3 KG/HA POTASSIUM 041.7 KG/HA

SAMBELEJO WAS THE LOCAL VARIETY USED. WEEDS CONTROLLED BY HAND. SEVERE ATTACK OF CEPHUS FLY. MODERATE EPIDEMICS OF SEPTORIA TRITICI. STRIPE RUST, STEM RUST AND LEAF RUST WERE OBSERVED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	LODGING	SHATRNG HEAD	1000 K.WGT	SEPTORIA TRITICI	NECK BREAK
10	61-130 X LEEDS	U.S.A.	3792.9	83.6	157.3	202.0	96.0	95.0	44.3	39.1	33.3	25.
15	CRANE	MEXICO	3627.4	84.9	140.0	195.3	96.3	70.3	66.5	37.2	40.3	23.3
16	LOCAL CHECK		3396.3	82.3	161.0	204.3	122.6	70.3	44.3	37.3	53.3	15.[illegible]
14	PRANT	MEXICO	3175.2	83.9	133.0	195.0	87.3	80.3	44.3	34.4	61.0	25.
11	GERARDO V-Z-466	ITALY	3133.0	84.3	152.6	200.3	81.3	80.6	66.[illegible]	[illegible]	46.6	16.[illegible]
3	WELLS	U.S.A.	3118.5	84.1	158.6	202.3	131.6	69.3	66.5	35.1	21.0	[illegible]
5	CAPEITI	ITALY	2991.9	86.4	144.3	201.0	110.0	69.0	55.4	34.2	45.0	75.[illegible]
12	ALBATROSS	MEXICO	2950.8	84.6	142.0	196.0	88.0	79.3	66.5	35.4	46.6	25.
9	S-6	INDIA	2855.2	85.0	142.6	195.6	80.0	88.0	66.5	31.7	53.3	16.[illegible]
13	ANHINGA S	MEXICO	2804.1	85.9	141.6	195.3	110.6	70.0	66.5	35.6	40.0	41.[illegible]
1	GA M 125	ITALY	2774.1	83.2	152.0	201.0	114.0	61.6	55.4	34.	46.6	[illegible]
8	TEHLACAN	MEXICO	2733.0	84.7	157.6	202.0	125.0	72.6	66.5	36.3	40.0	41.6
4	LEEDS	U.S.A.	2673.0	85.2	157.0	201.6	134.0	69.6	66.5	43.7	20.0	75.[illegible]
6	[illegible]	MEXICO	2523.0	84.4	124.6	191.0	98.3	71.3	44.3	47.2	80.0	33.3
7	((DURE-TURG) ST 464)TC2	IRAN	2505.3	78.8	162.0	202.3	94.0	89.3	36.5	[illegible]	60.0	14.[illegible]
2	CASTELDELMONTE 1	ITALY	2090.9	85.6	157.0	203.0	90.6	69.6	66.5	48.6	73.3	25.[illegible]
		GRAND MEAN	2946.5	84.2	148.9	199.2	103.7	75.4	59.6	53.3	47.0	34.4
	STANDARD ERROR OF GRAND MEAN		54.4	0.1	0.2	0.1	1.4	0.8	2.6	[illegible]	1.1	[illegible]
	COEFFICIENT OF VARIATION		12.7%	0.9%	1.2%	0.4%	9.4%	7.4%	31.2%	3.2%	16.2%	34.2%
	LSD VARIETY MEANS 5 PC		615.8	1.2	3.1	1.4	15.9	9.1	30.3	2.5	12.4	23.4

CORRELATIONS

YIELD	KG/HA								
TEST	WEIGHT	-0.02							
DAYS TO	FLOWER	-0.00	-0.39						
DAYS TO	MATURITY	0.00	-0.30	0.94**					
HEIGHT	CM.	-0.01	0.05	0.41	0.45				
LODGING		0.27	-0.39	0.07	-0.04	-0.59*			
SHATRNG	HEAD	-0.36	0.16	0.28	0.11	0.02	-0.08		
1000	K.WGT	0.19	0.03	-0.34	-0.31	-0.48*	0.11	-0.87	
SEPTORIA	TRITICI	-0.45	-0.20	-0.40	-0.35	-0.58*	0.08	-0.31	[illegible]
NECK	BREAK	-0.10	0.42	0.06	0.17	0.72**	-0.58*	0.14	-0.4[illegible]

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

TABLE 7

EUROPE GREECE
THESSALONIKI,PLANT BREEDING INSTITUTE,
LATITUDE 040 38 N LONGITUDE 022 57 E ELEVATION +0001 METERS ABOVE SEA LEVEL
COOPERATORS G.BOUDONAS,E.SKORDA.
DATE PLANTED 11/11/69 DATE HARVESTED 05/ /70
NUMBER OF IRRIGATIONS 001 RAIN TIMES AMOUNT OF MOISTURE MM
NITROGEN 080.0 KG/HA PHOSPHORUS 021.0 KG/HA POTASSIUM 000.0 KG/HA

LOCAL VARIETY IS UNKNOWN. NO BIRD, PEST OR WEED PROBLEMS. DEVELOPMENT OF STRIPE RUST, LEAF RUST AND STEM RUST WAS OBSERVED. IT WAS DRY DURING AUTUMN WET DURING SPRING AND HOT DURING THE SUMMER. IRRIGATION WAS APPLIED BEFORE PLANTING. PLANTS MATURED VERY QUICKLY DUE TO THE HEAT.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	STEM RUST	HEIGHT CM.	1000 K.WGT
14	BRANT	MEXICO	2227.3	75.5	131.6	185.3	5.3	79.3	50.0
13	ANHINGA S	MEXICO	2210.0	79.8	136.0	188.3	0.0	108.2	52.1
8	TEHUACAN	MEXICO	2133.8	82.2	143.3	191.0	1.3	120.1	57.6
5	CAPEITI	ITALY	2133.8	81.3	137.0	189.6	6.6	107.9	51.5
16	LOCAL CHECK		2105.2	81.5	142.3	191.0	5.3	132.3	49.3
6	INTA-6C	MEXICO	2048.1	76.6	124.0	183.0	0.0	94.0	45.0
15	CRANE	MEXICO	2044.7	78.3	135.3	187.6	5.3	84.3	50.6
9	S-8	INDIA	2036.9	79.5	138.0	189.6	6.6	77.2	45.6
3	WELLS	U.S.A.	2004.8	79.7	143.6	191.0	0.0	119.3	35.0
7	((DURE-TURK) ST 464)TC2	IRAN	1935.6	72.7	144.0	191.0	8.0	75.7	32.3
12	ALBATROSS	MEXICO	1888.0	79.1	135.6	188.3	1.3	82.9	56.8
10	61 130 X LEEDS	U.S.A.	1751.2	77.5	143.6	191.0	0.0	64.7	48.5
11	GERARDO V-Z-4[illegible]	ITALY	1728.7	77.5	141.0	191.0	4.0	87.2	59.8
1	GA B-125	ITALY	1677.6	79.9	140.3	190.3	5.3	106.4	51.1
4	LEEDS	U.S.A.	1573.7	82.5	142.6	191.0	0.0	121.6	44.0
2	CASTELDELMONTE 1	ITALY	1468.1	80.2	142.6	191.0	6.6	81.4	41.8
		GRAND MEAN	1935.5	79.0	138.8	189.3	3.4	97.2	48.2
		STANDARD ERROR OF GRAND MEAN	42.2	0.2	0.1	0.1	0.3	1.0	1.0
		COEFFICIENT OF VARIATION	15.1%	1.7%	0.6%	0.3%	69.9%	7.8%	15.7%
		LSD VARIETY MEANS 5 PC	478.0	2.2	1.4	1.1	3.9	12.4	12.3

CORRELATIONS

YIELD KG/HA						
TEST WEIGHT	-0.11					
DAYS TO FLOWER	-0.43	0.27				
DAYS TO MATURITY	-0.45	0.37	0.97**			
STEM RUST	-0.00	-0.24	0.11	0.16		
HEIGHT CM.	0.13	0.69**	0.26	0.28	-0.39	
1000 K.WGT	0.15	0.33	-0.20	-0.11	-0.14	0.08

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

TABLE 8

MIDDLE EAST TURKEY
ESKISEHIR,PLANT BREEDING AND EXPERIMENT STATION.
LATITUDE 036 45 N LONGITUDE 030 95 E ELEVATION +00789 METERS ABOVE SEA LEVEL
COOPERATORS R.GEREK,H.KUTLUK.
DATE PLANTED 12/04/69 DATE HARVESTED 07/ /70
NUMBER OF IRRIGATIONS 0 RAIN TIMES AMOUNT OF MOISTURE 0478 MM
NITROGEN 030.0 KG/HA PHOSPHORUS 026.2 KG/HA POTASSIUM 000.0 KG/HA

KUNDURU 1149 WAS THE LOCAL VARIETY USED. 2-4-D HERBICIDE WAS APPLIED TWICE. STRIPE RUST DEVELOPED LATE. SMALL INFECTION OF LEAF RUST. STEM RUST WAS NOT OBSERVED. UNFAVORABLE AND DRY FALL VERY MILD AND RAINY WINTER AND A VERY DRY AND COOL SPRING AND EARLY SUMMER.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	LEAF RUST	HEIGHT CM.	1000 K.WGT	FROST DAMAGE
1	GA 8-125	ITALY	4088.4	82.3	183.3	223.6	10MS	10MS	80.6	50.2	50.0
5	CAPEITI	ITALY	4049.5	84.0	170.0	212.3	10MS	20MS	86.3	51.1	60.0
3	WELLS	U.S.A.	3649.6	84.3	184.0	222.0	20MR	10MR	94.6	37.9	53.3
4	LEEDS	U.S.A.	3338.5	84.5	183.3	225.0	30MR	10MS	105.3	45.0	50.0
10	61-130 X LEEDS	U.S.A.	3321.8	84.2	184.0	223.6	80S	10S	65.6	48.1	50.0
2	CASTELDELMONTE 1	ITALY	3299.6	84.2	182.6	214.3	TMR	TMR	74.6	43.9	56.6
11	GERARDO V-Z-466	ITALY	2888.5	82.4	179.3	210.3	TMR	TMS	64.3	57.7	66.6
8	TEHUACAN	MEXICO	2871.9	83.5	182.0	222.3	TMS	TMS	95.3	56.4	56.6
9	S-9	INDIA	2755.2	83.1	181.0	219.6	20S	10MS	54.3	45.4	66.6
6	INIA-66	MEXICO	2705.2	83.6	175.3	205.6	TR	TR	65.3	43.6	70.0
12	ALBATROSS	MEXICO	2694.1	83.2	180.0	221.3	TMR	TMR	60.6	59.3	66.6
16	LOCAL CHECK		2674.7	82.4	184.0	225.0	TR	20S	95.3	56.9	43.3
7	((DURF-TURGI ST 454)TC2	IRAN	2377.5	79.3	183.3	230.3	TMR	20MS	63.3	49.7	60.0
15	CRANE	MEXICO	2210.8	82.8	182.0	208.0	TR	TMR	55.3	50.9	63.3
13	ANHINGA S	MEXICO	1777.5	83.8	174.0	224.3	TR	TMS	65.3	49.2	63.3
14	BRANT	MEXICO	1455.4	81.9	168.0	207.0	TMR	TMR	50.6	46.2	70.0
		GRAND MEAN	2897.4	83.1	179.7	218.4	7.6	7.0	73.5	49.5	59.1
	STANDARD ERROR OF GRAND MEAN		42.0	0.0	0.9	0.9	0.5	0.5	0.1	0.3	0.8
	COEFFICIENT OF VARIATION		9.9%	0.6%	3.5%	2.8%	52.0%	55.0%	1.2%	4.9%	9.4%
	LSD VARIETY MEANS 5 PC		470.8	0.8	10.4	10.1	6.5	6.3	1.4	3.6	9.1

CORRELATIONS

YIELD	KG/HA								
TEST	WEIGHT	0.40							
DAYS TO	FLOWER	0.36	-0.03						
DAYS TO	MATURITY	0.19	-0.15	0.58*					
STRIPE	RUST	0.30	0.26	0.22	0.22				
LEAF	RUST	0.19	-0.30	0.28	0.58*	0.18			
HEIGHT	CM.	0.61*	0.37	0.35	0.42	-0.46	0.36		
1000	K.WGT	-0.17	-0.30	0.02	0.10	-0.14	[illegible]	[illegible]	
FROST	DAMAGE	-0.53*	-0.17	-0.63**	-0.62**	[illegible]	[illegible]	-0.15	0.01

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

TABLE 9

MIDDLE EAST TURKEY
ADAPAZARI,AGRICULTURAL EXPERIMENT STATION.
LATITUDE 040 47 N LONGITUDE 029 38 E ELEVATION +00033 METERS ABOVE SEA LEVEL
COOPERATORS S.DEMIROZ.
DATE PLANTED 12/09/69 DATE HARVESTED 06/ /70
NUMBER OF IRRIGATIONS 0 RAIN TIMES AMOUNT OF MOISTURE 0584 MM
NITROGEN 016.0 KG/HA PHOSPHORUS 008.0 KG/HA POTASSIUM 004.0 KG/HA

MENTANA WAS THE LOCAL VARIETY USED. NO BIRD, PEST OR WEED PROBLEMS.
THERE WAS A NATURAL INFECTION OF LEAF RUST, STEM RUST AND STRIPE RUST.
THE TEST HAD A MILD WINTER AND IT WAS USUALLY UNDER RAINY CONDITIONS.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	LEAF RUST	HEIGHT CM.	LODGING	1000 K.WGT
13	ANHINGA S	MEXICO	5873.4	80.1	138.0	185.0	58.3	106.0	21.3	42.5
11	GERARDO V-Z-466	ITALY	5725.3	80.6	143.3	194.0	3.3	97.0	0.3	46.9
14	BRANT	MEXICO	5480.9	78.1	136.0	184.0	30.0	81.3	0.0	39.8
1	GA B-125	ITALY	5473.5	79.5	145.3	189.3	27.3	106.0	86.0	40.2
7	((DURE-TURG) ST 4o4)TC2	IRAN	5210.5	79.2	148.0	194.3	30.0	105.0	0.0	40.3
5	CAPEITI	ITALY	5118.0	81.0	144.0	187.3	40.0	111.6	73.3	42.9
15	CRANE	MEXICO	5092.0	78.9	145.0	185.3	19.3	85.6	13.3	39.6
8	TEHUACAN	MEXICO	4880.9	81.3	146.3	194.0	42.6	137.3	60.0	43.5
12	ALBATROSS	MEXICO	4699.5	79.4	149.3	188.6	20.0	86.6	13.3	42.7
3	WELLS	U.S.A.	4681.0	76.4	149.6	189.6	43.3	127.3	76.8	27.5
6	INIA-66	MEXICO	4632.8	80.4	132.3	184.6	0.0	89.3	3.3	38.3
2	CASTELDELMONTE 1	ITALY	4484.7	79.3	147.0	192.3	26.6	98.3	21.6	34.5
10	61-130 X LEEDS	U.S.A.	4436.5	78.1	148.3	197.6	66.6	86.0	0.0	36.1
16	LOCAL CHECK		4369.9	75.5	133.0	184.0	63.3	106.6	58.3	36.5
4	LEEDS	U.S.A.	3829.2	81.8	146.0	193.3	50.0	131.6	45.8	34.5
9	S-9	INDIA	3466.3	77.3	142.0	187.6	60.0	73.3	0.0	34.2
		GRAND MEAN	4840.9	79.2	143.4	189.4	36.3	101.8	30.2	38.8
	STANDARD ERROR OF GRAND MEAN		101.9	0.0	0.2	0.5	2.7	0.8	2.7	0.2
	COEFFICIENT OF VARIATION		14.5%	0.4%	1.3%	2.1%	52.2%	5.5%	63.2%	4.0%
	LSD VARIETY MEANS 5 PC		1152.9	0.5	3.2	6.7	30.9	9.2	31.2	2.5

CORRELATIONS

YIELD	KG/HA							
TEST	WEIGHT	0.25						
DAYS TO	FLOWER	-0.12	0.15					
DAYS TO	MATURITY	-0.13	0.29	0.71**				
LEAF	RUST	-0.40	-0.39	0.05	0.09			
HEIGHT	CM.	0.03	0.31	0.27	0.30	0.20		
LODGING		0.05	0.01	0.15	-0.05	0.21	0.72**	
1000	K.WGT	0.64**	0.57*	-0.14	-0.00	-0.40	-0.10	-0.73

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

TABLE 10

MIDDLE EAST TURKEY
[illegible]
LATITUDE 39 57 N LONGITUDE 032 53 E ELEVATION [illegible] METERS ABOVE SEA LEVEL
EXPERIMENTER A.DEMIRLICAKMAK.
DATE PLANTED 11/18/69 DATE HARVESTED [illegible]/ /[illegible]
NUMBER OF IRRIGATIONS 0 RAIN TIMES AMOUNT OF MOISTURE 1313 MM
NITROGEN [illegible] KG/HA PHOSPHORUS [illegible] KG/HA POTASSIUM [illegible] KG/HA

[illegible] WAS THE LOCAL VARIETY USED. NO BIRD, PEST OR WEED PROBLEMS.
[illegible] DISEASE DEVELOPMENT WAS OBSERVED. FALL AND SPRING WERE VERY DRY.
FROST [illegible] SOME DAMAGE.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	1000 K.WGT	FROST DAMAGE
[illegible]	[illegible]		3535.1	81.1	186.0	[illegible]	[illegible]	[illegible]	33.2
[illegible]	[illegible]	ITALY	3171.9	82.6	176.0	227.0	[illegible]	49.0	66.5
[illegible]	[illegible]	U.S.A.	3010.8	81.8	186.0	227.0	11[illegible]	36.0	44.3
[illegible]	[illegible]	ITALY	2794.1	80.2	183.0	227.0	[illegible]	[illegible]	44.3
[illegible]	[illegible]	U.S.A.	2721.9	81.5	185.0	227.0	[illegible]	42.0	55.5
[illegible]	[illegible]	ITALY	2599.7	78.6	181.0	227.0	[illegible]	39.0	44.3
[illegible]	[illegible]	U.S.A.	2553.2	82.0	178.0	227.0	11[illegible]	[illegible]	44.3
[illegible]	[illegible]	MEXICO	2444.1	82.0	174.0	[illegible]	[illegible]	45.0	66.5
[illegible]	[illegible]	MEXICO	2305.3	81.5	183.0	227.0	[illegible]	47.0	66.5
[illegible]	[illegible]	MEXICO	2104.2	80.3	174.0	[illegible]	[illegible]	52.0	66.5
[illegible]	[illegible]	MEXICO	2122.1	80.0	182.0	[illegible]	[illegible]	44.0	55.5
[illegible]	[illegible]	IRAN	2[illegible]6.6	78.0	186.0	227.0	[illegible]	46.0	66.5
[illegible]	[illegible]	ITALY	2[illegible]72.[illegible]	80.3	178.0	[illegible]	[illegible]	[illegible]	55.5
[illegible]	[illegible]	MEXICO	1922.[illegible]	79.1	183.0	[illegible]	[illegible]	42.0	55.5
[illegible]	[illegible]	INDIA	1872.[illegible]	81.0	181.0	227.0	[illegible]	41.0	77.6
[illegible]	[illegible]	MEXICO	1[illegible]	8[illegible].3	17[illegible]	2[illegible]7.0	[illegible]	36.0	77.6
		GRAND MEAN	[illegible]	80.7	18[illegible].4	224.9	92.4	44.6	57.5
		STANDARD ERROR OF GRAND MEAN	[illegible]						
		COEFFICIENT OF VARIATION	16.1*						
		LSD VARIETY MEANS 5 PC	[illegible]33.4						

CORRELATIONS

YIELD	KG/HA						
TEST	WEIGHT	[illegible].73**					
DAYS TO	FLOWER	[illegible].73**	0.99**				
DAYS TO	MATURITY	[illegible].2[illegible]	0.30	[illegible].31			
HEIGHT	CM.	[illegible].31	0.29	[illegible].29	0.54**		
1000	K.WGT	[illegible].76**	0.87**	0.87**	[illegible].12	0.09	
FROST	DAMAGE	0.2[illegible]	0.74**	0.7[illegible]**	0.29	0.19	0.58*

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

TABLE 11

MIDDLE EAST
GYPSOU.

CYPRUS

LATITUDE 033 50 N LONGITUDE 035 15 E ELEVATION +00040 METERS ABOVE SEA LEVEL
COOPERATORS A.HADJICHRISTODOULOU, D.ALEXANDSON
DATE PLANTED 12/03/69 DATE HARVESTED 05/ /70
NUMBER OF IRRIGATIONS 0 RAIN TIMES AMOUNT OF MOISTURE 0207 MM
NITROGEN 040.7 KG/HA PHOSPHORUS 018.7 KG/HA POTASSIUM 000.0 KG/HA

KYPEROUNDA WAS THE LOCAL VARIETY USED. WEEDS WERE CONTROLLED BY HAND AND CHEMICALS. SOME BIRD DAMAGE WAS RECORDED. DISEASE DEVELOPMENT WAS LOW AND IT WAS MAINLY RUST. IT WAS A VERY DRY SEASON, WITH UNEVENLY DISTRIBUTED RAINFALL.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	1000 K.WGT
9	S-9	INDIA	1068.0	77.8	120.0	34.6
5	CAPEITI	ITALY	903.6	80.5	120.6	45.3
11	GERARDO V-Z-466	ITALY	879.1	80.8	126.3	49.3
1	GA 8-125	ITALY	865.0	77.8	126.6	38.6
15	CRANE	MEXICO	851.7	75.8	116.0	34.1
13	ANHINGA S	MEXICO	722.1	81.5	117.6	45.5
12	ALBATROSS	MEXICO	701.4	79.0	124.0	40.5
10	61-130 X LEEDS	U.S.A.	616.9	79.2	130.6	32.6
2	CASTELDELMONTE 1	ITALY	614.7	80.5	127.6	37.5
3	WELLS	U.S.A.	607.3	76.3	132.3	26.3
14	BRANT	MEXICO	559.2	26.3	117.6	37.8
4	LEECS	U.S.A.	488.8	79.2	131.6	33.1
8	TEHUACAN	MEXICO	442.1	78.6	130.0	40.6
6	INIA-66	MEXICO	411.0	26.3	110.6	32.0
16	LOCAL CHECK		299.2	0.0	130.0	39.3
7	((DURE-TURG) ST 464)TC2	IRAN	290.3	0.0	131.0	37.0
		GRAND MEAN	645.0	62.5	124.5	37.7
		STANDARD ERROR OF GRAND MEAN	29.7	2.3	0.2	0.4
		COEFFICIENT OF VARIATION	31.9%	25.8%	1.1%	8.1%
		LSD VARIETY MEANS 5 PC	336.2	26.3	2.3	4.9

CORRELATIONS

YIELD KG/HA				
TEST WEIGHT	0.69**			
DAYS TO FLOWER	-0.32	0.05		
1000 K.WGT	0.26	0.12	-0.12	

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

TABLE 12

MIDDLE EAST LEBANON
HOUSCH SNEID AGRICULTURAL RESEARCH AND EDUCATION CNTR.
LATITUDE 33 55 N LONGITUDE 036 05 E ELEVATION 4[illegible] METERS ABOVE SEA LEVEL
COOPERATORS H.NASR, V.GUIRAGOSSIAN.
DATE PLANTED 11/17/69 DATE HARVESTED 05/ /70
NUMBER OF IRRIGATIONS 0 RAIN TIMES AMOUNT OF MOISTURE [illegible] MM
NITROGEN [illegible]6.6 KG/HA PHOSPHORUS [illegible]8.7 KG/HA POTASSIUM [illegible] KG/HA

C.I.[illegible] WAS THE LOCAL VARIETY USED. NO BIRD, PEST OR WEED PROBLEMS.
STRIPE RUST WAS OBSERVED, BUT INFECTION WAS NOT SERIOUS. DURING THE TEST
HEAVY RAINS FOLLOWED BY STRONG WINDS CAUSED A LODGING PROBLEM IN FEB.
AND MARCH. TEMPERATURE AND RELATIVE HUMIDITY WERE NORMAL.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	HEIGHT CM.	LODGING
6	ANTA-66	MEXICO	3353.3	108.3	5.0
14	BRANT	MEXICO	2983.3	83.3	5.0
2	CASTELDELMONTE 1	ITALY	2963.3	96.3	30.0
16	LOCAL CHECK		2963.0	100.0	50.0
11	GERARDO V-Z-466	ITALY	2863.0	110.0	15.0
5	CAPEITI	ITALY	2673.3	111.6	50.0
15	GRANC	MEXICO	2646.6	98.3	5.0
4	LEEDS	U.S.A.	2416.6	135.0	50.0
10	61-131 X LEEDS	U.S.A.	2353.3	121.6	5.0
13	ANHINGA S	MEXICO	2093.3	116.6	10.0
1	GA E-125	ITALY	1980.0	118.3	10.0
12	ALBATROSS	MEXICO	1928.3	90.0	5.0
7	((DURE-TURG) ST 464)TC2	IRAN	1853.3	92.3	15.0
9	S-9	INDIA	1836.6	77.6	10.0
3	WELLS	U.S.A.	1743.3	123.3	20.0
8	TEHUACAN	MEXICO	1673.0	120.0	10.0
		GRAND MEAN	2397.1	114.6	18.4
		STANDARD ERROR OF GRAND MEAN	77.5	2.2	
		COEFFICIENT OF VARIATION	22.4%	14.7%	
		LSD VARIETY MEANS 5 PC	876.9	25.2	

CORRELATIONS

	KG/HA	CM.
YIELD		
HEIGHT	-0.14	
LODGING	-0.23	0.34

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

TABLE 13

MIDDLE EAST LEBANON
TEL-AMARA, AGRICULTURE RESEARCH INSTITUTE.
LATITUDE 33 55 N LONGITUDE 035 28 E ELEVATION +0095D METERS ABOVE SEA LEVEL
COOPERATORS M.A. ANTOUN, G. KINGMA, I. NARVAEZ.
DATE PLANTED 11/07/69 DATE HARVESTED 05/ /71
NUMBER OF IRRIGATIONS 0 RAIN TIMES AMOUNT OF MOISTURE 0590 MM
NITROGEN 140.0 KG/HA PHOSPHORUS 032.7 KG/HA POTASSIUM 000.0 KG/HA

F9-3 WAS THE LOCAL VARIETY USED. BIRDS AND WILD OATS CAUSED SOME SLIGHT DAMAGE. AN EXTREME RUST DEVELOPMENT WAS OBSERVED. THE SEASON HAD A NORMAL UNIFORM RAINFALL DISTRIBUTION AND A LATE FROST.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	1000 K.WGT
5	CAPESTO	ITALY	5276.6	84.6	164.0	201.0	110.0	42.0
15	CRAM	MEXICO	5153.3	80.0	161.0	201.0	85.0	38.0
16	LOCAL CHECK		4953.3	81.0	174.0	208.0	120.0	48.0
13	ANHINGA S	MEXICO	4786.6	88.0	162.0	201.0	115.0	46.0
14	HRAFT	MEXICO	4683.3	81.0	163.0	204.0	87.0	44.0
12	ALBATROSS	MEXICO	4633.3	83.2	164.0	204.0	80.0	49.0
11	GE ARD. V-Z-45S	ITALY	4506.6	82.1	172.0	201.0	90.0	43.0
2	CASTELDELMONTE 1	ITALY	4429.9	32.8	172.0	202.0	95.0	35.0
1	61-131 X LEEDS	U.S.A.	3876.6	80.1	174.0	204.0	85.0	34.0
4	LEEDS	U.S.A.	3796.6	82.5	171.0	138.0	135.0	29.0
1	GA E-125	ITALY	3619.9	79.3	172.0	201.0	120.0	40.0
8	TEHUACAN	MEXICO	3583.3	81.7	176.0	203.0	130.0	40.0
9	S-9	INDIA	3403.3	77.0	169.0	200.0	70.0	29.0
3	WELLS	U.S.A.	3276.6	35.6	174.0	138.0	125.0	20.0
7	(EDORE-TURG) ST 464)TC2	IRAN	3219.9	78.7	174.0	205.0	95.0	42.0
6	[illegible]	MEXICO	2796.6	83.5	153.0	184.0	90.0	39.0
		GRAND MEAN	4129.1	75.7	168.4	193.4	101.5	38.6
		STANDARD ERROR OF GRAND MEAN	109.8					
		COEFFICIENT OF VARIATION	18.4%					
		LSD VARIETY MEANS 5 PC	1242.4					

CORRELATIONS

YIELD	KG/HA						
TEST	WEIGHT	0.19					
DAYS TO	FLOWER	-0.17	-0.33				
DAYS TO	MATURITY	0.39	0.37	-0.08			
HEIGHT	CM.	-0.09	-0.09	0.39	-0.49*		
1000	K.WGT	0.52*	0.59*	-0.27	0.73**	-0.16	

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

TABLE 14

MIDDLE EAST ISRAEL
BET DAGAN,VOLCANI INSTITUTE OF AGRICULTURAL RESEARCH.
LATITUDE 032 01 N LONGITUDE 034 49 E ELEVATION +00028 METERS ABOVE SEA LEVEL
COOPERATORS J.EPHRAT,J.KAGAN.
DATE PLANTED 12/30/69 DATE HARVESTED 06/03/70
NUMBER OF IRRIGATIONS 0 RAIN TIMES AMOUNT OF MOISTURE 0349 MM
NITROGEN 114.0 KG/HA PHOSPHORUS 022.9 KG/HA POTASSIUM 000.0 KG/HA

ZENATI X BOUTEILLE WAS THE LOCAL VARIETY USED. NO BIRD, PEST OR WEED PROBLEMS. INFECTIONS OF ALL THREE RUSTS WERE OBSERVED. THE SEASON WAS DRY. PRECIPITATION WAS BELOW AVERAGE BY 150MM.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	LEAF RUST	STEM RUST	HEIGHT CM.	1000 K.WGT
11	GERARDO V-Z-466	ITALY	5900.1	84.0	88.0	136.0	VS	VS	100.0	44.2
15	CRANE	MEXICO	5532.7	78.7	84.6	132.0	VS	S	88.3	41.5
14	BRANT	MEXICO	5389.0	79.1	80.6	132.0	S	X	83.3	41.7
6	INIA-66	MEXICO	5359.4	83.9	79.0	131.0	0	R	106.6	39.7
13	ANHINGA S	MEXICO	5347.6	86.5	80.6	131.6	X	S	118.3	51.3
7	((CUFF TURG) ST [illegible]	IRAN	4987.6	78.9	96.3	136.6	S	VS	86.6	[illegible]
12	ALBATROSS	MEXICO	4946.1	82.9	81.6	132.3	VS	S	93.3	51.9
1	CB E-123	ITALY	4886.9	81.8	91.0	136.6	VS	VS	121.6	49.2
5	CAPEITI	ITALY	4795.8	83.4	80.3	132.3	S	VS	128.3	44.4
8	TEHUACAN	MEXICO	4644.7	85.0	93.0	137.0	VS	VS	143.3	37.1
3	WELLS	U.S.A.	4421.7	80.6	103.0	139.6	S	TR	143.3	29.3
2	CASTELDELMONTE 1	ITALY	4346.9	84.9	91.0	136.3	S	0	110.0	43.6
9	S-9	INDIA	4298.0	77.8	83.6	132.0	VS	VS	70.0	32.8
16	LOCAL CHECK		4114.3	83.7	84.6	132.6	0	S	135.0	62.3
4	LEEDS	U.S.A.	3869.9	84.2	96.0	138.3	VS	R	141.6	37.1
10	61-130 X LEEDS	U.S.A.	2881.1	77.4	99.3	136.6	S	R	81.6	31.9
	GRAND MEAN		4732.6	82.1	88.3	134.5			109.4	44.3
	STANDARD ERROR OF GRAND MEAN		68.2	0.1	0.1	0.2			0.6	0.3
	COEFFICIENT OF VARIATION		9.9%	1.3%	0.8%	1.1%			4.1%	6.2%
	LSD VARIETY MEANS 5 PC		772.3	1.7	1.2	2.4			7.3	4.4

CORRELATIONS

YIELD	KG/HA								
TEST	WEIGHT	0.23							
DAYS TO	FLOWER	-0.55*	-0.24						
DAYS TO	MATURITY	-0.41	-0.01	0.94**					
LEAF	RUST	0.00	0.00	0.00	0.00				
STEM	RUST	0.00	0.00	0.00	0.00	0.00			
HEIGHT	CM.	-0.13	0.66**	0.26	0.42	0.00	0.00		
1000	K.WGT	0.35	0.62**	-0.39	-0.23	0.00	0.00	0.31	

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

.26
.46

TABLE 15

MIDDLE EAST JORDAN
JUBEITHA
LATITUDE 32 32 N LONGITUDE 035 52 E ELEVATION +0099 METERS ABOVE SEA LEVEL
COOPERATORS Z.GHOSHEH,H.A.AZIZ,E.JABER.
DATE PLANTED 12/14/69 DATE HARVESTED 07/ /70
NUMBER OF TREATMENTS 9 RAIN TIMES AMOUNT OF MOISTURE 0305 MM
NITROGEN 5.0 KG/HA PHOSPHORUS 17.4 KG/HA POTASSIUM 000.0 KG/HA

LOCAL VARIETY IS UNKNOWN. SOME DAMAGE WAS CAUSED BY BIRDS. THERE WAS NO DISEASE DEVELOPMENT OBSERVED. ABNORMAL CONDITIONS AND BAD DISTRIBUTION OF RAINFALL MAY HAVE REDUCED YIELDS.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	1000 K.WGT
13	[illegible] S	MEXICO	3888.4	89.0	130.3	174.6	[illegible]	44.6
12	ALBATROSS	MEXICO	3877.3	87.0	130.3	173.6	7[illegible].0	43.3
14	[illegible]	MEXICO	3799.6	84.5	128.6	172.3	55.3	39.7
2	CASTELDELMONTE 7	ITALY	3788.5	88.5	134.3	173.0	71.6	39.6
15	CRAN[illegible]	MEXICO	3755.1	83.0	129.6	172.6	68.3	38.6
5	TEHU[illegible]N	MEXICO	3721.8	88.0	133.3	176.3	139.3	48.6
9	S[illegible]	INDIA	3677.4	84.5	130.3	172.6	56.5	35.3
7	((DLF-TUFC) ST [illegible]) 1.2	IRAN	3499.6	84.5	136.[illegible]	173.3	7[illegible]	42.3
4	CARP[illegible]	ITALY	3477.4	85.5	130.3	174.6	81.4	42.6
1	[illegible] E-12[illegible]	ITALY	3455.2	85.0	132.[illegible]	174.5	81.6	39.6
3	[illegible]ELLIS	U.S.A.	3344.1	86.5	136.6	175.0	139.[illegible]	31.0
8	[illegible]	U.S.A.	3110.7	87.0	134.5	176.[illegible]	101.5	34.0
11	[illegible] V-2-44	ITALY	3064.1	85.5	131.3	174.3	71.6	47.6
6	INIA 56	MEXICO	2799.7	86.5	123.3	171.[illegible]	73.3	39.5
1[illegible]	[illegible]-13[illegible] X LEEDS	U.S.A.	2777.4	84.0	135.3	176.[illegible]	71.3	35.3
16	LOCAL CHECK		1788.7	83.5	125.4	172.3	5[illegible].0	40.6
		GRAND MEAN	3362.8	86.0	131.4	174.1	81.1	40.3
	STANDARD ERROR OF GRAND MEAN		59.8		1.2	0.1	0.5	0.4
	COEFFICIENT OF VARIATION		12.3%		1.3%	0.5%	4.9%	5.9%
	LSD VARIETY MEANS 5 PC		677.2		2.8	1.5	6.5	4.5

CORRELATIONS

YIELD	KG/HA					
TEST	WEIGHT	0.37				
DAYS TO	FLOWER	0.31	0.12			
DAYS TO	MATURITY	0.26	0.38	0.89**		
HEIGHT	CM.	0.14	0.45	0.25	0.56*	
1000	K.WGT	0.19	0.31	-0.23	0.01	-0.00

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

TABLE 16

MIDDLE EAST IRAQ
TRUN-GRAIN, BAGHDAD
LATITUDE 33 2 N LONGITUDE 044 24 E ELEVATION +00034 METERS ABOVE SEA LEVEL
CUPERATORS A.JALAKA
DATE PLANTED 11/24/69 DATE HARVESTED 05/ /70
NUMBER OF IRRIGATIONS 004 RAIN TIMES AMOUNT OF MOISTURE 1314 MM
NITROGEN [illegible] KG/HA PHOSPHORUS 17.4 KG/HA POTASSIUM [illegible] KG/HA

MEXIPAK WAS THE LOCAL VARIETY. WEEDS WERE CONTROLLED BY HAND. LEAF AND STRIPE RUSTS DEVELOPMENT MODERATE. STEM RUST ONLY A TRACE. DRY WINTER WITH SEVERE COLD PERIOD IN LATE MARCH MAY HAVE CAUSED SOME STERILITY AND YIELD REDUCTION. AMOUNT OF IRRIGATION WAS UNSPECIFIED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	1000 K.WGT
11	[illegible]	ITALY	[illegible]	77.2	117.3	[illegible]	[illegible]	31.[illegible]
12	[illegible]	MEXICO	4827.3	74.6	111.6	[illegible]	[illegible]	[illegible]
14	[illegible]	MEXICO	[illegible]	73.3	111.3	[illegible]	[illegible]	41.0
13	[illegible]	MEXICO	[illegible]	78.5	[illegible]	143.3	111.6	47.[illegible]
14	LOCAL CHECK		4265.1	75.9	[illegible]	[illegible]	[illegible]	30.[illegible]
	[illegible]	ITALY	[illegible]	78.5	112.3	[illegible]	111.6	45.[illegible]
15	[illegible]	MEXICO	3871.8	73.3	[illegible]	145.	91.6	45.0
1	[illegible] X LERMA	U.S.A.	[illegible]	77.2	128.3	162.6	113.3	35.[illegible]
7	((CURE TUFO) ST [illegible])T2	IRAN	[illegible]	74.6	123.[illegible]	154.6	133.3	45.0
[illegible]	[illegible]	U.S.A.	[illegible]	78.5	125.[illegible]	[illegible]	144.[illegible]	35.[illegible]
2	[illegible]	MEXICO	3369.6	77.2	[illegible]	137.3	113.3	41.[illegible]
4	[illegible]	ITALY	[illegible]	77.2	117.6	154.3	[illegible]	49.[illegible]
3	[illegible]	MEXICO	[illegible]	78.5	122.[illegible]	153.[illegible]	143.3	51.[illegible]
4	[illegible]	ITALY	3227.4	78.5	122.6	[illegible]	[illegible]	38.[illegible]
3	[illegible]	U.S.A.	3227.4	74.6	124.3	159.4	129.3	23.[illegible]
6	[illegible]	INDIA	2777.4	75.9	113.[illegible]	147.3	[illegible]	39.[illegible]
		GRAND MEAN	[illegible]	76.4	115.9	153.7	[illegible]	42.6
	STANDARD ERROR OF GRAND MEAN		53.3		[illegible].3	[illegible].4	1.1	
	COEFFICIENT OF VARIATION		11.3%		2.1%	1.9%	[illegible]	
	LSD VARIETY MEANS 5 PC		[illegible]		[illegible]	4.9	[illegible]2.4	

CORRELATIONS

YIELD KG/HA						
TEST WEIGHT	[illegible].1					
DAYS TO FLOWER	-[illegible].27	[illegible].16				
DAYS TO MATURITY	-[illegible].2[illegible]	[illegible].19	[illegible].55**			
HEIGHT CM.	[illegible].23	[illegible].54*	[illegible].47	[illegible].55*		
1000 K.WGT	[illegible]	[illegible].05	-[illegible].3[illegible]	-[illegible].21	-[illegible].12	

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

TABLE 17

MIDDLE EAST IRAN
KARAJ, CEREAL BREEDING STATION.
LATITUDE 035 47 N LONGITUDE 050 00 E ELEVATION +01300 METERS ABOVE SEA LEVEL
COOPERATORS M.A.VAHABIAN,T.MAHLOOJI.
DATE PLANTED 12/20/69 DATE HARVESTED 06/ /70
NUMBER OF IRRIGATIONS RAIN TIMES AMOUNT OF MOISTURE 0780 MM
NITROGEN 120.0 KG/HA PHOSPHORUS 030.5 KG/HA POTASSIUM 000.0 KG/HA

#MY54XN1-EXTGL-TC2@%YT54XN10-B,BALL1166@TC2 WAS THE LOCAL VARIETY USED.
WEEDING WAS DONE 3 TIMES BUT PLOTS WERE STILL NOT CLEAN. NO HEAVY RUST
INFECTIONS WERE OBSERVED. YEAR WAS EXCEPTIONALLY DRY AND UNFAVORABLE.
RAINFALL WAS 180MM. IRRIGATION WAS APPLIED, BUT AMOUNT IS UNCERTAIN.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	1000 K.WGT
1	GA E 125	ITALY	2813.3	154.6	186.0	73.3	48.0
6	INIA-66	MEXICO	2533.3	151.0	180.0	63.3	40.0
3	WELLS	U.S.A.	2506.6	156.0	190.0	95.0	44.0
10	61-130 X LEEDS	U.S.A.	2346.6	156.0	194.0	70.0	49.6
5	CAPEITI	ITALY	2266.6	154.6	180.0	71.6	44.0
4	LEEDS	U.S.A.	2200.0	156.0	190.0	88.3	42.6
13	ANHINGA S	MEXICO	2173.3	153.6	192.0	65.0	47.3
14	BRANT	MEXICO	2026.6	154.0	190.0	61.6	47.0
16	LOCAL CHECK		1853.3	155.0	192.0	71.6	44.3
7	((TURE-TURG) ST 464)TC2	IRAN	1800.0	156.0	192.0	71.6	43.3
15	CRANE	MEXICO	1760.0	156.0	193.0	65.0	43.6
12	ALBATROSS	MEXICO	1693.3	155.0	191.0	68.3	44.6
9	S-5	INDIA	1656.6	156.0	194.0	56.6	43.0
2	CASTELDELMONTE 1	ITALY	1500.0	154.6	186.0	58.3	45.0
8	TAHUACAN	MEXICO	1426.6	156.0	190.0	86.6	46.6
11	GERARDO V-Z-46	ITALY	1346.6	154.6	190.0	68.3	46.3
		GRAND MEAN	2000.8	154.9	189.3	70.9	44.9
		STANDARD ERROR OF GRAND MEAN	63.6	0.1		0.8	0.6
		COEFFICIENT OF VARIATION	22.0%	0.7%		8.2%	10.5%
		LSD VARIETY MEANS 5 PC	719.6	1.8		9.5	7.7

CORRELATIONS

YIELD	KG/HA				
DAYS TO	FLOWER	-0.31			
DAYS TO	MATURITY	-0.39	0.65**		
HEIGHT	CM.	0.24	0.41	0.02	
1000	K.WGT	0.01	0.24	0.34	0.00

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

TABLE 18

MIDDLE EAST IRAN
GORGAN.
LATITUDE 36 54 28 N LONGITUDE 036 51 E ELEVATION +00120 METERS ABOVE SEA LEVEL
COOPERATORS M.A. VAHABIAN.
DATE PLANTED 12/ /69 DATE HARVESTED 06/ /70
NUMBER OF IRRIGATIONS RAIN TIMES AMOUNT OF MOISTURE MM
NITROGEN KG/HA PHOSPHORUS KG/HA POTASSIUM KG/HA

LOCAL VARIETY IS UNKNOWN. NO BIRD, PEST OR WEED PROBLEMS. LEAF RUST AND STEM RUST DEVELOPMENT WAS OBSERVED. MILDEW WAS ALSO PRESENT. NO OTHER DATA AVAILABLE.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	LEAF RUST	STEM RUST	HEIGHT CM.	LODGING	1000 K. WGT	MILDEW
15	CRANE	MEXICO	2688.6	130.0	50S	-	85.3	0.0	39.0	S
16	LOCAL CHECK		2321.9	138.0	10S	5S	91.3	40.0	38.6	MS
1	GA B-129	ITALY	2266.4	139.0	10S	-	87.3	20.0	46.0	O
14	BRANT	MEXICO	2077.5	126.0	15S	10MS	74.0	0.0	47.6	O
8	TEHUACAN	MEXICO	1822.0	139.0	5MS	5MS	83.6	40.0	45.3	O
2	CASTELDELMONTE 1	ITALY	1777.5	140.0	5MS	0	59.3	20.0	42.0	MR
4	LEEDS	U.S.A.	1633.1	142.0	10S	0	100.0	40.0	40.0	R
12	ALBATROSS	MEXICO	1610.9	133.0	10MS	5MS	80.3	0.0	40.3	MS
10	61-130 X LEEDS	U.S.A.	1599.9	142.0	25S	0	86.6	0.0	39.6	O
6	INIA-6c	MEXICO	1599.8	126.0	0	0	76.6	0.0	54.0	VS
9	S-9	INDIA	1566.5	133.0	70S	TVS	61.0	0.0	42.0	O
11	GERARDO V-Z-466	ITALY	1533.1	138.0	5S	10S	74.0	20.0	48.0	O
13	ANHINGA S	MEXICO	1477.6	126.0	20S	0	91.0	20.0	39.3	MS
3	WELLS	U.S.A.	1395.8	142.0	15S	-	91.0	40.0	40.0	O
7	((DURE-TURG) ST 464)TC2	IRAN	1344.3	142.0	40R	TR	78.0	0.0	40.6	O
5	CAPEITI	ITALY	1244.3	133.0	20S	5S	77.3	20.0	48.6	O
		GRAND MEAN	1747.7	135.5	17.1	2.2	84.0	16.2	43.2	
	STANDARD ERROR OF GRAND MEAN		81.9				2.4		0.9	
	COEFFICIENT OF VARIATION		32.4%				20.1%		15.9%	
	LSD VARIETY MEANS 5 PC		926.9				27.6		11.2	

CORRELATIONS

YIELD	KG/HA							
DAYS TO	FLOWER	-0.16						
LEAF	RUST	0.18	-0.23					
STEM	RUST	0.02	-0.16	-0.26				
HEIGHT	CM.	0.34	0.32	-0.29	-0.38			
LODGING		-0.01	0.47	-0.37	0.08	0.50*		
1000	K. WGT	-0.15	-0.38	-0.32	0.37	-0.49*	-0.17	
MILDEW		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 19

ASIA

SAUDI ARABIA

KHARJ EXPERIMENTAL STATION.
LATITUDE 24 15 N LONGITUDE 047 15 E ELEVATION +00430 METERS ABOVE SEA LEVEL
COOPERATORS M.Z. JOWANA.
DATE PLANTED 12/25/69 DATE HARVESTED 5/ /70
NUMBER OF IRRIGATIONS 014 RAIN TIMES AMOUNT OF MOISTURE MM
NITROGEN 150.5 KG/HA PHOSPHORUS 021.8 KG/HA POTASSIUM 041.6 KG/HA

HENTA MADINI WAS THE LOCAL VARIETY USED. SMALL BIRDS WERE A PROBLEM ON INTAKES. NO DISEASE DEVELOPMENT WAS OBSERVED. TEST TOOK PLACE IN DESERT CLIMATE WITH ONLY 51MM OF PRECIPITATION. IRRIGATION APPLIED WAS NOTED AS AN ADEQUATE AMOUNT.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	1000 K.WGT
11	GERARDO V-Z-46-	ITALY	7674.9	82.2	80.0	110.0	85.0	52.1
16	LOCAL CHECK		6820.5	77.3	80.0	117.0	105.0	33.0
7	((DUCE-TURG) ST 4)102	IRAN	6575.4	78.0	85.0	119.0	85.0	34.0
17	61-13) X LEEDS	U.S.A.	6534.6	95.3	92.0	121.0	70.0	36.1
5	S-5	INDIA	6248.7	81.0	69.0	105.0	60.0	44.7
9	TEHUACAN	MEXICO	6167.0	84.1	85.0	113.0	110.0	44.0
12	ALBATROSS	MEXICO	6085.4	78.7	71.0	110.0	75.0	48.7
15	CRANE	MEXICO	5962.8	84.7	68.0	105.0	70.0	47.0
4	LEEDS	U.S.A.	5595.3	0.0	87.0	115.0	115.0	36.0
3	WELLS	U.S.A.	5431.9	89.0	90.0	120.0	115.0	31.1
1	GK B 125	ITALY	5146.0	76.0	80.0	113.0	110.0	50.0
10	CAPEITI	ITALY	4245.8	83.5	78.0	109.0	50.0	47.7
14	BRANT	MEXICO	3921.7	80.1	68.0	103.0	65.0	48.7
2	CASTELCELMONTE 1	ITALY	3879.9	85.4	85.0	117.0	80.0	44.0
13	ANHINGA S	MEXICO	3226.4	81.0	68.0	105.0	85.0	45.5
6	INIA 54	MEXICO	0.0	0.0	68.0	109.0	90.0	0.0
		GRAND MEAN	5219.7	77.1	78.3	112.1	85.6	45.2
	STANDARD ERROR OF GRAND MEAN		215.3					
	COEFFICIENT OF VARIATION		28.5%					
	LSD VARIETY MEANS 5 PC		2436.7					

CORRELATIONS

YIELD	KG/HA					
TEST	WEIGHT	0.50*				
DAYS TO	FLOWER	0.42	0.11			
DAYS TO	MATURITY	0.31	-0.05	0.92**		
HEIGHT	CM.	0.08	-0.33	0.47	0.54*	
1000	K.WGT	0.56*	0.65**	-0.04	-0.28	-0.28

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

TABLE 20

ASIA W.PAKISTAN
TANDOJAM,AGRICULTURAL RESEARCH INSTITUTE.
LATITUDE 25 2 N LONGITUDE 068 38 E ELEVATION 40019 METERS ABOVE SEA LEVEL
CORRELATORS Z.A.MUNSHI AND WHEAT RESEARCH STAFF.
DATE PLANTED 12/27/69 DATE HARVESTED 04/ /70
NUMBER OF IRRIGATIONS RAIN TIMES 0 AMOUNT OF MOISTURE 0508 MM
NITROGEN 134.4 KG/HA PHOSPHORUS 028.3 KG/HA POTASSIUM 000.0 KG/HA

LOCAL VARIETY IS UNKNOWN. WEEDS MECHNICALLY CONTROLLED. NO INSECT OR BIRD PROBLEMS. DEVELOPMENT OF LEAF RUST AND STEM RUST INFECTION WAS HIGH. COMPARATIVELY WARM AND SHORT WINTER. NO PRECIPITATION DURING THE TEST.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	STEM RUST
*	INIA 66	MEXICO	3156.2	0
12	ALBATROSS	MEXICO	2946.8	40MS
13	ANHINGA S	MEXICO	2619.9	0
14	BRANT	MEXICO	2083.5	0
15	CRANE	MEXICO	1774.1	0
5	CARPITI	ITALY	1567.8	100S
8	T HUACAN	MEXICO	1505.9	50MR
2	CASTELDELMONTE 1	ITALY	1505.9	80S
11	GERARDO V-Z-46'	ITALY	1320.2	80S
4	LEEDS	U.S.A.	928.3	10S
3	WELLS	U.S.A.	928.3	0
1	GA E-125	ITALY	947.6	100S
6	S-8	INDIA	866.4	50S
7	((PURE TURG) ST 464)TC2	IRAN	763.9	30S
15	01 130 X LEEDS	U.S.A.	711.3	0
16	LOCAL CHECK		536.3	0
		GRAND MEAN	1502.0	31.3
	STANDARD ERROR OF GRAND MEAN		67.1	
	COEFFICIENT OF VARIATION		30.9%	
	LSD VARIETY MEANS 5 PC		749.1	

CORRELATIONS

YIELD	KG/HA	
STEM	RUST	-0.17

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

TABLE 21

ASIA W.PAKISTAN
LYALLPUR,AYUB-AGRICULTURAL RESEARCH INSTITUTION.
LATITUDE 031 30 N LONGITUDE 073 10 E ELEVATION 00213 METERS ABOVE SEA LEVEL
COOPERATORS CEREAL BOTANIST.
DATE PLANTED 11/02/69 DATE HARVESTED 04/ /70
NUMBER OF IRRIGATIONS RAIN TIMES AMOUNT OF MOISTURE 0417 MM
NITROGEN 040.5 KG/HA PHOSPHORUS 012.0 KG/HA POTASSIUM 000.0 KG/HA

LOCAL VARIETY IS UNKNOWN. THERE WERE SOME PROBLEMS WITH THE WHITE-FLY. IT WAS AN EPIDEMIC YEAR FOR STRIPE RUST. LEAF RUST AND STEM RUST WERE ALSO PRESENT. GENERALLY IT WAS A NORMAL YEAR, WITH 49MM OF RAINFALL. 368MM WERE APPLIED AS IRRIGATION.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	LEAF RUST	HEIGHT CM.	LODGING
16	LOCAL CHECK		4943.9	111.6	149.0	0	40S	105.0	0.0
15	CRANE	MEXICO	4921.7	95.6	150.6	0	40S	93.0	0.0
14	BRANT	MEXICO	4821.7	102.3	152.3	5R	5MS	88.0	0.0
12	ALBATROSS	MEXICO	4655.0	96.0	149.0	0	5R	99.0	0.0
11	GERARDO V-Z-46A	ITALY	4589.4	111.0	153.0	5R	TR	107.0	0.0
13	ANHINGA S	MEXICO	4421.7	92.0	149.0	0	5R	124.0	25.0
8	TEHUACAN	MEXICO	4377.3	122.0	155.0	5R	5R	162.0	0.0
9	S-8	INDIA	4059.5	93.3	146.3	10MR	25M	82.0	0.0
2	CASTELDELMONTE 1	ITALY	4077.3	117.3	161.3	5R	TR	128.0	25.0
1	GA E-125	ITALY	3810.7	115.0	156.0	10MR	5R	140.0	41.6
7	((DURE-TURG) ST 464)TC2	IRAN	3721.8	127.0	160.0	0	5R	98.0	0.0
4	LEEDS	U.S.A.	3166.3	123.3	157.3	25MS	40S	171.0	16.6
6	INIA-66	MEXICO	3044.1	88.0	139.0	0	0	115.0	25.0
10	61-130 X LEEDS	U.S.A.	2766.3	126.6	158.6	65VS	10MS	93.0	0.0
5	CAPEITI	ITALY	2455.3	106.3	151.3	0	10MS	140.0	75.0
3	WELLS	U.S.A.	1977.5	129.6	160.6	40S	40S	174.0	25.0
		GRAND MEAN	3865.5	109.8	153.0	8.5	12.5	119.9	14.5
		STANDARD ERROR OF GRAND MEAN	65.0	0.1	0.1				0.7
		COEFFICIENT OF VARIATION	11.6%	1.1%	0.8%				34.9%
		LSD VARIETY MEANS 5 PC	736.4	2.1	2.1				8.3

CORRELATIONS

YIELD	KG/HA						
DAYS TO	FLOWER	-0.41					
DAYS TO	MATURITY	-0.27	0.88**				
STRIPE	RUST	-0.61**	0.55*	0.45			
LEAF	RUST	-0.12	0.19	0.10	0.27		
HEIGHT	CM.	-0.51*	0.48*	0.38	0.16	0.23	
LODGING		-0.56*	-0.02	0.00	-0.08	-0.10	0.49*

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

TABLE 22

AFRICA ETHIOPIA
ALEMAYA,DIRE DAWA.
LATITUDE LONGITUDE ELEVATION METERS BELOW SEA LEVEL
COOPERATORS B.GEBREKIDAN.
DATE PLANTED 06/ /70 DATE HARVESTED 12/ /70
NUMBER OF IRRIGATIONS RAIN TIMES AMOUNT OF MOISTURE MM
NITROGEN KG/HA PHOSPHORUS KG/HA POTASSIUM KG/HA

SONORA 63 WAS THE LOCAL VARIETY USED.NO OTHER INFORMATION AVAILABLE.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	LEAF RUST	STEM RUST
1	GA 6-125	ITALY	1965.0	0	99VS
5	CAPEITI	ITALY	1485.0	0	99VS
6	INIA-66	MEXICO	1345.0	0	10R
12	ALBATROSS	MEXICO	1315.0	60S	90S
8	TEHUACAN	MEXICO	1225.0	70S	99VS
2	CASTELDELMONTE 1	ITALY	1010.0	0	20S
11	GERARDO V-7-66A	ITALY	965.0	0	99VS
13	ANHINGA S	MEXICO	940.0	30S	50MR
15	CRANE	MEXICO	790.0	0	70S
3	WELLS	U.S.A.	720.0	30S	60S
9	S-6	INDIA	655.0	0	90S
4	LEEDS	U.S.A.	510.0	50S	70S
14	BRANT	MEXICO	450.0	70S	99VS
10	61-131 X LEEDS	U.S.A.	270.0	70S	0
7	((DURE-TURG) ST 464)TC2	IRAN	165.0	0	99VS
	GRAND MEAN		920.6	25.3	67.7
	STANDARD ERROR OF GRAND MEAN				
	COEFFICIENT OF VARIATION				
	LSD VARIETY MEANS 5 PC				

CORRELATIONS

YIELD	KG/HA		
LEAF	RUST	-0.28	
STEM	RUST	0.14	-0.03

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

TABLE 23

AFRICA ETHIOPIA
HOLLETTA, GOLNET RESEARCH STATION.
LATITUDE [illegible] LONGITUDE [illegible] E ELEVATION +02390 METERS ABOVE SEA LEVEL
COOPERATORS K.TESFAI,H.GEBREMARIAM,F.F.PLANT.
DATE PLANTED 06/23/72 DATE HARVESTED 12/ /72
NUMBER OF IRRIGATIONS 0 RAIN TIMES AMOUNT OF MOISTURE 0763 MM
NITROGEN [illegible] KG/HA PHOSPHORUS 039.2 KG/HA POTASSIUM [illegible] KG/HA

LOCAL VARIETY IS UNKNOWN. WEEDS WERE CONTROLLED BY MCPA HERBICIDE AND HAND WEEDING. SEPTORIA TRITICI INFECTION WAS VERY HIGH DUE TO WET JULY AND AUGUST. STEM RUST DEVELOPED LATE, BUT VERY STRONGLY. NOVEMBER WAS COLD, WITH SEVERAL FROST NIGHTS AND AUGUST WAS ABNORMALLY WET.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	STEM RUST	HEIGHT CM.	1000 K.WGT	SEPTORIA TRITICI
14	[illegible]	MEXICO	2530.1	75.0	78.3	137.0	100VS	79.0	35.5	[illegible]
16	LOCAL CHECK		2502.7	76.0	76.6	131.3	50VS	[illegible]	37.0	[illegible]
19	[illegible]	U.S.A.	2406.4	79.1	95.3	158.3	90VS	[illegible]	39.5	13.3
1	[illegible]	ITALY	2026.4	77.5	82.0	141.6	40VS	[illegible]	44.0	[illegible]
3	[illegible]	U.S.A.	2022.0	75.5	95.0	159.0	60VS	[illegible]	27.0	11.6
5	[illegible]	ITALY	1895.3	80.6	79.0	134.0	[illegible]	[illegible]	39.5	[illegible]
11	[illegible]	ITALY	1874.6	77.1	83.6	142.0	45VS	[illegible]	43.5	[illegible]
8	[illegible]	MEXICO	1842.0	80.2	85.6	144.6	[illegible]	111.6	48.5	23.3
12	[illegible]	MEXICO	1725.0	77.6	78.0	140.6	70VS	[illegible]	42.5	43.3
7	[illegible]	IRAN	1587.9	69.7	90.6	157.0	80VS	[illegible]	30.0	[illegible]
2	[illegible]	ITALY	1414.6	81.5	87.6	150.0	40VS	81.6	37.0	[illegible]
15	[illegible]	MEXICO	1348.7	74.3	81.0	130.0	90VS	[illegible]	32.5	[illegible]
9	[illegible]	INDIA	1344.3	77.0	78.3	138.3	70VS	82.3	34.0	43.3
13	[illegible]	MEXICO	1250.9	76.0	73.3	133.6	100VS	91.6	37.5	[illegible]
4	[illegible]	U.S.A.	1176.1	77.5	94.3	159.0	70VS	119.3	32.5	[illegible]
6	[illegible]	MEXICO	863.6	73.6	67.0	124.0	0	[illegible]	23.5	[illegible]
		GRAND MEAN	1738.2	76.8	82.8	142.5	47.4	91.5	[illegible]	36.1
		STANDARD ERROR OF GRAND MEAN	77.5		0.1	0.4	2.9	[illegible]		[illegible]
		COEFFICIENT OF VARIATION	30.9%		1.0%	1.9%	42.8%	[illegible]		[illegible]
		LSD VARIETY MEANS 5 PC	877.8		1.4	4.6	33.2	12.1		[illegible]

CORRELATIONS

YIELD	KG/HA								
TEST	WEIGHT	0.15							
DAYS TO	FLOWER	0.24	[illegible]						
DAYS TO	MATURITY	0.17	[illegible]	0.94**					
STEM	RUST	0.04	-0.19	0.22	0.19				
HEIGHT	CM.	0.21	0.10	0.43	0.40	0.15			
1000	K.WGT	0.41	0.62**	[illegible]	0.00	-0.13	-0.00		
SEPTORIA	TRITICI	-0.42	-0.26	[illegible]	-0.80**	-0.52*	-0.44	-0.31	

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

TABLE 24

AFRICA ETHIOPIA
PARADISO
LATITUDE 15 20 N LONGITUDE 039 00 E ELEVATION +02300 METERS ABOVE SEA LEVEL
COOPERATORS G.HABTEMARIAM
DATE PLANTED 07/15/70 DATE HARVESTED / /70
NUMBER OF IRRIGATIONS 000 RAIN TIMES AMOUNT OF MOISTURE MM
NITROGEN KG/HA PHOSPHORUS KG/HA POTASSIUM KG/HA

LOCAL CHECK UNKNOWN. LATE STARTING OF SEASONAL RAINS. ONLY LIGHT RUST
DEVELOPMENT. 15 QLS. PER HA. BARNYARD MANURE APPLIED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	LEAF RUST	HEIGHT CM.	1000 K.WGT
12	ALBATROSS	MEXICO	2513.3	82.0	126.0	5MR	78.3	35.0
16	LOCAL CHECK		2299.3	95.0	124.0		79.6	33.0
6	INIA-66	MEXICO	2186.6	80.0	123.0	5MR	82.3	22.0
1	GA E-125	ITALY	1497.3	88.0	133.0	0	93.6	25.0
13	ONHINGA S	MEXICO	1353.3	82.0	128.0	T	85.6	28.0
2	CAPRITI	ITALY	1344.6	86.0	110.0	0	93.6	30.0
15	CRANE	MEXICO	1232.3	82.0	123.0	0	63.3	23.0
5	S.C.	INDIA	1167.3	82.0	125.0	25MS	64.0	22.0
8	TAHUCAN	MEXICO	1027.3	93.0	118.0	0	85.3	38.0
14	BRANT	MEXICO	1011.0	88.0	129.0	0	87.3	22.0
7	((DURE-TURG) ST 464)TC 2	IRAN	870.6	90.0	110.0	30MS	58.0	27.0
4	CASTELDELMONTE 1	ITALY	757.6	93.0	134.0	30MS	70.6	27.0
11	GERARDO V-7-65	ITALY	303.3	84.0	125.0	15MR	63.3	20.0
3	WELLS	U.S.A.	235.0	103.0	126.0	0	83.6	27.0
10	57-13 X LEEDS	U.S.A.	225.0	95.0	115.0	20MR	59.0	28.0
9	LEEDS	U.S.A.	[illegible]	99.0	122.0	0	65.3	30.0
		GRAND MEAN	1163.1	88.8	122.5	5.2	76.8	27.3
	STANDARD ERROR OF GRAND MEAN		93.1				1.5	
	COEFFICIENT OF VARIATION		97.5%				13.7%	
	LSD VARIETY MEANS 5 PC		1076.5				17.2	

CORRELATIONS

YIELD	KG/HA					
DAYS TO	FLOWER	-0.55*				
DAYS TO	MATURITY	0.13	-0.11			
LEAF	RUST	-0.21	-0.01	-0.01		
HEIGHT	CM.	0.35*	0.04	-0.05	-0.36	
1000	K.WGT	0.23	0.37	-0.42	-0.20	0.52*

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

TABLE 25

AFRICA EGYPT
MALLAWAY EXPERIMENT STATION.
LATITUDE 029 00 N LONGITUDE 031 00 E ELEVATION METERS BELOW SEA LEVEL
COOPERATORS S.M.DESSOUKI AND STAFF MEMBERS.
DATE PLANTED / / DATE HARVESTED / /
NUMBER OF IRRIGATIONS 006 RAIN TIMES AMOUNT OF MOISTURE MM
NITROGEN 142.0 KG/HA PHOSPHORUS 200.0 KG/HA POTASSIUM 000.0 KG/HA

LOCAL VARIETY IS UNKNOWN. NO BIRD, PEST OR WEED PROBLEMS. NO DISEASE DEVELOPMENT WAS OBSERVED. NORMAL WEATHER CONDITIONS EXISTED DURING THE TEST. QUANTITY OF PRECIPITATION AND IRRIGATIONS IS UNSPECIFIED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	SHATRNG HEAD	1000 K.WGT
16	LOCAL CHECK		83.0	80.3	127.0	105.0	P	48.0
5	CAPETTI	ITALY	82.7	80.3	135.0	101.0	MS	52.5
13	ANHINGA S	MEXICO	82.0	78.3	126.0	96.0	S	55.1
2	CASTELDELMONTE 1	ITALY	82.0	96.0	140.0	73.3	MS	48.0
15	CRANE	MEXICO	81.7	93.0	130.0	85.6	MR	56.3
9	S 9	INDIA	81.1	78.6	133.3	65.0	MR	45.1
11	GLEARDU V-Z-466	ITALY	81.0	91.3	140.0	83.3	MS	43.5
8	TEHUACAN	MEXICO	81.0	96.6	140.0	113.3	P	59.0
14	BRANT	MEXICO	80.7	93.0	127.3	73.3	MR	50.7
6	INI-66	MEXICO	80.7	74.6	124.0	76.6	MR	47.5
1	GA E-125	ITALY	80.5	91.6	138.0	95.0	MR	56.0
12	ALBATROSS	MEXICO	80.3	86.3	132.0	81.6	MR	62.7
4	LEEDS	U.S.A.	80.0	99.6	142.6	116.6	MR	37.3
10	61-130 X LEEDS	U.S.A.	79.7	102.6	143.6	78.3	MR	43.7
3	WELLS	U.S.A.	79.5	105.0	143.0	118.3	MS	30.3
7	((DURE TURG) ST 464)TC2	IRAN	77.0	89.6	143.6	86.0	MR	51.7
	GRAND MEAN		80.8	89.8	135.3	90.3		
	STANDARD ERROR OF GRAND MEAN			0.0	1.2	0.9		
	COEFFICIENT OF VARIATION			0.6%	1.0%	6.3%		
	LSD VARIETY MEANS 5 PC			0.9	2.4	9.4		

CORRELATIONS

TEST	WEIGHT					
DAYS TO	FLOWER	-0.41				
DAYS TO	MATURITY	-0.56*	0.75**			
HEIGHT	CM.	0.30	0.31	0.30		
SHATRNG	HEAD	0.00	0.00	0.00	0.00	
1000	K.WGT	0.18	-0.36	-0.23	-0.27	0.00

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

TABLE 26

AFRICA TUNISIA
TUNIS, I.N.F.A.T. ARIANA.
LATITUDE 36 45 N LONGITUDE 010 10 E ELEVATION 4000' METERS ABOVE SEA LEVEL
COOPERATORS ACCELERATED CEREAL PRODUCTION PROJECT.
DATE PLANTED 12/17/69 DATE HARVESTED 06/ /70
NUMBER OF IRRIGATIONS 0 RAIN TIMES AMOUNT OF MOISTURE 1507 MM
NITROGEN [illegible] KG/HA PHOSPHORUS 40.0 KG/HA POTASSIUM 200.0 KG/HA

[illegible] WAS THE LOCAL VARIETY USED. BIRDS, INSECTS AND WEEDS DID SOME DAMAGE. SOME STRIPE RUST, MILDEW AND SEPTORIA WERE OBSERVED. STEM RUST AND LEAF RUST DEVELOPED LATE. SOME DAMAGE DONE BY LATE DEVELOPING FUSARIUM. WET WINTER COOL AND CLOUDY SPRING. STRONG WINDS IN APRIL.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	LEAF RUST	STEM RUST	HEIGHT CM.	MILDEW
14	[illegible]	MEXICO	2716.0	95.6	39.3	73.3	71.6	99.9
12	[illegible] SS	MEXICO	2640.0	98.0	13.3	46.6	78.3	99.8
13	[illegible] S	MEXICO	2532.0	99.0	41.3	0.7	98.3	99.8
6	[illegible]	INDIA	2464.0	99.3	75.0	56.6	66.6	99.8
2	CASTELDELMONTE 1	ITALY	2360.0	114.3	29.3	46.6	91.6	62.4
[illegible]	[illegible]	MEXICO	2349.0	90.0	0.0	0.7	92.0	99.8
5	CORRITI	ITALY	2270.0	102.3	64.6	63.3	105.0	99.8
15	CRAN	MEXICO	2110.0	97.3	29.3	63.3	71.6	99.8
1	[illegible] E-125	ITALY	1996.0	111.0	40.0	34.6	100.0	85.0
11	61-13 X LEEDS	U.S.A.	1852.0	115.0	76.6	0.0	71.6	33.2
10	GERARDO V-Z-46A	ITALY	1841.0	111.3	3.3	56.6	85.0	99.8
16	LOCAL CHECK		1592.0	111.3	26.6	33.3	95.0	88.7
3	WELLS	U.S.A.	1635.3	118.3	65.0	4.0	118.3	77.6
4	LEEDS	U.S.A.	1582.0	115.6	60.0	6.0	118.3	85.0
5	T HUACAN	MEXICO	1420.0	115.6	24.0	63.3	121.6	99.8
7	((CUPE-TURG) ST 4F4)TL2	IRAN	1348.0	116.3	45.0	73.3	78.3	81.3
		GRAND MEAN	2049.0	106.9	39.6	38.9	90.7	90.1
		STANDARD ERROR OF GRAND MEAN	75.7	0.3	2.7	1.8	0.6	2.4
		COEFFICIENT OF VARIATION	19.2%	2.3%	45.2%	33.6%	5.2%	19.0%
		LSD VARIETY MEANS 5 PC	642.8	4.1	29.3	21.4	7.8	28.0

CORRELATIONS

YIELD	KG/HA					
DAYS TO	FLOWER	-0.9[illegible]**				
LEAF	RUST	-0.11	0.29			
STEM	RUST	0.[illegible]	-0.09	-0.15		
HEIGHT	CM.	-0.49*	0.43	0.05	-0.34	
MILDEW		0.39	-0.53*	-0.52*	0.45	0.07

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

TABLE 27

AFRICA TUNISIA
REJA,I.N.R.A.T.
LATITUDE 036 40 N LONGITUDE 009 10 E ELEVATION +00161 METERS ABOVE SEA LEVEL
COOPERATORS ACCELERATED CEREAL PRODUCTION PROJECT.
DATE PLANTED 11/17/63 DATE HARVESTED 07/ /70
NUMBER OF IRRIGATIONS 0 RAIN TIMES AMOUNT OF MOISTURE 0702 MM
NITROGEN 040.7 KG/HA PHOSPHORUS 030.5 KG/HA POTASSIUM 000.0 KG/HA

058-23A WAS THE LOCAL VARIETY USED. MODERATE DAMAGE DONE BY SAWFLY, HESSIAN FLY, CEREAL LEAF BEETLE AND BIRDS. NATURAL STEM RUST AND LEAF RUST INFECTIONS WERE PREVALENT. STRIPE RUST AND SEPTORIA WERE ALSO OBSERVED. WINTER AND SPRING WERE WET. SNOW AND FROST CAUSED SOME DAMAGE.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	LEAF RUST	HEIGHT CM.	LODGING	SEPTORIA SPP.
2	ALBATROSS	MEXICO	4749.3	143.3	40MS	98.3	0.0	65.0
5	CRANE	MEXICO	4681.3	138.6	50MS	86.6	13.3	75.0
3	ANHINGA S	MEXICO	4630.6	139.6	70S	110.0	56.6	80.0
5	CAPEITI	ITALY	4560.0	147.6	70S	118.3	76.6	60.0
4	BRANT	MEXICO	4394.6	139.3	80S	83.3	0.0	70.0
1	GERARDO V-Z-466	ITALY	4346.6	154.0	5S	105.0	1.5	80.0
5	INIA-66	MEXICO	4110.6	128.3	0	93.3	18.3	75.0
5	LOCAL CHECK		4028.0	154.0	10S	116.6	25.0	65.0
2	CASTELDELMONTE 1	ITALY	4016.0	155.0	5MS	106.6	56.6	70.0
3	TEHLACAN	MEXICO	3985.3	156.6	5MS	146.6	45.0	75.0
.	61-130 X LEEDS	U.S.A.	3865.3	158.0	50MS	68.3	1.0	70.0
8	LEEDS	U.S.A.	3641.3	156.0	60S	141.6	53.3	46.0
3	WELLS	U.S.A.	3285.3	158.0	50S	141.6	70.0	70.0
1	GA E-125	ITALY	3249.3	153.0	0	126.6	76.6	52.0
6	S-9	INDIA	3080.0	145.6	90S	71.6	0.0	75.0
7	((DURE-TURG) ST 464)TC2	IRAN	2928.0	161.3	5MS	85.0	0.0	36.0
		GRAND MEAN	3971.9	149.2	36.0	106.2	30.8	66.5
		STANDARD ERROR OF GRAND MEAN	65.2	0.2	3.0	0.7	1.8	2.2
		COEFFICIENT OF VARIATION	11.3%	0.9%	47.0%	5.0%	41.2%	18.7%
		LSD VARIETY MEANS 5 PC	738.4	2.4	27.7	8.7	20.7	20.3

CORRELATIONS

YIELD KG/HA						
DAYS TO FLOWER	-0.55*					
LEAF RUST	0.08	-0.15				
HEIGHT CM.	-0.12	0.49*	-0.12			
LODGING	-0.08	0.19	-0.00	0.77**		
SEPTORIA SPP.	0.51*	-0.46	0.02	-0.16	-0.15	

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

TABLE 28

AFRICA MOROCCO
STAT KACEM
LATITUDE 034 16 N LONGITUDE 005 30 W ELEVATION +00033 METERS ABOVE SEA LEVEL
COOPERATORS A.ACOSTA.
DATE PLANTED 01/23/70 DATE HARVESTED 06/ /70
NUMBER OF IRRIGATIONS 0 RAIN TIMES AMOUNT OF MOISTURE 0148 MM
NITROGEN 100.6 KG/HA PHOSPHORUS 013.1 KG/HA POTASSIUM 025.0 KG/HA

BD-2777 WAS THE LOCAL VARIETY USED. SOME DAMAGE DONE BY WEEDS, BIRDS AND INSECTS. DISEASE DEVELOPMENT WAS NOT GOOD. PROBABLE CAUSE WAS DRYNESS. IT WAS A BAD SEASON, WITH VERY LITTLE RAIN.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER
GA E 125		ITALY	2291.2	79.8	80.0
BRANT		MEXICO	2103.8	78.3	82.0
LOCAL CHECK			1866.3	80.2	92.0
ALBATROSS		MEXICO	1633.0	80.2	89.0
CAPEITI		ITALY	1583.0	81.8	85.0
GERARDO V-Z-466		ITALY	1483.0	80.0	89.0
CASTELDELMONTE 1		ITALY	1199.8	0.0	92.0
INIA-65		MEXICO	1133.9	80.3	79.0
((DUPF-TURG) ST 466)TC2		IRAN	1083.1	0.0	92.0
S-9		INDIA	1062.3	79.2	85.0
LEEDS		U.S.A.	999.8	79.8	94.0
ANHINGA S		MEXICO	995.8	82.8	84.0
TEHUACAN		MEXICO	916.5	81.0	97.0
WELLS		U.S.A.	878.1	0.0	93.0
61-130 X LEEDS		U.S.A.	616.5	0.0	[illegible]
CRANE		MEXICO	0.0	79.3	79.3
	GRAND MEAN		1240.6	60.1	82.3
	STANDARD ERROR OF GRAND MEAN				
	COEFFICIENT OF VARIATION				
	LSD VARIETY MEANS 5 PC				

CORRELATIONS

YIELD	KG/HA		
TEST	WEIGHT	0.29	
DAYS TO	FLOWER	0.32	0.33

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

TABLE 29

AFRICA MOROCCO
MERCHOUCH.
LATITUDE 033 50 N LONGITUDE 007 00 W ELEVATION +00400 METERS ABOVE SEA LEVEL
COOPERATORS A.ACOSTA.
DATE PLANTED 12/26/69 DATE HARVESTED 06/ /70
NUMBER OF IRRIGATIONS 0 RAIN TIMES AMOUNT OF MOISTURE 0361 MM
NITROGEN 100.0 KG/HA PHOSPHORUS 017.4 KG/HA POTASSIUM 033.3 KG/HA

BD-2777 WAS THE LOCAL VARIETY USED. SOME DAMAGE DONE BY WEEDS, BIRDS AND INSECTS. DISEASE DEVELOPMENT HAD A GOOD BEGINNING, BUT LATER DEVELOMENT WAS POOR. THE SEASON HAD A GOOD START, BUT THEN TWO DRY PERIODS FOLLOWED. ALL ENTRIES WERE SUSCEPTABLE TO THE WHEAT STEM MAGGOT.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.
6	INIA-66	MEXICO	3159.2	79.6	89.0	133.0	91.6
12	ALBATROSS	MEXICO	2552.3	79.1	98.0	143.0	80.0
14	BRANT	MEXICO	2498.2	75.6	95.0	142.0	75.0
13	ANHINGA S	MEXICO	2376.0	80.5	97.0	142.0	108.3
5	CAPEITI	ITALY	2237.1	80.0	109.0	142.0	110.0
15	CRANE	MEXICO	2194.0	73.7	98.0	143.0	78.3
16	LOCAL CHECK		2159.3	76.8	106.0	142.0	113.3
11	GERARDO V-Z-466	ITALY	1891.3	77.1	109.0	145.0	85.0
9	S-9	INDIA	1866.3	76.6	108.0	142.0	68.3
2	CASTELCELMONTE 1	ITALY	1687.2	77.8	118.0	146.0	90.0
1	GA 8-125	ITALY	1630.2	75.3	119.0	146.0	103.3
8	TEHUACAN	MEXICO	1612.2	76.0	111.0	146.0	128.3
10	61-130 X LEEDS	U.S.A.	1287.2	73.3	115.0	146.0	73.3
3	WELLS	U.S.A.	1133.1	0.0	115.0	148.0	113.3
7	((DURE-TURG) ST 464)TC2	IRAN	1090.1	0.0	115.0	146.0	68.3
4	LEEDS	U.S.A.	972.0	0.0	112.0	146.0	118.3
		GRAND MEAN	1896.6	62.6	107.1	143.6	94.0
	STANDARD ERROR OF GRAND MEAN		38.0				0.9
	COEFFICIENT OF VARIATION		13.8%				6.7%
	LSD VARIETY MEANS 5 PC		430.5				10.3

CORRELATIONS

YIELD	KG/HA				
TEST	WEIGHT	0.70**			
DAYS TO	FLOWER	-0.86**	-0.39		
DAYS TO	MATURITY	-0.86**	-0.46	0.81**	
HEIGHT	CM.	-0.14	-0.13	0.17	0.14

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

TABLE 30

SOUTH AMERICA CHILE
LA PLATINA, SANTIAGO.
LATITUDE 033 34 S LONGITUDE 070 38 W ELEVATION +00629 METERS ABOVE SEA LEVEL
COOPERATORS I.RAMIREZ, P.PARODI, C.MORENO.
DATE PLANTED 06/16/70 DATE HARVESTED 12/ /70
NUMBER OF IRRIGATIONS 006 RAIN TIMES AMOUNT OF MOISTURE MM
NITROGEN 150.0 KG/HA PHOSPHORUS 050.0 KG/HA POTASSIUM 000.0 KG/HA

QUILAFEN WAS THE LOCAL VARIETY USED. WEEDS CONTROLLED BY HERBICIDES. BIRDS DID A GREAT DEAL OF DAMAGE. LARGE INFECTION OF STRIPE RUST AND STEM RUST, TRACES OF LEAF RUST. NORMAL YEAR WITH GOOD WEATHER THIS YEAR. 327 MM OF RAINFALL. AMOUNT OF IRRIGATION APPLIED IS UNSPECIFIED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	STRIPE RUST	STEM RUST	HEIGHT CM.	MILDEW
11	GERARDO V-Z-466	ITALY	6660.4	127.0	5MR	70S	95.0	99.8
13	ANHINGA S	MEXICO	6521.5	127.0	0	10S	120.0	99.8
12	ALBATROSS	MEXICO	6488.2	127.0	0	50S	90.0	99.8
16	LOCAL CHECK		6349.3	135.0	0	40S	85.0	99.8
1	GA E 125	ITALY	5593.8	132.0	20MS	70S	120.0	92.4
8	TEHUACAN	MEXICO	5116.1	131.0	TR	70S	160.0	99.8
14	BRANT	MEXICO	4943.9	121.0	0	5S	80.0	99.8
10	61-130 X LEEDS	U.S.A.	4766.1	136.0	20S	0	85.0	99.8
15	CRANE	MEXICO	4521.7	121.0	0	5S	90.0	85.0
2	CASTELCELMONTE 1	ITALY	4338.4	133.0	5MR	10S	110.0	33.2
4	LEEDS	U.S.A.	4232.9	134.0	30S	5MS	140.0	99.8
7	((DURE-TURG) ST 464)T62	IRAN	4038.4	137.0	TR	80S	80.0	88.7
3	WELLS	U.S.A.	3994.0	135.0	70S	TS	145.0	77.6
5	CAPEITI	ITALY	3777.3	125.0	5MS	40S	115.0	85.0
9	S-9	INDIA	3655.1	128.0	5MS	90S	70.0	99.8
6	INIA-66	MEXICO	3183.0	116.0	0	80S	100.0	81.3
		GRAND MEAN	4889.4	129.0	9.2	35.0	105.3	90.1
		STANDARD ERROR OF GRAND MEAN	161.4					2.4
		COEFFICIENT OF VARIATION	22.8%					19.0%
		LSD VARIETY MEANS 5 PC	1826.9					28.0

CORRELATIONS

YIELD	KG/HA				
DAYS TO	FLOWER	0.12			
STRIPE	RUST	-0.25	0.43		
STEM	RUST	-0.04	-0.12	-0.40	
HEIGHT	CM.	-0.03	0.21	0.48*	-0.19

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

TABLE 31

MESOAMERICA MEXICO MEXICO
TOLUCA.
LATITUDE 019 N LONGITUDE 100 E ELEVATION +02600 METERS ABOVE SEA LEVEL
COOPERATORS CIMMYT
DATE PLANTED 06/ /70 DATE HARVESTED 09/ /70
NUMBER OF IRRIGATIONS RAIN TIMES AMOUNT OF MOISTURE MM
NITROGEN 080.0 KG/HA PHOSPHORUS 060.0 KG/HA POTASSIUM 000.0 KG/HA

LOCAL VARIETY NOT USED. NO BIRD, PEST OR WEED PROBLEMS. STRIPE RUST AND LEAF RUST DEVELOPMENT WAS OBSERVED. STEM RUST WAS ALSO PRESENT.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	HEIGHT CM.	1000 K.WGT
6	INIA-66	MEXICO	6326.8	77.2	62.0	95.0	46.2
13	ANHINGA S	MEXICO	5472.6	76.8	74.0	113.3	46.7
8	TEHUACAN	MEXICO	5305.9	75.7	77.0	141.6	46.3
1	GA B 125	ITALY	4833.7	72.5	80.0	121.6	40.5
5	CAPEITI	ITALY	4236.4	71.0	72.0	125.0	41.5
11	GERARDO V-Z-466	ITALY	3153.0	70.1	73.0	85.0	35.5
4	LEEDS	U.S.A.	3028.0	73.7	90.0	155.0	35.5
3	WELLS	U.S.A.	2937.7	69.7	98.0	156.6	28.5
15	CRANE	MEXICO	2659.9	69.3	78.0	81.6	37.7
14	BRANT	MEXICO	2618.2	67.7	76.0	76.6	32.0
7	((DURE-TURG) ST 464)TC2	IRAN	2236.2	64.0	87.0	88.3	39.5
10	61 130 X LEEDS	U.S.A.	2069.6	70.5	83.0	91.6	38.0
12	ALBATROSS	MEXICO	2055.7	60.8	71.0	81.6	37.3
9	S-9	INDIA	1798.7	66.8	103.0	68.3	33.6
2	CASTELDELMONTE 1	ITALY	1430.6	58.7	0.0	98.3	19.8
		GRAND MEAN	3344.2	69.7	74.9	105.3	37.3
	STANDARD ERROR OF GRAND MEAN		81.9			0.7	
	COEFFICIENT OF VARIATION		16.4%			4.6%	
	LSD VARIETY MEANS 5 PC		897.8			8.0	

CORRELATIONS

YIELD KG/HA					
TEST WEIGHT	0.84**				
DAYS TO FLOWER	0.06	0.38			
HEIGHT CM.	0.39	0.46	0.14		
1000 K.WGT	0.77**	0.72**	0.38	0.10	

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

TABLE 32

MESOAMERICA MEXICO SONORA
CD.OBREGON,C.I.A.N.O.
LATITUDE 027 20 N LONGITUDE 109 54 W ELEVATION +00040 METERS ABOVE SEA LEVEL
COOPERATORS CIMMYT,WHEAT SECTION.
DATE PLANTED 11/28/69 DATE HARVESTED 05/ /70
NUMBER OF IRRIGATIONS 004 RAIN TIMES 03 AMOUNT OF MOISTURE MM
NITROGEN 120.0 KG/HA PHOSPHORUS 040.0 KG/HA POTASSIUM 000.0 KG/HA

LOCAL VARIETY NOT USED. LEAF RUST INFECTION WAS OBSERVED. NORMAL CLIMATIC CONDITIONS EXISTED DURING THE TEST. QUANTITY OF PRECIPITATION AND IRRIGATION IS UNSPECIFIED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	LEAF RUST	HEIGHT CM.	1000 K.WGT
15	CRANE	MEXICO	7868.6	81.5	78.3	126.0	TRR	93.3	53.0
14	BRANT	MEXICO	7521.4	80.6	79.3	129.0	0	90.9	52.5
12	ALBATROSS	MEXICO	7132.5	82.9	79.0	121.0	TRMR	90.0	61.3
7	((DURE-TURG) ST 464)TC2	IRAN	7083.8	78.1	94.0	134.0	40S	102.5	47.7
11	GERARDO V-Z-466	ITALY	6903.3	81.4	90.0	132.0	TRS	95.0	55.3
10	61-130 X LEEDS	U.S.A.	6840.9	80.5	98.0	136.0	TRMS	108.3	40.5
6	INIA-66	MEXICO	6833.8	84.6	71.0	109.0	70S	105.0	47.2
9	S-9	INDIA	5979.6	81.9	79.3	119.0	TRS	75.0	44.6
13	ANHINGA S	MEXICO	5854.6	84.6	76.0	119.0	TRMS	102.6	55.0
5	CAPEITI	ITALY	4889.2	82.4	84.3	127.0	5S	110.0	48.0
1	GA E-125	ITALY	4760.0	79.6	88.3	129.0	5MS	125.0	55.3
8	TEHUACAN	MEXICO	4576.7	82.5	92.3	131.0	TRS	135.0	55.7
3	WELLS	U.S.A.	4389.2	79.9	104.0	134.0	10MR	126.6	32.0
2	CASTELDELMONTE 1	ITALY	4375.3	82.0	91.6	129.0	TRMR	108.3	41.5
4	LEEDS	U.S.A.	4305.8	82.1	68.5	140.0	5MS	138.6	38.6
		GRAND MEAN	5954.3	81.7	84.9	127.6	7.4	107.0	48.6
		STANDARD ERROR OF GRAND MEAN	86.9	0.0	2.0		0.3	1.6	
		COEFFICIENT OF VARIATION	9.7%	0.4%	16.1%		32.8%	10.1%	
		LSD VARIETY MEANS 5 PC	952.4	0.5	22.3		4.0	17.7	

CORRELATIONS

YIELD	KG/HA						
TEST	WEIGHT	-0.04					
DAYS TO	FLOWER	-0.22	-0.63**				
DAYS TO	MATURITY	-0.30	-0.67**	0.51*			
LEAF	RUST	0.25	0.13	-0.20	-0.47		
HEIGHT	CM.	-0.73**	-0.09	0.22	0.51*	-0.05	
1000	K.WGT	0.43	0.25	-0.30	-0.37	-0.09	-0.33

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

TABLE 33

OVERALL MEANS OF YIELD, AGRONOMIC AND DISEASE DATA OF THE 16 VARIETIES IN THE "1ST INTERNATIONAL DURUM YIELD NURSERY, 1969-70".

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	LEAF RUST	STEM RUST
13	ANHINGA S	MEXICO	3301.95	81.48	105.30	151.13	0.05	21.13	11.96
12	ALBATROSS	MEXICO	3263.90	78.71	107.80	152.74	0.05	14.73	33.01
15	CRANE	MEXICO	3262.16	77.73	107.09	150.57	0.05	22.68	25.47
14	BRANT	MEXICO	3252.11	75.04	106.09	150.87	0.37	25.85	33.33
11	GERARDO V-Z-466	ITALY	3181.44	78.68	112.60	154.78	1.03	5.39	46.56
16	LOCAL CHECK		3141.26	74.96	115.65	154.73	0.05	32.08	27.46
1	GA E-125	ITALY	2983.01	74.38	112.84	167.87	10.22	21.71	50.19
6	INIA-66	MEXICO	2954.01	74.26	99.70	155.91	0.05	10.61	10.35
5	CAPEITI	ITALY	2937.83	80.50	109.55	163.59	7.33	26.48	50.96
8	TEHUACAN	MEXICO	2919.19	80.70	116.05	168.17	0.40	16.12	36.79
10	61-131 X LEEDS	U.S.A.	2888.10	76.05	115.64	170.94	52.78	34.71	5.44
3	WELLS	U.S.A.	2795.32	76.37	120.59	167.56	38.67	27.37	16.18
7	((DURE-TURG) ST 464)TC2	IRAN	2716.78	65.10	117.92	170.81	0.75	22.13	45.07
4	LEEDS	U.S.A.	2643.73	73.57	116.92	167.59	18.89	29.93	19.18
9	S-9	INDIA	2624.51	77.63	109.32	164.17	7.11	43.67	52.68
2	CASTELDELMONTE 1	ITALY	2601.99	73.57	113.25	169.43	1.03	10.04	26.04
	SUMMARY MEANS OVER VARIETIES		2965.44	75.79	111.57	161.33	9.96	22.69	31.09

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	HEIGTH CM.	LODGING	SHATRGN HEAD	1000 K.WGT	MILDEW	SEPTORIA TRITICI	SEPTORIA SPP.
13	ANHINGA S	MEXICO	94.94	31.50	45.90	46.85	51.95	38.33	80.00
12	ALBATROSS	MEXICO	77.55	13.27	33.30	50.43	99.45	45.00	65.00
15	CRANE	MEXICO	76.29	14.53	45.80	43.30	99.45	41.67	75.00
14	BRANT	MEXICO	72.35	17.20	34.70	44.37	52.95	45.00	70.00
11	GERARDO V-Z-466	ITALY	81.95	15.73	33.30	49.47	53.95	41.67	80.00
16	LOCAL CHECK		97.70	31.70	34.70	44.39	44.90	51.67	65.00
1	GA E-125	ITALY	101.47	52.67	27.75	45.71	92.05	38.33	52.00
6	INIA-66	MEXICO	87.22	12.30	72.20	37.88	99.45	86.67	75.00
5	CAPEITI	ITALY	110.49	55.23	27.75	45.44	99.45	33.33	60.00
8	TEHUACAN	MEXICO	118.86	37.43	33.30	48.76	99.45	31.67	75.00
10	61-131 X LEEDS	U.S.A.	82.57	10.17	22.20	39.69	19.65	23.33	70.00
3	WELLS	U.S.A.	119.85	40.77	33.30	31.87	68.85	15.83	70.00
7	((DURE-TURG) ST 464)TC2	IRAN	82.16	11.10	45.80	41.49	75.70	40.00	36.00
4	LEEDS	U.S.A.	121.38	36.80	33.30	37.54	44.55	17.50	46.00
9	S-9	INDIA	66.48	10.30	33.30	38.90	99.95	48.33	75.00
2	CASTELDELMONTE 1	ITALY	88.32	45.30	33.30	40.14	49.25	51.67	70.00
	SUMMARY MEANS OVER VARIETIES		91.86	27.25	36.86	42.88	71.94	40.62	66.30