AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D. C. 20523

BIBLIOGRAPHIC INPUT SHEET

FOR AID USE ONLY

1. SUBJECT CLASSIFICATION

A. PRIMARY: Agriculture — AF30-0180-0000

B. SECONDARY: Plant breeding--Cereals--Wheat

2. TITLE AND SUBTITLE

Results of the third International Spring Wheat Yield Nursery,1966-1967

3. AUTHOR(S)

Finlay,K.W.; Krull,C.F.; Borlaug,N.E.; Cabrera,Angel

4. DOCUMENT DATE	5. NUMBER OF PAGES	6. ARC NUMBER
1970	141p.	ARC

7. REFERENCE ORGANIZATION NAME AND ADDRESS

CIMMYT

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

(In Research bul.no.15)

9. ABSTRACT

10. CONTROL NUMBER

PN-RAA-504

11. PRICE OF DOCUMENT

12. DESCRIPTORS

Data
Environmental tests
Yield
Varieties
Wheat

13. PROJECT NUMBER

14. CONTRACT NUMBER

AID/ta-G-1083 GTS

15. TYPE OF DOCUMENT

AID 590-1 (4-74)

Research Bulletin No. 15

August 1970

RESULTS OF THE THIRD INTERNATIONAL SPRING WHEAT YIELD NURSERY, 1966-1967

Keith W. Finlay
Charles F. Krull
Norman E. Borlaug
Angel Cabrera

CIMMYT

CENTRO INTERNACIONAL DE MEJORAMIENTO DE MAIZ Y TRIGO
INTERNATIONAL MAIZE AND WHEAT IMPROVEMENT CENTER
MEXICO

TABLE OF CONTENTS

ABSTRACT 1
INTRODUCTION 1
METHODS AND MATERIALS 2
DATA SUMMARIZATION 7
RESULTS AND DISCUSSION 9
LITERATURE CITED 11
FIGURES AND TABLES 13

RESULTS OF THE THIRD INTERNATIONAL SPRING WHEAT YIELD NURSERY, 1966-1967

KEITH W. FINLAY, CHARLES F. KRULL, NORMAN E. BORLAUG AND ANGEL CABRERA [1]

ABSTRACT

Fifty wheat varieties representative of the major spring types were tested in the Third International Spring Wheat Yield Nursery (ISWYN). Results were obtained from 62 locations throughout the spring wheat regions of the world. Data received included yield and other agronomic and disease traits. These data were analyzed statistically and correlations were calculated between the means of all traits measured for each location.

Two new varieties, Super X and Inia 66, proved generally well adapted as indicated by their overall mean yield. Also, the varieties Pitic 62, Lerma Rojo 64A and Penjamo 62 were again among the five highest yielding varieties. This suggests that from year to year some varieties do well over a very wide range of environments and yet improvements can be made.

The results from this ISWYN further support the previous contention that it is possible to breed varieties that have a much wider range of adaptation than was previously thought possible.

INTRODUCTION

Interest in the international testing of new spring wheats has continued to grow. Cooperators at 80 locations around the world received the Third International Spring Wheat Yield Nursery (ISWYN) which had to be expanded from 25 to 50 entries to accommodate the increased requests from cooperators to submit promising varieties for testing. With the enthusiastic support that we are receiving for the ISWYN, it is a truly cooperative effort on an international scale.

---

[1] Respectively: Director of Basic Research and Training, CIMMYT; Resident Coordinator, CIMMYT Wheat Program (now Research Director, DeKalb, Buenos Aires, Argentina); Director, CIMMYT Wheat Program; Head, Computing Laboratory of the Centro de Estadística y Cálculo, Chapingo. The assistance of the staff of Centro de Investigaciones Agrícolas del Noroeste (CIANO) in growing the seed for this experiment is gratefully acknowledged. Also acknowledgement is made to Reyes Vega and Miguel Martínez for their help in preparing the nurseries; to Ing. Eduardo Tamariz and Mrs. Mina Hardy in preparation of the tables, and to Miss Gloria Garcia for typing the tables and manuscript.

We apologize for the delay in publishing this report, but it has been due to several factors. The growth of the nursery, the range of planting dates (see Figs. 1 and 2), the initiation of several more nurseries and a change in CIMMYT staff have all contributed to the delay.

CIMMYT has now established an International Section with its own staff and facilities, and this in itself indicates the importance that CIMMYT and its governing Board place on this extremely important phase of its international program.

The following report is in a new format which we hope will make the information more useful and interesting. Please remember this International Spring Wheat Yield Nursery is your experiment. If you have any suggestions which may assist us to improve it, please write.

We would like to acknowledge the excellent cooperation of all participants and particularly Dr. A. Hafiz, Regional Consultant, FAO, Near East Wheat and Barley Improvement Project, Cairo, U.A.R., who organized the distribution and supervised the experiments in the Near and Middle East.

METHODS and MATERIALS

Seed for the Third ISWYN was produced in increase plots at the Centro de Investigaciones Agrícolas del Noroeste (CIANO) at Ciudad Obregón, Sonora, Mexico during the 1965-66 growing season. The seed was treated with an organic mercurial disinfectant prior to packeting. The plots consisted of six, 2.5 meter rows with three replications. Instructions concerning seeding, nursery management and note-taking, as well as data sheets, were included with each set of seed.

The fifty varieties (*Triticum aestivum*) in the nursery represent the principle varietal types of spring wheat grown in many areas of the world. Some of the varieties had been included in previous international nurseries (1, 2, 3, 4, 5, 6, 7, 8, 9), and others were chosen from submissions because they exhibited some outstanding trait in specific regions. An attempt was made to balance previous entries and new entries to keep the nursery current and meaningful.

The varieties entered for test in the Third ISWYN were[1]:

ARGENTINA

El Gaucho: Sinvalocho x Riccio-Lin Calel — A very high quality variety which is resistant to leaf rust, but susceptible to stem rust.

Gaboto: Bagé 2018 x H44-Sinvalocho M.A.G./Bagé 1971/37 — One of the most important soft grained varieties in the northern part of the Argentina wheat belt. It is considered resistant to *Septoria sp.*, Fusarium and rusts.

Klein Petiso - Rafaela: An experimental Argentinian line showing promise. This line has been used extensively in the CIMMYT breeding program.

[1] Pedigree notations are: S = sib; E = dwarf and superscript numerals = number of backcrosses.

Klein Rendidor: [Sinvalocho x (Ardito x Vencedor)] x [(Ardito x Vencedor) x (38 M.A. x K. Acero)] — The most widely cultivated hard wheat variety in Argentina. It is representative of the long cycle or facultative winter types that are widely grown in Argentina, but is poorly adapted to short days.

Tacuari: Massaux # 5-Gaboto — Released by the Instituto Nacional de Tecnologia Agropecuaria (INTA), this variety is of good quality, but is susceptible to stem rust and Fusarium. However, it was an outstanding entry in the Fourth Inter-American Spring Wheat Yield Nursery and was included in this trial to test suspected broad adaptability.

AUSTRALIA

Gabo: Bobin^2-Gaza — An Australian variety of very wide adaptation. It is very susceptible to stripe rust.

Mendos: Koda-Spica x Gabo/Mengavi "S" — A representative of the widely adapted Australian wheats that has very good resistance to stem rust in Australia.

Triple Dirk: A version of Dirk with additional genes for stem rust resistance. It has been grown commercially in Pakistan and India. It is the only Australian variety with resistance to stripe rust.

BRAZIL

Carazinho: Colonista-Frontana — A soft, red commercial variety reported to be able to produce relatively good yield on acid soils. It has good stripe rust resistance under most conditions.

CANADA

Selkirk: McMurachy-Exchange x Redman^3 — Until recently, the most extensively grown variety in the moist parts of the northern hard red spring wheat areas. It is stem rust resistant.

CHILE

Centrifen: (Yaqui 53 x Norin 10-Brevor) x Lerma Rojo^2 — A newly released, soft red early semi-dwarf with moderate susceptibility to stripe rust and good yield potential.

Huelquen: The most widely grown commercial variety in Chile. It has shown good resistance to all three rusts and a high yield potential. It is normal in height.

Nariño "S"^{2}-Penjamo "S": An experimental line.

COLOMBIA

Bonza 55: Yaqui 50-Kentana 48 II-2254-2P-111B-4B-1B — An important commercial variety in Colombia and Ecuador which has maintained an effective level of resistance to both stripe and stem rust for 15 years. This is unique with the explosive stripe rust race situation in Colombia.

Bonza 63: Rio Negro-Bonza 55[2] VI-36-2-30B-2T-1B — Better yield potential than Bonza 55, but may not have the generalized type of rust resistance.

Crespo 63: [Frocor (Newthatch/Mentana[2]-Kenya x Bagé)] x Gabo II-11263-3T-1B-2T-1B-1T — A commercial variety released jointly by Ecuador and Colombia, having a good level of field resistance to stripe rust.

Napo 63: Frocor-Frontana/Yaqui 48 x Nariño "S" II-9314-22T-1B-1T — An important variety in both Colombia and Ecuador showing very good resistance to stem and stripe rusts.

Nariño 59: Frocor x McMurachy/Kentana 48-Yaqui 48 II-4777-2B-1B-10T-1T — The most important commercial variety in Colombia until 1962, when a new race of stripe rust ended its usefulness in southern Colombia. It is still used in some sections of Colombia where stripe rust is less of a problem. This was the top-yielding variety in the First Inter-American Spring Wheat Yield Nursery.

Tiba 63: Frontana/Yaqui 48-Mayo 54 x Menkemen II-10668-4T-2B-1T — A brown chaffed, awned variety named for Tibaitata. It once held the Colombian record for yield (9 tons/ha), but poor tillering capacity must be compensated for by increased seeding rates.

EGYPT

Giza 144: A widely adapted white grained variety representative of the present commercial varieties used in Egypt. It is susceptible to stripe rust.

Giza 150: A new representative of the Egyptian wheats, this white grained variety has better yield, better resistance to stripe rust and better quality than does Giza 144.

INDIA

C-306: [(Regent 1974 x Chz 3) C591[2]] x (P19 x C281) — This medium tall variety of average straw strength was bred for the central districts of Punjab. It is fully bearded with pubescent chaff. It is considered tolerant to the rusts, but is susceptible to loose smut.

C-518: Punjab Type 8A-Punjab Type 9 — A pre-partition Indian variety of medium maturity, fully bearded with black awns and densely felted white glumes. Grains are amber and hard. It is resistant to lodging, but susceptible to rusts and loose smut.

C-591: Punjab Type 8B-Punjab Type 9 — Another pre-partition variety released in 1934 and still used in some areas. This high yielding strain has bold, lustrous, amber hard grains. The glumes are a little less pubescent and the straw is weaker than C-518. It is noted for susceptibility to loose smut ,stem and leaf rusts.

NP-824: [(W245:44-25; 7-5 x NP 770) F_1 x (C518 x NP 165) F_1] — A fully bearded variety with felted, white glumes, black awns and hard, bold amber grain. Bred for high fertility conditions this variety is highly resistant to lodging, stripe rust and loose smut and moderately resistant to stem rust.

NP-832: Kenya-E 145 x Pissi Local — A medium tall, smooth chaffed variety with long, fully bearded ears. It is thought to be tolerant to the rusts and is adapted to the rainfed areas of the Malaw tract in Madhya Pradesh.

NP-880: Last of the tall varieties produced by the Indian Agricultural Research Institute.

NP-881: Another tall variety bred by the Indian Agricultural Research Institute.

MEXICO

Ciano "S": Pitic 62-Chris "S" x Sonora 64 — Very similar to the recently released Ciano 67, but with better disease resistance and good quality. Limited testing predicts poor yield potential for this line.

Inia 66: Lerma Rojo 64-Sonora 64 19008-83M-100Y-100M-100Y-100C — This joint release from CIMMYT and INIA programs is the earliest semi-dwarf now available and has shown excellent baking qualities and good yield potential.

Jaral 66: Sonora 64 x Tezanos Pintos Precoz-Nainari 60 18889-101M-1R-3C-4Y -- A Mexican dwarf showing promise in local tests.

Lerma Rojo 64A: [(Yaqui 50 x Norin 10-Brevor) Lerma 52] Lerma Rojo^2 8724-8Y-1C-1Y — A semi-dwarf version of the original Lerma Rojo derived through backcrossing that has shown good adaptation in the Near East and Mexico.

Nainari 60: [(Supremo-Mentana x Gabo) Thatcher-Queretaro x Kenya-Mentana] Gabo P4160-6H-3Y-2C — A tall variety now largely replaced by semi-dwarfs in Mexico. This once important commercial variety is still widely used in crossing programs. It has shown good adaptation in several Near Eastern countries and in the Inter-American International Yield Nurseries.

Noroeste 66: Lerma Rojo 64-Sonora 64 19008-52M-4Y-4M-2Y — A sister line of Inia 66 with slightly less yield potential, but good disease resistance. It is susceptible to shattering.

Penjamo 62: (Frontana x Kenya 58-Newthatch) Norin 10-Brevor 7078-1R-6M-1R-1M — One of the first Mexican semi-dwarfs, this variety is still grown in a number of countries. It has broad adaptation.

Pitic 62: Yaktana 54 x Norin 10-Brevor 26-1C 7064-1Y-1H-1R-2M — First semi-dwarf variety released in Mexico, this high yielding variety has done well in the Inter-American nurseries, all three Near East-American nurseries and the first two ISWYN's. Currently its use is declining in Mexico because of low test weight and susceptibility to current races of stem rust. It is being grown commercially in a number of other countries.

Roque 66: Sonora 64 x Selkirk^{6}E 18883-6M-6R-11C-1Y — A short strawed Mexican variety showing promise in local tests.

Siete Cerros 66: Penjamo "S"-Gabo 55 8156-1M-2R-4M — A white grained, dwarf variety of very high yield potential and broad adaptation. This variety and its red seeded sister, Super X, and reselections are referred to under various names including 8156, Kalyansona, S-227, PV-18, Indus

66 and Mexipak 65. These are now grown widely in Pakistan, India and other Near Eastern countries.

Sonora 64: (Yaktana 54 x Norin 10-Brevor) Yaqui 54^2 8469-2Y-6C-6Y-4C-2Y-1C — Once the most widely grown semi-dwarf wheat in Mexico. It has medium sized red grain of good quality. This lodging resistant variety is awned and has off-white glumes. It is a valuable parent in several breeding programs because of its light insensitivity, earliness, high yield potential and good combining ability. Currently it is recommended only for areas where the rusts are not a problem due to its susceptibility to new races.

Sonora 64 x Tezanos Pintos Precoz-Nainari 60: (Jaral "S") 18889-4M-1Y-3Y — A new Mexican dwarf showing good disease resistance. The yield potential is not as stable as some other Mexican dwarfs and it may leaf-fire under some conditions. This line was tentatively identified in this trial as Bajio 66. This designation has subsequently been canceled.

Super X: Penjamo "S"-Gabo 55 8156-1M-2R-4M — Red seeded sister of Siete Cerros, which may give slightly more yield under some conditions.

Tobari 66: Tezanos Pintos Precoz-Sonora 64A 19021-4M-3Y-102M-100Y-101C — A red seeded dwarf variety with good quality and outstanding disease resistance. The yield potential may not be as high as Siete Cerros. It is widely grown in several countries.

Yaqui 50: Newthatch-Marroqui 120-3C-(9-11C)-24C — A previously widely grown tall variety of high quality and with general resistance to stem rust. It has now been replaced by semi-dwarf varieties.

PAKISTAN

C-271: A tall, awnleted, pubescent, white seeded variety grown commercially on considerable acreage in West Pakistan.

C-273: C591-C209 — A tall, awned, pubescent, white seeded variety grown commercially in the Punjab areas of India and Pakistan.

Pakistan 5725: An experimental line with no descriptive information available.

UNITED STATES OF AMERICA

Chris: CI 13751 Frontana-Thatcher x II-44-29-Thatcher^2 — A variety developed in Minnesota with excellent quality, good disease resistance and acceptable yield potential. It is widely grown in the U.S.A. and Canada. This variety, listed previously as Minn II 53-525, is considered tall and partially light sensitive.

Crim: CI 13465 Klein Titan-Thatcher^3 x II-44-22-Thatcher^2 — This Minnesota variety has good quality, acceptable yield potential and disease resistance. However, it is tall and light sensitive.

Justin: CI 13462 (Thatcher-Kenya Farmer x Lee-Mida) Conley — Developed in North Dakota and grown in North Dakota and Minnesota. This variety has good quality, but low yield. It is considered light sensitive and tall.

Thatcher: Marquis-Iumillo x Kanred-Marquis — A Minnesota variety that was widely grown for many years in the northern United States and Canada and is still grown in the drier areas of that region. It has been used as a standard for spring wheat quality and for that reason has been widely used in the parentage of many of the newer U.S. and Canadian lines. It is extremely day length sensitive.

DATA SUMMARIZATION

The metric system and percentages were chosen as the units of measurement. 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. The authors, however, take full responsibility for any errors we may have 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, 1000 kg/ha is equivalent to approximately 15 bushels per acre for wheat.

Both test weights and 1000 grain weights were requested because some cooperators do not have test weight equipment. The test weights are reported in kilograms per hectoliter (kg/hl) and 1000 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 (U.S.D.A. 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

[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 glumarum*); mildew (*Erisiphe graminis tritici*) and Septoria (*Septoria spp.*). For this last disease, distinction between the causal species has not been possible from information supplied by cooperators.

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 and very susceptible	S and VS	1.0

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

When cooperators reported only percentage of rust, the value was used directly. The occurrence of 0 values plus the fact that the coefficients do not usually fit a normal distribution requires that the coefficients be transformed to $\sqrt{\text{coefficient} + 1.0}$. The addition of one unit to the coefficient eliminated all zero values and past experience showed that the square root determination helped to improve the normality of the distributions.

The transformed coefficients 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. These means provide only relative location comparisons, but do reflect the extent of that pathogen in the nursery under the environmental conditions that existed at the test location.

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 percent, the scale values are given. The percentage values were not, in most cases, transformed to $\sqrt{\% + 1}$, as had been done previously. While some may consider that transformation is 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.

Analyses of variance were performed for all traits on which data were reported from more than one replication for each location. Pertinent in-

formation from these analyses are presented in Tables 1-62. Information from these analyses includes the mean of the trait, coefficient of variation, standard error of the mean and the least significant difference at the 5% level.

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.

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

RESULTS and DISCUSSION

Sixty-two cooperators returned data on the Third ISWYN. For quick reader reference Figure 1 presents the reporting location indicating the relevant table number. The test sites extended from Argentina and Chile to Alaska; South Africa through the Near and Middle East to Australia. Environmental conditions at the test sites varied from rainfed to irrigated, fertilized to unfertilized; — 226 meters to + 3,058 meters altitude and a wide range of growing seasons (Figure 2).

The top yielding varieties over all locations for the Third ISWYN are nearly identical to the first two ISWYN's (8, 9) with the addition of two newly entered varieties. Pitic 62 was again the leading variety (3,500 kg/ha), followed by Lerma Rojo 64A (3,461), Penjamo 62 (3,407), Super X (3,374) and Inia 66 (3,355). These last two entries displaced Crespo 63 (3, 259), Nainari 60 (3,244) and Siete Cerros 66 (3,203), which ranked 6, 7 and 8, respectively, for overall yield. It has been customary in past reports to give special mention to the top 5 yielding varieties. Crespo 63, Nainari 60 and Siete Cerros 66 are mentioned here to point out that they are still good varieties (the differences in overall yield are statistically insignificant) and to stress that year after year these varieties have done well when considered over all locations.

For individual locations with unique climatic and disease problems, overall mean yields are of limited value. For this reason the five top yielding varieties were partitioned out by general characteristics of the test locations (i.e. irrigated vs. rainfed sites were sub-partitioned into diseased and non-diseased locations). These comparisons are presented in the following table.

Five Best Yielding Varieties at Locations Grouped According to Moisture and Disease

Variety[1]	Rainfed		Irrigated	
	Non Diseased	Diseased	Non Diseased	Diseased
Pitic 62	X		X	X
Lerma Rojo 64A		X	X	X
Penjamo 62		X	X	X
Super X	X		X	X
Inia 66				X
Crespo 63	X	X		
Siete Cerros 66	X		X	
Tobari 66		X		
Triple Dirk	X			
Nariño 59				

[1] Ranked for overall yield.

It is felt that information such as this is potentially more useful to cooperators. For instance, Tobari 66 might deserve more attention in rainfed areas where disease is a potential problem. Pitic 62 is very widely adapted, but its disease susceptibility reduces yields in some environments. It is acknowledged that the category "disease" is broad. Its use is justified as a condition of stress placed upon the tested varieties. Varieties that do well under disease stress may have resistance, tolerance, escape, etc. mechanisms, any or all of which contribute to acceptable yields.

Inspection of individual locations (Tables 1-62) may offer readers additional insight into the suitability of varieties to match specific conditions. The table format was specifically altered to assist in evaluating variety response at the described locations, and to help those interested in identifying potentially useful varieties for direct use or as parents in a breeding program.

LITERATURE CITED

1. Borlaug, N. E., Ortega, J. and Garcia, A. (Compiled by). "Preliminary Report of the Results of the First Cooperative Inter-American Spring Wheat Yield Nursery Grown During 1960-61." International Center for Maize and Wheat Improvement Miscellaneous Report No. 1. Spring 1964. Mexico, D. F.

2. Borlaug, N. E., Ortega, J. and Rodriguez, R. (Compiled by). "Preliminary Report of the Second Inter-American Spring Wheat Yield Nursery Grown During 1961-62." International Center for Maize and Wheat Improvement Miscellaneous Report No. 2. Spring 1964. Mexico, D. F.

3. Borlaug, N. E., Ortega, J. and Rodríguez, R. (Compiled by). "Preliminary Report of the Third Inter-American Spring Wheat Yield Nursery Grown During 1962-63." International Center for Maize and Wheat Improvement Miscellaneous Report No. 3. Spring 1964. Mexico, D. F.

4. Borlaug, N. E., Ortega, J. and Rodriguez, R. (Compiled by). "Preliminary Report of the Results of the First Cooperative Near East-American Spring Wheat Yield Nursery." International Center for Maize and Wheat Improvement Miscellaneous Report No. 4. Spring 1964. Mexico, D. F.

5. Borlaug, N. E., Ortega, J. and Rodriguez, R. (Compiled by). "Preliminary Report of the Second Cooperative Near East-American Wheat Yield Nursery Grown During 1962-63." International Center for Maize and Wheat Improvement Miscellaneous Report No 5. Spring 1964. Mexico, D. F.

6. Krull, C. F., Narvaez, I., Borlaug, N. E., Ortega, J., Vazquez, G., Rodríguez, R. and Meza, C. "Results of the Third Near East-American Spring Wheat Yield Nursery, 1963-65." International Maize and Wheat Improvement Center. Research Bulletin No. 5. November 1966. Mexico, D. F.

7. Krull, C. F., Narvaez, I., Borlaug, N. E., Ortega, J., Vázquez, G., Rodríguez, R., and Meza, C. "Results of the Fourth Inter-American Spring Wheat Yield Nursery, 1963-64." International Maize and Wheat Improvement Center Research Bulletin No. 7. March 1967. Mexico, D. F.

8. Krull, C. F., Borlaug, N. E., Meza, C. and Narvaez, I. "Results of the First International Maize and Wheat Improvement Center Research Bulletin No. 8. March 1968. Mexico, D. F.

9. Krull, C. F., Cabrera, A., Borlaug, N. E., and Narvaez, I. "Results of the Second International Spring Wheat Yield Nursery, 1965-1966." International Maize and Wheat Improvement Center Research Bulletin No. 11. August 1968. Mexico, D. F.

TABLES

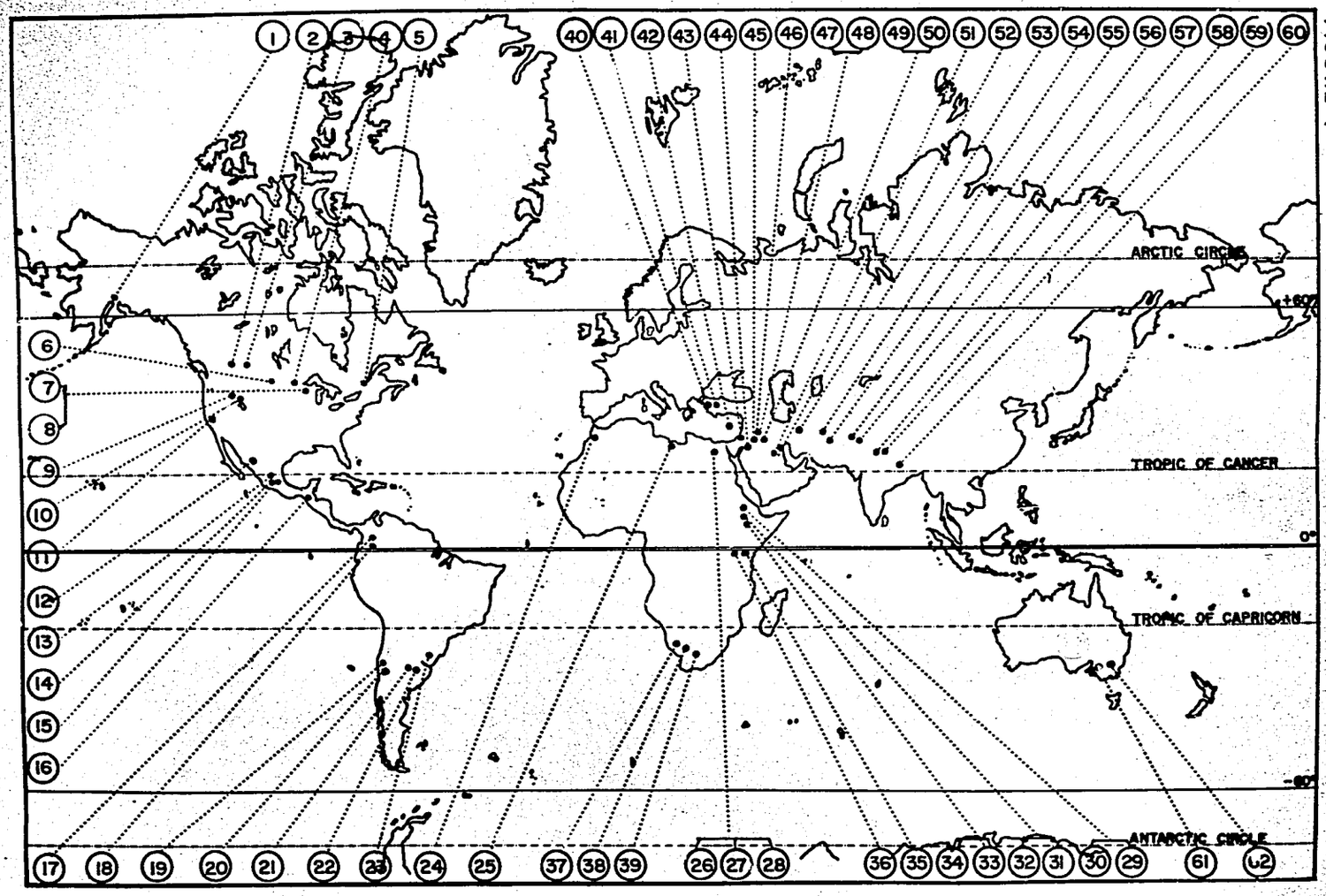
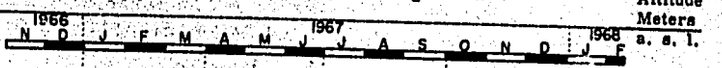

ARCTIC CIRCLE
+60°
TROPIC OF CANCER
0°
TROPIC OF CAPRICORN
-60°
ANTARCTIC CIRCLE

FIGURE 1

Figure 2

3rd. ISWYN Average Growing Season



	Location	Altitude Meters a. s. l.
	NORTH AMERICA	
1	Palmer, Alaska	61
2	Saskatoon, Canada	508
3	Regina, Canada	573
4	Winnipeg, Canada	228
5	Quebec, Canada	27
6	Casselton, N.D., U.S.A.	280
7	St. Paul, Minn., U.S.A.	260
8	Minneapolis, Minn., U.S.A.	294
9	Aberdeen, Idaho, U.S.A.	1,370
10	Logan, Utah, U.S.A.	1,371
11	Davis, California, U.S.A.	16
	CENTRAL AMERICA	
12	Cd. Obregon, Son., Mex.	40
13	El Roque, Gto., Mex.	1,765
14	Santa Elena, Mex., Mex.	2,690
15	San Martin, Mex., Mex.	2,249
16	Quezaltenango, Guatemala	2,375
	SOUTH AMERICA	
17	Tibaitata, Colombia	2,640
18	Santa Catalina, Ecuador	3,058
19	Vallenar, Chile	384
20	Santiago, Chile	620
21	Marcos Juarez, Argentina	110
22	Pergamino, Argentina	68
23	La Estanzuela, Uruguay	81
	AFRICA	
24	Rabat-Guich, Morocco	25
25	Sedi Mesri, Libya	25
26&27	Giza, (Egypt), U.A.R.. #1&2	21
28	Sakha, (Egypt) U.A.R.	21
29&30	Khashm El Girba, Sudan #1&2	440
31	Wad Medani, Sudan	410
32	Ed Damer, Sudan	353
33	Debre Zeit, Ethiopia	1,860
34	Hollotta, Ethiopia	2,400
35	Molo, Kenya	2,804
36	Njoro, Kenya	2,164
37	Stellenbosch, S. Africa	91
38	Riversonderend, S. Africa	152
39	Rustenburg, S. Africa	1,234
	ASIA	
40	Adapazari, Turkey	33
41	Eskischir, Turkey	789
42	Syngrassi, Cyprus	50
43	Bet Dagan, Israel	28
44	Tel Amara, Lebanon	950
45	Hosch Sneid, Lebanon	995
46	Deir Alla, Jordan	226*
47&48	Damascus, Syria #1&2	617
49&50	Abu Ghraib, Iraq #1&2	34
51	Dirab, Saudi Arabia	579
52	Ahwaz, Iran	20
53	Gorgan, Iran	50
54	Darul Aman, Afghanistan	1,803
55	Tarnab, W. Pakistan	339
56	Lyallpur, W. Pakistan	213
57	Ludhiana, India	153
58	New Delhi, India	228
59	Pantnagar, India	243
60	Pusa, India	165
	AUSTRALIA	
61	Glen Osmond, S. Australia	122
62	Wagga Wagga, N.S.W. Australia	228

* Below sea level
** 1968
*** No data available
? No harvest data available
\+ Grown out of season
++ Sown later than normal

TABLE 1 NORTH AMERICA

ALASKA (U.S.A.). Palmer (Alaska Agricultural Experiment Station). Latitude: 61° 34" N. Longitude: 149° 16" W. Elevation: 60.96 meters above sea level. Cooperator: Dr. Roscoe L. Taylor.

Planting Date: 12 May 1967. Precipitation during test: May - 23.6 mm., June - 34.5 mm., July - 68.5 mm., August - 70.4 mm., September - 33.8 mm.
Irrigation: nil. Fertilizer: 10-50-58 (N-P-K).
General Comments: Excellent growing conditions. No disease. Weeds controlled with DNBP.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to: flowering	Days to: maturity	Height cms.	1000 grain weight gms.
Bonza 63	Colombia	27	2821	78.3	59	119	83	45.0
Thatcher	Canada	47	2598	77.5	56	117	81	35.5
Giza 144	Egypt	26	2534	78.9	57	123	83	46.4
Crespo 63	Colombia	36	2419	75.2	55	121	75	43.7
Triple Dirk	Australia	19	2302	78.8	57	118	88	48.4
Centrifen	Chile	45	2241	74.6	56	117	67	41.7
Nar sib (2) x Pj sib	Chile	1	2240	76.9	51	113	63	38.5
Napo 63	Colombia	2	2208	75.4	52	111	71	42.1
Pakistan 5725	Pakistan	29	2202	77.1	52	114	59	46.4
Nariño 59	Colombia	46	2200	76.5	55	117	79	40.3
Roque 66	Mexico	41	2180	76.5	56	118	57	34.2
Yaqui 50	Mexico	33	2169	76.8	51	115	68	41.0
Gabo	Australia	34	2150	75.2	56	117	67	43.1
NP 832	India	10	2150	80.0	55	122	76	47.8
Pj sib x Gb 55 (white grain)	Mexico	28	2148	79.4	59	116	71	40.6
Giza 150	Egypt	9	2105	77.1	55	118	68	45.0
Nainari 60	Mexico	12	2076	76.3	56	114	73	49.5
Pj sib x Gb 55 (red grain)	Mexico	24	2018	79.6	60	116	69	40.5
Tobari 66	Mexico	49	2014	78.1	56	118	68	43.6
INIA 66	Mexico	37	2009	76.6	51	117	62	47.2
Crim	USA	17	1986	76.9	55	114	87	41.2
NP 824	India	5	1977	79.2	53	121	75	48.7
Huelquen	Chile	4	1957	77.9	56	115	72	43.4
C-306	India	23	1947	79.0	55	122	76	47.0
Justin	USA	8	1927	78.8	56	113	80	40.3
Lerma Rojo 64A	Mexico	7	1919	78.1	53	111	67	46.0
Pitic 62	Mexico	32	1908	77.7	59	120	68	41.2
Ponza 55	Colombia	13	1908	76.7	59	121	85	42.7
Mendos	Australia	6	1882	75.0	56	113	57	43.3
Tiba 63	Colombia	30	1882	76.1	54	109	70	47.1
C-273	Pakistan	3	1880	78.5	55	116	77	45.3
Tacuari	Argentina	35	1868	77.9	60	119	83	33.7

C-518	India	16	1851	81.0	56	120	72	45.5
C-591	India	20	1819	77.7	56	119	85	45.2
Noroeste 66	Mexico	40	1743	75.4	54	118	67	41.9
Gasser	Alaska	50	1740	73.8	56	108	79	25.0
Gaboto	Argentina	43	1668	78.3	62	121	93	35.8
Selkirk	Canada	31	1650	76.5	55	116	78	36.7
Sonora 64	Mexico	14	1554	78.3	54	112	56	38.7
C-271	Pakistan	15	1539	75.0	55	117	65	47.6
NP 881	India	25	1529	76.5	54	119	69	40.9
Carazinho	Brazil	18	1519	77.1	61	126	84	46.0
El Gaucho	Argentina	48	1516	77.3	62	123	91	41.3
Chris	USA	11	1469	78.5	57	117	80	35.4
Son 64 x TzPP-Nai 60	Mexico	22	1444	79.2	55	112	58	44.0
Jaral 66	Mexico	38	1323	1/	53	118	64	39.8
Klein Petiso x Rafaela	Argentina	44	1229	1/	54	119	61	38.6
Penjamo 62	Mexico	21	1202	75.6	56	115	61	46.1
Pi 62-Chris sib x Son 64	Mexico	42	995	1/	51	115	54	40.3
NP 880	India	39	800	1/	51	120	72	47.0
Mean			1853	75.7	54	114	71	41.6
Coefficient of variation			23.2%	.8%	1.5%	3.1%	7.0%	4.7%
Standard error of the mean			249	.3	.5	2.5	2.8	1.1
Least significant difference, 5%			698	1.0	1.4	7.2	8.1	3.2

	Correlations				
Test wt.	.04				
Days to flowering	.13	.25			
Days to maturity	-.02	.22	.49**		
Height	.25	.27	.61**	.50**	
1000 grain weight	.08	.05	-.20	.07	-.02

* = Significant at the 5% level
** = Significant at the 1% level

1/ No data available

TABLE 2. NORTH AMERICA

CANADA. Saskatoon, Saskatchewan (University of Saskatoon). Latitude: 52° N. Longitude: 106° W. Elevation: 508 meters above sea level.
Cooperator: Dr. D. R. Knott.

Planting Date: 17 May 1967. Precipitation during test: 140 mm. Irrigation: nil. Fertilizer: nil.
General Comments: Very dry, but cooler than normal. There were no disease problems, but plots were slightly damaged by sawfly.
Scoring notes taken: Lodging - 18 August to 2 September at maturity.

Variety or cross	Origin	Variety Number	Yield kg/ha	Days to: flowering	Days to: maturity	Height cms.	Lodging (scale) 1/	1000 grain weight gms.
Huelquen	Chile	4	3921	58	100	79	2	36.4
Pitic 62	Mexico	32	3902	60	103	74	1	37.0
Carazinho	Brazil	18	3572	62	108	89	2	41.0
Nainari 60	Mexico	12	3538	59	99	71	1	41.8
Lerma Rojo 64A	Mexico	7	3244	56	96	72	1	42.8
Pj sib x Gb 55 (red grain)	Mexico	24	3189	59	100	64	1	34.8
INIA 66	Mexico	37	3165	55	96	60	1	42.2
Gabo	Australia	34	3076	56	99	77	1	39.2
Roque 66	Mexico	41	3053	56	97	63	1	33.4
Nar sib (2) x Pj sib	Chile	1	2972	56	95	63	1	32.6
Chris	USA	11	2949	59	101	80	1	30.4
Noroeste 66	Mexico	40	2927	56	95	63	1	39.8
Crespo 63	Colombia	36	2918	56	96	75	1	36.4
Son 64 x TzPP-Nai 60	Mexico	22	2911	56	93	55	1	40.0
Penjamo 62	Mexico	21	2911	57	95	60	1	39.0
Napo 63	Colombia	2	2904	55	98	71	1	36.6
Bonza 55	Colombia	13	2893	61	102	78	1	33.8
Pakistan 5725	Pakistan	29	2872	56	98	51	1	36.4
NP 824	India	5	2803	56	99	74	1	43.5
Triple Dirk	Australia	19	2800	57	98	78	1	42.6
NP 881	India	25	2787	55	97	71	1	37.0
Tacuari	Argentina	35	2714	61	100	78	1	29.8
Pj sib x Gb 55 (white grain)	Mexico	28	2696	59	99	63	1	36.4
Mendos	Australia	6	2678	58	97	62	1	36.6
Pi 62-Chris sib x Son 64	Mexico	42	2649	55	94	61	1	38.4
Giza 150	Egypt	9	2633	57	99	68	1	38.6
Sonora 64	Mexico	14	2624	56	95	56	1	35.0
Thatcher	Canada	47	2608	58	99	79	1	31.0
El Gaucho	Argentina	48	2597	63	104	78	2	33.0
Bonza 63	Colombia	27	2588	61	99	69	1	35.0
Jaral 66	Mexico	38	2583	55	95	66	1	32.8
Yaqui 50	Mexico	33	2580	54	96	74	2	36.4

Crim	USA	17	2547	57	97	83	2	34.4
C-273	Pakistan	3	2526	56	99	78	1	39.8
Tobari 66	Mexico	49	2497	55	96	63	1	38.8
NP 832	India	10	2488	56	99	74	1	42.6
C-591	India	20	2472	57	98	77	1	38.4
Manitou	Canada	50	2472	58	97	75	1	29.4
C-271	Pakistan	15	2463	57	102	64	1	41.0
Selkirk	Canad	31	2463	58	97	78	1	35.6
C-518	India	16	2445	58	101	63	1	38.4
Gaboto	Argentina	43	2420	63	105	78	3	31.0
C-306	India	23	2388	57	101	70	1	41.0
Giza 144	Egypt	26	2356	58	101	75	1	36.4
Nariño 59	Colombia	46	2341	57	99	83	2	37.4
Justin	USA	8	2146	59	100	80	1	34.6
Klein Petiso x Rafaela	Argentina	44	2132	56	97	61	1	32.4
Centrifen	Chile	45	2107	57	96	63	1	34.4
Tiba 63	Colombia	30	1945	59	98	72	1	39.6
NP 880	India	39	1736	54	95	74	2	46.2
Mean			2675	56	96	69		36.4
Coefficient of variation			12.8%	1.0%	2.1%	6.7%		(only 1 rep.)
Standard error of the mean			199	.3	1.1	2.7		
Least significant difference, 5%			558	.9	3.3	7.6		

Correlations

Days to flowering	.19			
Days to maturity	.21	.79**		
Height	.04	.43**	.56**	
1000 grain weight	.05	-.38**	-.13	-.06

* = Significant at the 5% level
** = Significant at the 1% level

1/ Scale key 1-5 (1 = least lodging)

TABLE 3. NORTH AMERICA

CANADA. Regina, Saskatchewan. (Research Station). Latitude: 50° 24' N. Longitude: 104° 28' W. Elevation: 573.02 meters above sea level.
Cooperators: L. A. Patterson and Dr. E. A. Hurd.

Planting Date: 24 May 1967. Precipitation during test: Not stated. Irrigation: nil. Fertilizer: 44.8 Kg./Ha. 11-48-0.

General Comments: The Regina heavy clay soil cracked very badly due to drought conditions. The cracks allowed the plants to lean over or fall down, confusing the lodging score. No disease, weed or pest problems.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to maturity	Height cms.	Lodging (scale) 1/
Pj sib x Gb 55 (white grain)	Mexico	28	1771	81.1	96	58	3
Penjamo 62	Mexico	21	1710	81.1	91	53	3
Pitic 62	Mexico	32	1693	79.8	96	64	3
Bonza 63	Colombia	27	1667	79.2	95	66	2
Huelquen	Chile	4	1626	80.4	95	64	3
Crespo 63	Colombia	36	1625	81.7	91	66	2
Tobari 66	Mexico	49	1609	81.1	91	56	3
Roque 66	Mexico	41	1599	78.6	90	51	3
Pj sib x Gb 55 (red grain)	Mexico	24	1548	81.1	95	56	3
Nariño 59	Colombia	46	1518	79.8	92	66	2
Lerma Rojo 64A	Mexico	7	1515	80.4	91	61	3
INIA 66	Mexico	37	1499	82.3	89	56	2
Crim	USA	17	1498	79.2	91	64	3
Gabo	Australia	34	1482	79.2	90	58	3
Triple Dirk	Australia	19	1482	79.8	91	66	3
Giza 150	Egypt	9	1465	82.9	92	53	3
Bonza 55	Colombia	13	1462	79.2	93	58	3
Chris	USA	11	1442	79.2	95	66	3
NP 881	India	25	1435	79.8	92	56	3
C-518	India	16	1432	82.3	97	53	2
Tacuari	Argentina	35	1419	79.8	93	69	2
Pakistan 5725	Pakistan	29	1416	82.3	91	46	3
Nar sib (2) x Pj sib	Chile	1	1379	78.6	90	56	2
Nainari 60	Mexico	12	1378	77.9	93	58	2
Giza 144	Egypt	26	1375	82.3	97	64	3
NP 824	India	5	1358	81.1	91	64	3
Mendos	Australia	6	1355	76.7	91	48	3
Carazinho	Brazil	18	1343	79.2	93	74	3
NP 832	India	10	1325	81.1	92	64	3
C-306	India	23	1271	82.9	95	61	3
C-591	India	20	1258	82.3	94	64	3
Klein Rendidor	Argentina	50	1255	81.1	105	64	3

Son 64 x TzPP-Nai 60	Mexico	22	1249	79.2	89	53	3
C-271	Pakistan	15	1246	81.1	94	58	3
Noroeste 66	Mexico	40	1242	81.1	88	53	2
Justin	USA	8	1239	79.8	94	66	3
Thatcher	Canada	47	1237	79.8	91	66	3
Selkirk	Canada	31	1202	78.6	89	64	3
Tiba 63	Colombia	30	1178	77.9	92	61	3
Napo 63	Colombia	2	1177	79.2	89	61	3
Gaboto	Argentina	43	1175	79.2	102	66	3
Klein Petiso x Rafaela	Argentina	44	1169	79.8	90	53	3
Sonora 64	Mexico	14	1119	81.1	89	51	2
Jaral 66	Mexico	38	1106	79.2	88	56	2
C-273	Pakistan	3	1100	81.7	91	61	3
Yaqui 50	Mexico	33	1071	80.4	90	64	3
Pi 62-Chris sib x Son 64	Mexico	42	1020	81.1	88	51	3
Centrifen	Chile	45	1003	77.3	89	56	3
El Gaucho	Argentina	48	943	80.4	103	64	3
NP 880	India	39	587	79.2	90	64	4
Mean			1320	78.5	90	58	
Ccefficient of variation			13.2%	(only 1	(only 1	(only 1	
Standard error of the mean			100	rep.)	rep.)	rep.)	
Least significant difference, 5%			282				

	Correlations		
Test wt.	.16		
Days to maturity	.15	.16	
Height	-.02	-.09	.37**

* = Significant at the 5% level
** = Significant at the 1% level

1/ Scale key 1-5 (1 = least lodging)

TABLE 4. NORTH AMERICA

CANADA. Winnipeg. (Canada Department of Agriculture, Research Station). Latitude: 50° N. Longitude: 97° W. Elevation: 228.60 meters above sea level. Cooperator: Dr. A. F. Campbell.

Planting Date: 19 May 1967. Precipitation during test: 137.1 mm. Irrigation: nil. Fertilizer: 18 Kg. N + 36 Kg. P_2O_5.

General Comments: Moderate temperatures, but drier than normal. The rusts were late developing -leaf rust did little damage. No weed or pest problems.

Scoring notes taken: Height - 15 August; shattering - from 15 September.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to: flowering	Days to: maturity	Leaf rust (inoc.)	Stem rust (inoc.)	Height cms.	Lodging %	Shattering %	1000 grain weight gms.
Pitic 62	Mexico	32	1485	62.5	54	97	15MR	tR	87	16	1	34.4
Noroeste 66	Mexico	40	1438	66.5	51	90	tR	tR	73	10	39	40.3
INIA 66	Mexico	37	1367	68.0	50	92	1R	tR	75	10	3	43.1
Tobari 66	Mexico	49	1348	67.0	51	94	tR	tR	80	10	1	36.5
Lerma Rojo 64A	Mexico	7	1343	67.5	52	93	1R	5M	85	16	13	44.0
Nainari 60	Mexico	12	1326	64.0	55	96	50MS	40MS	88	13	20	40.4
Penjamo 62	Mexico	21	1281	66.5	52	94	2R	1MR	79	20	6	38.2
Pj sib x Gb 55 (white grain)	Mexico	28	1268	65.5	55	94	30M	10M	77	13	20	33.5
Son 64 x TxPP-Nai 60	Mexico	22	1257	64.5	51	90	1R	1R	67	10	1	38.0
Crespo 63	Colombia	36	1242	66.0	52	95	20MR	tM	94	16	3	37.4
Roque 66	Mexico	41	1240	65.0	51	94	2MR	tR	72	3	1	32.4
Pj sib x Gb 55 (red grain)	Mexico	24	1218	65.5	56	97	5MR	40M	76	10	22	32.3
Jaral 66	Mexico	38	1200	65.5	48	92	tR	tR	72	10	30	32.8
Huelquen	Chile	4	1196	66.5	54	98	tR	tM	93	13	5	39.7
Napo 63	Colombia	2	1159	65.0	49	90	5MR	tR	88	6	41	37.0
NP 881	India	25	1149	65.0	52	95	30M	tM	86	20	37	37.0
Klein Fetiso x Rafaela	Argentina	44	1147	66.0	51	95	2MR	20M	82	10	1	32.4
Triple Dirk	Australia	19	1125	66.0	52	96	60S	50MS	97	13	10	42.8
Sonora 64	Mexico	14	1119	65.0	51	91	40MS	10M	65	6	1	34.2
Yaqui 50	Mexico	33	1105	66.0	51	89	15MS	5M	88	16	21	38.5
Pj 62-Chris sib x Son 64	Mexico	42	1104	68.0	50	90	tR	1MR	71	13	26	39.0
Carazinho	Brazil	18	1103	66.0	62	103	tR	10M	103	26	49	40.6
Bonza 63	Colombia	27	1097	65.0	60	99	10M	tR	95	13	11	36.2
Bonza 55	Colombia	13	1094	64.0	58	98	5M	tR	94	16	1	35.6
Nar sib (2) x Pj sib	Chile	1	1087	63.5	51	91	3M	30M	71	6	3	30.5
Selkirk	Canada	31	1037	64.0	53	89	60MS	1R	95	10	14	36.3
Chris	USA	11	1033	66.5	56	98	0	tR	99	20	6	33.4
Giza 144	Egypt	26	1021	68.0	56	98	5M 70S	10M	97	16	1	39.9
Tacuari	Argentina	35	1014	66.5	59	99	tR	tR	101	20	48	31.9
Manitou	Canada	50	1012	66.0	54	96	1R	tM	90	20	1	31.7
Centrifen	Chile	45	1011	65.0	52	93	3MR	20M	78	13	1	36.4
Crim	USA	17	1006	66.0	53	92	80S	tR	101	20	72	38.1

Giza 150	Egypt	9	994	67.0	53	95	80S	60S	88	13	1	37.6
Nariño 59	Colombia	46	959	67.0	52	94	5M	1R	97	20	91	38.0
Gaboto	Argentina	43	938	66.0	64	106	1R	tR	103	20	6	32.0
Thatcher	Canada	47	920	65.0	54	94	80S	20M	98	20	3	27.8
Mendos	Australia	6	904	62.0	55	95	70S	tR	76	0	1	36.3
Tiba 63	Colombia	30	900	64.5	54	96	3M	2R	91	10	82	39.8
NP 880	India	39	867	69.0	49	95	60MS	40S	89	16	1	51.1
Justin	USA	8	860	66.5	57	96	50MS	tR	97	16	21	37.4
Gabo	Australia	34	854	58.5	53	95	70S	60MS	85	6	1	32.3
C-306	India	23	825	68.0	57	101	20M	70S	94	20	0	39.2
NP 824	India	5	737	64.0	51	95	80S	80S	85	13	0	36.1
C-591	India	20	721	69.0	56	99	30S	60S	102	20	2	41.9
NP 832	India	10	719	64.0	51	95	70S	80S	88	16	1	34.2
C-273	Pakistan	3	709	68.0	52	96	50MS	50S	93	16	1	39.0
El Gaucho	Argentina	48	688	66.0	70	107	1MS	tR	96	36	0	33.3
C-518	India	16	627	65.5	58	98	40MS	80S	83	16	0	33.2
C-271	Pakistan	15	613	57.0	53	93	60S	70S	82	16	0	27.8
Pakistan 5725	Pakistan	29	613	58.0	52	89	5M 50MS	60MS	72	10	0	29.5
Mean			1021	64.0	53	93	4.00	3.38	85	14.2	14.6	35.7
Coefficient of variation			11.3%	(only 1	1.7%	1.2%	(only 1	(only 1	3.8%	38.9%	73.2%	(only 1
Standard error of the mean			66	rep.)	.5	.6	rep.)	rep.)	1.9	3.2	6.1	rep.)
Least significant difference, 5%			187		1.5	1.8			5.3	9.0	17.3	

Correlations

Test wt.	.25									
Days to flowering	-.29 *	.04								
Days to maturity	-.26	.22	.87**							
Leaf rust (inoc.) $\sqrt{X+1}$	-.52**	-.29 *	-.11	-.10						
Stem rust (inoc.) $\sqrt{X+1}$	-.62**	-.22	-.08	.08	.59**					
Height	-.30 *	.27	.55**	.62**	.18	.01				
Lodging %	-.28 *	.32 *	.62**	.64**	-.06	.02	.65**			
Shattering %	.13	.15	-.03	-.08	-.21	-.38**	.24	.12		
1000 grain weight	.23	.61**	-.20	-.01	-.03	-.04	.16	.08	.13	

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 5.

NORTH AMERICA

CANADA. Quebec. (Macdonald College). Latitude: 45° 25' N. Longitude: 73° 36' W. Elevation: 27 meters above sea level.
Cooperator: Dr. H. R. Klinck.

Planting Date: 5 May 1967. Precipitation during test: 2 May - 58 mm; 4 June - 118 mm; 2 July - 72 mm. Irrigation: nil. Fertilizer: 4-24-20 168 Kg./Ha.

General Comments: Slightly below average rainfall in May and July, above average in June. A good growing season. Apart from Powdery mildew there was little or no disease. No weed or pest problems.

Scoring notes taken: Height - 28 July; lodging - 1 to 9 August; Powdery mildew - 15 July.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. Lbs/Bu	Days to: flowering	Days to: maturity	Height cms.	Lodging (scale) 2/	1000 grain weight gms.	Mildew %
Pitic 62	Mexico	32	4170	59.1	55	94	75	2	33.6	20
Giza 144	Egypt	26	4067	61.9	56	96	83	2	41.8	10
Gabo	Australia	34	3932	57.8	54	94	72	1	40.6	30
Nariño 59	Colombia	46	3916	60.1	53	93	83	1	37.4	50
Giza 150	Egypt	9	3845	62.6	54	93	79	1	4[illegible].1	50
Nainari 60	Mexico	12	3816	58.2	55	94	72	1	39.7	20
NP 832	India	10	3800	57.1	53	92	82	2	45.2	70
Crespo 63	Colombia	36	3793	60.6	54	96	82	1	38.9	30
Tacuari	Argentina	35	3744	60.5	58	96	92	3	33.2	30
NP 824	India	5	3742	62.3	52	92	80	2	48.1	50
Pj sib x Gb 55 (white grain)	Mexico	28	3733	60.7	55	93	70	2	35.4	0
Tiba 63	Colombia	30	3717	57.6	53	91	73	4	43.8	50
Jaral 66	Mexico	38	3704	60.1	52	91	67	2	31.7	0
Triple Dirk	Australia	19	3625	60.4	56	96	88	1	47.3	60
Pj sib x Gb 55 (red grain)	Mexico	24	3586	59.6	56	94	67	1	33.4	0
Pi 62-Chris sib x Son 64	Mexico	42	3568	61.3	53	91	62	1	37.1	1
Son 64 x TzPP-Nai 60	Mexico	22	3568	58.4	53	91	62	1	35.8	0
Crim	USA	17	3563	60.4	54	94	88	3	40.3	1
C-306	India	23	3516	61.7	54	96	84	2	45.1	0
Noroeste 66	Mexico	40	3464	59.5	52	88	64	2	37.7	70
Tobari 66	Mexico	49	3387	60.9	54	93	70	1	34.1	0
NP 881	India	25	3377	59.7	53	94	76	3	39.3	0
Carazinho	Brazil	18	3313	59.9	58	96	96	5	41.2	80
Bonza 63	Colombia	27	3307	59.1	57	94	83	1	34.7	10
Sonora 64	Mexico	14	3300	59.1	53	91	60	1	32.9	30
Justin	USA	8	3278	59.8	58	96	89	2	36.7	50
Roque 66	Mexico	41	3269	58.4	55	93	61	1	30.3	0
Huiquen	Chile	4	3261	63.5	55	94	80	1	35.4	30
Mendos	Australia	6	3240	55.1	55	94	63	1	40.8	1
Penjamo 62	Mexico	21	3193	61.1	54	94	67	1	39.5	10
Lerma Rojo 64A	Mexico	7	3174	60.1	53	90	69	2	38.8	80
Gaboto	Argentina	43	3168	60.6	58	96	98	1	32.8	60

NP 880	India	39	3161	60.2	49	90	72	2	49.8	20
C-271	Pakistan	15	3159	60.0	54	93	72	1	43.8	70
C-591	India	20	3157	62.8	54	94	88	3	41.7	0
Nar sib (2) x Pj sib	Chile	1	3149	59.4	53	90	62	1	33.7	10
Bonza 55	Colombia	13	3133	57.5	56	95	89	1	35.6	0
El Gaucho	Argentina	48	3043	61.1	62	96	88	2	31.1	30
Napo 63	Colombia	2	3035	59.8	51	88	76	1	37.8	1
INIA 66	Mexico	37	3023	60.3	52	89	61	1	36.9	70
Yaqui 50	Mexico	33	2925	59.3	52	90	79	2	38.5	1
Selkirk	Canada	31	2892	58.7	58	94	86	1	39.1	40
Thatcher	Canada	47	2872	61.2	58	96	87	1	31.9	80
C-273	Pakistan	3	2669	53.4	52	95	84	1	43.1	10
Chris	USA	11	2569	61.3	58	96	88	1	33.1	20
Klein Petiso x Rafaela	Argentina	44	2505	59.0	52	91	65	1	30.1	60
C-518	India	16	2503	62.2	55	93	73	2	36.2	50
Centrifen	Chile	45	2414	57.4	53	91	63	1	34.1	80
Pakistan 5725	Pakistan	29	1662	56.3	53	91	60	3	29.1	99
Klein Rendidor	Argentina	50	1/							
Mean			3306	59.7	54	93	76		37.7	(only 1 rep.)
Coefficient of variation			11.0%	(only 1 rep.)	1.3%	1.0%	4.4%		(only 1 rep.)	
Standard error of the mean			211		.4	.5	1.9			
Least significant difference, 5%			592		1.1	1.5	5.5			

Correlations

Test wt.	.23					
Days to flowering	.03	.18				
Days to maturity	.15	.13	.75**			
Height	.14	.27	.60**	.69**		
1000 grain weight	.35 *	.04	-.32 *	.04	.23	
Mildew $\sqrt{\% + 1}$	-.33	-.12	.07	-.04	.05	.09

1/ No data available

2/ Scale key 1 - 5 (1 = least lodging)

* = Significant at the 5% level

** = Significant at the 1% level

TABLE 6. NORTH AMERICA

UNITED STATES OF AMERICA. Casselton, North Dakota. Latitude: 47° N. Longitude: 97° W. Elevation: 280 meters above sea level.
Cooperators: DeKalb Agricultural Assoc., Inc.

Planting Date: 16 May 1967. Precipitation during test: Very wet Spring, very little rain after 15 June. Irrigation: Not stated. Fertilizer: Not stated.
General Comments: Temperatures and rainfall much below normal. Rust infections developed late in the season, but became quite severe. No weed or pest problems.
Scoring notes taken: Rusts - 27 July to 10 August; shattering - 30 August.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl.	Days to: flowering	Days to: maturity	Leaf rust	Stem rust	Height cms.	Lodging %	Shattering %	% Shattering (Spikelets)	1000 grain weight gms.
Lerma Rojo 64A	Mexico	7	4167	76.1	57	89	10MR	5MS	91	0	80	40	39.0
Huelquen	Chile	4	4165	76.1	59	93	t	t	107	0	30	20	37.0
Pitic 62	Mexico	32	3944	72.3	62	94	50S	t	81	0	0	0	31.0
Triple Dirk	Australia	19	3884	76.1	59	91	20MS	0	107	5	20	40	44.0
Crespo 63	Colombia	36	3712	76.1	57	92	70S	t	102	5	20	50	36.0
Pj sib x Gb 55 (red grain)	Mexico	24	3626	77.3	61	93	40MS	10MS	84	0	20	10	31.0
Tobari 66	Mexico	49	3618	77.3	57	87	t	0	81	0	0	0	35.0
Nainari 60	Mexico	12	3505	73.6	61	93	10MR	5S	94	0	60	20	37.0
INIA 66	Mexico	37	3480	76.1	56	87	10R	0	86	0	10	10	43.0
Roque 66	Mexico	41	3435	74.8	56	86	5MR	0	79	0	0	0	30.0
Noroeste 66	Mexico	40	3345	74.8	57	87	t	0	84	0	50	50	37.0
Tacuari	Argentina	35	3324	76.1	62	93	t	0	119	50	80	50	31.0
Pj sib x Gb 55 (white grain)	Mexico	28	3274	73.6	62	92	80S	t	86	0	20	50	31.0
Carazinho	Brazil	18	3189	76.1	64	101	t	t	117	50	10	10	35.0
Bonza 63	Colombia	27	3189	74.8	65	95	30MS	0	117	10	80	60	35.0
Jaral 66	Mexico	38	3044	74.8	57	87	10R	0	89	0	80	50	31.0
Nariño 59	Colombia	46	3011	77.3	58	92	5MR	t	112	10	90	90	35.0
Gaboto	Argentina	43	3002	76.1	65	99	t	0	107	0	10	10	31.0
Klein Rendidor	Argentina	50	2999	77.3	72	105	10MR	t	97	30	0	0	30.0
Justin	USA	8	2957	77.3	61	92	20S	t	117	0	50	20	34.0
Penjamo 62	Mexico	21	2954	74.8	57	89	40S	5MR	91	0	10	10	35.0
Crim	USA	17	2951	76.1	57	87	30MS	t	109	5	50	80	32.0
Giza 144	Egypt	26	2935	76.1	62	94	80S	5MR	119	10	30	20	34.0
NP 881	India	25	2929	76.1	55	88	20MS	t	104	5	80	30	35.0
Tiba 63	Colombia	30	2928	72.3	61	92	20MR	t	107	20	100	90	36.0
Chris	USA	11	2921	71.1	61	92	t	0	112	20	20	20	30.0
Yaqui 50	Mexico	33	2829	76.1	56	87	20MS	5MR	99	0	60	50	37.0
Napo 63	Colombia	2	2783	74.8	57	87	30MS	0	99	0	60	60	35.0
Selkirk	Canada	31	2778	72.3	58	87	40MS	t	117	5	80	60	33.0
El Gaucho	Argentina	48	2744	77.3	66	101	t	0	102	10	0	0	31.0
Bonza 55	Colombia	13	2714	76.1	63	93	10MR	0	102	0	50	20	33.0
Son 64 x TzPP-Nai 60	Mexico	22	2588	76.1	57	86	70MS	t	76	0	10	10	38.0

Pi 62-Chris sib x Son 64	Mexico	42	2557	77.3	56	86	5MR	t	81	0	80	20	37.0
Giza 150	Egypt	9	2549	76.1	57	93	100S	5R	91	0	0	0	33.0
Klein Petiso x Rafaela	Argentina	44	2487	73.6	56	87	t	5MR	84	0	10	10	32.0
Sonora 64	Mexico	14	2401	73.6	56	88	20S	50S	76	0	30	20	29.0
Nar sib (2) x Pj sib	Chile	1	2382	73.6	57	87	0	20S	76	0	60	5	28.0
Mendos	Australia	6	2382	67.3	59	91	100S	t	84	0	80	30	30.0
Centrifen	Chile	45	2316	72.3	58	87	t	t	81	0	70	10	30.0
NP 880	India	39	2220	79.8	57	92	50S	40S	94	20	0	0	44.0
Thatcher	Canada	47	2113	73.6	59	89	80S	20S	104	0	50	30	26.0
C-591	India	20	2046	78.6	61	92	40S	20S	117	30	0	0	36.0
C-273	Pakistan	3	1902	73.6	58	88	0	10S	112	20	10	10	32.0
C-306	India	23	1845	71.1	62	93	50S	80S	114	30	0	0	30.0
Pakistan 5725	Pakistan	29	1763	69.8	59	89	100S	100S	79	0	0	0	26.0
C-518	India	16	1575	73.6	61	91	10MS	40S	91	0	0	0	32.0
C-271	Pakistan	15	1451	66.1	59	89	50S	50S	97	0	0	0	24.0
Gabo	Australia	34	1105	57.4	59	89	100S	80S	99	0	80	20	17.0
NP 832	India	10	1101	69.8	57	89	60S	40S	104	10	10	10	28.0
NP 824	India	5	1006	59.9	57	89	80S	100S	107	0	10	10	22.0
Mean			2702	72.4	57	88	4.93	3.98	95	6.3	35.0	24.1	32.1
Coefficient of variation			12.6%	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)	28.7%	37.4 %	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)
Standard error of the mean			198				1.00	.86					
Least significant difference, 5%			551				2.84	2.42					

Correlations

Test wt.	.61**									
Days to flowering	.10	.06								
Days to maturity	.19	.18	.86**							
Leaf rust $\sqrt{X+1}$	-.43**	-.45**	-.14	-.12						
Stem rust $\sqrt{X+1}$	-.79**	-.53**	-.13	-.11	.46**					
Height	-.02	.03	.48**	.49**	-.04	-.06				
Lodging %	-.03	.16	.40**	.45**	-.19	.10	.59**			
Shattering %	.15	-.06	-.09	-.21	-.14	-.32*	.13	-.04		
Shattering (spikelets) %	.31*	.11	-.06	-.11	-.09	-.44**	.32*	.05	.72**	
1000 grain weight	.62**	.76**	-.11	.04	-.37**	-.49**	.03	.11	.02	.21

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 7. NORTH AMERICA

UNITED STATES OF AMERICA. St. Paul, Minnesota. (University of Minnesota). Latitude: 45° N. Longitude: 93° 10' W. Elevation: 260 meters above sea level. Cooperators: Dr. R. E Heiner and Dr. R. Romig.

Planting Date: 5 May 1967. Precipitation during test: Not stated. Irrigation: nil. Fertilizer: nil.
General Comments: Higher than usual rainfall and moderate temperatures. Although stem and leaf rust was light in the area, this nursery had a high natural infection. No weed or pest problems.

Scoring notes taken: Leaf rust - 10 July; stem rust - 17 July; height - 17 July.

Variety or cross	Origin	Variety Number	Yield, kg/ha	Test wt. kg/hl	Days to flowering	Leaf rust	Stem rust	Height cms.
Noroeste 66	Mexico	40	3229	73.6	50	10MS	tR	76
Nainari 60	Mexico	12	3057	69.2	56	70S	10MR	86
Jaral 66	Mexico	38	2992	74.8	50	5MS	0	79
INIA 66	Mexico	37	2987	75.4	50	20MR	0	79
Pitic 62	Mexico	32	2898	68.0	57	90S	0	86
Nariño 59	Colombia	46	2795	73.9	54	60S	tR	94
Tobari 66	Mexico	49	2743	76.7	54	0	tR	76
Crespo 63	Colombia	36	2736	72.9	55	60S	0	86
Centrifen	Chile	45	2725	72.3	54	40S	0	76
Roque 66	Mexico	41	2723	74.2	52	50S	0	69
Pj 62-Chris sib x Son 64	Mexico	42	2689	76.1	49	0	tR	76
NP 881	India	25	2499	72.3	52	90S	0	86
Son 64 x TzPP-Nai 60	Mexico	22	2454	68.6	53	60S	0	69
El Gaucho	Argentina	48	2416	74.2	74	0	0	99
Penjamo 62	Mexico	21	2403	71.7	54	60S	40MS	81
Huelquen	Chile	4	2398	73.6	54	0	0	91
Inrma Rojo 64A	Mexico	7	2367	74.2	53	80S	20S	89
Tacuari	Argentina	35	2344	73.6	58	0	tR	89
Pj sib x Gb 55 (red grain)	Mexico	24	2304	66.7	57	60S	0	71
Napo 63	Colombia	2	2297	72.3	49	80S	tR	86
Triple Dirk	Australia	19	2277	72.3	55	100S	5S	102
Crim	USA	17	2262	73.6	55	90S	0	91
Carazinho	Brazil	18	2244	72.9	69	0	5S	119
Tiba 63	Colombia	30	2212	68.6	56	70S	tMS	91
Yaqui 50	Mexico	33	2163	71.1	50	80S	tR	86
Pj sib x Gb 55 (white grain)	Mexico	28	2114	70.5	56	90S	0	71
Nar sib (2) x Pj sib	Chile	1	2087	67.3	50	90S	70S	76
Gaboto	Argentina	43	2078	75.4	68	0	0	102
Selkirk	Canada	31	2033	68.6	57	100S	0	94
Sonora 64	Mexico	14	2000	68.6	49	90S	80MS	71
Giza 144	Egypt	26	1997	73.6	58	50S	0	91
Klein Petiso x Rafaela	Argentina	44	1986	72.9	51	60S	30MS	74

Chris	USA	11	1961	75.4	56	0	0	104
Justin	USA	8	1914	72.3	57	80S	0	94
NP 880	India	39	1778	74.8	49	50S	80S	86
Giza 150	Egypt	9	1726	71.1	54	100S	tR	86
Bonza 63	Colombia	27	1717	68.6	64	60S	0	99
Bonza 55	Colombia	13	1704	66.1	55	80S	0	102
Thatcher	Canada	47	1646	63.6	57	90S	tMS-S	94
C-273	Pakistan	3	1498	74.8	53	40S	60S	97
Mendos	Australia	6	1404	61.7	57	100S	tR	74
Gabo	Australia	34	1397	59.2	57	100S	90MS	86
C-306	India	23	1390	70.5	57	60S	40S	104
C-591	India	20	1240	71.7	58	50S	70S	107
Pakistan 5725	Pakistan	29	1151	63.0	53	60S	80MS-S	71
NP 824	India	5	1028	65.5	50	100S	70MS-S	99
C-518	India	16	936	66.1	58	90S	30S	86
C-271	Pakistan	15	907	59.9	59	90S	90S	97
NP 832	India	10	768	61.1	51	70S	80S	97
Klein Rendidor	Argentina	50	1/					
Mean			2095	70.5	55	7.02	3.18	87
Coefficient of variation			15.0%	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)
Standard error of the mean			181					
Least significant difference, 5%			509					

Correlations

Test wt.	.64**				
Days to flowering	-.13	-.04			
Leaf rust $\sqrt{X+1}$	-.40**	-.60**	-.27		
Stem rust $\sqrt{X+1}$	-.66**	-.45**	-.22	.30 *	
Height	-.34 *	.03	.56**	-.12	.08

1/ No data available

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 8.

NORTH AMERICA

UNITED STATES OF AMERICA. Minneapolis, Minnesota. (Northrup King & Co.) Latitude: 45° N. Longitude: 93° 10' W. Elevation: 294 meters above sea level. Cooperators: Northrup King & Co.

Planting Date: 25 April 1967. Precipitation during test: 321 mm. May to August. Irrigation: May-19 mm.; July-25.4 mm. Fertilizer: 560 Kg./Ha. 12-12-12.

General Comments: Cool weather throughout most of the growing season, dry early in the season. Disease infection late in the season. Small amount of damage by gophers.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to: flowering	Days to: maturity	Leaf rust %	Stem rust	Height cms.	Lodging (scale) 2/	1000 grain weight gms.
Pitic 62	Mexico	32	3366	69.4	59	101	70	5R	90	5	28.1
Nainari 60	Mexico	12	3091	66.9	58	99	10	20R	88	5	31.3
Pj sib x Gb 55 (white grain)	Mexico	28	3025	70.6	59	103	50	10R	77	1	26.0
Lerma Rojo 64A	Mexico	7	2974	74.4	53	99	10	40SR	82	4	37.8
Tacuari	Argentina	35	2932	74.6	63	101	10	15R	108	2	29.3
Crespo 63	Colombia	36	2927	73.1	55	101	70	5R	91	3	31.3
Triple Dirk	Australia	19	2892	72.3	57	101	80	20SR	104	4	37.3
Pj sib x Gb 55 (red grain)	Mexico	24	2862	71.7	59	103	50	t	75	3	25.6
NP 881	India	25	2824	73.1	54	101	40	t	92	4	31.6
Centrifen	Chile	45	2801	74.1	54	99	10	30R	77	3	35.0
Penjamo 62	Mexico	21	2794	72.5	56	99	10	70S	80	3	34.3
Gaboto	Argentina	43	2718	73.8	65	105	0	20R	117	3	27.5
Pi 62-Chris sib x Son 64	Mexico	42	2679	76.9	52	101	0	20R	72	1	35.1
Chris	USA	11	2602	73.3	61	103	10	10R	106	5	27.5
Tobari 66	Mexico	49	2590	74.2	55	101	0	10R	76	1	31.0
Huelquen	Chile	4	2583	72.3	58	99	10	t	96	4	29.8
Crim	USA	17	2583	73.7	58	101	60	t	110	7	32.6
Bonza 55	Colombia	13	2551	67.5	63	101	20	t	110	6	28.1
Selkirk	Canada	31	2533	71.0	62	101	50	20R	109	2	35.0
Noroeste 66	Mexico	40	2521	74.8	52	99	10	20R	71	2	35.5
El Gaucho	Argentina	48	2472	74.8	67	105	10	50R	112	1	30.1
INIA 66	Mexico	37	2466	76.9	52	99	20	10R	69	1	34.0
Roque 66	Mexico	41	2464	71.2	55	99	10	t	68	3	24.8
Justin	USA	8	2464	73.3	65	105	20	10R	108	2	32.5
Tiba 63	Colombia	30	2462	71.9	56	99	30	50SR	87	1	37.5
Jaral 66	Mexico	38	2448	75.6	51	99	0	10R	70	1	30.0
Bonza 63	Colombia	27	2421	73.5	62	101	50	10R	98	1	28.5
Thatcher	Canada	47	2397	74.2	59	99	90	70S	105	4	26.0
Nar sib (2) x Pj sib	Chile	1	2333	70.6	52	99	20	60SR	72	2	26.5
Klein Petiso x Rafaela	Argentina	44	2270	75.6	53	99	10	80S	77	2	27.6
Napo 63	Colombia	2	2257	72.7	52	99	50	t	84	3	32.5
Sonora 64	Mexico	14	2246	69.0	53	99	70	60SR	69	3	26.5

NP 880	India	39	2040	77.7	51	99	80	80S	87	3	41.3
Yaqui 50	Mexico	33	2025	72.7	52	99	40	50SR	83	4	32.0
Son 64 x TzPP-Nai 60	Mexico	22	1995	69.0	52	99	40	t	78	4	28.8
Giza 144	Egypt	26	1956	70.6	59	105	40	t	96	2	30.0
Carazinho	Brazil	18	1912	69.0	66	103	10	50S	116	2	30.3
Mendos	Australia	6	1883	65.5	57	99	70	t	70	1	31.1
Giza 150	Egypt	9	1818	71.0	60	101	90	20R	87	4	28.0
Gabo	Australia	34	1781	60.8	56	99	50	80S	81	1	25.6
C-306	India	23	1752	73.1	55	99	20	90S	95	3	32.0
Nariño 59	Colombia	46	1720	74.0	55	103	30	40R	98	4	31.3
C-591	India	20	1683	76.7	56	99	10	80S	104	3	31.8
Klein Rendidor	Argentina	50	1681	73.1	1/	119	50	1/	1/	1	24.8
C-273	Pakistan	3	1568	72.1	56	101	10	70S	101	1	30.1
C-271	Pakistan	15	1361	65.0	56	99	80	80S	95	2	25.8
C-518	India	16	1089	60.1	58	101	20	80S	86	2	24.0
NP 832	India	10	1002	60.7	57	99	80	80S	100	1	19.8
Pakistan 5725	Pakistan	29	927	60.3	55	99	20	70S	69	1	23.0
NP 824	India	5	923	61.9	55	99	80	70S	94	1	22.1
Mean			2240	69.9	56	98	3.51	4.14	88		29.4
Coefficient of variation			18.1%	3.6%	2.9%	2.0%	42.8%	(only 1	4.0%		9.4%
Standard error of the mean			235	1.4	.9	1.1	.87	rep.)	2.0		1.6
Least significant difference, 5%			659	4.1	2.7	3.2	2.43		5.8		4.5

Correlations

Test wt.	.54**							
Days to flowering	.12	-.10						
Days to maturity	.22	.19	.72**					
Leaf rust %	-.16	-.44**	-.02	-.09				
Stem rust $\sqrt{X+1}$	-.64**	-.31 *	-.18	-.39**	.12			
Height	-.01	.06	.76**	.55**	.08	.03		
Lodging (scale)	.36 *	.12	0.00	.03	.14	-.25	.23	
1000 grain weight	.45**	.64**	-.21	-.05	-.22	-.20	.01	.21

1/ No data available
2/ Scale key 1-10 (1 = least lodging)

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 9. NORTH AMERICA

UNITED STATES OF AMERICA. Aberdeen, Idaho. (Branch Experiment Station). Latitude: approx. 42° 56" N. Longitude: approx. 112° 50" W. Elevation: approx. 1370 meters above sea level. Cooperator: D. W. Sunderman.

Planting Date: 4 April 1967. Precipitation during test: nil. Irrigation: Irrigated every 12 days. Fertilizer: Anhydrous ammonia 110 Kg./Ha.
General Comments: Infections of stripe rust and race 56 of stem rust.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to: flowering	Days to: maturity	Stem rust	Height cms.	Lodging (scale) 2/
Pj sib x Gb 55 (white grain)	Mexico	28	6647	75.7	84	132	0	81	1
Pitic 62	Mexico	32	6268	71.7	83	132	0	87	1
Huelquen	Chile	4	6176	76.8	84	131	0	98	1
Pj sib x Gb 55 (red grain)	Mexico	24	6037	76.0	84	133	0	81	1
Tacuari	Argentina	35	5876	77.0	86	131	0	116	1
Penjamo 62	Mexico	21	5869	77.6	79	129	0	86	2
NP 824	India	5	5868	78.1	76	132	S25	104	1
Giza 144	Egypt	26	5861	77.7	83	131	0	106	1
Tobari 66	Mexico	49	5795	76.7	77	130	0	82	1
NP 832	India	10	5786	77.9	76	132	S20	105	2
Nar sib (2) x Pj sib	Chile	1	5720	76.5	77	127	0	79	1
Son 64 x TzPP-Nai 60	Mexico	22	5639	75.3	75	128	0	73	1/
Lerma Rojo 64A	Mexico	7	5610	78.5	76	129	0	90	1
Nainari 60	Mexico	12	5567	73.7	77	130	0	88	1
Noroeste 66	Mexico	40	5535	76.9	76	128	0	79	1
Pi 62-Chris sib x Son 64	Mexico	42	5504	77.2	75	130	0	79	1
Gaboto	Argentina	43	5418	77.2	87	131	0	117	1
Bonza 55	Colombia	13	5418	74.8	82	129	0	107	1
Napo 63	Colombia	2	5412	76.6	75	127	0	95	1
Crim	USA	17	5401	75.3	82	129	0	113	1
Nariño 59	Colombia	46	5323	77.2	83	130	0	112	1
NP 881	India	25	5302	74.6	76	130	0	97	2
Giza 150	Egypt	9	5151	78.5	77	128	0	95	1
Bonza 63	Colombia	27	5142	75.8	83	130	0	100	1
Roque 66	Mexico	41	5131	69.2	79	129	0	78	1
Chris	USA	11	4975	76.3	83	130	0	110	1
Triple Dirk	Australia	19	4950	76.6	83	129	0	110	1
INIA 66	Mexico	37	4904	79.6	75	128	0	80	1
Carazinho	Brazil	18	4842	76.9	84	131	0	108	2
Jaral 66	Mexico	38	4836	74.9	75	128	0	87	1
Thatcher	Canada	47	4803	76.0	86	130	0	111	1
El Gaucho	Argentina	48	4789	77.9	85	131	0	101	2

C-591	India	20	4789	78.2	73	131	R-S40	104	2
Yaqui 50	Mexico	33	4757	75.6	76	128	0	98	1
C-306	India	23	4715	76.9	74	131	S30	101	2
Tiba 63	Colombia	30	4625	74.2	77	128	0	90	1
Sonora 64	Mexico	14	4617	74.9	77	127	0	76	1
C-518	India	16	4595	77.7	75	130	R-S20	88	1
Klein Rendidor	Argentina	50	4595	78.7	89	132	0-R10	110	2
Crespo 63	Colombia	36	4587	76.0	77	130	0	96	1
Klein Petiso x Rafaela	Argentina	44	4523	76.3	76	129	0	83	2
Selkirk	Canada	31	4513	74.6	84	130	0	113	2
Centrifen	Chile	45	4457	75.0	75	128	0	89	1
Justin	USA	8	4386	75.6	85	131	0	111	1
C-273	Pakistan	3	4336	79.0	75	127	R-S20	99	1
NP 880	India	39	4194	76.2	72	130	S50	100	2
Gabo	Australia	34	4150	71.4	76	128	0	88	1
C-271	Pakistan	15	4103	75.2	74	130	S20	87	2
Mendos	Australia	6	3815	72.3	78	129	0	82	1
Pakistan 5725	Pakistan	29	3627	72.0	73	128	R-S20	83	1
Mean			5007	74.4	77	127	1.74	93	
Coefficient of variation			6.9%	2.1%	1.3%	.6%	(only 1	5.9%	
Standard error of the mean			199	.9	.6	.6	rep.)	3.2	
Least significant difference, 5%			560	2.5	1.7	1.7		9.0	

Correlations

Test wt.	.24				
Days to flowering	.38**	-.01			
Days to maturity	.42**	.17	.53**		
Stem rust' $\sqrt{X+1}$	-.31 *	.20	-.53**	.16	
Height	-.02	.29 *	.53**	.41**	.11

1/ No data available

2/ Scale key 1-5 (1 = least lodging)

* = Significant at the 5% level

* = Significant at the 1% level

TABLE 10 NORTH AMERICA

UNITED STATES OF AMERICA. Logan, Utah. Latitude: 41° 45' N. Longitude: 111° 49' W. Elevation: 1371.60 meters above sea level.
Cooperator: Dr. Wade G. Dewey.

Planting Date: 7 May 1967. Precipitation during test: Not stated. Irrigation: 3 furrow-irrigations. Fertilizer: 118 Kg./Ha. N as Amm. Nitrate.
General Comments: An especially wet, cool spring and a later harvest period than normal. No rust or smut, but moderate mildew. No weed or pest problems. Severe soil crusting occurred unevenly over experimental area and some plots were omitted from the results.
Scoring notes taken: Mildew - 15 July.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to: flowering	Height cms.	Mildew %
Pitic 62	Mexico	32	6190	77.3	58	81	10
Giza 144	Egypt	26	5545	80.4	57	117	0
Pj sib x Gb 55 (white grain)	Mexico	28	5339	79.8	57	74	0
Penjamo 62	Mexico	21	5330	77.3	54	76	30
Nainari 60	Mexico	12	5308	75.4	59	89	50
Giza 150	Egypt	9	5178	81.1	56	99	5
NP 832	India	10	5097	79.8	54	99	40
Pi sib x Gb 55 (red grain)	Mexico	24	5007	76.7	57	64	0
C-306	India	23	4972	79.8	57	112	40
Huelquen	Chile	4	4967	77.9	57	97	1
C-518	India	16	4945	81.7	59	81	70
Lerma Rojo 64A	Mexico	7	4904	78.6	53	79	50
Crespo 63	Colombia	36	4873	78.6	54	99	10
Gabo	Australia	34	4828	74.8	55	91	30
NP 824	India	5	4797	79.8	54	107	40
Triple Dirk	Australia	19	4783	76.1	56	99	0
Klein Rendidor	Argentina	50	4766	74.2	76	104	0
Sonora 64	Mexico	14	4636	77.3	52	56	80
Tobari 66	Mexico	49	4609	78.6	55	61	1
NP 881	India	25	4591	77.3	53	91	0
Napo 63	Colombia	2	4586	77.3	52	89	1
Roque 66	Mexico	41	4577	76.1	55	66	0
C-271	Pakistan	15	4559	78.6	55	84	70
Noroeste 66	Mexico	40	4515	76.7	52	71	15
Mendos	Australia	6	4515	72.9	59	74	0
Pi 62-Chris sib x Son 64	Mexico	42	4488	79.2	52	64	20
Yaqui 50	Mexico	33	4465	77.3	52	89	1
Pakistan 5725	Pakistan	29	4398	79.8	55	84	90
Tacuari	Argentina	35	4380	78.6	57	104	15
Jaral 66	Mexico	38	4349	76.1	52	69	1
INIA 66	Mexico	37	4313	79.8	51	66	10
Tiba 63	Colombia	30	4241	75.4	55	89	1

C-591	India	20	4239	80.4	58	107	0
Son 64 x TzPP-Nai 60	Mexico	22	4228	76.7	53	64	50
Nar sib (2) x Pj sib	Chile	1	4210	77.3	52	61	20
Carazinho	Brazil	18	4183	76.1	68	124	20
Bonza 55	Colombia	13	4132	76.1	59	97	0
Bonza 63	Colombia	27	4080	77.3	59	107	0
Klein Petiso x Rafaela	Argentina	44	4044	79.2	53	61	30
C-273	Pakistan	3	3982	79.8	55	104	20
Chris	USA	11	3941	77.3	59	94	5
Selkirk	Canada	31	3923	75.4	56	104	0
Crim	USA	17	3910	77.3	55	104	0
Gaboto	Argentina	43	3870	77.9	66	97	20
NP 880	India	39	3852	79.8	51	89	60
El Gaucho	Argentina	48	3836	77.3	66	97	0
Thatcher	Canada	47	3735	76.7	59	89	70
Centrifen	Chile	45	3715	77.3	56	58	80
Justin	USA	8	3601	77.3	62	104	0
Nariño 59	Colombia	46	3601	77.3	55	89	70
Mean			4407	76.2	54	85	22.5
Coefficient of variation			7.1%	(only 1	(only 1	(only 1	(only 1
Standard error of the mean			181	rep.)	rep.)	rep.)	rep.)
Least significant difference, 5%			508				

Correlations

Test wt.	.19			
Days to flowering	-.15	-.16		
Height	-.04	.13	.49**	
Mildew %	-.10	.22	-.15	-.24

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 11

NORTH AMERICA

UNITED STATES OF AMERICA. Davis, California (University of California at Davis). Latitude: 38° 32' N. Longitude: 121° 45' W. Elevation: 16 meters above sea level. Cooperators: Dr. C. O. Qualset and Herbert E. Vogt.

Planting Date: 28 January 1967. Precipitation during test: Total - 665 mm. Irrigation: nil. Fertilizer: nil.
General Comments: Delayed planting because of rain. Extensive rainfall and cool conditions during growing season, very hot at heading time. Very little disease. Heavy attack of aphids at heading.
Scoring notes taken: Lodging - 9 June.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to: flowering	Days to: maturity	Height cms.	Lodging %	1000 grain weight gms.
Pj sib x Gb 55 (white grain)	Mexico	28	6919	76.1	103	139	102	0	35.4
Pj sib x Gb 55 (red grain)	Mexico	24	6348	76.4	103	139	102	0	35.0
INIA 66	Mexico	37	6130	77.8	97	133	108	0	39.4
Giza 150	Egypt	9	6118	77.0	102	137	130	5	29.2
Crespo 63	Colombia	36	5962	74.7	102	133	128	0	33.3
Nainari 60	Mexico	12	5945	73.3	101	135	127	0	34.1
C-271	Pakistan	15	5939	73.5	99	136	111	1	37.7
Lerma Rojo 64A	Mexico	7	5889	77.5	101	136	114	0	38.0
Triple Dirk	Australia	19	5839	75.9	108	140	138	0	42.7
Pitic 62	Mexico	32	5799	70.4	106	139	108	0	32.7
NP 824	India	5	5643	76.4	101	139	142	5	36.6
Giza 144	Egypt	26	5643	75.9	103	140	136	0	35.6
C-306	India	23	5598	77.6	101	137	130	1	40.3
Bonza 55	Colombia	13	5503	72.7	103	138	140	0	30.9
Crim	USA	17	5480	75.6	103	137	138	10	34.4
Nar sib (2) x Pj sib	Chile	1	5458	75.1	98	134	100	0	29.8
Huelquen	Chile	4	5441	74.3	105	138	127	0	31.4
Gabo	Australia	34	5439	73.2	102	137	113	0	36.6
C-273	Pakistan	3	5435	77.3	101	136	134	10	37.8
Pakistan 5725	Pakistan	29	5240	72.0	98	136	98	0	35.9
NP 832	India	10	5206	75.2	101	139	144	5	34.9
Noroeste 66	Mexico	40	5195	76.4	101	134	100	0	38.4
Sonora 64	Mexico	14	5167	75.8	99	135	91	0	33.1
Tobari 66	Mexico	49	5077	75.6	101	136	105	0	36.7
C-518	India	16	5049	76.7	101	137	119	1	35.7
C-591	India	20	5027	77.7	101	136	138	5	39.2
Tiba 63	Colombia	30	4909	75.2	98	134	122	0	35.7
Roque 66	Mexico	41	4870	73.7	101	136	95	0	27.6
Napo 63	Colombia	2	4836	72.9	100	135	125	0	28.2
Nariño 59	Colombia	46	4803	73.9	102	137	130	0	29.6
Centrifen	Chile	45	4741	74.2	99	131	105	0	30.8
Yaqui 50	Mexico	33	4585	73.4	100	135	126	0	30.3

Mendos	Australia	6	4545	71.1	102	138	102	.0	35.8
Tacuari	Argentina	35	4534	75.7	105	139	130	.0	28.3
Carazinho	Brazil	18	4512	74.4	107	139	132	.0	36.4
Chris	USA	11	44[illegible]3	74.1	104	138	140	.5	26.6
NP 881	India	25	4439	73.6	102	136	129	.0	33.2
Klein Petiso x Rafaela	Argentina	44	4400	74.4	101	134	112	.0	31.2
NP 880	India	39	4366	77.5	99	135	137	.0	42.5
Penjamo 62	Mexico	21	4265	75.7	101	135	106	.0	38.7
Gaboto	Argentina	43	4265	75.3	106	138	133	.0	27.9
Klein Rendidor	Argentina	50	4243	76.5	113	141	132	.0	29.1
Bonza 63	Colombia	27	4170	74.5	104	136	123	.0	30.2
El Gaucho	Argentina	48	4159	77.6	103	136	138	.0	32.9
Selkirk	Canada	31	4041	73.0	119	141	127	.0	32.5
Jaral 66	Mexico	38	4019	74.7	98	134	98	.0	29.5
Justin	USA	8	3941	74.2	111	140	137	.1	30.0
Pf 62-Chris sib x Son 64	Mexico	42	3874	76.8	99	134	97	.0	36.5
Son 64 x TzPP-Nai 60	Mexico	22	3510	73.9	98	133	93	.0	43.9
Thatcher	Canada	47	3442	71.5	111	140	141	.5	24.3
Mean			4924	73.4	100	134	118	1.2	33.5
Coefficient of variation			9.6%	1.0%	1.7%	(only 1	4.2%	(only 1	4.4%
Standard error of the mean			274	.4	1.0	rep.)	2.9	rep.)	.8
Least significant difference, 5%			770	1.2	2.8		8.1		2.4

Correlations

Test wt.	.24					
Days to flowering	-.22	-.30 *				
Days to maturity	.16	-.19	.76**			
Height	-.05	.11	.44**	.53**		
Lodging %	-.07	.03	.19	.27	.45**	
1000 grain weight	.32 *	.49**	-.31 *	-.19	-.12	-.12

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 12

CENTRAL AMERICA

MEXICO. CIANO, Ciudad Obregon, Sonora. Latitude 27° 20' N. Longitude 109° 54' W. Elevation 40 meters above sea level.
Cooperators: Ing. Jose Luis Maya and Ing. Enrique Riojas.

Planting Date: 5 December 1966. Precipitation during test: not stated. Irrigation: 2 irrigations. Fertilizer: 200 Kg. N, 40 P_2O_5.

General Comments: No problems with insects, weeds or pests. Disease infection normal.

Scoring notes taken: P. recondita - 1 April.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to: flowering	Days to: maturity	Leaf rust	Height cms.	Lodging %	Bird damage %
INIA 66	Mexico	37	5355	81.3	85	125	t	110	0	0
Son 64 x TzPP-Nai 60	Mexico	22	5043	73.3	76	119	20MS	100	0	0
Sonora 64	Mexico	14	4832	74.6	79	120	90S	103	8	1
Lerma Rojo 64A	Mexico	7	4666	79.2	89	127	t	116	10	3
Penjamo 62	Mexico	21	4477	75.5	87	125	10MR	108	43	0
Nar sib (2) x Pj sib	Chile	1	4355	72.3	85	126	t	96	3	0
Pi 62-Chris sib x Son 64	Mexico	42	4344	79.7	77	120	0	105	6	8
Noroeste 66	Mexico	40	4255	74.8	92	130	0	101	0	0
Pj sib x Gb 55 (red grain)	Mexico	24	4166	74.4	90	130	60S	96	0	0
Pitic 62	Mexico	32	4032	69.1	88	127	40S	111	16	0
Jaral 66	Mexico	38	4032	74.4	81	123	t	108	0	1
Nainari 60	Mexico	12	3988	73.1	91	128	20MS	126	20	1
Napo 63	Colombia	2	3988	77.3	82	124	20R-MR	135	33	0
Roque 56	Mexico	41	3855	73.6	84	125	10MS	106	16	0
Pj sib x Gb 55 (white grain)	Mexico	28	3799	72.4	90	131	60S	101	0	0
Pakistan 5725	Pakistan	29	3755	77.6	82	122	40S	113	40	0
C-271	Pakistan	15	3544	78.0	83	123	20S	126	76	0
Tobari 66	Mexico	49	3466	77.7	91	129	0	106	0	0
C-306	India	23	3333	78.2	86	127	10MS	136	93	0
Centrifen	Chile	45	3099	77.6	92	126	t	115	15	0
Triple Dirk	Australia	19	3055	77.6	90	128	20S	141	46	1
C-591	India	20	3055	83.5	86	125	20S	141	93	0
Gabo	Australia	34	2955	71.3	90	127	50S	133	38	0
NP 881	India	25	2955	77.2	89	128	10S	128	93	1
NP 880	India	39	2810	82.5	82	124	20S	140	95	1
C-518	India	16	2788	81.0	91	128	10R-MR	130	65	0
Mendos	Australia	6	2766	71.5	92	127	80S	118	36	3
Nariño 59	Colombia	46	2710	76.7	91	129	tMR	128	86	6
Crespo 63	Colombia	36	2621	76.0	91	129	10R	130	88	1
C-273	Pakistan	3	2610	81.6	86	126	10MR-MS	136	86	0
Yaqui 50	Mexico	33	2499	78.4	85	125	20MR-MS	136	83	1
NP 824	India	5	2310	79.5	87	130	40S	143	88	1

Tiba 63	Colombia	30	2299	76.0	88	128	10MR	131	95	3
Gaboto	Argentina	43	2288	76.9	103	135	0	130	88	0
Crim	USA	17	2177	75.5	93	129	60S	141	75	0
NP 832	India	10	2066	78.0	86	128	80S	141	88	0
Huelquen	Chile	4	2055	76.8	98	130	t	138	70	15
Bonza 55	Colombia	13	2044	71.7	95	131	30MR-MS	138	83	0
Carazinho	Brazil	18	2033	74.5	102	136	tMR	138	90	1
Tacuari	Argentina	35	2122	76.6	100	136	0	123	86	0
Bonza 63	Colombia	27	2033	76.4	98	132	20MR	128	76	3
Klein Petiso x Rafaela	Argentina	44	2010	76.0	89	130	t	108	91	0
Giza 150	Egypt	9	1999	76.4	90	129	90S	131	81	0
Giza 144	Egypt	26	1710	77.4	95	132	80S	135	91	0
Chris	USA	11	1666	76.0	97	132	0	136	91	0
El Gaucho	Argentina	48	1633	76.4	104	139	0	133	56	0
Justin	USA	8	1366	70.1	110	143	t	133	66	0
Klein Rendidor	Argentina	50	866	1/	121	152	0	1/	1/	0
Selkirk	Canada	31	811	1/	111	143	80MS	126	76	0
Thatcher	Canada	47	266	1/	120	152	90S	123	46	0
Mean			2922	76.2	89	126	3.89	123	53.9	1.2
Coefficient of variation			13.9%	(only 1	1.8%	1.2%	30.5%	5.4%	28.8%	219.1%
Standard error of the mean			235	rep.)	.9	.9	.68	3.9	8.9	1.5
Least significant difference, 5%			661		2.6	2.5	1.92	10.9	25.1	4.2

Correlations

Test wt.	-.03								
Days to flowering	-.76**	-.26							
Days to maturity	-.76**	-.26	.97**						
Leaf rust $\sqrt{X+1}$	-.21	-.15	.02	.06					
Height	-.65**	.33 *	.30 *	.27	.19				
Lodging %	-.73**	.33 *	.30 *	.31 *	.11	.81**			
Bird damage %	-.02	.10	-.04	-.12	-.23	.10	.04		

1/ No data available

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 13 CENTRAL AMERICA

MEXICO. CIAB, El Roque, Guanajuato. Latitude: 28° 28' N. Longitude: 100° 50' W. Elevation: 1,765 meters above sea level.
Cooperator: Ricardo Urbina.

Planting Date: 14 December 1966. Precipitation during test: nil. Irrigation: 7 irrigations. Fertilizer: 100-60-0 Kg./Ha. N and P.
General Comments: Very little rust infection. Aphids controlled by aerial spraying. Weeds were controlled by hand.
Scoring notes taken: P. glumarum - 22 March.

Variety or cross	Origin	Variety Number	Yield kg/ha	Days to: flowering	Days to: maturity	Stripe rust	Leaf rust	Stem rust	Height cms.	Lodging %
Tobari 66	Mexico	49	2794	91	136	t	0	0	110	0
Roque 66	Mexico	41	2744	91	133	20MR	0	5R	100	0
INIA 66	Mexico	37	2621	88	126	60S	t	t	100	0
Pi 62-Chris sib x Son 64	Mexico	42	2577	88	126	10R	0	t	105	90
C-271	Pakistan	15	2521	91	128	10R	0	70S	125	100
Nar sib (2) x Pj sib	Chile	1	2477	90	134	20MR	5R	0	105	80
Pakistan 5725	Pakistan	29	2449	90	125	20R	0	40S	105	0
Crespo 63	Colombia	36	2438	91	136	10R	t	t	130	20
Noroeste 66	Mexico	40	2244	92	130	60S	0	0	100	0
Tacuari	Argentina	35	2155	91	139	10R	0	5R	125	100
Napo 63	Colombia	2	2149	90	128	t	t	20S	115	100
Centrif	Chile	45	2116	91	127	10R	0	0	105	60
Son 64 PP-Nai 60	Mexico	22	2099	86	128	30MR	0	t	90	0
C-591	India	20	2088	92	137	10R	0	40S	140	90
C-273	Pakistan	3	2066	89	130	5R	0	10S	125	100
Jaral 66	Mexico	38	2016	88	128	10R	0	0	100	0
Yaqui 50	Mexico	33	2010	90	123	30MR	0	10R	130	100
PJ sib x Gb 55 (white grain)	Mexico	28	1988	97	140	60S	0	40S	100	0
Huelquen	Chile	4	1988	96	133	60S	0	0	130	100
C-518	India	16	1966	93	139	5R	t	80S	130	100
NP 881	India	25	1949	91	132	30MR	0	5R	130	20
Bonza 55	Colombia	13	1938	93	138	20MR	t	30S	140	30
Bonza 63	Colombia	27	1910	93	134	10R	0	15S	130	40
Nainari 60	Mexico	12	1905	94	136	40S	0	t	130	80
Penjamo 62	Mexico	21	1894	92	138	80S	0	0	110	60
Pitic 62	Mexico	32	1855	93	138	80S	0	30S	100	20
NP 880	India	39	1838	88	126	10R	0	40S	135	0
Pj sib x Gb 55 (red grain)	Mexico	24	1777	95	138	60S	0	t	90	0
NP 832	India	10	1755	91	140	10R	0	60	130	100
NP 824	India	5	1722	91	132	t	0	40S	130	80
Tiba 63	Colombia	30	1699	90	127	5R	0	60S	130	0
El Gaucho	Argentina	48	1660	97	140	40S	0	0	120	30

Sonora 64	Mexico	14	1660	88	126	80S	0	t	90	0
Lerma Rojo 64A	Mexico	7	1633	92	135	80S	0	0	115	90
Giza 150	Egypt	9	1610	92	138	60S	0	30S	120	100
Nariño 59	Colombia	46	1610	92	138	5R	0	0	125	60
C-306	India	23	1599	92	138	10R	0	60S	130	80
Klein Rendidor	Argentina	50	1516	135	178	40S	0	0	110	50
Gaboto	Argentina	43	1505	97	140	10R	0	t	130	100
Giza 144	Egypt	26	1472	93	136	60S	0	t	130	30
Selkirk	Canada	31	1394	125	168	10R	0	20MR	145	20
Mendos	Australia	6	1360	97	132	80S	10S	10S	110	0
Crim	USA	17	1344	93	135	60S	0	0	120	80
Gabo	Australia	34	1272	94	135	80S	0	t	110	80
Chris	USA	11	1222	94	132	80S	0	0	135	100
Carazinho	Brazil	18	1188	105	148	80S	0	0	130	80
Klein Petiso x Rafaela	Argentina	44	1172	92	132	80S	0	t	110	80
Justin	USA	8	1127	127	170	20S	0	t	130	100
Triple Dirk	Australia	19	872	95	142	100S	0	0	115	80
Thatcher	Canada	47	605	135	178	60S	0	0	125	80
Mean			1801	92	133	4.66	1.07	2.91	116	53.2
Coefficient of variation			19.5	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)
Standard error of the mean			203							
Least significant difference, 5%			571							

Correlations

Days to flowering	-.57**					
Days to maturity	-.57**	.94**				
Stripe rust $\sqrt{X+1}$	-.50**	.17	.14			
Leaf rust $\sqrt{X+1}$	-.01	-.02	-.09	.10		
Stem rust $\sqrt{X+1}$	.13	-.15	-.11	-.40**	.07	
Height	-.30 *	.31 *	.34 *	-.33 *	-.07	.29 *
Lodging %	-.28 *	.14	.19	-.05	-.18	.05	.46**

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 14. CENTRAL AMERICA

MEXICO. Santa Elena, Mex. Latitude: 19° N. Longitude: 100°. Elevation: 2690 meters above sea level.
Cooperator: Ing. Eduardo Tamariz.

Planting Date: 20 June 1967. Precipitation during test: not recorded. Irrigation: nil. Fertilizer: 100-40-0 before planting.

General Comments: Heavy natural infection of P. glumarum and P. gr.tritici. Weeds controlled by hand. No pest problems.

Variety or cross	Origin	Variety Number	Yield kg/ha	Days to: flowering	Days to: maturity	Stripe rust	Stem rust	Height cms.	Lodging %	1000 grain weight gms.
Nariño 59	Colombia	46	3732	56	122	10MS	60S	118	20	28.8
Crespo 63	Colombia	36	3655	63	143	0	40S	125	3	27.7
INIA 66	Mexico	37	2955	55	120	0	10S	96	0	33.9
Huelquen	Chile	4	2833	62	112	10MS	10S	117	0	27.8
Napo 63	Colombia	2	2794	55	114	10MS	10MR	108	0	29.3
Pi 62-Chris sib x Son 64	Mexico	42	2749	52	125	0	20S	95	0	1/
Lerma Rojo 64A	Mexico	7	2721	55	120	40MS	60S	101	3	28.4
Yaqui 50	Mexico	33	2716	57	120	40MS	40MS	111	40	29.1
Tiba 63	Colombia	30	2688	62	123	30S	50S	106	23	32.1
Noroeste 66	Mexico	40	2621	55	127	40S	tMS	99	0	25.6
Penjamo 62	Mexico	21	2588	57	131	20MR	70S	107	10	25.9
Tacuari	Argentina	35	2421	63	135	tMR	40S	123	10	22.4
Jaral 66	Mexico	38	2410	55	122	tMS	20S	91	0	22.9
Chris	USA	11	2405	61	137	tMR	10S	139	40	24.8
Klein Petiso x Rafaela	Argentina	44	2349	56	116	tMR	80S	113	0	25.5
Son 64 x TzPP-Nai 60	Mexico	22	2349	56	125	tR	40MS-S	90	0	26.9
Tobari 66	Mexico	49	2338	56	141	tMS	tMS	98	0	23.6
NP 881	India	25	2288	56	129	40S	40S	118	26	28.6
Nai sib (2) x Pj sib	Chile	1	2180	50	104	20R	20S	90	0	25.8
Nainari 60	Mexico	12	2044	63	130	30MS-MR	80S	126	0	22.8
Bonza 55	Colombia	13	1972	68	146	80S	20S	137	40	22.1
Giza 150	Egypt	9	1960	61	131	20MS	80S	118	28	23.7
Pitic 62	Mexico	32	1777	66	145	40S	60S	103	0	17.6
Sonora 64	Mexico	14	1772	52	114	60S	80S	88	0	23.9
Centrifen	Chile	45	1733	57	110	20MS	80S	104	0	27.4
Bonza 63	Colombia	27	1699	70	144	80S	40R	120	0	20.6
NP 880	India	39	1638	55	114	40S	80S	126	80	26.4
Crim	USA	17	1633	62	134	10MR	40MS	126	33	19.8
Justin	USA	8	1622	70	143	30MS-S	40S	126	0	18.8
Thatcher	Canada	47	1527	71	145	40S	60S	131	46	17.9
Roque 66	Mexico	41	1433	55	122	30S	20S	83	0	22.3
Pakistan 5725	Pakistan	29	1410	56	112	20S	60S	101	3	22.2

Pj sib x Gb 55 (white grain)	Mexico	28	1399	32	144	tMS	80S	90	0	17.9
Gaboto	Argentina	43	1377	74	143	tS	30S	136	56	17.7
C-273	Pakistan	3	1294	57	125	30MS	30S	121	23	27.0
Giza 144	Egypt	26	1188	65	146	tMR	40MS	121	30	22.3
Pj sib x Gb 55 (red grain)	Mexico	24	1183	62	146	10MS	60S	93	0	17.6
Selkirk	Canada	31	1055	76	144	60S	0	128	3	20.4
El Gaucho	Argentina	48	1049	77	147	0	tS	145	50	19.5
Triple Dirk	Australia	19	977	63	131	100S	60S	131	6	22.3
Mendos	Australia	6	951	64	146	20MR	10MR	93	0	20.6
Carazinho	Brazil	18	916	75	147	20MS	50S	130	46	19.8
NP 824	India	5	877	55	114	30S	70S	131	43	19.5
C-518	India	16	683	64	118	70S	60MS	114	50	15.7
NP 832	India	10	566	55	114	40S	100S	126	53	21.5
C-591	India	20	561	68	132	tMR	40S	141	96	16.0
Gabo	Australia	34	483	61	127	40MS	80S	103	0	16.6
C-271	Pakistan	15	388	61	110	60S	100S	110	13	16.0
C-306	India	23	377	65	110	40S	100S	134	86	14.7
Klein Rendidor	Argentina	50	1/							
Mean			1803	60	126	5.55	6.10	112	19.3	22.9
Coefficient of variation			30.8%	3.3%	4.2%	37.2%	20.5%	6.8%	113.7%	13.3%
Standard error of the mean			320	1.1	3.0	1.19	.72	4.4	12.7	1.7
Least significant difference, 5%			899	3.2	8.6	3.34	2.02	12.4	35.6	4.9

Correlations

Days to flowering	-.41**						
Days to maturity	-.08	.71**					
Stripe rust $\sqrt{X+1}$	-.48**	.05	-.16				
Stem rust $\sqrt{X+1}$	-.38**	-.10	-.27	.37**			
Height	-.26	.62**	.29 *	0.00	.03		
Lodging %	-.42**	.33 *	0.00	.14	.19	.69**	
1000 grain weight	.80**	-.56**	-.33 *	-.26	-.24	-.27	-.32 *

1/ No data available

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 15. CENTRAL AMERICA

MEXICO. CIB. San Martin, Mex. Latitude: 19° 31' N. Longitude: 98° 53' W. Elevation: 2249 meters above sea level.
Cooperator: Ing. E. Tamariz.

Planting Date: 9 June 1967. Precipitation during test: Not stated. Irrigation: Not stated. Fertilizer: Not stated.
General Comments: Weeds, insects and pest problems kept under control. A good natural infection of P. graminis and P. recondita.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to flowering	Stripe rust	Leaf rust	Stem rust	Height cms.	Lodging %	1000 grain weight gms.
Penjamo 62	Mexico	21	3855	73.5	53	20S	20S	40S	86	3	32.8
Pj 62-Chris sib x Son 64	Mexico	42	3455	74.8	49	20S	010MR	tS	85	0	33.1
Nariño 59	Colombia	46	3355	71.3	46	0	10S	80S	113	3	32.6
Tacuari	Argentina	35	3199	73.9	61	30S	20S	tS	116	6	27.2
Tiba 63	Colombia	30	2933	69.5	59	0	40S	10S	103	10	34.4
Nar sib (2) x Pj sib	Chile	1	2844	69.3	46	10MS	10MS	60S	78	0	27.4
Crespo 63	Colombia	36	2844	69.8	50	0	tMR	10S-30S	105	0	28.0
Napo 63	Colombia	2	2810	71.3	45	tS	60S	20S	100	0	32.5
Noroeste 66	Mexico	40	2621	66.6	51	20MR	tMR	30S	85	0	27.5
Tobari 66	Mexico	49	2505	70.0	50	10S	0	tR	85	0	27.6
Pj sib x Gb 55 (white grain)	Mexico	28	2477	67.8	56	30S	20MS	100S	78	0	24.1
INIA 66	Mexico	37	2360	73.7	50	60S	10MR	10MR	85	0	31.7
Jaral 66	Mexico	38	2349	71.0	49	tS	0	tMS	85	0	24.0
Huelquen	Chile	4	2321	69.8	57	tR	10MR	10S	105	0	31.1
NP 880	India	39	2271	72.9	47	0	100S	100S	111	60	38.9
NP 881	India	25	2260	67.1	49	0	20MR-MS	tS	105	21	28.9
Centrifen	Chile	45	2255	70.6	56	0	tMR	80S	93	6	30.1
Yaqui 50	Mexico	33	2249	70.0	46	0	100S	30S	103	0	31.2
Bonza 63	Colombia	27	2238	66.6	71	0	10MR-MS	0-20MS	113	0	26.3
Nainari 60	Mexico	12	2160	63.2	63	20MS	30S	60S	115	20	28.2
Lerma Rojo 64A	Mexico	7	2095	72.2	50	40S	tR	tMS	91	5	32.5
Son 64 x TzPP-Nai 60	Mexico	22	2077	69.2	49	60S	10MR	20MR	76	0	28.3
Chris	USA	11	1894	71.5	58	10MS	10MR	tR	123	56	26.0
Pj sib x Gb 55 (red grain)	Mexico	24	1877	65.1	55	60S	10MR	20S	76	0	23.2
C-273	Pakistan	3	1817	72.9	54	0	60S	100S	118	3	29.7
Pitic 62	Mexico	32	1755	57.2	58	0	80S	80S	98	46	22.3
Giza 150	Egypt	9	1722	68.4	58	100S	10S	80S	110	6	27.7
Crim	USA	17	1694	66.2	56	80S	20S	tS	116	81	24.5
Roque 66	Mexico	41	1677	67.6	50	30S	10S-40S	0	78	0	21.5
Klein Petiso x Rafaela	Argentina	44	1672	70.9	46	100S	0	80S	88	0	25.5
Mendos	Australia	6	1644	61.7	62	80S	30S	tMR	88	0	32.0
Justin	USA	8	1533	65.2	67	10S	20S	20S	120	8	25.2

Selkirk	Canada	31	1527	63.3	67	0	100S	0	126	6	26.0
Ponza 55	Colombia	13	1483	60.4	71	0	10S	tS	110	33	24.0
Sonora 64	Mexico	14	1455	66.2	46	100S	100S	80S	76	0	23.3
NP 824	India	5	1455	61.2	50	0	80S	100S	116	13	22.0
Giza 144	Egypt	26	1433	67.7	64	30S	10S	60S	120	50	26.3
Triple Dirk	Australia	19	1333	64.2	57	0	0	100S	116	1	27.8
Thatcher	Canada	47	1288	63.6	67	80S	100S	30S	123	18	20.2
NP 832	India	10	1230	63.6	50	40S	60S	100S	120	50	22.9
Gabo	Australia	34	1122	62.0	59	100S	80S	10S	98	0	23.8
C-306	India	23	983	62.4	66	0	100S	100S	126	73	22.5
Gaboto	Argentina	43	933	64.7	80	30S	0	10S	121	46	21.5
Carazinho	Brazil	18	855	58.0	80	60S	tS	30S	123	90	21.8
C-271	Pakistan	15	761	60.5	62	0	0	100S	120	13	20.9
El Gaucho	Argentina	48	677	50.4	86	0	20R	tMR	125	71	19.1
Pakistan 5725	Pakistan	29	499	39.2	56	0	0	100S	91	0	22.2
C-518	India	16	483	39.4	64	0	30S	100S	110	10	18.0
C-591	India	20	305	21.9	63	0	20S	100S	135	85	16.5
Klein Rendidor	Argentina	50	105	1/	0	0	0	0	118	86	11.0
Mean			1853	64.8	57	3.51	4.34	5.91	102	18.0	25.9
Coefficient of variation			20.7%	(only 1	1.9%	59.2%	52.1%	29.9%	3.8%	80.3%	7.0%
Standard error of the mean			222	rep.)	.6	1.20	1.30	1.02	2.2	8.5	1.0
Least significant difference, 5%			623		1.8	3.37	3.66	2.87	6.2	23.4	2.9

Correlations

Test wt.	.73**								
Days to flowering	-.54**	-.42**							
Stripe rust $\sqrt{X+1}$	-.10	.14	.02						
Leaf rust $\sqrt{X+1}$	-.12	-.16	.10	-.35 *					
Stem rust $\sqrt{X+1}$	-.26	-.34 *	-.07	-.13	.23				
Height	-.45**	-.34 *	.60**	-.33 *	.36 *	.16			
Lodging %	-.48**	-.40**	.51**	-.01	.14	.13	.63**		
1000 grain weight	.75**	.68**	-.49**	-.13	.02	-.18	-.29 *	-.37**	

1/ No data available

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 16

CENTRAL AMERICA

GUATEMALA. Quezaltenango. Latitude: 14° 51' N. Longitude: 91° 30' W. Elevation: 2375 meters above sea level.
Cooperators: A. Fumagalli, S. Cruz P. and M. Velasquez.

Planting Date: 26 June 1967. Precipitation during test: 543 mm. Irrigation: nil. Fertilizer: 20-20-0 370 Kg./Ha.

General Comments: Rainfall was lower than average, particularly at the beginning of the season, resulting in shorter plants. No weed or pest problems. Normal disease infection.

Scoring notes taken: P. glumarum, P. recondita, P. graminis and Septoria - 24 & 28 October; height - 23 & 24 November.

Variety or cross	Origin	Variety Number	Yield kg/ha	Days to: flowering	Days to: maturity	Stripe rust	Leaf rust	Stem rust	Height cms.	Lodging %	1000 grain weight gms.	Septoria tritici (scale) 2/
Pitic 62	Mexico	32	5175	63	148	20MR	10MR	20MR	96	0	29.2	1
Nariño 59	Colombia	46	5082	56	146	10R	40S	10R	103	0	36.1	0
Bonza 63	Colombia	27	4902	70	149	tVR	0	10R	120	0	34.4	0
Klein Rendidor	Argentina	50	4755	65	150	10R	0	10R	103	0	37.9	1
Bonza 55	Colombia	13	4533	71	154	tR-40MR	0	10R	126	0	35.6	1
Crespo 63	Colombia	36	4047	60	148	30R	0	10S	90	0	31.5	1
Tobari 66	Mexico	49	3920	62	147	40MS	0	10R	91	0	28.5	2
Napo 63	Colombia	2	3876	54	142	10R	0	10R	90	0	30.6	3
Tiba 63	Colombia	30	3829	62	141	10R	0	10MR	85	0	38.8	2
NP 880	India	39	3745	56	147	tVR	0	10R	101	0	44.6	2
Selkirk	Canada	31	3657	75	152	tR	10MR	20MR	131	0	36.2	1
NP 881	India	25	3528	60	148	40MR	0	10R	100	0	28.9	3
Penjamo 62	Mexico	21	3501	61	141	60MS	0	10R	81	0	29.5	1
Lerma Rojo 64A	Mexico	7	3461	59	146	40MS	0	40S	90	0	34.1	3
Centrifen	Chile	45	3458	59	144	tR	0	10MR	80	0	34.5	2
NP 824	India	5	3380	58	142	0-60S	0	40S	110	0	35.1	1
Chris	USA	11	3357	67	148	60MS	0	10R	118	0	19.4	1
Nainari 60	Mexico	12	3347	67	148	60S	0	10R	105	0	30.2	3
Nar sib (2) x Pj sib	Chile	1	3291	55	139	10R	0	10R	76	0	26.8	4
Justin	USA	8	3206	79	157	30MR	0	10R	131	0	26.9	3
Noroeste 66	Mexico	40	3176	59	142	40MR	0	10MR	75	0	28.5	3
Tacuari	Argentina	35	3141	67	165	60MS	0	10R	105	0	26.2	2
Pi 62-Chris sib x Son 64	Mexico	42	3063	55	141	40MR	0	20MR	75	0	28.2	5
Jaral 66	Mexico	38	3010	54	140	40MR	0	10R	73	0	23.2	4
El Gaucho	Argentina	48	3009	85	154	10R	0	10R	131	46	31.2	1
NP 832	India	10	2859	58	138	tVR	0	40VS	110	0	22.2	2
INIA 66	Mexico	37	2837	55	139	50MS	0	20MR	75	0	35.7	1
Klein Petiso x Rafaela	Argentina	44	2755	56	146	50MS	0	10R	78	0	26.3	5
Yaqui 50	Mexico	33	2737	56	138	60MS	0	20MR	86	0	29.8	5
Gaboto	Argentina	43	2719	82	153	80S	0	10R	130	0	24.9	1
Carazinho	Brazil	18	2688	82	156	40MS	0	10R	121	83	36.3	1
C-306	India	23	2685	66	142	10R	0	30MR	118	0	25.1	2

C-271	Pakistan	15	2639	62	145	10R	0	40R	93	0	30.4	4
Huelquen	Chile	4	2635	62	147	10R	0	10R	105	0	23.2	3
Pj sib x Gb 55 (white grain)	Mexico	28	2576	63	146	60MS	0	10R	81	0	20.4	5
C-591	India	20	2546	65	143	0	0	10R	118	0	19.8	1/
C-273	Pakistan	3	2307	61	146	tVR	0	40S	106	0	26.5	5
Son 64 x TzPP-Nai 60	Mexico	22	2268	55	136	40MR	0	20MR	70	0	23.5	7
Pj sib x Gb 55 (red grain)	Mexico	24	2243	65	144	60MS	0	20MR	76	0	18.4	4
C-518	India	16	1986	68	140	tR	0	40S	96	0	22.8	4
Roque 66	Mexico	41	1959	55	139	50MR	0	10R	73	0	16.2	6
Giza 144	Egypt	26	1862	68	148	60S	0	10R	111	0	22.5	3
Mendos	Australia	6	1540	67	148	80S	0	10R	80	0	23.3	7
Crim	USA	17	1383	66	148	60S	0	20MR	113	0	20.0	4
Giza 150	Egypt	9	1329	62	140	80S	0	40S	95	0	19.3	7
Pakistan 5725	Pakistan	29	1322	56	134	tVR	0	20MR	78	0	19.7	9
Thatcher	Canada	47	1056	80	155	100S	0	10R	113	0	18.6	1
Sonora 64	Mexico	14	838	54	136	100S	0	20R	65	0	18.3	5
Gabo	Australia	34	826	62	139	60MS	0	20MR	81	0	17.2	4
Triple Dirk	Australia	19	697	64	142	100S	0	20MR	103	0	18.3	4
Mean			2800	62	142	4.93	1.05	2.75	95	2.6	26.5	
Coefficient of variation			14.2%	1.8%	3.3%	25.8%	48.6%	49.9%	5.3%	229.2%	16.8%	
Standard error of the mean			229	.6	2.7	.73	.29	.79	2.9	3.4	2.5	
Least significant difference, 5%			644	1.8	7.7	2.06	.82	2.23	8.3	9.6	7.2	

Correlations

Days to flowering	-.04								
Days to maturity	.29 *	.74**							
Stripe rust $\sqrt{X+1}$	-.54**	.19	.15						
Leaf rust $\sqrt{X+1}$	.41**	-.16	.02	-.26					
Stem rust $\sqrt{X+1}$	-.10	-.13	-.29 *	-.03	-.13				
Height	.21	.77**	.67**	-.10	.05	-.05			
Lodging %	-.01	.50**	.33 *	-.05	-.05	-.01	.30 *		
1000 grain weight	.74**	.01	.26	-.43**	.25	0.00	.19	.22	

1/ No data available

2/ Scale key 0-10 (0 = least Septoria tritici)

* = Significant at the 5% level

** = Significant at the 1% level

TABLE 17 SOUTH AMERICA

COLOMBIA. Tibaitata, Bogota. (Instituto Colombiano Agropecuario). Latitude: 4° 35' N. Longitude: 74° 05' W. Elevation: 2640 meters above sea level.
Cooperators: Mario Zapata B. and Rafael Lopez O.

Planting Date: 21 March 1967. Precipitation during test: Not stated. Irrigation: 25 mm. Fertilizer: 10-30-10 150 Kg./Ha.

General Comments: Very heavy rains during maturation contributed to high yields. Rust in the heads caused low test weight. Large variations noted between replications, particularly in rust infection which was relatively slight for this region. Six litres/Ha. of "Premerge" applied for weed control.

Scoring notes taken: P. glumarum - 30 June & 10 July; P.g. tritici & P. recondita - 28 September.

Variety or cross	Origin	Variety Number	Yield kg/ha	Days to: flowering	Days to: maturity	Stripe rust leaf	Stripe rust head %	Leaf rust	Stem rust	Height cms.	Lodging %	1000 grain weight gms.	Root rot (scale) 1/
Napo 63	Colombia	2	5738	79	171	t	0	10MR	0t	105	13	42.8	3
INIA 66	Mexico	37	5660	79	167	60MS	28	N	5R	83	0	45.2	2
Centrifen	Chile	45	5349	84	168	tMR	3	0	0	88	3	41.5	2
Penjamo 62	Mexico	21	5205	85	181	20MR-MS	13	0	0	90	34	39.5	2
Crespo 63	Colombia	36	5093	86	195	15R-MR	10	0	0	105	3	35.2	1-2
Miramar 63	Colombia	50	5016	73	165	5MR	1	0	0	95	5	39.1	2
Tobari 66	Mexico	49	4855	84	182	10MR-MS	31	0	0	88	26	36.7	3
Jaral 66	Mexico	38	4693	79	181	5R	38	0	0	85	0	35.0	2-3
Nariño 59	Colombia	46	4605	82	186	0	0	0	0	106	32	36.8	2
Lerma Rojo 64A	Mexico	7	4571	82	167	30MR-MS	7	0	0	100	97	39.2	3
Son 64 x TzPP-Nai 60	Mexico	22	4210	79	185	25MR-MS	33	0	5R	81	0	42.0	2-3
Yaqui 50	Mexico	33	4171	83	180	10R-MR	86	0	0	103	1	40.1	5
Huelquen	Chile	4	4116	93	183	10R-MR	2	0	0	108	11	39.4	3
Nar sib (2) x Pj sib	Chile	1	3782	77	164	20MR	27	t	0	81	1	29.8	2
Bonza 63	Colombia	27	3727	96	193	tMR	5	0	0-t	115	55	37.5	2-3
Roque 66	Mexico	41	3632	80	178	t	20	0	0	78	0	26.9	2
Bonza 55	Colombia	13	3594	94	192	tMR	10	5MR	0	125	60	38.0	3
Pi 62-Chris sib x Son 64	Mexico	42	3438	77	175	70S-MS	56	N	0-tMR	86	36	34.6	4
Nainari 60	Mexico	12	3244	94	185	30MS-S	66	N	60MS-S	108	65	38.7	3
Noroeste 66	Mexico	40	3194	85	184	100S	59	N	0	80	0	30.8	3-4
Tiba 63	Colombia	30	3016	86	164	tMR	4	0	0	101	90	44.8	2-3
NP 824	India	5	2788	85	185	0-t	1	N	50S	116	86	46.2	3-4
Klein Petiso x Rafaela	Argentina	44	2627	85	194	15MR-MS	76	0	0	93	1	31.2	3
NP 880	India	39	2467	81	175	tMR	1	0	5MR	105	59	47.3	4
Sonora 64	Mexico	14	2427	77	172	100S	89	N	0-5MR	85	16	30.4	3
NP 881	India	25	2316	83	185	30S-MS	60	0	0	105	33	34.3	4
NP 832	India	10	2218	85	180	0-t	3	0	60S	113	83	42.1	3-4
C-271	Pakistan	15	2188	85	181	t	31	0	60S	101	89	41.3	5
Pitic 62	Mexico	32	1847	92	186	100S	73	N	t	95	80	30.2	2
El Gaucho	Argentina	48	1837	110	191	10R-MR	8	t	t	115	75	32.3	4
Selkirk	Canada	31	1764	113	194	0	1	15MS	0	126	50	30.2	3-4
Chris	USA	11	1747	97	192	15MR-R	11	t	0	121	93	33.1	3

Tacuari	Argentina	35	1726	95	186	80S	69	N	10R	113	36	26.5	4
Pakistan 5725	Pakistan	29	1477	82	162	5MR	15	0	0	86	30	29.9	4
C-273	Pakistan	3	1476	84	172	0-t	8	0	0-t	111	90	34.3	4
C-306	India	23	1460	89	178	10R	15	0	5R	115	79	38.7	3
Pj sib x Gb 55 (white grain)	Mexico	28	1283	93	189	80S	89	N	0	88	30	22.9	5
Pj sib x Gb 55 (red grain)	Mexico	24	1137	91	194	80S-MS	99	N	0	86	1	23.0	5
Carazinho	Brazil	18	1094	108	195	10R	33	0	20MR	118	94	28.8	5
Justin	USA	8	1073	111	199	15R-MR	1	0	0	118	82	27.3	3
C-518	India	16	1064	90	172	t	1	0	40MS	96	53	29.7	3
Gaboto	Argentina	43	1007	103	192	80S	83	N	t	121	80	24.3	5
C-591	India	20	919	88	182	t	5	0	20MR	116	95	35.2	3-4
Gabo	Australia	34	637	90	190	100S	99	N	t	100	10	25.8	5
Thatcher	Canada	47	588	115	197	100S	76	N	0-t	123	43	21.5	5
Mendos	Australia	6	588	93	195	80S-MS	99	N	0	95	0	26.6	5
Crim	USA	17	564	97	192	90S	99	N	0-t	120	78	27.8	4-5
Giza 150	Egypt	9	561	90	178	90S	96	N	0	108	56	25.1	4
Giza 144	Egypt	26	432	94	189	70S-MS	92	N	0	121	10	24.5	5
Triple Dirk	Australia	19	215	95	193	100S	99	N	0-t	126	0	22.0	5
Mean			2548	87	179	3.96	38.89	1.12	1.73	101	41	32.9	
Coefficient of variation			26.6%	2.3%	4.3%	36.2%	43.8%	31.3%	41.3%	3.9%	63.7%	9.3%	
Standard error of the mean			392	1.1	4.4	.83	9.84	.20	.41	2.3	15.2	1.7	
Least significant difference, 5%			1099	3.3	12.5	2.32	-27.59	.57	1.16	6.4	42.8	4.9	

Correlations

Days to flowering	-.56**								
Days to maturity	-.41**	.69**							
Stripe rust, leaf $\sqrt{X+1}$	-.48**	.14	.25						
Stripe rust, head %	-.47**	.11	.34 *	.88**					
Leaf rust $\sqrt{X+1}$	.12	.32 *	.11	-.26	-.32 *				
Stem rust $\sqrt{X+1}$	-.16	.06	-.02	-.19	-.14	-.12			
Height	-.46**	.69**	.51**	-.04	-.08	.29 *	.21		
Lodging %	-.34 *	.37**	.03	-.27	-.34 *	.01	.44**	.56**	
1000 grain weight	.68**	-.48**	-.47**	-.64**	-.64**	.07	.25	-.11	.17

* = Significant at the 5% level
** = Significant at the 1% level

1/ Scale key 1-5 (1 = least root rot)

TABLE 18 SOUTH AMERICA

ECUADOR. "Santa Catalina". Latitude: 00° 22' 00" S. Longitude: 78° 33' 00" W. Elevation: 3058 meters above sea level.
Cooperators: Departamento de Cereales - I.N.I.A.P.

Planting Date: 6 March 1967. Precipitation during test: 477.2 mm. Irrigation: nil. Fertilizer: 300 Kg./Ha. 10-40-10.

General Comments: Average relative humidity 80%; average temperature 10.9° C. Infections of P. glumarum, P. recondita, P. graminis, and Septoria. Plots were hand weeded, and there were no insect or bird problems.

Scoring notes taken: P. glumarum - 5 June & 19 August; P. recondita, P. graminis and Septoria - 19 August.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to: flowering	Days to: maturity	Stripe rust leaf	Stripe rust head %	Leaf rust	Stem rust	Height cms.	Lodging %	1000 grain weight gms.	Septoria tritici %
Napo 63	Colombia	2	6954	75.5	88	186	tMS-tMS	0	40MS	0	110	0	45.3	10
NP 832	India	10	6495	76.2	80	191	0-0	0	40MS	30S	140	33	48.3	13
Nariño 59	Colombia	46	6073	76.0	82	188	0-30MS	0	tMS	0	121	26	43.6	16
C-306	India	23	4406	80.0	85	190	0-0	0	5MS	15S	124	33	49.3	33
Crespo 63	Colombia	36	5954	76.2	88	187	5MS-10MS	8	tMS	10S	117	6	44.3	13
Pitic 62	Mexico	32	5917	70.5	88	194	20S-20S	20	5MS	20S	116	36	41.3	15
NP 824	India	5	5888	77.9	94	201	0-0	0	10MS	20S	134	33	50.0	13
Bonza 63	Colombia	27	5880	75.9	96	187	5MS-10MS	8	tMS	0	127	15	38.6	20
Tiba 63	Colombia	30	5695	75.7	82	185	tMS-tMS	2	5MS	tMS	106	0	51.0	13
C-271	Pakistan	15	5466	78.2	82	193	tMS-5MS	0	5MS	30S	118	20	49.6	33
Tobari 66	Mexico	49	4955	75.2	84	186	20S-30S	16	0	0	101	0	39.3	21
Huelquen	Chile	4	4880	75.2	92	199	20MS-20MS	10	0	0	114	11	42.3	23
Nar sib (2) x Pj sib	Chile	1	4814	71.6	74	194	10MS-10MS	2	0	10S	90	0	39.3	16
Tacuari	Argentina	35	4792	74.7	89	190	10MS-30MS	8	0	tMR	128	23	30.6	16
Justin	USA	8	4769	71.4	108	206	tMS-10MS	11	tMS	0	130	26	34.0	15
Bonza 55	Colombia	13	4681	75.4	93	198	15MS-30MS	11	tMS	0	130	26	41.0	20
C-518	India	16	4621	80.3	89	199	0-0	0	20MS	tS	118	32	48.3	23
Centrifen	Chile	45	4569	75.1	84	186	0-0	0	10MS	80S	102	1	41.3	13
C-273	Pakistan	3	4125	78.6	94	191	0-0	0	10MS	tMS	123	17	47.0	30
Pakistan 5725	Pakistan	29	3984	76.1	79	180	0-0	0	0	20S	100	8	44.0	33
C-591	India	20	3955	77.5	89	191	0-0	0	5MS	tS	131	33	45.6	23
Selkirk	Canada	31	3881	71.7	106	193	tMS-tMS	10	20MS	0	150	53	32.3	11
Jaral 66	Mexico	38	3821	71.8	82	180	tS-tS	46	0	tMS	98	0	34.3	23
NP 880	India	39	3651	78.3	80	187	tMS-tMS	0	40MS	5S	121	23	45.0	23
NP 881	India	25	3532	67.6	86	187	10MS-15MS	46	tMS	0	126	23	40.3	26
Gaboto	Argentina	43	3362	74.1	106	198	5MS-15MS	10	0	0	142	60	33.3	23
Roque 66	Mexico	41	3081	70.0	77	185	15S-30S	36	0	0	84	0	29.0	23
Yaqui 50	Mexico	33	2962	60.1	79	185	10MS-15MS	73	0	0	118	5	39.3	21
Nainari 60	Mexico	12	2747	65.5	86	194	60S-60S	66	tMS	0	111	0	41.0	23
Pi 62-Chris sib x Son 64	Mexico	42	2584	69.3	79	187	20S-20S	33	0	0	94	0	33.6	23
Klein Rendidor	Argentina	50	2577	68.3	116	190	5MS-40MS	10	0	0	129	36	29.6	26
INIA 66	Mexico	37	2473	67.3	77	180	60S-60S	43	0	0	94	0	37.3	20

Chris	USA	11	2103	72.3	90	189	5S-40S	28	0	0	134	21	33.0	23
Penjamo 62	Mexico	21	1984	64.3	81	184	50S-60S	63	0	0	97	0	36.3	20
Son 64 x TzPP-Nai 60	Mexico	22	1940	69.0	79	184	30S-50S	60	tMS	0	92	0	36.6	30
El Gaucho	Argentina	48	1851	72.6	108	196	40S-40S	41	0	0	128	20	33.6	26
Giza 144	Egypt	26	1710	58.6	93	193	15S-30S	53	0	0	136	15	28.6	23
Lerma Rojo 64A	Mexico	7	1622	54.3	88	187	60S-80S	83	0	0	101	0	24.3	20
Klein Petiso x Rafaela	Argentina	44	1607	59.6	78	190	30S-30S	76	0	0	104	0	27.6	23
Noroeste 66	Mexico	40	1585	56.6	84	186	30S-30S	83	0	0	90	0	34.6	26
Pj sib x Gb 55 (white grain)	Mexico	28	1133	61.0	89	208	60S-60S	86	0	0	91	0	34.3	23
Thatcher	Canada	47	1014	58.3	113	208	30S-100S	83	0	tMS	129	5	23.3	13
Carazinho	Brazil	18	1007	64.3	106	214	20S-60S	73	0	0	140	40	30.3	23
Giza 150	Egypt	9	999	61.3	95	191	40S-60S	83	0	0	119	2	32.3	20
Mendos	Australia	6	873	67.0	96	191	30MS-40MS	96	tMS	0	92	0	34.3	26
Pj sib x Gb 55 (red grain)	Mexico	24	792	56.0	88	201	50S-60S	79	0	0	88	0	30.3	23
Gabo	Australia	34	703	64.0	84	191	60S-80S	99	0	0	88	0	31.0	26
Triple Dirk	Australia	19	540	45.6	94	199	18S-80S	99	0	0	114	0	17.0	30
Sonora 64	Mexico	14	332	44.0	79	198	80S-100S	99	0	0	82	0	16.6	13
Crim	USA	17	155	1/	88	191	60S-100S	99	0	0	120	6	12.3	23
Mean			3260	67.7	86	187	4.73	37.14	1.62	2.01	111	13.2	35.9	21.1
Coefficient of variation			15.8%	3.8%	(only 1	(only 1	21.0%	27.0%	39.2%	40.4%	3.5%	69.4%	10.2%	33.4%
Standard error of the mean			297	1.4	rep.)	rep.)	.57	5.79	.36	.47	2.2	5.3	2.1	4.07
Least significant difference, 5%			834	4.2			1.61	16.25	1.03	1.31	6.3	14.8	5.[illegible]	11.43

Correlations

Test wt.	.79**											
Days to flowering	-.09	0.00										
Days to maturity	-.22	-.23	.65**									
Stripe rust, leaf $\sqrt{X+1}$	-.80**	-.79**	.10	.26								
Stripe rust, head %	-.90**	-.90**	.03	.19	.86**							
Leaf rust $\sqrt{X+1}$	.62**	.50**	.12	.01	-.64**	-.58**						
Stem rust $\sqrt{X+1}$	.51**	.40**	-.18	-.04	-.51**	-.48**	.55**					
Height	.32 *	.37**	.67**	.33 *	-.36 *	-.41**	.40**	.07				
Lodging %	.37**	.46**	.51**	.35 *	-.43**	-.51**	.43**	.17	.81**			
1000 grain weight	.78**	.83**	-.19	-.23	-.77**	-.77**	.56**	.49**	.18	.29		
Septoria tritici %	-.37**	-.03	-.16	-.11	.10	.20	-.42**	-.21	-.17	-.08	-.01	

1/ No data available

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 19. SOUTH AMERICA

CHILE. Vallenar. (Hacienda Las Ventanas). Latitude: 28° 34' S. Longitude: 70° 47' W. Elevation: 384 meters above sea level.
Cooperators: Rodolfo González, Oscar Moreno y Ernesto Hacke.

Planting Date: 20 June 1967. Precipitation during test: very little. (Annual average 58 mm.) Irrigation: 5 irrigations applied. Fertilizer: 250 Kg./Ha. Triple Superphosphate, 800 Kg./Ha. Potassium Nitrate.
General Comments: Very cold, dry weather, low incidence of rust. No weed or pest problems.
Scoring notes taken: P. striiformis - 13 October; P. recondita - 13 October; P. graminis - 22 November.

Variety or cross	Origin	Variety Number	Yield kg/ha	Stripe rust	Leaf rust	Stem rust
Pitic 62	Mexico	32	7354	0	20S	5S
Nar sib (2) x Pj sib	Chile	1	6310	0	0	0
Huelquen	Chile	4	6166	0	0	0
Lerma Rojo 64A	Mexico	7	5893	0	0	0
Pakistan 5725	Pakistan	29	5660	0	tS	0
INIA 66	Mexico	37	5654	0	0	1MR
C-306	India	23	5643	0	5S	0
Napo 63	Colombia	2	5588	0	5S	1MS
Pj sib x Gb 55 (red grain)	Mexico	24	5482	5S	0	0
Tobari 66	Mexico	49	5388	0	0	0
Penjamo 62	Mexico	21	5382	0	0	0
Nainari 60	Mexico	12	5371	10S	tS	0
Crespo 63	Colombia	36	5299	0	0	0
Bonza 63	Colombia	27	5243	0	20S	0
Pj sib x Gb 55 (white grain)	Mexico	28	5221	10S	5S	0
Noroeste 66	Mexico	40	5121	0	0	0
Nariño 59	Colombia	46	5099	0	0	0
C-271	Pakistan	15	5082	0	20S	0
Tiba 63	Colombia	30	5071	0	0	0
Jaral 66	Mexico	38	5021	0	0	0
Yaqui 50	Mexico	33	5010	0	0	0
Yaque 66	Mexico	41	4988	0	0	0
NP 832	India	10	4955	0	30S	tMS
Son 64 x TzPP-Nai 60	Mexico	22	4943	10S	0	0
Centrifen	Chile	45	4893	0	0	0
Tacuarí	Argentina	35	4793	5S	0	0
NP 824	India	5	4721	0	10S	0
Giza 144	Egypt	26	4677	20S	0	0
C-518	India	16	4660	0	1S	0
NP 881	India	25	4649	0	0	0
Klein Petiso x Rafaela	Argentina	44	4432	0	0	0
Selkirk	Canada	31	4360	5S	10S	0

Mendos	Australia	6	4338	40S	50S	0
C-531	India	20	4332	0	0	0
Thatcher	Canada	47	4255	10S	5S	0
Carazinho	Brazil	18	4182	0	0	0
Giza 150	Egypt	9	4171	30S	5S	0
Pi 62-Chris sib x Son 64	Mexico	42	4166	0	0	30S
Chris	USA	11	4149	0	0	0
Bonza 55	Colombia	13	4132	0	5S	0
Justin	USA	8	3988	0	0	0
C-273	Pakistan	3	3860	0	5S	1MS
Gaboto	Argentina	43	3777	0	0	tS
Klein Rendidor	Argentina	50	3688	0	0	0
NP 880	India	39	3660	0	0	0
Gabo	Australia	34	3621	40S	0	0
El Gaucho	Argentina	48	3594	0	0	0
Crim	USA	17	3405	60S	0	0
Triple Dirk	Australia	19	2921	70S	0	0
Sonora 64	Mexico	14	2699	90S	0	0
Mean			4668	2.08	1.72	1.14
Coefficient of variation			13.8%	(only 1	(only 1	(only 1
Standard error of the mean			372	rep.)	rep.)	rep.)
Least significant difference, 5%			1044			

		Correlations		
Stripe rust	$\sqrt{X+1}$	-.54**		
Leaf rust	$\sqrt{X+1}$	.16	.06	
Stem rust	$\sqrt{X+1}$	.04	-.13	.05

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 20. SOUTH AMERICA

CHILE. Santiago. (Estación Experimental La Platina). Latitude: 33° 34' S. Longitude: 70° 38' W. Elevation: 629 meters above sea level.
Cooperators: Rodolfo González, Oscar Moreno, and Ernesto Hacke.

Planting Date: 4 August 1967. Precipitation during test: 193.5 mm. Irrigation: 6 irrigations. Fertilizer: 250 Kg/Ha. Triple Superphosphate, 80 Kg./Ha. Potassium Nitrate.

General Comments: Very hot and dry weather during maturation, low temperatures during Winter and Spring. Mild attacks of rusts except P. graminis. Weeds controlled with herbicide. Some damage due to aphids, and at maturity by birds.

Scoring notes taken: P. striiformis - 2 November; P. recondita & P. graminis - 28 December.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to flowering	Stripe rust	Stem rust	Height cms.	1000 grain weight gms.
Pitic 62	Mexico	32	5910	72.1	92	t	80S	100	33.0
Crespo 63	Colombia	36	5527	83.1	88	0	10S	110	38.0
Nar sib (2) x Pj sib	Chile	1	5249	81.5	80	0	30S	80	34.0
Tobari 66	Mexico	49	5205	82.7	86	0	20S	95	38.0
Nariño 59	Colombia	46	5027	76.4	89	0	30S	115	32.0
Huelquen	Chile	4	5027	80.8	92	0	30S	115	40.0
NP 881	India	25	4843	80.6	90	0	tR	100	41.0
Bonza 63	Colombia	27	4710	80.8	90	0	30S	105	38.0
Centrifen	Chile	45	4671	79.5	88	0	10S	90	39.0
Tacuarí	Argentina	35	4660	84.3	92	0	5MS	125	34.0
C-271	Pakistan	15	4582	80.4	85	0	100S	95	42.0
Son 64 x TzPP-Nai 60	Mexico	22	4577	83.1	80	0	tR	80	48.0
Bonza 55	Colombia	13	4549	75.9	92	t	50S	125	36.0
Giza 144	Egypt	26	4482	79.7	90	20S	tMR	95	42.0
Jaral 66	Mexico	38	4471	83.6	82	0	tMR	80	32.0
Noroeste 66	Mexico	40	4460	82.2	88	0	10S	80	40.0
Pakistan 5725	Pakistan	29	4432	81.3	86	0	80S	80	44.0
Roque 66	Mexico	41	4405	81.5	84	0	5S	80	34.0
Pj sib x Gb 55 (red grain)	Mexico	24	4310	80.6	90	5S	10S	80	31.0
C-518	India	16	4288	84.3	85	0	70S	100	45.0
Klein Rendidor	Argentina	50	4288	78.2	1/	0	40S	120	30.0
NP 824	India	5	4271	83.6	80	0	20S	110	44.0
Carazinho	Brazil	18	4271	76.1	93	0	50S	130	31.0
Justin	USA	8	4230	82.2	100	0	0	105	35.0
Nainari 60	Mexico	12	4205	77.9	89	5S	50S	90	46.0
Chris	USA	11	4166	80.4	90	0	5S	115	29.0
Giza 150	Egypt	9	4088	79.9	85	10S	5S	95	40.0
Tiba 63	Colombia	30	4077	79.7	88	0	50S	90	45.0
Penjamo 62	Mexico	21	4004	80.2	85	0	5MR	90	44.0
Crim	USA	17	3966	81.3	85	0	40S	110	34.0
Yaqui 50	Mexico	33	3955	80.8	87	0	70S	110	39.0
NP 832	India	10	3949	79.7	85	0	40S	105	44.0

Lerma Rojo 64A	Mexico	7	3894	82.2	87	0	10S	95	43.0
Napo 63	Colombia	2	3871	81.7	85	0	15S	110	42.0
Sonora 64	Mexico	14	3805	78.4	88	20S	tMS	80	33.0
Triple Dirk	Australia	19	3732	82.9	91	40S	80S	125	49.0
Gaboto	Argentina	43	3721	82.4	95	0	5MS	100	32.0
El Gaucho	Argentina	48	3655	79.7	95	0	30S	115	31.0
Pj sib x Gb 55 (white grain)	Mexico	28	3621	80.8	92	5S	40S	80	36.0
Selkirk	Canada	31	3571	75.0	100	0	40S	130	36.0
Thatcher	Canada	47	3488	78.2	102	t	50S	130	29.0
C-591	India	20	3460	83.6	85	0	30S	120	43.0
C-273	Pakistan	3	3360	84.7	20	0	40S	110	44.0
Pi 62-Chris sib x Son 64	Mexico	42	3305	82.4	86	0	40S	65	36.0
Klein Petiso x Rafaela	Argentina	44	3283	79.5	88	0	20S	80	36.0
Mendos	Australia	6	3277	75.7	85	5S	0	80	39.0
C-303	India	23	3249	81.3	85	0	20S	90	40.0
Gabo	Australia	34	3133	72.8	85	70S	70S	100	35.0
NP 880	India	39	3005	83.4	78	0	40S	95	47.0
INIA 66	Mexico	37	2610	83.6	80	t	15S	75	48.0
Mean			4052	78.8	87.8	1.57	4.83	97	37.8
Coefficient of variation			23.8%	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)
Standard error of the mean			557						
Least significant difference, 5%			1562						

Correlations

Test wt.	-.08					
Days to flowering	.11	-.40**				
Stripe rust $\sqrt{X+1}$	-.23	-.34*	.03			
Stem rust $\sqrt{X+1}$	-.05	-.25	.04	.10		
Height	.10	-.17	.50**	-.03	.28*	
1000 grain weight	-.19	.38**	-.51**	.05	.14	.18

* = Significant at the 5% level
** = Significant at the 1% level

1/ No data available

TABLE 21. SOUTH AMERICA

ARGENTINA. Marcos Juarez - Estacion Experimental Agropecuaria. Latitude: 32° 42' S. Longitude: 62° 07' W. Elevation: 110 meters above sea level.
Cooperators: I.N.T.A. Marcos Juarez.

Planting Date: 13 July 1967. Precipitation during test: 514 mm. Irrigation: nil. Fertilizer: (82% N) Ammonia 100 Kg./Ha.

General Comments: Good moist planting conditions, drought in August and September, and excess rain in October and November. Severe attack of brown necrosis, Septoria, Fusarium and moderate attack of P. recondita. The drought period caused root death.

Scoring notes taken: P. recondita - 24 October.

Variety or cross	Origin	Variety Number	Yield kg/ha	Days to flowering	Leaf rust	Shattering %
Carazinho	Brazil	18	1688	95	20S	50
Jaral 66	Mexico	38	1610	80	0	0
Nar sib (2) x Pj sib	Chile	1	1477	84	0	20
Penjamo 62	Mexico	21	1433	85	0	10
Son 64 x TzPP-Nai 60	Mexico	22	1355	80	0	50
Crespo 63	Colombia	36	1333	85	50S	40
Nainari 60	Mexico	12	1299	92	tMS	20
Triple Dirk	Australia	19	1288	82	0	20
Nariño 59	Colombia	46	1222	87	0	60
Sonora 64	Mexico	14	1066	82	10S	0
Napo 63	Colombia	2	1055	86	10S	20
Roque 66	Mexico	41	999	82	0	0
Tobari 66	Mexico	49	977	86	0	10
NP 880	India	39	966	85	30S	100
Centrifen	Chile	45	933	83	0	30
NP 881	India	25	922	88	0	70
Mendos	Australia	6	911	87	20S	20
Gaboto	Argentina	43	899	94	0	60
Chris	USA	11	877	92	0	60
Noroeste 66	Mexico	40	855	87	0	0
Pj sib x Gb 55 (red grain)	Mexico	24	833	92	0	20
Giza 150	Egypt	9	822	88	50S	40
Tiba 63	Colombia	30	788	84	0	30
Pj sib x Gb 55 (white grain)	Mexico	28	755	91	10MS	20
NP 824	India	5	699	86	60S	60
Tacuari	Argentina	35	644	92	0	50
NP 832	India	10	644	87	40S	50
Klein Petiso x Rafaela	Argentina	44	622	85	0	10
El Gaucho	Argentina	48	611	100	0	80
Gabo	Australia	34	577	84	0	60
Pitic 62	Mexico	32	566	84	30S	10
INIA 66	Mexico	37	533	81	70S	0

C-271	Pakistan	15	522	85	40S	60			
Justin	USA	8	422	120	0	80			
C-273	Pakistan	3	422	87	30S	50			
Yaqui 50	Mexico	33	322	84	20S	60			
C-591	India	20	288	87	20S	50			
Lerma Rojo 64A	Mexico	7	244	88	80S	30			
Giza 144	Egypt	26	244	87	10S	60			
C-306	India	23	233	86	0	50			
Huelquen	Chile	4	211	90	10S	30			
Selkirk	Canada	31	211	120	0	80			
Thatcher	Canada	47	177	120	50S	80			
Pakistan 5725	Pakistan	29	133	86	40S	30			
C-518	India	16	99	87	0	60			
Crim	USA	17	90	96	0	60			
Bonza 55	Colombia	13	99	90	20MS	60			
Bonza 63	Colombia	27	66	86	5S	40			
Pi 62-Chris sib x Son 64	Mexico	42	1/						
1/		50							
Mean			715	87	3.00	40.0			
Coefficient of variation			19.3%	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)			
Standard error of the mean			80						
Least significant difference, 5%			224						

	Correlations		
Days to flowering	-.30 *		
Leaf rust $\sqrt{X+1}$	-.25	-.07	
Shattering %	-.37**	.50**	.06

1/ No data available

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 22. SOUTH AMERICA

ARGENTINA. Pergamino. (Estación Experimental Pergamino). Latitude: 33° 52' 58" S. Longitude: 60° 35' 15" W. Elevation: 68 meters above sea level.
Cooperators: José Rath and Hector C. Comta.

Planting Date: 19 July 1967. Precipitation during test: 525.5 mm. Irrigation: nil. Fertilizer: 100 Kg./Ha. N as anhydrous ammonia.

General Comments: Excess rainfall after flowering which encouraged the spread of Septoria and Fusarium in October. No weed or pest problems.

Scoring notes taken: Disease - 30 October.

Variety or cross	Origin	Variety Number	Yield kg/ha	Days to: flowering	Days to: maturity	Leaf rust	Height cms.	Frost damage %	Septoria tritici %	Septoria nodorum %	Fusarium %
Triple Dirk	Australia	19	1310	87	125	0	88	15	0	5	2
Gaboto	Argentina	43	1077	98	140	0	81	0	20	0	0
Jaral 66	Mexico	38	933	75	121	0	73	15	20	1	20
Nar sib (2) x Pj sib	Chile	1	877	77	122	0	73	0	5	20	2
NP 881	India	25	811	80	126	0	76	0	10	5	10
Tacuari	Argentina	35	799	87	129	0	80	0	20	1	5
Penjamo 62	Mexico	21	777	79	126	0	68	0	10	20	10
Sonora 64	Mexico	14	744	76	120	0	66	15	20	5	15
Crespo 63	Colombia	36	722	79	123	40S	78	0	10	5	20
Klein Petiso x Rafaela	Argentina	44	699	78	126	0	73	0	40	20	20
Centrifen	Chile	45	688	77	128	t	66	0	20	10	40
Noroeste 66	Mexico	40	666	79	124	0	68	0	20	10	20
Son 64 x TzPP-Nai 60	Mexico	22	644	75	121	t	71	15	20	40	60
INIA 66	Mexico	37	633	76	125	40S	75	15	10	80	20
Nariño 59	Colombia	46	599	81	128	0	80	0	40	1	5
Carazinho	Brazil	18	566	88	125	0	83	0	0	5	0
Gabo	Australia	34	555	77	126	0	75	0	20	10	40
Chris	USA	11	555	86	124	0	86	0	20	10	20
Thatcher	Canada	47	555	103	141	0	90	0	10	t	0
Giza 150	Egypt	9	544	80	126	20S	75	0	10	5	5
Klein Impacto	Argentina	50	544	103	141	60S	81	0	20	0	0
El Gaucho	Argentina	48	533	99	137	0	76	0	10	5	0
Mendos	Australia	6	522	80	124	0	68	0	10	5	5
NP 824	India	5	522	79	125	50S	81	15	5	20	5
Pj sib x Gb 55 (red grain)	Mexico	24	511	81	127	0	68	0	10	10	20
NP 880	India	39	499	76	126	20S	75	30	20	0	5
Crim	USA	17	488	96	140	0	81	15	5	5	20
NP 832	India	10	477	81	124	60S	76	30	10	10	20
Pi 62-Chris sib x Son 64	Mexico	42	466	76	129	0	70	15	20	20	40
Selkirk	Canada	31	455	103	145	0	88	0	5	5	0
Napo 63	Colombia	2	455	76	122	0	76	0	10	30	70
Tiba 63	Colombia	30	444	79	127	0	75	0	10	40	10

Ponza 55	Colombia	13	433	79	122	20S	75	15	20	20	40
Lerma Rojo 64A	Mexico	7	422	78	125	40	80	0	20	50	5
Roque 66	Mexico	41	411	78	126	0	65	15	30	20	20
Yaqui 50	Mexico	33	411	79	128	0	76	15	20	40	50
Pitic 62	Mexico	32	411	81	123	20S	78	15	20	10	30
Huelquen	Chile	4	399	82	125	0	80	0	5	40	10
Tobari 66	Mexico	49	388	78	125	10S	68	15	20	20	40
Pj sib x Gb 55 (white grain)	Mexico	28	377	87	127	0	68	0	20	5	10
Nainari 60	Mexico	12	377	79	124	0	70	0	10	10	5
Bonza 63	Colombia	27	355	80	127	20	73	0	10	20	20
C-271	Pakistan	15	288	78	123	0	68	30	20	70	40
Justin	USA	8	277	104	144	0	91	0	20	0	0
Giza 144	Egypt	26	266	88	136	0	75	45	40	10	5
C-273	Pakistan	3	177	79	125	0	71	15	10	60	30
C-306	India	23	177	76	126	0	73	15	10	40	50
C-591	India	20	166	80	124	0	73	15	10	50	20
Pakistan 5725	Pakistan	29	155	78	128	tS	60	30	10	80	30
C-518	India	16	133	81	124	0	65	30	10	60	20
Mean			515	80	124	2.17	73	8.70	3.56	4.11	4.30
Coefficient of variation			34.9%	(only 1	(only 1	29.1%	4.0%	(only 1	16.0%	18.8%	15.8%
Standard error of the mean			104	rep.)	rep.)	.36	1.7	rep.)	.33	.44	.39
Least significant difference, 5%			291			1.02	4.8		.92	1.25	1.10

Correlations

Days to flowering	.06								
Days to maturity	-.06	.89**							
Leaf rust $\sqrt{X+1}$	-.06	-.26	-.25						
Height	.27	.66**	.51**	.05					
Frost damage %	-.35 *	-.22	-.12	.21	-.30 *				
Septoria tritici %	-.06	-.17	0.00	-.09	-.28	.21			
Septoria nodorum %	-.50**	-.53**	-.40**	.16	-.51**	.35 *	0.00		
Fusarium %	-.36**	-.66**	-.50**	.08	-.58**	.34 *	.20	.71**	

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 23. SOUTH AMERICA

URUGUAY. La Estanzuela, Colonia. (Centro de Investigaciones Agrícolas Alberto Boerger). Latitude: 34° 20 S. Longitude: 57° W. Elevation 81 meters above sea level. Cooperator: Ing. Emiliano Alarcon.

Planting Date: 14 September 1967. Precipitation during test: 437.1 mm. Irrigati.: nil. Fertilizer: 80 Kg./Ha. Urea; 63 Kg./Ha. Superphosphate.

Scoring notes taken: P. tritici - 21 November; Septoria - 3 November; height - 19 December; shattering - 26 December.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to: flowering	Days to: maturity	Leaf rust	Height cms.	1000 grain weight gms.	Septoria tritici %
Nainari 60	Mexico	12	3436	77.7	62	96	t	94	34.1	0
Noroeste 66	Mexico	40	3384	79.1	56	90	0	71	32.0	50
Penjamo 62	Mexico	21	3295	79.4	57	90	10R	77	31.4	0
Pi 62-Chris sib x Son 64	Mexico	42	3237	80.2	54	89	t	71	29.7	60
Tobari 66	Mexico	49	3233	81.7	56	91	t	74	30.8	0
Pj sib x Gb 55 (red grain)	Mexico	24	3218	79.5	61	95	10R	69	27.0	0
Klein Rendidor	Argentina	50	3196	76.9	68	101	40MR	96	30.3	0
Tacuari	Argentina	35	3179	82.1	62	96	0	102	30.1	0
Gabo	Australia	34	3138	77.1	62	95	t	86	31.4	0
Crim	USA	17	3075	81.9	67	97	10MR	114	20.9	0
Gaboto	Argentina	43	3040	81.5	66	97	0	110	27.6	0
El Gaucho	Argentina	48	3003	81.5	69	101	5MR	104	28.1	0
Jaral 66	Mexico	38	2977	80.2	53	90	0	72	27.8	0
Centrifen	Chile	45	2901	80.2	55	89	0	76	32.0	0
NP 881	India	25	2851	79.7	61	93	5MR, 65S	95	30.4	0
Nar sib (2) x Pj sib	Chile	1	2840	78.5	53	88	5MS	70	26.8	40
Mendos	Australia	6	2795	76.9	63	94	35MS	79	32.5	0
Huelquen	Chile	4	2793	78.9	60	92	10R	87	30.0	0
Roque 66	Mexico	41	2754	77.4	57	90	t	66	23.8	65
Triple Dirk	Australia	19	2714	79.2	63	95	65MS	107	34.4	0
Chris	USA	11	2660	80.1	61	94	0	105	27.4	0
Yaqui 50	Mexico	33	2629	78.0	57	90	30MR	85	29.2	60
Pitic 62	Mexico	32	2603	73.2	61	94	80MS	87	24.6	0
Klein Petiso x Rafaela	Argentina	44	2603	80.9	54	89	5MR	74	29.0	0
Selkirk	Canada	31	2580	75.6	68	100	0	115	28.7	0
Sonora 64	Mexico	14	2554	75.0	54	88	t	65	23.1	65
Lerma Rojo 64A	Mexico	7	2530	78.9	55	90	60S	80	27.0	80
NP 880	India	39	2528	84.1	58	95	50MS	92	39.8	0
Carazinho	Brazil	18	2467	80.3	68	101	30MR	113	34.1	0
Pj sib x Gb 55 (white grain)	Mexico	28	2453	78.6	61	93	50MS	67	26.0	40
C-591	India	20	2427	84.8	61	97	70S	107	33.9	0
Tiba 63	Colombia	30	2416	76.8	60	92	40MR	88	34.5	0

Giza 144	Egypt	26	2411	81.7	63	100	60S	103	31.5	0
C-273	Pakistan	3	2397	82.9	61	95	50MS	95	32.0	50
Crespo 63	Colombia	36	2348	79.3	58	93	50MS	92	27.7	60
Bonza 55	Colombia	13	2324	76.2	63	95	30MR	98	27.3	0
INIA 66	Mexico	37	2269	78.8	54	89	80S	72	26.4	50
Napo 63	Colombia	2	2246	78.1	54	90	80MS	82	26.9	60
Justin	USA	8	2241	79.1	68	99	t	107	27.8	0
C-306	India	23	2198	83.1	63	100	80S	96	32.3	0
Nariño 59	Colombia	46	2183	79.7	55	90	t	88	29.4	0
Son 64 x TzPP-Nai 60	Mexico	22	2177	75.2	55	89	t	64	27.3	0
Bonza 63	Colombia	27	1992	79.8	62	95	85MS	94	26.8	0
NP 824	India	5	1899	78.6	57	91	100S	88	28.5	0
C-518	India	16	1898	81.9	63	97	20MR	88	27.5	40
NP 832	India	10	1533	78.8	58	95	100S	93	28.4	0
Giza 150	Egypt	9	1425	78.7	63	96	100S	83	23.5	0
C-271	Pakistan	15	1284	75.9	61	95	95S	84	26.0	0
Thatcher	Canada	47	1269	78.4	74	103	90S	98	18.9	0
Pakistan 5725	Pakistan	29	1039	72.0	60	91	65S	70	22.5	85
Mean			2468	77.5	58	91	4.40	86	28.3	16.10
Coefficient of variation			15.5%	1.3%	.2%	.0%	11.1%	3.1%	5.9%	
Standard error of the mean			222	.6	.0	.0	.28	1.5	.9	
Least significant difference, 5%			622	1.7	.2	.1	.79	4.3	2.7	

Correlations

Test wt.	.28 *						
Days to flowering	-.17	.09					
Days to maturity	-.19	.29 *	.92**				
Leaf rust $\sqrt{X+1}$	-.68**	-.05	.07	.16			
Height	-.03	.37**	.74**	.78**	.07		
1000 grain weight	.47**	.51**	-.05	.09	-.16	.30 *	
Septoria tritici %	-.10	-.24	-.43**	-.48**	.09	-.48**	-.34 *

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 24 AFRICA

MOROCCO. Rabat-Guich. Latitude: 33° 59' N. Longitude: 6° 52' W. Elevation: 25 meters above sea level.
Cooperators: Institut National de la Recherche Agronomique.

Planting Date: 28 November 1966. Precipitation during test: 362.6 mm. Irrigation: Nil. Fertilizer: 200 Kg./ha. Amm. Sulphate, 300 Kg./Ha. Superphosphate and 150 Kg./Ha. Potassium Sulphate.

General Comments: Exceptionally hot and dry conditions prevailed during the experiment. Plants were affected by mildew. No weed problems and the experiment was covered with bird netting.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to: flowering	Days to: maturity	Height cms.	Lodging %	1000 grain weight gms.	Mildew (scale) 1/
Pj sib x Gb 55 (red grain)	Mexico	24	4021	75.3	101	147	98	50	38.0	3
Triple Dirk	Australia	19	3621	77.0	104	161	111	0	46.3	3
Pj sib x Gb 55 (white grain)	Mexico	28	3599	74.5	104	155	98	0	37.0	4
Mendos	Australia	6	3477	72.8	101	152	101	0	46.0	1
Crim	USA	17	3177	77.0	114	169	113	0	42.1	2
Crespo 63	Colombia	36	3177	75.0	104	156	110	50	39.0	5
Gabo	Australia	34	2910	70.8	100	151	106	30	37.0	5
Giza 144	Egypt	26	2899	77.5	105	160	111	70	44.5	3
Pi 62-Chris sib x Son 64	Mexico	42	2888	75.0	93	145	93	0	36.8	4
Huelquen	Chile	4	2877	74.1	102	152	101	0	41.0	4
NP 880	India	39	2855	78.5	96	148	115	0	51.5	5
C-306	India	23	2777	77.1	100	150	111	0	42.3	5
Tobari 66	Mexico	49	2721	75.6	98	151	98	0	37.5	4
Lerma Rojo 64A	Mexico	7	2699	75.5	96	150	100	0	41.1	5
Pitic 62	Mexico	32	2688	69.3	100	148	98	30	34.6	2
NP 881	India	25	2577	75.3	101	146	111	50	41.5	1
INIA 66	Mexico	37	2555	73.8	94	141	101	0	33.1	4
Penjamo 62	Mexico	21	2510	74.1	97	142	101	0	38.8	3
Yaqui 50	Mexico	33	2499	73.6	99	150	105	0	35.8	2
Nar sib (x) x Pj sib	Chile	1	2477	71.6	91	137	93	0	30.8	4
Tacuari	Argentina	35	2466	75.0	104	156	115	70	31.1	5
Nariño 59	Colombia	46	2466	72.8	96	151	115	30	34.3	5
Giza 150	Egypt	9	2466	75.6	100	152	106	0	40.1	1
Bonza 63	Colombia	27	2433	70.8	107	155	115	90	31.3	4
Gaboto	Argentina	43	2433	74.8	110	158	108	70	34.1	5
C-273	Pakistan	3	2421	77.1	100	159	111	30	41.8	5
C-271	Pakistan	15	2421	74.8	97	153	103	0	44.5	4
NP 832	India	10	2410	74.8	97	152	113	0	40.5	4
Selkirk	Canada	31	2388	74.6	130	174	105	0	41.3	3
Bonza 55	Colombia	13	2366	72.1	106	159	110	0	36.1	1
Noroeste 66	Mexico	40	2310	69.0	101	150	90	0	30.5	5
Pinyte - 2306	Morocco	50	2277	76.8	108	161	106	50	48.0	5

Jari 66	Mexico	38	2255	72.6	93	141	98	0	30.0	4
Sonora 64	Mexico	14	2222	71.0	91	140	85	0	29.0	3
NP 824	India	5	2177	74.5	99	155	113	0	40.6	5
Roque 66	Mexico	41	2166	69.5	93	143	90	0	25.8	1
Klein Petiso x Rafaela	Argentina	44	2010	73.5	96	147	98	0	27.5	5
Chris	USA	11	2010	74.1	106	160	108	0	34.0	3
Tiba 63	Colombia	30	1988	70.3	97	144	106	0	34.5	4
Nainari 60	Mexico	12	1988	69.6	103	153	105	0	34.6	4
Son 64 x TzPP-Nai 60	Mexico	22	1955	72.0	90	141	88	0	34.3	3
Carazinho	Brazil	18	1910	75.6	112	166	111	30	44.0	3
El Gaucho	Argentina	48	1877	77.5	121	172	106	30	37.3	4
Pakistan 5725	Pakistan	29	1722	72.6	94	145	96	0	34.6	5
Napo 63	Colombia	2	1710	70.1	93	142	106	0	29.1	4
Centrifen	Chile	45	1655	72.3	96	140	93	0	29.1	5
C-518	India	16	1644	76.0	102	156	106	0	38.8	3
Thatcher	Canada	47	1488	74.8	136	181	105	0	32.8	5
Justin	USA	8	1244	74.6	119	182	100	0	39.0	0
C-591	India	20	1222	77.5	104	154	115	50	37.8	4
Mean			2377	72.4	100	150	102	13.6	36.2	
Coefficient of variation			18.3%	.5%	2.8%	1.0%	3.1%	(only 1	1.9%	
Standard error of the mean			251	.2	1.6	.9	1.8	rep.)	.4	
Least significant difference, 5%			705	.6	4.6	2.6	5.2		1.1	

Correlations

Test wt.	.20					
Days to flowering	-.15	.32 *				
Days to maturity	-.14	.44**	.92**			
Height	.06	.51**	.34 *	.43**		
Lodging %	.14	.16	.19	.14	.44**	
1000 grain weight	.41**	.69**	.21	.36 *	.50**	0.00

* = Significant at the 5% level
** = Significant at the 1% level

1/ Scale key 1-5 (1 = least mildew)

TABLE 25

AFRICA

LIBYA. Sedi Mesri (Experiment Station). Latitude: 32° 52' N. Longitude: 13° 12 E. Elevation: 25 meters above sea level.
Cooperators: A. Arafa and Jamal Fuad.

Planting Date: 10 November 1966. Precipitation during test: 300 mm. Irrigation: 8 times as needed. Fertilizer: 40 Kg./Ha., 18-47-0.
General Comments: Rainfall a little above average with mild temperatures. Leaf and stem rust abundant, Powdery mildew also widespread. No weed or pest problems.
Scoring notes taken: Disease resistance - February.

Variety or cross	Origin	Variety Number	Yield kg/ha	Days to: flowering	Days to: maturity	Leaf Rust	Stem Rust	Height cms.	1000 grain weight gms.
Pitic 62	Mexico	32	5651	90	166	MS	R	105	51.1
Pakistan 5725	Pakistan	29	5295	80	166	S	MR	85	50.5
C-271	Pakistan	15	5288	91	169	S	MR	100	56.7
Bonza 63	Colombia	27	5021	106	174	R	R	105	45.9
Pj sib x Gb 55 (red grain)	Mexico	24	4969	88	166	R	R	85	51.0
Nar sib (2) x Pj sib	Chile	1	4895	79	165	S	R	75	40.0
NP 881	India	25	4777	96	168	R	R	100	50.7
Gabo	Australia	34	4710	96	169	MS	R	105	50.7
NP 832	India	10	4606	84	168	S	R	120	54.8
Penjamo 62	Mexico	21	4606	90	165	R	R	100	49.7
C-306	India	23	4592	98	170	S	MR	110	54.0
C-518	India	16	4555	100	173	MS	MR	95	52.4
Roque 66	Mexico	41	4540	80	165	R	R	80	37.4
NP 880	India	39	4525	90	167	S	MR	110	56.8
Triple Dirk	Australia	19	4444	100	170	R	R	95	57.0
Nariño 59	Colombia	46	4414	82	165	MS	R	110	44.6
Crespo 63	Colombia	36	4340	99	166	R	R	105	44.4
Son 64 x TzPP-Nai 60	Mexico	22	4332	74	165	R	R	70	47.1
Tiba 63	Colombia	30	4310	89	165	S	MR	105	50.8
Noroeste 66	Mexico	40	4295	89	165	R	R	90	49.7
Mendos	Australia	6	4206	94	170	S	R	85	55.1
Napo 63	Colombia	2	4184	81	170	MS	MR	105	41.3
Crim	USA	17	4184	106	175	R	R	130	43.5
C-591	India	20	4177	102	169	S	MR	115	51.1
Bonza 55	Colombia	13	4177	93	170	R	R	125	46.4
INIA 66	Mexico	37	4147	84	165	R	R	90	50.2
Jaral 66	Mexico	38	4147	79	165	R	R	85	37.9
Pi 62-Chris sib x Son 64	Mexico	42	4140	78	165	R	R	85	50.8
Sonora 64	Mexico	14	4058	79	165	R	R	90	44.4
Yaqui 50	Mexico	33	4029	89	165	MR	MR	90	47.6
Centrifen	Chile	45	3992	86	165	MS	R	90	46.8
Nainari 60	Mexico	12	3962	97	173	MS	MS	95	56.4

Pj sib x Gb 55 (white grain)	Mexico	28	3814	88	168	MS	R	100	46.1
Giza 144	Egypt	26	3740	98	168	MR	R	100	52.7
Lerma Rojo 64A	Mexico	7	3703	91	170	R	R	95	49.7
C-273	Pakistan	3	3636	92	171	S	MR	115	47.2
NP 824	India	5	3621	84	165	S	MS	120	55.1
Carazinho	Brazil	18	3607	103	172	R	R	115	44.7
El Gaucho	Argentina	48	3392	108	173	MS	R	120	41.2
Giza 150	Egypt	9	3362	91	170	MS	R	85	52.7
Tacuari	Argentina	35	3288	88	166	R	R	115	38.8
Huelquen	Chile	4	3251	91	176	R	MR	95	48.6
Tobari 66	Mexico	49	3214	78	165	R	R	85	41.6
Gaboto	Argentina	43	3192	103	169	R	R	115	37.7
Selkirk	Canada	31	2947	132	177	R	R	120	40.0
Chris	USA	11	2918	95	173	R	R	100	42.0
Klein Rendidor	Argentina	50	2607	88	166	MS	MS	110	62.8
Klein Petiso x Rafaela	Argentina	44	2503	79	164	MR	R	95	42.2
Justin	USA	8	2177	132	181	MS	R	130	36.4
Thatcher	Canada	47	1/	132	178	MS	R	100	27.7
Mean			3999	91	165	2.38	1.85	98	46.2
Coefficient of variation			22.4%	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)
Standard error of the mean			518						
Least significant difference, 5%			1453						

Correlations

Days to flowering	-.34 *					
Days to maturity	-.38**	.84**				
Leaf rust $\sqrt{X+1}$	.20	.03	.07			
Stem rust $\sqrt{X+1}$	.07	-.08	.05	.48**		
Height	-.27	.56**	.49**	.16	.12	
1000 grain weight	.48**	-.30 *	-.24	.29 *	.43**	-.09

1/ No data available

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 26 AFRICA

U.A.R. (Egypt). Giza. Latitude: 31° N. Longitude: 30° E. Elevation: 21 meters above sea level.
Cooperators: Dr. S. M. Dessouki and staff members of Wheat Research Section.

Planting Date: 30 November 1966. Precipitation during test: Not stated. Irrigation: Irrigated every 20-25 days, according to the weather conditions.
Fertilizer: 71 Kg./Ha. N.; 36 Kg /Ha P_2O_5. (Experiment # 1 Low fertility)

General Comments: Average seasonal conditions. Some leaf and stripe rust, but no stem rust. Birds attacked early varieties.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to: flowering	Days to: maturity	Height cms.	Lodging %	1000 grain weight gms.	Plant Stand %
Pj sib x Gb 55 (red grain)	Mexico	24	8099	82.3	98	149	104	0	40.3	90
Giza 155	Egypt	50	7482	82.6	95	146	124	0	47.6	90
Penjamo 62	Mexico.	21	6949	82.2	93	141	107	0	46.6	90
Tobari 66	Mexico	49	6582	82.5	90	142	105	0	42.6	90
Noroeste 66	Mexico	40	6443	82.5	94	140	100	0	46.3	90
INIA 66	Mexico	37	6277	83.2	86	135	104	0	47.0	85
Pakistan 5725	Pakistan	29	6204	82.0	87	138	105	0	50.3	95
Napo 63	Colombia	2	6093	80.8	88	138	122	0	41.6	90
Roque 66	Mexico	41	6088	81.8	84	138	95	0	37.0	85
C-271	Pakistan	15	6082	82.1	90	142	120	0	52.3	85
Sonora 64	Mexico	14	6049	82.1	84	136	91	0	42.3	90
Pitic 62	Mexico	32	5871	82.0	94	141	112	0	45.3	95
Giza 150	Egypt	9	5843	83.2	95	141	130	0	43.6	90
Nar sib (2) x Pj sib	Chile	1	5821	83.2	85	138	95	0	38.0	90
Pj sib x Gb 55 (white grain)	Mexico	28	5816	82.4	97	143	107	0	43.3	90
Nainari 60	Mexico	12	5799	80.4	97	140	126	0	48.3	90
C-306	India	23	5766	84.9	94	145	128	40	49.3	90
Lerma Rojo 64A	Mexico	7	5754	83.1	91	138	118	0	43.3	90
Crespo 63	Colombia	36	5510	82.4	93	143	125	0	41.3	85
Klein Petiso x Rafaela	Argentina	44	5471	82.6	93	139	116	0	36.0	85
NP 881	India	25	5455	81.4	95	144	126	80	45.0	90
Giza 144	Egypt	26	5427	81.5	97	143	132	0	45.3	90
C-518	India	16	5405	83.2	97	145	117	0	46.0	90
C-591	India	20	5366	85.0	97	142	139	25	47.0	90
NP 824	India	5	5338	82.7	91	142	134	5	47.0	90
Carazinho	Brazil	18	5288	81.1	109	149	135	0	41.3	85
Pi 62-Chris sib x Son 64	Mexico	42	5243	84.0	84	135	95	0	43.3	90
Son 64 x TzPP-Nai 60	Mexico	22	5168	82.9	80	136	88	0	50.0	75
Mendos	Australia	6	5155	80.8	96	142	123	0	47.0	80
Yaqui 50	Mexico	33	5138	78.8	90	138	126	0	45.6	85
Triple Dirk	Australia	19	5032	81.0	101	146	139	0	47.3	90
NP 832	India	10	5005	82.6	90	138	135	5	45.3	90

Bonza 63	Colombia	27	4971	81.1	99	143	132	0	40.0	85
Centrifen	Chile	45	4882	82.4	91	138	109	0	42.0	85
Crim	USA	17	4771	81.2	103	144	132	0	37.0	85
C-273	Pakistan	3	4749	83.8	92	142	126	0	49.6	90
Huelquen	Chile	4	4666	80.2	97	141	129	0	42.0	80
Tiba 63	Colombia	30	4549	81.8	88	135	124	0	48.0	95
Bonza 55	Colombia	13	4521	80.5	98	141	138	0	41.0	85
Jaral 66	Mexico	38	4427	82.5	85	135	95	0	36.3	80
Gaboto	Argentina	43	4377	83.2	106	145	132	0	33.3	85
Tacuari	Argentina	35	4371	82.5	100	144	128	0	32.3	90
Nariño 59	Colombia	46	4321	81.7	93	143	120	40	37.6	85
NP 880	India	39	4305	84.5	90	141	128	0	53.0	90
El Gaucho	Argentina	48	4044	82.6	111	151	136	5	35.3	90
Chris	USA	11	3655	80.7	102	145	142	20	33.6	85
Gabo	Australia	34	3494	81.0	93	138	116	0	42.6	90
Selkirk	Canada	31	2233	80.0	122	156	139	0	37.0	80
Justin	USA	8	1833	80.4	110	154	134	0	34.3	80
Thatcher	Canada	47	1244	77.8	116	148	145	0	24.6	85
Mean			5019	80.3	93	139	118	4.4	41.7	86.1
Coefficient of variation			17.5%	(only 1	4.3%	2.4%	4.8%	(only 1	3.9%	(only 1
Standard error of the mean			508	rep.)	2.3	1.9	3.3	rep.)	.9	rep.)
Least significant difference, 5%			1426		6.5	5.4	9.3		2.6	

Correlations

Test wt.	.44**						
Days to flowering	-.60**	-.44**					
Days to maturity	-.42**	-.26	.89**				
Height	-.54**	-.33 *	.71**	.59**			
Lodging %	-.01	.12	.02	.14	.18		
1000 grain weight	.53**	.40**	-.53**	-.38**	-.20	.05	
Plant stand %	.38**	.31 *	-.27	-.27	-.09	.06	.28 *

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 27

AFRICA

U.A.R. (EGYPT). Giza. Latitude: 31° N. Longitude: 30° E. Elevation: 21 meters above sea level.
Cooperators: Dr. S. M. Dessouki and staff.

Planting Date: 30 November 1966. Precipitation during test: Not stated. Irrigation: Every 20 to 25 days. Fertilizer: 130 Kg./Ha. Nitrogen, 35 Kg./Ha. Phosphate. (Experiment # 2 High fertility)
General Comments: Moderate natural infection of stripe and leaf rusts, but no stem rust. Birds damaged plots and particularly the early varieties.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to: flowering	Days to: maturity	Stripe rust	Leaf rust	Height cms.	Lodging %	1000 grain weight gms.	Plant stand %	Bird damage %
Pj sib x Gb 55 (red grain)	Mexico	24	8376	80.6	98	150	5S	MS	109	0	37.6	85	0
Pakistan 5725	Pakistan	29	7582	83.9	88	142	5S	S	105	0	50.6	85	0
Son 64 x TzPP-Nai 60	Mexico	22	7432	81.1	89	139	5S	S	86	0	46.0	85	0
Roque 66	Mexico	41	7393	81.1	85	142	0	0	106	0	35.6	80	0
Penjamo 62	Mexico	21	7243	81.9	94	143	20S	MR	113	5	42.3	85	0
Sonora 64	Mexico	14	7154	82.8	83	139	20S	MR	100	0	41.0	85	0
Lerma Rojo 64A	Mexico	7	6671	81.5	92	141	0	0	117	0	39.3	85	0
Pj 62-Chris sib x Son 64	Mexico	42	6654	83.2	86	140	5S	0	105	0	42.0	85	0
Noroeste 56	Mexico	40	6599	81.4	95	143	5S	0	98	0	43.3	85	0
Nar sib (2) x Pj sib	Chile	1	6482	81.4	86	141	0	S	96	0	36.0	90	0
Jaral 66	Mexico	38	6471	80.5	85	139	0	0	93	0	37.0	90	0
Pitic 62	Mexico	32	6149	78.2	96	143	20S	S	110	0	41.6	90	0
INIA 66	Mexico	37	6121	83.5	85	140	0	0	104	0	46.0	90	0
Giza 150	Egypt	9	5921	84.2	96	142	100S	S	123	5	41.0	85	0
Tobari 66	Mexico	49	5916	82.2	92	144	0	0	111	0	40.3	80	0
Centrifen	Chile	45	5888	82.7	92	141	0	MS	105	0	41.6	80	0
Napo 63	Colombia	2	5788	82.2	87	142	0	MS	115	0	38.6	90	0
NP 824	India	5	5677	82.4	91	143	0	S	126	0	46.6	95	0
Giza 155	Egypt	50	5593	81.5	96	146	5S	S	131	0	52.0	85	0
C-518	India	16	5577	85.0	97	144	0	S	115	15	46.0	90	0
Pj sib x Gb 55 (white grain)	Mexico	28	5549	81.8	97	145	0	S	111	0	40.0	95	0
Mendos	Australia	6	5338	80.5	98	144	70S	S	117	0	43.6	90	15
Nainari 60	Mexico	12	5288	79.2	98	144	20S	S	122	30	47.0	90	0
Giza 144	Egypt	26	5232	82.3	97	142	10S	S	122	0	42.6	90	0
C-271	Pakistan	15	5199	82.6	92	144	0	S	125	25	50.6	90	0
Tiba 63	Colombia	30	5010	82.0	90	141	0	S	113	0	43.3	90	0
NP 832	India	10	5005	83.0	92	144	0	S	138	40	45.6	90	0
NP 881	India	25	4905	81.6	98	144	30S	MR	129	70	43.6	85	0
Carazinho	Brazil	18	4860	80.8	110	148	0	0	128	50	43.3	85	0
C-306	India	23	4816	83.3	96	144	0	S	123	90	47.3	85	0
NP 880	India	39	4666	82.8	93	145	0	VS	123	80	53.3	85	0
C-273	Pakistan	3	4660	84.2	93	144	0	S	130	5	47.0	90	0

Yaqui 50	Mexico	33	4599	82.6	93	141	5S	MS	130	40	42.0	85	0
Klein Petiso x Rafaela	Argentina	44	4566	82.2	93	141	5S	S	115	15	36.6	80	0
Huelquen	Chile	4	4510	81.4	101	144	0	0	125	0	42.0	85	0
Crespo 63	Colombia	36	4427	81.3	95	145	0	MS	121	50	38.3	90	0
Triple Dirk	Australia	19	4344	80.6	101	146	20S	0	133	30	45.6	80	0
Tacuari	Argentina	35	4271	82.2	102	146	0	0	132	5	32.0	85	0
Bonza 63	Colombia	27	4249	81.6	101	143	0	MS	122	0	41.0	90	0
Chris	USA	11	4088	81.0	104	148	10S	0	137	80	35.3	90	0
Gaboto	Argentina	43	4032	82.0	106	146	0	0	131	60	35.3	85	0
C-531	India	20	3955	82.6	100	144	0	S	139	52	46.0	80	0
Gabo	Australia	34	3932	78.4	94	145	80S	S	120	0	37.3	85	0
Crim	USA	17	3905	81.2	104	145	5S	R	132	10	39.3	85	0
Nariño 59	Colombia	46	3744	80.9	95	145	0	S	136	80	37.3	85	15
Bonza 55	Colombia	13	3344	79.0	102	146	0	S	131	50	36.6	85	0
El Gaucho	Argentina	48	2938	81.2	96	154	0	0	131	70	36.3	85	0
Selkirk	Canada	31	2283	77.0	121	155	5S	MS	130	10	34.0	90	75
Justin	USA	8	1449	79.3	111	154	10S	MR	132	15	32.0	90	90
Thatcher	Canada	47	644	76.1	127	159	90S	S	138	30	23.6	85	0
Mean			5018	79.8	94	141	2.28	2.47	117	21.0	40.2	85.1	3.9
Coefficient of variation			18.5%	(only 1	4.8%	1.7%	43.7%	11.6%	6.0%	(only 1	5.7%	(only 1	(only 1
Standard error of the mean			537	rep.)	2.6	1.4	.57	.16	4.1	rep.)	1.3	rep.)	rep.)
Least significant difference, 5%			1507		7.4	3.9	1.61	.46	11.5		3.7		

Correlations

Test wt.	.47**									
Days to flowering	-.76**	-.60**								
Days to maturity	-.72**	-.59**	.85**							
Stripe rust $\sqrt{X+1}$	-.21	-.33 *	.29 *	.19						
Leaf rust $\sqrt{X+1}$	-.05	-.01	.01	-.02	.16					
Height	-.77**	-.18	.64**	.60**	.13	.07				
Lodging %	-.46**	0.00	.28 *	.32 *	-.15	.04	.60**			
1000 grain weight	.44**	.58**	-.49**	-.51**	-.19	.28	-.18	.05		
Plant stand %	.03	-.05	-.08	0.00	-.09	.21	-.07	-.24	.04	
Bird damage %	-.45**	-.40**	.47**	.49**	.14	.01	.21	-.04	-.31 *	.19

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 28

AFRICA

U.A.R. (EGYPT). Sakha. (Experiment Station Kafa El-Shaih). Latitude: 31° N. Longitude: 30° E. Elevation: 21 meters above sea level.
Cooperators: Dr. S. M. Dessouki and staff.

Planting Date: 20 November 1966. Precipitation during test: Not stated. Irrigation: Yes. Fertilizer: 71 Kg/Ha Nitrogen; 3. Kg/Ha Phosphate.
General Comments: Infection of stripe and leaf rusts. Birds damaged plots especially of early varieties.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to: flowering	Days to: maturity	Stripe rust	Leaf rust	Height cms.	1000 grain weight gms.	Bird damage %
Noroeste 66	Mexico	40	3621	79.5	90	145	0R	0R	101	43.0	0
Pitic 62	Mexico	32	3283	75.0	89	149	10S	30S	103	38.0	0
Lerma Rojo 64A	Mexico	7	3233	80.6	88	147	0R	tMR	108	43.6	0
Yaqui 50	Mexico	33	2921	81.0		147	0R	30S	110	38.6	0
Centrifen	Chile	45	2783	81.3	86	145	0R	0R	100	40.6	0
NP 880	India	39	2694	84.4	89	147	20S	40S	118	51.0	0
Pj sib x Gb 55 (white grain)	Mexico	28	2649	77.8	89	147	30S	25S	98	37.6	0
Penjamo 62	Mexico	21	2594	80.0	88	145	0R	tMR	95	41.6	0
NP 832	India	10	2588	79.9	88	145	0R	40S	118	38.6	0
C-271	Pakistan	15	2583	76.6	88	147	0R	5MS	111	42.6	0
Crespo 63	Colombia	36	2533	79.1	88	145	0R	0R	118	34.6	0
Mendos	Australia	6	2533	76.8	94	147	50S	40S	93	38.6	0
Nariño 59	Colombia	46	2471	79.5	85	145	0R	30MS	103	37.0	10
INIA 66	Mexico	37	2449	80.4	82	147	10S	0R	98	46.0	0
Giza 155	Egypt	50	2388	77.5	88	147	0R	30MS	110	42.0	0
C-306	India	23	2355	82.0	90	145	tMS	5MS	110	40.3	0
Pj sib x Gb 55 (red grain)	Mexico	24	2305	79.0	90	145	0R	30S	95	41.0	0
NP 824	India	5	2260	78.8	88	149	0R	40S	116	41.0	0
Nainari 60	Mexico	12	2244	76.7	94	146	tS	0R	98	37.3	0
Tiba 63	Colombia	30	2238	76.2	87	147	0R	30MS	106	40.3	0
NP 881	India	25	2238	79.8	88	147	20S	5S	118	41.6	0
Huelquen	Chile	4	2177	76.2	91	147	0R	0R	105	41.0	0
Tacuari	Argentina	35	2122	78.0	94	147	0R	0R	118	29.3	0
Carazinho	Brazil	18	2110	80.3	96	154	0R	0R	120	43.3	0
Tobari 66	Mexico	49	2072	81.0	83	145	0R	0R	100	36.3	30
Gaboto	Argentina	43	2072	81.6	96	153	15S	0R	113	30.3	0
Gabo	Australia	34	2055	70.8	91	147	80S	20MS	113	33.0	0
Pakistan 5725	Pakistan	29	2044	80.0	89	147	0R	5MR	91	41.0	0
Klein Petiso x Rafaela	Argentina	44	2038	78.7	80	147	5MS	0R	98	37.6	0
Giza 144	Egypt	26	2027	79.0	93	157	60S	20MS	116	38.0	0
Chris	USA	11	2005	80.2	94	147	0R	0R	120	33.6	0
Triple Dirk	Australia	19	1927	77.3	93	120	30S	0R	121	45.3	0

El Gaucho	Argentina	48	1883	80.2	107	160	tMS	0R	106	30.3	0
C-591	India	20	1855	83.6	91	147	0R	tMS	110	41.0	0
Bonza 63	Colombia	27	1838	77.2	98	151	0R	20MS	113	33.3	0
C-518	India	16	1805	82.2	95	147	0R	5MS	103	36.3	0
C-273	Pakistan	3	1755	80.0	91	149	0R	15MS	103	43.2	0
Crim	USA	17	1672	74.3	103	149	40S	5MR	115	33.6	0
Nar sib (2) x Pj sib	Chile	1	1577	78.9	77	147	0R	5MR	88	38.3	70
Napo 63	Colombia	2	1577	78.1	78	149	0R	15MS	110	38.3	0
Bonza 55	Colombia	13	1566	76.6	93	147	0R	10MS	115	32.0	0
Giza 150	Egypt	9	1549	76.6	89	149	60S	50S	108	33.6	0
Sonora 64	Mexico	14	1472	81.0	78	145	80S	5MR	86	40.0	0
Justin	USA	8	1377	78.0	124	165	0R	0R	126	28.3	0
Selkirk	Canada	31	1305	77.1	125	163	10MS	40S	123	31.6	0
Jaral 66	Mexico	38	1227	80.9	77	145	0R	0R	90	34.3	0
Roque 66	Mexico	41	1172	79.0	76	145	0R	0R	90	33.0	0
Thatcher	Canada	47	861	79.7	125	165	0R	100S	120	24.6	0
Pi 62-Chris sib x Son 64	Mexico	42	849	79.0	76	145	30S	0R	93	41.3	55
Son 64 x TzPP-Nai 60	Mexico	22	805	76.4	75	145	30MS	tS	78	49.3	60
Mean			2027	77.3	89	145	2.33	2.89	104	37.4	4.50
Coefficient of variation			23	(only 1	2.8	(only 1	43.3%	39.3%	8.2	7.2	(only 1
Standard error of the mean			270	rep.)	1.4	rep.)	.58	.65	4.9	1.5	rep.)
Least significant difference, 5%			759		4.1		1.64	1.84	13.9	4.4	

Correlations

Test wt.	.11								
Days to flowering	-.14	-.13							
Days to maturity	-.24	.01	.64**						
Stripe rust $\sqrt{X+1}$	-.13	-.39**	-.07	-.08					
Leaf rust $\sqrt{X+1}$	-.04	-.07	.16	.20	.07				
Height	.11	-.04	.63**	.28 *	-.08	.12			
1000 grain weight	.34 *	.22	-.56**	-.53**	.02	.04	-.32 *		
Bird damage %	-.38**	-.04	-.36**	-.11	.02	-.01	-.47**	.20	

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 29 AFRICA

SUDAN. Khashm El Girba (Research Substation). Latitude: 15° 08' N. Longitude: 35° 45' E. Elevation: 440 meters above sea level.
Cooperator: M. A. Khalifa.

Planting Date: 9 December 1966. Precipitation during test: Not stated. Irrigation: 710 mm^3/Ha. applied every 12 days. Fertilizer: nil. (Experiment # 1 Low fertility)

General Comments: A normal season, but the nursery was sown too late. Previous work has shown a 50-60% reduction in yield of wheat if sown in December in this area. Termite and stem borer attack.

Variety or cross	Origin	Variety Number	Yield kg/ha	Days to: flowering	Days to: maturity	Height cms.	1000 grain weight gms.
C-306	India	23	1193	59	100	65	30.5
C-518	India	16	1158	62	105	61	27.0
C-271	Pakistan	15	1133	56	95	61	32.5
C-591	India	20	1111	60	99	70	26.0
Penjamo 62	Mexico	21	964	50	87	56	28.5
Mendos	Australia	6	949	60	95	49	29.0
NP 824	India	5	868	52	95	60	31.5
Giza 144	Egypt	26	859	62	105	63	29.5
Gabo	Australia	34	848	56	96	55	27.5
Lerma Rojo 64A	Mexico	7	844	47	84	53	27.0
NP 881	India	25	844	58	96	56	22.5
NP 880	India	39	808	48	93	51	35.0
Nainari 60	Mexico	12	779	62	105	60	27.5
NP 832	India	10	773	53	95	63	33.5
Giza 150	Egypt	9	763	59	105	59	27.5
Pakistan 5725	Pakistan	29	753	56	94	53	26.5
Triple Dirk	Australia	19	718	60	96	65	32.5
C-273	Pakistan	3	716	59	99	64	26.5
Crespo 63	Colombia	36	688	48	90	57	25.5
Pi sib x Gb 55 (white grain)	Mexico	28	646	51	87	54	24.0
Gaboto	Argentina	43	641	68	112	67	20.5
Pj sib x Gb 55 (red grain)	Mexico	24	636	50	87	50	26.0
Tacuari	Argentina	35	621	52	94	63	20.5
Huelquen	Chile	4	573	51	87	63	22.0
Carazinho	Brazil	18	563	57	104	66	27.5
Bonza 55	Colombia	13	529	53	96	65	20.5
INIA 66	Mexico	37	523	48	80	50	25.0
Son 64 x TzPP-Nai 60	Mexico	22	516	47	79	45	30.0
Tiba 63	Colombia	30	508	51	91	55	28.5
Chris	USA	11	504	54	93	60	19.5
Yaqui 50	Mexico	33	461	54	89	61	20.5
Nariño 59	Colombia	46	438	49	87	52	23.0

Tobari 66	Mexico	49	438	49	83	54	24.0
Klein Rendidor	Argentina	50	434	56	95	47	17.0
Bonza 63	Colombia	27	408	55	88	57	20.5
Pitic 62	Mexico	32	403	53	95	47	26.5
Nar sib (2) x Pj sib	Chile	1	396	47	82	43	21.5
Sonora 64	Mexico	14	368	48	79	43	25.0
Roque 66	Mexico	41	326	49	78	39	21.5
Napo 63	Colombia	2	321	47	77	50	22.0
Noroeste 65	Mexico	40	313	49	82	48	23.0
Crim	USA	17	299	84	119	71	18.0
Pi 62-Chris sib x Son 64	Mexico	42	274	48	79	45	24.0
Jaral 66	Mexico	38	174	48	80	44	20.0
Klein Petiso x Rafaela	Argentina	44	168	48	79	44	19.0
El Gaucho	Argentina	48	144	90	121	62	18.0
Selkirk	Canada	31	93	95	122	56	18.5
Centrifen	Chile	45	84	56	83	45	13.0
Justin	USA	8	41	95	128	50	12.0
Thatcher	Canada	47	6	119	141	39	1/
Mean			564	56	93	54	24.0
Coefficient of variation			31.6%	3.1%	3.0%	7.9%	8.2%
Standard error of the mean			126	1.2	1.9	3.0	1.4
Least significant difference, 5%			359	3.6	5.6	8.6	3.9

	Correlations			
Days to flowering	-.33 *			
Days to maturity	-.08	.93**		
Height	.51**	.11	.36**	
1000 grain weight	.75**	-.38**	-.14	.17

* = Significant at the 5% level
** = Significant at the 1% level

1/ No data available

TABLE 30 AFRICA

SUDAN. Khashm El Girba (Research Substation). Latitude: 15° 08' N. Longitude: 35° 45 E. Elevation: 440 meters above sea level.
Cooperator: M. A. Khalifa.

Planting Date: 1 December 1966. Precipitation during test: Not stated. Irrigation: 710 mm^3/Ha applied every 12 days. Fertilizer: Urea and Phosphate equivalent of 86 Kg./Ha. N., 86 Kg. P_2O_5 / Ha. (Experiment # 2 High fertility).

General Comments: Yields low due to late sowing. Production is decreased about 40% when wheat is sown early in December. In general this nursery although low yielding, gave better growth and showed less effect from termites and stem borers than the unfertilized nursery.

Variety or cross	Origin	Variety Number	Yield kg/ha	Days to: flowering	Days to: maturity	Height cms.	1000 grain weight gms.
C-306	India	23	1576	61	104	75	32.6
Pakistan 5725	Pakistan	29	1377	58	100	61	29.6
Noroeste 66	Mexico	40	1345	55	86	62	34.0
Giza 150	Egypt	9	1313	61	100	68	25,0
Pj sib x Gb 55 (white grain)	Mexico	28	1268	54	85	65	29.3
NP 880	India	39	1235	54	95	75	36.0
Giza 144	Egypt	26	1172	65	103	77	28.6
C-591	India	20	1167	65	100	71	26.6
Triple Dirk	Australia	19	1139	61	99	72	30.0
Lerma Rojo 64A	Mexico	7	1117	54	86	67	31.6
Pj sib x Gb 55 (red grain)	Mexico	24	1089	54	87	61	29.3
Mendos	Australia	6	1085	62	100	57	28.3
Gabo	Australia	34	1079	61	100	55	25.6
Crespo 63	Colombia	36	1076	55	86	77	26.6
C-518	India	16	1071	65	104	70	26.0
Penjamo 62	Mexico	21	1056	54	85	60	27.3
Tiba 63	Colombia	30	993	54	86	66	29.0
Yaqui 50	Mexico	33	985	56	93	80	25.6
Nainari 60	Mexico	12	959	65	100	63	27.6
Nariño 59	Colombia	46	956	53	91	72	28.6
Tobari 66	Mexico	49	951	54	85	61	28.6
NP 832	India	10	886	54	95	77	33.0
C-273	Pakistan	3	867	60	102	66	25.3
Pitic 62	Mexico	32	857	54	96	60	23.0
Klein Petiso x Rafaela	Argentina	44	851	54	85	56	26.0
Tacuari	Argentina	35	812	54	86	71	24.3
Bonza 55	Colombia	13	763	57	93	68	21.0
Bonza 63	Colombia	27	749	58	93	71	21.3
Napo 63	Colombia	2	749	51	83	64	25.6
Carazinho	Brazil	18	748	65	99	68	26.0
Pi 62-Chris sib x Son 64	Mexico	42	738	53	82	52	28.0
NP 824	India	5	719	54	93	69	31.0

Chris	USA	11	711	55	92	75	20.0
Gaboto	Argentina	43	702	68	104	68	23.0
INIA 66	Mexico	37	687	54	81	56	29.3
C-271	Pakistan	15	682	59	100	63	31.0
Sonora 64	Mexico	14	655	54	85	49	30.0
NP 881	Iran	25	622	1/	1/	1/	1/
Huelquen	Chile	4	608	53	85	64	24.3
Son 64 x TzPP-Nai 60	Mexico	22	604	54	84	53	29.6
Nar sib (2) x Pj sib	Chile	1	588	53	81	52	25.3
Roque 66	Mexico	41	434	53	81	54	26.3
Jaral 66	Mexico	38	422	54	83	56	24.6
Centrifen	Chile	45	335	56	84	60	14.6
Crim	USA	17	309	87	120	68	18.3
Selkirk	Canada	31	175	95	120	67	20.0
El Gaucho	Argentina	48	145	87	122	68	18.6
Justin	USA	8	86	96	131	62	13.6
Thatcher	Canada	47	62	99	124	62	13.6
Mean			828	61	95	65	26.1
Coefficient of variation			32.7%	2.4%	3.2%	9.4%	6.8%
Standard error of the mean			156	.8	1.7	3.5	1.0
Least significant difference, 5%			439	2.3	5.0	9.9	2.9

Correlations

Days to flowering	-.55**			
Days to maturity	-.34 *	.92**		
Height	.30 *	.10	.28	
1000 grain weight	.74**	-.64**	-.50**	.07

* = Significant at the 5% level
** = Significant at the 1% level

1/ No data available

TABLE 31 AFRICA

SUDAN. Wad Medani. (Gezira Research Station). Latitude: 14° 21' N. Longitude: 33° 31' E. Elevation: 410.87 meters above sea level.
Cooperator: Mohd Hassan Akasha.

Planting Date: 20 November 1967. Precipitation during test: nil. Irrigation: 9 irrigations. Fertilizer: 89.6 Kg./Ha. Urea.
General Comments: Cool, dry weather during growing season. No disease, but aphids and stem borers were a problem.

Variety or cross	Origin	Variety Number	Yield kg/ha	Days to: flowering	Days to: maturity	Height cms.	Shattering %	1000 grain weight gms.
C-306	India	23	3641	55	96	102	1	39.6
Mendos	Australia	6	3331	57	103	77	3	36.2
Pakistan 5725	Pakistan	29	3278	50	91	81	1	39.1
C-591	India	20	3173	56	96	106	1	35.9
Pj sib x Gb 55 (white grain)	Mexico	28	3060	47	84	75	0	34.7
Giza 144	Egypt	26	3036	60	104	99	2	36.6
Gabo	Australia	34	3031	55	100	81	16	35.8
C-271	Pakistan	15	2970	52	89	91	1	41.3
Pj sib x Gb 55 (red grain)	Mexico	24	2960	47	84	69	6	35.1
Lerma Rojo 64A	Mexico	7	2917	47	82	73	1	38.5
Penjamo 62	Mexico	21	2908	46	84	68	8	38.2
Nainari 60	Mexico	12	2907	62	104	91	3	35.6
C-518	India	16	2895	57	97	92	2	35.0
Huelquen	Chile	4	2886	49	83	81	8	34.2
INIA 66	Mexico	37	2777	47	79	66	2	37.4
Pitic 62	Mexico	32	2730	60	100	89	2	33.6
NP 880	India	39	2699	48	93	87	3	40.7
Triple Dirk	Australia	19	2688	52	89	90	3	42.0
Crespo 63	Colombia	36	2660	45	81	80	5	36.3
Giza 150	Egypt	9	2601	57	95	85	1	32.6
NP 824	India	5	2561	48	91	84	4	43.2
NP 881	India	25	2499	54	91	89	4	32.9
Roque 66	Mexico	41	2495	45	82	55	1	32.7
C-273	Pakistan	3	2443	53	91	91	5	35.0
Chris	USA	11	2435	50	89	91	2	28.5
Tiba 63	Colombia	30	2406	48	83	85	17	39.0
Carazinho	Brazil	18	2370	57	105	102	6	33.8
Nariño 59	Colombia	46	2356	46	84	79	25	37.1
NP 832	India	10	2354	48	88	86	5	39.6
Bonza 55	Colombia	13	2349	51	92	92	1	34.3
Napo 63	Colombia	2	2330	45	77	75	23	33.7
Nar sib (2) x Pj sib	Chile	1	2323	46	80	60	4	31.9

Yaqui 50	Mexico	33	2265	43	81	82	2	36.5
Son 64 x TzPP-Nai 60	Mexico	22	2258	45	83	57	3	36.8
Tobari 66	Mexico	49	2236	47	83	63	1	35.2
Noroeste 66	Mexico	40	2200	50	81	64	12	38.4
Sonora 64	Mexico	14	2147	46	78	55	5	33.3
Fi 62-Chris sib x Son 64	Mexico	42	2086	45	80	57	1	34.4
Gaboto	Argentina	43	2052	61	107	103	1	26.4
Bonza 63	Colombia	27	2049	52	88	88	0	32.7
Tacuari	Argentina	35	2035	50	84	85	6	30.7
Jaral 66	Mexico	38	1860	46	77	61	1	28.6
Klein Petiso x Rafaela	Argentina	44	1603	46	77	62	1	28.8
Crim	USA	17	1497	47	112	110	18	27.6
Centrifen	Chile	45	1490	47	82	68	1	28.8
Justin	USA	8	1388	58	122	98	8	22.1
El Gaucho	Argentina	48	1312	55	117	109	1	24.7
Selkirk	Canada	31	1205	58	117	108	13	25.8
Thatcher	Canada	47	1026	60	123	97	3	18.1
Klein Rendidor	Argentina	50	1/					
Mean			2424	51	91	82	4.9	34.0
Coefficient of variation			13.1%	3.6%	3.7%	5.4%	(only 1	5.5%
Standard error of the mean			184	1.0	1.9	2.6	rep.)	1.0
Least significant difference, 5%			517	3.0	5.5	7.3		3.0

Correlations

Days to flowering	.04				
Days to maturity	-.28 *	.81**			
Height	-.06	.71**	.79**		
Shattering %	-.16	-.17	.03	.07	
1000 grain weight	.76**	-.30 *	-.51**	-.23	0.00

1/ No data available

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 32 AFRICA

SUDAN. Ed Damer. (Hudeiba Agricultural Research Station). Latitude: 17° 35' N. Longitude: 33° 27' E. Elevation: 353 meters above sea level.
Cooperators: Dr. AbdelGalil Ibrahim Imam.

Planting Date: 6 December 1966. Precipitation during test: Not stated. Irrigation: 8 times. Fertilizer: 55 Kg./Ha. Amm. Sulp. (21% N).
General Comments: Cool, sunny conditions during growth of crop. No disease or pest problems. Plots weeded 5 times.
Scoring notes taken: Plant height - February.

Variety or cross	Origin	Variety Number	Yield kg/ha	Days to: flowering	Days to: maturity	Height cms.	1000 grain weight gms.
Mendos	Australia	6	2260	60	109	77	37.1
Napo 63	Colombia	2	2149	50	97	77	32.9
Lerma Rojo 64A	Mexico	7	2083	51	97	79	34.8
Pj sib x Gb 55 (white grain)	Mexico	28	1894	57	105	74	31.7
INIA 66	Mexico	37	1894	48	102	71	39.0
Tiba 63	Colombia	30	1838	52	101	79	38.7
Penjamo 62	Mexico	21	1833	58	97	57	35.5
Tobari 66	Mexico	49	1833	51	105	73	32.4
Noroeste 66	Mexico	40	1805	54	96	71	36.1
Sonora 64	Mexico	14	1794	49	96	63	35.3
NP 824	India	5	1755	50	109	92	41.7
Pitic 62	Mexico	32	1727	51	105	81	32.6
Huelquen	Chile	4	1727	48	108	85	34.3
Nar sib (2) x Pj sib	Chile	1	1722	52	97	65	28.9
NP 832	India	10	1688	48	105	93	41.1
Son 64 x TzPP-Nai 60	Mexico	22	1677	52	104	66	37.7
Nainari 60	Mexico	12	1672	63	105	77	36.8
Crespo 63	Colombia	36	1633	50	97	80	34.0
Pj sib x Gb 55 (red grain)	Mexico	24	1622	56	108	73	32.8
C-306	India	23	1580	51	109	80	39.1
Gabo	Australia	34	1538	60	107	73	34.5
Giza 150	Egypt	9	1527	58	109	93	36.6
Roque 66	Mexico	41	1483	49	104	66	30.0
Klein Petiso x Rafaela	Argentina	44	1472	54	97	67	29.6
Bonza 55	Colombia	13	1466	51	109	82	32.1
Centrifen	Chile	45	1399	50	104	73	29.0
Pi 62-Chris sib x Son 64	Mexico	42	1388	48	97	59	35.6
C-271	Pakistan	15	1388	53	105	80	40.8
Jaral 66	Mexico	38	1355	42	97	62	30.3
NP 880	India	39	1349	54	108	87	40.7
C-591	India	20	1338	60	109	88	35.5
C-518	India	16	1255	52	109	93	37.6

Tacuari	Argentina	35	1255	56	105	82	30.7
Giza 144	Egypt	26	1216	1/	109	37	34.4
Klein Rendidor	Argentina	50	1188	52	101	73	33.5
NP 881	India	25	1183	55	109	81	28.7
Chris	USA	11	1149	55	105	80	26.8
C-273	Pakistan	3	1127	61	109	80	37.1
Bonza 63	Colombia	27	1127	56	109	73	28.3
Yaqui 50	Mexico	33	1111	54	97	84	33.1
Nariño 59	Colombia	46	1099	52	108	77	30.7
Pakistan 5725	Pakistan	29	1033	55	109	79	39.4
Triple Dirk	Australia	19	766	58	109	88	42.0
Carazinho	Brazil	18	711	52	109	89	33.6
Gaboto	Argentina	43	511	1/	109	85	25.6
Crim	USA	17	383	1/	108	86	25.8
Justin	USA	8	212	55	116	87	20.1
Selkirk	Canada	31	211	53	105	1/	23.4
El Gaucho	Argentina	48	105	57	105	85	24.7
Thatcher	Canada	47	66	54	110	77	15.3
Mean			1328	52	103	76	32.5
Coefficient of variation			24.4%	9.0%	6.0	13.1%	5.8
Standard error of the mean			187	2.7	3.5	5.8	1.0
Least significant difference, 5%			524	7.7	10.0	16.3	3.0

	Correlations			
Days to flowering	-.18			
Days to maturity	-.45**	.39**		
Height	-.35 *	.21	.63**	
1000 grain weight	.62**	-.02	-.10	.12

* = Significant at the 5% level
** = Significant at the 1% level

1/ No data available

TABLE 33 AFRICA

ETHIOPIA. Debre Zeit. (Debre Zeit Agricultural Experiment Station). Latitude: 08° 55' N. Longitude: 38° 58' E. Elevation: 1860 meters above sea level.
Cooperator: Tesfaye Tesemma.

Planting Date: 10 July 1967. Precipitation during test: 857.1 mm. Irrigation: nil. Fertilizer: nil.

General Comments: Good weather early in the season, but very heavy rainfall at harvest time, which caused lodging and some grain sprouting with resultant low seed test weight. Disease development was abnormal with little or no stem and stripe rust. However, Septoria tritici was severe especially on the short strawed varieties and Septoria nodorum was also severe on some varieties.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to: flowering	Days to: maturity	Height cms.	Lodging %
Penjamo 62	Mexico	21	3448	67.3	67	120	101	0
Crespo 63	Colombia	36	3084	69.8	63	129	121	90
Pi 62-Chris sib x Son 64	Mexico	42	3007	65.1	56	117	93	30
Bonza 63	Colombia	27	2805	70.3	76	134	125	80
Nainari 60	Mexico	12	2753	65.1	75	134	128	65
Triple Dirk	Australia	19	2750	67.3	69	128	125	85
Gaboto	Argentina	43	2711	77.1	78	140	136	75
Mendos	Australia	6	2637	66.9	70	131	106	40
Tacuari	Argentina	35	2616	73.3	65	136	125	80
V Z 133	Italy	50	2598	69.8	61	140	93	50
Bonza 55	Colombia	13	2593	69.4	74	136	130	80
Lerma Rojo 64A	Mexico	7	2549	66.8	57	119	103	30
INIA 66	Mexico	37	2505	64.2	56	119	93	0
Nariño 59	Colombia	46	2504	65.1	54	119	115	70
Crim	USA	17	2501	71.5	75	134	126	80
Chris	USA	11	2493	71.6	64	131	131	75
Pj sib x Gb 55 (red grain)	Mexico	24	2445	57.8	62	119	88	0
Centrifen	Chile	45	2354	62.5	60	119	103	90
Carazinho	Brazil	18	2303	72.0	83	145	128	95
Tobari 66	Mexico	49	2261	69.0	58	119	90	0
Nar sib (2) x Pj sib	Chile	1	2224	57.0	51	119	83	0
Yaqui 50	Mexico	33	2157	61.7	58	119	116	90
Gabo	Australia	34	2144	60.8	69	131	105	85
Pj sib x Gb 55 (white grain)	Mexico	28	2139	56.5	61	119	88	0
Pitic 62	Mexico	32	2020	56.5	63	128	103	90
NP 881	India	25	2007	66.0	60	128	118	80
Napo 63	Colombia	2	1968	59.5	51	119	108	75
C-271	Pakistan	15	1923	65.1	63	134	126	80
Son 64 x TzPP-Nai 60	Mexico	22	1893	54.8	56	117	86	0
El Gaucho	Argentina	43	1889	74.5	87	142	121	40
Noroeste 66	Mexico	40	1858	53.5	58	117	88	0
Jaral 66	Mexico	38	1803	56.1	53	117	90	0

Klein Petiso x Rafaela	Argentina	44	1784	64.7	53	119	103	15
Tiba 63	Colombia	30	1766	64.3	65	122	111	90
Giza 150	Egypt	9	1704	67.7	64	129	120	85
Justin	USA	8	1613	66.4	86	142	126	80
Selkirk	Canada	31	1558	63.8	82	140	123	80
NP 824	India	5	1416	58.3	57	119	126	60
Giza 144	Egypt	26	1314	66.4	71	132	131	85
Huelquen	Chile	4	1259	58.3	61	119	110	90
Sonora 64	Mexico	14	1249	54.4	51	111	86	0
Thatcher	Canada	47	1190	66.0	86	140	121	60
C-591	India	20	1190	72.0	75	134	145	85
NP 880	India	39	1182	70.8	60	121	115	75
C-306	India	23	1120	72.0	70	138	131	60
NP 832	India	10	1116	57.9	57	119	108	70
Roque 66	Mexico	41	1028	59.5	58	117	90	0
C-518	India	16	855	68.1	76	138	118	80
C-273	Pakistan	3	462	64.3	63	122	115	90
Pakistan 5725	Pakistan	29	284	47.6	62	121	100	95
Mean			1929	63.1	64.1	124	109	58.1
Coefficient of variation			19.6%	4.6%	3.6%	2.4%	5.0%	(only 1
Standard error of the mean			219	1.7	1.3	1.7	3.2	rep.)
Least significant difference, 5%			614	4.7	3.7	4.9	9.0	

Correlations

Test wt.	.35 *				
Days to flowering	.01	.57**			
Days to maturity	.05	.67**	.91**		
Height	-.01	.70**	.66**	.78**	
Lodging %	-.16	.34 *	.43**	.54**	.76**

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 34

AFRICA

ETHIOPIA. Hollotta, 45 Kms. West of Addis Ababa. (Institute of Agricultural Research). Latitude: 9° 01' N. Longitude: 38° 32 E. Elevation: 2,400 meters above sea level. Cooperator: Dr. Ibrahim Abu-Sharr.

Planting Date: 29 June 1967. Precipitation during test: Not stated. Irrigation: nil. Fertilizer: nil.
General Comments: The weather was wet, c[illegible] humid. Septoria tritici (leaf) and brown rust developed at heading time. There were no insect, weed or pest problems.

Variety or cross	Origin	Variety Number	Yield kg/ha	Days to: flowering	Days to: maturity	Height cms.	Lodging %	1000 grain weight gms.
Carazinho	Brazil	18	2700	97	159	121	0	45.8
Gaboto	Argentina	43	2625	90	154	126	0	34.0
Bonza 63	Colombia	27	2509	81	154	104	0	31.9
Justin	USA	8	2216	100	167	100	0	29.3
Nainari 60	Mexico	12	2104	81	146	105	0	31.0
Tacuari	Argentina	35	2013	78	152	121	0	27.6
Nar sib (2) x Pj sib	Chile	1	1969	62	145	70	0	32.3
El Gaucho	Argentina	48	1949	68	166	120	0	34.6
Bonza 55	Colombia	13	1676	81	152	111	0	30.4
Chris	USA	11	1669	74	150	117	0	26.1
Nariño 59	Colombia	46	1662	69	142	95	0	33.3
Pj sib x Gb 55 (white grain)	Mexico	28	1653	74	149	79	30	22.7
Crespo 63	Colombia	36	1626	77	150	95	0	30.1
Penjamo 62	Mexico	21	1615	71	131	93	0	28.1
Pj 62-Chris sib x Son 64	Mexico	42	1452	63	130	78	0	23.7
Tiba 63	Colombia	30	1435	70	136	86	1	29.0
Klein Rendidor	Argentina	50	1376	74	154	67	0	25.1
Tobari 66	Mexico	49	1370	67	138	80	0	29.1
Crim	USA	17	1360	93	158	109	0	26.7
Selkirk	Canada	31	1325	75	168	78	0	26.8
Pj sib x Gb 55 (red grain)	Mexico	24	1222	74	144	66	0	21.0
Thatcher	Canada	47	1153	79	168	98	0	24.1
Klein Petiso x Rafaela	Argentina	44	1109	67	143	80	0	28.6
NP 881	India	25	1081	81	149	92	0	25.9
Mendos	Australia	6	1059	[illegible]	146	80	0	27.0
INIA 66	Mexico	37	987	67	129	77	0	22.6
Noroeste 66	Mexico	40	968	71	132	73	1	25.3
Centrifen	Chile	45	946	77	141	81	0	29.8
Triple Dirk	Australia	19	925	81	152	110	0	26.7
Jaral 40	Mexico	38	894	67	138	74	0	21.8
Yaqui 50	Mexico	33	879	67	133	91	3	17.3
NP 880	India	39	833	74	138	103	0	26.4

NP 832	India	10	728	77	140	102	1	18.7
Pitic 62	Mexico	32	695	77	139	88	0	16.6
Son 64 x TzPP-Nai 60	Mexico	22	686	67	128	68	0	23.1
Huelquen	Chile	4	686	81	142	86	10	10.4
Giza 144	Egypt	26	617	83	138	103	0	19.8
NP 824	India	5	583	74	137	103	13	19.2
Napo 63	Colombia	2	581	67	125	90	6	16.1
C-273	Pakistan	3	577	77	139	93	0	18.1
C-591	India	20	535	77	139	88	33	16.0
Giza 150	Egypt	9	534	81	140	94	0	17.8
Roque 66	Mexico	41	489	70	129	62	16	11.2
Sonora 64	Mexico	14	466	94	116	68	0	12.5
Lerma Rojo 64A	Mexico	7	375	67	131	74	0	16.6
C-518	India	16	355	78	141	83	43	16.9
Gabo	Australia	34	348	77	137	82	15	16.5
C-271	Pakistan	15	293	70	120	88	76	14.2
C-306	India	23	214	77	127	93	30	13.3
Pakistan 5725	Pakistan	29	53	67	116	73	46	11.5
Mean			1116	(only 1 rep.)	139	89	6.6	23.3
Coefficient of variation			31.8%		3.9%	11.4%	231.3%	3.5%
Standard error of the mean			205		3.1	5.9	8.8	.4
Least significant difference, 5%			575		8.8	16.5	24.7	1.3

Correlations

Days to maturity	.67**			
Height	.52**	.57**		
Lodging %	-.45**	-.40**	-.19	
1000 grain weight	.88**	.67**	.49**	-.51**

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 35 AFRICA

KENYA. Molo. (Grassland Research Station) Latitude: 0° 14' S. Longitude: 35° 56' E. Elevation: 2804.16 meters above sea level.
Cooperators: V. P. Patel and Paul Kirika.

Planting Date: 13 June 1967. Precipitation during test: 659.4 mm. Irrigation: nil. Fertilizer: 22.4 Kg./Ha. N; 67.2 Kg./Ha. P_2O_5.
General Comments: Good climatic conditions during growing season. Stripe rust levels were normal, stem rust higher than normal and brown rust below normal. No weed or pest problems.

Scoring notes taken: Yellow rust, brown rust and ear rust (yellow) - 15 & 27 September; stem rust - 10 November; lodging - 28 December; shattering and neck break - 9 January.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. Lbs/Bu	Days to: flowering	Days to: maturity	Stripe rust	Yellow Ear rust %	Leaf rust	Stem rust	Height cms.	Lodging %	Shattering %	1000 grain weight gms.	Neck break %
Bonza 63	Colombia	27	5257	60.0	108	179	40	10	10MS	tS	140	5	0	38.3	0
Pj sib x Gb 55 (red grain)	Mexico	24	5023	56.6	111	175	20S	25	tMS	10VS	106	1	0	31.8	2
Pj sib x Gb 55 (white grain)	Mexico	28	4822	55.3	109	171	50S	10	40S	5S	106	0	0	29.4	2
Tobari 66	Mexico	49	4643	63.3	106	172	tMS	0	5S	5S	109	0	0	42.9	0
NP 881	India	25	4637	55.6	107	173	60S	5	2MS	2S	134	20	0	36.0	0
Nainari 60	Mexico	12	4570	57.9	111	172	80S	50	15VS	40VS	134	2	0	35.8	0
Yaqui 50	Mexico	33	4550	52.5	107	165	10S	70	20VS	10S	130	5	0	35.0	0
Bonza 55	Colombia	13	4540	59.[illegible]	109	177	20S	2	30S	10VS	153	5	0	34.8	0
Lerma Rojo 64A	Mexico	7	4534	59.6	108	169	5S	0	2S	50VS	118	20	10	36.8	0
Crespo 63	Colombia	36	4388	58.3	109	175	30S-MS	0	40S-VS	70S	133	5	0	26.1	0
Tiba 63	Colombia	30	4379	56.7	106	168	20S	2	tS-30VS	30S	115	5	0	40.3	0
Noroeste 66	Mexico	40	4374	60.8	108	169	40MS-S	0	tS	tMS	100	0	4	37.3	1
Huelquen	Chile	4	4257	58.0	108	162	tMS	0	0	5VS	127	5	0	33.2	0
Klein Rendidor	Argentina	50	4159	62.8	108	169	tS	2	15VS	25VS	126	1	0	36.1	0
INIA 66	Mexico	37	4105	61.1	108	168	20S	0	5S	2MS	107	0	0	45.1	0
Napo 63	Colombia	2	3949	58.4	109	161	20S	0	tVS	10S	116	2	4	37.8	0
Nar sib (2) x Pj sib	Chile	1	3891	57.3	107	169	40S	50	5S	2VS	96	2	4	34.7	0
Tacuari	Argentina	35	3715	59.2	109	170	2MS	2	20MS	70StA	143	25	0	22.4	1
Chris	USA	11	3700	61.2	109	177	5S	2	tS	50S	147	30	0	30.5	0
Jaral 66	Mexico	38	3695	59.7	108	164	15S	2	80S-VS	80VS	103	0	0	31.0	5
Nariño 59	Colombia	46	3592	55.2	107	169	5MS	0	50S-VS	70StA	129	5	0	28.3	0
Son 64 x TzPP-Nai 60	Mexico	22	3515	60.5	109	167	10S	0	tS	tStA	98	0	0	44.7	0
Klein Petiso x Rafaela	Argentina	44	3461	60.5	108	175	50S	20	0	10S	114	0	0	33.4	0
Pj 62-Chris sib x Son 64	Mexico	42	3441	60.1	111	164	10S	5	tMS	15S	100	0	0	39.5	0
Sonora 64	Mexico	14	3421	56.7	109	169	60S	30	10S	10S-40VS	102	1	0	30.4	0
Crim	USA	17	3378	54.5	109	178	70S	25	10S	0	139	30	0	28.8	0
NP 824	India	5	3353	59.6	108	170	10S	20	70S	2S	145	30	0	32.4	1
Roque 66	Mexico	41	3348	55.0	107	162	10S	5	2VS	2MS	90	5	0	28.7	0
C-591	India	20	3329	60.3	108	173	2MS	0	10VS	10S	145	30	0	38.4	2
Penjamo 62	Mexico	21	3280	56.1	108	162	30S	10	30S	70S	114	2	0	37.2	5
Mendos	Australia	6	3227	53.3	107	175	80S	30	20S	5S	115	5	0	33.2	0
NP 832	India	10	2996	57.9	109	171	30S	30	70VS	15S	148	40	10	33.4	0

El Gaucho	Argentina	48	2921	58.3	108	176	5MS	2	2MS	10MS	149	2	0	32.6	0
C-306	India	23	2846	61.7	109	168	15S	5	30S	5S	134	20	0	35.0	5
Justin	USA	8	2831	54.2	110	179	20S	15	2MS	tS	144	0	0	26.0	0
C-273	Pakistan	3	2748	60.3	107	165	20S	5	10VS	40VS	127	2	4	34.8	1
NP 880	India	39	2421	57.9	108	168	30MS	2	0	60VS	130	25	0	37.7	5
Centrifen	Chile	45	2396	50.4	106	160	5S	2	15-S	100VS	108	0	0	25.6	0
Gabo	Australia	34	2236	51.1	108	179	60S	60	tS	5MS	129	2	0	28.0	2
Pakistan 5725	Pakistan	29	2216	57.3	106	162	5S	5	20S	20S	108	5	0	29.3	1
Gaboto	Argentina	43	2152	54.7	112	175	30S	15	0	50VS	156	70	0	15.8	30
Giza 144	Egypt	26	2118	52.2	110	179	70S	20	10VS	0	153	2	0	29.8	2
C-518	India	16	2060	58.4	107	169	tMS	15	30S	20VS	124	15	0	26.4	0
Giza 150	Egypt	9	2046	52.0	103	176	90S	70	30VS	tMS	133	2	0	33.6	0
Carazinho	Brazil	18	1558	50.4	110	181	30S	10	15S	70VS	153	70	0	24.7	0
Triple Dirk	Australia	19	1552	50.3	109	183	19S	60	tMS	10VS-20S	150	5	0	31.2	2
C-271	Pakistan	15	1508	49.0	111	157	2S	2	80VS	100VS	123	10	0	22.9	0
Selkirk	Canada	31	1318	41.4	110	185	70S	70	40VS	tS	156	50	8	22.7	10
Pitic 62	Mexico	32	1016	43.5	109	169	90S	30	15VS	100S	117	20	0	16.0	1
Thatcher	Canada	47	326	1/	115	177	80S	40	2VS	40S	150	1	0	14.9	0
Mean			3193	55.2	106	167	4.96	16.66	3.52	4.49	124	11.6	.8	31.1	1.56
Coefficient of variation			21.4%	6.4%	2.8%	2.1%	36.5%	(only 1	44.7%	27.0%	4.3%	(only 1	(only 1	(only 1	(only 1
Standard error of the mean			395	2.0	1.7	2.1	1.04	rep.)	.91	.70	3.0	rep.)	rep.)	rep.)	rep.)
Least significant difference, 5%			1109	5.7	4.8	5.9	2.93		2.55	1.97	8.6				

Correlations

Test wt.	.64**											
Days to flowering	-.28 *	-.14										
Days to maturity	-.15	-.23	.29 *									
Stripe rust $\sqrt{X+1}$	-.36**	-.50**	.29 *	.39**								
Yellow ear rust %	-.32 *	-.56**	.05	.43**	.58**							
Leaf rust $\sqrt{X+1}$	-.10	.02	-.28 *	-.29 *	-.27	-.14						
Stem rust. $\sqrt{X+1}$	-.36 *	-.27	.21	-.27	-.01	-.18	.21					
Height	-.34 *	-.23	.39**	.65**	.11	.22	.10	.12				
Lodging %	-.32 *	-.26	.29 *	.32 *	.06	.04	.11	.33 *	.56**			
Shattering %	.03	-.05	.03	.02	.17	.14	.11	-.05	.03	.25		
1000 grain weight	.64**	.66**	-.44**	-.22	-.32 *	-.25	0.00	-.46**	-.36**	-.35 *	.08	
Neck break %	-.24	-.17	.32 *	.14	.22	.07	-.10	.21	.26	.55**	.03	-.28 *

* = Significant at the 5% level
** = Significant at the 1% level

1/ No data available

TABLE 36 AFRICA

KENYA. Njoro. (Plant Breeding Station). Latitude: 0° 20' S. Longitude: 35° 50' E. Elevation: 2164 meters above sea level.
Cooperator: Dr. V. P. Patel.

Planting Date: 15 May 1967. Precipitation during test: 369.2 mm. Irrigation: nil. Fertilizer: 11.2 Kg. N/Ha.; 33.6 Kg. P_2O_5 /Ha. + 5 Kg. copper/Ha.
General Comments: A dry start to the season with below average rainfall (78% normal). Lower than normal natural stem rust infection, but inoculation of surrounding field ensured good infection. Yellow and brown rusts were present at extremely low levels. Septoria was about normal. No weed or pest problems.
Scoring notes taken: Yellow and brown rust - 25 August; stem rust - 15 September, 16 October; lodging - 23 September; shattering and neck break - 17 October.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. Lbs/Bu	Days to: flowering	Days to: maturity	Stripe rust	Leaf rust	Stem rust	Height cms.	Lodging %	Shattering %	1000 grain weight gms	Neck break %
Nar sib (2) x Pj sib	Chile	1	4148	59.6	64	110	0	0	20MS-S	85	2	0	35.3	0
Pj sib x Gb 55 (red grain)	Mexico	24	4108	58.6	73	123	0	0	2VS	86	0	0	32.8	1
INIA 66	Mexico	37	3936	62.6	70	114	0	2MS	20MS	92	0	1	40.7	0
Mendos	Australia	6	3903	56.6	76	123	0	15MS	20S	102	1	2	40.7	0
Lerma Rojo 64A	Mexico	7	3869	62.0	72	115	0	0	15S-30MS	101	5	0	39.6	0
Klein Rendidor	Argentina	50	3859	62.7	81	129	0	2S	2MS-VS	121	20	0	44.8	0
Triple Dirk	Australia	19	3845	59.8	77	123	5S	20S	20S-50MS	128	2	0	43.5	0
Son 64 x TzPP-Nai 60	Mexico	22	3835	61.1	65	109	0	0	20MR-MS	84	2	0	40.1	0
NP 881	India	25	3830	61.1	74	122	0	0	2MS	116	2	0	39.5	2
Napo 63	Colombia	2	3791	60.3	67	109	TMS	20S	10S-20MS	109	5	1	37.4	0
Pj sib x Gb 55 (white grain)	Mexico	28	3693	61.1	74	119	0	2MS	5VS	88	1	0	37.1	2
Sonora 64	Mexico	14	3673	60.1	65	108	0	0	30S	83	0	0	33.4	0
Selkirk	Canada	31	3669	60.3	87	134	0	10MS	5MS	134	0	4	37.2	0
Yaqui 50	Mexico	33	3669	59.8	70	115	0	2S	20MS-S	113	5	0	36.8	1
Tobari 66	Mexico	49	3624	63.1	71	122	0	0	5MS	92	0	0	37.5	1
NP 824	India	5	3561	58.7	75	122	0	40S	30MS-S	129	10	0	43.5	0
Nainari 60	Mexico	12	3513	59.1	79	123	0	0	30MS-S	115	0	0	37.8	0
Huelquen	Chile	4	3503	57.3	73	117	0	0	5VS-15MS	111	2	0	32.5	0
NP 832	India	10	3488	62.6	76	125	0	40S	10S-20MS	132	5	0	43.6	0
Crim	USA	17	3487	60.8	79	123	0	0	2MS	129	2	1	34.8	0
Bonza 63	Colombia	27	3483	62.0	83	127	0	5MS	2MS-5VS	124	0	1	34.7	0
Pi 62-Chris sib x Son 64	Mexico	42	3459	62.1	64	113	0	0	15M-S	89	0	1	39.1	1
Giza 150	Egypt	9	3429	65.0	78	124	2MS	20S	5S-15MS	118	5	0	41.4	0
Bonza 55	Colombia	13	3395	55.8	83	133	0	0	15MS	128	1	0	33.2	0
Noroeste 66	Mexico	40	3380	61.8	72	116	0	0	15MS	86	1	60	41.7	0
Gabo	Australia	34	3278	1/	75	122	0	5MS	30MS-S	112	1	0	36.6	0
Penjamo 62	Mexico	21	3267	56.6	70	112	0	2MS	40S	92	5	0	32.1	40
Giza 144	Egypt	26	3228	62.3	84	134	0	0	2MS	127	1	0	37.7	0
Jaral 66	Mexico	38	3129	57.1	68	112	0	15S	70MS	90	2	2	28.1	1
Centrifen	Chile	45	3062	59.5	73	117	0	2MS	40MS	100	1	0	33.5	1
C-306	India	23	3004	64.1	82	132	0	2MS	30S	129	10	0	38.0	2
Chris	USA	11	2952	61.3	77	125	0	0	40S	133	2	0	31.2	0

Tacuari	Argentina	35	2951	58.3	77	123	0	2MS	70S	127	1	0	25.6	1
Tiba 63	Colombia	30	2910	59.8	78	120	0	0	10MS	103	2	60	38.6	10
Gaboto	Argentina	43	2857	60.0	95	126	0	0	40-SVS	135	1	0	27.2	0
Roque 66	Mexico	41	2852	57.6	64	108	0	0	TMS	78	2	1	28.8	2
Crespo 63	Colombia	36	2843	56.1	75	121	0	2MS	90M-S-S	118	1	0	29.7	0
Nariño 59	Colombia	46	2833	55.7	71	120	0	10MS	50MS	121	2	1	31.3	1
Justin	USA	8	2788	54.7	91	132	0	0	10S	122	0	0	25.7	0
Klein Petiso x Rafaela	Argentina	44	2686	60.5	72	124	0	0	20MS	99	0	0	30.2	1
NP 880	India	39	2680	61.6	71	114	0	0	60S	119	15	0	41.8	2
C-273	Pakistan	3	2525	57.3	77	124	0	0	70VS	122	5	0	30.5	2
Pitic 62	Mexico	32	2495	47.8	79	121	0	5S	80MS	103	5	0	24.1	2
El Gaucho	Argentina	48	2407	61.5	95	136	0	0	20MS	124	1	0	29.0	2
Pakistan 5725	Pakistan	29	2066	53.5	77	124	0	2MS	30S	101	10	50	27.7	50
Carazinho	Brazil	18	2003	52.3	90	134	0	0	70S	137	5	0	25.3	0
C-591	India	20	1865	58.6	85	127	0	0	50VS	137	2	0	30.8	2
C-518	India	16	1705	58.1	86	132	0	0	40S	116	2	0	25.3	10
C-271	Pakistan	15	1329	48.3	79	125	0	2S	70VS	117	2	0	24.4	2
Thatcher	Canada	47	912	40.1	98	135	2MS	90S	70VS	135	0	0	15.2	1
Mean			3058	57.4	75	119	1.12	2.10	4.72	109	2.5	3.7	33.2	2.80
Coefficient of variation			12.0%	4.6%	2.1%	2.5%	41.1%	43.1%	18.1%	2.7%	(only 1 rep.)	(only 1 rep.)	7.7%	(only 1 rep.)
Standard error of the mean			213	1.5	.9	1.7	.26	.52	.49	1.7			1.4	
Least significant difference, 5%			598	4.3	2.6	4.9	.74	1.47	1.38	4.8			4.1	

Correlations

Test wt.	.66**										
Days to flowering	-.55**	-.35*									
Days to maturity	-.47**	-.24	.90**								
Stripe rust $\sqrt{X+1}$	.14	-.09	.16	.15							
Leaf rust $\sqrt{X+1}$	-.27	-.43**	.19	.17	.28*						
Stem rust $\sqrt{X+1}$	-.65**	-.58**	.22	.12	-.06	.33*					
Height	-.35*	-.10	.72**	.74**	.22	.30*	.32*				
Lodging %	-.13	.04	-.11	-.09	-.02	.30*	.27	.18			
Shattering %	-.09	0.00	-.04	-.07	-.08	-.13	-.18	-.23	.10		
1000 grain weight	.76**	.76**	-.46**	-.33*	.16	-.06	-.56**	-.14	.21	.11	
Neck break %	-.23	-.19	-.04	-.08	-.10	-.10	.09	-.19	.34*	.43**	-.18

* = Significant at the 5% level
** = Significant at the 1% level

1/ No data available

TABLE 37.

AFRICA

REPUBLIC OF SOUTH AFRICA. Stellenbosch (University of Stellenbosch). Latitude: 33° 56' S. Longitude: 18° 51' E. Elevation: 91.44 meters above sea level.
Cooperators: Dr. F. X. Laubscher, J. C. Theron, and K. W. Pakendorf.

Planting Date: 29 December 1966. Precipitation during test: nil. Irrigation: 600 mm., overhead sprinklers. Fertilizer: 5-15-0 Mixture (N-P-K) 280 Kg./Ha.
General Comments: Dry summer conditions with mild temperatures. Disease development was severe. Pests and weeds were effectively controlled. This experiment was planted out of season, and consequently yields were depressed, but the varieties were differentiated for disease reaction and adaptation.
Scoring notes taken: Leaf rust - 27 February; stem rust - 19 March; lodging - 19 March; height - 20 March.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to: flowering	Days to: maturity	Leaf rust	Stem rust	Height cms.
Crim	USA	17	2149	77.3	53	85	0	15S	96
Tacuari	Argentina	35	2104	77.0	50	85	0	20S	86
Lerma Rojo 64A	Mexico	7	2002	77.3	45	81	0	40S	73
Noroeste 66	Mexico	40	1987	77.3	46	81	0	10S	71
Napo 63	Colombia	2	1863	75.1	42	81	2S	tS	73
Crespo 63	Colombia	36	1832	77.0	46	85	1	5S	81
Pi 62-Chris sib x Son 64	Mexico	42	1806	78.6	45	81	0	tS	63
Huelquen	Chile	4	1786	76.1	46	82	0	10S	68
INIA 66	Mexico	37	1786	78.6	45	81	0	15S	69
Pitic 62	Mexico	32	1772	72.0	49	84	t	5S	73
Tiba 63	Colombia	30	1745	71.1	49	84	5MS	30S	78
Tobari 66	Mexico	49	1705	77.3	46	84	0	tMR	66
NP 880	India	39	1668	81.4	44	83	t	5S	79
Nar sib (2) x Pj sib	Chile	1	1645	78.6	42	81	t	tS	58
Nariño 59	Colombia	46	1636	77.9	46	81	0	15MS-S	81
Triple Dirk	Australia	19	1606	72.3	49	82	t	60S	84
NP 881	India	25	1579	76.4	45	82	0	10S	71
Roque 66	Mexico	41	1575	74.8	45	82	t	tMS	68
Yaqui 50	Mexico	33	1565	78.6	44	81	0	15S	79
Sonora 64	Mexico	14	1563	79.8	44	81	t	2MS-S	63
Chris	USA	11	1520	77.0	50	85	0	tR	76
Son 64 x TzPP-Nai 60	Mexico	22	1487	73.6	51	81	0	0	58
Bonza 55	Colombia	13	1474	74.8	55	89	0	10S	78
Justin	USA	8	1446	73.6	56	92	0	25MS-S	86
Jaral 66	Mexico	38	1425	74.2	45	81	0	tS	69
Penjamo 62	Mexico	21	1418	78.9	46	81	2S	10S	66
Selkirk	Canada	31	1405	70.1	53	85	10MS	50S	79
Thatcher	Canada	47	1347	74.5	53	88	65S	tS	83
Pj sib x Gb 55 (white grain)	Mexico	28	1343	73.6	47	81	0	30S	74
Pj sib x Gb 55 (red grain)	Mexico	24	1186	73.6	49	82	2S	65S	63
Nainari 60	Mexico	12	1137	60.5	51	89	0	60S	71
Mendos	Australia	6	1127	76.1	51	88	2S	5MS	53

Klein Petiso x Rafaela	Argentina	44	1105	73.6	45	82	0	tR	69
Centrifen	Chile	45	969	72.3	49	82	t	40S	66
Carazinho	Brazil	18	887	68.0	64	98	0	30S	84
Ponza 63	Colombia	27	849	74.2	55	89	t	5S	76
NP 824	India	5	802	66.7	44	81	0	80S	83
Gabo	Australia	34	801	64.8	49	84	10S	90S	69
Gaboto	Argentina	43	759	68.6	71	100	0	40S	88
Giza 144	Egypt	26	736	70.5	54	92	t	20S	68
NP 832	India	10	696	61.4	44	82	0	80S	78
Giza 150	Egypt	9	676	69.8	53	85	t	100S	74
C-306	India	23	665	72.9	66	98	10S	65S	68
C-273	Pakistan	3	663	75.1	46	82	0	70S	81
El Gaucho	Argentina	48	618	62.0	71	116	0	25S	83
C-591	India	20	604	74.2	56	89	0	70S	89
Pakistan 5725	Pakistan	29	577	58.6	46	84	5S	80S	71
C-271	Pakistan	15	291	57.4	59	85	0	70S	84
C-518	India	16	288	59.9	60	92	0	80S	73
Klein Rendidor	Argentina	50	223	58.6	78	116	0	40S	83
Mean			1273	71.3	49	84	2.12	4.50	72
Coefficient of variation			25.7%	(only 1	(only 1	2.9%	59.5%	22.1%	8.4%
Standard error of the mean			189	rep.)	rep.)	1.4	.73	.57	3.5
Least significant difference, 5%			530			4.0	2.05	1.61	9.9

Correlations

Test wt.	.74**					
Days to flowering	-.53**	-.45**				
Days to maturity	-.48**	-.41**	.90**			
Leaf rust $\sqrt{X+1}$	-.13	-.10	-.02	-.09		
Stem rust $\sqrt{X+1}$	-.83**	-.64**	.18	.07	.18	
Height	-.08	-.19	.39**	.33 *	-.06	.26

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 38. AFRICA

REPUBLIC OF SOUTH AFRICA. Riviersonderend. (Winter Rainfall Region). Latitude: 34° 09' S. Longitude: 20° 00' E. Elevation: 152.40 meters above sea level.
Cooperator: Dr. D. J. Roe ouw.

Planting Date: 11 May 1967. Precipitation during test: 277.5 mm. Irrigation: nil. Fertilizer: 224 Kg./Ha. 2-1-0 (19%) in May; 67.2 Kg./Ha. Calcium-Nitrate in June.

General Comments: Nights and days cold, high humidity. Heavy infection of Septoria tritici - no rust development. No weed or pest problems.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. Lbs/Bu	Days to: flowering	Days to: maturity	Height cms.	1000 grain weight gms.
INIA 66	Mexico	37	2645	64.5	103	137	110	1/
Triple Dirk	Australia	19	2587	63.9	131	173	123	40.9
Carazinho	Brazil	18	2341	63.8	131	173	128	36.3
Tacuari	Argentina	35	2232	63.9	131	165	131	27.1
Pitic 62	Mexico	32	2152	57.1	124	166	92	30.0
Pj sib x Gb 55 (white grain)	Mexico	28	2136	60.2	124	166	100	28.0
Centrifen	Chile	45	2081	61.6	111	145	112	31.3
Pj sib x Gb 55 (red grain)	Mexico	24	2030	60.8	120	162	90	27.5
Gaboto	Argentina	43	2027	63.3	131	169	140	29.0
Nainari 60	Mexico	12	1962	59.1	124	168	125	30.0
Crespo 63	Colombia	36	1913	59.5	111	153	125	28.8
Penjamo 62	Mexico	21	1822	61.1	111	155	90	28.2
Crim	USA	17	1817	62.3	124	156	123	32.0
Klein Petiso x Rafaela	Argentina	44	1796	59.2	110	142	125	26.5
Flameks	S. Africa	50	1784	65.2	124	165	136	33.4
Giza 150	Egypt	9	1748	62.4	120	152	110	31.2
Pi 62-Chris sib x Son 64	Mexico	42	1695	63.7	103	137	101	32.9
Noroeste 66	Mexico	40	1682	59.1	117	155	105	30.1
Lerma Rojo 64A	Mexico	7	1673	59.7	110	152	114	27.7
Nar sib (2) x Pj sib	Chile	1	1630	59.0	95	140	90	25.9
Mendos	Australia	6	1604	58.6	119	161	113	31.0
Tobari 66	Mexico	49	1576	62.1	103	145	110	31.9
Napo 63	Colombia	2	1573	57.0	103	137	120	27.0
Chris	USA	11	1573	62.0	124	166	124	24.1
Thatcher	Canada	47	1541	62.2	140	180	135	23.7
Justin	USA	8	1497	62.6	140	180	130	27.1
Huelquen	Chile	4	1477	59.9	120	158	115	30.9
Bonza 55	Colombia	13	1469	57.9	120	162	131	26.9
Gabo	Australia	34	1445	58.6	131	165	130	29.0
Bonza 63	Colombia	27	1411	60.0	120	162	130	27.1
El Gaucho	Argentina	48	1379	63.2	124	165	130	30.1
NP 880	India	39	1356	64.1	140	174	150	40.0

Yaqui 50	Mexico	33	1345	56.9	111	143	130	24.8
Selkirk	Canada	31	1330	60.1	124	174	123	28.0
Nariño 59	Colombia	46	1325	59.9	111	145	135	27.2
NP 881	India	25	1321	60.5	124	158	136	29.8
Jaral 66	Mexico	38	1309	60.7	103	137	100	26.2
Son 64 x TzPP-Nai 60	Mexico	22	1245	60.0	103	135	90	31.9
NP 832	India	10	1173	60.3	120	162	133	28.0
Tiba 63	Colombia	30	1112	57.6	111	145	120	31.5
NP 824	India	5	1066	59.8	120	164	150	27.4
Giza 144	Egypt	26	1031	61.5	124	166	133	27.7
Roque 66	Mexico	41	998	53.0	103	137	105	19.0
Sonora 64	Mexico	14	993	57.0	103	137	92	23.2
C-271	Pakistan	15	916	57.6	117	161	120	26.2
C-273	Pakistan	3	653	58.5	124	168	140	24.9
C-591	India	20	631	58.8	131	173	140	21.2
C-518	India	16	468	55.7	131	173	120	19.0
C-306	India	23	328	50.2	124	158	130	16.7
Pakistan 5725	Pakistan	29	268	42.8	131	165	113	19.0
Mean			1468	58.4	116	154	117	27.4
Coefficient of variation			15.0%	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)
Standard error of the mean			127					
Least significant difference, 5%			358					

Correlations

Test wt.	.66**				
Days to flowering	-.06	.08			
Days to maturity	-.04	.11	.94**		
Height	-.23	.13	.59**	.53**	
1000 grain weight	.66**	.68**	.07	.07	.02

* = Significant at the 5% level
** = Significant at the 1% level

1/ No data available

TABLE 39. AFRICA

REPUBLIC OF SOUTH AFRICA. Rustenburg. (Tobacco Research Institute). Latitude: 25° 40'S. Longitude: 27° 14'E. Elevation: 1234.14 meters above sea level. Cooperator: Dr. D. J. Rossouw.

Planting Date: 2 June 1967. Precipitation during test: nil. Irrigation: 240 mm. Fertilizer: 264.3 Kg./Ha. 2-3-2 (19%) on 2 June; 212.8 Kg./Ha. Amm. Sulphate (20.5% N) on 17 July.

General Comments: Cold nights with warm days and no rain. Disease development was slight, also a slight infestation of aphids during the ripening stage.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to flowering	Days to maturity	Stem rust	Height cms.	Lodging %	Shattering %	1000 grain weight gms.
Sonora 64	Mexico	14	6003	79.8	96	130	tS	90	5	0	33.4
Son 64 x TzPP-Nai 60	Mexico	22	5671	79.8	96	132	0	90	5	0	40.0
INIA 66	Mexico	37	5557	83.6	96	130	tS	108	0	0	43.1
Lerma Rojo 64A	Mexico	7	5502	82.3	98	140	tS	115	5	0	39.9
Pakistan 5725	Pakistan	29	5479	78.6	96	130	tS	110	10	0	45.6
Napo 63	Colombia	2	5373	78.6	96	130	0	115	60	0	36.4
Penjamo 62	Mexico	21	5313	76.1	96	140	tS	88	70	1	33.9
Pitic 62	Mexico	32	5280	74.8	98	140	tS	97	10	0	37.2
Gabo	Australia	34	5266	76.1	96	129	tS	127	40	0	34.1
Roque 66	Mexico	41	5175	76.1	96	130	0	105	30	0	27.7
Pj sib x Gb 55 (red grain)	Mexico	24	5105	78.6	102	140	5S	89	5	0	34.8
Noroeste 66	Mexico	40	5026	78.6	102	140	tS	105	5	0	37.9
Pi 62-Chris sib x Son 64	Mexico	42	4963	82.3	90	129	tS	101	5	0	34.1
Pj sib x Gb 55 (white grain)	Mexico	28	4949	76.1	102	140	tS	97	10	1	31.0
Huelquen	Chile	4	4911	76.1	102	140	tS	115	60	0	36.9
Tobari 66	Mexico	49	4851	79.8	98	140	0	106	0	0	32.1
C-518	India	16	4838	81.1	98	140	5S	117	90	1	37.4
Nainari 60	Mexico	12	4837	77.3	96	140	5S	124	30	0	39.9
Giza 150	Egypt	9	4805	81.1	98	130	20S	111	90	0	37.6
Jaral 66	Mexico	38	4729	78.6	96	130	tS	99	20	0	30.9
Nar sib (2) x Pj sib	Chile	1	4683	76.1	96	140	tS	92	70	0	28.9
Yaqui 50	Mexico	33	4682	76.1	98	130	tS	133	60	3	38.9
C-271	Pakistan	15	4656	78.6	96	140	20S	115	60	0	41.0
Tiba 63	Colombia	30	4625	79.8	96	130	0	117	70	3	43.0
C-273	Pakistan	3	4620	79.8	96	140	tS	142	90	0	41.5
Centrifen	Chile	45	4596	78.6	96	130	tS	110	90	0	35.0
C-591	India	20	4453	82.3	98	130	5S	149	95	0	37.2
Giza 144	Egypt	26	4411	81.1	98	140	5S	131	60	0	36.5
NP 824	India	5	4381	79.8	96	140	5S	148	10	0	38.0
Mendos	Australia	6	4374	76.1	98	140	0	113	0	2	35.9
C-306	India	23	4342	82.3	96	130	tS	132	70	0	36.0
NP 881	India	25	4327	79.8	96	130	tS	136	10	1	38.0

Klein Petiso x Rafaela	Argentina	44	4324	77.3	98	130	tS	123	90	0	26.6
NP 832	India	10	4287	79.8	102	140	20S	131	90	0	37.0
Triple Dirk	Australia	19	4245	78.6	102	140	5S	123	95	0	39.9
NP 880	India	39	4240	83.6	96	130	tS	149	90	0	47.8
Crespo 63	Colombia	36	4218	79.8	98	140	5S	126	40	0	32.0
Crim	USA	17	4147	77.3	98	130	tS	123	90	0	34.8
Tacuari	Argentina	35	4028	82.3	102	140	tS	131	40	0	29.1
Bonza 63	Colombia	27	4004	78.6	102	140	5S	127	30	2	22.3
Nariño 59	Colombia	46	3995	77.3	102	130	0	136	90	2	27.6
Carazinho	Brazil	18	3891	78.6	102	140	tS	127	80	0	37.1
Gaboto	Argentina	43	3806	79.8	102	140	0	137	70	0	29.9
Bonza 55	Colombia	13	3798	77.3	98	140	tS	129	30	0	31.2
Punyab	India	50	3600	79.8	98	140	20S	134	90	0	38.5
Chris	USA	11	3382	77.3	102	140	tS	124	80	3	27.3
Selkirk	Canada	31	3330	76.1	109	140	5S	123	50	2	33.2
Justin	USA	8	2888	77.3	109	150	tS	131	50	13	29.8
El Gaucho	Argentina	48	2840	79.8	109	140	0	131	90	0	30.2
Thatcher	Canada	47	1936	76.1	111	150	0	135	90	0	23.7
Mean			4423	77.2	97	133	1.70	116	49.8	.6	34.2
Coefficient of variation			8.7%	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)
Standard error of the mean			249								
Least significant difference, 5%			700								

Correlations

Test wt.	.14							
Days to flowering	-.74**	-.29*						
Days to maturity	-.50**	-.27	.64**					
Stem rust $\sqrt{X+1}$	.01	.18	0.00	.13				
Height	-.60**	.25	.26	.09	.10			
Lodging %	-.52**	-.02	.25	.03	.19	.50**		
Shattering %	-.37**	-.21	.39**	.32*	-.10	.13	.02	
1000 grain weight	.49**	.39**	-.45**	-.29*	.20	.02	-.10	-.19

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 40. ASIA

TURKEY. Adapazari (Regional Agricultural Research Station). Latitude: 40° 47' N. Longitude: 29° 38 E. Elevation: 33 meters above sea level.
Cooperator: Sadettin Demiroz.

Planting Date: 25 December 1966. Precipitation during test: 586.2 mm. from 4 December to the end of June, 1967. Irrigation: Nil. Fertilizer: 140 N-70P-40K Kg./Ha.
General Comments: Rain occurred throughout the growing season. There were natural epidemics of P. glumarum, P. recondita and P. tritici. No weed or pest problems.
Scoring notes taken: Plant height - 30 May; lodging - 5 to 22 June; shattering - 15 to 28 June; diseases - 20 May to 19 June.

Variety or cross	Origin	Variety Number	Yield kg/ha.	Test wt. kg/hl	Days to: flowering	Days to: maturity	Stripe rust	Leaf rust	Stem rust	Height cms.	Lodging %	1000 grain weight gms.
Lerma Rojo 64A	Mexico	7	5032	76.6	153	186	0	0	0	90	0	42.5
Noroeste 66	Mexico	40	4188	78.4	154	188	0	25S	0	83	0	42.1
Pitic 62	Mexico	32	3988	73.2	157	190	0	10MS	0	93	0	39.1
Carazinho	Brazil	18	3988	79.5	157	192	10MS	10MS	0	104	0	46.2
Sonora 64	Mexico	14	3899	74.6	153	187	50S	0	0	75	0	44.4
Nar sib (2) x Pj sib	Chile	1	3777	77.1	151	186	0	90VS	0	80	0	39.0
Penjamo 62	Mexico	21	3777	76.2	154	188	0	0	0	85	0	42.6
Triple Dirk	Australia	19	3744	78.2	158	195	80VS	0	0	115	15	43.3
Pj sib x Gb 55 (red grain)	Mexico	24	3632	78.2	158	193	0	0	0	83	0	37.0
Nariño 59	Colombia	46	3632	76.7	157	191	0	40S	0	103	0	39.0
Yaqui 50	Mexico	33	3566	77.3	155	188	0	0	0	98	0	38.4
Tacuari	Argentina	35	3477	78.0	157	192	0	0	0	106	0	30.1
Napo 63	Colombia	2	3455	76.7	154	187	0	80VS	0	95	0	41.4
Pi 62-Chris sib x Son 64	Mexico	42	3444	79.4	154	188	0	0	0	80	0	38.2
Nainari 60	Mexico	12	3444	78.1	155	190	15S	0	0	98	0	43.5
V Z 133	Italy	50	3377	77.5	157	194	0	80VS	0	78	0	34.7
C-271	Pakistan	15	3355	76.0	154	190	0	70S	25S	96	0	33.7
Klein Petiso x Rafaela	Argentina	44	3044	79.8	155	188	0	0	0	93	5	35.5
Mendos	Australia	6	3010	72.5	155	191	5MR	0	0	88	0	41.1
Crespo 63	Colombia	36	2977	76.7	157	191	0	0	0	101	0	45.4
Pj sib x Gb 55 (white grain)	Mexico	28	2977	78.2	158	193	0	40S	0	85	0	36.5
C-306	India	23	2977	80.1	153	188	0	0	0	110	10	44.7
Bonza 63	Colombia	27	2966	76.2	156	190	0	0	0	101	0	34.8
Justin	USA	8	2933	76.7	161	195	0	0	0	116	0	33.1
Gaboto	Argentina	43	2899	79.7	157	192	0	0	0	108	0	33.3
INIA 66	Mexico	37	2821	77.2	153	186	0	0	0	80	0	41.1
C-518	India	16	2777	80.0	156	192	0	50S	0	95	0	43.6
Huelquen	Chile	4	2755	76.5	157	193	0	0	0	100	0	38.2
Tiba 63	Colombia	30	2744	74.6	154	186	0	60S	0	95	0	42.7
C-591	India	20	2733	92.1	154	188	0	10MS	0	115	10	43.1
NP 880	India	39	2721	79.3	154	190	10MS	0	0	103	5	49.4
Son 64 x TzPP-Nai 60	Mexico	22	2710	76.5	154	187	0	0	0	76	0	42.1

Tobari 66	Mexico	49	2688	79.5	155	189	0	0	0	85	0	40.2
C-273	Pakistan	3	2644	81.2	154	187	0	15S	0	100	5	46.0
Roque 66	Mexico	41	2610	77.1	154	187	0	0	0	78	0	30.1
NP 824	India	5	2599	79.3	155	191	0	80VS	0	103	0	45.3
Chris	USA	11	2521	78.8	158	194	0	0	0	108	0	35.0
Giza 150	Egypt	9	2473	76.7	156	190	0	15S	10MS	96	0	28.8
Crim	USA	17	2477	78.3	157	194	0	0	0	108	5	38.0
NP 881	India	25	2399	76.7	155	192	0	0	0	103	15	43.2
Bonza 55	Colombia	13	2310	75.2	157	193	5MR	0	0	100	0	38.6
NP 832	India	10	2299	80.1	156	192	5MR	0	0	108	0	43.5
Thatcher	Canada	47	2088	77.5	162	197	0	80VS	0	108	0	29.6
El Gaucho	Argentina	48	2088	78.2	157	194	0	0	0	100	0	35.7
Pakistan 5725	Pakistan	29	2066	76.0	154	190	0	0	0	85	0	42.7
Centrifen	Chile	45	2055	76.3	154	186	0	15S	0	75	0	40.0
Jaral 66	Mexico	38	2055	78.7	154	188	0	10MS	0	76	0	34.0
Giza 144	Egypt	26	2044	76.7	157	191	0	0	0	105	0	42.1
Selkirk	Canada	31	2022	75.3	161	197	0	0	0	108	0	34.6
Gabo	Australia	34	1677	72.4	154	189	0	0	0	93	0	32.2
Mean			2891	76.1	152	186	1.33	3.31	1.18	94	1.4	38.5
Coefficient of variation			28.7%	.1%	.7%	1.1%	81.7%	58.6%	53.6%	6.2	(only 1	.2
Standard error of the mean			480	.0	.6	1.2	.47	1.12	.36	3.4	rep.)	.0
Least significant difference, 5%			1346	.2	1.7	3.3	1.32	3.14	1.03	9.5		.1

Correlations

Test wt.	-.02								
Days to flowering	-.21	-.09							
Days to maturity	-.30 *	-.03	.91**						
Stripe rust $\sqrt{X+1}$	.24	-.15	-.08	.01					
Leaf rust $\sqrt{X+1}$	-.01	.03	-.11	-.10	-.15				
Stem rust $\sqrt{X+1}$	-.09	-.04	-.23	-.12	-.11	.52**			
Height	-.15	.30 *	.56**	.64**	-.09	.04	-.04		
Lodging %	-.02	.40**	-.07	.08	.24	-.03	-.09	.40**	
1000 grain weight	.25	.21	-.39**	-.28 *	.28 *	.13	.01	-.01	.31 *

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 41. ASIA

TURKEY. Eskisehir. Latitude: 36° 45' N. Longitude: 30° 95' E. Elevation: 789 meters above sea level.
Cooperators: Huseyin Kutluk and Erol Karma.

Planting Date: 23 March 1967. Precipitation during test: 220.7 mm. annual rainfall. Irrigation: Nil. Fertilizer: 40 Kg./Ha. P_2O_5.
General Comments: Driest season in 40 years. The Spring was 15 days later than usual and it was cool, encouraging stripe rust infection.
Scoring notes taken: Plant height - 26 July; P. glumarum - 15 June; P. recondita - 27 June; P. graminis - 8 July; lodging - 3 August; shattering - 25 August

Variety or Cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to: flowering	Days to: maturity	Stripe rust %	Leaf rust %	Stem rust %	Height cms.	Lodging scale 1/	1000 grain weight gms.
Pitic 62	Mexico	32	2777	78.6	77	110	50	10	0	67	2	32.3
Lerma Rojo 64A	Mexico	7	2477	83.7	73	110	50	0	40	76	2	39.3
INIA 66	Mexico	37	2388	83.2	73	108	30	0	0	64	1	37.6
Bonza 63	Colombia	27	2288	81.2	76	112	30	20	0	86	1	33.9
Penjamo 62	Mexico	21	2277	82.9	71	107	50	0	0	69	3	37.8
Noroeste 66	Mexico	40	2266	81.8	71	107	70	0	0	63	1	36.6
Nar sib (2) x Pj sib	Chile	1	2222	82.5	70	107	20	10	0	68	1	31.2
Klein Rendidor	Argentina	50	2199	81.1	75	110	40	20	10	60	1	32.0
Napo 63	Colombia	2	2188	82.9	72	106	40	0	0	63	1	33.2
Huelquen	Chile	4	2177	82.4	78	113	20	0	0	82	2	35.9
Tacuari	Argentina	35	2166	82.4	77	109	10	0	0	87	2	28.9
Pj sib x Gb 55 (white grain)	Mexico	28	2166	81.7	76	108	60	0	0	66	1	30.0
Yaqui 50	Mexico	33	2144	82.6	70	108	0	10	10	80	2	36.8
Bonza 55	Colombia	13	2133	81.9	75	107	30	10	0	83	2	35.4
Nariño 59	Colombia	46	2122	82.2	74	111	40	0	0	88	2	32.9
C-306	India	23	2099	84.2	76	115	40	20	0	87	2	42.7
Pi 62-Chris sib x Son 64	Mexico	42	2044	82.8	70	108	40	0	0	70	1	35.1
Crespo 63	Colombia	36	2010	82.4	74	110	20	0	0	84	2	36.1
Roque 66	Mexico	41	1988	80.2	72	106	30	0	0	63	1	28.9
Tiba 63	Colombia	30	1988	78.6	71	107	20	0	0	74	1	38.0
El Gaucho	Argentina	48	1977	83.6	76	109	20	0	0	88	2	31.0
Pj sib x Gb 55 (red grain)	Mexico	24	1966	81.2	81	109	50	0	0	64	1	30.7
Crim	USA	17	1955	82.5	76	110	40	10	0	93	2	32.2
Nainari 60	Mexico	12	1822	79.7	74	112	60	10	0	72	1	35.3
Justin	USA	8	1822	82.1	78	114	40	0	0	88	2	31.9
Carazinho	Brazil	18	1810	81.7	79	114	40	30	30	89	1	38.3
Centrifen	Chile	45	1788	81.7	71	109	20	0	0	72	2	35.9
Gaboto	Argentina	43	1788	83.4	79	112	40	0	0	86	2	29.0
NP 881	India	25	1766	83.1	73	108	20	0	0	81	2	34.8
Son 64 x TzPP-Nai 60	Mexico	22	1660	80.0	70	106	50	0	0	57	1	33.3
Tobari 66	Mexico	49	1649	82.8	74	108	20	0	0	66	1	34.0
Jaral 66	Mexico	38	1616	81.7	73	107	30	0	0	68	1	28.1

Klein Petiso x Rafaela	Argentina	44	1605	81.9	74	109	30	0	0	70	1	31.2
Sonora 64	Mexico	14	1588	81.9	74	107	60	20	0	60	1	30.4
NP 824	India	5	1566	82.8	78	112	60	20	0	86	2	39.6
C-591	India	20	1549	85.0	74	112	20	40	10	89	3	38.0
NP 832	India	10	1488	83.6	74	110	80	0	0	86	2	37.8
Pakistan 5725	Pakistan	29	1466	81.4	74	111	50	0	0	63	1	39.0
Triple Dirk	Australia	19	1377	81.4	79	113	70	0	0	78	2	34.1
C-518	India	16	1372	84.5	72	108	40	20	30	75	2	38.8
NP 880	India	39	1355	84.4	75	113	40	20	0	81	2	49.4
C-273	Pakistan	3	1310	84.2	76	111	30	20	20	84	2	36.3
C-271	Pakistan	15	1260	82.8	73	108	50	20	40	65	1	38.9
Selkirk	Canada	31	1244	76.9	79	108	60	0	0	76	2	30.0
Mendos	Australia	6	1244	76.5	73	107	70	0	0	66	1	33.1
Thatcher	Canada	47	1238	79.8	75	109	50	10	0	78	2	26.0
Chris	USA	11	1199	81.3	79	110	60	0	0	78	2	25.1
Giza 144	Egypt	26	1149	84.2	75	107	70	0	0	77	2	34.1
Giza 150	Egypt	9	1011	82.7	72	108	80	0	0	74	1	34.2
Gabo	Australia	34	866	72.8	71	111	90	0	0	68	1	26.9
Mean			1749	80.2	73	107	41.80	6.00	3.60	74		33.5
Coefficient of variation			13.5%	1.6%	2.4%	1.4%	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)	5.7%		5.4%
Standard error of the mean			136	.7	1.0	.9				2.4		1.0
Least significant difference, 5%			382	2.0	2.8	2.5				6.9		2.9

Correlations

Test wt.	.20								
Days to flowering	-.06	.04							
Days to maturity	-.03	.11	.59**						
Stripe rust %	-.47**	-.38**	.12	.03					
Leaf rust %	-.10	.29 *	.11	.36**	-.14				
Stem rust %	-.06	.26	-.07	.08	-.05	.44**			
Height	.06	.37**	.42**	.53**	-.28 *	.31 *	.06		
1000 grain weight	.11	.47**	-.19	.28	-.11	.40**	.32 *	.16	

* = Significant at the 5% level
** = Significant at the 1% level

1/ Scale key 1-5 (1 = least lodging)

TABLE 42. ASIA

CYPRUS. Syngrassi. Latitude: 35° 6' N. Longitude: 32° 25 E. Elevation: 50 meters above sea level.
Cooperators: Department of Agriculture, Nicosia.

Planting Date: 19 December 1966. Precipitation during test: 420 mm. Irrigation: nil. Fertilizer: Amm. Sulphate 150 Kg./Ha.; Superphosphate 200 Kg./Ha.

General Comments: A very favourable year for wheat production. Very low incidence of disease. Weeds were a problem.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to flowering	Leaf rust	Height cms.	Lodging %	1000 grain weight gms.	Mildew
Pitic 62	Mexico	32	4021	78.0	112	R	108	0	37.6	15S
Nar sib (2) x Pj sib	Chile	1	3677	81.5	110	R	93	0	38.8	10S
Pj sib x Gb 55 (red grain)	Mexico	24	3666	80.5	114	10S	96	0	38.6	20S
Penjamo 62	Mexico	21	3410	80.5	113	R	98	0	44.1	20S
Lerma Rojo 64A	Mexico	7	3355	82.0	111	R	106	0	43.4	20S
Nainari 60	Mexico	12	3333	77.0	112	R	115	0	41.4	10S
Huelquen	Chile	4	3277	81.0	114	R	127	0	40.9	25S
INIA 66	Mexico	37	3221	83.5	110	R	97	0	43.5	15S
Triple Dirk	Australia	19	3210	81.0	117	R	129	0	49.0	15S
Crespo 63	Colombia	36	3188	81.0	112	R	120	0	38.7	15S
Napo 63	Colombia	2	3177	80.5	111	R	119	0	37.8	10S
Bonza 55	Colombia	13	3066	80.0	111	R	128	0	38.3	10S
Son 64 x TzPP-Nai 60	Mexico	22	3033	83.0	110	R	88	0	45.4	15S
Pj sib x Gb 55 (white grain)	Mexico	28	3021	81.0	116	R	93	0	36.7	20S
Pj 62-Chris sib x Son 64	Mexico	42	3010	84.0	110	R	99	0	44.1	20S
NP 832	India	10	2999	83.0	112	R	130	5	42.2	25S
Carazinho	Brazil	18	2988	82.0	117	R	130	0	45.9	15S
Klein Petiso x Rafaela	Argentina	44	2944	81.0	110	R	110	0	32.0	15S
NP 881	India	25	2899	81.0	112	R	126	6	42.0	15S
NP 824	India	5	2877	83.0	111	R	126	10	41.2	15S
Bonza 63	Colombia	27	2810	79.5	114	R	120	0	36.4	15S
Yaqui 50	Mexico	33	2788	80.0	111	R	123	0	35.8	25S
Tacuari	Argentina	35	2766	82.0	117	R	126	0	33.8	10S
Noroeste 66	Mexico	40	2766	80.0	113	R	89	0	40.9	15S
C-271	Pakistan	15	2744	82.0	110	R	113	0	39.3	25S
NP 880	India	39	2710	85.0	110	R	125	11	51.3	20S
Gaboto	Argentina	43	2699	81.5	117	R	132	2	33.2	10S
Centrifen	Chile	45	2688	82.5	110	R	103	1	42.2	15S
Nariño 59	Colombia	46	2677	81.0	110	R	124	3	39.3	15S
Roque 66	Mexico	41	2621	78.0	110	R	95	0	30.0	30S
Mendos	Australia	6	2577	78.0	113	20S	104	0	39.4	25S
Tobari 66	Mexico	49	2577	82.5	110	R	95	0	40.8	15S

Tiba 63	Colombia	30	2477	79.0	110	R	99	0	43.0	10S
Giza 144	Egypt	26	2444	80.0	117	R	125	4	41.6	20S
C-306	India	23	2444	82.5	110	R	118	14	40.7	20S
Crim	USA	17	2433	80.0	117	R	123	0	34.4	20S
Kyperounda	Cyprus	50	2366	81.0	124	5S	124	8	43.2	20S
C-273	Pakistan	3	2310	85.0	112	R	120	1	39.9	15S
C-591	India	20	2310	83.0	111	R	123	7	37.5	25S
Jaral 66	Mexico	38	2299	81.0	110	R	92	0	33.1	25S
C-518	India	16	2199	82.0	113	R	111	0	35.6	80S
El Gaucho	Argentina	48	2188	81.0	120	R	115	0	33.4	15S
Sonora 64	Mexico	14	2177	79.0	110	10S	91	0	30.8	20S
Justin	USA	8	1955	79.0	124	R	131	0	34.2	20S
Chris	USA	11	1922	81.5	115	R	128	1	34.6	15S
Giza 150	Egypt	9	1877	80.0	113	20S	112	0	35.4	25S
Gabo	Australia	34	1666	73.0	112	80VS	104	0	31.1	50VS
Selkirk	Canada	31	1366	76.0	119	40VS	134	0	31.8	30VS
Pakistan 5725	Pakistan	29	1322	74.0	111	R	90	0	30.6	20S
Thatcher	Canada	47	1244	76.0	124	R	126	0	25.6	20S
Mean			2629	78.9	111	1.93	110	1.4	37.5	4.60
Coefficient of variation			16.9%	(only 1 rep.)	1.7%	33.1%	4.7%	255.4%	(only 1 rep.)	(only 1 rep.)
Standard error of the mean			257		1.1	.37	3.0	2.1		
Least significant difference, 5%			720		3.2	1.04	8.4	6.0		

Correlations

Test wt.	.42**						
Days to flowering	-.35 *	-.26					
Leaf rust $\sqrt{X+1}$	-.39**	-.52**	.10				
Height	-.14	.11	.50**	-.08			
Lodging %	-.03	.40**	-.17	-.18	.35 *		
1000 grain weight	.58**	.60**	-.31 *	-.28 *	.02	.33 *	
Mildew $\sqrt{X+1}$	-.50**	-.38**	.04	.63**	-.12	.01	-.41**

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 43. ASIA

ISRAEL. Beit Dagan. (The Volcani Institute of Agricultural Research). Latitude: 32° 01' N. Longitude: 34° 49' E. Elevation: 28 meters above sea level. Cooperators: Dr. J. Ephrat and Mr. J. Kagan.

Planting Date: 3 January 1967. Precipitation during test: 765 mm. Irrigation: nil. Fertilizer: 400 Kg./Ha. of 15-15-0 before seeding and 200 Kg./Ha. 20-0-0 at tillering.

General Comments: Exceptionally wet (50% above average rainfall), temperatures lower than normal. Plots were infected with stripe and leaf rusts, but not stem rust. No weed or pest problems.

Scoring notes taken: Puccinia striiformis - 28 April; P. recondita - 8 May; height - 11 May; lodging - 9 June.

Variety or cross	Origin	Variety Number	Yield kg/ha	Days to: flowering	Days to: maturity	Stripe rust	Leaf rust	Height cms.	Lodging %	1000 grain weight gms.	Straw yield kg/ha	Sedimentation Index (Zeleny) %
Lerma Rojo 64A	Mexico	7	8129	90	138	0	0	110	60	41.1	12588	33
INIA 66	Mexico	37	7509	84	135	5MS	10VR	100	3	43.5	9975	60
Noroeste 66	Mexico	40	7485	92	136	20MS	0	95	3	35.8	11438	43
Tobari 66	Mexico	49	7079	87	135	0	10R	105	0	39.6	11685	34
Son 64 x TzPP-Nai 60	Mexico	22	6915	82	136	60M	40M	96	0	38.6	10235	53
Penjamo 62	Mexico	21	6829	90	137	0	40MS	111	36	37.0	11192	15
Pj 62-Chris sib x Son 64	Mexico	42	6815	85	135	15MR	0	100	6	38.5	11395	66
Huelquen	Chile	4	6732	96	139	0	0VR	113	43	39.1	12875	34
Pj sib x Gb 55 (red grain)	Mexico	24	6482	94	136	0	60MS	108	6	27.6	12728	38
Centrifen	Chile	45	6332	87	134	0	40M	103	13	38.0	10735	27
Crespo 63	Colombia	36	6276	93	133	0	5VR	126	30	34.6	12012	25
Jaral 66	Mexico	38	6209	84	135	0	20VR	100	6	32.6	11138	48
Roque 66	Mexico	41	6179	88	134	0	5VR	100	0	29.1	9742	47
Nar sib (2) x Pj sib	Chile	1	6119	86	133	0	70S	95	0	30.6	10798	25
Napo 63	Colombia	2	5999	90	136	0	70S	118	30	33.0	12582	35
Tacuari	Argentina	35	5989	96	139	0	0	131	50	31.0	13451	40
Pj sib x Gb 55 (white grain)	Mexico	28	5899	97	137	40M	60M	106	20	27.8	11885	33
Pitic 62	Mexico	32	5856	92	137	30MR	20M	115	80	27.6	12032	12
C-271	Pakistan	15	5666	89	137	0	70VS	113	53	40.6	11585	27
NP 880	India	39	5509	89	137	0	80MR	131	60	51.0	13485	45
C-273	Pakistan	3	5482	90	138	0	20S	118	36	43.6	10928	44
Carazinho	Brazil	18	5476	99	140	0	0	133	100	35.1	15515	25
Triple Dirk	Australia	19	5446	97	140	30M	0	135	33	39.8	13468	29
Klein Petiso x Rafaela	Argentina	44	5422	90	136	0	2VR	113	13	33.1	11068	34
Yaqui 50	Mexico	33	5369	92	135	0	30MR	125	86	34.6	12639	43
Pakistan 5725	Pakistan	29	5356	88	135	0	10MS	98	26	37.3	10942	28
Klein Rendidor	Argentina	50	5352	95	136	0	40MS	91	3	30.0	10625	22
Gaboto	Argentina	43	5329	101	142	5VR	0	118	70	29.8	14965	28
Sonora 64	Mexico	14	5252	84	134	90S	0	95	0	28.1	12078	60
Nainari 60	Mexico	12	5252	94	137	70M	40MS	118	63	34.1	11582	26
Chris	USA	11	5148	94	139	10MR	5VR	138	100	29.5	12312	57
NP 881	India	25	5139	91	137	0	25MS	125	80	35.6	11845	48

Nariño 59	Colombia	46	5102	91	135	0	30MS	135	76	32.3	11878	22
Bonza 63	Colombia	27	5002	95	138	0	20M	125	93	34.6	13062	31
Bonza 55	Colombia	13	4889	94	139	0	60MS	130	83	29.5	12468	27
C-591	India	20	4846	90	138	0	25MS	133	80	41.8	11935	32
C-518	India	16	4796	92	136	0	70MS	113	43	35.8	12138	26
C-306	India	23	4762	89	137	0	5MR	125	86	40.6	11638	27
El Gaucho	Argentina	48	4719	100	139	0	10VR	123	86	30.6	13158	56
NP 824	India	5	4672	91	139	0	60S	133	50	39.6	12812	49
Giza 150	Egypt	9	4592	93	137	70S	80S	120	16	29.0	12045	12
Tiba 63	Colombia	30	4382	89	134	0	5M	111	100	37.8	11235	37
Crim	USA	17	4316	97	139	50M	50MS	136	53	32.3	14008	44
NP 832	India	10	4246	92	140	80S	80S	128	80	37.0	12358	5[illegible]
Justin	USA	8	4012	110	142	10MR	10M	135	40	30.3	13351	69
Mendos	Australia	6	3939	93	137	40MR	70S	108	20	33.1	10895	35
Giza 144	Egypt	26	3417	94	141	0	60MS	126	23	34.1	12315	17
Gabo	Australia	34	2819	92	135	90VS	30MR	116	3	24.1	10568	43
Selkirk	Canada	31	2413	112	141	0	90VS	128	16	29.0	11652	65
Thatcher	Canada	47	1906	113	143	0	100VS	136	0	26.1	12375	52
Mean			5270	91	134	2.59	4.28	115	41.3	33.9	11816	37.2
Coefficient of variation			11.8%	1.6%	1.1%	43.4%	28.2%	6.5%	49.3%	6.7%	11.6%	9.6%
Standard error of the mean			359	.8	.9	.64	.69	4.3	11.7	1.3	796	2.0
Least significant difference, 5%			1009	2.3	2.5	1.82	1.95	12.2	32.9	3.7	2234	5.8

Correlations

Days to flowering	-.61**								
Days to maturity	-.48**	.80**							
Stripe rust $\sqrt{X+1}$	-.23	-.11	-.09						
Leaf rust $\sqrt{X+1}$	-.47**	.23	.17	-.09					
Height	-.56**	.60**	.73**	-.08	.23				
Lodging %	-.16	.17	.32 *	-.12	.02	.60**			
1000 grain weight	.41**	-.44**	-.12	-.25	-.06	-.04	.15		
Straw yield	-.16	.53**	.64**	-.07	-.07	.63**	.51**	-.06	
Sedimentation Index (Zeleny) %	-.16	.16	.09	.07	-.11	0.00	-.09	-.03	-.08

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 44. ASIA

LEBANON. Tel Amara. Latitude: 33° 55'N. Longitude: 35° 28'E. Elevation: 950 meters above sea level.
Cooperator: Joseph Klaimi.

Planting Date: 12 December 1966. Precipitation during test: 695 mm. Irrigation: nil. Fertilizer: 90 N, 70 P_2O_5, 70 K_2O Kgs./Ha.
General Comments: Heavy Winter rainfall, mild late Spring and early Summer. Heavy incidence of disease, mainly P. striiformis and P. graminis. No weed or pest damage.
Scoring notes taken: P. striiformis - 25 May; P. graminis - end June; lodging - end June.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to: flowering	Days to: maturity	Stripe rust	Leaf rust	Stem rust	Height cms.	1000 grain weight gms.
Son 64 x TzPP-Nai 60	Mexico	22	3844	80.7	140	178	50S	10MR	10MR	81	41.5
Napo 63	Colombia	2	3738	78.0	144	180	0	40S	40S	118	32.8
INIA 66	Mexico	37	3732	81.1	140	178	10MR	0	0	96	39.8
Nar sib (2) x Pj sib	Chile	1	3694	80.2	143	180	0	30S	30S	90	37.2
Lerma Rojo 64A	Mexico	7	3627	80.4	145	179	80S	10MR	0	111	36.7
Pitic 62	Mexico	32	3616	74.1	147	181	30MS	10MR	10MR	99	33.1
Triple Dirk	Australia	19	3494	79.2	149	185	100S	5R	10MR	127	38.2
Tiba 63	Colombia	30	3449	79.0	139	178	5R	20MS	20MS	103	41.5
Noroeste 66	Mexico	40	3432	80.5	145	180	20MS	0	0	90	39.4
Yaqui 50	Mexico	33	3421	80.8	145	179	30MS	0	0	119	36.5
C-271	Pakistan	15	3410	81.9	143	182	0	20MS	20MS	107	46.6
C-306	India	23	3355	82.0	146	183	10MR	50S	70S	120	39.9
NP 880	India	39	3305	84.3	144	180	0	40S	50S	123	44.8
Nainari 60	Mexico	12	3249	76.8	142	178	100S	10MR	5MR	106	39.5
Carazinho	Brazil	18	3244	79.2	147	183	70S	20MR	10MR	124	38.3
NP 881	India	25	3216	80.5	144	181	100S	10MR	5R	115	37.2
Klein Rendidor	Argentina	50	3121	83.8	145	179	20MS	0	10MR	115	42.6
NP 832	India	10	3116	82.0	145	182	10MR	40S	30S	126	38.1
Pi 62-Chris sib x Son 64	Mexico	42	3099	82.2	141	176	10MR	5R	0	92	37.4
Penjamo 62	Mexico	21	3010	80.9	144	180	40S	5R	10MR	96	39.5
Klein Petiso x Rafaela	Argentina	44	2916	80.6	144	179	50S	0	0	103	33.6
NP 824	India	5	2916	81.4	145	183	0	60S	70S	126	36.9
Sonora 64	Mexico	14	2910	79.4	143	177	80S	0	0	86	35.2
Pakistan 5725	Pakistan	29	2894	77.9	143	180	0	60S	50S	91	40.2
Jaral 66	Mexico	38	2883	79.0	141	176	0	0	0	92	31.5
Crespo 63	Colombia	35	2883	80.1	145	182	10MR	0	0	118	35.0
C-591	India	20	2871	83.1	145	180	0	20MS	20MS	116	38.2
Tobari 66	Mexico	49	2794	81.4	143	179	0	0	0	96	37.4
Centrifen	Chile	45	2694	80.1	142	177	0	5R	0	96	35.5
C-518	India	16	2683	82.7	146	183	0	30MS	20MS	108	38.2
Giza 150	Egypt	9	2683	80.1	146	183	100S	20MS	10MR	116	37.3
Crim	USA	17	2677	78.4	146	181	100S	0	0	121	32.3

Mendos	Australia	6	2627	76.8	146	181	100S	0	10MR	102	35.4
Huelquen	Chile	4	2566	1/	148	182	10MR	0	0	110	32.9
C-273	Pakistan	3	2494	82.8	145	180	0	60S	40S	115	41.7
Pj sib x Gb 55 (white grain)	Mexico	28	2466	79.1	150	181	10MR	50S	30S	87	34.5
Nariño 59	Colombia	46	2438	78.8	146	182	0	30MS	20MS	128	30.6
Bonza 55	Colombia	12	2421	76.2	146	182	70S	30MS	20MS	127	34.2
Bonza 63	Colombia	27	2399	76.6	146	181	10MR	40S	30S	116	32.5
Gaboto	Argentina	43	2388	80.4	149	183	10MR	10MR	5R	125	30.3
Roque 66	Mexico	41	2366	76.0	143	179	30MS	5R	0	90	29.8
Gabo	Australia	34	2149	75.4	144	179	100S	0	0	106	34.8
Tacuari	Argentina	35	2083	80.3	148	182	10MR	5R	0	113	30.4
Chris	USA	11	2077	79.2	147	182	50S	10MR	0	120	31.1
Justin	USA	8	2022	78.5	153	184	50S	5R	0	121	31.8
El Gaucho	Argentina	48	1988	80.2	148	181	10MR	0	0	112	28.8
Giza 144	Egypt	26	1955	78.4	149	183	100S	30MS	20MS	125	35.9
Selkirk	Canada	31	1927	75.3	152	184	50S	20MS	20MS	125	32.8
Pj sib x Gb 55 (red grain)	Mexico	24	1899	1/	150	181	0	20MR	10MR	82	31.2
Thatcher	Canada	47	1816	77.8	152	185	25MS	30MS	20MS	120	27.1
Mean			2779	77.9	142	177	4.47	2.97	2.72	107	35.1
Coefficient of variation			16.9%	1.7%	.6%	.9%	28.7%	37.7%	33.6%	4.6%	6.2%
Standard error of the mean			271	.7	.5	.9	.74	.64	.52	2.8	1.2
Least significant difference, 5%			761	2.2	1.5	2.6	2.08	1.81	1.48	8.1	3.5

Correlations

Test wt.	.31 *							
Days to flowering	-.64**	-.27						
Days to maturity	-.38**	-.11	.80**					
Stripe rust $\sqrt{X+1}$	-.12	-.44**	.20	.13				
Leaf rust $\sqrt{X+1}$	.13	.18	.02	.30 *	-.51**			
Stem rust $\sqrt{X+1}$	.17	.19	-.07	.26	-.48**	.96**		
Height	-.21	.02	.46**	.69**	.10	.24	.27	
1000 grain weight	.65**	.52**	-.54**	-.20	-.13	.36 *	.40**	-.13

* = Significant at the 5% level
** = Significant at the 1% level

1/ No data available

TABLE 45 ASIA

LEBANON. Hosch Sneid. (American University of Beirut). Latitude: 33° 50.50'N. Longitude: 36° 4.50' E. Elevation: 995 meters above sea level.
Cooperator: Dr. W. W. Worzella.

Planting Date: 15 November 1966. Precipitation during test: 600 mm. Irrigation: nil. Fertilizer: 80-80-0 Kg/Ha. of NPK.
General Comments: Abnormally high rainfall (200 mm. above average). No disease, weed or pest problems.
Scoring notes taken: Height - 20 May.

Variety or cross	Origin	Variety Number	Yield kg/ha	Days to flowering	Height cms.	Lodging %
Pj sib x Gb 55 (red grain)	Mexico	24	3543	185	86	0
Gabo	Australia	34	3205	178	100	0
C-306	India	23	3200	177	102	0
Pitic 62	Mexico	32	3176	181	94	0
Napo 63	Colombia	2	3138	176	102	0
Crim	USA	17	3030	178	116	0
Nar sib (2) x Pj sib	Chile	1	2950	176	82	0
Bonza 63	Colombia	27	2926	180	101	0
Triple Dirk	Australia	19	2860	183	108	0
Noroeste 66	Mexico	40	2843	180	80	0
C-271	Pakistan	15	2813	177	89	0
Tobari 66	Mexico	49	2801	177	88	0
Aub 1	Lebanon	50	2801	175	104	0
Jaral 66	Mexico	38	2776	176	84	0
Pj sib x Gb 55 (white grain)	Mexico	28	2751	183	78	0
Crespo 63	Colombia	36	2730	180	105	0
Pakistan 5725	Pakistan	29	2718	177	77	0
C-518	India	16	2693	180	99	0
INIA 66	Mexico	37	2641	176	77	0
Penjamo 62	Mexico	21	2635	177	86	0
Son 64 x TzPP-Nai 60	Mexico	22	2626	177	77	0
Tiba 63	Colombia	30	2618	175	91	0
Roque 66	Mexico	41	2610	179	80	0
Sonora 64	Mexico	14	2593	177	68	0
Centrifen	Chile	45	2576	176	83	0
Nainari 60	Mexico	12	2571	177	93	0
Yaqui 50	Mexico	33	2535	177	108	0
Bonza 55	Colombia	13	2510	180	110	0
Giza 150	Egypt	9	2493	180	94	0
NP 881	India	25	2438	177	97	0
Tacuari	Argentina	35	2430	182	101	0
Giza 144	Egypt	26	2426	183	106	0

Pi 62-Chris sib x Son 64	Mexico	42	2418	176	85	0
Thatcher	Canada	47	2375	187	111	0
NP 832	India	10	2350	180	110	0
Carazinho	Brazil	18	2305	180	111	0
Mendos	Australia	6	2280	180	81	0
Huelquen	Chile	4	2271	182	91	0
Nariño 59	Colombia	46	2243	180	107	0
NP 824	India	5	2230	179	108	0
El Gaucho	Argentina	48	2213	182	111	0
Chris	USA	11	2163	182	108	0
Selkirk	Canada	31	2160	187	113	0
Justin	USA	8	2055	185	107	10
Klein Petiso x Rafaela	Argentina	44	2018	178	95	0
C-273	Pakistan	3	2005	178	105	0
C-59i	India	20	1721	177	97	0
NP 880	India	39	1280	175	102	0
Lerma Rojo 64A	Mexico	7	1/			
Gaboto	Argentina	43	1/			
Mean			2499	175	94	.2
Coefficient of variation			17.9%	.4%	7.3%	(only 1
Standard error of the mean			258	.4	4.0	rep.)
Least significant difference, 5%			725	1.3	11.2	

	Correlations		
Days to flowering	-.02		
Height	-.27	.40**	
Lodging %	-.18	.29 *	.14

* = Significant at the 5% level
** = Significant at the 1% level

1/ No data available

TABLE 46. ASIA

JORDAN. Deir Alla. Latitude: 32° 12 N. Longitude: 35° 37 E. Elevation: 226 meters below sea level.
Cooperators: Mr. Z. Ghosheh, Mr. M. H. A./Aziz, and Mr. I. Jaber.

Planting Date: 30 November 1966. Precipitation during test: 440 mm. Irrigation: 3 times. Fertilizer: Nil.
General Comments: Rainfall was above average, but poorly distributed, an excess falling in February and March. P. recondita was the most serious disease and birds also caused damage.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to: flowering	Days to: maturity	Stripe rust %	Leaf rust %	Stem rust %	Height cms.	Lodging %	Shattering %	1000 grain weight gms.
Tacuari	Argentina	35	2710	81.0	101	153	0	0	0	120	0	0	25.0
Nainari 60	Mexico	12	2555	81.5	107	157	0	40	25	113	0	0	30.0
NP 832	India	10	2355	85.0	97	150	0	100	0	118	0	0	34.0
Gaboto	Argentina	43	2355	82.0	107	156	0	25	1	125	60	0	25.0
Carazinho	Brazil	18	2288	81.0	114	148	1	0	0	125	40	0	35.0
Triple Dirk	Australia	19	2255	81.5	114	148	40	0	0	121	0	0	31.0
C-271	Pakistan	15	2155	83.0	100	151	0	25	25	105	20	0	32.0
Pitic 62	Mexico	32	2055	79.0	92	148	0	40	0	100	0	0	30.0
NP 824	India	5	2022	82.0	99	151	0	65	25	115	0	0	31.0
C-273	Pakistan	3	1922	85.0	107	154	0	0	25	116	20	0	37.0
NP 880	India	39	1910	86.5	99	151	0	40	0	118	0	0	37.0
Gabo	Australia	34	1899	77.0	102	153	100	0	0	111	0	0	31.0
C-591	India	20	1844	86.0	102	152	0	25	1	123	40	0	33.0
Chris	USA	11	1822	81.0	101	151	25	0	0	126	60	0	25.0
Crim	USA	17	1799	81.0	109	157	0	40	1	135	0	0	23.0
Mendos	Australia	6	1788	81.0	107	156	100	25	0	105	0	0	33.0
Giza 144	Egypt	26	1777	82.5	107	156	100	0	0	120	0	0	32.0
C-306	India	23	1777	85.0	101	151	0	60	0	113	40	0	29.0
El Gaucho	Argentina	48	1744	81.5	117	153	0	0	0	131	0	0	22.0
Bonza 55	Colombia	13	1733	81.0	101	152	0	40	25	118	60	0	26.0
C-518	India	16	1710	86.0	109	157	0	25	1	103	0	0	31.0
NP 881	India	25	1610	80.0	100	150	0	25	1	111	0	0	31.0
Lerma Rojo 64A	Mexico	7	1566	83.0	95	148	1	0	0	105	0	25	34.0
Justin	USA	8	1499	79.0	120	169	25	40	0	106	0	0	20.0
Tobari 66	Mexico	49	1388	81.5	86	145	0	0	0	91	0	50	31.0
Crespo 63	Colombia	36	1322	81.0	92	148	0	25	0	106	0	0	29.0
Giza 150	Egypt	9	1210	80.0	104	154	0	100	0	113	0	0	24.0
Penjamo 62	Mexico	21	1144	83.5	99	151	0	1	0	98	0	10	30.0
Huelquen	Chile	4	1122	82.0	99	151	1	0	0	108	0	10	31.0
Yaqui 50	Mexico	33	1111	81.0	92	148	25	1	0	110	0	10	30.0
Pakistan 5725	Pakistan	29	1111	79.0	99	150	0	25	0	90	0	0	30.0
Centrifen	Chile	45	1066	78.5	88	150	1	25	0	90	0	25	31.0

Bonza 63	Colombia	27	866	82.0	100	152	0	40	1	110	0	0	23.0
Klein Petiso x Rafaela	Argentina	44	777	81.0	79	140	0	0	0	90	0	20	25.0
Selkirk	Canada	31	744	76.0	148	171	0	40	25	108	0	0	20.0
Pj sib x Gb 55 (white grain)	Mexico	28	733	82.0	98	150	0	40	25	93	0	0	25.0
INIA 66	Mexico	37	699	84.0	83	139	0	0	0	96	0	90	30.0
Klein Rendidor	Argentina	50	611	80.0	92	148	0	0	0	86	0	60	21.0
Son 64 x TzPP-Nai 60	Mexico	22	522	80.0	78	141	25	25	0	85	0	40	35.0
Nariño 59	Colombia	46	488	80.0	86	148	0	25	0	103	0	70	24.0
Noroeste 66	Mexico	40	488	82.0	90	146	1	0	0	90	0	80	30.0
Napo 63	Colombia	2	477	80.0	85	145	0	40	0	100	0	50	24.0
Tiba 63	Colombia	30	477	84.0	98	151	0	25	25	100	20	90	30.0
Pj sib x Gb 55 (red grain)	Mexico	24	477	80.0	89	150	0	40	0	88	0	0	27.0
Thatcher	Canada	47	444	80.0	148	171	0	65	0	103	0	0	15.0
Pj 62-Chris sib x Son 64	Mexico	42	388	82.0	77	138	1	0	0	86	0	90	28.0
Sonora 64	Mexico	14	311	84.0	78	143	100	1	0	85	0	90	28.0
Nar sib (2) x Pj sib	Chile	1	283	76.0	84	145	0	40	25	85	0	60	22.0
Roque 66	Mexico	41	233	80.0	78	138	0	0	0	85	0	95	25.0
Jaral 66	Mexico	38	211	80.0	73	136	0	0	0	81	0	80	24.0
Mean			1305	79.8	96	147	1.64	3.40	1.39	103	7.2	19.7	27.7
Coefficient of variation			27.2%	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)	85.1%	48.2%	80.1%	4.2%	(only 1 rep.)	(only 1 rep.)	(only 1 rep.)
Standard error of the mean			205				.80	.94	.64	2.5			
Least significant difference, 5%			575				2.26	2.66	1.80	7.1			

Correlations

Test wt.	.28 *									
Days to flowering	.37**	-.10								
Days to maturity	.35 *	-.12	.92**							
Stripe rust $\sqrt{X+1}$	.05	-.11	-.02	.04						
Leaf rust $\sqrt{X+1}$	.08	-.10	.43**	.50**	-.07					
Stem rust $\sqrt{X+1}$	.26	.16	.17	.20	-.23	.37**				
Height	.77**	.26	.56**	.50**	-.03	.20	.21			
Lodging %	.35 *	.23	.14	.09	-.11	-.07	.12	.43**		
Shattering %	-.70**	-.01	-.63**	-.63**	.01	-.39**	-.18	-.65**	-.20	
1000 grain weight	.39**	.51**	-.29 *	-.33 *	.19	-.23	.12	.07	.06	-.07

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 47. ASIA

SYRIA. Damascus. Latitude: 33° 34' N. Longitude: 36° 37' E. Elevation: 617 meters above sea level.
Cooperators: G. S. Murty (FAO) and Rafik-Al-Azem.

Planting Date: 5 December 1966. Precipitation during test: Not stated. Irrigation: 5 irrigations. Fertilizer: 40 Kg./Ha. N as Calc. Amm. Nitrate. 35 Kg./Ha. P_2O_5 as Superphosphate. (Experiment # 1 Low fertility)

General Comments: Normal weather conditions which were favourable to the crop. Average infection of stripe, leaf and stem rusts. No weed or pest problems.

Scoring notes taken: Rusts - April; lodging - May.

Variety or cross	Origin	Variety Number	Yield kg/ha	Days to: flowering	Days to: maturity	Height cms.
C-306	India	23	5949	142	198	113
Pitic 62	Mexico	32	5716	147	195	95
Pj sib x Gb 55 (red grain)	Mexico	24	5499	151	199	91
Nainari 60	Mexico	12	5366	142	193	103
Giza 144	Egypt	26	5316	147	195	110
NP 832	India	10	4955	145	199	111
Lerma Rojo 64A	Mexico	7	4927	142	193	100
Triple Dirk	Australia	19	4916	149	196	121
Crim	USA	17	4855	142	193	110
Penjamo 62	Mexico	21	4855	144	193	86
Giza 150	Egypt	9	4821	142	194	106
Pj sib x Gb 55 (white grain)	Mexico	28	4721	152	199	95
Np 824	India	5	4716	144	194	108
C-591	India	20	4605	144	193	113
NP 881	India	25	4566	143	193	111
Pakistan 5725	Pakistan	29	4521	139	193	81
Noroeste 66	Mexico	40	4521	144	193	86
Bonza 63	Colombia	27	4510	146	193	111
C-518	India	16	4505	145	197	100
Napo 63	Colombia	2	4444	139	193	101
Tobari 66	Mexico	49	4444	141	193	90
Crespo 63	Colombia	36	4355	143	193	108
INIA 66	Mexico	37	4249	138	193	81
Florence Aurore		50	4205	146	194	120
Jaral 66	Mexico	38	4110	138	193	85
Carazinho	Brazil	18	4105	149	194	126
Gaboto	Argentina	43	4077	150	193	115
Centrifen	Chile	45	4055	142	193	86
Huelquen	Chile	4	4016	148	194	110
Tacuari	Argentina	35	3999	148	194	111
C-271	Pakistan	15	3905	140	193	96
C-273	Pakistan	3	3905	144	194	111

Son 64 x TzPP-Nai 60	Mexico	22	3871	138	193	70
Nar sib (2) x Pj sib	Chile	1	3816	138	193	78
El Gaucho	Argentina	48	3810	150	194	115
NP 880	India	39	3805	142	193	106
Roque 66	Mexico	41	3794	140	193	76
Mendos	Australia	6	3727	144	193	90
Chris	USA	11	3710	148	193	123
Thatcher	Canada	47	3699	155	199	118
Sonora 64	Mexico	14	3677	140	193	70
Bonza 55	Colombia	13	3644	144	193	113
Gabo	Australia	34	3621	143	193	93
Klein Petiso x Rafaela	Argentina	44	3605	142	193	95
Yaqui 50	Mexico	33	3516	142	193	101
Pi 62-Chris sib x Son 64	Mexico	42	3333	138	193	76
Selkirk	Canada	31	3283	154	193	123
Justin	USA	8	3071	153	196	121
Tiba 63	Colombia	30	2844	138	193	86
Nariño 59	Colombia	46	2610	147	193	116
Mean			4139	141	190	99
Coefficient of variation			11.7%	.6%	.5%	5.3%
Standard error of the mean			280	.5	.5	3.0
Least significant difference, 5%			786	1.5	1.6	8.5

	Correlations		
Days to flowering	.04		
Days to maturity	.35 *	.59**	
Height	.05	.68**	.30 *

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 48. ASIA

SYRIA. Damascus. Latitude: 33° 34' N. Longitude: 36° 37' E. Elevation: 617 meters above sea level.
Cooperators: G. S. Murty (FAO) and Rafik-Al-Azem.

Planting Date: 5 December 1966. Precipitation during test: Not stated. Irrigation: 5 irrigations. Fertilizer: 160 Kg./Ha. N as Calc. Amm. Nitrate, and 100 Kg./Ha. P_2O_5 as Superphosphate. (Experiment # 2 High fertility)
General Comments: Weather conditions were normal and favourable for wheat growth. There was average incidence of the three rusts. No weed or pest problems.
Scoring notes taken: Rusts - April.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to flowering	Days to maturity	Stripe rust	Leaf rust	Stem rust	Height cms.	Shattering %	1000 grain weight gms.
Pj sib x Gb 55 (white grain)	Mexico	28	7110	83.3	151	195	VR	MR	R	102	40	45.6
Lerma Rojo 64A	Mexico	7	7099	83.7	143	192	VR	VR	VR	115	25	45.9
Pitic 62	Mexico	32	7071	80.8	145	192	R	VR	MR	107	15	44.6
Pj sib x Gb 55 (red grain)	Mexico	24	6949	83.2	149	198	VR	VR	VR	102	80	40.6
NP 832	India	10	6266	84.5	143	197	VR	S	MS	132	10	48.9
Penjamo 62	Mexico	21	6243	83.0	143	192	VR	VR	VR	100	50	42.3
C-306	India	23	6116	84.8	142	193	VR	MR	VR	117	0	46.5
Giza 144	Egypt	26	6071	79.4	147	194	S	VR	VR	125	5	47.0
INIA 66	Mexico	37	5966	83.5	138	192	VR	VR	VR	95	10	46.2
Giza 150	Egypt	9	5932	82.4	143	193	VS	VR	MR	115	0	44.2
Nainari 60	Mexico	12	5866	81.1	142	195	S	VR	MR	110	15	44.8
Napo 63	Colombia	2	5854	81.5	139	192	VR	R	R	110	50	42.5
Pakistan 5725	Pakistan	29	5843	82.1	141	192	VR	R	VR	100	5	46.0
C-518	India	16	5743	84.8	145	195	VR	VR	MS	110	0	43.8
Crim	USA	17	5649	82.0	141	192	MR	VR	R	125	40	38.5
C-591	India	20	5549	83.1	143	192	VR	VR	R	127	5	46.1
Triple Dirk	Australia	19	5493	82.1	148	197	VS	VR	VR	122	20	49.3
Yaqui 50	Mexico	33	5466	82.0	142	192	MS	VR	VR	122	5	44.1
NP 824	India	5	5466	84.3	143	195	VR	VS	S	120	10	47.6
Crespo 63	Colombia	36	5427	83.3	143	192	VR	VR	VR	117	5	40.2
Gaboto	Argentina	43	5399	82.6	149	193	MR	VR	VR	135	5	34.7
Centrifen	Chile	45	5388	82.2	141	192	VR	VR	VR	90	25	38.6
Jaral 66	Mexico	38	5371	82.9	137	192	VR	VR	VR	92	75	35.3
Son 64 x TzPP-Nai 50	Mexico	22	5266	82.9	138	192	MS	R	VR	82	5	49.1
Tobari 66	Mexico	49	5232	81.8	141	192	VR	VR	VR	97	15	39.5
Mendos	Australia	6	5227	78.6	145	192	VS	VR	MR	110	10	43.1
C-271	Pakistan	15	5043	81.8	139	194	VR	VS	MS	105	50	47.5
Tiba 63	Colombia	30	4955	82.1	138	192	VR	VR	VR	105	75	47.7
Sonora 64	Mexico	14	4949	83.0	140	192	VS	VR	VR	82	90	38.0
Huelquen	Chile	4	4860	81.9	146	193	VR	VR	VR	117	25	41.0
Gabo	Australia	34	4849	78.8	141	192	VS	VR	VR	117	5	38.4
Nar sib (2) x Pj sib	Chile	1	4843	81.4	138	192	VR	MS	VR	85	80	37.7

Noroeste 66	Mexico	40	4799	83.3	144	192	MR	VR	VR	90	10	41.0
Florence Aurore		50	4771	83.3	146	194	VR	VR	R	132	30	51.4
NP 881	India	25	4760	82.1	143	197	VR	VR	VR	115	30	42.6
El Gaucho	Argentina	48	4721	83.1	149	192	VR	VR	VR	127	10	36.4
Roque 66	Mexico	41	4699	82.3	141	192	VR	VR	VR	87	15	35.6
Bonza 63	Colombia	27	4660	82.0	144	192	VR	MR	MR	122	60	41.6
Klein Petiso x Rafaela	Argentina	44	4610	82.5	143	193	VR	VR	VR	102	10	34.4
Bonza 55	Colombia	13	4582	80.2	144	192	VR	MS	MR	130	15	40.2
Thatcher	Canada	47	4543	81.2	155	199	VS	R	MS	135	5	33.6
Tacuari	Argentina	35	4516	82.4	146	192	VR	VR	VR	125	15	31.8
PI 62-Chris sib x Son 64	Mexico	42	4455	82.1	138	193	VR	VR	VR	87	25	41.6
Carazinho	Brazil	18	4338	82.4	148	192	R	VR	VR	125	25	47.4
C-273	Pakistan	3	4321	82.1	142	192	VR	VR	S	112	0	45.3
Chris	USA	11	3855	81.8	147	197	MR	VR	VR	122	40	34.7
Justin	USA	8	3755	81.1	153	197	VS	VR	MR	135	20	38.0
NP 880	India	39	3649	80.2	141	192	VR	MR	VS	117	0	51.2
Selkirk	Canada	31	3566	81.0	153	192	S	MS	MR	135	20	39.5
Nariño 59	Colombia	46	3438	82.2	145	193	VR	R	VR	135	99	41.7
Mean			5117	80.5	141	189	2.18	1.96	1.92	110	24.9	41.2
Coefficient of variation			12.7%	.4%	.7%	1.1%	11.6%	15.3%	18.2%	5.2%	(only 1	1.8%
Standard error of the mean			376	.2	.5	1.5	.17	.21	.24	4.0	rep.)	.5
Least significant difference, 5%			1055	.7	1.6	4.3	.50	.60	.70	11.5		1.5

Correlations

Test wt.	.33*									
Days to flowering	-.13	-.10								
Days to maturity	.06	.09	.53**							
Stripe rust $\sqrt{X+1}$	-.13	-.45**	.31*	.29*						
Leaf rust $\sqrt{X+1}$	-.06	.13	.03	.18	-.21					
Stem rust $\sqrt{X+1}$	-.06	-.02	.10	.34*	.06	.68**				
Height	-.23	-.15	.65**	.32*	.21	.21	.25			
Shattering %	-.06	.05	-.18	0.00	-.17	-.13	-.30*	-.25		
1000 grain weight	.34*	.12	-.25	0.00	-.07	.34*	.31*	-.02	-.17	

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 49 ASIA

IRAQ. Abu Ghraib, Baghdad. Latitude: 33° N. Longitude: 45° E. Elevation: 34.1 meters above sea level.
Cooperators: Mr. Omar Amin, Field Crops Division; and Mr. Langeland, FAO.

Planting Date: 5 December 1966. Precipitation during test: 87 mm. Irrigation: when needed. Fertilizer: nil. (Experiment # 1 Low fertility)

General Comments: Temperatures for the season were below average, rainfall average. Disease infection was not too heavy. There were no insect, weed or pest problems.

Scoring notes taken: Disease - 15 & 25 April, 3 & 10 May; lodging - 11 May; shattering - 12 June.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to: flowering	Days to: maturity	Height cms.	Lodging %	1000 grain weight gms.
Son 64 x TzPP-Nai 60	Mexico	22	5155	74.4	108	152	93	0	39.6
Pj sib x Gb 55 (red grain)	Mexico	24	5155	72.3	115	154	97	0	35.0
Penjamo 62	Mexico	21	4823	72.6	111	153	105	10	32.1
C-271	Pakistan	15	4411	74.4	107	152	111	40	43.3
Lerma Rojo 64A	Mexico	7	4403	74.8	108	149	104	0	36.4
C-306	India	23	4401	78.1	107	151	122	60	37.2
Pj sib x Gb 55 (white grain)	Mexico	28	4306	71.9	115	154	92	3	28.3
Pakistan 5725	Pakistan	29	4252	71.9	110	154	97	26	32.0
Crespo 63	Colombia	36	4138	74.8	112	154	128	20	36.0
Pitic 62	Mexico	32	4125	70.6	112	153	100	10	32.0
Yaqui 50	Mexico	33	4110	73.5	113	155	120	53	35.7
Triple Dirk	Australia	19	4024	72.7	118	155	127	10	41.2
Crim	USA	17	4024	76.0	114	154	129	23	33.7
Bonza 55	Colombia	13	4016	71.5	113	153	123	36	32.5
Tacuari	Argentina	35	3973	74.4	115	154	135	40	30.5
Gaboto	Argentina	43	3925	74.8	114	156	137	46	27.8
Jaral 66	Mexico	38	3915	73.1	108	150	101	3	33.8
Mendos	Australia	6	3860	72.3	110	152	105	13	34.3
Tiba 63	Colombia	30	3855	71.9	111	151	111	53	30.0
Gabo	Australia	34	3823	71.5	110	153	118	20	34.5
Bonza 63	Colombia	27	3772	73.1	112	152	116	16	29.8
Nar sib (2) x Pj sib	Chile	1	3736	70.2	110	148	99	0	33.1
NP 832	India	10	3690	76.0	111	153	130	20	31.3
Napo 63	Colombia	2	3663	71.5	111	150	114	13	33.2
Nainari 60	Mexico	12	3659	71.1	111	152	106	0	38.4
Carazinho	Brazil	18	3629	73.5	114	153	128	23	36.1
C-591	India	20	3623	78.5	111	151	125	60	40.7
Giza 150	Egypt	9	3623	74.4	111	154	111	10	39.8
Pj 62-Chris sib x Son 64	Mexico	42	3598	76.9	109	150	98	0	37.2
INIA 66	Mexico	37	3556	75.6	111	152	92	0	33.0
Nariño 59	Colombia	46	3544	74.0	110	153	125	16	32.5
NP 880	India	39	3438	79.4	112	155	126	26	47.0

NP 824	India	5	3425	76.1	109	154	129	3	41.2
NP 881	India	25	3352	71.5	110	153	119	33	34.0
Sonora 64	Mexico	14	3322	74.0	111	152	85	0	33.2
Roque 66	Mexico	41	3317	73.6	112	154	91	0	29.6
El Gaucho	Argentina	48	3313	75.2	119	156	120	3	33.0
VZ-133	Italy	50	3167	74.4	113	152	80	0	33.6
C-273	Pakistan	3	3165	77.7	111	154	112	6	43.5
Selkirk	Canada	31	3154	69.0	130	159	129	6	29.3
C-518	India	16	3129	75.2	110	153	104	0	38.3
Giza 144	Egypt	26	3119	73.9	116	156	126	43	28.2
Klein Petiso x Rafaela	Argentina	44	3015	73.9	110	150	102	3	32.1
Huelquen	Chile	4	3015	72.7	111	150	110	0	38.0
Noroeste 66	Mexico	40	2908	73.5	111	154	94	0	35.6
Chris	USA	11	2779	74.8	111	153	126	0	27.5
Tobari 66	Mexico	49	2663	73.1	110	153	98	0	38.1
Justin	USA	8	2579	73.5	122	161	124	0	29.3
Centrifen	Chile	45	2527	73.6	108	149	99	0	31.5
Thatcher	Canada	47	2193	71.9	129	161	120	10	23.0
Mean			3584	72.3	110	150	110	15.3	33.8
Coefficient of variation			28.0%	2.0%	1.2%	1.4%	8.2%	142.4%	(only 1
Standard error of the mean			580	.8	.7	1.2	5.2	12.6	rep.)
Least significant difference, 5%			1627	2.3	2.2	3.5	14.7	35.3	

Correlations

Test wt.	-.01					
Days to flowering	-.32 *	-.31 *				
Days to maturity	-.27	-.06	.82**			
Height	-.10	.22	.35 *	.46**		
Lodging %	.26	.22	-.06	.07	.54**	
1000 grain weight	.23	.44**	-.46**	-.32 *	-.04	.10

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 50

ASIA

IRAQ. Abu Ghraib, Baghdad. Latitude: 33° N. Longitude: 45° E. Elevation: 34.1 meters above sea level.
Cooperators: Field Crops Division and FAO.

Planting Date: 5 December 1966. Precipitation during test: 87 mm. Irrigation: when needed. Fertilizer: Amm. Sulphate 100 Kg./Ha. of N; Superphosphate 80 Kg./Ha. of P_2O_5. (Experiment # 2 High fertility)

General Comments: Rainfall was about average for the season, but temperatures were below average. Light incidence of disease. Weeds and pests were not a problem.

Scoring notes taken: Disease - 15 & 25 April, 3 & 10 May; lodging - 11 May; shattering - 12 June.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to: flowering	Days to: maturity	Height cms.	Lodging %	Shattering %	1000 grain weight gms.
Penjamo 62	Mexico	21	4965	73.6	112	155	113	60	0	32.6
C-271	Pakistan	15	4400	74.0	108	152	111	70	0	38.8
Pj sib x Gb 55 (white grain)	Mexico	28	4387	72.7	114	152	105	6	15	24.5
Noroeste 66	Mexico	40	4325	74.0	112	152	102	6	34	34.0
Lerma Rojo 64A	Mexico	7	4262	76.5	108	151	108	20	0	36.2
Jaral 66	Mexico	38	4254	72.3	109	152	106	23	0	32.5
Nainari 60	Mexico	12	4244	72.3	108	150	121	20	0	40.2
C-306	India	23	4166	77.3	108	154	124	73	0	40.6
Pj sib x Gb 55 (red grain)	Mexico	24	4152	73.1	115	154	103	10	16	28.5
Carazinho	Brazil	18	4078	72.7	113	152	134	30	20	34.2
Son 64 x TzPP-Nai 60	Mexico	22	4077	74.0	110	155	90	26	0	35.6
Pitic 62	Mexico	32	4057	68.1	112	154	105	23	0	31.5
Sonora 64	Mexico	14	3969	73.9	111	154	96	10	18	31.1
Huelquen	Chile	4	3926	73.1	111	150	117	10	0	37.8
Nar sib (2) x Pj sib	Chile	1	3904	72.7	109	150	96	16	0	33.0
Triple Dirk	Australia	19	3835	71.5	113	153	126	33	9	35.3
Pi 62-Chris sib x Son 64	Mexico	42	3725	75.2	112	153	94	20	27	39.2
Centrifen	Chile	45	3718	73.1	110	152	106	16	0	34.1
INIA 66	Mexico	37	3688	77.3	111	153	102	3	0	35.0
Napo 63	Colombia	2	3605	72.3	109	150	113	33	0	34.0
Crim	USA	17	3588	74.4	116	156	131	40	0	31.8
Yaqui 50	Mexico	33	3489	72.3	111	155	120	80	21	33.3
Bonza 55	Colombia	13	3466	71.9	114	156	126	73	0	28.5
Mendos	Australia	6	3463	73.3	111	152	103	13	5	41.6
Giza 150	Egypt	9	3431	76.9	110	151	116	23	0	34.2
Tobari 66	Mexico	49	3429	75.2	115	153	100	0	0	34.0
Pakistan 5725	Pakistan	29	3426	73.5	111	153	100	30	0	33.0
Gaboto	Argentina	43	3372	73.6	116	154	127	53	0	30.3
Klein Petiso x Rafaela	Argentina	44	3337	74.4	110	152	106	26	0	30.6
C-518	India	16	3332	76.4	112	154	114	53	1	33.5
Tacuari	Argentina	35	3302	78.1	115	156	123	56	4	30.4
Tiba 63	Colombia	30	3287	70.6	110	153	116	70	0	34.0

NP 881	India	25	3263	73.1	111	154	128	43	16	34.0
Bonza 63	Colombia	27	3235	69.4	112	155	122	40	10	32.5
C-591	India	20	3207	76.0	111	155	128	60	0	37.2
NP 824	India	5	3155	76.9	110	153	132	20	0	41.0
NP 880	India	39	3132	78.1	112	152	127	80	0	45.5
Roque 66	Mexico	41	3129	74.4	112	156	100	16	0	25.6
Crespo 63	Colombia	36	3125	70.6	112	154	122	60	0	39.0
C-273	Pakistan	3	3093	76.4	114	154	120	26	0	43.8
NP 832	India	10	3090	74.4	112	152	126	33	1	31.0
Gabo	Australia	34	2957	67.7	112	155	118	50	0	30.4
Nariño 59	Colombia	46	2754	69.8	112	151	123	23	5	27.5
VZ-133	Italy	50	2747	75.2	113	152	88	0	22	29.3
Justin	USA	8	2719	1/	127	160	127	20	23	28.1
Giza 144	Egypt	26	2702	74.4	114	156	124	60	0	33.1
Chris	USA	11	2605	72.3	111	152	127	6	28	23.1
Selkirk	Canada	31	2297	66.0	131	160	125	33	21	23.7
El Gaucho	Argentina	48	2135	73.1	117	155	120	30	1	31.0
Thatcher	Canada	47	1602	65.6	135	160	115	3	42	19.7
Mean			3417	71.8	110	150	113	32.4	6.4	33.3
Coefficient of variation			16.9%	3.1%	1.0%	1.7%	4.6%	62.6%	149.6%	(only 1
Standard error of the mean			334	1.2	.6	1.5	3.0	11.7	5.5	rep.)
Least significant difference, 5%			938	3.6	1.9	4.2	8.4	32.8	15.6	

Correlations

Test wt.	.31 *						
Days to flowering	-.62**	-.51**					
Days to maturity	-.52**	-.35 *	.79**				
Height	-.39**	-.06	.23	.22			
Lodging %	0.00	.07	-.15	.20	.47**		
Shattering %	-.23	-.36 *	.55**	.37**	0.00	-.32 *	
1000 grain weight	.18	.40**	-.24	-.04	.15	.21	-.20

1/ No data available

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 51. ASIA

SAUDI ARABIA. Dirab (Experiment Station, near Riyad). Latitude: 24°25' N. Longitude: 46°36'E. Elevation: 379 meters above sea level.
Cooperator: M. Zeini Jowana.

Planting Date: 28 November 1966. Precipitation during test: 58.9 mm. Irrigation: 12 times. Fertilizer: 75 Kg./Ha. (21 % NH_4).

General Comments: Arid zone conditions prevailed with occasional frosts. No disease, insect or bird damage.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to: flowering	Days to: maturity	Height cms.	Lodging %	Shattering %	1000 grain weight gms.
Crespo 63	Colombia	36	2316	86.2	88	120	70	0	0	39.0
Pj sib x Gb 55 (white grain)	Mexico	28	2301	87.3	92	124	70	0	0	41.6
C-306	India	23	2177	86.8	89	121	60	5	0	39.3
C-518	India	16	2138	90.1	90	123	68	0	0	37.3
NP 824	India	5	1867	86.6	89	121	70	0	15	45.0
Bonza 55	Colombia	13	1856	83.8	90	121	76	10	0	25.3
Pitic 62	Mexico	32	1838	85.5	90	121	60	10	0	36.6
C-591	India	20	1773	83.4	98	130	68	0	0	40.6
Giza 144	Egypt	26	1658	83.3	96	127	56	35	0	40.6
Tobari 66	Mexico	49	1618	86.7	88	119	58	5	0	35.5
Nainari 60	Mexico	12	1616	82.1	95	125	63	0	0	41.6
Tacuari	Argentina	35	1606	82.5	93	124	71	0	0	30.3
NP 832	India	10	1590	86.6	88	120	68	5	0	40.6
Gabo	Australia	34	1580	82.8	90	121	65	0	0	37.6
Triple Dirk	Australia	19	1577	85.0	95	126	75	0	0	42.3
Crim	USA	17	1480	82.3	112	144	85	0	0	30.6
C-271	Pakistan	15	1462	83.5	88	120	51	30	0	40.6
Gaboto	Argentina	43	1459	82.5	100	131	65	0	0	33.6
Klein Petiso x Rafaela	Argentina	44	1443	84.0	89	121	58	10	0	29.0
Carazinho	Brazil	18	1412	85.5	104	135	80	0	0	40.8
NP 880	India	39	1405	86.3	88	119	61	0	0	38.8
El Gaucho	Argentina	48	1349	84.7	115	147	71	0	0	30.5
C-273	Pakistan	3	1343	84.8	91	122	68	0	10	37.0
Centrifen	Chile	45	1335	81.1	88	119	58	5	0	33.8
Pakistan 5725	Pakistan	29	1325	83.1	87	120	48	0	0	37.6
Huelquen	Chile	4	1315	82.3	96	127	61	0	15	36.8
Klein Rendidor	Argentina	50	1270	82.5	103	134	48	0	0	29.3
Nariño 59	Colombia	46	1269	83.9	90	121	65	25	0	31.6
Giza 150	Egypt	9	1260	85.9	95	126	56	0	0	39.6
Roque 66	Mexico	41	1239	83.6	88	121	45	0	0	35.6
Chris	USA	11	1236	81.7	97	128	70	0	0	26.0
Pj sib x Gb 55 (red grain)	Mexico	24	1232	86.2	94	125	50	5	0	34.6

Bonza 63	Colombia	27	1226	83.5	90	122	53	0	50	33.0
Lerma Rojo 64A	Mexico	7	1223	82.9	89	121	41	15	0	33.0
Nar sib (2) x Pj sib	Chile	1	1188	80.0	88	121	51	0	0	31.3
Mendos	Australia	6	1118	79.8	93	124	48	0	0	38.6
Son 64 x TzPP-Nai 60	Mexico	22	1102	82.1	86	119	46	0	0	40.6
Yaqui 50	Mexico	33	1082	82.3	88	119	55	15	0	32.5
Tiba 63	Colombia	20	1078	78.9	88	120	58	45	0	39.3
Noroeste 66	Mexico	40	1055	82.3	90	122	56	0	0	38.6
NP 881	India	25	1042	80.8	93	125	58	15	0	38.6
Pi 62-Chris sib x Son 64	Mexico	42	984	85.1	87	120	45	0	50	34.3
Justin	USA	8	954	79.6	126	161	70	0	0	29.0
Selkirk	Canada	31	856	81.3	127	162	60	0	0	30.5
Napo 63	Colombia	2	835	82.1	88	121	56	0	10	33.3
Jaral 66	Mexico	38	796	83.4	87	118	50	0	0	30.5
INIA 66	Mexico	37	765	86.1	87	119	43	0	0	35.8
Sonora 64	Mexico	14	713	85.2	89	122	40	0	0	36.3
Penjamo 62	Mexico	21	687	85.3	91	123	43	20	0	31.3
Thatcher	Canada	47	559	83.2	133	168	76	0	0	23.5
Mean			1327	82.1	92	123	59	5.1	3.0	34.8
Coefficient of variation			40.0%	3.8%	3.2%	2.4%	21.2%	(only 1	(only 1	11.5%
Standard error of the mean			307	1.8	1.7	1.7	7.2	rep.)	rep.)	2.3
Least significant difference, 5%			860	5.1	4.8	4.8	20.2			6.5

Correlations

Test wt.	.48**							
Days to flowering	-.25	-.24						
Days to maturity	-.27	-.24	1.00**					
Height	.47**	.10	.48**	.44**				
Lodging %	-.04	-.20	-.20	-.20	-.18			
Shattering %	-.11	.06	-.14	-.12	-.17	-.15		
1000 grain weight	.42**	.30 *	-.41**	-.43**	-.09	.07	-.01	

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 52. ASIA

IRAN. Ahwaz Agricultural Station. Latitude: 31° 20' N. Longitude: 48° 40' E. Elevation: 20 meters above sea level.
Cooperator: M. Dadain.

Planting Date: not stated. Precipitation during test: not stated. Irrigation: nil. Fertilizer: nil.

General Comments: Season rather colder and later than average. Moderately severe natural infections of P. glumarum and P. recondita. No weed or pest problems.

Variety or cross	Origin	Variety Number	Yield kg/ha	Days to: flowering	Days to: maturity	Stripe rust	Leaf rust	Stem rust	Height cms.	Lodging %	Shattering %	1000 grain weight gms.
Lerma Rojo 64A	Mexico	7	6010	57	116	0	0	0	90	0	0	45.0
Nainari 60	Mexico	12	6010	63	118	40S	0	0	106	0	0	47.0
Pitic 62	Mexico	32	5977	56	116	0	0	0	85	0	10	41.0
Huelquen	Chile	4	5921	63	120	0	0	0	93	0	10	43.0
C-306	India	23	5577	63	122	10S	0	0	100	16	0	49.6
Pakistan 5725	Pakistan	29	5543	56	120	0	0	0	81	0	0	49.0
Giza 150	Egypt	9	5488	56	122	70S	0	0	90	3	0	44.6
Penjamo 62	Mexico	21	5421	58	113	0	0	0	90	0	23	46.0
Tobari 66	Mexico	49	5410	59	113	0	0	0	83	0	0	42.3
Pj sib x Gb 55 (red grain)	Mexico	24	5388	62	120	0	0	0	80	0	0	41.6
C-518	India	16	5388	59	117	0	0	0	100	0	10	46.0
Pj sib x Gb 55 (white grain)	Mexico	28	5377	61	120	0	0	0	90	0	26	41.0
NP 832	India	10	5332	58	118	0	0	0	110	0	0	48.3
NP 824	India	5	5288	58	122	0	0	0	100	0	0	49.6
Giza 144	Egypt	26	5221	65	119	40S	0	0	110	0	0	45.3
Crespo 63	Colombia	36	5166	57	118	0	0	0	110	0	28	40.6
Son 64 x TzPP-Nai 60	Mexico	22	5077	49	113	10S	0	0	80	0	10	48.0
Sonora 64	Mexico	14	5032	51	116	0	0	0	75	0	10	40.0
C-271	Pakistan	15	5010	58	118	0	0	0	96	0	10	53.0
Napo 63	Colombia	2	4921	56	113	0	0	0	100	0	30	41.6
Gabo	Australia	34	4910	63	116	70S	0	0	100	0	18	42.3
NP 881	India	25	4843	62	122	0	0	0	100	0	16	40.6
C-591	India	20	4821	63	120	0	0	0	110	0	23	45.3
Nar sib (2) x Pj sib	Chile	1	4799	53	113	0	0	0	78	0	0	42.3
Triple Dirk	Australia	19	4788	65	126	0	0	0	113	0	28	49.0
INIA 66	Mexico	37	4788	54	113	0	0	0	81	0	20	47.0
Carazinho	Brazil	18	4788	67	126	0	0	0	120	20	0	44.6
Tacuari	Argentina	35	4766	65	122	0	0	0	100	0	0	33.0
VZ-133	Italy	50	4755	63	118	0	0	0	83	0	30	37.0
Mendos	Australia	6	4721	59	116	0	0	0	90	0	30	46.3
Yaqui 50	Mexico	33	4688	61	113	0	0	0	103	0	20	44.0
Crim	USA	17	4666	71	120	10S	0	0	120	0	25	36.6

Roque 66	Mexico	41	4655	50	113	0	0	0	78	0	21	34.6
Gaboto	Argentina	43	4943	63	122	0	0	0	106	6	20	33.6
Pi 62-Chris ·ib x Son 64	Mexico	42	4543	50	113	0	0	0	83	0	10	42.3
Bonza 63	Colombia	27	4344	66	113	0	0	0	106	0	0	38.6
Noroeste 66	Mexico	40	4310	58	113	0	0	0	80	0	28	44.0
Nariño 59	Colombia	46	4310	56	116	0	0	0	106	0	30	40.0
Bonza 55	Colombia	13	4255	65	113	100S	0	0	120	0	25	41.6
C-273	Pakistan	3	4255	61	120	0	30S	0	110	0	0	47.3
Jaral 66	Mexico	38	4132	51	110	0	0	0	81	0	28	32.6
Tiba 63	Colombia	30	4121	58	113	0	0	0	96	0	10	48.3
Chris	USA	11	3844	65	122	20S	0	0	120	6	25	36.3
NP 880	India	39	3832	58	126	0	0	75S	90	10	0	53.0
Klein Petiso x Rafaela	Argentina	44	3632	58	111	0	0	0	86	0	10	38.0
El Gaucho	Argentina	48	3610	79	122	0	0	0	113	0	30	36.0
Centrifen	Chile	45	3477	53	113	0	0	0	80	0	0	39.0
Justin	USA	8	3266	82	126	0	0	C	120	0	23	32.0
Selkirk	Canada	31	3066	82	126	0	0	0	120	0	10	36.0
Thatcher	Canada	47	2510	87	127	0	0	0	116	0	28	27.3
Mean			4639	60	115	1.95	1.01	1.19	96	1.2	13.0	41.5
Coefficient of variation			14.8%	1.4%	.2%	54.9%	36.9%	29.8%	3.7%	301.5%	11.6%	4.5%
Standard error of the mean			399	.5	.1	.62	.21	.20	2.0	2.2	.8	1.1
Least significant difference, 5%			1119	1.4	.4	1.74	.60	.57	5.7	6.1	2.4	3.0

Correlations

Days to flowering	-.50**									
Days to maturity	-.17	.67**								
Stripe rust $\sqrt{X+1}$	.17	.10	.08							
Leaf rust $\sqrt{X+1}$	-.09	.01	.06	-.08						
Stem rust $\sqrt{X+1}$	-.19	-.05	.26	-.10	.33 *					
Height	-.33 *	.75**	.57**	.20	.12	-.04				
Lodging %	.01	.09	.41**	.09	-.05	.28 *	.21			
Shattering %	-.34 *	.21	-.06	-.06	-.17	-.22	.24	-.24		
1000 grain weight	.53**	-.44**	-.07	.11	.13	.30 *	-.20	.17	-.39**	

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 53. ASIA

IRAN. Gorgan. (Gorgan Agricultural Station). Latitude: 36° 51' N. Longitude: 54° 28' E. Elevation: 50 meters above sea level.
Cooperators: B. Sadri.

Planting Date: 24 December 1966. Precipitation during test: Not stated. Irrigation: Two irrigations (one after seeding and one at flowering). Fertilizer: nil
General Comments: Very dry season. Moderately severe natural infection of puccinia glumarum. No weed or pest problems.

Variety or cross	Origin	Variety Number	Yield kg/ha	Days to: flowering	Days to: maturity	Stripe rust	Height cms.	1000 grain weight gms.
Pitic 62	Mexico	32	4177	111	155	10S	95	27.0
Pj sib x Gb 55 (red grain)	Mexico	24	4132	113	155	20MS	91	34.0
C-306	India	23	3921	107	150	0	93	45.0
INIA 66	Mexico	37	3899	100	144	5MS	96	45.0
Noroeste 66	Mexico	40	3810	108	150	5S	81	42.0
Pj sib x Gb 55 (white grain)	Mexico	28	3777	113	155	10MS	86	34.0
C-273	Pakistan	3	3532	111	158	0	108	44.0
Lerma Rojo 64A	Mexico	7	3444	109	155	0	96	42.0
Napo 63	Colombia	2	3421	106	150	0	103	34.0
NP 881	India	25	3344	108	155	20MS	110	40.0
C-591	India	20	3333	107	153	0	101	43.0
Triple Dirk	Australia	19	3310	111	153	20S	106	40.0
Huelquen	Chile	4	3277	113	152	0	96	37.0
Klein Petiso x Rafaela	Argentina	44	3266	112	153	10S	98	35.0
Nainari 60	Mexico	12	3233	106	153	30MS	101	41.0
Crespo 63	Colombia	36	3188	106	148	0	101	36.0
Nariño 59	Colombia	46	3166	113	155	10S	96	32.0
Penjamo 62	Mexico	21	3155	109	153	0	90	40.0
VZ-133	Italy	50	3155	115	155	0	73	34.0
Carazinho	Brazil	18	3121	111	155	20S	108	41.0
Tobari 66	Mexico	49	3077	111	150	0	85	38.0
Bonza 55	Colombia	13	3066	111	153	MR	108	37.0
Pakistan 5725	Pakistan	29	3044	102	148	0	85	44.0
C-518	India	16	3033	102	147	0	90	42.0
NP 832	India	10	2966	107	155	0	105	43.0
Roque 66	Mexico	41	2966	104	148	0	98	32.0
NP 824	India	5	2966	107	155	0	103	41.0
Chris	USA	11	2933	111	150	30S	111	27.0
Tiba 63	Colombia	30	2921	100	142	0	100	43.0
Crim	USA	17	2910	111	150	30S	100	34.0
Sonora 64	Mexico	14	2888	102	147	40S	81	37.6
C-271	Pakistan	15	2855	102	150	0	96	48.0

Bonza 63	Colombia	27	2855	111	153	0	101	36.0
Pi 62-Chris sib x Son 64	Mexico	42	2833	103	148	0	88	40.0
Yaqui 50	Mexico	33	2821	110	153	20MS	105	43.0
Tacuari	Argentina	35	2788	112	153	30S	105	30.0
Giza 150	Egypt	9	2744	110	153	20S	98	35.0
Jaral 66	Mexico	38	2721	103	146	0	93	34.0
Mendos	Australia	6	2677	110	150	80S	91	42.0
Giza 144	Egypt	26	2633	111	155	10S	101	39.0
Nar sib (2) x Pj sib	Chile	1	2621	105	152	0	91	34.0
Gaboto	Argentina	43	2621	115	158	20S	100	30.0
Thatcher	Canada	47	2588	122	160	80S	98	22.0
NP 880	India	39	2577	105	153	0	106	52.0
Centrifen	Chile	45	2521	110	155	0	95	34.0
El Gaucho	Argentina	48	2499	116	160	0	96	34.0
Justin	USA	8	2433	120	155	20MS	105	33.0
Gabo	Australia	34	2433	107	150	80S	105	40.0
Son 64 x TzPP-Nai 60	Mexico	22	2288	99	144	20S	83	46.0
Selkirk	Canada	31	2066	122	160	90S	93	30.0
Mean			2977	106	149	2.99	95	37.0
Coefficient of variation			14.0%	:3%	(only 1	2.3%	5.6%	.2%
Standard error of the mean			241	.1	rep.)	.04	3.1	.0
Least significant difference, 5%			677	.5		.11	8.7	.1

Correlations

Days to flowering	-.13				
Days to maturity	-.07	.82**			
Stripe rust $\sqrt{X+1}$	-.32 *	.44**	.23		
Height	-.09	.24	.33 *	.07	
1000 grain weight	.11	-.63**	-.39**	-.38**	-.06

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 54 ASIA

AFGHANISTAN. Darul Aman (Experiment Station). Latitude: 34°33' N. Longitude: 69°11' E. Elevation: 1803 meters above sea level.
Cooperators: Mohammadullah Ohiad, Abdul Hafiz Ferhad and E. V. Staker.

Planting Date: 7 November 1966. Precipitation during test: Not recorded, but 8 year average is 358.5 mm. Irrigation: 4 irrigations 76 mm. each (11 May; 6 June; 21 June; and 3 July). Fertilizer: 134 Kg./Ha. Urea (46% N), 44.8 Kg./Ha. P_2O_5 (45%).

General Comments: Experiment planted too late. Weather was hot and dry during most of the growing season. A few varieties were affected with leaf and/or stem rust, but this had little effect on yield. Little insect, bird and rat damage, but weeds were a problem.

Variety or cross	Origin	Variety Number	Yield kg/ha	Days to: flowering	Days to: maturity	Height cms.	Lodging %	Shattering %	1000 grain weight gms.
Pitic 62	Mexico	32	5109	199	241	82	0	0	1/
Pj sib x Gb 55 (red grain)	Mexico	24	4919	197	245	70	0	0	36.9
El Gaucho	Argentina	48	4405	193	238	88	6	0	1/
Huelquen	Chile	4	4337	197	244	92	0	1	38.0
Lerma Rojo 64A	Mexico	7	4237	195	234	83	0	0	44.9
Pj sib x Gb 55 (white grain)	Mexico	28	4111	196	245	68	0	0	40.3
Jaral 66	Mexico	38	4110	191	236	73	0	0	33.1
Roque 66	Mexico	41	3918	194	240	66	0	1	35.5
INIA 66	Mexico	37	3915	194	236	71	0	0	44.2
Crespo 63	Colombia	36	3908	193	243	89	0	0	40.5
Triple Dirk	Australia	19	3857	198	241	99	0	0	43.6
Sonora 64	Mexico	14	3750	193	239	65	0	0	36.8
Nar sib (2) x Pj sib	Chile	1	3629	191	240	67	0	0	38.2
Tacuari	Argentina	35	3602	198	240	98	0	1	35.5
Bonza 55	Colombia	13	3591	194	237	89	0	0	42.2
Noroeste 66	Mexico	40	3577	193	238	72	0	0	41.9
Selkirk	Canada	31	3568	194	238	106	0	1	36.5
NP 881	India	25	3553	198	244	89	1	1	45.0
Tiba 63	Colombia	30	3554	192	236	74	11	0	46.9
Thatcher	Canada	47	3532	197	241	101	0	0	29.8
Tobari 66	Mexico	49	3477	194	239	69	0	1	41.7
Bonza 63	Colombia	27	3436	195	237	90	0	0	38.5
Nariño 59	Colombia	46	3430	198	241	91	0	0	40.3
Pj 62-Chris sib x Son 64	Mexico	42	3396	194	236	67	0	0	38.4
Carazinho	Brazil	18	3382	197	242	93	1	1	44.3
Napo 63	Colombia	2	3367	198	240	84	0	1	41.0
Nainari 60	Mexico	12	3279	195	242	77	0	0	44.0
Gaboto	Argentina	43	3233	192	239	94	0	0	35.5
Yaqui 50	Mexico	33	3170	194	239	86	1	3	38.2
NP 824	India	5	3045	197	245	88	1	0	43.6
Justin	USA	8	2988	195	245	102	0	10	36.0
Crim	USA	17	2987	198	242	94	18	1	37.5

Klein Petiso x Rafaela	Argentina	44	2925	195	236	72	0	0	35.8
Penjamo 62	Mexico	21	2915	196	239	70	0	0	39.5
Giza 150	Egypt	9	2793	194	248	78	0	0	44.5
Pakistan 5725	Pakistan	29	2751	194	248	59	0	0	43.3
NP 832	India	10	2746	197	248	89	2	0	43.0
Giza 144	Egypt	26	2703	196	1/	90	0	0	39.3
Chris	USA	11	2693	198	242	98	0	2	31.6
Mendos	Australia	6	2683	195	1/	67	0	1	43.3
Gabo	Australia	34	2614	192	241	74	0	0	39.4
C-306	India	23	2589	195	247	86	2	0	42.0
Centrifen	Chile	45	2485	194	240	68	0	0	43.5
C-271	Pakistan	15	2408	193	248	74	0	10	49.2
C-591	India	20	2375	196	247	85	0	0	47.7
NP 880	India	39	2305	194	1/	86	33	0	54.6
C-518	India	16	2249	197	1/	73	0	0	49.8
Son 64 x TzPP-Nai 60	Mexico	22	2072	194	239	57	0	0	45.3
C-273	Pakistan	3	1845	196	248	84	0	0	43.0
Klein Rendidor	Argentina	50	1/						
Mean			3296	195	241	81	1.6	.7	40.9
Coefficient of variation			22.7%	1.5%	1.1%	6.1%	242.6%	476.4%	(only 1
Standard error of the mean			432	1.7	1.5	2.9	2.3	2.1	rep.)
Least significant difference, 5%			1213	4.9	4.4	8.1	6.5	5.9	

Correlations

Days to flowering	.01					
Days to maturity	-.37 *	.35 *				
Height	.08	.44**	.12			
Lodging %	-.16	-.05	-.04	.13		
Shattering %	-.17	-.03	.29 *	.20	-.07	
1000 grain weight	-.41**	-.04	.27	-.24	.38**	-.02

* = Significant at the 5% level
** = Significant at the 1% level

1/ No data available

TABLE 55. ASIA

WEST PAKISTAN. Tarnab, Peshawar (Agricultural Research Institute). Latitude: 32°-33°N. Longitude: 68°E. Elevation: 339 meters above sea level.
Cooperators: M. A. Aziz and staff.

Planting Date: 5 December 1966. Precipitation during test: Feb. 52, Mar. 219, April 57, May 4; Total 332 mm. Irrigation: 4 irrigations. Fertilizer: 22.4 Kg/H Amm. Sulp. on fallow.
General Comments: Dry during early growth period, wet during harvest. Heavy yellow rust, moderate leaf rust and very mild stem rust. No pest problems.
Scoring notes taken: Yellow rust - 10 March; lodging and leaf rust - 23 March; stem rust and height - 17 May.

Variety or cross	Origin	Variety Number	Yield kg/ha	Days to flowering	Stripe rust %	Leaf rust %	Height cms.	Lodging %	1000 grain weight gms.
Lerma Rojo 64A	Mexico	7	5205	86	0	0	109	40	35.9
Penjamo 62	Mexico	21	4617	91	0	0	102	0	37.2
INIA 66	Mexico	37	4563	78	0	0	99	0	43.0
Pj sib x Gb 55 (white grain)	Mexico	28	4392	96	0	0	99	0	30.5
Nar sib (2) x Pj sib	Chile	1	4337	83	65	0	97	0	29.5
Pj sib x Gb 55 (red grain)	Mexico	24	4306	93	0	0	97	0	33.4
Crespo 63	Colombia	36	4113	84	0	0	112	25	32.6
Noroeste 66	Mexico	40	4113	90	0	0	90	0	38.6
Klein Rendidor	Argentina	50	4113	92	0	0	91	0	26.8
Nariño 59	Colombia	46	4080	89	0	0	131	50	31.2
Sonora 64	Mexico	14	3919	78	0	0	90	0	35.2
Pi 62-Chris sib x Son 64	Mexico	42	3888	77	0	0	96	40	36.2
Triple Dirk	Australia	19	3887	89	0	0	134	50	41.3
Mendos	Australia	6	3856	81	100	0	102	30	37.3
Jaral 66	Mexico	38	3856	80	0	0	93	25	30.7
Tobari 66	Mexico	49	3792	81	0	0	95	0	38.7
Huelquen	Chile	4	3792	93	0	0	122	50	34.0
Napo 63	Colombia	2	3728	81	10	0	107	50	32.8
Pitic 62	Mexico	32	3632	89	0	0	104	40	34.2
Son 64 x TzPP-Nai 60	Mexico	22	3599	74	0	0	83	40	40.5
Gabo	Australia	34	3599	83	0	0	109	0	33.0
NP 881	India	25	3470	89	0	0	131	90	33.1
Loque 66	Mexico	41	3469	78	0	0	93	10	29.3
Tacuari	Argentina	35	3309	93	0	0	131	50	27.1
Nainari 60	Mexico	12	3309	91	0	0	113	40	40.6
NP 832	India	10	3247	83	0	65	125	90	41.2
Yaqui 50	Mexico	33	3149	83	0	0	121	80	35.7
C-306	India	23	3117	84	0	0	120	75	42.2
Gaboto	Argentina	43	3084	93	0	0	130	50	38.5
El Gaucho	Argentina	48	3084	88	0	0	132	50	29.4
Centrifen	Chile	45	3052	81	0	0	96	70	35.0
C-518	India	16	3020	87	5	0	113	80	36.7

Bonza 55	Colombia	13	2988	88	0	0	122	80	31.7
NP 824	India	5	2955	80	0	0	120	75	43.2
Bonza 63	Colombia	27	2924	85	0	0	113	50	30.3
Tiba 63	Colombia	30	2924	76	0	0	97	80	36.9
Klein Petiso x Rafaela	Argentina	44	2923	81	0	0	107	50	29.8
Giza 150	Egypt	9	2923	84	100	0	120	80	35.8
Giza 144	Egypt	26	2923	87	0	0	117	90	38.6
C-271	Pakistan	15	2892	78	0	0	104	75	43.6
NP 880	India	39	2892	84	0	10	120	90	46.7
Chris	USA	11	2859	94	0	0	140	80	27.2
C-273	Pakistan	3	2828	83	0	25	122	75	40.4
Pakistan 5725	Pakistan	29	2700	82	0	0	95	75	38.4
Crim	USA	17	2635	96	5	0	144	30	31.1
C-591	India	20	2635	87	0	0	130	75	42.0
Carazinho	Brazil	18	2570	93	0	0	133	60	38.2
Thatcher	Canada	47	2313	92	25	25	153	0	24.1
Selkirk	Canada	31	2165	90	5	0	147	0	29.1
Justin	USA	8	1703	103	0	10	149	40	24.8
Mean			3307	84	1.72	1.22	112	44.6	34.5
Coefficient of variation			13.8%	5.2%	73.0%	86.4%	4.1%	(only 1	(only 1
Standard error of the mean			264	2.5	.72	.61	2.7	rep.)	rep.)
Least significant difference, 5%			741	7.2	2.03	1.71	7.5		

Correlations

Days to flowering	-.20					
Stripe rust $\sqrt{X+1}$	-.09	-.09				
Leaf rust $\sqrt{X+1}$	-.39**	.15	-.06			
Height	-.58**	.66**	.08	.43**		
Lodging %	-.47**	-.07	-.15	.06	.29 *	
1000 grain weight	.12	-.43**	-.10	-.06	-.29 *	.34 *

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 56. ASIA

WEST PAKISTAN. Lyallpur. (Ayub Agricultural Research Institute). Latitude: 31° 30 N. Longitude: 73° 10 E. Elevation: 213 meters above sea level. Cooperators: Dr. S. A. Qureshi, and staff.

Planting Date: 16 November 1966. Precipitation during test: 34 mm. Irrigation: 5 irrigations of 78 mm. each. Fertilizer: 44.8 Kg./Ha. P_2O_5; 134.4 Kg./Ha. N as Superphosphate and Amm. Sulphate.

General Comments: Dry, frosty weather with a few light showers. Varying infection of yellow, brown and black rusts, but had little effect on yield. Plots were hand weeded. No pest damage.

Scoring notes taken: Yellow rust - 28 February & 10 March; brown rust - 10 & 25 March; black rust - 25 March & 4 April; height & lodging - 4 April; shattering - 10 May.

Variety or cross	Origin	Variety Number	Yield kg/ha	Days to: flowering	Days to: maturity	Stripe rust	Leaf rust	Stem rust	Height cms.	Lodging (scale) 2/	Shattering %
INIA 66	Mexico	37	5566	96	150	0R	0R	0R	107	1	0
Nar sib (2) x Pj sib	Chile	1	5112	108	156	40S	5R	0R	94	2	0
Lerma Rojo 64A	Mexico	7	5002	73	155	0R	0R	0R	118	1	5
Sonora 64	Mexico	14	4890	98	150	5R	0R	0R	94	2	0
VZ-133		50	4825	118	161	0R	40S	0R	90	0	1
Napo 63	Colombia	2	4730	105	154	10R	10R	0R	120	2	0
Pj sib x Gb 55 (white grain)	Mexico	28	4623	119	161	0R	25MS	0R	110	2	0
Pakistan 5725	Pakistan	29	4559	105	155	25MS	40S	25MS	101	3	0
Nainari 60	Mexico	12	4542	111	156	25MS	0R	0R	112	1	5
Pj 62-Chris sib x Son 64	Mexico	42	4508	98	152	0R	0R	0R	95	0	38
Pj sib x Gb 55 (red grain)	Mexico	24	4482	118	159	0R	0R	0R	105	2	0
Noroeste 66	Mexico	40	4373	114	158	0R	0R	0R	94	0	0
Son 64 x TzPP-Nai 60	Mexico	22	4247	100	152	0R	0R	0R	90	1	0
Jaral 66	Mexico	38	4216	105	154	0R	0R	0R	98	1	0
Pitic 62	Mexico	32	4087	117	162	5R	0R	0R	100	3	99
Penjamo 62	Mexico	21	4054	113	156	0R	0R	0R	106	3	38
Tiba 63	Colombia	30	3998	107	153	0R	25MS	5R	115	2	50
Roque 66	Mexico	41	3727	98	153	0R	0R	0R	96	1	0
NP 824	India	5	3667	115	159	0R	10MR	40S	136	2	0
NP 832	India	10	3662	110	157	25MS	100MS	25MS	126	2	3
Crespo 63	Colombia	36	3658	111	156	0R	0R	0R	118	3	99
Mendos	Australia	6	3644	76	156	40S	0R	0R	106	2	0
C-271	Pakistan	15	3621	105	157	0R	40S	25MS	117	2	3
Centrifen	Chile	45	3568	108	154	0R	10R	0R	103	1	13
C-306	India	23	3558	113	158	0R	25MS	25MS	130	3	38
C-591	India	20	3536	113	159	0R	10MR	25MS	144	3	20
Triple Dirk	Australia	19	3506	118	161	0R	0R	0R	137	3	38
Gabo	Australia	34	3500	112	157	65VS	0R	0R	117	1	0
Klein Petiso x Rafaela	Argentina	44	3412	109	155	0R	10R	5R	115	2	0
Tobari 66	Mexico	49	3397	111	158	0R	0R	0R	95	0	5
Yaqui 50	Mexico	33	3371	114	158	5R	0R	0R	132	3	38
Nariño 59	Colombia	46	3282	114	160	0R	25MS	5R	132	3	13

Huelquen	Chile	4	3247	116	1/	0R	0R	0R	130	3	5
C-518	India	16	2950	116	158	40S	10MR	10MR	116	1	25
NP 881	India	25	2913	115	157	0R	0R	0R	122	3	50
NP 880	India	39	2757	108	157	25MS	40S	10R	115	3	0
Tacuari	Argentina	35	2749	117	158	0R	0R	0R	129	3	38
Bonza 63	Colombia	27	2717	114	156	5R	0R	0R	130	2	0
Carazinho	Brazil	18	2698	118	155	25MS	0R	0R	142	2	0
Bonza 55	Colombia	13	2662	116	158	10MR	5R	0R	131	2	0
Giza 144	Egypt	26	2649	118	161	40S	5R	5R	124	4	0
Gaboto	Argentina	43	2612	118	160	0R	0R	0R	144	3	13
C-273	Pakistan	3	2593	104	152	0R	10MR	10MR	133	2	0
Giza 150	Egypt	9	2474	114	159	65VS	0R	0R	122	2	0
Crim	USA	17	2394	118	160	10MR	0R	0R	140	2	25
Justin	USA	8	1/								
Chris	USA	11	1/								
Selkirk	Canada	31	1/								
Thatcher	Canada	47	1/								
El Gaucho	Argentina	48	1/								
Mean			3589	106	153	2.28	2.03	1.60	114		14.2
Coefficient of variation			14.9%	11.5%	(only 1	2.9%	3.3%	3.2%	.4%		(only 1
Standard error of the mean			310	7.1	rep.)	.03	.03	.02	.2		rep.)
Least significant difference, 5%			872	20.0		.11	.11	.08	.7		

Correlations

Days to flowering	-.47**						
Days to maturity	-.44**	.61**					
Stripe rust $\sqrt{X+1}$	-.18	0.00	.15				
Leaf rust $\sqrt{X+1}$	0.00	.03	.08	.11			
Stem rust $\sqrt{X+1}$	-.03	.07	.12	0.00	.63**		
Height	-.65**	.41**	.45**	-.02	.09	.27	
Shattering %	-.06	.21	.21	-.26	-.12	-.14	.03

1/ No data available
2/ Scale key 0-5 (0 = least lodging)

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 57 ASIA

INDIA. Ludhiana, Punjab. (Punjab Agricultural University). Latitude: 31° N. Longitude: 75.5°E. Elevation: 153.62 meters above sea level.
Cooperator: Dr. S. C. Anand.

Planting Date: 12 December 1966. Precipitation during test: 50.8 mm. Irrigation: 6 irrigations. Fertilizer: 112 Kg./Ha. N as Calcium Amm. Nitrate, 67.2 Kg./Ha. P_2O_5 as Superphosphate.
General Comments: Drier and warmer than usual. Yellow and black rusts average infection, above average infection of brown rust. No weed or pest problems.
Scoring notes taken: Yellow rust - 2 March; brown rust - 22 March; black rust - 15 April.

Variety or cross	Origin	Variety Number	Yield kg/ha	Days to: flowering	Days to: maturity	Height cms.
Penjamo 62	Mexico	21	5610	101	144	95
INIA 66	Mexico	37	5566	87	135	89
Noroeste 66	Mexico	40	5166	97	139	84
Lerma Rojo 64A	Mexico	7	4943	91	137	92
Pi 62-Chris sib x Son 64	Mexico	42	4777	89	138	88
Sonora 64	Mexico	14	4621	93	135	87
Pitic 62	Mexico	32	4499	96	141	87
Centrifen	Chile	45	4277	89	132	92
Jaral 66	Mexico	38	4166	89	134	90
Tacuari	Argentina	35	3999	103	142	95
Son 64 x TzPP-Nai 60	Mexico	22	3944	96	136	81
Nainari 60	Mexico	12	3866	99	141	92
C-306	India	23	3688	103	148	100
Triple Dirk	Australia	19	3610	102	145	100
Pj sib x Gb 55 (red grain)	Mexico	24	3588	108	145	81
Bonza 63	Colombia	27	3555	101	141	97
Gaboto	Argentina	43	3555	106	148	98
NP 881	India	25	3555	102	144	96
Pj sib x Gb 55 (white grain)	Mexico	28	3499	106	143	91
Tobari 66	Mexico	49	3344	101	144	97
Napo 63	Colombia	2	3310	88	137	96
Nariño 59	Colombia	46	3255	95	130	98
Nar sib (2) x Pj sib	Chile	1	3244	94	138	95
NP 880	India	39	3221	91	138	89
C-273	Pakistan	3	3199	103	142	107
Roque 66	Mexico	41	3155	96	137	94
Yaqui 50	Mexico	33	3121	91	138	105
C-591	India	20	3110	98	146	112
Crespo 63	Colombia	36	3055	98	142	99
Tiba 63	Colombia	30	3033	91	138	90
Mendos	Australia	6	2988	104	145	88
Giza 150	Egypt	9	2988	99	144	87

Pakistan 5725	Pakistan	29	2977	93	133	90
Klein Petiso x Rafaela	Argentina	44	2966	95	138	92
Chris	USA	11	2821	100	138	95
Bonza 55	Colombia	13	2799	100	140	98
Huelquen	Chile	4	2788	102	142	104
C-271	Pakistan	15	2788	98	139	96
C-518	India	16	2621	101	137	94
Giza 144	Egypt	26	2410	103	150	102
Carazinho	Brazil	18	2399	101	143	98
NP 824	India	5	2388	95	140	94
Crim	USA	17	2388	115	151	106
El Gaucho	Argentina	48	2355	109	150	112
Gabo	Australia	34	2299	99	143	95
Klein Rendidor	Argentina	50	2288	105	144	101
Justin	USA	8	2277	105	138	96
NP 832	India	10	2077	95	142	106
Selkirk	Canada	31	1088	106	151	96
Thatcher	Canada	47	566	101	149	102
Mean			3230	96	138	93
Coefficient of variation			28.8%	5.0%	3.9%	9.4%
Standard error of the mean			538	2.8	3.1	5.1
Least significant difference			1510	7.8	8.9	14.3

	Correlations		
Days to flowering	-.40**		
Days to maturity	-.43**	.77**	
Height	-.47**	.34 *	.46**

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 58 ASIA

INDIA. New Delhi. (Indian Agricultural Research Institute). Latitude: 28.4° N. Longitude: 76° E. Elevation: 228.60 meters above sea level.
Cooperator: R. K. Miri.

Planting Date: 18 November 1966. Precipitation during test: Not stated. Irrigation: 4 irrigations. Fertilizer: 112 Kg./Ha. N as Amm. Sulphate; 56 Kg./Ha. P_2O_5 as Superphosphate.
General Comments: The season was dry. There was natural infection of black, brown and yellow rusts.

Variety or cross	Origin	Variety Number	Yield kg/ha	Leaf rust	Stem rust	Height cms.	1000 grain weight gms.
INIA 66	Mexico	37	4166	0	t	99	38.1
Pj sib x Gb 55 (red grain)	Mexico	24	3955	tMR	0	87	32.6
Penjamo 62	Mexico	21	3732	0	0	93	35.7
C-306	India	23	3688	40MS	tS	117	43.0
NP 824	India	5	3621	60S	tMS	116	44.0
Sonora 64	Mexico	14	3621	0	0	84	32.8
C-518	India	16	3577	40S	100S	107	36.3
Pj sib x Gb 55 (white grain)	Mexico	28	3566	40S	0	88	33.8
NP 880	India	39	3510	100S	t	126	46.0
Son 64 x TzPP-Nai 60	Mexico	22	3466	0	0	85	35.3
Giza 150	Egypt	9	3466	tMR	0	103	38.6
Nainari 60	Mexico	12	3444	0	0	100	36.9
Mendos	Australia	6	3444	20S	0	109	38.2
Gabo	Australia	34	3399	tMR	tMS	81	36.2
C-273	Pakistan	3	3377	25MS	tMS	121	38.2
Huelquen	Chile	4	3377	0	0	104	35.7
Triple Dirk	Australia	19	3288	t	0	121	39.6
Pi 62-Chris sib x Son 64	Mexico	42	3266	0	0	93	33.0
Giza 144	Egypt	26	3221	tMR	t	117	39.0
Nar sib (2) x Pj sib	Chile	1	3221	60S	0	81	26.4
Tobari 66	Mexico	49	3221	0	0	93	31.0
Lerma Rojo 64A	Mexico	7	3199	0	0	96	32.8
Roque 66	Mexico	41	3199	0	0	95	26.5
Noroeste 66	Mexico	40	3066	0	0	86	35.7
C-271	Pakistan	15	3044	25S	25S	106	47.2
Crespo 63	Colombia	36	2999	tMR	0	113	32.8
Pakistan 5725	Pakistan	29	2977	40MS	25S	101	40.6
Yaqui 50	Mexico	33	2977	tMR	0	123	35.8
Jaral 66	Mexico	38	2955	0	0	92	31.3
C-591	India	20	2955	25S	100S	119	40.2
NP 881	India	25	2888	0	0	115	36.0
NP 832	India	10	2844	100S	t	127	37.2

Crim	USA	17	2844	0	0	121	34.2
Napo 63	Colombia	2	2733	0	0	109	31.0
Pitic 62	Mexico	32	2666	tS	0	98	30.4
Tacuari	Argentina	35	2577	t	0	118	30.2
Bonza 55	Colombia	13	2533	0	0	106	30.6
Klein Petiso x Rafaela	Argentina	44	2510	tMS	0	100	30.2
Tiba 63	Colombia	30	2488	20S	0	114	37.7
Nariño 59	Colombia	46	2399	25MS	0	109	32.0
Bonza 63	Colombia	27	2377	0	0	112	32.5
Chris	USA	11	2377	0	0	118	29.6
Gaboto	Argentina	43	2355	0	0	111	29.7
Centrifen	Chile	45	2244	tMR	0	95	27.3
El Gaucho	Argentina	48	2088	t	0	116	29.7
Carazinho	Brazil	18	2088	t	0	107	38.7
Justin	USA	8	1622	tMR	0	118	22.4
Selkirk	Canada	31	1488	tMR	0	119	29.7
Klein Rendidor	Argentina	50	1377	t	0	101	17.8
Thatcher	Canada	47	1288	10S	0	125	16.9
Mean			2908	2.63	1.57	104	33.6
Coefficient of variation			13.7%	(only 1	(only 1	10.1%	10.2%
Standard error of the mean			230	rep.)	rep.)	6.1	1.9
Least significant difference, 5%			646			17.1	5.5

Correlations

Leaf rust $\sqrt{X+1}$	.19			
Stem rust $\sqrt{X+1}$	.13	.36**		
Height	-.41**	.26	.11	
1000 grain weight	.59**	.41**	.32 *	.14

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 59

ASIA

INDIA. Pantnagar. (U.P. Agricultural University). Latitude: 29° N. Longitude: 79° 30' E. Elevation: 243.84 meters above sea level.
Cooperator: Dr. J. P. Srivastava.

Planting Date: 10 December 1966. Precipitation during test: Negligible. Irrigation: 6 irrigations applied. Fertilizer: 110 Kg/Ha N. as Amm. Sulphate; 80 Kg/Ha P_2O_5 as Superphosphate and 60 Kg/Ha K_2O as Muriate of Potash.
General Comments: Fairly cold until January and 70-95°F in March. Moderate infection of yellow and brown rust and powdery mildew, but no black rust. No weed or pest problems.

Variety or cross	Origin	Variety Number	Yield kg/ha	Days to: flowering	Days to: Maturity	Height cms.	Lodging %	Shattering %	Shattering (Spikelets) %	1000 grain weight gms.
Pj sib x Gb 55 (red grain)	Mexico	24	6088	89	122	80	0	55	9	39.0
INIA 66	Mexico	37	5932	75	117	89	0	60	19	41.0
Penjamo 62	Mexico	21	5232	78	119	85	0	35	9	42.0
Son 64 x TzPP-Nai 60	Mexico	22	5221	76	117	77	0	40	14	38.0
Roque 66	Mexico	41	5177	75	117	80	0	55	12	31.0
Lerma Rojo 64A	Mexico	7	5077	81	118	90	0	25	10	38.0
Noroeste 66	Mexico	40	5032	82	119	82	0	75	20	40.0
Jaral 66	Mexico	38	5032	76	117	86	0	60	13	33.0
C-306	India	23	4832	85	123	107	0	25	16	47.0
Pitic 62	Mexico	32	4821	87	120	81	0	45	16	38.0
Mendos	Australia	6	4721	86	121	88	10	25	9	44.0
Pakistan 5725	Pakistan	29	4688	78	120	84	0	0	0	44.0
Pi 62-Chris sib x Son 64	Mexico	42	4655	76	116	80	0	40	16	37.0
Tobari 66	Mexico	49	4655	79	120	84	0	40	9	40.0
C-591	India	20	4621	86	121	112	10	30	8	45.0
Gabo	Australia	34	4610	81	120	94	0	75	15	37.0
NP 824	India	5	4499	78	120	111	50	45	9	47.0
Nainari 60	Mexico	12	4444	85	120	91	0	10	7	42.0
Pj sib x Gb 55 (white grain)	Mexico	28	4421	88	119	82	0	60	16	38.0
Huelquen	Chile	4	4366	85	121	100	50	50	9	42.0
Napo 63	Colombia	2	4344	76	117	102	0	50	15	41.0
Klein Petiso x Rafaela	Argentina	44	4277	86	121	93	50	20	15	36.0
Tiba 63	Colombia	30	4221	85	119	89	0	70	21	46.0
Sonora 64	Mexico	14	4155	75	115	70	0	35	12	40.0
Giza 150	Egypt	9	4132	88	123	93	10	5	6	39.0
NP 832	India	10	4066	80	119	109	0	55	13	44.0
Triple Dirk	Australia	19	3988	81	121	111	0	65	14	46.0
Yaqui 50	Mexico	33	3988	81	118	104	0	75	18	39.0
Bonza 55	Colombia	13	3832	87	121	97	0	45	18	37.0
Crespo 63	Colombia	36	3766	83	121	102	20	85	26	39.0
C-273	Pakistan	3	3766	79	121	108	10	45	13	44.0
C-271	Pakistan	15	3699	81	121	93	0	15	11	45.0

Bonza 63	Colombia	27	3655	86	121	97	10	75	21	39.0
Giza 144	Egypt	26	3644	86	122	96	0	15	6	42.0
Tacuari	Argentina	35	3621	88	122	98	0	85	26	35.0
NP 880	India	39	3521	78	120	107	0	45	17	51.0
Gaboto	Argentina	43	3455	94	123	94	50	70	25	33.0
C-518	India	16	3399	86	125	88	65	0	0	41.0
NP 881	India	25	3333	88	121	94	0	60	18	37.0
El Gaucho	Argentina	48	3144	96	128	110	0	65	14	30.0
Chris	USA	11	3121	94	121	105	10	40	9	33.0
Carazinho	Brazil	18	3110	95	122	99	0	50	18	42.0
Crim	USA	17	2933	92	124	100	0	25	13	36.0
Nar sib (2) x Pj sib	Chile	1	2910	82	117	75	0	20	10	36.0
Centrifen	Chile	45	2710	82	116	84	25	25	11	35.0
Nariño 59	Colombia	46	2377	85	119	101	0	95	46	33.0
Selkirk	Canada	31	1899	106	130	106	0	60	23	25.0
Justin	USA	8	1766	109	135	116	55	20	10	25.0
Klein Rendidor	Argentina	50	1144	106	138	109	0	10	7	17.0
Thatcher	Canada	47	1055	107	129	112	10	35	14	16.0
Mean			3920	83	118	93	8.7 (only 1 rep.)	44.0 (only 1 rep.)	13.98 (only 1 rep.)	37.7 (only 1 rep.)
Coefficient of variation			18.8%	2.7%	1.1%	9.4%				
Standard error of the mean			427	1.3	.8	5.0				
Least significant difference, 5%			1199	3.6	2.2	14.2				

Correlations

Days to flowering.	-.70**						
Days to maturity	-.63**	.89**					
Height	-.50**	.46**	.60**				
Lodging %	-.23	.26	.37**	.22			
Shattering %	.01	-.03	-.12	.16	-.22		
Shattering (Spikelets) %	-.25	.11	-.03	.16	-.18	.79**	
1000 grain weight	.55**	-.63**	-.49**	-.07	-.11	-.14	-.22

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 60 ASIA

INDIA. Pusa, Bihar. (Botanical Sub-Station). Latitude: 25° 59'N. Longitude: 85° 40'E. Elevation: 165.7 meters above sea level.
Cooperators: P. N. Narula, V. Rama Rao, S. Singh and O. P. Srivastava.

Planting Date: 18-19 December 1966. Precipitation during test: 37.5 mm. Irrigation: 4 irrigations. Fertilizer: N50, P40, K45 Kg./Ha.

General Comments: A very good season for wheat production. Moderate infection of diseases. Bird damage was light on late maturing varieties, and weeds were a problem.

Scoring notes taken: Brown rust - late January to early February; black rust - early March.

Variety or cross	Origin	Variety Number	Yield kg/ha	Days to: flowering	Days to: maturity	Leaf rust	Height cms.	1000 grain weight gms.
INIA 66	Mexico	37	3666	69	100	R	76	42.3
Triple Dirk	Australia	19	3555	82	113	S	113	30.3
Penjamo 62	Mexico	21	3499	79	110	R	83	37.2
Pitic 62	Mexico	32	3333	75	109	S	83	37.1
Lerma Rojo 64A	Mexico	7	3277	75	104	R	84	38.0
Nainari 60	Mexico	12	3277	83	116	R	90	38.1
Gabo	Australia	34	3110	80	112	R	91	34.6
Pj sib x Gb 55 (red grain)	Mexico	24	2888	80	111	R	73	32.2
Giza 144	Egypt	26	2833	83	118	S	110	36.7
Tacuari	Argentina	35	2777	83	113	R	104	31.4
Crespo 63	Colombia	36	2721	72	110	TS	96	35.7
Sonora 64	Mexico	14	2666	71	103	S	78	35.3
Mendos	Australia	6	2666	81	111	S	81	34.2
Noroeste 66	Mexico	40	2666	77	111	R	78	35.6
NP 852	India	50	2666	73	109	R	102	37.4
Chris	USA	11	2499	87	114	R	113	33.3
Carazinho	Brazil	18	2444	86	116	R	113	36.8
Giza 150	Egypt	9	2444	83	115	S	96	37.3
Huelquen	Chile	4	2444	80	110	S	101	35.2
Bonza 63	Colombia	27	2388	82	109	R	104	33.0
C-306	India	23	2388	79	113	S	99	36.7
NP 881	India	25	2333	80	111	TS	99	33.6
Roque 66	Mexico	41	2333	71	104	S	71	28.7
Gaboto	Argentina	43	2333	85	115	R	111	29.1
Klein Petiso x Rafaela	Argentina	44	2333	73	102	TS	88	30.5
Tobari 66	Mexico	49	2333	72	112	R	81	34.0
Crim	USA	17	2333	88	122	R	114	30.4
NP 832	India	10	2222	74	112	S	107	30.5
NP 880	India	39	2222	74	112	S	94	39.1
Nariño 59	Colombia	46	2222	73	108	S	90	31.0
Son 64 x TzPP-Nai 60	Mexico	22	2222	69	105	R	68	34.4
Yaqui 50	Mexico	33	2222	76	110	S	95	34.1

Centrifen	Chile	45	2110	76	108	S	80	31.1
Pakistan 5725	Pakistan	29	2055	75	109	S	86	26.7
Pj sib x Gb 55 (white grain)	Mexico	28	1999	81	110	S	73	28.3
C-591	India	20	1944	81	114	S	108	31.5
Pi 62-Chris sib x Son 64	Mexico	42	1944	70	95	R	79	36.9
C-518	India	16	1944	81	113	S	89	24.8
Bonza 55	Colombia	13	1944	81	111	TS	107	30.4
Napo 63	Colombia	2	1883	72	101	S	94	28.9
El Gaucho	Argentina	48	1888	90	122	R	108	31.4
NP 824	India	5	1833	76	113	S	100	26.2
Jaral 66	Mexico	38	1777	73	104	R	77	29.3
Nar sib (2) x Pj sib	Chile	1	1777	73	104	S	70	33.4
C-273	Pakistan	3	1722	80	111	S	96	33.8
C-271	Pakistan	15	1555	76	110	S	91	27.6
Tiba 63	Colombia	30	1555	73	113	S	82	32.2
Selkirk	Canada	31	833	97	133	S	122	28.7
Justin	USA	8	333	82	133	S	110	21.5
Thatcher	Canada	47	166	113	145	S	83	16.9
Mean			2238	77	110	2.51	91	31.7
Coefficient of variation			24.3%	.6%	1.1%	5.1%	8.4%	2.1%
Standard error of the mean			314	.2	.7	.07	4.4	.3
Least significant difference, 5%			881	.8	2.1	.20	12.4	1.0

Correlations

Days to flowering	-.38**				
Days to maturity	-.53**	.87**			
Leaf rust $\sqrt{X+1}$	-.35 *	.04	.18		
Height	-.13	.49**	.50**	0.00	
1000 grain weight	.74**	-.43**	-.52**	-.31 *	-.13

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 61 AUSTRALIA

SOUTH AUSTRALIA. Glen Osmond. (Waite Agricultural Research Institute). Latitude: 34° 58' S. Longitude: 138° 38' E. Elevation: 122.53 meters above sea level. Cooperators: Dr. K. W. Finlay and Dr. A. Rathjen.

Planting Date: 26 June 1967. Precipitation during test: 197.1 mm. June - December 1967. Irrigation: nil. Fertilizer: 33.6 Kg./Ha. Superphosphate.
General Comments: A drought season, very dry throughout the season. No disease, weed or pest problems.

Scoring notes taken: Days to maturity were not scored because the date would have been misleading due to the drought.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to flowering	Height cms.	1000 grain weight gms.
Pi 62-Chris sib x Son 64	Mexico	42	2208	82.7	94	79	33.9
Pitic 62	Mexico	32	2136	74.3	103	82	31.7
NP 880	India	39	2125	84.6	95	91	40.0
Crespo 63	Colombia	36	2069	74.9	103	98	28.4
Roque 66	Mexico	41	2059	75.2	99	83	26.7
Tobari 66	Mexico	49	2049	76.9	103	75	32.0
Son 64 x TzPP-Nai 60	Mexico	22	2043	78.0	95	82	33.7
Penjamo 62	Mexico	21	1966	76.9	99	80	30.3
Pj sib x Gb 55 (white grain)	Mexico	28	1947	76.4	103	79	30.4
NP 881	India	25	1929	78.9	103	94	32.3
Nar sib (2) x Pj sib	Chile	1	1900	77.8	96	65	30.2
Gabo	Australia	34	1890	75.8	101	93	32.1
C-271	Pakistan	15	1785	74.5	97	82	37.0
Jaral 66	Mexico	38	1785	78.4	95	79	29.1
Bonza 63	Colombia	27	1784	75.2	105	87	30.5
Sonora 64	Mexico	14	1747	81.6	92	72	33.4
Nariño 59	Colombia	46	1746	77.3	100	97	29.7
Yaqui 50	Mexico	33	1742	77.1	102	94	30.9
Triple Dirk	Australia	19	1686	76.7	106	80	32.7
Mendos	Australia	6	1675	75.2	101	79	35.6
INIA 66	Mexico	37	1672	78.0	94	82	31.0
Pj sib x Gb 55 (red grain)	Mexico	24	1686	77.0	104	72	30.8
Klein Petiso x Rafaela	Argentina	44	1618	73.5	103	89	29.0
C-306	India	23	1570	77.9	98	81	35.0
Noroeste 66	Mexico	40	1559	79.0	99	68	32.1
Lerma Rojo 64A	Mexico	7	1537	77.1	97	81	32.5
Chris	USA	11	1526	78.8	108	93	29.4
Carazinho	Brazil	18	1495	76.5	103	87	35.3
Crim	USA	17	1485	79.9	109	89	29.5
Tacuari	Argentina	35	1466	76.5	106	86	28.2
Tiba 63	Colombia	30	1457	75.0	96	85	31.6
Nainari 60	Mexico	12	1419	74.8	103	75	32.3

C-591	India	20	1386	81.2	100	74	33.7
Pakistan 5725	Pakistan	23	1376	77.0	98	70	33.1
Gaboto	Argentina	43	1375	76.3	109	89	29.5
NP 824	India	5	1368	79.8	103	86	35.1
NP 832	India	10	1343	79.0	103	70	33.6
Huelquen	Chile	4	1316	76.6	104	79	31.9
Napo 63	Colombia	2	1297	74.9	95	85	29.1
Giza 144	Egypt	26	1295	75.6	106	79	33.0
Bonza 55	Colombia	13	1272	73.4	103	96	29.1
Centrifen	Chile	45	1202	78.6	96	79	30.3
Giza 150	Egypt	9	1175	74.1	104	77	30.8
El Gaucho	Argentina	48	1127	75.0	110	72	29.0
C-273	Pakistan	3	1107	80.4	90	83	35.0
C-518	India	16	781	72.8	103	68	33.4
Selkirk	Canada	31	544	77.8	121	65	33.3
Thatcher	Canada	47	518	75.4	126	69	28.4
Justin	USA	8	472	71.6	119	67	31.1
Klein Rendidor	Argentina	50	467	74.8	125	74	31.8
Mean			1514	75.4	100	79	31.1
Coefficient of variation			28.8%	2.7%	(only 1	12.8%	5.4%
Standard error of the mean			252	1.1	rep.)	5.8	.9
Least significant difference, 5%			707	3.3		16.5	2.7

Correlations

Test wt.	.32 *			
Days to flowering	-.64**	-.37**		
Height	.43**	.03	-.20	
1000 grain weight	.08	.43**	-.28	-.13

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 62

AUSTRALIA

AUSTRALIA. Wagga Wagga, (New South Wales Department of Agriculture, Agricultural Research Institute). Latitude: 35°5' S. Longitude: 147° E. Elevation: 228 meters above sea level. Cooperators: Dr. A. T. Pugsley and J. R. Syme.

Planting Date: 22 May 1968. Precipitation during test: 319.6 mm. Irrigation: nil. Fertilizer: 16.8 Kg./Ha. Superphosphate.

General Comments: Average seasonal conditions. There were no serious disease, weed or pest problems.

Variety or cross	Origin	Variety Number	Yield kg/ha	Test wt. kg/hl	Days to: flowering	Days to: maturity	Height cms.	1000 grain weight gms.	Grain/total weight %
Pj sib x Gb 55 (white grain)	Mexico	28	3507	77.3	153	186	69	37.9	42
K. F. Heron	Australia	50	3474	79.6	152	183	77	43.4	38
Pitic 62	Mexico	32	3303	73.7	152	185	81	36.1	39
Tacuari	Argentina	35	2998	78.4	151	183	91	31.8	29
Bonza 63	Colombia	27	2993	77.8	149	183	93	36.3	31
Penjamo 62	Mexico	21	2984	75.3	149	180	71	41.5	37
Gaboto	Argentina	43	2873	77.2	152	182	98	29.3	29
Centrifen	Chile	45	2854	77.0	148	181	80	38.4	31
Pj [illegible] x Gb 55 (red grain)	Mexico	24	2817	76.3	149	184	73	35.7	36
To [illegible] 66	Mexico	49	2766	79.8	148	181	79	41.8	33
Ga[illegible]	Australia	34	2738	74.7	149	182	89	37.5	29
Trip[illegible] Dirk	Australia	19	2697	77.8	152	186	89	39.8	31
Klein Pétiso x Rafaela	Argentina	44	2688	79.7	149	181	81	36.2	31
Giza 150	Egypt	9	2688	80.1	151	184	87	36.5	32
Nainari 60	Mexico	12	2674	76.5	149	181	95	43.3	31
Roque 66	Mexico	41	2641	75.3	147	181	68	34.0	34
Napo 63	Colombia	2	2595	75.9	147	180	86	37.1	35
Huelquen	Chile	4	2586	76.8	151	184	94	35.8	29
Crespo 63	Colombia	36	2549	78.3	150	183	91	36.3	33
INIA 66	Mexico	37	2447	77.3	145	180	78	46.9	32
Lerma Rojo 64A	Mexico	7	2415	77.2	149	181	74	40.5	35
Nar sib (2) x Pj sib	Chile	1	2401	74.6	146	180	69	36.6	31
Giza 144	Egypt	26	2359	79.8	152	187	90	38.6	30
Noroeste 66	Mexico	40	2317	76.5	150	181	76	42.3	37
Mendos	Australia	6	2257	74.9	149	181	75	38.5	32
Sonora 64	Mexico	14	2257	77.0	145	179	70	38.3	35
Carazinho	Brazil	18	2211	76.1	151	183	97	36.4	24
Chris	USA	1[illegible]	2193	76.8	152	183	98	31.4	28
Bonza 55	Colombia	13	2183	75.9	150	182	98	36.4	30
Crim	USA	17	2100	75.0	151	182	90	33.3	27
Son 64 x TzPP-Nai 60	Mexico	22	2068	75.8	143	179	67	44.1	24
El Gaucho	Argentina	48	2021	77.3	153	185	99	30.2	25

NP 881	India	25	2012	77.0	150	184	92	35.8	33
Pakistan 5725	Pakistan	29	1980	81.1	149	182	71	43.0	31
Yaqui 50	Mexico	33	1943	78.3	152	183	94	36.7	35
C-271	Pakistan	15	1896	79.1	149	181	77	43.9	32
NP 824	India	5	1887	80.8	150	184	101	39.9	31
C-518	India	16	1869	82.0	151	183	86	39.5	35
NP 832	India	10	1850	80.5	150	184	98	39.7	28
C-306	India	23	1832	81.1	149	184	93	41.3	32
Jaral 66	Mexico	38	1772	76.1	146	180	77	32.6	30
Justin	USA	8	1711	77.3	159	195	93	32.3	25
Pi 62-Chris sib x Son 64	Mexico	42	1614	77.3	147	180	69	40.5	25
Thatcher	Canada	7	1475	75.9	160	195	92	26.7	28
C-591	India	20	1276	80.3	149	183	99	35.8	25
C-273	Pakistan	3	1184	79.8	150	184	92	37.5	27
NP 880	India	39	1152	80.8	150	183	89	45.8	24
Selkirk	Canada	31	1133	70.2	159	189	88	25.7	27
Nariño 59	Colombia	46	1073	74.6	149	183	91	37.3	32
Tiba 63	Colombia	30	934	74.0	146	180	83	46.3	23
Mean			2175	75.8	146	179	83	36.7	30.6
Coefficient of variation			11.7%	(only 1	(only 1	(only 1	5.5%	(only 1	8.6%
Standard error of the mean			148	rep.)	rep.)	rep.)	2.6	rep.)	1.5
Least significant difference, 5%			415				7.5		4.2

Correlations

Test wt.	-.05					
Days to flowering	-.12	-.09				
Days to maturity	-.19	0.00	.90**			
Height	-.25	.22	.48**	.42**		
1000 grain weight	-.03	.34 *	-.63**	-.53**	-.36 *	
Grain/total weight %	.60**	-.01	-.09	-.14	-.42**	.12

* = Significant at the 5% level
** = Significant at the 1% level

TABLE 63

Overall means of yield for the Third International Spring Wheat Yield Nursery (1966-1967).

Rank	Variety Number	Variety Name	Origin	Mean Yield (Kg/Ha)
1	32	Pitic 62	Mexico	3500
2	7	Lerma Rojo 64A	Mexico	3461
3	21	Penjamo 62	Mexico	3407
4	24	Super X	Mexico	3374
5	37	Inia 66	Mexico	3355
6	36	Crespo 63	Colombia	3259
7	12	Nainari 60	Mexico	3244
8	28	Siete Cerros	Mexico	3203
9	40	Noroeste 66	Mexico	3199
10	49	Tobari 66	Mexico	3178
11	1	Nar "S"^{2}-Pj "S"	Chile	3164
12	2	Napo 63	Colombia	3149
13	4	Huelquen	Chile	3058
14	42	Ciano "S"	Mexico	3000
15	22	Jaral "S"	Mexico	2968
16	35	Tacuari	Argentina	2928
17	38	Jaral 66	Mexico	2912
18	25	NP 881	India	2900
19	41	Roque 66	Mexico	2900
20	27	Bonza 63	Colombia	2894
21	19	Triple Dirk	Australia	2862
22	33	Yaqui 50	Mexico	2854
23	23	C-306	India	2853
24	46	Nariño 59	Colombia	2837
25	14	Sonora 64	Mexico	2786
26	30	Tiba 63	Colombia	2778
27	45	Centrifen	Chile	2778
28	13	Bonza 55	Colombia	2770
29	5	NP 824	India	2752
30	10	NP 832	India	2706
31	15	C-271	Pakistan	2694
32	6	Mendos	Australia	2679
33	29	Pakistan 5725	Pakistan	2651
34	43	Gaboto	Argentina	2634
35	9	Giza 150	Egypt	2623
36	18	Carazinho	Brazil	2610
37	26	Giza 144	Egypt	2593
38	17	Crim	USA	2568
39	44	Klein Petiso-Rafaela	Argentina	2549
40	39	NP 880	India	2548
41	20	C-591	India	2525
42	16	C-518	India	2509
43	11	Chris	USA	2488
44	34	Gabo	Australia	2470
45	3	C-273	Pakistan	2441
46	48	El Gaucho	Argentina	2294
47	8	Justin	USA	2073
48	31	Selkirk	Canada	2019
49	47	Thatcher	USA	1613