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The Second and Third International Triticale Yield Nurseries (ITYN) were composed of 16 and 25 varieties or breeding lines (including wheat checks), respectively.

Results were obtained from 17 Second ITYN cooperators and 34 Third ITYN cooperators, representing a wide range of agroclimatic conditions. The statistical analysis of all the traits observed at each location along with summaries and overall means for all locations is presented in this bulletin.

A steady improvement in adaptation of triticale lines was observed from First to Second to Third ITYN, but very few of them demonstrated the wide adaptability achieved by some of the Mexican spring wheats.

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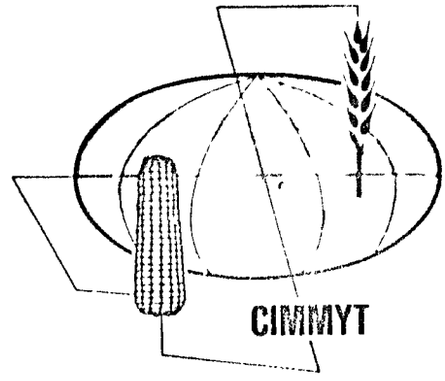

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RESULTS OF THE

SECOND AND THIRD INTERNATIONAL TRITICALE YIELD NURSERIES

1970 - 1971
1971 - 1972

RESULTADOS DEL 2o. y 3er.

ENSAYOS INTERNACIONALES DE RENDIMIENTO DE TRITICALES

1970 - 1971
1971 - 1972

RESULTATS DES 2éme ET 3éme

ESSAIS INTERNATIONAUX SUR LE RENDEMENT DES TRITICALES

1970 - 1971
1971 - 1972

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The number of collaborators from many different countries is continuing to increase. This widening interest is greatly appreciated.

The seed for these experiments was increased by the staff of Centro de Investigaciones Agricolas del Noroeste (CIANO), Sonora, Mexico. This assistance is gratefully acknowledged.

Funds for the support of this project were received from the Rockefeller Foundation, the Ford Foundation, and the United States Agency for International Development (U.S. AID). Since July 1, 1971, all Triticale research at CIMMYT, including this nursery program, has been financed by a grant from the Canadian International Development Agency (CIDA). These funds are administered by the International Development Research Center of Canada (IDRC).

RECONOCIMIENTO

El número de colaboradores de muchos países aumenta constantemente. Este creciente interés es altamente apreciado.

La semilla para los experimentos referidos aquí fue multiplicada por el personal técnico del Centro de Investigaciones Agrícolas del Noroeste (CIANO), Sonora, México. Se agradece la cooperación de este Centro.

Los fondos para sostener este proyecto fueron aportados por la Fundación Rockefeller, la Fundación Ford y la Agencia para el Desarrollo Internacional de los Estados Unidos (U.S. AID). Desde el 1o. de Julio de 1971 toda la investigación sobre Triticale llevada a cabo por el CIMMYT, inclusive los programas de ensayos internacionales, ha sido financiada a través de un donativo otorgado por la Agencia para el Desarrollo Internacional del Gobierno de Canadá (CIDA). Estos fondos son administrados por el Centro de Investigación para el Desarrollo Internacional de Canadá (IDRC).

RECONNAISSANCE

Le nombre de collaborateurs de plusieurs pays augmente constamment. Cet intérêt croissant est hautement apprecié.

La semence pour les expériments mentionnés ici a été multiplié par le personnel technique du Centro de Investigaciones Agrícolas del Noroeste (CIANO), Sonora, Mexique. La cooperation de ce Centre est très appreciée.

Les fonds de soutien de ce projet ont été couverts par la Fondation Rockefeller, la Fondation Ford, et l'Agence pour le Developpement International des Etats Unis (U.S. AID). Du 1er. Juillet 1971, toutes les recherches sur les Triticales ont été recouvertes par le CIMMYT, les programmes d'essais internationaux aussi, ont été financiés par un don concédé par l'Agence pour le Developpement International du Gouvernement Canadien (CIDA). Ces fonds sont administrés par le Centre de Recherche pour le Developpement International du Canada (IDRC).

RESULTS OF THE

SECOND AND THIRD INTERNATIONAL TRITICALE YIELD NURSERIES

1970 - 1971
1971 - 1972

Abstract

The Second and Third International Triticale Yield Nurseries (ITYN) were composed of 16 and 25 varieties or breeding lines (including wheat checks), respectively.

Results were obtained from 17 Second ITYN cooperators and 34 Third ITYN cooperators, representing a wide range of agroclimatic conditions. The statistical analysis of all the traits observed at each location along with summaries and overall means for all locations is presented in this bulletin.

A steady improvement in adaptation of triticale lines was observed from First to Second to Third ITYN, but very few of them demonstrated the wide adaptability achieved by some of the Mexican spring wheats.

Introduction

Each year, the CIMMYT International Nurseries Program sends the seed of advanced high-yielding lines and varieties to various cooperators in different parts of the world. The purpose of sending this material is to test its yield potential and adaptation as well as its reaction to various diseases and pests present in those locations. This material is generally sent in the form of an international yield nursery, which is replicated. This material can be used by the cooperator either directly as a commercial variety or as a source of germ plasm in his breeding program. CIMMYT is only interested in the results obtained by these cooperators, which are used to improve its program.

The CIMMYT Triticale Program sent its First International Yield Nursery (ITYN) during 1969-70 to 39 locations. The response from the cooperators was very encouraging; so it was decided to continue sending this nursery. The Second ITYN was sent during 1970-71 and the Third ITYN during 1971-72. The results obtained for these nurseries have been compiled in this bulletin.

Materials and Methods

Triticale varieties and breeding lines included in the Second and Third ITYNs were multiplied during the fall of 1969-70 and 1970-71 at Navojoa, Sonora (Centro de Investigaciones Agricolas del Noreste), Mexico. There were 16 lines in the Second ITYN (12 triticales + 3 wheats + 1 local check) and 25 in the Third ITYN (21 triticales + 3 wheats + 1 local check). The seed of Rosner (Second ITYN) and UM-70-HN-470 (Third ITYN) was received from the University of Manitoba, Winnipeg, Canada.

The strains from Mexico were selected on the basis o.' their high yield in the replicated preliminary yield trials. Other considerations for selection were good fertility, resistance to prevalent diseases and better nutritional quality.

The seed was cleaned and treated with organic compounds before the preparation of the nursery. The plots consisted of six rows 2.5 meters long, 30 cm apart, with three replications. Each nursery set included an instruction bulletin outlining the required management operation and notes to be taken.

The varieties and lines entered in the Second ITYN were:

Pitic 62:

Yaktana 54 x Norin 10-Brevor 26-1C
7064-1Y-1H-1R-2M

First semidwarf variety released in Mexico. This high-yielding variety has done well in most of the wheat nurseries. 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 several other countries.

Inia 66:

Lerma Rojo 64 - Sonora 64
19008-83M-100Y-100M-100Y-100C

A semidwarf wheat which has shown excellent baking qualities, good yield potential, lodging resistance and resistance to many races of stem and stripe rusts. It is susceptible to bunt and barley yellow dwarf. White chaff and red seed characterize this variety.

Jori C-69:

Pitic "S"-Barrigon Yaqui^2 x Tehuacan 60/Pitic "S"-Tacuri 125 x Tehuacan 60^3 D21570-2M-6R-1M.

A high-yielding semidwarf durum adapted to wheat growing regions of Mexico and most spring wheat regions of the world. Its white, dense spike is resistant to shattering. It has good quality for pastas, macaroni, and spaghetti. This strain has also shown high resistance to stem and leaf rust races.

Bronco 90:

Tcl "Sp-Pet" - Tcl per x Tcl Ghiza - X224-15Y-2M-1Y-1M-0Y. Tcl durum.

It is probably the most productive and widely adapted strain selected from crosses other than the Armadillo group, but it is susceptible to lodging. It also has very high protein content (18.9%). Bioassays on meadow voles by Dr. Fred Elliott of Michigan State University indicate a high grain protein efficiency ratio.

Rosner:

T. turgidum var durum (cv. Ghiza) x S. cereale x T. turgidum var. durum (cv. Carleton) x S. cereale x (T. turgidum var. persicum x S. cereale) x (T. turgidum x S. cereale hybrid of unknown identity).

It was developed at the Department of Plant Science, University of Manitoba, Canada. It was the first variety of triticale to be released in Canada. This strain is day length sensitive and generally too tall and susceptible to lodging. It has shown a wide spectrum of resistance to stem and leaf rust races when grown in the lower latitudes. It is better suited to the cold conditions of America and Europe.

Armadillo - X 308

The pedigree of the cross X 308 is listed as
(Triticale - "Ghiza" x Triticale-Carleton durum)
(Triticale - persicum x Triticale - durum)
(Triticale - dicoccoides x Triticale - persicum)

It is a series of single and double crosses in which each of the original parents were crosses between a triticale and a tetraploid Triticum species. Observations on fertile selections in segregating progenies involving X 308

strongly indicate the possibility of a Mexican semidwarf bread wheat being involved as an outcross parent in its pedigree. Extensive use of X 308 or its derivatives has revealed that this improved fertility is genetically controlled and can be transmitted readily to its progeny.

Armadillo 130:

This single-dwarf, high-yielding strain was quite generally adapted to various growing regions of the world in the First ITYN. It is early maturing and has shown appreciable resistance to stem and leaf rusts.

Armadillo 133 and 136:

These widely adapted strains were among the top yielding lines in most part of the world. In addition, they have shown specific adaptation to more northern parts of the U.S.A. and Europe (cold conditions). They have a generally low protein level (± 14%), but are high in lysine. They possess one gene for shorter straw and have a broad spectrum of resistance to stem and stripe rusts.

Armadillo 211:

It was selected primarily for its high protein content (17%). It has also given high yields in the long-season areas of Asia, Africa and South America (I ITYN). This strain is a single dwarf with good resistance to stem and stripe rusts.

Armadillo PM 4:

This is a tall, low-tillering, susceptible-to-lodging strain which gave very high yield in all the preliminary yield tests. It also has good resistance to stem and leaf rusts.

Armadillo PM 13:

This is a tall, forage-type triticale which is very susceptible to lodging. It has performed well on some sandy soils and also under severe frost conditions.

Armadillo T 909:

This was the shortest selection from the X 308 strains. It gave excellent yield in preliminary yield tests, but was susceptible to leaf rust. It has also shown a very wide range of adaptation.

Armadillo PPV 8:

This is a tall strain, but it is not very susceptible to lodging. It yields quite high in spite of its susceptibility to stem and leaf rust diseases.

Armadillo PPV 13:

This very widely adapted strain is tall and high-yielding under diverse climatic conditions. It combines resistance to rust diseases with its capacity to do well under cold and frost conditions.

Armadillo PPV 21:

It showed a very specific zone of adaptation in South and Central American countries. It gives excellent yield in these areas and is appreciably free from diseases. It is tall and prone to lodging.

The varieties entered in the Third ITYN were:

Armadillo 102:

A tall selection from X 308 with high yield potential and wide adaptation. It has shown appreciable resistance to stem and stripe rust, but is susceptible to leaf rust.

Armadillo 104:

A tall strain which seems to have specific adaptation to certain locations in Asia and Africa. It is quite resistant to stem, leaf and stripe rusts.

Armadillo 105:

An original selection of Armadillo now used as a standard triticale check to compare levels of fertility and yield.

Armadillo 107 and 108:

Both are high-yielding lines with good resistance to the three rusts. They are tall and very susceptible to lodging under high fertilizer applications.

Armadillo 109:

A single-dwarf strain which yielded quite well in the preliminary yield trials. It is resistant to stem and stripe rusts but is moderately susceptible to leaf rust.

Armadillo PM 111 and 112:

These tall strains have high yielding ability in spite of the fact that they are highly susceptible to lodging. They possess adequate resistance to stem and stripe rusts but are moderately susceptible to leaf rust. In ad-

dition, they seem to have wide adaptation.

Armadillo PM 113:

A tall selection from the Armadillos with good yield potential. It appears to have remarkable resistance to stem and stripe rusts and moderate resistance to leaf rust. It is tall and very susceptible to lodging.

Armadillo PM 114, 116 and 117:

These three strains are later in maturity and are probably partially photosensitive. They were put in the test to get their expression in locations with longer days and lower temperatures. All of them are moderately resistant to moderately susceptible to leaf rust and lodge severely.

Armadillo PM 13:

This is a tall, high-tillering triticale with forage possibilities, but it is very susceptible to lodging. It has performed well on some sandy soils and also under severe frost conditions.

Armadillo PN 132:

This line was added to the test for its high nutritional value (P.E.R. = 3.33) It is tall and susceptible to lodging, but has appreciable resistance to the three rusts.

Badger:

The original selection was made from a bulk population in 1968 for its lodging resistance, which is lacking in Armadillo. Since the level of fertility in the Badger selection was lower than in Armadillo, it did not prove to be very useful. However, several high-yielding selections were made in following generations which seem to show specific adaptation in some areas.

Badger 118:

One of the tall and late-maturing selections of Badger with high yielding ability and wide adaptation. It is moderately susceptible to leaf rust but resistant to stem and stripe rusts and lodging.

Badger 119, 121, 122 and 123:

These tall selections of Badger are medium to early in maturity and high in yield in the preliminary tests. They are all moderately susceptible to leaf rust but resistant to stem and stripe rusts. They are susceptible to lodging under high fertilizer and irrigation conditions.

Bronco PN 63:

A highly productive strain with a wide adaptation selected from crosses other than the Armadillo group, but it is susceptible to lodging. It also has very high protein content (19%). Bioassays on meadow voles by Dr. Fred Elliott of Michigan State University indicate a high protein efficiency ratio (P.E.R. = 3.48).

UM-70-HN-470:

It is a selection from the original Armadillo made at the Department of Plant Science, University of Manitoba, Canada.

Tobari 66:

Tezanos Pintos Precoz - Sonora 64A 19021-4M-3Y-102M 100Y-101C.

A red-seeded dwarf wheat variety with good quality and outstanding disease resistance. The yield potential is not very high, but still it is widely grown in several countries.

Data Summarization

The metric system and percentages were chosen as the units of measurement for presentation. When possible, other systems were converted to the appropriate standard before computations were made. Every effort was made to assure the correctness of such conversions as well as the accuracy of translations of terms from other languages and interpretation of supplementary information. CIMMYT, however, takes full responsibility for any errors that may have been made. Data were neither analyzed nor are presented for traits when no differential effect was observed.

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

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

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

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

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

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

Numerical rust equivalents can be analyzed statistically as well as correlated with other traits (e.g., yield). However, for tabular presentation in this report, the standard rust scale notes from the first replication at each location are presented since the numerical equivalents 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 a

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

relative location comparison and a reflection of the extent of that pathogen in that nursery under the environmental conditions that existed.

Other indices of varietal performance were analyzed whenever possible and are presented in the tables. Most of these values were percentages. Several indices could be transformed to percent. In those instances where the scale used by the cooperator could not be converted to percent, the scale values are given. No percentage values or numerical equivalents were transformed to $\sqrt{\% + 1}$, as had been done previously. While some may consider transformation necessary, comprehension of the mean of transformation is difficult. It was felt that it would be better to present values which were more readily comparable to the field scores used by collaborators.

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

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

The overall location means were computed for each variable and

are presented herein when the number of observations justified inclusion. It is hoped that this expanded summary will be useful as a general source of information on variety performance. With the exception of the rust data the reported units are those used throughout this report.

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

RESULTS AND DISCUSSION

Seventeen and thirty-four trials were returned from the second and third ITYNs, respectively. Figures 1 and 3 present the reporting locations for both ITYNs. The growing season and the elevation in meters at each location for both International Yield Nurseries are presented in Figures 2 and 4, respectively.

A careful examination of individual locations (Tables 1-17 for the second ITYN and Tables 1-34 in the third ITYN) may give valuable information on the behaviour of the varieties that are adapted for specific conditions and thus in identifying potentially useful varieties for specific breeding programs.

Tables 18 and 35 present the overall mean for each variety for those variables recorded in the two nurseries. The overall mean for yield in the second ITYN and third ITYN was: 2,947.41 kg/ha and 3,080.01 kg/ha, respectively.

The rank of the average yield of the triticale indicates that none of the triticales possess the same degree of adaptability as some of the Mexican wheat varieties.

RESULTADOS DEL 2o. y 3er.

ENSAYOS INTERNACIONALES DE RENDIMIENTO DE TRITICALES

1970 - 1971
1971 - 1972

Abstracto

El 2o. y 3er. Ensayos Internacionales de Rendimiento de Triticales (ITYN) consistieron, respectivamente, de 16 y 25 variedades y líneas (inclusive trigos testigos).

Se obtuvieron datos de 17 colaboradores para el 2o. ITYN y de 34 colaboradores para el 3er. ITYN, cuyos sitios de trabajo representaron una amplia gama de condiciones agroclimáticas. En este folleto se presenta el análisis estadístico de todas las características observadas en cada localidad, junto con los resúmenes y medias generales para todas las localidades.

Del primero al segundo y al tercer ITYN se observó una mejoría consistente de la adaptación de las líneas de triticale, pero pocas demostraron la amplia adaptación que poseen algunos de los trigos harineros mexicanos.

Introducción

Cada año, el programa de ensayos internacionales del CIMMYT envía la semilla de variedades y líneas avanzadas de alto rendimiento a numerosos cooperadores de diversas partes del mundo. El propósito de enviar este material es probar su potencial de rendimiento y de adaptación, así como su reacción a las plagas y las enfermedades prevalecientes en esas regiones. Este material se envía ordinariamente como un ensayo internacional, con repetición. El cooperador puede usar el material sea directamente a manera de variedad comercial, o como fuente de germoplasma para su programa de mejoramiento genético. El CIMMYT está interesado en los resultados que obtienen esos colaboradores, a fin de utilizarlos para mejorar su programa.

El Programa de Triticale del CIMMYT envió su primer ensayo internacional de rendimiento (ITYN) durante 1969-70 a 39 sitios. La respuesta de los cooperadores fue muy alentadora; se decidió, por tanto, continuar el envío de este tipo de ensayo. El segundo ITYN se remitió durante 1970-71 y el tercero durante 1971-72. Los resultados obtenidos en dichos ensayos se han compilado en el presente folleto.

Materiales y Métodos

Las variedades y líneas incluidas en el segundo y tercer ITYN'S fueron multiplicadas durante el otoño de 1969-70 y 1970-71 en Navojoa, Sonora (Centro de Investigaciones Agrícolas del Noroeste, INIA), México. Hubo 16 líneas en el segundo ITYN (12 triticales + 3 trigos + 1 testigo local), y 25 en el tercer ITYN (21 triticales + 3 trigos + 1 testigo local). La semilla de Rosner (2o. ITYN) y de UM-70-HN-470 (3er ITYN) fue recibida de la Universidad de Manitoba, Canadá.

Las líneas de México fueron seleccionadas sobre la base de su alto rendimiento en las pruebas preliminares de rendimiento. Otras considera-

ciones para la selección fueron buena fertilidad, resistencia a las plagas y enfermedades prevalecientes, y mejor calidad nutricional.

La semilla se limpió y trató con compuestos orgánicos antes de preparar el ensayo. Las parcelas consistieron de seis surcos de 2.5m. de longitud y 30cm. de espaciamiento, con tres repeticiones. Cada serie del ensayo incluyó un folleto con instrucciones, en donde se señalan las operaciones de manejo requeridas, y las notas que se habrán de tomar.

Las variedades y líneas que entraron en el segundo ITYN fueron:

Pitic 62:

Yaktana 54 x Norin 10 - Brevor 26-1C
7064-1Y-1H-1R-2M

Fue la primera variedad semienana distribuida en México. Esta variedad de alto rendimiento se ha comportado bien en la mayoría de los ensayos internacionales de trigo. En el presente, su empleo declina en México debido a su bajo peso hectolítrico y a su susceptibilidad a las razas prevalecientes de roya del tallo. En varios otros países se le siembra comercialmente.

Inia 66:

Lerma Rojo 64 - Sonora 64
19008-83M-100Y-100M-100Y-100C

Un trigo semienano que ha mostrado una excelente calidad panadera, buen potencial de rendimiento, resistencia al acame y resistencia a muchas razas de royas del tallo y roya lineal. Es susceptible al bunt y al enanismo amarillo de la cebada (virus BYD). Esta variedad se caracteriza por espiga blanca y grano rojo.

Jori C-69:

Pitic "S"-Barrigón Yaqui^2 x Tehuacán 60/Pitic "S"-
Tacuari 125 x Tehuacán 60^3 D21570-2M-6R-1M.

Un trigo duro, semienano, de alto rendimiento, adaptado a las regiones

de trigo de primavera de Mexico y a la mayoría de las zonas de trigo de primavera del mundo. Su espiga blanca y densa es resistente al desgranado. Posee buena calidad para pastas, macarrones y espagueti. También muestra alta resistencia a las razas de roya del tallo y de la hoja.

Bronco 90:

Tcl "Sp-Pet" - Tcl por x Tcl Ghiza - X224-15Y-2M-1Y-1M-0Y. Tcl durum.

Es probablemente la línea más productiva y más ampliamente adaptada seleccionada de cruzamientos que no sean del grupo Armadillo; sin embargo, es susceptible al acame. Tiene también un alto contenido de proteina (18.9%). Los bioensayos con ratones de pradera ("voles"), hechos por el Dr. Fred Elliot, de la Universidad del Estado de Michigan, indican una alta tasa de eficiencia proteínica del grano.

Rosner:

T. turgidum var. durum (cv. Ghiza) x S. cereale x T. turgidum var. durum (cv. Carleton) x S. cereale x (T. turgidum var. persicum x S. cereale) x (T. turgidum x híbrido de S. cereale de identidad desconocida).

Fue desarrollado por el Departamento de Ciencias Vegetales de la Universidad de Manitoba, Canadá. Fue la primera variedad de triticale distribuida en Canadá. Este linaje es sensible a la duración del día y generalmente muy alta y susceptible al acame. Ha mostrado un amplio espectro de resistencia a las razas de roya del tallo y de la hoja cuando se le cultiva en latitudes bajas. Es más adecuada para las condiciones frías de América y Europa.

Armadillo - X 308:

La genealogía de la cruza X 308 se enlista como:
(Triticale - "Ghiza" x Triticale - Carleton durum)
(Triticale - persicum x Triticale - durum)
(Triticale - dicoccoides x Triticale - persicum)

Es una serie de cruzas simples y dobles en las cuales cada uno de los progenitores originales fueron cruzamientos entre un triticale y una especie de Triticum tetraploide. Las observaciones hechas sobre las selecciones fértiles en progenios segregantes que involucraban a X 308 indican fuertemen

te la posibilidad de que en su genealogía se haya involucrado un trigo harinero semienano mexicano, como un progenitor de intercruza. El uso amplio de X 308 o de sus derivados ha revelado que su mejor fertilidad está genéticamente controlada y que se puede transmitir a la progenie con relativa facilidad.

Armadillo 130:

Esta línea enana simple, de alto rendimiento se adoptó generalmente a las varias regiones del mundo donde se probó en el primer ITYN. Es de madurez precoz y ha mostrado resistencia apreciable a royas del tallo y de la hoja.

Armadillo 133 y 136:

Estas lineas de amplia adaptación figuraron entre las más rendidoras en la mayor parte del mundo. Además, han mostrado adaptación específica en sitios muy al norte de los E.E.U.U. y de Europa (condiciones frías). Ordinariamente tienen un bajo nivel de proteínas ($\pm$ 14%), pero tienen alto contenido de lisina. Poseen un gene para paja corta y tienen un amplio espectro de resistencia a las royas del tallo y de la hoja.

Armadillo 211:

Se seleccionó principalmente por su alto contenido de proteina (17%). Ha dado también altos rendimientos en las áreas de ciclo largo de Asia, Africa y Sudamérica (1er. ITYN). Esta línea es enana simple, con buena resistencia a las royas del tallo y lineal.

Armadillo PM 4:

Una línea alta, de bajo amacollamiento, susceptible al acame, que dió alto rendimiento en las pruebas preliminares de rendimiento. Tiene también buena resistencia a las royas del tallo y de la hoja.

Armadillo PM 13:

Un triticale alto, de tipo forrajero, muy susceptible al acame. Se ha com

portado bien en algunos suelos arenosos y también bajo condiciones de heladas severas.

Armadillo T 909:

Fue la selección de paja más corta de las líneas de X 308. Dió un excelente rendimiento en las pruebas preliminares, pero fue susceptible a la roya de la hoja. También ha mostrado una amplia adaptación.

Armadillo PPV 8:

Es una línea alta pero no muy susceptible al acame. Rinde bastante, a pesar de su susceptibilidad a las royas del tallo y de la hoja.

Armadillo PPV 13:

Esta línea de alta adaptación es alta y rinde bastante bajo diversas condiciones climáticas. Combina resistencia a las royas con la capacidad de comportarse bien bajo condiciones de frío y de heladas.

Armadillo PPV 21:

Mostró una zona específica de adaptación en países centro y sudamericanos. En esas áreas dá un excelente rendimiento y se mostró apreciablemente libre de enfermedades. Es alta y tiende a acamarse.

Las variedades que entraron al tercer ITYN fueron:

Armadillo 102:

Una selección alta de X 308 con un alto potencial de rendimiento y amplia adaptación. Ha mostrado apreciable resistencia a la roya del tallo y a la roya lineal, pero es susceptible a la roya de la hoja.

Armadillo 104:

Línea alta que parece tener adaptación específica en ciertas localidades de Asia y Africa. Es un tanto resistente a las royas lineal, del tallo y de la hoja.

Armadillo 105:

Una selección original de Armadillo que se emplea ahora como un triticale testigo estándar para comparar niveles de fertilidad y de rendimiento.

Armadillo 107 y 108:

Ambas son líneas de alto rendimiento con buena resistencia a las tres royas. Son altas y muy susceptibles al acame cuando se les aplican altos niveles de fertilizante.

Armadillo 109:

Una línea simple enana que rindió bien en las pruebas preliminares. Es resistente a las royas del tallo y lineal, pero es moderadamente susceptible a la roya de la hoja.

Armadillo PM 111 y 112:

Estas líneas altas tienen gran capacidad de rendimiento, a pesar de que son altamente susceptibles al acame. Poseen adecuada resistencia a las royas del tallo y lineal, pero son moderadamente susceptibles a la roya de la hoja. Parece que tienen buena adaptación.

Armadillo PM 113:

Una selección de Armadillos con buen potencial de rendimiento. Parece tener una notable resistencia a las royas lineal y del tallo, y una resistencia moderada a la roya de la hoja. Es alta y muy susceptible al acame.

Armadillo PM 114, 116 y 117:

Estas tres líneas son de madurez tardía y es probable que sean parcialmente sensibles al fotoperíodo. Se incluyeron en la prueba para observar su expresión en sitios con días más largos y temperaturas más bajas. Todas son de moderadamente resistentes a moderadamente susceptibles a la roya del tallo, y se acaman severamente.

Armadillo PM 13:

Un triticale alto, muy amacollador, con posibilidades forrajeras. Es muy susceptible al acame. Se ha comportado bien en algunos suelos arenosos y también bajo condiciones de heladas severas.

Armadillo PN 132:

Esta línea se añadió a la prueba por alto valor nutritivo (P.E.R. = 3.33). Es alta y susceptible al acame, pero tiene una apreciable resistencia a las tres royas.

Badger:

La selección original se hizo de una población en masa en 1968 por su resistencia al acame, de la cual carece Armadillo. Puesto que el nivel de fertilidad de la selección Badger fué menor que en Armadillo, no fué de mucha utilidad. Sin embargo, se hicieron varias selecciones de alto rendimiento en las generaciones siguientes, las cuales parecen tener adaptación específica en algunas áreas.

Badger 118:

Una de las selecciones de Badger altas y tardías, con alta capacidad de rendimiento y amplia adaptación. Es moderadamente susceptible a la roya de la hoja, pero resistente a las royas lineal y del tallo, y al acame.

Badger 119, 121, 122 y 123:

Estas selecciones altas de Badger son de intermedias a precoces en su - maduración y de rendimiento alto, según las pruebas preliminares. Todas son moderadamente susceptibles a la roya de la hoja, pero resistentes a las royas del tallo y lineal. Son susceptibles al acame bajo condiciones de riego y alta fertilización.

Bronco PN 63:

Una línea altamente productiva y con amplia adaptación, seleccionada de cruzas que no son del grupo Armadillo. Es susceptible al acame. Tiene también un alto contenido de proteina (19%). Los bioensayos con ratones de pradera ("voles") hechos por el Dr. Fred Elliot, de la Universidad del Estado de Michigan, muestran una alta tasa de eficiencia proteínica (P.E.R. = 3.48).

UM-70-HN-470:

Es una selección del Armadillo original, hecha en el Departamento de - Ciencias Vegetales de la Universidad de Manitoba, Canadá.

Tobari 66:

Tezanos Pintos Precoz - Sonora 64 A 19021-4M-3Y-102M-100Y-101C.

Una variedad de trigo enana, de grano rojo, con buena calidad, y resistencia sobresaliente a las enfermedades. Su potencial de rendimiento no es muy alto, pero todavía se siembra extensamente en varios países.

Resumen de los datos

Para la presentación como unidades de medición se escogieron el sistema métrico decimal y porcentajes. Siempre que fue posible, otros sistemas se convirtieron al estándar apropiado antes de hacer la computación. Se hizo lo posible por asegurar la corrección de tales conversiones, así como la precisión de las traducciones de los términos de otros idiomas y la interpretación de la información suplementaria. Sin embargo, el CIMMYT asume la responsabilidad plena de cualquier error que se tenga. Los datos no se analizaron ni se presentan cuando no se observó un efecto diferencial.

Se solicitaron los datos correspondientes a los cuatro surcos centrales de las parcelas de seis surcos. Los rendimientos se convirtieron de las unidades reportadas por el cooperador a kilogramos por hectárea (kg/ha). Para los lectores acostumbrados al rendimiento en bushels por acre, (1,000 kg/ha equivalen aproximadamente a 15 bushels de trigo por acre).

A algunos cooperadores que no tienen equipo para determinar el peso específico se les solicitó peso hectolítrico y peso de 1,000 granos. Los pesos específicos se reportan en kilogramos por hectolitro (kg/hl) y el peso de 1,000 granos se reporta en gramos. Para los lectores acostumbrados a los pesos específicos expresados en libras por bushel, 75 kg/hl equivale a grosso modo a 60 libras por bushel.

Se solicitaron notas sobre enfermedades a los cooperadores cuando observaran reacciones diferenciales 1/. Las reacciones a la roya se registraron más comúnmente con la escala internacional de roya anotando el porcentaje de área foliar infectada y el tipo de reacción (es decir: el tamaño de la lesión). Para el análisis estadístico estas notas de roya se convirtieron a un coeficiente de infección, según lo usa el Dr. W. Q. Loegering (USDA International Spring Wheat Rust Nursery, 1959). Este equivalente numérico se calcula multiplicando el porcentaje de infección por un "valor de respuesta" que se asigna a cada tipo de infección. Luego, el coeficiente combina tanto la cantidad de infección como el tipo de infección. Los valores de respuesta se dan en el cuadro siguiente:

Tipo de reacción	Abreviatura	Valor de respuesta
0		0.0
Muy resistente y resistente	VR y R	0.2
Moderadamente resistente	MR	0.4
Intermedia	M ó X	0.6
Moderadamente susceptible	MS	0.8
Susceptible	S y VS	1.0

Como ejemplos, 20 MS se expresa como (20 x 0.8)= 16.0, y 10 MR se expresa como (10 x 0.4)= 4.0. Los rangos de reacción se promedian, de manera que 5R-15S (5 + 15/2)= 10 y (0.2 + 1.0/2)= 0.6, y el producto de 10 x 0.6 viene a ser 6.0.

Cuando los cooperadores reportaron únicamente el porcentaje de roya, el valor fué usado directamente. Las escalas numéricas para la roya se convirtieron a porcentaje. Los símbolos alfaméricos que no se pudieron transformar sólo se enlistaron para la primera repetición y se excluyeron del resumen general.

Los equivalentes numéricos de la roya se pueden analizar estadísticamente y correlacionar con otras características (con rendimiento, por ejemplo). Sin embargo, para la presentación tabular en este informe, se dan las notas de la escala estándar de roya de la primera repetición en cada sitio, puesto que los equivalentes numéricos son más dificiles de emplear al visualizar la respuesta de una variedad en particular. La reacción media a la roya por localidad se presenta con su estadística relacionada como un índice de la cantidad de roya en esa local idad. Valores de la media de roya relativa-

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1/ Para facilitar la información, a todas las enfermedades se les refiere por un nombre común. Se han adoptado los siguientes nombres comunes, seguidos por el agente casual entre paréntesis: roya del tallo (Puccinia graminis tritici); roya de la hoja (Puccinia recondita); roya lineal (Puccinia striiformis); mildiú (Erisiphe graminis tritici); cornezuelo (Clavicepts purpurea), y Septoria (Septoria spp). En esta última enfermedad, no ha sido siempre posible distinguir las especies causales (S. tritici and S. nodorum) de la información proporcionada por los cooperadores.

mente bajos indican una baja incidencia y/o virulencia del patógeno. Medias más altas son indicativas de una mayor incidencia y/o virulencia. Estas medias suministran comparación relativa de las localidades y una reflexión de la magnitud del patógeno en ese ensayo bajo las condiciones ambientales que existían.

Siempre que fue posible se analizaron otros índices de comportamiento varietal y éstos se presentan en los cuadros. La mayoría de estos valores fueron porcentajes. Varios índices se pudieron transformar a porcentajes. En los casos en que la escala utilizada por el cooperador no su pudo convertir a porcentaje, se dan los valores. Ningún valor de porcentaje o equivalente numérico se transformó a $\sqrt{\% + 1}$, según se hizo antes. Mientras que algunos pudieron considerar necesaria la transformación, la comprensión de la media de transformación es dificil. Se pensó que sería mejor presentar los valores más fácilmente comparables con los calificaciones de campo usadas por los colaboradores.

Se calculó la gran media de cada característica y esa información se presenta en los cuadros junto con las estadísticas pertinentes. Previamente, se calculaban indirectamente como residuales los estimados del error. Puesto que a menudo se reportan series de datos incompletos, las estimaciones indirectas de la varianza del error pueden dar valores sesgados o aún negativos. Por consiguiente, los estimados de la varianza del error se computaron directamente para todas las características reportadas. Este valor se usó luego para calcular una razón de error estándar de la gran media, un coeficiente de variación (la razón de la desviación estándar a la gran media, expresada como porcentaje) y la diferencia mínima significativa (DMS) al nivel de 5%. El coeficiente de variación es útil como unidad base de comparación de la variación entre localidades. La DMS 05 se puede usar para comparar dos medias de variedades en la misma localidad.

Mediante los estudios de correlación se puede ganar algunas veces introspección de los factores que influyan en el rendimiento. Se hicieron correlaciones sobre todos los pares posibles de factores por localidad, utilizando el valor medio de la característica reportada. Se computaron correlaciones sobre las medias de la repetición más que de los valores originales debido a que algunos tipos de datos se reportaron únicamente para una repetición. El tamaño de la población es más bien pequeño para este tipo de análisis y pudieran encontrarse algunas correlaciones espurias. Se recomiendan reservas

al interpretar estos valores. Muchos investigadores encuentran interesantes y útiles las correlaciones, y por tanto éstas se presentan como parte del cuadro de resumen para cada localidad, aunque se deben advertir sus limitaciones.

Las medias generales para las localidades se computaron para cada variable y se presentan aquí cuando el número de observaciones justificó su inclusión. Se espera que este resumen ampliado sea útil como fuente general de información sobre el comportamiento varietal. Con excepción de los datos sobre roya, las unidades reportadas son las que se utilizan a través de todo este informe.

En el análisis y resumen de estos datos únicos se encontraron muchos problemas. Nuestro intento ha sido dar al lector la máxima cantidad posible de información útil y no confundir el panorama con excesivos detalles de la computación.

RESULTADOS Y DISCUSION

Los resultados de 17 y 34 ensayos fueron regresados al CIMMYT por colaboradores del segundo y tercer ITYNs, respectivamente. Las figuras 1 y 3 presentan las localidades reportadas para ambos ITYNs. El período de cultivo y la elevación en metros de cada localidad para ambos ensayos internacionales de rendimiento se presentan en las Figuras 2 y 4, respectivamente.

Un cuidadoso examen de las localidades individuales (Cuadros del 1 al 17 para el segundo ITYN y Cuadros del 1 al 34 en el tercer ITYN) puede dar información valiosa sobre el comportamiento de las variedades que se adaptan a condiciones específicas. Esta información ayuda a identificar las variedades potencialmente útiles para los programas específicos de mejoramiento.

Los Cuadros 18 y 35 presentan el promedio general de cada variedad para las variables registradas en los dos viveros. El promedio general de rendimiento en el segundo ITYN y el tercer ITYN fue: 2,947.41 kg/ha y 3,080.01 kg/ha, respectivamente.

El lugar en el promedio de rendimiento de los triticales indican que ninguno de los triticales poseen el mismo grado de adaptabilidad que poseen algunas de las variedades de trigo mexicano.

RESULTATS DES 2ème ET 3ème
ESSAIS INTERNATIONAUX SUR LE RENDEMENT DES TRITICALES

1970 - 1971
1971 - 1972

Avant - propos

Les 2ème et 3ème Essais Internationaux sur le Rendement des Triticales (ITYN) ont été constitués, respectivement, par 16 et 25 variétés et lignées (blés témoins inclus).

Pour le 2ème ITYN on a obtenu des données de 17 collaborateurs et pour le 3ème de 34 collaborateurs, dont les lieux de travail ont représenté une ample gamme de conditions agroclimatiques. L'analyse statistique de toutes les caractéristiques observées dans chaque localité, avec les résumés et mesures générales correspondantes pour toutes ces localités, sont présentés dans cette brochure.

Du premier au second et au troisieme ITYN on a observé une meilleure stabilité dans l'adaptation des lignées de triticales, mais peu d'entre elles ont montré une grande adaptation comme celle que possede certains blés fariniers mexicains.

Introduction

Chaque année, le programme d'essais internationaux du CIMMYT envoie la semence de variétés et lignées avancées de haut rendement à de nombreux coopérateurs de diverses parties du monde. Le but d'envoyer ce matériel est d'éprouver son potentiel de rendement et d'adaptation, ainsi que sa réaction aux fléaux et aux maladies dominants dans ces régions. Ce matériel est envoyé ordinairement comme un essai international, et avec répétition. Le coopérateur peut utiliser ce matériel soit directement comme une variété commerciale, soit comme source de germoplasme pour son programme d'amélioration génétique. Le CIMMYT s'intéresse aux résultats obtenus par ces collaborateurs afin de les utiliser pour améliorer son programme.

Le programme sur la Triticale du CIMMYT a envoyé son premier essai international sur le rendement (ITYN) de 1969 à 1970 dans 39 endroits. La réponse des coopérateurs fut très encourageante, ainsi il a été décidé de continuer l'envoi de ce genre d'essai. Le second ITYN a eu lieu de 1970 à 1971 et le troisième de 1971 à 1972. Les résultats obtenus durant ces essais ont été compilés dans cette brochure.

Materiels et Methodes

Les variétés et lignées incluses dans le deuxième et le troisième ITYN furent reproduites durant l'automne de 1969-70 et 1970-71 à Navojoa, Sonora (Centre de Recherches Agricoles du Nord-Ouest, INIA), Mexique. Il y a eu 16 lignées pour le second ITYN (12 triticales + 3 blés + 1 témoin local), et 25 pour le troisième ITYN (21 triticales + 3 blés + 1 témoin local). La semence de Rosner (2ème ITYN) et de UM-70-HN-470 (3ème ITYN) a été recue de l'Université de Manitoba, Canada.

Les lignées du Mexique furent sélectionnées sur la base de leur haut rendement dans les épreuves préliminaires de rendement. On a considéré aussi pour la sélection la bonne fertilité, la résistance aux fléaux et aux mala-

dies prévalants, et la meilleure qualité nutritionnelle.

La semence est nettoyée et traitée avec des composés organiques avant de préparer l'essai. Les parcelles contiennent six sillons de 2,5 m de long et espacés de 30 cm les uns des autres, et avec trois répétitions. Chaque série de l'essai contient une notice explicative, où sont signalées les opérations de maniement requises, et les notes qu'il faudra prendre.

Les variétés et lignées entrant dans le second ITYN ont été:

Pitic 62:

Yaktana 54 x Norin 10-Brevor 26-1C
7064-1Y-1H-1R-2M

Ce fut la première variété semi-naine distribuée dans le Mexique. Cette variété à haut rendement s'est bien comportée dans la plupart des essais internationaux sur le blé. Pour le moment son emploi décline au Mexique à cause de son poids hectolitrique bas et à sa susceptibilité aux espèces prévalantes de la rouille noire. Dans divers autres pays cette variété est semée commercialement.

Inia 66:

Lerma Rojo 64 - Sonora 64
19008-83M-100Y-100M-100Y-100C

Un blé semi-nain qui a montré une excellente qualité pour la fabrication du pain, un bon potentiel de rendement, une résistance au versement et à de nombreuses espèces de rouilles noires et rouilles jaunes. Il est susceptible au charbon couvert et à l'enanisme jaune de l'orge (virus BYD). Cette variété est caractérisée par un épi blanc et un grain rouge.

Jori C-69:

Pitic "S"-Barrigon Yaqui^2 x Tehuacan 60/Pitic "S"-Tacuri 125 x Tehuacan 60^3 D21570-2M-6R-1M.

Un blé dur, semi-nain, de grand rendement, adapté aux régions de blé de printemps du Mexique et à la majorité des zones de blé de printemps du monde. Son épi blanc et dense est résistant à l'égrénement. Il possède une

bonne qualité pour la fabrication de pâtes, macaronis et spaguettis. Il résiste bien également aux rouilles noires et brunes.

Bronco 90:

Tcl"Sp-Pet" - Tcl per x Tcl Ghiza - X224-15Y-2M-1Y-1M-0Y. Tcl durum.

C'est probablement la lignée la plus productive et la plus amplement adaptée, sélectionnée des croisements qui ne soit pas du groupe Armadillo; cependant, elle est susceptible au versement. Elle a aussi une grande contenance en protéines (18.9%). Les bioessais sur les souris de prairie exécutés par le Dr. Fred Elliott, de l'Université de l'Etat du Michigan, indiquent un taux élevé d'efficacité protéinique du grain.

Rosner:

T. turgidum var durum (cv. Ghiza) x S. cereale x T. turgidum var. durum (cv. Carleton) x S. cereale x (T. turgidum var. persicum x S cereale) x (T. turgidum x hybride de S. cereale d'identité inconnue).

Elle fut développée par le Département des Sciences Végétales de l'Université de Manitoba, Canada. Ce fut la première variété de triticale distribuée au Canada. Cette espèce est sensible à la durée du jour, est généralement très grande et susceptible à se verser. Elle a montré un large spectre de résistance aux espèces de rouilles noires et rouilles brunes quand elle est cultivée dans de basses latitudes. Elle est plus appropriée aux conditions froides d'Amérique et d'Europe.

Armadillo - X 308:

La généalogie du croisement X 308 est le suivant:
(Triticale - "Ghiza x Triticale - Carleton durum)
(Triticale - persicum x Triticale - durum)
(Triticale - dicoccoides x Triticale - persicum)

C'est une série de croisements simples et doubles dans lesquels chacun des ascendants originaux furent croisés entre une triticale et une espèce de Triticum tétraploide. Les observations faites sur les sélections fertiles en progénitures sécrétées qui ont été mélangées à X 308 indique fortement la possi

bilité que dans sa généalogie a été incorporé un blé farinier semi-nain mexicain, comme un ascendant d'intercroisement. L'ample utilisation de X 308 ou de ses dérivés a révélé que sa meilleure fertilité est génétiquement contrôlée et qu'elle peut être transmise à la progéniture avec une relative facilité.

Armadillo 130:

Cette lignée naine simple, de grand rendement, s'est adaptée généralement aux diverses régions du monde où s'est effectué le premier ITYN. Elle est de maturité précoce et a montré une résistance appréciable aux rouilles noires et brunes.

Armadillo 133 et 136:

Ces lignées, d'une grande adaptation, ont figuré parmi les plus rentables dans la majeure partie du monde. En plus, elles ont montré une adaptation spécifique dans des régions situées très au Nord aux U.S.A. et en Europe (conditions froides). D'ordinaire elles possèdent un niveau peu élevé en protéines (± 14%), mais ont une grande contenance en lisine. Elles possèdent un géne pour avoir une paille courte et ont un ample spectre de résistance aux rouilles noires et brunes.

Armadillo 211:

Elle est sélectionnée principalement pour son grand contenu de protéines (17%). Elle a également donné de bons rendements dans les régions à cycle long d'Asie, d'Afrique et de l'Amérique du Sud (1er ITYN). Cette lignée est naine simple, avec une bonne résistance aux rouilles noires et jaunes.

Armadillo PM 4:

Une lignée haute, formant peu de tiges, susceptible de se verser, et qui a donné un grand rendement dans les épreuves préliminaires sur le rendement. Elle a aussi une bonne résistance aux rouilles noires et brunes.

Armadillo PM 13:

Une triticale haute, de type fourrager, très susceptible à se verser. Elle s'est bien comportée sur certains sols sableux et également sous des conditions avec gelées sévères.

Armadillo T 909:

Elle a été la sélection avec la paille la plus courte de toutes les lignées de X 308. Elle a donné un excellent rendement dans les épreuves préliminaires, mais elle fut susceptible à la rouille brune. Elle a aussi montré une ample adaptation.

Armadillo PPV 8:

C'est une lignée haute mais pas très susceptible à se verser. A produit beaucoup, malgré sa susceptibilité aux rouilles noires et brunes.

Armadillo PPV 13:

C'est une lignée avec une grande adaptation et de haute taille, elle produit énormément sous diverses conditions climatiques. Elle combine la résistance aux rouilles avec la capacité de bien se comporter sous des conditions froides et de gelée.

Armadillo PPV 21:

A montré une zone spécifique d'adaptation dans des pays de l'Amérique Centrale et du Sud. Dans ces régions elle a donné un excellent rendement et s'est montrée appréciablement exempte de maladies. Sa taille est haute et elle a tendance à se verser.

Les variétés entrant dans le troisième ITYN ont été:

Armadillo 102:

Une sélection de haute taille de X 308 avec un haut pouvoir de rendement et une ample adaptation. Elle a montré une résistance notable aux rouilles noires et jaunes mais est susceptible à la rouille brune.

Armadillo 104:

Une haute lignée qui paraît avoir une adaptation spécifique dans certaines localités d'Asie et d'Afrique. Elle est complètement résistante aux rouilles jaunes, noires et brunes.

Armadillo 105:

C'est une sélection originale de l'Armadillo qui s'emploie actuellement comme une triticale standard témoin pour comparer les niveaux de fertilité et de rendement.

Armadillo 107 et 108:

Les deux sont des lignées de grand rendement avec une bonne résistance aux trois rouilles. Elles sont hautes et très susceptibles à se verser quand on applique de hauts niveaux de fertilisants.

Armadillo 109:

Une lignée simple naine qui a bien rendu dans les épreuves préliminaires. Elle est résistante aux rouilles noires et jaunes, mais est modérément susceptible à la rouille brune.

Armadillo PM 111 et 112:

Ces lignées hautes ont un grand pouvoir de rendement, malgré qu'elles soient très susceptibles à se verser. Elles possèdent une résistance

adéquate aux rouilles noires et jaunes, mais sont modérément susceptibles à la rouille brune. Elles paraissent avoir une bonne adaptation.

Armadillo PM 113:

Une sélection haute de Armadillos avec un bon pouvoir de rendement. Elle paraît avoir une résistance notable aux rouilles jaunes et noires, et une résistance modérée à la rouille brune. Elle est de haute taille et très susceptible de se verser.

Armadillo PM 114, 116 et 117:

Ces trois lignées sont de maturité tardive et il est probable qu'elles soient partiellement photosensitives. Elles ont été incluses dans l'épreuve afin d'observer leur réaction dans des lieux avec des jours plus longs et des températures plus basses. Toutes sont de modérément résistantes à modérément susceptibles à la rouille noire, et se versent gravement.

Armadillo PM 13:

Une triticale haute, avec beaucoup de tige, et des possibilités fourragères. Elle est très susceptible à se verser. Elle s'est bien comportée sur certains sols sableux et aussi sous des conditions de sévères gelées.

Armadillo PN 132:

Cette lignée à été ajoutée a l'épreuve pour sa haute valeur nutritive (P.E.R. = 3.33). Elle est haute et peut se verser, mais elle a une résistance appréciable aux trois rouilles.

Badger:

La sélection originale a été faite par un ensemble de population en 1968 pour sa résistance à se verser, car celle-ci manquait d'Armadillo. Puisque le niveau de fertilité de la sélection Badger fut mineure que celui de l'Armadillo, elle ne fut pas d'une grande utilité. Pourtant, dans les générations

suivantes des sélections variées à grand rendement ont été faites, lesquelles paraissent avoir une bonne adaptation dans certaines régions.

Badger 118:

Une des sélections de Badger hautes et tardives, qui a un grand pouvoir de rendement et une ample adaptation. Elle est modérément susceptible à la rouille brune, mais résistante aux rouilles jaunes et noires et ne se verse pas.

Badger 119, 121, 122 et 123:

Toutes ces sélections hautes de Badger sont de maturité moyenne ou précoce et ont un grand rendement, suivant les épreuves préliminaires. Toutes sont modérément susceptibles à la rouille brune, mais résistantes aux rouilles noires et jaunes. Elles peuvent se verser sous des conditions d'irrigation et de grande fertilisation.

Bronco PN 63:

Une lignée très productive et avec une ample adaptation, sélectionnée de croisements qui ne sont pas du groupe Armadillo. Elle peut se verser. Elle a aussi une grande contenance de protéines (19%). Les bioessais effectués sur des souris de prairie par le Dr. Fred Elliott, de l'Université de l'Etat du Michigan, ont montré un taux important d'efficacité protéinique (P.E.R. = 3.48).

UM-70-HN-470:

C'est une sélection de l'Armadillo original, faite dans le Département des Sciences Végétales de l'Université de Manitoba, Canada.

Tobari 66:

Tezanos Pintos Precoz - Sonora 64 A 19021-4M-3Y-102M 100Y-101C.

Une variété de blé nain, à grain rouge, avec une bonne qualité et une résistance qui l'emporte sur les maladies. Son pouvoir de rendement n'est pas très élevé, mais toutefois elle est extensivement semée dans divers pays.

Resume des Données

On a choisi comme unités de mesure le système métrique décimale et les pourcentages pour la présentation des données. Chaque fois que cela a été possible, on a converti les systèmes à la mesure standard appropriée avant de faire la computation. Le possible a été fait pour assurer la correction de telles conversions, ainsi que la précision dans la traduction des termes en d'autres langues et dans l'interprétation de l'information supplémentaire. Le CIMMYT assume la responsabilité des erreurs qui ont pu être faites. Les données n'ont pas été analysées ni présentées quand on n'a pas observé un effet différentiel.

On a sollicité les données correspondantes aux quatre sillons centraux des parcelles de six sillons. Les rendements ont été convertis des unités reportées par le coopérateur en kilogrammes par hectare (kg/ha). (1.000 kg/ha son équivalents approximativement a 15 fanègues de blé par acre).

A certains coopérateurs qui n'avaient pas le matériel nécessaire pour déterminer le poids spécifique, on leur a demandé le poids hectolitrique et le poids de 1.000 grains. Les poids spécifiques ont été reportés en kilogrammes par hectolitre (kg/hl) et le poids de 1.000 grains en grammes. Pour les lecteurs habitués aux poids spécifiques exprimés en livres par fanègues, 75 kg/hl sont équivalents grosso modo à 60 livres par fanègue.

Des notes sur les maladies ont été demandées aux coopérateurs quand on a observé des réactions différentielles 1/. Les réactions aux rouilles ont été enregistrées le plus souvent suivant la norme internationale de mesure de la rouille en annotant le pourcentage de la surface foliaire infectée et le type de réaction (c'est-à-dire la taille de la lésion). Pour l'analyse statistique ces notes sur les rouilles ont été converties à un coefficient d'infection, suivant la méthode utilisée par le Dr. W. Q. Loegering (USDA International Spring Wheat Rust Nursery, 1959). Cet équivalent numérique s'obtient en multipliant le pourcentage de l'infection par une "valeur de réponse" qui est assignée à chaque type d'infection. Ensuite, le coefficient combine ensemble la quantité de l'infection et le type de l'infection. Les valeurs de réponse sont données dans le tableau suivant :

Type de Réaction	Abréviation	Valeur de Réponse
0		0.0
Très résistant et résistant	VR et R	0.2
Modérément résistant	MR	0.4
Intermédiaire	M ou X	0.6
Modérément susceptible	MS	0.8
Susceptible	S et VS	1.0

Par exemple, 20 MS s'exprime ainsi (20 x 0.8) = 16.0, et 10 MR s'exprime ainsi (10 x 0.4) = 4.0. Les rangs de réaction sont divisés, de manière que 5R-15S (5+15)/2 = 10 et (0.2 + 1.0)/2 = 0.6, et que le produit de 10 x 0.6 devienne 6.0.

Quand les coopérateurs ont reporté uniquement le pourcentage de rouille, la valeur fut utilisée directement. Les échelles numériques pour la rouille ont été converties en pourcentage. Les symboles alphamériques qui n'ont pas pu être transformés ont été seulement cités dans la première répétition et ont été exclus du résumé général.

Les équivalents numériques de la rouille peuvent être analysés statistiquement et être mis en corrélation avec d'autres caractéristiques (comme le rendement par exemple). Cependant, pour la présentation tabulaire de ce rapport, sont données les notes de l'echelle standard de la rouille de la première répétition de chaque lieu, puisque les équivalents numériques sont plus difficiles à employer en observant la réponse d'une variété en particulier. La réaction moyenne à la rouille par localité est présentée avec sa statistique en rapport avec l'indice de la quantité de rouille dans cette localité. Les valeurs de la moyenne de rouille relativement basses indiquent une faible incidence et/ou la virulence du pathogène. Des moyennes plus grandes sont indicatrices d'une

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1/ Pour faciliter l'information, toutes les maladies sont référées par un nome commun. On a adopté les noms communs suivants, suivis de l'agent causal entre parenthèses: rouille noire (Puccinia graminis tritici); rouille brune (Puccinia recondita); rouille jaune (Puccinia striiformis); mildiou (Erisiphe graminis tritici); ergot (Claviceps purpurea); et septoriose (Septoria spp.). Dans cette dernière maladie, il n'a pas toujours été possible de distinguer les espèces causales (S. tritici et S. nodorum) de l'information fournie par les coopératuers.

incidence majeure et/ou de la virulence. Ces moyennes ont fourni une comparaison relative dans les localités et une réflexion sur l'étendue du pathogène dans cet essai sous les conditions ambiantes existantes.

Chaque fois que cela a été possible d'autres indices de comportement des variétés ont été analysés et ceux-ci sont présentés dans les tableaux. La majeure partie de ces valeurs furent des pourcentages. Divers indices purent également être transformés en pourcentages. Dans les cas où l'echelle utilisée par le coopérateur n'a pu être convertie en pourcentage, on donne les valeurs. Aucune valeur de pourcentage ou équivalent numérique a été transformé à $\sqrt{\% + 1}$, comme cela a été fait auparavant. Bien que certains pourront considérer nécessaire la transformation, la compréhension de la moyenne de transformation est difficile. On a pensé qu'il serait préférable de présenter les valeurs les plus facilement comparables avec les qualifications de terrain utilisées par les collaborateurs.

On a calculé la grande moyenne de chaque caractéristique et ce renseignement est donné dans les tableaux joints avec les statistiques pertinentes. Préalablement, l'erreur estimée a été calculée indirectement comme résiduelle. Puisque souvent des séries de données incomplètes sont reportées, les estimations indirectes de la variabilité de l'erreur peuvent donner des valeurs tendancieuses ou même négatives. Par conséquent, les estimations de la variabilité de l'erreur seront computées directement pour toutes les caractéristiques reportées. Cette valeur s'utilise ensuite pour calculer une raison de l'erreur standard de la grande moyenne, un coefficient de variation (la raison de la déviation standard à la grande moyenne exrpimée en pourcentage) et la différence minimum significative (DMS) au niveau de 5%. Le coefficient de variation est utile comme unité de base de comparaison de la variation entre les localités. La DMS_{05} peut s'utiliser pour comparer deux moyennes de variétés dans la même localité.

Au moyen des études de corrélation on peut arriver quelquefois à connaître les facteurs qui influent sur le rendement. On a fait des corrélations sur toutes les paires possibles des facteurs par localité, en utilisant la valeur moyenne de la caractéristique reportée. On a computé les corrélations sur toutes les moyennes de la répétition plus que des valeurs originales car certains types de données ont été reportés uniquement pour une répétition. La grandeur de la population est bien plus petite pour ce type d'analyses et il est possible de rencontrer quelques corrélations erronées. L'interprétation de ces valeurs doit être faite sous réserves. Beaucoup de chercheurs trouveront intéressantes et utiles les corrélations, et par conséquent celles-ci font partie du tableau du ré-

sumé de chaque localité, bien qu'il faille avertir le lecteur de ses limites.

Les moyennes générales pour les localités ont été computées pour chaque variable et sont présentées ici quand le nombre d'observations a justifié son inclusion. On espère que ce large résumé sera utile comme source générale d'information sur le comportement des variétés.

A l'exception des données sur la rouille, les unités reportées sont celles utilisées dans tout ce rapport.

Il y a de nombreux problèmes uniquement dans l'analyse et le résumé de ces données. Notre intention a été de donner àu lecteur le maximum possible d'information utile tout en ne troublant pas cet ensemble avec trop de détails sur la computation.

RESULTATS ET DISCUSSION

Les résultats de 17 et 34 essais ont été retournés au CIMMYT par des collaborateurs de la deuxième et troisième PIRTs respectivement. Les figures 1 et 3 présentent les emplacements reportés pour les deux PIRTs. Dans les figures 2 et 4 on montre respectivement la période de culture et l'élévation par mètres de chaque emplacement pour les deux Pépinières Internationales de Rendement.

Un examen attentif des emplacements individuels (Tableaux 1-17 pour la deuxième PIRT et Tableaux 1-34 dans la troisième PIRT) peut nous donner une information evaluable sur le comportement des variétés qui sont adaptées à des conditions spécifiqueset par conséquent nous aide à identifier des variétés potentiellement utiles pour des programmes spécifiques d'amélioration.

Les Tableaux 18 et 35 montrent la moyenne générale de chaque variété pour les variables enregistrées dans les deux pépinières. Les moyennes générales de rendement dans la deuxième et la troisième PIRT furent de 2,947.45 kg/ha et 3,080.01 kg/ha, respectivement.

Le rang de la moyenne de rendement du triticale nous indique que aucun de triticales ne possède le même degrée d'adaptation que certaines variétes du blé mexicain possèdent.

Glossary of terms used in Tables

Glosario de términos usados en los Cuadros

Glossaire de terms utilisés dans les Tableaux

English	Español	Francais
Variety	Variedad	Variété
Cross	Cruza	Croisement
Origin	Origen	Origine
Yield	Rendimiento	Rendement
Test weight	Peso específico	Test du poids
Days to flower	Días a la floración	Jours à la floraison
Days to maturity	Días a la madurez	Jours à la maturation
Height	Altura	Hauteur
Lodging	Acamado	Verse
1,000 grain weight in grams	Peso de 1,000 granos en gramos	Poids de 1000 grains en grammes
Grand mean	Gran media	Grande moyenne
Standard error of grand mean	Error estándar de la gran media	Erreur standard de la grande moyenne
Coefficient of variation	Coeficiente de variación	Coefficient de variation
Least significant difference (LSD)	Diferencia mínima significativa (DMS)	Plus petite différence significative (PPDS)
Variety means	Medias de variedad	Moyenne variétale
Date planted	Fecha de siembra	Date de semís
Date harvested	Fecha de cosecha	Date de récolte
Amount of moisture	Cantidad de humedad	Montant d'humidité

English	Español	Francais
Nitrogen	Nitrógeno	Azote
Phosphorous	Fósforo	Phosphore
Potassium	Potasio	Potasse
Stripe rust	Roya lineal	Rouille jaune
Leaf rust	Roya de la hoja	Rouille brune
Stem rust	Roya del tallo	Rouille noire
Shattering	Desgrane	Egrenage
Mildew	Mildiú	Mildeu
Frost damage	Daño de heladas	Dégâts par la geleé
Average coefficient of infection	Coeficiente promedio de infección	Coefficient moyen d' infection
Weeding	Deshierbe	Desherbage
Grain quality	Calidad del grano	Qualité du grain
Root rot	Pudrición de la raíz	Piétin-verse
Late tillering	Amacollo tardío	Tallage tardif
Leaf blight	Tizón de la hoja	Charbon de la feuille
Ergot	Cornezuelo	Ergot
Growth stage	Estadío de crecimiento	Stade végétatif
Septoria	Septoriosis	Septoriose
Protein (Kjeldhal method)	Proteina por método de Kjedhal	Protéines par la méthode Kjeldhal
Nursery	Vivero, ensayo	Pépinière

TABLES, 2nd ITYN

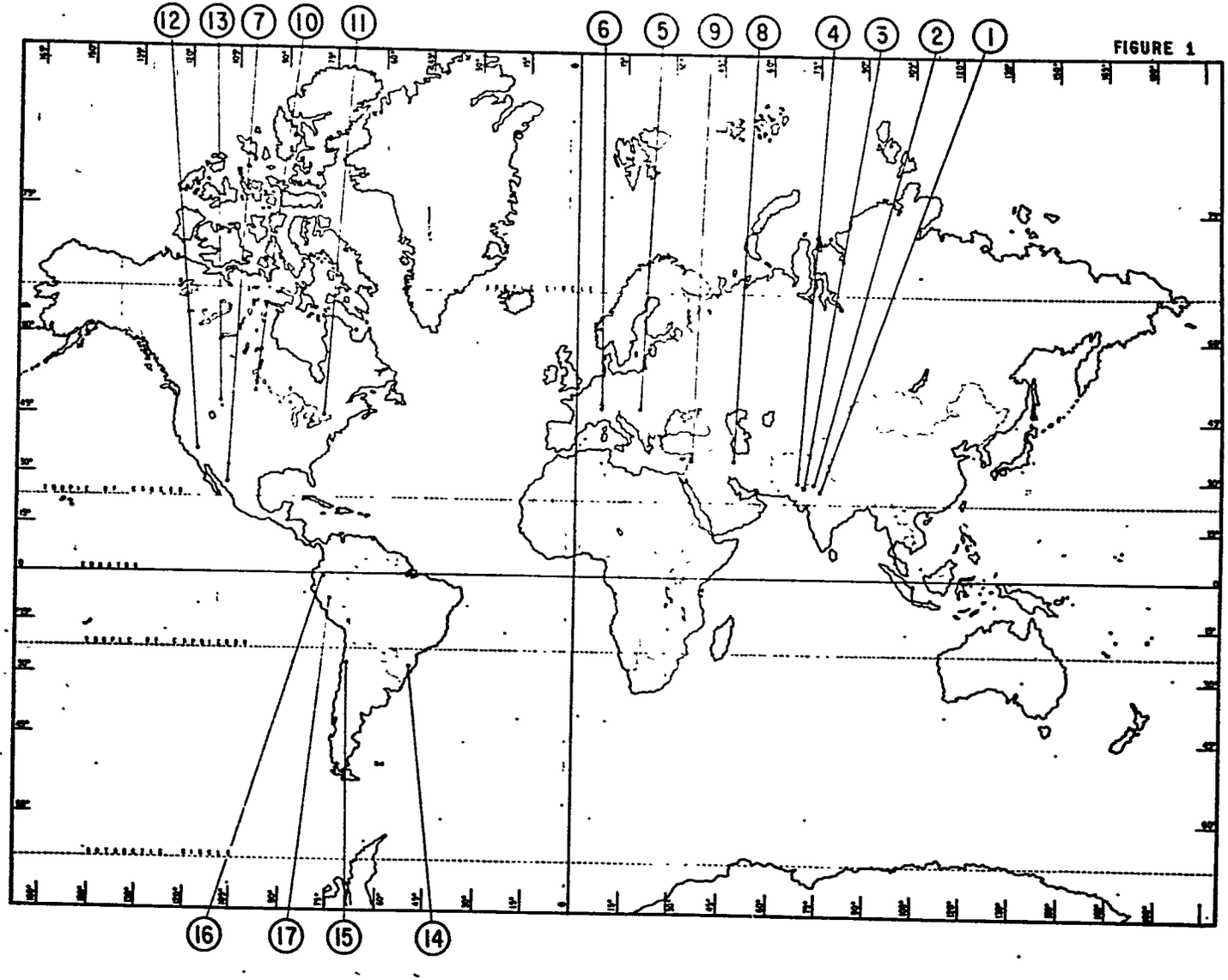

FIGURE 1

FIGURE 2

Table No.	Name	ELEVATION (meters)
	ASIA	
1	New Delhi, India	229
2	Punjab, India	247
3	Uttar Pradesh, India	244
4	Punjab, Pakistan	213
	EUROPE	
5	Kecskemet, Hungary	120
6	Nyon, Switzerland	430
	MESOAMERICA	
7	CIANO, Sonora, Mexico	30
	MIDDLE EAST	
8	Karaj, Iran	1,300
9	Bekaa, Lebanon	1,100
	NORTH AMERICA	
10	Manitoba, Canada	235
11	Ontario, Canada	334
12	Davis, California, U.S.A.	16
13	Bozeman, Montana, U.S.A.	1,463
	SOUTH AMERICA	
14	Passo Fundo, Brazil	709
15	Las Vegas, Chile	390
16	Quito, Ecuador	3,058
17	La Molina, Peru	238

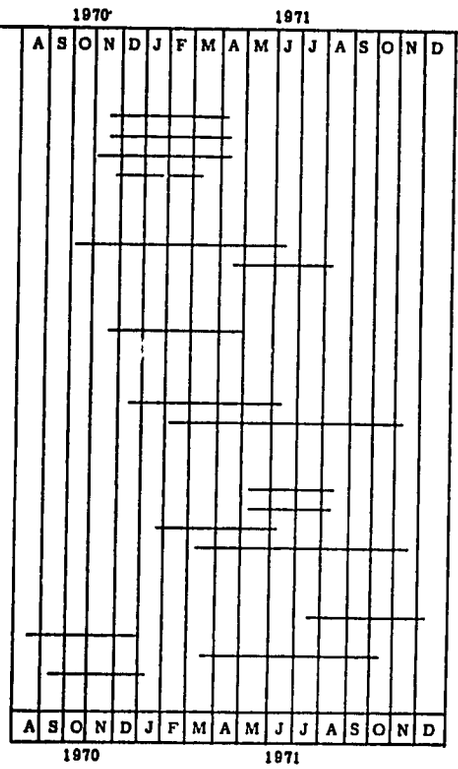

TABLE 1 ASIA INDIA NEW PUSA DELHI

I.A.R.I.,NEW DELHI
COOPERATORS DR. M.S. SWAMINATHAN AND S.P. SHARMA

LATITUDE 028 04'N
LONGITUDE 077 01'E
ELEVATION +0022? M.ABOVE S.L.

DATE PLANTED 11/21/71
DATE HARVESTED 04/14/72
AMOUNT OF MOISTURE 0544 MM

NITROGEN 129.0 KG/HA
PHOSPHOPUS 020.0 KG/HA
POTASSIUM 000.0 KG/HA

THE LOCAL VARIETY WAS NOT SPECIFIED DISEASE DEVELOPMENT WAS LIGHT
THERE WERE NO INSECT WEED OR PEST PROBLEMS OBSERVED

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	LODGING	1000 GRN WGT GRMS
9	INIA 66 (BREAD WHEAT)	MEXICO	6823.7	83.3	82.3	120.0	103.6	0.0	38.2
16	LOCAL CHECK		6758.2	73.7	98.3	137.6	99.3	6.6	28.5
15	ARMADILLO PPV-8	MEXICO	5280.5	62.1	97.3	135.6	123.6	20.0	34.2
3	JORI C-69 (DURUM)	MEXICO	4703.9	77.5	97.0	124.0	87.0	0.0	40.8
12	ARMADILLO T-909	MEXICO	4507.3	69.5	93.6	130.3	122.3	23.3	41.3
11	ARMADILLO PM-6	MEXICO	4397.3	63.8	96.6	133.6	115.6	0.0	34.1
2	ARMADILLO 130	MEXICO	4204.0	64.4	90.0	127.6	131.3	33.3	36.7
5	PITIC 62 (BREAD WHEAT)	MEXICO	4197.3	67.6	92.0	132.3	107.3	10.0	25.8
8	ARMADILLO 211	MEXICO	4165.1	62.7	92.0	140.0	127.3	5.0	31.9
4	ARMADILLO 133	MEXICO	4101.8	62.1	88.0	131.6	129.3	21.6	36.1
6	ARMADILLO 136	MEXICO	3977.3	61.7	89.6	133.3	123.0	13.3	33.9
1	BRONCO 90	MEXICO	3511.8	69.6	91.0	125.3	136.6	21.6	34.9
13	ARMADILLO PPV-13	MEXICO	3377.4	61.8	97.3	135.6	118.0	40.0	35.2
10	ARMADILLO PM-13	MEXICO	2897.4	59.0	101.6	135.0	136.0	50.0	21.9
7	ROSNER	CANADA	2579.7	58.7	102.0	141.0	121.0	11.6	25.4
14	ARMADILLO PPV-21	MEXICO	1667.6	54.1	103.6	143.6	113.0	10.0	18.1
		GRAND MEAN	4196.9	65.7	94.5	132.9	118.4	16.6	32.3
	STANDARD ERROR OF GRAND MEAN		44.0	0.1	0.1	0.1	0.4	0.8	0.1
	COEFFICIENT OF VARIATION		7.2%	1.0%	1.0%	0.6%	2.5%	33.8%	2.6%
	LSD VARIETY MEANS 5 PC		498.8	1.1	1.5	1.3	4.9	9.2	1.4

CORRELATIONS

	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	LODGING
TEST WEIGHT	0.80**					
DAYS TO FLOWER	-0.52*	-0.54*				
DAYS TO MATURITY	-0.49*	-0.78**	0.70**			
HEIGHT CM.	-0.45	-0.58*	-0.06	0.17		
LODGING	-0.39	-0.43	0.18	0.07	0.65**	
1000 GRN WGT GRMS	0.53*	0.59*	-0.62**	-0.71**	-0.10	-0.11

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

TABLE 2 ASIA INDIA PUNJAB

LUDHIANA, PUNJAB AGR. UNIV. DEPT. OF PLANT BREEDING.
COOPERATORS DR. S.C. ANAND

LATITUDE 030 56°N
LONGITUDE 075 52°E
ELEVATION +00247 M. ABOVE S.L.

DATE PLANTED 11/22/70
DATE HARVESTED 04/22/71
AMOUNT OF MOISTURE 0441 MM

NITROGEN 120.0 KG/HA
PHOSPHORUS 026.0 KG/HA
POTASSIUM 000.0 KG/HA

KALYANSONA WAS THE LOCAL VARIETY CONDITIONS WERE DRY WITH A LITTLE RAIN DURING FEBRUARY END OF SEASON WAS WARMER THAN USUAL LEAF RUST INFECTION WAS SEVERE OTHER DISEASE AND INSECT PROBLEMS WERE NOT GREAT

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	LEAF RUST	STEM RUST	HEIGHT CM.	LODGING	1000 GRN WGT GRMS
16	LOCAL CHECK		4222.2	114.5	148.0	10S	40S	10S	111.0	20.0	33.0
9	INIA 66 (BREAD WHEAT)	MEXICO	3946.6	96.0	138.5	0	0	0	104.0	0.0	39.0
3	JORI C-68 (DURUM)	MEXICO	3744.4	114.0	151.0	0	0	0	95.0	0.0	49.0
1	[illegible] 90	MEXICO	3277.7	106.0	147.5	0	20S	5S	158.0	0.0	41.0
15	ARMADILLO PPV-8	MEXICO	3244.4	111.0	150.0	0	30S	0	134.0	0.0	41.0
8	ARMADILLO 211	MEXICO	3144.4	107.0	150.0	0	30S	0	132.0	0.0	37.0
2	ARMADILLO 130	MEXICO	3055.5	106.5	148.0	0	15S	0	145.5	0.0	41.0
6	ARMADILLO 138	MEXICO	3055.5	105.0	147.0	0	10S	0	145.5	0.0	37.0
4	ARMADILLO 133	MEXICO	2966.6	105.5	147.0	0	40S	0	143.5	0.0	40.0
5	FITIC 62 (BREAD WHEAT)	MEXICO	2688.8	114.0	148.0	0	20S	0	110.0	40.0	30.0
14	ARMADILLO PPV-21	MEXICO	2466.6	110.5	151.5	0	4S	5S	131.0	0.0	31.0
13	ARMADILLO PPV-13	MEXICO	2333.3	107.0	148.0	0	40S	0	135.0	0.0	40.0
7	FLSMER	CANADA	2277.7	120.0	151.5	0	5P	0	141.0	0.0	31.0
11	ARMADILLO PH-A	MEXICO	2222.2	104.5	145.0	0	80S	0	133.5	0.0	34.0
12	ARMADILLO T-800	MEXICO	1888.8	105.5	145.0	0	20S	0	135.0	0.0	40.0
10	ARMADILLO PP-13	MEXICO	1833.3	116.0	148.0	0	0	0	153.0	30.0	25.0
		GRAND MEAN	2910.4	109.5	147.7	0.7	25.3	1.2	131.6	5.6	36.8
		STANDARD ERROR OF GRAND MEAN	56.0	0.1	0.1	0.1	2.1		0.6	0.6	
		COEFFICIENT OF VARIATION	15.7%	0.7%	0.5%	113.1%	47.7%		2.7%	76.9%	
		LSD VARIETY MEANS 5 PC	747.2	1.3	1.2	1.4	19.7		5.9	7.0	

CORRELATIONS

YIELD	KG/HA								
DAYS TO	FLOWER	-0.21							
DAYS TO	MATURITY	-0.13	0.81**						
STRIPE	RUST	0.49*	0.20	0.02					
LEAF	RUST	-0.08	-0.22	-0.11	0.28				
STEM	RUST	0.45	0.29	0.14	0.80**	0.17			
HEIGHT	CM.	-0.54*	-0.01	0.15	-0.39	0.11	-0.10		
LODGING		-0.11	0.39	0.03	0.30	-0.07	0.15	-0.18	
1000 GRN WGT	GRMS	0.44	-0.46	-0.08	-0.17	0.03	-0.18	-0.22	-0.63**

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

TABLE 3 ASIA INDIA UTTAR PRADESH

U.P. AGR. UNIV., PANTNAGAR.
COOPERATORS J P SRIVASTAVA

LATITUDE 029 00°N
LONGITUDE 079 30°E
ELEVATION +00240 M. ABOVE S.L.

DATE PLANTED 11/05/70
DATE HARVESTED 04/10/71
AMOUNT OF MOISTURE 0181 MM

NITROGEN 134.0 KG/HA
PHOSPHORUS 029.0 KG/HA
POTASSIUM 037.0 KG/HA

THE NAME OF THE LOCAL VARIETY WAS NOT GIVEN CONDITIONS WERE FAIRLY COLD UNTIL JANUARY AND WARM THROUGH MARCH GOOD DEVELOPMENT OF STRIPE AND LEAF RUST WAS REPORTED NO OTHER PEST PROBLEMS WERE NOTED

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	LEAF RUST	HEIGHT CM.	LODGING	1000 GRN WGT GRMS
9	INIA 66 (BREAD WHEAT)	MEXICO	6266.6	93.6	135.0	0	99.3	41.6	44.5
3	JORI C-69 (DURUM)	MEXICO	4966.5	112.0	148.6	0	89.0	1.6	57.7
16	LOCAL CHECK		4344.4	107.6	150.5	S	93.3	58.3	35.3
8	ARMADILLO 211	MEXICO	4344.4	109.3	152.5	S	118.3	95.0	40.2
1	BRONCO 90	MEXICO	4183.3	100.0	149.0	TR	123.3	97.5	0.0
4	ARMADILLO 133	MEXICO	4166.6	99.0	149.0	MR	123.3	100.0	38.3
12	ARMADILLO T-909	MEXICO	4144.4	109.3	149.0	S	114.6	80.0	38.3
14	ARMADILLO PPV-21	MEXICO	3955.5	115.6	156.6	MR	118.0	43.3	40.2
2	ARMADILLO 130	MEXICO	3788.8	101.0	150.3	MR	122.6	98.3	37.5
13	ARMADILLO PPV-13	MEXICO	3611.1	110.6	150.3	S	113.6	36.6	28.5
5	PITIC 62 (BREAD WHEAT)	MEXICO	3399.9	101.6	145.5	S	89.3	63.3	32.3
10	ARMADILLO PM-13	MEXICO	3333.3	125.6	154.3	MR	120.0	96.6	31.0
15	ARMADILLO PPV-8	MEXICO	3138.8	122.0	153.0	MS-S	118.3	65.0	40.3
11	ARMADILLO PM-4	MEXICO	2844.4	101.6	146.3	S	105.0	16.6	35.1
6	ARMADILLO 136	MEXICO	2777.7	98.0	146.6	MR	105.6	70.0	37.6
7	FUSNER	CANADA	2244.4	115.0	156.6	MS-S	118.3	91.6	28.8
		GRAND MEAN	3844.4	107.6	149.6		110.7	65.9	37.7
		STANDARD ERROR OF GRAND MEAN	149.2	0.9	0.3		0.7	4.3	
		COEFFICIENT OF VARIATION	26.8%	6.1%	1.4%		4.9%	44.7%	
		LSD VARIETY MEANS 5 PC	1688.0	10.8	3.5		8.8	48.2	

COPRELATIONS

YIELD KG/HA						
DAYS TO FLOWER	-0.34					
DAYS TO MATURITY	-0.57*	0.75**				
LEAF RUST	0.00	0.00	0.00			
HEIGHT CM.	-0.28	0.24	0.50*	0.00		
LODGING	-0.22	0.02	0.32	0.00	0.67**	
1000 GRN WGT GRMS	0.29	0.11	-0.14	0.00	-0.42	-0.47*

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

TABLE 4 ASIA W. PAKISTAN PUNJAB

PUNJAB AGR. RESEARCH PUNJAB AGRIC. RESEARCH INSTITUTE
COOPERATORS CEREAL BOTANIST

LATITUDE 031 30'N
LONGITUDE 073 10'E
ELEVATION +00213 M.ABOVE S.L.

DATE PLANTED 11/25/70
DATE HARVESTED 03/16/71
AMOUNT OF MOISTURE 0508 MM

NITROGEN 134.0 KG/HA
PHOSPHORUS 084.0 KG/HA
POTASSIUM 000.0 KG/HA

THE LOCAL VARIETY WAS NOT IDENTIFIED THE SEASON WAS DRY IT WAS A RUST FREE YEAR WEEDS WERE CONTROLLED BY HAND NO OTHER PEST PROBLEMS WERE OBSERVED

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	HEIGHT CM.	LODGING
9	INIA 66 (BREAD WHEAT)	MEXICO	5310.5	100.0	118.0	0.0
3	JURI C-69 (DURUM)	MEXICO	4110.6	108.0	92.0	0.0
12	ARMADILLO T-909	MEXICO	3399.6	105.0	139.0	40.0
2	ARMADILLO 130	MEXICO	3310.7	106.0	150.0	80.0
5	PITIC 62 (BREAD WHEAT)	MEXICO	3221.8	105.0	110.0	100.0
13	ARMADILLO PPV-13	MEXICO	3199.6	105.0	135.0	40.0
15	ARMADILLO PPV-8	MEXICO	3133.0	107.0	125.6	0.0
8	ARMADILLO 211	MEXICO	3110.7	105.0	130.0	60.0
16	LOCAL CHECK		3088.5	105.0	155.0	80.0
1	BRONCO 90	MEXICO	3077.4	105.0	163.0	80.0
6	ARMADILLO 136	MEXICO	3066.3	106.0	148.0	60.0
14	ARMADILLO PPV-21	MEXICO	3021.9	111.6	125.0	5.0
4	ARMADILLO 133	MEXICO	2688.6	98.0	132.0	70.0
11	ARMADILLO PH-4	MEXICO	2355.3	104.0	139.0	0.0
7	ROSNER	CANADA	2133.1	110.3	135.0	10.0
10	ARMADILLO PH-13	MEXICO	2110.8	110.3	136.0	80.0
		GRAND MEAN	3146.2	105.7	133.2	44.0
	STANDARD ERROR OF GRAND MEAN		56.2	0.0	0.0	
	COEFFICIENT OF VARIATION		12.3%	0.2%	0.1%	
	LSD VARIETY MEANS 5 PC		636.1	0.4	0.2	

CORRELATIONS

	YIELD KG/HA	DAYS TO FLOWER	HEIGHT CM.	LODGING
DAYS TO FLOWER	-0.39			
HEIGHT CM.	-0.41	-0.06		
LODGING	-0.26	-0.17	0.44	

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

NURSERY 7YEAR 2LOC. 16DUPLICATE REP

TABLE 5 EUROPE HUNGARY KECSKEMET

HUNGARY VEGETABLE CROPS RESEARCH INSTITUTE,KECSKEMET
COOPERATORS A KISS

LATITUDE	046 55'N	DATE PLANTED	10/03/70	NITROGEN	150.0 KG/HA
LONGITUDE	019 40'E	DATE HARVESTED	06/13/71	PHOSPHORUS	030.0 KG/HA
ELEVATION	+00120 M.ABOVE S.L.	AMOUNT OF MOISTURE	0458 MM	POTASSIUM	029.0 KG/HA

LIBELULLA WAS THE LOCAL VARIETY THIS WAS A FALL SOWN CROP THERE WAS LITTLE FROST DAMAGE EXCEPT TO THE DURUM ENTRY SLIGHT INFECTIONS OF POWDERY MILDEW AND FUSARIUM WERE NOTED SOME BIRD DAMAGE TO THE LOCAL VARIETY WEEDS WERE NOT A PROBLEM

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	LODGING	1000 GRN WGT GRMS
12	ARMADILLO T-909	MEXICO	5422.1	67.4	201.0	248.0	123.3	0.0	50.3
13	ARMADILLO PPV-13	MEXICO	5140.2	67.5	202.0	249.0	126.6	16.6	48.3
7	KUSNER	CANADA	4940.2	64.9	213.0	252.0	133.3	66.6	35.0
6	ARMADILLO 136	MEXICO	4695.1	62.8	210.0	254.0	138.3	33.3	36.5
14	ARMADILLO PPV-21	MEXICO	4651.0	70.3	210.0	250.0	130.0	16.6	43.6
15	ARMADILLO PPV-8	MEXICO	4615.1	68.7	206.0	251.0	125.0	0.0	46.8
4	ARMADILLO 133	MEXICO	4515.1	61.8	211.0	255.0	136.6	25.0	34.6
10	ARMADILLO PM-13	MEXICO	4566.2	61.2	209.0	250.0	140.0	91.6	32.1
1	BEJUCO 90	MEXICO	4476.1	68.1	209.0	255.0	140.0	0.0	42.1
2	ARMADILLO 130	MEXICO	4460.2	63.2	211.0	255.0	128.3	33.3	36.5
11	ARMADILLO PM-4	MEXICO	3480.2	66.0	205.0	255.0	113.3	0.0	35.8
8	ARMADILLO 211	MEXICO	3315.0	66.7	205.0	252.0	128.3	0.0	40.1
5	PITIC 62 (BREAD WHEAT)	MEXICO	3271.3	67.4	214.0	254.0	101.6	0.0	30.5
16	LOCAL CHECK		2709.0	76.7	216.0	255.0	103.3	33.3	35.6
9	INIA 66 (BREAD WHEAT)	MEXICO	2211.2	79.2	205.0	252.0	85.0	0.0	34.0
3	JORI C-69 (DURUM)	MEXICO	935.6	71.8	217.0	255.0	65.0	0.0	45.3
		GRAND MEAN	3962.7	67.8	209.0	252.6	119.8	19.7	39.2
	STANDARD ERROR OF GRAND MEAN		127.5	0.2			0.7	4.7	0.4
	COEFFICIENT OF VARIATION		14.8%	2.8%			4.3%	165.0%	8.7%
	LSD VARIETY MEANS 5 PC		1443.3	3.1			8.5	53.3	5.5

CORRELATIONS

	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	LODGING
TEST WEIGHT	-0.61**					
DAYS TO FLOWER	-0.45	0.07				
DAYS TO MATURITY	-0.50*	-0.01*	-0.61			
HEIGHT CM.	0.88**	-0.70**	-0.31	-0.25		
LODGING	0.32	-0.45	0.28	-0.12	0.43	
1000 GRN WGT GRMS	0.22	0.14	-0.45	-0.32	-0.00	-0.44

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

TABLE 6 EUROPE SWITZERLAND NYON

FEDERAL STATION FOR AGR. RESEARCH, NYON ,SWITZERLAND
COOPERATORS M INGOLD

LATITUDE	046 24'N	DATE PLANTED	04/10/71	NITROGEN	110.0 KG/HA
LONGITUDE	003 54'E	DATE HARVESTED	07/ /71	PHOSPHORUS	39.6 KG/HA
ELEVATION	+00430 M.ABOVE S.L.	AMOUNT OF MOISTURE	0248 MM	POTASSIUM	129.0 KG/HA

THE LOCAL VARIETY WAS GRANAT APRIL WAS WARM AND DRY MAY WAS WARM JUNE WAS WET AND COLD IT THEN TURNED HOT AND DRY THROUGH HARVEST THERE WERE NO INSECT PEST WEED OR DISEASE PROBLEMS RECORDED

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	1000 GRN WGT GRMS
5	PITIC 62 (BREAD WHEAT)	MEXICO	3842.3	71.1	60.3	105.3	97.6	36.1
16	LOCAL CHECK		3445.5	74.1	62.0	108.6	114.0	33.1
12	ARMADILLO T-900	MEXICO	3032.2	61.1	55.6	112.6	108.0	51.8
6	ARMADILLO 136	MEXICO	2875.9	59.6	56.0	112.0	111.3	42.8
13	ARMADILLO PPV-13	MEXICO	2494.0	62.0	56.0	111.0	108.3	51.1
7	ROSNER	CANADA	2360.9	58.3	62.3	115.6	122.0	42.6
1	BRONCO 90	MEXICO	2349.3	61.5	48.6	109.3	115.0	46.7
10	ARMADILLO PM-13	MEXICO	2198.9	58.6	64.3	117.0	137.3	35.6
14	ARMADILLO PPV-21	MEXICO	1759.1	60.5	59.0	115.0	134.6	50.7
4	ARMADILLO 133	MEXICO	1666.5	58.8	56.0	113.3	108.0	41.5
9	INIA 66 (BREAD WHEAT)	MEXICO	1637.6	76.0	46.0	100.6	77.3	40.2
2	ARMADILLO 130	MEXICO	1550.8	59.0	55.0	113.3	111.6	45.5
15	ARMADILLO PPV-8	MEXICO	1417.7	60.3	60.0	117.3	112.0	48.8
3	JORI C-69 (DURUM)	MEXICO	798.5	47.0	62.3	109.0	65.6	46.7
11	ARMADILLO PM-4	MEXICO	746.4	39.1	56.0	115.6	100.3	39.2
8	ARMADILLO 211	MEXICO	746.4	38.3	56.3	116.3	105.3	42.9
		GRAND MEAN	2070.1	60.3	57.2	111.9	108.0	43.5
		STANDARD ERROR OF GRAND MEAN	51.3	1.7	0.0	0.1	1.1	0.2
		COEFFICIENT OF VARIATION	17.1%	19.7%	1.1%	1.1%	7.6%	4.6%
		LSD VARIETY MEANS 5 PC	580.7	19.4	1.1	2.0	13.5	3.3

CORRELATIONS

YIELD KG/HA					
TEST WEIGHT	0.57*				
DAYS TO FLOWER	0.14	-0.03			
DAYS TO MATURITY	-0.33	-0.73**	0.45		
HEIGHT CM.	0.27	-0.23	0.30	0.65**	
1000 GRN WGT GRMS	-0.25	-0.12	-0.23	0.21	0.00

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

TABLE 7 MESOAMERICA MEXICO SONORA

CIANO, CD. OBREGON
COOPERATORS CIMMYT WHEAT STAFF

LATITUDE	027 20'N	DATE PLANTED	11/25/70	NITROGEN	150.0 KG/HA
LONGITUDE	109 54'W	DATE HARVESTED	/ /	PHOSPHORUS	026.4 KG/HA
ELEVATION	+00030 M. ABOVE SEA L.	AMOUNT OF MOISTURE	MM	POTASSIUM	000.0 KG/HA

THERE WAS NO LOCAL VARIETY ENTERED IN THIS EXPERIMENT CONDITIONS WERE COOL AND DRY DURING THE GROWTH PERIOD FROST OF 2 TO 6 C OCCURRED ON JAN 6 TO 8 WITH NO OBSERVED DAMAGE LEAF RUST DEVELOPED LATE IN THE SEASON ALL TRITICALES LODGED AT HEADING NO DIFFERENTIAL NOTES TAKEN

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	LEAF RUST
3	JORI C-69 (DURUM)	MEXICO	5654.9	84.3	0
9	INIA 66 (BREAD WHEAT)	MEXICO	5588.3	72.3	80S
5	PITIC 62 (BREAD WHEAT)	MEXICO	5521.6	85.3	10MP
14	ARMADILLO PPV-21	MEXICO	4299.5	68.0	0
13	ARMADILLO PPV-13	MEXICO	4177.3	84.0	5P
1	BRONCO 90	MEXICO	3866.2	80.6	TYP
2	ARMADILLO 130	MEXICO	3832.9	78.0	TYP
6	ARMADILLO 136	MEXICO	3498.5	78.0	TYP
12	ARMADILLO T-909	MEXICO	3366.3	83.6	20MS
8	ARMADILLO 211	MEXICO	3221.8	82.0	10MP
4	ARMADILLO 133	MEXICO	3210.7	78.0	TYP
7	ROSNER	CANADA	2688.6	100.0	TYP
10	ARMADILLO PM-13	MEXICO	2655.2	98.6	0
11	ARMADILLO PM-4	MEXICO	2533.0	81.6	5P
		GRAND MEAN	3864.6	82.4	15.5
		STANDARD ERROR OF GRAND MEAN	73.1	2.4	3.1
		COEFFICIENT OF VARIATION	12.2%	19.1%	132.5%
		LSD VARIETY MEANS 5 PC	773.8	25.7	33.6

CORRELATIONS

YIELD	KG/HA		
DAYS TO	FLOWER	-0.41	
LEAF	RUST	0.35	-0.32

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

TABLE 8 MIDDLE EAST IRAN KARAJ

KARAJ PLANT BREEDING CENTER, KARAJ
COOPERATORS M A VAHABIAN T MAHLOOJI

LATITUDE 035 47'N
LONGITUDE 050 00'E
ELEVATION +01300 M, ABOVE S.L.

DATE PLANTED 12/16/70
DATE HARVESTED 06/24/71
AMOUNT OF MOISTURE 3800 MM

NITROGEN 120.0 KG/HA
PHOSPHORUS 026.4 KG/HA
POTASSIUM 000.0 KG/HA

DAYHIM WAS THE LOCAL VARIETY WINTER CONDITIONS WERE NORMAL SPRING WAS WARM AND THEN IT TURNED COOL BEFORE HARVEST DISEASE DEVELOPMENT WAS LOW EVEN THOUGH EXPERIMENT WAS ARTIFICIALLY INOCULATED FOR STEM AND STRIPE RUST WEEDS WERE CONTROLLED BY HAND NO OTHER PESTS WERE NOTED

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	HEIGHT CM.	LODGING	SHATTERING	1000 GRN WGT GRMS	MILDEW	FROST DAMAGE
16	LOCAL CHECK		6093.3	150.0	194.4	0	104.4	53.3	0.0	44.0	50.0	0.0
6	ARMADILLO 13A	MEXICO	4666.6	137.0	192.3	0	105.0	26.6	66.6	39.3	0.0	0.0
4	ARMADILLO 133	MEXICO	4426.6	139.6	192.4	0	113.3	73.3	60.0	41.1	0.0	0.0
8	ARMADILLO 211	MEXICO	4400.0	137.0	190.3	0	108.3	53.3	33.3	41.3	0.0	0.0
5	PITIC 62 (BREAD WHEAT)	MEXICO	4346.6	141.3	187.3	0	78.3	0.0	13.3	36.6	21.6	0.0
10	ARMADILLO PPV-13	MEXICO	4320.0	139.6	191.0	0	121.6	86.6	40.0	36.0	0.0	0.0
12	ARMADILLO T-939	MEXICO	4290.0	134.6	191.0	0	98.3	6.6	73.3	49.5	0.0	0.0
9	INIA 66 (BREAD WHEAT)	MEXICO	4133.3	132.0	185.4	0	73.3	0.0	26.6	41.0	0.0	0.0
3	JORI C-59 (DURUM)	MEXICO	3973.3	142.3	194.3	25S	73.3	0.0	0.0	49.0	0.0	1.0
2	ARMADILLO 13J	MEXICO	3880.0	139.3	193.0	0	108.0	53.3	53.3	41.1	0.0	0.0
7	PESNER	CANADA	3813.3	143.3	192.4	0	104.4	20.0	46.6	45.8	0.0	2.3
1	MENDO 80	MEXICO	3533.3	137.3	190.0	0	114.4	46.6	6.6	47.2	0.0	0.4
14	ARMADILLO PPV-21	MEXICO	3400.0	142.0	191.4	0	100.0	20.0	60.0	51.5	0.0	0.0
13	ARMADILLO PPV-13	MEXICO	3360.0	138.0	190.3	0	95.0	20.0	73.3	51.8	0.0	0.0
15	ARMADILLO PPV-P	MEXICO	3200.0	139.0	192.3	0	98.6	33.3	60.0	37.5	0.0	0.0
11	ARMADILLO PPV-6	MEXICO	1986.6	132.6	193.0	0	85.0	0.0	53.3	35.5	0.0	3.3
		GRAND MEAN	3975.8	139.0	191.3	3.0	98.0	30.8	41.6	43.0	4.4	0.4
		STANDARD ERROR OF GRAND MEAN	124.3	0.2	0.1	0.0	0.0	2.6	1.6	0.0	0.1	0.1
		COEFFICIENT OF VARIATION	21.4%	1.0%	0.4%	208.2%	6.7%	58.4%	27.7%	14.5%	146.1%	163.4%
		LSD VARIETY MEANS 5 PC	1403.6	2.4	2.1	10.2	10.0	29.4	18.8	10.2	1.1	1.2

CORRELATIONS

YIELD KG/HA										
DAYS TO FLOWER	0.53*									
DAYS TO MATURITY	0.05	0.51*								
STRIPE RUST	0.49*	0.64**	0.51*							
HEIGHT CM.	0.24	0.23	0.30	-0.22						
LODGING	0.37	0.29	0.36	-0.04	0.85**					
SHATTERING	-0.37	-0.41	0.07	-0.43**	0.20	0.01				
1000 GRN WGT GRMS	0.01	0.20	0.12	0.23	-0.01	-0.23	0.05			
MILDEW	0.45**	0.68**	0.16	0.42**	-0.02	0.08	-0.53	-0.08		
FROST DAMAGE	-0.50*	-0.16	0.29	0.00	-0.19	-0.36	-0.03	-0.12	-0.16	

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

TABLE 9 MIDDLE EAST LEBANON BEKAA

KFARDANE ,BEKAA
COOPERATORS G.KINGMA, M.A.ANTOUN

LATITUDE	037 80°N	DATE PLANTED	01/02/71	NITROGEN	150.0 KG/HA
LONGITUDE	040 00°E	DATE HARVESTED	07/11/71	PHOSPHORUS	060.0 KG/HA
ELEVATION	+ 1100 M.ABOVE S.L.	AMOUNT OF MOISTURE	0425 MM	POTASSIUM	000.0 KG/HA

THE LOCAL VARIETY WAS MEXIPAK65 JAN FEB AND MARCH WERE COOL HEAVY RAINS FELL IN MARCH LAST OF CROP SEASON WAS DRY AND HOT THERE WERE NO DISEASE INSECT OR PEST PROBLEMS OBSERVED

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	HEIGHT CM.	LODGING
9	INIA 66 (BREAD WHEAT)	MEXICO	2310.8	80.0	0.0
5	PITIC 62 (BREAD WHEAT)	MEXICO	2210.8	70.0	0.0
13	ARMADILLO PPV-13	MEXICO	1899.8	85.0	20.0
3	JORI C-69 (DURUM)	MEXICO	1877.5	60.0	0.0
16	LOCAL CHECK		1766.4	75.0	0.0
12	ARMADILLO T-900	MEXICO	1705.3	85.0	16.6
4	ARMADILLO 133	MEXICO	1622.0	105.0	0.0
14	ARMADILLO PPV-21	MEXICO	1588.7	90.0	0.0
6	ARMADILLO 136	MEXICO	1383.1	90.0	10.0
1	BRONCO 90	MEXICO	1338.7	115.0	0.0
8	ARMADILLO 211	MEXICO	1327.6	95.0	0.0
15	ARMADILLO PPV-8	MEXICO	1288.7	95.0	3.3
2	ARMADILLO 130	MEXICO	1083.2	100.0	36.6
7	BUSNER	CANADA	1077.5	85.0	33.3
10	ARMADILLO PM-13	MEXICO	855.4	105.0	0.0
11	ARMADILLO PM-4	MEXICO	555.4	85.0	0.0
		GRAND MEAN	1493.2	88.7	7.4
		STANDARD ERROR OF GRAND MEAN	54.5		2.4
		COEFFICIENT OF VARIATION	25.3%		224.4%
		LSD VARIETY MEANS 5 PC	617.6		27.4

COPRELATIONS

YIELD	KG/HA		
HEIGHT	CM.	-0.52*	
LODGING		-0.21	0.07

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

TABLE 10 NORTH AMERICA CANADA MANITOBA

UNIVERSITY OF MANITOBA, WINNIPEG
COOPERATORS E N LARTER

LATITUDE 050 °N
LONGITUDE 097 °W
ELEVATION +00235 M.ABOVE S.L.

DATE PLANTED 05/05/72
DATE HARVESTED 08/22/72
AMOUNT OF MOISTURE 0330 MM

NITROGEN 112.0 KG/HA
PHOSPHORUS 0.0 KG/HA
POTASSIUM 0.0 KG/HA

NEEPAWA WAS THE LOCAL VARIETY CLIMATIC CONDITIONS WERE GENERALLY OPTIMUN LEAF RUST DEVELOPED LATE BACTERAL BLIGHT AND ERGOT WERE PREVALENT THERE WERE NO INSECT WEED OR PEST PROBLEMS OBSERVED

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	LEAF RUST	HEIGHT CM.	1000 GRN WGT GRMS
5	PITIC 62 (BREAD WHEAT)	MEXICO	9508.1	77.2	64.0	109.0	5S	91.0	36.5
4	ARMADILLO 133	MEXICO	8232.4	64.3	61.0	102.0	5S	103.0	41.0
12	ARMADILLO T-909	MEXICO	8098.9	70.7	61.0	102.0	20S	99.0	42.0
6	ARMADILLO 136	MEXICO	7846.8	65.6	60.0	102.0	TPMS	103.0	38.7
7	FUSNER	CANADA	7713.3	68.2	65.0	103.0	TPMS	105.0	39.5
3	JORI C-69 (DURUM)	MEXICO	7639.1	79.7	62.0	105.0	0	69.0	46.3
16	LOCAL CHECK		7535.3	83.6	63.0	99.0	30S	106.0	39.3
10	ARMADILLO PM-13	MEXICO	7461.1	64.3	67.0	101.0	TPP	129.0	32.5
13	ARMADILLO PPV-13	MEXICO	7194.1	69.4	61.0	103.0	20S	95.0	45.3
8	ARMADILLO 211	MEXICO	6927.1	70.7	60.0	101.0	20S	102.0	39.7
14	ARMADILLO PPV-21	MEXICO	6912.3	70.7	63.0	102.0	5S	94.0	42.7
9	INIA 66 (BREAD WHEAT)	MEXICO	6823.3	82.3	58.0	98.0	20S	78.0	43.8
1	BRONCO 90	MEXICO	6793.6	69.4	60.0	96.0	0	106.0	48.3
2	ARMADILLO 130	MEXICO	6689.8	66.9	61.0	102.0	TP	106.0	46.7
15	ARMADILLO PPV-8	MEXICO	6126.1	68.2	64.0	103.0	20S	97.0	38.2
11	ARMADILLO PM-4	MEXICO	5206.4	66.9	59.0	103.0	40S	99.0	40.7
		GRAND MEAN	7294.2	71.1	61.8	101.9	11.5	98.8	41.4
		STANDARD ERROR OF GRAND MEAN	118.7						
		COEFFICIENT OF VARIATION	11.2%						
		LSD VARIETY MEANS 5 PC	1343.0						

CORRELATIONS

YIELD KG/HA							
TEST WEIGHT	0.20						
DAYS TO FLOWER	0.34	-0.12					
DAYS TO MATURITY	0.42	-0.03	0.35				
LEAF RUST	-0.48*	0.26	-0.36	-0.11			
HEIGHT CM.	-0.33	-0.62**	0.42	-0.27	-0.11		
1000 GRN WGT GRMS	-0.27	0.18	-0.60**	-0.31	-0.07	-0.49*	

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

TABLE 11 NORTH AMERICA CANADA ONTARIO

THE UNIVERSITY OF GUELPH GUELPH
COOPERATORS E REINBERG

LATITUDE 043 31°N
LONGITUDE 080 14°W
ELEVATION +00334 M. ABOVE S.L.

DATE PLANTED 05/03/71
DATE HARVESTED 08/11/71
AMOUNT OF MOISTURE 0259 MM

NITROGEN 015.0 KG/HA
PHOSPHORUS 060.0 KG/HA
POTASSIUM 060.0 KG/HA

THE LOCAL VARIETY WAS SELKIRK IT WAS AN EARLY SPRING AND COOL SUMMER PRECIPITATION WAS ADEQUATE CONDITIONS WERE GENERALLY GOOD LITTLE OR NO DISEASE DEVELOPMENT WAS OBSERVED THERE WERE NO INSECT OR PEST PROBLEMS WEEDS WERE CONTROLLED CHEMICALLY

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.
5	PITIC 62 (BREAD WHEAT)	MEXICO	4030.3	77.2	56.0	96.0	83.9
12	ARMADILLO T-900	MEXICO	3804.3	70.7	52.0	99.0	96.5
13	ARMADILLO PPV-13	MEXICO	3672.5	70.7	52.5	97.0	96.5
6	ARMADILLO 136	MEXICO	3597.1	66.9	52.5	98.0	101.5
4	ARMADILLO 133	MEXICO	3578.3	68.2	52.5	96.0	93.9
3	JORI C-69 (DURUM)	MEXICO	3559.5	82.3	56.0	96.0	63.5
10	ARMADILLO PM-13	MEXICO	3503.0	66.9	56.0	100.0	109.2
7	ROSNER	CANADA	3446.5	64.3	56.0	98.5	93.9
14	ARMADILLO PPV-21	MEXICO	3258.1	72.0	53.0	96.0	96.5
16	LOCAL CHECK		3145.1	81.0	55.5	96.0	99.0
2	ARMADILLO 130	MEXICO	3126.3	68.2	53.0	97.5	99.0
8	ARMADILLO 211	MEXICO	2881.5	70.7	52.5	97.0	88.8
15	ARMADILLO PPV-8	MEXICO	2806.1	72.0	54.0	97.0	96.5
1	BRONCO 90	MEXICO	2806.1	69.4	51.0	96.0	99.0
9	INIA 66 (BREAD WHEAT)	MEXICO	2580.1	79.7	50.0	96.0	73.6
11	ARMADILLO PM-4	MEXICO	1864.5	66.9	53.0	98.0	88.8
		GRAND MEAN	3228.7	71.7	53.4	97.0	92.5
	STANDARD ERROR OF GRAND MEAN		58.1		0.0	0.0	
	COEFFICIENT OF VARIATION		12.4%		0.7%	0.4%	
	LSD VARIETY MEANS 5 PC		457.4		0.4	0.7	

CORRELATIONS

YIELD KG/HA					
TEST WEIGHT	0.06				
DAYS TO FLOWER	0.38	0.13			
DAYS TO MATURITY	0.03	-0.66**	0.24		
HEIGHT CM.	0.10	-0.66**	-0.01	0.51*	

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

TABLE 12 NORTH AMERICA U.S.A. CALIFORNIA

UNIVERSITY OF CALIFORNIA, DAVIS
COOPERATORS C O QUALSET J P GUSTAFSON J A RUPERTETAL

LATITUDE	032 32°N	DATE PLANTED	02/01/71	NITROGEN	---.- KG/HA
LONGITUDE	121 45°W	DATE HARVESTED	06/18/71	PHOSPHORUS	---.- KG/HA
ELEVATION	+00016 M.ABOVE S.L.	AMOUNT OF MOISTURE	MM	POTASSIUM	---.- KG/HA

THE LOCAL CHECK WAS JFR ETA-204(TRITICALE) EXPERIMENT WAS PLANTED LATE
CONDITIONS WERE DESCRIBED AS COOL DURING AND AFTER HEADING STRIPE AND
LEAF RUST INFECTION WAS REPORTED AS MODERATE AND ARE GIVEN HERE AS PER
CENT INFECTION NO OTHER PROBLEMS REPORTED

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	LEAF RUST	HEIGHT CM.	LODGING	SHATTERING	1000 GM WGT GRMS
9	INIA 66 (BREAD WHEAT)	MEXICO	5848.8	77.8	86.3	128.0	10	0	101.0	15.0	0.0	37.5
3	JORI C-69 (DURUM)	MEXICO	4409.0	78.5	93.6	137.3	2	2	81.6	6.6	0.0	51.6
16	LOCAL CHECK		4339.5	57.3	99.0	137.3	0	2	135.3	26.6	0.0	30.1
5	PITIC 62 (BREAD WHEAT)	MEXICO	3913.4	66.2	94.3	131.0	10	10	105.6	21.6	0.0	26.8
1	BRONCO 66	MEXICO	3039.9	66.3	89.3	133.6	0	0	138.6	6.3	0.0	33.5
2	ARMADILLO 130	MEXICO	2885.1	59.8	89.6	134.3	0	10	131.6	35.0	0.3	29.0
4	ARMADILLO 133	MEXICO	2739.4	57.2	89.3	133.6	0	5	132.0	76.6	0.6	28.3
12	ARMADILLO T-910	MEXICO	2713.6	64.3	88.6	133.3	0	2	121.6	13.3	0.0	35.5
6	ARMADILLO 134	MEXICO	2590.2	58.6	89.3	132.0	0	3	133.6	56.6	0.0	31.2
15	ARMADILLO PPV-9	MEXICO	2130.5	62.2	92.0	132.3	0	2	122.6	28.3	0.0	30.5
14	ARMADILLO PPV-21	MEXICO	2106.9	63.7	94.3	133.3	0	3	118.6	15.0	0.0	25.6
8	ARMADILLO 211	MEXICO	2054.2	61.0	88.6	129.6	0	3	120.3	23.3	0.0	30.6
13	ARMADILLO PPV-13	MEXICO	2000.4	59.5	89.3	131.3	0	3	119.6	23.3	0.0	33.5
11	ARMADILLO PM-6	MEXICO	1990.3	61.0	89.3	131.6	0	10	112.0	43.3	0.0	29.0
7	NUSKEN	CANADA	1773.9	55.2	96.6	135.0	0	3	115.6	15.0	0.0	20.5
10	ARMADILLO PM-13	MEXICO	1216.6	52.7	97.0	122.3	0	2	127.0	15.0	0.0	21.0
		GRAND MEAN	2859.5	62.5	91.6	132.2			119.8	26.4	0.0	30.9
		STANDARD ERROR OF GRAND MEAN	68.4		0.2	0.7			0.9	2.3	0.0	
		COEFFICIENT OF VARIATION	16.5%		2.0%	3.6%			5.2%	60.9%	*14.3%	
		LSD VARIETY MEANS 5 PC	774.8		3.1	7.9			10.3	26.3	0.5	

		CORRELATIONS			CORRELATIONS					
YIELD	KG/HA									
TEST	WEIGHT	0.75**								
DAYS TO	FLOWER	-0.10	-0.32							
DAYS TO	MATURITY	0.26	0.16	0.14						
STRIPE	RUST	0.00	0.00	0.00	0.00					
LEAF	RUST	0.00	0.00	0.00	0.00	0.00				
HEIGHT	CM.	-0.41	-0.75**	0.00	-0.03	0.00	0.00			
LODGING		-0.16	-0.40	-0.28	0.06	0.00	0.00	0.40		
SHATTERING		-0.02	-0.22	-0.21	0.16	0.00	0.00	0.30	0.71**	
1000 GRN WGT	GRMS	0.60*	0.83**	-0.33	0.36	0.00	0.00	-0.56	-0.23	-0.11

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

TABLE 13 NORTH AMERICA U.S.A. MONTANA

MONTANA EXPERIMENT STATION, BOZEMAN.
COOPERATORS F H MCNEAL AND M A BERG

LATITUDE 046 00°N
LONGITUDE 111 00°W
ELEVATION +01440 M. ABOVE S.L.

DATE PLANTED 05/06/71
DATE HARVESTED
AMOUNT OF MOISTURE 190 MM

NITROGEN 0.0 KG/HA
PHOSPHORUS 0.0 KG/HA
POTASSIUM 0.0 KG/HA

THE LOCAL VARIETY WAS NOT IDENTIFIED JUNE WAS COOL JULY AND AUGUST WERE EXCEPTIONALLY DRY AND HOT NO DISEASE INSECT OR WEED PROBLEMS WERE REPORTED

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	HEIGHT CM.	ERGOT PCNT
5	PITIC 62 (BREAD WHEAT)	MEXICO	2536.4	74.2	198.0	82.3	0.0
3	JORI C-69 (DURUM)	MEXICO	2170.8	79.1	196.0	69.0	0.0
16	LOCAL CHECK		1913.1	77.0	200.3	84.6	0.0
9	INIA 66 (BREAD WHEAT)	MEXICO	1913.1	77.7	187.6	73.6	0.0
6	ARMADILLO 136	MEXICO	1866.4	59.2	191.3	101.0	0.0
13	ARMADILLO PPV-13	MEXICO	1754.2	62.1	189.3	92.6	0.0
7	ROSNER	CANADA	1742.0	58.6	191.6	100.3	0.0
4	ARMADILLO 133	MEXICO	1697.6	59.8	192.0	98.3	0.0
10	ARMADILLO PM-13	MEXICO	1689.8	58.6	197.0	114.0	0.0
2	ARMADILLO 130	MEXICO	1647.6	59.7	191.3	98.6	2.0
15	ARMADILLO PPV-8	MEXICO	1449.9	63.4	193.3	95.6	2.0
1	BRONCO 90	MEXICO	1304.3	62.0	187.0	99.0	2.0
12	ARMADILLO T-909	MEXICO	1242.3	61.7	187.0	88.3	0.0
14	ARMADILLO PPV-21	MEXICO	973.2	61.6	188.0	88.0	2.0
8	ARMADILLO 211	MEXICO	971.0	59.9	187.0	89.0	2.0
11	ARMADILLO PM-4	MEXICO	706.5	55.0	187.3	88.6	15.0
		GRAND MEAN	1598.6	64.4	191.5	91.4	1.5
		STANDARD ERROR OF GRAND MEAN	38.2		0.1	0.5	
		COEFFICIENT OF VARIATION	16.5%		0.6%	4.2%	
		LSD VARIETY MEANS 5 PC	432.5		1.0	6.3	

COPRELATIONS

YIELD	KG/HA				
TEST	WEIGHT	0.65**			
DAYS TO	FLOWER	0.70**	0.49*		
HEIGHT	CM.	-0.22	-0.77**	-0.00	
ERGOT	PCNT	-0.63**	-0.39	-0.35	-0.02

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

TABLE 14 SOUTH AMERICA BRAZIL PASSO FUNDO

EXPERIMENT STATION OF PASSO FUNDO
COOPERATORS FUNDO-RS. MINISTRY OF AGRICULTURE.

LATITUDE	052 24 S	DATE PLANTED	07/23/71	NITROGEN	055.0 KG/HA
LONGITUDE	028 15 W	DATE HARVESTED	12/09/71	PHOSPHORUS	180.0 KG/HA
ELEVATION	+00709 M.ABOVE S.L.	AMOUNT OF MOISTURE	MM	POTASSIUM	055.0 KG/HA

LOCAL VARIETY NAME IS IAS 52. CLIMATE CONDITION WAS NORMAL. DROUGHTINESS LAST FEW WEEKS AFTER SOWING. FROST DAMAGE OCCUR DURING THE NIGHT 12-15 OCTOBER. PEST NO DAMAGE, WEEDS WERE UNDER CONTROL. THE TRIAL WAS DAMAGE BY APHIDS BUT NOT SEVERLY.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	1000 GRN WGT GRMS
14	ARMADILLO PPV-21	MEXICO	2044.2	67.0	139.0	101.3	32.0
7	ROSNER	CANADA	1694.2	67.0	139.0	99.3	28.0
12	ARMADILLO T-909	MEXICO	1533.1	67.0	139.0	91.0	40.0
15	ARMADILLO PPV-8	MEXICO	1333.1	69.0	139.0	85.0	32.0
13	ARMADILLO PPV-13	MEXICO	1305.4	67.0	139.0	85.0	32.0
2	ARMADILLO 130	MEXICO	1205.4	67.0	139.0	91.6	36.0
6	ARMADILLO 136	MEXICO	1194.3	67.0	118.0	90.0	36.0
4	ARMADILLO 133	MEXICO	1094.3	67.0	139.0	88.6	36.0
8	ARMADILLO 211	MEXICO	1005.4	67.0	139.0	83.3	32.0
1	BRONCO 90	MEXICO	911.0	63.0	118.0	91.6	0.0
10	ARMADILLO PM-13	MEXICO	811.0	76.0	139.0	98.6	28.0
16	LOCAL CHECK		755.4	67.0	139.0	73.6	32.0
11	ARMADILLO PM-6	MEXICO	549.9	67.0	118.0	79.0	32.0
9	INIA 66 (BREAD WHEAT)	MEXICO	394.4	67.0	118.0	55.0	28.0
5	PITIC 62 (BREAD WHEAT)	MEXICO	205.5	76.0	118.0	60.0	20.0
3	JURI C-69 (DURUM)	MEXICO	77.7	75.0	123.0	43.3	28.0
		GRAND MEAN	1007.1	68.5	131.4	82.2	31.4
	STANDARD ERROR OF GRAND MEAN		33.4			0.8	
	COEFFICIENT OF VARIATION		22.9%			7.2%	
	LSD VARIETY MEANS 5 PC		378.0			9.6	

CORRELATIONS

YIELD KG HA				
DAYS TO FLOWER	-0.51*			
DAYS TO MATURITY	0.64**	-0.09		
HEIGHT CM.	0.83**	-0.42	0.54*	
1000 GRN WGT GRMS	0.31	0.02	0.49*	0.11

* SIGNIFICANT AT THE LEVEL ** SIGNIFICANT AT THE LEVEL

TABLE 15 SOUTH AMERICA CHILE LAS VEGAS

LAS VEGAS EXPERIMENT STATION, PAINE.
COOPERATORS J MAYORGA V

LATITUDE	033 51'S	DATE PLANTED	08/24/70	NITROGEN	048.0 KG/HA
LONGITUDE	070 41'W	DATE HARVESTED	12/31/70	PHOSPHORUS	048.0 KG/HA
ELEVATION	+0030 M.ABOVE S.L.	AMOUNT OF MOISTURE	149 MM	POTASSIUM	000.0 KG/HA

HUELQUEN WAS THE LOCAL VARIETY CLIMATIC CONDITIONS WERE CONSIDERED TO BE NORMAL DISEASE DEVELOPMENT WAS NOT INTENSE OTHER PROBLEMS WITH INSECTS WEEDS AND PESTS WERE MINIMAL

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	LEAF RUST	STEM RUST	HEIGHT CM.	LODGING	1000 GRN WGT GRMS
9	INIA 66 (BREAD WHEAT)	MEXICO	4796.1	95.8	59.3	109.0	5*	60S	0	94.0	0.0	35.3
5	PITIC 62 (BREAD WHEAT)	MEXICO	4503.9	73.1	68.6	117.3	0	10MR	0	97.6	0.0	33.1
16	LOCAL CHECK		4055.1	81.6	69.3	119.0	0	30MS	0	113.6	0.0	33.6
14	ARMADILLO PPV-21	MEXICO	3890.7	75.5	70.5	122.0	0	10MR	0	120.0	0.0	33.5
2	ARMADILLO 130	MEXICO	3621.8	69.5	63.3	125.0	0	10MR	0	134.6	7.0	34.5
3	JORI C-69 (DURUM)	MEXICO	3084.1	94.0	68.0	119.6	0	0	0	74.6	0.0	41.1
8	ARMADILLO 211	MEXICO	2779.7	72.5	63.3	123.0	0	10MR	0	117.6	0.0	31.8
1	BERACO 90	MEXICO	2599.7	59.8	67.0	123.6	0	0	0	145.3	0.0	35.4
15	ARMADILLO PPV-8	MEXICO	2599.7	73.1	67.0	111.0	0	25MS	0	116.6	0.0	33.3
13	ARMADILLO PPV-13	MEXICO	2288.6	70.0	65.6	122.3	0	60S	0	115.6	0.0	34.3
12	ARMADILLO T-900	MEXICO	2138.6	71.1	65.0	120.6	0	60S	0	119.6	0.0	38.1
10	ARMADILLO PM-13	MEXICO	1797.5	58.8	72.6	128.3	0	5R	0	143.3	11.6	29.1
6	ARMADILLO 136	MEXICO	1786.6	69.8	63.3	123.0	0	15MR	0	137.3	0.0	34.0
11	ARMADILLO PM-4	MEXICO	1566.5	57.0	61.0	121.6	0	10MR	0	119.3	0.0	34.1
4	ARMADILLO 133	MEXICO	1388.7	69.0	62.6	120.6	0	5R	0	124.6	0.0	34.0
7	ALSNER	CANADA	1242.0	66.5	71.6	124.0	0	5R	0	114.0	0.0	32.1
		GRAND MEAN	2756.2	71.5	66.1	120.6	0.0	13.3	0.0	118.0	1.1	34.2
		STANDARD ERROR OF GRAND MEAN	100.7	1.1	0.1	0.2	0.0	1.0	0.0	0.6	0.1	0.2
		COEFFICIENT OF VARIATION	25.3%	11.0%	1.1%	1.3%	344.4%	54.7%	461.2%	4.0%	85.2%	4.2%
		LSD VARIETY MEANS 5 PC	1140.3	12.9	1.2	2.7	0.2	11.8	0.6	7.8	1.6	2.3

CORRELATIONS

	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	LEAF RUST	STEM RUST	HEIGHT CM.	LODGING	1000 GRN WGT GRMS
TEST WEIGHT	0.69**									
DAYS TO FLOWER	-0.03	0.02								
DAYS TO MATURITY	-0.51*	-0.55*	0.35							
STRIPE RUST	0.47*	0.48*	-0.47*	-0.63**						
LEAF RUST	0.28	0.44	-0.35	-0.50*	0.59*					
STEM RUST	-0.18	0.15	0.37	0.08	-0.19	-0.28				
HEIGHT CM.	-0.44	-0.66**	0.05	0.59*	-0.35	-0.24	-0.52			
LODGING	-0.09	-0.11	0.20	0.49*	-0.09	-0.24	-0.14	0.45		
1000 GRN WGT GRMS	0.15	0.32	-0.28	-0.27	0.10	0.29	0.36	-0.52*	-0.43	

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

TABLE 16 SOUTH AMERICA ECUADOR QUITO

SANTA CATALINA STATION
COOPERATORS NATL INST FOR AGR INVEST

LATITUDE	000 22°S	DATE PLANTED	03/13/71	NITROGEN	030.0 KG/HA
LONGITUDE	078 33°W	DATE HARVESTED	10/11/71	PHOSPHORUS	120.0 KG/HA
ELEVATION	+03058 M.ABOVE S.L.	AMOUNT OF MOISTURE	MM	POTASSIUM	030.0 KG/HA

THE LOCAL VARIETY WAS NOT IDENTIFIED EXCESSIVE RAINS FELL DURING MARCH MAY AUGUST AND SEPTEMBER VERY GOOD DEVELOPMENT OF STRIPE RUST WAS NOTED NO OTHER PROBLEMS WERE REPORTED

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	STRIPE RUST	P.STRIPE HEAD	LEAF RUST	HEIGHT CM.	LODGING	1000 GRN WGT GRMS	SEPTORIA SPP.
1	BRONCO 90	MEXICO	2341.6	60.1	82.3	5MS	1	0	140.0	16.6	43.3	30.0
5	PITIC 62 (BREAD WHEAT)	MEXICO	2208.3	50.0	98.0	40MS	60	0	100.0	8.3	31.6	11.6
14	ARMADILLO PPV-21	MEXICO	2108.3	54.5	95.3	TR	0	TMS	120.0	0.0	41.6	13.3
16	LOCAL CHECK		2033.3	44.0	80.3	20MS	20	5OS	96.6	0.0	33.3	18.3
13	ARMADILLO PPV-13	MEXICO	1616.6	49.1	84.0	0	0	0	118.3	0.0	43.3	16.6
2	ARMADILLO 130	MEXICO	1383.3	44.0	81.6	0	0	0	126.6	25.0	34.6	16.6
15	ARMADILLO PPV-8	MEXICO	1350.0	54.0	85.3	0	0	TMS	120.0	0.0	43.3	15.0
7	ROSNER	CANADA	1200.0	47.5	97.3	0	0	0	120.0	0.0	40.0	7.0
6	ARMADILLO 136	MEXICO	1191.6	51.0	81.3	TMR	0	TMS	126.6	33.3	38.3	16.6
4	ARMADILLO 133	MEXICO	1050.0	50.8	83.0	5MS	0	0	121.6	8.3	36.6	20.0
12	ARMADILLO T-999	MEXICO	1035.3	51.0	83.3	0	0	TR	111.6	0.0	43.3	16.6
9	INIA 66 (BREAD WHEAT)	MEXICO	941.6	46.5	78.3	100S	100	0	75.0	0.0	25.0	6.6
11	ARMADILLO PM-4	MEXICO	608.3	41.2	81.3	0	0	5S	111.6	0.0	33.3	11.6
8	ARMADILLO 211	MEXICO	400.0	48.0	83.6	0	0	TMS	118.3	0.0	34.6	13.3
10	ARMADILLO PM-13	MEXICO	166.6	45.0	99.0	0	0	TMS	125.0	0.0	36.6	15.0
3	JORI C-69 (DURUM)	MEXICO	166.6	56.1	99.0	5MS	1	0	65.0	0.0	39.3	16.6
		GRAND MEAN	1237.6	51.7	87.0	11.9	11.6	4.3	112.2	5.7	37.6	15.3
	STANDARD ERROR OF GRAND MEAN		77.4		0.4	0.9	0.4	0.5	1.2	1.3	0.6	0.8
	COEFFICIENT OF VARIATION		43.3%		3.2%	52.7%	25.6%	81.8%	7.8%	166.6%	11.3%	37.1%
	LSD VARIETY MEANS 5 PC		876.6		4.5	10.2	4.9	5.7	14.3	15.5	6.9	0.2

CORRELATIONS

YIELD	KG/HA									
TEST	WEIGHT	0.23								
DAYS TO	FLOWER	-0.12	-0.20							
STRIPE	RUST	0.39	0.63**	-0.09						
P.STRIPE	HEAD	0.17	0.54*	-0.06	0.98**					
LEAF	RUST	0.18	0.33	-0.31	0.03	0.01				
HEIGHT	CM.	0.28	-0.60**	-0.15	-0.66**	-0.56*	-0.20			
LODGING		0.24	-0.20	-0.29	-0.14	-0.10	-0.20	0.41		
1000 GRN WGT	GRMS	0.18	-0.33	0.14	-0.79**	-0.77**	-0.28	0.55	0.04	
SEPTORIA	SPP.	0.32	-0.07	-0.25	-0.43	-0.44	0.07	0.41	0.39	0.49*

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

TABLE 17 SOUTH AMERICA PERU LA MOLINA

NATIONAL AGRICULTURAL UNIVERSITY, LA MOLINA
COOPERATORS M RUMEKO LOLI L LAVADO R MONY

LATITUDE 012 05°S
LONGITUDE 076 57°W
ELEVATION +00238 M.ABOVE S.L.

DATE PLANTED 09/08/70
DATE HARVESTED / /
AMOUNT OF MOISTURE MM

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

THE LOCAL VARIETY WAS HELVIA-FROM HIGH ATMOSPHERIC HUMEDITY AND COOL TEMPERATURES AROUND HEADING WERE FOLLOWED BY WARM (25C) AROUND MATURITY GOOD RUST DEVELOPMENT WAS REPORTED

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	LEAF RUST	STEM RUST	HEIGHT CM.	LODGING	1000 GRN WGT GRMS
14	ARMADILLO PPV-21	MEXICO	4560.5	70.7	76.0	127.3	10MS	20S	126.6	0.0	40.7
15	ARMADILLO PPV-8	MEXICO	3798.5	70.3	60.6	119.6	20MS	30S	121.6	0.0	45.1
5	PITIC 62 (BREAD WHEAT)	MEXICO	3706.2	74.3	67.3	123.3	30S	80S	108.3	53.3	32.0
8	ARMADILLO 211	MEXICO	3639.6	70.0	56.6	128.0	20MS	20S	125.0	0.0	42.0
12	ARMADILLO T-900	MEXICO	3527.4	70.3	[illegible]	114.6	30MS	30S	111.6	0.0	52.7
7	ROSNER	CANADA	3374.1	61.1	78.0	128.6	30MS	0	136.6	0.0	39.5
9	INIA 66 (BREAD WHEAT)	MEXICO	3338.5	[illegible]	53.3	114.0	0	5S	86.6	0.0	40.0
2	ARMADILLO 130	MEXICO	3153.0	[illegible]	54.6	119.3	0	0	121.6	1.6	43.5
1	BRONCO 80	MEXICO	3058.5	70.3	54.0	117.3	50S	TS	121.6	0.0	48.7
4	ARMADILLO 133	MEXICO	2960.9	66.3	54.6	114.0	10MS	0	126.6	0.0	42.7
16	LOCAL CHECK		2726.3	80.3	74.3	126.0	5S	TR	123.3	6.6	40.0
13	ARMADILLO PPV-13	MEXICO	2598.6	69.5	56.6	115.3	20S	20S	108.3	0.0	46.0
10	ARMADILLO PM-13	MEXICO	2508.6	66.7	68.0	122.6	20P	0	145.0	46.6	36.0
6	ARMADILLO 136	MEXICO	2455.3	64.7	54.0	114.6	10MS	0	125.0	0.0	38.7
3	JORI C-69 (DURUM)	MEXICO	2162.0	78.0	62.6	115.3	0	60S	68.3	0.0	48.0
11	ARMADILLO PM-4	MEXICO	1899.8	69.7	55.3	115.3	60S	40S	108.3	0.0	39.5
		GRAND MEAN	3091.7	70.7	61.3	119.6	21.6	21.3	116.5	6.7	42.2
	STANDARD ERROR OF GRAND MEAN		76.0		0.2	0.3	2.8	1.7	0.9	2.0	
	COEFFICIENT OF VARIATION		17.2%		2.6%	2.2%	91.0%	57.0%	5.8%	205.8%	
	LSD VARIETY MEANS 5 PC		870.7		2.6	4.3	32.5	20.1	11.0	22.7	

CORRELATIONS

YIELD KG/HA									
TEST WEIGHT	0.04								
DAYS TO FLOWER	0.31	0.20							
DAYS TO MATURITY	0.48*	0.04	0.78**						
LEAF RUST	0.21	-0.23	-0.15	0.17					
STEM RUST	0.11	0.33	0.04	0.06	0.32				
HEIGHT CM.	0.24	-0.64**	0.31	0.51*	0.17	-0.54*			
LODGING	0.31	0.04	0.31	0.27	-0.00	0.31	0.19		
1000 GRN WGT GRMS	-0.31	-0.00	-0.40	-0.43	0.34	-0.00	-0.29	-0.65**	

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

TABLE 18

MEAN OVER ALL LOCATIONS FOR YIELD, AGRONOMIC AND DISEASE DATA FOR THE SECOND INTERNATIONAL TRITICALE YIELD NURSERY.

PROMEDIO DE TODOS LOS LUGARES PARA RENDIMIENTO, DATOS AGRONOMICOS Y DE ENFERMEDADES DEL SEGUNDO ENSAYO INTERNACIONAL DE RENDIMIENTO DE TRITICALES.

MOYENNE DE TOUS LES LOCALITES POUR RENDEMENT, DONEES AGRONOMIQUES ET DES MALADIES POUR LA DEUXIEME PEPINIERE INTERNATIONALE DE RENDEMENT DES TRITICALES.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST *	P.STRIPE HEAD *	LEAF RUST *
9	INIA 66 (BREAD WHEAT)	MEXICO	3810.82	78.96	91.71	132.90	25.17	96.67	26.67
5	PITIC 62 (BREAD WHEAT)	MEXICO	3718.31	69.88	102.25	138.94	13.33	70.00	13.73
16	LOCAL CHECK		3695.71	75.00	104.16	137.27	14.71	18.33	30.87
12	ARMADILLO T-909	MEXICO	3272.87	65.85	96.78	140.31	0.01	0.0	31.67
14	ARMADILLO PPV-21	MEXICO	3101.15	65.42	102.30	144.01	0.02	0.0	[illegible].50
2	ARMADILLO 130	MEXICO	3102.33	62.21	96.78	142.04	0.01	0.0	3.65
6	ARMADILLO 136	MEXICO	3080.49	62.03	96.16	139.42	0.02	0.0	2.13
1	BRONCO 90	MEXICO	3078.21	64.51	95.71	138.40	0.35	0.33	11.76
13	ARMADILLO PPV-13	MEXICO	3050.77	64.23	97.84	141.03	0.01	0.0	21.08
3	JORI C-69 (DURUM)	MEXICO	3176.81	75.45	103.08	139.78	9.17	0.67	1.73
4	ARMADILLO 133	MEXICO	3056.51	61.59	96.08	141.17	0.33	0.0	16.46
15	ARMADILLO PPV-8	MEXICO	2932.04	65.69	101.84	141.69	0.0	0.0	19.55
8	ARMADILLO 211	MEXICO	2843.00	62.09	97.03	143.25	0.0	0.0	20.78
7	ROSNER	CANADA	2702.81	60.77	105.58	144.81	0.01	0.0	6.90
10	ARMADILLO PM-13	MEXICO	2575.74	60.24	106.12	142.39	0.01	0.0	3.47
11	ARMADILLO PM-4	MEXICO	2082.65	58.61	95.91	139.69	0.01	0.0	32.61
	SUMMARY MEANS OVER VARIETIES		3080.01	65.78	99.30	140.44	3.55	11.62	15.29

* AVERAGE COEFFICIENT OF INFECTION
COEFICIENTE PROMEDIO DE INFECCION
COEFFICIENT MOYENNE D'INFECTION

TABLE 18 (CONT'D.)

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	STEM RUST	HEIGTH CM.	LODGING %	SHATTER-ING %	1000 GRN WGT GRMS	MILDEW %	SEPTORIA SPP. %	FROST DAMAGE
5	INIA 66 (BREAD WHEAT)	MEXICO	0.34	86.10	5.15	13.33	37.23	0.0	6.67	0.0
5	PITIC 62 (BREAD WHEAT)	MEXICO	27.79	93.32	26.97	6.67	31.00	21.67	11.67	0.0
16	LOCAL CHECK		3.37	105.63	25.91	0.0	34.67	50.00	18.33	0.0
12	ARMADILLO 7-909	MEXICO	8.89	110.32	16.36	36.67	43.67	0.0	16.67	0.0
14	ARMADILLO PPV-21	MEXICO	9.44	112.93	10.00	30.00	37.65	0.0	13.33	0.0
2	ARMADILLO 130	MEXICO	0.89	119.03	36.70	26.83	38.78	0.0	16.67	0.0
6	ARMADILLO 136	MEXICO	0.0	117.82	27.58	33.33	37.05	0.0	16.67	0.0
1	BROACO 90	MEXICO	6.12	125.57	24.62	3.33	35.16	0.0	30.00	0.67
13	ARMADILLO PPV-13	MEXICO	8.89	109.24	17.88	36.67	40.80	0.0	16.67	0.0
3	JORI C-69 (CURUM)	MEXICO	24.68	72.59	0.76	0.0	45.20	0.0	16.67	1.00
4	ARMADILLO 133	MEXICO	0.57	117.51	34.09	30.33	37.57	0.0	20.00	0.0
15	ARMADILLO PPV-8	MEXICO	7.79	111.59	13.64	30.00	39.32	0.0	15.00	0.0
8	ARMADILLO 211	MEXICO	15.56	111.83	21.52	16.67	37.22	0.0	13.33	0.0
7	ROSNER	CANADA	0.22	115.46	22.58	23.33	34.06	0.0	7.00	2.33
10	ARMADILLO PM-13	MEXICO	0.0	127.51	46.21	20.00	30.43	0.0	15.00	0.0
11	ARMADILLO PM-4	MEXICO	7.78	105.23	5.45	26.67	35.16	0.0	11.67	3.33
	SUMMARY MEANS OVER VARIETIES		7.65	108.86	20.96	20.86	37.20	4.48	15.33	0.46

TABLES, 3rd ITYN

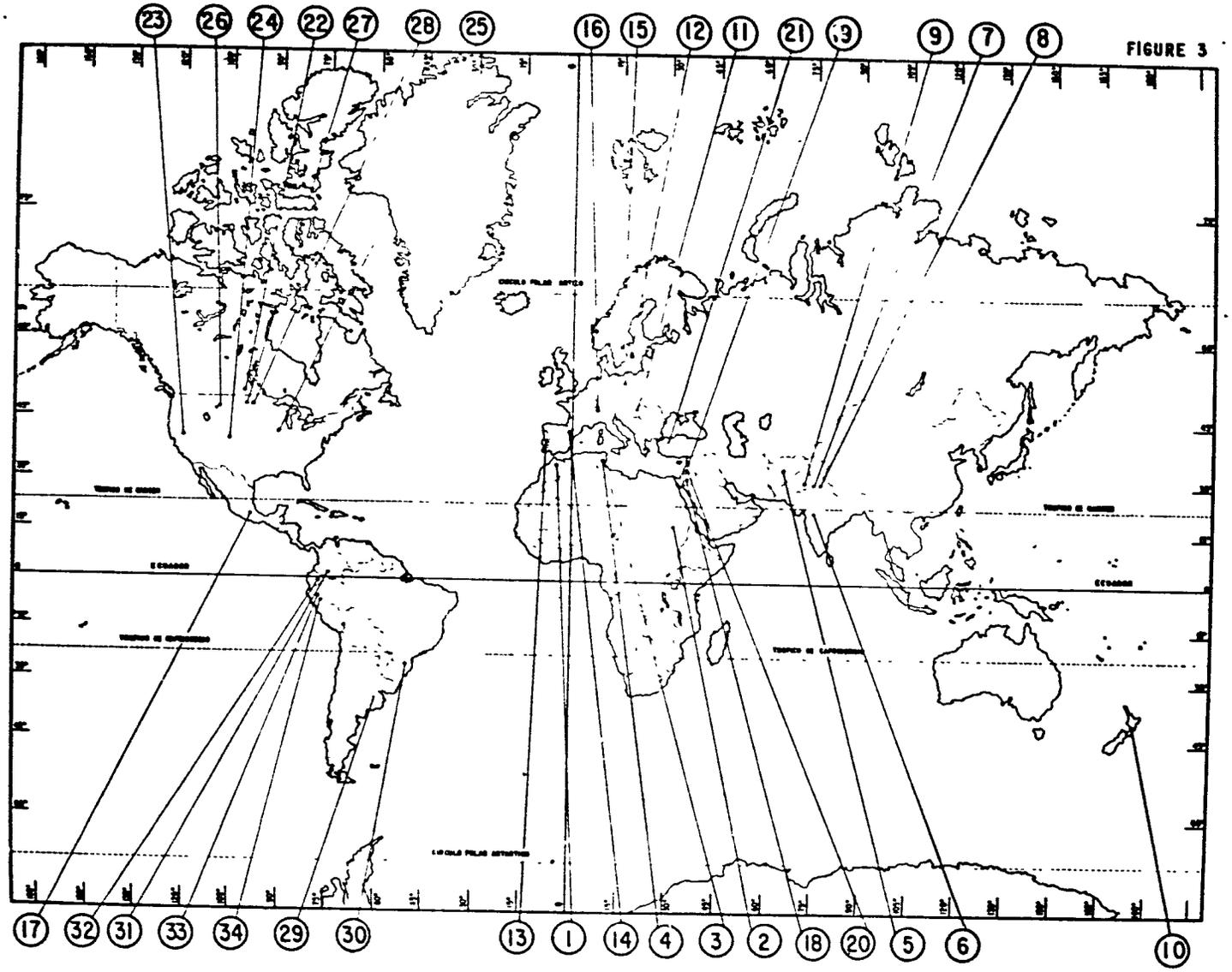
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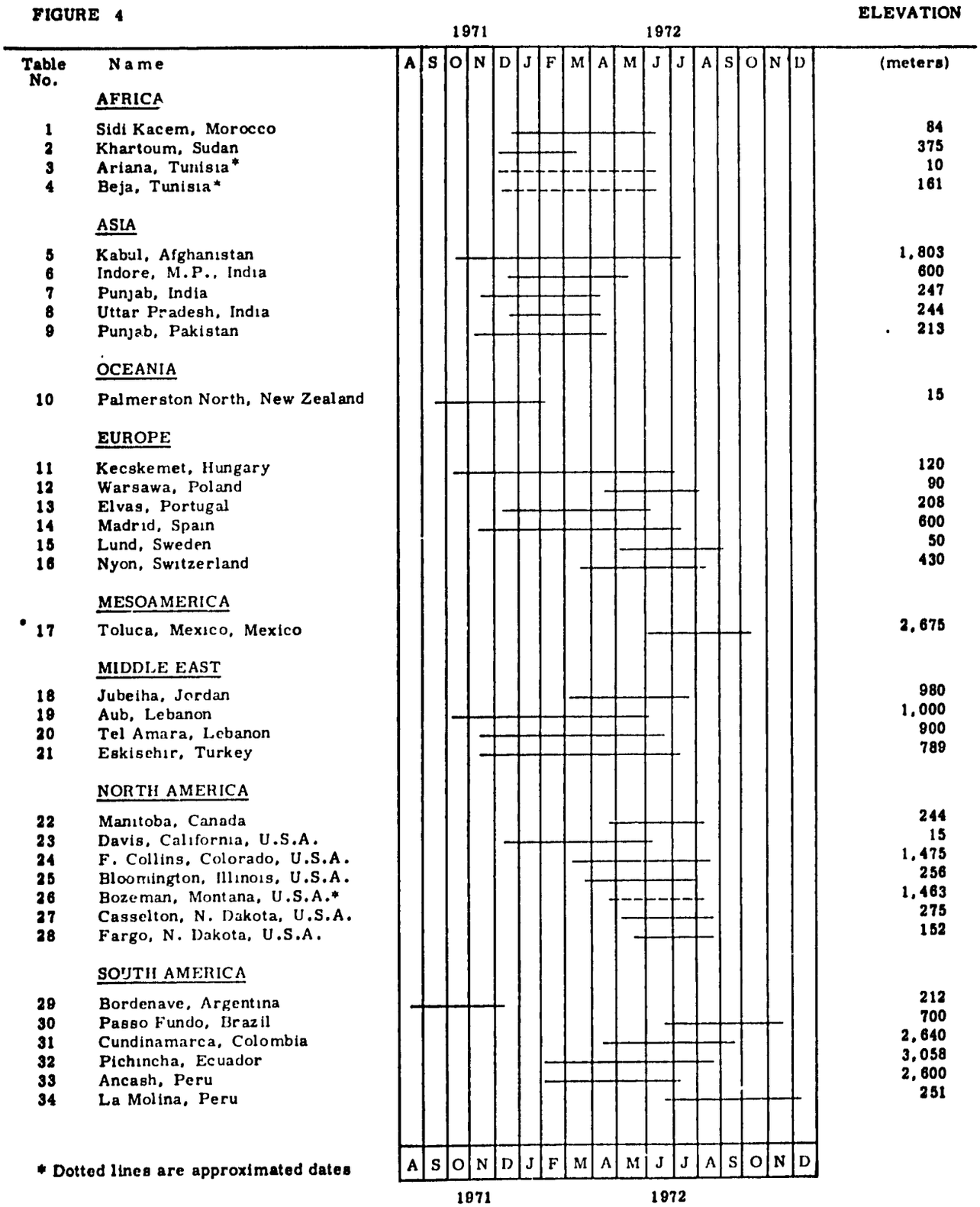
FIGURE 3

FIGURE 4



* Dotted lines are approximated dates

TABLE 1 AFRICA MOROCCO SIDI KACEM

SIDI KACEM
COOPERATORS DR. A. ACOSTA. E+ AL.

LATITUDE	034 13'N	DATE PLANTED	12/23/71	NITROGEN	099.5 KG/HA
LONGITUDE	005 43'W	DATE HARVESTED	05/25/72	PHOSPHORUS	057.0 KG/HA
ELEVATION	+00084 M.ABOVE S.L.	AMOUNT OF MOISTURE	0454 MM	POTASSIUM	039.0 KG/HA

LOCAL VARIETY NAME IS BT-909. DRY PERIOD DURING THE FLOWERING STAGE.
LATE RAINS. DRY-CRACKED THE SOIL AND STRONG WINDS PROVOQUED LODGING.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA
14	BACCER PM-118	MEXICO	3522.5
18	BADGER PM-122	MEXICO	3478.0
15	JORI	MEXICO	3344.7
25	LOCAL CHECK		3336.3
10	TOBARI	MEXICO	3261.3
2	ARMADILLO PM-104	MEXICO	3236.3
7	ARMADILLO PM-111	MEXICO	3119.6
8	ARMADILLO PM-112	MEXICO	3094.6
16	BADGER PM-119	MEXICO	2989.1
22	UM-70HN-47C	CANADA	2986.3
4	ARMADILLO PM-108	MEXICO	2922.4
19	BADGER PM-123	MEXICO	2811.3
24	ARMADILLO PM-132	MEXICO	2736.3
3	ARMADILLO PM-107	MEXICO	2655.7
17	BACCER PM-121	MEXICO	2625.2
13	ARMADILLO PM-113	MEXICO	2616.8
1	ARMADILLO PM-102	MEXICO	2566.8
12	ARMADILLO PM-116	MEXICO	2425.1
23	BRONCO PM-63	MEXICO	2414.0
9	ARMADILLO PM-113	MEXICO	2350.1
20	ARMADILLO PM-105	MEXICO	2314.0
5	PITIC	MEXICO	2283.5
11	ARMADILLO PM-114	MEXICO	2219.6
6	ARMADILLO PM-109	MEXICO	2100.1
21	ARMADILLO PM-13	MEXICO	1477.8

GRAND MEAN	2759.5
STANDARD ERROR OF GRAND MEAN	85.5
COEFFICIENT OF VARIATION	26.8%
LSD VARIETY MEANS 5 PC	1210.4

CORRELATIONS

YIELD KG/HA

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

TABLE 2 AFRICA SUDAN KHARTOUM

KHARTOUM NORTHERN PROV. SHAMBAT RESEARCH STATION.
COOPERATORS A. G. IMAM.

LATITUDE	015 00'N	DATE PLANTED	12/02/71	NITROGEN	240.0 KG/HA
LONGITUDE	032 32'E	DATE HARVESTED	03/17/72	PHOSPHORUS	000.0 KG/HA
ELEVATION	+00375 M.ABOVE S.L.	AMOUNT OF MOISTURE	---- MM	POTASSIUM	000.0 KG/HA

LOCAL VARIETY NOT IDENTIFIED. COOL AND SHINY. APHIDS TREATED WITH ROJOR
CONTINUOS WEEDING.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	LODGING	1000 GRN WGT GRMS
2	ARMADILLO PM-104	MEXICO	2299.9	51.0	89.6	89.0	15.0	35.1
3	ARMADILLO PM-107	MEXICO	2177.7	53.3	85.5	85.3	13.3	36.6
8	ARMADILLO PM-112	MEXICO	2066.6	52.3	91.6	95.3	15.0	33.1
6	ARMADILLO PM-109	MEXICO	2033.3	53.0	33.3	91.6	15.3	36.7
25	LOCAL CHECK		1999.9	57.3	95.6	64.3	0.0	36.3
1	ARMADILLO PM-102	MEXICO	1972.2	53.6	89.6	91.3	15.0	32.1
4	ARMADILLO PM-108	MEXICO	1833.3	51.0	87.0	83.0	13.0	38.7
5	PITIC	MEXICO	1827.7	63.0	102.0	76.0	0.0	29.0
18	BADGER PM-122	MEXICO	1614.4	43.6	93.5	84.0	5.0	37.7
7	ARMADILLO PM-111	MEXICO	1799.9	51.0	89.0	86.6	15.0	37.9
17	BADGER PM-121	MEXICO	1727.7	43.3	89.3	84.6	8.3	37.0
10	TOBARI	MEXICO	1711.1	52.6	94.6	67.3	0.3	33.5
20	ARMADILLO PM-105	MEXICO	1700.0	51.0	90.6	79.3	3.3	37.7
15	JORI	MEXICO	1649.9	59.6	105.0	55.0	0.0	36.6
14	BADGER PM-118	MEXICO	1511.1	51.0	93.0	87.3	0.0	35.3
22	LM-70HN-470	CANADA	1599.9	43.0	87.6	82.0	0.0	29.9
19	BADGER PM-123	MEXICO	1588.8	43.3	89.0	74.6	10.0	35.9
16	BADGER PM-119	MEXICO	1577.7	53.0	91.3	84.6	11.6	30.8
9	ARMADILLO PM-113	MEXICO	1439.9	51.0	91.3	84.6	10.0	34.8
24	ARMADILLO PM-132	MEXICO	1455.5	53.5	83.3	85.3	0.0	34.7
13	ARMADILLO PM-113	MEXICO	1288.8	55.0	93.3	81.3	0.0	26.9
11	ARMADILLO PM-114	MEXICO	1211.1	55.3	93.6	85.3	10.0	31.7
12	ARMADILLO PM-116	MEXICO	1194.4	57.6	101.3	99.3	0.3	32.0
23	BRONCO PM-63	MEXICO	1056.6	43.3	91.0	82.6	0.0	34.4
21	ARMADILLO PM-13	MEXICO	838.8	64.0	135.0	105.3	0.0	31.4
		GRAND MEAN	1657.9	52.8	92.5	83.9	6.5	34.3
	STANDARD ERROR OF GRAND MEAN		45.8	0.2	0.1	0.9	0.5	0.4
	COEFFICIENT OF VARIATION		23.9%	3.4%	1.8%	9.3%	70.2%	10.3%
	LSD VARIETY MEANS 5 PC		648.4	3.0	2.7	12.9	7.5	5.8

CORRELATIONS

	YIELD KG/HA				
DAYS TO FLOWER	-0.34				
DAYS TO MATURITY	-0.45*	0.91**			
HEIGHT CM.	-0.23	-0.00	-0.04		
LODGING	0.55**	-0.45*	-0.58**	0.31	
1000 GRN WGT GRMS	0.42*	-0.40*	-0.35	-0.17	0.33

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

TABLE 3 AFRICA TUNISIA ARIANA

ARIANA-STATION
COOPERATORS ACPP-INRAT-ENSAT*

LATITUDE	036 49'N	DATE PLANTED	12/09/71	NITROGEN	050.0 KG/HA
LONGITUDE	010 12'E	DATE HARVESTED	--/--/--	PHOSPHORUS	070.0 KG/HA
ELEVATION	+00010 M.ABOVE S.L.	AMOUNT OF MOISTURE	0459 MM	POTASSIUM	000.0 KG/HA

LOCAL VARIETY ZAFRANE. GOOD WEATHER CONDITIONS.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	HEIGHT CM.
18	BADGER PP-122	MEXICO	4528.1	80.3	120.0
3	ARMADILLO PM-107	MEXICO	4180.8	81.3	117.5
20	ARMADILLO PM-105	MEXICO	4146.1	82.0	115.0
17	BADGER PM-121	MEXICO	4048.9	81.3	120.0
19	BADGER PM-123	MEXICO	4035.0	83.0	115.0
16	BADGER PM-119	MEXICO	4028.0	83.3	117.5
1	ARMADILLO PM-102	MEXICO	3819.7	82.6	120.0
22	UM-TOHN-47C	CANADA	3798.9	84.3	117.5
25	LOCAL CHECK		3757.2	83.0	102.5
4	ARMADILLO PP-108	MEXICO	3757.2	85.6	112.5
5	PITIC	MEXICO	3743.3	79.0	112.5
14	BADGER PP-118	MEXICO	3729.4	82.6	117.5
9	ARMADILLO PM-113	MEXICO	3548.8	80.6	122.5
11	ARMADILLO PM-114	MEXICO	3514.1	85.3	120.0
7	ARMADILLO PP-111	MEXICO	3493.3	84.0	117.5
2	ARMADILLO PM-104	MEXICO	3458.6	83.3	117.5
12	ARMADILLO PP-116	MEXICO	3312.7	87.0	117.5
6	ARMADILLO PM-109	MEXICO	3215.5	82.0	117.5
10	TOBARI	MEXICO	3173.8	81.6	100.0
8	ARMADILLO PM-112	MEXICO	3166.0	83.6	120.0
15	JORI	MEXICO	3014.1	91.0	85.0
24	ARMADILLO PN-132	MEXICO	2903.0	79.6	135.0
13	ARMADILLO PM-113	MEXICO	2847.4	85.6	117.5
21	ARMADILLO PM-13	MEXICO	2390.4	81.0	135.0
23	ERONCO PN-65	MEXICO	2041.8	80.6	147.5
		GRAND MEAN	3493.3	82.9	117.5
	STANDARD ERROR OF GRAND MEAN		67.3	0.3	3.6
	COEFFICIENT OF VARIATION		16.6%	3.5%	3.7%
	LSD VARIETY MEANS 5 PC		952.4	4.8	7.1

CORRELATIONS

YIELD KG/HA			
DAYS TO FLOWER		-0.10	
HEIGHT CM.		-0.37	-0.56**

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

TABLE 4 AFRICA TUNISIA BEJA

BEJA EXPERIMENT STATION.
COOPERATORS ACPP-INRAT-ENSAT.

LATITUDE	036 40ON	DATE PLANTED	12/25/71	NITROGEN	070.0 KG/HA
LONGITUDE	009 10OE	DATE HARVESTED	--/--/--	PHOSPHORUS	050.0 KG/HA
ELEVATION	+00161 M.ABOVE S.L.	AMOUNT OF MOISTURE	0622 MM	POTASSIUM	000.0 KG/HA

LOCAL VARIETY ZAFRANE. GOOD WEATHER CONDITIONS. VERY GOOD SEPTOCIA INFECTION.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA
7	ARMADILLO PM-111	MEXICO	5472.6
15	JORI	MEXICO	5444.8
9	ARMADILLO PM-113	MEXICO	5278.1
11	ARMADILLO PM-114	MEXICO	5243.4
8	ARMADILLO PM-112	MEXICO	5111.5
13	ARMADILLO PM-113	MEXICO	5021.2
5	PITIC	MEXICO	4986.5
19	BADGER PM-123	MEXICO	4875.3
12	ARMADILLO PM-116	MEXICO	4778.1
4	ARMADILLO PM-108	MEXICO	4694.8
2	ARMADILLO PM-104	MEXICO	4653.1
18	BADGER PM-122	MEXICO	4625.3
1	ARMADILLO PM-102	MEXICO	4535.0
16	BADGER PM-119	MEXICO	4392.2
20	ARMADILLO PM-105	MEXICO	4285.0
6	ARMADILLO PM-109	MEXICO	4285.0
24	ARMADILLO PM-132	MEXICO	4250.3
22	UM-7CHN-470	CANADA	4208.6
10	TOBARI	MEXICO	4187.8
17	BADGER PM-121	MEXICO	4153.1
21	ARMADILLO PM-13	MEXICO	4062.8
14	BADGER PM-118	MEXICO	4055.8
23	BRONCO PN-63	MEXICO	3653.0
3	ARMADILLO PM-107	MEXICO	3073.1

GRAND MEAN	4554.8
STANDARD ERROR OF GRAND MEAN	100.5
COEFFICIENT OF VARIATION	18.6%
LSD VARIETY MEANS 5 PC	1383.8

CORRELATIONS

YIELD KG/HA

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

TABLE 5 ASIA AFGHANISTAN KABUL

KABUL AMAN RESEARCH STATION, KABUL.
COOPERATORS G. FARUQ AHMAD FALAH.

LATITUDE	034 33ØN	DATE PLANTED	10/18/71	NITROGEN	120.0 KG/HA
LONGITUDE	C69 12ØE	DATE HARVESTED	07/11/72	PHOSPHORUS	100.0 KG/HA
ELEVATION	+01803 M.ABOVE S.L.	AMOUNT OF MOISTURE	0356 MM	POTASSIUM	000.0 KG/HA

LOCAL VARIETY MOURI. DURING THE WINTER THERE WERE MORE THAN AVERAGE SNOW FALL AND RAINFALL. FAVORABLE CONDITIONS. HEAVY RUST INFECTION.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	STEM RUST	HEIGHT CM.	SHATTERING
5	PITIC	MEXICO	5587.9	211.3	254.3	R5	91.0	6.3
19	BADGER PM-123	MEXICO	4913.8	203.0	248.3	MR10	108.3	10.0
7	ARMADILLO PM-111	MEXICO	4671.2	202.6	250.6	MR10	105.0	10.0
18	BADGER PM-122	MEXICO	4468.5	202.6	248.3	R10	106.6	10.0
10	TOBÅRI	MEXICO	4458.3	203.0	251.3	0	87.0	10.0
12	ARMADILLO PM-116	MEXICO	4437.0	203.6	250.6	MR10	105.0	10.0
2	ARMADILLO PM-104	MEXICO	4416.6	202.0	250.3	MR20	91.6	10.0
14	BADGER PM-118	MEXICO	4367.5	201.6	248.3	MS10	109.0	10.0
25	LOCAL CHECK		4288.8	216.0	259.6	MS15	109.3	5.6
13	ARMADILLO PM-113	MEXICO	4176.8	203.0	249.3	MR10	101.6	10.0
16	BADGER PM-119	MEXICO	4151.8	203.0	248.6	MR15	106.0	10.0
23	BRONCO PN-63	MEXICO	4148.1	203.3	249.0	R5	129.3	10.0
8	ARMADILLO PM-112	MEXICO	4139.8	201.6	251.3	MS30	101.6	10.0
15	JORI	MEXICO	4074.0	210.0	252.0	R5	81.6	10.0
20	ARMADILLO PM-105	MEXICO	4002.7	203.0	249.6	MR15	103.3	10.0
9	ARMADILLO PM-113	MEXICO	3985.1	201.0	250.6	MS30	105.0	10.0
17	BADGER PM-121	MEXICO	3887.9	201.6	248.3	MR5	101.6	10.0
6	ARMADILLO PM-109	MEXICO	3774.9	201.3	250.3	R5	98.3	10.0
21	ARMADILLO PM-13	MEXICO	3737.0	205.6	250.6	5	127.3	9.6
3	ARMADILLO PM-107	MEXICO	3706.4	200.6	250.3	20MS	100.3	10.0
24	ARMADILLO PN-132	MEXICO	3539.8	202.0	249.3	R5	114.0	10.0
22	UM-70HN-470	CANADA	3422.2	200.6	249.0	R10	94.3	10.0
1	ARMADILLO PM-102	MEXICO	3375.9	200.6	249.6	R15	98.3	10.0
11	ARMADILLO PM-114	MEXICO	3218.5	202.3	250.0	R5	98.0	8.6
4	ARMADILLO PM-108	MEXICO	3001.8	201.0	250.6	MR30	97.3	10.0
		GRAND MEAN	4078.0	203.4	250.4	5.1	102.8	9.6
		STANDARD ERROR OF GRAND MEAN	92.1	0.1	0.1	0.4	0.7	0.0
		COEFFICIENT OF VARIATION	19.5%	0.5%	0.4%	75.4%	6.1%	2.4%
		LSD VARIETY MEANS 5 PC	1303.1	1.8	1.7	6.2	10.3	0.3

CORRELATIONS

YIELD KG/HA					
DAYS TO FLOWER	0.44*				
DAYS TO MATURITY	0.23	0.84**			
STEM RUST	-0.08	0.15	0.46*		
HEIGHT CM.	-0.05	-0.04	-0.15	0.05	
SHATTERING	-0.34	-0.82**	-0.84**	-0.28	0.04

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

TABLE 6 ASIA INDIA INDORE M.P.

WHEAT BREEDING SUBSTATION.
COOPERATORS DR.Y.P. UPADHYAYA AND STAFF.

LATITUDE	023 00°N	DATE PLANTED	12/25/71	NITROGEN	120.0 KG/HA
LONGITUDE	075 00°E	DATE HARVESTED	05/13/72	PHOSPHORUS	060.0 KG/HA
ELEVATION	+00600 M.ABOVE S.L.	AMOUNT OF MOISTURE	---- MM	POTASSIUM	000.0 KG/HA

LOCAL VARIETY NOT IDENTIFIED. SEASON REMAINED DRY THROUGHOUT THE CROP SEASON. RUST INCIDENCE AT EARLY PLANT GROWTH STAGE. LACK OF ATMOSFERIC HUMIDY, LOW INCIDENCE OF LEAF RUST. NO INSECT AND PEST PROBLEM.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	HEIGHT CM.	1000 GRN WGT GRMS	GRAIN COLOR	GRAIN SIZE	GRAIN FILLI
6	ARMADILLO PM-109	MEXICO	4086.8	73.0	E1	44.0	R	M	WK
15	JORI	MEXICO	3911.1	89.0	E3	54.0	AMB	M	PL
5	PITIC	MEXICO	3866.6	73.0	E2	36.0	R	S	PL
10	TOEARI	MEXICO	3411.1	82.5	E2	36.0	R	M	PL
9	ARMADILLO PM-113	MEXICO	3266.6	72.0	E1	42.0	R	M	WK
8	ARMADILLO PM-112	MEXICO	3266.6	73.0	E1	42.0	R	M	WK
1	ARMADILLO PM-102	MEXICO	3256.6	71.5	E1	41.0	R	B	WK
19	BADGER PM-123	MEXICO	3122.2	72.5	E1	42.0	R	M	WK
4	ARMADILLO PM-108	MEXICO	3099.9	72.0	E1	42.0	R	M	WK
18	BADGER PM-122	MEXICO	2999.9	73.0	E1	44.0	R	M	WK
3	ARMADILLO PM-107	MEXICO	2922.2	72.0	E1	44.0	R	M	WK
14	BADGER PM-118	MEXICO	2911.1	72.5	E1	42.0	R	M	WK
16	BADGER PM-119	MEXICO	2855.5	72.0	E1	41.0	R	M	WK
7	ARMADILLO PM-111	MEXICO	2788.8	72.0	E1	42.0	R	M	WK
17	BADGER PM-121	MEXICO	2688.8	73.0	E1	41.0	R	M	WK
13	ARMADILLO PM-113	MEXICO	2611.1	73.1	E2	34.0	R	M	PL
23	BRONCO PN-63	MEXICO	2599.9	71.5	E1	35.0	R	M	WK
2	ARMADILLO PM-104	MEXICO	2533.3	72.0	E1	40.0	R	M	WK
11	ARMADILLO PM-114	MEXICO	2455.5	71.0	E1	41.0	R	M	WK
22	LM-70HN-470	CANADA	2333.3	77.0	E1	40.0	R	M	WK
24	ARMADILLO PN-132	MEXICO	2277.7	68.0	E1	36.0	R	M	WK
12	ARMADILLO PM-116	MEXICO	2166.6	71.0	E1	35.0	R	M	PL
20	ARMADILLO PM-105	MEXICO	2111.1	72.1	E1	42.0	R	M	PL
21	ARMADILLO PM-13	MEXICO	1866.6	63.1	E1	32.0	R	M	WK
25	LOCAL CHECK		1722.2	82.5	E3	46.0	AMB	M	PL
		GRAND MEAN	2845.7	73.4		40.6			
		STANDARD ERROR OF GRAND MEAN	86.0						
		COEFFICIENT OF VARIATION	26.1%						
		LSD VARIETY MEANS 5 PC	1217.3						

CORRELATIONS

	YIELD KG/HA	TEST WEIGHT	HEIGHT CM.	1000 GRN WGT GRMS	GRAIN COLOR	GRAIN SIZE	GRAIN FILLI
TEST WEIGHT	0.35						
HEIGHT CM.	0.00	0.00					
1000 GRN WGT GRMS	0.36	0.51**	0.00				
GRAIN COLOR	0.00	0.00	0.00	0.00			
GRAIN SIZE	0.00	0.00	0.00	0.00	0.00		
GRAIN FILLI-	0.00	0.00	0.00	0.00	0.00	0.00	

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

TABLE 7 ASIA INDIA PUNJAB

PUNJAB AGRICULTURAL UNIVERSITY.
COOPERATORS DR.S.C. ANAND.

LATITUDE 030 56'N
LONGITUDE 075 52'E
ELEVATION +00247 M.ABOVE S.L.

DATE PLANTED 11/23/71
DATE HARVESTED 04/26/72
AMOUNT OF MOISTURE 0034 MM

NITROGEN 134.0 KG/HA
PHOSPHORUS 067.0 KG/HA
POTASSIUM 000.0 KG/HA

LOCAL VARIETY KALYANSONA. IT WAS DRIER IN THE BEGINNING OF THE SEASON. IN THE LATER PART THERE FEW RAINS AND THE HUMIDITY WAS ABOVE NORMAL. SEVERE ATTACK OF LEAF RUST. NO INSECT, WEED OR PEST PROBLEM.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	LEAF RUST	HEIGHT CM.	LODGING	1000 GRN WGT GRMS
18	BADGER PM-122	MEXICO	4434.7	135.0	146.0	TS	129.0	1.6	45.0
25	LOCAL CHECK		4347.7	125.0	151.0	15S	109.0	16.6	35.0
2	ARMADILLO PM-104	MEXICO	4202.8	105.0	145.0	20S	127.5	13.3	39.0
8	ARMADILLO PM-112	MEXICO	4159.3	105.0	145.0	15S	130.0	8.3	40.0
20	ARMADILLO PM-105	MEXICO	4159.3	105.0	146.0	TS	129.0	10.0	42.0
3	ARMADILLO PM-107	MEXICO	4028.9	135.0	145.0	30S	129.0	13.3	38.0
4	ARMADILLO PM-108	MEXICO	4014.4	105.0	146.0	20S	133.0	15.0	39.0
1	ARMADILLO PM-102	MEXICO	3927.5	135.0	145.0	10S	128.5	10.0	39.0
16	EAGLER PM-119	MEXICO	3884.0	105.0	147.0	10S	127.5	10.0	43.0
19	BADGER PM-123	MEXICO	3840.5	104.0	146.0	TS	131.5	6.6	44.0
17	EAGLER PM-121	MEXICO	3840.5	105.0	145.0	TS	125.0	10.0	40.0
14	BADGER PM-118	MEXICO	3811.5	105.0	147.0	10S	128.5	3.3	41.0
9	ARMADILLO PM-113	MEXICO	3768.0	105.0	145.0	10S	127.5	6.6	38.0
22	LM-70HR-470	CANADA	3681.1	105.0	147.0	TS	124.5	1.6	37.0
23	BRONCO PN-63	MEXICO	3566.6	135.0	146.0	TS	149.5	13.3	35.0
11	ARMADILLO PM-114	MEXICO	3507.2	109.0	147.0	TS	127.0	3.3	38.0
7	ARMADILLO PM-111	MEXICO	3478.2	135.0	145.0	30S	120.0	6.6	42.0
6	ARMADILLO PM-109	MEXICO	3478.2	104.0	145.0	10S	125.5	5.0	42.0
12	ARMADILLO PM-116	MEXICO	3478.2	112.0	147.0	TS	123.5	0.0	38.0
13	ARMADILLO PM-113	MEXICO	3449.2	113.0	147.0	TS	123.5	0.0	39.0
24	ARMADILLO PN-132	MEXICO	3434.7	109.0	147.0	0	145.5	33.3	34.0
15	JORI	MEXICO	3333.3	115.0	151.0	TR	89.0	0.0	41.0
10	TOBARI	MEXICO	3043.4	105.0	140.0	0	91.0	66.6	31.0
5	PITIC	MEXICO	2797.0	115.0	145.0	15S	104.5	76.6	27.0
21	ARMADILLO PM-13	MEXICO	2579.6	115.0	151.0	0	161.0	26.6	35.0
		GRAND MEAN	3693.8	107.6	145.3	18.1	125.2	14.3	38.4
	STANDARD ERROR OF GRAND MEAN		55.7			2.4	0.7	1.4	
	COEFFICIENT OF VARIATION		13.0%			95.2%	4.4%	84.9%	
	LSD VARIETY MEANS 5 PC		788.4			28.1	9.1	19.8	

CORRELATIONS

	YIELD KG/HA					
DAYS TO FLOWER	-0.49**					
DAYS TO MATURITY	-0.04	0.62**				
LEAF RUST	0.54**	-0.20	-0.12			
HEIGHT CM.	0.06	-0.24	0.17	-0.07		
LODGING	-0.52**	0.30	-0.38	-0.24	-0.26	
1000 GRN WGT GRMS	0.57**	-0.53**	0.11	0.18	0.15	-0.81**

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

TABLE 8 ASIA INDIA UTTAR PRADESH

G.B. PLANT UNI OF AGRIC. AND TECHNOLOGY
COOPERATORS DR. K. P. S. CHAUHAN AND G. C. BATPAI.

LATITUDE 029 00'N
LONGITUDE 19 30'E
ELEVATION 033244 M.ABOVE S.L.

DATE PLANTED 12/14/71
DATE HARVESTED 04/21/72
AMOUNT OF MOISTURE 237 MM

NITROGEN 040.0 KG/HA
PHOSPHORUS 030.0 KG/HA
POTASSIUM 020.0 KG/HA

LOCAL VARIETY NOT IDENTIFIED. WEATHER CONDITIONS WERE NORMAL. SEVERE LEAF RUST ATTACK.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	LEAF RUST	HEIGHT CM.	LODGING	SHATTERING	1000 GRN WGT GRMS
20	ARMADILLO PM-105	MEXICO	2659.4	75.0	89.0	127.0	40MS	150.0	60.0	0.0	31.4
7	ARMADILLO PM-111	MEXICO	2531.7	73.0	88.3	127.0	100S	131.0	0.0	0.0	37.7
14	EAGLER PM-118	MEXICO	2452.8	72.2	92.0	127.0	100MS	140.0	80.0	20.0	35.3
8	ARMADILLO PM-112	MEXICO	2454.7	69.2	89.0	127.0	80S	138.0	60.0	0.0	34.1
16	BADGER PM-119	MEXICO	2434.7	73.1	89.6	127.0	100S	128.0	60.0	0.0	40.3
5	FITIC	MEXICO	2420.2	73.2	89.3	127.0	80MS	95.0	0.0	0.0	29.1
9	ARMADILLO PM-113	MEXICO	2420.2	73.0	88.6	127.0	90S	128.0	60.0	0.0	32.6
18	EAGLER PM-122	MEXICO	2394.0	73.8	89.0	127.0	80MS	135.0	60.0	0.0	23.2
10	TOBARI	MEXICO	2389.4	73.0	87.3	127.0	0	94.5	0.0	0.0	31.5
3	ARMADILLO PM-107	MEXICO	2356.8	71.5	89.0	127.0	100S	126.0	20.0	0.0	35.2
19	BADGER PM-123	MEXICO	2342.3	72.7	90.0	127.0	80S	140.0	20.0	20.0	33.2
11	ARMADILLO PM-114	MEXICO	2323.3	73.2	89.6	135.0	80MS	122.0	80.0	20.0	34.7
15	JCFI	MEXICO	2275.3	81.6	89.6	127.0	5MS	97.0	0.0	0.0	45.2
1	ARMADILLO PM-102	MEXICO	2235.5	74.0	89.6	127.0	90S	119.0	40.0	20.0	35.6
6	ARMADILLO PM-109	MEXICO	2215.5	63.2	92.0	127.0	70MS	121.0	0.0	80.0	43.8
4	ARMADILLO PM-108	MEXICO	2192.0	72.0	89.0	127.0	100S	121.0	0.0	0.0	34.2
17	EAGLER PM-121	MEXICO	2162.1	71.7	92.0	127.0	70MS	145.0	40.0	0.0	39.0
25	LOCAL CHECK		2115.9	82.7	82.0	123.0	35MS	110.0	0.0	20.0	47.5
13	ARMADILLO PM-113	MEXICO	2027.1	51.7	89.3	127.0	90MS	128.0	40.0	20.0	24.7
2	ARMADILLO PM-104	MEXICO	1934.7	73.6	87.3	127.0	90S	125.0	20.0	20.0	35.3
12	ARMADILLO PM-116	MEXICO	1876.8	51.3	92.0	127.0	80S	123.0	60.0	20.0	30.1
24	ARMADILLO FN-132	MEXICO	1692.9	61.5	87.5	127.0	50MS	139.0	0.0	80.0	36.5
22	LM-TOHN-47C	CANADA	1641.3	71.5	89.0	127.0	70MS	128.0	40.0	20.0	39.6
21	ARMADILLO FN-13	MEXICO	1420.2	65.3	93.6	132.0	30MS	147.0	80.0	0.0	25.5
23	BRONCO PN-63	MEXICO	1294.3	75.7	87.6	127.0	60MS	159.0	20.0	0.0	37.3
		GRAND MEAN	2170.9	72.4	88.9	127.3	64.1	127.5	33.5	13.5	35.2
		STANDARD ERROR OF GRAND MEAN	26.7		0.3		0.2				
		COEFFICIENT OF VARIATION	10.6%		3.8%		3.2%				
		LSD VARIETY MEANS 5 PC	378.0		5.5		3.3				

CORRELATIONS

	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	LEAF RUST	HEIGHT CM.	LODGING	SHATTERING	1000 GRN WGT GRMS
TEST WEIGHT	0.28								
DAYS TO FLOWER	-0.05	-0.53**							
DAYS TO MATURITY	-0.13	-0.41*	0.53**						
LEAF RUST	0.25	-0.30	0.09	-0.03					
HEIGHT CM.	-0.31	-0.44*	0.36	0.15	0.19				
LODGING	0.03	-0.36	0.45*	0.50**	0.18	0.47*			
SHATTERING	-0.24	-0.44*	0.06	-0.03	-0.07	0.01	-0.26		
1000 GRN WGT GRMS	0.09	0.53**	-0.33	-0.27	-0.15	-0.12	-0.35	0.16	

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

TABLE 9 ASIA W. PAKISTAN PUNJAB

PUNJAB AGRIC. RESEARCH INSTITUTE.
COOPERATORS CEREAL BOTANIST.

LATITUDE 031 30'N
LONGITUDE 073 10'E
ELEVATION +00213 M.ABOVE S.L.

DATE PLANTED 11/13/71
DATE HARVESTED 04/27/72
AMOUNT OF MOISTURE 3423 MM

NITROGEN 090.0 KG/HA
PHOSPHORUS 050.0 KG/HA
POTASSIUM 000.0 KG/HA

LOCAL VARIETY DURUM. 2031. WEATHER CONDITIONS WERE NORMAL. WEEDING THROUGH MANUAL LABORS.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	LEAF RUST	HEIGHT CM.
25	LOCAL CHECK		5310.5	74.0	[illegible]	10R	99.0
3	ARMADILLO PM-107	MEXICO	4599.5	[illegible]	[illegible]	10R	122.0
15	JCFI	MEXICO	4488.4	65.0	[illegible]	5R	85.0
19	BADGER PM-122	MEXICO	4486.4	51.0	95.0	TR	121.3
7	ARMADILLO PM-111	MEXICO	4432.8	53.0	[illegible]	[illegible]	[illegible]
1	ARMADILLO PM-102	MEXICO	4410.6	55.0	[illegible]	0	[illegible]
20	ARMADILLO PM-105	MEXICO	4399.5	55.0	[illegible]	0	[illegible]
17	BADGER PM-121	MEXICO	4399.5	51.0	98.0	0	[illegible]
18	BADGER PM-122	MEXICO	4310.6	55.0	99.0	0	[illegible]
5	FITIC	MEXICO	4266.2	72.0	104.0	0	[illegible]
16	BADGER PM-115	MEXICO	4264.0	55.0	99.0	0	[illegible]
9	ARMADILLO PM-113	MEXICO	4221.[illegible]	51.0	97.0	10R	[illegible]
4	ARMADILLO PM-105	MEXICO	4065.2	54.0	99.0	25MS	[illegible]
12	ARMADILLO PM-116	MEXICO	4055.1	69.0	103.0	0	[illegible]
8	ARMADILLO PM-112	MEXICO	[illegible]	54.0	99.0	5R	[illegible]
13	ARMADILLO PM-113	MEXICO	3799.6	51.0	99.0	0	[illegible]
23	BRCACO PM-63	MEXICO	3577.4	55.0	97.0	0	[illegible]
10	TOBARI	MEXICO	3532.9	55.0	97.0	5R	[illegible]
22	LM-TOHN-470	CANADA	3399.6	54.0	95.0	[illegible]	[illegible]
2	ARMADILLO PM-104	MEXICO	3377.4	53.0	[illegible]	5R	[illegible]
14	BADGER PM-118	MEXICO	3155.2	55.0	91.0	0	[illegible]
11	ARMADILLO PM-114	MEXICO	3055.2	63.0	107.0	0	[illegible]
24	ARMADILLO PM-132	MEXICO	2444.1	53.0	98.0	0	142.0
6	ARMADILLO PM-109	MEXICO	2266.4	53.0	95.0	10S	132.0
21	ARMADILLO PM-13	MEXICO	1733.1	[illegible]	108.0	[illegible]	[illegible]
		GRAND MEAN	3641.3	57.5	99.5	1.6	122.2
	STANDARD ERROR OF GRAND MEAN		53.3				0.0
	COEFFICIENT OF VARIATION		12.0%				0.18
	LSD VARIETY MEANS 5 %		755.0				0.3

CORRELATIONS

	YIELD KG/HA			
DAYS TO FLOWER	0.00			
DAYS TO MATURITY	0.03	0.86**		
LEAF RUST	-0.06	-0.15	-0.12	
HEIGHT CM.	-0.41*	-0.19	-0.12	-0.15

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

TABLE 10 OCEANIA NEW ZEALAND PALMERSTON

CROP RESEARCH DIVISION, PALMERSTON NORTH.
COOPERATORS DR.J.M.MCEWAN.

LATITUDE 040 23'S DATE PLANTED 09/25/71 NITROGEN ---.- KG/HA.
LONGITUDE 175 37' E DATE HARVESTED 03/02/72 PHOSPHORUS 030.0 KG/HA
ELEVATION +00010 M.ABOVE S.L. AMOUNT OF MOISTURE 0395 MM POTASSIUM ---.- KG/HA

LOCAL VARIETY NOT IDENTIFIED. FAVORABLE WEATHER CONDITION. LEAF RUST MADE AN EARLY APPEARANCE . NO INSECT OR PEST PROBLEMS.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	LEAF RUST	HEIGHT CM.	LODGING
5	PITIC	MEXICO	3739.0	51.5	75.0	30MS	97.0	26.6
3	ARMADILLO PM-107	MEXICO	3646.7	64.0	69.0	5M	107.3	0.0
20	ARMADILLO PM-105	MEXICO	3614.4	63.8	68.0	TR	111.3	0.0
1	ARMADILLO PM-102	MEXICO	3434.3	64.6	55.3	1MR	115.0	0.0
2	ARMADILLO PM-104	MEXICO	3273.9	64.4	68.3	1MR	116.6	0.0
19	EACCER PM-123	MEXICO	3254.2	53.9	69.0	TR	118.0	0.0
22	LM-70HA-470	CANADA	3186.1	63.0	67.6	TR	104.6	0.0
14	EACCER PM-118	MEXICO	3037.4	64.4	69.0	TR	115.0	0.0
10	TOBARI	MEXICO	2997.1	76.3	67.0	1R	91.3	20.0
8	ARMADILLO PM-112	MEXICO	2989.9	55.6	69.3	10MS	114.3	0.0
17	EACCER PM-121	MEXICO	2971.1	52.5	67.6	1MR	110.5	0.0
7	ARMADILLO PM-111	MEXICO	2338.5	65.1	68.3	10MS	102.3	0.0
9	ARMADILLO PM-113	MEXICO	2690.6	64.9	58.3	30MS	105.3	0.0
15	JORI	MEXICO	2652.1	74.7	68.6	5MR	79.0	0.0
18	EACCER PM-122	MEXICO	2588.5	53.0	58.0	TR	119.3	0.0
4	ARMADILLO PM-108	MEXICO	2553.5	65.9	69.3	5M	103.3	0.0
16	EACCER PM-119	MEXICO	2507.0	56.6	68.0	5MR	114.6	0.0
11	ARMADILLO PM-114	MEXICO	2452.3	64.9	69.6	TR	115.5	0.0
23	BRONCO PN-63	MEXICO	2296.4	64.4	67.0	20MS	119.0	6.6
24	ARMADILLO PN-132	MEXICO	2296.4	61.3	57.6	1R	119.5	20.0
13	ARMADILLO PM-113	MEXICO	2270.4	67.5	69.6	5MR	112.0	13.3
6	ARMADILLO PM-109	MEXICO	2228.3	64.0	59.3	1MR	102.3	0.0
25	LOCAL CHECK		2142.3	74.0	71.0	70S	118.0	33.3
21	ARMADILLO PM-13	MEXICO	2050.9	62.0	80.6	TR	144.0	40.0
12	ARMADILLO PM-116	MEXICO	1693.4	66.4	73.0	5MR	117.0	6.6
		GRAND MEAN	2778.6	65.8	59.0	5.1	111.1	6.6
	STANDARD ERROR OF GRAND MEAN		63.2		0.1	0.6	0.8	0.7
	COEFFICIENT OF VARIATION		19.7%		1.3%	104.1%	6.3%	97.9%
	LSD VARIETY MEANS 5 PC		894.8		1.4	8.7	11.5	10.6

CORRELATIONS

YIELD	KG/HA					
TEST	WEIGHT	-0.06				
DAYS TO	FLOWER	-0.28	-0.00			
LEAF	RUST	-0.14	0.51**	0.20		
HEIGHT	CM.	-0.33	-0.61**	0.40*	-0.02	
LODGING		-0.30	0.29	0.71**	0.51**	0.30

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

TABLE 11 EUROPE HUNGARY KECSKEMET

VEGETABLE CROP RESEARCH INSTITUTE
COOPERATORS A-KISS

LATITUDE 46 55'N DATE PLANTED 10/16/71 NITROGEN 100.0 KG/HA
LONGITUDE 19 40'E DATE HARVESTED 07/03/72 PHOSPHORUS 070.0 KG/HA
ELEVATION +00120 M.ABOVE S.L. AMOUNT OF MOISTURE 0305 MM POTASSIUM 070.0 KG/HA

LOCAL VARIETY LIBELULLA. THE SPRING TRITICALES WERE SOWN IN AUTUMN AND MANY WERE KILLED IN THE WINTER WITHOUT SNOW. ARMADILLO PM-13 EXCELLED IN WINTERHARDINESS. IN LOCAL WHEAT VARIETIES BIRD DAMAGE REACHED AN AVERAGE OF 20%.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	LODGING	1000 GRN WGT GRMS	FROST DAMAGE	GRAIN TYPE
21	ARMADILLO PM-13	MEXICO	8071.5	203.6	240.6	138.3	25.0	32.0	14.7	3
25	LOCAL CHECK		5220.2	235.6	241.3	83.0	5.0	27.2	51.7	4
16	BADGER PM-115	MEXICO	4793.5	201.0	239.6	101.6	11.6	38.6	73.2	3
12	ARMADILLO PM-116	MEXICO	4160.2	233.3	243.3	113.3	15.3	35.8	77.6	3
13	ARMADILLO PM-113	MEXICO	2840.1	203.3	240.0	101.6	13.3	32.2	66.5	3
8	ARMADILLO PM-112	MEXICO	2834.5	203.0	240.3	101.6	6.6	38.3	81.3	3
18	BADGER PM-122	MEXICO	2440.1	201.6	243.3	103.0	5.3	34.1	59.1	3
14	BADGER PM-118	MEXICO	2317.8	201.3	240.0	101.6	6.6	34.9	85.0	3
9	ARMADILLO PM-113	MEXICO	2260.1	202.0	243.0	95.6	6.6	32.1	81.3	3
1	ARMADILLO PM-102	MEXICO	1882.3	201.6	239.6	105.0	6.6	32.3	85.7	3
11	ARMADILLO PM-114	MEXICO	1562.2	232.3	243.0	100.0	8.3	32.9	88.7	3
17	BADGER PM-121	MEXICO	795.5	203.3	240.0	103.3	5.3	38.2	99.7	3
19	BADGER PM-123	MEXICO	484.4	233.0	243.0	98.3	5.0	31.7	88.7	3
2	ARMADILLO PM-104	MEXICO	355.5	204.0	240.3	100.0	5.3	28.6	88.7	3
23	BRONCO PM-63	MEXICO	238.8	209.3	242.3	100.0	8.3	40.5	88.7	3
6	ARMADILLO PM-109	MEXICO	204.4	203.0	240.6	95.6	5.0	33.3	88.7	3
20	ARMADILLO PM-105	MEXICO	186.6	205.6	242.3	108.3	6.6	39.7	99.7	3
4	ARMADILLO PM-108	MEXICO	168.8	232.6	243.3	95.6	5.0	31.3	88.7	3
7	ARMADILLO PM-111	MEXICO	151.1	204.6	242.3	95.6	5.0	28.8	88.7	3
3	ARMADILLO PM-107	MEXICO	73.3	233.6	241.3	93.3	5.0	26.2	88.7	3
22	LM-70HN-470	CANADA	37.7	203.0	242.3	91.6	5.0	29.0	99.8	3
24	ARMADILLO PM-132	MEXICO	0.0	0.0	0.0	0.0	0.0	0.0	66.5	0
15	JORI	MEXICO	0.0	0.0	0.0	0.0	0.0	0.0	33.2	0
10	TOBARI	MEXICO	0.0	0.0	0.0	0.0	0.0	0.0	66.5	0
5	FITIC	MEXICO	0.0	0.0	0.0	0.0	0.0	0.0	66.5	0
		GRAND MEAN	1639.9	173.7	232.1	101.1	6.9	27.9	75.9	
		STANDARD ERROR OF GRAND MEAN	98.9	0.1	0.0	0.7	0.3	0.5	2.7	
		COEFFICIENT OF VARIATION	52.2%	0.7%	0.3%	6.1%	40.4%	18.4%	31.1%	
		LSD VARIETY MEANS 5 PC	1399.1	2.1	1.2	13.1	4.6	8.4	38.5	

CORRELATIONS

	YIELD KG/HA						
DAYS TO FLOWER	0.34						
DAYS TO MATURITY	0.34	1.00**					
HEIGHT CM.	0.45*	0.96**	0.96**				
LODGING	0.78**	0.55**	0.55**	0.71**			
1000 GRN WGT GRMS	0.35	0.95**	0.95**	0.95**	0.37**		
FROST DAMAGE	-0.58**	0.39*	0.39*	0.26	-0.30	0.39*	
GRAIN TYPE	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

TABLE 12 EUROPE POLAND WARSAWA

PLANT BREEDING AND ACCLIMATYZATION INSTITUTE.
COOPERATORS DR. STANISLAW STARZYCKI- WLADYSLAW SOWA.

LATITUDE 052 12'N
LONGITUDE 020 39' E
ELEVATION +00090 M.ABOVE S.L.

DATE PLANTED 04/12/72
DATE HARVESTED 08/03/72
AMOUNT OF MOISTURE 0237 MM

NITROGEN 120.0 KG/HA
PHOSPHORUS 080.0 KG/HA
POTASSIUM 140.0 KG/HA

LOCAL VARIETY NAGRADOWICGKA. APRIL, MAY AND JUNE WAS NORMAL BUT JULY WAS UNUSUALLY HOT AND DRY. CONDITIONS WERE FAVORABLE FOR STEM RUST LEAF RUST AND POWDERY MILDEW ATTACKS.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	LODGING	1000 GRN WGT GRMS	APHIDS	THRIP
5	PITIC	MEXICO	5093.3	55.5	66.0	110.6	86.6	40.0	37.6	10.0	5.6
4	ARMADILLO PM-108	MEXICO	4720.0	62.9	66.0	107.6	93.0	0.0	44.5	15.0	13.0
1	ARMADILLO PM-102	MEXICO	4693.3	61.5	65.3	107.3	85.0	20.0	43.0	20.0	3.0
14	EACCER PM-118	MEXICO	4626.6	63.2	69.0	109.6	95.0	10.0	46.0	5.0	23.0
19	BADGER PM-123	MEXICO	4626.6	59.8	72.3	109.6	90.0	0.0	45.8	5.0	23.0
8	ARMADILLO PM-112	MEXICO	4480.0	63.5	67.5	103.3	85.0	0.0	44.6	10.0	5.0
10	TOBARI	MEXICO	4413.3	75.0	66.0	110.6	75.0	0.0	35.5	45.0	3.0
9	ARMADILLO PM-113	MEXICO	4400.0	51.6	72.0	110.0	85.0	0.0	43.6	10.0	3.3
7	ARMADILLO PM-111	MEXICO	4400.0	62.2	70.0	109.6	83.0	0.0	43.5	5.0	13.3
2	ARMADILLO PM-104	MEXICO	4213.3	52.7	67.6	108.0	90.0	10.0	42.3	7.0	0.3
3	ARMADILLO PM-107	MEXICO	4213.3	63.8	70.3	108.6	95.0	0.0	43.6	8.3	13.0
11	ARMADILLO PM-114	MEXICO	4146.6	53.4	70.0	110.0	95.0	0.0	44.3	5.0	13.0
17	EACCER PM-121	MEXICO	4133.3	63.9	72.3	113.3	90.0	10.0	45.3	5.0	5.0
6	ARMADILLO PM-109	MEXICO	4120.0	61.3	69.0	110.0	85.0	20.0	45.0	15.0	15.0
18	EACCER PM-122	MEXICO	4080.0	51.7	72.0	133.3	95.0	10.0	43.1	10.0	20.0
20	ARMADILLO FP-105	MEXICO	4013.3	63.5	70.0	109.0	85.0	0.0	42.1	5.0	33.0
16	EACCER PM-119	MEXICO	3960.0	53.3	71.6	110.0	95.0	0.0	45.3	0.0	10.0
23	BRONCO FN-63	MEXICO	3706.6	63.6	72.6	108.6	95.0	80.0	44.0	0.0	3.0
22	UM-JOHN-470	CANADA	3630.0	63.3	74.3	108.0	85.0	0.0	42.6	0.0	15.0
24	ARMADILLO FN-132	MEXICO	3573.3	55.2	75.0	113.3	99.3	66.6	36.5	6.6	3.3
12	ARMADILLO PM-116	MEXICO	2933.3	57.5	78.0	112.6	100.0	0.0	43.0	5.0	13.3
13	ARMADILLO PM-113	MEXICO	2640.0	64.2	73.3	113.6	83.0	10.0	44.0	40.0	33.0
21	ARMADILLO FP-13	MEXICO	1746.6	46.2	84.3	118.0	125.0	0.0	23.7	20.0	23.3
15	JORI	MEXICO	1430.0	51.5	68.0	110.0	65.0	10.0	43.8	70.0	15.0
		GRAND MEAN	3917.2	63.9	70.7	109.8	89.7	11.9	42.3	13.4	11.6
		STANDARD ERROR OF GRAND MEAN	24.5	0.1	3.3	3.0	3.3	0.8	0.3	0.3	0.2
		COEFFICIENT OF VARIATION	5.3%	1.6%	0.4%	0.7%	0.9%	62.4%	7.5%	23.7%	15.7%
		LSD VARIETY MEANS 5 PC	340.4	1.6	0.6	1.3	1.3	12.1	5.1	5.2	3.1

CORRELATIONS

		YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	LODGING	1000 GRN WGT GRMS	APHIDS
TEST	WEIGHT	0.53**							
DAYS TO	FLOWER	-0.56**	-0.77**						
DAYS TO	MATURITY	-0.60**	-0.52**	0.74**					
HEIGHT	CM.	-0.14	-0.71**	0.74**	0.58**				
LODGING		0.00	-0.03	0.31	-0.09	0.08			
1000 GRN	WGT GRMS	0.37	0.26	-0.40**	-0.73**	-0.46*	-0.13		
APHIDS		-0.52**	0.24	-0.24	0.17	-0.53**	-0.11	-0.18	
THRIP		-0.34	-0.28	0.24	0.24	0.35	-0.37	0.07	0.09

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

TABLE 13 EUROPE PORTUGAL ELVAS

PLANT BREEDING ST[illegible]
COOPERATORS EMS [illegible]CN. M.T.BARRADAS AND F.BAGULHO.

LATITUDE 038 53 N
LONGITUDE 007 09 W
ELEVATION +00208 M.ABOVE S.L.

DATE PLANTED 12/14/71
DATE HARVESTED 05/03/72
AMOUNT OF MOISTURE 0363 MM

NITROGEN 054.0 KG/HA
PHOSPHORUS 028.0 KG/HA
POTASSIUM 040.0 KG/HA

LOCAL VARIETY NAME: RA-PORTUGAL: DRY AUTUMN WHICH CAUSED LATE SOWING. FAVORABLE CLIMATIC CONDITIONS DURING THE WINTER. VERY DRY SPRING. LOW DISEASE INCIDENCES. HEAVY ATTACKS OF APHIDS ON BREAD WHEATS.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	LODGING	1000 GRN WGT GRMS	SEPTORIA SPP.	NECK BREAK
25	LOCAL CHECK		4829.9	80.8	121.3	168.0	99.3	10.0	46.8	44.3	2
5	FITIC	MEXICO	4554.4	79.0	124.6	170.3	92.5	13.3	42.0	33.2	3
10	TOBARI	MEXICO	4447.7	85.3	118.6	167.6	88.0	10.6	42.0	29.5	2
7	ARMADILLO PM-111	MEXICO	4191.0	73.9	115.3	167.6	113.3	17.0	50.4	7.3	2
17	BADGER PM-121	MEXICO	4162.2	75.9	115.3	168.0	118.3	18.3	50.3	7.3	2
3	ARMADILLO PM-107	MEXICO	4103.3	74.1	115.3	167.6	115.5	17.6	48.6	11.0	1
1	ARMADILLO PM-102	MEXICO	4097.7	72.7	117.0	168.0	115.3	18.0	47.5	7.3	1
8	ARMADILLO PM-112	MEXICO	4092.2	72.7	115.0	168.3	116.6	20.0	48.6	7.3	2
11	ARMADILLO PM-114	MEXICO	3953.3	73.7	116.4	168.0	115.3	16.6	47.5	7.3	1
18	BADGER PM-122	MEXICO	3949.9	77.3	115.6	168.0	113.3	18.3	51.3	7.3	2
4	ARMADILLO PM-108	MEXICO	3941.1	74.5	116.3	167.6	119.5	17.0	50.7	11.0	2
16	BADGER PM-119	MEXICO	3941.1	72.5	116.0	168.0	113.0	19.0	48.0	7.3	1
9	ARMADILLO PM-113	MEXICO	3842.2	72.4	116.0	167.6	114.6	20.0	48.5	11.0	1
19	BADGER PM-123	MEXICO	3937.7	72.7	115.3	167.6	111.6	18.6	51.4	7.3	1
20	ARMADILLO PM-105	MEXICO	3831.1	74.1	115.0	169.0	119.6	16.0	49.7	7.3	1
2	ARMADILLO PM-104	MEXICO	3815.5	73.5	116.3	167.6	117.0	19.0	47.0	11.0	1
15	JORI	MEXICO	3803.3	82.5	125.6	173.6	80.3	8.3	53.2	14.7	1
14	BADGER PM-118	MEXICO	3748.8	72.1	115.4	167.6	113.6	19.0	47.6	11.0	1
22	UM-70MN-47C	CANADA	3692.2	49.7	114.6	167.6	114.6	16.3	48.9	11.0	2
6	ARMADILLO PM-109	MEXICO	3532.2	72.4	116.0	167.6	109.5	16.6	51.1	3.6	2
24	ARMADILLO PM-132	MEXICO	3522.2	69.5	116.6	169.0	125.3	24.6	41.4	7.3	2
13	ARMADILLO PM-113	MEXICO	3455.5	79.1	117.5	167.6	111.5	16.0	46.4	11.0	2
23	BRONCO PM-63	MEXICO	3133.3	72.3	117.6	172.6	131.3	25.6	44.1	0.0	2
12	ARMADILLO PM-116	MEXICO	3032.2	79.0	117.5	169.0	112.0	17.3	42.6	7.3	2
21	ARMADILLO PM-13	MEXICO	2318.8	68.4	126.0	177.0	134.0	18.3	35.0	11.0	3
		GRAND MEAN	3823.9	73.8	117.5	168.6	112.5	17.2	47.3	11.8	
	STANDARD ERROR OF GRAND MEAN		47.0	0.9	0.2	0.1	0.6	0.4		0.7	
	COEFFICIENT OF VARIATION		10.6%	11.6%	1.7%	0.5%	6.9%	20.9%		58.2%	
	LSD VARIETY MEANS 5 PC		665.9	14.0	3.2	1.4	9.1	5.9		11.2	

CORRELATIONS

YIELD	KG/HA								
TEST	WEIGHT	0.40*							
DAYS TO	FLOWER	-0.16	0.34						
DAYS TO	MATURITY	-0.65**	-0.06	0.71**					
HEIGHT	CM.	-0.58**	-0.55**	-0.40*	0.27				
LODGING		-0.44*	-0.46*	-0.50**	0.12	0.86**			
1000 GRN	WGT GRMS	0.42*	0.04	-0.47*	-0.63**	-0.22	-0.16		
SEPTORIA	SPP.	0.54**	0.42*	0.52**	-0.02	-0.66**	-0.69**	-0.25	
NECK	BREAK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

TABLE 14 EUROPE SPAIN MADRID

I.N.I.A.
COOPERATORS E.SANCHEZ MONGE, AND M. RUIZ TAPIADOR.

LATITUDE 40 30°N DATE PLANTED 11/21/71 NITROGEN 080.0 KG/HA
LONGITUDE 003 30°W DATE HARVESTED 07/13/72 PHOSPHORUS 030.0 KG/HA
ELEVATION +03500 M.ABOVE S.L. AMOUNT OF MOISTURE 0303 MM POTASSIUM 080.0 KG/HA

LOCAL VARIETY NOT IDENTIFIED. LOW TEMPERATURES IN APRIL AND MAY. NO DISEASE DEVELOPMENT. NO INSECT WEED OR PEST PROBLEM.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	1000 GRN WGT GRMS	FROST DAMAGE	PROTE KJEL.
5	FITIC	MEXICO	1930.6	135.6	194.0	112.3	43.5	7	20.5
25	LOCAL CHECK		1380.3	146.0	201.0	162.3	38.7	2	22.3
15	JCFI	MEXICO	607.6	140.0	195.6	83.6	56.0	3	25.1
16	BADGER PM-119	MEXICO	554.4	125.0	198.6	121.3	39.5	7	22.0
4	ARMADILLO PM-108	MEXICO	502.5	125.3	199.0	120.3	40.8	7	21.9
24	ARMADILLO PM-132	MEXICO	501.6	126.0	197.6	135.6	35.0	7	21.6
23	BRONCO PM-63	MEXICO	489.8	125.0	196.6	137.6	40.1	7	24.1
11	ARMADILLO PM-114	MEXICO	488.3	125.0	199.0	116.3	37.0	7	23.0
1	ARMADILLO PM-102	MEXICO	463.2	125.0	199.0	123.0	35.5	7	20.8
21	ARMADILLO PM-13	MEXICO	455.6	133.0	197.6	138.0	33.5	7	24.7
3	ARMADILLO PM-107	MEXICO	431.8	125.0	199.0	113.6	38.0	7	21.6
10	TOBARI	MEXICO	398.1	129.6	194.0	99.3	42.3	7	23.5
18	BADGER PM-122	MEXICO	379.6	125.0	199.0	120.3	37.0	7	21.9
9	ARMADILLO PM-113	MEXICO	355.2	124.0	199.0	120.6	37.2	7	22.3
17	BADGER PM-121	MEXICO	343.5	124.0	196.6	122.0	40.0	7	22.0
19	BADGER PM-123	MEXICO	328.0	122.0	198.0	120.6	36.0	7	21.9
20	ARMADILLO PM-105	MEXICO	291.5	125.0	199.0	113.3	34.0	7	22.3
7	ARMADILLO PM-111	MEXICO	289.0	125.0	199.0	123.0	38.1	7	21.6
8	ARMADILLO PM-112	MEXICO	284.8	123.0	199.0	118.6	34.7	7	21.2
22	LM-70HN-470	CANADA	257.8	124.0	195.3	115.0	34.5	7	22.6
2	ARMADILLO PM-104	MEXICO	257.0	125.0	199.0	125.6	37.7	7	21.3
14	BADGER PM-118	MEXICO	240.6	124.0	199.0	125.3	35.0	7	22.7
12	ARMADILLO PM-116	MEXICO	237.9	123.3	198.0	117.3	39.0	7	24.2
6	ARMADILLO PM-109	MEXICO	219.0	125.0	194.0	112.3	37.5	7	22.0
13	ARMADILLO PM-113	MEXICO	130.9	125.0	198.0	119.3	29.0	7	23.5
		GRAND MEAN	470.3	127.3	197.7	120.7	38.2		22.4
	STANDARD ERROR OF GRAND MEAN		29.5	0.1	0.2	0.6			
	COEFFICIENT OF VARIATION		54.4%	0.9%	0.9%	4.4%			
	LSD VARIETY MEANS 5 PC		418.0	2.0	3.0	8.7			

CORRELATIONS

	YIELD KG/HA					
DAYS TO FLOWER	0.70**					
DAYS TO MATURITY	-0.13	-0.01				
HEIGHT CM.	0.20	0.13	0.53**			
1000 GRN WGT GRMS	0.37	0.49**	-0.30	-0.49**		
FROST DAMAGE	0.00	0.00	0.00	0.00	0.00	
PROTE KJEL.	-0.22	0.32	-0.12	-0.16	0.25	0.00

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

TABLE 15 EUROPE SWEDEN LUND

THE SWEDISH SEED ASSOCIATION.
COOPERATORS PROF. A. MUNTZING, LUND

LATITUDE 055 35'N
LONGITUDE 013 06' E
ELEVATION +00050 M.ABOVE S.L.

DATE PLANTED 05/02/72
DATE HARVESTED 09/04/72
AMOUNT OF MOISTURE 272 MM

NITROGEN 096.0 KG/HA
PHOSPHORUS 052.0 KG/HA
POTASSIUM 097.0 KG/HA

LOCAL VARIETY NOT IDENTIFIED. SOWING FAIRLY LATE. JUNE NORMAL AND JULY WITH TWO HEAVY RAINFALLS. LATE AUGUST AND BEGINNING OF SEPTEMBER SUNNY WARM AND DRY.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	HEIGHT CM.	LODGING	1000 GRN WGT GRMS	GRAIN QUAL
10	TOBARI	MEXICO	3905.9	69.3	57.0	81.6	1.6	43.1	0.0
7	ARMADILLO PM-111	MEXICO	3623.8	66.7	54.0	95.6	3.3	49.6	58.3
11	ARMADILLO PM-114	MEXICO	3254.9	67.5	56.6	103.3	3.3	50.8	66.6
19	BADGER PM-123	MEXICO	3098.7	65.5	52.6	93.3	2.5	51.9	83.3
20	ARMADILLO PM-105	MEXICO	3094.4	65.7	53.3	93.3	0.0	52.0	58.3
4	ARMADILLO PM-108	MEXICO	3011.9	66.7	52.6	96.6	4.1	52.5	50.0
18	BADGER PM-122	MEXICO	2907.7	66.7	56.0	103.3	4.1	52.7	91.6
16	BADGER PM-119	MEXICO	2890.4	66.3	55.0	100.0	2.5	51.5	91.6
14	BADGER PM-118	MEXICO	2847.0	67.1	53.3	101.6	3.3	50.1	83.3
5	PITIC	MEXICO	2755.8	76.7	56.6	98.3	20.8	35.6	16.6
1	ARMADILLO PM-102	MEXICO	2716.8	65.7	53.6	96.6	5.9	50.0	75.0
2	ARMADILLO PM-104	MEXICO	2677.7	65.5	53.6	100.0	4.1	49.8	75.0
9	ARMADILLO PM-113	MEXICO	2660.4	66.0	54.3	95.6	3.3	49.1	75.0
3	ARMADILLO PM-107	MEXICO	2656.0	65.5	54.3	96.6	4.1	50.1	66.6
21	ARMADILLO PM-13	MEXICO	2630.0	66.0	54.0	131.6	20.0	40.1	91.6
8	ARMADILLO PM-112	MEXICO	2465.1	66.7	56.3	96.6	3.3	49.0	66.6
25	LOCAL CHECK		2400.0	73.3	64.0	113.3	11.6	35.1	0.0
24	ARMADILLO PM-132	MEXICO	2278.4	64.7	53.3	111.6	21.6	43.4	50.0
23	BRONCO PM-63	MEXICO	2256.7	67.1	56.0	111.6	4.1	50.7	33.3
17	BADGER PM-121	MEXICO	2148.2	66.3	55.3	95.0	3.3	49.9	66.6
6	ARMADILLO PM-109	MEXICO	2043.4	62.7	54.3	93.3	25.8	51.7	100.0
12	ARMADILLO PM-116	MEXICO	2026.7	63.0	55.0	103.3	1.6	47.9	100.0
22*	LM-70HA-470	CANADA	1727.3	64.0	54.6	91.6	1.6	49.0	100.0
15	JORI	MEXICO	1501.6	76.0	54.0	68.3	0.0	49.6	25.0
13	ARMADILLO PM-113	MEXICO	1484.2	66.7	53.0	98.3	1.6	46.1	100.0
		GRAND MEAN	2602.7	67.7	54.9	99.1	6.3	48.1	64.9
	STANDARD ERROR OF GRAND MEAN		62.3		0.0	0.4	1.3	0.2	1.2
	COEFFICIENT OF VARIATION		20.5%		1.2%	3.9%	180.7%	3.8%	16.0%
	LSD VARIETY MEANS 5 PC		875.4		1.1	6.4	18.6	2.9	15.9

CORRELATIONS

YIELD	KG/HA							
TEST	WEIGHT	0.24						
DAYS TO	FLOWER	0.03	0.66**					
HEIGHT	CM.	0.05	-0.26	0.18				
LODGING		-0.12	-0.06	0.12	0.45*			
1000 GRN	WGT GRMS	0.05	-0.56**	-0.57**	-0.35	-0.52**		
GRAIN	QUAL	-0.25	-0.85**	-0.54**	0.19	-0.06	0.52**	

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

TABLE 16 EUROPE SWITZERLAND NYON

STATION FEDERALE DE RECHERCHES AGRONOMIQUES, CHANGINS
COOPERATORS M. INGOLD.

LATITUDE 046 24'N
LONGITUDE 013 54'E
ELEVATION +00430 M.ABOVE S.L.

DATE PLANTED 03/15/72
DATE HARVESTED 08/14/72
AMOUNT OF MOISTURE 3335 MM

NITROGEN 110.0 KG/HA
PHOSPHORUS 090.0 KG/HA
POTASSIUM 150.0 KG/HA

LOCAL VARIETY NOT IDENTIFIED. APRIL: NORMAL; MAY: VERY DRY; JUNE: WET AND COLD; JULY: WARM AND RATHER DRY. NO RUST INFECTION. NO INSECT, WEED OR PEST PROBLEMS.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	LODGING	1000 GRN WGT GRMS	LATE-TILLE
9	ARMADILLO PM-113	MEXICO	4316.8	67.9	89.3	132.0	89.0	2	44.3	26.6
16	BADGER PM-119	MEXICO	4073.8	67.2	89.3	132.0	87.3	2	44.6	36.6
14	BADGER PM-118	MEXICO	3981.2	67.0	89.6	132.0	86.0	2	42.5	30.0
20	ARMADILLO PM-105	MEXICO	3958.0	57.0	89.3	132.0	83.3	2	46.0	33.3
8	ARMADILLO PM-112	MEXICO	3958.0	67.2	89.3	132.0	89.0	2	42.5	23.3
11	ARMADILLO PM-114	MEXICO	3934.9	55.9	89.6	132.0	87.0	2	42.0	36.6
17	BADGER PM-121	MEXICO	3900.2	65.6	89.3	131.3	85.3	2	46.0	26.6
3	ARMADILLO PM-107	MEXICO	3877.0	57.3	87.6	132.0	83.3	2	44.0	20.0
4	ARMADILLO PM-108	MEXICO	3877.0	67.9	89.3	132.0	85.5	4	46.3	26.6
18	BADGER PM-122	MEXICO	3557.1	67.2	89.0	132.3	82.3	2	43.3	36.6
5	FITIC	MEXICO	3529.8	75.5	93.5	130.6	73.3	5	39.6	13.3
22	LM-70HN-47C	CANADA	3483.5	65.6	87.6	132.0	82.3	1	44.5	33.3
1	ARMADILLO PM-102	MEXICO	3425.7	57.1	89.5	132.6	80.6	5	44.3	20.0
19	BADGER PM-123	MEXICO	3402.5	69.0	87.6	132.0	82.5	3	44.0	30.0
7	ARMADILLO*PM-111	MEXICO	3344.6	57.6	89.0	132.0	85.6	2	46.3	23.3
2	ARMADILLO PM-104	MEXICO	3309.9	69.0	89.6	132.0	83.5	3	45.0	23.3
6	ARMADILLO PM-109	MEXICO	3228.9	65.0	89.3	132.0	83.3	3	45.3	23.3
25	LOCAL CHECK		3217.3	75.1	93.5	134.6	89.3	1	35.0	10.0
24	ARMADILLO PN-132	MEXICO	3220.6	64.0	89.3	130.6	95.6	4	35.0	26.6
23	BRONCO PM-63	MEXICO	2951.1	65.1	87.0	129.6	100.6	5	41.6	20.0
21	ARMADILLO PM-13	MEXICO	2685.0	64.0	99.6	136.6	111.0	7	35.0	26.6
12	ARMADILLO PM-116	MEXICO	2198.9	57.8	94.0	134.6	83.0	4	45.6	26.6
15	JORI	MEXICO	2083.1	73.3	93.3	137.3	64.0	3	54.6	16.6
10	TOBARI	MEXICO	1928.5	79.0	86.6	129.6	61.6	2	41.3	6.6
13	ARMADILLO PM-113	MEXICO	1585.5	65.1	89.6	133.6	78.0	1	41.6	23.3
		GRAND MEAN	3313.2	69.2	89.5	132.3	84.3		43.2	24.7
	STANDARD ERROR OF GRAND MEAN		62.3	0.1	0.1	0.0	0.5		0.3	0.6
	COEFFICIENT OF VARIATION		16.2%	1.3%	1.0%	0.5%	5.6%		6.9%	22.9%
	LSD VARIETY MEANS 5 PC		581.7	1.4	1.9	1.0	7.8		4.8	9.2

CORRELATIONS

	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	LODGING	1000 GRN WGT GRMS	LATE-TILLE
TEST WEIGHT	-0.27							
DAYS TO FLOWER	-0.32	0.17						
DAYS TO MATURITY	-0.35	0.01	0.76**					
HEIGHT CM.	0.29	-0.64**	0.22	0.05				
LODGING	0.00	0.00	0.00	0.00	0.33			
1000 GRN WGT GRMS	0.04	-0.00	-0.27	0.14	-0.53**	0.00		
LATE-TILLE	0.48*	-0.72**	-0.16	-0.01	0.37	0.00	0.16	

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

TABLE 17 MESOAMERICA MEXICO MEXICO

TOLUCA, EDO. DE MEXICO
COOPERATORS CIMMYT STAFF.

LATITUDE	19 00°N	DATE PLANTED	06/01/72	NITROGEN	150.0 KG/HA
LONGITUDE	100 00°W	DATE HARVESTED	10/19/72	PHOSPHORUS	030.0 KG/HA
ELEVATION	+ 2600 M.ABOVE S.L.	AMOUNT OF MOISTURE	---- MM	POTASSIUM	000.0 KG/HA

LOCAL VARIETY NOT REPORTED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	HEIGHT CM.	LODGING
4	ARMADILLO PM-108	MEXICO	5458.3	59.5	73.6	N	80.0
1	ARMADILLO PM-102	MEXICO	4812.5	61.3	75.3	N-	60.0
14	BADGER PM-118	MEXICO	4762.5	59.5	73.0	N	20.0
7	ARMADILLO PM-111	MEXICO	4583.3	53.5	74.0	N	80.0
9	ARMADILLO PM-113	MEXICO	4429.1	58.5	72.3	N-	80.0
20	ARMADILLO PM-105	MEXICO	4358.3	51.5	73.3	N	70.0
2	ARMADILLO PM-104	MEXICO	4233.3	60.8	74.6	N-	40.0
3	ARMADILLO PM-107	MEXICO	4179.1	57.7	72.5	N	80.0
18	BADGER PM-122	MEXICO	4108.3	58.7	73.0	N-	50.0
16	BADGER PM-119	MEXICO	4033.3	59.2	74.0	N	40.0
6	ARMADILLO PM-109	MEXICO	3970.8	59.5	72.6	N	80.0
17	BADGER PM-121	MEXICO	3900.0	59.0	72.0	N-	80.0
25	LOCAL CHECK		3825.0	57.1	79.0	ALTO	0.0
22	LM-70HN-47C	CANADA	3775.0	59.3	72.3	N	70.0
10	TOBARI	MEXICO	3558.3	75.0	72.6	E1	90.0
8	ARMADILLO PM-112	MEXICO	3608.3	59.0	73.6	N	90.0
23	BRONCO PN-63	MEXICO	3554.1	51.7	72.3	ALTO	0.0
24	ARMADILLO PM-132	MEXICO	3333.3	55.8	73.0	N-	0.0
19	BADGER PM-123	MEXICO	3304.1	51.3	71.6	N-	70.0
12	ARMADILLO PM-116	MEXICO	3000.0	59.0	78.0	NO	90.0
13	ARMADILLO PM-113	MEXICO	2941.6	59.2	79.0	N	80.0
5	FITIC	MEXICO	2545.8	61.5	89.0	E1-	90.0
11	ARMADILLO PM-114	MEXICO	2370.8	55.0	79.0	N	90.0
21	ARMADILLO PM-13	MEXICO	2145.8	54.0	79.3	ALTO	80.0
15	JORI	MEXICO	1879.1	71.5	75.0	F2+	20.0
		GRAND MEAN	3710.8	60.0	74.9		61.5
	STANDARD ERROR OF GRAND MEAN				0.1		
	COEFFICIENT OF VARIATION				2.1%		
	LSD VARIETY MEANS 5 PC				2.5		

CORRELATIONS

	YIELD KG/HA				
TEST WEIGHT	-0.08				
DAYS TO FLOWER	-0.52**	-0.12			
HEIGHT CM.	0.00	0.00	0.00		
LODGING	-0.01	-0.00	0.19	0.00	

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

TABLE 18 MIDDLE EAST JORDAN JUBEIHA

JUBEIHA STATION.
COOPERATORS DR. J. A. QUHAWI ET AL.

LATITUDE 032 02° N
LONGITUDE 035 52°E
ELEVATION +00980 M.ABOVE S.L.

DATE PLANTED 03/02/72
DATE HARVESTED 07/23/72
AMOUNT OF MOISTURE 0484 MM

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

LOCAL VARIETY NOT IDENTIFIED. WEATHER WAS NOT NORMAL, RAIN DISTRIBUTION WAS BAD, A HOT WIND BLEW DURING MILK DOUGH STAGE.NO SERIOUS DISEASE WERE NOTICED. PEST NO PROBLEM.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	HEIGHT CM.	1000 GRN WGT GRMS
5	PITIC	MEXICO	3321.8	63.0	80.0	31.0
2	ARMADILLO PM-104	MEXICO	2888.5	52.0	95.0	45.1
18	BADGER PM-122	MEXICO	2821.9	63.0	96.6	45.7
12	ARMADILLO PM-116	MEXICO	2799.7	65.3	95.0	39.5
9	ARMADILLO PM-113	MEXICO	2766.3	53.0	93.3	44.0
20	ARMADILLO PM-105	MEXICO	2766.3	63.6	93.3	47.5
10	TOBARI	MEXICO	2766.3	55.3	80.0	34.8
13	ARMADILLO PM-113	MEXICO	2699.7	63.6	91.6	36.5
*	ARMADILLO PM-111	MEXICO	2577.5	53.3	93.3	48.0
19	BADGER PM-123	MEXICO	2544.1	62.3	95.0	44.7
4	ARMADILLO PM-108	MEXICO	2521.9	63.3	96.6	47.0
25	LOCAL CHECK		2510.8	67.0	101.5	60.1
14	BADGER PM-118	MEXICO	2477.5	62.6	95.0	44.5
8	ARMADILLO PM-112	MEXICO	2444.1	63.3	95.6	45.5
21	ARMADILLO PM-13	MEXICO	2399.7	70.6	106.6	32.5
22	UM-70HN-470	CANADA	2344.2	53.3	86.6	45.5
16	BADGER PM-119	MEXICO	2299.7	63.0	93.3	49.7
23	BRONCO PN-63	MEXICO	2299.7	52.0	110.0	43.5
3	ARMADILLO PM-107	MEXICO	2244.2	53.3	93.3	44.1
15	JORI	MEXICO	2088.6	71.3	69.3	55.5
17	BADGER PM-121	MEXICO	2033.1	62.6	85.5	47.5
24	ARMADILLO PM-132	MEXICO	2033.1	63.3	103.3	37.0
1	ARMADILLO PM-102	MEXICO	1899.8	57.3	85.3	43.6
6	ARMADILLO PM-109	MEXICO	1810.9	62.3	91.6	49.1
11	ARMADILLO PM-114	MEXICO	1644.2	53.3	91.6	44.6
		GRAND MEAN	2440.1	64.3	92.9	44.3
		STANDARD ERROR OF GRAND MEAN	86.1	0.2	0.5	
		COEFFICIENT OF VARIATION	30.5%	3.1%	4.9%	
		LSD VARIETY MEANS 5 PC	1218.6	3.3	7.4	

CORRELATIONS

	YIELD KG/HA		
DAYS TO FLOWER	0.07		
HEIGHT CM.	-0.03	-0.37	
1000 GRN WGT GRMS	-0.33	-0.13	-0.07

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

TABLE 19 MIDDLE EAST LEBANON AUB

AGRIC. RESEARCH AND EDUCATION CENTER-A.U.B.
COOPERATORS H.NASR AND W. KHAYRALLAH.

LATITUDE 033 55'N
LONGITUDE 03, 05'E
ELEVATION +01000 M.ABOVE S.L.

DATE PLANTED 11/13/71
DATE HARVESTED 06/01/72
AMOUNT OF MOISTURE 3453 MM

NITROGEN 090.0 KG/HA
PHOSPHORUS 090.0 KG/HA
POTASSIUM 000.0 KG/HA

LOCAL VARIETY NOT IDENTIFIED. RAIN DISTRIBUTION WAS ON THE FAVOURABLE SIDE. NO DISEASE DEVELOPMENT. WEEDS WERE CONTROLLED BY HAND WEEDING.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	DAYS TO FLOWER	HEIGHT CM.
5	FITIC	MEXICO	3776.6	165.0	94.3
9	ARMADILLO PM-113	MEXICO	3453.3	155.0	115.0
25	LOCAL CHECK		3333.3	161.0	115.6
7	ARMADILLO PM-111	MEXICO	3326.6	157.0	112.6
3	ARMADILLO PM-107	MEXICO	3236.6	155.0	110.3
1	ARMADILLO PM-102	MEXICO	3016.6	155.0	113.0
10	TOEARI	MEXICO	2966.6	153.0	85.0
22	LM-7GHN-470	CANADA	2910.0	155.0	105.6
16	EAGGER PM-119	MEXICO	2886.6	155.0	111.6
19	BADGER PM-123	MEXICO	2866.6	155.0	111.0
8	ARMADILLO PM-112	MEXICO	2863.3	155.0	110.3
18	EAGGER PM-122	MEXICO	2833.3	155.0	113.3
2	ARMADILLO PM-104	MEXICO	2810.0	155.0	111.6
17	EAGGER PM-121	MEXICO	2770.0	155.0	113.3
4	ARMADILLO PM-108	MEXICO	2596.6	155.0	109.3
20	ARMADILLO PM-105	MEXICO	2663.3	155.0	109.3
15	JORI	MEXICO	2553.3	164.0	76.6
14	EAGGER PM-118	MEXICO	2443.3	155.0	109.0
6	ARMADILLO PM-109	MEXICO	2436.6	155.0	109.3
12	ARMADILLO PM-116	MEXICO	2410.0	153.0	113.6
13	ARMADILLO PM-113	MEXICO	2283.3	155.0	107.3
11	ARMADILLO PM-114	MEXICO	2176.6	155.0	108.0
23	ERCACO PN-63	MEXICO	2170.0	157.0	133.3
21	ARMADILLO PM-13	MEXICO	1943.3	161.0	127.0
24	ARMADILLO PN-132	MEXICO	1810.0	157.0	115.6
		GRAND MEAN	2745.4	157.5	109.3
	STANDARD ERROR OF GRAND MEAN		33.4		0.4
	COEFFICIENT OF VARIATION		10.5%		3.8%
	LSD VARIETY MEANS 5 PC		472.6		5.8

CORRELATIONS

YIELD	KG/HA		
DAYS TO	FLOWER	0.17	
HEIGHT	CM.	-0.28	-0.45*

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

TABLE 20 MIDDLE EAST LEBANON TEL AMARA

AGRIC. RESEARCH INSTITUTE, TEL-AMARA.
COOPERATORS M. ABI-ANTOUN, ALI CHAABAN, G.KINGMA.

LATITUDE 033 55°N
LONGITUDE 035 28°E
ELEVATION +00900 M.ABOVE S.L.

DATE PLANTED 11/10/71
DATE HARVESTED 05/21/72
AMOUNT OF MOISTURE 0560 MM

NITROGEN 150.0 KG/HA
PHOSPHORUS 033.0 KG/HA
POTASSIUM ---.- KG/HA

LOCAL VARIETY MEXIPAK 65.DRY IN MAY AND JUNE. YELLOW RUST ATTACK TO LATE TO CAUSE DAMAGE. WILD OATS HAND WEEDED.
OATS HAND WEEDED.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	1000 GRN WGT GRMS
25	LOCAL CHECK		3201.5	75.0	183.0	213.0	95.0	34.0
17	BADGER PM-121	MEXICO	2333.5	61.7	171.0	207.0	100.0	32.5
16	BADGER PM-119	MEXICO	2197.7	64.3	169.0	210.0	100.0	37.0
22	LM-70HN-470	CANADA	2185.3	61.3	168.0	206.0	100.0	37.0
4	ARMADILLO PM-108	MEXICO	2123.6	64.8	172.0	209.0	100.0	34.0
1	ARMADILLO PM-102	MEXICO	2012.5	52.4	172.0	207.0	105.0	34.0
7	ARMADILLO PM-111	MEXICO	1889.0	63.2	172.0	208.0	100.0	32.0
5	FITIC	MEXICO	1777.9	67.6	175.0	213.0	80.0	31.0
15	JORI	MEXICO	1728.5	74.6	182.0	210.0	70.0	43.0
11	ARMADILLO PM-114	MEXICO	1703.8	63.3	168.0	207.0	95.0	32.5
18	BADGER PM-122	MEXICO	1703.8	61.3	170.0	207.0	100.0	34.0
19	BADGER PM-123	MEXICO	1554.4	51.8	170.0	210.0	95.0	31.0
20	ARMADILLO PM-105	MEXICO	1617.4	62.5	172.0	210.0	95.0	38.0
6	ARMADILLO PM-109	MEXICO	1530.9	62.7	168.0	207.0	95.0	36.5
9	ARMADILLO PM-113	MEXICO	1493.9	61.0	173.0	207.0	100.0	31.0
2	ARMADILLO PM-104	MEXICO	1481.5	62.2	169.0	207.0	100.0	31.0
8	ARMADILLO PM-112	MEXICO	1407.5	59.8	171.0	208.0	100.0	32.0
3	ARMADILLO PM-107	MEXICO	1395.1	62.1	169.0	207.0	100.0	31.0
24	ARMADILLO PM-132	MEXICO	1370.4	51.8	174.0	211.0	120.0	30.0
23	ERCACO PM-63	MEXICO	1222.3	65.3	173.0	209.0	125.0	33.0
14	BADGER PM-118	MEXICO	1222.3	63.6	168.0	207.0	95.0	33.0
21	ARMADILLO PM-13	MEXICO	1185.2	53.9	175.0	213.0	125.0	28.0
12	ARMADILLO PM-116	MEXICO	1148.2	64.7	173.0	211.0	100.0	33.0
10	TOBARI	MEXICO	827.2	73.5	175.0	209.0	75.0	29.0
13	ARMADILLO PM-113	MEXICO	703.7	60.0	172.0	211.0	95.0	31.0
		GRAND MEAN	1672.7	63.7	171.9	208.6	99.5	33.1
		STANDARD ERROR OF GRAND MEAN	55.5					
		COEFFICIENT OF VARIATION	28.78					
		LSD VARIETY MEANS 5 PC	735.3					

CORRELATIONS

	YIELD KG/HA				
TEST WEIGHT	0.46*				
DAYS TO FLOWER	0.22	0.74**			
DAYS TO MATURITY	0.19	0.41*	0.65**		
HEIGHT CM.	-0.07	-0.57**	-0.29	0.01	
1000 GRN WGT GRMS	0.34	0.38	0.14	0.01	-0.37

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

TABLE 21 MIDDLE EAST TURKEY ESKISEHIR

ESKISEHIR AGRICULTURAL RESEARCH STATION.
COOPERATORS FAHRI ALTAY

LATITUDE 36 45°N
LONGITUDE 30 95°E
ELEVATION +00789 M ABOVE S.L.

DATE PLANTED 11/13/71
DATE HARVESTED 07/03/72
AMOUNT OF MOISTURE 0303 MM

NITROGEN 030.0 KG/HA
PHOSPHORUS 050.0 KG/HA
POTASSIUM ----.- KG/HA

LOCAL VARIETY: BEZOSTAJA 1. THERE WERE VERY HARD WINTER AND DRY SPRING MOST OF THE PRECIPITATION OCCURRED DURING THE WINTER TIME AND SECOND PART OF JUNE. ALL VARIETIES MATURED 20 DAYS EARLIER THAN NORMAL. NO DISEASE DEVELOPMENT. NO INSECT, WEED OR PEST PROBLEM.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	LODGING	SHATTERING	1000 GRN WGT GRMS
15	JORI	MEXICO	147.6	191.0	53.3	23.3	0.0	47.6
21	ARMADILLO PM-13	MEXICO	147.0	193.3	111.6	4.0	46.6	29.0
5	FITIC	MEXICO	146.6	195.3	70.0	25.6	0.0	32.8
24	ARMADILLO PN-132	MEXICO	146.0	191.6	89.3	1.6	25.0	36.3
25	LOCAL CHECK		145.3	197.6	80.0	0.0	0.0	41.3
23	BRONCO PN-63	MEXICO	144.6	189.6	105.0	6.6	0.0	37.7
10	TOEARI	MEXICO	144.6	189.0	59.0	25.6	0.0	32.2
12	ARMADILLO PM-116	MEXICO	143.6	192.3	83.3	1.6	0.0	37.9
3	ARMADILLO PM-107	MEXICO	143.3	192.3	80.0	5.0	0.0	40.0
4	ARMADILLO PM-108	MEXICO	143.3	192.6	84.6	6.6	0.0	38.9
13	ARMADILLO PM-113	MEXICO	143.3	192.3	75.3	0.0	0.0	33.2
18	BADGER PM-122	MEXICO	143.3	191.6	86.6	5.0	0.0	39.8
7	ARMADILLO PM-111	MEXICO	143.3	192.3	82.6	6.6	0.0	40.7
2	ARMADILLO PM-104	MEXICO	142.6	192.3	83.3	3.3	0.0	39.9
20	ARMADILLO PM-105	MEXICO	142.6	192.0	86.0	5.0	0.0	39.9
1	ARMADILLO PM-102	MEXICO	142.6	192.6	82.5	5.0	0.0	40.4
6	ARMADILLO PM-109	MEXICO	142.6	192.3	81.3	3.3	29.3	36.9
16	BADGER PM-119	MEXICO	142.6	171.3	81.0	5.0	0.0	40.8
14	BADGER PM-118	MEXICO	142.6	193.6	85.0	1.6	0.0	40.0
11	ARMADILLO PM-114	MEXICO	142.6	191.3	76.6	5.0	23.3	39.6
22	LM-70MN-470	MEXICO	142.3	192.6	80.0	5.0	0.0	40.5
19	BADGER PM-123	CANADA	142.3	192.3	81.0	6.6	0.0	38.9
17	BADGER PM-121	MEXICO	142.3	177.3	81.0	8.3	0.0	39.0
9	ARMADILLO PM-113	MEXICO	142.3	192.6	83.3	5.0	0.0	40.2
8	ARMADILLO PM-112	MEXICO	142.0	193.3	85.6	5.6	0.0	37.6
		GRAND MEAN	143.6	193.0	82.0	6.9	4.9	38.5
		STANDARD ERROR OF GRAND MEAN	0.0	1.1	0.5	0.3	0.5	0.1
		COEFFICIENT OF VARIATION	0.5%	5.4%	5.6%	44.9%	111.0%	4.4%
		LSD VARIETY MEANS 5 %	1.2	15.8	7.5	5.1	8.9	2.8

CORRELATIONS

	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	LODGING	SHATTERING
DAYS TO MATURITY	0.02				
HEIGHT CM.	-0.10	0.15			
LODGING	0.48*	-0.21	-0.63**		
SHATTERING	0.33	0.18	0.42*	-0.19	
1000 GRN WGT GRMS	-0.22	-0.06	-0.34	-0.09	-0.47*

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

TABLE, 22 NORTH AMERICA CANADA MANITOBA

PLANT SCIENCE DEPT. U. OF MANITOBA.
COOPERATORS E.N. LARTER AND,J.P. GUSTAFSON.

LATITUDE 050 00°N DATE PLANTED 06/21/72 NITROGEN 100.0 KG/HA
LONGITUDE 096 00°W DATE HARVESTED 08/15/72 PHOSPHORUS ---.- KG/HA
ELEVATION +00244 M.ABOVE S.L. AMOUNT OF MOISTURE 3000 MM . POTASSIUM ---.- KG/HA

LOCAL VARIETY NOT IDENTIFIED. WEATHER. DRIER THAN NORMAL. RAINFALL BELOW THAN AVERAGE.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	LEAF RUST	HEIGHT CM.	LODGING	1000 GRN WGT GRMS
5	PITIC	MEXICO	7471.4	79.7	59.0	95.0	10MS	89.0	15.5	40.6
10	TOBARI	MEXICO	5928.3	93.6	56.5	94.0	5R	79.5	0.0	41.0
11	ARMADILLO PM-114	MEXICO	5702.1	71.4	57.5	93.0	1M	95.5	5.5	52.6
20	ARMADILLO PM-105	MEXICO	5683.8	71.4	56.0	92.0	5MR	92.0	16.6	51.0
15	JORI	MEXICO	5683.8	81.0	52.0	94.0	5R	73.0	11.0	58.6
18	BADGER PM-122	MEXICO	5610.5	69.4	55.0	92.0	20MS	95.0	16.6	48.1
16	EACCER PM-119	MEXICO	5488.2	70.1	55.0	92.0	10MS	96.5	11.0	49.2
9	ARMADILLO PM-113	MEXICO	5427.1	69.4	55.5	92.0	1M	94.0	7.5	48.7
24	ARMADILLO PM-132	MEXICO	5359.9	55.6	56.5	92.0	1R	105.0	61.0	43.4
8	ARMADILLO PM-112	MEXICO	5341.5	70.1	55.5	92.0	30MS	89.5	21.0	49.0
17	EACCER PM-121	MEXICO	5311.0	73.1	54.0	92.0	10MS	87.0	5.5	49.5
22	LM-7GHN-470	CANADA	4987.1	66.9	54.0	91.0	50MS	85.0	0.0	49.2
25	LOCAL CHECK		4974.9	83.0	59.0	92.0	30MS	104.0	11.0	38.3
19	EACCER PM-123	MEXICO	4925.0	65.9	55.0	92.0	20MS	92.0	16.6	49.5
14	BADGER PM-118	MEXICO	4877.1	61.8	55.0	92.0	5MS	95.0	11.0	50.1
21	ARMADILLO PM-13	MEXICO	4765.4	61.7	52.0	95.0	5R	130.0	77.6	37.0
6	ARMADILLO PM-109	MEXICO	4742.6	65.9	54.5	92.0	20MR	83.0	3.0	52.0
4	ARMADILLO PM-108	MEXICO	4693.7	51.8	54.5	92.0	50MS	83.5	0.0	47.5
3	ARMADILLO PM-107	MEXICO	4626.5	70.7	54.5	92.0	40MS	84.5	0.0	47.5
7	ARMADILLO PM-111	MEXICO	4498.1	73.7	55.5	92.0	30MS	85.0	0.0	45.5
12	ARMADILLO PM-116	MEXICO	4388.1	77.7	57.5	93.0	1M	95.0	5.5	46.5
1	ARMADILLO PM-102	MEXICO	4345.3	71.4	54.5	92.0	20MS	87.5	11.0	49.0
2	ARMADILLO PM-104	MEXICO	4316.8	73.7	55.5	92.0	20MS	84.5	11.0	48.7
23	BRONCO PN-63	MEXICO	2890.8	67.5	54.5	92.0	1R	106.0	11.0	47.6
13	ARMADILLO PM-113	MEXICO	2817.4	73.3	57.5	92.0	[illegible]	86.5	5.5	46.5
		GRAND MEAN	4994.3	71.3	56.1	92.4	11.6	91.7	12.8	47.5
	STANDARD ERROR OF GRAND MEAN		89.2		0.1			0.5	1.1	
	COEFFICIENT OF VARIATION		15.4%		1.3%			4.3%	82.1%	
	LSD VARIETY MEANS 5 PC		1262.6		1.2			6.5	13.0	

CORRELATIONS

	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	LEAF RUST	HEIGHT CM.	LODGING	1000 GRN WGT GRMS
TEST WEIGHT	0.35							
DAYS TO FLOWER	0.24	0.35						
DAYS TO MATURITY	0.45*	0.35	0.91**					
LEAF RUST	-0.04	-0.08	-0.43*	-0.44*				
HEIGHT CM.	-0.15	-0.45*	0.28	0.18	-0.23			
LODGING	0.09	-0.39*	0.50**	0.40*	-0.33	0.77**		
1000 GRN WGT GRMS	-0.05	-0.11	-0.24	-0.36	-0.03	-0.53**	-0.44	

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

TABLE 23 NORTH AMERICA U.S.A. CALIFORNIA

UNIVERSITY OF CALIFORNIA.
COOPERATORS C. J. QUALSET ET AL.

LATITUDE	038 32°N	DATE PLANTED	12/11/71	NITROGEN	040.0 KG/HA
LONGITUDE	121 45°W	DATE HARVESTED	06/13/72	PHOSPHORUS	---.- KG/HA
ELEVATION	00015 M.ABOVE S.L.	AMOUNT OF MOISTURE	229 44	POTASSIUM	---.- KG/HA

LOCAL VARIETY JFR 6TA-204. EARLY SEASON COOL AND DAMP. HOT WITH NO RAIN FROM MARCH. STRIPE RUST ON COMMON AND DURUM WHEATS NON ON TRITICALE.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	LODGING	1000 GRN WGT GRMS
3	ARMADILLO PM-107	MEXICO	7772.7	69.0	119.6	161.3	116.5	28.3	46.7
5	PITIC	MEXICO	7761.5	73.1	129.0	159.6	99.0	0.0	37.0
18	BADGER PM-122	MEXICO	7481.5	63.2	119.3	167.6	119.3	20.0	49.6
2	ARMADILLO PM-104	MEXICO	7274.3	69.7	118.6	169.0	115.6	45.0	49.1
10	TOBARI	MEXICO	7218.3	80.0	119.3	169.0	99.6	10.0	40.0
7	ARMADILLO PM-111	MEXICO	7072.7	67.6	118.3	169.0	113.6	23.3	47.5
1	ARMADILLO PM-102	MEXICO	6966.3	57.9	119.3	117.6	119.6	50.0	49.0
19	BADGER PM-123	MEXICO	6949.5	67.3	119.0	169.0	115.0	36.6	52.0
15	JORI	MEXICO	6915.9	81.0	129.3	175.0	87.3	0.0	62.0
16	BADGER PM-119	MEXICO	6904.7	57.4	119.6	167.3	117.0	36.6	49.5
17	BADGER PM-121	MEXICO	6858.3	67.4	119.0	167.3	115.3	41.6	49.2
9	ARMADILLO PM-113	MEXICO	6647.1	63.2	119.3	165.3	114.3	65.0	47.3
20	ARMADILLO PM-105	MEXICO	6613.5	67.6	121.0	167.6	114.3	23.3	50.2
8	ARMADILLO PM-112	MEXICO	6551.9	51.9	119.5	155.6	114.6	61.6	48.5
14	BADGER PM-118	MEXICO	6546.3	67.6	118.6	167.3	117.0	40.0	47.3
11	ARMADILLO PM-114	MEXICO	6507.1	57.9	119.3	167.3	114.3	13.3	49.3
23	ERCANCO PM-63	MEXICO	6243.9	69.1	122.3	161.3	133.3	80.0	45.9
22	LM-70HN-47C	CANADA	6159.9	65.6	119.3	166.3	110.3	35.0	47.7
25	LOCAL CHECK		6148.7	63.9	131.0	171.0	142.6	83.3	41.1
4	ARMADILLO PM-108	MEXICO	6143.1	69.8	119.3	167.6	117.0	31.6	47.5
13	ARMADILLO PM-115	MEXICO	6053.5	53.8	123.5	165.0	111.3	46.6	39.0
12	ARMADILLO PM-116	MEXICO	6042.3	58.5	125.3	160.6	113.0	23.3	44.3
6	ARMADILLO PM-109	MEXICO	5375.9	55.6	119.0	160.3	113.6	20.0	52.0
24	ARMADILLO PM-132	MEXICO	4827.1	62.6	124.6	161.0	124.5	98.3	39.7
21	ARMADILLO PM-13	MEXICO	4233.5	53.6	123.6	165.6	130.0	93.3	32.0
		GRAND MEAN	6522.8	65.5	121.3	164.2	115.3	40.2	45.5
		STANDARD ERROR OF GRAND MEAN	79.4		0.2	2.1	3.4	2.9	
		COEFFICIENT OF VARIATION	10.5%		1.6%	11.4%	3.0%	63.0%	
		LSD VARIETY MEANS 5 PC	1124.1		3.1	30.6	9.7	41.4	

CORRELATIONS

	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	LODGING	1000 GRN WGT GRMS
TEST WEIGHT	0.56**						
DAYS TO FLOWER	-0.21	0.11					
DAYS TO MATURITY	-0.03	0.14	0.11				
HEIGHT CM.	-0.44*	-0.76**	0.05	-0.11			
LODGING	-0.62**	-0.66**	0.14	-0.11	0.80**		
1000 GRN WGT GRMS	0.38	0.36	-0.32	0.06	-0.39	-0.47*	

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

TABLE 24 NORTH AMERICA U.S.A. COLORADO

FORT COLLINS.
COOPERATORS J.R.WELSH.

LATITUDE 040 35'N
LONGITUDE 105 00'W
ELEVATION 01475 M.ABOVE S.L.

DATE PLANTED 03/16/72
DATE HARVESTED 08/21/72
AMOUNT OF MOISTURE 3152 MM

NITROGEN 050.0 KG/HA
PHOSPHORUS ---.- KG/HA
POTASSIUM ---.- KG/HA

LOCAL VARIETY NAVADORES 63. NORMAL CONDITIONS DURING THE TEST. DISEASE DEVELOPMENT INSECT WEED OR PEST NO PROBLEM.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	HEIGHT CM.
25	LOCAL CHECK		6988.4	77.3	165.6	78.7
5	PITIC	MEXICO	6857.9	72.2	163.6	68.5
15	JORI	MEXICO	5991.5	75.9	161.6	75.1
20	ARMADILLO PM-105	MEXICO	5245.1	65.8	159.3	93.9
18	BADGER PM-122	MEXICO	5178.9	65.7	155.6	88.8
10	TOBARI	MEXICO	5139.4	75.1	159.0	73.6
19	BADGER PM-123	MEXICO	5126.9	55.7	155.5	83.8
11	ARMADILLO PM-114	MEXICO	5036.4	65.2	159.3	93.9
24	ARMADILLO PM-132	MEXICO	5033.7	57.5	157.6	101.5
9	ARMADILLO PM-113	MEXICO	5015.3	65.6	159.0	88.8
12	ARMADILLO PM-116	MEXICO	4971.9	57.1	163.3	96.5
21	ARMADILLO PM-13	MEXICO	4949.5	53.3	164.6	121.9
7	ARMADILLO PM-111	MEXICO	4923.5	65.7	159.0	91.4
2	ARMADILLO PM-104	MEXICO	4898.4	57.3	157.6	85.3
16	BADGER PM-119	MEXICO	4896.6	65.5	159.0	86.3
8	ARMADILLO PM-112	MEXICO	4890.3	55.1	159.3	83.8
23	BRACO PM-63	MEXICO	4844.6	64.6	157.3	90.0
17	BADGER PM-121	MEXICO	4827.6	55.9	157.3	86.3
3	ARMADILLO PM-107	MEXICO	4799.8	57.6	159.0	88.8
1	ARMADILLO PM-102	MEXICO	4793.5	65.7	157.6	83.8
22	UM-70HN-470	CANADA	4780.1	66.9	157.3	79.7
6	ARMADILLO PM-109	MEXICO	4731.7	64.7	155.6	88.9
14	BADGER PM-118	MEXICO	4583.3	67.1	159.0	81.2
4	ARMADILLO PM-108	MEXICO	4562.4	65.5	159.0	86.3
13	ARMADILLO PM-113	MEXICO	4407.4	57.1	159.0	91.4
		GRAND MEAN	5099.1	67.4	159.9	88.3
	STANDARD ERROR OF GRAND MEAN		39.5		0.3	
	COEFFICIENT OF VARIATION		6.78		0.58	
	LSD VARIETY MEANS 5 PC		559.1		1.3	

CORRELATIONS

		YIELD KG/HA		
TEST	WEIGHT	0.70**		
DAYS TO	FLOWER	0.73**	0.52**	
HEIGHT	CM.	-0.43*	-0.65**	0.04

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

TABLE 25 NORTH AMERICA U.S.A. ILLINOIS

FUNK SEEDS INTERNATIONAL, INC. BLOOMINGTON.
COOPERATORS LARRY ROBERTSON.

LATITUDE 040 29' N
LONGITUDE 088 55' E
ELEVATION +00256 M.ABOVE S.L.

DATE PLANTED 03/23/72
DATE HARVESTED 07/31/72
AMOUNT OF MOISTURE 0315 MM

NITROGEN ---.- KG/HA
PHOSPHORUS ---.- KG/HA
POTASSIUM ---.- KG/HA

LOCAL VARIETY: W-434.WEATHER WAS COOL AND WET DURING APRIL AND MAY.
HOT IN JUNE AND JULY BELOW AVERAGE PRECIPITATION. VERY HEAVY LEAF RUST.
STEM RUST HEAVY LATE IN SEASON.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	HEIGHT CM.	LODGING	1000 GRN WGT GRMS
5	FITIC	MEXICO	3720.4	74.7	77.0	75.0	15.5	37.0
10	TOBARI	MEXICO	3240.4	79.1	74.0	67.0	0.0	41.0
25	LOCAL CHECK		3060.1	75.7	75.0	71.3	0.0	42.0
22	UM-70HN-470	CANADA	2540.4	64.6	74.0	91.3	0.0	38.0
15	JORI	MEXICO	2640.4	57.2	75.3	65.3	4.6	53.0
24	ARMADILLO PN-132	MEXICO	2460.4	63.7	74.3	93.0	4.6	40.0
9	ARMADILLO PN-112	MEXICO	2450.1	58.2	74.0	82.0	0.0	41.0
19	BADGER PP-123	MEXICO	2430.2	64.0	74.3	83.6	3.3	43.0
14	BADGER PP-118	MEXICO	2360.4	57.9	74.3	88.0	0.0	41.0
17	BADGER PN-121	MEXICO	2340.1	52.0	74.0	81.6	3.3	42.0
8	ARMADILLO PP-112	MEXICO	2340.1	63.3	74.4	81.0	3.3	41.0
16	BADGER PN-119	MEXICO	2310.2	53.5	75.0	91.3	3.3	41.0
18	BADGER PP-122	MEXICO	2310.2	53.7	75.0	84.3	3.3	41.0
1	ARMADILLO PN-102	MEXICO	2250.2	53.3	75.0	82.3	0.0	43.0
6	ARMADILLO PP-109	MEXICO	2190.2	63.8	74.3	84.0	10.0	45.0
7	ARMADILLO PN-111	MEXICO	2160.3	56.2	74.0	81.0	0.0	41.0
2	ARMADILLO PN-104	MEXICO	2160.3	53.7	75.3	81.0	3.3	44.0
4	ARMADILLO PN-108	MEXICO	2160.1	63.7	74.3	84.6	3.3	41.0
3	ARMADILLO PN-107	MEXICO	2130.2	53.7	74.0	83.0	0.0	40.0
20	ARMADILLO PP-105	MEXICO	2130.2	62.9	75.0	84.6	0.0	43.0
11	ARMADILLO PN-114	MEXICO	2070.2	57.2	75.3	85.3	5.6	40.0
23	BRONCO PN-63	MEXICO	2010.2	62.9	74.0	99.3	0.0	42.0
13	ARMADILLO PN-113	MEXICO	1711.8	53.6	75.6	77.0	0.0	35.0
21	ARMADILLO PP-13	MEXICO	1710.2	55.2	83.3	98.3	25.5	32.0
12	ARMADILLO PP-116	MEXICO	1470.2	61.3	77.6	83.0	0.0	37.0
		GRAND MEAN	2337.9	64.5	75.1	82.3	3.8	40.9
	STANDARD ERROR OF GRAND MEAN		18.0		3.0	3.3	3.8	
	COEFFICIENT OF VARIATION		6.6%		0.9%	3.4%	185.4%	
	LSD VARIETY MEANS 5 PC		254.7		3.6	4.5	11.7	

CORRELATIONS

	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	HEIGHT CM.	LODGING	1000 GRN WGT GRMS
TEST WEIGHT	0.81**					
DAYS TO FLOWER	-0.27	-0.31				
HEIGHT CM.	-0.56**	-0.67**	0.29			
LODGING	0.06	-0.21	0.70**	0.28		
1000 GRN WGT GRMS	0.21	0.09	-0.53**	-0.40*	-0.31	

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

TABLE 26 NORTH AMERICA U.S.A. MONTANA

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

LATITUDE 46 00'N
LONGITUDE 111 00'W
ELEVATION + 1463 M.ABOVE S.L.

DATE PLANTED 04/29/72
DATE HARVESTED --/--/--
AMOUNT OF MOISTURE 101 MM

NITROGEN 000.0 KG/HA
PHOSPHORUS 030.0 KG/HA
POTASSIUM 000.0 KG/HA

LOCAL VARIETY NOT IDENTIFIED. WEATHER WAS NORMAL.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	HEIGHT CM.	GRAIN PROTE
5	FITIC	MEXICO	1986.2	70.7	183.0	83.6	14.8
25	LOCAL CHECK		1981.6	73.5	190.0	82.6	15.8
10	TOBARI	MEXICO	1542.7	73.5	187.0	77.0	16.1
15	LORI	MEXICO	1533.4	79.4	185.4	68.3	14.0
20	ARMADILLO PM-105	MEXICO	1541.7	55.1	179.0	91.6	19.5
14	BADGER PM-118	MEXICO	1440.8	65.8	177.3	92.0	18.6
19	BADGER PM-123	MEXICO	1439.0	55.5	177.0	92.6	18.2
4	ARMADILLO PM-108	MEXICO	1439.0	55.6	174.3	91.3	17.5
7	ARMADILLO PM-111	MEXICO	1438.4	55.4	177.3	89.0	17.7
16	BADGER PM-119	MEXICO	1400.1	65.3	174.3	94.6	18.3
18	BADGER PM-122	MEXICO	1394.5	65.3	177.3	91.3	18.6
1	ARMADILLO PM-102	MEXICO	1384.3	55.6	177.3	93.3	18.2
24	ARMADILLO PM-132	MEXICO	1375.7	62.6	179.3	97.6	18.7
2	ARMADILLO PM-107	MEXICO	1372.3	55.0	177.0	90.6	17.0
17	BADGER PM-121	MEXICO	1364.9	65.2	177.0	89.0	18.9
2	ARMADILLO PM-104	MEXICO	1359.3	65.7	177.3	94.6	17.7
9	ARMADILLO PM-113	MEXICO	1354.7	65.3	177.6	93.0	18.0
11	ARMADILLO PM-114	MEXICO	1326.9	64.6	179.6	92.3	17.8
8	ARMADILLO PM-112	MEXICO	1312.1	65.8	177.0	92.0	17.8
21	ARMADILLO PP-13	MEXICO	1303.8	63.8	189.0	120.0	18.7
22	UM-TCHN-67C	CANADA	1260.2	55.7	177.0	97.0	18.3
12	ARMADILLO PP-116	MEXICO	1222.3	67.3	183.0	95.3	17.5
6	ARMADILLO PM-105	MEXICO	1163.9	53.7	177.0	86.6	18.3
23	BRACCO PM-63	MEXICO	1029.7	61.2	174.0	102.6	13.9
13	ARMADILLO PP-112	MEXICO	926.8	67.5	180.4	88.0	19.8
		GRAND MEAN	1390.7	67.2	179.8	90.9	18.0
	STANDARD ERROR OF GRAND MEAN		15.8		3.0	0.4	0.0
	COEFFICIENT OF VARIATION		9.8%		0.2%	3.9%	1.3%
	LSD VARIETY MEANS 5 PC		223.7		8.6	5.8	0.4

CORRELATIONS

		YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	HEIGHT CM.
TEST	WEIGHT	0.69**			
DAYS TO	FLOWER	0.52**	0.59**		
HEIGHT	CM.	-0.42*	-0.77**	-0.85	
GRAIN	PROTE	-0.85**	-0.71**	-0.41*	0.53**

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

TABLE 27 NORTH AMERICA U.S.A. N. DAKOTA

CASSELTON RESEARCH STATION.
COOPERATORS PIONEER CEREAL SEED COMPANY

LATITUDE 46° 45' N DATE PLANTED 05/23/72 NITROGEN 81.0 KG/HA
LONGITUDE 97 15' W DATE HARVESTED 08/23/72 PHOSPHORUS 336.0 KG/HA
ELEVATION 0.0275 M.ABOVE S.L. AMOUNT OF MOISTURE 301 MM POTASSIUM 000.0 KG/HA

LOCAL VARIETY NOT IDENTIFIED. SOIL MOISTURE PRIOR TO PLANTING WAS AT FIELD CAPACITY. JUNE WAS DRY, HOWEVER, FROM JULY ONE TO LATE AUGUST THERE RECORDED 15 IN. OF RAINFALL. UNUSUALLY WARM WEATHER PREVAILED FOR ONE WEEK PRIOR TO HARVEST.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	T ST WEIGHT	DAYS TO MATURITY	LEAF RUST	HEIGHT CM.	ERGOT	LEAFS LIGHT	GROWT STAGE
21	ARMADILLO PW-63	MEXICO	598.5	53.0	87.0	0	100.0	0.0	3.0	MB
10	TOBARE	MEXICO	587.1	59.8	87.5	0	67.0	0.0	25.0	MT
25	LOCAL CHECK		511.4	53.6	83.0	0	75.0	0.0	50.0	MB
14	BADGER PW-118	MEXICO	375.0	53.6	84.5	3S	77.0	0.0	62.5	MD
11	ARMADILLO PW-114	MEXICO	371.2	51.3	85.0	3MS	78.0	0.0	25.0	MT
2	ARMADILLO PW-104	MEXICO	356.1	55.2	82.0	3S	76.0	0.0	62.5	MD
22	UM-TCMM-47C	CANADA	352.3	55.9	84.0	2MR	72.0	0.0	50.0	MD
8	ARMADILLO PW-112	MEXICO	352.3	52.3	84.0	2MR	83.0	0.0	37.5	MD
20	ARMADILLO PW-105	MEXICO	329.5	55.0	84.0	3S	72.0	0.0	50.0	MD
24	ARMADILLO PW-132	MEXICO	322.0	45.7	83.0	0	83.0	0.0	12.5	MD
16	BADGER PW-115	MEXICO	318.2	53.6	84.5	3S	74.0	0.0	50.0	MT
9	ARMADILLO PW-113	MEXICO	318.2	57.8	83.0	3S	75.0	0.0	50.0	MD
1	ARMADILLO PW-102	MEXICO	318.2	56.0	84.0	3S	76.0	0.0	62.5	MD
18	EAGLER PW-122	MEXICO	314.4	57.1	84.5	3S	74.0	0.0	50.0	MT
5	PITIC	MEXICO	314.4	52.3	89.0	2MR	87.0	0.0	37.5	MB
7	ARMADILLO PW-111	MEXICO	310.6	55.1	81.5	3S	74.0	0.0	62.5	MD
3	ARMADILLO PW-107	MEXICO	306.8	54.6	81.0	3S	77.0	0.0	62.5	MD
19	BADGER PW-123	MEXICO	336.9	53.1	83.5	3S	76.0	0.0	50.0	MD
4	ARMADILLO PW-108	MEXICO	287.9	55.3	81.0	4S	74.0	0.0	62.5	MD
6	ARMADILLO PW-109	MEXICO	250.0	51.0	83.0	3S	79.0	0.0	52.5	MD
17	EAGLER PW-121	MEXICO	250.0	57.7	82.5	3S	74.0	0.0	50.0	MD
12	ARMADILLO PW-116	MEXICO	219.7	43.6	85.0	3S	79.0	0.0	37.5	LB
13	ARMADILLO PW-133	MEXICO	196.9	53.7	86.5	3S	72.0	0.0	62.5	MT
15	JORI	MEXICO	185.6	5.0	65.0	8R	63.0	0.0	50.0	LB
23	BRONCO PW-63	MEXICO	156.6	51.7	84.0	0	82.0	0.0	25.0	MD
		GRAND MEAN	328.8	53.5	84.1	2.1	75.6		45.3	
	STANDARD ERROR OF GRAND MEAN		8.5		3.9	3.0	3.3		2.0	
	COEFFICIENT OF VARIATION		21.1%		7.2%	23.2%	3.0%		33.7%	
	LSD VARIETY MEANS 5 PC		113.8		9.0	0.0	3.0		23.0	

CORRELATIONS

	YIELD KG/HA						
TEST WEIGHT	0.42*						
DAYS TO MATURITY	0.42*	0.78**					
LEAF RUST	-0.39*	0.13	-0.17				
HEIGHT CM.	0.35	0.21	0.49*	-0.26			
ERGOT	0.00	1.00	3.00	0.00	0.00		
LEAFS LIGHT	-0.41*	0.03	-0.35	0.71**	-0.63**	0.00	
GROWT STAGE	0.00	1.30	3.00	0.00	0.00	0.00	0.00

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

TABLE 28 NORTH AMERICA U.S.A. N. DAKOTA

FARGO, STATE UNIVERSITY.
COOPERATORS R.H. BUSCH.

LATITUDE 046 54°N
LONGITUDE 095 48° W
ELEVATION +00152 M.ABOVE S.L.

DATE PLANTED 05/10/72
DATE HARVESTED 08/26/72
AMOUNT OF MOISTURE 0273 MM

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

LOCAL VARIETY NOT IDENTIFIED. MAY WET AND COOL JUNE DRY THAN AVERAGE.
JULY AND AUGUST NORMAL TEMPERATURE. HEAVY LEAF RUST AND ERGOT.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	LEAF RUST	HEIGHT CM.	LODGING
10	TOBARI	MEXICO	3785.4	71.7	30.0	TR	74.6	1
8	ARMADILLO PP-112	MEXICO	3507.7	61.7	29.6	80S	87.6	4
1	ARMADILLO PP-102	MEXICO	3449.5	62.2	29.3	80S	87.3	4
25	LOCAL CHECK		3420.4	53.8	33.4	5MS	94.6	5
24	ARMADILLO PM-132	MEXICO	3351.6	57.7	30.3	10S	95.0	4
14	BADGER PM-118	MEXICO	3282.8	59.2	29.0	50S	92.6	4
22	LM-70HM-470	CANADA	3256.4	61.3	27.3	50S	92.6	3
18	BADGER PM-122	MEXICO	3174.3	51.7	28.3	70S	95.6	4
20	ARMADILLO PM-105	MEXICO	3102.9	61.5	29.3	60S	82.3	2
2	ARMADILLO PM-104	MEXICO	3076.5	51.7	29.3	60S	83.0	3
16	BADGER PM-119	MEXICO	3063.2	63.2	29.0	90S	85.6	4
23	BRONCO PM-63	MEXICO	3052.7	54.1	28.3	10S	99.3	3
21	ARMADILLO PM-13	MEXICO	3020.9	56.0	34.0	30S	109.6	5
9	ARMADILLO PP-113	MEXICO	2981.2	61.5	29.4	80S	89.3	4
19	BADGER PM-123	MEXICO	2960.1	59.9	26.3	90S	82.6	3
4	ARMADILLO PM-108	MEXICO	2931.0	61.3	27.6	80S	81.3	2
11	ARMADILLO PM-114	MEXICO	2851.6	59.0	31.6	30S	91.3	2
5	FITIC	MEXICO	2780.2	58.1	40.0	30S	76.5	1
17	BADGER PM-121	MEXICO	2753.7	54.6	26.3	80S	83.6	3
6	ARMADILLO PM-109	MEXICO	2642.6	59.6	27.3	10S	83.6	3
3	ARMADILLO PM-107	MEXICO	2529.4	61.1	27.6	60S	82.3	3
7	ARMADILLO PM-111	MEXICO	2375.5	61.1	29.0	50S	83.3	3
12	ARMADILLO PP-116	MEXICO	2230.0	62.6	34.0	80S	89.3	2
15	JORI	MEXICO	2158.5	71.9	32.6	TR	63.0	1
13	ARMADILLO PP-113	MEXICO	1804.1	63.9	33.3	80S	83.6	2
		GRAND MEAN	2945.7	59.0	29.9	47.2	85.7	
		STANDARD ERROR OF GRAND MEAN	39.7	3.1	0.1	1.6	0.3	
		COEFFICIENT OF VARIATION	11.6%	1.6%	3.2%	25.1%	3.3%	
		LSD VARIETY MEANS 5 PC	561.9	1.7	1.5	19.3	4.5	

CORRELATIONS

YIELD	KG/HA					
TEST	WEIGHT	0.06				
DAYS TO	FLOWER	-0.26	-0.12			
LEAF	RUST	-0.16	-0.32	-0.33		
HEIGHT	CM.	0.23	-0.55**	0.09	-0.08	
LODGING		0.00	0.00	0.00	0.00	0.00

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

TABLE 29 SOUTH AMERICA ARGENTINA BORDENAVE

ESTACION EXPERIMENTAL AGROPECUARIA-BORDENAVE.
COOPERATORS SANTIAGO E. GARBINI.

LATITUDE	037 50'S	DATE PLANTED	08/12/71	NITROGEN	KG/HA
LONGITUDE	063 01'W	DATE HARVESTED	12/21/71	PHOSPHORUS	KG/HA
ELEVATION	400212 M.ABOVE S.L.	AMOUNT OF MOISTURE	0309 MM	POTASSIUM	KG/HA

LOCAL VARIETY NOT IDENTIFIED. RAINFALL AND MODERATE TEMPERATURES DURING SEPTEMBER AND PART OF OCTOBER. HIGH TEMPERATURES AND STRONG WINDS DURING THE LAST PART OF NOVEMBER. NO DISEASE DEVELOPMENT.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	1000 GRN WGT GRMS
19	BADGER PM-123	MEXICO	2433.3	58.7	79.0	121.6	91.5	27.1
7	ARMADILLO PM-111	MEXICO	2358.3	51.5	79.0	122.3	91.6	26.2
16	BADGER PM-119	MEXICO	2266.6	63.8	79.0	121.6	91.5	29.6
22	LM-TOHN-47C	CANADA	2250.0	63.2	79.0	123.0	88.3	27.8
9	ARMADILLO PM-113	MEXICO	2250.0	63.1	80.3	123.6	91.6	28.1
2	ARMADILLO PM-104	MEXICO	2250.0	61.5	79.0	122.0	95.0	27.6
17	BADGER PM-121	MEXICO	2241.6	53.3	79.0	122.6	93.3	28.0
4	ARMADILLO PM-108	MEXICO	2233.3	61.4	79.0	122.0	93.3	27.5
20	ARMADILLO PM-105	MEXICO	2208.3	53.3	79.0	122.0	88.3	26.5
18	BADGER PM-122	MEXICO	2133.3	63.7	79.6	122.6	93.3	29.7
5	PITIC	MEXICO	2116.6	53.3	86.3	120.0	71.6	19.0
3	ARMADILLO PM-107	MEXICO	2075.0	61.8	79.0	120.6	93.3	27.9
1	ARMADILLO PM-102	MEXICO	2066.6	63.9	79.3	130.0	91.6	28.2
14	BADGER PM-118	MEXICO	2000.0	53.7	79.0	121.3	95.0	29.0
11	ARMADILLO PM-114	MEXICO	1983.3	57.9	79.0	122.6	88.3	27.6
15	JORI	MEXICO	1916.6	71.1	80.3	121.6	63.3	32.1
6	ARMADILLO PM-109	MEXICO	1916.6	57.6	79.0	122.6	91.5	28.3
24	ARMADILLO PM-132	MEXICO	1800.0	55.2	79.0	122.0	88.3	24.2
8	ARMADILLO PM-112	MEXICO	1766.6	58.8	79.0	121.0	95.0	26.1
13	ARMADILLO PM-113	MEXICO	1733.3	62.3	77.0	122.3	90.0	23.9
12	ARMADILLO PM-116	MEXICO	1683.3	53.6	80.3	122.0	93.3	27.3
25	LOCAL CHECK		1583.3	72.8	82.0	126.0	90.0	18.5
10	TOBARI	MEXICO	1316.6	71.1	80.3	120.6	70.0	21.3
21	ARMADILLO PM-13	MEXICO	1266.6	53.4	65.0	130.0	101.6	21.1
23	BRONCO PM-63	MEXICO	1033.3	51.1	79.0	122.0	100.0	24.9
		GRAND MEAN	1947.3	61.3	79.8	122.7	90.0	26.3
	STANDARD ERROR OF GRAND MEAN		26.9	0.1	0.2	0.3	0.3	0.2
	COEFFICIENT OF VARIATION		11.9%	2.7%	2.6%	2.7%	3.5%	7.7%
	LSD VARIETY MEANS 5 PC		390.9	5.7	3.3	5.5	5.1	3.3

CORRELATIONS

	YIELD KG/HA				
TEST WEIGHT	-0.29				
DAYS TO FLOWER	-0.27	0.16			
DAYS TO MATURITY	-0.21	0.02	0.25		
HEIGHT CM.	-0.01	-0.62**	-0.24	0.32	
1000 GRN WGT GRMS	0.48*	-0.23	-0.61**	-0.17	0.06

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

TABLE 30 SOUTH AMERICA BRAZIL PASSO FUNDO

RIO GRANDE DO SUL. ESTACAO EXP. DE PASSO FUNDO.
COOPERATORS F. ANTONIO LANGER AND S.R. DOFTO.

LATITUDE	021 30°S	DATE PLANTED	06/23/72	NITROGEN	090.0 KG/HA
LONGITUDE	052 00°W	DATE HARVESTED	23/11/72	PHOSPHORUS	300.0 KG/HA
ELEVATION	000700 M.ABOVE S.L.	AMOUNT OF MOISTURE	1200 MM	POTASSIUM	120.0 KG/HA

LOCAL VARIETY IAS 59. BAD CONDITIONS DUE TO EXCESSIVE RAINFALL. HIGH INCIDENCE OF SEPTORIA, GIBBERELA AND HELMINTHOSPORIUM.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	LEAF RUST	HEIGHT CM.	LODGING	1000 GRN WGT GRMS
14	BADGER PM-118	MEXICO	2983.3	55.0	83.0	141.0	1	92.0	0.0	37.3
1	ARMADILLO PM-102	MEXICO	2950.0	65.0	83.0	141.0	10	85.0	3.3	38.1
9	ARMADILLO PM-113	MEXICO	2933.3	55.0	80.0	141.0	5	84.0	0.0	35.7
4	ARMADILLO PM-108	MEXICO	2766.6	65.0	78.0	104.0	13	86.0	8.3	36.2
11	ARMADILLO PM-114	MEXICO	2758.3	55.0	82.0	141.0	0	93.0	8.3	37.0
19	BADGER PM-123	MEXICO	2716.6	55.0	77.0	141.0	5	89.0	3.0	40.6
18	BADGER PM-122	MEXICO	2700.0	65.0	80.0	141.0	20	86.0	0.0	39.8
8	ARMADILLO PM-112	MEXICO	2683.3	55.0	83.0	141.0	20	90.0	0.0	37.0
20	ARMADILLO PM-105	MEXICO	2675.0	65.0	80.0	141.0	0	87.0	3.3	37.6
22	LM-70HA-470	CANADA	2533.3	55.0	77.0	141.0	13	90.0	0.0	38.3
16	BADGER PM-119	MEXICO	2533.3	65.0	80.0	141.0	13	90.0	15.5	37.1
24	ARMADILLO PM-132	MEXICO	2500.0	55.0	83.0	141.0	0	97.0	8.3	28.7
12	ARMADILLO PM-116	MEXICO	2491.6	65.0	87.0	141.0	23	99.0	16.6	33.0
13	ARMADILLO PM-117	MEXICO	2483.3	55.0	82.0	141.0	20	91.0	0.0	27.5
17	BADGER PM-121	MEXICO	2483.3	65.0	77.0	141.0	0	92.0	8.3	35.8
2	ARMADILLO PM-104	MEXICO	2450.0	65.0	80.0	141.0	5	87.0	3.3	33.0
3	ARMADILLO PM-107	MEXICO	2416.6	57.0	93.0	141.0	20	74.0	0.0	36.8
6	ARMADILLO PM-109	MEXICO	2366.6	55.0	80.0	141.0	5	82.0	3.3	37.0
21	ARMADILLO PM-13	MEXICO	2333.3	55.0	94.0	141.0	0	106.0	8.3	34.0
7	ARMADILLO PM-111	MEXICO	2175.0	65.0	80.0	141.0	13	93.0	3.0	34.8
23	BRONCO PM-63	MEXICO	1875.0	55.0	83.0	141.0	10	59.0	0.0	35.7
25	LOCAL CHECK		1566.6	71.5	94.3	141.0	70	96.0	0.0	24.0
10	TUBARI	MEXICO	983.3	71.1	82.0	105.0	1	50.0	8.3	18.6
5	BITIC	MEXICO	675.0	55.0	83.0	141.0	50	67.0	0.0	17.7
15	JORI	MEXICO	656.6	65.0	120.0	142.0	0	60.0	25.0	18.3
		GRAND MEAN	2299.9	66.4	82.7	138.2	12.3	86.6	4.3	33.4
	STANDARD ERROR OF GRAND MEAN		36.9						1.1	
	COEFFICIENT OF VARIATION		13.3%						220.9%	
	LSD VARIETY MEANS 5 PC		522.2						15.6	

CORRELATIONS

	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	LEAF RUST	HEIGHT CM.	LODGING	1000 GRN WGT GRMS
TEST WEIGHT	-0.44*							
DAYS TO FLOWER	-0.60**	0.18						
DAYS TO MATURITY	0.13	-0.45*	0.11					
LEAF RUST	-0.33	0.45*	0.07	0.12				
HEIGHT CM.	0.65**	-0.31	-0.25	0.44*	-0.08			
LODGING	-0.34	-0.01	0.53**	-0.16	-0.26	-0.18		
1000 GRN WGT GRMS	0.89**	-0.52**	-0.55**	0.26	-0.37	0.57**	-0.35	

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

TABLE 31 SOUTH AMERICA COLOMBIA CUNDINAMARCA

CUNDINAMARCA, TIBAITATA.
COOPERATORS RAFAEL LOPEZ, MARIO ZAPATA AND E.VARELA.

LATITUDE 03° 35'N DATE PLANTED 03/19/72 NITROGEN KG/HA
LONGITUDE 074 04'W DATE HARVESTED 07/21/72 PHOSPHORUS ---.- KG/HA
ELEVATION 02640 M.ABOVE S.L. AMOUNT OF MOISTURE 0400 MM POTASSIUM ---.- KG/HA

LOCAL VARIETY NOT IDENTIFIED. FAIR DISEASE DEVELOPMENT.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	LEAF RUST	STEM RUST	HEIGHT CM.	LODGING	1000 GRN WGT GRMS	ROOT ROT
9	ARMADILLO PM-113	MEXICO	6438.2	55.3	73.6	175.0	0	0	0	120.0	33.3	49.0	40.0
3	ARMADILLO PP-107	MEXICO	6243.8	62.1	73.6	175.0	0	0	0	125.0	15.6	55.0	43.0
17	BADGER PM-121	MEXICO	6218.2	53.1	74.6	171.6	0	TR	0-TR	126.6	53.0	50.0	40.0
25	LOCAL CHECK		6038.2	72.6	73.6	172.3	TR	40MS	0	96.6	1.6	63.0	43.0
20	ARMADILLO PM-105	MEXICO	6316.0	63.1	74.0	175.0	0	TMR	TR	131.6	75.6	52.0	40.0
4	ARMADILLO PM-108	MEXICO	5999.3	64.3	74.0	175.0	0	OT	OTR	123.3	73.3	51.6	40.0
19	BADGER PM-123	MEXICO	5349.3	56.3	75.3	175.0	0	5MR	TR	125.0	74.6	51.3	40.0
1	ARMADILLO PM-102	MEXICO	5916.0	56.0	75.0	171.6	TR	5MR	0	121.6	75.6	52.3	40.0
2	ARMADILLO PP-104	MEXICO	5871.6	55.5	75.3	175.0	TR	0	0	125.0	61.3	53.3	43.0
10	BADGER PM-122	MEXICO	5856.0	57.7	76.3	175.0	TR	THR	0-TR	125.0	83.0	51.6	40.0
8	ARMADILLO PP-112	MEXICO	5821.6	64.0	74.3	175.0	TR	0	0	121.6	83.0	52.3	43.0
22	UP-JOHN-47C	CANADA	5516.1	67.7	75.0	175.0	0	5MR	0	125.0	45.0	51.0	40.0
13	TOEARI	MEXICO	5282.7	75.2	75.6	149.6	MR	0	0	95.0	5.6	39.0	30.0
23	BRONCO PM-63	MEXICO	5166.1	62.0	74.0	175.0	5R	10MS	0	141.6	83.3	51.0	40.0
6	ARMADILLO PM-109	MEXICO	4799.5	63.3	75.3	175.0	0	T	0	120.0	43.3	55.3	40.0
16	BADGER PP-119	MEXICO	4716.1	61.5	75.0	175.0	0	TR	0-TR	121.6	55.6	47.3	40.0
11	ARMADILLO PM-114	MEXICO	4543.9	56.8	79.0	169.0	0	TR	0	126.6	45.6	52.6	40.0
7	ARMADILLO PP-111	MEXICO	4616.2	67.6	7 .6	175.0	10R	0	5MR	120.0	61.6	53.6	43.0
13	ARMADILLO PM-113	MEXICO	4549.5	51.7	77.3	175.0	TR	10MR	0	120.0	73.3	43.6	40.0
5	FITIC	MEXICO	4288.4	51.5	85.6	172.3	40S-MS	5MR	0	98.3	33.0	34.6	43.0
12	ARMADILLO PM-110	MEXICO	4227.3	64.7	79.6	175.0	5R	10MR	OTR	121.6	44.6	51.3	40.0
14	BADGER PM-118	MEXICO	4171.8	53.7	75.5	172.3	0	5MR	OTR	125.0	85.6	53.6	40.0
24	ARMADILLO PM-132	MEXICO	4338.4	54.5	74.3	173.3	5R	0	0	135.0	93.0	41.0	40.0
15	JORI	MEXICO	3127.4	57.2	81.6	173.3	30MR	0	30MR-MS	76.6	3.0	62.0	50.0
21	ARMADILLO PP-63	MEXICO	2633.0	60.0	94.6	175.0	0	10MR	0	128.3	93.3	33.6	43.0
		GRAND MEAN	5126.2	64.3	75.8	173.7	1.7	2.4	0.8	119.8	57.7	49.6	40.0
	STANDARD ERROR OF GRAND MEAN		115.6		0.1	0.2	0.2	0.2		0.6	2.9	0.5	0.5
	COEFFICIENT OF VARIATION		19.5%		2.1%	1.4%	119.5%	84.4%		4.7%	43.7%	10.1%	09.9%
	LSD VARIETY MEANS 5 PC		1635.2		2.6	4.2	3.3	3.4		9.2	61.2	9.2	6.5

CORRELATIONS

	YIELD KG/HA
TEST WEIGHT	0.20
DAYS TO FLOWER	-0.70**
DAYS TO MATURITY	0.06
STRIPE RUST	-0.29
LEAF RUST	0.04
STEM RUST	-0.42*
HEIGHT CM.	0.22
LODGING	-0.15
1000 GRN WGT GRMS	0.22
ROOT ROT	-0.33

	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	LEAF RUST	STEM RUST	HEIGHT CM.	LODGING	1000 GRN WGT GRMS
DAYS TO FLOWER	-0.14								
DAYS TO MATURITY	-0.42*	-0.03							
STRIPE RUST	0.00	0.43*	-0.18						
LEAF RUST	0.33	0.09	-0.09	-0.09					
STEM RUST	0.17	0.19	-0.03	0.23	-0.09				
HEIGHT CM.	-0.66**	-0.21	0.37	-0.48*	-0.24	-0.56			
LODGING	-0.66**	0.23	0.28	0.11	-0.29	-0.42	0.63**		
1000 GRN WGT GRMS	0.03	-0.44*	0.25	-0.41*	-0.15	0.43	0.83	-0.30	
ROOT ROT	-0.33	0.15	0.35	0.15	0.00	0.72	0.18	-0.09	0.55**

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

TABLE 32 SOUTH AMERICA ECUADOR PICHINCHA

PICHINCHA SANTA CATALINA.
COOPERATORS SECCION TRIGO PROGRAMA CEREALES INIAP.

LATITUDE 00 22'S
LONGITUDE 73 33'W
ELEVATION +03058 M.ABOVE S.L.

DATE PLANTED 12/27/72
DATE HARVESTED 08/24/72
AMOUNT OF MOISTURE 0853 MM

NITROGEN 030.0 KG/HA
PHOSPHORUS 090.0 KG/HA
POTASSIUM 030.0 KG/HA

LOCAL VARIETY ATACAZO. NORMAL DISEASE DEVELOPMENT. NO INSECT, WEED OR PEST PROBLEM.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	1000 GRN WGT GRMS	SEPTORIA SPP.
25	LOCAL CHECK		4625.3	74.3	99.0	187.0	113.3	29.6	11.6
1	ARMADILLO PM-102	MEXICO	4437.8	61.6	85.0	189.0	125.3	35.3	6.6
4	ARMADILLO PM-108	MEXICO	4243.3	57.0	84.0	189.0	135.6	39.0	5.0
19	BADGER PM-123	MEXICO	3882.2	57.3	83.0	191.0	131.3	35.6	5.0
8	ARMADILLO PM-112	MEXICO	3861.4	53.6	84.3	187.0	139.6	35.6	8.3
9	ARMADILLO PM-113	MEXICO	3660.0	59.0	82.3	184.0	131.3	33.3	5.5
5	PITIC	MEXICO	3632.2	53.3	93.0	184.0	113.3	25.3	8.3
23	PRECOCO PM-63	MEXICO	3607.2	60.3	82.6	203.0	133.3	35.0	9.3
10	TOBARI	MEXICO	3576.6	77.0	84.6	183.0	110.6	26.3	15.0
16	BADGER PM-119	MEXICO	3576.6	57.0	83.3	195.0	113.0	33.0	6.6
17	BADGER PM-121	MEXICO	3562.7	57.0	82.6	197.0	130.6	40.0	6.6
2	ARMADILLO PM-104	MEXICO	3500.2	54.3	84.3	187.0	129.3	34.3	5.0
7	ARMADILLO PM-111	MEXICO	3479.4	57.0	82.6	191.0	122.0	36.0	5.0
12	ARMADILLO PM-116	MEXICO	3284.9	53.6	83.3	191.0	139.0	36.6	13.3
3	ARMADILLO PM-107	MEXICO	3243.3	55.6	82.0	185.0	130.0	35.3	5.5
20	ARMADILLO PM-105	MEXICO	3111.3	55.6	84.3	201.0	123.3	35.6	8.3
14	BADGER PM-118	MEXICO	3055.7	58.6	84.0	184.0	127.3	34.3	11.5
18	BADGER PM-122	MEXICO	2972.4	57.0	82.6	195.0	134.0	34.3	6.6
11	ARMADILLO PM-114	MEXICO	2854.3	57.8	85.3	187.0	133.6	36.3	2.3
22	UM-JOHN-470	CANADA	2566.8	53.0	81.6	197.0	129.6	37.6	10.0
6	ARMADILLO PM-109	MEXICO	2521.0	55.6	82.0	191.0	127.3	39.6	10.0
24	ARMADILLO PM-132	MEXICO	2326.5	54.6	83.0	207.0	141.3	27.3	10.0
13	ARMADILLO PM-113	MEXICO	2062.6	53.6	85.3	187.0	125.6	27.6	8.3
21	ARMADILLO PM-13	MEXICO	1791.8	51.6	108.0	209.0	144.0	29.3	2.3
15	JORI	MEXICO	436.1	55.0	8[illegible].0	204.0	93.3	29.0	10.0
		GRAND MEAN	3200.9	59.4	86.0	191.7	126.5	33.7	7.9
		STANDARD ERROR OF GRAND MEAN	73.0	0.2	0.1		1.5	0.4	0.3
		COEFFICIENT OF VARIATION	19.7%	4.2%	1.1%		10.9%	12.2%	42.3%
		LSD VARIETY MEANS 5 PC	1333.3	6.1	1.5		22.5	6.7	5.4

CORRELATIONS

	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	HEIGHT CM.	1000 GRN WGT GRMS	SEPTORIA SPP.
TEST WEIGHT	0.26						
DAYS TO FLOWER	-0.12	0.16					
DAYS TO MATURITY	-0.50**	-0.37	0.21				
HEIGHT CM.	0.15	-0.58**	-0.07	0.13			
1000 GRN WGT GRMS	0.29	-0.37	-0.51**	-0.09	0.38		
SEPTORIA SPP.	-0.02	0.66**	-0.09	-0.18	-0.39*	-0.28	

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

TABLE 33 SOUTH AMERICA PERU ANCASH

PROGRAMA DE CEREALES.UNIVERSIDAD AGRARIA
COOPERATORS INGS. M. ROMERO, L.LAVADO AND L. GOMEZ

LATITUDE 9 10° S
LONGITUDE 77 40°W
ELEVATION + 2600 M.ABOVE S.L.

DATE PLANTED 12/12/72
DATE HARVESTED 07/01/72
AMOUNT OF MOISTURE 99

NITROGEN 080.0 KG/HA
PHOSPHORUS 050.0 KG/HA
POTASSIUM 000.0 KG/HA

LOCAL VARIETY NOT IDENTIFIED. HEAVY RAINS FROM PLATING TO GRAIN FORMING STAGE. INFECTIONS BY STEM AND LEAF RUST.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	HEIGHT CM.	STEM RUST	1000 GRN WGT GRMS
25	LOCAL CHECK		3268.3	73.1	57.0	90.0	10S	38.3
23	BRONCO PM-63	MEXICO	3150.2	57.5	59.0	120.0	TS	45.0
5	FITIC	MEXICO	2812.7	55.5	74.3	105.0	30S	25.2
8	ARMADILLO PM-112	MEXICO	2631.5	63.5	60.0	110.0	TS	45.0
7	ARMADILLO PM-111	MEXICO	2518.2	63.0	53.0	100.0	0	44.4
9	ARMADILLO PM-113	MEXICO	2382.1	65.3	59.6	105.0	0	44.6
4	ARMADILLO PM-108	MEXICO	2358.5	51.3	62.0	100.0	10S	44.6
3	ARMADILLO PM-107	MEXICO	2352.9	69.3	59.3	100.0	TS	45.9
1	ARMADILLO PM-102	MEXICO	2343.2	53.5	59.0	95.0	TS	44.1
10	TOEARI	MEXICO	2319.6	77.3	63.6	85.0	20S	36.9
22	UM-7QHN-47C	CANADA	2289.0	69.1	58.0	90.0	0	44.1
12	ARMADILLO PM-116	MEXICO	2182.1	63.5	59.3	90.0	TS	44.8
17	BADGER PM-121	MEXICO	2115.4	67.5	59.0	90.0	TS	45.0
18	EAGLER PM-122	MEXICO	1941.8	53.1	58.3	95.0	TS	46.1
2	ARMADILLO PM-104	MEXICO	1884.8	70.7	60.3	90.0	TS	45.3
19	EAGLER PM-123	MEXICO	1794.5	57.7	59.3	90.0	TS	44.7
14	BADGER PM-118	MEXICO	1702.9	69.9	62.0	95.0	20S	45.9
13	ARMADILLO PM-113	MEXICO	1622.3	73.7	66.3	90.0	0	38.5
20	ARMADILLO PM-105	MEXICO	1529.2	63.1	59.0	90.0	TS	45.6
16	BADGER PM-119	MEXICO	1168.1	67.0	60.0	90.0	TS	44.0
24	ARMADILLO PM-132	MEXICO	1052.8	53.1	63.0	105.0	0	39.5
11	ARMADILLO PM-114	MEXICO	876.4	61.0	63.6	110.0	10S	44.9
21	ARMADILLO PM-13	MEXICO	864.5	59.7	74.3	125.0	0	33.2
15	JORI	MEXICO	790.3	65.1	63.6	50.0	30S	37.2
6	ARMADILLO PM-109	MEXICO	740.3	53.5	58.0	105.0	TS	44.5
		GRAND MEAN	1945.7	69.2	61.6	96.5		42.3
		STANDARD ERROR OF GRAND MEAN	112.8	0.0	0.2			0.2
		COEFFICIENT OF VARIATION	50.2%	0.9%	3.0%			4.7%
		LSD VARIETY MEANS 5 PC	1596.3	1.0	3.0			3.2

CORRELATIONS

	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	HEIGHT CM.	STEM RUST	1000 GRN WGT GRMS
TEST WEIGHT	0.51**					
DAYS TO FLOWER	-0.19	-0.15				
HEIGHT CM.	0.14	-0.27	0.19			
STEM RUST	0.00	0.00	0.00	0.00		
1000 GRN WGT GRMS	0.00	0.01	-0.75**	-0.00	0.00	

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

TABLE 34 SOUTH AMERICA PERU LA MOLINA

ESTACION EXPERIMENTAL AGRICOLA LA MOLINA.
COOPERATORS DR. CARLOS LLOSA ET AL.

LATITUDE 012 00°S
LONGITUDE 077 00°W
ELEVATION +00251 M.ABOVE S.L.

DATE PLANTED 06/24/72
DATE HARVESTED 12/11/72
AMOUNT OF MOISTURE ---- MM

NITROGEN ---.- KG/HA
PHOSPHORUS ---.- KG/HA
POTASSIUM ---.- KG/HA

LOCAL VARIETY NOT IDENTIFIED. COTTON WAS LAST CROP WITH 150 KG/HA OF N. AND 60 KG/HA OF P. APHIDS TREATED WITH A SYSTEMIC INSECTICIDE.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	LEAF RUST	1000 GRN WGT GRMS
12	ARMADILLO PM-116	MEXICO	3741.0	0.0	TS	53.5
20	ARMADILLO PM-105	MEXICO	3518.0	0.0	0	53.0
5	PITIC	MEXICO	3511.0	0.0	0	35.0
1	ARMADILLO PM-102	MEXICO	3252.0	0.0	30S-50	49.0
14	BADGER PM-118	MEXICO	3248.0	0.0	T	49.0
13	ARMADILLO PM-113	MEXICO	3228.0	0.0	5S-10	44.0
16	BADGER PM-119	MEXICO	3170.0	0.0	T	50.1
8	ARMADILLO PM-112	MEXICO	3048.0	0.0	40S-20	51.6
7	ARMADILLO PM-111	MEXICO	2810.0	0.0	40S-20	46.7
19	BADGER PM-123	MEXICO	2745.0	0.0	T	47.2
4	ARMADILLO PM-108	MEXICO	2589.0	0.0	20S-40	48.0
25	LOCAL CHECK		2524.0	0.0	TS	41.1
9	ARMADILLO PM-113	MEXICO	2498.0	0.0	10S-10	48.3
18	BADGER PM-122	MEXICO	2451.0	0.0	5S-5	49.7
23	BRONCO PN-63	MEXICO	2430.0	0.0	5S-5	49.1
2	ARMADILLO PM-104	MEXICO	2325.0	0.0	20S-20	45.2
21	ARMADILLO PM-13	MEXICO	2257.0	0.0	T	37.5
24	ARMADILLO PM-132	MEXICO	2228.0	0.0	TR	43.1
11	ARMADILLO PM-114	MEXICO	2183.0	0.0	0	49.5
22	LP-70HN-470	CANADA	2018.0	0.0	0	49.0
6	ARMADILLO PM-105	MEXICO	1933.0	0.0	10S-10	49.2
3	ARMADILLO PM-107	MEXICO	1692.0	0.0	40S-60	45.0
10	TOBARI	MEXICO	1601.0	0.0	0	29.6
15	JORI	MEXICO	1597.0	0.0	0	47.2
17	BADGER PM-121	MEXICO	1398.0	0.0	10S-10	47.1
		GRAND MEAN	2560.1			46.2

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

CORRELATIONS

YIELD KG/HA			
TEST WEIGHT	0.00		
LEAF RUST	0.00	0.00	
1000 GRN WGT GRMS	0.25	0.00	0.00

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

TABLE 35

MEAN OVER ALL LOCATIONS FOR YIELD, AGRONOMIC AND DISEASE DATA FOR THE THIRD INTERNATIONAL TRITICALE YIELD NURSERY.

PROMEDIO DE TODOS LOS LUGARES PARA RENDIMIENTO, DATOS AGRONOMICOS Y DE ENFERMEDADES DEL TERCER ENSAYO INTERNACIONAL DE RENDIMIENTO DE TRITICALES.

MOYENNE DE TOUS LES LOCALITES POUR RENDEMENT, DONEES AGRONOMIQUES ET DES MALADIES POUR LA TROISIEME PEPINIERE INTERNATIONALE DE RENDEMENT DES TRITICALES.

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WEIGHT	DAYS TO FLOWER	DAYS TO MATURITY	STRIPE RUST	LEAF RUST	STEM RUST
5	PITIC	MEXICO	3416.15	65.83	100.24	141.91	30.00	21.43	1.33
25	LOCAL CHECK		3387.86	70.31	106.69	156.74	0.05	31.20	20.00
18	BADGER PM-122	MEXICO	3274.66	61.75	100.03	154.50	0.05	20.15	0.88
9	ARMADILLO PM-113	MEXICO	3250.82	61.89	99.80	153.96	0.0	22.85	18.67
1	ARMADILLO PM-102	MEXICO	3240.50	62.49	100.18	151.79	0.05	24.50	2.33
8	ARMADILLO PM-112	MEXICO	3239.85	61.82	100.27	154.14	0.05	26.43	11.33
16	BADGER PM-119	MEXICO	3227.20	61.79	100.33	153.57	0.05	22.12	3.05
19	BADGER PM-123	MEXICO	3184.23	61.62	99.47	154.06	0.0	21.81	1.55
20	ARMADILLO PM-105	MEXICO	3144.78	62.16	100.62	155.28	0.0	13.03	3.05
7	ARMADILLO PM-111	MEXICO	3144.55	62.47	100.25	154.39	1.00	26.99	3.00
4	ARMADILLO PM-108	MEXICO	3138.36	62.55	100.16	152.25	0.0	30.73	4.88
14	BADGER PM-118	MEXICO	3095.16	61.95	99.55	153.83	0.0	17.70	3.72
3	ARMADILLO PM-107	MEXICO	3072.43	62.03	99.61	153.11	0.0	30.65	15.33
2	ARMADILLO PM-104	MEXICO	3065.26	62.68	100.05	153.86	0.05	24.06	4.67
17	BADGER PM-121	MEXICO	3046.98	61.47	99.54	153.34	0.0	17.42	1.05
10	TOBARI	MEXICO	3030.33	73.29	94.43	138.68	1.50	0.41	0.0
22	UM-70HN-470	CANADA	2881.24	60.56	99.61	153.53	0.0	19.05	4.00
11	ARMADILLO PM-114	MEXICO	2836.42	61.28	101.88	155.04	0.0	11.12	0.33
12	ARMADILLO PM-116	MEXICO	2772.73	62.25	104.48	155.67	0.50	23.08	1.55
6	ARMADILLO PM-109	MEXICO	2668.59	60.55	99.66	153.39	0.05	13.59	1.00
23	BRONCO PN-63	MEXICO	2612.80	62.03	100.51	154.47	0.55	9.76	1.00
15	JORI	MEXICO	2585.07	66.71	99.54	143.61	8.00	1.63	9.50
24	ARMADILLO PN-132	MEXICO	2580.45	57.76	94.02	142.44	1.50	6.11	1.00
13	ARMADILLO PM-113	MEXICO	2558.83	63.00	102.18	154.73	0.05	20.75	2.00
21	ARMADILLO PM-13	MEXICO	2358.43	56.96	109.05	159.09	0.0	6.65	1.00
	SUMMARY MEANS OVER VARIETIES		2993.66	62.69	100.52	152.29	2.50	18.70	4.24

TABLE 35 (CONT'D.)

VARIETY NUMBER	VARIETY OR CROSS	ORIGIN	HEIGTH CM.	LODGING	SHATRON	1000 GRN WGT GRMS	SEPTORIA SPP.	ROOT ROT	FROST DAMAGE
5	PITIC	MEXICO	86.24	27.83	2.11	31.17	20.82	40.00	66.60
25	LOCAL CHECK		99.65	15.52	8.56	38.75	28.03	40.00	51.80
18	BADGER PM-122	MEXICO	103.51	18.83	3.33	41.77	7.03	40.00	55.20
9	ARMADILLO PM-113	MEXICO	102.07	19.70	3.33	40.84	8.88	40.00	81.40
1	ARMADILLO PM-102	MEXICO	101.43	21.22	10.00	41.24	7.03	40.00	88.80
8	ARMADILLO PM-112	MEXICO	103.99	23.74	3.33	41.33	7.87	40.00	81.40
16	BADGER PM-119	MEXICO	101.74	19.62	3.33	42.38	7.03	40.00	70.30
19	BADGER PM-123	MEXICO	101.56	18.19	10.00	42.20	6.20	40.00	88.80
20	ARMADILLO PM-105	MEXICO	101.76	19.18	3.33	43.02	7.87	40.00	88.80
7	ARMADILLO PM-111	MEXICO	100.47	13.58	3.33	41.55	6.20	40.00	88.80
4	ARMADILLO PM-108	MEXICO	100.91	17.08	3.33	42.09	8.05	40.00	88.80
14	BADGER PM-118	MEXICO	103.58	18.78	10.00	41.67	11.38	40.00	85.10
3	ARMADILLO PM-107	MEXICO	100.28	13.57	3.33	40.93	8.88	40.00	88.80
2	ARMADILLO PM-104	MEXICO	101.42	18.40	10.00	40.78	8.05	40.00	88.80
17	BADGER PM-121	MEXICO	101.60	19.48	3.33	42.42	7.03	40.00	88.80
10	TOBARI	MEXICO	78.76	16.07	3.33	33.01	22.30	30.00	66.60
22	UM-70HN-470	CANADA	98.01	14.64	10.00	41.05	10.55	40.00	59.50
11	ARMADILLO PM-114	MEXICO	102.86	19.81	17.33	41.33	4.87	40.00	88.80
12	ARMADILLO PM-116	MEXICO	104.02	19.21	10.00	39.53	10.37	40.00	77.70
6	ARMADILLO PM-109	MEXICO	98.69	16.37	39.44	43.45	6.85	40.00	88.80
23	BRONCO PN-63	MEXICO	117.57	22.62	3.33	40.63	4.17	40.00	88.80
15	JORI	MEXICO	70.68	6.96	3.33	44.61	12.40	50.00	33.30
24	ARMADILLO PN-132	MEXICO	108.62	28.83	38.33	34.67	8.70	40.00	66.60
13	ARMADILLO PM-113	MEXICO	99.07	19.99	10.00	35.91	9.72	40.00	66.60
21	ARMADILLO PM-13	MEXICO	125.27	39.56	18.78	32.48	6.72	40.00	14.80
	SUMMARY MEANS OVER VARIETIES		100.55	19.55	9.38	39.95	9.88	40.00	75.52