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RESULTS OF THE FIRST ELITE BARLEY YIELD TRIAL (EBYT), 1975-1976

RESULTADOS DEL PRIMER ENSAYO DE RENDIMIENTO DE LAS MEJORES LINEAS DE CEBADA (EBYT) 1975-1976

RESULTATS DU PREMIER ESSAI DE RENDEMENT DES MEILLEURES LIGNEES D'ORGE (EBYT), 1975-1976

CIMMYT

CENTRO INTERNACIONAL DE MEJORAMIENTO DE MAIZ Y TRIGO
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CONTENTS

GLOSSARY OF TERMS USED IN TABLES

FLOW DAYS	Days to flower
LEAF RUST	Leaf rust
LODG %	Lodging percentage
MAT DAYS	Days to maturity
NET BLOT	Net blotch
PLNT HT	Height (cm)
POWD %	Powdery mildew percentage
SCLD %	Scald percentage
SPOT BLOT	Spot blotch
STEM RUST	Stem rust
STRP RT. L	Stripe rust (leaf)
TEST WT	Test weight
1000 G.W.	1000 grain weight
YLD K/HA	Yield kg/ha

RESULTS OF THE FIRST ELITE BARLEY YIELD TRIAL (EBYT) 1975-1976

INTRODUCTION

The barley breeding program at CIMMYT was initiated in 1972. In contrast to some other barley breeding programs in the world, the CIMMYT program has two main objectives, viz. the breeding of barley lines with a high nutritional value for human consumption and the breeding of lines for animal feed.

Three years after the program began, the first set of advanced lines was obtained. These lines were tested in preliminary yield trials grown at Cd. Obregón, Sonora, México. The top yielding lines were assembled in an Elite Barley Yield Trial (EBYT) and were sent to cooperators in a number of barley growing areas in the world.

The purpose of testing these lines under a wide range of environmental conditions, was to assess their performance and also the status of the program regarding the extent of adaptation of this newly bred material.

MATERIALS AND METHODS

The seed for the 1st EBYT was multiplied in small multiplication plots grown at Cd. Obregón, Sonora, México during the 1974-75 cycle. The seed was disinfected with a fungicide, viz. Vitavax before packaging. The experimental plots generally consisted of six 2.5 meter rows in 4 replications. The instructions for the sowing, general management of the crop and recording of data were described in sheets sent to the cooperators with the seed shipment.

The First Elite Barley Yield Trial contained 25 entries. Twenty of these were lines bred by the CIMMYT program, four were standard commercial varieties from other programs and one was a local check. The entries of the 1st EBYT are listed in table A. Figures 1 and 2 show the locations of the experiments in the 1st EBYT, as well as their approximate growing period and elevation above sea level.

DATA SUMMARY

The metric system was chosen to present data for yield. Percentages were used to describe rust infection. For foliar diseases a scale from 0-9 was used. The test weight is reported in kg/hectoliter and the 1000 grain weight is expressed in grams.

The cooperators were asked to report the yield of the 4 center rows. These yields were converted to kg/ha. Statistical analyses were run for each location and the varieties were ranked according to their yield, in a descending order.

RESULTS AND DISCUSSION

Seventeen locations reported data sufficiently reliable for processing by the computer, (tables 1-17). The results indicate that the range of adaptation (measured in terms of yield) of the CIMMYT material ranks from very poor to very good.

Even though the summary table, (table 18), for the 17 locations indicates that the average yield of the local varieties is higher than the CIMMYT lines, some of them, such as CM.67-Mona which ranked among the five top yielders in 8 out of 17 locations, show an acceptable degree of adaptation.

The Coefficient of Infection with respect to some diseases also varies among the lines. However, it can be concluded that on the basis of this first trial, the CIMMYT lines must be improved for disease resistance.

There appears to be good resistance to lodging and earliness in the CIMMYT entries. Those which have been found to have desirable levels for one or more of the reported characters, have been crossed to assess their value in combination with other cultivars.

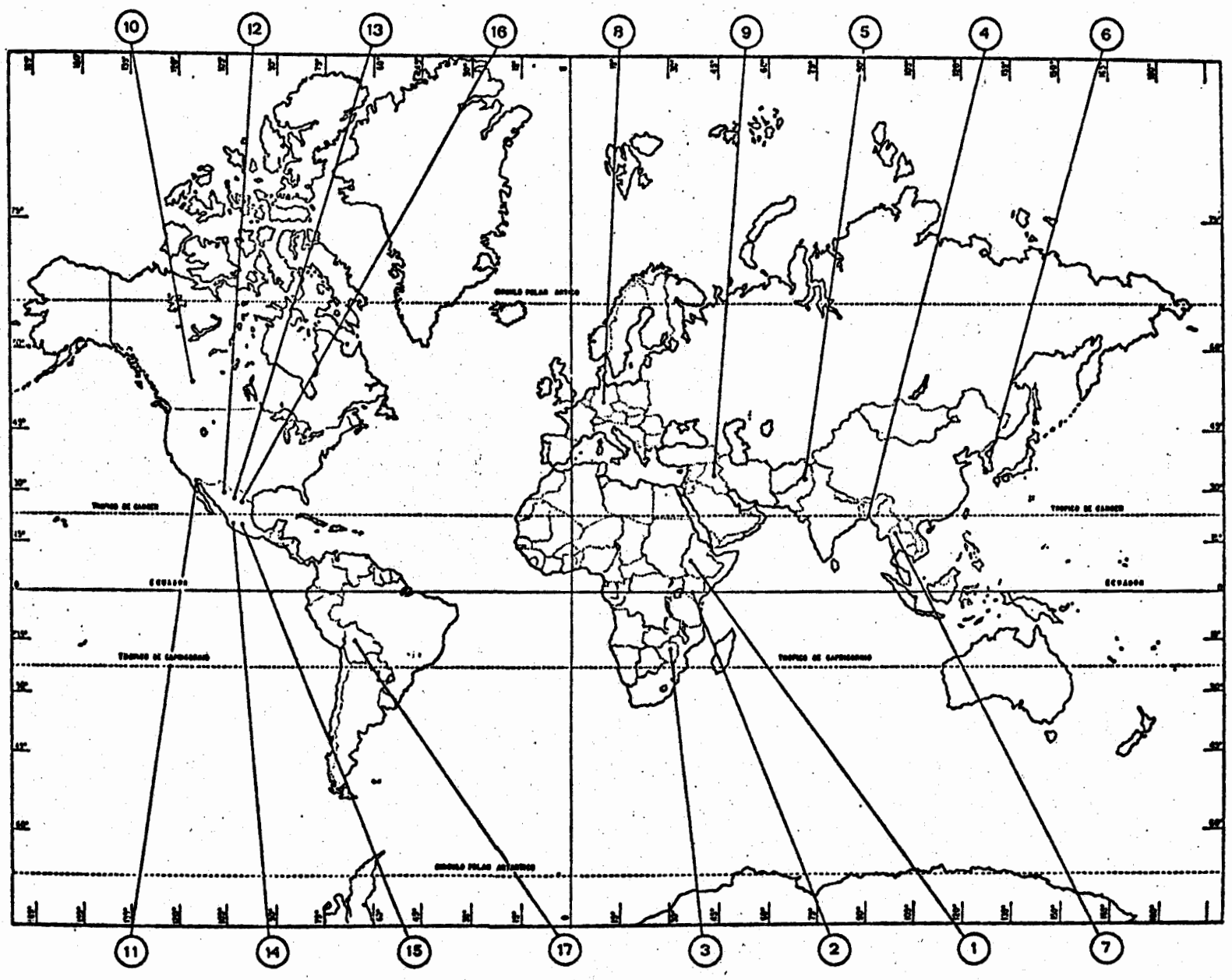

FIGURE 1. Locations of the experiments in the 1st EBYT.

FIGURE 2. Growing season and elevation of locations reported in the 1st Elite Barley Yield Trial.

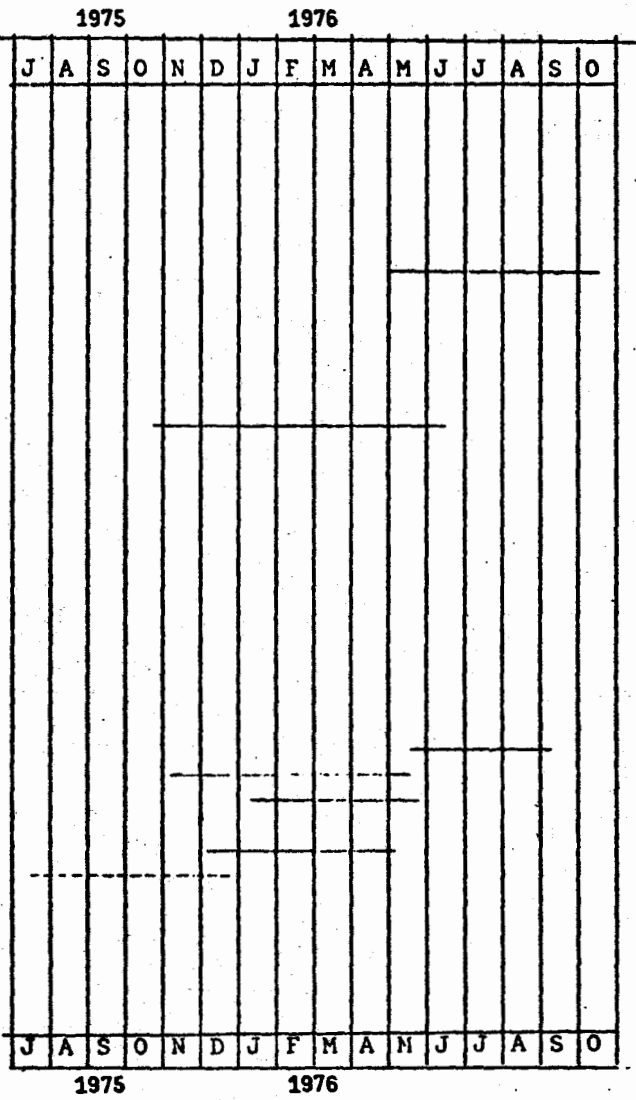

Table No		ELEVATION (meters)
	AFRICA	
1	Shoa, ETHIOPIA ***	2390
2	Rift Valley, KENYA ***	2165
3	Salisbury, RHODESIA	1486
	ASIA	
4	Dacca, BANGLADESH ***	0009
5	N.W.F.P. , PAKISTAN.***	0025
6	Chunnam, SOUTH KOREA.	0340
7	Chieng Mai, THAILAND ***	0300
	EUROPE	
8	Bavaria, WEST GERMANY ***	0467
	MIDDLE EAST	
9	Baghdad, IRAQ ***	0034
	NORTH AMERICA	
10	Alberta, CANADA	0677
11	Baja California, MEXICO	2249
12	Chihuahua, MEXICO	1170
13	Coahuila, MEXICO ***	0350
14	Jalisco, MEXICO	1550
15	Mexico,EDO DE MEXICO	2249
16	Nuevo Leon, MEXICO ***	0537
	SOUTH AMERICA	
17	Cochabamba,BOLIVIA ***	2730

* Date harvested not reported

** Date planted not reported

*** Date planted and harvested not reported.

Table A. Barley entries in the First Elite Barley Yield Trial 1975-1976.

Variety No.	Variety or Cross and Pedigree
1	CM67-EB489-2-15-5 x CM67-U.Sask 1800 CMB-72A-149-B-1B-2Y-0B
2	CM67-U.Sask 1800 x Pro-CM67 CMB-72A-160-H-4B-1Y-0B
3	CM67-SV.Mona CMB-72-41-16Y-2B-1Y-0B
4	CM67-SV.Mona CMB-72-41-29Y-4B-3Y-0B
5	Puebla
6	CM67/Apro x SV 02109-Mari CMB-72-42-4Y-2B-1Y-0B
7	CM67-U.Sask 1744 CMB-72-45-19Y-2B-2Y-0B
8	Porvenir-U.Sask 1766 CMB-72-76-6Y-3B-1Y-0B
9	Gizeh 134-Apam CMB-72-127-8Y-1B-1Y-0B
10	WI-2198
11	Gizeh 134-M65-220 CMB-72-130-8Y-1B-1Y-0B
12	Minn 126-CM67 CMB-72-189-11Y-3B-1Y-0B
13	SD 729-Porvenir CMB-72-205-10Y-1B-4Y-0B
14	Bco.Mr-Godiva CMB-72-121-A-28Y-1B-1Y-0B
15	Zephyr
16	Apam-Kn27 x Por-HC 1905 CMB-72-223-C-6Y-1B-1Y-0B
17	Por-EB1053 x CM67 CMB-72-230-A-4Y-1B-1Y-0B
18	H 269 1Y-1B-1Y-0B
19	Apam-HC 1905 B4-71A-4B-1Y-1B-2Y-0B
20	Arivat
21	Api-CM67 CMB-72-60-500Y-504B-500Y-0B
22	S.Precoz (2h) x CR115-Por CMB-72-91-500Y-503B-500Y-0B
23	Minn 126-CM67 x Ds-Apro CMB-72A-243-H-500B-508Y-0B
24	Por/Apro-SV 02109 x Mari CMB-72-75-15Y-500B-500Y-0B
25	Local Check

TABLE 1 AFRICA ETHIOPIA SHOA

NOLETTA
CEREAL STAFF
LATITUDE 009 00'N DATE PLANTED --/--/-- NITROGEN --
LONGITUDE 038 30'E DATE HARVESTED --/--/-- PHOSPHORUS --
ELEVATION 2390 M.ABOVE S.L. AMOUNT OF MOISTURE -- MM POTASSIUM --
AVE. HRS. OF DAYLIGHT DURING GROWTH --

NORMAL SOWING TIME. MOIST CONDITIONS OF SOIL AT SOWING. DRY CONDITIONS AT THE BEGINNING OF THE GROWING SEASON. NOVEMBER WAS DAMP AND RAINY. INSECT AND PEST PROBLEMS. LOCAL CHECK: NOT REPORTED.

VAR NO.	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	FLOW DAYS
25	LOCAL CHECK		2886	76
5	PUEBLA	MEXICO ***	2166	78
15	ZEPHYR	NETH'LANDS	1948	81
9	GIZEH134-APAN	MEXICO	1920	66
18	N269	MEXICO	1810	61
20	ARIVAT	U.S.A.	1642	64
8	PORVENIR-U.SASK1766	MEXICO	1638	70
24	POR/APRO-SV02109 X MARI	MEXICO	1570	68
21	API-CM67	MEXICO	1186	73
4	CM67-SV.MONA	MEXICO	1182	69
2	CM67-U.SASK1808 X PRO-CM67	MEXICO	1034	66
10	WI-2198	AUSTRALIA	1014	69
19	APAN-NC1905	MEXICO	1006	68
22	S.PRECOZ(2N) X CR113-POR	MEXICO	932	54
3	CM67-SV.MONA	MEXICO	868	66
14	BCO.NR-GODIVA	MEXICO	832	69
11	GIZEH134-N65-228	MEXICO	658	73
16	APAN-KH27 X POR-NC1905	MEXICO	612	69
12	NINN126-CM67	MEXICO	584	64
23	NINN126-CM67 X DS-APRO	MEXICO	584	81
13	SD729-PORVENIR	MEXICO	518	77
6	CM67/APRO X SV02109-MARI	MEXICO	474	62
7	CM67-U.SASK1744	MEXICO	338	80
17	POR-E81053 X CM67	MEXICO	254	64
1	CM67-E8489-8-2-15-3 X CM67-U.S	MEXICO	222	60

GRAND MEAN	1110.2	69.2
STANDARD ERROR OF GRAND MEAN	46.6	0.6
COEFFICIENT OF VARIATION AS PC	29.7	5.4
LSD VARIETY MEANS 5 PC	679.8	9.1

CORRELATIONS

	YIELD KG/HA
FLOW DAYS	0.18

TABLE 2 AFRICA KENYA RIFT VALLEY

NJORO
NATIONAL P.B.S.
LATITUDE 000 00'S DATE PLANTED --/--/-- NITROGEN --
LONGITUDE 036 00'E DATE HARVESTED --/--/-- PHOSPHORUS --
ELEVATION 2165 M.ABOVE S.L. AMOUNT OF MOISTURE -- MM POTASSIUM --
AVE. HRS. OF DAYLIGHT DURING GROWTH --

NORMAL SOWING TIME. DRY WEATHER DURING THE TRIAL. MORE RAIN TOWARDS THE END OF THE SEASON. NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK: PROCTOR.

VAR NO.	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	FLOW DAYS	MAT DAYS	STRP RT.L	LEAF RUST	STEM RUST
15	ZEPHYR	NETH'LANDS	4922	75	97	40S	20MS	10MS
25	LOCAL CHECK	***	4084	88	111	20S	20S	5MS
5	PUEBLA	MEXICO	3028	57	75	80S	10MS	20MS
2	CM67-U.SASK1800 X PRO-CM67	MEXICO	2898	66	84	20S	5MS	10MS
14	BCG.MR-GODIVA	MEXICO	2732	74	92	50S	10MS	20S
4	CM67-SV.MONA	MEXICO	2727	61	81	10MS	5MS	10MS
10	WI-2198	AUSTRALIA	2695	53	69	25MS	20MS	TMS
12	MINN126-CM67	MEXICO	2584	59	74	40S	5MS	TMS
13	SD729-PORVENIR	MEXICO	2551	80	99	50S	20MS	10MS
9	GIZEH134-APAM	MEXICO	2482	66	82	40MS	20MS	TS
8	PORVENIR-U.SASK1766	MEXICO	2301	71	92	10MS	5MS	TMS
6	CM67/APRO X SV02109-MARI	MEXICO	2292	65	79	40S	10S	60S
18	H269	MEXICO	2259	54	73	50S	5MS	TMS
20	ARIVAT	U.S.A.	2222	62	78	20MS	10MS	5MS
19	APAM-HC1905	MEXICO	2144	70	91	70S	10MS	TS
24	POR/APRO-SV02109 X MARI	MEXICO	2102	72	86	50S	20S	20MS
11	GIZEH134-M65-220	MEXICO	2074	61	74	70MS	10MS	5MS
22	S.PRECOZ(2H) X CR115-POR	MEXICO	2046	50	68	20S	TMS	20MS
21	API-CM67	MEXICO	2042	82	101	60S	30S	10S
3	CM67-SV.MONA	MEXICO	2033	66	79	30S	TS	10MS
16	APAM-KN27 X POR-HC1905	MEXICO	1852	73	92	80S	30S	TMS
7	CM67-U.SASK1744	MEXICO	1537	88	101	50S	TS	10S
17	POR-EB1053 X CM67	MEXICO	1088	69	94	50S	TS	0
1	CM67-EB489-8-2-15-5 X CM67-U.S	MEXICO	991	54	68	50S	30S	TMS
23	MINN126-CM67 X DS-APRO	MEXICO	764	75	93	30S	20MS	5MS
		GRAND MEAN	2338.0	67.6	84.8	39.0	16.4	6.6
		STANDARD ERROR OF GRAND MEAN	46.1	0.7	0.8	1.1	0.5	0.6
		COEFFICIENT OF VARIATION AS PC	19.7	10.7	9.7	28.4	48.0	95.0
		LSD VARIETY MEANS 5 PC	650.3	10.2	11.5	15.6	7.0	8.8

CORRELATIONS

YIELD	KG/HA					
FLOW	DAYS	0.14				
MAT	DAYS	0.27	0.96			
STRP	RT.L	-0.11	0.19	0.15		
LEAF	RUST	-0.02	0.31	0.31	0.24	
STEM	RUST	0.19	-0.04	-0.06	0.03	-0.02

TABLE 3 AFRICA RHODESIA SALISBURY

V.T.C. CWEBI
C.J.J.BADENHORST ET AL

LATITUDE 017 48'S	DATE PLANTED 5/ 1/76	NITROGEN	--
LONGITUDE 031 15'E	DATE HARVESTED 10/15/76	PHOSPHORUS	--
ELEVATION 1486 M.ABOVE S.L.	AMOUNT OF MOISTURE -- MM	POTASSIUM	--
AVE. HRS. OF DAYLIGHT DURING GROWTH --			

NORMAL SOWING TIME. COOL TEMPERATURES THROUGHOUT SEASON, EXTENDED FROST FROM MID-JULY TO MID-AUGUST. CHEMICAL CONTROL OF INSECTS.
LOCAL CHECK: NOT REPORTED.

VAR NO.	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	FLOW DAYS	MAT DAYS	PLNT HT	LODG %
25	LOCAL CHECK		8016	108	155	96	25
12	MINN126-CM67	MEXICO	7799	83	140	95	8
7	CM67-U.SASK1744	MEXICO	7478	95	147	94	30
11	GIZEN134-M65-220	MEXICO	7208	85	139	98	3
8	PORVENIR-U.SASK1766	MEXICO ***	7045	86	144	96	3
4	CM67-SV.MONA	MEXICO	6824	73	132	98	25
13	SD729-PORVENIR	MEXICO	6745	92	144	95	3
21	API-CM67	MEXICO	6483	84	134	99	43
23	MINN126-CM67 X DS-APRO	MEXICO	6262	96	155	71	0
15	ZEPHYR	NETH'LANDS	6237	95	147	109	74
10	VI-2198	AUSTRALIA	5995	73	131	104	43
5	PUEBLA	MEXICO	5924	72	129	114	3
3	CM67-SV.MONA	MEXICO	5691	75	134	104	8
2	CM67-U.SASK1800 X PRO-CM67	MEXICO	5624	78	132	103	93
18	H269	MEXICO	5512	77	132	115	84
9	GIZEN134-APAN	MEXICO	5333	78	131	114	8
6	CM67/APRO X SV02109-MARI	MEXICO	4783	74	131	99	23
20	ARIVAT	U.S.A.	4625	79	134	116	93
16	APAN-KH27 X POR-HC1905	MEXICO	4358	81	140	115	20
1	CM67-EB499-8-2-15-5 X CM67-U.S	MEXICO	4187	70	129	96	36
14	BCO.MR-GODIVA	MEXICO	4170	81	135	110	96
19	APAN-HC1905	MEXICO	4158	79	131	114	13
17	POR-EB1053 X CM67	MEXICO	4025	79	132	104	98
22	S.PRECOZ(2H) X CR115-POR	MEXICO	3625	60	119	105	13
24	POR/APRO-SV02109 X MARI	MEXICO	3366	79	132	114	73
	GRAND MEAN		5658.9	81.2	136.3	103.0	36.1
	STANDARD ERROR OF GRAND MEAN		58.7	0.1	0.3	0.4	2.2
	COEFFICIENT OF VARIATION AS PC		10.4	1.3	1.8	3.8	61.5
	LSD VARIETY MEANS 5 PC		827.3	1.5	3.9	5.5	31.3

CORRELATIONS

YIELD KG/HA					
FLOW	DAYS	0.62			
MAT	DAYS	0.65	0.95		
PLNT	HT	-0.53	-0.43	-0.56	
LODG	%	-0.41	-0.06	-0.19	0.41

TABLE 4 ASIA BANGLADESH DACCA

JOYDEBPUR
CEREAL STAFF
LATITUDE 023 46'N DATE.PLANTED --/--/-- NITROGEN --
LONGITUDE 090 23'E DATE HARVESTED --/--/-- PHOSPHORUS --
ELEVATION 0009 M.ABOVE S.L. AMOUNT OF MOISTURE -- MM POTASSIUM --
AVE. HRS. OF DAYLIGHT DURING GROWTH --

NORMAL WEATHER CONDITIONS DURING THE TRIAL. NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK: NOT REPORTED.

VAR NO.	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	FLOW DAYS	MAT DAYS	PLNT HT	LODG %	NET BLOT	SPOT BLOT
12	MINN126-CM67	MEXICO	2951	82	113	64	1	13	8
13	SD729-PORVENIR	MEXICO	2951	77	108	58	0	4	1
16	APAM-KN27 X POR-HC1905	MEXICO	2933	70	109	68	3	20	9
9	GIZEH134-APAM	MEXICO	2853	68	103	75	0	11	8
4	CM67-SV.MONA	MEXICO	2782	65	107	58	3	29	0
7	CM67-U.SASK1744	MEXICO	2724	78	108	54	0	16	8
8	PORVENIR-U.SASK1766	MEXICO	2696	75	111	61	2	23	14
11	GIZEH134-M65-220	MEXICO	2667	89	121	64	8	10	3
5	PUEBLA	MEXICO	2630	68	99	68	1	20	9
6	CM67/APRO X SV02109-MARI	MEXICO	2611	75	111	56	2	16	6
23	MINN126-CM67 X DS-APRO	MEXICO	2403	71	108	48	0	23	11
15	ZEPHYR	METH'LANDS	2340	88	117	63	0	40	3
1	CM67-EB489-8-2-15-5 X CM67-U.S	MEXICO	2289	75	108	63	44	43	5
2	CM67-U.SASK1800 X PRO-CM67	MEXICO	2233	70	106	57	1	23	8
19	APAM-HC1905	MEXICO	2000	68	104	59	1	13	5
18	H269	MEXICO	1987	85	120	70	3	33	18
21	API-CM67	MEXICO ***	1911	76	110	56	0	20	5
10	WI-2198	AUSTRALIA	1892	76	112	72	8	15	8
17	POR-EB1053 X CM67	MEXICO	1798	89	119	65	0	45	10
24	POR/APRO-SV02109 X MARI	MEXICO	1779	76	113	61	4	33	5
3	CM67-SV.MONA	MEXICO	1740	78	110	61	3	25	6
22	S.PRECOZ(2N) X CR113-POR	MEXICO	1438	66	95	74	5	3	1
25	LOCAL CHECK		1281	81	115	73	19	8	6
14	BCO.NR-GODIVA	MEXICO	171	84	117	51	0	9	13
20	ARIVAT	U.S.A.	-	90	124	65	0	13	8
		GRAND MEAN	2210.8	76.8	110.5	62.5	3.6	20.1	6.8
	STANDARD ERROR OF GRAND MEAN		57.7	0.5	0.4	0.6	0.9	1.3	0.6
	COEFFICIENT OF VARIATION AS PC		25.5	6.1	3.5	8.9	239.1	62.4	85.5
	LSD VARIETY MEANS 5 PC		796.9	6.6	5.5	7.9	12.0	17.7	8.2

CORRELATIONS

YIELD	KG/HA						
FLOW	DAYS	-0.24					
MAT	DAYS	-0.19	0.92				
PLNT	HT	0.03	0.00	-0.07			
LODG	%	-0.11	-0.07	-0.08	0.17		
NET	BLOT	0.05	0.18	0.25	-0.10	0.31	
SPOT	BLOT	-0.23	0.28	0.34	-0.05	-0.14	0.18

TABLE 5 ASIA SOUTH KOREA CHUNNAN

MOKPO C.E.S.
CEREAL WORKERS

LATITUDE	034 47'N	DATE PLANTED	10/20/75	NITROGEN	--
LONGITUDE	126 20'E	DATE HARVESTED	6/15/76	PHOSPHORUS	--
ELEVATION	0025 M.ABOVE S.L.	AMOUNT OF MOISTURE	-- MM	POTASSIUM	--
AVE. HRS. OF DAYLIGHT DURING GROWTH	--				

DAMAGE BY COLD WAS OBSERVED AT THE BEGINNING OF THE GROWING SEASON.
NO INSECT, WEED OR PEST PROBLEMS. LOCAL CHECK1 NOT REPORTED.

VAR NO.	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WT	PLNT HT
9	GIZEH134-APAN	MEXICO	3939	53	68
3	CM67-SV.MONA	MEXICO	3934	51	57
6	CM67/APRO X SV02109-MARI	MEXICO	3847	54	68
11	GIZEH134-M63-220	MEXICO	3814	50	60
2	CM67-U.SASK1800 X PRO-CM67	MEXICO	3800	53	63
15	ZEPHYR	NETH'LANDS	3800	53	72
4	CM67-SV.MONA	MEXICO	3703	50	55
19	APAN-NC1905	MEXICO	3619	54	59
14	BCO.NR-GODIVA	MEXICO	3581	52	77
5	PUEBLA	MEXICO	3574	48	61
25	LOCAL CHECK		3560	55	76
21	API-CM67	MEXICO	3495	50	65
24	POR/APRO-SV02109 X MARI	MEXICO	3437	47	57
13	SD729-PORVENIR	MEXICO	3318	51	58
8	PORVENIR-U.SASK1766	MEXICO	3308	48	48
7	CM67-U.SASK1744	MEXICO	3297	57	64
16	APAN-KN27 X POR-NC1905	MEXICO	3273	53	64
18	N269	MEXICO	3173	50	68
22	S.PRECOZ(2N) X CR115-POR	MEXICO	3146	52	68
1	CM67-EB489-9-2-15-5 X CM67-U.S	MEXICO	3019	46	63
10	WI-2198	AUSTRALIA	3007	54	63
23	MINN126-CM67 X DS-APRO	MEXICO	2956	51	66
20	ARIVAT	U.S.A.	2946	46	66
12	MINN126-CM67	MEXICO	2803	50	68
17	POR-E81053 X CM67	MEXICO	2629	52	65
	GRAND MEAN		3399.0	51.4	64.1
	STANDARD ERROR OF GRAND MEAN		80.8	0.9	1.1
	COEFFICIENT OF VARIATION AS PC		23.8	16.7	17.4
	LSD VARIETY MEANS 5 PC		1138.9	12.1	15.7

CORRELATIONS

	YIELD KG/HA	TEST WT	PLNT HT
TEST WT	0.25		
PLNT HT	-0.05	0.35	

TABLE 6 ASIA PAKISTAN N.W.FRONTIER PROV

A.R.I. TARNAB, PESHAWAR
CEREALS STAFF

LATITUDE	032 33'N	DATE PLANTED	--/--/--	NITROGEN	--
LONGITUDE	068 00'E	DATE HARVESTED	--/--/--	PHOSPHORUS	--
ELEVATION	0340 M.ABOVE S.L.	AMOUNT OF MOISTURE	-- MM	POTASSIUM	--
AVE. HRS. OF DAYLIGHT DURING GROWTH	--				

NORMAL SOWING TIME. WEATHER WAS DAMP DURING THE SEASON. APHID ATTACK OBSERVED. LOCAL CHECK: NOT REPORTED.

VAR NO.	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	FLOW DAYS	MAT DAYS	PLNT HT
5	PUEBLA	MEXICO	3962	110	152	99
10	WI-2198	AUSTRALIA	3349	113	153	102
15	ZEPHYR	NETH'LANDS	3278	125	159	100
7	CM67-U.SASK1744	MEXICO	3254	126	158	76
25	LOCAL CHECK		3066	123	158	112
9	GIZEH134-APAM	MEXICO	3066	111	153	103
12	MINN126-CM67	MEXICO	3066	117	157	99
4	CM67-SV.MONA	MEXICO ***	2948	110	156	84
8	PORVENIR-U.SASK1766	MEXICO	2924	115	155	88
18	M269	MEXICO	2806	116	156	105
3	CM67-SV.MONA	MEXICO	2783	111	154	84
13	SD729-PORVENIR	MEXICO	2759	122	157	74
11	GIZEH134-M65-220	MEXICO	2736	127	158	77
20	ARIVAT	U.S.A.	2594	117	156	116
16	APAM-KN27 X POR-MC1905	MEXICO	2453	111	155	98
2	CM67-U.SASK1800 X PRO-CM67	MEXICO	2453	111	156	93
1	CM67-EB499-8-2-15-5 X CM67-U.S	MEXICO	2453	111	155	93
17	POR-EB1053 X CM67	MEXICO	2405	113	155	93
14	BCO.NR-GODIVA	MEXICO	2240	118	158	93
24	POP/APRO-SV02109 X NARI	MEXICO	2193	114	155	108
6	CM67/APRO X SV02109-NARI	MEXICO	2193	110	157	98
19	APAM-MC1905	MEXICO	2146	113	153	91
22	S.PRECOZ(2M) X CR115-POR	MEXICO	2122	120	151	93
21	API-CM67	MEXICO	2075	111	154	89
23	MINN126-CM67 X DS-APRO	MEXICO	2005	123	163	74
	GRAND MEAN		2693.1	116.0	155.9	93.6
	STANDARD ERROR OF GRAND MEAN		56.3	0.7	0.4	0.6
	COEFFICIENT OF VARIATION AS PC		20.9	6.1	2.3	6.2
	LSD VARIETY MEANS 5 PC		794.3	10.0	5.0	8.2

CORRELATIONS

YIELD	KG/HA			
FLOW	DAYS	0.09		
MAT	DAYS	-0.13	0.64	
PLNT	HT	0.15	-0.29	-0.31

TABLE 7 ASIA THAILAND CHIENG MAI

SAN-PA-TONG R.E.S.
U.N.D.P.A.C.
LATITUDE 018 46'N
LONGITUDE 099 02'E
ELEVATION 0300 M.ABOVE S.L.
AVE. HRS. OF DAYLIGHT DURING GROWTH --

DATE PLANTED --/--/--
DATE HARVESTED --/--/--
AMOUNT OF MOISTURE -- MM

NITROGEN --
PHOSPHORUS --
POTASSIUM --

LATE SOWING TIME. NORMAL WEATHER CONDITIONS DURING THE TRIAL, EXCEPT FOR HIGHER TEMPERATURES AT END OF SEASON. CHEMICAL CONTROL OF INSECTS. NO WEED OR PEST PROBLEMS. LOCAL CHECK: NOT REPORTED.

VAR NO.	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	FLOW DAYS	MAT DAYS	LODG %
6	CM67/APRO X SV02109-MARI	MEXICO	6708	56	100	10
4	CM67-SV.MONA	MEXICO	6637	55	100	5
25	LOCAL CHECK		5356	70	114	5
8	PORVENIR-U.SASK1766	MEXICO	4952	63	107	--
24	POR/APRO-SV02109 X MARI	MEXICO	4752	55	98	5
9	GIZEH134-APAM	MEXICO	4688	61	105	5
1	CM67-EB489-8-2-15-5 X CM67-U.S	MEXICO	4629	57	101	10
3	CM67-SV.MONA	MEXICO	4538	55	98	--
2	CM67-U.SASK1800 X PRO-CM67	MEXICO	4277	53	98	--
22	S.PRECOZ(2N) X CR115-POR	MEXICO ***	3855	41	78	10
15	ZEPHYR	NETH'LANDS	3711	46	91	--
13	SD729-PORVENIR	MEXICO	3692	46	91	--
21	AP1-CM67	MEXICO	3609	60	104	5
17	POR-EB1053 X CM67	MEXICO	3172	76	120	--
23	MINH126-CM67 X DS-APRO	MEXICO	3122	60	105	--
12	MINH126-CM67	MEXICO	3082	59	104	--
10	WI-2198	AUSTRALIA	2834	59	104	15
5	PUEBLA	MEXICO	2455	52	96	--
19	APAM-MC1905	MEXICO	2103	47	99	--
11	GIZEH134-N65-220	MEXICO	1949	45	90	--
16	APAM-KH27 X POR-MC1905	MEXICO	1402	60	104	5
7	CM67-U.SASK1744	MEXICO	1070	54	98	--
18	M269	MEXICO	1035	45	90	--
14	BCO.MR-GODIVA	MEXICO	344	57	102	--
20	ARIVAT	U.S.A.	198	47	93	--
	GRAND MEAN		3366.8	55.0	99.8	
	STANDARD ERROR OF GRAND MEAN		149.0	0.4	0.4	
	COEFFICIENT OF VARIATION AS PC		44.3	7.8	3.8	
	LSD VARIETY MEANS 5 PC		2100.8	6.1	5.3	

CORRELATIONS

		YIELD KG/HA	FLOW DAYS
FLOW	DAYS	0.28	
MAT	DAYS	0.20	0.96

TABLE 8 EUROPE WEST GERMANY BAVARIA

FREISING-WEIHENSTEPHAN
L.B.P.

LATITUDE	048 24'N	DATE PLANTED	--/--/--	NITROGEN	APPLIED
LONGITUDE	011 44'E	DATE HARVESTED	--/--/--	PHOSPHORUS	APPLIED
ELEVATION	0467 M.ABOVE S.L.	AMOUNT OF MOISTURE	-- MM	POTASSIUM	APPLIED
AVE. HRS. OF DAYLIGHT DURING GROWTH		--			

NORMAL SOWING TIME. DRY CONDITIONS OF SOIL AT SOWING. NORMAL WEATHER CONDITIONS DURING THE TRIAL, EXCEPT FOR VERY DRY JUNE AND JULY. INSECT, WEED OR PEST PROBLEMS NOT REPORTED. LOCAL CHECKS NOT REPORTED.

VAR NO.	VARIETY OR CROSS	ORIGIN		YIELD KG/HA
25	LOCAL CHECK			4318
15	ZEPHYR	NETH'LANDS		4152
20	ARIVAT	U.S.A.		3824
5	PUEBLA	MEXICO		3692
4	CM67-SV.MONA	MEXICO		3676
8	PORVENIR-U.SASK1766	MEXICO		3570
22	S.PRECOZ(2H) X CR115-POR	MEXICO		3454
3	CM67-SV.MONA	MEXICO		3392
12	MINN126-CM67	MEXICO		3320
18	M269	MEXICO	***	3306
9	GIZEH134-APAM	MEXICO		2950
24	POR/APRO-SV02109 X MARI	MEXICO		2906
10	VI-2198	AUSTRALIA		2798
7	CM67-U.SASK1744	MEXICO		2656
13	SD729-PORVENIR	MEXICO		2638
21	AP1-CM67	MEXICO		2454
17	POR-EB1053 X CM67	MEXICO		2226
2	CM67-U.SASK1800 X PRO-CM67	MEXICO		2132
14	BCO.MR-GODIVA	MEXICO		1856
23	MINN126-CM67 X DS-APRO	MEXICO		1608
16	APAM-KN27 X POR-MC1905	MEXICO		1526
19	APAM-MC1905	MEXICO		1500
6	CM67/APRO X SV02109-MARI	MEXICO		1492
1	CM67-EB489-8-2-15-5 X CM67-U.S	MEXICO		1482
11	GIZEH134-M65-220	MEXICO		1006

GRAND MEAN	2717.4
STANDARD ERROR OF GRAND MEAN	60.5
COEFFICIENT OF VARIATION AS PC	22.3
LSD VARIETY MEANS 5 PC	853.1

TABLE 9 MIDDLE EAST IRAQ BAGHDAD

ABU'GHRAIB
CEREAL STAFF
LATITUDE 033 20'N DATE PLANTED --/--/-- NITROGEN --
LONGITUDE 044 24'E DATE HARVESTED --/--/-- PHOSPHORUS --
ELEVATION 0034 M.ABOVE S.L. AMOUNT OF MOISTURE -- MM POTASSIUM --
AVE. HRS. OF DAYLIGHT DURING GROWTH --

NORMAL SOWING TIME. WEATHER CONDITIONS DURING THE TRIAL NOT REPORTED.
INSECT, WEED OR PEST PROBLEMS NOT REPORTED. LOCAL CHECK: NOT REPORTED.

VAR NO.	VARIETY OR CROSS	ORIGIN		YIELD KG/HA	FLOW DAYS	MAT DAYS	PLNT HT
2	CM67-U.SASK1800 X PRO-CM67	MEXICO		4490	119	154	108
11	GIZEH134-M65-220	MEXICO		4390	125	154	94
24	POR/APRO-SV02109 X MARI	MEXICO		4070	122	156	111
8	PORVENIR-U.SASK1766	MEXICO		4040	122	157	83
25	LOCAL CHECK			3890	119	148	101
4	CM67-SV.MONA	MEXICO		3820	119	152	94
1	CM67-E8499-8-2-15-5 X CM67-U.S	MEXICO		3770	120	154	98
6	CM67/APRO X SV02109-MARI	MEXICO		3760	119	153	94
23	MINH126-CM67 X DS-APRO	MEXICO		3700	125	150	59
17	POR-E81053 X CM67	MEXICO		3620	119	151	96
3	CM67-SV.MONA	MEXICO		3600	120	156	96
16	APAM-KN27 X POR-HC1905	MEXICO		3530	122	157	101
20	ARIVAT	U.S.A.		3430	122	156	121
13	SD729-PORVENIR	MEXICO		3430	123	155	98
12	MINH126-CM67	MEXICO		3120	123	158	93
10	WI-2198	AUSTRALIA		3110	121	155	99
7	CM67-U.SASK1744	MEXICO		2970	125	157	84
14	BCO.MR-GODIVA	MEXICO		2940	123	156	98
22	S.PRECOZ(2N) X CR115-POR	MEXICO		2930	115	147	103
15	ZEPHYR	NETH'LANDS		2930	123	154	96
19	APAM-HC1905	MEXICO		2910	121	151	100
9	GIZEH134-APAM	MEXICO		2900	120	149	100
18	H269	MEXICO		2870	122	156	114
5	PUEBLA	MEXICO	***	2230	117	150	105
21	API-CM67	MEXICO		2100	122	156	96
	GRAND MEAN			3382.0	121.3	153.6	97.1
	STANDARD ERROR OF GRAND MEAN			117.4	0.2	0.3	0.6
	COEFFICIENT OF VARIATION AS PC			34.7	1.8	2.3	6.7
	LSD VARIETY MEANS 5 PC			1654.3	3.2	4.9	9.1

CORRELATIONS

YIELD	KG/HA			
FLOW	DAYS	0.08		
MAT	DAYS	0.06	0.60	
PLNT	HT	-0.16	-0.38	0.08

TABLE 10 NORTH AMERICA CANADA ALBERTA

ELLERSLIE
UNIV OF ALBERTA
LATITUDE 053 34'N DATE PLANTED 5/14/76 NITROGEN --
LONGITUDE 113 31'W DATE HARVESTED 9/ 4/76 PHOSPHORUS --
ELEVATION 0677 M.ABOVE S.L. AMOUNT OF MOISTURE -- MM POTASSIUM --
AVE. HRS. OF DAYLIGHT DURING GROWTH --

NORMAL SOWING TIME. DRY SPRING, WET FALL. HIGH WINDS BEFORE HARVEST CAUSING SOME SHATTERING. CHEMICAL CONTROL OF INSECTS.
LOCAL CHECK: GALT.

VAR NO.	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WT	FLOW DAYS	MAT DAYS	1000 G.W.
15	ZEPHYR	NETH'LANDS	7519	65	61	112	42
8	PORVENIR-U.SASK1766	MEXICO	6811	59	58	111	42
7	CM67-U.SASK1744	MEXICO	6768	58	59	110	38
2	CM67-U.SASK1800 X PRO-CM67	MEXICO	6664	59	57	109	46
25	LOCAL CHECK		6528	61	57	109	38
4	CM67-SV.MONA	MEXICO ***	6316	60	54	110	45
5	PUEBLA	MEXICO	6271	64	54	107	39
13	SD729-PORVENIR	MEXICO	6254	57	57	108	39
20	ARIVAT	U.S.A.	6223	55	47	110	46
9	CIZEH134-APAN	MEXICO	6195	61	57	108	42
3	CM67-SV.MONA	MEXICO	6034	61	55	111	44
21	API-CM67	MEXICO	5954	58	57	107	39
6	CM67/APRO X SV02109-MARI	MEXICO	5793	60	57	109	44
11	CIZEH134-M65-220	MEXICO	5752	54	55	108	32
18	M269	MEXICO	5434	56	46	109	45
16	APAN-KN27 X POR-HC1905	MEXICO	5368	68	58	109	32
12	MINN126-CM67	MEXICO	5278	59	52	108	39
24	POR/APRO-SV02109 X MARI	MEXICO	5235	55	58	109	33
23	MINN126-CM67 X DS-APRO	MEXICO	5149	58	59	111	31
19	APAN-HC1905	MEXICO	4852	69	57	109	34
14	BCO.NR-GODIVA	MEXICO	4706	58	58	107	45
22	S.PRECOZ(2H) X CR115-POR	MEXICO	4696	59	52	110	40
10	WI-2198	AUSTRALIA	4313	58	48	109	34
1	CM67-EB489-8-2-15-5 X CM67-U.S	MEXICO	3490	61	46	108	41
17	POR-EB1053 X CM67	MEXICO	3486	58	50	108	35
		GRAND MEAN	5643.5	59.6	54.7	108.9	40.0
		STANDARD ERROR OF GRAND MEAN	72.7		0.1	0.1	
		COEFFICIENT OF VARIATION AS PC	12.9		2.5	1.1	
		LSD VARIETY MEANS 5 PC	1024.8		1.9	1.6	

CORRELATIONS

YIELD	KG/HA				
TEST	WT	0.07			
FLOW	DAYS	0.55	0.30		
MAT	DAYS	0.38	0.11	0.21	
1000	G.W.	0.11	-0.17	-0.40	0.09

TABLE 11 NORTH AMERICA MEXICO CHIHUAHUA

CD. DELICIAS
CAMP EXP AGR
LATITUDE 028 11'N DATE PLANTED 1/ 7/76 NITROGEN APPLIED
LONGITUDE 105 30'W DATE HARVESTED 5/26/76 PHOSPHORUS APPLIED
ELEVATION 1170 M.ABOVE S.L. AMOUNT OF MOISTURE -- MM POTASSIUM --
AVE. HRS. OF DAYLIGHT DURING GROWTH --

NORMAL SOWING TIME. MOIST CONDITIONS OF SOIL AT SOWING. LATE FROST REDUCED YIELDS. HAND WEEDING. CHEMICAL CONTROL OF INSECTS. LOCAL CHECK: PORVENIR.

VAR NO.	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	FLOW DAYS	MAT DAYS
12	MINN126-CM67	MEXICO	7615	89	126
25	LOCAL CHECK		6822	82	119
11	CIZEH134-N65-220	MEXICO	6721	96	127
4	CM67-SV.MONA	MEXICO ***	6581	82	124
20	ARIVAT	U.S.A.	6263	88	125
15	ZEPHYR	NETH'LANDS	6261	95	131
2	CM67-U.SASK1800 X PRO-CM67	MEXICO	6216	83	131
8	PORVENIR-U.SASK1766	MEXICO	6211	89	130
17	POR-EB1053 X CM67	MEXICO	6155	86	119
10	WI-2198	AUSTRALIA	6144	83	122
9	CIZEH134-APAM	MEXICO	6141	87	121
21	API-CM67	MEXICO	5632	86	120
3	CM67-SV.MONA	MEXICO	5606	80	123
18	H269	MEXICO	5528	87	122
6	CM67/APRO X SV02109-MARI	MEXICO	5406	80	118
13	SD729-PORVENIR	MEXICO	5373	93	126
1	CM67-EB489-8-2-15-5 X-CM67-U.S	MEXICO	5185	84	120
7	CM67-U.SASK1744	MEXICO	5167	97	131
5	PUEBLA	MEXICO	4925	82	115
14	BCO.MR-GODIVA	MEXICO	4783	90	122
16	APAM-KN27 X POR-MC1905	MEXICO	4674	90	127
24	POR/APRO-SV02109 X MARI	MEXICO	4582	87	122
19	APAM-MC1905	MEXICO	4406	89	119
22	S.PRECOZ(2H) X CR115-POR	MEXICO	4331	65	104
23	MINN126-CM67 X DS-APRO	MEXICO	3252	95	131
		GRAND MEAN	5599.2	86.6	123.0
		STANDARD ERROR OF GRAND MEAN	65.1		
		COEFFICIENT OF VARIATION AS PC	11.6		
		LSD VARIETY MEANS 5 PC	918.3		

CORRELATIONS

YIELD KG/HA			
FLOW	DAYS	0.04	
MAT	DAYS	0.22	0.80

TABLE 12 NORTH AMERICA MEXICO COAHUILA

C.E.A. ZARAGOZA
S.E.GONZALEZ

LATITUDE	028 33'N	DATE PLANTED	--/--/--	NITROGEN	--
LONGITUDE	100 55'W	DATE HARVESTED	--/--/--	PHOSPHORUS	--
ELEVATION	0350 M.ABOVE S.L.	AMOUNT OF MOISTURE	-- MM	POTASSIUM	--
AVE. HRS. OF DAYLIGHT DURING GROWTH	--				

NORMAL SOWING TIME. WET CONDITIONS DURING THE HARVEST SEASON. INSECT, WEED OR PEST PROBLEMS NOT REPORTED. LOCAL CHECKS NOT REPORTED.

VAR NO.	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	FLOW DAYS	MAT DAYS
12	MINN126-CM67	MEXICO	5501	104	129
8	PORVENIR-U.SASK1765	MEXICO	5237	102	126
25	LOCAL CHECK		5219	99	129
11	GIZEH134-M65-220	MEXICO	5174	109	137
20	ARIVAT	U.S.A.	5076	102	129
1	CM67-EB489-8-2-15-5 X CM67-U.S	MEXICO	5010	96	127
9	GIZEH134-APAM	MEXICO	4824	94	116
2	CM67-U.SASK1800 X PRO-CM67	MEXICO	4727	94	117
18	M269	MEXICO	4606	100	127
13	SD729-PORVENIR	MEXICO	4578	102	124
4	CM67-SV.MONA	MEXICO	4527	94	120
5	PUEBLA	MEXICO	4412	93	114
10	VI-2198	AUSTRALIA	4373	97	129
24	POR/APRO-SV02109 X MARI	MEXICO	4302	104	124
21	API-CM67	MEXICO	4284	101	124
17	POR-EB1053 X CM67	MEXICO ***	4011	96	120
15	ZEPHYR	NETH'LANDS	3878	112	137
6	CM67/APRO X SV02109-MARI	MEXICO	3838	94	112
23	MINN126-CM67 X DS-APRO	MEXICO	3764	107	131
14	BCO.MR-GODIVA	MEXICO	3706	110	132
3	CM67-SV.MONA	MEXICO	3692	95	121
7	CM67-U.SASK1744	MEXICO	3677	111	137
16	APAM-KN27 X POR-MC1905	MEXICO	3606	102	128
19	APAM-MC1905	MEXICO	3548	98	121
22	S.PRECOZ(2H) X CR115-POR	MEXICO	3209	78	108
		GRAND MEAN	4350.9	99.9	124.7
	STANDARD ERROR OF GRAND MEAN		77.8	0.2	0.2
	COEFFICIENT OF VARIATION AS PC		17.9	1.9	1.3
	LSD VARIETY MEANS 5 PC		1096.7	2.6	2.2

CORRELATIONS

YIELD KG/HA		
FLOW DAYS	0.13	
MAT DAYS	0.21	0.89

TABLE 13 NORTH AMERICA MEXICO EDO DE MEXICO

EL BATAN
CIMMYT
LATITUDE 019 31'N DATE PLANTED 7/16/75 NITROGEN --
LONGITUDE 098 50'W DATE HARVESTED --/--/-- PHOSPHORUS --
ELEVATION 2249 M.ABOVE S.L. AMOUNT OF MOISTURE -- MM POTASSIUM --
AVE. HRS. OF DAYLIGHT DURING GROWTH --

NORMAL SOWING TIME. DRY CONDITIONS OF SOIL AT SOWING. WEATHER CONDITIONS DURING THE TRIAL NOT REPORTED. INSECT, WEED OR PEST PROBLEMS NOT REPORTED. LOCAL CHECK: NOT REPORTED.

VAR NO.	VARIETY OR CROSS	ORIGIN		YIELD KG/HA	FLOW DAYS	POWD %	SCLD %
5	PUEBLA	MEXICO		7222	54	3	13
11	CIZEM134-M65-220	MEXICO		6577	54	10	11
10	M269	MEXICO		6422	53	3	6
2	CM67-U.SASK1800 X PRO-CM67	MEXICO		6088	61	20	7
4	CM67-SV.MONA	MEXICO	***	5922	56	1	44
6	CM67/APRO X SV02109-MARI	MEXICO		5822	56	3	8
12	MINN126-CM67	MEXICO		5733	57	9	21
9	CIZEM134-APAM	MEXICO		5677	60	10	9
22	S.PRECOZ(2M) X CR115-POR	MEXICO		5599	52	0	54
13	SD729-PORVENIR	MEXICO		5444	64	0	3
20	ARIVAT	U.S.A.		5299	56	4	6
17	POR-EB1053 X CM67	MEXICO		5255	58	2	30
10	WI-2198	AUSTRALIA		5177	50	0	64
8	PORVENIR-U.SASK1766	MEXICO		4944	64	23	21
7	CM67-U.SASK1744	MEXICO		4777	68	13	2
24	POR/APRO-SV02109 X MARI	MEXICO		4622	60	8	23
19	APAM-HC1905	MEXICO		4411	56	18	23
15	ZEPHYR	NETH'LANDS		4411	70	0	50
1	CM67-EB489-8-2-15-5 X CM67-U.S	MEXICO		4255	50	3	20
3	CM67-SV.MONA	MEXICO		4188	56	0	78
14	BCO.MR-GODIVA	MEXICO		4066	57	0	18
21	API-CM67	MEXICO		4055	62	0	29
23	MINN126-CM67 X DS-APRO	MEXICO		2700	69	10	25
16	APAM-KH27 X POR-HC1905	MEXICO		2611	-	13	51
25	LOCAL CHECK			-	-	-	-
	GRAND MEAN			5053.2	58.2	6.7	25.6
	STANDARD ERROR OF GRAND MEAN			79.1	0.1		1.1
	COEFFICIENT OF VARIATION AS PC			15.3	2.1		42.3
	LSD VARIETY MEANS 5 PC			1092.7	1.8		15.4

CORRELATIONS

		YIELD KG/HA	FLOW DAYS	POWD %
FLOW	DAYS	-0.39		
POWD	%	-0.06	0.35	
SCLD	%	-0.37	-0.18	-0.35

TABLE 14 NORTH AMERICA MEXICO BAJA CALIF.

MEXICALI C.A.E.
E.V. HERNANDEZ

LATITUDE	031 40'N	DATE PLANTED	11/ 5/75	NITROGEN	APPLIED
LONGITUDE	114 45'W	DATE HARVESTED	5/14/--	PHOSPHORUS	APPLIED
ELEVATION	0025 M.ABOVE S.L.	AMOUNT OF MOISTURE	700 MM	POTASSIUM	--
AVE. HRS. OF DAYLIGHT DURING GROWTH		--			

EARLY SOWING TIME. DRY CONDITIONS OF SOIL AT SOWING.
WEATHER CONDITIONS DURING THE TRIAL NOT REPORTED.
INSECT, WEED OR PEST PROBLEMS NOT REPORTED. LOCAL CHECK: APIZACO.

VAR NO.	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	FLOW DAYS	MAT DAYS	PLNT HT
12	MINN126-CM67	MEXICO	8278	100	153	78
20	ARIVAT	U.S.A.	7828	95	154	95
23	MINN126-CM67 X DS-APRO	MEXICO	7726	100	156	62
18	M269	MEXICO	7626	100	152	84
10	WI-2198	AUSTRALIA	7537	93	144	83
11	CIZEM134-M65-220	MEXICO	7198	105	154	79
13	SD729-PORVENIR	MEXICO	7145	100	152	74
8	PORVENIR-U.SASK1766	MEXICO	6929	93	153	69
15	ZEPHYR	NETH'LANDS ***	6687	104	154	89
14	BCO.NR-CODIVA	MEXICO	6587	104	153	74
6	CM67/APRO X SV02109-MARI	MEXICO	6411	70	137	69
3	CM67-SV.MONA	MEXICO	6336	70	147	81
21	API-CM67	MEXICO	6203	91	151	74
2	CM67-U.SASK1800 X PRO-CM67	MEXICO	6200	88	137	69
4	CM67-SV.MONA	MEXICO	6175	84	151	78
7	CM67-U.SASK1744	MEXICO	6153	102	149	66
17	POR-EB1053 X CM67	MEXICO	5438	91	153	76
24	POR/APRO-SV02109 X MARI	MEXICO	5350	95	151	88
1	CM67-EB489-8-2-15-5 X CM67-U.S	MEXICO	5187	91	153	70
25	LOCAL CHECK		5019	91	145	81
16	APAN-KN27 X POR-HC1905	MEXICO	4861	100	152	82
9	CIZEM134-APAN	MEXICO	4661	91	137	78
19	APAN-HC1905	MEXICO	4538	100	151	86
22	S.PRECOZ(2H) X CR115-POR	MEXICO	4198	70	133	73
5	PUEBLA	MEXICO	3933	84	136	74
		GRAND MEAN	6168.1	92.5	148.2	77.1
	STANDARD ERROR OF GRAND MEAN		89.0		0.4	0.7
	COEFFICIENT OF VARIATION AS PC		14.4		2.7	9.0
	LSD VARIETY MEANS 5 PC		1254.1		5.6	9.8

CORRELATIONS

YIELD	KG/HA			
FLOW	DAYS	0.37		
MAT	DAYS	0.52	0.69	
PLNT	HT	0.04	0.19	0.22

TABLE 15 NORTH AMERICA MEXICO NUEVO LEON

MONTERREY
APODACA C.A.E.
LATITUDE 025 05'N DATE PLANTED --/--/-- NITROGEN --
LONGITUDE 100 36'W DATE HARVESTED --/--/-- PHOSPHORUS --
ELEVATION 0537 M.ABOVE S.L. AMOUNT OF MOISTURE -- MM POTASSIUM --
AVE. HRS. OF DAYLIGHT DURING GROWTH --

LATE SOWING TIME. MOIST CONDITIONS OF SOIL AT SOWING. WEATHER CONDITIONS DURING THE TRIAL NOT REPORTED. SERIOUS PEST PROBLEMS.
LOCAL CHECK: NOT REPORTED.

VAR NO.	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	FLOW DAYS	MAT DAYS	1000 G.W.
15	ZEPHYR	NETH'LANDS	3745	-	-	32
8	PORVENIR-U.SASK1766	MEXICO	3310	108	144	35
13	SD729-PORVENIR	MEXICO	3090	105	144	34
7	CM67-U.SASK1744	MEXICO ***	2840	109	145	30
4	CM67-SV.MONA	MEXICO	2840	105	145	43
3	CM67-SV.MONA	MEXICO	2750	100	142	45
25	LOCAL CHECK		2720	104	145	31
24	POR/APRO-SV02109 X MARI	MEXICO	2450	109	142	30
9	CIZEH134-APAN	MEXICO	2400	107	142	35
10	WI-2198	AUSTRALIA	2180	102	140	44
16	APAN-KN27 X POR-HC1905	MEXICO	2140	109	-	28
14	BCO.MR-GODIVA	MEXICO	2060	106	145	37
11	CIZEH134-M63-220	MEXICO	1800	106	144	30
21	API-CM67	MEXICO	1796	108	143	31
6	CM67/APRO X SV02109-MARI	MEXICO	1740	103	145	36
20	ARIVAT	U.S.A.	1680	100	140	36
23	MINN126-CM67 X DS-APRO	MEXICO	1440	106	-	27
2	CM67-U.SASK1800 X PRO-CM67	MEXICO	1315	101	-	32
12	MINN126-CM67	MEXICO	1300	101	142	33
18	M269	MEXICO	1180	100	-	39
5	PUEBLA	MEXICO	1040	102	140	34
19	APAN-HC1905	MEXICO	1030	108	145	28
22	S.PRECOZ(2H) X CR115-POR	MEXICO	690	96	-	31
17	POR-EB1053 X CM67	MEXICO	375	102	-	29
1	CM67-EB489-8-2-15-5 X CM67-U.S	MEXICO	255	98	-	31
		GRAND MEAN	1926.7	104.0	143.1	33.6
	STANDARD ERROR OF GRAND MEAN		46.6			0.3
	COEFFICIENT OF VARIATION AS PC		24.2			7.5
	LSD VARIETY MEANS 5 PC		657.2			3.5

CORRELATIONS

		YIELD KG/HA	FLOW DAYS	MAT DAYS
FLOW	DAYS	0.52		
MAT	DAYS	0.24	0.44	
1000	G.W.	0.30	-0.32	-0.30

TABLE 16 NORTH AMERICA MEXICO JALISCO

ZAPOPAN
ESC. AGRIC. BELENES
LATITUDE 020 40'N
LONGITUDE
ELEVATION 1550 M.ABOVE S.L.
AVE. HRS. OF DAYLIGHT DURING GROWTH --

DATE PLANTED 12/ 4/75
DATE HARVESTED 5/ 3/76
AMOUNT OF MOISTURE -- MM

NITROGEN APPLIED
PHOSPHORUS APPLIED
POTASSIUM --

NORMAL SOWING TIME. LATE FROST IN APRIL. SOME RODENT DAMAGE.
INSECT, WEED OR PEST PROBLEMS NOT REPORTED. LOCAL CHECK: NOT REPORTED.

VAR NO.	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WT	FLOW DAYS	MAT DAYS	PLNT HT
2	CM67-U.SASK1800 X PRO-CM67	MEXICO	3179	60	69	108	59
8	PORVENIR-U.SASK1766	MEXICO	3179	52	75	113	51
4	CM67-SV.MONA	MEXICO	3156	59	68	107	70
6	CM67/APRO X SV02109-MARI	MEXICO	3135	51	69	108	63
12	MINN126-CM67	MEXICO	3075	-	72	112	63
5	PUEBLA	MEXICO	3030	65	62	101	66
18	M269	MEXICO ***	2600	-	75	115	77
9	CIZEM134-APAM	MEXICO	2579	51	72	112	65
17	POR-EB1053 X CM67	MEXICO	2479	52	78	118	61
13	SD729-PORVENIR	MEXICO	2437	46	73	113	51
19	APAM-MC1905	MEXICO	2258	68	72	112	72
1	CM67-EB489-8-2-15-5 X CM67-U.S	MEXICO	2226	59	67	106	62
20	ARIVAT	U.S.A.	2221	53	79	119	83
21	API-CM67	MEXICO	2216	53	71	111	74
11	CIZEM134-M65-220	MEXICO	2196	43	78	118	53
22	S.PRECOZ(2H) X CR115-POR	MEXICO	2191	51	58	96	67
10	WI-2198	AUSTRALIA	2154	53	71	111	68
14	BCO.MR-GODIVA	MEXICO	1996	-	73	113	67
16	APAM-KH27 X POR-MC1905	MEXICO	1816	58	74	114	70
24	POR/APRO-SV02109 X MARI	MEXICO	1812	57	71	111	69
3	CM67-SV.MONA	MEXICO	1741	60	67	106	68
15	ZEPHYR	NETH'LANDS	1712	61	86	127	69
7	CM67-U.SASK1744	MEXICO	1512	58	83	124	43
23	MINN126-CM67 X DS-APRO	MEXICO	771	52	76	116	39
25	LOCAL CHECK		-	-	-	-	-
	GRAND MEAN		2319.7	55.4	72.5	112.2	63.5
	STANDARD ERROR OF GRAND MEAN		32.4	0.2	0.0	0.0	0.4
	COEFFICIENT OF VARIATION AS PC		13.7	2.6	0.0	0.0	6.7
	LSD VARIETY MEANS 5 PC		447.4	2.1	0.0	0.0	6.0

CORRELATIONS

YIELD	KG/HA				
TEST	WT	0.02			
FLOW	DAYS	-0.37	-0.16		
MAT	DAYS	-0.37	-0.15	1.00	
PLNT	HT	0.22	0.34	-0.21	-0.21

TABLE 17 SOUTH AMERICA BOLIVIA COCHABAMBA

SAN BENITO
G.SALAMANCA ET AL
LATITUDE 017 30'S DATE PLANTED --/--/-- NITROGEN --
LONGITUDE 066 06'W DATE HARVESTED --/--/-- PHOSPHORUS --
ELEVATION 2730 M.ABOVE S.L. AMOUNT OF MOISTURE -- MM POTASSIUM --
AVE. HRS. OF DAYLIGHT DURING GROWTH --

LATE SOWING TIME. MOIST CONDITIONS OF SOIL AT SOWING. NORMAL WEATHER CONDITIONS DURING THE TRIAL. WEEDS CONTROLLED BY HAND WEEDING AND BY CHEMICAL MEANS. LOCAL CHECK: NOT REPORTED.

VAR NO.	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	FLOW DAYS	PLNT HT	NET BLOT
9	GIZEH134-APAN	MEXICO	1983	101	91	15S
21	AP1-CM67	MEXICO	1824	96	74	10S
5	PUEBLA	MEXICO	1816	96	78	10S
24	POR/APRO-SV02109 X MARI	MEXICO	1803	106	84	5S
4	CM67-SV.MONA	MEXICO	1742	108	78	45S
2	CM67-U.SASK1800 X PRO-CM67	MEXICO	1695	108	80	2S
18	M269	MEXICO	1552	91	89	3S
15	ZEPHYR	NETH'LANDS	1544	108	78	5S
12	MINN126-CM67	MEXICO	1524	91	69	15S
17	POR-E81053 X CM67	MEXICO	1424	91	68	25S
6	CM67/APRO X SV02109-MARI	MEXICO	1424	91	69	5S
3	CM67-SV.MONA	MEXICO	1419	96	73	35S
25	LOCAL CHECK		1404	96	96	TR
20	ARIVAT	U.S.A.	1340	91	85	3S
22	S.PRECOZ(2N) X CR115-POR	MEXICO	1324	96	79	30S
19	APAN-HC1905	MEXICO	1266	96	76	10S
8	PORVENIR-U.SASK1766	MEXICO ***	978	101	68	25S
14	BCO.NR-GODIVA	MEXICO	830	96	71	5S
16	APAN-KN27 X POR-NC1905	MEXICO	782	96	71	5S
11	GIZEH134-M65-220	MEXICO	774	96	66	5S
10	WI-2198	AUSTRALIA	709	96	53	3S
13	SD729-PORVENIR	MEXICO	695	96	61	5S
7	CM67-U.SASK1744	MEXICO	612	101	60	5S
1	CM67-E8489-9-2-15-3 X CM67-U.S	MEXICO	590	91	63	5S
23	MINN126-CM67 X DS-APRO	MEXICO	144	96	54	20S
		GRAND MEAN	1247.9	97.2	73.2	11.8
		STANDARD ERROR OF GRAND MEAN	55.5		1.2	
		COEFFICIENT OF VARIATION AS PC	44.5		16.6	
		LSD VARIETY MEANS 5 PC	782.6		17.2	

CORRELATIONS

YIELD	KG/HA			
FLOW	DAYS	0.28		
PLNT	HT	0.76	0.19	
NET	BLOT	0.16	0.16	-0.03

TABLE18. SUMMARY FOR 17 EBYT SITES

VAR NO.	VARIETY OR CROSS	ORIGIN	YIELD KG/HA	TEST WT	FLOW DAYS	MAT DAYS	STRP RT.L	LEAF RUST	STEM RUST	PLNT HT	LODG %	1000 G.W.	POWD %	NET BLOT	SPOT BLOT	SCLD %
25	LOCAL CHECK		4278	58	92	132	45	6	4	91	22	35	-	4	6	-
4	CM67-SV.MONA	MEXICO	4209	56	80	124	20	13	5	77	14	44	1	37	0	44
8	PORVENIR-U.SASK1766	MEXICO	4122	53	86	129	17	3	1	71	3	39	23	24	14	21
15	ZEPHYR	NETH'LANDS	4063	60	91	130	35	14	7	85	37	37	0	23	3	50
12	MINN126-CM67	MEXICO	3977	55	84	126	43	3	7	79	5	36	9	14	8	21
2	CM67-U.SASK1800 X PRO-CM67	MEXICO	3825	57	82	121	23	4	8	78	47	39	20	13	8	7
9	CIZEH134-APAM	MEXICO	3794	55	83	122	31	16	1	87	4	39	10	13	8	9
13	SD729-PORVENIR	MEXICO	3742	51	87	127	30	16	7	70	2	37	0	5	1	3
11	CIZEH134-M65-220	MEXICO	3688	49	87	127	64	9	4	74	2	31	10	8	3	11
5	PUEBLA	MEXICO	3665	59	79	118	70	8	14	83	2	37	3	15	9	15
6	CM67/APRO X SV02109-MARI	MEXICO	3631	55	79	122	50	3	16	77	13	40	3	11	6	8
20	ARIVAT	U.S.A.	3588	51	83	127	15	10	4	93	47	41	4	8	8	6
3	CM67-SV.MONA	MEXICO	3549	57	79	123	33	6	8	78	2	45	0	30	6	78
18	H269	MEXICO	3512	53	81	123	45	4	2	90	44	42	3	18	18	6
10	WI-2198	AUSTRALIA	3487	55	80	123	23	17	1	81	22	49	0	9	8	64
21	API-CM67	MEXICO	3372	56	85	126	58	29	9	78	22	35	0	15	5	29
7	CM67-U.SASK1744	MEXICO	3342	58	92	130	38	6	3	68	15	34	13	11	8	2
24	POR/APRO-SV02109 X MARI	MEXICO	3314	53	85	125	34	20	16	87	39	32	8	19	5	23
17	POR-EB1053 X CM67	MEXICO	2932	54	84	125	68	2	1	79	49	32	2	35	10	30
22	S.PREC02(2N) X CR115-POR	MEXICO	2929	54	72	110	14	1	16	83	9	36	0	17	1	54
1	CM67-EB483-8-2-15-5 X CM67-U.S	MEXICO	2896	55	78	121	31	10	2	76	40	36	3	24	5	20
23	MINN126-CM67 X DS-APRO	MEXICO	2844	54	89	129	38	16	4	59	0	29	10	22	11	25
19	APAM-HC1905	MEXICO	2817	64	83	124	35	3	3	82	7	31	10	12	5	23
16	APAM-KH27 X POR-HC1905	MEXICO	2812	60	87	126	75	29	1	84	12	30	13	13	5	51
14	BCO.MR-GODIVA	MEXICO	2800	55	87	128	45	14	20	80	48	41	0	7	13	18
	SUMMARY MEANS OVER VARIETIES		3487.5	55.5	83.7	124.7	39.2	10.5	6.6	79.5	20.0	36.9	6.0	16.1	7.0	25.7
	NUMBER OF LOCATIONS FOR EACH VARIABLE		17	3	15	12	1	1	1	8	2	2	1	2	1	1
	NUMBER OF OBSERVATIONS FOR EACH VARIABLE		66	9	49	41	4	4	4	32	8	5	4	5	4	4

TABLE 19. SUMMARY FOR 17 EBYT SITES

LOCATIONS INCLUDED IN THIS SUMMARY REPORT

TABLE	CONTINENT	COUNTRY	CITY	VARIABLES INCLUDED*
2	AFRICA	KENYA	RIFT VALLEY	1 3 4 5 7 8
3	AFRICA	RHODESIA	SALISBURY	1 3 4 9 10
4	ASIA	BANGLADESH	DACCA	1 3 4 9 10 33 35
6	ASIA	PAKISTAN	N.W.FRONTIER PROV	1 3 4 9
5	ASIA	SOUTH KOREA	CHUNNAM	1 2 9
9	MIDDLE EAST	IRAQ	BAGHDAD	1 3 4 9
10	NORTH AMERICA	CANADA	ALBERTA	1 2 3 4 13
12	NORTH AMERICA	MEXICO	COAHUILA	1 3 4
16	NORTH AMERICA	MEXICO	JALISCO	1 2 3 4 9
13	NORTH AMERICA	MEXICO	EDO DE MEXICO	1 3 14 37
15	NORTH AMERICA	MEXICO	NUEVO LEON	1 3 4 13
17	SOUTH AMERICA	BOLIVIA	COCHABAMBA	1 3 9 33
1	AFRICA	ETHIOPIA	SHOA	1 3
8	EUROPE	WEST GERMANY	BAVARIA	1
11	NORTH AMERICA	MEXICO	CHIHUAHUA	1 3 4
14	NORTH AMERICA	MEXICO	BAJA CALIF.	1 3 4 9
7	ASIA	THAILAND	CHIENG MAI	1 3 4

*VARIABLE IDENTIFICATIONS

1	YIELD	KG/HA	2	TEST	WT	3	FLOW	DAYS	4	MAT	DAYS	5	STRP	RT.L	7	LEAF	RUST
8	STEM	RUST	9	PLNT	HT	10	LODG	%	13	1000	G.W.	14	POWD	%	33	NET	BLOT
35	SPOT	BLOT	37	SCLD	%												