

RESULTS OF THE FIRST AND SECOND INTERNATIONAL SCREENING NURSERIES (1967-1969)

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CONTENTS

FIRST INTERNATIONAL SCREENING NURSERY, 1967-1968

ABSTRACT	3
INTRODUCTION	3
PROCEDURES	4
RESULTS AND DISCUSSION	5
TABLES	6

SECOND INTERNATIONAL SCREENING NURSERY, 1968-1969

ABSTRACT	14
INTRODUCTION	14
PROCEDURES	15
RESULTS AND DISCUSSION	15
TABLES	18
LITERATURE CITED	29

FIRST INTERNATIONAL SCREENING NURSERY

Results of the First International Screening Nursery¹ (ISN) 1967-1968

ABSTRACT

Data returned on the First ISN suggest the presence of several desirable disease resistant spring wheat lines. One table is presented in summary of the most outstanding First International Screening Nursery entries.

INTRODUCTION

International testing of promising wheat lines and varieties (1, 2, 3, 4, 5, 6, 7, 8, 9) is a new and intriguing approach to several breeding problems. The International Spring Wheat Yield Nursery (ISWYN) (8, 9) has collapsed the old notion that a high yielding variety must be bred for a given set of conditions. The ISWYN success has been most notable in identifying high yielding varieties of broad adaptability. Speculation as to why some varieties do very well at all locations leads investigators to several answers. Daylength insensitivity, responsiveness to good management, unidentified heritable yield components and broadly based disease resistance may all be parts of the total explanation.

As a complement to the ISWYN, the International Screening Nursery (ISN) was established in 1967-68 to supply added information on disease reactions and agronomic traits for current products of breeding programs. Information was requested from cooperators when differential responses were observed. This report summarizes the information that has been returned by the cooperators.

The limited number of returned First ISN data reflect the first attempt at a new approach for screening new breeding material. Unfortunately, the limited results precluded a systematic analysis. However, several items of potential interest to cooperators are summarized in this report.

¹This report was prepared by CIMMYT staff. CIMMYT accepts full responsibility for misinterpretation or misrepresentation of data supplied by the cooperators. Requests to re-present these results should be addressed to Dr. Keith W. Finlay, CIMMYT, Londres 40, Mexico, D. F., Mexico.

PROCEDURES

The First ISN (1967-1968) was made up of 430 selected, advanced generation (F_3 - F_7) spring wheat lines and check varieties submitted to 11 cooperating scientists. The number of locations was limited due to the small amount of seed available of the new breeding lines. Secondly, since this was a new approach to systematically and rapidly evaluating new breeding lines, only key locations were chosen. These selected locations were representative of the major spring wheat regions of the world and areas with a high expectation of disease incidence.

Seed for the First ISN was produced in increase plots at the Centro de Investigaciones Agrícolas del Noroeste (CIANO) at Ciudad Obregón, Sonora, Mexico during the 1966-67 growing season. Single row entries were evaluated by the cooperators for differential disease reactions, agronomic characters and an overall subjective evaluation of each entry's worth. Cooperating scientists were urged to use professional judgement in the planting and care of their experiments. Additional data on yield and grain quality were supplied by two of the cooperators. These data are also included in this report.

Statistical treatment of the data was not considered due to the nature of the data. The methods selected to summarize the data was laborious and crude. Each return was reviewed for differential reactions. Entries showing acceptable reaction at all locations giving differential reactions were tabulated. Each trait was handled individually. Finally, this information was combined and is presented herein as one summary table. This format, one of several considered, represents the least complex method of presenting such a vast amount of data in a limited form. Comments on the desirability of this format and/or changes are invited.

RESULTS AND DISCUSSION

Table 1 presents the cooperating scientists and the types of differential reactions which they reported. The results presented in this report are based on the effort and information obtained from these cooperators. Table 2 summarizes these data.

Many of the entries in the First ISN are apparently resistant (i.e. less than 10S at all reporting locations) to either leaf rust (*Puccinia recondita*) or stripe rust (*Puccinia striiformis*). Several entries, such as numbers 17, 20, 63, 64, 69, 70, 116, 133, 157, 180, 218, 250, 281, 283, 296 and 1120 may be of special interest to cooperators since they appear to possess resistance to both leaf and stripe rusts.

Little interpretation can be made of these results, which are based on a limited number of returns. However, additional studies of this material are certainly most warranted.

The mention of any ISN entry should not in any way be construed as an endorsement by CIMMYT. Rather, this report is intended to serve as a source of information for continued study.

FIRST INTERNATIONAL SCREENING NURSERY

T A B L E S

TABLE 1. Cooperating stations, planting dates and types of differential data supplied by cooperating scientists for the First International Screening Nursery.

Country	Station	Cooperator	Date Planted	Differential data received on				
				Leaf	Rust		Yield	Quality
					Stripe			
Argentina	Marco Juarez (1)	E. F. Godoy	7/17/68	X			X	
Argentina	Marcos Juarez (2)	E. F. Godoy	1968	X				
Canada	Winnipeg	A. B. Campbell	5/31/68				X	X
Kenya	Molo	R. Little		X		X		
Kenya	Njoro	R. Little		X		X		
U. S. A.	North Dakota	R. C. Frohberg	5/8/68	X				

TABLE 2. First International Screening Nursery entries of potential interest to cooperators. Listed are entries noteworthy for one or more traits for which differential reactions were recorded by cooperators. Column 1 notes the top 25 yielding entries at Marcos Juarez location 1 as reported by cooperator E.F. Godoy. Columns 2 and 3 mark those lines with better than 10S rust reactions at all locations reporting differential reactions. Grain yield and quality data on lines selected by cooperator A.B. Campbell in Manitoba, Canada are presented with minor editing.

Entry Number	Variety or cross	Pedigree	Yield	Rust		Quality Information		
				Leaf	Stripe	Yield (gms/row)	Flour Yield (%)	Sedimentation Index (ML)
2	Ciano 67-Pj 62	24571-18y-0				607	61	98
8	Son 64 x TzPP-Y54/Tob	23445-7m-1y-0			X			
15	Norteño 67			X				
17	Tobari 66			X	X			
18	Ciano-Son 64	23582-12m-2y-0		X				
19	Ciano "S" x Son 64-Kl Rend/8156	23584-6m-7y-0		X				
20	Jaral 66			X	X	444	57	97
23	Ciano "S" x Son 64-Kl Rend/8156	23584-14m-7y-0		X				
24	Azteca 67			X		488	59	96
27	Inia/Son 64 x Y50-Gto	23456-32m-1y-0		X				
29	Ciano-Son 64	23582-72m-7y-0		X				
30	Ciano-Chris	23583-7m-8y-0		X		494	56	98
31	Ciano "S" x Son 64-Kl Rend/8156	23584-6m-2y-0		X				
32	Ciano x Nad-Chris	23585-11m-2y-0		X		528	62	97
33	Ciano-Inia "S"	23597-2m-1y-0		X				
34	No 66/Son 64 x TzPP-Y54	22390-11m-1y-6m-1y		X				
38	Ciano-Son 64	23582-111m-6y-0		X		418	59	98
39	Kl Rend-Son 64 ² x Inia	21716-4m-5y-1m-1y				413	50	98
42	Inia "S"-Napo 63	22392-29m-1t-1m-1y			X			
43	Tobari 66				X	456	65	95
44	Azteca 67			X		487	60	96
47	Ciano-Son 64	23582-1m-5y-0			X			
48	No "S"/Son 64 x TzPP-Y54	22390-11m-3y-2m-1y			X			
53	Son 64 x TzPP-Y54/Tob 66	23445-22m-6y-0m		X		239	53	100
55	Inia x Kl Pet-Raf	23450-6m-1y-0				310	52	95
58	Ciano 67			X				
61	Ciano-Son 64	23582-1m-7y-0		X				
62	Ciano-Son 64	23582-48m-4y-0		X				
63	Ciano "S" x Son 64-Kl Rend/8156	23584-3m-6y-0		X	X			
64	Ciano "S" x Son 64-Kl Rend/8156	23584-5m-8y-0		X	X			
69	Norteño 67			X	X			
70	(Kl Rend-Son 64 ²) x Inia "S"	21716-4m-5y-2m-1y		X	X			

72	Inia "S"-Napo 63	22398-10m-1r-2m-1y	X					
76	Inia 66					585	80	95
77	Noroeste 66				X	451	53	98
79	Ciano 67				X			
84	Ciano "S" x Son 64-K1 Rend/8156	23564-6m-14y-0			X			
86	Ciano "S" x Son 64-K1 Rend/8156	23584-11m-3y-0			X			
87	(K1 Rend-Son 64 ²) x Inia "S"	21716-4m-5y-2m-2y			X			
89	Ciano "S" x Son 64-K1 Rend/8156	23584-18m-6y-0			X			
90	Ciano "S"-Jar "S"	23593-1m-1y-0			X	512	57	99
91	Ciano "S" x Son 64-K1 Rend/8156	23584-6m-12y-0			X			
94	TzPP-Son 64/LR 64 x TzPP-AN _E	22429-10m-6t-1m-1y				648	50	99
95	K1 Pet-Raf x Inia "S"	22437-25m-1t-2m-1y			X			
96	TzPP-Son 64/LR 64 x TzPP-AN _E	22429-10m-1t-1m-1y				636	43	100
99	Ciano "S" x Son 64-K1 Rend/8156	23564-5m-10y-0			X			
100	Ciano "S"-Son 64	23582-111m-5y-0			X			
101	Ciano "S"-Jar "S" ²	23949-8r			X			
103	LR 64-Son 64/Son 64-TzPP-Y 54	22390-11m-3y-5m-3r				X		
104	Son 64 x TzPP-Y 54/Nar 59	21934-25m-2y-7m-1r			X			
106	Son 64 x TzPP-Y 54/Son 64-Y 50 x Gto	22346-1m-1r-1m-1r			X			
109	K1 Pet-Son 64/Son 64-Y 50 _E x Gto	23513-5m-2t			X			
110	Azteca 67				X			
113	K1 Pet-Pj 62 x TzPP-Son 64	Hm-1083-22y-11m-3t			X			
115	Son 64/Pj 62 x TzPP-Knott # 2	22326-6m-1t-3m-2t			X			
116	Son 64 x TzPP-Y 54/Son 64-Y 50 _E x Gto	22346-6m-2t-1m-1t			X	X		
120	LR 64-Son 64/Son 64 x TzPP-Y 54	22390-11m-1y-6m-1t			X			
122	Fn-Th ⁴ x Son 64/Pi 62-102m-Crespo "S"	21658-4m-1y-2m-1t			X			
123	Nar 59-101y/Pj-Gb x TzPP-Knott # 2	22339-15m-3r-1m-2t			X			
124	Son 64 x TzPP-Y 54/Son 64-Y 50 _E x Gto	22346-38m-1r-2m-1t			X			
125	Son 64 x TzPP-Nai 60/Nar 59	21872-1r-2m-6r-1m-1t				X	465	60
126	LR 64-Son 64/Son 64 x TzPP-Y 54	23390-27m-4r-2m-1r			X			
127	LR 64-Son 64 x Napo 63	22398-32m-1r-2m-4r			X			
128	Son 64A x TzPP-Y 54/Son 64-Y 50 _E x Gto	22346-20m-5t-1m-2r			X			
129	Nar 59-100y/Pj 62-Gb x TzPP-Knott # 2	22339-9m-3t-1m-2r			X			
133	Son 64A x TzPP-Y 54/Nad 63 x II-53-526-11y	22344-4m-4t-2m-2t			X	X		
134	Son 64A x TzPP-Y 54/Son 64-Y 50 _E x Gto	22346-11m-7t-1m-1t				X		
139	Son 64-AN 64A x TzPP/Son 64 x TzPP-Nai 60	21757-3y-2m-3y-3m-2t			X			
140	(12300 x MAS-5-Gto/Son 64)TzPP-Nai 60	21742-3t-1m-1t-1m-1t			X			
141	Son 64 x TzPP-Y 54/Son 64-Y 50 _E x Gto	22346-13m-6t-1m-2t			X			
142	LR 64-Son 64 x Napo 63	22398-34m-4r-1m-2r			X	380	49	98
143	Norteño 67				X			
144	Son 64 x TzPP-Y 54/Son 64-Y 50 _E x Gto	22346-34m-5t-2m-1t			X			
147	(12300 x MAS-5-Gto/Son 64A)TzPP-Nai 60	21742-7t-3m-1t-1m-2t			X	325	60	92
153	Inia/Son 64 x TzPP-Y 54	23431-3m-4y			X			
155	Ciano "S" x LR 64-Son 64/LR 64-Son 64	23959-13t			X			
157	LR 64-Son 64 (Son 64-Y 50 _E x Gto) ²	23836-6t			X	X		
158	Ciano "S" x Son 64	23582-7m-2y			X			
159	LR 64 x TzPP-AN _E ³ /Kt/Bg·Fn/V x K 58/N-Fr	23278-4r-3m-2r			X			
161	Ciano "S" x LR 64 x Son 64/LR 64-Son 64	23959-52t			X			
164	Ciano "S" x Son 64-K1 Rend/8156	23584-9m-12y			X			
165	Ciano "S"-Son 64	23582-48m-9y			X			

Entry Number	Variety or cross	Pedigree	Yield	Rust		Quality Information		
				Leaf	Stripe	Yield (gms/row)	Flour Yield (%)	Sedimentation Index (ml)
166	(Son 64-Y 50 x Gto/LR 64-Son 64)TzPP-Son 64	23878-7t						
167	Inia "S"- Crim/Ciano "S" x El Gau-Son 64)	23819-7r	X					
169	Ciano "S" x Son 64-Kl Rend/8156	23584-3m-9y		X				
170	Ciano "S"-Son 64	23582-99m-4y	X					
171	Norteño 67			X		618	59	97
172	Son 64 x SK ⁶ _E -AN ³ _E /TzPP-Son 64	23468-16m-1t		X				
173	(Y 50/Son 64 x TzPP-Y 54) Ciano "S"	23606-17m-1r	X					
175	Ciano 67		X					
177	Ciano 67			X		597	63	98
180	Ciano "S" x Son 64-Kl Rend/8150	23584-6m-1y		X	X			
184	LR 64-Son 64 x TzPP-AN 64	22389-15m-2y-3m-4r		X				
185	Koap-Cometa XMK-Kawter/Son 64 x TzPP-Nar 59	H-876-6m-3y-1m-1r		X				
190	Nar 59/Pj 62-Gb x TzPP-Knott # 2	22334-15m-3r-2m-1r		X				
201	Norteño 67			X				
202	Ciano "S"-Inia "S" ²	23959-21y		X		428	55	98
203	(Ciano "S"/Son 64 x TzPP-Y 54) Tob "S"	23964-17y		X				
204	Ciano 67			X				
207	Ciano "S"-Son 64	23582-89m-3y		X				
210	Ciano "S" x LR 64 ² -Son 64	23587-40m-1r		X				
211	Son 64 x TzPP-Y 54/Kl Pet-Raf	23443-32m-1y		X				
212	Kl Pet-Raf x Pj 62/Ciano "S"	23608-4m-3r		X				
215	Azteca 67			X		597	62	98
216	(Y 50/Son 64 x TzPP-Y 54) Ciano "S"	23606-12m-2y		X				
217	Ciano "S" x (LR 64-Son 64) ²	23959-27t		X				
218	Ciano "S" x LR 64 ² -Son 64	23587-10m-1r		X	X			
219	Ciano "S"-Son 64	23582-12m-9y		X				
227	Ciano "S" x Son 64-Kl Rend/8156	23584-100m-102y-0m		X				
228	Son 64 x TzPP-Nai 60/TzPP-Nai 60	22433-3m-1y-1m-2r		X				
229	Nar 59/Pj 62-Gb x TzPP-Knott # 2	22339-15m-6r-1m-2r		X				
230	Son 64A x TzPP-Y 54/Son 64-Y 50 _E x Gto	22346-34m-5t-1m-2r		X				
233	Son 64 x TzPP-Nai 60/TzPP-Son 64	22432-15m-1y-1m-1t		X				
234	Ciano 67		X	X				
235	Nar 59/Pj 62-Gb x TzPP-Knott # 2	22339-9m-3t-1m-5r		X		422	35	80
239	Ciano "S" x Son 64-Kl Rend/8156	23584-102m-101y-0m		X				
241	Ciano "S" x Son 64-Kl Rend/8156	23584-100m-103y-0m	X					
242	Son 64 x TzPP-Nai 60/TzPP-AN 64A	22373-2m-1y-3m-3t		X				
243	Son 64 x TzPP-Y 54/Son 64-Y 50 _E x Gto	22346-34m-2t-1m-4r			X			
244	Bajio 67		X					
246	Ciano "S" x Son 64-Kl Rend/8156	23584-102m-100y-0m	X	X		490	57	99
247	Nar 59-100y/Pj 62-Gb x TzPP-Knott # 2	22339-15m-1t-1m-4r		X				
248	Son 64-Y 50 _E x Gto/Inia "S"	23528-102m-101y-0m		X		367	54	98
250	Son 64A x TzPP-Y 54/Son 64-Y 50 _E x Gto	22346-39m-4t-1m-1r		X	X			
276	Ciano 67		X	X		542	55	100
277	LR 64-Son 64 x TzPP-AN 64	22389-15m-1y-1m-1r		X				

280	(Kl Pet-Raf) ² x TzPP-Son 64	HM-1105-8y-2m-1r	X	X				
281	(H-565/Son 64 x TzPP-Nai 60)TzPP-Son 64	HM-1024-14y-2m-2r		X	X			
282	Son 64 x TzPP-Nai 60/TzPP-Son 64	22432-74m-4y-2m-1r		X	X			
283	Son 64A x TzPP-Y 54/Son 64-Y 50 _E x Gto	22346-34m-2t-1m-2r		X	X			
284	(Ciano "S"/Son 64 x TzPP-Nai 60)Ciano "S"	23945-4t		X	X			
285	Napo 63 x TzPP-Son 64A	22417-16m-1y-2m-3r	X	X				
287	LR 64-Son 64 x Napo 63	22398-39m-1r-1m-1r	X	X				
288	Son 64 x TzPP-Nai 60/TzPP-Son 64	22432-28m-2y-2m-1r	X	X				
291	El Gau-Son 64/Son 64 x TzPP-Y 54	21845-8m-3y-1m-1r		X				
292	Son 64A x TzPP-Y 54/Son 64 x Y 50-Gto	22346-39m-1r-1m-4r		X				
293	Son 64 x TzPP-Nai 60/Kt/Bg-Fn/V x K 58/N-Fr	23282-1r-4m-1t		X				
294	Son 64A x TzPP-Y 54/Son 64-Y 50 x Gto	22346-39m-1r-1m-2r	X	X				
295	Son 64A x TzPP-Y 54/Son 64 - Y 50 _E x Gto	22346-2m-1t-1m-3r	X	X				
296	Son 64A x TzPP-Y 54/Son 64 - Y 50 _E x Gto	22346-2m-1t-1m-4r		X	X			
298	(Son 64-Y 50 x Gto/LR 64-Son 64)TzPP-Son 64A	23878-3t	X	X				
299	Son 64A x TzPP-Y 54/Son 64-Y 50 _E x Gto	22346-11m-7t-1m-2t					X	
1060	Ciano "S"	19957-18m-1y-3m-10y-5m		X				
1062	Ciano "S"	19957-18m-1y-3m-7y-2y		X				
1066	Ciano "S"	19957-18m-1y-3m-3y-2y		X				
1067	Ciano "S"	19957-18m-1y-3m-3y-1m-1y		X				
1069	Ciano "S"	19957-18m-1y-3m-1y-1y		X				
1072	Ciano "S"	19957-18m-1y-3m-5y-3m-1y		X				
1073	Ciano "S"	19957-18m-1y-3m-9y-9m-1y		X		505	58	100
1074	Ciano "S"	19957-18m-1y-3m-10y-8m-2y		X		545	63	98
1075	Ciano "S"	19957-18m-2y-2m-1y-7m-1y		X				
1078	Ciano "S"	19957-18m-5y-2m-1y		X				
1079	Ciano "S"	19957-18m-5y-2m-2y		X				
1080	Ciano "S"	19957-18m-1y-3m-11y-1m				547	60	99
1081	Ciano "S"	19957-18m-1y-3m-11y-5m		X				
1082	Ciano "S"	19957-18m-1y-3m-4y-5m		X		487	59	98
1083	Ciano "S"	19957-18m-1y-3m-4y-10m		X		375	61	99
1084	Ciano "S"	19957-18m-1y-3m-4y-11m		X				
1089	Ciano "S"	19957-18m-5y-2m-2y-101m		X				
1090	Inia "S"	19008-52m-2y-5m-100y-103c		X				
1091	Son 64-Kl Rend	19975-68y-1t-6y-3t-107c		X				
1092	Ciano "S"	19957-18m-1y-8c-3r		X				
1094	Ciano "S"	19957-18m-5y-6c-1r		X				
1095	Ciano "S"	19957-18m-5y-5c		X				
1096	Ciano "S"	19957-18m-2y-1m-2y		X				
1101	Carazinho			X				
1107	No identity					545	59	99
1109	NP 881							X
1112	Giza 137							X
1117	Ciano "S" x LR 64 ² -Son 64	23587-8m-0		X				
1118	Ciano "S"-Jaral "S"	23588-1m-0		X				
1119	Ciano "S"-Inia "S"	23598-16m-0		X				
1120	S-948-A-S			X				X
1128	Note "S"/Son 64 x TzPP-Y 54	22390-11m-3y-2m-0						X
1132	Tobari "S"/LR 64A x TzPP-AN ³ _E	22429-16m-1y-4m-0		X				
1134	Inia "S"/Son 64 x TzPP-Y 54	22390-20m-8r-2m-0						X

Entry Number	Variety or cross	Pedigree	Rust			Quality Information		
			Yield	Leaf	Stripe	Yield (gms/ row)	Flour Yield (%)	Sedimentation Index (ml)
1146	NP 876-Pj 62	22041-5y-1m-2y-1m			X			
1148	NP 876-Pj 62	22041-5y-1m-4y-2m			X			
1149	Tac-12300 x Jaral "S"	21878-28y-7m-1y-2m		X				
1167	LR 64-Son 64	HD(m)19008-66-1672		X				
1168	LR 64-Son 64	HD(m)19008-66-1673		X				
1171	Fn x K 58-N			X				
1172	CT 244				X			
1177	Crespo				X			
1182	Son 64-Y 50 _E x Gto	19792-2m-7t-1c-3t-100m		X				
1183	Chris-Pj 62	22051-35y-3t-100y		X				
1184	Ciano "S"	19957-18m-1y-8y-101m-100y		X				
1186	Th ³ /Fn ² x K 58-N	R.L. 4170-100m		X				
1188	Crim-Chris	58-5-100m		X				
1190	Ciano "S"	19957-18m-1y-3m-8y-2c-100y		X				
1192	Wisconsin-Supremo			X				
1194	NP 852			X				
1195	F 5	HD 832-5-5-0y			X			
1196	Noroeste Resel.	19008-52m-4y-4m-2y-100c		X		378	48	98
1204	Son 84 x TzPP-Y 54/Son 64-Y 50 _E x Gto	22346-39m-4t-0		X				
1205	Son 64 ³ -Knott #2	21208-7m-2t-2m-1t		X				
1206	Ciano "S"	19957-18m-1y-3m-2y-2y		X				
1207	Ciano "S"	19957-18m-1y-3m-7y-2y		X				
1208	Ciano "S"	19957-18m-1y-3m-2y-5m-2y		X		530	58	97
1209	Ciano "S"	19957-18m-1y-3m-8y-6m-2y		X				
1211	Ciano "S"	19957-18m-1y-3m-5y-6m-1y		X				
1216		HD-823-5-7-0y			X			

SECOND INTERNATIONAL SCREENING NURSERY

Results of the Second International Screening Nursery² (ISN) 1968-1969

ABSTRACT

Many potentially useful advanced spring wheat lines were identified in the Second International Screening Nursery. None possessed all of the desired traits. Several exhibited promise for several traits, including resistance to rust (stem, leaf and stripe), Septoria, powdery mildew, as well as yield and overall agronomic desirability. Quality data are included for many agronomically good lines. One table is presented in summary of the most outstanding Second International Screening Nursery entries.

INTRODUCTION

The enthusiastic response to the First International Screening Nursery (ISN) allowed an increase in the number of cooperators. This contributed, in part, to the delay in publishing the results of the Second ISN. Changes in staff at CIMMYT also contributed to the delay. We now hope that delays in publishing the results from these trials can be held to a minimum so that the information is of greater value to the contributing wheat breeders.

The results of the ISN are most valuable when distributed immediately to the cooperators. The first attempts at immediate distribution by photocopying and mailing did not prove successful since the vast amount of data became overwhelming. We now hope to issue timely summaries of information as it becomes available.

The importance of these trials in filling the gap between existing international tests is suggested by the ever growing interest in them.

² This report was prepared by CIMMYT staff. CIMMYT accepts full responsibility for misinterpretation or misrepresentation of data supplied by the cooperators. Requests to re-present these results should be addressed to Dr. Keith W. Finlay, CIMMYT, Londres 40, Mexico 6, D. F., Mexico.

PROCEDURES

The Second ISN (1968-1969) consisted of 729 advanced generation lines (F_3 - F_7) and check varieties submitted to 20 cooperators. The distributions of the ISN are deliberately biased towards the major spring wheat regions of the world, and areas with a high expectation of disease incidence.

Seed for the Second ISN was produced in increase plots at the Centro de Investigaciones Agricolas del Noroeste (CIANO) at Ciudad Obregon, Sonora, Mexico during the 1967-1968 growing season. Test plots consisted of a single row of unreplicated entries. Cooperators were urged to use professional judgement in planting, care and types of data taken. Data were requested on differential disease reactions (e.g. stem, leaf and stripe rusts, Septoria, mildew, etc.), agronomic characters and an overall evaluation of the worth of each entry. Additional data on yield and grain quality were provided by several cooperators and are summarized herein.

The methods of data summarization and presentation formats follow those used for reporting the First ISN.

RESULTS AND DISCUSSION

Presented in Table 3 are the cooperating scientists and the types of differential reactions which they reported. The results presented in this report are based on the effort and information obtained from these cooperators. Table 4 summarizes these data.

Yield observations were reported by cooperators in Denmark, U.S.A., Kenya and Mexico. The 25 best yielding entries were withdrawn from each data set and are noted in Table 4. These unreplicated observations could not be analyzed statistically, but are presented as an index to potentially high yielding varieties. Inspection of these results revealed nine varieties which yielded in the top 25 entries at two or more locations. This suggests that broad adaptability may exist in these lines.

The subjective ratings on the overall agronomic evaluations are considered an important measure of the performance of ISN entries. Only ten entries received high evaluations from the three contributing stations. This attests to the stringent evaluations placed on the ISN entries and hence the value of this assessment.

Summarization of the reported rust reactions was made by noting only those ISN entries which had readings of less than 10S at all locations

reporting good differential reactions. The "less than 10S" threshold was selected as a compromise between different forms of resistance to the three rusts. It does not imply either hypersensitive or general types of resistance. Those Second ISN lines showing promise of resistance to stem rust (*Puccinia graminis tritici*), leaf rust (*Puccinia recondita*) and stripe rust (*Puccinia striiformis*) are noted in Table 4 with X symbols. Further testing of these lines may prove worthwhile.

Twenty ISN entries were reported as having potentially good resistance to Septoria blight (*Septoria sp.*). These lines are also noted in Table 4. Remarkably close agreement in the reported responses suggests that these entries may respond uniformly to different races (and/or species) of Septoria.

Resistance to powdery mildew (*Erysiphe graminis tritici*) is suspected for those entries noted in Table 4. Of the 70 ISN entries listed as showing promise, 36 were single crosses. This is a marked deviation from the 20% frequency of single crosses in the total nursery. Little deviation from this single cross frequency was observed for the other diseases reported above. However, closer inspection of the parents involved in these crosses showed that Ciano "S" was one of the parents in 80% of these single crosses. Moreover, better than 60% of all the entries listed in Table 4 as showing promise of resistance to powdery mildew have Ciano "S" in their parentage. This association suggests that Ciano "S" could be quite useful in single cross combinations for contributing resistance to powdery mildew, as well as the other desirable characteristics which it possesses.

Agronomically desirable lines were selected by cooperator W. W. Roath et al. for quality determinations. The results of their findings (with slight editing) were also included. A few moderately high protein lines were uncovered in this study. Unfortunately, few of the lines of desirable quality were also identified as potentially useful for disease resistant germ plasm.

Concomitance of the desired traits was sought by sorting out those Second ISN entries presumed resistant to both Septoria blight and powdery mildew. These entries were then checked for their response to the three rusts, yield and the cooperators' overall evaluation. None of the entries possess all desired characteristics. The most outstanding entry from the standpoint of most traits possessed, was entry 644 (Ciano "S"-Crespo, 25341-4m-9y-0m). Entries 709 [Inia (Son 64 x TzPP-Y54) (LR 64²-Son 64 x Justin), 23817-4t-5m-3y-0m] and 846 (Ciano "S"-Chris, 23583-10m-6y-2m-1y-0m) may also warrant further attention from breeders.

The mention of any ISN entry should not in any way be construed as an endorsement by CIMMYT. Rather, this report is intended to serve as a source of information for continued study.

SECOND INTERNATIONAL SCREENING NURSERY

T A B L E S

TABLE 4. Second International Screening Nursery entries of potential interest to cooperators. Listed are entries noteworthy for one or more traits for which differential reactions were recorded by cooperators. Column 1 notes the top 25 best yielding entries harvested at locations 1 (Overgaard, Denmark), 2 (Njoro, Kenya), 3 (Obregon, Mexico) and 4 (Fort Collins, Colorado, U.S.A.). Cooperators' subjective evaluations are signified in columns by X symbols for those lines which were noteworthy at all reporting locations. Lines with less than 10S rust reactions at all locations reporting differential reactions are noted with X symbols in columns 3, 4 and 5. Entries that were observed to give resistant type reactions to Septoria and powdery mildew attacks are also noted in their respective columns with X symbols. Grain quality data supplied by cooperator W. W. Roath, Texas, U.S.A., are presented with minor editing.

Entry Number	Variety or cross	Pedigree	Yield	Subjective Evaluations	Disease			Quality Information				
					Rust		Septoria	Powdery Mildew	Test Weight	Percent Protein	Mixing Time (Mins.)	
					Stem	Leaf Stripe						
628	Inia 66						X					
631	Ciano 67 x Ciano-Chris	26520-35y-0m							X			
632	Tobari-NP 832	26894-12y-0m							X			
633	Tobari-Ciano "S"	24908-30m-3y-0m							X		11.7	7.0
635	Ciano "S"-Jara! 66	24994-20m-5y-0m								78.1	11.5	8.0
636	Tobari-Ciano "S"	25000-45m-6y-0m	2, 3							77.5	12.9	5.8
637	Son 64- Y50 ⁵ _E x Gto/Note 66	25022-4m-3y-0m								76.8	12.9	3.3
639	Tz PP-Son 64 ² /Son 64- Y50 ⁵ _E x Gto	25069-3m-3y-0m						X				
642	Ciano "S"-Pj 62	25093-9m-2y-0m					X		X	79.5	13.1	4.2
643	My 41-Ciano "S"	25679-3m-3y-0m				X			X			
644	Ciano "S"-Cresco	25341-4m-9y-0m	3	X		X	X	X	X			
645	LR 64-Son 64 x Napo 63/Ciano "S"	25483-100m-5y-0m							X			
646	Siete Cerros		4									
647	Ciano "S" x Son 64-Kl Rend/8156	23584-26y-2m-2y-0m	4				X			76.8	12.5	5.5
648	Ciano "S"-Inia "S" ²	23959-27T-3m-3y-0m								77.2	12.0	4.0
649	Son 64- Y50 ⁵ _E x Gto/Inia	23528-102m-0y-18m-1y-0m						X	X			
650	Ciano "S"-Son 64	23582-17y-2m-2y-0m							X			
651	Inia 66					X						
652	Ciano-7 Cerros x Ciano-Pj 62	25917-20y-0m	2, 3				X		X			
654	Tob-Bza/T. T.-Son 64 x Ciano	25957-9y-0m	1									
659	Siete Cerros		4									
660	(Son 64 x Tz PP- Y54/Son 64- Y50 ⁵ _E x Gto)Note 66	24973-63m-4y-0m	1									
662	Ciano "S"- Cresco	24998-66m-5y-0m					X					
664	Tz PP- Pi x Gto-Son 64/Son 64- Y50 ⁵ _E x Gto	25012-16m-1y-0m	1, 3									
667	Tob 66/Son 64 ³ -Knott x Cresco	25047-15m-4y-0m						X				
672	Ciano "S" x Son 64-Kl Rend/8156	23584-15y-1m-1y-0m	1							77.5	12.1	3.5
673	Tob-Purdue x Ciano "S"	24277-9y-1m-2y-0m							X			
674	Son- Y50 ⁵ _E x Gto/Tob "S" ²	24027-13T-1m-6y-0m	2, 3	X		X				74.4	14.4	5.8
675	Ciano "S"-Inia "S" ²	23959-52T-1m-3y-0m	1, 3, 4	X		X						
677	Tob 66-Ciano "S"	25000-13m-3y-0m	3			X						
678	Tob 66-Ciano "S"	25000-56m-5y-0m	3			X			X			
679	Son 64- Y50 ⁵ _E x Gto/Note 66	25022-25m-1y-0m	3							77.7	12.7	3.4

Entry Number	Variety or cross	Pedigree	Yield	Subjective Evaluations	Disease				Quality Information			
					Rust			Septoria	Powdery Mildew	Test Weight	Percent Protein	Mixing Time (Mins.)
Stem	Leaf	Stripe										
757	Tob "S"-8156 x Ciano "S"	23802-3y-2m-2y-0m			X							
758	(Son 64-Y50 ⁵ _E x Gto/8156) Ciano "S"	23885-11t-2m-8y-0m			X							
760	Ciano "S"/Son 64 x TzPP-Y 54	23598-4m-2t-3m-1y-0m								77.6	13.8	3.8
761	Ciano "S"-JaraI "S"	23604-1m-3t-1m-1y-0m				X						
762	Inia 66				X							
764	Tob "S"-8156 x Ciano "S"	23802-3y-2m-1y-0m	3		X							
765	Son 64-Y50 ⁵ _E x Gto/Inia "S"	23528-7m-1t-1m-6y-0m			X							
766	Son 64 x Y50 ⁵ _E -Gto/Inia "S"	23528-23m-2y-1m-2y-0m			X							
768	Ciano "S"-Inia "S"	23959-19y-4m-2y-0m			X	X						
769	Tobari 66				X							
771	Ciano "S" x Son 64-K1 Rend/8156	23584-5m-8y-5m-2y-0m				X						
772	Ciano "S"-Chris	23583-100m-0y-17m-2y-0m				X						
773	Ciano "S"-Chris	23583-100m-0y-17m-1y-0m					X		X	77.4	13.7	2.2
774	Ciano "S"-Son 64	23582-34y-4m-1y-0m			X							
775	Tob-Purdue x Ciano "S"	24277-20y-5m-9y-0m				X				78.4	12.6	2.8
776	Ciano "S" x Son 64-K1 Rend/8156	23584-10m-5y-3m-2y-0m			X	X			X			
778	Ciano "S" x Son 64-K1 Rend/8156	23584-16y-6m-5y-0m								79.0	11.5	5.4
779	Ciano "S" x Son 64-K1 Rend/8156	23584-14m-7y-1m-7y-0m			X	X				77.9	12.5	5.8
781	Ciano "S"-Inia "S" ²	23959-41t-2m-4y-0m	3		X							
782	Ciano "S"-Inia "S" ²	23959-41t-2m-9y-0m			X							
784	Ciano "S"-Inia "S" ²	23959-30t-3m-3y-0m								77.6	11.5	4.4
789	Ciano "S"-Chris	23583-10m-6y-3m-1y-0m							X			
793	Tob-Purdue x Ciano "S"	24277-20y-5m-1y-0m								77.7	11.9	3.3
795	Tobari 66				X							
796	Son 64 x Y50 ⁵ _E -Gto/Inia	23528-102m-0y-49m-1y-0m							X			
798	Son 64 x Y50 ⁵ _E -Gto/Inia	23528-7m-1t-1m-8y-0m							X			
799	Tob x K1 Pet-Raf	23438-5m-1y-3m-1y-0m			X	X						
800	Tob x K1 Pet-Raf	23438-5m-1y-3m-2y-0m			X	X						
803	Ciano "S" x Son 64-K1 Rend/8156	23584-14m-7y-1m-6y-0m				X						
805	Ciano					X						
807	Ciano "S"-Inia "S" ²	23959-27t-5m-1y-0m				X						
808	Ciano "S"-Inia "S" ²	23959-41t-3m-4y-0m				X						
809	Ciano "S"-Inia "S" ²	23959-21y-4m-2y-0m				X						
813	Son 64-Y50 ⁵ _E x Gto/Inia "S"	23528-23m-1t-4m-1y-0m			X					77.7	14.9	3.4
814	Ciano "S"-Chris	23583-100m-0y-7m-1y-0m				X						
815	Ciano "S"-Chris	23583-10m-9y-4m-3y-0m				X			X			
817	Ciano-Son 64	23582-15m-1t-1m-5y-0m			X	X			X			
822	Ciano "S"-Inia "S"	23970-48y-2m-2y-0m							X			
823	Inia "S" (Son 64-Y50 ⁵ _E x Gto) ²	23836-16t-2m-2y-0m			X			X				
824	TzPP-Son 64 ² /Son 64-Y50 ⁵ _E x Gto	25069-3m-5y-0m					X	X	X			
826	Son 64-Y50 ⁵ _E x Gto/Inia "S"	23528-7m-1t-1m-2y-0m			X			X				
829	Son 64-Y50 ⁵ _E x Gto/Inia "S"	23528-102m-0y-10m-1y-0m			X					77.5	12.9	5.2
834	Ciano "S"-Son 64	23582-72y-1m-2y-0m			X							

836	Ciano "S"-Inia "S" ²	23959-13t-5m-3y-0m	1							
837	Ciano "S"-Inia "S" ²	23959-27t-4m-6y-0m						77.0	12.9	3.5
844	Ciano "S" x Son 64-K1 Rend/8156	23584-303m-1y-19m-3y-0m	3		X					
846	Ciano "S"-Chris	23583-10m-6y-2m-1y-0m			X	X	X	X		
847	Ciano "S"-Chris	23583-13m-15y-1m-2y-0m			X			78.8	13.5	4.3
848	Ciano "S"-Chris	23583-7m-8y-3m-1y-0m			X	X	X	77.9	13.4	3.2
850	Noroeste 66				X					
852	Ciano "S"-Inia "S" ²	23959-27t-5m-3y-0m			X					
853	Ciano "S"-Inia "S" ²	23959-30t-2m-1y-0m			X					
854	Ciano "S"-Inia "S" ²	23959-19y-2m-1y-0m			X					
856	Tob "S"/LR 64 x TzPP-AN _E						X			
858	Ciano "S" x Son 64-K1 Rend/8156	23584-303m-0y-29m-3y-0m						76.6	12.1	4.6
860	Son 64 x Y50 ⁵ _E -Gto/Inia	23528-102m-0y-4m-1y-0m						77.2	12.7	5.8
864	Inia 66				X					
865	Ciano "S"-Chris	23583-10m-4y-2m-3y-0m				X				
866	Ciano "S"-Chris	23583-13m-14y-3m-3y-0m					X	85.0	13.1	4.0
868	Ciano "S"-Son 64	23582-34y-4m-5y-0m			X					
870	Penjamo 62		2							
872	Tob-Purdue x Ciano "S"	24277-20y-5m-6y-0m					X	79.0	12.3	3.0
873	Tob 66-Ciano "S"	25000-38m-2y-0m			X					
875	Jaral 66-Ciano "S"	25067-61m-6y-0m					X			
880	Ciano "S"-Tob 66	24989-6m-3y-0m					X			
881	Tob 66-Ciano "S"	25000-13m-5y-0m	3		X					
882	Tobari 66				X					
883	Calidad/Son 64-Y50 ⁵ _E x Gto	25010-1m-2y-0m					X	78.8	13.3	5.4
884	Tob "S"-Nar 59/Son 64-Y50 ⁵ _E x Gto	25014-19m-2y-0m					X			
887	Son 64-Y50 ⁵ _E x Gto/Ciano "S"	25024-23m-3y-0m					X			
888	Tob 66 x Kl Pet-Raf/H-524-2221	25039-6m-2y-0m					X	77.7	12.9	5.0
889	Ciano 67							76.3	12.2	5.4
891	Jaral 66-Ciano "S"	25067-56m-3y-0m					X			
892	Jaral 66-Ciano "S"	25068-1m-5y-0m					X			
893	Ciano "S"-Chris	25071-11m-2y-0m				X				
900	Napo 63 x TzPP-Son 64/Calidad	25510-26m-2y-0m	3				X			
902	(Son 64-Y50 ⁵ _E x Gto/8156 (R))Ciano "S"	23885-11t-2m-10y-0m			X		X			
903	Ciano "S"-Chris	23583-10m-6y-1m-2y-0m				X	X			
905	Ciano "S" x LR 64 ² -Son 64	23587-23m-1y-1m-10y-0m			X					
907	Ciano "S" x LR 64 ² -Son 64	23587-31m-6y-4m-3y-0m						77.2	12.3	4.8
908	Ciano "S" x LR 64 ² -Son 64	23587-38m-1y-1m-4y-0m				X				
909	Ciano "S"-Chris	23583-100m-0y-6m-2y-0m					X	78.0	14.3	3.7
910	Ciano 67				X					
913	Ciano "S" x Son 64-K1 Rend/8156	23584-303m-0y-20m-1y-0m			X					
914	Ciano "S" x Son 64-K1 Rend/8156	23584-402m-0y-17m-1y-0m			X	X				
916	Ciano "S"-Inia "S" ²	23959-19y-2m-2y-0m	3		X					
917	Ciano "S"-Inia "S" ²	23959-13t-5m-6y-0m			X					
918	Ciano "S"-Inia "S" ²	23959-27t-3m-1y-0m			X					
920	Azteca 67				X					
924	Son 64-Y50 ⁵ _E x Gto/Inia "S"	23528-102m-0y-34m-1y-0m				X				
927	Ciano "S" x Son 64-K1 Rend/8156	23584-108-1m-5y-0m			X					
929	Ciano "S" x Son 64-K1 Rend/8156	23584-203m-1y-19m-1y-0m			X					
930	Ciano "S" x Son 64-K1 Rend/8156	23584-303m-0y-20m-2y-0m			X					

Entry Number	Variety or cross	Pedigree	Yield	Subjective Evaluations	Disease				Quality Information			
					Rust			Powdery Mildew	Test Weight	Percent Protein	Mixing Time (Mins.)	
					Stem	Leaf	Stripe					Septoria
932	Ciano "S" x Son 64-KI Rend/8156	23584-102m-0y-53m-1y-0m			X	X						
936	Ciano "S"-Inia "S" ²	23959-19y-4m-1y-0m				X						
937	Ciano "S"-Inia "S" ²	23959-27t-4m-5y-0m	2			X						
938	Ciano "S"-Inia "S" ²	23959-30t-1m-6y-0m				X						
939	Ciano "S"-Inia "S" ²	23959-30t-1m-1y-0m				X						
940	Ciano "S"-Inia "S" ²	23959-41t-1m-5y-0m							X			
941	Inia 66				X							
943	Son 64-Y50 ⁵ _E x Gto/Inia	23528-102m-0y-14m-1y-0m	4			X						
946	Norteño				X							
947	Ciano "S" x Son 64-KI Rend/8156	23584-6m-12y-7m-5y-0m	4				X					
948	Ciano "S" x Son 64-KI Rend/8156	23584-14m-7y-1m-1y-0m	4			X	X			78.1	13.2	6.1
950	Ciano "S" x Son 64-KI Rend/8156	23584-98y-1m-1y-0m				X	X					
951	Inia 66				X							
955	Son 64-Y50 ⁵ _E x Gto/Inia	23528-102m-0y-26m-1y-0m	4									
958	Siete Cerros		4									
960	Ciano "S" x Son 64-KI Rend/8156	23584-14m-7y-1m-2y-0m			X	X						
962	Ciano "S" x Son 64-KI Rend/8156	23584-100m-1y-4m-1y-0m	4									
965	Ciano "S" x Son 64-KI Rend/8156	23584-303m-0y-29m-2y-0m	1									
966	Ciano 67						X					
967	Ciano "S"-Inia "S" ²	23959-13t-1m-8y-0m	4		X	X						
968	Ciano "S"-Inia "S" ²	23959-13t-1m-9y-0m	4		X	X						
969	Ciano "S"-Inia "S" ²	23959-13t-3m-1y-0m	4		X	X						
970	Ciano "S"-Inia "S" ²	23959-13t-3m-6y-0m	4			X						
971	Ciano "S"-Inia "S" ²	23959-13t-4m-3y-0m	4		X							
972	Ciano "S"-Inia "S" ²	23959-27t-4m-4y-0m	4			X						
973	Ciano "S"-Inia "S" ²	23959-27t-4m-2y-0m	1			X						
974	Ciano "S"-Inia "S" ²	23959-27t-4m-3y-0m							X			
975	Norteño 67				X							
976	Son 64-Y50 ⁵ _E x Gto/Inia "S"	32528-102m-0y-31m-2y-0m								77.2	14.2	-
978	Son 64-Y50 ⁵ _E x Gto/Inia "S"	32528-102m-0y-31m-1y-0m			X		X			77.1	12.9	5.0
980	Son 64-Y50 ⁵ _E x Gto/Inia "S"	32528-102m-0y-33m-1y-0m	1									
983	Ciano "S"-Inia "S" ²	23959-27t-4m-1y-0m				X						
984	Ciano "S"-Inia "S" ²	23959-13t-3m-4y-0m	4									
985	Jaral 66						X					
990	Pitic 62		2,4									
991	Ciano "S" x Son 64-KI Rend/8156	23584-11m-3y-2m-2y-0m			X				X			
993	Ciano "S" x Son 64-KI Rend/8156	23584-18m-10y-3m-3y-0m			X							
998	Ciano "S" x Son 64-KI Rend/8156	23584-100m-0y-32m-1y-0m			X	X						
999	Ciano "S" x Son 64-KI Rend/8156	23584-102m-0y-60m-1y-0m	1		X							
1000	Ciano "S" x Son 64-KI Rend/8156	23584-303m-0y-19m-5y-0m						X				
1001	Ciano "S" x Son 64-KI Rend/8156	23584-6m-2y-1m-1y-0m						X				
1002	Ciano "S" x Son 64-KI Rend/8156	23584-5m-10y-3m-7y-0m					X					
1003	Ciano "S" x Son 64-KI Rend/8156	23584-6m-12y-7m-4y-0m					X					

Entry Number	Variety or cross	Pedigree	Yield	Subjective Evaluations	Disease				Quality Information					
					Rust			Septoria	Powdery Mildew	Test Weight	Percent Protein	Mixing Time (Mins.)		
					Stem	Leaf	Stripe							
1113	(Pi 62-II-53-526/Son 64)(Son 64 x Tz PP-Nai 60)	23599-3m-1r-2m-1r												
1114	Bajio 67		2					X						
1116	Ciano-Jar 66/Son 64-Y50 _E x Gto	25367-24m-1r					X	X		X				
1117	Ciano-Jar 66/Son 64-Y50 _E x Gto	25367-34m-1r	1				X							
1118	Jaral x Frondoso-Pi 62	25459-2m-1r								X				
1119	Norteño 67					X								
1123	Jaral 66-Tob 66	24397-10r-1m-2r								X				
1128	Inia/Son 64 x Tz PP-Y54	22390-9m-1r-2m-1r						X						
1130	Inia "S"-Napo 63	22402-1m-5r-1m-2r						X						
1131	Inia "S"-Napo 63	22402-1m-5r-1m-3r	2					X						
1132	Inia "S"-Napo 63	22402-2m-4r-1m-1r						X						
1133	Azteca 67					X								
1134	(LR 64-Son 64 x Napo 63) (Tz PP-Son 64/LR 64 x Tz PP-AN _E)	25477-48m-2r						X						
1139	(LR 64-Son 64 x Napo 63) (Son 64 x Tz PP-Y54/Son 64-Y50 _E x Gto)	25481-22m-1r						X						
1141	Tz PP-WtE ₃ x Nar 59/Jaral "S"	22783-9y-2m-1r-2m-1t						X		X	75.2	13.7	4.3	
1142	Tz PP-WtE ₃ x Nar 59/Jaral "S"	22783-9y-2m-1r-2m-2t						X						
1144	(Napo 63 x Tz PP-Son 64) (Tz PP-Son 64/LR 64 x Tz PP-AN _E)	25510-4m-1r						X						
1149	Inia 66					X								
1153	Son 64-Y50 _E x Gto/Ciano "S"	25024-22m-1r	1											
1155	Son 64-Y50 _E x Gto/Ciano "S"	23528-7m-1t-1m-1r									77.2	12.4	5.0	
1159	Inia/Son 64-Y50 _E x Gto	23476-13m-10r-2m-1r	1					X						
1161	Son 64-Y50 _E x Gto/Inia	23528-11m-4r-2m-1r									77.4	12.4	5.4	
1163	Son 64-Y50 _E x Gto/Inia	23528-39m-2r-1m-1r								X				
1166	Ciano 67							X						
1167	Ciano x Tz PP-Son 64	24826-10r-1m-1r						X						
1070	(Son 64 x Pj 62-Gb/Tz PP-Knott #2) (Son 64 x Tz PP-Y54)	25422-1m-2r	1						X					
1171	(Son 64 x Pj 62-Gb/Tz PP-Knott #2) (Son 64 x Tz PP-Y54)	25422-3m-2r							X					
1173	[(Son 64 x Tz PP-Nai/Napo)(LR 64 x Tz PP-AN _E)] (Tz PP-Son 64 x Nar 59)	25566-22m-4r						X	X					
1174	[(Son 64 x Tz PP-Nai/Napo)(LR 64 x Tz PP-AN _E)] (Tz PP-Son 64 x Nar 59)	25566-32m-3r						X	X					
1176	(Tz PP-Son 64/LR 64 x Tz PP-AN _E)(Son 64-Y50 _E x Gto)	25497-13m-1r								X				
1178	(Tz PP-Son 64/LR 64 x Tz PP-AN _E)(Son 64-Y50 _E x Gto)	25497-74m-1r							X					
1179	(Tz PP-Son 64/LR 64 x Tz PP-AN _E)(Son 64-Y50 _E x Gto)	25497-79m-1r						X						
1182	Azteca 67		2					X						
1184	Tz PP-Son 64 x Ciano "S"	25431-18m-1r						X	X					
1185	Tz PP-Son 64 x Ciano "S"	25431-23m-1r	1					X	X		X			
1188	(Son 64 x Tz PP-Y50/Son 64-Y50 _E x Gto)Note 66	24973-45m-1m						X						

1190	(Son64 x TzPP-Y50/Son64-Y50 _E x Gto)Ciano	24310-15r-4m-3r						X			
1192	(Son64-Y50 _E x Gto/Ciano)(Napo x TzPP-Son64)	25569-1m-2r						X			X
1193	(Son64-Y50 _E x Gto/Ciano)(Napo x TzPP-Son64)	25569-2m-1r						X	X		
1194	Norteño 67					X		X			
1195	(Son64 x TzPP-Y54/Nar59)(Son64-Y50 _E x Gto)	25394-3m-1r						X	X		
1196	(Son64 x TzPP-Y54/Crim)Ciano	23811-1r-1m-1r	1	X		X		X			
1198	Son64 x Sk ⁶ _E -AN ³ _E /Tob "S"	23528-1t-2m-2r	1					X			X
1199	TzPP-Son64 x Nar59/LR64-Son64 x Napo 63	25499-6m-1r						X			
1200	(TzPPSon64 x Pi62)/(Jar Note xLR64/TzPPAN _E) (Son64 x TzPP-Y54/Son64 ² -Y50 _E x Gto)	25378-6m-1r						X			
1201	Ciano-Pj62/Son64 x TzPP-Y54/Son64-Y50 _E x Gto)	25386-1m-2r					X	X			
1202	NP 838(TzPP-Son64/TzPP-Son64 x Nar59)	25501-4m-1r						X			
1205	H 565-Jar "S" x Tob "S"	Hm-1024-4y-1m-1r-3m-1r						X			
1206	H 565-Jar "S" x Tob "S"	Hm-1024-4y-1m-3r-2m-1r								X	
1207	Son64-Y50 _E x Gto/K 58-N x II-44-29	25348-5m-1m					X	X			77.1 12.5 8.0
1208	Inia "S"-Napo 63/Son64-Y50 _E x Gto	25555-3m-1m									78.2 12.5 1.8
1214	(TzPP-Son64 ²)(Son64-Y50 _E x Gto)	25069-31m-1m					X				
1215	Ciano "S"-Tob 66	25079-63m-1m					X				79.7 14.2 4.4
1216	Ciano "S" ² -Tob "S"	25113-1m-1m									77.5 12.5 5.2
1217	Ciano "S" ² -Tob "S"	25113-1m-1m					X				77.7 12.7 4.5
1219	Ciano "S"-Inia "S" ²	23959-13t-2m-1s					X				
1223	(Son64-Y50 _E x Gto/8156) Ciano "S"	23835-7t-2m-1s					X				
1224	(Son64-Y50 _E x Gto/8156) Ciano "S"	23835-7t-2m-2s					X				
1246	Fuente de Resist (Aust)						X				
1281	Ciano "S"-Son 64	23582-1m-5y-4m-0y						X			
1283	Ciano "S"-Son64	23582-18y-1m-0y						X			
1284	Ciano "S"-Son64	23582-25y-1m-0y						X			
1286	Ciano "S"-Chris	23583-3m-1m-0y						X			
1287	Ciano "S" x Son64-KI Rend/8156	23584-5m-10y-3m-0y						X			
1288	Ciano "S" x Son64-KI Rend/8156	23584-37y-3m-0y						X			
1289	Ciano "S" x Son64-KI Rend/8156	23584-98y-7m-0y						X			
1290	Ciano 67-Pj 62	24569-4y-1m-0y						X			
1293	TzPP x Sk ⁶ _E -LR 64	19018-66-1620-0y						X			
1296	Pato Arg/TzPP-Son64A x Nar	21974-4r-4m-2r-0y-0p-0y					X				
1299	Note/Son64 x TzPP-Y54	22390-101m-100y-100m-101y-101m-300y						X			
1302	(Son64 x SK ⁶ _E -AN ³ _E YCj36896-Gb54-Gb56/Chris'S')	23465-19m-0y-300y	2								
1303	LR64 ² -Son64/Son64 x Y50 _E x Gto	23456-5m-100y-100m-300y						X			
1312	Ciano "S"-Chris	23583-10m-6y-100m-300y						X			
1314	Ciano "S"-Chris	23583-100m-100y-300y						X			
1316	Ciano "S"-Chris	23583-100m-100y-101m-0y						X			
1317	Ciano "S"-Chris	23583-100m-101y-300y						X			
1319	Ciano "S"-Chris	23583-100m-101y-101m-300y						X			
1320	Ciano "S" x Son64-KI Rend/8156	23584-3m-8y-100m-300y						X			
1322	Ciano "S" x Son64-KI Rend/8156	23584-102m-101y-101m-300y						X			
1323	Ciano "S" x Son64-KI Rend/8156	23584-102m-100y-100m-300y		X				X			
1324	Ciano "S" x Son64-KI Rend/8156	23584-104m-100y-300y						X			
1326	Ciano "S" x Son64-KI Rend/8156	23584-104m-101y-102m-300y						X			
1327	KI Pet-Raf x Pj 62/Ciano	23608-4m-2r-100m-300y						X			
1328	KI Pet-Raf x Pj 62/Ciano	23608-4m-2r-102m-300y	2					X			

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