

EXPERIMENTAL RESULTS

Nursery Plot Trials

Seven yield nurseries were grown this year. The Uniform Regional Spring Wheat Nursery, California Regional Durum Nursery and two Advanced Yield Nurseries were grown in four row plots replicated 3 times at St. Paul, Harris and Crookston. Two Preliminary Yield Nurseries and the International Yield Nursery were grown only at St. Paul. Preliminary Yield Group I was seeded in four row plots but Group II was in 2 row plots because of limited seed supply. The International Yield Nursery plot size was 6 rows 6 feet long, spaced 1 foot apart and these were replicated 4 times. Sixteen square feet was the area harvested in each plot of all nurseries.

California Regional Spring Wheat Nursery - This nursery had 9 named varieties, including the 5 recommended for Minnesota, and 21 experimental lines.

The entries and their origins were as follows:

Variety or Cross	New or Old	Developed and Included by	Season or Rel. No.	C.I. No.
Marquis	Old			3541
Thatcher	"			13003
Saskink	"			13100
Lee	"			13488
Pembina	"	Winnipeg, Can.	CT220	13332
Cris	"	St. Paul, Minn.	II-33-494	13453
Justin	"	Fargo, N.D.	ND102	13462
Chris	"	St. Paul, Minn.	II-33-523-1	13751
Manitou	"	Winnipeg, Can.	KL4155	13773
II-50-17 x Pilot	"	Edmonton, Mont.	551-95	13586
	"	"	550-82	13823
	"	"	551-83	13946
Karya 335 x Lee	New	"	"	"
II-50-17 x Rushmore	Old	St. Paul, Minn.	II-34-30	13653
ND354 ² x II-50-72	"	"	II-34-11	13773
ND31-III-58-2 x II-53-545	"	"	II-35-57	13825
Cris x II-53-521	"	"	II-55-9	13825
51-3540 x II-50-17	"	Fargo, N.D.	50-54	13396
(II-50-17 x 51-2682)ND4-Rec	New	"	61-107	13937
Unknown	"	Brookings, S.D.	30-624	13947
"	"	"	50-625	13948
"	"	"	50-626	13949
ND133 x (Lee x FYI 134035)	Old	Fargo, N.D.	ND264	13569
Cly x (Lee x FYI 134035)	"	"	ND405	13779
Justin x ND51	"	"	ND363	13828
ND42 x Justin	New	"	ND321	13952
ND57 x Cly ² - ND51	"	"	ND407	13953
Jen x Cly ² - (FYI-ND51)	"	"	ND442	13954
ND350 ² x (ND57 x ND 3360)	"	"	ND455	13955
Jen x ND152	"	"	ND456	13956
Jen x ND224	"	"	ND457	13957

Agonomic and disease data obtained on this material at St. Paul, Morris and Crookston are shown in tables 10-1, 10-2 and 10-3 respectively. At St. Paul, the new variety Chris significantly out-yielded all the other recommended varieties and it also had the heaviest test weight and best leaf rust resistance. Two experimental lines, C.I. 13949 and C.I. 13655, were significantly higher in yield than Chris and C.I. 13655 and C.I. 13773 had the best test weights. The tallest variety in the test, C.I. 13542, was the most resistant to lodging.

Yields were good at Morris, where the test average was 35.4 bushels. None of the experimental lines were significantly higher yielding than Chris but C.I.'s 13655, 13653 and 13949 averaged 3 or more bushels above Chris. The line with the best test weight was C.I. 13655, followed by C.I. 13545.

The yields at Crookston were good but lower than at the other stations. Test weights were excellent with C.I. 13655 and C.I. 13773 both averaging more than 54 pounds. Chris yielded significantly more than the other recommended varieties and only two experimental lines, C.I.'s 13655 and 13937 yielded more.

The data from the 3 locations is summarized in table 11. Morris, Lee and C.I. 13655 were the only entries with damaging amounts of stem rust but almost half of them had 40% or more leaf rust as a result of either a natural or induced infection. Bushel weights were generally good with 8 entries averaging over 60 pounds. Two lines, C.I. 13655 and C.I. 13773, averaged over 62 pounds. The mean yield for all entries was 34.0 bushels. Chris was the highest yielding named variety but C.I.'s 13655 and 13949 were significantly higher.

Table 10-1. Agronomic and disease data obtained on spring wheat varieties grown in the Uniform Regional Nursery at St. Paul, Morris and Crookston, Minnesota in 1965

Four 10' rows, 3 replications

St. Paul

Sown May 6, 1965

Cross or Variety	C.I. No.	Date Head.	Ht. in.	Lodg. Class (1-9)	Rust Nursery		Bu. Wt. lbs.	Ave. Yield bu/acre	Yield in % of Chris	
					Stem Rust %	Leaf Rust %				
Marquis	3641	3	41	5.0	60S	70S	53.7	16.6	44.2	
Thatcher	10003	1	37	3.7	10S	70S	55.3	19.3	51.4	
Selkirk	13100	6/30	36	3.7	0	70S	53.8	29.1	77.6	
Lee	12488	6/30	35	7.0	70S	70S	52.8	23.6	62.9	
Pembina	13332	6/30	35	3.7	0	70S	53.8	29.8	79.5	
Crim	13465	1	36	5.0	0	70S	56.8	30.5	81.5	
Justin	13462	3	38	3.0	0	60S	57.3	28.0	74.7	
Chris	13751	2	40	4.0	0	tr	59.7	37.5	100.0	
Manitou	13775	1	37	3.7	0	20MR-MS	57.7	33.5	89.5	
II-50-17 x Pilot	13586	2	39	5.0	0	tr	60.0	40.6	108.4	
"	13823	2	38	6.0	0	t-5MR-R	58.2	29.6	79.1	
Ky338 x Lee	13946	6/30	36	3.7	0	30MS	57.7	34.7	92.7	
II-50-17 x Rmr	13655	1	40	6.0	tMR	tr	61.7	43.2	115.4	
M28242 x II-50-72	13773	2	37	4.0	0	tr	61.5	41.1	109.8	
ND81-III-58-2 x II-53-546	13825	2	32	3.7	0	70S	55.5	30.8	82.2	
Crim x II-53-521	13826	30	36	3.7	0	tMR, 10MS-S	57.3	34.5	92.2	
51-3549 x II-50-17	13596	1	36	6.7	0	tr	58.7	36.2	96.5	
II-50-17 x 51-2688										
ND4 x Rsc.	13937	6/30	37	6.0	0.20S	20MS-S	57.0	33.7	89.9	
Unknown	13947	6/30	38	3.3	EMS5S	60S	55.7	36.8	98.2	
"	13948	6/28	37	5.0	tMS	20MS	59.7	34.4	91.8	
"	13949	6/29	39	4.0	tS	20MS	56.8	44.8	119.7	
NDB8 x Lee-FPI186035	13569	5	45	1.7	t-5MS	5MR-MS	57.2	36.6	97.8	
Cly x Lee-FPI 186035	13779	1	36	6.0	0	10MS	55.8	39.0	104.1	
Jtn x ND81	13828	6/30	37	2.3	0	30S-MS	58.2	40.3	107.7	
ND42 x Jtn	13952	4	40	3.0	0	20MS-S	56.3	28.9	77.0	
MEET x Cly ² -ND81	13953	4	41	3.3	tMS	10-20MS-S	58.3	38.8	103.5	
Jtn x Cly ² -(N ² -MYGW)	13954	1	35	3.7	0	50MS-S	59.2	33.6	89.7	
N2350 ² x (Rmr-KF x NS3880)	13955	1	38	6.7	60S	40S	56.5	30.9	82.6	
Jtn x ND152	13956	1	37	5.0	10S	40MS-S	58.8	38.7	103.2	
Jtn x ND228	13957	1	39	2.7	0	40MS-S	58.8	41.8	111.5	
				Mean Yield						
				L.S.D. 5%						
				C.V. 8.9%						

Sown April 27, 1965

38

Table 10-3.

Four 10' rows, 3 replications

Crocketon

Cross or Variety	C.Y. No.	Row Planted July	No. in.	Leaves Clipped (1-9)	Ht. in.	Avg. Yield lb./acre	Yield as % of Chris
Marquis	3641	5	43	2.3	50.8	17.6	47.5
Thatcher	18063	2	36	2.0	52.5	20.3	54.7
Selkirk	13100	2	36	2.3	50.7	30.4	81.9
Lee	12488	1	35	3.0	61.5	31.1	56.9
Pamela	12322	2	36	2.0	50.7	29.8	80.3
Orin	13465	2	39	2.3	52.0	33.0	77.6
Justin	13462	4	39	2.3	61.7	30.4	81.9
Chris	13751	3	39	3.0	62.5	37.1	100.0
Hamilton	13775	2	37	2.7	61.7	35.6	95.9
II-50-17 x Philoc	13586	4	44	3.3	63.5	30.9	82.9
"	13823	3	43	4.3	62.3	34.9	94.1
Ky338 x Lee	13846	2	38	2.3	61.5	38.1	75.7
II-50-17 x Rmr	13655	1	41	2.7	64.2	39.9	107.4
M2324 x XI-50-72	13773	5	40	3.0	64.0	33.0	88.2
1801-III-50-2 x II-53-546	13825	4	33	2.0	60.7	26.9	72.5
Chris x II-53-521	13826	1	37	2.0	62.9	32.2	86.7
51-3549 x II-50-17	13596	2	38	2.0	61.3	31.0	83.5
II-50-17 x 51-2688							
Red-Roc	13937	1	37	2.7	53.0	40.1	107.9
Unknown	13947	3	40	2.7	62.2	35.2	94.7
"	13948	6/30	37	2.3	62.8	34.3	97.8
"	13949	6/30	40	2.3	61.8	36.3	97.8
W1138 x Lee-FPI 186035	13589	6	47	2.3	62.0	32.2	86.7

Table 10-3. (con't)

Cross or Variety	Cat. No.	Date Harv. July	Ht. in.	Pods /plant (1-9)	Dr. wt. lbs.	Ave. Yield bu./acre	Yield in % of Chris
Cly x Lee-FH1 106035	13779	3	30	3.7	62.0	36.4	90.1
Jen x M801	13820	1	30	2.0	61.3	33.0	91.1
M842 x Jen	13952	3	42	2.0	61.3	25.6	68.0
M842 x Cly ² -M861	13953	4	42	2.7	63.7	32.0	83.2
Jen x Cly ² -(M ² -M861)	13954	1	35	2.0	62.2	27.0	73.0
M2350 ²							
M842 x M2350	13935	3	39	2.7	62.0	28.2	76.0
Jen x M8152	13956	2	30	2.0	63.2	29.6	79.0
Jen x M8220	13957	4	38	2.0	63.2	34.1	91.0
Mean Yield							31.2
L.S.D. 5%							5.7
C.V. 11.2%							

Table 11. Summary of agronomic and disease data obtained on spring wheat varieties grown in the Uniform Regional Nursery at St. Paul, Morris and Crookston, Minnesota in 1945.

Cross or Variety	S.I. No.	Date	Mc. In.	Lodg. class (1-9)	Natural			Rust Nursery			No. lbs. bu/cv	Avg. yield bu/cv	Yield in % of
					Stem	Leaf	Root	Stem	Leaf	Root			
Marquis	1041	7/2	41	3.4	608	708		508	508		55.3	19.6	67.3
Phalaris	10603	6/30	38	2.7	108	708		10-208	508		56.1	22.0	36.0
Selkirk	13100	29	38	2.7	0	708		108-408	708-108		56.7	32.1	81.7
Lee	12608	29	37	4.4	708	708		388	708		56.6	35.2	64.2
Peabody	13132	29	37	2.6	0	708		0, 25-80	708-208		57.0	34.9	78.7
Crim	13465	30	40	3.0	0	708		0, 208	708-108		59.0	32.9	83.8
Justia	13452	7/2	40	2.3	0	608		0, 208-5	208-5		58.9	31.1	79.4
Chris	13751	1	40	3.6	0	608		0, 208	608		60.7	39.2	100.0
Union	13775	6/30	39	2.8	0	208-108		0	208-108		59.4	37.3	95.2
YI-50-17 x Pilot	13586	7/2	43	3.7	0	608		0	608		61.6	39.2	99.9
"	13823	1	42	5.0	0	2-308-2		108-5	108-5		60.2	35.3	90.1
Y336 x Lee	13946	6/29	39	2.6	0	308-5		0	108-108		58.7	32.5	82.8
YI-50-17 x Mar	13655	29	41	3.9	0	608		0	608		62.7	44.2	112.6
W20242 x YI-50-72	13773	7/1	40	3.6	0	608		0	608		62.1	39.2	97.9
W81-III-58-2 x YI-53-946	13825	2	34	2.5	0	708		0	608		57.5	31.3	78.9
Crim x YI-53-521	13826	6/29	38	2.7	0	208-108-3		0	308-608		59.5	36.5	93.6
YI-3549 x YI-50-17	13596	30	39	4.0	0	608		0	608		59.9	36.7	93.4
YI-50-17 x YI-2688	13937	29	39	4.0	0, 208	208-5		0, 208	608		59.8	39.7	101.2
W4-208	13947	30	41	3.3	208, 308	608		0	208		59.0	39.4	100.3
Unknown	13948	27	39	3.4	208	208		58	108		61.1	39.0	98.4
"	13949	28	42	3.0	0	208		0	308		59.1	43.0	109.7
"	13569	7/5	47	2.4	0-308	508-108		0	608		59.0	32.1	81.7
W10 x Lee-YFI 186035	13779	1	39	4.0	0	108		0	208-108		58.8	40.3	102.6
Cly x Lee-YFI 186035	13828	6/29	39	2.1	0	308-108		0	608		59.4	39.5	100.6
Jim x W81	13828	6/29	39	2.1	0	308-108		0	608		59.4	39.5	100.6
W42 x Jim	13552	7/2	43	2.1	0	208-5		0, 208	208		58.6	30.2	77.1

A summary of data obtained on varieties in this nursery for two years is presented in table 12 and a 3 year summary in table 13. Both summaries indicate that the new Canadian variety, similar to quite comparable to Chris in its overall performance, with the exception of leaf rust resistance and test weight. C.I. 15435 has been consistently high in both test weight and yield. This line, along with C.I. 15473 and C.I. 15436 are being considered for release as varieties.

Table 12. Two year summary of agronomic data obtained on spring wheat varieties grown in the Uniform Regional Nursery at St. Paul, Paul, Morris and Crookston, Minnesota (1964-65).

C.I. No.	Date Head. June	Mo. in.	Acres (1-9)	Ku. lb.	Ave. Yield by Stations St. Paul Morris Crookston 1/ lb.	2 yr. ave. yield	2 of chris
3641	28	30	3.0	53.2	15.6	17.0	45.6
10003	25	36	2.0	56.8	19.0	20.3	55.4
13180	25	36	2.4	56.6	24.6	30.4	53.1
12488	24	35	3.7	37.6	19.7	21.1	66.9
13337	24	36	2.6	57.0	24.6	29.3	84.9
13465	25	38	3.5	59.0	24.8	30.7	89.1
13462	27	38	2.2	58.4	22.5	28.8	83.6
13751	26	38	3.0	60.4	27.2	37.1	100.0
13775	25	36	3.7	58.8	27.0	35.6	99.8
13586	27	40	2.8	60.8	28.8	30.8	102.2
13023	26	40	4.5	60.2	24.6	34.9	99.7
13655	24	38	3.2	62.6	30.8	39.9	111.7
13773	26	37	2.7	62.0	29.4	33.6	97.9
13825	26	32	2.2	58.0	23.5	26.9	87.5
13026	24	36	2.6	58.8	27.3	32.2	100.0
13996	25	36	3.5	59.8	28.2	31.0	97.0
13569	30	42	2.0	58.9	24.3	32.2	86.4
13779	26	37	3.9	56.3	20.8	26.4	98.7
13828	24	36	1.8	59.2	30.4	33.8	100.7
				Mean Yield (all entries) L.S.D. (05)	17.4 3.1	31.2 5.7	31.8 2.5

1/ No Crop in 1964 brought.

Table 13. Three year summary of agronomic and disease data obtained on spring wheat varieties grown in the Uniform Regional Nursery at St. Paul, Morris and Crookston, Minnesota (1963-65).

Variety or State No.	C.I. No.	Date Head. June	Ht. in.	Lodg. Class (1-9)	Rust Nurs.		Bu. Wt. lbs.	Ave. Yield By Stations			3 Yr. Ave.	Yield in % of Chris
					Stem Rust	Leaf Rust		St. Paul bu/acre	Morris bu/acre	Crookston bu/acre		
					%	%						
Marquis	3641	26	37	3.0	63	77	53.9	16.9	18.9	27.0	20.2	60.1
Thatcher	10003	23	35	2.6	32	87	57.2	19.0	24.2	27.6	23.1	68.8
Selkirk	13100	23	35	2.4	1	63	56.1	22.6	32.9	34.6	29.4	87.6
Lee	12488	22	35	3.7	43	50	57.8	19.3	27.4	30.8	25.2	75.1
Pembina	13332	23	35	2.6	1	57	56.8	22.6	31.6	34.7	29.0	86.3
Crim	13465	23	37	3.6	t	53	58.9	22.7	34.7	36.6	30.7	91.3
Justin	13462	25	37	2.2	8	10	58.4	21.1	31.4	37.1	29.0	86.2
Chris	13751	24	37	3.0	t	t	59.8	24.2	39.5	38.8	33.6	100.0
Manitou	13775	24	36	2.7	t	33	58.5	26.0	38.4	39.2	34.0	101.1
B61-95	13586	26	38	2.8	t	t	60.0	24.8	42.4	38.2	34.7	103.4
II-54-30	13655	23	38	3.2	0	t	61.9	26.8	44.7	42.8	37.5	111.7
II-55-11	13773	25	36	2.7	t	t	61.5	25.8	38.2	37.1	33.3	99.1
ND264	13569	27	40	2.0	7	5	58.6	21.5	32.6	33.2	28.6	85.1
ND405	13779	24	37	3.9	10	22	58.0	26.5	37.6	39.2	33.8	100.8
MEAN YIELD (All Entries)								23.7	35.3	36.3	31.3	
LSD (05)								2.6	3.3	6.2	2.2	