

2011 Post-Registration Trials

The Manitoba Sunflower Post-Registration Variety testing is organized and conducted by the National Sunflower Association of Canada (NSAC) in co-ordination with the Manitoba Agriculture, Food and Rural Initiatives. This was the fifth year the NSAC has co-ordinated the trials, which continue to serve as an important tool providing sunflower growers with regional third-party performance data of various varieties. The hybrids tested in the trials are actively being pursued by sunflower breeding companies in Manitoba and may be in the experimental stage or registered under the Canadian Food Inspection Agency.

In 2011, the NSAC coordinated the Manitoba Sunflower Post-Registration Variety Trials in five locations across the province: Morden, Souris, Graysville, Elm Creek and Melita.

Unfortunately, growing conditions were abnormal in terms of above average rainfall early in the season and heat accumulation later in the season. Due to these conditions, three of the five trials sites were lost, leaving only the Morden and Souris sites to be harvested.

These trials and results are made possible with your continued support through the sunflower check-off levy. The NSAC appreciates the hard work of the MAFRI Oilseed specialist, Anastasia Kubinec, who created the plot plans and compiled the data for the trials. As well, a big thank-you to Keystone Grain Ltd. for sizing the seed samples, and to the North Dakota Grain Inspection Services for analyzing the oil data. In addition, we appreciate the hard work of all the contractors who plant, monitor and harvest the plots.

SUNFLOWERS - Non-Oil Type												Disease Resistance to:		
Variety Descriptions												Rust1	Verticillium Wilt	Downey2 Mildew
Company	Hybrids	Herb Type	DMR	% Nutmeat1	Yield (lbs/acre)	Harvest Moisture (%)	Days to Bloom	Days to Maturity	Height (inches)	% over 20/64 inch				
Seeds 2000	6946	-	N	58	2563	8.5	78	125	81	55	HS	MR	S	
Seeds 2000	6946 DMR	-	Y	56	2711	8.4	78	124	82	48	S	MR	R	
Seeds 2000	6950	-	N	54	2675	8.8	80	128	85	51	HS	MR	S	
SYNGENTA Seed	IS 8135	-	N	45	2718	9.2	77	124	87	79	HS	MS	S	
Seeds 2000	Jaguar	CL	N	48	2456	8.8	78	127	83	68	HS	MR	S	
Seeds 2000	Panther DMR	-	Y	48	2528	9.1	76	124	81	56	S	MS	R	
Dow AgroSciences	8C451	-	N	48	2934	8.8	82	128	90	79	HS	MS	S	
<i>Experimental lines are being tested/proposed for registration in Canada</i>														
SYNGENTA Seed	F39018	-	N	52	2230	9.4	78	128	88	42	HS	MR	S	
CHS Sunflower	RH400 CL	CL	N	44	2848	9.5	79	125	86	66	HS	MS	S	
Seeds 2000	Sundance DMR	-	Y	48	2731	10.0	80	125	88	29	HS	MR	MR	
Seeds 2000	X3213 DMR	-	Y	51	-	-	-	-	-	-	HS	MS	R	
Seeds 2000	X5913 DMR	-	Y	52	-	-	-	-	-	-	HS	MS	R	
Seeds 2000	X9180 EX DMR	ExSun	Y	52	-	-	-	-	-	-	HS	MS	MR	
Overall Average (lbs/acre)				50	2639	9.1	78	126	85	57				
Site Year				1	2	2	2	2	2	1				

SUNFLOWERS - Oil Type												Disease Resistance to:		
Variety Descriptions												Rust1	Verticillium Wilt	Downey2 Mildew
Company	Hybrids	Herb Type	DMR	Oil Type	Yield (lbs/acre)	Harvest Moisture (%)	Days to Bloom	Days to Maturity	Height (inches)	% Oil				
SYNGENTA Seed	IS 3480 CL	NS	CL	Y	2367	9.8	87	134	61	41.7	HS	MR	R	
Pioneer Hi-Bred	63N82	NS	ExSun	N	2139	10.1	83	135	57	42.0	HS	MR	S	
Seeds 2000	Defender Plus DMR	NS	-	Y	2357	9.1	82	129	54	38.7	HS	MR	R	
<i>Experimental lines are being tested/proposed for registration in Canada</i>														
Elite Seeds	Balistic	Trad	CL	Y	2366	11.6	85	134	65	36.9	HS	MR	R	
Elite Seeds	Biba	Trad	-	Y	2392	10.5	85	133	61	40.1	HS	MR	MR	
Seeds 2000	Cobalt	HO	CL	Y	2543	10.0	88	133	69	40.7	HS	MR	R	
Elite Seeds	Ethic	Trad	-	N	2153	11.4	87	134	55	40.0	HS	MR	S	
Seeds 2000	Falcon	NS	ExSun	N	2272	9.3	82	133	59	42.1	HS	MR	S	
Pioneer Hi-Bred	P63ME70	NS	ExSun	Y	2825	10.2	84	133	60	41.0	HS	MR	MR	
Pioneer Hi-Bred	P63ME80	NS	ExSun	Y	2070	9.7	87	135	65	38.5	R	MR	R	
Elite Seeds	Pomar	Trad	-	Y	2394	11.1	83	131	52	38.4	HS	MR	MR	
Overall Average (lbs/ac)					2353	10.2	85	133	60	40				
Site Years					2	2	2	2	2	2				

- Comments**
- All sunflower varieties currently available are susceptible to sclerotinia rot. Weather conditions and presence of sclerotinia inoculum play a major role in disease development and severity.
 - % Nutmeat measurement taken from samples harvested at Morden location trials. One year, one location only data.
 - Average height and maturity derived from data collected in the MCVET Sunflower trials in 2009-2011 and the MSC trials. Data from all sites accepted for yield.
 - Reaction indicated is to Races 2, 3, and 4 under controlled indoor conditions.
 - Reaction indicated is to Race 2.

MINTO: 2011 CONFECTION SUNFLOWERS

Hybrids	Yield (lbs/acre)	Harvest Moisture (%)	Days to Bloom	Days to Maturity	Height (inches)	Seed Sizing		
						22/64	20/64	Medium
6946	2214	9.9	79	116	62	26	22	30
6946 DMR	2312	9.4	80	118	63	17	20	37
6950	2331	10.6	81	120	68	21	25	39
IS 8135	2364	11.5	76	116	68	50	25	13
Jaguar	2198	10.7	78	118	65	31	29	23
Panther DMR	2372	10.9	75	119	60	30	31	23
8C451	1997	11.1	83	121	68	33	33	20
<i>Experimental lines are being tested/proposed for registration in Canada</i>								
F39018	2041	11.9	81	123	69	17	19	44
RH400 CL	2587	11.3	80	121	64	21	28	33
Sundance DMR	2408	12.6	80	121	68	6	20	54
Grand Mean	2231	11	79	120	66	25	25	31
CV%	11.6							
LSD (lbs/acre)	394.0							
Sign Diff	Yes							

MORDEN: 2011 CONFECTION SUNFLOWERS

Hybrids	Yield (lbs/acre)	Harvest Moisture (%)	Days to Bloom	Days to Maturity	Height (inches)	Seed Sizing		
						22/64	20/64	Medium
6946	3530	7.1	77	134	68	25	38	34
6946 DMR	3763	7.5	76	129	68	31	28	38
6950	3665	7.1	79	135	68	25	32	39
IS 8135	3727	6.8	77	132	70	59	25	13
Jaguar	3306	6.8	77	136	68	41	35	21
Panther DMR	3293	7.4	77	129	69	22	31	44
8C451	4578	6.6	80	134	75	79	15	6
<i>Experimental lines are being tested/proposed for registration in Canada</i>								
F39018	2956	7.0	74	132	71	15	34	47
RH400 CL	3795	7.8	77	129	73	49	33	17
Sundance DMR	3712	7.4	80	129	73	10	21	64
X3213 DMR	3622	7.3	80	136	71	10	21	67
X5913 DMR	4088	7.2	75	131	69	10	20	62
X9180 EX DMR	3870	7.3	77	135	71	16	19	52
Grand Mean	3673	7.2	77.0	132.4	71	30	27	39
CV%	11.8							
LSD (lbs/acre)	-							
Sign Diff	No							

MINTO: 2011 OIL SUNFLOWERS

Hybrids	Yield (lbs/acre)	Harvest Moisture (%)	Days to Bloom	Days to Maturity	Height (inches)	Oil Content
IS 3480 CL	2478	12.8	84	123	60	39.9
63N82	-	13.4	81	124	53	41.3
Defender Plus DMR	2569	11.9	79	117	54	37.1
<i>Experimental lines are being tested/proposed for registration in Canada</i>						
Balistic	2655	16.1	82	124	68	35.0
Biba	2766	13.9	81	122	63	39.0
Cobalt	2786	13.3	85	122	70	39.1
Ethic	2190	15.9	84	124	54	37.8
Falcon	2369	12.6	81	123	57	40.6
P63ME70	2550	13.7	81	121	59	40.5
P63ME80	1895	12.5	85	125	63	36.0
Pomar	2703	15.0	81	120	45	35.2
GRAND MEAN	2387	13.7	82	122	59	38.3
CV%	14.5					
LSD (lbs/acre)	606					
Sign Diff	Yes					

MORDEN: OIL SUNFLOWERS

Hybrids	Yield (lbs/acre)	Harvest Moisture (%)	Days to Bloom	Days to Maturity	Height (inches)	Oil Content
IS 3480 CL	2257	6.8	90	144	61	43.4
63N82	2139	6.8	84	146	61	42.6
Defender Plus DMR	2144	6.4	84	141	55	40.2
<i>Experimental lines are being tested/proposed for registration in Canada</i>						
Balistic	2076	7.1	87	143	63	38.8
Biba	2018	7.0	89	144	59	41.1
Cobalt	2300	6.7	90	144	68	42.2
Ethic	2116	6.9	90	144	56	42.1
Falcon	2175	5.9	83	143	62	43.5
P63ME70	3099	6.8	87	144	61	41.5
P63ME80	2246	6.9	89	145	68	40.9
Pomar	2084	7.2	84	142	60	41.5
GRAND MEAN	2241	6.8	87	144	61	41.6
CV%	9.6					
LSD (lbs/acre)	312					
Sign Diff	Yes					

Disease Reactions of the Manitoba Sunflower McVET Trial 2011										
Hybrids	Mean Rust Index ^e				Verticillium ^v Wilt Index Nursery	% Resistance ^r			% Survivor Sclerotinia With Inoculum ^h	Head Rot Disease Index ^t
	Race 336		Race 4			Downy Mildew				
	Score	Class	Score	Class		Race 2	Race 3	Race 4		
Oil Type										
Defender Plus	5.0	HS	5.0	HS	3.5	100	83	83	5.2	2.2
X9822-DMR	5.0	HS	3.0	MS	2.2	100	100	100	5.7	1.2
Falcon-EX	5.0	HS	5.0	HS	3.1	13	13	21	6	1.4
3480 NS CL DM [*]	3.0	MS	5.0	HS	3.3	88	75	100	28.6	1.8
P63ME80	1.0	R	1.0	R	2.8	100	100	100	3.1	1.5
63N82	5.0	HS	5.0	HS	2.6	0	9	0	1.2	1.6
P63ME70	5.0	HS	5.0	HS	2.8	92	87	65	3.3	1.3
Ethic	5.0	HS	5.0	HS	2.5	13	21	33	5.8	1.6
Pomar ^r	5.0	HS	5.0	HS	2.1	96	63	54	5.9	1.7
Balistic	5.0	HS	5.0	HS	3.0	88	88	88	2.8	1.2
Biba	5.0	HS	5.0	HS	2.3	67	67	83	2.5	1.6
Non-Oil Type										
6946	5.0	HS	5.0	HS	3.0	0	4	4	1.5	1.6
6946 DMR	5.0	HS	4.0	S	3.1	92	23	54	6.8	2.3
6950	5.0	HS	5.0	HS	2.9	4	5	25	2.4	2.6
X3207-DMR	5.0	HS	5.0	HS	2.9	75	65	58	9.8	1.9
Jaguar	5.0	HS	5.0	HS	2.6	0	32	5	3.7	1.7
Panther DMR	5.0	HS	3.0	MS	3.9	100	60	79	3.3	2.2
F39018 ^r	5.0	HS	5.0	HS	2.5	0	8	0	2.5	3.8
8135 ^r	5.0	HS	5.0	HS	3.7	4	8	0	40.6	1.5
RH400 CL	5.0	HS	5.0	HS	3.2	0	0	5	6.3	2.5
8C451	5.0	HS	5.0	HS	3.5	5	13	13	1.9	2.9
X2212	5.0	HS	5.0	HS	3.3	0	0	8	4.2	2.2
X5913-DMR	5.0	HS	5.0	HS	3.6	100	96	100	4.5	2.4
X3213	5.0	HS	5.0	HS	3.6	94	100	94	6.9	2.3
X9180 EX -DMR	5.0	HS	5.0	HS	3.1	71	79	83	5	2.4
X2213	5.0	HS	5.0	HS	3.5	0	5	4	2.9	2.3

* - These hybrids had treated seed.

e - Reaction to rust races 336 and 4 under growth room controlled conditions.

- Disease index 1-5 based on % leaf area infected; 0-1=highly resistant (0-5%); 2=moderately resistant (5-10%); 3=moderately susceptible (10-30%); 4=susceptible (30-50%); and 5=susceptible (>50%);
- MR=Resistant to Race 2, Susceptible to Race 3; S & HS=Susceptible to both races.

v - Field reaction to Verticillium wilt in naturally infested soil. Indices of 1 (healthy), 2 (mild), 3 (moderate), 4 (severe), and 5 (dead) were assigned; the mean disease index was obtained by multiplying the number of plants in each class by the corresponding index, and the total divided by the total number of plants.

r - Reaction to downy mildew races 2, 3 and 4 under controlled conditions in growth rooms; note that most of the hybrids had treated seed.

h - Field reaction to early Sclerotinia infection using artificial inoculum at Morden, as a percent of the control; note that most hybrids had treated seed.

t - Field reaction to artificial inoculation using sclerotinia infected ground millet twice (August 4, 2011 and August 16, 2011). Disease index scale 1-10 (1=healthy; 10=100% Head Rot).

Blooming Alberta

Sunflower acreage is on the rise in Alberta. Approximately 4,000 acres of sunflowers were grown in Alberta this past season, concentrated within a triangle spanning from Brooks, to Lethbridge and Medicine Hat.

This past summer, Claire Kincaid, NSAC Agronomist, had the opportunity to make two visits to Alberta throughout the growing season to meet with producers and tour the crop. The tours, as organized by Frito Lay and Seeds 2000, toured contract seed growers fields which provided us the opportunity to witness different production practices—strip till, flood irrigation and a variety comparison trial.

Production challenges are different in Alberta than Manitoba. Sunflower disease incidence is lower in Alberta; however weed control

is an ongoing battle due to restrictions surrounding commercial seed production. Almost all of the acres are under irrigation, mostly pivot. Fields are irrigated following the application of a pre-plant herbicide or pre-emergent herbicide to ensure activation, and then again following planting to ensure quick germination. Throughout the remainder of the growing season the fields are watered to maintain soil moisture levels in the top two feet of soil. Since 2001, average sunflower yields in Alberta are 1,600 lb/ac.

The NSAC would like to thank Frito Lay and Seeds 2000 for the opportunity to join the AB leg of the tour.

