



Report No. 28

***MANITOBA
REGIONAL
SUNFLOWER
PERFORMANCE TEST - 2007***

***A report on tests of Commercial Hybrids
Sponsored by the Manitoba Sunflower Committee***

Note: Not for publication. Data cannot be used in whole or in part without the permission of The Manitoba Sunflower Committee.



Building for the Future

**MANITOBA REGIONAL
SUNFLOWER PERFORMANCE TESTS
2007
SPONSORED BY THE
MANITOBA SUNFLOWER COMMITTEE**

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<i>Minto Site</i>	David Rourke / Kevin Martens / Ashley Robertson (Ag-Quest)
<i>Altona Site</i>	Khalid Rashid (AAFC) / John Kehler

INTRODUCTION

The Manitoba Sunflower Committee (MSC) was organized under the authority of the Minister of Agriculture for Manitoba to provide a vehicle for testing sunflower hybrids in Manitoba. The Committee has conducted performance cooperative trials since 1979. The data generated through these trials is used to support registration of sunflower hybrids in Canada. A minimum of two years performance data is required in order to determine the acceptability of hybrids for registration. However, hybrids can be recommended for registration based on one-year cooperative data supported by another year of private data. The Committee conducted trials at four locations in 2007; Altona, Morden, Portage la Prairie and Minto, and results from three trials (Morden, Portage la Prairie, and Minto) were used by the Committee for recommending hybrids for registration. Yields, oil contents, and quality from Morden, Portage la Prairie, and Minto were average to above average in 2007. Data from the Altona Trial was not included in the final analysis of the 2007 data due to poor vigor, excess moisture issues at the start of the growing season, and high coefficient of variance values.

Growing conditions in 2007 were normal in terms of both heat accumulation and rainfall in most areas of Manitoba. However, some areas did experience early season frosts and excess rainfall. In general, disease and insect infestations were low in comparison to previous years, and overall, excellent seed quality is expected. Total seeded sunflower acres in 2007 reported by MASC were 110,501 acres of confections and 65,481 acres of oils.

The Manitoba Sunflower Committee hopes that this service will continue to be useful to sunflower breeders, growers, seed companies, processors and the sunflower industry at large.

Arvel Lawson, Acting Chair
Manitoba Sunflower Committee

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TABLE 1: MANITOBA SUNFLOWER COMMITTEE - 2007 OILSEED CANDIDATE HYBRIDS.

COMPANY	HYBRID			TYPE	YEAR
SEEDS 2000	VIPER	(IMI)	(Treated)	Nus	2
SEEDS 2000	X4239HO-DMR		(Treated)	HO	1
MYCOGEN	8N270		(Treated)	Nus	3
MYCOGEN	8N272		(Treated)	Nus	3
MYCOGEN	8N453DM		(Treated)	Nus	2
MYCOGEN	8N337DM		(Treated)	Nus	2
MYCOGEN	8N386CL		(Treated)	Nus	2
MYCOGRN	8N358CL		(Treated)	Nus	1
INTERSTATE	DKF34-33DM	(MH4436)	(Treated)	Nus	2
INTERSTATE	IS-6131DM		(Treated)	Nus	1
CROPLAN GENTICS	305		(Treated)	NuScl	2
CROPLAN GENTICS	343		(Treated)	Nus	2
CROPLAN GENTICS	803NS		(Treated)	Nus	1
INTERSTATE	6111		(Treated)	Oil	Check
PIONEER	P63M52	(XF306)	(Treated)	Nus	Check
INTERSTATE	6511	(Hysun 511)	(Treated)	Nus	Check

TABLE 2: MANITOBA SUNFLOWER COMMITTEE - 2007 CONFECTIONARY CANDIDATE HYBRIDS.

COMPANY	HYBRID			TYPE	YEAR
SEEDS 2000	Panther		(Treated)	Con	2
SEEDS 2000	X4407CL	(Jaguar)	(Treated)	Con	2
SEEDS 2000	Panther-DMR		(Treated)	Con	1
MYCOGEN	8C481		(Treated)	Con	2
MYCOGEN	8C482		(Treated)	Con	2
DAHLGREN	9530		(Treated)	Con	3
DAHLGREN	DH-9583CL		(Treated)	Con	1
CHS Sunflower	RH 1122	(06EXP04)	(Treated)	Con	2
CHS Sunflower	RH1121		(Treated)	Con	1
CHS Sunflower	07EXP02		(Treated)	Con	1
CHS Sunflower	07EXP15		(Treated)	Con	1
SEEDS 2000	6946	(DE-1950)	(Treated)	Con	Check
INTERSTATE	IS 8048		(Treated)	Con	Check

**Table 3: Performance data from the Manitoba Oilseed Sunflower Co-op Trial 2007
(Altona, Morden, Portage La Prairie and Minto).**

Hybrid*		Yield (kg/ha)	% Oil	Days to 80% Bloom	Days to Maturity	Plant Height (cm)	Kernel Density (g/litre)	Kernel Weight (mg)
6111		2563	45.7	75	113	155	428	51
63M52	(XF306)	2453	48.4	80	118	161	417	63
6511	(Hysun 511)	2380	45.5	76	114	146	416	54
8N270		2501	46.5	78	116	154	416	50
8N272		2410	47.2	77	115	148	420	49
VIPER	(IMI)	2363	44.5	81	121	156	395	42
8N453DM		2632	50.1	82	125	168	425	48
8N337DM		2472	50.3	80	120	161	410	47
8N386CL		2145	43.2	81	125	179	391	49
DKF34-33DM	(MH4436)	2710	48.5	80	119	161	435	51
305		2337	45.7	78	117	157	445	53
343		2651	43.4	79	126	166	430	57
X4239HO-DMR		2495	46.8	81	122	162	385	45
8N358CL		2622	47.6	81	124	166	397	47
IS-6131DM		2284	47.7	77	116	154	428	49
803NS		2216	48.4	77	114	152	424	49
Mean (All)		2452	46.9	79	119	159	416	50
Mean (6111 & 63M52)		2508	47.1	78	116	158	422	57
Mean (63M52 & 6511)		2416	47.0	78	116	154	416	58
C.V.		17	4.4	2	4	6	4	10
LSD 5%		296	1.4	1	3	7	11	3

★ - All varieties had treated seed.

**Table 4: Performance data from the Manitoba Oilseed Sunflower Co-op Trial 2007
(Morden, Portage La Prairie and Minto).**

Hybrid*		Yield (kg/ha)	% Oil	Days to 80% Bloom	Days to Maturity	Plant Height (cm)	Kernel Density (g/litre)	Kernel Weight (mg)
6111		2979	45.4	72	113	163	438	53
63M52	(XF306)	2768	48.9	79	118	171	427	63
6511	(Hysun 511)	2694	45.1	74	114	153	426	56
8N270		3002	47.3	75	116	166	433	51
8N272		2835	47.7	75	115	157	436	49
VIPER	(IMI)	2796	44.2	80	121	167	402	43
8N453DM		3129	50.5	80	125	177	436	49
8N337DM		2896	50.3	79	120	172	418	48
8N386CL		2421	42.9	79	125	191	396	49
DKF34-33DM	(MH4436)	3079	48.8	78	119	172	448	52
305		2664	45.6	76	117	168	458	55
343		3181	43.3	77	126	177	444	59
X4239HO-DMR		2899	47.3	79	122	170	394	45
8N358CL		3063	47.6	80	124	180	407	49
IS-6131DM		2576	47.6	75	116	162	437	50
803NS		2574	48.5	74	114	160	436	49
Mean (All)		2847	46.9	77	119	169	427	51
Mean (6111 & 63M52)		2873	47.2	75	116	167	432	58
Mean (63M52 & 6511)		2731	47.0	76	116	162	426	59
C.V.		16	4.4	2	4	6	3	8
LSD 5%		360	1.7	1	3	8	12	3

★ - All varieties had treated seed.

Table 5: Performance data from the Manitoba Oilseed Sunflower Co-op Trial 2007 (Altona).

Hybrid*	Yield (kg/ha)	% Oil	Days to 80% Bloom	Plant Height (cm)	Kernel Density (g/litre)	Kernel Weight (mg)	% Bud Worm [■]	% Midge [■]
6111	1317	46.6	82	131	399	45	13	1
63M52 (XF306)	1506	46.9	86	133	387	64	17	2
6511 (Hysun 511)	1437	47.0	84	124	385	48	18	6
8N270	997	44.1	85	116	366	45	39	2
8N272	1134	45.7	85	118	372	50	35	0
VIPER (IMI)	1066	45.5	86	123	375	38	21	3
8N453DM	1138	49.1	87	139	392	45	8	8
8N337DM	1199	50.3	85	128	384	42	21	4
8N386CL	1316	44.1	86	142	373	48	3	7
DKF34-33DM (MH4436)	1602	47.5	85	128	396	49	14	5
305	1357	46.1	85	125	406	50	33	3
343	1060	43.7	84	135	389	52	21	4
X4239HO-DMR	1284	45.4	87	138	358	47	6	2
8N358CL	1302	47.7	85	122	366	41	21	0
IS-6131DM	1406	48.0	84	131	402	49	9	6
803NS	1140	47.8	85	128	387	46	12	5
Mean (All)	1266	46.6	85	129	384	47	18	4
Mean (6111 & 63M52)	1411	46.8	84	132	393	54	15	2
Mean (63M52 & 6511)	1471	47.0	85	129	386	56	18	4
C.V.	22	3.6	1	6	4	14	59	136
LSD 5%	393	2.4	1	10	24	9	15	7

★ - All varieties had treated seed.

■ - Percent insect infection is based on natural infection.

Seeded: May 10th, 2007

Harvested: October 3rd, 2007

Table 6: Performance data from the Manitoba Oilseed Sunflower Co-op Trial 2007 (Morden).

Hybrid*	Yield (kg/ha)	% Oil	Days to 80% Bloom	Days to Maturity	Plant Height (cm)	Kernel Density (g/litre)	Kernel Weight (mg)	Meal Protein (%)	Fatty Acids			
									Palmitate 16:0	Stearate 18:0	Oleate 18:1	Linoleate 18:2
6111	3875	47.1	74	114	170	444	57	58	5.4	3.5	27.5	63.7
63M52 (XF306)	3725	51.0	82	123	187	442	67	56	3.8	4.6	60.6	31.0
6511 (Hysun 511)	3889	46.8	75	118	167	441	63	59	4.6	3.7	49.1	42.7
8N270	3523	47.6	78	119	189	439	54	58	3.7	3.7	68.8	23.9
8N272	3363	48.3	77	118	175	434	51	58	3.6	3.4	72.4	20.7
VIPER (IMI)	3672	46.5	81	128	181	420	47	57	3.9	3.6	57.3	35.2
8N453DM	4175	52.8	81	137	198	461	54	56	3.7	3.6	68.1	24.6
8N337DM	3794	52.1	81	124	189	442	57	54	3.8	3.3	66.8	26.1
8N386CL	3002	44.7	80	136	214	422	54	62	4.4	3.2	51.5	40.9
DKF34-33DM (MH4436)	3739	49.1	81	126	187	454	58	58	4.2	4.3	59.0	32.5
305	3748	45.6	78	121	177	456	64	59	3.0	4.4	83.3	9.5
343	3465	43.6	80	143	187	453	64	59	3.0	4.2	81.8	11.0
X4239HO-DMR	3614	48.2	81	131	185	408	50	55	3.0	3.9	86.2	7.0
8N358CL	3653	50.5	81	134	200	431	55	57	3.8	3.2	67.9	25.1
IS-6131DM	3523	48.4	77	121	169	450	55	58	3.7	4.0	66.6	25.7
803NS	3542	50.0	76	117	178	445	53	58	3.9	4.0	62.7	29.5
Mean (All)	3644	48.3	79	126	185	440	57	58	3.8	3.8	64.3	28.1
Mean (6111 & 63M52)	3800	49.1	78	119	179	443	62	57	4.6	4.1	44.1	47.4
Mean (63M52 & 6511)	3807	48.9	79	120	177	442	65	57	4.2	4.2	54.9	36.9
C.V.	9	1.9	2	4	5	2	7	2	3.7	4.4	4.9	10.4
LSD 5%	444	1.3	2	7	13	14	6	2	0.2	0.2	4.4	4.2

★ - All varieties had treated seed.

Seeded: May 9th, 2007Harvested: October 11th, 2007

Table 7: Performance data from the Manitoba Oilseed Sunflower Co-op Trial 2007 (Portage La Prairie).

Hybrid*	Yield (kg/ha)*	% Oil	Days to 80% Bloom	Days to Maturity	Plant Height (cm)	Kernel Density (g/litre)	Kernel Weight (mg)	% Moisture	% Downy Mildew [■]	% Scl. Wilt [■]
6111	2544	50.4	78	111	146	422	53	8	20	13
63M52 (XF306)	1792	49.6	83	114	155	383	58	10	20	13
6511 (Hysun 511)	1755	49.2	79	111	135	397	50	8	23	13
8N270	2189	52.0	79	111	140	402	45	8	20	15
8N272	2227	52.1	78	111	126	410	44	7	20	15
VIPER (IMI)	1558	44.1	86	114	148	372	39	9	23	20
8N453DM	1423	48.8	87	115	158	372	39	10	18	13
8N337DM	1704	50.4	85	115	148	368	38	9	20	13
8N386CL	1438	41.9	84	116	161	341	40	8	20	18
DKF34-33DM (MH4436)	1899	50.4	83	112	153	412	44	8	28	18
305	1943	49.3	81	113	156	433	50	8	15	13
343	2361	46.7	82	114	165	403	51	10	18	15
X4239HO-DMR	1582	48.3	83	114	149	351	38	9	20	18
8N358CL	1928	46.8	86	115	158	348	40	8	20	13
IS-6131DM	1829	51.9	79	112	146	411	43	8	23	20
803NS	2010	52.5	79	112	136	412	45	7	20	13
Mean (All)	1886	49.0	82	113	149	390	45	8	20	15
Mean (6111 & 63M52)	2168	50.0	80	112	151	402	55	9	20	13
Mean (63M52 & 6511)	1773	49.4	81	112	145	390	54	9	22	13
C.V.	15	1.8	2	1	7	2	6	20	24	35
LSD 5%	405	1.3	2	2	14	14	4	2	7	8

★ - All varieties had treated seed.

❖ - Yield is adjusted for 10% moisture.

■ - Percent disease is based on natural infection.

Seeded: May 16th, 2007

Harvested: October 13th, 2007

Table 8: Performance data from the Manitoba Oilseed Sunflower Co-op Trial 2007 (Minto).

Hybrid*	Yield (kg/ha)*	% Oil	Days to 80% Bloom	Days to Maturity	Plant Height (cm)	Kernel Density (g/litre)	Kernel Weight (mg)	% Moisture
6111	2518	38.8	66	115	171	447	48	12
63M52 (XF306)	2789	46.0	71	116	171	456	65	11
6511 (Hysun 511)	2438	39.2	67	115	158	439	53	13
8N270	3294	42.5	70	117	171	457	54	12
8N272	2915	42.5	70	117	171	464	52	11
VIPER (IMI)	3158	41.9	73	122	172	415	42	13
8N453DM	3790	49.8	73	122	177	475	54	10
8N337DM	3189	48.5	71	120	179	446	50	12
8N386CL	2823	42.2	73	124	198	426	53	12
DKF34-33DM (MH4436)	3601	46.7	71	119	176	477	54	10
305	2301	42.0	69	117	170	485	50	10
343	3718	39.7	71	120	179	476	62	15
X4239HO-DMR	3500	45.3	72	122	177	424	45	14
8N358CL	3607	45.5	73	123	183	440	51	14
IS-6131DM	2376	42.4	69	116	171	450	50	10
803NS	2172	43.1	67	113	165	451	50	9
Mean (All)	3012	43.5	70	119	174	452	52	12
Mean (6111 & 63M52)	2653	42.4	69	116	171	451	56	11
Mean (63M52 & 6511)	2613	42.6	69	116	164	447	59	12
C.V.	12	3.0	1	1	3	3	4	13
LSD 5%	496	1.8	1	2	8	16	3	2

★ - All varieties had treated seed.

❖ - Yield is adjusted for 10% moisture.

Seeded: May 26th, 2007Harvested: October 23rd, 2007

Table 9: Performance data from the Manitoba Oilseed Sunflower Co-op Trials, candidate and check hybrids, 2006 and 2007 combined.

Hybrid	Year *	Yield (kg/ha)	% Oil	Days to 80% Bloom	Days to Maturity	Plant Height (cm)	Kernel Density (g/litre)	Kernel Weight (mg)
8N270	2005 (3)	3843	46.3	74	116	149	412	66
	2006 (3)	2738	49.1	70	111	163	443	46
	2007 (3)*	3002	47.3	75	116	166	433	51
Mean (2006 & 2007)		2870	48.2	73	114	165	438	49
Mean (2005 - 2007)		3194	47.6	73	114	159	429	54
8N272	2005 (3)	3520	45.5	76	118	147	416	67
	2006 (3)	2664	49.2	69	111	161	436	49
	2007 (3)*	2835	47.7	75	115	157	436	49
Mean (2006 & 2007)		2750	48.5	72	113	159	436	49
Mean (2005 - 2007)		3006	47.5	73	115	155	429	55
VIPER (IMI)	2006 (3)	2812	47.6	75	116	172	438	38
	2007 (3)*	2796	44.2	80	121	167	402	43
Mean		2804	45.9	77	119	170	420	40
8N453DM	2006 (3)	3584	53.6	74	121	179	468	47
	2007 (3)*	3129	50.5	80	125	177	436	49
Mean		3356	52.1	77	123	178	452	48
8N337DM	2006 (3)	3201	54.8	71	117	177	450	49
	2007 (3)*	2896	50.3	79	120	172	418	48
Mean		3048	52.6	75	119	174	434	49
8N386CL (IMI)	2006 (3)	2716	48.4	75	123	182	420	48
	2007 (3)*	2421	42.9	79	125	191	396	49
Mean		2568	45.7	77	124	187	408	48
DKF34-33DM (MH4436)	2006 (3)*	3399	50.8	72	116	173	441	54
	2007 (3)*	3079	48.8	78	119	172	448	52
Mean		3239	49.8	75	118	173	445	53
305	2006 (3)*	3520	47.2	71	114	174	471	52
	2007 (3)*	2664	45.6	76	117	168	458	55
Mean		3092	46.4	74	115	171	465	53
343	2006 (3)*	3546	46.5	74	119	181	463	58
	2007 (3)*	3181	43.3	77	126	177	444	59
Mean		3364	44.9	75	123	179	454	59
Oil Check (6111)	2005 (3)	3979	47.9	72	114	157	445	60
	2006 (3)	3608	49.0	67	113	166	479	54
	2007 (3)*	2979	45.4	72	113	163	438	53
Mean (2006 & 2007)		3294	47.2	70	113	165	459	54
Mean (2005 - 2007)		3522	47.4	70	113	162	454	56
Nusun Check (63M52)	2005 (3)	3904	50.2	79	119	164	427	77
	2006 (3)	3596	51.9	72	116	170	449	62
	2007 (3)*	2768	48.9	79	118	171	427	63
Mean (2006 & 2007)		3182	50.4	76	117	171	438	63
Mean (2005 - 2007)		3423	50.3	77	118	168	434	67

• - Value between parentheses is the number of trials tested per year.

★ - These varieties had treated seed.

**Table 10: Performance data from the Manitoba Confectionary Sunflower Co-op Trial 2007
(Altona, Morden, Portage La Prairie and Minto).**

Hybrid*	Yield (kg/ha)	Days to 80% Bloom	Days to Maturity	Plant Height (cm)	Kernel Density (g/litre)	Kernel Weight (mg)	% Nut- meat	Seed Size % Over Screen		
								>20	18-20	16-18
6946 (DE-1950)	2749	79	115	167	336	103	57	38	40	15
IS 8048	2324	78	120	174	346	123	51	58	28	9
9530	2816	79	120	176	323	126	50	57	29	9
Panther	2740	78	121	169	316	117	47	49	33	12
X4407CL (Jaguar)	2821	78	116	168	310	120	50	64	25	8
8C481	2569	79	122	197	296	127	49	50	34	10
8C482	2558	80	124	196	294	135	46	62	29	6
RH 1122 (06EXP04)	2457	79	119	175	297	140	47	78	13	5
Panther-DMR	2847	77	120	167	323	119	50	45	37	13
DH-9583CL	2579	80	123	187	316	123	53	56	28	10
RH 1121	2831	81	123	182	319	127	47	75	15	6
07-EXP02	2234	80	127	189	312	133	46	52	34	10
07-EXP15	1995	80	125	190	301	130	47	42	38	16
Mean (All)	2579	79	121	180	314	125	49	56	29	10
Mean (Checks)	2537	78	117	171	341	113	54	48	34	12
C.V.	13	2	3	5	4	7	7	17	22	37
LSD 5%	237	1	3	6	9	6	2	7	5	3

★ - All varieties had treated seed.

**Table 11: Performance data from the Manitoba Confectionary Sunflower Co-op Trial 2007
(Morden, Portage La Prairie and Minto).**

Hybrid*	Yield (kg/ha)	Days to 80% Bloom	Days to Maturity	Plant Height (cm)	Kernel Density (g/litre)	Kernel Weight (mg)	% Nut- meat	Seed Size % Over Screen		
								>20	18-20	16-18
6946 (DE-1950)	3260	76	115	179	351	112	58	39	42	14
IS 8048	2779	74	120	186	363	133	51	59	27	9
9530	3276	76	120	184	335	134	51	59	29	8
Panther	3262	74	121	177	333	128	48	48	34	12
X4407CL (Jaguar)	3384	75	116	181	328	126	51	62	26	8
8C481	3040	75	122	212	312	140	50	52	34	9
8C482	2999	77	124	210	309	147	49	64	28	5
RH 1122 (06EXP04)	2947	76	119	185	310	154	48	79	12	5
Panther-DMR	3304	73	120	176	341	127	51	47	37	12
DH-9583CL	3091	77	123	200	331	134	53	59	27	9
RH 1121	3334	78	123	193	332	140	47	79	12	5
07-EXP02	2635	77	127	202	326	148	47	55	33	9
07-EXP15	2350	77	125	204	318	145	48	41	39	16
Mean (All)	3051	76	121	191	330	136	50	57	29	9
Mean (Checks)	3019	75	117	182	357	123	55	49	34	11
C.V.	12	2	3	5	4	6	4	17	23	40
LSD 5%	296	1	3	7	11	7	2	8	5	3

★ - All varieties had treated seed.

Table 12: Performance data from the Manitoba Confectionary Sunflower Co-op Trial 2007 (Altona).

Hybrid*	Yield (kg/ha)	Days to 80% Bloom	Plant Height (cm)	Kernel Density (g/litre)	Kernel Weight (mg)	% Nut- meat	Seed Size % Over Screen			% Bud Worm [■]	% Midge [■]	% Vert.*
							>20	18-20	16-18			
6946 (DE-1950)	1217	87	131	290	77	52	35	33	21	25	2	4
IS 8048	962	89	140	294	90	49	55	30	11	20	11	23
9530	1435	90	150	284	103	47	51	32	11	13	2	18
Panther	1176	89	144	262	83	45	51	30	12	17	3	20
X4407CL (Jaguar)	1133	88	128	257	101	49	68	22	8	27	2	18
8C481	1154	89	154	248	88	47	47	33	13	9	2	28
8C482	1238	90	154	249	98	36	56	30	8	13	0	20
RH 1122 (06EXP04)	987	89	146	256	100	43	75	14	7	17	2	35
Panther-DMR	1476	88	140	267	93	47	41	39	15	15	2	8
DH-9583CL	1043	89	150	271	90	53	46	32	13	8	2	5
RH 1121	1321	90	150	282	87	45	63	23	9	13	4	11
07-EXP02	1032	90	150	271	89	43	43	38	12	14	4	15
07-EXP15	929	88	146	249	86	44	43	36	16	13	10	23
Mean (All)	1162	89	145	268	91	46	52	30	12	16	4	17
Mean (Checks)	1089	88	136	292	84	51	45	32	16	22	6	13
C.V.	17	1	3	4	9	14	14	16	23	42	118	51
LSD 5%	277	2	6	16	11	9	11	7	4	10	6	13

★ - All varieties had treated seed.

■ - Percent insect infection is based on natural infection.

☆ - Percent verticillium is based on natural infection.

Seeded: May 10th, 2007

Harvested: October 3rd, 2007

Table 13: Performance data from the Manitoba Confectionary Sunflower Co-op Trial 2007 (Morden).

Hybrid*	Yield (kg/ha)	Days to 80% Bloom	Days to Maturity	Plant Height (cm)	Kernel Density (g/litre)	Kernel Weight (mg)	% Nut- meat	Seed Size % Over Screen		
								>20	18-20	16-18
6946 (DE-1950)	3748	78	118	197	335	106	61	33	46	15
IS 8048	3189	77	126	201	371	125	53	47	35	12
9530	3954	79	124	203	335	123	53	47	38	10
Panther	3687	77	131	196	347	126	50	33	43	16
X4407CL (Jaguar)	3723	77	119	205	333	116	54	49	35	11
8C481	3750	78	129	239	296	130	53	50	37	10
8C482	3708	81	133	226	299	136	51	58	33	5
RH 1122 (06EXP04)	3394	79	122	212	314	146	49	73	18	6
Panther-DMR	3626	76	130	191	341	115	53	29	46	19
DH-9583CL	3630	81	131	223	337	122	56	41	37	13
RH 1121	3976	81	132	218	330	136	49	80	12	4
07-EXP02	3170	80	142	222	326	140	48	54	32	10
07-EXP15	2925	81	139	232	320	140	50	38	40	17
Mean (All)	3575	79	129	213	329	128	52	49	35	11
Mean (Checks)	3468	77	122	199	353	116	57	40	40	13
C.V.	8	2	2	3	3	6	3	20	21	33
LSD 5%	432	2	4	9	12	10	2	14	10	5

★ - All varieties had treated seed.

Seeded: May 9th, 2007Harvested: October 11th, 2007

Table 14: Performance data from the Manitoba Confectionary Sunflower Co-op Trial 2007 (Portage La Prairie).

Hybrid*	Yield (kg/ha)*	Days to 80% Bloom	Days to Maturity	Plant Height (cm)	Kernel Density (g/litre)	Kernel Weight (mg)	% Nut-meal	Seed Size % Over Screen			% Moisture	% Downy Mildew [■]	% Scl. Wilt [■]
								>20	18-20	16-18			
6946 (DE-1950)	2734	81	111	161	350	106	56	38	43	16	8	20	10
IS 8048	2743	77	112	161	353	127	48	63	25	9	10	20	13
9530	2818	80	114	162	314	127	47	68	25	6	10	20	13
Panther	2579	77	112	155	302	115	43	58	29	10	10	20	13
X4407CL (Jaguar)	2579	79	112	148	297	117	46	74	18	6	8	20	13
8C481	2576	79	116	179	293	131	44	50	35	12	10	20	15
8C482	2389	79	117	184	290	139	43	63	30	6	11	20	18
RH 1122 (06EXP04)	2761	79	114	151	300	146	45	87	8	3	10	18	13
Panther-DMR	2932	77	114	162	317	124	47	61	28	9	9	20	13
DH-9583CL	2555	79	115	163	307	128	48	68	24	7	11	20	13
RH 1121	2806	82	116	162	316	124	45	80	13	6	9	18	13
07-EXP02	2240	80	115	178	303	136	42	52	35	11	9	18	20
07-EXP15	2034	79	114	170	299	137	43	42	35	19	10	18	15
Mean (All)	2596	79	114	164	311	128	46	62	27	9	9	19	14
Mean (Checks)	2738	79	112	161	351	116	52	51	34	13	9	20	11
C.V.	12	1	1	6	3	7	4	12	18	39	14	13	37
LSD 5%	440	2	1	15	12	12	3	11	7	5	2	4	7

★ - All varieties had treated seed.

❖ - Yield is adjusted for 10% moisture.

■ - Percent disease is based on natural infection.

Seeded: May 16th, 2007Harvested: October 13th, 2007

Table 15: Performance data from the Manitoba Confectionary Sunflower Co-op Trial 2007 (Minto).

Hybrid*	Yield (kg/ha)*	Days to 80% Bloom	Days to Maturity	Plant Height (cm)	Kernel Density (g/litre)	Kernel Weight (mg)	% Nut-meat	Seed Size % Over Screen			% Moisture
								>20	18-20	16-18	
6946 (DE-1950)	3299	70	117	180	370	124	58	46	36	10	9
IS 8048	2404	68	121	196	365	148	53	68	22	5	11
9530	3056	70	121	188	357	152	52	63	23	8	12
Panther	3518	68	120	180	351	144	51	55	30	9	9
X4407CL (Jaguar)	3849	69	119	190	355	146	52	64	26	6	9
8C481	2795	70	122	218	347	158	53	54	31	6	12
8C482	2899	70	123	219	339	166	52	70	21	5	10
RH 1122 (06EXP04)	2687	70	121	193	316	170	50	78	11	5	11
Panther-DMR	3353	67	116	177	367	144	53	50	35	10	9
DH-9583CL	3088	72	122	213	348	152	55	69	19	5	9
RH 1121	3221	72	122	200	351	159	48	79	11	5	11
07-EXP02	2495	71	123	206	347	166	50	58	32	6	10
07-EXP15	2091	72	122	211	335	157	51	43	40	12	10
Mean (All)	2981	70	120	197	350	153	52	61	26	7	10
Mean (Checks)	2851	69	119	188	367	136	55	57	29	8	10
C.V.	13	1	1	3	3	5	3	14	25	31	22
LSD 5%	562	1	2	9	17	11	2	12	9	3	3

★ - All varieties had treated seed.

❖ - Yield is adjusted for 10% moisture.

■ - Disease is based on natural infection using a scale of 1-9.

Seeded: May 26th, 2007

Harvested: October 23rd, 2007

Table 16: Performance data from the Manitoba Confectionary Sunflower Co-op Trials, candidate and check hybrids, 2006 and 2007 combined.

Hybrid	Year *	Yield (kg/ha)	Days to 80% Bloom	Days to Maturity	Plant Height (cm)	Kernel Density (g/litre)	Kernel Weight (mg)	% Nut- meat	Seed Size % Over Screen		
									>20	18-20	16-18
9530	2002 (4)	2132	83	119	183	286	120	50	92	6	1
	2003 (3)*	2870	78	126	161	323	115	53	72	18	8
	2007 (3)*	3276	76	120	184	335	134	51	59	29	8
Mean		2759	79	122	176	315	123	51	74	18	6
Panther	2006 (3)	2699	70	114	175	324	116	46	48	28	13
	2007 (3)*	3262	74	121	177	333	128	48	48	34	12
	Mean	2980	72	118	176	329	122	47	48	31	12
X4407CL (Jaguar)	2006 (3)	2983	71	115	173	315	124	51	65	15	9
	2007 (3)*	3384	75	116	181	328	126	51	62	26	8
	Mean	3183	73	116	177	322	125	51	64	21	9
8C481	2006 (3)	3080	73	124	200	320	137	50	56	22	11
	2007 (3)*	3040	75	122	212	312	140	50	52	34	9
	Mean	3060	74	123	206	316	138	50	54	28	10
8C482	2006 (3)	3297	74	124	193	316	142	50	63	18	9
	2007 (3)*	2999	77	124	210	309	147	49	64	28	5
	Mean	3148	75	124	202	312	145	50	64	23	7
RH1122 (06EXP04)	2006 (3)*	3391	72	117	190	323	160	48	83	6	2
	2007 (3)*	2947	76	119	185	310	154	48	79	12	5
	Mean	3169	74	118	188	317	157	48	81	9	4
6946 (DE-1950)	2006 (3)	3315	71	113	174	360	112	62	37	36	20
	2007 (3)*	3260	76	115	179	351	112	58	39	42	14
	Mean	3288	74	114	177	356	112	60	38	39	17
IS 8048	2006 (3)	2904	71	116	188	373	126	52	46	28	14
	2007 (3)*	2779	74	120	186	363	133	51	59	27	9
	Mean	2842	72	118	187	368	130	52	53	28	12
Mean (Checks 2007)		3019	75	117	182	357	123	55	49	34	11
Mean (Checks 2003)		2376	76	121	154	321	102	58	55	24	16
Mean (Checks 2002)		2382	78	117	179	306	123	54	89	8	2

• - Value between parentheses is the number of trials tested per year.

★ - These varieties had treated seed.

Table 17: Disease reactions of the Manitoba Sunflower Co-operative Trial 2007.

Hybrids	Mean Rust Index*				Verticillium* Wilt Index Nursery	% Resistance*		% Survivor Sclerotinia With Inoculum	
	Race 2		Race 3			Downy Mildew			
	Score	Class	Score	Class	Race 2	Race 3			
Oil Type									
Checks									
6111		5.0	HS	4.0	S	2.7	100	26	19
63M52	(XF306)	5.0	HS	4.0	S	2.3	54	4	62
6511	(Hysun 511)	5.0	HS	5.0	HS	2.2	67	76	72
3 Year Entry									
8N270		5.0	HS	5.0	HS	2.3	0	0	43
8N272		5.0	HS	5.0	HS	2.5	0	4	32
2 Year Entry									
VIPER	(IMI)	5.0	HS	5.0	HS	2.5	19	13	14
8N453DM		5.0	HS	4.0	S	2.6	83	100	27
8N337DM		5.0	HS	4.0	S	2.9	94	56	28
8N386CL		5.0	HS	5.0	HS	2.6	79	8	17
DKF34-33DM*	(MH4436)	5.0	HS	4.0	S	2.1	98	84	86
305*		4.0	S	4.0	S	1.8	89	92	97
343*		4.0	S	5.0	HS	2.5	89	93	69
1 Year Entry									
X4239HO-DMR*		5.0	HS	4.0	S	2.2	100	98	28
8N358CL		5.0	HS	5.0	HS	2.3	35	17	15
IS-6131DM*		0.0	HR-I	4.0	S	2.4	88	51	48
803NS*		1.0	R	3.0	MS	2.5	95	83	77
Non-Oil Type									
Checks									
6946	(DE-1950)	3.0	MS	4.0	S	2.5	45	0	31
IS 8048		5.0	HS	4.0	S	3.4	21	76	14
3 Year Entry									
9530		5.0	HS	4.0	S	3.4	16	9	20
2 Year Entry									
Panther		5.0	HS	5.0	HS	3.1	4	5	21
X4407CL	(Jaguar)	2.0	MR	5.0	HS	2.6	0	10	27
8C481		4.0	S	5.0	HS	3.1	19	40	26
8C482		5.0	HS	4.0	S	2.9	14	4	11
RH1122*	(06EXP04)	2.0	MR	4.0	S	3.0	2	9	78
1 Year Entry									
Panther-DMR		3.0	MS	4.0	S	3.3	98	98	27
DH-9583CL		4.0	S	5.0	HS	3.0	2	0	50
RH1121*		0.0	HR-I	5.0	HS	2.8	6	5	62
07EXP02*		0.0	HR-I	2.0	MR	2.9	0	0	97
07EXP15*		0.0	HR-I	2.0	MR	2.9	0	2	52

* - These hybrids had treated seed.

♣ - Reaction to rust races 2 and 3 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.

* - 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.

* - Reaction to downy mildew races 2 and 3 under controlled conditions in growth rooms.

♠ - Field reaction to early Sclerotinia infection using artificial inoculum at Morden, as a percent of the control.

Table 18: Mean disease reactions of the Manitoba Oilseed Sunflower Co-operative Trial (2006 - 2007)

Hybrids	Year	Mean Rust Index*			Verticillium*		% Resistance*		
		Race		Class	Wilt		Downy Mildew		
		2	3		Index	Class	Race		Class
Oil Type									
Checks									
6111	2005	4.0	5.0		3.2		73	0	
	2006	5.0	5.0		2.4		50	10	
	2007	5.0	4.0		2.7		100	26	
	Mean (06/07)	5.0	4.5	HS	2.6	MR	50	18	MS
	Mean (05-07)	4.7	4.7	HS	2.8	MR	74	12	MS
63M52 (XF306)	2005	2.0	5.0		2.8		85	9	
	2006	4.0	5.0		2.2		85	0	
	2007	5.0	4.0		2.3		54	4	
	Mean (06/07)	4.5	4.5	HS	2.3	MR	70	2	MS
	Mean (05-07)	3.7	4.7	S	2.4	MR	75	4	MS
Candidate Hybrids									
8N270	2005	5.0	4.0		3.4		0	2	
	2006	5.0	5.0		2.5		5	0	
	2007	5.0	5.0		2.3		0	0	
	Mean (06/07)	5.0	5.0	HS	2.4	MR	3	0	HS
	Mean (05-07)	5.0	4.7	HS	2.7	MR	2	1	HS
8N272	2005	5.0	5.0		3.1		0	4	
	2006	5.0	5.0		2.6		0	0	
	2007	5.0	5.0		2.5		0	4	
	Mean (06/07)	5.0	5.0	HS	2.6	MR	0	2	HS
	Mean (05-07)	5.0	5.0	HS	2.7	MR	0	3	HS
VIPER (IMI)	2006	5.0	4.0		2.4		65	3	
	2007	5.0	5.0		2.5		19	13	
	Mean	5.0	4.5	HS	2.5	MR	42	8	S
8N453DM	2006	4.0	5.0		2.1		69	81	
	2007	5.0	4.0		2.6		83	100	
	Mean	4.5	4.5	HS	2.4	MR	76	91	R
8H337DM	2006	4.0	5.0		2.3		100	100	
	2007	5.0	4.0		2.9		94	56	
	Mean	4.5	4.5	HS	2.6	MR	97	78	R
8N386CL	2006	3.0	5.0		2.4		60	7	
	2007	5.0	5.0		2.6		79	8	
	Mean	4.0	5.0	S	2.5	MR	70	8	MS
DKF34-33DM (MH4436)	2006*	5.0	5.0		2.3		19	93	
	2007*	5.0	4.0		2.1		98	84	
	Mean	5.0	4.5	HS	2.2	MR	59	89	MR
305	2006*	4.0	4.0		2.2		59	88	
	2007*	4.0	4.0		1.8		89	92	
	Mean	4.0	4.0	S	2.0	MR	74	90	R
343	2006*	4.0	5.0		2.2		82	89	
	2007*	4.0	5.0		2.5		89	93	
	Mean	4.0	5.0	S	2.4	MR	86	91	R

★ - These varieties had treated seed.

❖ - Reaction to rust races 2 and 3 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.

* - 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.

* - Reaction to downy mildew races 2 and 3 under controlled conditions in growth rooms.

Table 19: Mean disease reactions of the Manitoba Confectionary Sunflower Co-operative Trial (2006 - 2007)

Hybrids	Year	Mean Rust Index*			Verticillium*		% Resistance*			
		Race		Class	Wilt		Downy Mildew			
		2	3		Index	Class	Race		Class	
							2	3	Class	
Non-Oil Type										
Checks										
6946	(DE-1950)	2006	2.0	5.0		2.4		67	0	
		2007	3.0	4.0		2.5		45	0	
		Mean	2.5	4.5	MS	2.5	MR	56	0	S
IS 8048	(X5432)	2006	1.0	5.0		3.0		55	13	
		2007	5.0	4.0		3.4		21	76	
		Mean	3.0	4.5	S	3.2	MS	38	45	HS
Candidate Hybrids										
9530		2002	1.0	5.0		2.1		29	0	
		2003*	1.0	5.0		3.2		48	15	
		2007	5.0	4.0		3.4		16	9	
		Mean	2.3	4.7	MS	2.9	MS	31	8	HS
Panther		2006	1.0	4.0		3.2		69	5	
		2007	5.0	5.0		3.1		4	5	
		Mean	3.0	4.5	S	3.2	MS	37	5	HS
X4407CL	(Jaguar)	2006	1.0	5.0		2.6		62	6	
		2007	2.0	5.0		2.6		0	10	
		Mean	1.5	5.0	MS	2.6	MR	31	8	HS
8C481		2006	4.0	5.0		2.5		14	0	
		2007	4.0	5.0		3.1		19	40	
		Mean	4.0	5.0	HS	2.8	MS	17	20	HS
8C482		2006	4.0	5.0		2.4		25	6	
		2007	5.0	4.0		2.9		14	4	
		Mean	4.5	4.5	HS	2.7	MR	20	5	HS
RH1122	(06EXP04)	2006*	1.0	5.0		2.8		18	3	
		2007*	2.0	4.0		3.0		2	9	
		Mean	1.5	4.5	MS	2.9	MS	10	6	HS

★ - These varieties had treated seed.

♣ - Reaction to rust races 2 and 3 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.

* - 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.

* - Reaction to downy mildew races 2 and 3 under controlled conditions in growth rooms.