

## XIII SEED SIZE TRIAL

**Objective:** Determine the effect of seed size on maturity, yield, oil and contribution margin.

**Background:** Research conducted by Dr. R. Elliott at the Agriculture and Agri-Food Canada Saskatoon, SK Research Centre in co-operation with the seed industry indicates that seed size has an effect on seed vigour and agronomic performance.

**Methodology:** One seed lot of MilleniUM 03 was sized to produce a sample, which included the largest 50% of the seed lot. The larger seed was compared to a regular seed size portion from the same seed lot. This trial was conducted within the variety and systems comparison trial. Treatments were seeded adjacent to each other within each replicate.

### **Western Canadian Summary:**

CPC Location	Dauphin, MB		Yorkton, SK		Nipawin, SK	
	NYD	CMD*	NYD	CMD*	NYD	CMD*
MilleniUM 03 (regular sized seed)	24.7	98	10.4	15	15.2	20
MilleniUM 03 (large sized seed)	24.1	85	13.8	43	16.5	25
LSD (bu/ac)	2.97		1.33		0.92	
CV (%)	7.3		6.6		3.5	

Note: NYD - Net Yield Data (bu/ac), CMD - Contribution Margin Data (\$/ac).

\*Estimated cost of seed sizing was 35% above the value of commercially produced MilleniUM 03.

**Discussion:** At two of the three locations there was an advantage in yield and economic return from large sized seed.

### **DAUPHIN**

**Methodology:** The trial was seeded on May 15 at a depth of ¾ to 1". The air seeder was calibrated for a seeding rate of 6.6 lb/ac of regular size seed and the large seed was seeded using the same setting. In-crop herbicide application included Select (0.075 L/ac) and Muster (8 g/ac) at the 3-leaf stage of the crop. Decis 5EC (0.05 L/ac) was also applied at this stage for flea beetle control. All other agronomic practices were performed as described in the *Site Information*.

**Observations:** Cold soil conditions resulted in very slow emergence, but both treatments achieved similar plant densities (94 plants/m<sup>2</sup> for the large seed and 89 plants/m<sup>2</sup> for the regular seed). Flea beetle damage exceeded action threshold levels of 25% leaf area damaged for both treatments, but the foliar insecticide provided good control. No significant differences in crop growth were noted throughout the growing season.

**Results:**

<b>SEED SIZE TRIAL Dauphin, MB</b>							
<b>Treatment</b>	<b>Yield (%)</b>	<b>Yield (bu/ac)</b>	<b>Contribution Margin (\$/ac)</b>	<b>Oil (%)</b>	<b>Growing Degree Days</b>	<b>Days To Maturity</b>	<b>Grade</b>
MilleniUM 03 (regular size seed)	100	24.7	98.31	42.7	1135	90	1
MilleniUM 03* (large size seed)	98	24.1	85.08	43.4	1135	90	1
LSD		2.97		1.14			
CV%		7.3		1.6			

\*Note: Estimated cost of seed sizing is 35% above value of commercially produced MilleniUM 03.

**Discussion:** The larger seed size did not significantly improve yield or oil content, and there was also no impact on maturity or grade. Contribution margin reflected the minor yield difference and additional costs of seed sizing.

## **YORKTON**

**Methodology:** Seeding took place on May 10. MilleniUM 03 was seeded at 6.2 lb/ac for both treatments. A fertilizer blend of 7-30-10-0 (actual) was seed-placed for all treatments. Herbicides were applied at the 2 to 3-leaf stage of the crop. A tank mix of Muster (8 g/ac or 40 ac/pouch), Poast Ultra (0.13 L/ac or 60 ac/case) and Lontrel (0.17 L/ac or 26 ac/jug) was applied to both treatments. Two applications of Matador (0.034 L/ac) were required to control flea beetles.

**Observations:** Cool and dry growing conditions resulted in slow and uneven emergence (see *Site Information - Comments*). It was estimated that emergence reached 70% by May 24. Flea beetle pressure was high (5 to 7 flea beetles/plant) to extreme (11 to 14 flea beetles/plant) in many areas of the trial during early plant development. Leaf damage had exceeded action thresholds in many parts of the trial within seven days of emergence. Matador was applied on June 1 to both treatments. The insecticide worked well in terms of contact control on actively feeding flea beetles, but residual (vapour) control was reduced by rain the next day. A second application (June 5) of Matador was required due to continuing flea beetle damage. Flea beetle damage rated a three (26 to 50% leaf area damage) on 40 % of the plants up until the 4-leaf stage. The remaining 60 % had a flea beetle damage rating up to five (76 to 100% leaf area damage). Plant counts at the 4 to 6-leaf stage indicated a 50% reduction from original plant counts taken at the cotyledon to 1-leaf stage. The MilleniUM 03 large sized treatment had a 6-day advantage in terms of days to 100% ground cover. Herbicide efficacy

was generally very good. However, there was a second flush of grassy weeds due to reduced plant stands in both treatments.

**Results:**

SEED SIZE TRIAL Yorkton, SK							
Treatment	Yield (%)	Yield (bu/ac)	Contribution Margin (\$/ac)	Oil (%)	Growing Degree Days	Days To Maturity	Grade
MilleniUM 03 (regular size seed)	100	10.4	(42.83)	44.1	998	95	1
MilleniUM 03* (large size seed)	133	13.8	(15.14)	44.0	968	94	1
LSD		1.33		0.69			
CV%		6.6		1.0			

\*Note: Estimated cost of seed sizing is 35% above value of commercially produced MilleniUM 03. Brackets in Contribution Margin column reflect a negative value.

**Discussion:** Yield differences of 1.33 bu/ac or more are significant. MilleniUM 03 large sized seed yielded significantly greater than the check (MilleniUM 03 regular sized seed). Flea beetle damage during early plant development contributed to overall lower yields in both treatments.

Contribution margins reflected differences in yield and seed sizing costs. Oil content did not vary significantly.

**NIPAWIN**

**Methodology:** Seeding took place on May 18. MilleniUM 03 was seeded at 6.2 lb/ac for both treatments. A liquid fertilizer blend of 87-30-10-20 (actual) was side-banded for both treatments. In-crop application of Muster Gold II (40 ac/case) was applied at the 2 to 3-leaf stage of the crop. Lontrel (0.17 L/ac or 26 ac/jug) was applied to both treatments six days later.

**Observations:** Cool conditions combined with heavy trash resulted in slow and uneven emergence. Weed pressure was variable across all treatments. Rain on June 2 resulted in a second flush of volunteer barley which warranted an additional application of Select (0.13 L/ac or 60 ac/case). Weed control was good for both treatments. Secondary re-growth of canola made determining the proper stage to swath more difficult. Plant height, days to ground cover and lodging ratios did not vary greatly between treatments.

**Results:**

<b>SEED SIZE TRIAL Nipawin, SK</b>							
<b>Treatment</b>	<b>Yield (%)</b>	<b>Yield (bu/ac)</b>	<b>Contribution Margin (\$/ac)</b>	<b>Oil (%)</b>	<b>Growing Degree Days</b>	<b>Days To Maturity</b>	<b>Grade</b>
MilleniUM 03 (regular size seed)	100	15.2	20.49	42.8	1144	98	1
MilleniUM 03* (large size seed)	109	16.5	24.92	42.9	1144	98	1
LSD		0.92		0.62			
CV%		3.5		1.0			

\*Note: Estimated cost of seed sizing is 35% above value of commercially produced MilleniUM 03.

**Discussion:**

Yield differences of 0.92 bu/ac or more are significant. MilleniUM 03 large sized seed yielded significantly greater than the check (MilleniUM 03 regular sized seed).

Contribution margins reflected differences in yield and seed sizing costs. Oil content did not vary significantly.