



Organic Oat Variety Evaluation

Interim Report

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Background:

Oats on PEI: Oats are a common grain that has been produced on PEI for generations with the majority of farmers having experience growing it. In the last 10 years the acreages of oats have been relatively steady at approximately 10.5 thousand acres with an average yield of approximately 1.1 tonnes per acre. However, the acreage is actually much higher when mixed grains are included, approximately 8,000 acres. Currently oat testing on PEI is conducted at the Harrington Research Farm under conventional management which includes an optimal fertilizer regime.

Grain Millers Visit:

Grain Miller's has been in existence for more than 20 years and has been a leading manufacturer of conventional and organic whole grain ingredients used in cereals, breads, bars and many other products served around the world. These grains include oats, wheat, barley and rye, which we mill into flours, flakes, brans and fibers.

Last summer the Certified Organic Producers Co-op (COPC) hosted a brief meeting which included organic farmers, researchers and extension staff to listen to a presentation from Grain Miller Ltd. regarding the procurement of certified organic oats for their company from the Maritimes generally and Prince Edward Island specifically.

There are a number of good reasons to pursue organic oat production on PEI. The first, as indicated, is that this is not a new commodity for PEI and thus local farmers have a history of producing it- thus no surprises for producers. The second is that many conventional farmers are interested in either transitioning all or a portion of their farm to organic in an effort to increase profitability- producers currently receive \$ 160.00/tonne for conventional oats whereas Grain Millers was offering \$400.00/tonne in their visit. The third reason has to do with diseases. Fusarium head blight is one of the most devastating diseases in most cereal crops due to the toxins that it produces. It is the major reason limiting wheat acreage in the Maritimes. Grain Millers were interested in procuring non hulled oats. The hulls help prevent the Fusarium disease from getting to the oat kernels.

COPC Farmer Researcher Day

On March 2, 2016 COPC hosted a farmer/researcher day in an effort to establish some research priorities for the organic industry on PEI. There was a lot of discussion on growing oats to meet the Grain Millers demand. From this discussion a couple of points became clear. The first point was that the current testing of oat varieties is under conventional management and weed control where fertility and weed competition probably do not limit yields. Thus from this testing cultivars with the highest yield potential are selected. This is probably not applicable to organic producers who do not have quick fixes such as fertilizers and sprays. In their systems yield potential may be limited by fertility and weed pressure. It became very apparent at this meeting that the organic producers are more interested in

cultivars with the greatest yield stability not those with the greatest yield potential. For this purpose we are defining cultivar yield stability as those cultivars which perform well under both high and low yield potential environments.

Harrington Trial

An organic oat cultivar trial was established in the organic block at the Harrington Research Farm. The trial consisted of 3 rate of N in the form of pelletized chicken manure (8, 16 and 36 kg N/ha) and eight oat cultivars mainly from the current recommended list; the exception being the common oat which we believe to be Marion. The experiment was arranged in a latin square split plot design with the main plots being the N rate and the randomized split plots being the eight cultivars. These were replicated three times. Determined were yield, hectare litre weight, and 1000 kernel weight. There was a significant effect of the cultivars on the yield, hectare litre weight and 1000 kernel weight which is presented in Table 1. There was no effect of N rate on yield or 1000 kernel weight but there was an effect on hectolitre or bushel weight (note hectolitre weight is the metric equivalent to bushel weight and thus the stats will be similar). It should be noted that lowest yielding variety with the highest bushel weight is Navaro which is a hullless variety.

Table 1. Yield, 1000 kernel weight (TKW), hectolitre weight and bushel weight of the oat cultivars under organic management as affected by variety and fertility.

	Yield (kg/ha)	TKW (g)	Hectolitre Weight (kg/hl)	Bushel Weight (lbs/bushel)
Nicholas	2902	33.2	6.3	38.6
Kara	2808	37.1	6.6	40.0
Common	2675	35.4	6.4	37.1
Orrin	2593	37.2	6.3	38.3
Canmore	2496	37.1	6.7	40.4
Rigodon	2453	38.7	6.4	39.0
Nova	2171	30.8	6.7	40.9
Navaro	894	30.3	7.6	46.3
LSD	341.4	3.39	0.12	1.18
F Prob.	<0.001	<0.001	<0.001	<0.001
<u>Fertility (kg N/ha)</u>				
8		35.0	6.7	40.3
16		34.6	6.6	39.9
32		35.4	6.7	40.8
LSD	-	-	0.1	0.73
F Prob.	NS	NS	0.038	0.038