

Project title: Statewide Lentil Variety Evaluation  
Project leader: Heather Mason  
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Objectives: To evaluate seed yield and agronomic performance of fifteen lentil varieties in northwestern Montana.

#### Results:

Twenty lentil varieties (Table 1) were seeded into Creston sandy loam soil on April 25, 2011. The field was previously seeded to spring wheat, and was prepared for planting using conventional tillage. Fertilizer (150-30-120-24) was broadcast and incorporated prior to planting. No pesticides were applied and the trial was not irrigated. Seeds, treated with fungicide and inoculated with *Rhizobium sp.*, were sown at a rate of 10-12 seeds/ft<sup>2</sup> at a depth of 1.5 inches. Plots were combine harvested at physiological maturity on August 19, 2011.

Although plots were seeded on approximately the same day as in 2010 the days to flower was slightly delayed. However, the average maturity dates were the same. The average time to flowering was 70 days after planting (July 4) and plants reached grain maturity (10% moisture) an average of 106 days after planting (August 9) (Table 1). Overall the Turkish (red) and Pardina type lentils matured the earliest and the Laird (large green) type lentils matured the latest (Table2.) Canopy height ranged from 7 to 10 in and vine length ranged from 12 to 17 in.

Lentil test weights averaged 63.1 lb/bu (Table 1). Grain yields ranged from 18.8 bu/a (1,230 lb/a) for LC06601228T to 32.0 bu/a (2021 lb/a) for Essex. Overall lentil yield across varieties was 27.5 bu/a (1,739 lb/a). Essex and CDC Redberry were the highest yielding commercially available varieties.

#### Summary:

The 2011 growing season was cooler and moister than average, which most likely had an adverse impact on the lentil crop. Average grain yield and test weight (1739 lb/a and 63.1lb/bu respectively) were comparable with 2010 yields (2,120 lb/a and 62 lb/bu respectively). 2010 was also a cooler and moister year than average. The last two growing seasons produced yields lower than in 2009 (2,438 lb/a and 70 lb.bu respectively).

#### Future Plans:

Trials will continue to be conducted each year in order to identify varieties suitable to the region.

## 2011 Statewide Lentil Variety Evaluation Kalispell, MT

<b>Seed Date:</b>	04/25/2011	<b>Irrigation:</b>	None
<b>Harvest Date:</b>	08/19/2011	<b>Soil Test:</b>	NA
<b>Seeding Rate:</b>	10 seeds/SF	<b>Fertilizer:</b>	150-30-120-24 spring application
<b>Herbicides:</b>	NA	<b>Soil Type:</b>	Sandy loam
<b>Insecticides:</b>	NA		

Table 1. Performance of lentil varieties grown in the 2011 Montana Statewide Lentil Variety Evaluation at Northwestern Agricultural Research Center, Kalispell, MT

Variety	Grain Yield	Grain Yield	Test Weight	Days to Flower	Days to Maturity	Canopy Height at Pod-Fill	Vine Length	Canopy Height at Maturity	1,000 Kernel Weight
	<i>bu/ac</i>	<i>lb/ac</i>	<i>lb/bu</i>	<i>days after planting</i>	<i>days after planting</i>	<i>in</i>	<i>in</i>	<i>in</i>	<i>g</i>
<b>Large Green</b>									
CDC Greenland	30.0 †	1,799	60.0	71	109	11	16	7	65
LC07600517L	28.2 †	1,739	61.6	71	107	11	17	7	60
Merrit	27.6 †	1,672	60.6	67	108	11	15	7	60
Riveland	25.2 †	1,495	59.4	68	107	11	16	10	70
<b>Medium Green</b>									
LC01602300R	31.1 †	1,956	62.9	72	106	12	16	9	49
CDC Richlea	29.4 †	1,810	61.6	72	107	12	14	8	52
CDC Vantage	27.6 †	1,741	63.0	70	107	11	16	6	50
Brewer	23.3	1,415	60.9	68	106	10	16	5	55
CDC Meteor	21.7	1,361	62.6	71	106	10	16	8	50
<b>Small Green</b>									
Essex	32.0 ††	2,021	63.1	71	111	12	16	9	44
LC03601590E	31.1 †	1,991	64.0	72	105	11	14	9	39
Eston	27.0 †	1,733	64.1	71	107	10	13	8	35
<b>Red</b>									
CDC Redberry	31.6 †	2,021	64.0	71	107	13	17	10	43
Crimson	31.4 †	2,025	64.5	71	104	11	13	7	35
LC01602062T	24.5 †	1,553	63.5	68	108	11	17	7	39
CDC Impact CL	21.9	1,418	64.7	70	104	10	13	8	36
LC06601228T	18.8	1,230	65.6	67	105	11	15	7	46
<b>Spanish Brown (Pardina)</b>									
Pardina	31.3 †	2,048	65.3	69	104	9	14	4	40
LC01602245P	31.6 †	2,069	65.3	69	104	9	13	5	40
LC02601144P	25.7 †	1,682	65.4	69	108	11	12	7	39
<b>Average</b>	27.5	1,739	63.1	70	106	11	15	7	47
<b>LSD (<math>\alpha=0.05</math>)</b>	7.98	505.9	0.37	2.0	2.3	1.7	2.0	2.3	2.1

Grain yield and test weight are adjusted to 10% grain moisture content.

†† Indicates highest yielding variety.

† Indicates varieties yielding equal to the highest yielding variety based on Fishers's Protected LSD at P<0.05.

CL indicates varieties that are Clearfield® herbicide resistant.

Table 2. Lentil variety characteristics

Variety	Type	Seed Coat	Cotyledon	Resistance	Seed Size <sup>1</sup>	Maturity <sup>2</sup>
CDC Greenland	Laird	Green	Yellow	as	Large	Late
LC07600517L	Laird	Green	Yellow	-	Large	Moderate
Riveland	Laird	Green	Yellow	as	Large	Moderate
Merrit	Brewer	Mottled Green	Yellow	PEMV	Large	Late
Brewer	Brewer	Mottled Green	Yellow	-	Med. Large	Moderate
LC01602300R	Richlea	Green	Yellow	-	Medium	Moderate
CDC Richlea	Richlea	Green	Yellow	-	Medium	Moderate
CDC Vantage	Richlea	Green	Yellow	as	Medium	Moderate
CDC Meteor	Richlea	Green	Yellow	-	Medium	Moderate
Essex	Eston	Green	Yellow	-	Small	Late
LC03601590E	Eston	Green	Yellow	-	Small	Early
Eston	Eston	Green	Yellow	-	Small	Moderate
CDC Redberry	Turkish	Gray	Red	as/an	Small	Moderate
Crimson	Turkish	Brown	Red	-	Small	Early
LC01602062T	Turkish	Brown	Red	-	Small	Late
CDC Impact CL	Turkish	Gray	Red	as	Small	Early
LC06601228T	Turkish	Brown	Red	-	Small	Early
Pardina	Pardina	Brown	Yellow	-	Small	Early
LC01602245P	Pardina	Brown	Yellow	-	Small	Early
LC02601144P	Pardina	Brown	Yellow	-	Small	Late

<sup>1</sup> - Size classes (g/1000 seeds): Large: > = 60; Medium: 50 - 60; Small < = 50

<sup>2</sup> - Maturity (days): Early < = 105; Moderate 106 - 107; Late > = 108

an: anthracnose

as: ascochy

PEMV: pea enation mosaic virus