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North Dakota Alternative Crop Variety Trial Results for 2014 and Selection Guide

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This publication contains information on selected varieties of **flax, safflower, lentil and chickpea** that North Dakota State University tested in 2014. **Table 1** lists crop acreage during the past six years. Additional varieties of these crops may have been tested but are not listed. Although alternative crops may have been tested across the state, adaptation may be limited to specific regions.

The agronomic data presented in this publication are from replicated research plots using experimental designs that enable the use of statistical analysis. The LSD (least significant difference) numbers beneath the columns in tables are derived from the statistical analyses and only apply to the numbers in the column in which they appear. If the difference between two varieties exceeds the LSD value, it means that with 90 percent (LSD 0.10) probability, the higher-yielding variety has a significant yield advantage. If the difference between two varieties is less than the LSD value, then the variety yields are considered similar.

The abbreviation NS is used to indicate that no significant difference was found for that trait among any of the varieties. The CV is a measure of variability in the trial. The CV stands for coefficient of variation and is expressed as a percentage. Large CVs mean a large amount of variation that could not be attributed to differences in the varieties. In the tables, the mean indicates the average of the observations in the column.

When selecting a high-yielding and good-quality variety, use data that summarizes several years and locations. Choose the variety that, on average, performs the best at multiple locations near you during several years. Presentation of data for the entries tested does not imply approval or endorsement by the authors conducting the test.

Table 1. Crop acres[1], North Dakota, 2009-14.

Crop	2014	2013	2012	2011	2010	2009	6-year average
Flax	260,150	146,770	303,450	148,200	381,510	286,060	254,360
Safflower	13,290	14,930	14,170	2,380	15,230	19,280	13,210
Lentil	72,950	126,050	152,150	74,710	260,260	161,930	141,340
Chickpea	6,180	9,400	11,040	3,980	15,630	19,830	11,010

[1]Farm Service Agency reported acreage.

Information contained in this publication is based on research conducted by the following NDSU Research Extension Center and Main Station research agronomy staff:

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Contact NDSU Extension Service or Research Extension Centers offices for more detailed and site-specific information on alternative crop variety performance and production recommendations.

Crop variety data are available in an electronic format at *www.ag.ndsu.edu/varietytrials.*

Weather data are available at *http://ndawn.ndsu.nodak.edu/.*

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Table 2. 2014 North Dakota Flax Variety Descriptions.

Variety[1]	Origin[2]	Year Released	Relative Maturity	Seed Color	Plant Height	Wilt[3]
Carter	ND	2004	Med.	Yellow	Med.	MS/MR
Cathay	ND	1998	Med.	Brown	Med.	MR
CDC Arras	Can.	1999	Med.	Brown	Med.	MR
CDC Bethune	Can.	1999	Med.late	Brown	Med.tall	MR
CDC Glas	Can.	2012	Med.	Brown	Med.tall	MR
CDC Mons	Can.	2003	Med.late	Brown	Med.	MR
CDC Neela	Can.	2013	Med.late	Brown	Med.	MR
CDC Sanctuary	Can.	2012	Med.	Brown	Med.tall	MR
CDC Sorrel	Can.	2007	Med.late	Brown	Med.tall	MR
Gold ND	ND	2014	Med.	Yellow	Med.tall	MR/R
Hanley	Can.	2002	Med.early	Brown	Med.	R
Lightning	Can.	2002	Late	Brown	Med.tall	R
Linott	Can.	1966	Med.early	Brown	Med.	MS/MR
McGregor	Can.	1980	Late	Brown	Med.tall	MR
Neche	ND	1988	Med.	Brown	Med.	MR/R
Nekoma	ND	2002	Late	Brown	Med.	MR
Omega	ND	1989	Med.	Yellow	Med.	MS/MR
Pembina	ND	1998	Med.	Brown	Med.	MR
Prairie Blue	Can.	2003	Med.late	Brown	Med.tall	MR
Prairie Grande	Can.	2008	Med.early	Brown	Med.	MR
Prairie Sapphire	Can.	2012	Med.	Brown	Med.	MR
Prairie Thunder	Can.	2006	Med.	Brown	Short	MR
Rahab 94	SD	1994	Med.	Brown	Med.	MR
Selby	SD	2000	Late	Brown	Tall	MR
Shape	Can.	2010	Med.	Brown	Med.	R
Webster	SD	1998	Late	Brown	Tall	MR
York	ND	2002	Late	Brown	Med.	MR/R

[1] All varieties have resistance to prevalent races of rust; all have good oil yield and oil quality.

[2] Can. = Canada; ND = North Dakota State University; SD = South Dakota State University.

[3] R = resistant; MR = moderately resistant; MS = moderately susceptible.

Table 3. Flax Trial Planting and Harvest Dates, North Dakota, 2014.

Location	Plant	Harvest
Carrington	May 21	Sept. 15
Langdon	May 15	Sept. 12
Minot	May 21	Sept. 12
Williston	May 9	Sept. 16
Hettinger	May 6	Aug. 29

Table 4. Plant Height of Flax Varieties at Five Locations in North Dakota, 2014.

Variety	Carrington	Langdon	Minot	Williston	Hettinger	Average N.D.
			(inches)			
Carter[1]	28	25	29	21	25	26
CDC Arras	28	26	31	23	27	27
CDC Bethune	29	26	32	22	28	27
CDC Glas	29	26	29	21	25	26
CDC Neela	30	25	28	21	26	26
CDC Sanctuary	30	25	31	22	26	27
CDC Sorrel	31	27	31	24	28	28
Gold ND[1]	31	27	31	22	27	27
Hanley	26	25	31	22	27	26
Lightning	29	27	30	23	26	27
Neche	30	27	31	22	26	27
Nekoma	29	26	30	21	26	26
Omega[1]	27	25	28	22	26	26
Pembina	30	26	30	22	26	27
Prairie Blue	25	25	29	20	25	25
Prairie Grande	28	22	28	20	24	25
Prairie Sapphire	27	26	27	22	26	25
Prairie Thunder	27	27	31	22	26	27
Rahab 94	29	24	28	21	24	25
Shape	28	25	30	22	26	26
Webster	29	27	32	22	27	28
York	27	25	29	21	25	25
Mean	29	26	30	22	26	26
CV %	4.4	4.2	5.9	5.2	4.9	3.5
LSD 0.10	1.5	1.3	2.0	1.3	1.5	1.0

[1]Yellow seeded.

Table 5. Days to Flower of Flax Varieties at Five Locations in North Dakota, 2014.

Variety	Carrington	Langdon	Minot	Williston	Hettinger	Average N.D.
			(days after planting)			
Carter[1]	50	49	50	39	53	48
CDC Arras	52	49	50	38	53	48
CDC Bethune	49	48	51	36	53	47
CDC Glas	52	51	55	37	54	50
CDC Neela	52	52	55	40	53	50
CDC Sanctuary	51	52	51	38	54	49
CDC Sorrel	52	52	56	38	54	50
Gold ND[1]	53	50	54	39	55	50
Hanley	46	48	51	38	53	47
Lightning	51	48	51	35	54	48
Neche	51	48	51	37	54	48
Nekoma	50	48	52	34	53	47
Omega[1]	47	50	49	39	55	48
Pembina	52	51	54	37	53	49
Prairie Blue	44	49	51	36	54	47
Prairie Grande	51	47	48	35	53	47
Prairie Sapphire	46	51	49	39	54	48
Prairie Thunder	50	50	51	38	54	49
Rahab 94	51	48	51	35	53	48
Shape	48	49	49	39	54	48
Webster	53	50	53	39	54	50
York	51	48	50	34	54	47
Mean	50	49	51	37	54	48
CV %	1.3	2.2	1.2	3.8	1.0	3.3
LSD 0.10	0.8	1.3	1.0	1.7	0.6	1.7

[1]Yellow seeded.

Table 6. Yield of Flax Varieties at Five Locations in North Dakota, 2012-2014.

Variety	Carrington		Langdon		Minot		Williston		Hettinger		Average N.D.	
	2014	3 Yr.	2014	3 Yr.	2014	3 Yr.	2014	3 Yr.	2014	3 Yr.	2014	3 Yr.
	(bu/acre)											
Carter[1]	31.2	19.2	39.5	38.1	25.5	27.3	18.5	19.2	29.5	22.7	28.8	25.3
CDC Arras	29.7	18.5	39.6	37.8	22.2	23.6	18.8	18.7	30.3	24.4	28.1	24.6
CDC Bethune	33.2	20.0	39.2	36.6	23.8	22.9	18.2	17.4	30.4	24.7	29.0	24.3
CDC Glas	30.7	--	42.6	41.2	26.2	23.0	18.8	18.2	35.2	--	30.7	--
CDC Neela	34.1	--	38.6	--	21.8	--	18.1	--	37.6	--	30.0	--
CDC Sanctuary	29.2	20.4	38.2	37.5	24.8	26.6	18.5	18.7	35.6	--	29.3	--
CDC Sorrel	34.8	23.4	38.2	36.3	24.9	27.1	19.5	20.6	32.8	--	30.0	--
Gold ND[1]	30.7	20.5	37.4	38.2	26.0	26.0	19.6	19.3	32.8	--	29.3	26.0 [2]
Hanley	26.8	18.9	36.8	37.7	25.3	23.6	18.5	18.7	32.0	23.7	27.9	24.5
Lightning	29.7	19.7	37.9	37.5	24.8	25.4	19.3	18.7	31.8	22.6	28.7	24.8
Neche	33.0	21.0	38.4	36.9	25.5	29.3	20.6	19.7	30.3	--	29.6	--
Nekoma	31.3	22.2	38.3	36.7	22.1	27.9	20.0	18.6	32.8	24.9	28.9	26.0
Omega[1]	27.4	17.2	36.1	35.5	22.3	25.2	20.8	17.7	31.2	--	27.6	--
Pembina	32.2	19.9	38.2	36.4	15.1	26.7	16.7	17.2	31.5	24.4	26.7	24.9
Prairie Blue	26.2	16.9	39.8	36.4	18.4	23.5	20.3	19.0	34.4	26.2	27.8	24.4
Prairie Grande	29.8	19.2	34.8	32.8	21.5	23.9	17.5	17.5	32.8	25.7	27.3	23.8
Prairie Sapphire	27.9	19.0	38.3	40.3	20.1	23.9	17.4	17.8	33.7	26.8	27.5	25.5
Prairie Thunder	29.9	19.3	41.6	41.3	23.6	26.2	18.4	17.8	33.1	--	29.3	--
Rahab 94	32.8	22.1	39.6	35.5	25.2	28.7	19.5	18.8	34.4	--	30.3	--
Shape	30.4	18.9	37.9	40.0	24.2	25.1	17.5	17.1	33.2	--	28.6	--
Webster	34.2	21.2	38.9	39.6	23.9	26.2	16.2	17.2	31.7	24.7	29.0	25.8
York	34.9	20.2	38.0	37.4	23.7	21.9	18.9	19.1	31.7	27.5	29.4	25.2
Mean	30.9	19.9	38.5	37.6	23.2	25.4	18.7	18.4	32.7	24.9	28.8	24.9
CV %	12.4	--	7.9	--	12.5	--	14.5	--	10.0	--	7.0	6.2
LSD 0.10	4.5	--	NS	--	3.4	--	3.3	--	3.8	--	2.1	1.6

[1]Yellow seeded.

[2]Average Carrington, Langdon, Minot and Williston.

Table 7. Test Weight of Flax Varieties at Five Locations in North Dakota, 2014.

Variety	Carrington	Langdon	Minot	Williston	Hettinger	Average N.D.
	(lb/bu)					
Carter[1]	54.6	52.1	52.1	52.6	55.2	53.3
CDC Arras	54.1	51.8	51.7	52.7	54.7	53.0
CDC Bethune	53.8	52.3	52.0	52.7	55.1	53.2
CDC Glas	54.3	51.2	51.1	50.7	53.2	52.1
CDC Neela	54.8	51.9	51.5	51.5	54.8	52.9
CDC Sanctuary	53.3	51.5	51.9	52.1	54.0	52.6
CDC Sorrel	54.1	51.8	52.0	52.2	54.5	52.9
Gold ND[1]	54.6	52.2	52.8	51.3	54.5	53.1
Hanley	52.7	52.0	51.9	52.8	54.4	52.7
Lightning	54.0	52.3	51.7	52.8	55.1	53.2
Neche	54.8	52.2	51.3	53.0	55.0	53.2
Nekoma	54.6	52.3	52.3	52.8	55.0	53.4
Omega[1]	54.1	52.4	52.4	53.0	55.1	53.4
Pembina	54.3	52.0	52.4	52.6	54.4	53.1
Prairie Blue	53.0	51.7	52.0	52.5	54.5	52.7
Prairie Grande	53.3	51.4	51.1	52.5	52.7	52.2
Prairie Sapphire	53.0	51.0	50.1	51.8	54.1	52.0
Prairie Thunder	54.4	52.0	51.8	52.9	54.7	53.1
Rahab 94	54.4	51.5	50.8	51.8	53.6	52.4
Shape	54.2	51.3	50.2	52.3	54.0	52.4
Webster	54.2	52.1	52.5	52.4	55.3	53.3
York	54.5	52.0	51.0	52.8	53.7	52.8
Mean	54.0	51.9	51.7	52.3	54.4	52.9
CV %	0.8	0.5	1.7	1.1	1.0	1.0
LSD 0.10	0.5	0.3	1.0	0.7	0.6	0.5

[1]Yellow seeded.

Table 8. Safflower Trial Planting and Harvest Dates, and Previous Crop, North Dakota, 2014.

Location	Plant	Harvest	Previous Crop
Carrington	May 30	Oct. 21	Spring wheat
Hettinger	May 6	Sept. 22	Spring wheat
Minot	May 23	Oct. 25	Durum
Prosper	June 4	Oct. 20	Spring wheat
Williston	May 3	Sept. 8	Spring wheat

Table 9. Safflower Seed Yield, North Dakota, 2014.

Variety	Carrington no-till	Hettinger no-till	Minot no-till	Prosper conventional	Williston no-till	5-location Average
	(lb/acre)					
Oleic						
Hybrid 1601	1,385	1,195	693	804	1,183	1,052
Hybrid 9049	1,198	1,063	793	1,137	1,435	1,125
MonDak	1,129	1,070	832	1,108	1,310	1,090
Montola 2003	1,180	991	1,143	1,500	1,218	1,206
Linoleic						
Cardinal	1,232	1,043	893	1,488	1,331	1,197
Finch	1,217	897	686	1,120	974	979
NutraSaff	1,446	867	703	492	908	883
Morlin	1,097	735	918	1,259	1,098	1,021
Mean	1,236	983	833	1,114	1,182	1,069
CV %	29.5	21.7	8.4	17.7	16.8	--
LSD 0.10	NS	NS	85	290	234	--

Table 10. Safflower Plant Height, North Dakota, 2014.

Variety	Carrington no-till	Hettinger no-till	Minot no-till	Prosper conventional	Williston no-till	5-location Average
	(inches)					
Oleic						
Hybrid 1601	28	31	29	33	25	29
Hybrid 9049	27	36	27	26	23	28
MonDak	28	35	27	29	24	29
Montola 2003	28	32	25	26	22	27
Linoleic						
Cardinal	28	37	30	32	23	30
Finch	27	33	26	28	23	27
NutraSaff	28	34	28	30	23	29
Morlin	27	31	26	28	21	27
Mean	28	34	27	29	23	28
CV %	8.9	3.7	2.5	5.3	7.3	--
LSD 0.10	NS	2	1	2	2	--

Table 11. Safflower Test Weight, North Dakota, 2014.

Variety	Carrington no-till	Hettinger no-till	Minot no-till	Prosper conventional	Williston no-till	5-location Average
			(lb/bu)			
Oleic						
Hybrid 1601	34.5	37.0	31.8	27.1	35.4	33.2
Hybrid 9049	35.0	32.5	35.0	30.1	40.3	34.6
MonDak	33.3	35.5	35.6	29.7	40.2	34.9
Montola 2003	33.6	34.7	37.2	30.2	40.4	35.2
Linoleic						
Cardinal	33.6	36.0	36.7	33.1	40.3	35.9
Finch	34.1	36.9	36.6	34.1	40.1	36.4
NutraSaff	34.3	35.1	31.1	23.6	34.8	31.8
Morlin	32.9	32.3	35.4	26.4	37.2	32.8
Mean	33.9	35.0	34.9	29.3	38.6	34.3
CV %	6.3	3.2	1.7	6.1	2.5	--
LSD 0.10	NS	1.6	0.7	2.6	1.1	--

Table 12. Safflower Seed Oil, North Dakota, 2014.

Variety	Minot no-till	Prosper conventional	Williston no-till	3-location Average
		(%)		
Oleic				
Hybrid 1601	37.0	37.1	38.5	37.5
Hybrid 9049	31.4	29.0	30.5	30.3
MonDak	34.9	31.4	35.2	33.8
Montola 2003	36.3	31.9	37.6	35.3
Linoleic				
Cardinal	36.2	34.1	32.5	34.3
Finch	35.7	34.6	33.7	34.7
NutraSaff	44.0	31.8	43.3	39.7
Morlin	37.6	35.9	33.7	35.7
Mean	36.6	33.2	35.6	35.2
CV %	2.7	4.9	1.7	--
LSD 0.10	1.2	2.5	0.8	--

Table 13. Lentil Trial Planting and Harvest Dates, and Previous Crop, North Dakota, 2014.

Location	Planting	Harvest	Previous Crop
Carrington	May 2	Aug. 14	Spring wheat
Dickinson	May 5	Aug. 21	Barley
Divide County	May 23	Sept. 18	Spring wheat
Golden Valley County	May 22	Oct. 9	Field pea
Hettinger	May 6	Aug. 18	Spring wheat
McKenzie County	May 14	Oct. 14	Barley
Williston	May 8	Aug. 19	Durum

Planting rate was 18 pure live seeds/foot^2.

Table 14. Lentil Yield Across Locations, North Dakota, 2014.

Variety	Seed Coat Color	Market Type	Average Yield Across Locations (% of CDC Richlea)	
			2014	2 Year[1]
Avondale	Green	Medium	111	104
CDC Greenland	Green	Large	91	91
CDC LeMay	French Green	Small	95	97
CDC Red Rider	Red	Medium	104	105
CDC Redberry	Red	Small	103	108
CDC Redcoat	Red	Small	115	--
CDC Richlea	Green	Medium	100	100
CDC Rosetown	Red	Extra-small	109	102
CDC Rouleau	Red	Small	122	91
CDC Viceroy	Green	Small	108	109
Essex	Green	Small	82	92
Eston	Green	Small	100	97
Morena	Pardina	Small	90	93
Pennell	Green	Large	98	92
Riveland	Green	Large	90	85

[1] Based on 2013 and 2014 percentage.

Table 15. Lentil Seed Yield, North Dakota, 2014.

Variety	Carrington	Dickinson	Divide County	Golden Valley County	Hettinger	McKenzie County	Williston	2014 Average
	(lb/acre)							
French Green								
CDC LeMay	2,339	2,042	2,067	1,612	2,603	1,042	1,170	1,839
Green								
Avondale	2,633	--	--	--	2,700	--	1,190	2,174
CDC Greenland	1,862	2,259	1,839	1,669	2,182	1,306	1,224	1,763
CDC Richlea	2,323	2,799	1,876	2,098	2,084	1,205	1,230	1,945
CDC Viceroy	2,567	3,047	1,897	1,679	3,046	1,336	1,110	2,097
Essex	1,699	--	1,524	1,336	2,171	1,470	1,355	1,593
Eston	2,459	--	--	--	2,273	--	1,136	1,956
Pennell	1,903	2,666	1,689	2,121	2,269	1,515	1,215	1,911
Riveland	1,587	2,188	--	--	2,075	--	1,119	1,742
Pardina								
Morena	2,121	--	--	--	1,929	--	1,228	1,759
Red								
CDC Redberry	2,704	2,339	1,970	1,922	2,731	1,188	1,186	2,006
CDC Redcoat	2,630	--	--	--	2,846	--	1,263	2,246
CDC Red Rider	2,180	2,796	1,941	2,003	2,475	1,491	1,304	2,027
CDC Rosetown	2,470	2,577	--	--	2,319	--	1,097	2,116
CDC Rouleau	2,634	2,679	--	--	2,842	--	1,310	2,366
Mean	2,198	2,539	1,850	1,777	2,394	1,319	1,164	1,969
CV %	15.4	8.8	15.2	10.0	10.2	12.8	13.8	--
LSD 0.10	398	268	NS	256	289	243	147	--

Table 16. Lentil Days to 10 Percent Flowering, North Dakota, 2014.

Variety	Carrington	Dickinson	Hettinger	Williston	2014 Average
	(days after planting)				
French Green					
CDC LeMay	54	52	58	36	50
Green					
Avondale	55	--	57	35	49
CDC Greenland	59	53	57	38	52
CDC Richlea	56	53	57	35	50
CDC Viceroy	58	53	58	36	51
Essex	56	--	57	36	50
Eston	56	--	57	34	49
Pennell	56	53	57	36	51
Riveland	54	52	56	34	49
Pardina					
Morena	52	--	57	33	47
Red					
CDC Redberry	55	53	57	37	51
CDC Redcoat	58	--	58	37	51
CDC Red Rider	59	--	58	36	51
CDC Rosetown	59	53	58	36	52
CDC Rouleau	57	53	57	37	51
Mean	55	53	57	35	50
CV %	1.8	0.6	0.7	2.7	--
LSD 0.10	2	NS	1	1	--

Table 17. Lentil Canopy Height, North Dakota, 2014.

Variety	Carrington	Hettinger	Williston	2014 Average
	(inches)			
French Green				
CDC LeMay	17	16	10	14
Green				
Avondale	18	17	11	15
CDC Greenland	17	15	11	14
CDC Richlea	18	15	12	15
CDC Viceroy	18	16	10	15
Essex	18	17	10	15
Eston	17	15	9	14
Pennell	17	16	10	14
Riveland	18	15	12	15
Pardina				
Morena	18	16	11	15
Red				
CDC Redberry	18	17	11	15
CDC Red Rider	18	16	12	15
CDC Rosetown	18	18	10	15
CDC Rouleau	17	17	11	15
Mean	17	16	11	15
CV %	8.1	6.0	8.1	--
LSD 0.10	NS	1	1	--

Table 18. Lentil Test Weight, North Dakota, 2014.

Variety	Carrington	Dickinson	Golden Valley County	Hettinger	McKenzie County	Williston	2014 Average
				(lb/bu)			
French Green							
CDC LeMay	63.0	57.3	52.5	61.2	50.7	61.4	57.7
Green							
Avondale	61.9	--	--	59.4	--	59.8	60.4
CDC Greenland	59.7	54.6	47.9	56.3	47.6	58.5	54.1
CDC Richlea	60.6	56.9	51.0	57.0	51.1	59.4	56.0
CDC Viceroy	63.0	59.6	52.6	61.8	51.9	62.4	58.6
Essex	62.2	--	50.0	58.3	52.8	61.6	57.0
Eston	62.8	--	--	60.9	--	62.4	62.0
Pennell	60.0	55.4	49.7	58.6	48.8	59.2	55.3
Riveland	59.4	53.6	--	56.2	--	56.8	56.5
Pardina							
Morena	63.3	--	--		--	62.8	63.1
Red							
CDC Redberry	62.5	58.9	52.6	61.2	50.9	61.9	58.0
CDC Redcoat	62.9	--	--	60.8	--	62.5	62.1
CDC Red Rider	62.0	58.6	52.2	58.0	50.1	61.9	57.1
CDC Rosetown	63.4	59.5	--	61.8	--	62.4	61.8
CDC Rouleau	62.2	58.0	--	59.8	--	60.7	60.2
Mean	61.7	57.2	51.1	59.6	50.5	60.8	56.8
CV %	0.6	0.7	2.3	1.1	2.4	1.0	--
LSD 0.10	0.4	0.5	1.7	0.8	1.7	0.7	--

Table 19. Lentil Seeds/Pound, North Dakota, 2014.

Variety	Carrington	Dickinson	Hettinger	2014 Average
	(seeds/lb)			
French Green				
CDC LeMay	14,366	12,588	12,612	13,189
Green				
Avondale	9,518	--	7,852	8,685
CDC Greenland	7,662	6,847	6,404	6,971
CDC Richlea	9,052	8,031	7,722	8,268
CDC Viceroy	14,692	12,905	13,268	13,622
Essex	10,941	--	9,276	10,109
Eston	14,686	--	12,353	13,520
Pennell	8,236	6,860	7,168	7,421
Riveland	7,205	6,080	6,009	6,431
Pardina				
Morena	12,445	--	11,597	12,021
Red				
CDC Redberry	11,460	9,752	10,720	10,644
CDC Redcoat	12,330	--	10,908	11,619
CDC Red Rider	11,656	9,424	9,117	10,066
CDC Rosetown	16,204	14,795	12,401	14,467
CDC Rouleau	12,946	11,071	10,765	11,594
Mean	11,159	9,835	9,621	10,575
CV %	6.5	3.0	4.7	--
LSD 0.10	850	356	529	--

Table 20. Clearfield Lentil Trial Planting and Harvest Dates, and Previous Crop, North Dakota, 2014.

Location	Planting Date	Harvest Date	Previous crop
Carrington	May 2	Aug. 20	Spring wheat
Dickinson	May 5	Aug. 21	Barley
Golden Valley County	May 22	Oct. 9	Field pea
Hettinger	May 6	Aug. 25	Spring wheat

Table 21. Clearfield Lentil Seed Yield, North Dakota, 2014.

Variety	Carrington	Dickinson	Golden Valley	Hettinger	2014 Average
			(lb/acre)		
Green					
CDC Impress-CL	2,246	2,604	1,005	2,635	2,123
CDC Imigreen-CL	2,446	2,311	1,172	2,311	2,060
Red					
CDC-Impala-CL	2,654	2,802	1,252	2,754	2,366
CDC-Maxim-CL	2,939	2,431	1,313	3,566	2,562
Mean	2,571	2,537	1,186	2,817	2,278
CV %	9.6	8.4	14.3	6.6	--
LSD 0.10	319	275	270	240	--

Table 22. Clearfield Lentil Days to 10 Percent Flowering, North Dakota, 2014.

Variety	Carrington	Dickinson	Hettinger	Average
		(days after planting)		
Green				
CDC Impress-CL	56	53	56	55
CDC Imigreen-CL	56	53	57	55
Red				
CDC-Impala-CL	58	54	59	57
CDC-Maxim-CL	53	53	56	54
Mean	56	53	57	55
CV %	1.2	0.0	1.0	--
LSD 0.10	1	0	1	--

Table 23. Clearfield Lentil Canopy Height, North Dakota, 2014.

Variety	Carrington	Dickinson	Hettinger	Average
	(inches)			
Green				
CDC Impress-CL	12	15	14	14
CDC Imigreen-CL	12	15	16	14
Red				
CDC-Impala-CL	9	13	16	13
CDC-Maxim-CL	11	12	17	13
Mean	11	14	16	14
CV %	8.2	8.7	5.9	--
LSD 0.10	1	2	1	--

Table 24. Clearfield Lentil Test Weight, North Dakota, 2014.

Variety	Carrington	Dickinson	Golden Valley	Hettinger	2014 Average
			(lb/bu)		
Green					
CDC Impress-CL	58.3	58.0	53.9	48.5	54.7
CDC Imigreen-CL	59.6	57.3	53.0	51.3	55.3
Red					
CDC-Impala-CL	61.3	60.6	55.6	54.3	58.0
CDC-Maxim-CL	61.1	59.5	52.0	53.1	56.4
Mean	60.0	58.8	53.6	51.8	56.1
CV %	0.5	0.8	2.5	1.2	--
LSD 0.10	0.4	0.6	2.2	0.8	--

Table 25. Clearfield Lentil Seeds/Pound, North Dakota, 2014.

Variety	Carrington	Dickinson	Hettinger	Average
	(seeds/lb)			
Green				
CDC Impress-CL	9,668	8,364	7,996	8,676
CDC Imigreen-CL	7,876	7,312	7,694	7,627
Red				
CDC-Impala-CL	15,638	14,886	11,048	13,857
CDC-Maxim-CL	12,115	10,798	10,294	11,069
Mean	11,324	10,340	9,258	10,307
CV %	3.5	1.9	5.8	--
LSD 0.10	507	259	697	--

Table 26. Chickpea Trial Planting and Harvest Dates, and Previous Crop, North Dakota, 2014.

Location	Planting Date	Harvest Date	Previous Crop
Carrington	May 2	Sept. 15	HRSW
Hettinger	May 8	Sept. 16	Oat
Williston-Dryland	May 5	Sept. 3	Durum

Planting rate was 4 pure live seeds/foot^2.

Table 27. Chickpea Seed Yield, North Dakota, 2014.

Variety	Carrington[1]	Hettinger	Williston Dryland	2014 Average
	(lb/acre)			
Kabuli				
B-90	2,448	4,204	1,869	2,840
CDC Alma	2,048	3,386	1,807	2,414
CDC Frontier	3,285	4,719	2,303	3,436
CDC Luna	2,338	3,844	1,761	2,648
CDC Orion	2,482	3,998	1,804	2,761
Dylan	524	2,406	1,245	1,392
Sawyer	1,367	3,223	1,756	2,115
Sierra	760	1,936	1,385	1,360
Desi				
CDC Anna	3,263	4,718	1,990	3,324
Mean	2,324	3,369	1,856	2,516
CV %	20.1	11.1	15.6	--
LSD 0.10	559	443	347	--

[1]Dylan and Sierra are very susceptible to ascochyta leaf disease and the disease significantly reduced yield at Carrington.

Table 28. Chickpea Days to 10 Percent Flowering, North Dakota, 2014.

Variety	Carrington	Hettinger	Williston Dryland	2014 Average
	(days after planting)			
Kabuli				
B-90	59	54	40	51
CDC Alma	56	54	40	50
CDC Frontier	59	53	39	50
CDC Luna	56	54	40	50
CDC Orion	53	53	37	48
Dylan	56	53	37	49
Sawyer	58	53	39	50
Sierra	60	54	43	52
Desi				
CDC Anna	58	52	38	49
Mean	57	53	39	50
CV %	2.7	1.0	3.2	--
LSD 0.10	2	1	2	--

Table 29. Chickpea Test Weight, North Dakota, 2014.

Variety	Carrington	Hettinger	Williston Dryland	2014 Average
	(lb/bu)			
Kabuli				
B-90	59.6	50.3	62.0	57.3
CDC Alma	61.7	54.4	62.1	59.4
CDC Frontier	60.9	55.0	61.8	59.2
CDC Luna	60.9	51.1	61.3	57.8
CDC Orion	59.7	53.0	60.5	57.7
Dylan	57.0	51.7	58.3	55.7
Sawyer	59.3	55.9	61.5	58.9
Sierra	58.0	53.7	59.6	57.1
Desi				
CDC Anna	58.8	49.1	60.3	56.1
Mean	60.2	53.3	61.0	57.7
CV %	1.1	2.3	1.3	--
LSD 0.10	0.8	1.5	0.9	--