

PROGRESS REPORT: 2008 WESTERN REGIONAL YIELD TRIALS

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Increases in pulse crop production in the Northern Plains continue to warrant expanding efforts in developing new varieties of pulse crops that are particularly adapted to this important production zone. Our breeding program has historically collaborated with scientists from Montana State University and North Dakota State University in the annual evaluation of advanced pea, lentil and chickpea breeding lines at several locations in MT and ND. Selections have also been made from segregating populations and preliminary breeding lines of the USDA-ARS grain legume breeding program based on performance in MT and ND, in order to develop new varieties for the Northern Plains.

In Montana in 2008 advanced yield trials were conducted for lentils at the Montana State University central Agricultural Research Center (CARC) in Moccasin. A total of 22 different lentil varieties and breeding lines were examined, which included entries for Spanish Brown, Eston, Turkish Red and Large Yellow market classes. The overall mean of all entries was 1375 lb/acre. The means of individual entries ranged from 1083 lb/acre for the Large Yellow line LC04600705L to a high of 1575 lb/acre for the Turkish Red line LC01601724T. The mean yield of check varieties ranged from 1221 lb/acre for Merrit to 1430 lb/acre for Eston. Among comparisons within market classes between check varieties and breeding lines, the greatest differences were observed for Turkish Red entries. The highest yielding line, LC01601724T, outyielded the variety Crimson by 23%.

In North Dakota in 2008 advanced lentil yield trials were conducted at Williston and Carrington. A total of 22 different lentil varieties and breeding lines were examined at Williston, which included entries for Spanish Brown, Eston, Turkish Red and Large Yellow market classes. The overall mean of all entries was 277 lb/acre. The means of individual entries ranged from 59 lb/acre for the Spanish Brown line LC03601426P to a high of 394 lb/acre for the Spanish Brown line LC03600204P. The mean yield of check varieties ranged from 237 lb/acre for Richlea to 365 lb/acre for Pardina.

The same 22 lentil lines and varieties were also evaluated at Carrington. The overall mean of all entries was 1909 lb/acre. The means of individual entries ranged from 1276 lb/acre for the Spanish Brown line LC03601426P to a high of 2539 lb/acre for the Eston line LC03601590E. The mean yield of check varieties ranged from 1625 lb/acre for Crimson to 2211 lb/acre for Richlea. Among Spanish Brown entries, the breeding lines LC04600350P and LC02601144P outyielded the check variety Pardina by 23 and 20%, respectively. Among Eston entries, line LC03601590E outyielded Eston by 29%. The Large Yellow line LC01602300R outyielded the Large Yellow check varieties Richlea, Merrit, and Riveland by 14, 23, and 28%, respectively.

In 2008 nine winter hardy lentil lines and the varieties Toni and Morton were evaluated at CARC, Moccasin, MT for agronomic traits, seed yield and biomass yields. Plots were planted in September 2007. The overall mean seed yield among entries was 882 lb/acre. The mean seed yield of individual entries ranged from 417 lb/acre for Winter hardy Turkish Red line LC05600006T to a high of 1189 lb/acre for the Winter hardy Turkish Red line WA8649041. Toni and Morton had higher seed yields than all but one breeding line. Besides having the lowest seed yield, LC05600006T had the lowest rating for stand establishment (2.2 on a scale of 1 (poor)-6 (excellent)). The best stand establishments were observed for the high yielding line WA864041 and the varieties Morton and Toni.

Advanced breeding lines and varieties of kabuli chickpeas were also evaluated in MT and ND in 2008. Three varieties, Dwelley, Sierra, and Troy, and nine advanced breeding lines were evaluated in Bozeman, MT. The overall mean yield among entries was 1233 lb/acre. The yields of individual entries ranged from 948 lb/acre for Dwelley to 1423 lb/acre for CA0469C025C, a small seeded line that is early

and has excellent tolerance to *Ascochyta* blight. Line CA0090B347C, which has a seed size similar to Dwelley, outyielded Dwelley by 45%.

In 2008 nine advanced kabuli chickpea breeding lines and the check varieties Dwelley, Sierra, and Troy were also evaluated in yield trials conducted in Williston and Hettinger, ND. At Williston, the overall mean yield among entries was 782 lb/acre. Entries ranged in yield from 531 lb/acre for Dwelley to 1137 lb/acre for the breeding line CA0469C020C, which is a sister line to CA0469C025C and also has small seed size, early maturity and blight tolerance. At Hettinger the overall mean yield among entries was 1267 lb/acre. Entries ranged in yield from 1065 lb/acre for line CA04900509C to 1679 lb/acre for the small seeded line CA0469C025C.

We anticipate continuing Western Regional Yield Trials in 2009 in collaboration with scientists from Montana State University and North Dakota State University, and our grower cooperators in MT and ND. We intend to include at least one additional yield trial location in northeastern MT to examine the performance of our advanced breeding lines in this important region for pulse crop production. The performance of our winter hardy pea and lentil lines and varieties will also be examined in 2009 in MT and ND.

Table 1a. 2008 Western Regional Spring Dry Pea Line Evaluations - Line Characteristic Table
 -Exp. 8008. Central Agricultural Research Center, Moccasin, Montana.

Variety	Color	Type	Size ^{1/}	Relative Maturity
Stirling	Smooth Green	Food/Feed	Medium	Early
Medora	Smooth Green	Food/Feed	Medium	Late
PS04100328	Smooth Green	Food/Feed	Large	Medium
PS04100462	Smooth Green	Food/Feed	Medium	Medium
PS04100505	Smooth Green	Food/Feed	Medium	Early
PS03101822	Smooth Yellow	Food/Feed	Medium	Medium
PS04100710	Smooth Yellow	Food/Feed	Medium	Medium
PS04100910	Smooth Yellow	Food/Feed	Large	Medium
PS04100922	Smooth Yellow	Food/Feed	Medium	Medium

^{1/} - Seed Size Ranges (g/1000 seeds) :
 - {Size of seed at planting}

Very Large = >290-295	Medium = 190-250
Large = 250-290	Small = <190

Table 1b. 2008 Western Regional Spring Lentil Line Evaluation - Line Characteristics
 - Exp: 860708. Central Agricultural Research Center, Moccasin, Montana

Line	Seed Coat	Cotyledon	Type	Size ^{1/}	Relative Maturity
Eston	Yellow-Green	Yellow	Eston	Small	Early
LC01602307E	Yellow-Green	Yellow	Eston	Small	Moderate
LC03601590E	Yellow-Green	Yellow	Eston	Small	Moderate
LC05600810E	Yellow-Green	Yellow	Eston	Small	Moderate
LC05600812E	Yellow-Green	Yellow	Eston	Small	Moderate
Pardina	Brown	Yellow	Pardina	Small	Early
LC02601144P	Brown	Yellow	Pardina	Small	Early
LC03600204P	Brown	Yellow	Pardina	Small	Early
LC03601426P	Brown	Yellow	Pardina	Small	Early
LC04600350P	Brown	Yellow	Pardina	Small	Early
LC05600995P	Brown	Yellow	Pardina	Small	Early
Crimson	Brown	Red/Orange	Crimson	Small	Moderate
LC01601724T	Brown	Red/Orange	Turkish Red	Small	Moderate
LC01602062T	Brown	Red/Orange	Turkish Red	Small	Early
LC04600751T	Brown	Red/Orange	Turkish Red	Small	Moderate
LC05600840T	Brown	Red/Orange	Turkish Red	Small	Moderate
Merrit	Yellow-Green-Mottled	Yellow	Brewer	Large	Early
Richlea	Yellow-Green	Yellow	Richlea	Medium	Moderate
LC01602300R	Yellow-Green	Yellow	Richlea	Medium	Moderate
Riveland	Yellow-Green	Yellow	Laird	Large	Moderate
LC03600854L	Yellow-Green	Yellow	Laird	Large	Late
LC04600705L	Yellow-Green	Yellow	Laird	Large	Late

^{2/} - Size Classes (g/1000 seeds): Large: >60; Medium: 50-60; Small <50

Table 2. 2008 Western Regional Spring Pulse Line Evaluations - Management summary.
-Exp. 81 & 860708. Central Agricultural Research Center, Moccasin, Montana

Field Summary			
	Dry Pea	Lentil	
Environment:	Dryland	Dryland	
Tillage History:	No-Till	No-Till	
Previous Crop:	Spring Barley	Winter Wheat	
Soil Type:	Judith Clay-loam; Fine-loamy; carbonatic Typic Calciboroll		
Elevation:	4300'		
Trial Management			
	Dry Pea	Lentil	
Seeding Date:	4/10/2008	4/13/2008	
Fertilizer:	None		
Plot Dimensions:	5-rows x 11" spacing x 20'		
Pesticides: (rates)	RT 3 (16oz/acre) + ProwH ₂ O (2pt/acre) - Fall App (11/07/08) - Pea RT 3 (14oz/acre) - Pre-Plant App (04/11/08) - Lentil Assure II (10oz/acre) - Post Emergence (05/29/07) - All		
Harvest Date:	8/1/08	8/7&11/2008	
	- Using a 5' plot harvester		
	- At grain maturity		
	(99-Yr Ave)		
Precipitation:	Dry Pea	7.98"	8.57" - April 10 - Aug 1, 2008
	Lentil	8.23"	8.92" - April 13 - Aug 7, 2008

Table 3. 2008 Western Regional Spring Dry Pea Trial - Agronomic Summary
- Exp: 810708. Central Agricultural Research Center, Moccasin, MT

Selection	1st Flower		Plant Canopy Height		Ease of Harvest ^{1/} (Grn/Phys)	Test (lbs/bu)	Moisture (%)	Grain Yield	
	(Julian)	(day)	Phys Mat. (cm)	Grain Mat. (cm)				Field (lbs/acre)	@13% (lbs/acre)
Stirling	179.3	27-Jun ^a	27.5	26.3	1.00	62.6 ^a	11.0	865	1025
Medora	183.0	1-Jul	44.3^a	40.3^a	0.92	62.3	11.5	805	912
PS03101445	182.5	30-Jun	32.8	31.5	0.97	62.7 ^a	11.3	980 ^a	1123 ^a
PS04100328	181.3	29-Jun	34.3	37.0 ^a	1.11^{ns}	62.8 ^a	12.5^a	951 ^a	995
PS04100462	181.8	29-Jun	31.8	30.0	0.96	62.7 ^a	11.7	935	1045
PS04100505	179.0	27-Jun^a	25.0	25.0	1.00	62.7 ^a	11.3	905	1046
PS03101822	180.3	28-Jun ^a	30.8	32.3	1.05	62.3	11.7	1149^a	1282^a
PS04100710	180.5	28-Jun	28.5	28.8	1.02	63.2^a	11.8	887	987
PS04100910	180.3	28-Jun ^a	31.0	28.3	0.91	62.7 ^a	11.3	851	978
PS04100922	182.8	30-Jun	28.3	29.3	1.06	62.8 ^a	11.9 ^a	899	984
Means (n = 40)	181.1	29-Jun	31.4	30.9	1.00	62.7	11.6	923	1038
LSD _{0.05} (by t)		1.5	6.1	4.8	0.26	0.7	0.6	203	234
CV% (s/means)		0.55	13.45	10.66	17.79	0.823	3.314	15.13	15.53
F-Value (9,27 df)		8.1	6.24	8.16	0.49	1.02	4.7	1.83	1.61

^a - denotes values equal to highest (lowest - Flower Date) values (in **bold**) based on LSD_{0.05}

^{ns} - indicates value is not significantly higher than other values (based on LSD_{0.05})

^{1/} - Ease of Harvest represents the degree of plant height shrinkage from physiological to grain-ripe maturity

Table 4. 2008 Western Regional Spring Lentil Line Evaluations - Agronomic Summary
 - Exp: 860708. Central Agricultural Research Center, Moccasin, MT

Selection	Canopy Height (cm)	Test Weight (lbs/bu)	Grain Yield:		
			@ Harvest (lbs/acre)	Grain Moisture (%)	@ 13% Moist (lbs/acre)
Eston	30.3 ^a	63.6	1430	9.9	1883 ^a
LC01602307E	32.3 ^a	62.9	1459 ^a	11.0	1731 ^a
LC03601590E	31.7 ^a	63.2	1457 ^a	10.4	1815 ^a
LC05600810E	27.7	63.9	1460 ^a	10.9	1746 ^a
LC05600812E	29.7	63.8	1503 ^a	11.2	1750 ^a
Pardina	27.0	64.7	1366	10.9	1635
LC02601144P	31.1 ^a	64.7	1469 ^a	10.4	1828 ^a
LC03600204P	28.6	65.4 ^a	1456 ^a	10.8	1752 ^a
LC03601426P	30.1 ^a	65.7 ^a	1343	10.2	1713 ^a
LC04600350P	24.6	65.4 ^a	1334	10.3	1678
LC05600995P	27.1	65.1	1341	10.6	1646
Crimson	26.0	63.5	1282	10.1	1650
LC01601724T	27.3	65.6 ^a	1575 ^a	11.1	1838 ^a
LC01602062T	31.0 ^a	63.5	1318	10.7	1605
LC04600751T	26.7	65.7 ^a	1374	9.9	1800 ^a
LC05600840T	30.7 ^a	65.3 ^a	1249	10.2	1595
Richlea	33.1 ^a	60.7	1395	10.9	1655
LC01602300R	33.0 ^a	61.8	1472 ^a	10.6	1806 ^a
Merrit	33.7 ^a	58.9	1221	10.4	1532
Riveland	36.3 ^a	57.8	1266	10.7	1539
LC03600854L	34.0 ^a	58.4	1397	11.8 ^a	1546
LC04600705L	34.0 ^a	59.5	1083	10.1	1402
Means (<i>n</i> = 66)	30.3	63.2	1375	10.6	1688
LSD _{0.05} (by t)	6.5	0.5	134	0.4	186
CV% (s/means)	12.90	0.48	5.89	2.34	6.66
F-value (21,36 df)	1.89	206.23	5.63	10.29	3.48

^a - Denotes values equal to highest value (in **bold**) based on LSD_{0.05}

Table 1. 2008 Western Regional Winter Pea Line Evaluation. Agronomic Summary
 - Exp: 820708. Central Agricultural Research Center, Moccasin, MT

{820708:WRSum}

Selection	Stand [*]	Hail Damage [@]	Forage Biomass		Grain Harvest				
			Height (cm)	Dry Matter (lbs/ac)	Plot		Grain		Adjust Yield 13% (lbs/ac)
					Height (cm)	Yield (lbs/ac)	Test Wt (lbs/bu)	Moist (%)	
Specter	4.9 ^a	3.8 ^a	60.5	2642 ^a	60.8 ^a	1059 ^a	63.1	12.4 ^a	1120 ^a
Windham	4.4 ^a	0.0	35.3	2199 ^a	35.5	945	63.4	11.8	1046 ^a
PS0230F210	4.1	1.8	59.5	2409 ^a	53.5 ^a	1122 ^a	63.3	12.1 ^a	1205 ^a
PS03100848	4.4 ^a	3.5 ^a	63.0 ^a	2768^a	42.5	1054 ^a	62.5	12.3 ^a	1111 ^a
PS03100635	3.6	4.0^a	50.0	1593	45.3	905	63.7 ^a	12.0 ^a	983
PS0017018	4.1	2.5	66.0^a	2471 ^a	48.8	1135^a	63.8 ^a	12.4 ^a	1191 ^a
PS03101160	4.4 ^a	0.5			33.5	857	62.5	11.5	965
PS0230F092	4.0	0.5			31.8	1086 ^a	63.1	11.6	1219^a
PS0230F063	3.2	0.0			32.5	1047 ^a	63.8 ^a	11.6	1174 ^a
Granger	4.4 ^a	3.3 ^a	61.5 ^a	2016	49.8	1099 ^a	63.9 ^a	12.4 ^a	1154 ^a
Means	4.1	2.0	56.5	2300	43.4	1031	63.3	12.0	1117
LSD (0.05 by t)	0.7	1.0	5.2	705	7.7	172	0.5	0.4	195
CV% (s/means)	12.2	36.4	6.2	20.6	12.3	11.5	0.60	2.6	12.1
F-Value	3.8	20.3	36.3	2.9	13.9	2.6	7.3	5.5	1.8

* - Stand evaluation based on a scale of 1 (poor) to 6 (excellent)

@ - Hail Damage score based on a scale from 0 (no visible damage) to 5 (severe damage); Hail storm of June 11, 2008

^a - Denotes values statistically equal to highest value (in **bold**) based on LSD_{0.05}.

Table 2. 2008 Western Regional Winter Lentil Line Evaluations. Agronomic Summary.
 - Exp: 840708. Central Agricultural Research Center, Moccasin, Montana

{840708:WR}

Selection	Stand [§]	Biomass [#]		Height	Yield	Test Wt	Moist	Yield 12%
		Height	Dry Matter					
Toni	5.3 ^a	33.3 ^a	3050 ^a	31.8 ^a	1171 ^a	64.5	10.1 ^a	1393 ^a
Morton	5.1 ^a	29.3	3461^a	24.5	1125 ^a	65.1	9.8	1383 ^a
WA8649041	4.8 ^a	34.3^a	2442	30.5 ^a	1189^a	64.8	10.1 ^a	1410^a
LC9440070R	4.2	30.8	2830 ^a	29.5 ^a	1012 ^a	60.9	10.3 ^a	1191 ^a
LC02601276T	3.7	31.8	2258	30.5 ^a	735	66.0 ^a	9.8	910
LC03600230T	2.9			26.8	588	65.6	10.4 ^a	696
LC03600232T	4.1	32.8 ^a	2007	33.3^a	1048 ^a	66.4^a	9.8	1290 ^a
LC04600754T	2.3	31.3	1778	26.8	668	65.8 ^a	10.1 ^a	794
LC05600006T	2.2			25.8	417	64.2	10.4 ^a	479
LC05600685T	3.3			28.3	853	66.1 ^a	9.5	1082
LC05600720T	3.3			29.5 ^a	890	66.1 ^a	9.7	1114
Means	3.7	31.9	2547	28.8	882	65.0	10.0	1067
LSD (0.05 by t)	0.7	2.4	723	4.6	201	0.7	0.5	264
CV% (s/means)	12.1	5.0	19.1	10.9	15.8	0.7	3.7	17.1
F-Value	21.5	4.5	6.0	2.9	13.5	45.0	2.8	11.7

^a - Values equal to highest value (in **bold**) based on LSD_{0.05}.

[§] - Stand evaluation based on a scale of 1 (poor) to 6 (excellent)

[#] - Only selections with growth habits conducive to green manure were evaluated

WILLISTON RESEARCH EXTENSION CENTER - 2008

WESTERN FIELD PEA VARIETY

Cultivar	Days to Bloom	Bloom Duration	----- Canopy-----		Seed Protein %	1000 Kwt gms	Seeds/ Pound	Test Weight lbs/bu	Seed Yield bus/a	Harv. Ease 0-9*
			Height cms	Height inches						
PS02100026	61.0	13.5	38.3	15.1	25.3	215.6	2104	63.8	24.19	6.3
Stirling	55.8	18.3	35.8	14.1	24.0	194.2	2336	64.0	30.12	3.5
PS03101445	61.0	13.3	40.0	15.8	23.1	187.9	2414	64.2	27.31	3.0
PS04100328	61.0	14.0	49.0	19.3	24.7	272.8	1663	64.8	22.48	2.5
PS04100462	63.0	11.0	38.0	15.0	24.3	214.5	2115	64.7	25.51	3.3
PS04100505	56.5	17.3	36.0	14.2	24.2	210.6	2154	63.8	27.46	3.8
PS01102958	61.0	13.5	40.5	15.9	25.0	239.4	1896	64.3	24.71	3.5
PS03101822	59.3	13.8	41.0	16.2	22.6	235.5	1926	64.4	30.54	4.3
PS04100710	61.5	11.0	38.0	15.0	24.1	246.4	1841	63.8	28.34	4.8
PS04100910	61.0	13.3	29.5	11.6	24.9	252.5	1796	63.4	20.55	5.3
PS04100922	64.0	10.3	29.5	11.6	24.1	215.5	2106	64.0	24.15	3.0
DS Admiral	62.3	12.3	52.8	20.8	24.2	229.7	1975	64.6	24.35	1.3
HIGH MEAN	64.0	18.3	52.8	20.8	25.3	272.8	2414	64.8	30.54	6.3
LOW MEAN	55.8	10.3	29.5	11.6	22.6	187.9	1663	63.4	20.55	1.3
EXP MEAN	60.6	13.4	39.0	15.4	24.2	226.2	2027	64.2	25.81	3.7
C.V. %	1.0	7.3	9.4	9.4	1.9	1.8	2	0.5	8.31	37.7
LSD 5%	0.8	1.4	5.3	2.1	1.0	8.9	80	0.7	3.09	2.0
LSD 1%	1.1	1.9	7.1	2.8	1.5	12.6	113	NS	4.14	2.7
# OF REPS	4.0	4.0	4.0	4.0	2.0	2.0	2	2.0	4	4.0
F-TRT	68.5	23.2	13.5	13.5	5.4	73.8	73	3.6	7.89	3.6

* - Harvest ease - visual rating 0-9 where 0 = upright to 9 = flat.

Location of the WREC: Latitude 48 8'; Longitude 103 44'W; Elevation 2105 ft.

Planted: April 23 on fallow.

Applied Fertilizer in lbs/a:0N:0P2O5:0K:

Soil Test to two feet in lbs/a:102N:23P:340K:16S. 1.8% OM pH-5.8

Soil Type: Williams-Bowbells Loam

Harvested: July 30 Harvested Area: 60 ft2

Grain protein percentages reported on a 0% moisture basis.

Trifluralin fall applied and incorporated gave good weed control.

WILLISTON RESEARCH EXTENSION CENTER - 2008

FIELD PEA VARIETY ON RECROP

Cultivar	Days	Bloom	--- Canopy ---		Seed	1000	Seeds/	Test	Seed	Harv.
	to	Duration	Height	Height	Protein	Kwt	Pound	Weight	Yield	Ease
	Bloom		cms	inches	%	gms		lbs/b	bus/a	0-9*
Green Cotyledon Type										
Arcadia	63.0	11.5	27.8	10.9	26.2	156.0	2914.0	63.3	11.9	5.3
Aragon	61.3	14.0	30.5	12.0	25.4	187.0	2427.0	63.0	11.3	4.3
CDC Striker	66.5	8.8	30.8	12.1	26.4	194.0	2332.0	64.3	7.6	1.8
Cooper	68.0	8.0	30.8	12.1	24.9	230.0	1978.0	63.8	7.7	3.5
K2	62.0	12.8	31.3	12.3	24.9	193.0	2352.0	64.9	11.3	3.5
Majoret	64.5	11.8	29.3	11.5	26.0	173.0	2627.0	64.2	8.0	6.3
Matrix	68.8	8.8	27.0	10.6	24.2	217.0	2093.0	64.6	7.5	4.3
Yellow Cotyledon Type										
Agassiz	61.5	13.0	38.5	15.2	25.6	198.0	2299.0	63.2	11.1	3.3
APCM 97113	62.0	12.5	34.3	13.5	25.3	205.0	2215.0	62.9	10.2	3.8
CDC Golden	62.5	12.3	31.3	12.3	26.3	176.0	2572.0	65.0	9.9	3.3
CDC Meadow	62.3	12.5	37.5	14.8	26.6	175.0	2596.0	64.7	10.1	4.8
CDC Mozart	62.0	13.8	27.8	10.9	25.1	184.0	2470.0	64.5	10.6	7.3
Commander	62.5	11.0	32.3	12.7	25.8	194.0	2344.0	65.0	11.7	2.8
Cruiser	62.0	13.0	31.8	12.5	25.4	171.0	2649.0	63.2	10.0	4.8
DS Admiral	62.5	12.3	34.3	13.5	24.9	220.0	2060.0	64.0	11.4	2.5
Eclipse	63.3	10.5	25.8	10.1	25.1	193.0	2350.0	64.4	9.9	5.3
Fusion	62.3	12.5	32.3	12.7	25.2	216.0	2096.0	65.2	10.7	5.0
IN 4179	58.3	15.8	35.8	14.1	24.9	223.0	2039.0	64.0	11.6	3.3
Spider	63.3	10.3	31.3	12.3	25.9	191.0	2374.0	64.1	9.9	2.5
SW Capri	63.0	11.5	36.5	14.4	25.9	185.0	2451.0	64.2	11.0	3.5
SW Midas	62.5	12.8	31.5	12.4	25.3	177.0	2561.0	64.6	10.7	4.5
SW Salute	62.3	12.5	33.8	13.3	26.0	180.0	2519.0	63.2	14.0	3.3
Thunderbird	67.3	9.3	35.8	14.1	26.4	183.0	2480.0	63.4	8.4	2.5
Marrowfat Type										
Orka	63.0	12.0	31.8	12.5	24.4	270.0	1683.0	62.2	8.9	5.0
HIGH MEAN	68.8	15.8	38.5	15.2	26.6	270.0	2914.0	65.2	14.0	7.3
LOW MEAN	58.3	8.0	25.8	10.1	24.2	156.0	1683.0	62.2	7.5	1.8
EXP MEAN	63.2	11.8	32.0	12.6	25.5	196.0	2353.0	64.0	10.2	4.0
C.V. %	1.3	9.4	8.4	8.5	2 2.1	3.0	3.0	0.7	16.8	3.8
LSD 5%	1.2	1.6	3.8	1.5	1.1	14.0	166.0	0.9	2.4	1.3
LSD 1%	1.5	2.1	5.1	2.0	1.5	18.0	225.0	1.2	3.2	1.8
# OF REPS	4.0	4.0	4.0	4.0	2.0		2.0	2.0	4.0	4.0
F-TRT	32.1	10.8	6.0	6.0	3.1	28.0	22.0	6.3	3.4	7.5

* Harvest ease - visual rating 0-9 where 0 = upright to 9 = flat.

Relative efficiency Lattice analysis vs RCBD for yield = 136%

Location of the WREC: Latitude 48 8'; Longitude 103 44'W; Elevation 2105 ft.

Planted: April 22 into harrowed durum stubble.

Applied Fertilizer in lbs/a:70N:0P2O5:0K:

Soil Test to two feet in lbs/a: 45N:23P:330K:14S. 1.9% OM pH-5.3

Soil Type: Williams-Bowbells Loam

Harvested: July 30 Harvested Area: 60 ft²

Grain protein percentages reported on a 0% moisture basis.

Trifluralin fall applied and heavy harrowed gave good weed control.

WILLISTON RESEARCH EXTENSION CENTER - 2008

PRILIMINARY PEA VARIETY

Cultivar	Days	Bloom	--- Canopy ---		Seed	1000	Seeds/	Test	Seed	Harv.	Lodge	Shatter
	to	Duration	Height	Height	Protein	Kwt	Pound	Weight	Yield	Ease		
	Bloom		cms	inches	%	gms		lbs/b	bus/a	0-9*	0-9	0-9
Cruiser	62.7	13.0	48.7	19.2	23.4	199.0	2285.0	63.9	17.6	3.0	2.7	1.7
DS Admiral	62.7	12.3	52.0	20.5	23.9	242.0	1871.0	65.3	18.3	2.0	0.7	1.3
Eclipse	63.0	13.3	37.0	14.6	24.6	229.0	1978.0	65.9	16.8	4.3	2.3	1.3
Majoret	63.0	13.3	37.3	14.7	24.9	210.0	2164.0	65.4	15.4	3.7	1.7	1.3
Medora	63.7	14.3	50.0	19.7	24.4	195.0	2330.0	65.5	12.0	2.3	1.3	1.3
PS03100116	62.0	13.7	54.7	21.5	23.6	216.0	2102.0	66.6	19.0	5.7	4.7	0.3
PS03101349	56.7	18.3	42.0	16.5	23.9	239.0	1898.0	65.4	17.5	3.0	2.0	2.0
PS03101445	61.0	15.0	44.0	17.3	23.3	198.0	2296.0	65.4	17.2	3.7	1.3	0.3
PS03690293	61.0	15.3	36.3	14.3	24.6	215.0	2114.0	64.0	16.0	6.0	2.7	1.3
PS04100453	63.3	15.0	56.0	22.0	24.5	242.0	1869.0	65.5	16.4	4.3	3.0	1.0
PS04100543	62.7	14.3	38.7	15.2	25.1	235.0	1932.0	65.1	14.8	5.3	5.0	2.0
PS04100722	62.0	11.0	55.7	21.9	24.5	254.0	1785.0	65.5	20.0	4.3	2.7	2.0
PS05100522	57.3	14.7	45.7	18.0	23.9	231.0	1967.0	64.5	24.1	1.7	1.0	1.7
PS05100632	54.0	18.0	48.3	19.0	23.4	205.0	2209.0	64.1	25.6	2.0	1.3	5.7
PS05100727	62.7	11.3	52.3	20.6	24.4	232.0	1958.0	65.8	21.1	3.7	2.7	1.7
PS05100728	60.0	13.7	43.3	17.0	23.9	224.0	2021.0	64.3	24.8	5.0	5.0	0.7
PS05100735	64.0	10.0	41.3	16.3	24.7	226.0	2005.0	64.9	25.1	3.7	2.0	1.0
PS05101139	57.0	15.7	51.7	20.3	23.7	230.0	1977.0	65.3	26.0	2.7	1.3	1.3
PS05100120	61.3	15.3	50.0	19.7	23.6	201.0	2261.0	63.8	21.7	5.7	5.3	3.3
PS05101240	63.3	14.0	33.0	13.0	24.6	196.0	2320.0	64.0	19.8	5.0	1.3	1.0
HIGH MEAN	64.0	18.3	56.0	22.0	25.1	254.0	2330.0	66.6	26.0	6.0	5.3	5.7
LOW MEAN	54.0	10.0	33.0	13.0	23.3	195.0	1785.0	63.8	12.0	1.7	0.7	0.3
EXP MEAN	61.2	14.1	45.9	18.1	24.1	221.0	2067.0	65.0	19.5	3.9	2.5	1.6
C.V. %	0.8	11.6	13.4	13.4	1.8	2.0	2.0	1.0	16.4	27.8	28.2	61.5
LSD 5%	0.8	2.7	10.2	4.0	0.9	9.0	82.0	1.4	5.3	1.8	1.2	1.6
LSD 1%	1.1	3.6	13.6	5.4	1.2	13.0	112.0	NS	7.1	2.4	1.6	2.2
# OF REPS	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0
F-TRT	89.8	4.8	3.9	3.9	3.2	33.0	38.0	2.8	4.8	4.6	12.4	4.1

* Harvest ease - visual rating 0-9 where 0 = upright to 9 = flat.

Relative efficiency Lattice analysis vs RCBD for yield = 100%.

Location of the WREC: Latitude 48 8'; Longitude 103 44'W; Elevation 2105 ft.

Planted: April 23 on fallow.

Applied Fertilizer in lbs/a:0N:0P2O5:0K:

Soil Test to two feet in lbs/a:102N:23P:340K:16S. 1.8% OM pH-5.8

Soil Type: Williams-Bowbells Loam

Harvested: July 29 Harvested Area: 60 ft2

Grain protein percentages reported on a 0% moisture basis.

Trifluralin fall applied and incorporated gave good weed control.

2008 Preliminary Pea Yield Trial – 0806 - No-till

Hettinger, North Dakota

Entry	Cultivar	Days to Bloom	Days to Mature	Plant Height*	Lodg.	1000 Seed wt.	Test Weight	Seed Yield
				cm	0-9**	grams	lbs/bu	bu/Ac
1	PS05100522	65	87	53	5.3	238	57.7	26.7
2	PS05100632	61	86	48	3.3	231	58.0	26.5
3	PS05100727	69	93	53	5.3	216	56.9	22.9
4	PS05100728	67	90	42	8.0	252	55.2	25.2
5	PS05100735	69	93	58	7.3	265	57.0	25.9
6	PS05101139	65	87	48	5.0	248	58.0	26.7
7	PS05100120	66	91	44	7.7	227	57.3	24.7
8	PS05101240	68	88	52	8.0	220	58.7	25.9
9	Cruiser	66	90	51	3.3	225	58.5	24.1
10	DS Admiral	67	88	61	2.0	237	58.6	28.4
11	Eclipse	68	91	53	3.0	265	60.1	24.9
12	Medora	70	94	64	1.3	216	60.6	16.1
13	Majoret	68	90	64	3.0	225	58.4	23.3
14	PS03100116	68	92	45	8.0	207	59.6	22.3
15	PS03101349	64	87	41	5.3	246	58.7	24.9
16	PS03101445	67	91	59	4.7	236	59.2	22.7
17	PS03690293	66	90	56	5.7	235	58.8	22.7
18	PS04100453	67	92	62	4.3	218	58.7	23.3
19	PS04100543	67	89	45	6.7	251	58.8	26.7
20	PS04100722	67	88	50	3.7	258	57.8	23.1
Trial Mean		67	90	52	5.0	236	58.3	24.4
C.V. %		0.8	1.1	6.1	17.0	12.5	3.1	9.9
LSD .05		1	1	5	1.4	NS	NS	4.0
LSD .01		1	2	7	1.9	NS	NS	5.3

* Plant height at maturity.

** Lodging: 0 = none, 9 = lying flat on ground.

Planting Date: April 23

Harvest Date: July 31

Previous Crop: hrsw

NDSU Carrington Research Extension Center

2008

Dry Pea : Early Bloom Nursery - 0827

Obs	Variety	Days to Bloom	Bloom Duration	Days to PM	Vine Length cm	Canopy Ht at Harvest cm	Height Index %	Lodgin g at PM 0-9	Harvest Ease 0-9	Seed Protein %	Seeds/ Pound	1000 KWT gms	Test Weight lbs/bu	Seed Yield bu/ac
1	MEDORA	64.0	18.0	92.0	79.0	41.7	52.7	3.7	4.3	.	2279	199	62.2	59.1
2	PS03100278	58.0	15.7	87.7	66.7	33.3	50.3	4.7	5.7	.	2056	221	63.1	67.2
3	PS03101340	57.0	19.0	89.3	69.7	26.7	38.3	7.3	7.7	.	1810	251	62.1	64.9
4	PS04100083	59.3	17.0	90.3	77.3	38.7	50.1	3.7	4.7	.	1732	262	62.4	68.1
5	PS04100129	63.0	17.0	90.3	70.7	31.0	43.9	5.7	6.7	.	1986	229	63.1	66.1
6	PS04100232	60.7	15.3	90.3	63.7	28.7	45.8	7.7	7.7	.	2243	202	61.6	60.7
7	PS04100328	63.7	16.0	95.7	78.0	36.0	46.2	5.0	5.7	.	1747	260	63.3	58.0
8	PS04100610	60.7	15.0	89.3	71.3	36.7	51.4	3.7	4.7	.	2086	218	62.3	66.2
9	PS04100910	61.7	15.3	92.7	61.3	21.7	35.3	7.7	8.3	.	1923	236	61.6	65.8
10	PS04100922	65.7	13.7	91.7	66.7	23.3	34.9	7.7	8.0	.	2145	212	62.3	61.9
11	PS04100927	60.0	14.7	91.0	73.3	36.7	50.4	5.0	5.7	.	1757	259	62.7	62.0
12	STIRLING	57.0	23.0	93.3	63.0	27.3	44.7	7.7	8.3	.	2332	195	62.6	62.1
	MEAN	60.9	16.6	91.1	70.1	31.8	45.3	5.8	6.4		2008	228.7	62.4	63.5
	C.V.%	0.7	7.8	1.1	8.2	14.8	18.2	14.3	9.6		3.1	3.1	0.5	6.6
	LSD.05	0.7	2.2	1.7	9.8	8.0	NS	1.4	1.0		105	12.1	0.5	NS
	LSD.01	0.9	3.0	2.3	13.3	10.9	NS	1.9	1.4		143	16.4	0.7	NS
	#REPS	3	3	3	3	3	3	3	3		3	3	3	3

Planting Date = April 30 ; Harvest Date = August 13 ; Previous Crop = Spring Wheat

Harvest Ease scores; 0 = all plants upright ~ very easy harvest, to 9 = all plants flat ~ very difficulty to harvest direct.

Harvest Index; Plant height at time of harvest relative to plant height at end of bloom.

**NDSU Carrington Research Extension Center
2008
Western Regional Dry Pea Nursery - 0897**

Obs	Variety	Days to Bloom	Bloom Duration	Days to PM	Vine Length cm	Lodging at PM 0-9	Harvest Ease 0-9	Seed Protein %	Seeds/Pound	1000 KWT gms	Test Weight lbs/bu	Seed Yield bu/ac
1	DS Admiral	61.7	14.7	89.7	63.0	2.7	3.0		1910	238	63.3	62.8
2	PS01102958	60.7	14.7	87.3	58.0	9.0	9.0		2197	207	62.3	60.1
3	PS02100026	56.3	18.7	90.7	52.0	7.3	8.0		2320	196	62.5	64.0
4	PS03101445	63.0	14.3	94.3	68.3	4.3	5.3		1733	262	63.6	59.5
5	PS03101822	63.7	16.3	95.3	61.3	7.0	8.0		2053	221	62.7	63.2
6	PS04100328	57.7	18.3	90.7	52.0	7.0	8.0		2120	214	62.5	57.7
7	PS04100462	62.7	19.0	93.3	69.0	7.0	7.7		1813	250	63.1	66.5
8	PS04100505	59.7	14.3	88.3	56.7	8.0	8.7		1913	237	61.9	71.4
9	PS04100710	62.0	13.7	87.0	59.7	8.7	9.0		2124	214	61.7	74.0
10	PS04100910	61.3	14.3	93.3	60.3	8.0	8.7		1814	251	62.0	61.5
11	PS04100922	65.3	15.7	92.3	61.7	7.7	8.3		2129	214	62.2	65.3
12	Stirling	61.7	13.3	89.3	59.3	6.0	6.7		2278	199	62.9	60.5
	MEAN	61.3	15.6	91.0	60.1	6.9	7.5		2034	225	62.6	63.9
	C.V.%	0.8	7.3	1.2	10.8	12.1	8.3		2.8	3.0	0.6	8.0
	LSD.05	0.9	1.9	1.9	11.0	1.4	1.1		98	11.4	0.6	8.6
	LSD.01	1.2	2.6	2.5	15.0	1.9	1.4		133	15.5	0.8	NS
	#REPS	3	3	3	3	3	3		3	3	3	3

Planting Date = April 30 ; Harvest Date = August 13 ; Previous Crop = Spring Wheat

Harvest Ease scores; 0 = all plants upright ~ very easy harvest, to 9 = all plants flat ~ very difficulty to harvest direct.

2008

Dry Pea : Preliminary Yield Trial - 0806

Obs	Variety	Days to Bloom	Bloom Duration	Days to PM	Vine Length cm	Canopy Ht at Harvest cm	Height Index %	Lodgin g at PM 0-9	Harvest Ease 0-9	Seed Protein %	Seeds/ Pound	1000 KWT gms	Test Weight lbs/bu	Seed Yield bu/ac
1	Cruiser	62.3	19.7	91.0	70.3	41.7	59.4	3.7	5.0	24.4	2310	197	61.8	56.9
2	DS Admiral	63.0	13.0	89.0	77.3	48.3	62.7	1.7	2.0	24.4	1893	240	62.4	65.8
3	Eclipse	64.3	18.3	96.0	80.3	47.0	58.6	2.3	3.0	24.9	1897	239	63.5	62.3
4	Majoret	63.3	16.7	93.7	69.0	42.7	61.9	3.3	4.3	24.9	2171	210	62.3	63.6
5	Medora	65.7	17.7	95.3	74.3	48.0	64.9	3.7	3.3	25.4	2605	174	61.6	48.8
6	PS03100116	64.3	16.7	94.3	66.0	25.0	37.9	7.3	7.3	24.2	2434	187	62.7	54.2
7	PS03101349	60.3	19.3	91.3	60.0	27.0	45.3	6.0	7.0	24.9	2079	218	61.8	64.3
8	PS03101445	63.3	17.0	92.3	72.0	39.3	54.6	4.7	5.7	24.3	2213	205	62.4	62.4
9	PS03690293	61.3	19.7	93.7	68.3	37.7	55.3	5.0	5.7	24.1	2099	216	61.6	62.4
10	PS04100453	64.0	14.7	93.7	68.3	41.3	62.0	4.3	5.0	24.5	1996	228	63.0	64.0
11	PS04100543	62.3	16.3	91.3	67.0	26.0	38.9	6.3	7.3	25.3	2235	203	61.2	63.1
12	PS04100722	63.3	13.3	90.7	65.0	37.7	58.7	3.7	5.3	25.0	1805	252	61.5	65.4
13	PS05100120	61.7	21.0	95.3	61.3	31.3	50.9	6.0	7.0	25.3	2328	195	61.2	57.1
14	PS05100522	62.3	16.3	92.7	68.7	41.3	60.0	3.7	4.7	24.7	2035	223	61.9	62.8
15	PS05100632	55.7	20.3	89.3	67.7	47.0	69.5	2.7	3.3	24.1	2235	203	61.4	68.3
16	PS05100727	63.3	14.3	95.0	67.0	28.7	43.8	6.7	7.3	25.6	2104	216	61.7	58.7
17	PS05100728	61.0	17.0	92.3	66.0	22.7	34.5	7.7	8.3	24.7	2103	216	61.1	60.8
18	PS05100735	65.0	17.7	99.0	63.0	25.7	40.8	6.3	7.3	25.1	2044	222	62.1	64.5
19	PS05101139	63.0	19.3	94.0	62.7	34.3	55.0	5.7	6.7	24.8	2003	227	62.2	61.3
20	PS05101240	64.3	18.0	93.7	66.3	28.7	43.5	7.0	7.7	24.6	2249	202	61.2	61.5
	MEAN	62.7	17.3	93.2	68.0	36.1	52.9	4.9	5.7	24.8	2142	213.6	61.9	61.4
	C.V.%	1.0	10.0	1.4	9.6	10.9	13.8	16.9	11.8	1.8	2.4	2.3	0.5	4.8
	LSD.05	1.0	2.9	2.2	NS	6.5	12.1	1.4	1.1	0.7	84	8.1	0.5	4.9
	LSD.01	1.3	3.8	3.0	NS	8.7	16.1	1.8	1.5	1.0	112	10.9	0.6	6.6
	#REPS	3	3	3	3	3	3	3	3	3	3	3	3	3

Planting Date = April 29 ; Harvest Date = August 13 ; Previous Crop = Spring Wheat

Harvest Ease scores; 0 = all plants upright ~ very easy harvest, to 9 = all plants flat ~ very difficulty to harvest direct.

Harvest Index; Plant height at time of harvest relative to plant height at end of bloom.

08 Minot Dry Pea 0806.

Entry No.	Entry Name	10% DAP		90% DAP		Bloom Dura Days		Maturity DAP		Vine Length in		Canopy HT in		Height Index %		Lodge 0-9	Protein %	Test WT lb/bu		Yield bu/a			
1	Cruiser	55.3	de	73.3	bcd	18	a-d	81	b-e	20.034998	bc	15.02624757	abc	76.5626374	ab	2.3	fg	24.37	b-h	63.51133	c-g	32.74387	d-g
2	DS Admiral	56	cd	72.3	def	16.3	ef	80	d-g	22.1784786	ab	16.92913606	a	76.6519547	ab	2	gh	24.07	d-h	64.25236	abc	30.64978	efg
3	Eclipse	55.7	d	72	d-g	16.3	ef	81.3	bcd	18.9413853	b-e	17.58530411	a	91.2518173	a	0.7	h	23.93	fgh	64.79451	a	42.73836	ab
4	Medora	58	a	74.3	abc	16.3	ef	82.3	abc	22.1347354	ab	15.68241658	ab	71.1038966	bcd	2.3	fg	25	b	63.14504	e-h	25.8905	g
5	Majoret	58	a	74.7	ab	16.7	def	83.3	a	17.8477725	cde	13.45144502	b-e	75.1373061	abc	4	de	24.5	b-g	64.13905	a-d	36.26574	b-e
6	PS03100116	57	b	75.3	a	18.3	abc	82.3	abc	20.1662313	bc	6.10236277	hi	30.5660297	i	7.7	ab	23.83	gh	64.65636	ab	33.98128	c-g
7	PS03101349	54	f	72.3	def	18.3	abc	78.7	gh	21.4348223	ab	8.72703544	fgh	41.6454815	f-i	6	c	24.07	d-h	63.83765	b-f	35.45666	b-f
8	PS03101445	55.7	d	75	a	19.3	a	82.7	ab	19.4663182	bcd	13.51706068	b-e	69.4818108	bcd	3.3	efg	22.97	i	64.63322	ab	43.64262	ab
9	PS03690293	54.7	ef	72.3	def	17.7	b-e	81.3	bcd	17.5853041	cde	13.64829486	b-e	77.6524126	ab	3	efg	23	i	63.21887	d-h	27.27069	fg
10	PS04100453	56.7	bc	74.7	ab	18	a-d	80.7	c-f	24.2344747	a	14.82939773	a-d	61.884417	b-e	3.3	efg	24.1	c-h	64.48559	ab	41.1678	a-d
11	PS04100543	56.7	bc	73	cde	16.3	ef	81.7	a-d	19.6412964	bcd	6.23359695	ghi	33.7511325	hi	7.7	ab	24.8	bcd	63.99799	a-e	36.55129	b-e
12	PS04100722	56.7	bc	72.7	de	16	f	79.3	e-h	22.1347373	ab	12.20472553	cde	55.1968935	d-g	4	de	24.7	b-e	63.40554	c-h	37.7887	a-e
13	PS05100120	54.7	ef	72.3	def	17.7	b-e	79	fgh	19.4225731	bcd	6.62729711	ghi	33.8784786	hi	8.7	a	24.83	bc	62.14117	i	36.17055	b-e
14	PS05101139	54	f	70.3	h	16.3	ef	76.3	i	19.9037648	bc	10.82677282	ef	54.8578432	d-g	6.7	bc	24.03	e-h	63.96319	a-e	40.12076	a-d
15	PS05101240	57.3	ab	71.7	e-h	14.3	g	77.7	hi	15.8355223	e	5.83989583	hi	37.2985381	ghi	7.7	ab	24.9	b	62.55776	hi	41.1678	a-d
16	PS05100728	54.3	f	73	cde	18.7	ab	78.7	gh	19.6412984	bcd	5.51181133	i	28.0504579	i	8.3	a	24.33	b-h	62.75996	ghi	36.21814	b-e
17	PS05100632	54	f	70.7	gh	16.7	def	76	i	20.603676	bc	12.66404374	cde	61.6841073	b-e	3.7	ef	23.7	hi	63.50569	c-g	43.92819	ab
18	PS05100735	57.3	ab	75	a	17.7	b-e	82.3	abc	16.3604581	de	6.69291372	ghi	41.0710719	f-i	6.7	bc	26.23	a	62.98001	f-i	45.83189	a
19	PS05100522	54	f	71	fgh	17	c-f	76.3	i	20.8223993	bc	12.0734923	de	58.2683469	c-f	5.3	cd	24.67	b-f	63.81508	b-f	41.45335	abc
20	PS05100727	56	cd	74.3	abc	18.3	abc	81	b-e	17.9352607	cde	9.05511947	fg	50.8014768	e-h	6.7	bc	26.13	a	63.18502	e-h	39.21649	a-e
LSD (P=.05)		0.89		1.44		1.48		1.69		3.40760003		2.945968207		18.01717748		1.35		0.759		0.94417343		8.60591212	
CV		0.97		1.19		5.22		1.28		10.42		16		19.38		16.42		1.88		0.9		13.94	
Grand Mean		55.8		73.02		17.22		80.1		19.82		11.16		56.34		5		24.41		63.65		37.41	
Replicate F		0.517		0.285		0.021		3.015		5.458		0.323		0.851		6.234		3.61		2.697		10.284	
Replicate Prob(F)		0.6007		0.7537		0.9795		0.0609		0.0082		0.726		0.4352		0.0046		0.0367		0.0806		0.0003	
Treatment F		19.625		9.111		5.192		14.579		3.02		15.141		8.777		25.938		9.699		4.986		3.248	
Treatment Prob(F)		0.0001		0.0001		0.0001		0.0001		0.0018		0.0001		0.0001		0.0001		0.0001		0.0001		0.001	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Rating Unit

DAP = days after planting

in = inch

% = percent

0-9 = 0-9 index/scale

2008 Preliminary Pea Yield Trial – 0806 - No-till

Hettinger, North Dakota

Entry	Cultivar	Days to Bloom	Days to Mature	Plant Height*	Lodg.	1000 Seed wt.	Test Weight	Seed Yield
				cm	0-9**	grams	lbs/bu	bu/Ac
1	PS05100522	65	87	53	5.3	238	57.7	47.1
2	PS05100632	61	86	48	3.3	231	58.0	46.9
3	PS05100727	69	93	53	5.3	216	56.9	40.4
4	PS05100728	67	90	42	8.0	252	55.2	44.5
5	PS05100735	69	93	58	7.3	265	57.0	45.8
6	PS05101139	65	87	48	5.0	248	58.0	47.1
7	PS05100120	66	91	44	7.7	227	57.3	43.6
8	PS05101240	68	88	52	8.0	220	58.7	45.7
9	Cruiser	66	90	51	3.3	225	58.5	42.6
10	DS Admiral	67	88	61	2.0	237	58.6	50.2
11	Eclipse	68	91	53	3.0	265	60.1	44.0
12	Medora	70	94	64	1.3	216	60.6	28.5
13	Majoret	68	90	64	3.0	225	58.4	41.1
14	PS03100116	68	92	45	8.0	207	59.6	39.4
15	PS03101349	64	87	41	5.3	246	58.7	43.9
16	PS03101445	67	91	59	4.7	236	59.2	40.1
17	PS03690293	66	90	56	5.7	235	58.8	40.1
18	PS04100453	67	92	62	4.3	218	58.7	41.2
19	PS04100543	67	89	45	6.7	251	58.8	47.1
20	PS04100722	67	88	50	3.7	258	57.8	40.8
Trial Mean		67	90	52	5.0	236	58.3	43.0
C.V. %		0.8	1.1	6.1	17.0	12.5	3.1	9.9
LSD .05		1	1	5	1.4	NS	NS	7.0
LSD .01		1	2	7	1.9	NS	NS	9.4

* Plant height at maturity.

** Lodging: 0 = none, 9 = lying flat on ground.

Planting Date: April 23

Harvest Date: July 31

Previous Crop: hrsw

2008 Preliminary Pea Yield Trial – 0897 - No-till

Hettinger, North Dakota

Entry	Cultivar	Days to Bloom	Days to Mature	Plant Height*	Lodg.	1000 Seed wt.	Test Weight	Seed Yield
				cm	0-9**	grams	lbs/bu	bu/A
1	PS02100026	66	91	45	7.7	138	58.4	36.4
2	Stirling	63	90	58	7.7	227	58.7	49.0
3	PS03101445	67	90	56	5.7	232	58.9	43.3
4	PS04100328	68	93	50	4.7	295	55.9	39.1
5	PS04100462	69	92	53	7.7	260	58.3	45.1
6	PS04100505	65	91	43	7.7	247	59.3	46.7
7	PS01102958	67	90	63	6.0	270	58.1	43.2
8	PS03101822	67	86	57	6.7	251	58.6	49.4
9	PS04100710	67	86	59	7.3	269	58.8	46.4
10	PS04100910	67	93	58	6.7	279	58.0	34.0
11	PS04100922	70	91	55	5.0	270	57.7	43.2
12	DS Admiral	68	89	43	2.0	264	59.9	44.2
Trial Mean		67	90	53	6.2	250	58.4	43.3
C.V. %		0.8	1.2	6.0	11.7	3.4	1.1	7.1
LSD .05		1	2	5	1.2	14	1.0	5.2
LSD .01		1	3	7	1.7	20	1.4	7.1

* Plant height at maturity.

** Lodging: 0 = none, 9 = lying flat on ground.

Planting Date: April 23

Harvest Date: July 31

Previous Crop: hrsw

NDSU Carrington Research Extension Center

2008

Lentil Variety Trial

Obs	Variety	Seed Coat Color	Market Type	Days to Bloom	Days to PM	Plant Height inch	Plant Lodge 0 to 9	1000 KWT gms	Seeds / Pound	Test Weight lbs/bu	Seed Yield lb/acre
1	CDC Greenland	Green	Large	57.5	90.8	11.0	2.3	66.2	6,863	56.6	2570
2	CDC Impact-CL	Red	Small	57.8	87.5	13.3	0.0	35.8	12,691	60.9	2251
3	CDC Impala-CL	Red	Extra Small	58.3	89.8	14.2	0.0	28.2	16,099	61.2	2355
4	CDC Imperial-CL	Red	Extra Small	56.8	88.5	13.0	0.5	28.0	16,208	59.6	2162
5	CDC Impress-CL	Green	Medium	57.3	89.8	12.9	2.3	51.6	8,807	59.1	2561
6	CDC Improve-CL	Green French	Large	56.0	91.5	13.6	0.8	72.2	6,291	58.3	2934
7	CDC Lemay	Green	Small	57.3	85.7	12.2	1.7	31.6	14,363	60.3	1982
8	CDC Maxim-CL	Red	Small	56.8	89.5	12.9	0.0	40.5	11,218	60.3	2710
9	CDC Meteor	Green	Large	58.5	91.3	12.8	2.0	51.2	8,871	59.4	2320
10	CDC Plato	Green	Large	59.5	94.3	12.4	1.8	62.2	7,306	57.7	2329
11	CDC Redberry	Red	Small	57.0	88.0	14.3	0.3	31.9	14,264	60.1	2910
12	CDC Richlea	Green	Medium	57.5	91.3	12.4	0.8	53.1	8,554	58.5	2638
13	CDC Rosetown	Red	Extra Small	57.8	89.3	14.7	0.0	30.0	15,147	60.2	2525
14	CDC Rouleau	Red	Small	57.7	91.0	14.2	0.3	37.6	12,089	60.3	2726
15	CDC Viceroy	Green	Small	58.0	89.5	13.8	0.5	31.7	14,316	60.6	2595
16	Crimson	Red	Small	56.0	85.0	11.1	2.0	36.3	12,514	61.6	1979
17	Cedar	Red	Medium	56.0	92.0	12.1	1.3	47.7	9,527	56.7	1738
18	LC01602307E	Green	Medium	57.8	91.8	12.2	1.3	46.6	9,735	59.9	2627
19	LC1602062T	Red	Medium	56.8	88.5	11.7	1.0	45.6	9,977	61.1	1862
20	Shasta	Green	Medium	57.3	94.3	12.7	1.5	57.7	7,880	57.0	1882
21	LC860359L	Green	Large	59.5	93.0	11.1	3.0	65.4	6,989	58.2	2408
22	LC99600747L	Green	Large	57.3	91.3	10.3	3.3	69.1	6,576	57.4	2165
23	Pennell	Green	Large	58.3	90.0	12.2	0.5	71.3	6,374	57.2	2317
24	Riveland	Green	Large	57.3	92.3	10.0	3.3	75.2	6,040	56.5	1962
		MEAN		57.5	90.3	12.5	1.3	48.9	10,302	59.1	2354
		C.V.%		1.1	1.6	9.6	51.3	3.7	2.9	0.6	9.1
		LSD.05		0.9	2.0	1.7	0.9	2.5	425	0.5	303
		LSD.01		1.2	2.7	2.2	1.2	3.4	564	0.7	402
		#REPS		4	4	4	4	4	4	4	4

Planting Date = May 5 ; Harvest Date = August 18 ; Previous Crop = Spring Wheat

** CDC Impact, CDC Impala, CDC Imperial, CDC Impress, CDC Improve, CDC Maxim are all Clearfield types.

** Lentil seed quality in this trial was very good relative to seed brightness, size and color.

** Shasta, previously tested as LC7601114YZ a zero-tannin type.

** Cedar, previously tested as LC00600917RZ a zero-tannin type.

WILLISTON RESEARCH EXTENSION CENTER - 2008

WESTERN REGIONAL LENTIL VARIETY

Cultivar	Days to Bloom	Bloom Duration	--- Canopy --- Height cms	--- Height inches	Test Weight lbs/bu	1000 KWT gms	Seeds/ Pound	Seed Yield lbs/a
Eston	59.3	22.8	20.3	8.0	63.3	37.0	12266	329.8
LC01602307E	61.3	23.3	21.3	8.4	61.9	48.7	9312	253.9
LC03601590E	60.8	25.3	21.0	8.3	62.1	42.0	10808	345.6
LC05600810E	58.5	28.5	23.0	9.1	62.8	51.2	8881	323.0
LC05600812E	60.0	25.5	25.0	9.8	63.1	48.7	9309	235.2
Pardina	59.8	22.0	19.3	7.6	64.0	43.7	10387	364.6
LC02601144P	58.8	24.5	23.3	9.2	64.5	41.6	10907	246.1
LC03600204P	58.5	22.0	18.8	7.4	64.5	44.9	10104	393.6
LC03601426P	58.5	23.5	21.0	8.3	57.8a	49.0	9250	58.7
LC04600350P	58.5	21.3	21.5	8.5	64.0	47.5	9550	228.6
LC05600995P	60.0	22.0	20.0	7.9	62.6	47.6	9526	271.7
Crimson	60.3	24.0	18.8	7.4	63.1	39.2	11569	300.2
LC01601724T	60.0	24.5	19.0	7.5	63.0	47.8	9488	282.0
LC01602062T	58.8	22.8	21.0	8.3	63.7	48.8	9291	296.6
LC04600751T	57.8	23.5	20.0	7.9	62.5	37.4	12121	252.8
LC05600840T	58.5	23.3	21.5	8.5	64.7	47.0	9785	276.3
Merrit	55.5	29.5	26.0	10.2	60.1	69.5	6535	266.0
Riveland	58.8	24.3	27.0	10.6	59.0	77.6	5849	282.4
Richlea	61.3	24.5	24.3	9.5	60.6	55.2	8224	236.6
LC01602300R	58.5	23.3	23.5	9.3	61.4	51.5	8809	357.4
LC03600854L	59.5	27.8	24.5	9.6	54.4	77.2	5878	184.7
LC04600705L	58.0	22.8	25.5	10.0	59.7	69.2	6561	303.3
HIGH MEAN	61.3	29.5	27.0	10.6	64.7	77.6	12266	393.6
LOW MEAN	55.5	21.3	18.8	7.4	54.4	37.0	5849	58.7
EXP MEAN	59.1	24.1	22.1	8.7	62.0	51.0	9291	276.8
C.V. %	2.1	10.4	9.0	8.9	1.8	4.0	4	19.9
LSD 5%	1.7	3.5	2.8	1.1	2.3	4.3	833	77.8
LSD 1%	2.3	4.7	3.7	1.5	3.1	5.8	1133	103.4
# OF REPS	4	4	4	4	2	2	2	4
F-TRT	4.4	2.9	6.4	6.2	10.4	66.5	41	6.5

a - only enough seed for one test weight reading. That test weight was used in both reps to allow statistical analysis.

Location of the WREC: Latitude 48 8'; Longitude 103 44'W; Elevation 2105 ft.

Planted: April 29 on fallow.

Applied Fertilizer in lbs/a:0N:0P20S:0K:

Soil Test to two feet in lbs/a:102N:23P:340K:16S. 1.8% OM pH-5.8

Soil Type: Williams-Bowbells Loam

Harvested: August 6

Harvested Area: 60 ft²

Trifluralin fall applied and incorporated gave good weed control.

NDSU Carrington Research Extension Center

2008

Lentil Western Regional Nursery - 0898

Obs	Variety	Market Type	Days to Bloom	Days to PM	1000 KWT gms	Seeds / Pound	Test Weight lbs/bu	Seed Yield lb/acre
1	Crimson	Crimson	52.7	84.7	37.8	12,028	61.2	1625
2	Eston	Eston	50.7	85.0	35.1	12,928	60.9	1972
3	LC01601724T	Turkish Red	50.7	87.7	44.8	10,132	63.3	1725
4	LC01602062T	** Turkish Red	50.3	85.7	46.4	9,787	61.1	1812
5	LC01602300R	** Richlea	51.0	89.0	52.0	8,728	60.2	2512
6	LC01602307E	** Eston	54.0	89.3	47.5	9,557	60.0	2430
7	LC02601144P	** Pardina	51.3	89.0	40.1	11,324	61.8	2042
8	LC03600204P	Pardina	50.3	83.7	40.7	11,156	62.9	1555
9	LC03600854L	Laird	50.0	90.7	71.7	6,332	56.6	1983
10	LC03601426P	Pardina	51.0	86.0	46.3	9,813	62.4	1276
11	LC03601590E	** Eston	54.7	87.0	41.7	10,900	60.4	2539
12	LC04600350P	** Pardina	50.3	87.0	44.8	10,129	61.5	2084
13	LC04600705L	Laird	50.0	86.7	66.1	6,873	58.3	2392
14	LC04600751T	** Turkish Red	50.3	86.3	35.2	12,911	61.2	1494
15	LC05600810E	Eston	50.0	89.3	46.7	9,732	61.5	1988
16	LC05600812E	Eston	50.3	87.3	46.2	9,821	61.2	1620
17	LC05600840T	Turkish Red	50.0	84.3	47.1	9,633	61.7	1445
18	LC05600995P	Pardina	50.7	88.7	44.9	10,118	61.6	1602
19	Merrit	Brewer	49.7	86.7	66.0	6,883	57.6	2046
20	Pardina	Pardina	50.3	86.3	41.0	11,068	62.6	1701
21	Richlea	Richlea	53.7	90.7	52.1	8,720	59.1	2211
22	Riveland	Laird	51.0	90.0	73.9	6,147	57.3	1955
		MEAN	51.0	87.3	48.6	9760	60.7	1909
		C.V.%	1.5	2.2	2.7	2.3	0.7	13.7
		LSD .05	1.1	2.7	1.9	326	0.6	375
		LSD .01	1.5	3.6	2.5	436	0.8	501
		# REPS	4	4	4	4	4	4

Planting Date = May 12 ; Harvest Date = August 25 ; Previous Crop = Spring Wheat

** Lentil seed quality in this trial was very good relative to seed brightness, size and color.

** Indicates experimental lines that were evaluated in the 2007 nursery.

WILLISTON RESRACH EXTENSION CENTER - 2008

WESTERN CHICKPEA VARIETY

Cultivar	Days to Bloom	Bloom Duration	----- Canopy ----- Height cms	Height inches	1000 Kwt gms	Seeds/ Pound	Test Weight lbs/bu	Seed Yield bus/a	Rabbit Damage* %
Dwellely	54.0	16.3	35.5	14.0	458	991	61.0	530.8	2.5
Sierra	49.0	18.5	35.5	14.0	436	1040	59.5	791.2	0.0
Troy	52.3	18.0	25.3	10.0	527	861	57.4	720.8	41.3
CA0090B347C	48.5	19.3	32.3	12.7	413	1099	61.3	874.3	0.0
CA0390B007C	50.5	21.8	28.8	11.3	457	993	61.0	638.9	3.8
CA0469C020C	45.5	21.8	30.5	12.0	378	1201	60.3	1136.8	0.0
CA0469C025C	47.5	21.5	29.8	11.7	371	1222	60.5	1073.8	10.0
CA04900443C	51.8	20.5	28.3	11.1	522	869	55.0	653.1	40.0
CA04900612C	49.5	22.3	34.0	13.4	512	886	58.5	656.7	16.3
CA04900716C	51.3	18.5	36.0	14.2	535	848	56.4	801.2	0.0
CA04900851C	51.3	19.0	32.8	12.9	527	860	59.5	763.1	3.8
CA04900509C	48.0	20.3	31.0	12.2	484	938	57.5	748.4	3.8
HIGH MEAN	54.0	22.3	36.0	14.2	535	1222	61.3	1136.8	41.3
LOW MEAN	45.5	16.3	25.3	10.0	371	848	55.0	530.8	0.0
EXP MEAN	49.9	19.8	31.6	12.5	468	984	59.0	782.4	10.1
C.V. %	2.4	6.7	11.9	11.9	1	1	1.5	11.8	158.3
LSD 5%	1.7	1.9	5.4	2.1	13	25	1.9	132.4	23.0
LSD 1%	2.3	2.6	7.3	2.9	18	35	2.7	177.9	30.9
# OF REPS	4.0	4.0	4.0	4.0	2	2	2.0	4.0	4.0
F-TRT	15.8	7.8	3.2	3.2	210	275	10.6	14.6	3.5

* – adjustments in yield made for plots having significant rabbit.

Location of the WREC: Latitude 48 8'; Longitude 103 44'W; Elevation 2105 ft.

Planted: May 14 on fallow.

Applied Fertilizer in lbs/a:0N:0P2O5:0K:

Soil Test to two feet in lbs/a:102N:23P:340K:16S. 1.8% OM pH-5.8

Soil Type: Williams-Bowbells Loam

Harvested: August 26

Harvested Area: 60 ft²

Trifluralin fall applied and incorporated gave good weed control.

WILLISTON RESEARCH EXTENSION CENTER - 2008

CHICKPEA VARIETY

Cultivar and MARKET TYPE	Days to Bloom	Bloom Duration	----- Canopy ----- Height cms	Height inches	1000 Kwt gms	Seeds/ Pound	Test Weight lbs/bu	Seed Yield bus/a
LARGE KABULI								
Dylan	46.0	21.5	28.0	11.0	476	953	58.4	741.6
Sierra	48.8	18.3	33.3	13.1	422	1076	61.8	769.2
Troy #	50.8	19.3	27.0	10.6	511	888	58.5	460.8
CDC Frontier	49.5	21.5	38.0	15.0	348	1304	63.4	1116.3
HB14	47.8	18.8	38.3	15.1	442	1027	62.8	1106.8
HB19	45.0	23.3	31.3	12.3	483	940	60.0	926.8
CA9890233W	50.8	19.0	29.8	11.7	477	952	59.7	468.9
Sawyer #	48.0	22.0	34.3	13.5	409	1110	62.7	874.0
SMALL KABULI								
Amit(B-90)	49.5	20.5	34.0	13.4	267	1699	63.7	1106.4
DESI								
CDC Anna	45.0	22.0	32.5	12.8	211	2153	63.6	1033.8
HIGH MEAN	50.8	23.3	38.3	15.1	511	2153	63.7	1116.3
LOW MEAN	45.0	18.3	27.0	10.6	211	888	58.4	460.8
EXP MEAN	48.1	20.6	32.6	12.9	404	1210	61.5	860.5
C.V. %	2.3	6.5	11.8	11.8	2	2	1.3	13.9
LSD 5%	1.6	2.0	5.6	2.2	20	64	1.9	173.2
LSD 1%	2.1	2.6	7.5	3.0	28	92	2.7	233.9
# OF REPS	4.0	4.0	4.0	4.0	2	2	2.0	4.0
F-TRT	16.0	6.3	3.9	3.9	265	422	13.3	17.4

- about 35% rabbit damage to both varieties.

Location of the WREC: Latitude 48 8'; Longitude 103 44'W; Elevation 2105 ft.

Planted: May 14 on fallow.

Applied Fertilizer in lbs/a:0N:0P2O5:0K:

Soil Test to two feet in lbs/a:102N:23P:340K:16S. 1.8% OM pH-5.8

Soil Type: Williams-Bowbells Loam

Harvested: August 20 Harvested Area: 60 ft2

Trifluralin fall applied and incorporated gave good weed control.

Sawyer tested as CA0090B347C.

2008 Western Regional Chickpea Nursery – 0899 - No-till

Hettinger, North Dakota

Cultivar	Days to Bloom	Duration of Bloom	Days to Mature	Plant Height	Dis.*	1000 Seed wt.	Test Weight	Seed Size			Seed Yield
								>9mm	8-9mm	<8mm	
		days		cm	0-9	grams	lbs/bu	%	%	%	lbs/Ac
Dwellely	69	13	105	42	9	424	51.3	25	30	45	1125
Sierra	68	11	103	43	5	464	51.6	46	34	20	1313
Troy	68	13	105	45	2	517	47.9	55	22	23	1193
CA0090B347C	65	15	101	43	1	466	51.8	24	31	45	1428
CA0390B007C	67	15	104	38	1	477	51.5	30	64	6	1220
CA0469C020C	63	19	101	38	1	388	50.8	7	48	45	1371
CA0469C025C	66	16	101	35	1	364	49.7	12	40	47	1679
CA04900443C	68	13	103	41	2	513	49.2	38	37	25	1260
CA04900612C	68	12	105	40	1	516	49.8	50	31	19	1107
CA04900716C	69	11	103	46	6	509	50.2	42	36	21	1137
CA04900851C	69	12	103	46	2	503	50.5	38	38	24	1305
CA04900509C	63	18	103	47	4	470	50.1	28	34	38	1065
Trial Mean	67	14	103	42	3	465	50.4	33	36	31	1267
C.V. %	0.7	5.0	0.6	8.9	--	9.1	2.7	--	--	--	10.9
LSD .05	1	1	1	6	--	72	NS	--	--	--	234
LSD .01	1	2	1	NS	--	98	NS	--	--	--	306

* Ascochyta: 0 = none, 9 = completely infected (dead). 1 rep only.

NS = no statistical difference between cultivars.

Planting Date: April 23, 2008

Harvest Date: August 15, 2008

Previous Crop: hrsw

Note: The trial sustained severe late season heat and moisture stress.

WILLISTON RESRACH EXTENSION CENTER - 2008

WESTERN CHICKPEA VARIETY

Cultivar	Days to Bloom	Bloom Duration	----- Canopy ----- Height cms	Height inches	1000 Kwt gms	Seeds/ Pound	Test Weight lbs/bu	Seed Yield bus/a	Rabbit Damage* %
Dwellely	54.0	16.3	35.5	14.0	458	991	61.0	530.8	2.5
Sierra	49.0	18.5	35.5	14.0	436	1040	59.5	791.2	0.0
Troy	52.3	18.0	25.3	10.0	527	861	57.4	720.8	41.3
CA0090B347C	48.5	19.3	32.3	12.7	413	1099	61.3	874.3	0.0
CA0390B007C	50.5	21.8	28.8	11.3	457	993	61.0	638.9	3.8
CA0469C020C	45.5	21.8	30.5	12.0	378	1201	60.3	1136.8	0.0
CA0469C025C	47.5	21.5	29.8	11.7	371	1222	60.5	1073.8	10.0
CA04900443C	51.8	20.5	28.3	11.1	522	869	55.0	653.1	40.0
CA04900612C	49.5	22.3	34.0	13.4	512	886	58.5	656.7	16.3
CA04900716C	51.3	18.5	36.0	14.2	535	848	56.4	801.2	0.0
CA04900851C	51.3	19.0	32.8	12.9	527	860	59.5	763.1	3.8
CA04900509C	48.0	20.3	31.0	12.2	484	938	57.5	748.4	3.8
HIGH MEAN	54.0	22.3	36.0	14.2	535	1222	61.3	1136.8	41.3
LOW MEAN	45.5	16.3	25.3	10.0	371	848	55.0	530.8	0.0
EXP MEAN	49.9	19.8	31.6	12.5	468	984	59.0	782.4	10.1
C.V. %	2.4	6.7	11.9	11.9	1	1	1.5	11.8	158.3
LSD 5%	1.7	1.9	5.4	2.1	13	25	1.9	132.4	23.0
LSD 1%	2.3	2.6	7.3	2.9	18	35	2.7	177.9	30.9
# OF REPS	4.0	4.0	4.0	4.0	2	2	2.0	4.0	4.0
F-TRT	15.8	7.8	3.2	3.2	210	275	10.6	14.6	3.5

* – adjustments in yield made for plots having significant rabbit.

Location of the WREC: Latitude 48 8'; Longitude 103 44'W; Elevation 2105 ft.

Planted: May 14 on fallow.

Applied Fertilizer in lbs/a:0N:0P2O5:0K:

Soil Test to two feet in lbs/a:102N:23P:340K:16S. 1.8% OM pH-5.8

Soil Type: Williams-Bowbells Loam

Harvested: August 26

Harvested Area: 60 ft²

Trifluralin fall applied and incorporated gave good weed control.

Perry Miller Bozeman Montana Chickpea Variety Trial 2008

Yield @ 8.2% moisture CV = 11.5%

	maturity		height		dropped pods		total (incl. dropped pods)	
	days	cm	inch	kg/ha	lb/ac	kg/ha	lb/ac	
CA0090B347C	111	37	14.7	180	161	1544	1379	
CA0390B007C	117	37	14.7	567	506	1378	1231	
CA0469C020C	110	31	12.1	201	179	1577	1408	
CA0469C025C	110	32	12.6	147	131	1593	1423	
CA04900443C	113	34	13.5	590	527	1503	1342	
CA04900509C	111	31	12.1	641	572	1484	1325	
CA04900612C	113	41	16.3	334	298	1231	1099	
CA04900716C	114	38	15.0	177	158	1378	1231	
CA04900851C	112	41	16.0	163	146	1556	1390	
Dwelly	116	34	13.5	514	459	1062	948	
Sierra	112	37	14.6	328	293	1166	1041	
Troy	115	29	11.5	724	647	1191	1064	
LSD0.05	0.9	2	0.8	164	146	271	242	