

PROJECT TITLE: Statewide Spring Dry Pea Variety Evaluation

EXPERIMENT NO.: #800007

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OBJECTIVES: To evaluate commercially available varieties of spring-type dry pea for grain production potential in dryland environments.

METHODS: **CARC, Moccasin:** Thirteen (13) commercially available varieties of spring dry pea were evaluated and compared with four check varieties; Majoret, Stirling and Medora smooth green and Delta smooth yellow dry pea (Table 1). The trial was incorporated with the 2007 Western Regional Dry Pea Line Evaluation and was seeded no-till into re-crop barley stubble on 24 April 2007 (Table 2). The trial was harvested on 25 July 2007. **NARC, Havre:** Eleven (11) commercially available varieties were evaluated and compared with two check varieties (Majoret green and Delta yellow). In addition a different lot of Polstead (CEB-4132) from a local seed company was included in the evaluation (“PolsteadW/H”) The trial was seeded no-till into barley stubble on 24 April 2007 and the trial was harvested on 25 July 2007 (Table 2). Additional trial production methods and climatic information can be found in Table 2.

RESULTS: **CARC, Moccasin:** The crop year precipitation (Sept – Aug) started with the wettest October (2006) and 4th wettest May on record at CARC. However, starting the 20th June, drought-like conditions took hold of the area. July was the 2nd warmest and 5th driest on record. The dry pea trial averaged 1,362 pounds of dry pea production per acre (Table 3). Line IN-4179 yellow pea had the highest grain production (1,670 lbs acre⁻¹) but was not significantly different from Delta, Salute and line CEB-4152 (based on LSD_(0.05)). **Kernel Weights:** The 1,000-kernel weight averaged 192.5 grams (Table 3), with line CEB-4152 yellow pea having the largest seed size (228.1 g 1,000-kernels⁻¹), but was not larger than Line IN-4179 (based on LSD_(0.05)). The average test weight was 63.7 pounds per bushel (Table 3). Delta yellow pea had the highest test weight (65.0 lbs bu⁻¹), but was significantly similar to CDC Meadow. **Plant Heights:** Lines IN-4176 and IN-4179 yellow peas had the tallest grain maturity plant canopy heights (25.3”), but were not significantly taller than lines CEB-4152, Admiral, Marquee, and Noble (CEB-4149; Table 3). **NARC, Havre:** Dry pea yields (converted to 13% moisture) at Havre were excellent, averaging 2948 pounds per acre (Table 4). Polstead yellow pea produced the most (3,131 lbs acre⁻¹), but was only significantly greater than three (3) other varieties. **Test Weights:** Test weights for the trial averaged 64.6 pounds per bushel, with CDC Meadow yellow pea having the highest (66.0 lbs bu⁻¹), but was not significantly greater than Delta and SW Salute yellow peas (based on LSD_(0.05); Table 4). **Plant Heights:** CDC Sage green pea was the tallest variety at Havre (28.2 in) at grain harvest, but was not significantly taller than six other varieties evaluated (Table 4). **Physiological Maturity:** The green peas Cruiser and K2, along with Delta yellow pea, were the first varieties to reach flowering (Table 4), flowering on June 16th. Other valuable trial data are summarized in the two sites summary tables (Tables 3 & 4).

FUTURE PLANS: Dry pea lines will continue to be evaluated at Moccasin and Havre.

Table 1. 2007 Statewide Dry Pea Variety Evaluations - Variety Characteristic Table
-Exp. 80707SW. Central Ag. Research Center, Moccasin, MT

{File: 80707:CharactSW}

Variety	Color	Type	Size ^{1/}	Company Sponser
Majoret	Smooth Green	Food/Feed	Medium	CARC
Delta	Smooth Yellow	Food/Feed	Medium	CARC
DS Admiral	Smooth Yellow	Food/Feed	Medium	Pulse USA/Legume Logic
SW Midas	Smooth Yellow	Food/Feed	Medium	Pulse USA/Legume Logic
SW Marquee	Smooth Yellow	Food/Feed	Small	Pulse USA/Legume Logic
SW Salute	Smooth Yellow	Food/Feed	Medium	Pulse USA/Legume Logic
K2	Smooth Green	Food/Feed	Medium	Pulse USA/Legume Logic
Cruiser	Smooth Green	Food/Feed	Medium	Pulse USA/Legume Logic
Aragorn	Smooth Green	Food/Feed	Medium	Pulse USA/Legume Logic/ProGene
CEB-4152	Smooth Yellow	Food/Feed	Large	Montech/Limagrain Advanta
Polstead (CEB-4132)	Smooth Yellow	Food/Feed	Large	Montech/Limagrain/Farm Pure
Noble (CEB-4149)	Smooth Yellow	Food/Feed	Large	Montech/Limagrain/Farm Pure
IN-4176	Smooth Yellow	Food/Feed	Large	Montech/Limagrain Advanta
IN-4179	Smooth Yellow	Food/Feed	Large	Montech/Limagrain Advanta
CDC-Golden	Smooth Yellow	Food/Feed	Medium	Cahill Seeds
CDC-Meadow	Smooth Yellow	Food/Feed	Medium	Cahill Seeds
CDC-Sage	Smooth Green	Food/Feed	Medium	Cahill Seeds
CDC-Striker	Smooth Green	Food/Feed	Large	Cahill Seeds
Stirling	Smooth Green	Food/Feed	Small	USDA-ARS
Medora	Smooth Green	Food/Feed	Small	USDA-ARS

^{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 2. 2007 Statewide Dry Pea Variety Evaluations - Management summary.
-Exp. 800007. Central Ag Research Center, Moccasin, MT.

{File: 800007:Manage}

Field Summary	CARC	NARC
Environment:	Dryland	Dryland
Tillage History:	No-Till	No-Till
Previous Crop:	Spring Barley	Spring Barley
Soil Type:	Judith Clay-loam Fine-loamy; carbonatic Frigid Typic Calciustoll	Telstad Clay-loam Fine-Loamy; superactive Frigid Aridic Argiustoll
Elevation:	4300'	2740'
Trial Management		
Seeding Date:	4/24/2007	4/24/2007
Fertilizer:	None	None
Plot Dimensions:	5-rows x 11" spacing x 20'	4-rows x 12" spacing x 22'
Pesticides: (rates)		
	11/07/06: RT3(16oz/acre)+ProwlH ₂ O(2pt/acre)	None
	05/17/07: Assure II(10oz/acre)-Post Emerge	None
Harvest Date:	7/25/07	7/25/07
- Using a 5' plot harvester		
- At grain maturity		
Precipitation:	8.32" - 4/24 - 7/25, 2007 6.87" - 4/1 - 7/31 (98-Yr Ave)	5.36" - 4/24 - 7/25, 2007

Table 3. 2007 Satewide Dry Pea Variety Evaluations - Moccasin (CARC) Agronomic Summary
 -Exp: 800707. Central Agricultural Research Center, Moccasin, MT {FILE: 800007:SumSW}

Variety	Height	Yield	Moisture	*Yield 13%	Grain Weights	
					Test	Kernel
	cm	lbs/acre	%	lbs/acre	lbs/bu	g/1000
DS Admiral	24.5 ^a	1484	10.6	1823 ^a	62.9	195.4
SW Midas	21.9	1440	11.0	1707	62.6	175.5
SW Marquee	24.5 ^a	1393	10.9	1662	63.2	187.7
sw Salute	23.3	1608 ^a	11.2	1871 ^a	63.7	195.0
K2	20.4	1361	11.1	1595	63.3	194.2
Cruiser	22.4	1193	10.8	1441	62.4	180.8
Majoret	21.4	1290	11.5	1459	64.4	185.8
Delta	20.8	1627 ^a	12.1^a	1749 ^a	65.0^a	202.1
Polstead (CEB-4132)	18.2	1310	11.5	1479	64.0	213.2
CEB-4152	24.8 ^a	1548 ^a	11.1	1817 ^a	64.5	228.1^a
Noble (CEB-4149)	24.0 ^a	1355	11.1	1585	64.0	199.9
IN-4176	25.3^a	1413	11.1	1658	63.7	198.0
IN-4179	25.3^a	1670^a	11.3	1918^a	64.3	224.8 ^a
CDC Golden	22.4	1249	11.7 ^a	1387	64.2	185.5
CDC Meadow	23.3	1253	11.7 ^a	1393	64.6 ^a	171.6
CDC Sage	21.2	1157	11.6	1297	63.3	179.4
CDC Striker	23.4	1183	11.3	1357	64.2	198.7
Aragorn	21.7	1342	11.1	1581	62.8	187.9
Stirling	17.9	1360	11.0	1616	63.4	178.3
Medora	22.8	1007	11.6	1140	63.3	167.1
Means (n = 80)	22.5	1362	11.3	1577	63.7	192.5
LSD _{0.05} (by t)	1.8	170	0.5	205	0.5	11.2
CV% (s/means)	5.65	8.81	3.24	9.20	0.51	4.1
F-Value (19, 57 df)	11.1	8.0	4.1	8.1	19.7	16.7

^a - denotes values equal to the largest value (in **bold**) based on LSD_{0.05}.

⁺ - Yields were converted to a 13% grain moisture for comparisons with trial at NARC

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Table 4. 2007 Statewide Dry Pea Variety Evaluations - Havre (NARC) Agronomic Summary.
-Exp. 800207. Northern Ag Research Center, Havre, MT

{File: 800007:Havre}

Entry	Canopy Height	Grain ⁺ Yield	Test Weight	Grain Moisture	Flowering Date		Plant Count	Plant Stand
					Julian	Calendar		
	in	lb/a	lb/bu	%			per sq ft	%
Admiral	26.9 ^a	3061 ^a	63.2	9.1	169.0	Jun 19	6.29 ^a	95.8 ^a
Cruiser	27.3 ^a	2441	63.5	9.3	166.0 ^a	Jun 16	6.58 ^a	97.4 ^a
Delta	23.6	3008 ^a	65.7 ^a	10.5 ^a	166.3 ^a	Jun 16	7.29 ^a	94.8
Golden	27.3 ^a	3012 ^a	65.2	10.1	168.0	Jun 18	4.50	95.8 ^a
K2	22.9	2779	64.1	9.6	166.0 ^a	Jun 16	4.79	95.7 ^a
Majoret	23.6	2881 ^a	65.2	10.0	169.5	Jun 19	5.21	97.6 ^a
Marquee	27.7 ^a	2719	63.7	9.5	169.3	Jun 19	6.58 ^a	94.8
Meadow	27.8 ^a	3090 ^a	66.0 ^a	10.2 ^a	169.0	Jun 19	6.17 ^a	96.9 ^a
Midas	23.9	3122 ^a	64.2	9.8	170.0	Jun 20	6.38 ^a	94.8
Polstead	23.0	3123 ^a	65.0	10.2 ^a	167.0	Jun 17	5.54	95.3 ^a
PolsteadWH ^{1/}	22.7	3131 ^a	65.0	10.4 ^a	169.0	Jun 19	6.38 ^a	96.9 ^a
Sage	28.2 ^a	2993 ^a	63.6	9.5	169.8	Jun 19	6.08 ^a	97.7 ^a
Salute	22.2	3046 ^a	65.4 ^a	10.0	168.5	Jun 18	6.33 ^a	98.1 ^a
Striker	24.9 ^a	2867 ^a	65.0	9.8	169.5	Jun 19	6.00 ^a	97.0 ^a
Average	25.1	2948	64.6	9.9	168.3	Jun 18	6.01	96.3
LSD (p=0.05)	3.3	301	0.6	0.3	1.0		1.44	3.3
CV%	9.21	7.13	0.65	2.41	0.41		16.71	ns

⁺ - Grain yield is adjusted to 13 percent grain moisture content.^a - Denotes values equal to "best" value, either highest or lowest (in **bold**), based on LSD_{0.05}.^{1/} - Variety given to NARC for testing as "CEB-4132" by Wildhorse Seeds of Havre; CEB-4132 is Polestead**DISCLAIMER**

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