

PROJECT TITLE: Statewide evaluation of dry pea variety performance (Montana Statewide Dry Pea Performance Trial).

EXPERIMENT NO: #80

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OBJECTIVES:

To evaluate the performance of dry pea varieties under different climatic and cropping conditions across Montana.

METHODS:

The 2001 Montana Statewide Dry Pea Performance Trial (SPPT) included seven dry pea varieties, established at four dryland sites (Sidney, Moccasin, Huntley, and Conrad) and one irrigation site (Conrad). Entries ranged in color, seed size, vine length, and leaf type (**Table 1**). The trial was seeded during the last two weeks of April (May 3rd at Sidney) into a range of cropping conditions (**Table 2**). Grain harvest occurred from the middle of July through the first of August. Other important production methods for each testing site are summarized in **Table 2**.

RESULTS:

Drought-like conditions persisted into the 2001 cropping year across much of Montana. Below normal growing season precipitation was recorded at all sites, with Sidney being the exception. However, Sidney had below normal moisture conditions at seeding and received much above normal precipitation in June. The Conrad-dryland site received only 2.28 inches of crop-year precipitation (April 26th - July 25th), of which 1.53 inches fell in June. The irrigated site at Conrad was abandoned due to a severe kochia (*K. scoparia*) weed infestation and deer pressures.

Dry Pea Grain Yields: Statewide, dry pea grain production averaged 1,326 pounds per acre (22.1 bu/acre) with Eclipse (formally identified as CEB 1475) having the highest statewide average grain yield, averaging 1,588 pounds per acre (26.5 bu/acre; **Table 3**). Espace and Majoret green peas had statistically similar (at 5% level) statewide average yields to Eclipse. With the exception to the Sidney site, there were no dry pea varieties that had significantly more grain production at each site. Dry pea yields at the Conrad dryland site were severely impacted by the drought-like conditions there.

Kernel Weights: One thousand kernel weights at Moccasin ranged from 127 grams up to 231 grams for Trapper yellow and Toledo green peas, respectively (**Table 4**). Statewide, dry pea test weights ranged from 63.2 pounds up to 65.7 pounds per bushel, averaging 64.5 pounds per bushel (**Table 4**). Dry pea test weights were highest at the Moccasin test site.

Plant Heights: Plant heights taken during different times of plant development and at maturity varied from site to site (**Table 5**). Vine length was the only consistent measurement from site to site. Trapper yellow pea and Granger Austrian winter pea had the longest vine lengths.

Flowering Dates: Swing yellow pea, was the earliest variety to flower and mature (**Table 6**). First flower dates were later at Moccasin. To compensate for the late start of the Moccasin site, further dry pea development was related to days from first flower. Pod formation occurred 5 days past flowering. Twelve days from flowering pods began filling with peas. Physiological maturity occurred three weeks from first flower (21 days) and grain maturity (harvest) occurred between four and six weeks from flowering (33 - 45 days).

Quality Data: In 2001, composite grain samples from Moccasin and Huntley were sent for grain protein content analysis. Trapper yellow pea contained the highest grain protein content at both sites (**Table 7**). Since 1999, the average dry pea grain protein has averaged 25.9% with Trapper and Victoria yellow pea consistently having the best grain protein contents (28.3% and 27.7%, respectively).

SPPT Multi-Year (1998-2001) Summary: Statewide dryland dry pea grain yields from 1999 through 2001 have averaged 1,457 pounds per acre (24.3 bu/acre), with Sidney-dryland (1,791 lbs/acre) having the highest four-year average dryland yield (**Table 8**). Statewide, Carrera yellow pea, with an average dry pea production of 1,919 pounds per acre, along with Eclipse and Victoria yellow peas (equal to Carrera at 5% level), has been the best dry pea grain producer under dryland environments (**Table 9**). Espace green pea (1,904 lbs/acre) has been the top producing green pea variety (not significant at 5% level). In two years of irrigated trials at Conrad, Swing yellow pea had the best performance, however was only significantly better than Carrera yellow, Melrose Austrian winter and Trapper small yellow peas.

FUTURE RESEARCH:

Variety trials will continue on a statewide basis to evaluate dry pea varieties for adaptation in different Montana climates and to provide a more comprehensive statewide dry pea database.

Table 1. 2001 Montana Statewide Dry Pea Performance Trial - Dry pea variety characteristics summary. - Exp. 800001. Central Agricultural Research Center, Moccasin, Montana. **{File: 800001-Character}**

Variety	Seed Source	Pea Type	Useage	Seed Size ^{2/}	Vine Length	Leaf Type
Eclipse ^{1/}	Cebeco-Zaden	Smooth Yellow	Food/Feed	Very Large	Semi-dwarf	Semi-leafless
Swing	Cebeco-Zaden	Smooth Yellow	Food/Feed	Medium	Semi-dwarf	Semi-leafless
Trapper	Public	Smooth Yellow	Feed/Forage	Small	Tall	Normal
Espace	Cebeco-Zaden	Smooth Green	Food/Feed	Medium	Semi-dwarf	Semi-leafless
Majoret	Legume Logic	Smooth Green	Food/Feed	Medium	Semi-dwarf	Semi-leafless
Toledo	Cebeco-Zaden	Smooth Green	Food/Feed	Very Large	Semi-dwarf	Semi-leafless
Granger	Public	Austrian winter	Forage	Small	Tall	Semi-leafless

^{1/} - Eclipse was CEB 1475 in previous trials.

^{2/} - Seed Size Ranges (g/1000 seeds) : Very Large = >290-295
Large = 250-290

Medium = 190-250
Small = <190

Table 2. 2001 Montana Statewide Dry Pea Performance Trial - Testing site trial production summary.
 - Exp. 800001. Central Agricultural Research Center, Moccasin, Montana. **{File: 800001-SiteInfo}**

Testing Site:	Sidney	Moccasin	Huntley	----- Conrad -----	
Field Summary					
Environment:	Dryland	Dryland	Dryland	Dryland	Irrigated
Tillage History:	Conventional	No-Till	Conventional	Conventional	Conventional
Previous Crop:	Fallow	Barley	Fallow	Barley	Barley
Trial Management					
Seeding Date:	5/03	4/17	4/19	4/26	4/26
Harvest Date:	8/09 - 8/15	7/20 - 8/01	7/26	7/23 - 7/30	
Timing: ^{1/}	Maturity	Maturity	All	Maturity	----- Abandoned -----
Fertilizer: (lbs/ac)	None	None	18-46-0 (100)	11-52-0 + potash (58)	
Method: ^{2/}			Pr-P Incorp	Top-dress @ seeding	
Pesticides:(rates)	Hand Weed	Assure II (8oz/ac) Hand Weed	Prowl (2pt/ac) RoundUp (1pt/ac)	None	
Method: ^{2/}		Malathion (2pt/a) Po-E	Pr-E		
Precipitation: ^{3/}	16.43"	7.34"	7.90"	2.28"	-----
Elevation:	2200'	4300'	2990'	3700'	3700'

^{1/} - Harvest was conducted at variety maturity ("Maturity"), or all varieties at same time ("All").

^{2/} - Pr-P = Pre-Plant; Pr-E = Pre-Emergence; Po-E = Post-Emergence; Incorp = Incorporated.

^{3/} - Precipitation from seeding to grain maturity (Apr-Aug - Sidney; Apr-swath - Conrad).

Table 3. 2001 Montana Statewide Dry Pea Performance Trial - Statewide dry pea grain yield summary.
 - Exp. 800001. Central Agricultural Research Center, Moccasin, MT. **{File: 800001- GrainYield}**

Variety	Type	Sidney	Moccasin	Huntley	----- Conrad ^{1/} -----	Statewide Average
		----- Dryland Sites -----				Irrigated ^{2/}
(lbs / acre)						
Eclipse ^{3/}	Yellow	1,961 ^a	1,865 ^a	1,862 ^a	663 ^a	1,588 ^a
Espace	Green	1,216	1,698 ^a	1,896 ^a	719 ^a	1,382 ^a
Majoret	Green	1,322	1,792 ^a	1,750 ^a	579 ^a	1,361 ^a
Toledo	Green	1,255	1,850 ^a	1,647 ^a	482	1,308
Swing	Yellow	966	1,775 ^a	1,891 ^a	477	1,277
Granger	Austrian winter	1,412	1,600 ^a	1,484	480	1,244
Trapper	Yellow	1,059	1,329	1,443	642 ^a	1,118
Site Means		1,313	1,701	1,710	578	1,326
LSD (0.05 by t)		277	433	333	218	275
C.V. % (s / means)		14.2	14.32	13.09	25.31	13.95
F-Value (variety; df = 6)		**	1.79 ^{ns}	2.19 [*]	1.88 ^{ns}	2.44 [*]

^{ns} - Indicates no statistical significance at 0.10 level. - Indicates statistical significance at 0.10 level.

** - Indicates statistical significance at 0.05 level.

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

^{1/} - Conrad-dryland testing site encountered severe drought conditions.

^{2/} - Conrad-irrigated testing site was abandoned due to severe weed infestation and deer pressures.

^{3/} - Eclipse yellow pea, in past Statewide Dry Pea Performance Trials, was Selection "CEB 1475".

Table 4. 2001 Montana Statewide Dry Pea Performance Trial - Dry pea kernel and test weight summary.
 - Exp. 800001. Central Agricultural Research Center, Moccasin, Montana. **{File: 800001- SeedWts}**

Variety	Type	Kernel Weight		Test Weight		
		Moccasin	Sidney	Huntley	Average	
		(g/1,000 seeds)	(lbs/bushel)			
Toledo	Green	231.2^a	65.0	62.8	61.8	63.2
Eclipse	Yellow	227.7 ^a	67.2 ^a	62.8	63.7	64.6 ^a
Majoret	Green	222.0	67.1 ^a	62.7	65.3^a	65.7^a
Swing	Yellow	210.9	66.5	63.0	62.9	64.1 ^a
Espace	Green	189.4	67.1 ^a	62.7	63.0	64.3 ^a
Granger	Austrian winter	148.1	67.5^a	64.6^{ns}	64.1	65.4 ^a
Trapper	Yellow	127.1	66.2	63.0	64.2	64.5 ^a
Means (n = 21)		193.8	66.6	63.1	63.6	64.5
LSD (0.05 by t)		8.5	0.7	ns	0.8	1.8
C.V. % (s/means)		2.47	0.57	2.0	0.84	1.60
F-Value (variety; df = 6)		223.1 ^{**}	14.7 ^{**}	ns	11.91 ^{**}	1.92 ^{ns}

^{ns} - Indicates no statistical significance at 0.10 level. * - Indicates statistical significance at 0.10 level.

^{**} - Indicates statistical significance at 0.05 level.

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

Table 5. 2001 Montana Statewide Dry Pea Performance Trial - Dry pea canopy heights and vine lengths.
 - Exp. 800001. Central Agricultural Research Center, Moccasin, Montana. **{File: 800001- PlantHts}**

Variety	Type	Moccasin		Huntley		Sidney
		- Plant Canopy Height - Phys. ^{1/}	Vine Length ^{2/}	- Plant Canopy Height - Pod Fill	Vine Length	- Plant Canopy Height - Mature
(inches)						
Eclipse	Yellow	18.0	16.8	19.0	18.5	18.8
Espace	Green	19.8 ^a	17.0 ^a	20.8	20.5	20.8 ^a
Majoret	Green	17.7	17.7 ^a	18.8	22.8	23.5^a
Swing	Yellow	19.0 ^a	18.2 ^a	21.0	23.5^{ns}	21.5 ^a
Toledo	Green	20.8 ^a	20.8^a	21.7	20.8	21.0 ^a
Trapper	Yellow	17.5	12.3	32.3^a	18.7	21.9 ^a
Granger	AWP	23.9^a	15.8	29.3 ^a	21.5	19.0 ^a
Site Means		19.5	17.0	23.3	20.9	20.9
LSD (0.05 by t)		5.2	4.0	4.6	8.6	4.5
C.V. % (s / means)		14.86	13.26	11.04	27.62	14.40
F-Value (variety; df = 6)		1.86 ^{ns}	3.92 ^{**}	12.98 ^{**}	0.35 ^{ns}	0.95 ^{ns}

^{ns} - Indicates no statistical significance at 0.10 level. * - Indicates statistical significance at 0.10 level.

^{**} - Indicates statistical significance at 0.05 level.

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

^{1/} - Plant physiological maturity, determined by visual onset of plant dry-down, approx. 1-week past pod-fill.

^{2/} - Vine length at physiological maturity.

Table 6. 2001 Montana Statewide Dry Pea Performance Trial - Dry pea flower, pod formation, pod-fill and maturity dates summary.
 - Exp. 800001. Central Agricultural Research Center, Moccasin, Montana.

{File: 800001- Dates}

Variety	1 st Flower					Pod ^{1/}	----- Pod Fill -----			Phys. ^{2/}	Swath ^{3/}	----- Grain Harvest -----			
	Mocc.	Huntley	Sidney	Conrad	Ave.		-- Moccasin --	Huntley	Ave.			Mocc.	Conrad	Mocc.	Sidney
	----- (days from seeding) -----						----- (days from 1 st flower) -----					----- (days from 1 st flower) -----			
Eclipse	65	55	54 ^a	61 ^a	59 ^a	6	13	12	13 ^a	18	29	34	44	42	38
Espace	66	55	55	61 ^a	59 ^a	4	12	13	13 ^a	19	27	31	49	42	37
Swing	62^a	58	53^a	61 ^a	58^a	6	14	11	13^a	21	27	34	45	39	37
Toledo	65	52^{ns}	53^a	61 ^a	61	5	15	14	15 ^a	20	29	34	45	45	40 ^{ns}
Majoret	68	56	58	61 ^a	59 ^a	5	12	13	13 ^a	19	28	33	40	41	37
Trapper	69	55	59	67	63	5	10	12	11	21	26	34	45	42	37
Granger	72	57	62	67	65	6	11	11	11	21	26	34	42	40	38
Site Means	67	55	56	63	60	5	12	12	12	19	27	33	45	42	38
LSD (0.05 by t)	1.5	7	1	< 1/2	2.8				2						3
F-Value (df=6)	43.0 ^{**}	0.35	**	945 ^{**}	6.71 ^{**}				3.0 [*]						1.4 ^{ns}

^{ns} - Indicates no statistical significance at 0.10 level.

* - Indicates statistical significance at 0.01 level.

** - Indicates statistical significance at 0.05 level.

^a - Denotes values equal to earliest date or greatest number of days based on LSD_(0.05). Values in **bold** represent earliest variety at each site.

^{1/} - Onset of pod formation.

^{2/} - Plant physiological maturity, determined by the visual onset of plant dry-down.

^{3/} - Day of dry pea swathing (harvest) at Conrad-dryland site.

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Table 7. 2001 Statewide Pea Performance Trial - Multi-year (1999-2001) dry pea seed quality summary.
 - Exp. 80. Central Agricultural Research Center, Moccasin, Montana. **{File: 800001 - Quality}**

Variety	Sidney Conrad		Denton	----- Moccasin -----				---- Huntley ----			Multi-yr		
	----- 1999 -----	----- 2000 -----	2000	1999	2000	2001	Ave	2000	2001	Ave	Ave		
Site-Years:											3	2	8
----- (% Protein, dmb) -----													
Trapper	25.1	24.6	30.5	30.4	29.2^a	28.5^a	29.4^{a(3)}	34.1	24.0	29.1^{a(2)}	28.3^{a(8)}		
Victoria	23.8	27.5	27.7	29.3	28.4 ^a	-----	28.7 ^{a(2)}	-----	-----	-----	27.7 ^{a(5)}		
Explorer	23.0	25.9	27.1	28.7	28.4 ^a	-----	28.4 ^{a(2)}	-----	-----	-----	27.0 ⁽⁵⁾		
Majoret	22.5	25.0	26.9	30.5	28.3 ^a	27.0	28.6 ^{a(3)}	31.8	21.5	26.7 ^{a(2)}	26.7 ⁽⁸⁾		
Toledo	22.2	25.9	25.8	28.5	26.2	27.3	27.3 ⁽³⁾	29.8	21.3	25.6 ⁽²⁾	25.9 ⁽⁸⁾		
Grande	22.5	23.2	26.1	27.7	27.2	-----	27.3 ⁽²⁾	-----	-----	-----	25.9 ⁽⁵⁾		
Granger	21.1	24.8	-----	25.9	-----	26.7	26.1 ⁽²⁾	-----	22.3	27.2 ^{a(1)}	25.5 ⁽⁵⁾		
Swing	-----	-----	-----	-----	24.6	26.3	25.8 ⁽²⁾	30.5	20.1	25.3 ⁽²⁾	24.9 ⁽⁴⁾		
Espace	18.8	21.4	23.8	27.4	25.9	26.3	26.5 ⁽³⁾	30.9	18.7	24.8 ⁽²⁾	24.2 ⁽⁸⁾		
Eclipse	20.1	21.8	23.5	25.7	25.0	25.4	25.4 ⁽³⁾	27.0	19.7	23.4 ⁽²⁾	23.5 ⁽⁸⁾		
Means (n =)	22.2 ⁽⁹⁾	24.4 ⁽⁹⁾	26.4 ⁽⁸⁾	28.5 ⁽¹⁸⁾	26.9 ⁽¹⁸⁾	26.8 ⁽¹⁴⁾	27.4 ⁽³⁰⁾	30.5 ⁽⁶⁾	21.1 ⁽⁷⁾	26.0 ⁽¹⁴⁾	25.9 ⁽⁸⁰⁾		
LSD (0.05 by t)					1.7	1.1	1.4				3.1	1.0	
C.V. % (s / means)					2.77	2.30	2.89				4.62	3.82	
F-value (for Variety)					9.04 ^{**}	7.35 [*]	9.29 [*]				4.70 ^{**}	18.8 ^{**}	

** - Indicates statistical differences at 0.05 level.

^a - Denotes values equal to highest value based on LSD_(0.05).

Table 8. 2001 Statewide Dry Pea Performance Trial - Multi-year dry pea yield summary for each location.^{1/}
 - Exp. 80. Central Agricultural Research Center, Moccasin, Montana **{File: 800001 - Multi-year}**

Site	Location	Environment	Dry Pea Grain Yield	
			(lbs/acre)	(bu/acre)
Sidney	Eastern Ag. Research Center	Dryland	1,791^a	29.85
Huntley	Southern Ag. Research Center	Dryland	1,695 ^a	28.25
Moccasin	Central Ag. Research Center	Dryland	1,570	26.17
Havre	Northern Ag. Research Center	Dryland	1,432	23.87
Conrad	Western Triangle Ag. Research Center	Dryland	1,238	20.63
Denton	Barber Seeds	Dryland	1,019	16.98
Conrad	Western Triangle Ag. Research Center	Irrigated ^{2/}	3,738	62.30
Means (n = 72)			1,457	24.28
LSD (0.05 by t)			218	3.63
C.V. % (s/means)			18.22	
F-value (df = 5)			14.34 ^{**}	

** - Indicates statistical significance at 0.05 level.

^a - Denotes locations not significantly different from each other based on LSD_(0.05).

^{1/} - Analysis performed on those varieties entered in the SPPT trial for two or more years from 1998-2001.

^{2/} - Conrad-irrigated site was not include in the analysis, but is reported for informational purposes.

Table 9. Multi-year (1998-2001) summary of (A) variety/Trapper comparison and (B) average pea grain yields.^{1/}
 - Exp. 800001. Central Agricultural Research Center, Moccasin, MT **{File: 800001 – Multi-year}**

A:											
----- Dryland Sites -----								----- Irrigated Sites -----			
Variety	Havre	Sidney	Mocc	Huntley	Conrad	Denton	Ave	Creston	Conrad	Corvallis	Ave
Site-Years:	2	4	4	2	4	3	19	1	2	1	4
----- (% of Trapper field pea) -----											
Trapper	100	100	100	100	100	100	100	100	100	100	100
Carrera	140	151	184	----	153	246	178	281	107	146	176
Eclipse	121	137	133	138	122	179	137	----	152	----	158
Grande	127	120	162	----	98	170	135	194	148	129	154
Victoria	83	122	149	----	108	165	128	----	133	----	138
Explorer	104	111	138	----	114	170	127	----	145	----	150
Espace	123	118	122	137	90	176	125	----	140	----	145
Toledo	120	117	135	116	88	166	120	----	134	----	140
Majoret	90	117	127	125	86	166	118	----	141	----	146
Swing	106	95	145	109	73	----	113	----	157	----	162
Melrose	88	104	126	----	90	91	100	81	96	95	89
Granger	91	110	101	102	84	76	100	90	128	63	93
Means (n)	107 ⁽²⁴⁾	117 ⁽⁴⁸⁾	135 ⁽⁴⁸⁾	118 ⁽¹⁴⁾	101 ⁽⁴⁸⁾	155 ⁽³³⁾	121 ⁽²²⁸⁾	149 ⁽⁵⁾	132 ⁽²⁴⁾	107 ⁽⁵⁾	138 ⁽⁴⁸⁾
LSD _{0.05}	ns	26	27	ns	39	Ns	17		ns		54
CV%	17.5	14.7	13.3	13.4	25.9	37.7	21.02		15.5		25.9
F-Value	1.8 ^{ns}	3.2 ^{**}	6.9 ^{**}	1.9 ^{ns}	2.7 ^{**}	2.1 ^{ns}	7.2 ^{**}		2.0 ^{ns}		2.5 ^{**}

B:											
Variety	Havre	Sidney	Mocc	Huntley	Conrad	Denton	Ave	Creston	Conrad	Corvallis	Ave
Site-Years:	2	4	4	2	4	3	19	1	2	1	4
----- (lbs/acre) -----											
Carrera	1,852 ⁽¹⁾	2,343 ⁽²⁾	2,034 ⁽²⁾	----	1,618 ⁽²⁾	1,356 ⁽²⁾	1,891 ⁽⁹⁾	3,625 ⁽¹⁾	2,536 ⁽¹⁾	2,473 ⁽¹⁾	3,111 ⁽³⁾
Eclipse	1,586 ⁽¹⁾	1,999 ⁽³⁾	1,563 ⁽³⁾	1,853 ⁽²⁾	1,154 ⁽³⁾	1,213 ⁽²⁾	1,536 ⁽¹⁴⁾	----	4,146 ⁽²⁾	----	3,494 ⁽²⁾
Grande	1,661 ⁽²⁾	1,840 ⁽³⁾	1,854 ⁽³⁾	----	990 ⁽³⁾	1,067 ⁽³⁾	1,518 ⁽¹⁴⁾	2,499 ⁽¹⁾	4,185 ⁽¹⁾	2,178 ⁽¹⁾	3,262 ⁽³⁾
Victoria	1,105 ⁽¹⁾	1,863 ⁽²⁾	1,763 ⁽²⁾	----	1,138 ⁽²⁾	1,049 ⁽²⁾	1,460 ⁽⁹⁾	----	3,851 ⁽²⁾	----	3,199 ⁽²⁾
Espace	1,612 ⁽¹⁾	1,825 ⁽³⁾	1,436 ⁽³⁾	1,839 ⁽²⁾	1,044 ⁽³⁾	1,128 ⁽²⁾	1,455 ⁽¹⁴⁾	----	3,824 ⁽²⁾	----	3,172 ⁽²⁾
Explorer	1,370 ⁽¹⁾	1,671 ⁽²⁾	1,624 ⁽²⁾	----	1,209 ⁽²⁾	998 ⁽²⁾	1,425 ⁽⁹⁾	----	3,994 ⁽²⁾	----	3,342 ⁽²⁾
Toledo	1,468 ⁽¹⁾	1,799 ⁽³⁾	1,610 ⁽³⁾	1,568 ⁽²⁾	996 ⁽³⁾	963 ⁽²⁾	1,394 ⁽¹⁴⁾	----	3,744 ⁽²⁾	----	3,093 ⁽²⁾
Majoret	1,194 ⁽¹⁾	1,793 ⁽³⁾	1,494 ⁽³⁾	1,687 ⁽²⁾	1,084 ⁽³⁾	1,018 ⁽²⁾	1,392 ⁽¹⁴⁾	----	3,697 ⁽²⁾	----	3,045 ⁽²⁾
Swing	1,391 ⁽¹⁾	1,523 ⁽²⁾	1,741 ⁽²⁾	1,487 ⁽²⁾	962 ⁽²⁾	----	1,348 ⁽⁹⁾	----	4,177 ⁽¹⁾	----	3,478 ⁽¹⁾
Melrose	1,138 ⁽¹⁾	1,586 ⁽²⁾	1,476 ⁽²⁾	----	1,016 ⁽²⁾	691 ⁽²⁾	1,238 ⁽⁹⁾	1,043 ⁽¹⁾	2,097 ⁽¹⁾	1,613 ⁽¹⁾	1,818 ⁽³⁾
Granger	1,187 ⁽¹⁾	1,659 ⁽³⁾	1,222 ⁽³⁾	1,366 ⁽¹⁾	888 ⁽³⁾	607 ⁽¹⁾	1,171 ⁽¹²⁾	1,189 ⁽¹⁾	3,464 ⁽¹⁾	1,070 ⁽¹⁾	2,141 ⁽³⁾
Trapper	1,315 ⁽²⁾	1,541 ⁽⁴⁾	1,194 ⁽⁴⁾	1,351 ⁽²⁾	1,005 ⁽⁴⁾	634 ⁽³⁾	1,168 ⁽¹⁹⁾	1,291 ⁽¹⁾	3,035 ⁽²⁾	1,693 ⁽¹⁾	2,263 ⁽⁴⁾
Means ^{1/} (n)	1,407 ⁽²⁴⁾	1,787 ⁽⁴⁸⁾	1,584 ⁽⁴⁸⁾	1,593 ⁽¹⁴⁾	1,092 ⁽⁴⁸⁾	975 ⁽²⁷⁾	1,457 ⁽²²⁸⁾	1,929 ⁽⁵⁾	3,562 ⁽²⁴⁾	1,805 ⁽⁵⁾	2,952 ⁽⁴⁸⁾
LSD _{0.05}	ns	337	256	ns	354	518	129		1,000		920
CV%	16.7	12.7	10.8	12.7	21.6	28.2	14.1		11.9		20.68
F-Value	2.0 ^{ns}	4.0 ^{**}	8.2 ^{**}	2.1 ^{ns}	2.6 ^{**}	2.3 ^{ns}	4.4 ^{**}		5.1 ^{**}		3.32 ^{**}
Trial Mean	1,392	1,771	1,554	1,573	912	973	1,358	2,011	3,518	1,802	2,712

^{ns} - Indicates no statistical significance at 0.10 level. ^{**} - Indicates statistical significance at 0.05 level.
^{1/} - Statewide averages are calculated and account for missing data points.