

PROJECT TITLE: Evaluation of fall seeded winter pea and lentil line performance.

EXPERIMENT NOs: #820701; 840701

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OBJECTIVES: To evaluate winter hardiness of fall seeded Austrian winter pea, dry pea, and lentil lines.

METHODS: Winter pea and winter lentil trials were seeded September 22, 2000 into chem-fallow winter wheat stubble. The winter pea trial consisted of 12 early maturing (EB) Austrian winter pea lines from the world population and five winter pea lines from the USDA-ARS dry pea breeding program at Pullman, Washington. The winter lentil trial consisted of six winter lentil lines from the USDA-ARS program. Fall and spring seedling counts were conducted on April 26 and 27, 2001. Fall growth was determined as visible frost damage (brown or dead) of plant tissue; spring growth was determined as green growth. On April 22nd, a misapplication of Roundup was applied to the field. The peas and lentil's growth were severely stunted and the trial was abandoned. No fertilizer was applied to the trial.

RESULTS: Compared to the winter pea lines, the Austrian winter pea lines tended to have higher winter survivals (not analyzed, **Table 35A**). Among the winter pea lines, no significant difference in winter survival was observed (**Table 35B**). Compared with Melrose, line PS9530645 was significantly less winter hardy (based on LSD_{0.05}). Among the winter lentil lines, line WA869041 appeared to have the best winter survival, but was not significantly better than two other lines (**Table 35C**). Winter lentil line LC9440070 appeared to have the lowest winter survival.

FUTURE PLANS:

Winter pulses fit well into dryland cropping systems in Montana. Future line evaluations will continue.

Table 35. 2001 Winter Pulse Survival Study - Winter survival of Austrian winter peas, winter peas and lentils. -Exp. 82-840701. Central Agricultural Research Center, Moccasin, MT. **{File- 820701:Summary}**

Selection	Pea Type	Survival (%)	Comparison (% Melrose)	Selection	Type	Survival (%)	Comparison (% Melrose)
A: Austrian Winter Peas				B: Winter Peas			
World Pop.	Austrian winter	97.4	91.5	Melrose	Austrian winter	107.5	100.0
Melrose	Austrian winter	107.5	100.0	PS9430706	Winter Yellow	79.9	76.6
PS9430706	Winter Yellow	79.9	76.6	PS9530645	Winter Yellow	56.2	55.7 ^b
PS9530645	Winter Yellow	56.1	55.6 ^b	PS9530726	Winter Green	86.7	82.1
PS9530726	Winter Green	86.7	82.1	PS9630427	Winter Yellow	100.2	93.8
PS9630427	Winter Yellow	100.1	93.9	PS9630437	Winter Yellow	103.9	97.5
PS9630437	Winter Yellow	103.8	97.5	Means (n = 24)		89.0	84.3
MT98EB01	Austrian winter	93.3	86.4	LSD (0.05 by t)		ns	38.6
MT98EB02	Austrian winter	105.0	98.5	C.V. % (s / means)		21.4	17.8
MT98EB03	Austrian winter	113.6	105.7	C: Winter Lentils			
MT98EB06	Austrian winter	111.1	103.6	Toni	Small Winter Red	59.9	100.0
MT98EB12	Austrian winter	126.8	115.6	WA8649041	Small Winter Red	86.4 ^a	141.1
MT98EB18	Austrian winter	109.1	101.9	WA8649090	Small Winter Green	35.4	66.4
MT98EB35	Austrian winter	109.2	103.3	LC9440070	Med. Winter Green	13.8	16.2 ^b
MT98EB39	Austrian winter	102.3	96.7	LC9977019	Med. Winter Green	74.9 ^a	135.2
MT98EB48	Austrian winter	108.4	101.6	LC9977116	Med. Winter Green	38.1	62.3
MT98EB73	Austrian winter	100.9	94.7	LC9979016	Small Winter Green	70.1 ^a	129.1
Means (n = 68)		100.7	94.4	Means (n = 28)		54.1	92.9
LSD (0.05 by t)		ns	32.0	LSD (0.05 by t)		21.9	50.8
C.V. % (s / means)		18.02	15.98	C.V. % (s / means)		25.7	34.71

ns - Indicates no statistical significance at 0.10 level.

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

^b - Denotes values significantly different from Melrose and Toni (in **bold**) based on LSD(0.05).