

PROJECT TITLE: Off-station durum variety evaluations in Montana - 2007

PROJECT LEADER: Joyce Eckhoff, MSU Eastern Agricultural Research Center,
Sidney, MT
phone: (406)433-2208 e-mail: jeckhoff@sidney.ars.usda.gov

PROJECT PERSONNEL:

Site	Producers	CES/AES cooperators
Turner	Max Cedererg	Gregg Carlson, NARC
North Havre	Mark Petersen	Gregg Carlson, NARC
Loma	Terry McKeever	Gregg Carlson, NARC

OBJECTIVE: To evaluate varieties of durum under irrigated and dryland conditions at various sites in Montana.

RESULTS:

Turner (dryland, no-till): Performance of durum varieties grown at Turner are shown in Table 1. MT02525 yielded most.

North Havre (dryland, no-till): Performance of durum varieties grown at North Havre are shown in Table 2. Strongfield and MT02525 yielded most.

Loma (dryland, no-till): Performance of durum varieties grown at Loma are shown in Tables 3. Alzada yielded most.

Summaries of heights, test weights, protein contents, yields and sawfly damage across sites are shown in Tables 4-8. MT02525 yielded most across sites.

SUMMARY: Off-station yield trials are conducted at several sites in northern and eastern Montana. All experiments reported under this project are of the replicated small plot type. These trials provide important information about performance of experimental lines and varieties from Montana, other states, and private companies. Regional durum producers make decisions on varieties to grow based on data from these trials.

FUTURE PLANS: Off-station durum yield trials will continue indefinitely. Expansion to other locations in future years is possible.

Table 1. 2007 off-station durum yield trial - Turner, no-till

entry	stand	height, inches	height, cm	moisture, percent	protein, percent	test wt, lb/bu	yield, bu/acre	sawfly
MT02525	99.3	19.4	49.2	11.3	17.9	56.8	26.1	3.67
Grenora	99.0	22.1	56.0	11.2	17.4	55.7	25.6	33.33
Alzada	98.6	22.0	55.9	11.0	17.8	56.1	25.2	6.67
MT02DH82	99.7	19.0	48.4	11.6	16.4	58.7	24.8	3.67
MT03012	99.7	20.4	51.7	11.3	18.7	55.0	24.3	11.67
Strongfield	98.6	21.8	55.2	11.1	19.8	56.1	24.0	10.00
Alkabo	99.7	20.5	52.0	11.5	17.8	57.5	22.5	25.00
Mountrail	99.7	21.5	54.6	11.0	19.0	56.1	22.3	25.00
Lebsock	96.9	25.8	65.6	11.4	18.1	57.7	20.2	20.00
Divide	96.6	22.4	57.0	11.2	18.2	56.7	20.0	13.33
Pierce	97.9	22.3	56.7	11.2	18.3	57.6	20.0	21.67
MT02DH55	99.3	22.2	56.5	11.1	18.7	55.6	19.2	30.00
average	98.7	21.6	54.9	11.3	18.2	56.6	22.8	17.00
CV (S/mean)	1.7	9.6	9.6	1.5		0.5	12.6	28.1
CV (SE/mean)	1.0	5.5	5.5	0.9		0.3	7.3	16.2
LSD 0.05	2.8	3.5	8.89	0.3		0.5	4.9	8.09

Table 2. 2007 off-station durum yield trial - North Havre, no-till

entry	stand	height, inches	height, cm	moisture , percent	protein, percent	test wt, lb/bu	yield, bu/acre	sawfly
Strongfield	97.8	30.1	76.4	8.2	16.8	57.1	46.3	1.00
MT02525	100.0	24.0	60.9	8.8	15.5	59.4	46.3	1.00
MT02DH82	98.8	23.1	58.7	9.0	14.5	61.4	45.9	1.00
Mountrail	96.3	29.0	73.8	8.2	16.7	56.5	45.1	5.00
Alzada	97.8	25.4	64.4	8.3	15.4	58.6	44.0	2.33
Alkabo	97.2	28.9	73.4	8.5	16.1	58.5	43.7	11.67
Divide	97.2	28.6	72.6	8.4	15.8	58.1	42.1	4.00
MT02DH55	96.6	26.6	67.5	8.0	16.7	56.2	41.6	6.67
Grenora	98.5	27.0	68.6	8.3	16.2	57.6	40.9	10.00
Pierce	97.8	30.1	76.4	8.6	15.5	59.2	40.7	5.33
MT03012	98.1	25.1	63.7	8.5	16.5	57.9	40.0	5.00
Lebsock	98.8	28.8	73.1	8.6	16.6	58.6	33.8x	7.00
average	97.9	27.2	69.1	8.5	16.0	58.3	42.6	5.00
CV (S/mean)	1.7	5.3	5.3	1.7		1.5	8.4	81.3
CV (SE/mean)	1.0	3.1	3.1	1.0		0.9	4.8	46.9
LSD 0.05	2.8	2.4	6.2	0.3		1.5	6.1	6.88

x indicates significantly lower yield than check variety, Mountrail

Table 3. 2007 off-station durum yield trial - Loma, no-till

entry	stand	height, inches	height, cm	moisture, percent	protein, percent	test wt, lb/bu	yield, bu/acre
Alzada	99.7	27.4	69.6	6.7	18.0	54.8	33.4
Alkabo	100.0	28.6	72.8	6.8	18.8	55.9	32.0
MT02525	100.0	25.2	64.0	6.9	18.7	56.0	31.6
MT03012	99.3	26.5	67.3	6.7	18.9	55.0	31.4
Mountrail	100.0	28.8	73.3	6.6	19.4	53.8	31.0
Grenora	100.0	28.2	71.6	6.5	18.9	54.6	30.8
MT02DH82	100.0	25.7	65.3	7.2	16.3	57.8	29.6
Pierce	100.0	30.7	78.0	6.7	19.0	55.7	28.7
Strongfield	99.0	29.8	75.6	6.1	20.7	52.2	28.7
MT02DH55	100.0	28.8	73.2	6.0	19.8	52.3	28.3
Divide	100.0	30.4	77.2	6.7	18.7	55.4	27.3x
Lebsock	99.7	28.8	73.1	7.0	17.8	56.6	27.3x
average	99.8	28.2	71.7	6.7	18.8	55.0	30.0
CV (S/mean)	0.5	4.5	4.5	2.1		1.0	7.2
CV (SE/mean)	0.3	2.6	2.6	1.2		0.6	4.1
LSD 0.05	0.9	2.2	5.5	0.2		0.9	3.6

x indicates significantly lower yield than check variety, Mountrail

Table 4. 2007 off-station durum yield trial, height in cm across sites

entry	N.			
	Turner	Havre	Loma	average
Lebsock	65.6	73.1	73.1	70.6
Pierce	56.7	76.4	78.0	70.3
Strongfield	55.2	76.4	75.6	69.1
Divide	57.0	72.6	77.2	69.0
Mountrail	54.6	73.8	73.3	67.2
Alkabo	52.0	73.4	72.8	66.1
MT02DH55	56.5	67.5	73.2	65.7
Grenora	56.0	68.6	71.6	65.4
Alzada	55.9	64.4	69.6	63.3
MT03012	51.7	63.7	67.3	60.9
MT02525	49.2	60.9	64.0	58.0
MT02DH82	48.4	58.7	65.3	57.5
average	54.9	69.1	71.7	65.3
CV (S/mean)	9.6	5.3	4.5	
CV (SE/mean)	5.5	3.1	2.6	
LSD 0.05	8.9	6.2	5.5	

Table 5. 2007 off-station durum yield trial, test weight in lb/bu across sites

entry	Turner	N. Havre	Loma	average
MT02DH82	58.7	61.4	57.8	59.3
Lebsock	57.7	58.6	56.6	57.7
Pierce	57.6	59.2	55.7	57.5
MT02525	56.8	59.4	56.0	57.4
Alkabo	57.5	58.5	55.9	57.3
Divide	56.7	58.1	55.4	56.7
Alzada	56.1	58.6	54.8	56.5
Grenora	55.7	57.6	54.6	56.0
MT03012	55.0	57.9	55.0	56.0
Mountrail	56.1	56.5	53.8	55.5
Strongfield	56.1	57.1	52.2	55.1
MT02DH55	55.6	56.2	52.3	54.7
average	56.6	58.3	55.0	56.6
CV (S/mean)	0.5	1.5	1.0	
CV (SE/mean)	0.3	0.9	0.6	
LSD 0.05	0.5	1.5	0.9	

Table 6. 2007 off-station durum yield trial, grain protein percent across sites

entry	Turner	N. Havre	Loma	average
Strongfield	19.8	16.8	20.7	19.10
MT02DH55	18.7	16.7	19.8	18.40
Mountrail	19.0	16.7	19.4	18.37
MT3012	18.7	16.5	18.9	18.03
Pierce	18.3	15.5	19.0	17.60
Divide	18.2	15.8	18.7	17.57
Alkabo	17.8	16.1	18.8	17.57
Grenora	17.4	16.2	18.9	17.50
Lebsock	18.1	16.6	17.8	17.50
MT02525	17.9	15.5	18.7	17.37
Alzada	17.8	15.4	18.0	17.07
MT02DH82	16.4	14.5	16.3	15.73
average	18.2	16.0	18.8	17.65

Table 7. 2007 off-station durum yield trial, yield in bu/ac across sites.

entry	Turner	N. Havre	Loma	average
MT02525	26.1	46.3	31.6	34.6
Alzada	25.2	44.0	33.4	34.2
MT02DH82	24.8	45.9	29.6	33.4
Strongfield	24.0	46.3	28.7	33.0
Mountrail	22.3	45.1	31.0	32.8
Alkabo	22.5	43.7	32.0	32.7
Grenora	25.6	40.9	30.8	32.4
MT3012	24.3	40.0	31.4	31.9
Divide	20.0	42.1	27.3	29.8
Pierce	20.0	40.7	28.7	29.8
MT02DH55	19.2	41.6	28.3	29.7
Lebsock	20.2	33.8	27.3	27.1
average	22.8	42.6	30.0	31.8
CV (S/mean)	12.6	8.4	7.2	
CV (SE/mean)	7.3	4.8	4.1	
LSD 0.05	4.9	6.1	3.6	

Table 8. 2007 off-station durum yield trial, sawfly rating as percent cut across sites

entry	Turner	N. Havre	average
Grenora	33.33	10.00	21.7
Alkabo	25.00	11.67	18.3
MT02DH55	30.00	6.67	18.3
Mountrail	25.00	5.00	15.0
Pierce	21.67	5.33	13.5
Lebsock	20.00	7.00	13.5
Divide	13.33	4.00	8.7
MT3012	11.67	5.00	8.3
Strongfield	10.00	1.00	5.5
Alzada	6.67	2.33	4.5
MT02525	3.67	1.00	2.3
MT02DH82	3.67	1.00	2.3
average	17.00	5.00	11.0
CV (S/mean)	28.1	81.3	
CV (SE/mean)	16.2	46.9	
LSD 0.05	8.09	6.88	