

PROJECT TITLE: Off-station durum variety evaluations in Montana - 2006

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PROJECT PERSONNEL:

County/Site	Producers	CES/AES cooperators
Daniels, dryland	Bobbie Roos	Bobbie Roos, CES
McCone, dryland	Victor Wagner	Ken Nelson, CES
Roosevelt, dryland	Mark Swank	Gina Snyder, CES
Sheridan, dryland	Max Aasheim	Terry Angvick, CES
Sheridan, irrigated	Steve Brekke	Terry Angvick, CES
Valley, dryland	Bill Lauckner	Verlin Koenig, CES
Wibaux, dryland	David Maus	Dave Bertelsen, CES
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: The site in Wibaux County was not harvested because of hail damage. Summaries of yields, test weights, protein contents, hard vitreous amber color, and semolina color across sites in eastern Montana are shown in Tables 1-5. Avonlea and Strongfield yielded most across dryland sites (Table 1). MT02DH55 yielded most at the irrigated site (Table 1).

McCone County (dryland): Performance and relative values of yield, test weight, protein, and HVAC of durum varieties grown at Circle are shown in Tables 6-10. Avonlea yielded most.

Roosevelt County (dryland): Performance and relative values of yield, test weight, protein and HVAC of durum varieties grown at Poplar are shown in Tables 11-15. Alzada yielded most.

Sheridan County (dryland): Performance and relative values of yield, test weight, protein and HVAC of durum varieties grown at Reserve are shown in Tables 16-20. Avolea yielded most.

Valley County (dryland): Performance and relative values of yield, test weight, protein and HVAC of durum varieties grown at Nashua are shown in Tables 21-25. Strongfield yielded most.

Daniels County (dryland): Performance and relative values of yield, test weight, protein and HVAC of durum varieties grown at Scobey are shown in Tables 26-30. Strongfield yielded most.

Sheridan County (irrigated): Performance and relative values of yield, test weight, and protein of durum varieties grown at Dagmar are shown in Tables 31-34. MT02DH55 yielded most.

Summaries of yields, test weight, heights, and sawfly damage across three dryland recrop sites in north-central Montana are shown in Tables 35-38. Alzada yielded most across these 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. Summary of durum yields in bu/acre at six off-station sites in eastern Montana, 2006.

Variety	Circle, dryland recrop	Poplar, dryland fallow	Reserve, dryland recrop	Nashua, dryland fallow	Scobey, dryland fallow	dryland average	Dagmar, sprinkle irrigated
Avonlea	13.9	23.3	24.0	31.7	43.5	27.3	59.9
Strongfield	12.9	21.1	22.9	33.5	45.1	27.1	62.1
Grenora	13.2	21.1	23.5	32.2	42.7	26.6	58.9
Alkabo	13.1	22.5	23.5	28.5	44.4	26.4	60.9
Mountrail	11.2	21.7	23.5	30.1	44.8	26.2	60.8
Pierce	12.0	20.8	22.1	32.1	40.1	25.4	58.0
Divide	11.1	21.4	22.2	29.1	42.9	25.4	60.9
Alzada	13.7	25.4	23.0	27.5	37.0	25.3	38.0
MT02DH55	11.6	22.6	21.3	27.9	42.5	25.2	63.2
Kyle	12.3	21.5	22.9	32.1	35.7	24.9	52.7
MT02525	11.5	24.2	21.2	27.1	40.4	24.9	52.2
Plaza	11.0	17.0	22.2	31.4	42.8	24.9	55.3
Dilse	11.7	21.5	22.3	30.0	38.8	24.9	58.0
MT03012	13.7	21.8	18.6	28.8	39.4	24.5	44.5
site average	12.4	21.8	22.4	30.2	41.4	25.6	56.1
probability	0.068	0.006	0.002	0.313	0.001		<0.001
CV (S/Mean)	10.4	8.5	5.6	10.5	5.8		7.5
CV(SE/Mean)	6.0	4.9	3.2	6.1	3.4		4.3
LSD 0.05	2.2	3.1	2.1	ns	4.0		7.1

Table 2. Summary of durum test weights in lb/bu at six sites in eastern Montana, 2006.

Variety	Circle, dryland recrop	Poplar, dryland fallow	Reserve, dryland recrop	Nashua, dryland fallow	Scobey, dryland fallow	dryland average	Dagmar, sprinkle irrigated
Kyle	60.3	53.3	58.5	60.8	61.7	58.9	60.2
Alkabo	59.7	53.0	59.0	60.0	62.0	58.7	60.0
MT03012	59.7	53.3	58.8	59.7	61.5	58.6	56.8
Pierce	59.7	52.5	58.2	60.3	62.0	58.5	60.5
MT02525	58.3	53.8	58.3	60.5	61.2	58.4	58.5
Dilse	58.5	52.5	58.5	61.3	61.2	58.4	59.8
Avonlea	60.2	51.5	58.2	60.0	61.8	58.3	59.2
Alzada	59.7	53.2	58.5	59.0	61.2	58.3	58.7
Divide	59.2	53.3	58.0	60.0	61.0	58.3	59.7
Grenora	58.5	51.0	57.8	59.8	61.2	57.7	59.2
Strongfield	59.0	50.7	57.2	60.0	61.2	57.6	58.7
Plaza	59.5	50.5	57.0	59.0	60.3	57.3	57.5
Mountrail	58.0	51.2	56.5	59.3	60.5	57.1	59.3
MT02DH55	57.8	50.8	56.2	58.7	58.5	56.4	58.2
site average	59.1	52.2	57.9	59.9	61.1	58.0	59.0
probability	0.002	<0.001	<0.001	0.002	0.002		<0.001
CV (S/Mean)	1.2	1.4	1.0	1.1	1.3		0.9
CV(SE/Mean)	0.7	0.8	0.6	0.6	0.7		0.5
LSD 0.05	1.2	1.2	0.9	1.1	1.3		0.9

Table 3. Summary of durum percent protein at six sites in eastern Montana, 2006.

Variety	Circle, dryland recrop	Poplar, dryland fallow	Reserve, dryland recrop	Nashua, dryland fallow	Scobey, dryland fallow	dryland average	Dagmar, sprinkle irrigated
Strongfield	15.14	19.55	16.10	13.63	13.00	15.5	14.21
Mountrail	14.72	18.98	16.23	12.87	12.93	15.1	13.47
MT02DH55	15.00	18.34	15.34	12.83	14.13	15.1	14.04
Pierce	14.56	18.71	15.61	13.98	12.48	15.1	13.33
Plaza	14.34	18.92	15.70	13.44	12.70	15.0	13.88
Alkabo	14.83	19.37	15.58	13.22	11.78	15.0	13.72
Dilse	15.34	18.54	15.15	12.66	12.69	14.9	14.06
MT03012	14.58	17.67	15.08	14.14	12.43	14.8	13.94
MT02525	15.26	17.72	15.13	12.57	12.64	14.7	13.98
Avonlea	14.03	18.17	14.93	14.12	11.93	14.6	14.08
Divide	14.64	17.94	15.29	12.43	12.56	14.6	13.68
Grenora	14.32	17.95	14.87	13.21	12.27	14.5	13.71
Kyle	13.92	17.90	14.52	12.60	11.91	14.2	13.33
Alzada	13.68	17.02	14.27	12.69	11.52	13.8	13.29
site average	14.60	18.34	15.27	13.17	12.50	14.8	13.77
probability	0.020	<0.001	0.001	0.195	0.135		<0.001
CV (S/Mean)	3.7	2.3	3.1	6.6	7.0		1.7
CV(SE/Mean)	2.2	1.4	1.8	3.8	4.0		1.0
LSD 0.05	0.92	0.72	0.79	ns	ns		0.40

Table 4. Summary of durum percent hard vitreous amber color at six sites in eastern Montana, 2006.

Variety	Circle, dryland recrop	Poplar, dryland fallow	Reserve, dryland fallow	Nashua, dryland fallow	Scobey, dryland fallow	dryland average	Dagmar, sprinkle irrigated
Avonlea	85.4	76.9	84.4	81.0	86.3	82.8	90.3
MT03012	79.4	81.2	88.0	71.1	88.2	81.6	80.5
Strongfield	85.6	77.8	87.8	67.6	88.7	81.5	85.1
Pierce	80.1	76.0	86.7	66.5	82.0	78.3	85.1
Kyle	80.7	73.5	80.4	66.0	77.7	75.6	85.5
Alzada	79.2	72.2	80.7	59.5	82.2	74.8	79.1
Dilse	73.7	76.1	83.7	48.8	83.7	73.2	86.3
Mountrail	74.1	72.6	81.3	46.4	84.2	71.7	83.3
Plaza	72.9	73.1	79.1	51.8	80.7	71.5	79.7
Grenora	72.1	74.0	81.5	52.8	76.4	71.4	84.7
Alkabo	79.8	74.8	84.5	48.9	64.3	70.5	81.3
MT02525	69.4	78.6	80.3	42.8	77.4	69.7	74.5
MT02DH55	75.5	70.6	79.3	34.9	85.0	69.1	81.0
Divide	75.5	71.7	79.4	32.9	75.8	67.0	81.1
site average	77.4	74.9	82.6	55.1	80.9	74.2	82.7
probability	<0.001	<0.001	<0.001	0.080	0.090		<0.001
CV (S/Mean)	4.8	3.0	2.8	32.3	10.1		3.1
CV(SE/Mean)	2.8	1.7	1.6	18.7	5.8		1.8
LSD 0.05	6.3	3.8	3.8	29.9	13.7		4.3

Table 5. Summary of durum semolina color at six off-station sites in eastern Montana, 2006.

Variety	Circle, dryland recrop	Poplar, dryland fallow	Reserve, dryland recrop	Nashua, dryland fallow	Scobey, dryland fallow	dryland average	Dagmar, sprinkle irrigated
Mountrail	32.0	31.5	29.4	32.1	23.7	29.7	22.7
Grenora	31.8	31.1	29.2	31.8	22.8	29.3	22.5
Avonlea	31.0	31.1	28.6	34.0	21.8	29.3	21.7
Pierce	31.0	31.2	28.8	32.8	22.4	29.3	21.1
Divide	30.9	31.4	28.7	32.5	22.1	29.1	22.1
MT02DH55	30.6	31.2	28.2	32.2	23.3	29.1	21.9
Dilse	31.6	31.7	28.5	31.2	22.3	29.1	21.2
Strongfield	30.4	30.1	28.2	32.2	22.5	28.7	21.2
MT02525	31.5	30.4	27.6	32.3	21.2	28.6	21.5
MT03012	30.9	29.9	27.6	32.4	21.8	28.5	19.6
Alzada	31.1	30.3	28.1	30.1	22.8	28.5	19.6
Alkabo	31.0	29.7	27.9	30.9	21.9	28.3	21.9
Kyle	29.4	30.4	27.6	31.4	22.1	28.2	20.8
Plaza	30.1	30.0	27.1	31.8	21.4	28.1	21.5
site average	30.9	30.7	28.3	32.0	22.3	28.8	21.4
probability	0.010	<0.001	0.012	0.013	0.221		0.005
CV (S/Mean)	2.3	1.5	2.4	3.0	4.6		4.2
CV(SE/Mean)	1.3	0.8	1.4	1.7	2.7		2.4
LSD 0.05	1.2	0.8	1.2	1.6	ns		1.5

Table 6. Performance of durum grown under dryland continuous cropping conditions at Circle, MT. Planted: May 5, 2006 Harvested: Aug 4, 2006 Cooperator: Victor Wagner

Variety	grain protein	HVAC	semolina color	test weight	yield, bu/acre
Avonlea	14.03	85.4	31.0	60.2	13.9 a
Alzada	13.68	79.2	31.1	59.7	13.7 a
MT03012	14.58	79.4	30.9	59.7	13.7 a
Grenora	14.32	72.1	31.8	58.5	13.2
Alkabo	14.83	79.8	31.0	59.7	13.1
Strongfield	15.14	85.6	30.4	59.0	12.9
Kyle	13.92	80.7	29.4	60.3	12.3
Pierce	14.56	80.1	31.0	59.7	12.0
Dilse	15.34	73.7	31.6	58.5	11.7
MT02DH55	15.00	75.5	30.6	57.8	11.6
MT02525	15.26	69.4	31.5	58.3	11.5
Mountrail	14.72	74.1	32.0	58.0	11.2
Divide	14.64	75.5	30.9	59.2	11.1
Plaza	14.34	72.9	30.1	59.5	11.0
average	14.60	77.4	30.9	59.1	12.4
probability	0.020	<0.001	0.010	0.002	0.068
CV (S/Mean)	3.7	4.8	2.3	1.2	10.4
CV(SE/Mean)	2.2	2.8	1.3	0.7	6.0
LSD 0.05	0.92	6.3	1.2	1.2	2.2

a indicates significantly greater yield than check variety, Mountrail

Table 7. Relative yielding abilities of durum varieties compared to Mountrail when grown under dryland conditions in McCone County in cooperation with CES.

Variety	2002	2003	2004	2005	2006	average	As % of Mountrail
MT03012	--	--	--	--	13.7	13.7	122.3
Strongfield	--	--	--	--	12.9	12.9	115.2
Plaza	21.9	20.4	26.0	30.2	11.0	21.9	107.6
Alkabo	--	--	--	28.6	13.1	20.9	106.1
Alzada	--	--	--	27.4	13.7	20.6	104.6
MT02DH55	--	--	--	--	11.6	11.6	103.6
MT02525	--	--	--	--	11.5	11.5	102.7
AC Avonlea	22.5	17.1	22.0	28.4	13.9	20.8	102.1
Grenora	--	--	--	26.9	13.2	20.1	102.0
Mountrail	21.4	16.5	24.6	28.1	11.2	20.4	100.0
Kyle	19.3	20.5	22.5	25.0	12.3	19.9	97.8
Pierce	20.3	17.6	20.8	26.0	12.0	19.3	95.0
Divide	--	--	--	25.4	11.7	18.6	94.4
Dilse	19.4	17.9	20.5	24.1	11.7	18.7	91.9

NOTE: Average yields in this summary should not be compared to each other since they are not grown in the same years. Compare yields only to the check variety.

Table 8. Relative test weights of durum varieties as compared to Mountrail when grown under dryland conditions in McCone County in cooperation with CES.

Variety	2002	2003	2004	2005	2006	average	As % of Mountrail
Kyle	63.0	60.9	62.0	61.8	60.3	61.6	104.1
Dilse	62.0	60.7	62.5	61.8	58.5	61.1	103.2
Plaza	61.7	59.8	62.0	61.8	59.5	61.0	103.0
AC Avonlea	60.4	60.2	61.9	62.0	60.2	60.9	103.0
MT03012	--	--	--	--	59.7	59.7	102.9
Pierce	60.7	59.6	61.7	61.8	59.7	60.7	102.6
Strongfield	--	--	--	--	59.0	59.0	101.7
Alkabo	--	--	--	61.8	59.7	60.8	101.7
Divide	--	--	--	61.0	59.2	60.1	100.6
MT02525	--	--	--	--	58.3	58.3	100.5
Alzada	--	--	--	60.0	59.7	59.9	100.2
Mountrail	58.6	57.0	60.8	61.5	58.0	59.2	100.0
Grenora	--	--	--	61.0	58.5	59.8	100.0
MT02DH55	--	--	--	--	57.8	57.8	99.7

NOTE: Average test weights in this summary should not be compared to each other since they are not grown in the same years. Compare test weights only to the check variety.

Table 9. Relative protein contents of durum varieties as compared to Mountrail when grown under dryland conditions in McCone County in cooperation with CES.

Variety	2002	2003	2004	2005	2006	average	As % of Mountrail
MT02525	--	--	--	--	15.3	15.3	104.1
Strongfield	--	--	--	--	15.1	15.1	102.7
MT02DH55	--	--	--	--	15.0	15.0	102.0
Grenora	--	--	--	11.2	14.3	12.8	101.6
Alkabo	--	--	--	10.6	14.8	12.7	101.2
Mountrail	13.8	15.7	14.0	10.4	14.7	13.7	100.0
Divide	--	--	--	10.4	14.6	12.5	99.6
Dilse	12.4	14.8	13.9	11.8	15.3	13.6	99.4
MT03012	--	--	--	--	14.6	14.6	99.3
Pierce	13.7	14.2	13.9	11.2	14.6	13.5	98.5
AC Avonlea	13.3	14.4	14.1	10.7	14.0	13.3	96.9
Alzada	--	--	--	10.5	13.7	12.1	96.4
Plaza	12.5	14.6	14.1	10.3	14.3	13.2	95.9
Kyle	12.2	13.7	13.4	10.8	13.9	12.8	93.3

NOTE: Average protein contents in this summary should not be compared to each other since they are not grown in the same years. Compare protein contents only to the check variety.

Table 10. Relative HVACs of durum varieties as compared to Mountrail when grown under dryland conditions in Sheridan County in cooperation with CES. Cooperator:

Cultivar	2003	2004	2005	2006	Ave	as % of Mountrail
AC Avonlea	81.8	94.3	73.3	85.4	83.7	116.4
Strongfield	--	--	--	85.6	85.6	115.5
Kyle	79.2	85.7	75.9	80.7	80.4	111.8
Alzada	--	--	68.7	79.2	74.0	109.0
MT03012	--	--	--	79.4	79.4	107.2
Dilse	75.3	89.1	56.9	73.7	73.8	102.6
MT02DH55	--	--	--	75.5	75.5	101.9
Mountrail	66.1	85.5	61.7	74.1	71.9	100.0
Plaza	68.3	82.6	56.6	72.9	70.1	97.5
Pierce	57.9	86.5	54.0	80.1	69.6	96.8
MT02525	--	--	--	69.4	69.4	93.7
Divide	--	--	40.4	75.5	58.0	85.4
Grenora	--	--	43.6	72.1	57.9	85.3
Alkabo	--	--	25.8	79.8	52.8	77.8

NOTE: Average HVACs in this summary should not be compared to each other since they are not grown in the same years. Compare only to the check variety.

Table 11. Performance of durum grown under dryland conditions at Poplar, MT.
 Planted: Apr 27, 2006 Harvested: Aug 7, 2006 Cooperator: Mark Swank

Variety	percent protein	HVAC	semolina color	test wt, lb/bu	yield, bu/ac
Alzada	17.02	72.2	30.3	53.2	25.4 a
MT02525	17.72	78.6	30.4	53.8	24.2
Avonlea	18.17	76.9	31.1	51.5	23.3
MT02DH55	18.34	70.6	31.2	50.8	22.6
Alkabo	19.37	74.8	29.7	53.0	22.5
MT03012	17.67	81.2	29.9	53.3	21.8
Mountrail	18.98	72.6	31.5	51.2	21.7
Kyle	17.90	73.5	30.4	53.3	21.5
Dilse	18.54	76.1	31.7	52.5	21.5
Divide	17.94	71.7	31.4	53.3	21.4
Grenora	17.95	74.0	31.1	51.0	21.1
Strongfield	19.55	77.8	30.1	50.7	21.1
Pierce	18.71	76.0	31.2	52.5	20.8
Plaza	18.92	73.1	30.0	50.5	17.0 x
Average	18.34	74.9	30.7	52.2	21.8
probability	<0.001	<0.001	<0.001	<0.001	0.006
CV (S/Mean)	2.3	3.0	1.5	1.4	8.5
CV(SE/Mean)	1.4	1.7	0.8	0.8	4.9
LSD 0.05	0.72	3.8	0.8	1.2	3.1

a indicates significantly greater yield than check variety, Mountrail

x indicates significantly lower yield than check variety, Mountrail

Table 12. Relative yields of durum varieties as compared to Mountrail when grown under dryland conditions in Roosevelt County in cooperation with CES.

Cultivar	2002	2003	2004	2005	2006	Ave	as % of Mountrail
MT02525	--	--	--	--	24.2	24.2	111.5
Alzada	--	--	--	42.1	25.4	33.8	107.3
MT02DH55	--	--	--	--	22.6	22.6	104.1
Alkabo	--	--	--	41.0	22.5	31.8	101.0
MT03012	--	--	--	--	21.8	21.8	100.5
AC Avonlea	38.4	53.0	45.1	38.6	23.3	39.7	100.3
Mountrail	39.9	47.4	47.7	41.2	21.7	39.6	100.0
Dilse	43.7	46.3	42.2	39.4	21.5	38.6	97.6
Strongfield	--	--	--	--	21.1	21.1	97.2
Kyle	34.2	45.6	50.3	36.2	21.5	37.6	94.9
Pierce	39.5	40.6	46.4	38.4	20.8	37.1	93.8
Grenora	--	--	--	37.9	21.1	29.5	93.8
Divide	--	--	--	37.2	21.4	29.3	93.2
Plaza	35.7	44.4	49.7	32.5	17.0	35.9	90.6

NOTE: Average yields in this summary should not be compared to each other since they are not grown in the same years. Compare yields only to the check variety.

Table 13. Relative test weights of durum varieties as compared to Mountrail when grown under dryland conditions in Roosevelt County in cooperation with CES.

Cultivar	2002	2003	2004	2005	2006	Ave	as % of Mountrail
MT02525	--	--	--	--	53.8	53.8	105.1
MT03012	--	--	--	--	53.3	53.3	104.1
Divide	--	--	--	60.3	53.3	56.8	102.2
Alkabo	--	--	--	60.2	53.0	56.6	101.8
Dilse	61.0	64.2	63.8	59.5	52.5	60.2	100.9
Pierce	62.0	62.8	63.8	59.3	52.5	60.1	100.7
Kyle	60.0	63.5	63.2	59.3	53.3	59.9	100.4
Mountrail	60.3	63.7	63.0	60.0	51.2	59.6	100.0
Alzada	--	--	--	58.0	53.2	55.6	100.0
AC Avonlea	59.5	63.7	62.8	59.2	51.5	59.3	99.5
MT02DH55	--	--	--	--	50.8	50.8	99.2
Grenora	--	--	--	59.3	51.0	55.2	99.2
Strongfield	--	--	--	--	50.7	50.7	99.0
Plaza	58.2	62.7	63.3	58.5	50.5	58.6	98.3

NOTE: Average test weights in this summary should not be compared to each other since they are not grown in the same years. Compare test weights only to the check variety.

Table 14. Relative proteins of durum varieties as compared to Mountrail when grown under dryland conditions in Roosevelt County in cooperation with CES.

Cultivar	2002	2003	2004	2005	2006	Ave	as % of Mountrail
Strongfield	--	--	--	--	19.6	19.6	103.2
Dilse	15.3	12.7	13.4	16.2	18.5	15.2	101.7
AC Avonlea	15.5	12.6	13.1	15.7	18.2	15.0	100.4
Mountrail	15.1	12.1	12.8	15.8	19.0	15.0	100.0
Alkabo	--	--	--	15.1	19.4	17.3	99.1
Plaza	15.2	12.1	12.2	15.6	18.9	14.8	98.9
Pierce	14.1	12.6	12.8	15.8	18.7	14.8	98.9
MT02DH55	--	--	--	--	18.3	18.3	96.3
Kyle	15.1	11.7	11.9	15.2	17.9	14.4	96.0
Grenora	--	--	--	15.3	18.0	16.7	95.7
Divide	--	--	--	15.1	17.9	16.5	94.8
MT02525	--	--	--	--	17.7	17.7	93.2
MT03012	--	--	--	--	17.7	17.7	93.2
Alzada	--	--	--	14.4	17.0	15.7	90.2

NOTE: Average proteins in this summary should not be compared to each other since they are not grown in the same years. Compare protein contents only to the check variety.

Table 15. Relative HVAC of durum varieties as compared to Mountrail when grown under dryland conditions in Roosevelt County in cooperation with CES.

Cultivar	2003	2004	2005	2006	Ave	as % of Mountrail
MT03012	--	--	--	81	81.0	111.0
AC Avonlea	91	89	93	77	87.5	108.7
MT02525	--	--	--	79	79.0	108.2
Strongfield	--	--	--	78	78.0	106.8
Dilse	82	87	94	76	84.8	105.3
Alkabo	--	--	91	75	83.0	101.8
Grenora	--	--	90	74	82.0	100.6
Divide	--	--	92	72	82.0	100.6
Mountrail	83	76	90	73	80.5	100.0
Plaza	77	77	92	73	79.8	99.1
Alzada	--	--	88	72	80.0	98.2
Kyle	80	70	90	74	78.5	97.5
MT02DH55	--	--	--	71	71.0	97.3
Pierce	58	84	93	76	77.8	96.6

NOTE: Average HVACs in this summary should not be compared to each other since they are not grown in the same years. Compare only to the check variety.

Table 16. Performance of durum grown under dryland conditions at Reserve, MT.
 Planted: Apr 28, 2006 Harvested: Aug 8, 2006 Cooperator: Max Aasheim

Variety	grain protein	hard vitreous amber color	semolina color	test wt, lb/bu	yield, bu/acre
Avonlea	14.93	84.4	28.6	58.2	24.0
Alkabo	15.58	84.5	27.9	59.0	23.5
Grenora	14.87	81.5	29.2	57.8	23.5
Mountrail	16.23	81.3	29.4	56.5	23.5
Alzada	14.27	80.7	28.1	58.5	23.0
Kyle	14.52	80.4	27.6	58.5	22.9
Strongfield	16.10	87.8	28.2	57.2	22.9
Dilse	15.15	83.7	28.5	58.5	22.3
Divide	15.29	79.4	28.7	58.0	22.2
Plaza	15.70	79.1	27.1	57.0	22.2
Pierce	15.61	86.7	28.8	58.2	22.1
MT02DH55	15.34	79.3	28.2	56.2	21.3 x
MT02525	15.13	80.3	27.6	58.3	21.2 x
MT03012	15.08	88.0	27.6	58.8	18.6 x
site average	15.27	82.6	28.3	57.9	22.4
probability	0.001	<0.001	0.012	<0.001	0.002
CV (S/Mean)	3.1	2.8	2.4	1.0	5.6
CV(SE/Mean)	1.8	1.6	1.4	0.6	3.2
LSD _{0.05}	0.79	3.8	1.2	0.9	2.1

x indicates significantly lower yield than check variety, Mountrail, at probability = 0.05

Table 17. Relative yields of durum varieties as compared to Mountrail when grown under dryland conditions in Sheridan County in cooperation with CES.

Cultivar	2002	2003	2004	2005	2006	Ave	as % of Mountrail
Mountrail	36.6	40.1	49.2	38.6	23.5	37.6	100.0
AC Avonlea	36.8	37.6	50.0	34.8	24.0	36.6	97.4
Strongfield	--	--	--	--	22.9	22.9	97.4
Dilse	37.9	38.8	46.2	32.7	22.3	35.6	94.6
Divide	--	--	--	36.5	22.2	29.4	94.5
Alkabo	--	--	--	34.8	23.5	29.2	93.9
Kyle	29.9	36.4	49.0	35.5	22.9	34.7	92.4
Plaza	35.5	33.2	45.8	36.5	22.2	34.6	92.1
Pierce	34.0	31.9	48.4	36.1	22.1	34.5	91.8
Grenora	--	--	--	33.2	23.5	28.4	91.3
MT02DH55	--	--	--	--	21.3	21.3	90.6
MT02525	--	--	--	--	21.2	21.2	90.2
Alzada	--	--	--	28.8	23.0	25.9	83.4
MT03012	--	--	--	--	18.6	18.6	79.1

NOTE: Average yields in this summary should not be compared to each other since they are not grown in the same years. Compare yields only to the check variety.

Table 18. Relative test weights of durum varieties as compared to Mountrail when grown under dryland conditions in Sheridan County in cooperation with CES.

Cultivar	2002	2003	2004	2005	2006	Ave	as % of Mountrail
MT03012	--	--	--	--	58.8	58.8	104.1
MT02525	--	--	--	--	58.3	58.3	103.2
Alkabo	--	--	--	61.3	59.0	60.2	102.6
Alzada	--	--	--	60.8	58.5	59.7	101.7
Dilse	60.3	60.5	62.3	61.0	58.5	60.5	101.3
Strongfield	--	--	--	--	57.2	57.2	101.2
Pierce	61.3	58.7	62.3	61.2	58.2	60.3	101.0
Kyle	60.0	60.2	62.2	60.3	58.5	60.2	100.8
Divide	--	--	--	60.2	58.0	59.1	100.8
AC Avonlea	60.7	59.2	62.3	59.5	58.2	60.0	100.4
Mountrail	60.7	59.5	61.3	60.8	56.5	59.8	100.0
MT02DH55	--	--	--	--	56.2	56.2	99.5
Grenora	--	--	--	58.7	57.8	58.3	99.3
Plaza	59.5	58.3	61.0	59.5	57.0	59.1	98.8

NOTE: Average test weights in this summary should not be compared to each other since they are not grown in the same years. Compare test weights only to the check variety.

Table 19. Relative proteins of durum varieties as compared to Mountrail when grown under dryland conditions in Sheridan County in cooperation with CES.

Cultivar	2002	2003	2004	2005	2006	Ave	as % of Mountrail
AC Avonlea	15.3	16.2	13.7	13.9	14.9	14.8	102.6
Dilse	15.6	16.0	13.7	13.4	15.2	14.8	102.5
Pierce	14.6	15.6	14.1	12.8	15.6	14.5	100.8
Divide	--	--	--	13.4	15.3	14.4	100.3
Alkabo	--	--	--	13.1	15.6	14.4	100.3
Plaza	14.6	15.6	13.9	12.5	15.7	14.5	100.3
Mountrail	14.6	14.9	14.0	12.4	16.2	14.4	100.0
Grenora	--	--	--	13.6	14.9	14.3	99.7
Strongfield	--	--	--	--	16.1	16.1	99.4
Alzada	--	--	--	13.9	14.3	14.1	98.6
Kyle	14.1	15.1	12.9	12.3	14.5	13.8	95.6
MT02DH55	--	--	--	--	15.3	15.3	94.4
MT02525	--	--	--	--	15.1	15.1	93.2
MT03012	--	--	--	--	15.1	15.1	93.2

NOTE: Average protein contents in this summary should not be compared to each other since they are not grown in the same years. Compare protein contents only to the check variety.

Table 20. Relative HVACs of durum varieties as compared to Mountrail when grown under dryland conditions in Sheridan County in cooperation with CES.

Cultivar	2003	2004	2005	2006	Ave	as % of Mountrail
Strongfield	--	--	--	88	88	108.6
MT03012	--	--	--	88	88	108.6
Alzada	--	--	86	81	83.5	105.0
AC Avonlea	95	90	87	84	89.0	104.9
Grenora	--	--	84	82	83.0	104.4
Alkabo	--	--	82	84	83.0	104.4
Divide	--	--	86	79	82.5	103.8
Pierce	85	92	80	87	86.0	101.4
Dilse	92	85	80	84	85.3	100.6
Mountrail	88	92	78	81	84.8	100.0
MT02525	--	--	--	80	80	98.8
MT02DH55	--	--	--	79	79	97.5
Kyle	85	81	84	80	82.5	97.3
Plaza	82	84	78	79	80.8	95.3

NOTE: Average HVACs in this summary should not be compared to each other since they are not grown in the same years. Compare only to the check variety.

Table 21. Performance of durum grown under dryland conditions at Nashua, MT.
 Planted: Apr 14, 2006 Harvested: Aug 3, 2006 Cooperator: Bill Lauckner

Variety	Percent protein	% HVA color	Semolina color	Test wt, lb/bu	Yield, bu/acre
Strongfield	13.63	67.6	31.4	60.0	33.5
Grenora	13.21	52.8	32.2	59.8	32.2
Kyle	12.60	66.0	30.1	60.8	32.1
Pierce	13.98	66.5	32.4	60.3	32.1
Avonlea	14.12	81.0	31.2	60.0	31.7
Plaza	13.44	51.8	31.8	59.0	31.4
Mountrail	12.87	46.4	34.0	59.3	30.1
Dilse	12.66	48.8	32.5	61.3	30.0
Divide	12.43	32.9	32.8	60.0	29.1
MT03012	14.14	71.1	30.9	59.7	28.8
Alkabo	13.22	48.9	32.1	60.0	28.5
MT02DH55	12.83	34.9	32.3	58.7	27.9
Alzada	12.69	59.5	31.8	59.0	27.5
MT02525	12.57	42.8	32.2	60.5	27.1
average	13.17	55.1	32.0	59.9	30.2
probability	0.195	0.080	0.013	0.002	0.313
CV (S/Mean)	6.6	32.3	3.0	1.1	10.5
CV(SE/Mean)	3.8	18.7	1.7	0.6	6.1
LSD 0.05	ns	29.9	1.6	1.1	ns

a indicates significantly greater yield than check variety, Mountrail

Table 22. Relative yielding abilities of spring wheat varieties as compared to Mountrail when grown under dryland conditions in Valley County in cooperation with CES.

Cultivar	2002	2003	2004	2005	2006	Ave	As % of Mountrail
Divide	--	--	--	61.0	29.1	45.1	113.2
Grenora	--	--	--	57.7	32.2	45.0	112.9
Strongfield	--	--	--	--	33.5	33.5	111.3
Alkabo	--	--	--	59.3	28.5	43.9	110.3
Dilse	45.4	40.8	49.1	57.2	30.0	44.5	100.3
Mountrail	46.0	37.6	58.6	49.5	30.1	44.4	100.0
AC Avonlea	48.1	38.1	51.8	51.0	31.7	44.1	99.5
Kyle	46.1	38.9	52.4	50.9	32.1	44.1	99.4
Plaza	48.7	36.4	54.7	48.8	31.4	44.0	99.2
Pierce	47.2	37.8	51.1	48.9	32.1	43.4	97.9
MT03012	--	--	--	--	28.8	28.8	95.7
Alzada	--	--	--	48.2	27.5	37.9	95.1
MT02DH55	--	--	--	--	27.9	27.9	92.7
MT02525	--	--	--	--	27.1	27.1	90.0

NOTE: Average yields in this summary should not be compared to each other since they are not grown in the same years. Compare yields only to the check variety.

Table 23. Relative test weights of durum varieties as compared to Mountrail when grown under dryland conditions in Valley County in cooperation with CES.

Cultivar	2002	2003	2004	2005	2006	Ave	As % of Mountrail
Dilse	62.0	62.0	62.5	61.8	61.3	61.9	102.6
MT02525	--	--	--	--	60.5	60.5	102.0
Pierce	62.0	60.7	61.8	62.5	60.3	61.5	101.8
Kyle	61.0	61.0	62.3	61.8	60.8	61.4	101.7
AC Avonlea	61.8	60.2	62.2	61.3	60.0	61.1	101.2
Strongfield	--	--	--	--	60.0	60.0	101.2
Alkabo	--	--	--	61.7	60.0	60.9	100.9
Grenora	--	--	--	61.8	59.8	60.8	100.8
MT03012	--	--	--	--	59.7	59.7	100.7
Divide	--	--	--	61.0	60.0	60.5	100.3
Mountrail	60.7	58.8	61.7	61.3	59.3	60.4	100.0
Plaza	60.2	59.3	61.8	61.2	59.0	60.3	99.9
MT02DH55	--	--	--	--	58.7	58.7	99.0
Alzada	--	--	--	58.5	59.0	58.8	97.4

NOTE: Average test weights in this summary should not be compared to each other since they are not grown in the same years. Compare test weights only to the check variety.

Table 24. Relative protein contents of durum varieties as compared to Mountrail when grown under dryland conditions in Valley County in cooperation with CES.

Cultivar	2002	2003	2004	2005	2006	Ave	As % of Mountrail
MT03012	--	--	--	--	14.1	14.1	109.3
Strongfield	--	--	--	--	13.6	13.6	105.4
AC Avonlea	12.0	16.2	11.0	11.0	14.1	12.9	101.9
Dilse	12.7	15.1	10.3	12.7	12.7	12.7	100.6
Mountrail	12.5	16.0	10.3	11.4	12.9	12.6	100.0
Grenora	--	--	--	11.1	13.2	12.2	100.0
Plaza	12.6	15.9	10.0	11.0	13.4	12.6	99.7
MT02DH55	--	--	--	--	12.8	12.8	99.2
Alzada	--	--	--	11.4	12.7	12.1	99.2
Pierce	12.2	15.2	9.9	10.6	14.0	12.4	98.1
Alkabo	--	--	--	10.6	13.2	11.9	97.9
MT02525	--	--	--	--	12.6	12.6	97.7
Kyle	12.9	14.7	9.8	10.6	12.6	12.1	96.0
Divide	--	--	--	10.6	12.4	11.5	94.7

NOTE: Average protein contents in this summary should not be compared to each other since they are not grown in the same years. Compare protein contents only to the check variety.

Table 25. Relative HVACs of durum varieties as compared to Mountrail when grown under dryland conditions in Sheridan County in cooperation with CES. Cooperator: Bill Lauckner

Cultivar	2003	2004	2005	2006	Ave	as % of Mountrail
Alzada	--	--	61.7	59.5	60.6	187.6
Grenora	--	--	51.1	52.8	52.0	161.0
MT03012	--	--	--	71.1	71.1	153.2
Strongfield	--	--	--	67.6	67.6	145.7
AC Avonlea	95.0	87.6	69.2	81.0	83.2	141.0
Dilse	98.3	75.0	66.7	48.8	72.2	122.4
Plaza	81.5	79.8	56.9	51.8	67.5	114.4
Pierce	82.6	70.2	37.2	66.5	64.1	108.6
Kyle	86.7	81.6	11.3	66.0	61.4	104.1
Divide	--	--	33.4	32.9	33.2	102.8
Mountrail	80.7	90.5	18.2	46.4	59.0	100.0
MT02525	--	--	--	42.8	42.8	92.2
MT02DH55	--	--	--	34.9	34.9	84.9
Alkabo	--	--	5.4	48.9	27.2	84.2

NOTE: Average HVACs in this summary should not be compared to each other since they are not grown in the same years. Compare only to the check variety.

Table 26. Performance of durum grown under dryland conditions at Scobey, MT.
 Planted: April 27, 2006 Harvested: August 15, 2006 Cooperator: Bobbie Roos

variety	percent protein	HVAC	semolina color	test wt, lb/bu	yield, bu/ac	
Strongfield	13.00	88.7	22.5	61.2	45.1	
Mountrail	12.93	84.2	23.7	60.5	44.8	
Alkabo	11.78	64.3	21.9	62.0	44.4	
Avonlea	11.93	86.3	21.8	61.8	43.5	
Divide	12.56	75.8	22.1	61.0	42.9	
Plaza	12.70	80.7	21.4	60.3	42.8	
Grenora	12.27	76.4	22.8	61.2	42.7	
MT02DH55	14.13	85.0	23.3	58.5	42.5	
MT02525	12.64	77.4	21.2	61.2	40.4	x
Pierce	12.48	82.0	22.4	62.0	40.1	x
MT03012	12.43	88.2	21.8	61.5	39.4	x
Dilse	12.69	83.7	22.3	61.2	38.8	x
Alzada	11.52	82.2	22.8	61.2	37.0	x
Kyle	11.91	77.7	22.1	61.7	35.7	x
site average	12.50	80.9	22.3	61.1	41.4	
probability	0.135	0.090	0.221	0.002	0.001	
CV (S/Mean)	7.0	10.1	4.6	1.3	5.8	
CV(SE/Mean)	4.0	5.8	2.7	0.7	3.4	
LSD _{0.05}	1.46	13.7	1.7	1.3	4.0	

x indicates significantly lower yield than check variety, Mountrail, at probability = 0.05

Table 27. Relative yields of durum varieties as compared to Mountrail when grown under dryland conditions in Daniels County in cooperation with CES.

Variety	2002	2003	2004	2005	2006	average	As % of Mountrail
Strongfield	--	--	--	--	45.1	45.1	100.7
AC Avonlea	31.1	31.5	61.3	12.4	43.5	36.0	100.4
Mountrail	32.3	31.1	61.0	9.9	44.8	35.8	100.0
Grenora	--	--	--	11.0	42.7	26.9	98.2
Alkabo	--	--	--	8.3	44.4	26.4	96.3
MT02DH55	--	--	--	--	42.5	42.5	94.9
Kyle	38.2	30.1	54.8	10.5	35.7	33.9	94.5
Plaza	29.6	30.3	56.7	7.0	42.8	33.3	92.9
Divide	--	--	--	7.5	42.9	25.2	92.1
MT02525	--	--	--	--	40.4	40.4	90.2
Dilse	30.9	31.9	51.5	7.8	38.8	32.2	89.8
MT03012	--	--	--	--	39.4	39.4	87.9
Pierce	33.3	25.1	45.6	10.9	40.1	31.0	86.5
Alzada	--	--	--	7.8	37.0	22.4	81.9

NOTE: Average yields in this summary should not be compared to each other since they are not always grown in the same years. Compare yields only to the check variety.

Table 28. Relative test weights of durum varieties as compared to Mountrail when grown under dryland conditions in Daniels County in cooperation with CES.

Variety	2002	2003	2004	2005	2006	average	As % of Mountrail
MT03012	--	--	--	--	61.5	61.5	101.7
Pierce	62.7	62.4	61.2	63.7	62.0	62.4	101.5
Alzada	--	--	--	64.3	61.2	62.8	101.5
Alkabo	--	--	--	63.2	62.0	62.6	101.2
Plaza	62.7	62.5	61.8	63.8	60.3	62.2	101.2
Strongfield	--	--	--	--	61.2	61.2	101.2
MT02525	--	--	--	--	61.2	61.2	101.2
Divide	--	--	--	63.7	61.0	62.4	100.8
Dilse	60.8	62.8	60.7	64.2	61.2	61.9	100.7
Kyle	61.3	62.3	60.0	63.7	61.7	61.8	100.5
AC Avonlea	60.7	61.8	60.3	63.5	61.8	61.6	100.2
Grenora	--	--	--	62.7	61.2	62.0	100.2
Mountrail	61.0	61.7	61.0	63.2	60.5	61.5	100.0
MT02DH55	--	--	--	--	58.5	58.5	96.7

NOTE: Average test weights in this summary should not be compared to each other since they are not always grown in the same years. Compare yields only to the check variety.

Table 29. Relative protein contents of durum varieties as compared to Mountrail when grown under dryland conditions in Daniels County in cooperation with CES.

Variety	2002	2003	2004	2005	2006	average	As % of Mountrail
MT02DH55	--	--	--	--	14.1	14.1	109.3
Dilse	14.0	12.9	14.3	9.5	12.7	12.7	107.3
AC Avonlea	13.8	12.6	14.1	10.2	11.9	12.5	105.9
Pierce	12.7	12.2	13.2	9.8	12.5	12.1	102.2
Grenora	--	--	--	10.0	12.3	11.2	100.9
Strongfield	--	--	--	--	13.0	13.0	100.8
Mountrail	12.2	11.8	13.0	9.2	12.9	11.8	100.0
Plaza	12.4	11.8	12.1	9.6	12.7	11.7	99.2
Kyle	12.0	12.0	13.0	9.4	11.9	11.7	98.6
MT02525	--	--	--	--	12.6	12.6	97.7
Divide	--	--	--	8.7	12.6	10.7	96.4
MT03012	--	--	--	--	12.4	12.4	96.1
Alkabo	--	--	--	9.4	11.8	10.6	95.9
Alzada	--	--	--	9.4	11.5	10.5	94.6

NOTE: Average protein contents in this summary should not be compared to each other since they are not always grown in the same years. Compare yields only to the check variety.

Table 30. Relative hard vitreous amber color (HVAC) of durum varieties as compared to Mountrail when grown under dryland conditions in Daniels County in cooperation with CES.

Variety	2003	2004	2005	2006	average	As % of Mountrail
AC Avonlea	94.5	81.3	70.7	86.3	83.2	145.4
Dilse	96.1	86.2	55.1	83.7	80.3	140.4
Plaza	81.8	60.8	58.5	80.7	70.5	123.2
Alzada	--	--	73.5	82.2	77.9	113.9
Pierce	68.8	57.0	52.2	82.0	65.0	113.6
Kyle	85.1	30.4	65.3	77.7	64.6	112.9
Strongfield	--	--	--	88.7	88.7	105.3
MT03012	--	--	--	88.2	88.2	104.8
MT02DH55	--	--	--	85.0	85.0	101.0
Mountrail	86.3	5.5	52.6	84.2	57.2	100.0
Grenora	--	--	55.0	76.4	65.7	96.0
MT02525	--	--	--	77.4	77.4	91.9
Divide	--	--	27.6	75.8	51.7	75.6
Alkabo	--	--	6.7	64.3	35.5	51.9

NOTE: Average HVACs in this summary should not be compared to each other since they are not always grown in the same years. Compare yields only to the check variety.

Table 31. Performance of durum grown under irrigated conditions at Dagmar, MT.
 Planted: Apr 28, 2006 Harvested: Aug 30, 2006 Cooperator: Steve Brekke

Variety	grain protein	HVAC	semolina color	test weight	yield, bu/acre	
MT02DH55	14.04	81.0	21.9	58.2	63.2	
Strongfield	14.21	85.1	21.2	58.7	62.1	
Alkabo	13.72	81.3	21.9	60.0	60.9	
Divide	13.68	81.1	22.1	59.7	60.9	
Mountrail	13.47	83.3	22.7	59.3	60.8	
Avonlea	14.08	90.3	21.7	59.2	59.9	
Grenora	13.71	84.7	22.5	59.2	58.9	
Pierce	13.33	85.1	21.1	60.5	58.0	
Dilse	14.06	86.3	21.2	59.8	58.0	
Plaza	13.88	79.7	21.5	57.5	55.3	
Kyle	13.33	85.5	20.8	60.2	52.7	x
MT02525	13.98	74.5	21.5	58.5	52.2	x
MT03012	13.94	80.5	19.6	56.8	44.5	x
Alzada	13.29	79.1	19.6	58.7	38.0	x
average	13.77	82.7	21.4	59.0	56.1	
probability	<0.001	<0.001	0.005	<0.001	<0.001	
CV (S/mean)	1.7	3.1	4.2	0.9	7.5	
CV (SE/mean)	1.0	1.8	2.4	0.5	4.3	
LSD 0.05	0.40	4.3	1.5	0.9	7.1	

x indicates significantly lower yield than check variety, Mountrail, at a probability of <0.05

Table 32. Relative yields of durum varieties as compared to Mountrail when grown under irrigated conditions in Sheridan County in cooperation with CES.

Cultivar	2000	2001	2002	2005	2006	Ave	as % of Mountrail
MT02DH55	--	--	--	--	63.2	63.2	103.9
Strongfield	--	--	--	--	62.1	62.1	102.1
Mountrail	60.2	26.5	49.9	34.9	60.8	46.5	100.0
Grenora	--	--	--	33.8	58.9	46.4	96.9
Divide	--	--	--	29.7	60.9	45.3	94.7
AC Avonlea	54.5	19.7	48.8	34.2	59.9	43.4	93.5
Alkabo	--	--	--	27.0	60.9	44.0	91.8
Plaza	56.5	18.2	48.9	33.8	55.3	42.5	91.6
Pierce	--	20.8	45.1	32.3	58.0	39.1	90.8
Dilse	--	--	40.6	30.6	58.0	43.1	88.7
MT02525	--	--	--	--	52.2	52.2	85.9
Kyle	44.0	18.6	49.9	30.9	52.7	39.2	84.4
MT03012	--	--	--	--	44.5	44.5	73.2
Alzada	--	--	--	28.2	38.0	33.1	69.2

NOTE: Average yields in this summary should not be compared to each other since they are not grown in the same years. Compare yields only to the check variety. Severe scab infection in 2001

Table 33. Relative test weights of durum varieties as compared to Mountrail when grown under irrigated conditions in Sheridan County in cooperation with CES.

Cultivar	2000	2001	2002	2005	2006	Ave	as % of Mountrail
Kyle	61.8	57.8	58.3	60.8	60.2	59.8	101.9
Alkabo	--	--	--	59.7	60.0	59.9	101.0
Dilse	--	--	55.8	60.7	59.8	58.8	100.6
Divide	--	--	--	59.0	59.7	59.4	100.2
Mountrail	62.3	55.6	56.8	59.2	59.3	58.6	100.0
Plaza	62.0	55.5	58.2	59.5	57.5	58.5	99.8
AC Avonlea	60.8	55.3	57.3	59.5	59.2	58.4	99.6
Pierce	56.5	57.6	57.3	60.2	60.5	58.4	99.6
Grenora	--	--	--	58.5	59.2	58.9	99.3
Strongfield	--	--	--	--	58.7	58.7	99.0
MT02525	--	--	--	--	58.5	58.5	98.7
MT02DH55	--	--	--	--	58.2	58.2	98.1
Alzada	--	--	--	56.7	58.7	57.7	97.4
MT03012	--	--	--	--	56.8	56.8	95.8

NOTE: Average test weights in this summary should not be compared to each other since they are not grown in the same years. Compare test weights only to the check variety. Severe scab infection in 2001

Table 34. Relative protein contents of durum varieties as compared to Mountrail when grown under irrigated conditions in Sheridan County in cooperation with CES.

Cultivar	2000	2001	2002	2005	2006	Ave	as % of Mountrail
AC Avonlea	14.8	16.3	14.9	11.1	14.1	14.2	106.9
Dilse	--	--	15.1	12.2	14.1	13.8	106.2
Strongfield	--	--	--	--	14.2	14.2	105.2
Grenora	--	--	--	12.2	13.7	13.0	104.0
MT02DH55	--	--	--	--	14.0	14.0	103.7
MT02525	--	--	--	--	14.0	14.0	103.7
Kyle	14.3	15.3	14.7	11.4	13.3	13.8	103.6
Plaza	13.6	15.9	13.9	11.5	13.9	13.8	103.3
MT03012	--	--	--	--	13.9	13.9	103.0
Pierce	--	15.4	14.3	11.5	13.3	13.6	101.7
Mountrail	13.0	14.6	14.1	11.4	13.5	13.3	100.0
Alkabo	--	--	--	11.1	13.7	12.4	99.6
Alzada	--	--	--	11.4	13.3	12.4	99.2
Divide	--	--	--	10.8	13.7	12.3	98.4

NOTE: Average protein contents in this summary should not be compared to each other since they are not grown in the same years. Compare only to the check variety. Severe scab infection in 2001.

Table 35. Summary of durum yields in bu/acre at three off-station sites in northern Montana, 2006.

Variety	Turner, recrop	North Havre, recrop	Loma, recrop	average
Alzada	23.7	18.3	19.3	20.4
Avonlea	22.0	14.3	24.0	20.1
Strongfield	21.6	13.6	25.0	20.0
Alkabo	18.4	16.4	24.1	19.6
MT03012	21.7	18.2	17.9	19.3
Mountrail	18.9	16.0	22.5	19.1
MT02DH55	18.0	14.6	24.4	19.0
Grenora	19.1	15.8	22.1	19.0
Divide	17.9	15.7	22.4	18.7
MT02525	21.1	13.8	20.6	18.5
Dilse	18.2	15.8	18.7	17.6
Kyle	19.2	12.9	17.7	16.6
Pierce	17.6	12.6	19.4	16.5
Plaza	18.9	11.8	16.8	15.8
site average	19.7	15.0	21.1	
probability	0.010	0.055	0.217	
CV (S/Mean)	9.9	15.8	19.3	
CV(SE/Mean)	5.7	9.1	11.1	
LSD 0.05	3.3	4.0	6.8	

Table 36. Summary of durum test weights in lb/bu at three sites in northern Montana, 2006.

Variety	Turner, recrop	North Havre, recrop	Loma, recrop	average
Kyle	58.8	54.4	55.0	56.1
Divide	57.3	54.5	55.5	55.7
Alkabo	58.5	52.9	55.0	55.4
Pierce	57.3	52.6	55.3	55.1
Avonlea	58.1	52.3	54.2	54.9
Strongfield	56.7	52.8	54.4	54.6
MT03012	57.3	53.9	52.4	54.5
Dilse	57.5	51.7	53.5	54.3
MT02525	57.5	52.1	53.0	54.2
Alzada	57.0	52.5	51.9	53.8
Grenora	57.0	51.6	52.7	53.8
Plaza	57.3	51.8	52.2	53.8
Mountrail	56.3	51.8	52.9	53.7
MT02DH55	56.4	50.1	54.1	53.5
site average	57.4	52.5	53.7	
probability	0.007	<0.001	0.002	
CV (S/Mean)	1.3	1.6	2.1	
CV(SE/Mean)	0.7	0.9	1.2	
LSD 0.05	1.2	1.4	1.9	

Table 37. Summary of durum heights in cm at three sites in northern Montana, 2006.

Variety	Turner, recrop	North Havre, recrop	Loma, recrop	average
Avonlea	66.8	59.5	76.2	67.5
Kyle	65.0	59.1	76.5	66.9
Divide	68.3	61.7	69.9	66.6
Pierce	65.1	57.6	75.6	66.1
Alkabo	62.2	58.1	76.2	65.5
Dilse	61.1	62.6	69.3	64.3
Strongfield	61.1	60.7	68.4	63.4
Grenora	62.4	56.1	67.5	62.0
Mountrail	55.3	54.8	71.7	60.6
MT02DH55	55.4	60.2	65.6	60.4
Alzada	59.8	47.6	63.4	56.9
MT03012	54.5	48.4	61.9	54.9
MT02525	51.8	57.1	55.7	54.9
Plaza	54.5	51.6	57.9	54.6
site average	60.2	56.8	68.3	
probability	<0.001	0.139	<0.001	
CV (S/Mean)	7.3	11.3	6.2	
CV(SE/Mean)	4.2	6.5	3.6	
LSD 0.05	7.4	10.7	7.1	

Table 38. Summary of sawfly damage as percent cut stems at two sites in northern Montana, 2006.

Variety	Turner, recrop	North Havre, recrop	average
Dilse	50.0	1.0	25.5
Grenora	50.0	0.7	25.3
Alkabo	48.3	2.3	25.3
MT02DH55	46.7	2.3	24.5
Mountrail	48.3	0.7	24.5
Kyle	45.0	1.0	23.0
Pierce	43.3	1.0	22.2
Avonlea	30.0	0.7	15.3
Divide	26.7	0.7	13.7
Alzada	20.0	1.0	10.5
Strongfield	16.7	0.7	8.7
MT03012	11.7	0.7	6.2
Plaza	11.7	0.7	6.2
MT02525	8.3	0.3	4.3
site average	32.6	1.0	16.8
probability	<0.001	0.412	
CV (S/Mean)	25.9	103.1	
CV(SE/Mean)	14.9	59.5	
LSD 0.05	14.2	1.7	