

PROJECT TITLE: Statewide Durum Variety Performance – 2009 (4W2756)

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OBJECTIVE: To evaluate new and existing varieties and experimental lines of durum under various growing conditions and environments in Montana.

RESULTS: The 2009 Statewide durum yield trial was grown at one irrigated and seven dryland sites. Irrigated site was at Sidney, and dryland sites were at Bozeman, Huntley, Havre, Moccasin, Conrad, Sidney, and Williston, ND. Replicated multiple-row plots were established at all locations using standard research techniques. Summaries of heading, height, test weight, protein content, seed weight, hard vitreous amber color (HVAC), sawfly damage, stem solidness, and yield are in Tables 1-9. A summary of all characters across sites is shown in Table 10.

Earliest blooming line across sites was MT04174, latest blooming line was MT04293 (Table 1). Shortest line across sites was MT01649, tallest line was Divide (Table 2). Cimmyt #8 had the greatest test weight across sites (Table 3). MT01649 had the highest protein across sites (Table 4). MT04340 had the heaviest seed across sites (Table 5). MT04293 had the highest percent hard vitreous amber color across sites (Table 6). Pierce had the most sawfly damage, while Cimmyt #5 and MT04293 had the least sawfly damage (Table 7). Levante had the most solid stem, and Dilse had the most hollow stem (Table 8).

Highest yielding varieties at each site were Divide at **Williston**, Cimmyt #8 at **Sidney** dryland and irrigated, Mountrail at **Bozeman**, Cimmyt #11 at **Conrad**, Maestrals at **Moccasin**, Cimmyt #8 at **Havre**, and Saragolla at **Huntley** (Table 9). Highest yielding variety across dryland sites and all sites was Cimmyt #8 (Table 10).

SUMMARY: Highest yielding varieties at each site were Divide at **Williston**, Cimmyt #8 at **Sidney** dryland and irrigated, Mountrail at **Bozeman**, Cimmyt #11 at **Conrad**, Maestrals at **Moccasin**, Cimmyt #8 at **Havre**, and Saragolla at **Huntley**. Highest yielding variety across all sites was Cimmyt #8.

FUNDING SUMMARY: Expenditure information to be provided by OSP. No other grants support this project.

MWBC FY2011GRANT SUBMISSION PLANS: It is planned to submit this project for funding consideration in the next fiscal year.

Table 1. Heading (days from planting) of durum lines and varieties in the 2008 statewide durum yield trial.

entry	Williston	Sidney		Bozeman	Conrad	Moccasin	Havre	Huntley	Average
		Dry	Irr						
Mountrail	61.0	62.0	52.0	61	79	67.3	68.7	92.3	67.9
Divide	60.3	62.0	52.7	61	78	67.7	68.0	92.0	67.7
Pierce	59.3	62.0	51.3	59	78	67.0	67.7	91.3	67.0
Alkabo	59.0	61.3	51.7	60	78	66.0	67.3	92.7	67.0
Grenora	59.3	61.7	51.0	60	78	67.0	68.0	91.0	67.0
Alzada	57.3	58.0	48.0	54	76	64.7	66.7	89.0	64.2
Strongfield	59.7	63.3	52.3	58	79	67.3	68.7	92.7	67.6
Dilse	61.0	62.0	52.3	61	78	67.3	69.0	92.7	67.9
Svevo	55.7	58.3	48.3	56	76	65.0	65.0	87.7	64.0
Levante	56.7	57.7	48.7	56	76	64.7	65.0	89.7	64.3
Normanno	57.3	58.7	50.7	58	77	65.3	66.0	90.0	65.4
Saragolla	57.3	59.0	49.3	58	76	64.3	66.3	89.7	65.0
Maestrale	57.3	58.7	49.7	58	76	66.0	65.0	90.7	65.2
Cimmyt#5	58.0	60.3	50.7	59	78	67.0	66.7	91.7	66.4
Cimmyt#8	58.0	61.3	52.7	62	79	66.3	67.7	92.3	67.4
Cimmyt#11	57.7	61.0	49.3	58	78	66.3	64.7	89.0	65.5
MT03012	55.0	57.7	48.0	58	76	63.3	64.0	87.0	63.6
MT01649	55.0	57.3	48.0	55	76	66.0	65.0	90.0	64.0
MT04174	55.0	57.0	49.0	57	76	63.7	63.7	86.7	63.5
MT04317	59.0	61.3	52.3	65	79	67.0	67.3	90.7	67.7
MT04293	60.7	62.3	53.0	66	79	68.3	67.7	91.7	68.6
MT04340	59.0	61.7	53.0	65	79	67.3	67.7	90.3	67.9
MT04252	59.0	61.0	53.0	65	79	65.7	66.0	91.0	67.5
MT04268	59.0	60.0	53.0	64	79	67.0	66.7	90.3	67.4
Average	58.2	60.2	50.8	59.8	77.6	66.1	66.6	90.5	66.2
Probability		<0.001	<0.001			<0.001	<0.01		
CV (S/mean)	1.1	1.3	1.3			0.6	0.47	0.5	
CV (SE/mean)		0.7	0.8			0.3	0.27		
LSD 5%	1.0	1.2	1.1			1.8	1.4	1.3	

Table 2. Height (cm) of durum lines and varieties in the 2008 statewide durum yield trial.

entry	Williston	Sidney		Bozeman	Conrad	Moccasin	Havre	Huntley	Average
		Dry	Irr						
Mountrail	63.7	51.0	88.7	88.6	81.3	64.7	70.5	91.2	75.0
Divide	61.0	53.3	88.7	91.3	78.7	69.0	74.2	94.7	76.4
Pierce	62.3	50.3	89.7	89.7	78.7	66.3	72.4	96.3	75.7
Alkabo	64.0	49.0	86.3	86.4	78.7	68.7	67.1	91.7	74.0
Grenora	64.7	50.0	81.3	79.8	76.2	64.3	66.3	82.3	70.6
Alzada	60.0	48.3	72.3	69.9	66.0	60.0	66.1	77.2	65.0
Strongfield	64.7	57.0	87.7	82.2	81.3	65.0	70.5	91.2	74.9
Dilse	59.3	53.0	87.3	88.6	76.2	64.0	67.5	84.6	72.6
Svevo	55.7	50.0	67.7	67.4	61.0	52.7	59.5	73.2	60.9
Levante	55.0	41.7	70.0	64.9	58.4	53.3	58.2	69.1	58.8
Normanno	52.7	46.7	68.3	66.4	58.4	52.3	60.0	75.2	60.0
Saragolla	53.7	45.0	69.7	67.1	58.4	55.3	59.2	70.1	59.8
Maestrale	55.3	47.3	72.7	68.1	63.5	54.7	61.6	71.6	61.9
Cimmyt#5	49.7	43.7	65.7	63.7	61.0	49.0	60.9	69.1	57.8
Cimmyt#8	52.0	50.3	73.7	68.2	68.6	52.0	59.3	71.1	61.9
Cimmyt#11	54.7	47.0	74.0	68.0	76.2	57.3	67.4	79.8	65.5
MT03012	61.3	46.7	72.3	69.6	66.0	54.3	61.1	73.7	63.1
MT01649	52.0	41.3	58.3	61.1	55.9	54.0	54.9	65.0	55.3
MT04174	57.3	46.3	73.0	72.5	73.7	57.3	61.0	72.1	64.1
MT04317	55.7	44.3	72.0	69.5	63.5	51.0	57.4	68.1	60.2
MT04293	58.3	44.7	69.0	67.1	63.5	55.0	57.9	62.7	59.8
MT04340	59.0	44.0	69.7	67.7	68.6	53.3	60.0	66.8	61.1
MT04252	53.7	48.3	72.3	68.7	61.0	52.3	55.1	64.8	59.5
MT04268	56.0	44.7	70.7	67.9	66.0	50.3	57.9	67.8	60.2
Average	57.6	47.7	75.0	73.1	68.4	57.4	62.8	76.2	71.1
Probability		<0.001	<0.001			<0.001	<0.001		
CV (S/mean)	5.6	6.0	4.3			9.328	4.8		
CV (SE/mean)		3.5	2.5			5.386	2.77		
LSD 5%	5.3	4.7	5.3			8.792	5.0		

Table 3. Test weight (lb/bu) of durum lines and varieties in the 2008 statewide durum yield trial.

entry	Williston	Sidney		Bozeman	Conrad	Moccasin	Havre	Huntley	Average
		Dry	Irr						
Mountrail	62.0	61.8	62.5	60.8	63.1	59.0	58.4	60.8	61.1
Divide	62.3	61.8	63.0	61.4	63.5	59.1	58.4	61.1	61.3
Pierce	63.3	61.5	63.3	60.9	64.1	60.4	58.9	61.2	61.7
Alkabo	63.3	62.3	63.8	61.5	63.8	60.6	58.6	60.8	61.9
Grenora	63.1	61.5	62.0	60.7	63.9	59.4	57.5	60.0	61.0
Alzada	62.1	62.4	60.8	61.2	63.7	59.4	58.9	62.2	61.3
Strongfield	62.2	61.7	62.3	60.6	63.4	59.4	58.8	62.4	61.4
Dilse	63.0	61.7	63.2	61.2	63.9	58.3	58.5	59.7	61.2
Svevo	62.0	62.0	62.0	62.6	63.2	58.8	58.8	61.1	61.3
Levante	62.6	61.0	60.2	61.8	63.5	58.7	59.1	60.4	60.9
Normanno	61.2	62.2	61.0	60.9	62.4	58.6	58.2	61.3	60.7
Saragolla	60.9	62.2	61.0	61.1	63.0	58.2	58.1	60.9	60.7
Maestrale	61.3	62.8	62.2	62.7	62.7	58.0	58.4	60.8	61.1
Cimmyt#5	62.0	62.7	62.5	62.3	63.3	58.0	57.7	60.1	61.1
Cimmyt#8	63.0	63.8	64.7	62.1	64.7	59.5	59.9	62.5	62.5
Cimmyt#11	61.1	61.8	62.3	61.8	64.0	56.9	57.5	60.4	60.7
MT03012	62.5	62.3	61.0	61.0	63.9	58.2	58.2	60.4	60.9
MT01649	61.1	61.2	60.0	59.0	61.8	57.2	57.9	59.4	59.7
MT04174	63.1	63.3	61.8	61.9	64.3	58.6	58.7	61.4	61.7
MT04317	61.6	61.8	60.8	58.2	61.6	58.9	58.7	62.2	60.5
MT04293	61.1	61.5	59.7	56.8	61.7	59.0	58.6	62.0	60.0
MT04340	61.7	62.0	60.5	58.6	64.2	59.5	59.1	62.4	61.0
MT04252	61.7	62.5	60.8	56.6	61.6	58.7	59.4	62.1	60.4
MT04268	61.2	62.3	60.3	59.2	60.5	59.0	58.8	62.1	60.4
Average	62.0	62.1	61.7	60.6	63.2	58.8	58.6	61.1	59.7
Probability		<0.001	<0.001		<0.001	<0.001	<0.001		
CV (S/mean)	0.4	0.8	0.5		1.4	0.8286	0.56	0.5	
CV (SE/mean)		0.5	0.3		0.8	0.5859	0.33		
LSD 5%	0.6	0.9	0.5		1.5	1.008	0.5	0.5	

Table 4. Grain protein (percent) of durum lines and varieties in the 2008 statewide durum yield trial.

entry	Williston	Sidney Dry	Sidney Irr	Bozeman	Conrad	Moccasin	Havre	Huntley	Average
Mountrail	13.48	14.60	13.70	12.77	12.84	13.78	15.40	13.12	13.71
Divide	13.42	13.93	12.63	12.11	13.54	14.05	14.94	13.42	13.51
Pierce	13.29	14.86	13.93	11.56	13.96	14.03	15.03	13.25	13.74
Alkabo	13.43	14.31	12.81	12.58	13.01	14.34	14.38	12.25	13.39
Grenora	13.25	13.96	14.13	12.27	12.57	13.78	14.08	13.42	13.43
Alzada	13.59	14.61	13.99	12.16	12.90	14.24	15.28	12.61	13.67
Strongfield	13.58	14.54	14.11	13.43	12.61	14.25	15.44	12.72	13.84
Dilse	14.11	14.62	14.14	12.65	12.96	14.11	15.76	13.87	14.03
Svevo	13.72	13.70	13.61	12.61	12.90	13.91	14.76	12.97	13.52
Levante	12.92	14.53	14.09	11.55	12.63	13.17	14.85	13.73	13.43
Normanno	13.00	13.77	13.65	10.98	12.44	13.45	14.18	12.33	12.98
Saragolla	12.87	11.99	13.00	11.41	11.58	13.69	13.80	11.10	12.43
Maestrade	13.07	11.53	12.07	11.42	11.15	13.33	13.64	10.98	12.15
Cimmyt#5	12.80	12.33	11.73	11.05	10.72	13.47	14.27	12.48	12.36
Cimmyt#8	12.49	10.70	10.53	10.40	10.27	13.26	13.84	9.47	11.37
Cimmyt#11	13.09	11.52	11.82	11.17	10.08	13.58	13.10	10.99	11.92
MT03012	13.33	13.46	13.67	12.76	12.42	13.78	14.60	14.19	13.53
MT01649	14.12	15.45	14.45	12.93	12.84	13.71	14.98	14.31	14.10
MT04174	13.51	14.16	13.73	12.07	12.69	13.75	14.33	14.39	13.58
MT04317	13.57	13.94	14.42	12.66	13.36	14.08	15.03	12.52	13.70
MT04293	13.45	13.88	14.56	13.31	13.45	13.82	14.84	12.90	13.78
MT04340	13.31	14.01	14.41	12.57	13.02	13.77	14.86	13.39	13.67
MT04252	13.41	14.01	14.18	11.53	13.29	13.56	14.95	12.13	13.38
MT04268	13.46	14.31	14.39	12.23	12.82	13.86	15.08	12.50	13.58
Average	13.34	13.70	13.49	12.09	12.50	13.78	14.64	12.71	13.36
Probability		<0.001	<0.001						
CV (S/mean)		3.2	4.6						
CV (SE/mean)		1.8	2.6						
LSD 5%		0.71	1.0						

Table 5. Weight of 100 seed (gm) of durum lines and varieties in the 2008 statewide durum yield trial.

entry	Williston	Sidney		Bozeman	Conrad	Moccasin	Havre	Huntley	Average
		Dry	Irr						
Mountrail	4.75	4.62	5.20	4.44	4.73	4.28	3.75	3.62	4.42
Divide	4.93	5.05	5.60	4.73	5.12	4.87	4.16	3.67	4.77
Pierce	4.39	4.59	4.90	4.50	4.72	3.97	3.82	3.67	4.32
Alkabo	4.90	5.06	5.12	4.21	5.11	4.65	4.02	3.67	4.59
Grenora	4.81	4.94	5.53	4.74	4.90	4.26	3.87	3.99	4.63
Alzada	5.10	5.51	4.72	4.99	5.27	4.93	4.07	3.83	4.80
Strongfield	4.59	5.05	5.01	4.66	4.83	4.40	3.93	3.89	4.55
Dilse	4.78	5.30	5.16	4.73	4.99	4.04	4.03	3.44	4.56
Svevo	4.78	4.94	5.22	5.01	5.04	4.89	4.37	4.00	4.78
Levante	4.63	4.95	5.18	4.79	5.01	4.82	4.33	3.60	4.66
Normanno	4.60	5.49	5.30	4.97	4.84	4.92	4.04	3.81	4.75
Saragolla	3.77	4.43	4.91	4.79	4.63	4.41	3.84	3.50	4.29
Maestrade	4.01	4.84	5.15	4.72	4.69	4.16	3.83	3.80	4.40
Cimmyt#5	3.83	4.76	4.33	4.18	4.02	4.03	3.60	3.28	4.00
Cimmyt#8	3.96	4.49	4.49	4.45	4.37	4.04	3.80	3.37	4.12
Cimmyt#11	4.37	4.89	5.38	5.01	5.32	4.43	4.15	3.39	4.62
MT03012	4.31	4.66	4.65	4.27	4.47	4.04	3.68	3.25	4.17
MT01649	4.35	4.86	5.06	4.56	4.63	4.40	3.99	3.58	4.43
MT04174	4.30	4.81	4.66	4.58	4.52	4.17	3.98	3.70	4.34
MT04317	4.72	5.34	5.07	4.70	5.48	4.67	3.90	3.74	4.70
MT04293	4.98	5.50	5.10	4.78	5.46	4.76	4.36	3.92	4.86
MT04340	5.08	5.42	5.48	5.41	5.04	4.67	4.10	4.18	4.92
MT04252	5.02	5.23	5.30	4.85	4.91	4.63	4.07	3.84	4.73
MT04268	4.90	5.27	5.38	4.64	4.62	4.59	4.13	3.66	4.65
Average	4.58	5.00	5.08	4.70	4.86	4.46	3.99	3.68	4.54

Table 6. Hard vitreous amber color (percent) of durum lines and varieties in the 2008 statewide durum yield trial.

entry	Williston	Sidney Dry	Sidney Irr	Bozeman	Conrad	Moccasin	Havre	Huntley	Average
Mountrail	101.6	103.8	94.6	79.7	91.9	81.8	85.3	63.7	87.8
Divide	102.8	100.1	89.0	87.7	96.7	79.7	78.6	70.6	88.1
Pierce	106.3	103.3	97.2	79.3	92.9	82.5	85.4	67.7	89.3
Alkabo	105.6	106.7	99.2	78.9	88.0	74.8	85.6	50.0	86.1
Grenora	106.4	101.6	102.2	84.1	93.4	76.1	82.7	64.9	88.9
Alzada	103.3	105.6	96.5	96.8	89.5	88.1	86.5	77.7	93.0
Strongfield	103.5	107.4	103.5	84.0	97.6	86.8	87.0	80.8	93.8
Dilse	104.1	101.0	99.1	90.1	92.4	78.6	83.7	64.7	89.2
Svevo	98.6	102.7	95.7	90.1	90.9	85.3	83.6	88.7	91.9
Levante	95.8	95.7	81.1	84.3	90.1	68.3	76.8	62.4	81.8
Normanno	96.1	99.4	93.8	87.2	81.8	80.2	82.8	58.8	85.0
Saragolla	91.5	95.0	89.5	84.2	76.0	66.6	71.9	36.5	76.4
Maestrade	84.0	92.2	91.2	85.0	75.2	69.3	68.6	53.3	77.4
Cimmyt#5	92.9	94.4	80.5	86.2	74.5	71.5	78.5	54.2	79.1
Cimmyt#8	94.4	91.2	79.2	81.1	46.0	76.6	75.3	40.0	73.0
Cimmyt#11	96.1	97.3	82.9	81.7	57.2	65.5	73.8	48.5	75.4
MT03012	102.2	104.8	88.1	78.2	87.3	79.9	80.8	78.9	87.5
MT01649	106.3	104.9	93.2	88.4	95.6	76.8	82.3	82.7	91.3
MT04174	100.3	107.5	94.8	90.0	96.8	85.4	87.9	83.6	93.3
MT04317	96.8	103.4	101.0	83.1	86.4	85.7	80.0	79.5	89.5
MT04293	99.6	101.0	104.6	97.3	89.1	85.8	87.0	88.7	94.1
MT04340	101.2	102.7	100.3	86.8	89.9	86.5	88.8	88.8	93.1
MT04252	99.8	102.5	104.7	92.3	87.0	88.6	83.2	79.9	92.2
MT04268	100.4	104.1	101.1	79.9	84.7	87.2	87.7	80.3	90.7
Average	99.6	101.2	94.3	85.7	85.5	79.5	81.8	68.5	89.6
Probability		<0.001	<0.001						
CV (S/mean)		3.2	7.1						
CV (SE/mean)		1.9	4.1						
LSD 5%		5.3	11.1						

Table 7. Sawfly damage (percent cut) of durum lines and varieties in the 2008 statewide durum yield trial.

entry	Havre	Moccasin	average
Mountrail	18.3	5.0	11.7
Divide	15.0	3.0	9.0
Pierce	35.0	3.5	19.3
Alkabo	21.7	4.5	13.1
Grenora	20.0	2.5	11.3
Alzada	15.0	0.5	7.8
Strongfield	5.3	1.0	3.2
Dilse	21.7	4.5	13.1
Svevo	2.3	0.0	1.2
Levante	8.3	0.5	4.4
Normanno	3.7	0.0	1.8
Saragolla	6.7	1.0	3.8
Maestrone	3.7	0.5	2.1
Cimmyt#5	1.0	0.0	0.5
Cimmyt#8	2.3	0.0	1.2
Cimmyt#11	3.7	0.5	2.1
MT03012	11.7	0.5	6.1
MT01649	20.0	0.5	10.3
MT04174	11.7	1.0	6.3
MT04317	2.3	0.0	1.2
MT04293	1.0	0.0	0.5
MT04340	3.7	0.0	1.8
MT04252	3.7	0.5	2.1
MT04268	2.3	0.0	1.2
Average	10.0	1.2	
Probability	<0.001	<0.001	
CV (S/mean)	39.73	77.7	
CV (SE/mean)	22.94	54.94	
LSD 5%	6.53	1.976	

Table 8. Stem solidness of durum lines and varieties in the 2009 statewide durum yield trial.

entry	Sidney Dry	Sidney Irr	Average
Mountrail	13.7	7.5	10.6
Divide	13.1	8.5	10.8
Pierce	12.2	8.5	10.3
Alkabo	9.4	7.0	8.2
Grenora	14.4	10.8	12.6
Alzada	11.1	10.3	10.7
Strongfield	12.6	6.4	9.5
Dilse	9.2	6.7	7.9
Svevo	16.9	13.2	15.1
Levante	18.7	14.3	16.5
Normanno	14.9	12.5	13.7
Saragolla	14.5	12.5	13.5
Maestrone	12.5	8.1	10.3
Cimmyt#5	13.5	9.9	11.7
Cimmyt#8	13.5	10.5	12.0
Cimmyt#11	16.3	13.4	14.9
MT03012	18.4	13.8	16.1
MT01649	12.7	11.3	12.0
MT04174	15.7	13.2	14.5
MT04317	11.1	8.5	9.8
MT04293	13.9	10.1	12.0
MT04340	11.7	8.6	10.1
MT04252	12.2	8.8	10.5
MT04268	10.1	8.1	9.1
Average	13.4	10.1	69.3
Probability	<0.001	<0.001	
CV (S/mean)	16.3	19.1	
CV (SE/mean)	9.4	11.0	
LSD 5%	3.6	3.2	

Table 9. Yields in bu/ac of durum lines and varieties in the 2009 statewide durum yield trial.

entry	Williston	Sidney Dry	Sidney Irr	Bozeman	Conrad	Moccasin	Havre	Huntley	Ave, dry- land	Ave, all sites
Mountrail	45.4	29.8	99.9	83.2	74.9	26.9	41.1	55.9	57.1	45.7
Divide	46.3	27.8	104.7	70.1	68.3	26.9	44.7	53.5	55.3	44.6
Pierce	43.9	27.3	100.5	71.4	70.5	23.8	36.7	49.5	52.9	42.0
Alkabo	43.8	27.3	96.7	73.6	67.5	29.1	41.4	49.2	53.6	43.1
Grenora	46.2	30.0	106.6	78.5	72.8	26.5	42.8	54.8	57.3	45.5
Alzada	38.4	28.4	77.3	62.5	67.7	26.0	39.5	47.0	48.3	41.2
Strongfield	45.2	30.6	101.9	64.6	94.0	29.8	45.8	55.1	58.4	50.1
Dilse	42.2	26.9	98.1	70.8	70.0	23.4	42.0	39.9	51.7	40.7
Svevo	42.1	28.7	88.6	63.0	74.0	27.9	46.8	52.1	52.9	45.3
Levante	38.7	25.2	80.2	69.8	78.3	28.7	45.0	55.2	52.6	45.2
Normanno	42.6	33.8	91.3	71.7	71.4	30.7	46.4	54.1	55.3	46.5
Saragolla	39.1	32.9	90.5	70.5	69.7	29.1	43.7	59.1	54.3	45.6
Maestrале	39.6	33.1	95.3	68.0	71.6	30.9	45.8	49.0	54.2	45.0
Cimmyt#5	40.2	34.4	98.5	77.8	75.1	29.9	50.4	50.7	57.1	46.8
Cimmyt#8	42.9	40.8	107.3	78.6	87.1	29.4	50.8	56.6	61.7	51.3
Cimmyt#11	41.3	34.0	97.4	71.2	97.3	30.4	47.3	55.0	59.3	50.9
MT03012	41.1	29.5	83.8	75.8	69.9	27.9	40.1	49.2	52.2	43.0
MT01649	40.1	25.4	76.3	57.2	74.2	28.6	43.8	51.0	49.6	43.9
MT04174	42.2	28.0	95.5	73.6	73.8	30.3	38.4	48.6	53.8	43.5
MT04317	40.4	30.5	81.7	72.2	74.5	25.8	39.2	53.7	52.2	44.0
MT04293	38.0	29.4	62.3	66.7	74.9	25.9	42.1	47.1	48.3	42.9
MT04340	43.5	31.2	82.7	74.8	71.6	28.6	42.4	52.3	53.4	44.9
MT04252	39.8	29.4	84.8	74.8	65.8	27.4	40.0	49.8	51.5	42.0
MT04268	42.7	27.7	82.7	74.8	63.4	27.0	38.8	51.8	51.1	41.9
Average	41.9	30.1	90.8	71.5	74.1	27.9	43.1	51.7	50.8	43.1
Probability		<0.001	<0.001	<0.001	0.019	0.020	<0.01			
CV (S/mean)	6.1	8.2	7.6	6.8	13.3	9.0	9.03	10.5		
CV (SE/mean)		4.7	4.4		7.7	5.2	5.21			
LSD 5%	4.2	4.0	11.3	7.9	16.2	4.1	6.4	ns		

Table 10. Across site summary of durum lines and varieties in the 2009 statewide durum yield trial.

entry	Heading*	Height, cm	Test wt, lb/bu	Grain protein, %	hvac	100-seed wt, gm	sawfly damage ¹	stem solidness ²	Yield, bu/ac, all sites	Yield, bu/ac, dryland sites
Mountrail	67.9	75.0	61.1	13.80	91.2	4.42	11.7	10.6	57.1	45.7
Divide	67.7	76.4	61.3	13.52	90.7	4.77	9.0	10.8	55.3	44.6
Pierce	67.0	75.7	61.7	13.81	92.4	4.32	19.3	10.3	52.9	42.0
Alkabo	67.0	74.0	61.9	13.55	91.2	4.59	13.1	8.2	53.6	43.1
Grenora	67.0	70.6	61.0	13.43	92.4	4.63	11.3	12.6	57.3	45.5
Alzada	64.2	65.0	61.3	13.82	95.2	4.80	7.8	10.7	48.3	41.2
Strongfield	67.6	74.9	61.4	14.00	95.7	4.55	3.2	9.5	58.4	50.1
Dilse	67.9	72.6	61.2	14.05	92.7	4.56	13.1	7.9	51.7	40.7
Svevo	64.0	60.9	61.3	13.60	92.4	4.78	1.2	15.1	52.9	45.3
Levante	64.3	58.8	60.9	13.39	84.6	4.66	4.4	16.5	52.6	45.2
Normanno	65.4	60.0	60.7	13.07	88.8	4.75	1.8	13.7	55.3	46.5
Saragolla	65.0	59.8	60.7	12.62	82.1	4.29	3.8	13.5	54.3	45.6
Maestrale	65.2	61.9	61.1	12.32	80.8	4.40	2.1	10.3	54.2	45.0
Cimmyt#5	66.4	57.8	61.1	12.34	82.6	4.00	0.5	11.7	57.1	46.8
Cimmyt#8	67.4	61.9	62.5	11.64	77.7	4.12	1.2	12.0	61.7	51.3
Cimmyt#11	65.5	65.5	60.7	12.05	79.2	4.62	2.1	14.9	59.3	50.9
MT03012	63.6	63.1	60.9	13.43	88.8	4.17	6.1	16.1	52.2	43.0
MT01649	64.0	55.3	59.7	14.07	92.5	4.43	10.3	12.0	49.6	43.9
MT04174	63.5	64.1	61.7	13.46	94.7	4.34	6.3	14.5	53.8	43.5
MT04317	67.7	60.2	60.5	13.87	90.9	4.70	1.2	9.8	52.2	44.0
MT04293	68.6	59.8	60.0	13.90	94.9	4.86	0.5	12.0	48.3	42.9
MT04340	67.9	61.1	61.0	13.71	93.8	4.92	1.8	10.1	53.4	44.9
MT04252	67.5	59.5	60.4	13.56	94.0	4.73	2.1	10.5	51.5	42.0
MT04268	67.4	60.2	60.4	13.74	92.2	4.65	1.2	9.1	51.1	41.9
Average	69.3	71.1	59.7	13.36	89.6	4.54	5.6	11.8	50.8	43.1

*days from planting

1/Havre and Moccasin sites only

2/Sidney irrigated and dryland sites only