Title: Durum cultivar performance in central Montana. (4W2755)

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Objectives: To evaluate the performance of durum cultivars and durum production in central Montana. Provide unbiased information on improved durum cultivars for producers to use in the selection of best suited durum cultivars for central Montana. Provide information on the yield potential of durum in central Montana for producer to use in determining if they want to grow durum in response to market prices.

Results:
Spring durum has historically been an inferior grain producer in central Montana when compared to hard red spring wheat. In recent years, we have not included a hard spring wheat check. However, McNeal spring wheat had been used in trials where current varieties, such as Mountrail, were evaluated at Moccasin (data not presented). Never did the top durum lines match the yield of the spring wheat check. An 81 entry hard spring wheat trial was adjacent to the 2009 durum trial. The spring wheat nursery mean yield was 31.4 bu/a with a high yield of 37 bu/a. The 2009 durum nursery had mean yield of 27.9 and a high yield of 30.9 bu/a.

The 2009 durum variety trial yields ranged from 30.9 bu/a to 23.4 bu/a (Table 1). Meastrale and Normanno were the two high yielding cultivars. The trial mean protein was 16.2% with Dilse having the high protein content at 17.4. Forty durum cultivars and lines have been evaluated over the past four seasons. Eight cultivars have been included in all of the CARC trials over these four years. Strongfield had the high multi-year mean yield of the eight cultivars (Table 2).

Summary:
More widely adapted durum cultivars are being developed. the durum yield potential in central Montana dryland is still inferior to top yield hard red spring wheat. However, it is the value of the crop per acre, rather than yield, that determines if producers will want to grow durum in central Montana.

Funding Summary:
Expenditure information to be provided by OSP
No other grant support for this project

MWBC FY2011 Grant Submission Plans:
It is planned to submit this project for funding consideration in the next fiscal year.

Table 1 2009 Durum performance evaluation trial on no-till fallow at CARC.
Exp 980709 Central Agricultural Research Center. Moccasin, Montana.

Cultivar/ID	Trt	Head Date	Plant Height	Grain Yield	Test Weight	Grain Protein	Sawfly Cutting
	#	d of Y	"	bu/a	lbs/bu	%	score
Maestrale	13	182	22	30.9	58.0	15.3	0.5
Normanno	11	181	21	30.7	59.0	15.5	0.0
Cimmyt#11	16	182	23	30.4	57.0	14.7	0.5
MT04174	19	180	23	30.3	58.5	16.0	1.0
Cimmyt#5	14	183	20	29.9	58.0	15.4	0.0
Strongfield	7	183	26	29.8	59.5	16.9	1.0
Cimmyt#8	15	182	21	29.4	59.5	14.9	0.0
Alkabo	4	182	27	29.1	61.0	15.5	4.5
Saragolla	12	180	22	29.1	58.5	15.0	1.0
Levante	10	181	21	28.7	59.0	16.4	0.5
MT01649	18	182	22	28.6	57.0	16.7	0.5
MT04340	22	183	21	28.6	59.5	16.8	0.0
MT03012	17	179	22	27.9	58.5	15.9	0.5
Svevo	9	181	21	27.9	58.5	16.7	0.0
MT04252	23	182	21	27.4	59.0	16.7	0.5
MT04268	24	183	20	27.0	59.0	16.8	0.0
Divide	2	184	28	26.9	59.0	16.8	3.0
Mountrail	1	183	26	26.9	59.0	16.8	5.0
Grenora	5	183	26	26.5	59.5	16.1	2.5
Alzada	6	181	24	26.0	59.0	16.4	0.5
MT04293	21	184	22	25.9	59.0	16.2	0.0
MT04317	20	183	20	25.8	59.0	16.4	0.0
Pierce	3	183	27	23.8	60.5	16.7	3.5
Dilse	8	183	26	23.4	58.0	17.4	4.5
Mean		182.2	22.94	27.94	58.85	16.17	1.229
Pvalue		0.00	0.00	0.02	0.00	0.00	0.00
CV 1		0.6	9.3	9.0	0.9	0.0	77.7
LSD 0.05		1.812	3.5168	4.111	1.055	0	1.976

Seed Date: 21 - April - 09 no-till into 2007 grain barley stubble with a no-till double disk drill.
Soil: Good seed bed. Temp. @ 2 inch depth: 9^{o} C. Precip: Crop Y: 10.82"
Fertilizer: W/seed Top Dress: 60 N as urea
Pesticdes: PP 12 oz 4 lb glyphosate in 7.5 gal. 20 May 2 pts MCPA + Bromoxynil in 13 gal.
Comment: Cool summer nights and above ave. July precip. saved the spring wheat crop. The first and third reps had a significant levels of sawfly in some plots. The fact that the reps were split between two ranges and the sawfly were worse nearer the alleys, makes the data weak. It may be best to view the data as a yes or no the saw fly cut stems.

Table 2. Multi-year yield of durum cultivars and development lines.
Exp 9807 Central Agricultural Research Center. Moccasin, Montana

Cultivar/ID	CARC 2009 Fallow	CARC 2008 Recrop	CARC 2007 Fallow	CARC 2006 Fallow	Moore 2006 Recrop	Average
	bu/a	bu/a	bu/a	bu/a	bu/a	bu/a
Alkabo	29.1	19.0	29.0	37.0	17.0	26.2
Alzada	26.0	17.6	35.4	31.8	16.5	25.4
Divide	26.9	12.6	33.1	37.1	16.0	25.1
Grenora	26.5	14.9	30.1	39.0	15.8	25.3
Mountrail	26.9	11.7	29.8	31.5	16.6	23.3
MT03012	27.9	15.9	27.0	29.4	16.2	23.3
Pierce	23.8	14.7	26.5	33.5	15.3	22.8
Strongfield	29.8	20.9	29.7	38.7	15.3	26.9
MT01649	28.6	23.9		31.8	17.1	
Dilse	23.4	21.2		31.9	15.1	
Normanno	30.7	22.3	31.7			
MT04174	30.3	19.4	29.4			
Levante	28.7	12.1	28.9			
MT04317	25.8		27.5			
Cimmyt#11	30.4	19.4				
Cimmyt#8	29.4	18.6				
Saragolla	29.1	18.6				
Maestrale	30.9	16.6				
Cimmyt#5	29.9	17.6				
Svevo	27.9	13.9				
MT04340	28.6					
MT04252	27.4					
MT04268	27.0					
MT04293	25.9					
MT01695		21.1	32.3	33.5	15.9	
MT02DH55		20.0	28.9	34.3	15.5	
MT02DH82		15.2	29.4	33.6	17.2	
MT02525		17.7	29.3	29.9	16.0	
MT02302			28.7	37.0	14.8	
MT02298			26.4	32.2	14.0	
MT03108			28.1	28.0	14.5	
Avonlea				33.0	18.0	
Plaza				35.5	14.7	
Maier				32.7	15.9	
Kyle				34.4	13.8	
MT01617				30.0	17.0	
MT02DH71				31.9	14.4	
MT02DH32				27.6	13.0	
MT04315			27.6			
MT02DH75		18.9				
Mean	27.94	17.65	29.44	33.1	15.7	