

PROJECT TITLE: 2003 Evaluation of durum wheat variety performance under no-till recrop conditions following a pulse crop near Moccasin, Montana.
combine with:
2003 Evaluation of durum wheat variety performance in recrop systems near Denton and Fort Benton.

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OBJECTIVES:
Evaluate the agronomic performance of durum wheat varieties in recrop or continuous crop environments in the southern triangle and central Montana.

RESULTS:
Twenty spring durum varieties were re-cropped no-till into lentil stubble. The only supplemental fertilizer was 50lbs per acre of 20-20-20-10 blend applied through the drill at seeding. Conditions were good at seeding, but plant available moisture conditions deteriorated through June and July resulting in low yields and low test weights. Six durum varieties were seeded in off-station recrop trials at Denton and Fort Benton. The Denton seedbed was generally good condition, while the Fort Benton location had marginal soil moisture. A June 26 frost ruined the Fort Benton trial by causing sterile heads in erratic patterns. The intent of this small trial is to routinely assess the yield potential of durum in the various environments of central Montana. The Denton location seeded no-till into lentil stubble with 45 N broadcast applied. Yield of past durum varieties has been inferior to the hard red spring wheat in central Montana. Thus only newer varieties will be included in this six-entry nursery.

The 2003 Moccasin no-till recrop durum yields were so low that it would not be useful to make too many inferences from the results (Table 1). Based on the protein levels, it appears the 2002 drought stressed lentils produced sufficient nitrogen for the 2003 durum yield levels. The durum yield potential is generally inferior to the yield potential of McNeal spring wheat in recrop environments at Moccasin as no durum's multi-year yield means approach that of McNeal (Table 2).

Maier was the high grain producing durum at Denton in 2003 (Table 3). Over a five year period, 1999-2003, Maier and Mountrail have a two bushel greater yield than Kyle.

SUMMARY:
Drought conditions contributed to low yields and test weights and above normal grain protein levels. New varieties are steadily replacing many of the old standards as the consistent top yielders.

FUTURE PLANS:
Spring durum wheat variety evaluations on recrop will continue at Moccasin, Denton, and Geraldine.

Table 1 2003 Durum variety trial recropped no-till on lentil stubble.
Exp 9870 Central Agricultural Research Center. Moccasin, Montana.

ID	Pedigree	Headdate	Plant Ht	Yield	Test Wt	Protein
		d of y	"	bu/a	lbs/bu	%
D89135	MAIER	182	25	17.8	57.4	14.0
YU894-75	WPB YU 894-75	180	28	17.0	57.0	13.5
YU894163	WPB YU 894-163	179	26	16.8	56.0	13.8
97DU2	UTOPIA	181	28	16.8	56.8	13.0
D901442	LEBSOCK	181	26	16.5	58.5	15.5
PIERCE	PIERCE	182	27	16.5	58.1	15.0
PI574642	MCNEAL	182	25	16.0	54.7	15.2
NDMUNICH	Munich	180	25	15.9	58.0	15.5
PI478289	MONROE	179	26	15.8	57.4	15.0
PI510696	RENVILLE	182	25	15.6	57.3	14.1
ACAVONLE	AC AVONLEA	181	27	15.3	58.0	14.5
D00AL-27	AZ PLANT Brder D00AL-27	180	26	15.3	54.0	14.7
D87130	BEN	182	28	15.1	57.9	15.0
D901313	MOUNTRAIL	183	26	15.1	56.4	14.5
AP 1526	GENERAL MILLS AP 1526	181	27	14.9	58.8	14.5
CI 17789	VIC	181	28	14.7	58.4	13.5
DILSE	DILSE	183	24	14.4	58.9	14.0
CANKYLE	KYLE	185	27	14.2	55.9	14.0
WPBLAKER	LAKER	183	25	13.8	58.3	14.5
D91080	PLAZA	183	24	13.6	55.9	14.0
	OVERALL MEAN	181.5	26.2	15.6	57.19	14.39
	CV (S/MEAN) %	0	9.263	9.625	1.541	6.34
	LSD(0.05 by t	0	4.006	2.476	1.456	1.909
Seed Date:	21-Apr-2003	Herbicide:	Preplant glyphosate and bromoxynil + 2,4D			
Fertilizer:	10-10-10-5 w/seed	No additional N was applied.				
Harvest Date:	8-Aug-2003	Precip: crop yr:	12.41"	GrowSea:	8.17"	

Table 2 2003 Multi-year Moccasin recrop yield summary of selected durum varieties.
 Exp. 9870 Central Agricultural Research Center, Moccasin, MT

Varieties	1996	1997	1998	1999	2000	2001	2002**	2003	Ave.	McNeal same Y
	----- bu/a -----									
McNeal^{1/}	24	65	32	41	31	34		16	34.7	
Monroe	23	56	33	31	27	28		16	30.5	34.7
Laker	23	50	34	34	28	28			32.8	37.8
Medora	23	51	29	31	24	27			30.8	37.8
Ben	23	53	33	32	27	29		15	30.3	34.7
Renville	22	59	29	34	24	27		16	30.1	34.7
Ward	22	50	27	32	27	26			30.7	34.7
Kyle	21	56	31	32	29	30		14	30.5	34.7
Vic	21	58	35	31	31	30		15	31.5	34.7
Plenty	20	56	32	34	27	--			33.8	38.6
Munich	20	57	33	34	31	26		16	31.0	34.7
Utopia		59	35	40	35	27		17	32.8167	40.6
Sceptre			33	33	28	27			30.25	34.5
Maier				36	30	29		18	30.25	35.3
Mountrail				36	28	27		15	28.25	35.3
Lebsock				39	30	30		17	26.5	35.3
Plaza				36	30	25		14	29.0	35.3
Nursery Mn	21.8	55	31.4	34	28.8	28		15.6	30.7	

^{1/} McNeal is used as a hard red spring wheat check.

**Moccasin recrop spring durum trial was hailed in 2002.

Table 3 Denton recrop spring durum 2003 and multi-year yield summary for 1997-2003.
 Exp. 9871 Central Agricultural Research Center, Moccasin, MT

Variety	Yield							Test Wt	Protein
	1997	1998	1999	2000	2001	2002	2003	2003	2003
	bu/a							lbs/bu	%
McNeal ^{1/}	43	34	21	31	24				
Kyle	28	33	17	23	22	19	13	56.0	17.6
Maier			14	23	24	17	21	58.1	15.2
Mountrail			16	26	26	18	16	55.9	17.0
Lebsock				26	24	20	18	58.9	15.0
Plaza				24	25	--			
Utopia						22	18	54.5	16.0
AC Avonlea						21	14	56.1	17.4
Nursery Mean	26.8	28.3	14.5	25.0	24.1	19.4	16.6	56.5	16.4
CV (S/MEAN) %							12.58	0.91	
LSD(0.05 by t)							3.812*	0.94	

^{1/} McNeal is used as a hard red spring wheat check.

2003 Seed Date: 28-Apr-03

2003 Fertilizer: 10-10-10-5 w/seed 30 N top dress urea.

2003 Harvest: 15-Aug-03

PROJECT TITLE: 2003 Evaluation of durum wheat variety performance on no-till fallow near Winifred.

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OBJECTIVES:
 Evaluate the agronomic performance of durum wheat varieties in crop-fallow environment in central Montana on deeper clay soils near Winifred.

RESULTS:
 A combination of frequent high winds and muddy soils made it difficult for producers seed when they wanted to. Droughty conditions that set in by the first week of June resulted in poor spring crops especially when seeded in mid-late May. Cooperating farmer seeded his spring wheat after the 21-May. The durum trial averaged 18.6 bu/a while the wheat around the plot averaged 4.1 bu/a. Over four season (200-2003) Mountrail and Maier have higher mean yields than Kyle and Lebsock (Table 1). 2003 Yield difference were not significantly different. Lebsock had significantly higher test weight than Utopia and Mountrail.

SUMMARY:
 The weather continues to frustrate durum wheat production in central Montana. There is little differences in yield of the trial entries, but some have tend to have lower test weights.

FUTURE PLANS:

Table 1 Winifred spring durum variety trial on fallow multi-year (1998-2003) yield summary and 2003 performance.

Exp. 9873 Central Agricultural Research Center, Moccasin, MT

Variety	1998	1999	2000	2001	2002	Yield 2003	Test Wt 2003	Protein 2003
	----- bu/a -----					bu/a	lbs/bu	%
McNeal ¹¹	47	44	33	25				
Kyle	39	33	34	23	36	18	58.0	16.9
Maier		36	35	23	43	18	58.3	15.9
Mountrail		34	36	26	40	18	57.5	15.9
Lebsock			30	24	36	20	59.4	15.5
Plaza			31	23	--			
Utopia						18	56.4	16.4
AC Avonlea						19	58.2	15.8
Mean	38.7	34.3	31.7	24.0	40.1	18.6	58.0	16.1
CV 1						7.295	0.79	
LSD (0.05)						2.5	0.82	

Seed Date: 2-May-03 Moist Soil depth: 42"

Fertilizer: 10-10-10-5 w/seed 60 N urea top dress

Harvest Date: 13-Aug-03

This trial will be continued.