

PROJECT TITLE: Evaluation of durum varieties under dryland fallow and dryland recrop conditions at four off-station sites – 2015

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Personnel:

Site/County	Producers	CES/AES cooperators
Flaxville, Daniels	David Roos	Bobbie Roos, CES
Poplar, Roosevelt	Mark Swank	
Nashua, Valley	Bill Lauckner	Shelley Mills, CES
Wibaux, Wibaux	Rick Miske	Dave Bertelsen, CES

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

METHODS:

County	previous crop	planting date	harvest date
Valley, dryland	fallow	May 6	Aug 13
Roosevelt, dryland	fallow	May 7	Aug 12
Wibaux, dryland	spring wheat	May 8	Aug 27
Daniels, dryland	fallow	May 7	Aug 19

RESULTS:

Summaries of yields, test weights, protein contents, and heights across sites in eastern Montana are shown in Tables 1-4. Tioga yielded the most across sites followed by Mountrail, Alkabo, and Joppa (Table 1). Alkabo and Tioga had the greatest test weight across sites (Table 2). Strongfield had the greatest protein content across sites followed by Carpio (Table 3). Tioga was the tallest and MT112434 was the shortest across sites (Table 4).

Flaxville, Daniels County: Performances of yield, test weight, and protein of durum varieties grown at Flaxville are shown in Tables 5. Statistically, four experimental lines and one variety yielded significantly lower than the check variety, Mountrail.

Poplar, Roosevelt County: Performances of yield, test weight, and protein of durum varieties grown at Poplar are shown in Tables 6. Statistically, one experimental line yielded significantly less than the check variety, Mountrail.

Nashua, Valley County: Performances of yield, test weight, and protein of durum varieties grown at Nashua are shown in Tables 7. Statistically, only one variety yielded significantly less than the check variety, Mountrail.

Wibaux, Wibaux County: Performance of yield, test weight and protein of durum varieties at Wibaux are shown in Table 8. Statistically, all varieties yielded less than the check variety, Mountrail, except Divide, Tioga, and the experimental line MT101717, who yielded similar to Mountrail at this site.

SUMMARY:

Off-station yield trials are conducted at four sites in northeastern 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 wheat producers make decisions on what varieties to grow based on data from these trials.

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

MWBC FY2016 GRANT SUBMISSION PLANS: will submit a proposal to continue this

Table 1. Summary of durum yields in bu/acre at four off-station sites in eastern Montana, 2015.

Variety	Flaxville	Poplar	Nashua	Wibaux	average
	dryland fallow	dryland fallow	dryland fallow	dryland recrop	
Tioga	32.2	42.0	27.9	29.9	33.0
Mountrail	26.2	40.6	26.3	31.4	31.1
Alkabo	23.6	42.0	28.4	25.8	29.9
Joppa	26.8	42.0	20.4	26.1	28.8
Carpio	22.8	39.9	21.8	25.4	27.5
MT101717	15.4	40.2	22.7	31.1	27.3
MT101694	20.0	36.3	26.7	26.4	27.3
MT112444	12.6	39.2	26.9	29.6	27.1
Divide	17.7	38.8	21.2	27.2	26.2
Grenora	18.0	38.6	20.3	25.8	25.7
Strongfield	18.0	35.6	24.5	22	25.0
MT112434	13.4	35.6	24.4	24.4	24.4
MT112463	14.9	29.8	22.9	22.5	22.5
Silver	4.2	37.6	16.9	22.4	20.3
average	19.0	38.4	23.7	26.4	26.9
LSD (0.05)	9.1	9.5	8.8	4.2	

Table 2. Summary of durum test weights in bu/acre at four off-station sites in eastern Montana, 2015.

Variety	Flaxville	Poplar	Nashua	Wibaux	average
	dryland fallow	dryland fallow	dryland fallow	dryland recrop	
Alkabo	64.0	42.0	62.6	61.3	55.3
Carpio	62.3	39.9	61.3	60.3	53.8
Divide	63.0	38.8	62.8	60.0	53.9
Grenora	63.3	38.6	61.7	59.9	53.4
Joppa	62.9	42.0	62.1	59.5	54.5
Mountrail	62.0	40.6	62.6	58.8	54.0
MT101694	62.8	62.0	64.5	26.3	50.9
MT101717	63.7	60.7	62.8	31.1	51.5
MT112434	61.5	59.6	62.1	24.4	48.7
MT112444	61.8	59.3	61.7	29.6	50.2
MT112463	62.3	59.0	62.0	22.6	47.9
Silver	58.9	37.6	61.7	58.0	52.4
Strongfield	61.9	35.6	62.6	60.7	53.0
Tioga	63.7	42.0	62.6	60.8	55.1
Site average	62.4	47.0	62.4	48.1	52.5

Table 3. Summary of durum protein in percent at four off-station sites in eastern Montana, 2015.

Variety	Flaxville dryland fallow	Poplar dryland fallow	Nashua dryland fallow	Wibaux dryland recrop	average
Alkabo	15.5	15.1	10.5	12.9	12.8
Carpio	14.2	16.0	12.8	12.7	13.8
Divide	16.3	16.1	10.6	13.6	13.4
Grenora	15.2	15.1	11.9	12.5	13.2
Joppa	13.5	15.3	13.1	11.9	13.4
Mountrail	16.5	15.4	10.3	13.8	13.2
MT101694	16.2	15.1	12.6	12.5	13.4
MT101717	15.8	14.9	11.7	11.6	12.7
MT112434	16.2	14.5	12.1	12.1	12.9
MT112444	15.4	14.4	11.8	11.4	12.5
MT112463	13.6	14.4	12.0	11.6	12.7
Silver	19.0	15.2	11.5	13.1	13.3
Strongfield	17.7	16.9	12.0	13.0	14.0
Tioga	14.6	16.2	11.9	12.0	13.4
Site average	15.7	15.3	11.8	12.5	13.2

Table 4. Summary of durum height in inches at four off-station sites in eastern Montana, 2015.

Variety	Flaxville dryland fallow	Poplar dryland fallow	Nashua dryland fallow	Wibaux dryland recrop	average
Tioga	65.3	91.7	79.3	89.7	86.9
Joppa	61.7	90.7	70.3	85.0	82.0
Strongfield	58.0	87.3	73.7	84.0	81.7
MT101694	51.7	85.3	68.3	89.0	80.9
Mountrail	57.7	87.0	68.7	85.3	80.3
Alkabo	50.3	84.0	76.0	80.0	80.0
Carpio	52.3	87.3	69.0	82.7	79.7
Divide	51.0	88.7	67.0	81.3	79.0
Grenora	48.3	82.0	67.0	79.3	76.1
MT112463	46.3	70.0	56.7	66.7	64.5
MT112444	46.3	68.0	58.3	61.3	62.5
Silver	40.7	68.7	53.0	65.7	62.5
MT101717	47.7	67.3	53.0	66.0	62.1
MT112434	41.0	65.3	58.7	61.3	61.8
Site average	51.3	80.2	65.6	77.0	74.3

Table 5. Performance of durum grown under dryland fallow conditions at Flaxville, MT.

Planted: May 7, 2015

Harvested: August 19, 2015

Cooperator: Dave Roos

Variety	height, in	grain protein, %	test wt lb/bu	yield bu/ac
Alkabo	50.3	15.5	64.0	23.6
Carpio	52.3	14.2	62.3	22.8
Divide	51.0	16.3	63.0	17.7
Grenora	48.3	15.2	63.3	18.0
Joppa	61.7	13.5	62.9	26.8
Mountrail	57.7	16.5	62.0	26.2
MT101694	51.7	16.2	62.8	20.0
MT101717	47.7	15.8	63.7	15.4
MT112434	41.0	16.2	61.5	13.4
MT112444	46.3	15.4	61.8	12.6
MT112463	46.3	13.6	62.3	14.9
Silver	40.7	19.0	58.9	4.2
Strongfield	58.0	17.7	61.9	18.0
Tioga	65.3	14.6	63.7	32.2
Average	51.3	15.7	62.4	19.0
LSD		^	^	9.08

^ data was only taken for one replication

Table 6. Performance of durum grown under dryland fallow conditions at Poplar, MT.

Planted: May 7, 2015

Harvested: August 12, 2015

Cooperator: Mark Swank

Variety	height, in	grain protein, %	test wt lb/bu	yield bu/ac
Alkabo	84.0	15.1	42.0	42.0
Carpio	87.3	16.0	39.9	39.9
Divide	88.7	16.1	38.8	38.8
Grenora	82.0	15.1	38.6	38.6
Joppa	90.7	15.3	42.0	42.0
Mountrail	87.0	15.4	40.6	40.6
MT101694	85.3	15.1	62.0	36.3
MT101717	67.3	14.9	60.7	40.2
MT112434	65.3	14.5	59.6	35.6
MT112444	68.0	14.4	59.3	39.2
MT112463	70.0	14.4	59.0	29.8
Silver	68.7	15.2	37.6	37.6
Strongfield	87.3	16.9	35.6	35.6
Tioga	91.7	16.2	42.0	42.0
Average	80.2	15.3	47.0	38.4
LSD		^	^	7.5

^ data was only taken for one replication

Table 7. Performance of durum grown under dryland fallow conditions at Nashua, MT.

Planted: May 6, 2015

Harvested: August 13, 2015

Cooperator: Bill Lauckner

Variety	height, in	grain protein, %	test wt lb/bu	yield bu/ac
Alkabo	76.0	10.5	62.6	28.4
Carpio	69.0	12.8	61.3	21.8
Divide	67.0	10.6	62.8	21.2
Grenora	67.0	11.9	61.7	20.3
Joppa	70.3	13.1	62.1	20.4
Mountrail	68.7	10.3	62.6	26.3
MT101694	68.3	12.6	64.5	26.7
MT101717	53.0	11.7	62.8	22.7
MT112434	58.7	12.1	62.1	24.4
MT112444	58.3	11.8	61.7	26.9
MT112463	56.7	12.0	62.0	22.9
Silver	53.0	11.5	61.7	16.9
Strongfield	73.7	12.0	62.6	24.5
Tioga	79.3	11.9	62.6	27.9
Average	65.6	11.8	62.4	23.7
LSD		^	^	8.8

^ data was only taken for one replication

Table 8. Performance of durum grown under dryland recrop conditions at Wibaux, MT.

Planted: May 8, 2015

Harvested: August 27, 2015

Cooperator: Rick Miske

Variety	height, in	grain protein, %	test wt lb/bu	yield bu/ac
Alkabo	80.0	12.9	61.3	25.8
Carpio	82.7	12.7	60.3	25.4
Divide	81.3	13.6	60.0	27.2
Grenora	79.3	12.5	59.9	25.8
Joppa	85.0	11.9	59.5	26.1
Mountrail	85.3	13.8	58.8	31.4
MT101694	89.0	12.5	26.3	26.4
MT101717	66.0	11.6	31.1	31.1
MT112434	61.3	12.1	24.4	24.4
MT112444	61.3	11.4	29.6	29.6
MT112463	66.7	11.6	22.6	22.5
Silver	65.7	13.1	58.0	22.4
Strongfield	84.0	13.0	60.7	22.0
Tioga	89.7	12.0	60.8	29.9
Average	77.0	12.5	48.1	26.4
LSD		^	^	4.2

^ data was only taken for one replication