

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

PRINCIPAL INVESTIGATOR: Chengci Chen, Joyce Eckhoff, MSU Eastern Agricultural Research Center, Sidney, MT

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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 spring wheat 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. Vida yielded the most across sites followed by Brennan, SY Tyra, and MT1316 (Table 1). MT1338 had the greatest test weight across sites followed by Brennan, SY Tyra, and SY Soren (Table 2). Brennan had the greatest protein content across sites followed by McNeal, WB9879CL, and SY Soren (Table 3). Elgin was the tallest and SY Tyran was the shortest across sites (Table 4).

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

Poplar, Roosevelt County: Performances of yield, test weight, and protein of spring wheat varieties grown at Poplar are shown in Tables 6. One experimental line and 7 varieties yielded significantly less than the check variety, Vida.

Nashua, Valley County: Performances of yield, test weight, and protein of spring wheat varieties grown at Nashua are shown in Tables 7. Statistically, all varieties yielded similar to the check variety, Vida, except WB9879CL, McNeal, Duclair, Prosper, and Egan who yielded significantly less than Vida.

Wibaux, Wibaux County: Performance of yield, test weight and protein of durum varieties at Wibaux are shown in Table 8. Statistically, three experimental lines and seven varieties yielded significantly less than the check variety, Vida.

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 spring 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 effort.

Table 1. Summary of spring wheat 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	
Barlow	23.4	44.5	23.7	25.5	29.3
Brennan	26.5	55.9	26.4	30.6	34.9
Choteau	25.1	37.5	24.3	28.6	28.9
Duclair	28.0	43.3	18.8	23.0	28.3
Egan	21.6	47.7	16.7	25.5	27.9
Elgin	30.7	43.9	22.5	28.2	31.3
McNeal	34.8	43.9	19.5	25.9	31.0
MT 1219	25.0	43.2	25.8	26.4	30.1
MT 1316	28.3	51.5	27.9	28.9	34.1
MT 1337	22.5	42.2	22.2	22.6	27.4
MT 1338	19.1	47.7	23.5	27.7	29.5
Prosper	26.9	41.2	17.6	20.4	26.5
Reeder	31.4	52.4	23.6	28.2	33.9
SY Soren	30.8	51.0	25.3	28.4	33.9
SY Tyra	36.6	46.0	27.1	27.2	34.2
Velva	37.9	47.7	22.9	25.9	33.6
Vida	37.0	50.2	26.3	33.8	36.8
WB9879CL	30.6	43.8	20.5	23.8	29.7
Site average	28.7	46.3	23.0	26.7	31.2
LSD (0.05)	16.9	9.5	5.6	7.1	

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

Variety	Flaxville	Poplar	Nashua	Wibaux	average
	dryland fallow	dryland fallow	dryland fallow	dryland recrop	
Barlow	64.7	62.6	63.9	61.8	63.3
Brennan	63.8	62.6	62.7	61.3	62.6
Choteau	63.2	59.7	62.3	58.0	60.8
Duclair	62.7	58.9	61.8	57.6	60.3
Egan	61.2	58.3	61.7	57.4	59.7
Elgin	63.3	60.2	62.3	59.0	61.2
McNeal	62.4	59.3	62.0	57.8	60.4
MT 1219	63.4	59.3	61.8	57.2	60.4
MT 1316	63.3	60.0	62.0	57.6	60.7
MT 1337	61.8	60.1	60.7	58.0	60.2
MT 1338	63.8	62.2	63.8	61.4	62.8
Prosper	63.4	59.1	61.3	58.6	60.6
Reeder	63.3	60.3	62.7	58.9	61.3
SY Soren	64.1	61.3	62.9	60.1	62.1
SY Tyra	62.0	61.6	64.2	61.1	62.2

Velva	62.7	59.8	63.1	59.8	61.4
Vida	62.5	59.3	62.5	59.2	60.9
WB9879CL	64.1	60.2	62.4	58.3	61.3
Site average	63.1	60.3	62.5	59.1	61.2

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

Variety	Flaxville dryland fallow	Poplar dryland fallow	Nashua dryland fallow	Wibaux dryland recrop
Barlow	14.9	14.7	10.7	13.5
Brennan	16.5	14.3	12.2	15.0
Choteau	15.6	15.1	11.2	14.7
Duclair	14.1	14.6	10.5	14.7
Egan	16.0	16.1	11.3	14.6
Elgin	15.2	15.2	10.5	13.4
McNeal	15.1	14.4	11.4	14.9
MT 1219	14.1	14.6	10.9	13.8
MT 1316	14.9	15.0	11.1	13.3
MT 1337	15.4	15.0	12.2	14.4
MT 1338	16.3	14.2	11.1	13.1
Prosper	14.6	14.6	11.3	12.7
Reeder	16.1	15.1	11.1	14.1
SY Soren	16.2	14.8	11.2	14.8
SY Tyra	13.8	13.6	10.3	13.0
Velva	15.5	14.9	10.3	12.7
Vida	15.0	14.5	10.2	14.5
WB9879CL	14.5	15.0	11.2	14.8
Average	15.2	14.8	11.0	14.0

Protein is corrected to 12.5% moisture. No LSD since data was only taken for one replication.

Table 4. Summary of spring wheat 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
Barlow	57.0	83.0	70.0	78.3	72.1
Brennan	52.0	65.7	58.3	65.3	60.3
Choteau	50.7	74.0	60.0	69.7	63.6
Duclair	57.3	76.3	63.3	72.0	67.2
Egan	56.0	74.7	64.0	74.0	67.2
Elgin	64.0	87.0	65.7	82.3	74.8
McNeal	59.0	77.7	65.0	72.0	68.4
MT 1219	51.3	68.7	60.3	67.0	61.8

MT 1316	53.0	76.0	60.7	70.0	64.9
MT 1337	56.0	77.3	57.7	68.0	64.8
MT 1338	50.7	78.3	63.3	72.0	66.1
Prosper	57.3	78.0	60.7	74.7	67.7
Reeder	53.3	77.3	59.7	75.3	66.4
SY Soren	53.0	69.3	58.7	64.3	61.3
SY Tyra	49.3	66.3	58.3	65.7	59.9
Velva	54.0	79.0	59.0	72.7	66.2
Vida	55.7	77.0	65.0	76.7	68.6
WB9879CL	57.3	76.0	59.0	64.7	64.3
Site average	54.8	75.6	61.6	71.4	65.9

Table 5. Performance of spring wheat 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
Velva	54.0	15.5	62.7	37.9
Vida	55.7	15.0	62.5	37.0
SY Tyra	49.3	13.8	62.0	36.6
McNeal	59.0	15.1	62.4	34.8
Reeder	53.3	16.1	63.3	31.4
SY Soren	53.0	16.2	64.1	30.8
Elgin	64.0	15.2	63.3	30.7
WB9879CL	57.3	14.5	64.1	30.6
MT 1316	53.0	14.9	63.3	28.3
Duclair	57.3	14.1	62.7	28.0
Prosper	57.3	14.6	63.4	26.9
Brennan	52.0	16.5	63.8	26.5
Choteau	50.7	15.6	63.2	25.1
MT 1219	51.3	14.1	63.4	25.0
Barlow	57.0	14.9	64.7	23.4
MT 1337	56.0	15.4	61.8	22.5
Egan	56.0	16.0	61.2	21.6
MT 1338	50.7	16.3	63.8	19.1
Average	54.8	15.2	63.1	28.7
LSD		^	^	16.9

^ data was only taken for one replication

Table 6. Performance of spring wheat 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
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Velva	83.0	14.7	62.6	44.5
Vida	65.7	14.3	62.6	55.9
SY Tyra	74.0	15.1	59.7	37.5
McNeal	76.3	14.6	58.9	43.3
Reeder	74.7	16.1	58.3	47.7
SY Soren	87.0	15.2	60.2	43.9
Elgin	77.7	14.4	59.3	43.9
WB9879CL	68.7	14.6	59.3	43.2
MT 1316	76.0	15.0	60.0	51.5
Duclair	77.3	15.0	60.1	42.2
Prosper	78.3	14.2	62.2	47.7
Brennan	78.0	14.6	59.1	41.2
Choteau	77.3	15.1	60.3	52.4
MT 1219	69.3	14.8	61.3	51.0
Barlow	66.3	13.6	61.6	46.0
MT 1337	79.0	14.9	59.8	47.7
Egan	77.0	14.5	59.3	50.2
MT 1338	76.0	15.0	60.2	43.8
Average	75.6	14.8	60.3	46.3
LSD		^	^	9.5

^ data was only taken for one replication

Table 7. Performance of spring wheat 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
MT 1316	60.7	11.1	62.0	27.9
SY Tyra	58.3	10.3	64.2	27.1
Brennan	58.3	12.2	62.7	26.4
Vida	65.0	10.2	62.5	26.3
MT 1219	60.3	10.9	61.8	25.8
SY Soren	58.7	11.2	62.9	25.3
Choteau	60.0	11.2	62.3	24.3
Barlow	70.0	10.7	63.9	23.7
Reeder	59.7	11.1	62.7	23.6
MT 1338	63.3	11.1	63.8	23.5
Velva	59.0	10.3	63.1	22.9
Elgin	65.7	10.5	62.3	22.5
MT 1337	57.7	12.2	60.7	22.2
WB9879CL	59.0	11.2	62.4	20.5
McNeal	65.0	11.4	62.0	19.5
Duclair	63.3	10.5	61.8	18.8
Prosper	60.7	11.3	61.3	17.6
Egan	64.0	11.3	61.7	16.7

Average	61.6	11.0	62.5	23.0
LSD		^	^	5.6

^ data was only taken for one replication

Table 8. Performance of spring wheat 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
Vida	76.7	14.5	59.2	33.8
Brennan	65.3	15.0	61.3	30.6
MT1316	70.0	13.3	57.6	28.9
Choteau	69.7	14.7	58.0	28.6
SY Soren	64.3	14.8	60.1	28.4
Reeder	75.3	14.1	58.9	28.2
Elgin	82.3	13.4	59.0	28.2
MT1338	72.0	13.1	61.4	27.7
SY Tyra	65.7	13.0	61.1	27.2
MT1219	67.0	13.8	57.2	26.4
McNeal	72.0	14.9	57.8	25.9
Velva	72.7	12.7	59.8	25.9
Egan	74.0	14.6	57.4	25.5
Barlow	78.3	13.5	61.8	25.5
WB9879CL	64.7	14.8	58.3	23.8
Duclair	72.0	14.7	57.6	23.0
MT1337	68.0	14.4	58.0	22.6
Prosper	74.7	12.7	58.6	20.4
MT 1338	72.0	12.7	58.6	20.4
Average	71.4	14.0	59.1	26.7
LSD		^	^	7.1

^data is for one replication