

Montana durum MT03012

MT03012 is a line selected from a Male Sterile Facilitated Recurrent Selection composite cross population. The population was a blend of several MSFRS populations from Arizona that were first grown at the Eastern Agricultural Research Center in 1987. This population has been maintained annually at the EARC since 1996 by crossing varieties adapted to the area onto male sterile plants, and by harvesting seed set on male sterile plants.

MT03012 was selected as a single head from an F₂ generation in 2000. Seed from the selected plant were grown in the greenhouse in the winter of 2000-01. The progeny produced seed during the winter months and were considered to be day length insensitive. The line was advanced using head rows, and was selected from an F₆ head row in 2003.

Table 1. Yield in bu/ac across all sites.

All sites													
	2005	2005	2005	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006
entry	Williston	Sidney Dry	Sidney Irr	Williston	Sidney Dry	Sidney Irr	Conrad Irr	Conrad Dry	Havre	Moccasin	Moore	Huntley	Bozeman
Mountrail	44.9	46.2	87.1	25.5	34.4	88.3	79.3	63.2	25.8	31.5	16.6	39.0	57.1
Alkabo	44.0	47.4	85.6	25.5	35.8	87.2	75.1	64.1	27.1	37.0	17.0	31.5	55.6
Grenora	43.4	44.9	88.6	25.7	32.4	83.4	83.7	63.0	29.7	39.0	15.8	35.3	58.4
MT03012	36.5	41.8	85.9	23.1	32.3	70.1	77.5	65.0	29.9	29.4	16.2	36.6	59.5
	2007	2007	2007	2007	2007	2007	2007	2007	2008	2008	2008	2008	2008
entry	Williston	Sidney Dry	Conrad Irr	Conrad Dry	Havre	Moccasin	Huntley	Bozeman	Williston	Sidney Dry	Sidney Irr	Conrad Dry	Moccasin
Mountrail	37.1	51.9	86.6	35.3	36.5	29.8	73.7	44.5	30.3	31.5	109.1	36.8	11.7
Alkabo	40.4	47.6	87.8	41.3	35.0	29.0	71.9	46.2	30.9	32.1	109.1	40.3	19.0
Grenora	38.1	48.8	88.4	39.7	37.0	30.1	74.2	43.4	29.0	32.4	82.8	41.6	14.9
MT03012	33.7	45.7	74.3	37.8	36.5	27.0	68.2	48.9	31.9	32.6	79.9	39.9	15.9
	2008	2008	2009	2009	2009	2009	2009	2009	2009	2009			
entry	Havre	Huntley	Williston	Sidney Dry	Sidney Irr	Bozeman	Conrad	Moccasin	Havre	Huntley	average		
Mountrail	39.8	62.1	45.4	29.8	99.9	83.2	74.9	26.9	41.1	55.9	50.4		
Alkabo	40.5	63.3	43.8	27.3	96.7	73.6	67.5	29.1	41.4	49.2	49.9		
Grenora	41.4	60.8	46.2	30.0	106.6	78.5	72.8	26.5	42.8	54.8	50.1		
MT03012	44.5	61.8	41.1	29.5	83.8	75.8	69.9	27.9	40.1	49.2	47.2		

Table 1a. Yield in bu/ac across dryland sites.

Dryland sites only

	2005	2005	2006	2006	2006	2006	2006	2006	2006	2006	2007	2007	2007
entry	Williston	Sidney Dry	Williston	Sidney Dry	Conrad Dry	Havre	Moccasin	Moore	Huntley	Bozeman	Williston	Sidney Dry	Conrad Dry
Mountrail	44.9	46.2	25.5	34.4	63.2	25.8	31.5	16.6	39.0	57.1	37.1	51.9	35.3
Alkabo	44.0	47.4	25.5	35.8	64.1	27.1	37.0	17.0	31.5	55.6	40.4	47.6	41.3
Grenora	43.4	44.9	25.7	32.4	63.0	29.7	39.0	15.8	35.3	58.4	38.1	48.8	39.7
MT03012	36.5	41.8	23.1	32.3	65.0	29.9	29.4	16.2	36.6	59.5	33.7	45.7	37.8

	2007	2007	2007	2007	2008	2008	2008	2008	2008	2008	2009	2009	2009
entry	Havre	Moccasin	Huntley	Bozeman	Williston	Sidney Dry	Conrad Dry	Moccasin	Havre	Huntley	Williston	Sidney Dry	Bozeman
Mountrail	36.5	29.8	73.7	44.5	30.3	31.5	36.8	11.7	39.8	62.1	45.4	29.8	83.2
Alkabo	35.0	29.0	71.9	46.2	30.9	32.1	40.3	19.0	40.5	63.3	43.8	27.3	73.6
Grenora	37.0	30.1	74.2	43.4	29.0	32.4	41.6	14.9	41.4	60.8	46.2	30.0	78.5
MT03012	36.5	27.0	68.2	48.9	31.9	32.6	39.9	15.9	44.5	61.8	41.1	29.5	75.8

	2009	2009	2009	2009	
entry	Conrad	Moccasin	Havre	Huntley	average
Mountrail	74.9	26.9	41.1	55.9	42.1
Alkabo	67.5	29.1	41.4	49.2	41.8
Grenora	72.8	26.5	42.8	54.8	42.4
MT03012	69.9	27.9	40.1	49.2	40.9

Table 2. Heading, days from planting

	2005	2005	2005	2006	2006	2006	2006	2006	2006	2006	2007	2007	2007	2007
entry	Williston	Sidney Dry	Sidney Irr	Williston	Sidney Dry	Sidney Irr	Conrad Irr	Conrad Dry	Havre	Williston	Sidney Dry	Sidney Irr	Conrad Irr	
Mountrail	57.3	69.0	69.3	53.0	53.0	49.7	67	70	67.7	58.7	61	55.0	62	
Alkabo	56.7	67.0	69.3	52.0	51.7	51.3	68	69	64.3	57.3	61	54.7	62	
Grenora	56.7	67.3	68.7	51.3	51.3	52.3	67	69	65.7	56.7	60	54.3	62	
MT03012	55.7	65.7	67.3	53.0	48.0	53.3	63	63	60.0	57.0	58	54.0	59	

	2007	2007	2008	2008	2008	2008	2008	2008	2009	2009	2009	2009	2009	2009
entry	Conrad Dry	Havre	Williston	Sidney Dry	Sidney Irr	Conrad Dry	Havre	Williston	Sidney Dry	Sidney Irr	Conrad	Havre	average	
Mountrail	63	61.0	63.0	67.0	59.7	67	67.0	61.0	62.0	52.0	79	68.7	62.5	
Alkabo	62	58.7	61.3	67.0	58.0	65	67.3	59.0	61.3	51.7	78	67.3	61.6	
Grenora	62	60.0	62.0	66.0	59.0	65	67.7	59.3	61.7	51.0	78	68.0	61.7	
MT03012	60	57.0	58.0	63.0	56.7	61	65.3	55.0	57.7	48.0	76	64.0	59.1	

3.4

	2006	2007	2008	2009	average
entry	Moccasin	Moccasin	Moccasin	Moccasin	average
Mountrail	73.7	71.7	77.0	67.3	72.4
Alkabo	73.3	71.3	76.3	66.0	71.7
Grenora	72.7	71.7	76.3	67.0	71.9
MT03012	70.3	68.0	73.7	63.3	68.8

3.6

	2006	2006	2007	2007	2008	2009	2009	average
entry	Huntley	Bozeman	Huntley	Bozeman	Huntley	Huntley	Bozeman	average
Mountrail	63.3	61	86.0	65	104.7	92.3	61	76.2
Alkabo	63.3	60	85.7	65	102.7	92.7	60	75.6
Grenora	62.7	60	85.3	65	102.3	91.0	60	75.2
MT03012	59.0	57	80.3	62	98.7	87.0	58	71.7

4.5

Table 3. Height, cm

	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2007	2007
entry	Williston	Sidney Dry	Sidney Irr	Conrad Irr	Conrad Dry	Havre	Moccasin	Moore	Huntley	Bozeman	Williston	Sidney Dry
Mountrail	65.3	82.7	65.0	99.1	96.5	65.0	81.0	63.0	82.2	89.7	72.0	81.3
Alkabo	62.0	88.7	89.0	94.0	91.4	68.8	83.7	75.0	76.9	90.2	77.3	75.7
Grenora	59.0	82.7	88.7	91.4	91.4	60.2	80.0	75.0	73.2	84.7	74.0	78.3
MT03012	55.7	71.3	86.7	73.7	68.6	57.7	70.0	61.0	69.4	67.8	69.3	63.0
	2007	2007	2007	2007	2007	2007	2007	2008	2008	2008	2008	2008
entry	Sidney Irr	Conrad Irr	Conrad Dry	Havre	Moccasin	Huntley	Bozeman	Williston	Sidney Dry	Sidney Irr	Conrad Dry	Moccasin
Mountrail	85.3	88.9	71.1	66.1	86	98.3	90.0	67.3	62.3	92.3	76.2	57.3
Alkabo	77.7	96.5	68.6	66.1	89	94.7	88.0	65.7	67.0	83.3	81.3	61.0
Grenora	81.7	86.4	68.6	61.7	83	92.5	85.0	60.0	64.3	69.7	76.2	54.7
MT03012	75.7	71.1	63.5	57.9	68	72.1	71.8	59.7	58.0	64.0	68.6	56.3
	2008	2008	2009	2009	2009	2009	2009	2009	2009	2009	2009	
entry	Havre	Huntley	Williston	Sidney Dry	Sidney Irr	Bozeman	Conrad	Moccasin	Havre	Huntley	average	
Mountrail	83.8	103.9	63.7	51.0	88.7	88.6	81.3	64.7	70.5	91.2	78.6	
Alkabo	82.9	99.8	64.0	49.0	86.3	86.4	78.7	68.7	67.1	91.7	79.0	
Grenora	77.4	94.7	64.7	50.0	81.3	79.8	76.2	64.3	66.3	82.3	75.3	
MT03012	72.6	75.4	61.3	46.7	72.3	69.6	66.0	54.3	61.1	73.7	66.3	

Table 3a. Lodging index

	2005	2006	2007	2008	2009	
entry	Sidney Irr	Sidney Irr	Sidney Irr	Sidney Irr	Sidney Irr	average
Mountrail	2.0	0.0	0.0	1.3	0.7	0.8
Alkabo	0.7	0.0	0.0	0.3	0.3	0.3
Grenora	0.0	0.0	0.0	0.0	0.0	0.0
MT03012	0.0	0.0	0.0	0.0	0.0	0.0

Table 4. Test weight, lb/bu

	2005	2005	2005	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006
entry	Williston	Sidney Dry	Sidney Irr	Williston	Sidney Dry	Sidney Irr	Conrad Irr	Conrad Dry	Havre	Moccasin	Moore	Huntley	Bozeman
Mountrail	60.7	59.5	60.3	56.6	57.3	61.0	60.3	59.4	55.0	58.4	52.0	59.5	58.0
Alkabo	62.0	60.7	61.7	58.8	57.5	60.8	61.3	61.1	54.6	61.5	54.2	59.9	59.7
Grenora	60.7	59.2	60.7	57.0	56.7	60.2	60.4	59.9	55.7	60.2	52.6	59.8	59.7
MT03012	61.3	58.5	59.5	58.3	57.8	60.0	62.7	61.9	55.4	58.5	53.8	59.8	60.3

	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2008	2008	2008	2008
entry	Williston	Sidney Dry	Sidney Irr	Conrad Irr	Conrad Dry	Havre	Moccasin	Huntley	Bozeman	Williston	Sidney Dry	Sidney Irr	Conrad Dry	
Mountrail	58.3	61.5	60.2	61.3	57.5	58.1	55.0	63.4	56.3	56.5	57.3	62.8	59.6	
Alkabo	60.0	62.7	61.0	61.9	59.9	58.9	58.0	63.5	58.4	59.4	59.0	64.2	61.2	
Grenora	58.8	61.8	59.8	61.2	58.5	57.9	56.9	63.2	57.5	57.8	58.3	62.8	60.7	
MT03012	59.2	62.5	59.3	62.7	59.1	57.9	54.6	64.0	58.7	57.0	58.0	62.7	59.7	

	2008	2008	2008	2009	2009	2009	2009	2009	2009	2009	2009	2009
entry	Moccasin	Havre	Huntley	Williston	Sidney Dry	Sidney Irr	Bozeman	Conrad	Moccasin	Havre	Huntley	average
Mountrail	56.8	55.7	60.7	62.0	61.8	62.5	60.8	63.1	59.0	58.4	60.8	59.1
Alkabo	60.7	58.3	63.0	63.3	62.3	63.8	61.5	63.8	60.6	58.6	60.8	60.5
Grenora	59.9	57.4	62.9	63.1	61.5	62.0	60.7	63.9	59.4	57.5	60.0	59.6
MT03012	57.5	55.6	61.9	62.5	62.3	61.0	61.0	63.9	58.2	58.2	60.4	59.6

Table 5. Sawfly, percent cut

	Havre			Moccasin			Turner			N Havre			Circle		Loma	average
	2006	2007	2008	2009	2009	2007	2008	2009	2007	2008	2009	2008	2009	2008		
Mountrail	2.3	2.3	30.0	18.3	5.0	25.00	13.33	8.3	5.00	10.00	0.3	6.7	1.3	3.67	9.40	
Alkabo	2.3	3.7	30.0	21.7	4.5	25.00	18.33	8.7	11.67	15.00	0.3	7.3	2.3	5.33	11.15	
Grenora	2.3	2.3	38.3	20.0	2.5	33.33	21.67	15.0	10.00	11.67	0.0	8.3	2.3	5.33	12.37	
MT03012	1.0	1.0	6.7	11.7	0.5	11.67	11.67	5.7	5.00	2.33	0.3	7.7	1.0	0.33	4.75	

Table 5a. Stem solidness, 2009

entry	Sidney Dry	Sidney Irr	Average
Mountrail	13.7	7.5	10.6
Alkabo	9.4	7.0	8.2
Grenora	14.4	10.8	12.6
MT03012	18.4	13.8	16.1

Table 6. Grain protein, percent

Fargo LECO, 12% moisture basis

	2005	2005	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2007
entry	Sidney Dry	Sidney Irr	Bozeman	Conrad, Irr	Moccasin	Moore	Conrad, Dry	Huntley	Havre	Sidney, Dry	Sidney, Irr	Williston	Bozeman
Mountrail	13.7	13.5	14.4	13.8	14.4	18.3	14.4	14.0	19.5	14.5	12.5	16.7	17.1
Alkabo	14.3	14.1	14.4	14.3	13.9	18.0	13.2	14.3	18.7	14.8	13.2	16.0	16.7
Grenora	14.4	14.0	14.4	14.9	13.5	18.2	13.8	13.9	18.9	13.9	12.5	15.9	17.2
MT03012	14.1	14.2	14.4	13.5	15.1	17.9	13.5	14.9	18.2	14.8	12.9	17.1	16.1

	2007	2007	2007	2007	2007	2008	2008	2008	2008	2008	2008	
entry	Havre	Moccasin	Williston	Sidney-Dry	Sidney-Irr	Conrad	Huntley	Havre	Williston	Sidney dry	Sidney irr	average
Mountrail	17.3	16.6	14.5	12.2	15.7	12.8	12.1	18.6	16.9	15.7	13.7	15.1
Alkabo	16.8	15.6	14.0	12.5	15.0	12.6	11.2	16.8	15.5	15.2	13.0	14.8
Grenora	17.2	15.5	14.4	12.3	15.6	12.6	11.6	18.2	16.3	15.6	13.4	14.9
MT03012	17.1	15.7	15.1	11.8	15.8	13.9	12.4	17.5	16.2	15.6	14.1	15.1

Hard vitreous amber color, NIR hardness

Table 7. NIR hardness

	2005	2005	2006	2006	2006	2006	2006	2006	2006	2006	2007	2007	2007
entry	Sidney Dry	Sidney Irr	Williston	Sidney Dry	Sidney Irr	Conrad Irr	Conrad Dry	Havre	Huntley	Bozeman	Williston	Sidney Dry	Sidney Irr
Mountrail	81.8	85.5	76.1	76.2	79.6	87.4	82.7	81.5	72.4	84.2	75.1	69.1	90.4
Alkabo	82.6	92.2	80.6	83.1	64.7	83.9	97.9	90.8	83.5	94.3	81.1	75.0	91.1
Grenora	85.0	90.0	76.1	76.2	65.2	82.8	100.7	78.6	81.7	93.3	83.2	77.0	93.2
MT03012	80.2	89.2	89.2	84.0	79.0	94.6	97.5	84.0	81.4	91.6	77.5	76.4	87.6

	2007	2007	2007	2007	2007	2007	2008	2008	2008	2008	2008	2008	2009
entry	Conrad Irr	Conrad Dry	Havre	Moccasin	Huntley	Bozeman	Williston	Sidney Dry	Sidney Irr	Conrad Dry	Havre	Moccasin	Williston
Mountrail	89.1	81.5	78.8	65.3	28.5	86.6	80.3	79.3	81.3	75.9	81.8	73.5	101.6
Alkabo	86.3	88.4	85.8	73.4	21.6	89.1	82.5	77.6	78.7	85.6	89.0	81.5	105.6
Grenora	87.5	86.8	80.6	70.8	41.9	88.8	82.1	80.6	82.3	81.0	83.2	81.4	106.4
MT03012	91.3	84.7	84.3	76.3	70.9	91.5	85.7	77.3	86.0	81.6	86.6	77.3	102.2

	2009	2009	2009	2009	2009	2009	2009	2009
entry	Sidney Dry	Sidney Irr	Bozeman	Conrad	Havre	Moccasin	Huntley	average
Mountrail	103.8	94.6	79.7	91.9	81.8	85.3	63.7	80.2
Alkabo	106.7	99.2	78.9	88.0	74.8	85.6	50.0	82.7
Grenora	101.6	102.2	84.1	93.4	76.1	82.7	64.9	83.1
MT03012	104.8	88.1	78.2	87.3	79.9	80.8	78.9	85.0

Table 8. Semolina extract, percent

	2005	2005	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2007
entry	Sidney Dry	Sidney Irr	Bozeman	Conrad, Irr	Moccasin	Moore	Conrad, Dry	Huntley	Havre	Sidney, Dry	Sidney, Irr	Williston	Bozeman
Mountrail	60.6	63.9	59.6	61.4	57.5	52.6	57.9	59.4	51.2	52.6	57.6	51.9	65.9
Alkabo	61.6	64.4	59.4	62.0	59.0	52.1	62.3	55.9	51.6	51.9	57.2	51.2	65.0
Grenora	60.5	63.9	59.7	59.4	56.1	49.8	58.2	56.3	48.4	51.6	56.5	49.8	64.6
MT03012	59.7	65.9	59.0	61.7	56.8	53.7	59.5	57.6	50.5	53.2	54.8	51.4	65.0
	2007	2007	2007	2007	2007	2008	2008	2008	2008	2008	2008	2008	
entry	Havre	Moccasin	Williston	Sidney-Dry	Sidney-Irr	Conrad	Huntley	Havre	Williston	Sidney dry	Sidney irr	average	
Mountrail	65.6	59.0	66.8	67.3	67.9	61.0	64.2	58.7	57.9	61.0	68.8	60.4	
Alkabo	64.3	62.1	65.2	66.8	67.6	60.8	63.1	61.5	60.1	62.2	67.9	60.6	
Grenora	64.6	60.4	62.3	64.3	66.7	60.2	61.7	60.2	58.4	60.5	66.8	59.2	
MT03012	63.3	61.9	65.4	65.2	65.2	59.8	62.6	58.0	58.9	60.5	67.9	59.9	

Table 9. Semolina color score

	2005	2005	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2007
entry	Sidney Dry	Sidney Irr	Bozeman	Conrad, Irr	Moccasin	Moore	Conrad, Dry	Huntley	Havre	Sidney, Dry	Sidney, Irr	Williston	Bozeman
Mountrail	24.7	22.9	23.5	22.6	23.5	23.0	23.4	23.4	22.0	22.9	20.8	21.7	25.7
Alkabo	28.1	27.0	25.4	25.2	25.2	24.4	25.6	25.1	24.3	25.0	23.8	23.2	29.2
Grenora	26.1	25.5	25.1	24.9	25.4	24.2	25.5	25.0	24.4	24.5	22.8	23.8	28.7
MT03012	25.6	24.3	22.4	22.7	22.6	22.6	22.9	22.5	22.0	22.6	22.8	21.9	25.2

	2007	2007	2007	2007	2007	2008	2008	2008	2008	2008	2008	2008
entry	Havre	Moccasin	Williston	Sidney-Dry	Sidney-Irr	Conrad	Huntley	Havre	Williston	Sidney dry	Sidney irr	average
Mountrail	25.0	26.9	25.7	24.1	23.5	26.1	26.0	26.3	26.0	25.2	22.9	24.1
Alkabo	27.7	29.9	28.5	28.0	26.9	29.3	28.6	29.4	29.2	28.7	27.4	26.9
Grenora	27.9	29.9	28.7	27.6	27.0	28.3	28.1	29.1	28.8	26.9	27.0	26.5
MT03012	24.8	25.2	24.9	26.0	24.2	25.8	26.2	25.5	24.9	24.2	24.4	24.0

Table 10. Mixograph score

	2005	2005	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2007
entry	Sidney Dry	Sidney Irr	Bozeman	Conrad, Irr	Moccasin	Moore	Conrad, Dry	Huntley	Havre	Sidney, Dry	Sidney, Irr	Williston	Bozeman
Mountrail	2	2	3	1	3	3	3	2	4	3	3	4	3
Alkabo	4	4	3	3	2	5	3	4	6	5	4	6	7
Grenora	4	5	3	4	2	6	3	2	6	4	4	5	6
MT03012	7	6	2	4	4	2	4	5	6	6	5	5	4

	2007	2007	2007	2007	2007	2008	2008	2008	2008	2008	2008	2008
entry	Havre	Moccasin	Williston	Sidney-Dry	Sidney-Irr	Conrad	Huntley	Havre	Williston	Sidney dry	Sidney irr	average
Mountrail	3	3	3	3	3	4	3	5	5	5	3	3.2
Alkabo	6	7	5	4	5	5	4	7	6	6	4	4.8
Grenora	6	5	4	4	5	5	4	6	6	6	5	4.6
MT03012	5	4	4	4	5	5	7	8	7	7	6	5.1