

Title: Off-Station Spring Barley evaluations in the Western Triangle Area (4W2760).

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Objectives: Evaluate spring barley varieties and promising new lines in the Western Triangle area.

Results:

Results are tabulated in Tables 1 and 2 for the Choteau location, and Tables 3 and 4 for the Cut Bank location, and Table 5 for the Knees site. Grain yield, kernel plumpness, and test weight were higher than expected at all locations with yields averaging 94 bu/acre at Choteau, 112 bu/acre at Cut Bank, and 79 bu/acre at the Knees. Every entry at all locations would have made dryland malt quality relative to kernel plumpness; however, the Choteau location had several entries that had high protein content. Top yielding varieties at most locations were Goldeneye, a 6-row entry, and 2-row entries Baronesse, Champion, and Kraft.

Summary:

Due to the cool weather and significant precipitation in July and August, spring barley yields were higher than average and similar to yields expected on irrigated. Yields ranged from 77 to 107 bu/acre at Choteau, 101 to 133 bu/acre at Cut Bank, and 67 to 94 bu/acre at the Knees. Except for high protein levels at Choteau (probably due to high soil N levels), all entries at all locations would have met the specifications for malting quality.

Funding Summary: Office of Special Projects will provide expenditure information. No other grants support this project.

MWBC FY2011 Grant Submission Plans: A similar project will be proposed for FY 2011 with the addition of another location and winter wheat varieties.

Table 1. Off-station spring barley variety trial located near Choteau.
Teton County. Western Triangle Ag. Research Center. 2009.

| Variety | Rows/ spike | Yield bu/a | Test Wt lb/bu | Plump % | Thin % | Protein % |
|-------------|----------------|---------------|------------------|------------|-----------|--------------|
| Goldeneye | 6 | 106.8 | 51.9 | 95.4 | 0.9 | 13.6 |
| MT030042 | 2 | 105.7 | 55.1 | 97.8 | 0.6 | 12.4 |
| Baronesse | 2 | 104.3 | 53.7 | 98.2 | 0.6 | 14.7 |
| Geraldine | 2 | 102.7 | 54.3 | 95.5 | 1.1 | 14.0 |
| Haxby | 2 | 102.1 | 54.9 | 98.6 | 0.4 | 13.2 |
| Craft | 2 | 101.4 | 54.7 | 98.6 | 0.4 | 13.3 |
| Champion | 2 | 100.6 | 54.5 | 97.8 | 0.5 | 13.1 |
| MT020155 | 2 | 96.2 | 53.1 | 96.5 | 0.9 | 13.7 |
| Hockett | 2 | 94.3 | 53.3 | 97.7 | 0.9 | 13.2 |
| Harrington | 2 | 89.5 | 53.0 | 96.7 | 1.0 | 13.8 |
| Conrad | 2 | 87.8 | 52.3 | 97.3 | 0.7 | 15.0 |
| MT010158 | 2 | 87.3 | 53.4 | 97.1 | 0.9 | 14.5 |
| Metcalfe | 2 | 85.4 | 53.5 | 98.4 | 0.5 | 14.1 |
| MT061207 | 2 | 84.8 | 52.7 | 98.1 | 0.7 | 13.5 |
| Gallatin | 2 | 83.0 | 53.7 | 96.6 | 1.2 | 13.9 |
| Pinnacle | 2 | 77.3 | 54.4 | 98.6 | 0.6 | 11.7 |
| Mean | | 94.3 | 53.7 | 97.4 | 0.7 | 13.6 |
| LSD (p=.05) | | 19.7 | 0.8 | 1.7 | 0.5 | 0.6 |
| CV (%) | | 12.50 | 0.87 | 1.06 | 44.30 | 2.62 |

Planted: May 18, 2009 in chemical fallow Harvested: September 16, 2009
Fertilizer: 4-20-20, P and K placed with seed; Cooperator: Roy and Scott Inbody

Table 2. Five year spring barley summary, Choteau area, Western Triangle Ag.
Research Center. 2005 – 2009.

| Variety | Rows/ spike | 5-Year Average | | | | |
|------------|----------------|----------------|------------------|------------|-----------|--------------|
| | | Yield bu/a | Test Wt lb/bu | Plump % | Thin % | Protein % |
| Haxby | 2 | 84.3 | 53.6 | 69.1 | 9.6 | 14.9 |
| Craft | 2 | 83.2 | 51.2 | 78.2 | 6.2 | 15.0 |
| Hockett | 2 | 78.3 | 50.6 | 75.1 | 9.8 | 14.9 |
| Geraldine | 2 | 75.6 | 49.2 | 52.9 | 22.8 | 16.1 |
| Conrad | 2 | 74.2 | 48.3 | 66.7 | 14.3 | 16.3 |
| Metcalfe | 2 | 74.0 | 49.1 | 69.8 | 11.5 | 15.9 |
| Harrington | 2 | 73.5 | 48.0 | 62.6 | 14.9 | 15.6 |
| average | | 77.6 | 50.0 | 67.8 | 12.7 | 15.5 |

Table 3. Off-station spring barley variety trial located near Cut Bank.
Glacier County. Western Triangle Ag. Research Center. 2009.

| Variety | Rows/ spike | Yield bu/a | Test Wt lb/bu | Plump % | Thin % | Protein % |
|--------------|----------------|---------------|------------------|------------|-----------|--------------|
| Champion | 2 | 133.2 | 53.1 | 98.1 | 0.6 | 11.3 |
| Geraldine | 2 | 122.7 | 54.0 | 98.1 | 0.6 | 11.1 |
| MT030042 | 2 | 122.4 | 53.7 | 96.8 | 1.3 | 11.2 |
| Pinnacle | 2 | 115.1 | 52.2 | 98.2 | 0.6 | 10.5 |
| Baronesse | 2 | 113.4 | 53.9 | 97.4 | 0.9 | 11.6 |
| MT061207 | 2 | 112.8 | 53.2 | 98.0 | 0.6 | 11.8 |
| Craft | 2 | 111.5 | 54.0 | 98.1 | 0.6 | 11.4 |
| Goldeneye | 6 | 110.0 | 51.0 | 97.3 | 0.8 | 10.6 |
| Haxby | 2 | 109.3 | 54.9 | 97.6 | 1.1 | 11.3 |
| MT020155 | 2 | 108.9 | 52.9 | 96.9 | 1.3 | 11.9 |
| MT010158 | 2 | 108.1 | 52.6 | 97.5 | 0.9 | 11.7 |
| Gallatin | 2 | 106.5 | 53.5 | 95.5 | 2.0 | 11.2 |
| Conrad | 2 | 106.0 | 52.2 | 98.3 | 0.6 | 11.1 |
| Hockett | 2 | 103.6 | 52.9 | 98.5 | 0.5 | 11.2 |
| Harrington | 2 | 103.3 | 52.3 | 97.9 | 0.7 | 11.3 |
| Metcalfe | 2 | 101.4 | 52.0 | 97.5 | 1.2 | 11.8 |
| Mean | | 111.8 | 53.0 | 97.6 | 0.9 | 11.3 |
| LSD (p=0.05) | | 18.3 | 1.3 | 1.6 | 0.8 | 1.0 |
| CV (%) | | 9.80 | 1.47 | 0.99 | 52.30 | 4.28 |

Planted: April 22, 2009 in chemical fallow Harvested: September 18, 2009
Fertilizer: 4-20-20, P and K placed with seed; Cooperator: Keven Bradley

Table 4. Five year spring barley summary, Cut Bank area, Western Triangle Ag.
Research Center. 2005 – 2009.

| Variety | Rows/ spike | 5-Year Average | | | | |
|------------|----------------|----------------|------------------|------------|-----------|--------------|
| | | Yield bu/a | Test Wt lb/bu | Plump % | Thin % | Protein % |
| Haxby | 2 | 71.1 | 52.7 | 76.0 | 13.7 | 11.8 |
| Craft | 2 | 70.9 | 51.3 | 82.9 | 6.8 | 12.0 |
| Geraldine | 2 | 70.8 | 50.4 | 75.7 | 15.9 | 11.5 |
| Harrington | 2 | 69.1 | 49.0 | 79.4 | 11.4 | 11.4 |
| Hockett | 2 | 67.6 | 50.5 | 81.0 | 10.1 | 11.6 |
| Conrad | 2 | 66.8 | 49.2 | 81.4 | 9.3 | 11.9 |
| Metcalfe | 2 | 65.8 | 49.5 | 80.3 | 10.6 | 12.1 |
| average | | 68.9 | 50.4 | 79.5 | 11.1 | 11.8 |

Table 5. Off-station spring barley variety trial located in the Knees area.
Chouteau County. Western Triangle Ag. Research Center. 2009.

| Variety | Rows/ spike | Yield bu/a | Test | | | |
|--------------|----------------|---------------|-------------|------------|-----------|--------------|
| | | | Wt lb/bu | Plump % | Thin % | Protein % |
| Champion | 2 | 94.4 | 52.0 | 95.6 | 1.8 | 12.3 |
| Goldeneye | 6 | 86.5 | 48.3 | 91.3 | 2.7 | 11.1 |
| Pinnacle | 2 | 85.5 | 50.5 | 98.1 | 0.9 | 11.0 |
| Craft | 2 | 84.2 | 52.2 | 95.5 | 1.6 | 12.4 |
| Baronesse | 2 | 84.0 | 50.7 | 90.7 | 3.8 | 11.8 |
| Haxby | 2 | 82.6 | 52.6 | 94.1 | 2.1 | 12.4 |
| MT030042 | 2 | 81.7 | 52.1 | 88.6 | 4.8 | 11.1 |
| MT020155 | 2 | 81.0 | 49.3 | 92.0 | 3.1 | 12.3 |
| Harrington | 2 | 78.3 | 49.7 | 89.3 | 4.4 | 12.1 |
| Geraldine | 2 | 77.2 | 50.3 | 79.6 | 9.4 | 13.1 |
| Conrad | 2 | 76.8 | 49.9 | 88.5 | 4.5 | 13.0 |
| Gallatin | 2 | 75.9 | 50.5 | 88.7 | 4.6 | 12.4 |
| Hockett | 2 | 71.1 | 51.1 | 91.1 | 4.0 | 12.3 |
| MT010158 | 2 | 70.6 | 50.8 | 91.2 | 3.4 | 12.3 |
| Metcalfe | 2 | 69.3 | 50.1 | 90.3 | 4.3 | 13.1 |
| MT061207 | 2 | 66.5 | 50.7 | 95.1 | 1.9 | 11.6 |
| Mean | | 79.1 | 50.7 | 91.2 | 3.6 | 12.1 |
| LSD (p=0.05) | | 13.4 | 1.0 | 6.1 | 3.4 | 1.1 |
| CV (%) | | 8.10 | 0.93 | 3.10 | 44.20 | 4.39 |

Planted: April 22, 2009 in chemical fallow Harvested: August 4, 2009
Fertilizer: 4-20-20, P and K placed with seed; Cooperator: Aaron Killion