

2012 Montana Barley Crop Quality Report

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This is the third annual Regional Crop Quality Report for barley grown in Montana. Collection of barley samples was coordinated by the U.S. Department of Agriculture (USDA) Agriculture Statistics Services in Montana and North Dakota. Grain quality evaluations were performed by the Department of Plant Sciences at North Dakota State University and grade information was determined by the North Dakota Grain Inspection Service Inc. The Montana Wheat and Barley Committee provided financial support.

Production and Varieties

According to the USDA National Agricultural Statistics Service (NASS)

Small Grains Summary of September 28th, 790 thousand acres were harvested in Montana. This represents 88 percent of acres seeded.

Production was 41.9 million bushels (922 thousand metric tons) with average yields of 53 bu/acre (2.9 kg/ha). This is an increase of 110 thousand planted acres from 2011, and a 26 percent increase in production. Malting varieties were planted on approximately 70 percent of acres.

The USDA-NASS variety survey showed AC Metcalfe and Hockett to be the most widely grown varieties, accounting for 27 and 14 percent of sown acres, respectively. Moravian 115 and Conlon, each accounted for about 5 percent of seeded acres.

Six-rowed barley varieties made up about 6 percent of barley acres while feed and forage varieties accounted for 24 percent.

Materials and Methods

During harvest a total of 77 samples weighing between 1 and 2 pounds were collected from farms and grain elevators in selected counties in Montana. The number of samples was determined from projected barley production and the objective was to collect a representative number of samples from each county within the survey region. Two- and six-rowed samples were differentiated by varietal identification by the grower or kernel morphology. The survey region includes six crop reporting districts (Table 1), however a

Montana Barley Quality Snapshot

- > Seventy-seven barley samples from 17 counties in Montana were collected at harvest
- > State averages for protein (11.7%), test weight (48.4 lb/bu) and plump kernels (83%) indicated good quality
- > Average protein levels ranged 10.2% in the south to 12.7% in the west
- > Test weights ranged from 46.8 lb/bu in the east to 48.9 lb/bu in the northwest
- > There was little variation in kernel plumpness and all districts averaged 80% or higher
- > The quality of the 2012 crop is very similar to 2011 with the exception of slightly lower test weights in the northwest and west regions

Table 1. 2012 Barley Production Regions in Montana

Region	Production	Counties
East (East and Northeast combined)	Two-rowed and Six-rowed irrigated, Feed	East: Dawson, Richland, Northeast: Daniels, Roosevelt, Sheridan, Valley
Central	Two-rowed, dryland and irrigated	Judith Basin, Fergus
Northwest	Two-rowed dryland	Glacier, Toole, Pondera
South	Two-rowed, dryland and irrigated	Yellowstone, Treasure, Big Horn
West	Two-rowed, dryland and irrigated	Lewis & Clark, Cascade, Teton

Table 2. Regional Two-rowed Barley Crop Quality

Region	Samples	Moisture Content (%)	Test Weight (lb/bu) (kg/hl)		1000 Kernel Weight (g)	Protein Content (%)	Color	Kernel Assortment % Plump % Thin	
Northwest	28	10.2	48.9	62.9	40.3	11.4	2	83	2
West	17	10.0	48.8	62.8	40.7	12.7	2	80	3
Central	4	8.4	48.6	62.5	39.2	12.0	1	80	2
East	7	11.3	46.8	60.2	38.5	12.4	4	83	2
South	10	9.9	47.3	60.9	39.2	10.2	2	88	2
State Average	66	10.1	48.4	62.3	39.9	11.7	2	83	2

Table 3. East Regional Barley Crop Quality

Barley Type	Samples	Moisture Content (%)	Test Weight (lb/bu) (kg/hl)		1000 Kernel Weight (g)	Protein Content (%)	Color	Kernel Assortment % Plump % Thin	
Six-rowed malt barley	8	11.3	46.1	59.3	34.7	12.5	4	76	3
Two-rowed malt barley	66	11.3	46.8	60.2	38.5	12.4	4	83	2
Feed barley	3	10.8	46.1	59.3	31.8	13.3	2	34	16

Table 4. Regional Barley Crop Quality

Crop Reporting District	Dockage	Grade*	Test Weight (lb/bu) (kg/hl)		Suitable Malting Types (%)	Sound Barley** (%)	Skinned and Broken Kernels (%)	Thin Barley (%)
Northwest	0.5	U.S. No. 2 Two-Rowed Malting Barley	49.7	64.0	100.0	100.0	2.6	1.1
West	0.3	U.S. No. 2 Two-Rowed Malting Barley	49.5	63.7	100.0	99.7	3.2	1.1
Central	0.7	U.S. No. 2 Two-Rowed Malting Barley	48.6	62.5	100.0	99.8	2.0	1.0
South	0.6	U.S. No. 2 Two-Rowed Malting Barley	48.4	62.3	100.0	100.0	3.6	0.6
East Two-rowed	0.2	U.S. No. 2 Barley	46.7	60.1	100.0	99.8	2.9	1.3
East Six-rowed	0.3	U.S. No. 2 Six-Rowed Malting Barley	46.2	59.4	100.0	100.0	1.7	2.1

*Grade specifications provided in United States of Agriculture Grain Inspection, Packers and Stockyard Administration Federal Grain Inspection Service Grain Inspection Handbook, Book II, Barley, August 9, 2004. <http://www.gipgsa.usda.gov/publications/fgis/handbooks/grain-insp/grbook2/barley.pdf>

**Injured-by-frost kernels and injured-by-mold kernels are not considered damaged or considered against sound barley.

mixture of two and six-rowed samples from two regions required adjustment for the analysis. Therefore two-rowed samples in the east and northeast regions were combined for analysis, and six-rowed samples in the east and northeast were also combined for analysis. These are designated as East six-rowed barley and East two-rowed barley.

Three samples in Dawson and Wibaux counties were designated as feed samples and were analyzed separately. These were not included in the composite malt samples for the region.

Sixty-six two-rowed samples were collected from all regions. Eight six-rowed samples were collected from the north and northeast regions and 3 feed barley samples were collected from the east region.

Upon receipt, the initial barley moisture content was recorded and samples in excess of 13.5 percent were allowed to air-dry prior to subsequent analyses. A portion of each sample was removed and bulked to create regional composite samples. Prior to further analysis, all samples collected were cleaned on a Carter dockage

tester. Test weight, protein, kernel assortment, 1,000 kernel weight, and kernel color were determined for each of the dockage free samples. Color (brightness) is determined with a Hunter colorimeter. Color is ranked on a scale of 1 to 10, with 1 being bright barley. Scores of 3 and higher indicate progressively darker, more weathered, grain.

The values for state and region averages represent the average of all individual sample results for the respective quality parameters. Separate state and regional averages were calculated for two- and six-rowed barley. The regional composite samples were submitted to the North Dakota Grain Inspection Service Inc. for determination of grade. Dockage content was determined on each regional composite sample.

Crop Quality

Data from selected counties was grouped according to row type and irrigated or dryland production (Table 1). Detailed data from each region can be found in Tables 2 through 4.

Northwest Region

The color score of 2 in the

northwest region indicates bright barley. The average protein was 11.4 percent and the average test weight of 48.9 lb/bu (62.9 kg/hl) was the highest in the state. Average kernel plumpness was good at 83 percent.

West Region

Protein levels averaged slightly higher in the west (12.7 percent) but average test weight was the second highest at 48.8 lb/bu (62.8 kg/hl). Kernel plumpness was 80 percent. A color score of 2 indicated bright barley.

Central Region

Quality of barley in the central region was similar to that of the west, with average protein of 12 percent, test weight of 48.6 lb/bu (60.2 kg/hl) and kernel plumpness of 80 percent. Kernel color, again was quite good.

East Region

Six-rowed samples from the east had an average protein level of 12.5 percent, test weight of 46.1 lb/bu (59.3 kg/hl) and kernel plumpness of 76 percent.

Two-rowed samples in the east had an average protein level of 12.5 percent, test weight of 46.8 lb/bu (60.2 kg/hl) and kernel plumpness of

83 percent.

South Region

The lowest protein average (10.1 percent) and the highest percentage of plump kernels (88 percent) were measured in the south region. Test weight averaged 47.3 lb/bu (60.9 kg/hl).

Feed Barley

Three feed barley samples were collected and analyzed. Results can be found in Table 3.

Barley Grades

Composite two-rowed barley samples had test weights below 50.0 lb/bu which resulted in grades of U.S. No. 2 Two-Rowed Malting Barley, or in one case, U.S. No. 2 Barley. The composite six-rowed barley sample had a test weight below 47 lb/bu resulting in a grade of U.S. No. 2 Six-Rowed Malting Barley. Aside from test weight all grade factors indicated top quality.

References

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