

**“BOULDER”***(a large round rock)***(Exp. # BZ 596-117)****Two-rowed Feed Barley**Description for Crop Improvement

“**Boulder**” is a two-rowed, spring feed barley developed by WestBred, LLC from crossing Baronesse onto a composite cross for diverse cytoplasm's developed by Dr. R.T. Ramage, who was with the USDA/ARS at Tucson, Arizona. This initial composite cross was developed by crossing 400 diverse accessions from the World Collection of Barley's as the female parents, with F1 plants that were heterozygous for the male sterile genes, msg1 and/or msg2. “**Boulder**” is adapted to the Intermountain area of the Pacific Northwest.

“**Boulder**” is medium tall and mid-season in maturity. Spike exertion from the flag leaf is minimal (0-3 cm). Anthocyanin is absent in the stem and leaves, but present in the lemma veins under certain growing conditions. The collar shape is closed and the neck is straight. The leaves and stems are slightly waxy. The flag leaves are upright at the boot stage. The head is strap shaped, lax and glossy (non-waxy). The glume length is ½ of the lemma and has a few long hairs that are restricted to the middle. The glume awns are equal to the length of the glumes and the awn surface is rough. The lemma is awned and the awn surface is rough. Lemma teeth and lemma hair are absent. The shape of the base of the lemma is a depression, and the rachilla hairs are long. The seed is covered, long, semi-wrinkled and the aleurone layer is colorless.

“**Boulder**” is a deficiency type barley which has extremely reduced or non-existent lateral florets. A variant that has a small lateral floret occurs at a frequency of up to approximately 10%. Otherwise, no other variants are known to occur and “**Boulder**” is a stable and uniform variety in appearance and performance.

Application to the Plant Variety Protection will be made for “**Boulder**” and the Title IV option will not be chosen.



# 2005 VARIETAL RECOMMENDATION

## BOULDER

WestBred, LLC requests that you consider the variety 'Boulder' spring barley for "Variety Recommendation in the State of Montana".

A motion that Boulder be recommended as a 2-rowed, spring feed barley for all irrigated and dryland districts of Montana.

Pedigree = "Boulder" is a two-rowed, spring feed barley developed by WestBred, LLC from crossing Baronesse onto a composite cross for diverse cytoplasm's. The composite cross was developed by Dr. R.T. Ramage, who was with the USDA/ARS at Tucson, Arizona. This initial composite cross was developed by crossing 400 diverse accessions from the World Collection of Barley's, as the female parents, with F1 plants that were heterozygous for the male sterile genes, msg1 and/or msg2.

For the period 2001-2004 (not tested in 2003), Boulder was the highest yielding variety over the 32 locations in MSU's Intrastate Trials, with an average yield of 98.3 bushels. The next highest yielding variety was Haxby at 96.7 bu/ac. Boulder has a high test weight, with an average test weight of 51.5 lbs/bu, second only to Haxby at 52.1 lbs/bu. The percent of plump kernels of Boulder was 83.9, second only to Conlon at 85.2%. The average plant height of Boulder is 29.5 inches, which makes it similar to the other check varieties. The average heading date of Boulder is June 28<sup>th</sup>, which is one day later than Haxby and one day earlier than Baronesse.

Table 1. Summary of Boulder compared to check varieties in MSU's 2001, 2002 and 2004 Intrastate Barley Variety Trials.

Variety	YIELD	TESTWT	PLUMP %	HEADDATE	PLANTHT	PROTEIN
Boulder	98.3	51.5	83.9	179.4	29.5	13.9
Haxby	96.7	52.1	80.9	178.4	30.2	13.6
Eslick	95.8	50.0	77.7	179.6	29.3	13.4
Baronesse	95.2	49.7	77.6	180.5	28.1	13.8
Valier	92.9	50.4	74.9	180.4	29.6	14.4
Gallatin	90.2	50.3	74.3	177.4	30.8	13.7
Harrington	86.2	48.6	78.3	179.9	29.6	13.9
Conlon	87.4	50.4	85.2	175.5	29.3	14.0

Thirty-Two locations: 17 dryland and 15 irrigated.