Empress is a six-rowed, rough-awned, lax nodding headed, early maturing, spring feed barley cultivar. The juvenile plants have an intermediate growth habit. Leaves are medium to dark green and medium to wide, averaging 15 mm. Basal leaf sheaths are glabrous and the auricles are whitish.

Spikes are medium long and nodding. The covered kernels have a yellow aleurone and basal marking of an incomplete horseshoe depression. The rachilla is midlong while the rachilla hairs are short with an occasional long. Glumes are completely covered with short hairs. Empress has a medium stiff straw which is toward the short end of the standard height type.

Empress is adapted to the higher yield areas of west and central Alberta. In this area, it outyields ‘Bonanza’, the most popular cultivar, by 8 to 15%. It matures up to 2 days earlier than Bonanza and is 10 to 20 cm shorter. When grown under the cool conditions of this high rainfall area, Empress has a very distinctive purple colored awn giving a deep purple cast to the field. When Empress was grown for high moisture grain and silage from 1980 to 1982, it outperformed all other recommended cultivars for total dry matter grain yield and total whole plant yield on a dry matter basis.

Empress is resistant to stem rust, caused by *Puccinia graminis* f. sp. *tritici* Eriks and Henn, moderately resistant to moderately susceptible in seedling reaction to inoculated scald, caused by *Rynchosporium secalis* (Oud.), and moderately resistant to common root rot, caused by *Helminthosporium* species. Under field conditions, Empress has shown good adult plant resistance to both scald and net blotch, caused by *Pyrenophora teres* (Pied) Drechs., in Alberta. Empress is susceptible to inoculated net blotch, septoria leaf blotch, caused by *Septoria passerinii* Sacc., loose smut, caused by *Ustilago nuda* (Jens) Rostr., and surface borne smuts, caused by *Ustilago nigrav Tapke and Ustilago hordae* (Pers) Lager R.

Empress was released by Alberta Agriculture Crop Research in 1982. Breeder seed will be maintained by Alberta Agriculture Crop Res., Lacombe. Alberta and distributed through the SeCan Assoc., 885 Meadowlands Dr., Ottawa, Canada. K2C 3N2.


References and Notes

1. Head of research and plant breeder, plant breeder, breeding technician, computer technologist, breeding technologist, quality laboratory technologist, and breeding technologist, respectively. Alberta Agriculture Crop Res., Cereal Breeding Program, Bag Service #67. Lacombe, Alberta, Canada. TOC 180. Registration by Crop Sci. Soc. of Am. Accepted 6 June 1983.

REGISTRATION OF ADVANCE BARLEY

‘ADVANCE’ BARLEY (Hordeum vulgare L.) (Reg. no. 188), C115804, was released by the Washington State University Agriculture Research Center and the Idaho and Oregon Agricultural Experiment Stations in 1979. The USDA Barley and Malt Laboratory, Madison, Wis.; the Malting Barley Improvement Association (MBIA), Milwaukee, Wis.; and the Great Western Malting Company, Vancouver, Wash., cooperated in testing malting and brewing quality. Plant-scale evaluations for quality of Advance were conducted during 1979-1981 and it was accepted for malting and brewing by the MBIA in January, 1982.

Advance is a reselection made in 1973 at Pullman, Wash. by A. J. Lejeune from WA6591-69 which was selected from the cross ‘Foma’/‘Triple Bearded Mariout’/‘White Winter’ (WA6194-65)/‘Blazer’.

Advance is a six-rowed, early maturing spring barley. The spike is erect, middense, and midlong with little or no overlapping of lateral rows. Awns are rough and long, the rachis edge is hairy, and the glumes are medium length and covered with hairs. Length of the glume awns is twice the length of the glumes. The medium-sized kernels have a smooth to slightly wrinkled adherent hull, a white or colorless aleurone, short-haired rachilla, and moderately prominent lateral veins. The crease is narrow and shallow.

In extensive yield trials under dryland conditions at four locations in eastern Washington (1976-81), Advance yielded about 34% more than ‘Larker’, 31% more than ‘Karl’, 14% more than Blazer, and 7% less than ‘Steptoe’. During 3 years (1979-1981), Advance outyielded ‘Moxore’ by about 50%. Yield levels for Advance in dryland eastern Washington tend to range between 3000 and 6000 kg ha⁻¹.

Under irrigation, it yields about 90% of Steptoe, 11% more than Blazer, 22% more than Larker, and over 50% more than Moxore. In 65 station years of testing in the Western Spring Barley Nursery (1977-1979), Advance was exceeded by Steptoe in yield by 12% and exceeded Larker by 13%.

In eastern Washington, Advance is five days and eight days earlier maturing than Steptoe and Blazer, respectively. It averages 5, 13, and 18 cm shorter than Steptoe, Blazer, and Larker or Morex, respectively. The plants have good tillering capacity and stand well after maturity, and the heads are held erect with very little shattering.

The kernels are more plump than those of Blazer but less plump than those of Larker, Morex, and Steptoe. In contrast to Steptoe, Advance has little cold tolerance and is unlikely to create a volunteer problem in following crops such as wheat. It is moderately susceptible to powdery mildew, caused by *Erysiphe graminis* DC. ex Merat f. sp. *hordei* Em. Marchal, and barley yellow dwarf virus. Reaction to other barley diseases is unknown due to the low incidence of barley diseases in eastern Washington.

Advance has specific adaptation limitations compared to the wide adaptation of the cultivar Steptoe, which is extensively grown in the Pacific Northwest. It is best adapted to the higher rainfall areas of eastern Washington and adjoining areas of northern Idaho and the irrigated areas of central Washington.

In terms of malting qualities, compared to Larker, Advance is lower in percent protein but similar in malt extract, fine-coarse difference, diastatic power, alpha amylase, and soluble over total protein ratio. Advance, compared to Morex, is similar except Advance tends to have lower malt extract and protein percentages. It has the unique ability of producing high alpha amylase and diastatic power values, comparable to Larker and Morex, at lower protein levels under Western conditions.

Nutritional evaluations indicate that feeding quality of Advance is equal to other malting types such as ‘Vanguard’, Blazer, and Larker. It is superior to Steptoe.

Breeder seed stock will be maintained by the Washington State Univ. Agric. Res. Ctr. at Pullman, WA 99164-0420, and foundation seed is available through the Washington State Crop Improvement Association. Seed production under certification will proceed from breeder through foundation, registered, and certified seed classes.

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