Registration of ‘Aquila’ Spring Barley

‘Aquila’ spring barley (Hordeum vulgare L.) (Reg. no. CV-319, PI 635120) was developed at the Utah Agricultural Experiment Station and released in 2003. Aquila has been tested as the breeding line UT97B1480-1632 and is a six-rowed spring feed barley. Its main characteristics are an early heading date, a low propensity for lodging, and a test-weight equal or superior to that of two-rowed cultivars.

Aquila was named after the genus name of several eagle speices, including the golden eagle (Aquila chrysaetos L.). This species is found in mountainous regions, steps, and high elevation deserts of most of the northern hemisphere.

Aquila has the pedigree UT-S.D.B1-1009/M72-395/3/Utah Short#2/ID6533019/‘Woodvale’/4/‘Steptoe’/M27//‘Westbred Gustoe’ (Dewey, 1972; Muir and Nilan, 1973). UT-S.B1-1009 is a sib to ‘Bracken’ (Albrechtsen, 1993). Utah Short #2 is a six-rowed, semi-earny line selected at Logan, UT from the cross S.D.S.S (a South Dakota breeding line)/‘Primus’ (Price, 1969) made by Dr. Ph B. Price at South Dakota State University. M27 is a short stature breeding line involving the parents ‘Jotun’ (PI539136), ‘Kindred’ (PI6969), and ‘Vantage’ (Johnston, 1965).

F3 plants were grown in the greenhouse during the winter of 1992–1993. Segregating generations (F3–F5) were grown at Logan, UT, as space-planted modified bulk populations. Desirable plants (for spike size, stiff straw, vigor) were selected each year between 1993 and 1996, and seeds were bulked. Individual spikes from F3 plants were selected in the summer of 1996 and their seeds were sown as head rows in 1997. Head row number UT97B1480-1632 was selected for vigor, stiff straw, spike appearance, and threshing ability. Seed increase and limited performance trials were performed in 1998 and 1999 at Logan, UT. Aquila has been further performance-tested annually in three to four Utah locations from 2000 through 2003. It was tested under the same number in the Western Regional Irrigated Spring Barley Nursery from 2001 through 2003. In the summer of 2002, 100 heads were selected among F3-1 progenies at Logan, UT. These 100 head spikes were grown in a 2002–2003 winter increase at Yuma, AZ, where off types were rogued. Retained rows were harvested in bulk to constitute the Breeder seed. Foundation seed was produced at Cache Junction (USU Farm) in the summer of 2003. Registered Class seed will be produced in 2004 and made available for further commercial increase.


Aquila’s yield (5380 kg ha⁻¹) was not statistically different (P = 0.05) from that of Steptoe (5545 kg ha⁻¹), Baronesse (5445 kg ha⁻¹), and significantly higher (P = 0.05) than that of Steptoe (626.7 kg m⁻³). Average test weight of Aquila for these trials (672.2 kg m⁻³) was equal to that of Baronesse (673.0 kg m⁻³) and significantly higher (P = 0.05) than that of Steptoe (626.7 kg m⁻³).

Average heading date (30 site-years) for Aquila (175 Julian days) is one day and six days earlier than those of Steptoe and Baronesse, respectively. For two years (2001, 2002), it was the earliest heading barley line among a field of 39 and 37 breeding lines and checks, respectively. Average percentage of lodged plants for Aquila (18 site-years, 9%) was lower than those of Baronesse (34%) and Steptoe (36%).

Aquila has been tested for four consecutive years (2000–2003) in several locations in the state of Utah (15 site-years). Aquila’s yield (5380 kg ha⁻¹) is not significantly different from those of Steptoe (5465 kg ha⁻¹) and Baronesse (5520 kg ha⁻¹) (P = 0.05). In these Utah trials, test weight for Aquila (680.0 kg m⁻³) is similar to that of Baronesse (679.5 kg m⁻³) and significantly higher than that of Steptoe (653.8 kg m⁻³) (P = 0.05). Aquila’s performance in rainfall conditions is still under testing.

Aquila has shown field resistance to barley loose smut [caused by Ustilago nuda (Jens.) Rostr.] and covered smut [caused by U. hordei (Pers.) Lagerh.]. Preliminary tests have shown Aquila to be susceptible to barley stripe rust (caused by Puccinia striiformis Westend.).

The generation sequence of seed production of Aquila is Breeder, Foundation, Registered, and Certified. Breeder seed is maintained by the Utah Agricultural Experiment Station, and released in 2003. Aquila has been tested (672.2 kg m⁻³) was equal to that of Baronesse (673.0 kg m⁻³) and significantly higher (P = 0.05) than that of Steptoe (626.7 kg m⁻³).

The generation sequence of seed production of Aquila is Breeder, Foundation, Registered, and Certified. Breeder seed is maintained by the Utah Agricultural Experiment Station, Department of Plants, Soils, and Biometeorology, Utah State University, Logan, UT 84322-4820. Foundation Seed is available from the Utah Crop Improvement Association, Utah State University, Logan, UT 84322-4820. U.S. Plant Variety Protection of Aquila has been applied for.

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References


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