REGISTRATION OF 'DIAMOND' BARLEY

Diamond spring barley (Hordeum vulgare L. emend Lam.) (Reg. no. 195) was developed at the Agriculture Canada Research Station, Lacombe, Alberta, Canada, from a cross made in 1972 between 'Galt', a Canadian cultivar, and 'Unifield', a cultivar introduced from the USA. The F₁ and F₂ generations from this cross were grown in the field. The F₂ and subsequent generations up to the F₄ were advanced by the single-seed descent method of breeding. 'Diamond' was selected in 1975 from 506 F₁ lines grown in a headrow nursery at Lacombe, Alberta and was entered in the Alberta Joint Project barley Test in 1978 and 1979 as selection number LA-659-1-4. It was advanced to the Western Six-row Barley Co-operative Test in 1979 and tested for 3 years under the experimental designation BT 618. Diamond also was tested extensively in the Alberta Regional barley Test from 1981 through 1984. License No. 2259 for this cultivar was issued by the Plant Health and Plant Products Directorate, Agriculture Canada, on 20 Apr. 1982. Diamond has been assigned the Plant Gene Resources of Canada number PGR12928. The name Diamond was chosen to commemorate the 75th anniversary of the establishment of the Lacombe Research Station which coincided with the year in which this cultivar was released.

Diamond has a medium-long, nodding, lax, clavate, shaped, six-rowed spike in which the lateral rows overlap at the tip. The rachis margins are slightly tapered and covered with a few short hairs. The basal rachis internode above the collar is straight, and is about 1 mm in length. The long, medium-wide kernels have yellow aleurone and bear medium-long rachillas that are covered with long hairs. The large kernels also have a horseshoe-shaped depression at the base and are subtended by smooth (glabrous) glumes that are about half the length of the lemma. The glume awns are smooth, green-tipped, and about the same length as the glume. The lemma also are smooth and have long, smooth, green-tipped awns. The lateral lemma veins are barbed. The stem, which is blue-green in color, is covered with a waxy bloom and has a straight neck with a closed collar.

Diamond has yielded more in tests than any cultivar in its maturity group. In 3 years of testing in Western Canada, Diamond out-yielded 'Klondike', the highest yielding check cultivar, by more than 8%; 'Bonanza', the most widely grown barley cultivar in Western Canada, by more than 16%; and 'Galt', a popular six-rowed feed barley cultivar grown in central and southern Alberta, by more than 3%. It yields about 4% less than 'Johnston', a late maturing, feed barley cultivar licensed for production in Western Canada. Diamond matures at least 4 days earlier than Johnston, and 2 to 3 days earlier than Galt, an advantage of great importance in the high rainfall, cool temperature, short growing season areas of the Parklands of the Western Canadian Prairies. In Western Canada, Diamond averaged 73 cm in height, which was about 6 and 11 cm shorter than Johnston and Bonanza, respectively, and about the same as Klondike. It has straw strength and lodging resistance superior to Bonanza or Johnston. Diamond is resistant to stem rust (caused by Puccinia graminis f. sp. secalis Eriks. & Henn.), net blotch (caused by Pyrenophora teres Drechs.), and surface-borne smuts. It is susceptible to common root rot (caused by Helminthosporium sativum Pamm., King & Bakke), scald (caused by Rhynchosporium secalis (Oud.) J.J. Davis) and loose smut [caused by Ustilago nuda (Jens.) Rostr.]. Although this cultivar is intended primarily for the western prairies where rusts are rare and other leaf diseases not usually as severe as in the eastern prairies, it has adequate disease resistance to be grown anywhere in the traditional six-rowed barley areas of Western Canada. Because of its superior agronomic characteristics, Diamond has replaced Klondike and Johnston as a high yielding, early maturing standard check cultivar in the 1983 and 1984 Canadian Western Six-row Barley Co-operative Tests.

Diamond is medium in grain protein content and is intended to be grown as a feed barley. It has a higher 1000-kernel-weight and a slightly lower test weight than other six-rowed feed barley cultivars licensed for production in Western Canada.

Diamond has been released to Secan Association, 885 Meadowlands Dr., Ottawa, Ontario, Canada K2C 3N2 for pedigreed seed increase and distribution in Canada. Breeder seed stock of Diamond will be maintained by the Agriculture Canada Research Station, Regina, Saskatchewan, Canada S4P 3A2.

M. L. KAUFMANN AND SOLOMON KIBITE (1)

References and Notes

1. Section head (retired) and research scientist, respectively, Research Station, Research Branch, Agriculture Canada, Box 1420, Lacombe, Alberta, Canada T0C 1S0. Contribution No. 508. Registration by the Crop Sci. Soc. Am. Accepted 11 Jan. 1985.

REGISTRATION OF KLINE BARLEY

Kline, PI 491550 (Reg. no. 196), is a semihardy winter barley (Hordeum vulgare L.) developed at the College Exp. Stn., Athens, GA, and released in 1984. The original cross, TX70 D627/‘Burk’, was made by A.R. Brown in 1973. TX70 D627 is a six-rowed, awned, winter barley selection developed by the Texas Agric. Exp. Stn. Varietal resistance to leaf rust, caused by Puccinia hordei Otth., and powdery mildew, caused by Erysiphe graminis DC. ex Merat f. sp. hordei Em. Marchal. Burk is a six-rowed, awned, spring barley cultivar released by the Wisconsin Agric. Exp. Stn. in 1971. It has large plump kernels that are relatively high in protein and lysine. The pedigree method of plant breeding was used until the F₄ generation when the bulk method was used. During the 1978-1979 growing season, a high yielding F₄ bulk from the cross was selected in a replicated yield trial (plot 433). This selection subsequently was tested under the designation Ga 75-433.

‘Kline’ has been evaluated extensively in Georgia and was evaluated in the Uniform Winter Barley Nursery (semi-hardy varieties) in 1981, 1982, and 1983. In these trials, Kline yielded 3.5% more than ‘Volbar’, the highest yielding cultivar for many years in the Southeast. During this same period, Kline outyielded ‘Milton’ and ‘Anson’ by 15 and 13%, respectively. In 17 trials conducted in Georgia from 1980 through 1984, Kline’s yield has been equal to that of Volbar and 11% more than that of ‘Keowee’ and ‘Redhill’. Test weight has been similar to that of Volbar and slightly less than that of ‘Boone’ and Keowee. Kline is a late-maturing cultivar similar to Volbar. It heads 8 to 9 days later than ‘Dawn’, Redhill, and ‘Barsoy’ in the Lower Piedmont area of the Southeast.

Kline is a tall (92 to 112 cm), winter type, six-rowed feed barley. Spikes are medium long and nodding with long, plump, yellow kernels. Lateral kernels do not overlap even at the tip of the spike. Glumes are hairy and half the length of the lemma and glume awns are rough, white, and twice the length of the glumes. The lemma is yellow with few hairs on marginal nerves. Early growth is decumbent with...