long, with a slight purple coloration at the tips. Kernels are medium long and medium wide. The basal marking of the lemma is horseshoe-shaped. The rachilla is medium long, with long hairs.

Phoenix was tested as H18104002N+ from 1986 to 1992 in the Alberta breeding trials, and as HB602 from 1989 to 1992 in the Western Cooperative Hulless barley Test. Averaged over 28 site-years of the Western Cooperative Hulless barley Test, including Manitoba, Saskatchewan, and Alberta production areas, Phoenix yielded 4764 kg ha\(^{-1}\), 106% of 'Condor', the predominant two-row hulless check. In the same test, Phoenix's yield averaged 87% of the two-row hulled check, 'Harrington'. In 37 trials of this test, Phoenix had a mean yield of 74 kg ha\(^{-1}\) lower than Condor (77 kg ha\(^{-1}\)) and higher than Harrington (64 kg ha\(^{-1}\)). In 32 station-years of the same test, where kernel weights were taken, Phoenix and Condor had the same average value, 37 mg kernel\(^{-1}\), compared with 41 mg kernel\(^{-1}\) for Harrington. Averaged over five trials of the same test, in the drier areas of Alberta (brown soils), Phoenix yielded 5029 kg ha\(^{-1}\), 10% higher than Condor and 14% less than Harrington. Phoenix is best adapted to these areas. It is 2 d earlier maturing than Condor and has the same maturity as Harrington. Phoenix is inferior to Condor in lodging resistance. In the Western Cooperative Hulless barley Test, in 17 trials, Phoenix had a lodging resistance score of 3.4 on a scale of 0 to 9 (0 = erect, 9 = fully lodged), compared with 1.9 for Condor and 3.2 for Harrington. Phoenix has better digestible protein and energy for pigs than Condor. In comparative tests for feed quality using the mobile nylon bag technique in pigs (Saur et al., 1983; De Lange et al., 1991), conducted by the Animal Science Department at the University of Alberta, Phoenix averaged 79% protein digestibility, compared with 65% for Condor. In the same tests, Phoenix averaged 85% energy digestibility, compared with 79% for Condor.

In the Western Cooperative Hulless barley Test, Phoenix showed moderate susceptibility to scald [caused by *Rhynchosporium secalis* (Oudem.) J.J. Davis]. In the nine tests where scald ratings were taken, on a scale of 0 to 9 (where 0 is least affected), Phoenix and Condor averaged 5, and Harrington 8. When inoculated with covered smut [caused by *Ustilago hordei* (Pers.) Rostr.; syn. *U. avenae* (Pers.) Rostr.; syn. *Ustilago nuda* (Pers.) Lagerh.], Phoenix had a 23% mean level of smutted plants; Condor's value was 29%, and that of Harrington was 27%. Similarly, when inoculated with false loose smut [caused by *U. avenae* (Pers.) Rostr.; syn. *U. nigra* Tapke], the level for Phoenix was 16%, compared with 28% for Condor and 25% for Harrington. When Phoenix was inoculated with loose smut [caused by *U. tritici* (Pers.) Rostr.; syn. *U. manda* (Jens.) Rostr.], it showed moderate susceptibility. In this test, Phoenix averaged 55%, Condor 52%, and Harrington 77%. In the field, it has moderate resistance to net blotch (caused by *Pyrenophora teres* Drechs.). In four year-trials, mean ratings for this pathogen were 4 for Phoenix, 5 for Condor, and 6 for Harrington.


### Registration of ‘Seebe’ Barley

‘Seebe’ is a two-row, spring habit feed barley (*Hordeum vulgare* L.) (Reg. no. CV-255, PI 591793), released in 1993 by the Field Crop Development Centre of Alberta Agriculture, Food and Rural Development, Lacombe, AB, Canada (Canadian Reg. no. 3708). It was derived from the cross ‘Masurca’/‘Muller’/‘Heydla’. An F2 bulk from the cross was introduced to the Alberta breeding program from the International Maize and Wheat Improvement Center (CIMMYT), Mexico, in 1979. Using a modified bulk breeding method, populations were grown annually in Alberta to the F6. Seed produced from the F2 through the F3 generations were selected for density on a Carter-Day gravity table. Head selections based on desirable plant type were made in the F3 generation. Subsequent F4 head-row tests, including the one which became Seebe, were grown at Lacombe in 1985 and were advanced to yield testing. Selections were made in the F7 and following generations for yield, test weight, protein content, straw strength, threshability, and leaf disease resistance. Breeder seed of Seebe was derived from a bulk of 188 F1 lines.

Seebe has a green coleoptile and erect juvenile growth habit. Leaves are medium green, medium wide and long, with glabrous green sheaths and blades. The flag leaf is medium green, medium wide, long, and semierect. The sheath is slightly waxy. The auricle is purple. Stems are green and slightly waxy, with an average thickness of 5 mm. Culms generally have four elongated internodes, a closed collar, and a snaky neck. The exsertion of the head above the base of the flag leaf blade is 1 to 3 cm. Seebe's spikes are medium dense, semierect, and medium long. Lemma awns are long and rough, with purplish tips. The glume awns are short and rough, with purplish tips. The rachilla is medium long. Seebe is heterogeneous for rachilla hair length. The lemma is attached to the kernel. The kernels are medium long, with a yellow aleurone and a slight crease at the base. The lemma has a few bars on the lateral veins.

Seebe was tested as M76964004 in Alberta Yield Trials (1985-1991) and as TR621 in the Western Cooperative Two-Row Barley Test from 1989 to 1991. In 13 site-years of the Western Cooperative Two-Row Barley Test on Alberta black and grey soils (northern and central Alberta), Seebe yielded 5482 kg ha\(^{-1}\), 110% of the two-row check, 'Harrington', and 102% of 'Bridge', the highest yielding two-row check. In nine trials of the same test, Seebe had a test weight of 62.9 kg ha\(^{-1}\), compared with 62.3 for Harrington and 65.3 for Bridge. In the same trials, where kernel weights were taken, Seebe had a kernel weight of 46.7 mg, compared with 42.8 mg for Harrington and 46.4 mg for Bridge. In areas where scald [caused by *Rhynchosporium secalis* (Oudem.) J.J. Davis] is severe (northern and central Alberta), Seebe expresses a high level of resistance. Seebe is 3 to 4 d later in maturity than Bridge, and 7 cm taller.

Seebe is resistant to lodging and shattering. It has resistance to surface smuts [caused by *Ustilago hordei* (Pers.) Lagerh. and *U. avenae* (Pers.) Rostr.; syn. *U. nigra* Tapke] and has an intermediate reaction to common root rot [caused by *Cochliobolus sativus* (Ito & Kuribayashi) Drechs. ex Dastur and Fassmer spp.]. Seebe is moderately susceptible to net blotch (caused by *Pyrenophora teres* Drechs.) and susceptible to stem rust [caused by *Puccinia graminis* Pers.; Pers. f. sp. *tritici* Eriks. & E. Henn.] (non-QCC) and loose.

### References and Notes

3. Alberta Agriculture, Field Crop Development Centre, 5300-50 St., Lacombe, AB T4L 1W8, Canada. Registration by CSSA. Accepted 31 Dec. 1995. *Corresponding author (Email: correz@agr.gc.gov.ab.ca).

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