REGISTRATIONS OF CULTIVARS

Registration of ‘Ross’ Meadowfoam

The meadowfoam (Limnanthes alba ssp. alba Bentham.) cultivar Ross (Reg. no. CV-13, PI 634713) was developed and released in 2003 by the Oregon Agricultural Experiment Station. Ross was developed by three cycles of recurrent half-sib family selection for increased seed yield and lodging resistance from OMF58, a heterogenous, open-pollinated population. The first and second cycles of selection were performed between 1990 and 1997 (Crane and Knapp, 2000, 2002). Seed increases and field tests of Ross were performed at Corvallis, OR, between 1997 and 2003. Half-sib family seed for cycle three (C3) was produced from open-pollinated plants in an isolated field in 1997–1998. Ross was developed by field testing 114 C3 half-sib families in 1998–1999, selecting 10 families for seed yield, bulking nearly equal quantities of remnant seed of the selected families, and growing and intermating the selected families in an isolated field in 1999–2000. Breeder seed of Ross was produced in an isolated field in 2000–2001 from OMF58 C3 seed produced by intermiting selected C3 families. Breeder seed was further increased in an isolated field in 2001–2002.

Ross was tested as OMF164 in replicated yield trials at Corvallis, OR, from 2000 to 2003, where single prophylactic sprays of the insecticide Capture (bifenthrin) were applied in January or February of each year to control meadowfoam fly (Scaptomyza apicalis Hardy) (Fisher et al., 2000). Ross was tested in unprayed replicated yield trials at Corvallis from 2001 to 2003. Three check cultivars, Wheeler, Knowles, and Floral (Jolliff, 1994; Crane and Knapp, 2000, 2002) were grown in both sprayed and unprayed yield trials. Seed yields were significantly greater for Ross than check cultivars in individual trials and across trials. The cultivar–trait interaction was non-significant and cultivar rankings for seed yield were identical in every trial. The seed yield for Ross across trials was 1681 kg ha\(^{-1}\), compared with 1529 kg ha\(^{-1}\) for Wheeler, 1307 kg ha\(^{-1}\) for Knowles, and 1084 kg ha\(^{-1}\) for Floral (LSD \(0.05 = 127\) kg ha\(^{-1}\)). The last two cycles of selection in OMF58 increased seed yield by 374 kg ha\(^{-1}\), and three cycles of selection in OMF58 produced a cultivar outyielding Floral by 597 kg ha\(^{-1}\).

The seed oil concentration of Ross (292 g kg\(^{-1}\)) was significantly greater than Floral (277 g kg\(^{-1}\)) (LSD\(_{10}\) = 10 kg ha\(^{-1}\)), whereas the seed oil concentrations of Ross, Wheeler (293 g kg\(^{-1}\)), and Knowles (290 g kg\(^{-1}\)) were not significantly different. Ross produced significantly more seed oil per hectare than the other cultivars tested. The mean seed oil yield for Ross across trials was 490 kg ha\(^{-1}\), compared with 448 kg ha\(^{-1}\) for Wheeler, 378 kg ha\(^{-1}\) for Knowles, and 301 kg ha\(^{-1}\) for Floral (LSD\(_{0.05} = 42\) kg ha\(^{-1}\)). The 100-seed weights for Ross (8.00 g), Knowles (7.96 g), and Floral (7.85 g) were not significantly different (LSD\(_{0.05} = 0.16\) g). The 100-seed weight for Wheeler (7.77 g) was slightly lower than the other cultivars tested.

The fatty acid profile of Ross seed oil was assayed by gas chromatography and found to be similar to Wheeler and other L. alba ssp. alba seed oils (Knapp and Crane, 1995; Crane and Knapp, 2000, 2002). The cis-5-eicosenoic (20:1 \(\Delta 5\)), cis-5-docosenoic (22:1 \(\Delta 5\)), cis-13-docosenoic (22:1 \(\Delta 13\)), and cis-5 cis-13-eicosenoic (22:1 \(\Delta 5,\ \Delta 13\)) acid concentrations in Ross seed oil were 614, 43, 138, and 176 g kg\(^{-1}\), respectively, compared with 631, 46, 137, and 160 g kg\(^{-1}\), respectively, in Wheeler seed oil.

Ross is adapted for production as a winter annual in the Willamette Valley of Oregon and other mild maritime climates. There were no significant differences in days to flowering or days to physiological maturity among cultivars. The upright growth habit and lodging resistance of Ross was similar to Wheeler, while both were more resistant to lodging than the other cultivars. Wild meadowfoam populations have a prostrate growth habit.

Breeder seed of Ross is maintained by the Oregon Agricultural Experiment Station. Recognized seed classes of Ross are Breeder, Foundation, Registered, and Certified. Small quantities of seed may be obtained from the corresponding author for research purposes for a period of at least five years.

S.J. Knapp,* J.M. Crane, and R. Brunick

Acknowledgments

The development of Ross was funded by grants from the United States Department of Agriculture (USDA), Cooperative State Research Education and Extension Service Special Grants Program (#99-34407-7509, #2002-06119, and #2003-06105). The release of Ross is dedicated to William M. Ross (USDA-ARS, Lincoln, Nebraska), mentor, teacher, and plant breeder.

References


S.J. Knapp, Center for Applied Genetic Technologies, 111 Riverbend Road, The University of Georgia, Athens, GA 30602; J.M. Crane and R. Brunick, Dep. of Crop and Soil Science, Oregon State Univ., Corvallis, OR 97331. Registration by CSSA. Accepted 31 July 2004. *Corresponding author (skjnapp@uga.edu).

Published in Crop Sci. 45:407 (2005).

Registration of ‘S99-3181’ Soybean

‘S99-3181’ soybean [Glycine max (L.) Merr.] (Reg. no. CV-469, PI 635039) was developed by the Missouri Agricultural Experiment Station at the University of Missouri–Delta Center, Portageville, MO, and released 6 June 2003 because of its potential use in the natto market. It has shatter resistance, broad resistance to soybean cyst nematode (SCN, Heterodera glycines Ichinohe), and resistance to southern root knot nematode [Meloidogyne incognita (Kofoid & White) Chitwood].

‘S99-3181’ is an F2 single plant selection composited in the F3 generation from the cross S93-1344 × ‘Camp’ made in 1995. S93-1344 is from ‘A6785’ × ‘Hartwig’ (Shannon, 1989; Anand, 1992). Camp is a small-seeded natto cultivar released by the Virginia Agricultural Experiment Station, Virginia Polytech-