REGISTRATIONS OF CULTIVARS

Registration of ‘Ross’ Meadowfoam

The meadowfoam (Limnanthes alba ssp. alba Benth.) 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 intermating 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 unsprayed 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 unsprayed 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) (LSD₉₀₅ = 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 (LSD0.05 = 42 kg ha⁻¹). The 100-seed weights for ‘Ross’ (9.0 g), Wheeler (8.7 g), Knowles (8.8 g), and Floral (8.9 g) were not significantly different (LSD0.05 = 0.16 g). The 100-seed weight of ‘Ross’ 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 tode (Crane, J.M., and S.J. Knapp, 2000, 2002). The seed oil concentration of ‘Ross’ (292 g kg⁻¹) was slightly lower than the other cultivars tested. The mean seed oil yield for ‘Ross’ across trials was 950 kg ha⁻¹, compared with 831, 46, 137, and 160 g kg⁻¹ for Wheeler, 378 kg ha⁻¹ for Knowles, and 301 kg ha⁻¹ for Floral (LSD0.05 = 42 kg ha⁻¹). The 100-seed weights for ‘Ross’ (9.0 g), Wheeler (8.7 g), Knowles (8.8 g), and Floral (8.9 g) were not significantly different (LSD0.05 = 0.16 g). The 100-seed weight of ‘Ross’ was slightly lower than the other cultivars tested.

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References

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