Registration of ‘IdaGold’ Yellow Mustard

‘IdaGold’ yellow mustard (Sinapis alba L.) (Reg. no. CV-9, PI 597356) was developed for use as a condiment spice yellow mustard by the Idaho Agricultural Experiment Station.

IdaGold is an open-pollinated cultivar selected for adaptation to dryland environments of the Pacific Northwest (Idaho, Oregon, and Washington). The cultivar was developed from a single plant selected in 1992 from an F3 population derived from the cross ‘Mustang’/‘BHDLG.3553’. The original cross was made in 1988 and the population was advanced to F5 by completing four cycles of hand self pollination, without selection. Mustang is a high erucic acid (>450 g kg⁻¹) cultivar that originated in Svaløv, Sweden, and BHDLG.3553 is a low erucic acid (<50 g kg⁻¹) breeding line developed by Agriculture and Agri-Food Canada, Saskatoon, SK. Both parental lines have high glucosinolate (>250 μmol g⁻¹) content in the seed meal. The original F6 population of IdaGold was selected in the field in 1992 and replicated field evaluation beginning in 1993.

Performance of IdaGold was compared with the cultivars Gisilba, Tilney, and Ochre in field trials planted in Idaho, Washington, and Oregon in 1993 (5 locations), 1994 (6 locations), 1995 (7 locations), and 1996 (5 locations). Gisilba and Ochre were both developed at Saskatoon; Tilney was developed at Horticulture Research International, Wellesbourne, England. No yellow mustard cultivars have been released or developed in the USA, and these control cultivars have predominated the acreage in both the USA and Canada over the past 3 yr.

Yield of IdaGold was consistently higher than control cultivars during the 4 yr of testing. Averaged over all locations, mean seed yield of IdaGold was 1785 kg ha⁻¹, compared 1600 kg ha⁻¹ for Gisilba, 1580 kg ha⁻¹ for Ochre, and 1564 kg ha⁻¹ for Tilney. Compared with these three cultivars, IdaGold was the highest-yielding entry at 11 of 23 year-sites and was ranked second highest at 9 year-sites.

IdaGold has significantly higher (P < 0.05) total glucosinolate content (244 μmol g⁻¹) than Tilney (231 μmol g⁻¹) and significantly (P < 0.05) lower total glucosinolates than Gisilba (257 μmol g⁻¹). Sinalbin (p-hydroxybenzyl glucosinolate) accounted for the greatest proportion (97%) of total glucosinolate. IdaGold has a seed oil fatty acid profile of 280 g kg⁻¹ oleic acid, 320 g kg⁻¹ erucic acid, and 100 g kg⁻¹ linolenic acid, which is not significantly different (P < 0.05) from either Gisilba or Tilney.

Seedling emergence of IdaGold was not significantly different (P < 0.05) from the three control cultivars. IdaGold flowers 1 to 2 d later than Gisilba flowers. Plants are erect in habit and stems are hollow. Average plant height is 129 cm, compared with 121 cm for Gisilba and 133 cm for Ochre. Averaged over years and sites, mean oil content of IdaGold was 251 g kg⁻¹, which was not significantly different (P > 0.05) from any of the three control cultivars. Average 1000-seed weight was 5.5 g and was not significantly different (P < 0.05) from Tilney. Seed color is bright yellow.

Breeder seed was produced from the original selected F6 population grown in a breeder seed plot in 1996. Foundation seed was planted in 1997 from 800 single-plant selections taken from the 1996 breeder seed.

U.S. plant variety protection of IdaGold is pending (PVP Certificate no. 9700374). Seed increases are limited to foundation and certified classes. Requests for seed of IdaGold for commercial production can be made to the Idaho Agricultural Experiment Station, University of Idaho, Moscow, ID 83844-2331. Small amounts of seed for experimental purposes will be available from the corresponding author for at least five years.

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References and Notes
1. Dep. of Plant, Soil and Entomological Sciences, Univ. of Idaho, Moscow, ID 83844-2339. Registration by CSSA. Accepted 30 Sept. 1997. *Corresponding author (jbrown@uidaho.edu).

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Registration of ‘Selkirk’ Winter Rapeseed

‘Selkirk’ winter rapeseed [Brassica napus L. subsp. oleifera (Metzg.) Sinskaya f. biennis] (Reg. no. CV-13, PI 597351) was developed for use as an edible oil-quality (canola) cultivar by the Idaho Agricultural Experiment Station.

Selkirk is a near pure-line winter rapeseed cultivar with canola-quality seed oil and canola-quality seed meal, selected for adaptability to the Pacific Northwest region (Idaho, Washington, and Oregon). Selkirk was developed from a single plant selected in 1993 from an F3 population from the cross ‘WRE.23’/‘Bienvenu’. Bienvenu is a low erucic acid content (<20 g kg⁻¹), high glucosinolate content (>120 μmol g⁻¹) cultivar developed in 1982 by Rungot Seed Co. in France. WRE.23 is a low erucic acid (<20 g kg⁻¹) and low glucosinolate (<30 μmol g⁻¹) defatted seed meal cultivar developed at the University of Idaho from a segregating population derived from the cross ‘Sipal’/‘Indore’. Indore is a low glucosinolate, high erucic acid (>450 g kg⁻¹) industrial oil-quality rapeseed cultivar released by Oregon State University in 1983 (2). Selkirk is an edible oil-quality rapeseed with high glucosinolates developed by the Swedish Seed Association (Svaløv, Sweden).

F1 seeds from the original cross were produced in 1987 and increased to F3 in the greenhouse in the spring of 1988. F2 and F3 populations were grown as bulk plots in the field in 1989–1990 and 1990–1991, respectively. Individual F4 plants were selected based on visual appearance in 1991 and threshed separately. Seed from these plants was screened for fatty acid profile (3,5) and glucosinolate content using a glucose-sensitive Tes-tape procedure (4). Progeny were selected for high oil content (>400 g kg⁻¹), low erucic acid content (<10 g kg⁻¹), and low glucosinolate content (Tes-tape score of ≤0.5 units, on a scale of 0 to 5). Selections were planted as single-plant plots in 1991. At harvest, the highest-yielding plot was selected and the seed used for replicated yield trials in 1992. Seed for subsequent field evaluation trials were derived by bulking seed from single-plant plots grown for seed increase.

Breeder seed of Selkirk was produced using a pedigree procedure of selecting single plants, screening seed for glucosinolate content and fatty acid profile, selecting desirable quality lines, and planting these in single-plant plots the following year. This process was repeated with Selkirk for three generations (F4 to F6 in the years 1992–1993, 1993–1994 and 1994–1995). Seed from 400 single-plant selections (taken from the 1995–1996 breeder seed plot) was used to plant foundation seed of Selkirk in 1996.

Selkirk was evaluated in field trials in Idaho, Washington, and Oregon for five seasons, from 1992 to 1996. Performance was compared with six commercially available control cultivars: Cascade, Ceres, Tapidor, Glacier, Capricorn, and Pendleton. Three of these cultivars (Cascade, Ceres, and Pendleton) accounted for almost all the acreage of canola-quality winter rapeseed grown in the region over the past 10 yr.

Averaged over 22 site-years, seed yield of Selkirk was 4266 kg ha⁻¹, compared with the average yield of control cultivars at 3528 kg ha⁻¹. Averaged over sites within years, Selkirk’s seed yield ranged from 3227 to 4690 kg ha⁻¹. Compared with the six control cultivars, Selkirk was the highest-yielding cultivar in 12 of the 22 site-years and it ranked as the second highest in 4 other environments.

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