REGISTRATION OF CROP CULTIVARS

References and Notes


REGISTRATION OF 'DOMINO' AND 'BLACK MAGIC' TROPICAL BLACK BEANS

'DOMINO' (Reg. no. 71) and 'Black Magic' (Reg. no. 72) black beans (Phaseolus vulgaris L.) were developed and released cooperatively by the Michigan Agricultural Experiment Station and USDA-ARS in 1981, as upright, full-season black bean cultivars.

Domino, formerly known and tested as MSU no. 61380, was derived from a single F3, generation plant selection from the cross ‘NEP-2’/‘Black Turtle Soup’ (BTS). Black Magic, formerly designated as MSU no. 61356, was a single F3, generation plant selection from the same NEP-2/BTS cross.

Domino and Black Magic are among the first black bean cultivars with architype (2) characteristics, since selection for high yield was based on the ideotype breeding concept proposed by Adams (1). The concept features a distinctly modified plant architecture, coupled with greater yield stability; the plants of both cultivars are taller, more erect, narrower in profile, with fewer basal branches and possess a more dominant, and stronger central axis than the BTS parent. These architectural characteristics are combined with a branched tap root to afford resistance to lodging which offers the opportunity to increase yield by growing both cultivars under narrow row management (20 to 35 cm row width) and thus reduce losses by harvesting plants directly.

Domino and Black Magic both exhibit the Type II, upright short vine plant habit with plants averaging 55 cm in height. This is about 10 cm taller than the standard black cultivar ‘T-39’. Both cultivars require a full season to reach maturity, usually from 94 to 99 or 4 days later than the T-39 cultivar and outyield the standard black bean cultivars by 5 to 10% on minimally tilled and compacted soil, respectively. A comparison of yield stability (4) of Domino and Black Magic with 26 other cultivars grown across 42 location-years, indicated that both cultivars respond to improved environments and possess high yield stability when grown across diverse environments in Michigan.

Domino and Black Magic carry the single dominant hypersensitive I-gene form of resistance to all strains of bean common mosaic virus (BCMV), and are essentially immune to the indigenous rust [incited by Uromyces phaseoli (Reben.) Wint. var. typica Arth.] races prevalent in Michigan, Nebraska, North Dakota, and Colorado (5). Domino is resistant only to the gamma race of anthracnose while Black Magic is resistant to the beta, gamma, and delta races of anthracnose caused by Colletotrichum lindemuthianum pv. phaseoli (Burkholder) Young et al., and to angular leaf spot caused by Pseudomonas syringae pv. phaseolicola (Burkholder) Young, and to common mosaic virus (BCMV), and are essentially immune to the indigenous rust [incited by Uromyces phaseoli (Reben.) Wint. var. typica Arth.] races prevalent in Michigan, Nebraska, North Dakota, and Colorado (5). Domino is resistant only to the gamma race of anthracnose while Black Magic is resistant to the beta, gamma, and delta races of anthracnose caused by Colletotrichum lindemuthianum pv. phaseoli (Burkholder) Young et al., and to angular leaf spot caused by Pseudomonas syringae pv. phaseolicola (Burkholder) Young.

Domino and Black Magic had washed bean drain weight ratios, [washed bean drained weight (g)/soaked bean weight (g)] of 1.4 and 1.5, respectively, while textures measured with a Kramer Shear Press (3) were 66.9 kg/100g for Domino and 62.5 kg/100g for Black Magic. These values are within the acceptable range of 1.3 to 1.7 for drain weight ratios and 45.0 to 75.0 kg/100g for tropical black beans.

Breeder seed is maintained by the Michigan Stn. E. Lansing, MI 48824, in cooperation with Foundation Seed Association.

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REGISTRATION OF 'ISABELLA' LIGHT RED KIDNEY BEAN

'Isabella' (Reg. no. 73) light red kidney bean (Phaseolus vulgaris 'ISABELLA' light red kidney bean L.) was developed and released cooperatively by the Michigan Agricultural Experiment Station and USDA-ARS in 1982, as an early maturing, upright, kidney bean cultivar.

Isabella, formerly known and tested as MSU no. 70688, was derived from a single F5, generation plant selection from the cross 'NEP-2'/'Black Turtle Soup' (BTS). Black Magic, formerly designated as MSU no. 61356, was a single F3, generation plant selection from the same NEP-2/BTS cross.

'Isabella' is a Type I, upright, determinate cultivar, 'Sacramento'. The erect, upright growth habit coupled with a vigorous root and high yield stability; the plants of both cultivars are taller, more erect, narrower in profile, with fewer basal branches and possess a more dominant, and stronger central axis than the BTS parent. These architectural characteristics are combined with a branched tap root to afford resistance to lodging which offers the opportunity to increase yield by growing both cultivars under narrow row management (20 to 35 cm row width) and thus reduce losses by harvesting plants directly.

'Isabella' and BTS had washed bean drain weight ratios, [washed bean drained weight (g)/soaked bean weight (g)] of 1.5 and 1.5, respectively, while textures measured with a Kramer Shear Press (3) were 64.6 kg/100g for 'Isabella' and 64.3 kg/100g for BTS. These values are within the acceptable range of 1.3 to 1.7 for drain weight ratios and 45.0 to 75.0 kg/100g for tropical black beans.

Breeder seed is maintained by the Michigan Stn. E. Lansing, MI 48824, in cooperation with Foundation Seed Association.

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