REGISTRATION OF CULTIVARS

Registration of ‘Black Knight’ Black Bean

‘Black Knight’ is a black dry bean (Phaseolus vulgaris L.) (Reg. no. CV-152, PI 597650) jointly released by the Florida, Idaho, and Cornell Agricultural Experiment Stations in 1997. Black Knight was previously released as the germplasm line CU-M90, and was developed to have resistance to the clover yellow vein virus (CYVV) (1). It was derived from a simultaneous backcross and selfing procedure with the following pedigree: ‘Midnight’/6/Midnight/5/Midnight/4/Midnight/3/Midnight/1 (‘US1140’/‘Black Turtle Soup I’) F3. Twenty BC4-F3 plants were progeny tested to confirm CYVV resistance and bulked to create the initial population. Resistance to CYVV is conditioned by the cyv gene (2) derived from US 1140, a Great Northern bean cultivar released in 1950 (3). US-1140 was derived from a cross between ‘Pinto #5’ and ‘UI 123’. The pedigree of Pinto #5 is #780/‘Idaho Pinto’, and UI 123 is a selection from ‘Common Great Northern’. Black Turtle Soup I is a selection from the Black Turtle Soup landrace and has the l gene (4); it also has resistance to a complex of potyviruses conditioned by the l gene (5). Midnight (6) is a standard black dry bean cultivar grown throughout the USA and a composite of breeding lines 70001, 70002, and 70003 originally obtained from CIAT (Centro Internacional Agricultura Tropical), Cali, Colombia.

The National Cooperative Dry Bean Nursery tested Black Knight, where it outperformed Midnight at 10 of the 15 sites in 1993 and 13 of the 25 sites in 1994 (7). In both years, Black Knight consistently outyielded Midnight in the Northeast and the Pacific Northwest regions of the USA; performance in the Southwest and Great Plains regions was inconsistent. Across all trials, Black Knight had a 4.2% yield advantage over Midnight, with an average productivity of 2476 kg ha⁻¹ (compared with 2375 kg ha⁻¹ for Midnight). In regional trials conducted from 1990 to 1995 at nine sites in upstate New York, Black Knight had a 3.8% yield advantage over Midnight, with an average yield of 3776 kg ha⁻¹ for Black Knight and 3636 kg ha⁻¹ for Midnight (8). The canning evaluations from these New York trials indicated that Black Knight and Midnight had equivalent seed size and uniformity, but Midnight had a marginally better general appearance (8). The average 100-seed weight for Black Knight was 22.5 g, compared with 21.2 g for Midnight.

In the New York trials, Black Knight matured on average in 106 d, 2 d earlier than Midnight. Average maturity in national trials was 104 d in 1993 and 99 d in 1994 for both genotypes. Similarly, the days to 50% bloom was the same for both cultivars in the national trials: 54 d in 1993 and 52 d in 1994. In the New York trials, harvest index was 54.7% for Midnight and 56.3% for Black Knight; in national trials, annual harvest index values were 44.0% and 45.8% for Midnight and 48.5% and 47.7% for Black Knight in 1993 and 1994, respectively. Black Knight is slightly shorter than Midnight; in 1993 and 1994, biomass production measured in the national trials was significantly higher for Black Knight vs. Midnight. Harvest index was 54.7% for Midnight and 56.3% for Black Knight. In regional trials conducted from 1990 to 1995, Black Knight matured on average in 104 d, 2 d earlier than Midnight. Across all trials, harvest index was 54.7% for Midnight and 56.3% for Black Knight.

The reaction of Black Knight to these pathogens or their races was marginally more susceptible than or equivalent to Midnight. Resistance to lodging was equivalent for both genotypes. The reaction of Black Knight to these pathogens or their races was marginally more susceptible than or equivalent to Midnight. The reaction of Black Knight to these pathogens or their races was marginally more susceptible than or equivalent to Midnight.

Smog damage in 1994 in the New York trial revealed that Black Knight had a 3.8% yield advantage over Midnight, with an average productivity of 2476 kg ha⁻¹ for Black Knight and 3636 kg ha⁻¹ for Midnight (8). The canning evaluations from these New York trials indicated that Black Knight and Midnight had equivalent seed size and uniformity, but Midnight had a marginally better general appearance (8). The average 100-seed weight for Black Knight was 22.5 g, compared with 21.2 g for Midnight.

In the New York trials, Black Knight matured on average in 106 d, 2 d earlier than Midnight. Average maturity in national trials was 104 d in 1993 and 99 d in 1994 for both genotypes. Similarly, the days to 50% bloom was the same for both cultivars in the national trials: 54 d in 1993 and 52 d in 1994. In the New York trials, harvest index was 54.7% for Midnight and 56.3% for Black Knight; in national trials, annual harvest index values were 44.0% and 45.8% for Midnight and 48.5% and 47.7% for Black Knight in 1993 and 1994, respectively. Black Knight is slightly shorter than Midnight; in 1993 and 1994, biomass production measured in the national trials was significantly higher for Black Knight vs. Midnight. Harvest index was 54.7% for Midnight and 56.3% for Black Knight. In regional trials conducted from 1990 to 1995, Black Knight matured on average in 104 d, 2 d earlier than Midnight. Across all trials, harvest index was 54.7% for Midnight and 56.3% for Black Knight.

The reaction of Black Knight to these pathogens or their races was marginally more susceptible than or equivalent to Midnight. Resistance to lodging was equivalent for both genotypes. The reaction of Black Knight to these pathogens or their races was marginally more susceptible than or equivalent to Midnight.

Smog damage in 1994 in the New York trial revealed that Black Knight had a 3.8% yield advantage over Midnight, with an average productivity of 2476 kg ha⁻¹ for Black Knight and 3636 kg ha⁻¹ for Midnight (8). The canning evaluations from these New York trials indicated that Black Knight and Midnight had equivalent seed size and uniformity, but Midnight had a marginally better general appearance (8). The average 100-seed weight for Black Knight was 22.5 g, compared with 21.2 g for Midnight. In the New York trials, Black Knight matured on average in 106 d, 2 d earlier than Midnight. Average maturity in national trials was 104 d in 1993 and 99 d in 1994 for both genotypes. Similarly, the days to 50% bloom was the same for both cultivars in the national trials: 54 d in 1993 and 52 d in 1994. In the New York trials, harvest index was 54.7% for Midnight and 56.3% for Black Knight; in national trials, annual harvest index values were 44.0% and 45.8% for Midnight and 48.5% and 47.7% for Black Knight in 1993 and 1994, respectively. Black Knight is slightly shorter than Midnight; in 1993 and 1994, biomass production measured in the national trials was significantly higher for Black Knight vs. Midnight. Harvest index was 54.7% for Midnight and 56.3% for Black Knight. In regional trials conducted from 1990 to 1995, Black Knight matured on average in 104 d, 2 d earlier than Midnight. Across all trials, harvest index was 54.7% for Midnight and 56.3% for Black Knight.

The reaction of Black Knight to these pathogens or their races was marginally more susceptible than or equivalent to Midnight. Resistance to lodging was equivalent for both genotypes. The reaction of Black Knight to these pathogens or their races was marginally more susceptible than or equivalent to Midnight.

Smog damage in 1994 in the New York trial revealed that Black Knight had a 3.8% yield advantage over Midnight, with an average productivity of 2476 kg ha⁻¹ for Black Knight and 3636 kg ha⁻¹ for Midnight (8). The canning evaluations from these New York trials indicated that Black Knight and Midnight had equivalent seed size and uniformity, but Midnight had a marginally better general appearance (8). The average 100-seed weight for Black Knight was 22.5 g, compared with 21.2 g for Midnight. In the New York trials, Black Knight matured on average in 106 d, 2 d earlier than Midnight. Average maturity in national trials was 104 d in 1993 and 99 d in 1994 for both genotypes. Similarly, the days to 50% bloom was the same for both cultivars in the national trials: 54 d in 1993 and 52 d in 1994. In the New York trials, harvest index was 54.7% for Midnight and 56.3% for Black Knight; in national trials, annual harvest index values were 44.0% and 45.8% for Midnight and 48.5% and 47.7% for Black Knight in 1993 and 1994, respectively. Black Knight is slightly shorter than Midnight; in 1993 and 1994, biomass production measured in the national trials was significantly higher for Black Knight vs. Midnight. Harvest index was 54.7% for Midnight and 56.3% for Black Knight. In regional trials conducted from 1990 to 1995, Black Knight matured on average in 104 d, 2 d earlier than Midnight. Across all trials, harvest index was 54.7% for Midnight and 56.3% for Black Knight.