REGISTRATION OF ‘AZTEC’ PINTO BEAN

‘AZTEC’ pinto bean (*Phaseolus vulgaris* L.) (Reg. no. CV-101, PI 561473) was developed and released cooperatively by the Michigan Agricultural Experiment Station and USDA-ARS in 1992 as an upright, early-season pinto bean cultivar.

Aztec was derived from a cross made in 1986 between CO81-12034/P86297. CO81-12034 is an early-maturing pinto breeding line from Colorado State University and P86297 is an upright Type II short-vine pinto breeding line, full-sib of ‘Sierra’. The original cross was designed to broaden the genetic base of the MSU pinto breeding program and to improve the seed size and quality of upright pinto bean varieties under development. The cross was coded 86P199 and the F2 generation was advanced through a winter nursery in Puerto Rico and was space planted for selection in an F3 nursery in Michigan in 1987. Single-plant selection No. 7 was identified as exhibiting upright Type II growth habit combined with a larger sized pinto seed. The F3 progeny was advanced as a plant row in Puerto Rico and mass selected as an F4 row in Michigan in 1988. The selected line was advanced as an F5 row in Puerto Rico and reselected for early-season maturity. The F5 generation breeding line, numbered 86P199-07-01-01, entered yield trials in 1989 and was coded with the permanent accession number P89430.

Aztec has been extensively tested for yield and agronomic characteristics for three seasons (1989–1991) over 25 locations. ‘Aztec’ averaged 2890 kg ha\(^{-1}\) across all 25 environments, but was \(10\%\) lower yielding than late-maturing Sierra. Yield efficiency, determined as kg ha\(^{-1}\)d\(^{-1}\) was similar for both Aztec and Sierra. Aztec yielded equivalent to the early-season ‘Pindak’ and outyielded ‘Topaz’ by \(17\%\); it seems to be competitive in its maturity class.

Aztec has an erect Type II growth habit, averaging 45 cm in height; this is 5 cm shorter than Sierra, but Aztec has improved lodging resistance (1.5, vs. 2.0 for Sierra). Aztec matures 90 d after planting, which is 10 d earlier than Sierra. The significant earlier maturity combined with upright architecture will give growers more flexibility in the planting date of pinto beans in the humid Midwest.

Aztec carries resistance to the alpha race of anthracnose [incited by Colletotrichum lindemuthianum (Sacc. & Magn.) Lams.-Scrib.], to which Sierra is moderately resistant. Alpha anthracnose is the predominant race present in Michigan. Aztec is susceptible to bean common mosaic virus, to Michigan isolates of rust caused by Uromyces appendiculatus (Pers.:Pers.) Unger, and to common blight incited by Xanthomonas campestris pv. phaseoli (Smith) Dye.

Aztec has a large seed size, averaging 41 g 100 seed\(^{-1}\) and is equivalent in size to the preferred cultivar Othello. It is significantly larger in seed size than either Pindak (35.5 g 100 seed\(^{-1}\)) or Sierra (37.5 g 100 seed\(^{-1}\)). The overall tivar tivars, which translates into a higher processor yield. Data on hydration ratio exhibit no difference with cooked texture of 64 kg 100 g\(^{-1}\) was slightly less than Sierra (74 kg 100 g\(^{-1}\)) but well within the acceptable range of 50 to 80 kg 100 g\(^{-1}\) established for processed pinto bean.

Aztec has been released as a public, nonexclusive cultivar and a research fee will be assessed for each (dried weight) of certified seed sold. Variety protection has been applied for under the Plant Variety Protection Public Law 91-577, with the option that Aztec be sold for seed by name only under the certified class. Breeder seed is maintained by the Michigan Agricultural Experiment Station, East Lansing, MI 48824, in cooperation with the Michigan Foundation Seed Association.

J. D. Kelly,* G. L. Hosfield, G. L. Varnes, M. A. Uebersax, N. Wassimi, and J. Taylor

References and Notes


Published in Crop Sci. 32:1509 (1992).

REGISTRATION OF ‘ALPINE’ GREAT NORTHERN BEAN

‘ALPINE’ GREAT NORTHERN BEAN (*Phaseolus vulgaris* L.) (Reg. no. CV-102, PI 561474) was developed and released cooperatively by the Michigan Agricultural Experiment Station and the USDA-ARS in 1992 as an upright, early-season, disease-resistant great northern (GN) bean cultivar.

Alpine, tested as MSU no. G89003, was derived from the cross ‘Starlight’/P86297 made in 1986 and 1987. Starlight is a Type III vine GN variety from the University of Nebraska (1) and P86297 is an upright Type II short-vine pinto breeding line from the MSU pinto program. The original cross was designed to transfer the Type II habit of the pinto bean into the GN class. The cross was advanced using the winter nursery program in Puerto Rico; the F1 generation was grown in the field in Michigan in 1987. Single-plant selection No. 7 was identified as exceptional in early maturity, rust resistance, and GN seed type. An F2 generation progeny was advanced as a plant row in Puerto Rico and reselected for early-season maturity. The F5 generation breeding line, numbered 86G109-06-01, entered yield trials in 1989 and was coded with the permanent accession number G89003.