Release of Three Early Maturing Anasazi-Type Common Bean lines

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The Colorado Agricultural Experiment Station announces the release of three Anasazi-type dry edible bean (*Phaseolus vulgaris* L.) germplasm lines. The lines, CO-32948, CO-32977, and CO-40696 were developed at Fort Collins, CO for early maturity and resistance to the prevalent strains of bean common mosaic (BCM) caused by bean common mosaic virus. Anasazi-type dry beans are commercially grown in the Southwestern US. The predominant cultivar that is grown in the Four-Corners region of southwest Colorado was derived from a Native American landrace that has late maturity, vigorous, recumbent plant habit and is highly susceptible to bean common mosaic (BCM) caused by bean common mosaic virus. When this cultivar is grown in more northern latitudes, flowering and crop maturity are delayed, consequently, the crop is often damaged by frost (Silbemagel, 1997). These lines will provide useful germplasm for a breeding program or may be used as cultivars for commercial production of Anasazi-type beans outside the southwest region of the U.S.

Anasazi beans are characterized by a red and white seed coat pattern represented by PI 451802 in the USDA bean germplasm collection. Bassett *et al.* (2000) described genes that control the Anasazi seed coat pattern. Adobe Milling Co., Dove Creek, CO, holds the name Anasazi as a registered trademark and beans with this seed coat pattern cannot be sold using the name Anasazi unless authorized by Adobe Milling Co. However, they may be sold under names other than Anasazi without violating the trademark.

CO-32948 and CO-32977 are *F*₃₇ lines derived from the single cross GH 196/Anasazi. CO 40696 is an *F*₄₆ line derived from the single cross Othello/Anasazi made in 1990. The parent designated Anasazi is a cultivar commonly grown in the Four Corners region in southwestern CO. Seed of the Anasazi parent used for crossing was obtained from Adobe Milling Co., Dove Creek, CO. GH-196 is a mid-season, high yielding pinto germplasm (Burke *et al.*, 1995) that was released as the cultivar UI 196. It carries the *bc2*¹ allele for resistance to BCM. The cultivar Othello (Burke *et al.*, 1995) is an early-season pinto released in 1986 that also possesses the *bc 2*² allele for resistance to BCM.

The germplasm lines combine mid-season maturity, high yield potential and except for CO 40696 resistance to BCM. The three lines and the Anasazi parent were tested for three years at Fort Collin, CO. Mean days to harvest maturity were 93 d for CO 32948 and CO 32977, 94 d for CO 40696, and 112 d for the Anasazi parent cultivar. Mean seed yield was 1774, 1830, 1613 and 1830 kg ha⁻¹, and mean seed weights were 35.7, 35.2, 36.2 and 26.7 g 100 seed⁻¹, respectively. CO 32948 and CO 32977 carry genes that confer resistance to BCMV. CO 3948 is homozygous and CO 32977 is segregating for the *bc2*² allele which confers resistance to pathogroups I, II, III, IV, V and VI of BCMV. All three lines have a semi-vine, prostrate, Type III growth habit.
Limited seed quantities of the three germplasm lines may be obtained from Mark Brick, Department of Soil and Crop Sciences, Colorado State University, Fort Collins, CO upon written request.

References: