

(CIAT), Cali, Colombia. A 30 was selected at CIAT from an interracial double cross population: 'Veranic 2' (synonym G 3709 and PI 345582)/'Tlalnepantla 64' (synonym G 1320 and PI 207262)/'Jamapa' (synonym G 3645 and PI 268110)/'Tara' (synonym G 5478 and PI 549888) made by Dr. Guillermo Hernandez Bravo in the early 1970s. A 30 has small (<25 g per 100 seed) beige seed that are slightly darker than EMGOPA 201-Ouro. In favorable environments, the fully-grown plants have a Type III growth habit with small vines (Singh, 1982). The reaction of A 30 to diseases is similar to those of EMGOPA 201-Ouro. Aete 1/37 (synonym G 13497) was developed by Dr. A. S. Pompeu at the Instituto Agronômico de Campinas, Sao Paulo, Brazil. Aete 1/37 has a Type III growth habit, small cream seed, and *I* gene resistance to BCMV. All parental genotypes except Tara belong to common bean race Mesoamerica (Singh et al., 1991). Tara derives its common bacterial blight resistance from the great northern landrace Montana-5 and it has characteristics of the Mexican highland race Durango. Thus, A 295 seems to derive its resistance to most of the diseases from PI 207262 and Tara through A 30.

The pedigree method of selection was practiced in population BZ 73 from F₂ to F₈, and seeds from 23 plants were bulked together to form the first seed stock of A 295. The F₃, F₄, and F₆ were evaluated at CIAT-Popayán, Colombia [soil was fine loamy, mixed, isothermic, Typic (Andic) Dystrandepts (Inceptisols), with pH of 4.3; mean growing temperature of 18°C; elevation 1750 m; and 2000 mm annual rainfall], and all other generations were grown at CIAT-Palmira, Colombia [soil was fine silty, mixed, isohypothermic Aquic Hapludolls, with pH 7.5; mean growing temperature of 24°C; elevation 1000 m; and 1000-mm annual rainfall]. Nurseries at CIAT-Popayán were inoculated two to three times during the growing season with a mixture of isolates (collected locally in the previous cropping seasons) that cause ALS and anthracnose. The reaction to ALS and anthracnose were verified in the greenhouse using the same mixture of pathogen isolates that were used in the fields at CIAT-Popayán. In addition, the bean common mosaic necrosis virus (BCMNV) strain NL-3 was used for greenhouse evaluations at CIAT-Palmira to determine the presence of the *I* gene.

EMGOPA 201-Ouro has an indeterminate growth habit Type III with a small vine. It has small (23 g per 100 seed), opaque, light beige seed. Flowers are white with chordate bracteoles. EMGOPA 201-Ouro flowered in 38 d and matured in 74 d at CIAT-Palmira. In Goiás, Brazil, on average, it matured in 90 d. Because EMGOPA 201-Ouro is partially sensitive to a long photoperiod (a score of 7 on a 1 to 9 scale, where 1 = insensitive or day-neutral, and 9 = highly sensitive), it may flower and mature late (taking >100 d) in the USA and Canada.

In comparative yield trials during 1982 to 1984 at several locations across the three planting seasons annually in Goiás, Brazil, EMGOPA 201-Ouro produced higher yields than 'Carioca' by an average of 14%. Thus, because of its high and consistent seed yields, resistance to multiple diseases, excellent cooking qualities, and expanding production, a nontraditional new market class *Jalinho* was created for EMGOPA 201-Ouro in Brazil. Since its release in Goiás in 1984, EMGOPA 201-Ouro's production expanded during 1984 to 1998 to 11 states all across Brazil (Alagoas, Bahia, Ceará, the Federal District, Espírito Santo, Mato Gross do Norte, Mato Grosso do Sul, Minas Gerais, Rio Grande do Norte, Sergipe, and Tocantins). At the peak of its expansion, EMGOPA 201-Ouro occupied >250 000 ha in Brazil. Even after 18 yr since its release, EMGOPA 201-Ouro is still grown in eight Brazilian states. It also was released as 'Mantequilla Mairana' in Bolivia in 1992.

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Registration of 'EMGOPA 201-Ouro' Common Bean

Common bean (*Phaseolus vulgaris* L.) cultivar EMGOPA 201-Ouro (Reg. no. CV-205, PI 632406) was released by the Empresa Goiana de Pesquisa Agropecuária (EMGOPA), Goiânia, Goiás, Brazil, in 1984.

EMGOPA 201-Ouro has *I* gene resistance to bean common mosaic virus (BCMNV, a potyvirus). The cultivar is also moderately resistant to angular leaf spot [ALS, caused by *Phaeoisariopsis griseola* (Sacc.) Ferraris], five races of the anthracnose pathogen [*Colletotrichum lindemuthianum* (Sacc. & Magnus) Lams.-Scrib.] (including races Alpha and Delta in the USA), common bacterial blight [caused by *Xanthomonas campestris* pv. *phaseoli* (Smith) Dye], race 2 of *Pseudomonas syringae* pv. *phaseolicola* (Burkh.) causing halo blight, some races of the bean rust pathogen *Uromyces appendiculatus* (Pers.:Pers.) Unger (including races 38 and 53 in the USA), and powdery mildew (caused by *Erysiphe polygoni* DC). EMGOPA 201-Ouro was among the first common bean cultivars developed by breeding with resistance to multiple diseases.

EMGOPA 201-Ouro was previously tested under the experimental designation 'A 295'. A 295 was developed from the single cross population BZ 73 with the pedigree A 30/Aete 1/37 at the Centro Internacional de Agricultura Tropical

A small quantity of seed of EMGOPA 201-Ouro is available from the corresponding author. Seed can also be requested from LOS, Agência Rural-Anápolis, Caixa Postal 608, 75000-970 Anápolis, GO, Brazil or from CIAT, A.A.6713, Cali, Colombia. Plant variety protection will not be sought.

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Registration of 'Orca' Black-and-White Mottled Anasazi-Type Dry Bean

'Orca' black-and-white Anasazi-type (the word Anasazi has been copyrighted by Adobe Bean Company of Dove Creek, CO) dry bean (*Phaseolus vulgaris* L.) (Reg. no. CV-206, PI 632344) was developed cooperatively by the Washington Agricultural Research Center and the USDA-ARS and released in 2002. Orca has an upright growth habit (II-A), mid- to late-maturity, multiple disease resistance, and is adapted to the U.S. Pacific Northwest. Its unique feature is medium plumb, black, and white mottled shiny seed coat color.

Orca is an F₆₁₀ line from the cross of A 55 (PI 632407)/Anasazi (PI 577705). A 55 was developed by S.P. Singh (CIAT, Columbia), and has black seed, upright type II-A plant growth habit, dominant *I* gene for resistance to bean common mosaic virus (BCMV), and high tolerance to curly top virus (CTV). It also is tolerant to the root rot complex [caused by *Fusarium solani* (Mart.) Sacc. f. sp. *phaseoli* (Burkholder) W.C. Snyder & H.N. Hans., *Rhizoctonia solani* Kühn, and *Pythium* spp.] found in bean seed production areas of the U.S. Pacific Northwest. Anasazi is a Native American landrace dry bean (red and white mottled) of the U.S. Southwest and has a late-maturing, vigorous, recumbent plant growth habit III-B, and is very susceptible to BCMV and CTV. This landrace bean is uniquely well-adapted to the arid high altitude region of the U.S. Southwest. The landrace Anasazi plants are drought tolerant and more sensitive to photoperiod when compared with the dry bean cultivars normally grown in bean-producing areas of North America. When planted in the spring, Anasazi emerges on residual soil moisture, develops deep roots, and a restricted top growth until August rains, after which plants put on rapid top growth and bloom and mature rapidly in the dry fall that follows. In the northern latitudes, this cultivar will not bloom until late in the growing season. The lateness

in northern latitudes often results in the crop being frozen before seed harvest.

Orca was selected from seeds of USWA-27 (PI 599690) (Silbernagel et al., 1998) that were more uniform in the white and black seed coat pattern. The seeds with mostly black seed coats were discarded. A mass selection of a thousand seeds was made and grown as 98LB 3014 in an advanced yield trial at Othello, Washington. Plants of Orca are upright and lodging resistant because of the deep root system inherited from land race Anasazi. These also have unprotected dominant *I* gene resistance to BCMV and complete resistance to CTV (presumed to be because of two dominant epistatic genes from A 55). In replicated yield trials at Othello, Washington, Orca matured in 103 d, 6 d earlier than other commercial black bean cultivars (Hang, 1997, unpublished data), and yielded 3329 kg ha⁻¹. At Othello, WA, Orca bloomed 60 d after planting and reached harvest maturity in 102 d after planting in 1998 and 3 d earlier than USWA-27.

Yields of Orca ranged from 3082 to 3510 kg ha⁻¹ and slightly lower than USWA-27. Average yields of this cultivar were ≈100 kg ha⁻¹ lower than that of commercial black-seeded cultivars grown at the same location. In the 2001 growing season, Orca was tested at Vancouver, WA, and yielded 2340 kg ha⁻¹ and ≈450 kg ha⁻¹ lower than 'UI-911' (PI 594324) (Myers et al., 1997). Seeds of Orca are black and white mottled, medium sized, and have a very attractive seed coat pattern with a 100-seed weight of 27 to 32 g. After cooking, the dark part of the seed appears dark maroon and is similar to the Anasazi parent.

Breeder and Foundation seed of Orca will be maintained by Washington State Crop Improvement Association, Foundation Seed Service-WSU Seedhouse, Pullman, WA 99164-6420. A research fee will be assessed on each unit of Foundation seed sold.

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Registration of 'Barimash-3' Blackgram

'Barimash-3' blackgram [*Vigna mungo* (L.) Hepper] (Reg. no. CV-207, PI 619181) was developed at the Pulses Research Center (PRC), Bangladesh Agricultural Research Institute (BARI), Joydebpur, Gazipur-1701, Bangladesh. The cultivar was released in Bangladesh in 1996 for its stable and high yield with combined resistance to *Mungbean yellow mosaic virus* (MYMV) and cercospora leaf spot (CLS) [caused by *Pseudocercospora cruenta* (Sacc.) Deighton or *Cercospora canescens* Ellis & Martin].

Barimash-3 was developed from the cross between two advanced lines, BMA 2140 and BMA-2038, acquired from