WASHINGTON AGRICULTURAL RESEARCH CENTER
WASHINGTON STATE UNIVERSITY
PULLMAN, WASHINGTON, 99164

and

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURE RESEARCH SERVICE
WASHINGTON, D.C. 20250

RELEASE OF ‘ORCA’ BLACK AND WHITE ANASAZI® - TYPE DRY BEAN

A.N. Hang, M.J. Silbermagel and P.N. Miklas

The Agricultural Research Center of Washington State University, and Agricultural Research Service, U.S. Department of Agriculture announce the release of ‘Orca’, a black and white Anasazi-type bean (*Phaseolus vulgaris* L.) cultivar. Orca is a black and white mottled seeded dry bean, with upright growth habit, mid to late season maturity with resistance to bean common mosaic virus ( BCMV). This is the first Anasazi-type bean that will reach harvest maturity within 100 to 110 days in North America. Scientists participating in the development of this variety were A.N. Hang Washington State University-Prosser, M.J. Silbermagel (retired USDA-ARS) and P.N. Miklas, USDA-ARS, Prosser.

Orca is an F₅-derived F₁₀ population from the cross A 55/Anasazi. A-55 is a black-seeded, upright II-A plant habit type developed by S.P. Singh (CIAT Columbia), with dominant *I* gene resistance to BCMV and high tolerance to curly top virus (CTV). It is also tolerant to root rot complex (*Fusarium, Rhizoctonia*, and *Pythium* spp.) found in the bean production areas of the U.S. Pacific Northwest. The Native American landrace Anasazi-type dry bean (red and white mottled) of the U.S. Southwest has a late-maturing, vigorous, recumbent plant habit II-B and is very susceptible to BCMV and CTV. This landrace is uniquely well adapted to the arid high-altitude regions of the U.S. Southwest. Planted in the spring, it emerges on residual winter moisture, and develops deep roots and restricted top growth until the August monsoonal rains, after which plants put on a rapid spurt of top growth and then flower and mature rapidly in the dry fall that follows. They are more photosensitive than the dry bean cultivars normally grown in bean-producing areas of North America. In the northern latitude, landrace Anasazi dry bean will not bloom until late in the growing season. This lateness in the northern latitudes often results in the crop being frozen before harvest.

Plant growth habit of Orca is upright and the line is lodging resistant; they have unprotected dominant *I* gene resistance to BCMV and complete resistance to CTV (presumed to be due to dominant epistatic genes). In replicated yield trials at Othello, WA, Orca bloomed at 60 days and matured 102 days after planting. Average yield of Orca was 4110 kg ha⁻¹ and is comparable to UI-906 or UI-911 with the same growing season. Orca planted in Vancouver Washington bloomed later than UI-911 but matured a day earlier. Yield of Orca was lower than UI-911 but seed was much

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bigger and very attractive. Seeds of Orca are black-and-white mottled, seed is plump, medium sized and bigger than those of its parent A-55 or any other commercial black bean cultivars with a 100-seed weight of 30 g (vs. 25 g for A-55). After cooking the dark part of the seed appears dark maroon, similar to its Anasazi parent.

Orca has been released as a WSU variety and may be sold for seed by name only under the certified class. Breeder and foundation seed will be maintained by Washington State Crop Improvement Association, Foundation Seed Service - WSU Seed House, Pullman, WA 99164-6420, phone (509) 335-4365, fax (509) 335-7007, or email Greg Vollmer <wscia@wsu.edu>. A research fee will be assessed on each unit of foundation seed sold. Plant variety protection will not be applied for.

Ralph P. Cavaliere
Director, Washington Agricultural Research Center
Washington State University

April 23, 2002
Date

Yes, the USDA-ARS, wishes to join in the release of 'Orca' and has signed below.

Caril E. Reynold
Administrator, Agricultural Research Service
U.S. Department of Agriculture

11-22-02
Date

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