

MICHIGAN AGRICULTURAL EXPERIMENT STATION
 MICHIGAN STATE UNIVERSITY
 East Lansing, Michigan 48824

and

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

NOTICE OF NAMING AND RELEASE OF BELUGA, A NEW FULL-SEASON,
 DISEASE RESISTANT, ALUBIA BEAN CULTIVAR FOR MICHIGAN
 AND THE GREAT LAKES REGION

The Michigan Agricultural Experiment Station and the Agricultural Research Service, United States Department of Agriculture, announce the joint release of Beluga, a new full-season alubia bean (*Phaseolus vulgaris* L.) cultivar. This variety is adapted in US bean production areas, has large white seeds and equivalent agronomic performance to the white kidney beans grown and marketed in the US and the Alubia bean grown in Argentina and preferred in European markets.

Beluga was a progeny selection from the cross made in 1988 between 'BEA', an Italian Borlotto type bean and 'Lassen', white kidney bean. BEA was received from Dr. M.J. Silbernagel; USDA, ARS, Vegetable and Forage Crop Production Research, Prosser, WA. 'Lassen' is a commercial white kidney bean variety developed by the Sacramento Valley Milling Company.

Beluga was developed by the dry bean breeding team at East Lansing, Michigan, composed of Dr. J.D. Kelly and Mr. J. Taylor of Michigan State University, Department of Crop and Soil Sciences; Dr. G.L. Hosfield of the U.S. Department of Agriculture, Agricultural Research Service, Sugarbeet & Bean Research Unit; Dr. M.A. Uebersax of Michigan State University, Department of Food Science and Human Nutrition; and Mr. G.V. Varner of the Michigan Dry Bean Production Research and Advisory Board.

Beluga was extensively tested for eight seasons (1990 to 1997) at 24 locations in mid-Michigan and the Northeastern Michigan kidney bean production area and averaged 2,430 kilograms per hectare. Beluga ranged in yield from a high of 3,584 kilograms per hectare in Montcalm County, MI in 1995 to a low of 1,568 kilograms per hectare in Tuscola County, MI in 1996. Beluga was equivalent in yield to 'Montcalm' dark red kidney bean and 'Chinook' light red kidney bean at 20 and 21 locations, respectively.

Beluga has white flowers and exhibits the Type I upright determinant bush growth habit. Beluga is taller than 'Lassen', averaging 52 centimeters in height compared to 47 centimeters for 'Lassen'. Beluga is equivalent to 'Lassen' in plant erectness and lodging resistance. Beluga is a full-season cultivar which requires, on average, 105 days to mature. Beluga's maturity is similar to both 'Montcalm' and 'Chinook'. Beluga should be grown on coarse-textured soils under a high input management system to maximize this variety's yield. Nevertheless, Beluga showed good adaptation to a range of locations in Michigan and was similar in its agronomic characteristics to 'Montcalm'. Beluga retains its excellent dry seed quality under cool, wet

harvest conditions and does not lose its bright white seed color and discolor under unfavorable harvest conditions.

Beluga carries the single dominant hypersensitive I gene resistance to bean common mosaic virus (BCMV) and is the first alubia bean with BCMV resistance. The I gene resistance facilitates the production of virus free seed in the Western US where BCMV is endemic. Beluga carries the Co-1 gene for resistance to races 65 and 73 of anthracnose disease caused by Colletotrichum lindemuthianum (Sacc. & Magn.) Briosi & Cav. which is lacking in many large-seeded white beans. Beluga is immune to the indigenous rust [incited by Uromyces appendiculatus (Pers.:Pers.) Unger] races prevalent in Michigan, but is susceptible to Michigan isolates of halo blight (incited by Pseudomonas syringae pv. phaseolicola (Burkholder) Young et al.). Beluga is susceptible to bean common bacterial blight caused by Xanthomonas campestris pv. phaseoli (Smith) Dye and is susceptible to Michigan isolates of Fusarium root rot but is no more susceptible than 'Montcalm'.

Beluga resembles a white kidney in seed characteristics and is equivalent to 'Montcalm' in seed mass. Beluga's seed mass averages 62 grams per 100 seed and ranges from 55 to 65 grams per 100 seed over locations. Dry seed color of Beluga is a shiny bright white which is desired in commercial markets. Beluga was rated for canning quality by a team of panelists who found this cultivar clearly superior to white kidney beans for this characteristic. The panel evaluation was based upon whole bean integrity (no spitting or clumping); uniformity of size and shape (uniform water uptake and seed expansion); color (no after darkening); and clear brine (no starch extrusion into the canning liquid). After Beluga is canned, it does not differ significantly from 'Lassen' for cooked color, and the hydration and washed drain weight ratios. Beluga had an average compression/shear force of 43 kilograms to extrude 100 grams of cooked beans. This force was determined on an Allo-Kramer Shear Press and is an estimate of bean texture. The Shear Press values indicate that Beluga is softer than 'Montcalm' and 'Chinook', kidney beans with colored seed coats, but within the acceptable range for processed kidney beans.

Seed of Beluga for experimental purposes may be obtained from Dr. J.D. Kelly, Department of Crop & Soil Sciences, Michigan State University, East Lansing, MI 48824. The USDA, Agricultural Research Service has no seed for distribution. Beluga alubia bean is being released as a private exclusive variety with the condition that Beluga must be sold for seed by name only, under a class of certified seed (Breeder, Foundation, or Certified). A royalty fee will be assessed on each hundred weight of Certified seed sold. Breeder seed is maintained by the Michigan Agricultural Experiment Station, East Lansing, MI 48824, in cooperation with the Michigan Crop Improvement Association (MCIA). MCIA agrees to produce and distribute Breeder and/or Foundation seed classes of Beluga. Genetic material of this release will be deposited in the National Plant Germplasm System where it will be available for research purposes, including development and commercialization of new cultivars.

Administrator, Agricultural Research Service,

Date

Director, Michigan Agricultural Experiment Station

Date