

**NEW from
MSU**

Beluga

A NEW ALUBIA BEAN for Michigan



- Erect bush habit similar to Chinook light red kidney bean.
- Similar in height and flower color to Montcalm and Chinook.
- Similar maturity to Montcalm and Chinook.
- Outyielded Montcalm by 5% over 20 locations in eight years.
- Resistant to mosaic virus, rust and race 73 of anthracnose.
- Large, bright white seed similar in size to a red kidney.
- Acceptable canning quality.

Beluga is a new alubia bean variety from Michigan State University. It was released jointly by the Michigan Agricultural Experiment Station and the U.S. Department of Agriculture Agricultural Research Service. Beluga is the first large-seeded white kidney bean to be developed by Michigan State University and is competitive in yield with the red kidney varieties Montcalm and Chinook. Beluga is a competitive variety with an upright bush growth habit, full-season maturity, anthracnose resistance and acceptable canning quality.

Origin and Breeding History

Beluga, tested as MSU No. K90902, was developed from the cross of the Italian Borlotto bean BEA with the commercial

white kidney bean variety Lassen. The objective was to develop an adapted, large-seeded white bean equivalent in appearance and performance to the U.S. white kidney beans and the Argentinian alubia bean that is preferred in European markets. The cross was made in 1988 and advanced to the F₆ generation when breeding line K90902 was entered into yield trials in 1990.

Yield Performance

Beluga was tested extensively for yield and agronomic traits for eight seasons (1990-97) over 24 locations (Table 1). It averaged 22 cwt/acre and was comparable in yield with the red kidney bean varieties Montcalm and Chinook, currently grown in Michigan. In the absence of disease such as blight and white mold, Beluga has produced yields up to 32 cwt/acre. Beluga is recom-

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mended for production on coarse-textured soils under a high-input management system, including irrigation. The variation in yield observed across locations reflects the fact that that recommendation was not carried out at all test locations.

Agronomic Features

Beluga exhibits an erect bush growth habit, averaging 21 inches in height, with resistance to lodging comparable to that of Chinook. Like Montcalm and Chinook, it has a white flower.

Beluga is a full-season variety, maturing 105 days after planting, with a range in maturity from 100 to 110 days, depending on season and location. It matures one day

later than Montcalm and two days later than Chinook. Beluga has demonstrated uniform maturity and excellent dry-down across a broad range of environments and fits a niche for an erect, high-yielding, full-season alubia bean variety in Michigan.

Disease Resistance

Beluga carries the single dominant hypersensitive I gene resistance to bean common mosaic virus (BCMV) but is sensitive to the temperature-insensitive necrosis-inducing strains of BCMV that cause the black root reaction. Beluga carries the *Co-1* gene for resistance to races 65 and 73 of anthracnose but is susceptible to race 7. The reaction is similar to the anthracnose reaction of Montcalm and Chinook.

Beluga is immune to the rust races prevalent in Michigan. Beluga is susceptible to Michigan isolates of halo blight, common blight, Fusarium root rot and white mold.

Quality Characteristics

Beluga has a typical large white kidney bean seed averaging 62 g per 100 seeds and is equivalent in size to Montcalm. Beluga retains its bright white seed quality under less than optimum harvest conditions. In canning trials, Beluga has been rated by a team of panelists as acceptable with a score of 3.0, where 3 is average. Data on cooked color, texture hydration and drained weight ratios showed no differences between Beluga and other commercial kidney bean varieties. Canning quality data on this class is very limited, but over seven years of testing, Beluga produced a consistent high quality canned bean.

Table 1. Beluga alubia bean — comparison of agronomic, disease, yield performance and canning characteristics.

Traits	Beluga alubia	Montcalm dark red kidney	Chinook light red kidney
Agronomic traits			
Days to flower	48	47	45
Days to maturity	105	104	103
Height (cm)	52	50	48
Lodging score (1-5)	2.5	3.0	2.5
Selection index (1-9)	4.5	4.5	5.0
Seed size(g/ 100 seeds)	62	63	58
Yield (percent)	100	95	103
Disease resistance			
BCMV	R	R	R
Anthracnose race 73	R	R	R
Rust race 53	R	R	R
Common blight	S	T	S
Halo blight	S	T	S
White mold	S	S	T
Canning quality			
Color L-scale	48	14	23
Texture (kg/100 g)	43	85	76
Washed drained ratio	1.4	1.5	1.4
Hydration ratio	1.8	1.5	1.6
Organoleptic rating (1-5)	3.0	3.7	3.2

Lodging: 1 = erect, 5 = prostrate

Selection index: 1 = worst, 5 = average, 9 = best, based on adaptation

Diseases: R = resistant, T = tolerant, S = susceptible

White mold: 1 = resistant, 5 = susceptible

Organoleptic rating: 1 = worst, 5 = best on general cooked appearance

Release and Research Assessment

Beluga is released as a private, exclusive variety jointly by the Michigan Agricultural Experiment Station and the Agricultural Research Service. A royalty will be assessed on each unit (hundred-weight) of foundation seed sold.

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