

PROTECTED – THIRD PARTY BUSINESS INFORMATION

Internal Order No. 5530661

APPENDIX “A” – VARIETY DESCRIPTION

Crop: Navy Bean

Variety Name: Experimental Name: #ACUG 14-3, Proposed Variety Name: AAC Argosy

Origin and Breeding:

The navy bean (*Phaseolus vulgaris* L.) line ACUG 14-3 was developed by the collaborative AAFC/University of Guelph Bean Breeding Program. It was tested in the Ontario Navy Bean Registration Trials in 2014 and 2015. ACUG 14-3 is a selection from the cross OAC Rex/SWX2045 made in winter 2006 in the growth room. The cross, was designed to improve plant architecture and resistance to common bacterial blight (caused by *Xanthomonas axonopodis* pv. *phaseoli*) while maintaining the seed quality characteristics of the navy bean market class. OAC Rex was used for its tall semi-upright growth habit (Type 2a) and resistance to common bacterial blight (CBB). SWX2045 was a single plant selection from the cross OAC 98-2/CIAT8.

The F1 generation was planted at the Elora Research Station in the summer of 2006, where it was bulk harvested by hand. The successive F2 to F4 generations were planted at the Elora Research Station and bulk harvested by combine. Single plants were selected in the F5 generation at the Harrow Research Station in 2010. Selection criteria were upright plant architecture, maturity, seed size and disease resistance. In 2011, F5:6 progeny rows were tested at Harrow. Main criteria for selection were high yield potential, and desirable plant and seed type, and disease resistance. The line ACUG 14-3 was selected out of the progeny rows and tested in the preliminary and advanced yield trials in 2012 and 2013, respectively, in replicated trials in Elora and St. Thomas, ON, and was advanced to the Ontario Navy Bean Cooperative Registration Trials. ACUG 14-3 was tested in the Ontario Navy Bean Cooperative Registration Trials in 2014 and 2015 under the guidelines set by the Ontario Pulse Crop Committee (OPCC). As a part of these tests, the line was also evaluated for its cooking and canning quality attributes at the Bean Pilot Plant at AAFC Lethbridge. Data from the field trials and canning tests will be submitted to OPCC at the annual meeting in February 2016 to request support for registration of ACUG 14-3.

ACUG 14-3 was planted in isolation plots for purification and multiplication of seed and further increased in greenhouse in 2014. Plots were grown in trial ground in Idaho in summer of 2015 for pre-breeder seed production with breeder seed production expected in summer 2016.

Performance:

Based on a two year average, ACUG 14-3 navy bean line with maturity similar to Nautica and T9905, yielded significantly higher (8%) than the average of the check cultivars (Nautica, T9905 and Rexeter) (Table 1). ACUG 14-3 may be recommended for mid-season to full-season maturity areas in Ontario. ACUG 14-3 has larger seed mass than check cultivars. ACUG 14-3 has an indeterminate (Type II) growth habit with short vine and high podding nodes with better than average lodging resistance. In canning quality evaluations over two years, ACUG 14-3 had an acceptable cooking and canning quality, similar to the check cultivars (Table 2). ACUG 14-3 may be recommended for bean growing areas with 2600 or more CHU in Ontario.

Maintenance of Breeder Seed:

Agriculture and Agri-Food Canada, Harrow, ON will maintain and distribute the breeder seed.