NOTICE OF NAMING AND RELEASE OF **SEAHAWK**, A NEW MID SEASON, UPRIGHT, WHITE MOLD TOLERANT NAVY BEAN CULTIVAR FOR MICHIGAN AND THE GREAT LAKES REGION

Seahawk, breeding line N97774, was derived from a cross made in 1994 between ‘Bunsi’ and ‘Huron’ navy beans. Bunsi (Canada synonym, ‘Ex-Rico 23’) is a white mold tolerant, mid-season cultivar with a semi prostrate indeterminant growth habit. Bunsi exhibits the persistent green stem trait at maturity. Huron is a white mold tolerant, early-season, short stature and erect indeterminant commercial cultivar. The F₁ plants from the cross were grown and self-fertilized in the greenhouse in the spring of 1995. The F₂ was space-planted in a nursery at the Saginaw Valley Bean and Beet Farm near Saginaw, MI. A single-plant F₂ selection was made that possessed mid-season maturity, straw-yellow stems, erect plant stature, and navy bean seed traits. Seed from this selection was planted in an F₃ progeny row at the University of Puerto Rico Research Station at Isabela and mass selected on the basis of desirable agronomic and seed traits. A single plant selection was made in a space-planted F₄;5 nursery in Michigan on the basis of agronomic and navy bean seed traits. The F₅ progeny was advanced in a nursery at Isabela, PR. Remnant F₅ seed was screened for Bean Common Mosaic Necrosis Virus (BCMNV) by inoculating plants with the NL3 strain of the virus. The F₅ row was mass selected and seed returned to Michigan to be grown in field trials. The F₄;6 breeding line coded N97774 entered replicated yield trials in 1997.

Breeding line N97774 was extensively tested for yield and agronomic traits at 31 locations in Michigan over six seasons (1997-2002). Breeding line N97774 averaged 3,100 kilograms per hectare (2,768 pounds per acre) and had equivalent yields compared to navy bean cultivars, ‘Vista’, ‘Schooner’, and ‘Crestwood’ over 23 and 12 locations, respectively. Breeding line N97774 outyielded the commercial navy bean cultivars ‘Mayflower’, ‘Mackinac’, ‘Avanti’, and ‘Navigator’ by a margin of 5-11% over 9 to 18 locations. In 2002, N97774 was grown at 8 locations in North America in the National Cooperative Dry Bean Nursery (NCDBN) trials. For those cultivars that N97774 outyielded in the Michigan trial, N97774 maintained the relative yield superiority to these cultivars in the NCGBN trials. Based on yield comparisons with other navy bean cultivars in the respective trials, appearance in the field, overall agronomic importance, and canning characteristics, N97774 was proposed for release and named 'Seahawk'.
Seahawk averages 46 centimeters in height and exhibits a Type IIb, indeterminate growth habit, with moderate tolerance to lodging. Seahawk has white flowers and blooms 45 days after planting. Seahawk is a mid-season bean, maturing 97 days after planting and ranging in maturity from 90-101 days, depending on the season and location. Seahawk matures similar to Schooner, 3 days earlier than Vista and Mayflower. Plants of Seahawk mature uniformly and show excellent “dry-down” across a broad range of environments.

Seahawk carries the single dominant hypersensitive / gene for resistance to bean common mosaic virus (BCMV) but is sensitive to the temperature-insensitive necrosis-inducing strains of BCMNV such as NL3 and NL8. Seahawk carries the Co-2 gene, which conditions resistance to Races 7 and 65 of bean anthracnose [Colletotrichum lindemuthianum (Sacc. & Magnus) Lams. - Scrib.]. Seahawk is susceptible to common bacterial blight [Xanthomonas axonopodis pv. phaseoli (Smith) Dye] and is susceptible to bean rust [Uromyces appendiculatus (Pers.:Pers.) Unger] races 38, 39, 40, 41, 43, and 53 that occur occasionally in Michigan. Seahawk is tolerant to white mold and has demonstrated the highest level of tolerance to white mold among commercial navy bean cultivars grown in Michigan. In four years of comparative field-testing, Seahawk exhibited significantly more tolerance (33%) to white mold than Vista (48%).

Seahawk has large white navy bean seed, which averages 24.6 grams per 100 seed (range: 23-27 grams per 100 seed). In canning trials, Seahawk was subjectively rated by a team of panelists as having acceptable canning quality for navy beans. In 12 canning trials, Seahawk scored 3.8 on a seven-point hedonic scale (where 7 is most desirable, 1 is least desirable, and 4 is neither desirable or undesirable), and was equivalent to Schooner but had significantly better canning quality than Vista and Mayflower, which scored 3.1 and 2.8, respectively. The canning quality evaluation is based on whole-bean integrity (no splitting or clumping), uniformity of size (uniform water uptake), color (color retention), and brine free from starch extrusion into the canning liquid. The thermally processed (cooked) beans are slightly larger in size and lighter in color compared to other navy bean cultivars. Seahawk did not differ significantly from other commercial navy bean cultivars for the processing traits, hydration and washed drained weight ratios. Seahawk exhibited a firmer cooked bean texture (72 kilograms per 100 grams of beans) than the soft textured, Vista (45 kilograms per 100 grams of beans), which contributed to Vista’s undesirable canning quality.

Seahawk was developed by the dry bean breeding team at East Lansing, Michigan consisting of J.D. Kelly (Team Leader), Mr. M. Ender and Mr. Jerry Taylor of Michigan State University, Department of Crop and Soil Sciences, Drs. G.L. Hosfield of the U.S. Department of Agriculture, Agricultural Research Service, Sugarbeet and Bean Research, and M.A. Uebersax of Michigan State University, Department of Food Science and Human Nutrition, and Mr. Gregory V. Varner of the Michigan Dry Bean Production Research Advisory Board.

Small quantities of seed of Seahawk for experimental purposes may be obtained from Dr. J.D. Kelly, Department of Crop & Soil Sciences, Michigan State University, East Lansing, MI 48824 (kellyj@msu.edu). The USDA, Agricultural Research Service has no seed for distribution. Seahawk navy bean is being released as a public nonexclusive variety with the option that Seahawk must be sold for seed by name only under the certified class. A research fee will be assessed on each hundred weight of foundation 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). The MCIA agrees to produce and distribute Breeder and/or Foundation seed classes of Seahawk. 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.