Registration of ‘Morton’ Winter-hardy Lentil

‘Morton’ lentil (Lens culinaris Medik.) (Reg. no. CV-22, PI 635097) was developed by the USDA-ARS in cooperation with the Washington Agricultural Research Center (Pullman, WA) and the Idaho Agricultural Experiment Station (Moscow, ID) and released in 2004. Morton is a winter hardy lentil intended for fall planting directly into standing wheat (Triticum aestivum L.) or barley (Hordeum vulgare L.) stubble. Morton has small seeds with red cotyledons and an absence of seed coat mottling.

Morton originated from the cross WA8649090/WA8649041 made in 1992. WA8649090 (PI 547038) and WA8649041 (PI 547039) are registered germplasm lines of winter hardy lentils (Spaeth and Muehlbauer, 1991). The F2 population from the cross was advanced by the single seed descent method to the F6 to develop a population of F6 derived recombinant inbred lines (RILs). The RILs were used to determine the genetics of winter hardiness in lentil and to map the quantitative trait loci that confer hardiness (Kahraman et al., 2004a, b).

Within the RIL population, line LRIL-17–39 had good winter survival in nurseries conducted at the Washington State University Spillman Agronomy Farm and was selected for further evaluation as LC9979010.

Morton (LC9979010) was yield tested in eastern Washington and northern Idaho from 1999 to 2002. For the evaluations, Morton was compared to the most winter hardy parent, WA8649041, for yield and winter hardiness. Virtually no winter killing was observed for Morton or the winter hardy parent during the years of testing from 1999 to 2002. When averaged over locations and 3 yr of testing, Morton had 68% higher yields when compared to WA8649041. When compared to spring planted lentils, Morton planted in the fall had a yield advantage of 73% when compared to the highest yielding spring planted lentil cultivar. The advantage for a winter hardy cultivar is derived from crop establishment in the fall and early spring growth when evapo-transpiration is minimal thus improving water-use-efficiency. Seed size of Morton is small and 100 seeds weigh 3.3 g. Seed coats of Morton are beige and the cotyledons are red. Cooking times for Morton lentil are similar to other small seeded lentil cultivars.

Morton is recommended for fall planting directly into cereal stubble or with minimum tillage that retains most of the previous crop residue on the soil surface. Morton emerges in the fall and growth is curtailed by freezing winter temperatures. Morton resumes growth as temperatures rise in late winter and early spring. Flowering commences in late May or early June and the plants and pods usually mature in early July. Morton has an upright plant growth habit reaching 31 cm tall. It is branched at the base and remains green right at maturity.

Morton was named after Morton Swanson, a producer and supporter of the lentil industry in the Palouse region of eastern Washington and northern Idaho and a pioneer in the development and use of equipment for direct seeding into cereal stubble without tillage.

U.S. Plant Variety Protection has been applied for Morton (PVP Application No. 200400270). Breeder and Foundation seed of Morton will be maintained by the Washington Crop Improvement Association under the supervision of the corresponding author for at least 5 yr. Recipients of seed of Morton may be obtained for research purposes from USDA-ARS, Pullman, WA 99164–6434. Small quantities of seed of Morton will be maintained by the Washington State University, Pullman, WA 99164. Morton is recommended for fall planting directly into cereal stubble without tillage.

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References


