Registration of ‘Kafkas’ Lentil

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‘Kafkas’ lentil (Lens culinaris Medikus) (Reg. No. CV-29, PI 635041) was jointly developed by the Central Research Institute for Field Crops (CRIFC), General Directorate of Agricultural Research, Ankara, Turkey, and the International Center for Agricultural Research in the Dry Areas (ICARDA), Aleppo, Syria. It was released in Turkey in 2001 by the National Seed Board for cultivation as a winter crop in the highlands of Central Anatolia, Turkey. Kafkas is a high-yielding red cotyledon lentil cultivar with a high level of winter-hardiness.

Lentil production can be increased significantly by shifting planting from spring to early-spring or fall sowing (Sakar et al., 1988). This gives the crop the benefit of winter rainfall, and the moisture received is less subject to evaporation because temperatures are lower as the crop approaches maturity. This environment allows optimum vegetative growth, development of higher yield potential, and higher water-use efficiency. In addition, the taller canopy allows for mechanical harvest. The higher biomass from the winter crop is highly valued as feed for small ruminants.

ICARDA’s main research station in Syria has mild winters, so research into winter-hardiness is performed with CRIFC, Turkey. Field screening is done at Haymana, Sivas, and other areas prone to extreme cold. Information generated and selections made are sent to ICARDA, and the material is incorporated in the International Cold Tolerant Nursery, which is sent to other national programs for evaluation. In addition, winter-hardy parents are used in the hybridization program at ICARDA, and segregating populations are sent to the national program partners to select single plants suited to various agro-ecological conditions. During the 1997 and 1998 growing seasons, winter-hardy research on lentils under a USAID-linkage project, and research on ‘Kafkas’ lentil was strengthened by CRIFC, Turkey, Washington State University, USA and ICARDA, Syria. The project activities facilitated multilocation testing and eventually led to the development and release of Kafkas.

Kafkas was developed through single plant selection of a local landrace collected from southeast Anatolia. Initially, 156 landraces were evaluated at the Haymana Station (1050 m above sea level [masl]) in 1990. Single plants were selected and tested in fall-sown plots during the 1992 season in Haymana. Screening and selection in cold-prone areas of Haymana (Sivas in 1999–2000. On the basis of winter yield performance, medium maturity, and seed traits, seven lines were retained and were given CRIFC accession number TUR 01261 (AKM 196).

Kafkas, other promising lines, and two checks, ‘Yerli Kırmızı’ and ‘Seyran 96’, were evaluated at Haymana, Sivas, Konya, and Karaman, in the highlands of Central Anatolia from 1998 to 2000 seasons. From 12 large-plot multilocation trials, Kafkas gave an average yield of 1705 kg ha⁻¹, compared to 1271 kg ha⁻¹ for ‘Yerli Kırmızı’ for the 12-year period. Kafkas showed consistently higher yield over the cold adaptation in the region. Based on winter hardiness, Kafkas can survive well in the harsh winter conditions.

Kafkas plants have slightly pubescent leaves with well-developed tendrils. Plants are a semi-erect habit without any pigmentation. It flowers in 214 d and attains physiological maturity in 263 d.

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