Registration of ‘Assano’ Lentil


‘Assano’ lentil (Lens culinaris Medikus subsp. culinaris) cultivar (Reg. No. CV-24, PI 643452) was developed at the International Center for Agricultural Research in the Dry Areas (ICARDA), Aleppo, Syria, and released by the Siana Agricultural Research Center of Oromia Regional Agricultural Research Institute, Ethiopia, in 2003. Assano is a high-yielding yellow cotyledon lentil cultivar with wide adaptation and is recommended for cultivation in six agro-climatic zones (hot to warm moist plain; hot to warm moist lakes and rift valley; tepid to cool humid mid-highlands; cold to very humid highlands mountains; hot to warm subhumid lakes and rift valley; and cold to very cold subhumid mountains) of Ethiopia (National Agricultural Input Authority, 2003). These areas are situated at 1800 to 2600 m above sea level, and annual rainfall ranges from 750 mm to 1000 mm. Due to its wide adaptability, Assano is recommended for cultivation in both April and August plantings in Ethiopia.

Under bilateral collaboration, the National Food Legume Improvement program of Ethiopia introduced line ILL 6819 from ICARDA in 1990 through the Lentil International Screening Nursery (large seed). ILL 6819 is a breeding line derived from the cross ILL 1233/ILL 4536. The female parent, ILL 1233, is a landrace from Iran, and the male parent, ILL 4536, is a germplasm accession from Turkey. The segregating populations were advanced through the bulk method during the regular season at Tel Hadya, Syria, and in an off-season nursery at Terbol, Bekka Valley, Lebanon. Single-plant selection was practiced in the F1 at Tel Hadya. The F1, F2, and F3, progeny were evaluated at ICARDA in nonreplicated nurseries set up in an augmented design. It was evaluated in replicated preliminary and advanced yield trials in the F4 and F6, respectively, at two contrasting locations (Tel Hadya, Syria, annual average rainfall, 355 mm; and Terbol, Lebanon, average rainfall, 549 mm). Due to its excellent yield performance (site average, 1856 kg ha⁻¹) and other agronomic attributes, it was entered into the international testing program with the pedigree number FLIP 88-46L, and given the accession number ILL 6819 by the Genetic Resources Unit of ICARDA.

Assano was initially identified as a promising line in 1990 at the Siana Agricultural Research Center, Sinana, which has an annual average rainfall of 750 mm. From 2000 to 2002 it was evaluated at Siana, Debre Zeit, Alemtina, and Akaki research sites. Average seed yield for Assano was 3173 kg ha⁻¹ over 3 yr and across four locations, compared with 2200 kg ha⁻¹ for the local check, an increase of 44%. In large-scale production in farmer’s fields for 2 yr, the cultivar gave an average yield of 1741 kg ha⁻¹.

A range of diseases are associated with considerable yield loss of lentil annually in Ethiopia. Instability in yield due to diseases is the key reason for farmers leaving lentil cultivation. Assano is a unique cultivar in this regard and is highly resistant to rust caused by Uromyces viciae-fabae (Pers.) Schroet. (Pucciniaceae, Uredinales). It is also moderately resistant to Ascochyta blight disease caused by Ascochyta fabae Speg. f. sp. lentis Gossen et al. (Sphaerioidaceae. Sphaeropsidales) and the wilt-root rot complex (Fusarium sp. and Rhizoctonia sp).

Assano is a semi-erect, medium-stature (34 cm) cultivar with three to four long fruiting branches. Its leaves have light pubescence, composed of 12 to 15 broad leaflets that end in well-developed tendrils. Tendrils intermingle with each other and help maintain an upright canopy. Flower color is light purple and the pods, and leaves and stems turn a light-yellow color at maturity. Seed-coat color is light pinkish, lacking speckling, and cotyledon color is pale yellow. It has a 100-seed weight of about 4.3 g. It flowers after 60 d and reaches physiological maturity after 116 d with no pod loss at complete maturity. Seed protein concentration is 25.6%, measured by macro-Kjeldhal method. Approximate cooking time of Assano is 40 min based on the thumb press method.

Breeder seed stock of Assano is maintained at the Siana Agricultural Research Center of Oromia Regional Agricultural Research Institute, Ethiopia. Small quantities of seed can be obtained on written request. Plant variety protection will not be sought for Assano.

References


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