Registration of 'Ghab 5'—A Kabuli Chickpea Cultivar

The Kabuli chickpea (Cicer arietinum L.) cultivar ‘Ghab 5’ (Reg. no. CV-246, PI 638617) was developed by the International Center for Agricultural Research in the Dry Areas (ICARDA), Aleppo, Syria and released for general cultivation to farmers for winter sowing in Syria by the National Panel of Variety Releases, Syrian Ministry of Agriculture in November 2002.

Ghab 5, tested as FLIP 88-85C, was developed from a cross between ILC 629 and FLIP 82-144C made during the 1984–1985 season at Tel Hadya, the main research station of ICARDA, in Aleppo in northern Syria [36°01’ N, 36°56’ E, 284 m above sea level (asl)]. The pedigree of FLIP 82-144C is ILC 523/ILC 183. The crossed seed between ILC 629 and FLIP 82-144C was advanced during the off-season at Terbol, in the Beqa’a valley of Lebanon (33°49’ N, 35°59’ E, 890 m asl) in 1985. The F2 seeds obtained were planted in the Ascochyta blight [caused by Ascochyta rabiei (Pass.) Labr.] disease nursery (ABDN) at Tel Hadya during the 1985–1986 season. The Ascochyta blight disease epidemic was developed in the ABDN using debris of infested plants from the previous season and artificial inoculation with Ascochyta blight spore suspension concentration. The selected resistant F2 plants were grown at Terbol in the off-season in 1986 following the pedigree method. Progeny from individual F2 plants obtained at Terbol were planted at Tel Hadya in the ABDN during the 1986–1987 season and Ascochyta blight resistant F3 plants were selected and advanced to F4 at Tel Hadya the next growing season. Uniform lines with resistance to Ascochyta blight were selected, rogued for any infected plants within a progeny, and were bulked. The bulked lines were increased at Terbol in 1988 for evaluation in a Preliminary Yield Trial (PYT) at Tel Hadya during the 1988–1989 season for uniformity, seed size, seed yield, and other agronomic traits. The uniform Ascochyta blight resistant and cold tolerant lines were selected, assigned FLIP 88- numbers including FLIP 88-85C (Ghab 5), and included in the Chickpea International Screening Nursery—Winter (CISN-W-90) during the 1989–1990 season. This nursery was shared with 48 cooperators in 31 countries including Syria.

Based on 62 trials conducted over a period of seven years at different research stations as well as in farmers’ fields in Syria, Ghab 5 produced the greatest seed yield (3.8% more than the improved check, ‘Ghab 3’). Ghab 5 has larger seed size (35 g 100 seeds–1) and showed improved tolerance to Ascochyta blight compared to the improved check. Ghab 5 was released for general cultivation in Zone 1 (350–600 mm annual rainfall) and Zone 2 (250–350 mm annual rainfall) in Syria due to its large seed and superior performance compared to the check. When planted in winter, Ghab 5 plants are 55 cm tall and take 125 d to flower and 168 d to mature. Seeds of Ghab 5 are ram-head shaped, beige colored, and Kabuli type. The ‘Hummos bi-tehineh’ (a common dish prepared from Kabuli chickpea in the Middle East) quality of Ghab 5 is better than the improved check cultivar, ‘Ghab 3’.

In addition, with adoption of Ghab 5 for winter sowing, harvest can be advanced by at least 2 to 3 weeks compared to spring-sown crops. This may help to avoid terminal drought, which is a common constraint with the traditional spring sown chickpea cultivars.

The General Organization for Seed Multiplication (GOSM) in Syria and ICARDA are increasing the seed of Ghab 5 for distribution to the farmers. Small quantities of seed of Ghab 5 can be obtained from ICARDA on written request. Recipients are asked to recognize the source if it contributes to the development of a cultivar or germplasm or is used for other research purposes.

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References


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