Registration of ‘Asontem’ Cowpea

‘Asontem’ cowpea [Vigna unguiculata (L.) Walp.] (Reg. no. CV-252, PI 639261), originally designated as IT82E-32, was developed by the International Institute of Tropical Agriculture (IITA) and distributed to various national programs in 1983 as a part of the Early Maturing Cowpea International Trial. The Crop Research Institute (CRI), Kumasi, Ghana obtained this trial and planted it at its farm at Kwadoso (forest zone) in the major rainy season of 1983 and subsequently at Pokuase (coastal savanna), and Kpeve and Ejura (forest-savanna transition) in the minor rainy season of the same year. Among the different entries, Asontem was superior and it was selected for further evaluation along with other promising lines in 1984 at seven CRI research stations. These were Kwadoso, Pokuase, Kpeve, and Ejura in southern Ghana, and Nyankpa, Damango (Guinea savanna zone), and Manga (Sudan savanna zone) in northern Ghana. In these on-station tests, Asontem gave at least 20% higher grain yield compared to other varieties in the trial (GGDP 1984–1989). It was then extensively evaluated in the major agro-ecological zones in Ghana for several years. Based on its consistently high yield and wide adaptation, Asontem was formally released by the Crops Research Institute (CRI) in 1988 for cultivation in Ghana.

Asontem is an F7 derived line from a three-way cross, TKx133–16D–2 × (TVu 1190 × TVu 2616). TKx133–16D–2 is derived from the cross P33–1C × [(TVu 410 × SVS-3) × TVu 625]. P33–1C is a germplasm line from India, TVu 410 is ‘Texas Purple Hull’ cowpea from USA, TVu 625 is selection no. A 10 from Nigeria and SVS-3 is a local variety from Tanzania.

Asontem is an early maturing variety (65–70 d) with a semi-erect growth habit and narrow leaves. It has purple pigmentation on the joints connecting the petiole with the main stem as well as on the standard and wing petals. It has red color and medium size seed (about 15 g 100 seeds–1) with a smooth seed coat. Asontem is resistant to major diseases such as anthracnose [caused by Colletotrichum lindemuthianum (Sacc. & Magn.) Br. & Cav.], web blight (caused by Rhizoctonia solani Kühn), brown blotch (caused by Colletotrichum capsici Syd.), Cercospora leaf spots (caused by Cercospora cruenta Sacc. and Cercospora canecens Ellis & Martin), Septoria leaf spot (caused by Septoria vignae P. Henn), scab (caused by Elsinoe phaseoli Jenkins) and bacterial blight (caused by Xanthomonas campestris pv. vignicola Burkholder), as well as Cowpea yellow mosaic virus and Cowpea aphid borne mosaic virus.

Following release, Asontem was extensively tested on farmers fields in the five agro-ecological zones of Ghana at more than 30 sites. The grain yield of Asontem ranged from 1.1 to 2.4 Mg ha–1 which was about 200% higher than farmers’ varieties and about 44% higher than the best improved variety in the same maturity group. It also had 26% protein and 2% oil compared to 25% protein and 1.6% oil in other varieties. Asontem is adapted to all five major agro-ecological zones, but it is more popular in the coastal savannas (major and minor seasons), semideciduous forest zone (minor season), forest–savanna transition zone (minor season), and Guinea and Sudan savannas (early or midseason).

Asontem is currently the most widely cultivated improved cowpea variety in Ghana occupying 44% of area planted to improved cowpea in the Guinea savanna zone (Abatania et al., 2000). Improved varieties now account for about 60% of the estimated 100,000 a planted to cowpea in Ghana.

Small quantities of Breeder seed of this variety can be obtained from CRI and IITA. Plant variety protection will not be sought.

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References


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