Registration of ‘Ayiyi’ Cowpea

‘Ayiyi’ cowpea [Vigna unguiculata (L.) Walp.] (Reg. no. CV-250, PI 639263), tested as IT83S-728–13, was developed by the Grain Legume Improvement Program (GLIP) of the International Institute of Tropical Agriculture (IITA) and evaluated for grain yield and adaptation in Ghana. This line was released in 1992 to 1993 for cultivation in southern Ghana, especially in the coastal savannah zone.

Ayiyi is derived from the cross, TVx 3236 × [(TVu 410 × SVS-3) × TVu 76]. TVx 3236 is derived from the cross TVu 1509 × ‘Ife Brown’. TVu 410 is a variety named ‘Texas Purplehull 49’ from the USA, SVS-3 is a local variety from Tanzania, TVu 1509 is a landrace collection no. H-27–1–1 from Nigeria, and Ife Brown is an improved variety from Nigeria involving TVu 59 and TVu 53 as parents. TVu 59 is ‘Alabunch’ and TVu 53 is ‘C-20–41’ both from Nigeria.

Ayiyi was one of the entries in the 1986 IITA Cowpea International Trial 6 (aphid resistance trial). The trial was planted at the Crops Research Institute (CRI) farm at the Kwadaso station in the major season of 1986 and repeated at Kwadaso and Fumesua (semideciduous forest), Pokuase (coastal savanna), Kpeve and Ejura (forest–savanna transition) during the minor season that same year. In 1987, the line was evaluated on-station as an entry in the CRI early maturing cowpea trial at the above five locations in southern Ghana in the major and minor seasons, and at Nyankpala and Damango in northern Ghana. In both the 1986 and 1987 on-station evaluations at Pokuase where aphids are prevalent, Ayiyi proved resistant to aphids and gave the highest grain yield. In general, Ayiyi was among the three highest yielding lines in the on-station tests at all locations (GGDP, 1987–1992).

The line was further tested at 30 to 40 sites with at least eight sites per agro-ecological zone in on-farm trials with two other improved varieties (‘Amantin’ and ‘Asontem’) from 1988 to 1990. These on-farm evaluations indicated that Ayiyi out yielded Amantin, which is in the same maturity group, by over 53%. Its yield was comparable to that of Asontem, the most widely cultivated improved variety.

Ayiyi has a semi-erect growth habit and determinate stem termination. It has purple flowers, light green immature pods, and cream-colored matured pods, which are usually carried by the long peduncles above the leaf canopy.

The cultivar has medium size seed, about 13 g 100 seeds–1. It has a creamy white seed coat with a brown hilum and a rough texture. The variety is early maturing (67 d) and is resistant to aphid (Aphis craccivora Koch) and lodging. It is also resistant to major diseases such as anthracnose [caused by Colletotrichum lindemuthianum (Sacc. & Magn.) Br. & Cav.], web blight (caused by Rhizoctonia solani International Institute of Tropical Agriculture (IITA) and Kühn), brown blotch (caused by Colletotrichum lindemuthianum), bacterial blight (caused by Septoria vagnae P. Henn.), scab (caused by Cercospora phaseoli Jenkins), bacterial blight (caused by Cercospora capsici Syd.), Cercospora leaf spot (caused by Cercospora cruenta Sacc. and Cercospora canescens Ellis & Martin), Septoria leaf spot (caused by Septoria vignae P. Henn.), scab (caused by Elsinoe phaseoli Jenkins) and Cowpea aphid borne mosaic virus and Cowpea aphid borne pustular mosaic virus and Cowpea aphid borne pustular mosaic virus.

The variety is best adapted to the coastal savanna (major and minor seasons), but also does well in the forest (minor season), forest–savanna transition zone, and Guinea savanna zones of Ghana.

Ayiyi is currently one of the most widely cultivated cowpea varieties in the coastal savanna zone where aphids cause serious damage to cowpeas especially when the rainfall is erratic or delayed by early and mid season drought. Adequate rainfall conditions is the main reason why Ayiyi is not grown in the forest area. It is also the most preferred variety by farmers for intercropping with maize and cassava in the forest and coastal regions.

CRI produces 100 kg Breeder seed and distributes it to the Ghana Grains and Legumes Development Board (GGDP) for 3 Mg foundation seed annually. About 8 Mg of foundation seed were produced by certified seed growers and sold for sale to farmers when the variety was released in 1992 to 1993. CRI as well as IITA are distributing Breeder seed, which is freely available on the market with no plan to apply for plant variety protection.

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References


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