Registration of ‘NemaTAM’ Peanut

‘NemaTAM’ (Reg. no. CV-74, PI 631175) is a runner market-type peanut (Arachis hypogaea L. subsp. hypogaea var. hypogaea) cultivar with a high level of resistance to root-knot nematode [Meloidogyne arenaria (Neal) Chitwood and M. javanica (Treub) Chitwood]. The new cultivar was tested as TP301-1-8 and was released by the Texas Agricultural Experiment Station in January 2002.

NemaTAM was derived from an introgression pathway (Simpson, 1991) utilizing Florunner (Norden et al., 1969) as the recurrent parent in a backcross program and the initial cross made with a complex interspecific hybrid (2n = 4x = 40) formed by first crossing A. cardenasii Krapov. and W.C. Gregory × A. diogoi Hoehne, then crossing a 50% pollen stainable hybrid with A. batizocoi Krapov. and W.C. Gregory. The resulting trispecies hybrid (2n = 20) had <1% stainable pollen and produced no fruit. The chromosome number was doubled with colchicine to form TxAG-6 (Simpson et al., 1993). TxAG-6 has about 89% stainable pollen and is highly fertile, both selfed and crossed with A. hypogaea. The fertile amphiploid was crossed with Florunner, and seven backcrosses produced TP301-1-8. In each generation, selection was made for agronomic characters matching those of Florunner, the recurrent parent, and for resistance to root-knot nematodes (Nelson et al., 1990; Starr et al., 1990, 1995). ‘COAN’ was earlier released from the BCs in 1999 (Simpson and Starr, 2001).

Resistance to the nematode species was confirmed in the third self pollinated generation of NemaTAM by means of molecular markers associated with the resistance (Burow et al., 1996; Church et al., 2000). From the BC,F2, 40 of 300 individual plants were selected by molecular markers and for uniform phenotype. These progeny rows were grown in Puerto Rico for winter increase during 1999-2000. The increase resulted in 250 kg of Breeder seed from 21 of the 40 progeny rows, which were planted in Texas for summer increase as foundation seed during 2000.

NemaTAM has plant size similar to Florunner, significantly larger than COAN. The main stem is semiapparent at most locations and seeding rates. The lateral branching is profuse, like Florunner, and the branching pattern is alternate, but not uniformly 2 by 2. Leaf color is moderate green, like Florunner. Pods of NemaTAM are similar in size and shape to Florunner, mostly two seeded (up to 1% three seeded pods). The constriction between the seeds is equal to Florunner. Seed are pink and seed size is almost identical to Florunner and averages 58 g 100 seeds−1.

Average yield of NemaTAM was not statistically different (P > 0.05) from Florunner and Tamrun 96 in 11 tests without chemical application for nematode control.

Foundation seed of NemaTAM will be made available from Foundation Seed Services, Texas Agric. Exp. Stn., Agr. Exp. Stn., Texas A&M Univ./Texas Tech Univ., Lubbock, TX 79401; A.H. Paterson, Center for Applied Genetic Technology, Univ. Agric. Res. and Ext. Ctr., Vernon, TX 76266; and A. H. Paterson, Center for Applied Genetic Technology, Univ. Agric. Res. and Ext. Ctr., Vernon, TX 76266. *Corresponding author (c-simpson@tamu.edu). Levels of resistance to root-knot nematode were confirmed in the BCF2 of ‘Florunner’ peanuts. Crop Sci. 33:1418.

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References