Registration of ‘Georgia-05E’ Peanut

‘Georgia-05E’ (Reg. no. CV-82, PI 641767) is a new high-oleic, multiple pest resistant, virginia-type peanut (Arachis hypogaea L. subsp. hypogaea var. hypogaea) cultivar that was released by the Georgia Agricultural Experiment Stations in 2005. It was developed at the University of Georgia, Coastal Plain Experiment Station, Tifton, Georgia.

Georgia-05E originated from a cross made in 1995 between ‘Georgia-01R’ (Branch, 2002) × GA 942010, a high-oleic advanced Georgia breeding line. Pedigree selection was practiced within the F2, F3, and F4 cross populations for high-oleic (O) and low-linoleic (L) fatty acid ratio, early and late leafspot resistance [caused by Cercospora arachidicola Hori and Cercosporidium personatum (Burk. & Curt.) Deighton], respectively, desirable pod shape, seed size, testa color, growth habit, maturity, high yield, and grade characteristics. Since spotted wilt caused by Tomato spotted wilt virus (TSWV) was naturally occurring during these early segregation generations, individual plants were also selected for TSWV resistance. Performance testing began in the F4:6 generation with the advanced pure-line selection, GA 002506.

During the past 4 yr (2001–2004) in 21 multilocation Georgia tests, Georgia-05E was found to be significantly lower in total disease incidence (26 vs. 34%), higher in yield (4660 vs. 4135 kg ha⁻¹), better in total sound mature kernel (TSMK) grade (76 vs. 73%), larger in percentage (50 vs. 41%) of extra large kernels (ELK), and greater in dollar value return (2051 vs. 1656 $ ha⁻¹) when compared to another high-oleic virginia-type cultivar, ‘Georgia Hi-O/L’ (Branch, 2000). Also when planted early for greater disease pressure, Georgia-05E was found to be significantly lower in TSWV disease incidence and significantly higher in yield, TSMK grade, and dollar value returns per hectare compared to other non high-oleic virginia-type cultivars, ‘Perry’ (Isleib et al., 2003), ‘Gregory’ (Isleib et al., 1999), ‘NC-V 11’ (Wynne et al., 1991), and ‘Wilson’ (Mozingo et al., 2004).

These other high-oleic and non high-oleic virginia-type cultivars are very susceptible to both early and late leafspots. However, Georgia-05E has shown TSWV and leafspot resistance comparable to some of the more disease resistant runner-type cultivars when grown without any pesticide during 2003 and 2004. It has also shown moderate insect resistance to potato leafhopper (Empoasca fabae Harris).

Georgia-05E has a higher percentage of large kernels compared to these other virginia-type cultivars. However, it has a lower flavor than the mid-oleic ‘NC V 11’ (Wynne et al., 1979) in oil content, blanchability, and roasted flavor. Georgia-05E has a runner growth habit, late maturity (2–3 wk later than other virginia-types) and runner type pod shape. However, it is similar to ‘NC 7’ (Wynne et al., 1979) in oil content, blanchability, and roasted flavor. Georgia-05E also has a lower O/L ratio (35:1) compared to the very high-oleic, Georgia Hi-O/L (about 40:1), but it does have a significantly higher iodine value (72 vs. 86) compared to the mid-oleic cultivar, NC 7.

U.S. Plant Variety Protection is pending for Georgia-05E. Breeder seed of Georgia-05E will be maintained by the University of Georgia, Coastal Plain Experiment Station, Tifton, GA. Foundation seed stock will be available from the Georgia Seed Development Commission, 2420 S. Milledge Ave., Athens, GA 30605. Small quantities of seed may be obtained from the corresponding author for at least 5 yr. Recipients of foundation seed are asked to make appropriate recognition of the source if Georgia-05E is used in the development of new germplasm, or parental line.

References


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Published in Crop Sci. 46:2305 (2006).