Registration of ‘Phillips’ Peanut

‘Phillips’ (Reg. no. CV-85, PI 642025) is a large-seeded virginia-type peanut (Arachis hypogaea L. subsp. hypogaea var. hypogaea) cultivar with a high percentage of bright fancy pods. Phillips was tested under the experimental designation N98003 and was released jointly by the North Carolina Agric. Res. Service (NCARS) and the USDA-ARS in 2005. Phillips was tested by the NCARS, by the Virginia Agric. Exp. Sta. (VAES), and five other state agricultural experiment stations participating in the Uniform Peanut Performance Tests. Phillips is named for the late Ms. Ida G. “Gerry” Phillips, long-time research aide to the peanut breeding program at North Carolina State University (NCSU).

Phillips is a virginia market type cultivar possessing alternate branching pattern, intermediate runner growth habit, medium green foliage, large seeds with tan testa averaging 835 mg seed⁻¹, approximately 34% jumbo pods and 45% fancy pods. Phillips is an F₂-derived line selected from a cross between two early maturing NCARS breeding lines, N90014E used as the female and N91024 used as the male. Both parents were F₁-derived selections from a cross between ‘NC 7’ (Wynne et al., 1979) and ‘NC 9’ (Wynne et al., 1986). Single-seed descent was practiced in the F₃ at the Peanut Belt Research Station (PBRS) in Bertie Co. near Lewiston, NC, during the summer of 1994 and in the F₄ at a winter nursery at Juana Diaz, PR. The F₄₁ family was subjected to selection for pod size and shape in the field at PBRS in 1995 and the F₅ᵢ family in 1996. Yield and grade data were collected on Fₖ families in a replicated preliminary yield test in 1997. The F₅₇ family was tested under the experimental designation N98003 in subsequent years.

Agronomic performance of Phillips was evaluated in 16 trials conducted by the NCARS breeding program from 1998 through 2004 and 40 trials (including early and late diggings as separate trials) in the joint VAES-NCARS Peanut Variety and Quality Evaluation (PVQE) program from 2000 through 2004 (Coker and Mozinho, 2004, 2005). Phillips was also tested in the Uniform Peanut Performance Test (UPPT) series conducted at nine sites in seven states in 2003 (Branch et al., 2004). The following comparisons are based on results from the PVQE program except as noted. Compared with ‘NC-V 11’ (Wynne et al., 1991), Phillips had similar pod yield (5102 vs. 5014 kg ha⁻¹, ns), and fancy pod content (45 vs. 47%, ns), but greater jumbo pod content (34 vs. 26%, P < 0.01), jumbo pod brightness (44.5 vs. 43.5 Hunter L score, P < 0.01) (Isleib et al., 1997), fancy pod brightness (45.8 vs. 44.9 Hunter L score, P < 0.01), average pod brightness (46.1 vs. 45.0 Hunter L score, P < 0.01), extra large kernel (ELK) content (47 vs. 34%, P < 0.01), and meat content (74 vs. 73%, P < 0.01), and crop value at federal support price ($2095 vs. $1999 ha⁻¹, P < 0.01). Although the ratio of oleic to linoleic fatty acid in seed oil of Phillips was greater than that of NC-V 11 (1.63 vs. 1.57, P < 0.05), both cultivars have oleic acid levels considered to be low within the normal range for virginia-type peanuts. In the NCSU trials, Phillips had greater brightness of fancy pods than NC-V 11 (46.9 vs. 45.3 Hunter L score, P < 0.01), greater average pod brightness (46.5 vs. 45.3 Hunter L score, P < 0.01), greater ELK content (43 vs. 33%, P < 0.01), and greater meat content (72 vs. 70%, P < 0.05). Flavor attributes of roasted sound mature kernel samples from three NCSU trials were evaluated by a trained sensory panel under the direction of USDA personnel. Adjusted to common values of roast color and fruity attribute (Patrick and Giesbrecht, 1990), intensity of the roasted peanut attribute of flavor in Phillips was not different from that in NC 7 [3.36 vs. 3.54 flavor intensity units (fiu), ns], the flavor standard for the virginia market-type, but intensity of the sweet attribute was higher (3.45 vs. 2.70 fiu, P < 0.05) and that of the bitter attribute lower 2.30 vs. 2.73 fiu, P < 0.05). Averaged across ELK samples from nine UPPT locations from 2003, Phillips was not significantly different from NC 7 for intensity of roasted peanut (4.55 vs. 4.61 fiu, ns), sweet (2.03 vs. 2.02 fiu, ns), or bitter (3.05 vs. 2.97 fiu, ns) (USDA, 2004).

Although it was not developed specifically to carry any particular disease resistance, Phillips was evaluated for resistance to diseases common to the Virginia–Carolina region. Phillips’s reaction to early leafspot (caused by Cercospora arachidicola S. Hori) was evaluated from 1999 through 2004 in six field trials with no application of leafspot fungicide during the entire season. Defoliation was rated on a proportional scale of 1 (no defoliation) to 9 (complete defoliation) in late September or early October each year, and yield was measured on the unsprayed plots. Phillips was not significantly different from NC-V 11 in defoliation (6.7 vs. 7.0 defoliation score, ns) or yield (2707 vs. 2563 kg ha⁻¹, ns). Phillips’s reactions to Cylindrocladium black rot (CBR) [caused by Cylindrocladium parasiticum Crous, Wingfield & Alfenas [syn. C. crotauloi (Loos) D.K. Bell & Sobers] and to Sclerotinia blight (caused by Sclerotinia minor Jagger) were evaluated by the NCSU breeding project in six replicated tests on naturally infested soils with no chemical control of the soilborne diseases. Although it was not developed specifically to carry any particular disease resistance, Phillips was not different from NC-V 11 in incidence of CBR (27 vs. 23%, ns) or Sclerotinia blight (39 vs. 31%, ns). Phillips’s reaction to Tomato spotted wilt virus (TSWV) was evaluated from 1998 through 2004 in six field trials with seeds spaced 50 cm apart and no application of insecticides to control thrips (Frankliniella fusca Hinds), the vector of the virus. Phillips was not different from NC-V 11 in incidence of TSWV symptoms (35 vs. 30%, ns). Phillips should be considered susceptible to all four of these diseases.

Phillips is adapted to the Virginia–Carolina peanut production area but also has performed well in the southeastern U.S. production area including Georgia, Florida, and Alabama. Breeder seed of Phillips will be maintained by the N.C. Agricultural Research Service, Box 7643, N.C. State University, Raleigh, NC 27695–7643. Foundation seed will be distributed by the N.C. Foundation Seed Producers, Inc., 8220 Riley Hill Rd., Zebulon, NC 27597. The N.C. Agricultural Research Service will provide small (50–100 seed) samples to research organizations for research purposes. An application for protection of Phillips under the U.S. Plant Variety Protection Act as amended in 1994 is pending. Phillips may be sold only as a class of Certified seed.


References