# Effect of New Peanut Cultivar Georgia Browne on Epidemics of Spotted Wilt

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**ABSTRACT**

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Epidemics of spotted wilt, caused by tomato spotted wilt tospovirus, were monitored in plantings of peanut (*Arachis hypogaea*) cultivars Georgia Browne, Southern Runner, and Florunner in five tests during 1990–1993 at Attapulgus, Georgia, and in plantings of the three cultivars plus Marc I and AT-127 in three tests in Colquitt County, Georgia, in 1993. Final incidence of spotted wilt and area under the disease progress curve values for Georgia Browne were similar to those for Southern Runner but lower than those for Florunner, Marc I, and AT-127. Pod yields for Georgia Browne were higher than those for Florunner in all tests at both locations and higher than those for the four other cultivars in Colquitt County in 1993. Pod yields were similar for Georgia Browne and Southern Runner in five tests in Attapulgus. Numbers of tobacco thrips (*Frankliniella fusca*), western flower thrips (*F. occidentalis*), or larvae of undifferentiated *Frankliniella* spp. that colonized the cultivars were similar in most cases. Differences among the cultivars in incidence of spotted wilt could not be attributed to differences in thrips populations.

Additional keywords: disease resistance, epidemiology, groundnut, TSWV

Spotted wilt, caused by the tomato spotted wilt tospovirus (TSWV), has increased dramatically in prevalence and incidence in peanut (*Arachis hypogaea* L.) and other important crops in the southeastern United States since 1986 (6,8,12,20). By 1989, peanut plants showing symptoms of spotted wilt were found in almost every peanut field surveyed in Georgia (20), and by 1993, incidence of symptomatic plants approached 60% in some fields. There are few effective cultural and chemical tactics for management of spotted wilt in peanut, and none provide consistently high levels of control. Although TSWV is vectored by thrips, control of thrips with insecticides typically has not been found to reduce incidence of spotted wilt (21). Use of the cultivar Southern Runner (1,8,13) and manipulation of planting dates (13,15) in some locations have been the only consistent measures for suppressing epidemics of spotted wilt. Epidemics of spotted wilt progress more slowly (8) and to a lower final incidence in Southern Runner than in Florunner, the standard runner-type cultivar grown in most of the southeastern United States (1,8).

Georgia Browne (GAT-2741) was developed as a small-seeded, runner-type specialty cultivar for specialty use in the confectionery or candy market (2). This pure-line cultivar was developed from a cross between Southern Runner and Sunbelt Runner and was released by the Georgia Agricultural Experiment Station in 1993 (2). Because Southern Runner typically has lower incidence of spotted wilt than Florunner, these studies were conducted to determine if Georgia Browne also has similar effects on spotted wilt epidemics. The objectives of this study were to determine the effects of Georgia Browne on epidemics of spotted wilt and on colonizing populations of tobacco thrips (*Frankliniella fusca* (Hinds)) and western flower thrips (*F. occidentalis* (Pergande)). Of particular interest was the comparison of epidemics of spotted wilt in Georgia Browne with those in Southern Runner and the standard cultivar, Florunner.

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## MATERIALS AND METHODS

**Design of field plots.** Four field tests (tests A1–A4) were conducted at the University of Georgia Attapulgus Research Farm in Attapulgus, Decatur County, during 1990–1993. Soil type in all fields used was Dothan loamy sand (pH 5.8). A randomized complete block design with four replications in 1990, 1991, and 1992 and five replications in 1993 was used. Treatments consisted of the peanut cultivars Georgia Browne, Southern Runner, and Florunner. Seed were planted at 12.3/m of row on 18 April 1990, 16 April 1991, 9 April 1992, and 14 April 1993. Seeding rates were lower than those typically used in commercial peanut production to promote higher potential incidence of spotted wilt (9,16) and to facilitate observation of spotted wilt symptoms in individual plants. In 1990, 1991, and 1992, plots were two rows 1.8 m wide × 6.1 m long. In 1993, four-row plots, 3.6 m wide × 6.1 m long were used. Plants in each plot were counted on 21, 22, 29, and 19 days after planting (DAP) in 1990, 1991, 1992, and 1993, respectively. Ten terminal quadrifolioliate leaves per plot were collected 27, 36, and 42 DAP in 1993 to estimate populations of thrips. All plants in each plot were examined for symptoms of spotted wilt 42, 55, 71, 83, and 98 DAP in 1990; 43, 71, 84, 97, and 112 DAP in 1991; 54, 68, 83, 106, and 124 DAP in 1992; and 55, 70, 83, 97, 111, 127, and 137 DAP in 1993. Florunner and Georgia Browne plants were dug and inverted 147, 132, 158, and 155 DAP in 1990, 1991, 1992, and 1993, respectively. Plants of Southern Runner were dug and inverted 154, 148, 158, and 155 DAP in 1990, 1991, 1992, and 1993, respectively.

An additional test (test A5) was conducted at Attapulgus in 1993. Seed of the previously described cultivars were planted on 15 April in a randomized complete block design with 12 replications. Plots were two rows 1.8 m wide × 6.1 m long, and plants were thinned to 4.4 per meter of row 18 DAP. Terminal-quadrifolioliate leaf samples were collected 35 and 42 DAP for thrips population estimates. Plants were examined for symptoms of spotted wilt 47, 62, 75, 89, 103, 117, and 131 DAP. Plants of all cultivars were dug and inverted 158 DAP. Plant populations in each plot were determined after plants were inverted.

Three field experiments (tests C1, C2, and C3) were conducted at the University of Georgia Sunbelt Exposition site, Moultrie, Colquitt County, in 1993. The experiments were conducted in three adjacent areas of the same field of a Dothan mix complex soil (pH 5.8). A randomized complete block design with six replications was used for each test. Treatments consisted of five cultivars: Georgia Browne, Southern Runner, Florunner, Marc I, and AT-127. Marc I and AT-127 are recently released runner-type cultivars developed by the University of Florida (10) and AgraTech Seeds

Table 1. Final incidence of spotted wilt, area under disease progress curve (AUDPC) values, and pod yields in three peanut cultivars, tests A1–A4, Attapulgus, Georgia, 1990–1993

| Cultivar | Final incidence (%)[a] | | | | | AUDPC[b] | | | | | Pod yield (kg/ha) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1990 | 1991 | 1992 | 1993 | Av[c] | 1990 | 1991 | 1992 | 1993 | Av | 1990 | 1991 | 1992 | 1993 | Av |
| Florunner | 8.8 | 5.5 | 5.3 | 13.3 | 8.5 | 273 | 120 | 206 | 670 | 338 | 3,197 | 3,064 | 3,523 | 3,183 | 3,238 |
| Southern Runner | 3.6 | 2.9 | 0.3 | 9.9 | 4.5 | 128 | 85 | 10 | 500 | 200 | 3,613 | 2,954 | 4,432 | 4,837 | 4,011 |
| Georgia Browne | 4.2 | 0.6 | 0.3 | 9.9 | 4.1 | 109 | 19 | 13 | 559 | 200 | 3,770 | 3,354 | 4,322 | 4,590 | 4,043 |
| LSD ($P \leq 0.05$) | | | | | 2.1 | | | | | 85 | | | | | 543 |

[a] Final cumulative percentage of plants with symptoms of spotted wilt 107, 111, 123, and 139 days after planting in 1990, 1991, 1992, and 1993, respectively.
[b] Disease-days, calculated from five evaluation dates in 1990, 1991, and 1992 and seven evaluation dates in 1993.
[c] No cultivar × year interaction occurred, so comparisons of cultivars were made with data pooled across the 4 yr.

Inc. (Ashburn, GA), respectively. Planting dates were 5 April, 5 May, and 6 June for tests C1, C2, and C3, respectively. All cultivars except Georgia Browne were planted at 84 kg seed/ha. Because its seeds are smaller, Georgia Browne was planted at 68 kg seed/ha to establish stands of similar densities. Each plot in all tests was two rows 1.8 m wide × 27 m long. One sample area (two rows wide × 7.6 m long) in each plot was selected at random after seedlings had emerged for monitoring thrips populations and spotted wilt incidence.

Whole plants were collected to estimate thrips populations 21, 14, and 10 DAP from tests C1, C2, and C3, respectively. Terminal-quadrifolioliate leaf samples for thrips counts were collected 30 and 37 DAP from test C1, 20 and 29 DAP from test C2, and 16 and 24 DAP from test C3. Plants were examined for symptoms of spotted wilt 80, 93, 107, 121, and 135 DAP in test C1; 56, 70, 84, 98, and 112 DAP in test C2; and 45, 59, 73, 88, and 101 DAP in test C3. Plants of all cultivars except Southern Runner were dug and inverted 161 DAP in test C1 and 134 DAP in test C2. Plants of Southern Runner were dug and inverted 169 and 152 DAP in tests C1 and C2, respectively. In test C3, plants were dug and inverted 157 DAP for Marc I and AT-127; 134 DAP for Florunner and Georgia Browne; and 141 DAP for Southern Runner.

Plants in all tests were maintained as recommended for commercial peanut production in Georgia (14). Chlorothalonil (Bravo 720 or Evade 500) was applied as a foliar spray at 7- to 14-day intervals for foliar disease control. With the exception of tests A4 and A5, plants were dug and inverted at approximate optimum maturity for each cultivar based on the hull-scrape maturity index (22). All three cultivars were dug the same date in tests A4 and A5. In all tests, entire plots were harvested for yield estimates. Inverted plants were dried in the windrow for 3–7 days and harvested mechanically, and pod yields were determined for each plot. Yield weights were adjusted to approximately 7% (w/w) moisture for comparisons.

**Evaluation of disease incidence.** All plants of each plot for tests A1–A5 and each sample area for each plot of tests C1–C3 were examined individually for symptoms of spotted wilt on each evaluation date. Symptoms included concentric ring spots, "oak-leaf" patterns of chlorosis, bronzing of leaves, stunting, and distortion and/or necrosis of leaves in the terminal bud. Symptoms of spotted wilt on peanut are highly variable, but there were no noticeable differences in types of symptoms observed among cultivars in this study. Plants with symptoms on one leaflet or more were designated as symptomatic. To aid in subsequent evaluations, the location of each symptomatic plant was marked with a colored surveyors' flag. Flags were placed immediately adjacent to the main stem of plants on which symptoms were found, regardless of where symptoms were found on the plant. All plants exhibiting symptoms on a given date were marked with flags of the same color; a different color was used for each subsequent evaluation date.

Samples of one or two symptomatic leaves were taken from one of 10 symptomatic plants during 1990–1992 for confirmation of diagnosis. Leaf samples were assayed for the presence of TSWV by ELISA with antiserum developed by Sreenivasulu et al (18) or commercially available antiserum to the common or "L-strain" isolate of the virus (Agdia Inc., Elkhart, IN) as described by Culbreath et al (8). Results from assays in these years indicated greater than 98% agreement between diagnosis based on symptoms and ELISA results. Therefore, in 1993, leaves were collected for ELISA from one symptomatic plant from each plot for each evaluation date. Positive ELISA results were obtained from over 98% of samples assayed.

In all tests, disease progress curves were constructed for each cultivar by using disease incidence, which was the percentage (0–100) of plants in each plot or sample area with symptoms of spotted wilt. Asymptomatic infections of TSWV in peanut have been reported (7), but all discussion of incidence in this study refers only to symptomatic plants. Area under the disease progress curve (AUDPC) values (disease-days) were calculated (17) for each plot using time in days after planting and apparent disease incidence.

**Sampling for thrips.** The number of thrips per 10 whole seedlings and 10 terminal quadrifolioliate leaves were compared among the cultivars in all experiments in 1993. For evaluation of cultivar effects on thrips populations, one sample of 10 whole plants was collected from each plot of tests A4 and A5 and from each sample area in tests C1–C3. Whole-plant samples were collected approximately 2 wk after seedlings emerged. Subsequent samples of 10 partially unfolded terminal quadrifoliolate leaves were collected from each unit. Whole-plant and terminal-quadrifoliolate leaf samples were collected and processed as described by Chamberlin et al (5). Immediately after collection, samples were placed in vials of 70% ethyl alcohol and refrigerated until thrips could be removed and counted in the laboratory. Thrips were sorted and counted according to species, sex, and life stage. Because of extreme difficulty in differentiating larvae, thrips larvae in the genus *Frankliniella* were counted without regard for species. Previous studies indicate that these larvae are almost exclusively *F. fusca* (21).

**Statistical analysis.** All data for tests A1–A4 were subjected to analysis of variance across years (19). Test A5 was analyzed independently. Analysis was conducted across tests for C1–C3. Fisher's protected LSD values were calculated for comparison of cultivars (19). Differences referred to in the text are significant at $P \leq 0.05$ unless otherwise indicated.

## RESULTS

Year and cultivar effects on final incidence of spotted wilt, AUDPC values, and pod yield were significant for tests A1–A4 at Attapulgus, but year × cultivar interactions were not significant. Therefore, cultivars were compared using data pooled across 4 yr (Table 1). The final incidence and AUDPC values of spotted wilt in Georgia Browne and Southern Runner were similar, but both were lower than those in Florunner (Table 1). Pod yields for Georgia Browne and Southern Runner were higher than those for Florunner. Cultivar affected numbers of *F. fusca* adults only for the

**Table 2.** Effect of peanut cultivar on populations of tobacco thrips (*Frankliniella fusca*) and larvae of *Frankliniella* spp., test A4, Attapulgus, Georgia, 1993

| Cultivar | *F. fusca* females/10 samples[a] | | | *F. fusca* males/10 samples[a] | | | *Frankliniella* spp. larvae/10 terminal samples[b] | | |
|---|---|---|---|---|---|---|---|---|---|
| | 27 DAP | 36 DAP | 42 DAP | 27 DAP | 36 DAP | 42 DAP | 27 DAP | 36 DAP | 42 DAP |
| Southern Runner | 6.8 | 34.2 | 6.0 | 0.7 | 1.2 | 0.8 | 33.3 | 15.0 | 20.0 |
| Florunner | 11.8 | 19.3 | 2.3 | 0.5 | 0.2 | 0.3 | 33.7 | 6.7 | 7.3 |
| Georgia Browne | 5.8 | 24.2 | 4.0 | 0.3 | 1.2 | 0.2 | 28.5 | 13.3 | 12.7 |
| LSD ($P \leq 0.05$) | NS[c] | 9.5 | NS | NS | NS | NS | NS | NS | 6.5 |

[a]Average number of thrips per 10 terminal-quadrifolioliate leaf samples collected 27, 36, and 42 days after planting (DAP).
[b]Larvae were not identified to species.
[c]NS = no significant ($P > 0.05$) cultivar effects in the analysis of variance.

36 DAP sample, for which numbers of females of *F. fusca* were higher for Southern Runner than for the other cultivars (Table 2). Cultivar affected populations of larvae of undifferentiated *Frankliniella* spp. only for the 42 DAP sample, when numbers of larvae were higher on Southern Runner than on other the cultivars. Numbers of *F. occidentalis* were extremely low and did not differ among cultivars (*data not shown*).

Disease incidence and AUDPC values were higher and yields were lower in Florunner than in Southern Runner or Georgia Browne in test A5 (Table 3). There were no significant cultivar effects on numbers of *F. fusca* adults (Table 4), but more larvae were found at 35 DAP on Southern Runner than on either Florunner or Georgia Browne. Numbers of larvae among the cultivars were lowest in Florunner at the 42 DAP sampling (Table 4).

In tests C1–C3, planting date and cultivar main effects were significant ($P \leq 0.05$) for final incidence of spotted wilt, AUDPC values, and pod yield, but planting date × cultivar interactions were not significant. Therefore, comparisons of cultivars for these variables were made using data pooled across planting dates (Table 5). Mean final incidences of spotted wilt were 26.3, 14.7, and 9.7% for the 5 April, 5 May, and 6 June planting dates, respectively. Among tests C1–C3, final incidence of spotted wilt and AUDPC values were similar for Georgia Browne and Southern Runner, and they were lower ($P \leq 0.05$) for Georgia Browne than for Florunner, Marc I, or AT-127 (Table 5). Mean pod yields were 1,995, 2,527, and 2,617 kg/ha for the respective planting dates. Pod yields of Georgia Browne were higher than those of any other cultivar (Table 5).

For tests C1–C3, there were no significant cultivar effects or planting date × cultivar interaction for any sample or thrips category except larvae of undifferentiated *Frankliniella* spp. at the third sample date. Means presented in Table 6 are averages across the three planting dates for larvae of undifferentiated *Frankliniella* spp. At the third sample date, there was a significant cultivar × planting date interaction. There was no difference among cultivars for test C1.

**Table 3.** Effect of peanut cultivar on final incidence, area under disease progress curve (AUDPC) values of spotted wilt, and pod yields, test A5, Attapulgus, Georgia, 1993

| Cultivar | Final incidence[a] (%) | AUDPC[b] | Pod yield (kg/ha) |
|---|---|---|---|
| Florunner | 25.2 | 1,362 | 2,260 |
| Southern Runner | 16.1 | 772 | 4,117 |
| Georgia Browne | 13.9 | 747 | 4,344 |
| LSD ($P \leq 0.05$) | 8.2 | 426 | 402 |

[a]Final cumulative percentage of plants with symptoms of spotted wilt 131 days after planting.
[b]Disease-days, calculated from seven evaluation dates.

**Table 4.** Populations of tobacco thrips (*Frankliniella fusca*) and larvae of *Frankliniella* spp. on three peanut cultivars, test A5, Attapulgus, Georgia, 1993

| Cultivar | *F. fusca* females[a] | | *F. fusca* males[a] | | *Frankliniella* spp. larvae[a,b] | |
|---|---|---|---|---|---|---|
| | 35 DAP | 42 DAP | 35 DAP | 42 DAP | 35 DAP | 42 DAP |
| Southern Runner | 26.1 | 4.7 | 0.8 | 0.3 | 32.3 | 36.1 |
| Florunner | 26.3 | 3.8 | 0.5 | 0.1 | 21.5 | 13.6 |
| Georgia Browne | 28.6 | 5.0 | 0.8 | 0.3 | 20.4 | 39.5 |
| LSD ($P \leq 0.05$) | NS[c] | NS | NS | NS | 6.9 | 6.4 |

[a]Average number of thrips per 10 terminal-quadrifolioliate leaf samples collected 35 and 42 days after planting (DAP).
[b]Larvae were not identified to species.
[c]NS = no significant ($P > 0.05$) cultivar effects in the analysis of variance.

Numbers of undifferentiated *Frankliniella* spp. larvae were lower for Georgia Browne than for Florunner for the third sample in test C3 but were similar to counts for all the other cultivars.

## DISCUSSION

Results from tests over 4 yr indicate that epidemics of spotted wilt are less intense in Georgia Browne than in the standard cultivar Florunner and that the field performance of Georgia Browne is similar to that of Southern Runner (1,8). At this time, using resistant cultivars, avoiding early April planting dates (13,15), and increasing seeding rates represent the few effective tactics for managing spotted wilt epidemics in peanut in the United States.

Our data corroborate previous reports (13,15) and previous observations (J. W. Todd and A. K. Culbreath, *unpublished*) that spotted wilt epidemics are affected by planting date. The lower incidence in spotted wilt in Georgia Browne than in susceptible cultivars was consistent among planting dates and indicates that the use of Georgia Browne may complement manipulation of planting date for suppression of spotted wilt epidemics.

In addition to lower incidence of spotted wilt, pod yields were consistently higher in Georgia Browne and Southern Runner than in the other cultivars evaluated. However, the higher yields of these cultivars cannot be attributed exclusively to differences in incidence of spotted wilt. In addition to its agronomic characteristics, Georgia Browne has moderate levels of resistance to *Sclerotium rolfsii* Sacc. and *Rhizoctonia solani* Kühn (3). Resistance in Georgia Browne and Southern Runner (4,11) to other pathogens that were present in fields used for these tests also may have been responsible for yield differences. In particular, significant epidemics of southern stem rot, caused by *S. rolfsii*, occurred in all tests except A4 and A5. Digging dates of plots in tests A4 and A5 were beyond optimal time for Florunner. The difference in yield among cultivars may be partly due to digging date. Therefore, the specific portion of the observed yield differences attributable to lower incidence of spotted wilt cannot be quantified.

Table 5. Effect of peanut cultivar on final incidence, area under disease progress curve (AUDPC) values of spotted wilt, and pod yields, tests C1–C3, Moultrie, Georgia, 1993

| | Final incidence (%)[a] | | | | AUDPC[b] | | | | Pod yield (kg/ha) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cultivar | Test C1 | Test C2 | Test C3 | Av[c] | Test C1 | Test C2 | Test C3 | Av | Test C1 | Test C2 | Test C3 | Av |
| Florunner | 29.4 | 19.6 | 13.1 | 20.7 | 1,335 | 890 | 584 | 936 | 1,718 | 2,654 | 2,490 | 2,257 |
| Southern Runner | 20.0 | 11.2 | 9.5 | 13.5 | 844 | 433 | 354 | 544 | 2,457 | 2,745 | 2,769 | 2,657 |
| Georgia Browne | 19.1 | 8.9 | 5.7 | 11.2 | 899 | 393 | 224 | 505 | 2,729 | 3,098 | 3,207 | 3,012 |
| Marc I | 29.2 | 16.1 | 8.8 | 18.1 | 1,354 | 704 | 388 | 815 | 1,481 | 1,924 | 2,222 | 1,876 |
| AT-127 | 33.8 | 17.6 | 11.3 | 20.9 | 1,578 | 813 | 541 | 976 | 1,592 | 2,215 | 2,398 | 2,068 |
| LSD ($P \leq 0.05$) | | | | 5.4 | | | | 266 | | | | 276 |

[a]Final cumulative percentage of plants with symptoms of spotted wilt 135, 112, and 92 days after planting in tests C1, C2, and C3, respectively.
[b]Disease-days, calculated from five evaluation dates in each test.
[c]No significant cultivar × planting date interaction occurred, so cultivar comparisons were made with data pooled across the three planting dates.

Table 6. Populations of tobacco thrips (*Frankliniella fusca*), western flower thrips (*F. occidentalis*), and larvae of *Frankliniella* spp. on five peanut cultivars, tests C1–C3, Moultrie, Georgia, 1993

| | Adult *F. fusca* | | | | | | Adult *F. occidentalis* | | | | | | *Frankliniella* spp. larvae/10 samples[a] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Females | | | Males | | | Females | | | Males | | | | |
| Cultivar | WP[b] | $T_1$[c] | $T_2$[d] | WP | $T_1$ | $T_2$ | WP | $T_1$ | $T_2$ | WP | $T_1$ | $T_2$ | WP | $T_1$ |
| Florunner | 47.9 | 23.0 | 4.6 | 0.9 | 1.1 | 1.0 | 4.7 | 2.9 | 1.2 | 0.8 | 2.2 | 0.8 | 16.1 | 74.3 |
| Southern Runner | 46.8 | 25.2 | 4.2 | 1.4 | 0.8 | 0.7 | 4.4 | 4.7 | 0.9 | 0.5 | 2.2 | 1.2 | 14.9 | 70.0 |
| Georgia Browne | 37.8 | 20.3 | 5.8 | 1.1 | 0.7 | 0.7 | 3.4 | 3.7 | 0.7 | 0.4 | 1.1 | 0.8 | 15.8 | 91.5 |
| Marc I | 50.1 | 18.3 | 3.4 | 1.1 | 0.8 | 0.6 | 4.8 | 3.8 | 1.6 | 0.4 | 1.8 | 1.3 | 15.1 | 69.4 |
| AT-127 | 49.3 | 18.8 | 3.2 | 0.9 | 1.9 | 1.0 | 5.6 | 4.6 | 1.3 | 0.8 | 2.3 | 1.3 | 24.5 | 78.4 |
| LSD ($P \leq 0.05$) | NS[e] | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |

[a]Larvae were not identified to species.
[b]WP = average number of thrips per 10 whole-plant samples collected 21, 14, and 10 days after planting in tests C1, C2, and C3, respectively. Values represent means for cultivars across all three tests.
[c]$T_1$ = average number of thrips per 10 terminal-quadrifolioliate leaf samples collected 30, 20, and 16 days after planting in tests C1, C2, and C3, respectively. Values represent means for cultivars across all three tests.
[d]$T_2$ = average number of thrips per 10 terminal-quadrifolioliate leaf samples collected 37, 29, and 24 days after planting in tests C1, C2, and C3, respectively. Values represent means for cultivars across all three tests.
[e]NS = no significant ($P > 0.05$) cultivar effects in the analysis of variance.

The effects of severity of spotted wilt symptoms and the incidence of asymptomatic infections (7) in the different cultivars were also not evaluated in this study. Both of these factors may influence yield. Preliminary results (*unpublished*) indicate that in addition to lower incidence of symptomatic plants, Southern Runner also has lower incidence of asymptomatic infections of TSWV than Florunner. In both cultivars, only approximately 50% of the plants infected with TSWV show foliar symptoms of spotted wilt. Investigations are in progress: 1) to elucidate further the correlation between incidence of symptomatic plants and total incidence of infected plants and 2) to determine whether lower incidence of symptomatic plants in Southern Runner and Georgia Browne than in Florunner is due to resistance or tolerance to TSWV.

Georgia Browne was developed from crosses between Southern Runner and Sunbelt Runner, and these results may indicate that the factor or factors responsible for lower incidence of spotted wilt in Southern Runner are heritable. Reaction of Sunbelt Runner to TSWV has not been characterized completely, so its potential contribution to response of Georgia Browne to TSWV is uncertain. Southern Runner has been used extensively in peanut breeding programs in Georgia and Florida, and many other lines with Southern Runner as a parent are being evaluated for resistance to TSWV.

The relative performance of Georgia Browne, Southern Runner, and Florunner was consistent across years and tests that varied greatly in incidence of spotted wilt. This is particularly important, since spotted wilt epidemics have been sporadic in their occurrence with respect to location and intensities of disease.

With minor exceptions, the numbers of thrips collected from Georgia Browne were similar to those collected from Florunner. This is consistent with a previous report of similar populations of thrips in Florunner and Southern Runner (8). Thus, differences in incidence of spotted wilt among these cultivars could not be attributed to differences in attractiveness or support of reproduction of thrips.

The apparent resistance or tolerance to TSWV in Georgia Browne represents lower risk of losses to spotted wilt than with Florunner. The combination of partial resistance or tolerance to TSWV, resistance to two major soilborne fungal pathogens (*S. rolfsii* and *R. solani*) (3), and high yield potential in Georgia Browne (2) represents a major attribute not found in any other peanut cultivar currently available in the United States.


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