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Influence of Production Practices on Peanut Disease and Yield

CONTENTS

INFLUENCE OF PRODUCTION PRACTICES ON PEANUT DISEASE AND YIELD

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INTRODUCTION

PEANUT (*Arachis hypogaea*) REMAINS AN IMPORTANT CROP for Alabama farmers. Currently, the farm gate income from the approximately 200,000 acres of peanut grown in 15 Alabama counties is nearly $120 million dollars. Along with repeated recent droughts, southern stem rot, caused by the soil-borne fungus *Sclerotium rolfsii*, and the peanut root-knot nematode, *Meloidogyne arenaria*, have often combined to greatly reduce peanut-related income due to lower yields and low nut quality on many Alabama farms. In addition, the fungicides and nematicides applied to much of the state's peanut crop for the control of these pests may account for 20% or more of the peanut production budget on Alabama farms.

Management options available for the control of soil-borne diseases such as southern stem rot and the peanut root-knot nematode are limited. As previously mentioned, the fungicides and nematicides used to control southern stem rot and peanut root-knot are quite costly and are often only partially effective in preventing sizable losses in crop yield and quality, particularly under severe disease or nematode pressure (20). Crop rotation, which is a highly effective weapon against southern stem rot and peanut root knot, is not widely used due to the absence of profitable rotation crops, a lack of fresh tillable land, and poorly structured farm programs (1,12). Although all widely grown runner-type peanuts are partially resistant to several diseases, including southern stem rot, further reductions in the incidence of this disease and significant yield gains have been obtained with the fungicides Folicur 3.6F and Abound 2SC on 'Georgia Green' and 'Southern Runner' peanut (8,10).

Available runner-type peanut cultivars are not resistant to the peanut root knot nematode (5). In recent years, genes for root knot resistance have been incororated into runner-type peanut breeding lines, and the root knot-resistant cultivar 'Coan', which unfortunately does not have the yield potential of available runner peanuts, has been released for field evaluation (18). However, root-knot resistant replacements for 'Georgia Green' or 'Southern Runner' will not be available to Alabama peanut producers for many years. Deep tillage, which reportedly reduces the carryover of *S. rolfsii*, is widely used but, due to poor rotation patterns, has little actual impact on the severity of this disease.

Although the efficacy of Telone II and Temik 15G against the peanut root-knot nematode is roughly equal, the latter product is more widely used on Alabama's peanut crop due to its effectiveness against thrips and nematodes (11). In previous studies in Alabama, Temik 15G, when applied at recommended rates of 13 to 20 pounds per acre, reduced the level of nematode damage and significantly increased the yield of the 'Florunner' peanut (9,15,20). However, the response of recently released peanut cultivars to nematicide treatments such as Temik 15G has yet to be assessed.

The impact of production practices on southern stem rot and peanut root-knot nematode is not well understood. A study was initiated to evaluate the impact of planting date and peanut maturity group on pod yield and on the severity of southern stem rot and peanut root-knot nematode. In addition, the influence of peanut maturity on efficacy and yield response to Temik 15G insecticide/nematicide on selected peanut cultivars was also evaluated.

MATERIALS AND METHODS

In 1993, 1994, and 1995, selected peanut cultivars were grown in a field with a long history of peanut production on the Wiregrass Research and Extension Center in Henry County. The Dothan sandy loam soil was heavily infested with the causal fungus of southern stem rot, *S. rolfsii*, and the peanut root-knot nematode, *M. arenaria*. The design of this study included three planting dates (see Table 1 for the specific dates) as the whole plots,

TABLE 1. PLANTING DATES FOR ALL PEANUT CULTIVARS

	Year		
Planting Date	1993	1994	1995
Early	14 April	20 April	14 April
Mid-season	28 April	6 May	1 May
Late	14 May	19 May	15 May

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peanut cultivars as the split plots, and Temik 15G rate along with an untreated control as the split-split plots. Each year, peanuts were planted early (mid-April), mid-season (late April to early May), and late (mid-May). The peanut cultivars 'Andru 93', 'Florunner', and 'Southern Runner' belong to the peanut maturity group 3 (matures 126 to 140 days after planting [DAP]), 4 (matures 130 to 145 DAP), and 5 (matures 140 to 165 DAP), respectively (17).

Temik 15G was applied either in-furrow at 7 pounds per acre or on a 12-inch band over the center of the seed furrow at planting at the rate of 10 pounds per acre. At approximately 40 DAP, an additional 10 pounds per acre was banded over the row middle for a total of 20 pounds of Temik 15G per acre per season. All banded applications of Temik 15G, which were delivered with a two-row Gandy applicator, were lightly incorporated with flat sweeps. Individual split-split plots were four rows, 30 feet in length, spaced 3 feet apart.

In late winter or early spring, the plot area was prepared for planting with a moldboard plow and a disk harrow. Soil fertility and pH were maintained according to the results of a soil fertility assay. Broadleaf and grass weeds were controlled by lightly incorporating 1 quart of Sonalan + 1.5 pints of Dual per acre with a disk harrow. At ground cracking, a tank-mixture of 11 fluid ounces of Starfire + 1 pint of 2,4 DB, and 1 pint of Basagran was broadcast. Escape weeds were periodically pulled by hand.

Each cultivar was planted on the dates specified in Table 1 at the rate of approximately five to six seed per row foot. To control early and late leaf spot, seven broadcast applications of Bravo 720 6F were made at a rate of 1.5 pints per acre at two-week intervals (21). The plot area was watered as needed with a center-pivot irrigation system. For each planting date, the hull scrape method was used to determine optimum digging date for each cultivar (22). Immediately after digging, the incidence of southern stem rot was determined by counting the number of hits (disease loci) per row foot in the windrow of each two-row split-split plot (15). Nematode damage to the roots and pods was rated on a scale of 0 to 10 where 0 = no visible damage and 10 = severe galling of the pods and taproot disintegration. The center two rows of each split-split plot were harvested, the pods, which were collected from each split-split plot, were dried to 7% moisture, and weighed.

RESULTS

Planting Date

Planting date greatly influenced incidence of southern stem rot, severity of root-knot damage, and pod yield (Figure 1). When averaged across all cultivars, southern stem rot levels were lower in the late-planted peanuts than those planted earlier. Among the three planting dates, those planted early had the highest incidence of this disease (Figure 1). With few exceptions, southern stem rot incidence also tended to decline in the Temik 15G-treated plots and the untreated controls from the early to late planting date (Table 2).

In 1993 and 1995, overall root-knot damage was slightly lower on peanuts planted at the middle planting date than those sowed early and late (Figure 1). In same years, the early and late plantings suffered roughly the same level of nematode damage. In 1994, the early-planted peanuts suffered the least root-knot damage (Figure 1). In 1993 and 1994, no differences in root-knot damage were noted among planting dates in the Temik 15G-treated plots or the untreated control (Table 2). At the middle planting date, both rates of Temik 15G gave better root-knot control than at the early or late planting date in 1993 and 1995.

Averaged across all peanut cultivars, the impact of planting date on pod yield was substantial. In 1994 and 1995, the late-planted peanuts yielded considerably less than those planted ear-

TABLE 2. INFLUENCE OF PLANTING DATE ON SEVERITY OF SOUTHERN STEM ROT, ROOT-KNOT DAMAGE, AND YIELD OF PEANUT TREATED WITH INSECTICIDAL AND NEMATICIDAL RATES OF TEMIK 15G

	1993			1994			1995		
		–Temik 15G–			–Temik 15G–			–Temik 15G–	
Planting date	Control	Low rate[1]	High rate[2]	Control	Low rate[1]	High rate[2]	Control	Low rate[1]	High rate[2]
Stem rot (no. loci/100 ft.)									
Early	8.1	8.8	10.7	5.3	7.1	5.9	11.1	11.9	13.0
Mid	7.2	7.1	6.4	6.4	4.9	5.8	9.0	10.3	16.3
Late	3.2	4.9	4.1	4.0	4.1	5.2	8.6	6.3	8.0
Root-knot damage rating									
Early	7.4	4.9	3.1	8.3	5.7	4.4	7.1	4.7	4.3
Mid	6.1	4.6	3.1	8.1	7.3	6.1	6.5	4.1	3.6
Late	6.5	5.7	4.4	8.0	5.8	6.2	6.9	5.5	4.8
Yield (lbs/ac)									
Early	2399	2596	2852	2619	2966	3446	2596	2966	3028
Mid	2611	2944	3029	3170	3339	3412	2992	3061	3066
Late	2978	2911	3088	1956	2353	2670	2272	2471	2615

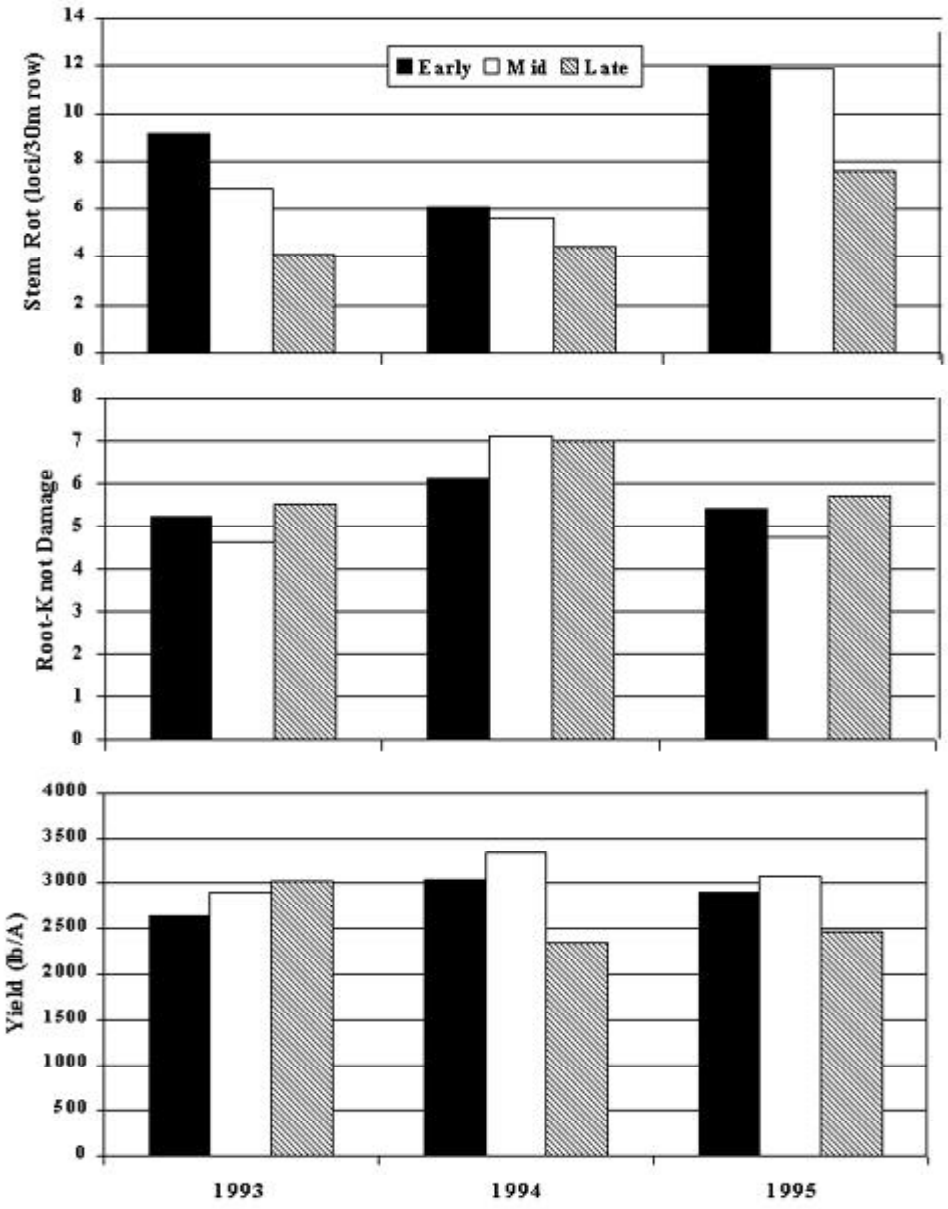
[1]The low (insecticidal) rate of Temk 15G was seven pounds of product per acre.
[2]The high (nematicidal) rate of Temik 15G totaled 20 pounds of product per acre per growing season.

lier in May or in April (Figure 1). During the same period, yield of the early-planted peanuts was slightly below the yield of those planted two weeks later. In 1993, peanut yield progressively increased at each planting date with the highest yields recorded for the late planting date in the Temik 15G-treated plots and the untreated controls (Table 2). In the next two years, peanut yields at the middle planting date for both rates of Temik 15G and the control were higher compared with those obtained at the late planting date and sometimes at the early planting date.

Peanut Cultivar

In each year, the choice of cultivar, belonging to a different peanut maturity group, had a major impact on the incidence of southern stem rot, the level of root-knot damage and pod yield (Figure 2). The 'Southern Runner' (maturity group 5), which is a late maturing runner-type peanut cultivar with partial resistance to southern stem rot, suffered considerably less injury than did the earlier maturing 'Andru 93' (maturity group 3) or 'Florunner' (maturity group 4) peanuts. This relationship between planting date and the incidence of white mold was true for 'Andru 93' in two of three years and for Florunner in all three years (Table 3). In addition, the incidence of this disease on late-planted 'Andru 93' and 'Florunner' peanuts was nearly half that recorded in the early plantings of these cultivars. Similar reductions in the incidence of southern stem rot were seen on 'Southern Runner' only in 1993. In 1994 and 1995, southern stem rot levels on this peanut cultivar did not appreciably differ across planting dates. In two of three years, the incidence of southern stem rot was slightly lower on 'Andru 93' than on 'Florunner'.

Figure 1. Impact of Planting Date on the Incidence of Southern Stem Rot, the Level of Peanut Root-knot Damage, and the Yield of Peanut in 1993, 1994, and 1995



Root-knot damage was noticeably worse on 'Southern Runner', particularly in 1993 and 1995, as compared with the other two peanut cultivars. In addition, 'Andru 93', which was the earliest maturing cultivar tested, suffered slightly less root-knot damage in all three years than did 'Florunner'. The influence of planting date on the severity of root-knot damage differed considerably among the individual peanut cultivars (Table 3). In two of three years, the level of nematode damage on the roots, pegs, and pods of 'Florunner' was lower at the early planting date than at the late planting date. On 'Andru 93' and 'Southern Runner', the lowest and highest damage ratings were recorded at the middle and late planting dates, respectively, while those noted at the early planting date were intermediate.

In all three years, the yield of the 'Andru 93' peanut was higher than that of 'Florunner'. In 1994 and 1995, 'Florunner' yielded considerably more than did 'Southern Runner' (Table 3). In 1993, yields of the late-planted 'Andru 93' and 'Florunner'

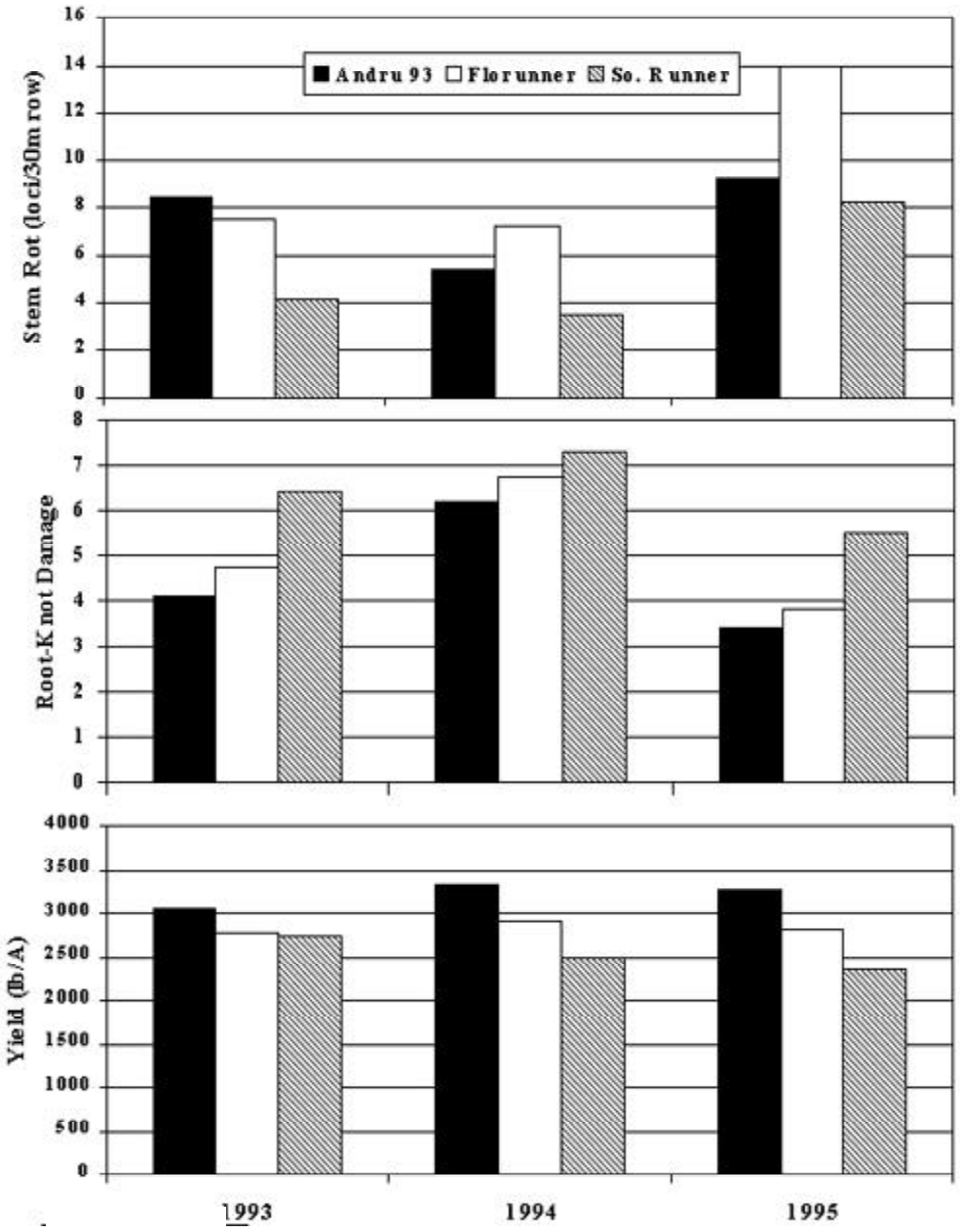
peanuts were higher than those obtained at the two earlier planting dates. In the following two years, these cultivars yielded best when planted in early May (early planting date) and yielded least in mid-May (late planting date). In 1993 and 1995, yield of 'Southern Runner' was not substantially different across planting dates. The late-planted 'Southern Runner' peanuts generally yielded less than those sown at the early and middle planting dates.

Temik 15G

When averaged across all peanut cultivars and planting dates, the use of Temik 15G had a noticeable effect on root-knot damage levels and pod yield but not on the incidence of southern stem rot (Figure 3). With the exception of 1995, southern stem rot levels recorded for both rates of Temik 15G and for the untreated control were similar. In 1995, disease incidence in the plots of all three cultivars treated with the high rate of Temik 15G was higher than for the cultivars treated with the lower rate of Temik 15G and in the untreated plots (Table 4).

Across all cultivars, the highest level of root-knot damage was noted in the untreated control and the least damage was recorded with the high rate of Temik 15G (Figure 3). On the individual peanut cultivars, root-knot damage levels declined as the rate of Temik 15G increased (Table 4). In 1993, the damage ratings for the low and high rates of Temik 15G on 'Andru 93' and 'Florunner' did not differ. On 'Southern Runner', however, the low rate of Temik 15G did not reduce the level of root-knot damage compared to the untreated control.

Figure 2. Effect of Cultivar Selection on the Incidence of Southern Stem Rot, the Level of Root-knot Damge, and the Yield of Peanut in 1993, 1994, and 1995



THE SOUTHERN STEM ROT FUNGUS *S. ROLFSII* IS ACTIVELY GROWING ON THE RUNNERS OF 'VIRUGARD' PEANUT.

TABLE 3. INFLUENCE OF PLANTING DATE ON SEVERITY OF SOUTHERN STEM ROT, ROOT-KNOT DAMAGE, AND YIELD OF ANDRU 93, FLORUNNER, AND SOUTHERN RUNNER PEANUT CULTIVARS

Planting date[1]	1993			1994			1995		
	Andru 93	Flo-runner	Southern Runner	Andru 93	Flo-runner	Southern Runner	Andru 93	Flo-runner	Southern Runner
Stem rot (no. loci/100 ft.)									
Early	11.7	9.9	5.9	3.9	9.7	2.7	11.6	16.8	7.6
Mid	8.4	8.6	3.6	3.6	7.3	3.2	9.5	16.3	9.8
Late	5.2	4.3	2.7	5.8	4.9	2.6	6.6	9.0	7.3
Root-knot damage rating									
Early	4.4	4.9	6.2	5.6	5.7	7.0	4.8	4.8	6.5
Mid	3.2	4.6	6.0	6.4	7.1	7.7	3.7	4.6	6.0
Late	4.7	4.8	7.2	6.3	7.4	7.3	5.3	5.4	6.4
Yield (lbs/ac)									
Early	2614	2496	2784	3555	2760	2716	3303	3038	2253
Mid	3221	2632	2763	3738	3384	2801	3666	3026	2421
Late	3334	3099	2570	2616	2484	1879	2742	2286	2291

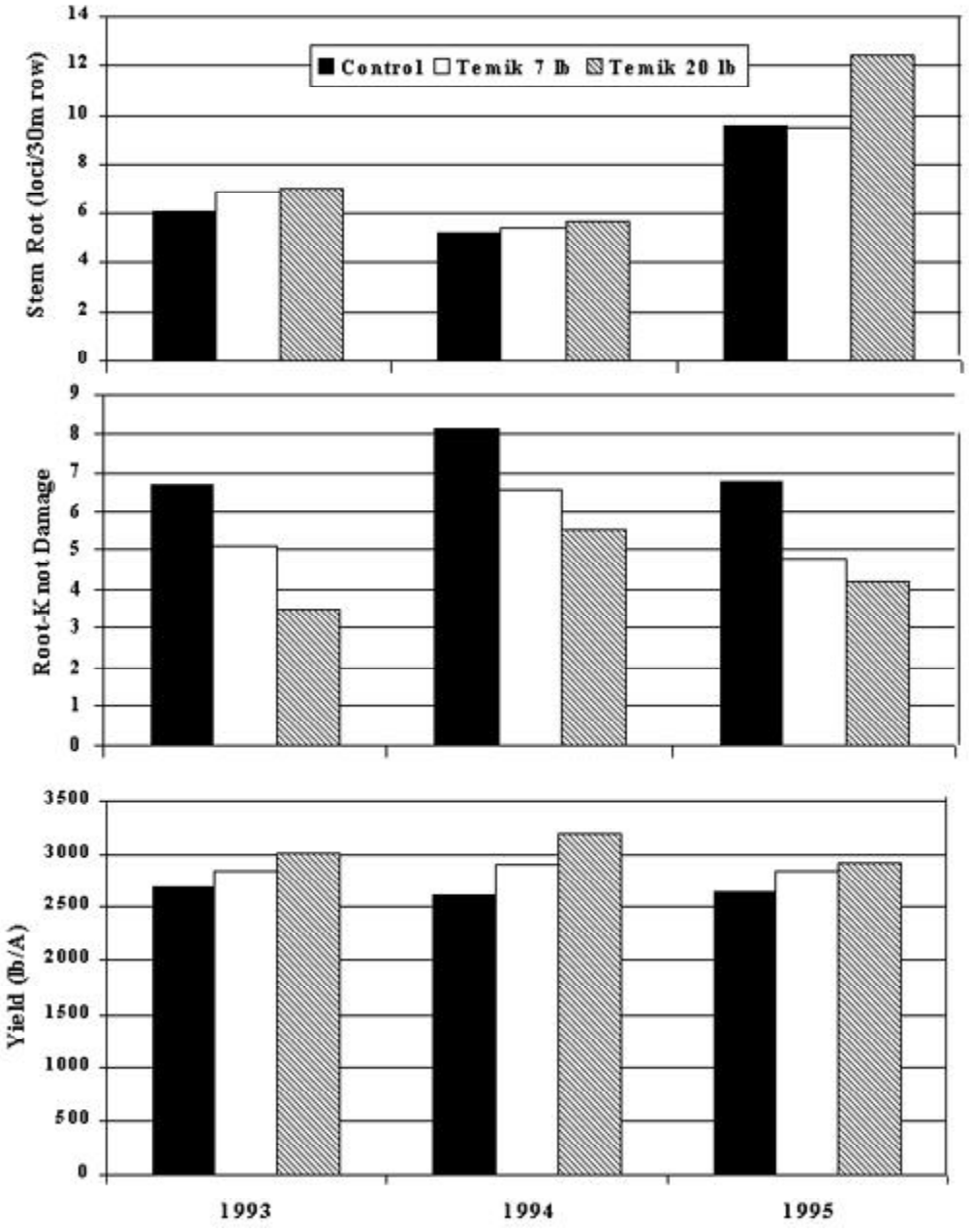
[1]See Table 1 for specific planting dates for 1993, 1994, and 1995.

(ABOVE) SOUTHERN STEM ROT DAMAGE TO THE PODS AND CROWN IS EASY TO SEE IMMEDIATELY AFTER PEANUTS ARE DUG. NOTE: NEARLY ALL OF THE PODS ON THE DAMAGED (BROWN) PLANTS HAVE BEEN ROTTED OR SHED AT DIGGING.

(ABOVE RIGHT) A POD ROT, WHICH IS CAUSED BY THE FUNGUS *S. ROLFSII*, MAY APPEAR JUST BEFORE DIGGING. BROWN, ROTTED PODS LIKE THESE ARE USUALLY BLOWN OUT THE BACK OF THE COMBINE.

According to data summarized across all cultivars, the reductions in root-knot nematode damage obtained with the two rates of Temik 15G reflect higher peanut yields (Figure 3). However, yield response of 'Andru 93', 'Florunner', and 'Southern Runner ' to applications of two rates of Temik 15G differed considerably. Despite the sizable declines in root-knot damage on 'Florunner' obtained with either rate of Temik 15G in all three years, the yields of both the treated and untreated peanuts differed by about 200 pounds per acre. For 'Southern Runner', the largest yield gains were consistently obtained with the high rate of Temik 15G. Typically, the yield of the untreated 'Southern Runner' peanuts was not dramatically different from the yield of those treated with the low rate of Temik 15G. In two of three years, yield response of the 'Andru 93' peanut to either rate of Temik 15G was similar, and both treatments yielded more than the untreated control in 1993 and 1994.

Figure 3. Impact of Temik 15G on the Incidence of Southern Stem Rot, the Severity of Peanut Root-knot Damage, and the Yield of Peanut in 1993, 1994, and 1995



GALLS ARE STARTING TO ROT ON PEANUT PEGS AND PODS.

TABLE 4. INFLUENCE OF INSECTICIDE/NEMATICIDE TREATMENT ON SEVERITY OF SOUTHERN STEM ROT, ROOT-KNOT DAMAGE, AND YIELD OF ANDRU 93, FLORUNNER, AND SOUTHERN RUNNER PEANUT CULTIVARS

Treatment and rate[1]	1993			1994			1995		
	Andru 93	Flo-runner	Southern Runner	Andru 93	Flo-runner	Southern Runner	Andru 93	Flo-runner	Southern Runner
Stem rot (no. loci/100 ft.)									
Control	7.9	6.9	3.6	3.8	3.1	3.6	8.4	12.3	7.9
Temik 15G low[2]	8.4	7.9	4.5	4.5	6.1	5.7	8.9	12.6	7.2
Temik 15G high[3]	9.0	8.1	4.1	7.7	7.7	6.4	10.4	17.3	9.6
Root-knot damage rating									
Control	5.7	6.9	7.4	7.5	8.2	8.7	6.4	6.6	7.4
Temik 15G low[2]	3.9	3.9	7.4	6.1	6.5	7.2	3.9	4.4	5.9
Temik 15G high[3]	2.7	3.4	4.5	4.9	5.4	6.2	3.4	3.8	5.5
Yield (lbs/ac)									
Control	2837	2658	2486	2973	2806	1967	3064	2674	2121
Temik 15G low[2]	3157	2866	2610	3367	2896	2492	3235	2906	2325
Temik 15G high[3]	3084	2859	3026	3568	3025	2936	3421	2772	2519

[1]Rate = kg a.i./ha.
[2]The low (insecticidal) rate of Temik 15G was 7 pounds of product per acre.
[3]The high (nematicidal) rate of Temik 15G was 20 pounds of product per acre per growing season.

(ABOVE) EVEN WITH GOOD SOIL MOISTURE, ROOT-KNOT DAMAGED PEANUTS OFTEN WILL NOT LAP THE MIDDLES AND MAY WILT DURING THE DAY. BADLY DAMAGED PEANUTS WILL OFTEN START TO DIE SEVERAL WEEKS BEFORE HARVEST.

(ABOVE RIGHT) HEAVY KNOTTING OF THE FEEDER ROOTS OF THIS PEANUT PLANT IS CAUSED BY THE PEANUT ROOT-KNOT NEMATODE.

DISCUSSION

Before this study, influence of planting date on the incidence of southern stem rot and severity of peanut root-knot had never been investigated. Of the two pest systems, southern stem rot proved much more sensitive to planting date than did the peanut root-knot nematode. The incidence of southern stem rot, which peaked on the early-planted crop, declined by nearly 50% on peanuts sowed in mid-May. This drop in southern stem rot incidence from the early to late planting date was most apparent on 'Andru 93' and 'Florunner'. For early plantings of both cultivars, pod set, maturation, and disease onset coincided with hot, often wet July and August weather, which favors the activity of *S. rolfsii*. Drier, cooler weather conditions in September may suppress pathogen activity, thereby allowing the mid-season and late plantings of both 'Andru 93' and 'Florunner' to escape damage. On the other hand, planting date had little impact on southern stem rot incidence on 'Southern Runner' (17). Apparently, the pods of 'Southern Runner' set and mature after *S. rolfsii* activity in the rhizosphere and colonization of the vines and pods has peaked.

Planting date had less impact on root knot than on southern stem rot. Typically, the least root knot damage averaged across all cultivars was seen during the middle-planting window. However, in any given year, the impact of planting date on root-knot damage on a particular cultivar often varied from this pattern.

The impact of planting date on yield was dramatic for 'Andru 93' and 'Florunner' but less so for 'Southern Runner'. In 1993, the late plantings of the two former cultivars yielded slightly higher compared with the two earlier planting dates. In the following two years, yields were higher at the early and middle planting dates for 'Andru 93' and 'Florunner', than those recorded for the late plantings. In contrast, yield of 'Southern Runner' in 1993 and 1995 was similar across all planting dates. Mozingo *et al.* (14) previously noted that planting date has a significant impact on peanut yield only when the crop is under severe moisture stress at a critical point during the growing season. The poor yields recorded in the early planting in 1993 and late planting in 1994 and 1995 of 'Andru 93' and 'Florunner' are partially due to poor growing conditions and to the root-knot nematode. Due to the risk of greatly increased levels of tomato spotted wilt virus (4,19), however, most Alabama peanut producers have largely ceased planting this crop in mid-April.

As expected, some notable differences in the sensitivity of 'Andru 93', 'Florunner', and 'Southern Runner' to southern stem rot, peanut root knot, and yield were observed. Of the above cultivars, the late maturing, maturity group 5 peanut 'Southern Runner', which was selected for resistance to late leaf spot in the late 1980s (6), is currently the most widely grown of the three cultivars evaluated. Of greater importance to Alabama peanut producers, this cultivar was the first released with partial resistance to the tomato spotted wilt virus and white mold (2,3,6). As previously reported (3), the incidence of southern stem rot on 'Southern Runner' was approximately half of that noted on 'Florunner'. In a later Georgia field trial (2), a noticeable difference in hit counts between 'Southern Runner' and 'Florunner' was seen in only one of three years. Unfortunately, this cultivar also proved in this study to be highly sensitive to the peanut root-knot nematode. Under good growing conditions, the reproductive cycle *M. arenaria* on peanut may be completed in as little as 21 to 24 days (13). Due to the one to two additional nematode generations per season on 'Southern Runner', root-knot damage levels are greatly increased and yields are sharply lower than those recorded for 'Florunner' and particularly for 'Andru 93'.

'Andru 93', which is a maturity group 3 runner-type peanut, is not known to be resistant to any diseases or plant parasitic nematodes. In fact, 'Andru 93', which was released in 1993, is more susceptible to early leaf spot and tomato spotted wilt virus than most maturity group 4 and 5 peanut cultivars (7). In two of three years, however, the incidence of southern stem rot on this cultivar was intermediate between the levels recorded for 'Florunner' and 'Southern Runner'. Although 'Andru 93' is not known to be resistant to southern stem rot, this cultivar most likely avoids some disease damage simply by maturing 10 to 14 days earlier than the maturity group 4 'Florunner' peanut and up to 40 days before 'Southern Runner'. 'Andru 93' also suffered less root-knot related damage to the pods, pegs, and roots than did either 'Florunner' or 'Southern Runner'. As was the case with southern stem rot, resistance is not the mechanism responsible for the reduced root-knot damage on 'Andru 93'. Currently, no recommended peanut cultivar is resistant to the peanut root-knot nematode (14). On maturity group 3 cultivars like 'Andru 93', the peanut root-knot nematode apparently has less time to damage the vulnerable pegs, pods, and roots. Consequently, 'Andru 93' consistently produced higher pod yields than the 'Florunner' and particularly the root-knot susceptible 'Southern Runner'. Unfortunately, 'Andru 93' has proven highly susceptible to tomato spotted wilt virus and is no longer widely grown across the southeastern peanut belt (7).

'Florunner', which is susceptible to leaf spot diseases, peanut rust, southern stem rot, and peanut root-knot, was the most widely grown peanut cultivar grown in Alabama, Florida, and Georgia (2,3,7) until a few years ago. While this cultivar had the highest incidence of southern stem rot, the levels of root-knot damage and pod yields for 'Florunner' were intermediate between those noted for 'Andru 93' and 'Southern Runner'. In recent years, the increasing incidence of TSWV in all three southeastern peanut-producing states has forced peanut producers to abandon 'Florunner' in favor of TSWV-resistant cultivars such as 'Georgia Green' (4,7).

As expected, the 7 and 20 pound per acre rates of Temik 15G had little influence on the incidence of southern stem rot on any of the three peanut cultivars. Rodriguez-Kabana *et al*. (16) also reported that nematicidal rates of Temik 15G had no effect on the occurrence of this disease. With the exception of 'Southern Runner' in 1993, both rates of Temik 15G reduced the nematode damage ratings on all three cultivars when compared with those of the non-treated control. Typically, damage levels were noticeably lower on each cultivar in the plots treated with the 20 pound per acre rate of Temik 15G than on those treated with the lower rate. However, the lower levels of damage on the pegs and

pods of the Temik 15G-treated peanuts did not necessarily result in higher yields for all three peanut cultivars. When applied to 'Florunner', both rates of Temik 15G failed to appreciably increase peanut yield in 1993, 1994, or 1995. In previous trials in Alabama (9,16,20), Temik 15G, applied at rates at or above 13 pounds per acre, consistently reduced root-knot damage ratings and increased the yield of 'Florunner' peanut. In contrast, the high rate of Temik 15G consistently boosted yields of 'Andru 93' and 'Southern Runner' above the yields recorded for the non-treated control of both cultivars. Despite the use of the high rate of Temik 15G, the yield of the nematicide-treated 'Southern Runner' peanuts consistently fell well below those recorded for 'Andru 93'.

The impact of planting date in combination with cultivar selection on the management of southern stem rot and peanut root-knot nematode in peanut has not been the focus of previous studies. By delaying the planting of southern stem rot-susceptible cultivars into early to mid-May, the incidence of this disease can be reduced. Planting during this same window, which is recommended across the peanut belt for reducing the severity of TSWV, would not increase the level of root-knot damage or pod yield (4). The nematicidal rate of Temik 15G consistently reduced root-knot damage on all three cultivars but increased yield on only two. Although 'Southern Runner' has an excellent disease resistance package (3), this cultivar is highly sensitive to peanut root-knot and should only be planted in a field free of this damaging pest. On the other hand, the maturity group 3 cultivar 'Andru 93', which escaped damage by maturing early, yielded higher than the other two cultivars. As a result, the planting of a early maturing, maturity group 3 peanut cultivar in combination with a recommended nematicide such as Temik 15G or Telone II is the most effective method currently available for management of the peanut root-knot nematode (21).

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