Twin Row Seeding Rate Trial

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Introduction

Establishing a desirable plant population begins with an adequate seeding rate. For many years the University of Georgia recommendation for peanut seeding rate was 4-6 seed per row foot. When tomato spotted wilt virus (TSWV) became such a yield limiting factor in Georgia peanut production in the early 1990's, research clearly showed that one of the most critical factors for reducing a producer's risk of the disease was with a final plant stand of four or more plants per foot of row. As a result, the UGA seeding rate recommendation was adjusted to planting 6 seed per foot of row in the single row pattern.

At the same time that TSWV was becoming such a yield limiting factor on peanut, UGA research also proved that planting peanut in a twin row pattern would provide a yield increase of several hundred pounds per acre. There was less than 5% of the Georgia peanut acreage planted in the twin row pattern in the mid 1980's. We began research on comparing twin row planting to single row planting on newly released cultivars in 1986. Each year since 1986, we have continued in the twin row and single row planting pattern evaluation to determine if all new cultivar releases respond positively to planting in the twin row pattern.

The UGA recommendation for seeding rate in the twin row pattern has been to plant 3 seed per foot of row in each twin row. This provides the same seed per acre population as 6 seed per foot of row in the single row pattern. Many producers have the philosophy that there needs to be a higher seeding rate on a per foot of row basis than 3 per foot of row in the twin row pattern.

Research was conducted in 1999 and 2000 comparing seeding rates on the twin row pattern on the C-99R cultivar. The results of those trials indicated the highest yield was made when planted at 3 seed per foot of row. When the seeding rate was increased to 4 seed per foot of row rate, the yield dropped significantly. There was also a significant yield reduction when the seeding rate was reduced to 2 seed per foot of row.

Questions have risen in regards to the seeding rate response of some of the more recently released cultivars when planting in the twin row pattern. A trial was established in 2007 to compare twin row seeding rates on the cultivar Georgia-03L.

Experimental Methodology

Five seeding rates were compared on the twin row pattern on the cultivar Georgia-03L in crop year 2007. The trial was conducted at the Gibbs Farm at the University of Georgia's Coastal Plain Experiment Station near Tifton, GA. The seeding rates were: 2, 2.5, 3, 3.5, and 4 seed per foot of row. Experimental design was a randomized complete block with 4 replications. Plots were 6 rows (18 feet) by 50 feet in length. The trial was planted with a

Monosem precision air planter on May 2. Planting depth was 2.25 inches and Thimet brand insecticide was applied in-furrow at the rate of 6 pounds per acre. Within 24 hours of planting, Prowl (1 qt/acre), Strongarm (0.44 oz/acre), Valor (3 oz/acre) herbicides were applied and watered in with 0.5 to 0.75 inches of irrigation as the base weed management program. The trial was irrigated on an as needed basis. All other production practices, including disease and insect management, were based on University of Georgia recommendations.

Results and Discussion

Data collected were yield (pounds per acre), percent total sound mature kernels, and plant stand at 30 days after planting and when inverted. Tomato spotted wilt virus was relatively light in 2007 so TSWV ratings were not taken. All data were subjected to analysis of variance (ANOVA).

Data analysis indicated no significant difference among seeding rates for yield and percent total sound mature kernels (TSMK). There was a significant difference in plant stand at 30 days after planting and at inversion of the crop among the seeding rates. The data are presented in Table 1.

Table 1. Response of Georgia-03L peanut cultivar to various seeding rates when planted in the twin row pattern, Coastal Plain Experiment Station, Tifton, GA, 2007.

Seeding Rate (seed per foot of row)	Yield (lbs/A)	TSMK (%)	Plant Stand 30 DAP (plants/foot)	Plant Stand Harvest (plants/foot)
2	4046	69.8	2.4	2.5
2.5	4113	70.8	3.2	2.9
3	4590	69.5	3.3	3.3
3.5	4513	70.3	3.6	3.8
4	4193	68.5	3.8	3.6
LSD (0.05)	1042	2.6	5.2	7.1

Although there was not a significant yield difference among the seeding rates, the 3 and 3.5 seed per foot of row provided a yield advantage of 400-500 pounds per acre over the 2, 2.5, and 4 seed per foot of row. This research trial continues to support the UGA seeding rate recommendation of 3 seed per foot of row in each twin row. Planting up to 4 seed per foot of row does result in yield suppression.