Peanut Yield and Grade From Different Row Orientations and Seeding Rates. (A08-sorensen082619-Oral)

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Abstract:

Peanut (Arachis hypogaea L.) is typically planted in a single or twin row orientation, however, research indicates that peanut planted at equidistance between rows and plants in alternating rows (diamond shape) and using the same planting rate can increase pod yield. A study was conducted to evaluate peanut pod yield and peanut kernel quality with different row orientations and seeding rates when irrigated using subsurface drip irrigation (SDI). Peanuts were planted on single 1.83 m beds using three row orientations (single, twin and diamond), two seeding rates (9.8 and 19.7 seeds m-1) replicated three times at two locations (Sasser and Shellman, GA). Single rows, S, were planted 0.91 m apart with two rows on one bed. Twin rows, T, were planted 22.8 cm apart with 4 rows on one bed (68.6 cm between the middle rows). Diamond rows were planted 16.5 cm apart with 8 rows on a bed (25.4 cm between the two middle rows). Soils were a Tifton sandy loam (fine-loamy, kaolinitic, thermic Plinthic Kandiudults) and Greenville fine sandy loam soil (fine, kaolinitic, thermic Rhodic Kandiudults) at the Sasser and Shellman site, respectively. Irrigation water was applied though the SDI system following published water use curves. Yield data across both sites show no yield difference between the T and D pod yield (5395 kg ha-1) which averaged about 16% higher yield than the S orientation (4595 kg ha-1). There was no yield difference with increased seed rate. However, the plant population (Sasser site only) at harvest averaged 15.1 plants m-1 (23% less than desired) while the low seed rate averaged 9.5 plants m-1. Across sites, both T and D had the same TSMK and were 1.5 percentage points higher than the S (72.8%) orientation. There was no grade difference between seeding rates. Kernel size distribution showed that T had 17% more jumbos and D had 4.4% more medium kernels than the S row. Overall, both T and D had higher yield and grade than S at both sites.

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