Single and Dual Shank Subsoiling and Inoculant Rate Evaluation for Twin Row Peanut. 2017 crop season. R.S. Tubbs and W.S. Monfort

Bradyrhizobia inoculants for use in peanut production have been extensively researched over the last 20 years. However, there has been minimal research conducted on different rates of inoculants in twin row peanut, and especially on "virgin" ground (land that has not been planted to peanut in the last 30+ years). Extension specialists throughout the Southeast consistently are asked whether the standard rate of liquid inoculants (1 oz per 1000 ft of row, or 14.5 oz/acre in a standard 36 inch single row planting pattern) is still the recommended rate for twin row. Plus, there are some recommendations that suggest doubling the rate when planting on virgin ground to insure adequate nodulation and *Bradyrhizobia* survival.

In addition, UGA extension has received questions in recent years about using single shank subsoilers that are used halfway between each twin row pair compared to using a double-shank subsoiler that places a shank directly under each individual twin row. This experiment accounts for a factorial arrangement of all possible treatment combinations that include a comparison of single vs twin subsoilers, and using five inoculant treatments consisting of 1) Non-treated check, 2) Water alone applied in-furrow (0.0 oz/ac inoculant), 3) 14.5 oz inoc/ac, 4) 29 oz inoc/ac, and 5) 58 oz inoc/ac. Experiment was conducted on virgin ground at the UGA Bowen Farm in eastern Tift County, GA that had not been planted to peanut in over 30 years, and all plots were planted with Georgia-06G peanut in twin rows on May 11, dug on October 4, and harvested on October 12, 2017.

There were no differences between subsoil shanks for any data collected, except for number of days until lapping (twin shanks lapped a little more than 3 days quicker than using single shanks). There were numerous differences between inoculated and non-inoculated treatments, but no differences between inoculant rates (Table below):

	Yield	SPAD (June 7)	Veg Biomass[a]	Lapping
Inoculant[b]	lb/ac		g/plant	days after planting
None	4289 b	26.0 b	6.6 c	75 a
Water Only	3693 b	26.4 b	7.5 bc	76 a
14.5 oz/ac	6481 a	32.9 a	11.2 ab	61 b
29 oz/ac	5863 a	32.6 a	13.1 a	61 b
58 oz/ac	6352 a	34.2 a	14.9 a	61 b
SE[c]	± 726	± 1.0	± 2.1	± 1.7

[a] Total dry matter of above ground plant material, 46 days after planting, average of 5 plants per plot.
[b] Inoculant rates applied with 7.04 gal water/ac as a carrier, directly on top of seed placed in-furrow. Averaged over both single and twin subsoiler treatments.
[c] Standard Error of the mean.

There were no benefits to increasing inoculant rate above the standard per acre rate. Liquid peanut inoculants apply a substantial amount of bacteria at the labeled rate creating sufficient nodulation and N-fixation.