

Diamond Planting Design and Planter for Peanut Crops

A variety of machinery and techniques is required to plant, cultivate, and harvest the wide range of U.S. agricultural commodities.

Over the years, ARS has researched many innovations in equipment and methods. For example, adapting equipment to plant runner-type peanuts in a diamond formation has been found to increase yield and improve disease management over the single-row planting method. ARS agronomists Russell Nuti and Ron Sorensen at the National Peanut Research Laboratory (NPRL) in Dawson, Georgia, are continuing this research, which was first developed by former NPRL agricultural engineer Don Sternitzke.

In a diamond formation, each 3-foot-wide planting bed has four equidistant rows, with six seeds planted per foot. Spacing plants in this uniform, staggered manner has been found to reduce plant-to-plant competition and achieve canopy closure sooner, helping to keep the soil cool and moist.

Now, a new 3-year research study is being conducted with Naveen Puppala and Sangu Angadi of New Mexico State University using Valencia, a more erect-growing peanut type.

Valencia's upright growth habit may make it more amenable to the diamond planting arrangement than vinelike varieties

grown in Georgia. "Valencias don't achieve row closure like runners do, especially when planted in single rows," says Nuti. "Another benefit of the diamond planting configuration is that the crop has a better chance to outcompete weeds, thus reducing early competition for water, nutrients, and light."

In first-year data collected, it appears that several populations of diamond planting are equal in yield and profit to a twin-row configuration and that both diamond and twin-row outproduce the conventional single-row.

"It is apparent that both twin-row and diamond patterns increased yield and profit," says Nuti. "But we still need to know more about how planting patterns affect growth and fruiting."—
By **Sharon Durham**, ARS.

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Russell Nuti and Ron Sorensen are with the USDA-ARS National Peanut Research Laboratory, 1011 Forrester Dr., S.E., Dawson, GA 39842-0509; phone (229) 995-7449, fax (229) 995-7416, e-mail russell.nuti@ars.usda.gov, ron.sorensen@ars.usda.gov. *

