

## **Effect of Winter Cover Crops on a Peanut – Cotton Rotation**

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Winter cover crops can decrease input costs for crop production. They also can improve yield, enhance soil health, reduce soil erosion, conserve moisture and protect water quality. Alternatively, winter crops may be harvested to supply biomass used to feed livestock or for bio-based fuels and chemicals. Legumes are often desirable to fix atmospheric N for subsequent crops. Row crops such as peanut (*Arachis hypogaea* L.) and cotton (*Gossypium hirsutum* L.) are very important summer crops in Georgia. A peanut-cotton rotation is commonly used by farmers in the Southeast U.S. The objectives of this study are to evaluate different winter crops, such as lupin (*Lupinus sp.*); narrow-leaf lupin (*Lupinus angustifolius* L.); cereal rye (*Secale cereale* L) and their combination for biomass production and crop quality and the subsequent effect on production of peanuts. The study was conducted at three sites in South Georgia including Tifton, Fort Valley, and Shellman. The experimental design is a split plot, being the main effect being the summer crops and the sub effect the winter cover crops. The results of the first year of a four-year rotation are presented. Measurements included final yield, imagery of canopy coverage and height of peanut, plus canopy coverage of the winter crops and their relationship to peanut. Results of the first year did not present a clear relationship on yield of peanuts with any of the cover crops. Images of the summer crop (peanut) at mid-season had a relationship with final yield.