

Incorporating Winter Cover Crops within a Cotton-Peanut Rotation in Georgia

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The use of winter cover crops has been studied for many decades in the Southeast. However, the economic benefits of harvesting covers for use as biofuel feedstocks or silage for animals has not been closely examined. A four-year study has begun at three locations in Georgia (Tifton, Shellman and Fort Valley) in which winter cover crop treatments have been incorporated into a cotton-peanut rotation. Cotton and peanut are planted as main blocks within the experiment in alternating years. Within each main block, six cover crop treatments have been randomized (narrow-leaf lupin, white lupin, narrow-leaf lupin with rye, white lupin with rye, rye alone and fallow). After the initial peanut and cotton plots were harvested in the summer of 2017, the winter covers were planted in November. The cover treatments were either harvested with a Carter harvester to take biomass weights or rolled and incorporated into the soil in late April of 2018. Peanut and cotton were subsequently planted in rotation in the spring of 2018. The resulting yields of summer crops were measured in the fall of 2018 and cover crops replanted on the same plots. Economic analysis was performed for each cover crop scenario for the first rotation using WholeFarm. Narrow-leaf lupin produced 19 and 17 Mgha⁻¹ dry biomass alone or with rye, respectively, compared to 9 Mgha⁻¹ for rye in the of spring 2018. Peanut yields did not vary significantly among cover crop treatments (4080 lbs/acre and 4100 lbs/acre at Tifton and Shellman, respectively). However, rolled subplots of all covers gave more consistent yields at Shellman. Cotton yields also did not vary across treatments except for numerical increases for rolled plots after one year of winter covers. Cover crops improved net income to farms under most cover crop scenarios, especially if covers can be harvested and sold as baleage.