

NITROGEN AND COVER CROP EFFECTS ON YIELD AND FIBER QUALITY OF IRRIGATED COTTON**Ruixiu Sui****Jonnie Baggard****USDA-ARS Sustainable Water Management Research Unit
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Cover Crops can improve soil health. Appropriate use of nitrogen (N) is essential for sustainable cotton production. Effects of N use and cover crop on yield and quality of irrigated cotton were tested in the Mississippi Delta for consecutive three years. The test was conducted in 12 plots with each plot size 183m x 23m. N rates of 84kg/ha (75lb/ac) and 140kg/ha (125lb/ac) with and without tillage radish as cover crop were employed as four treatments. Irrigation was conducted using a pivot according to sensor-measured soil water content. Cotton was picked using a cotton picker and samples were collected for yield and fiber quality. ANOVA analysis indicated that cover crop has no significant effect on cotton yield ($p>0.05$). In comparison with N rate 84kg/ha, N rate 140kg/ha increased the yield in 2019 ($p=0.020$). Effect of interaction between cover crop and N rate on yield was significant in 2017 ($p=0.034$). Cover crop reduced short fiber content in 2017 while increase of N rate increased short fiber content in both 2017 and 2018 ($p<0.05$). Poor growth of tillage radish in 2017 and 2018 reduced the effects of cover crop in this study. Planting date and winter weather were critical factors for tillage radish growth.