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Experimental Thermal Defoliator Trials

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Rules for organic labeling restrict the use harvest-aid chemicals. This study was conducted to determine whether thermal defoliation as an alternative to harvest-aid chemicals could prepare cotton for harvest without damaging fiber and seed quality. Untreated and standard chemical defoliant control treatments were compared with thermal treatments that consumed propane at rates less than 93.5 L/ha (10 gal/a), between 93.5 (10) and 140.0 L/ha (15 gal/a), and more than 140.0 L/ha (15 gal/a). The experimental defoliator forced hot air through two cultivars of cotton (Acala 1517-99 and Deltapine 565) that were grown on a Brazito fine sandy loam and on a Harkey clay loam. For three of the four plant/soil combinations that were evaluated, the medium and high levels of thermal defoliation resulted in over 90% leaf kill within 7 d. For Deltapine 565, the high thermal treatment resulted in a \$0.03/kg gain in fiber value over the untreated control. For Acala 1517-99, high thermal treatment added \$0.10/kg. For both cultivars, there were few significant differences in yarn quality measures.