

Application of an Automatic Yarn Dismantler to Track Changes in Cotton Fiber Properties during Full Scale Processing of Cotton into Carded Yarn

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Abstract

Changes in Upland cotton fiber properties from lint to carded yarn, during full scale processing, were tracked, using a newly developed automatic yarn dismantler for dismantling short staple ring-spun yarns. Opening and cleaning increased fiber neps significantly, and short fiber content (SFC) slightly, and decreased fiber length slightly, whereas the card increased fiber length, and decreased neps substantially. Fiber length decreased during spinning, indicating significant fiber breakage. The length of fibers from dismantled yarn was higher, and SFC lower, than that in the twistless strand before twist insertion, indicating that, during twist insertion, short fibers were lost as fly and through suction. Fiber linear density and maturity showed similar trends, changing little during opening and cleaning, but then increasing consistently up to the roving stage.