Effects of Adding Moisture at the Gin Lint Slide on Cotton Bale Microbial Activity and Fiber Quality

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The effects of adding water to ginned cotton to reduce bale-packaging forces, to provide possible beneficial effects on fiber quality and processing at the mill, and to increase bale weight on cotton bale microbial activity and fiber quality were studied under conditions where excess moisture was added to determine if any fiber degradation occurred within four months of storage. Water was added at the gin lint slide at 0, 5.9, 9.1, 21.8, and 25.0 kg per bale as an over spray before pressing into bales and storing. After 116 d, samples were removed for fiber quality and microbial activity testing. Fiber length, immature fiber, and dust particles were reduced by the addition of moisture. Neps and short fiber content increased with increased levels of moisture. Color went from middling (31) to strict low middling-spotted (43) as moisture content increased. Fiber became darker and more yellow with the higher moistures. Microbial activity was influenced by moisture content. The large increase in mold activity, which may be considered an unnecessary health risk, is a concern. Microbial activity was not uniformly dispersed throughout the treated bales and this spotty behavior may contribute to difficulties during laydown at the mills.

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