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Cleaning Performance of Modified Cylinder Cleaners

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Saw-type lint cleaners are considered the most efficient and aggressive cleaners in the ginning industry. To look for a gentler cleaning alternative, a study was conducted over two seasons to evaluate the lint cleaning performance of modified cylinder cleaners. In crop year 2003, six cylinder configurations were made by varying the grid bar shapes, the spacing between grid bars, and a combination of these factors for each cylinder. Results indicated that all cylinder cleaner configurations yielded higher turnouts than the benchmark saw-type lint cleaner and its hybrid (a six cylinder cleaner with a special saw-type lint cleaner connected in series). The best overall cylinder cleaner was composed of 3 cradles of flat, square grid bars with a wide spacing (9.5 mm) between bars followed by another three cradles of flat, square grid bars with a narrow gap (6.4 mm) between bars. The second year of the study concluded that configuration 2004-1 composed of flat, square grid bars with a narrow spacing followed by wide spacing between grid bars (three cradles each) performed the best. This configuration provided the highest expected bale value (\$321.5) and turnout (39.3%) with good reflectance (79.72), a low cleaning efficiency (18.0%), and the second lowest level of waste and neps (1.11 kg/bale and 208.1 neps/g for SG105, respectively). The best performer in 2003 ranked second in 2004.