

Spinning Brazilian Cotton

Case Study - 3

About Company

The company has an installed capacity of ~41,000 spindles, producing approximately 11 KTPA of ring-spun yarn. Its product portfolio includes combed compact yarns across a count range from Ne 26s to 40s.

Table 1: Key Technical Parameters

Particular	Details
Trial Quantity	Brazilian: 60% and US: 40% (Regular Mixing)
Yarn Counts	30s CH
Fiber Parameters*	Mic: 4.15; Length: 30.48 mm; Strength: 30.00 gtex

Note: Fiber Parameters are of Brazilian Cotton

Process-wise Issues and Interventions

Blow room and Carding

Issues	- Higher fly in Brazilian cotton - Higher waste extraction in carding - Choking in suction hood
Reasons	- Stickiness in fibers 8.0% waste extraction in carding
Interventions	- B21 unclean cleaning intensity increased from 0.5 to 0.8 - B21 unclean relative amount of waste increased from 3 to 6 - A79 - fine opening (pin type) cleaning intensity reduced from 0.6 to 0.3 - Carding cylinder speed reduced from 750 to 700 rpm - Carding licker-in speed reduced from 1,400 to 1,200 rpm - Cleaning of suction hood
Results	Waste has been reduced to 5.5%

Drawframe

Figure 1: Change in Drafting Roller Coating Condition



Issues	Change in drafting roller coating
Reasons	Deposition of dust, fiber fly and contamination on the drafting rollers
Interventions	Cleaning of top rollers and clearers at every 2 hours interval
Results	Reduction in deposition of dust, fiber fly, and contamination

Ring Frame & Winding

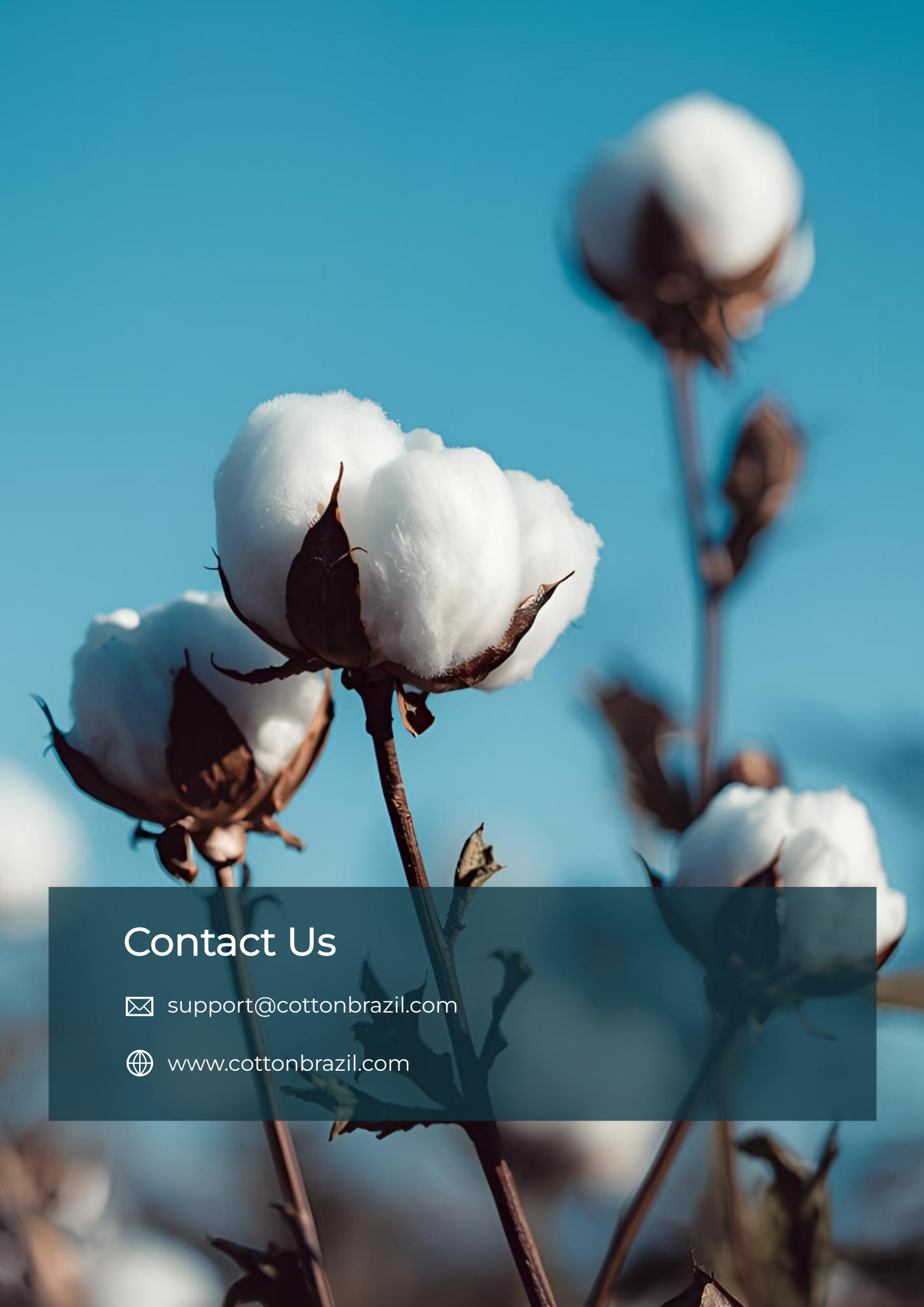
Figure 2: Sticky Deposition on Back Top Rolls



Issues	- Excessive fly is sticking to the back top rolls of Rieter ring frames - End breakage rates of 6.0-7.5 breaks per 100 spindles per hour were recorded, significantly higher than the industry benchmark of below 4.0
Reasons	- Stickiness in fibers - Higher breaker draft of 1.2
Interventions	- Cleaning of top cots at ring frame with dry cloth based on sticky deposition level - Reduce breaker draft to 1.14 - RH reduced from 51.5% to 48% and temperature increased from 35.5 to 36.6° C
Results	- Reduction in fly and sticky deposition on ring frame - Optimization of end breakage rate

Results Achieved

- Balanced waste extraction at carding and combing, maintaining the recovery level at ~76.5%, will improve yarn quality levels.
- Productivity of 250 GPSS in 30s Ne was achieved which was comparable to the current results.
- Reduction in end breakages on ring frame by ~22% and reduction in cuts by 15%.
- Reducing the breaker draft lowers end breakages, resulting in potential for productivity improvement.

A photograph of cotton plants with several white, fluffy cotton bolls. The bolls are attached to dark brown stems. The background is a clear, bright blue sky. The image is used as a background for a contact information overlay.

Contact Us

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