INTERNATIONAL COTTON CONFERENCE BREMEN 2024

CENTRE NATIONAL DE RECHERCHE AGRONOMIQUE

Title : Influence of seed cotton quality and ginning conditions on fibre quality in Côte d'Ivoire

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Background

The quality of cotton fiber is a very important parameter on which depends its market value and the quality of semi-finished and finished products derived from it. Apart from the drop in production, one of the problems of the Ivorian cotton sector is the poor quality of the fiber sold on the international market. Among the causes identified are the poor quality of seed cotton purchased on local markets and the ginning conditions in the factories.

Objective

The aim of this study was to appreciate the influence of the poor quality of seed cotton and poor ginning practices on the quality of the fiber, this study was conducted in the main ginning factories in Côte d'Ivoire.

Methodology

The work consisted of carrying out ginning tests in the factories to assess the ginning characteristics such as waste rates and fiber yields. In addition, seed cotton samples were taken during the trials and ginned on a research-type 10-saw gin. The fibers obtained after ginning were analyzed on an HVI 1000/1000 type integrated measurement chain.

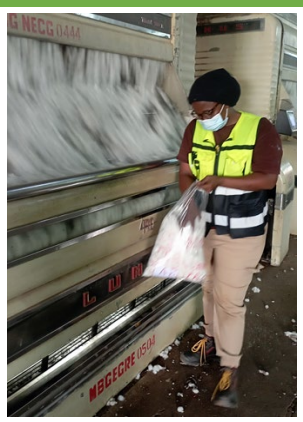

Figure 1: Gining test in factory

Figure 2: 10-saw gin

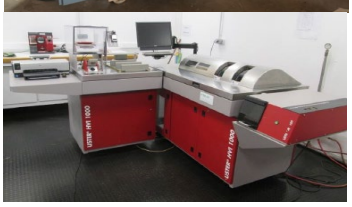

Figure 3: HVI 1000/1000

Results

► Fiber and seed yield

The results obtained show a great variability in fiber yield (from 40.13 to 47.17% with an average of 43.35%) in the factories. Low fiber yield values are due to uncontrolled losses and high scrap rates, especially when moving to older and older generations of varieties.

Table 1: Fiber and seed average

	Fibre yield	Seed yield
Average	43,35 %	46,64 %
Minimum	40,13 %	50,15 %
Maximum	47,17 %	52,85 %
Potential of the variety	≥ 44 %	≥ 52 %

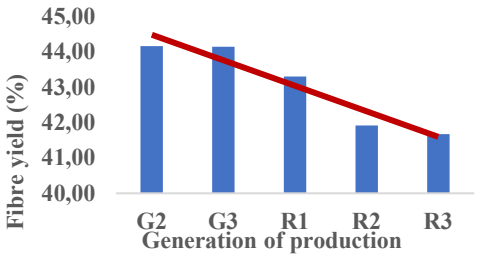

Figure 4: Fiber yield according to generation of production

►Comparison of fiber from factories to those ginned on a 10-saw gin

Compared to cotton ginned under research conditions (on ginning with 10 saws), fibers from factories, generally equipped with gins with 170 saws, with higher ginning speeds, present fibers whose length is reduced of 1.3 mm with a length uniformity which decreases by 2.6% and a rate of short fibers which increases by 3.61%.

Table 2: Comparison of fiber from factories to those ginned on a 10-saw gin

Characteristic	Length (mm)	Length uniformiy	Short fibres
Difference (Ginning on 10 saws - Ginning at the factory)	1,30	2,46	3,61
Standars	≤ 1	≤ 1,5	≤ 2

Conclusion

In order to maximize the amount of fiber in the mills, growers need to produce increasingly cleaner cotton to reduce waste rates. As for the millers, they must reduce the ginning rates and make good adjustments to the machines in order to minimize the degradation of the fiber, especially its length.