

### Title : Study of the variation in cotton fibre characteristics according to cultivation zones in Ivory Coast

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#### Background

Cotton cultivation plays a major socio-economic role in the north and centre of Ivory Coast, where it is the driving force behind the agricultural development of rural populations and contributes to the fight against poverty. In recent years, the crop has faced huge problems, including falling production and a deterioration in fibre quality. To remedy this, research has proposed cotton varieties of the species *Gossypium hirsutum*, which were popularised during the 2016-2020 period.

#### Objective

This study was carried out to assess the technological characteristics of three varieties in the agro-ecological zones where cotton is grown in Côte d'Ivoire.

#### Methodology

For the study, the varieties Y331 BLT, Gouassou Fus1 and Sicama Vir1 were grown at the observation posts (OP) in Séguéla, Korhogo and Nambingué, three localities that represent the southern, central and northern cotton production areas in Ivory Coast respectively. The cotton seeds harvested on the experimental plots were ginned using a 10-saw gin. The fibres obtained were analysed on an HVI 1000/1000 integrated measurement chain.



Figure 1: 10-saw gin



Figure 2 :HVI 1000/1000

#### Results

##### ► Technological parameters of the fiber according to cotton varieties

the varieties compared in the different cotton-growing areas behave in much the same way in terms of the fibre's technological characteristics.

Tableau 1 : Technological parameters of the fiber according to cotton varieties

Variétés	Mic	Mat (%)	UHML (mm)	UI (%)	SFI (%)	Str (g/tex)	Elg (%)	Rd (%)	+b
Gouassou Fus1	3,42 <sup>a</sup>	0,84 <sup>a</sup>	28,15 <sup>a</sup>	81,93 <sup>a</sup>	6,70 <sup>a</sup>	28,83 <sup>a</sup>	5,32 <sup>b</sup>	75,79 <sup>a</sup>	9,52 <sup>a</sup>
Sicama Vir1	3,52 <sup>a</sup>	0,85 <sup>b</sup>	28,01 <sup>a</sup>	81,93 <sup>a</sup>	6,76 <sup>a</sup>	30,08 <sup>b</sup>	4,79 <sup>a</sup>	76,03 <sup>a</sup>	9,88 <sup>ab</sup>
Y331 BLT	3,36 <sup>a</sup>	0,84 <sup>a</sup>	28,81 <sup>b</sup>	82,26 <sup>a</sup>	6,64 <sup>a</sup>	30,19 <sup>b</sup>	5,30 <sup>b</sup>	75,81 <sup>a</sup>	10,01 <sup>b</sup>
Moyennes	3,43	0,84	28,32	82,04	6,70	29,70	5,14	75,88	9,80
CV (%)	17,20	1,19	3,28	2,26	17,16	7,74	11,28	6,23	20,71

In the same column, the average values assigned to the same alphabetical letter are not significantly different at the 5% threshold according to the Duncan test.

##### ► Technological parameters of the fiber according to cotton production areas

The greatest variations are due to the influence of agro-ecological conditions on fibre characteristics, which are highly dependent on the locality where the cotton is grown.

Tableau 2 : Technological parameters of the fiber according to cotton production areas

Localities	Mic	Mat (%)	UHML (mm)	UI (%)	SFI (%)	Str (g/tex)	Elg (%)	Rd (%)	+b
Bouaké	2,59 <sup>a</sup>	0,83 <sup>a</sup>	27,57 <sup>a</sup>	79,24 <sup>c</sup>	8,41 <sup>c</sup>	27,78 <sup>a</sup>	4,70 <sup>a</sup>	67,02 <sup>a</sup>	13,57 <sup>c</sup>
Korhogo	3,61 <sup>c</sup>	0,85 <sup>c</sup>	27,87 <sup>ab</sup>	82,45 <sup>bc</sup>	6,62 <sup>b</sup>	28,53 <sup>ab</sup>	5,45 <sup>c</sup>	78,05 <sup>c</sup>	9,26 <sup>b</sup>
Séguéla	4,24 <sup>d</sup>	0,87 <sup>d</sup>	29,43 <sup>d</sup>	83,26 <sup>c</sup>	5,65 <sup>a</sup>	32,66 <sup>c</sup>	4,80 <sup>ab</sup>	78,44 <sup>cd</sup>	8,71 <sup>ab</sup>

In the same column, the average values assigned to the same alphabetical letter are not significantly different at the 5% threshold according to the Duncan test.

#### Conclusion

Each variety can be grown in all areas and produce fibre of good technological quality, provided that the recommended agronomic and post-harvest practices are followed. There could be terroir cottons whose fibre could be marketed differently because of a particular good technological parameter.