

Agro-morphological and technological characteristics of five cotton varieties selected in Côte d'Ivoire

Introduction

In order to improve the quality of cotton originating in Côte d'Ivoire, five varieties of cotton have been developed by research. This study aims to evaluate the agro-morphological adaptability and fiber quality of these cotton varieties in the two most important ecological zones of Côte d'Ivoire.

Study area

The trials were conducted in the rain season at 19 sites in a peasant conditions ; i.e. 06 sites in the area dry and 13 sites in the wet zone (Figure 1).

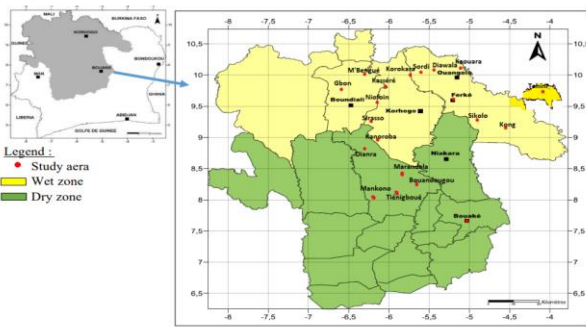


Fig 1. Wet and dry zone of the Ivorian cotton basin

Experimental design

Experimental device was a block complete randomness of nine objects, representing each a varieties. A contribution of 200 kg/ha NPK (15-15-15) and 50 kg/ha urea (46%) were applied. From the 45th day after emergence (jal) until harvest, 13 insecticides treatments were carried out reason for treatment every 15 days.

Results

Analysis of the behavior of the varieties with respect to diseases showed that the variety least susceptible to both fusariosis and floral virescence was Gouassou Fus1, followed by Sicama Vir1



Fig 3. Capsular opening stage of CI-128 in dry zone

The average yield of all varieties is around 1500 kg/ha with a fiber yield that is greater than or equal to 44 % and a seed-index that is close to 9 g. The new varieties CI-123 and CI-128 with 46% and allow a gain of +1 to 1.5 mm of fiber length compared to the popularized varieties (Gouassou Fus1 and Sicama vir 1). In addition, CI-128 has a better elasticity (6.51% fiber elongation), a gain of +1% compared to the other varieties.

Tab1. Technological characteristics of cotton varieties in wet zones and dry zones of the cotton basin in Ivory Coast.

Varieties	Mic	Mst (mat1)	UHML (mm)	Ui (%)	FC (%)	Str (g/tex)	Elg (%)	Rd	+b
Gouassou Fus1	4,32±0,58	0,87±0,01	29,03±1,23	83,24±1,48	5,79±0,89	29,49±2,25	5,77±0,64c	78,22±1,56	9,43±0,83
CI-123	4,44±0,40	0,87±0,01	29,08±0,75	84,29±0,97	5,52±0,62	29,96±2,20	6,07±0,44b	77,38±1,99	9,62±0,45
Sicama vir1	4,66±0,35	0,88±0,01	28,59±1,20	83,54±1,03	5,61±0,50	30,46±2,94	5,51±0,38cd	77,25±1,88	10,00±0,59
wet zone									
CI-128	4,36±0,50	0,86±0,01	29,71±1,25	84,33±0,59	5,35±0,41	29,71±2,01	6,49±0,53a	77,83±2,17	9,36±0,45
Y 331 BLT	4,55±0,48	0,87±0,01	28,54±1,43	83,69±1,56	5,45±0,52	30,60±2,62	5,45±0,35d	76,76±2,22	9,82±0,50
F	0,54	1,77	0,94	1,0	0,46	0,23	4,82	0,48	1,29
p-value	0,71	0,19	0,46	0,43	0,77	0,92	0,005	0,75	0,32
Gouassou Fus1	4,39±0,38	0,87±0,01	28,45±0,93	83,17±1,24	5,68±0,45	29,23±1,81	6,05±0,47b	79,25±0,85b	10,37±0,90
CI-123	4,43±0,46	0,87±0,01	28,79±0,87	83,62±0,98	5,84±0,71	30,12±1,55	5,80±0,59bc	79,30±1,15b	10,22±0,70
Sicama Vir1	4,38±0,38	0,87±0,01	28,68±0,79	83,27±1,72	5,82±0,67	29,93±1,77	5,59±0,44cd	79,22±1,25b	10,45±0,75
CI-128	4,39±0,38	0,86±0,01	29,33±0,93	84,15±0,56	5,62±0,20	29,55±1,31	6,51±0,43a	80,60±0,82a	9,93±0,75
Y 331 BLT	4,29±0,36	0,87±0,01	28,71±0,82	83,54±0,69	5,73±0,62	30,49±1,39	5,38±0,65d	79,27±0,94b	10,37±0,76
F	0,24	1,60	1,82	1,50	0,37	1,26	9,08	4,5	0,91
p-value	0,92	0,19	0,14	0,21	0,83	0,23	0,000	0,003	0,46

Conclusion

The varieties CI-123 and CI-128 and Gouassou Fus 1 seem to be best suited to the entire Ivory Coast cotton basin. The fiber yield (46 %) and the characteristics of the fiber (length 29 mm and tenacity) of the varieties CI-123 and CI-128 will allow improve the quality label of Ivorian cotton characterized by its cleanliness with a good length of the fiber and good tenacity. These two varieties could therefore be multiplied and popularized among producers

Authors

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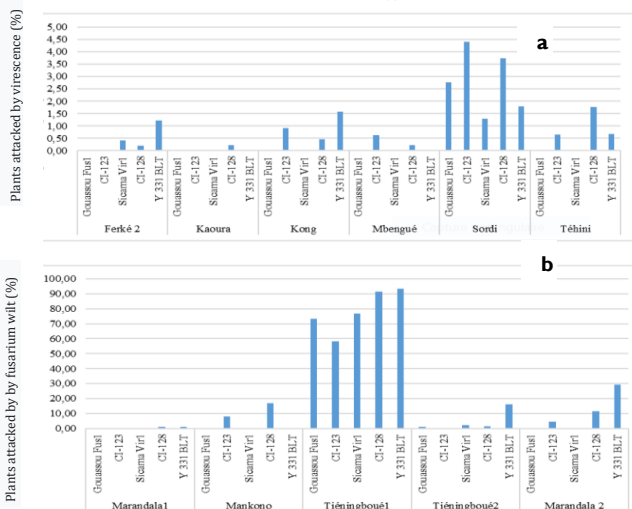


Fig 2. Percentage of plants affected by virescence and by fusarium wilt (b) in the north (a) and the south (b) of Ivorian cotton basin.