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Summary of current status of Cotton Research Program in the Sudan

By

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Cotton Research Program

Introduction

- Indigenous
- Commercial started 1876.
- big jumped 1926.

- These large production
- back by strong research programs (ARC).

✓The framework of the cotton research is pillared mainly upon:-

1.Variety improvement.
2.Agronomy .
3.Stickiness and testing technology.

1-Cotton Improvement:-

Mainly addresses the following:-

- Higher yields, earliness, disease and insect resistance.
- Breeding new variants having different balances of fiber characteristics to meet the textile and spinning technology needs.
- Maintaining the existing cultivar.

Results

- *More than 50 varieties released.*

- *Only 7 varieties are currently grown.*

	mm	*g tex.*
Barakat	*33-35*	*36-41*
Barakat-90	*34-35*	*36-42*
Shamabt-B	*30-32*	*32-36*
Nour	*29-31*	*30-34*
Barac(67)B	*27-28*	*28-31*
Acrain	*25-27*	*24-29*
Albar	*25-26*	*24-28*

Recently (2004/05 and 2005/06), nine varieties were released.4 are currently grown commercially.

Varieties	Length (mm)	Micronaire	Strength	G.O.T
Hamid	27-29	4.5-4.8	28-31	35-36
Abdin	29-33	4.3-4.4	30-34	34-35
Wager	27-29	4.4-4.5	29-31	35-36
Burhan	27-28	3.9-5.0	28-29	34-35

- **Bt. cotton open pollinated, evaluated in different locations in the irrigated and rain-fed field trails, were commercially released recently, resulting in average increase of 54% and 87% in seed cotton yield over local checks Abdin–Hamid respectively, also having GOT ranging between 42-44% compared to 34-36 for the local checks.**

2. Agronomy

Aims to development practices that improve crop productivity and quality as well as reducing production costs.

Activities usually including

- **planting date,**
- **plant density,**
- **irrigation, plant physiology**
- **crop modeling.**
- **Technical packages that fit both ecological different zones and variability in crop duration were generated.,**

Despite of the successful technical packages being recommended The implementation at the farm level is disappointing due to the non-committed farmers and lack of follow up .

3. Cotton Stickiness and Testing Technology

3.1. Fiber testing:

- The work generally, aimed to test, study and monitoring the quality performance of the existing cultivars, as well as prospective genotypes and other selections.
- ✓Data were collected on samples from the following:-
- Commercial samples submitted to ARC testing Lab.
- National variety Trial (DVT).
- Selections, lines and cultivars grown at GRS.

SCT

- Samples were tested for fibre quality parameter, such as length, strength and fineness, using both High Volume Instrument (HVI) and Low Volume Instrument (LVI).

- Yarn test were also conducted for promising lines, using micro-ring spinning.
Thermodection technique (SCT), for stickiness level.

3.3. Stickiness:

- Observed since early 1960's.

- 1980's the phenomenon became worldwide

National research addressing mainly

1- Causing ⇓ 2- Control

in attempted to find remedy

However, some what considerable success was achieve. (Gameel , Khalifa, Ali)
But the problem was still there.

? Thinking of global.

- **Through CFC /ICAC- Stickiness Project.**
  "*Improvement of Marketability of Cotton Produced in Zones Affected by Stickiness*"
- **Mainly funded CFC.**
- **Partner :- Sudan (SCCL –ARC).**
  France (CIARD-IFTH).

- **The study revealed :-**
  variability in stickiness levels among :-
- **cotton production areas considerably low levels of stickiness observed in some schemes.**
- **Classification possible for stickiness.**
- **Difficult to find common spinning threshold for all mills world wide.**

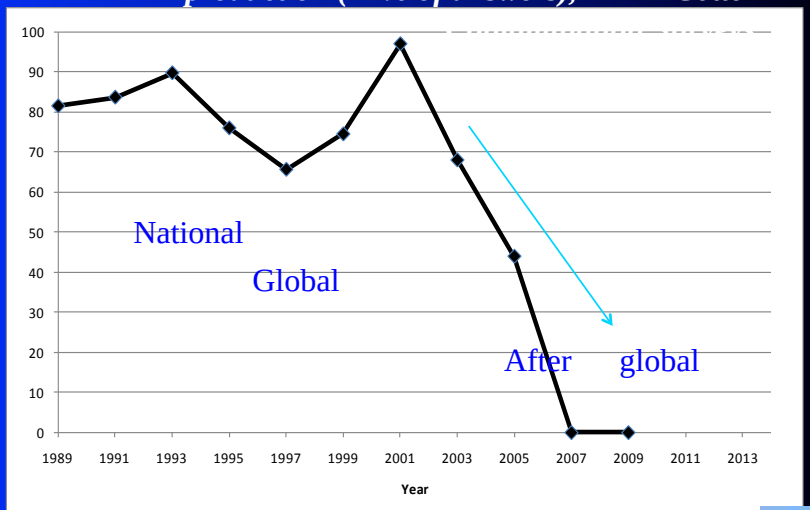
(Possible each mill may require it's on threshold)

Problem was still there during the project.

Research continued, as well as better practical knowledge on avoiding stickiness in-field practices were shared in Sudan.

According to International Textiles Manufacturers Federation Survey a better position for stickiness in Sudan was reported, it have been continuously decreasing since 2001 as a contaminated origin.

Figure : Mentioned Stickiness Problems for Sudan production (in % of answers), ITMF Cotton



Source : Gourlot et al -2011

Following ongoing research:-

- **Effect of soil moisture, sowing date and picking time on stickiness.**
- **Testing facilities to detect stickiness levels(physical and chemical)**
- **Research into methods likely to improve the spinning process and the quality of the yarn depending on the sticky potential of the cotton.**
- **Future mapping of zones varying in stickiness indices.**