

CHALLENGES AND PROSPECTS OF COTTON PRODUCTION IN PAKISTAN

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ABSTRACT

Despite so many challenges like poor weather, insect resistance, pathological diseases & new emerging pests Pakistan has been able to achieve a new record crop this year with its better research programme & farmer endeavors.

INTRODUCTION

Cotton is the main cash crop which contributes significantly to the national economy. It accounts for 6.9 percent of value added in agriculture and 1.4 percent of GDP, in addition to providing raw material to the local textile industry.

Like many other countries *Pakistan* cotton crop is most technical for a grower, because of wide range of diseases, pathological & entomological attacks on this crop, weather suitability is another concern. Pakistan cotton crop has so many challenges like very hot weather, wide range of pest diseases & Cotton Leaf Curl Virus. But with the efforts of our researchers and growers Pakistan has been able to achieve 2.36 Million tons during 2011-12. Standardization & clean cotton is the other effort. We see larger production with improved fiber length & other characters in the coming years.

CURRENT CHALLENGES

- Cotton Leaf Curl Virus
- Insecticide resistance
- Mealy bug
- High Temperature
- Contamination in cotton
- Outdated ginning machinery

COTTON LEAF CURL VIRUS (CLCuV)

- 15-80 percent yield loss
- Remained consistent threat for cotton production since last two decades
- Virus mutated during 2002 and varieties resistant to earlier virus become susceptible.
- All *Gossypium* parent lines are susceptible.
- Deteriorate fiber values
- In 2010/11, 3 million bales loss



Figure 1.

COTTON MEALY BUG

Emerging pest problem

Cotton Mealy Bug



Figure 2.

INSECTICIDE RESISTANCE

Mostly sucking pest developed resistance against existing pesticides.

Jassid; 2011-2012 biggest problem.

Thrips; stands at 2nd

Mites; at 3rd

Dusky Bug & Red Bug; Emerging as new problem at lateral stage

HARSH TEMPERATURES AND ABNORMALITIES IN WEATHER

Maximum Average Monthly Temperature

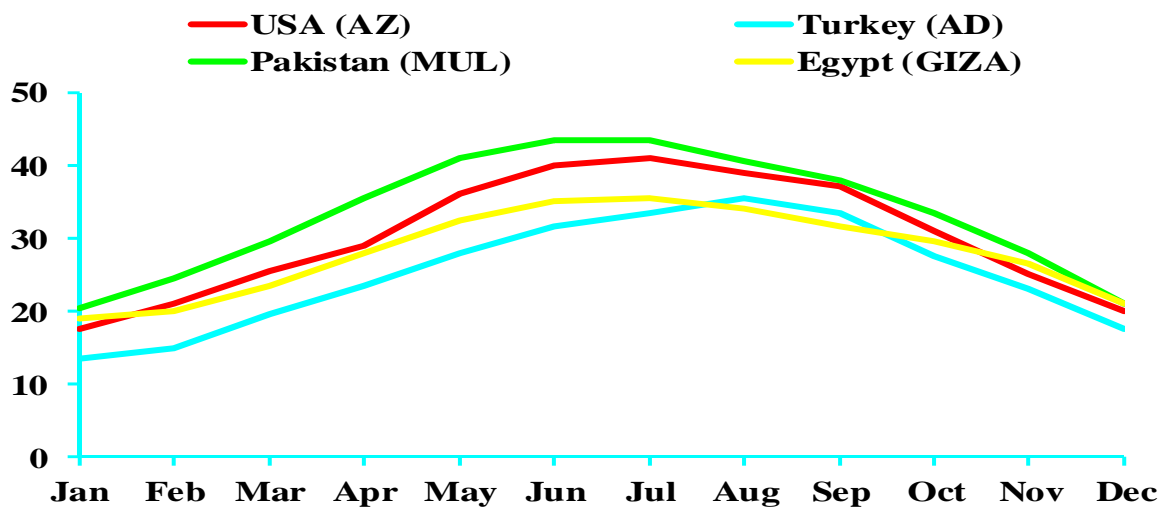


Figure 3.

Minimum Average Monthly Temperature

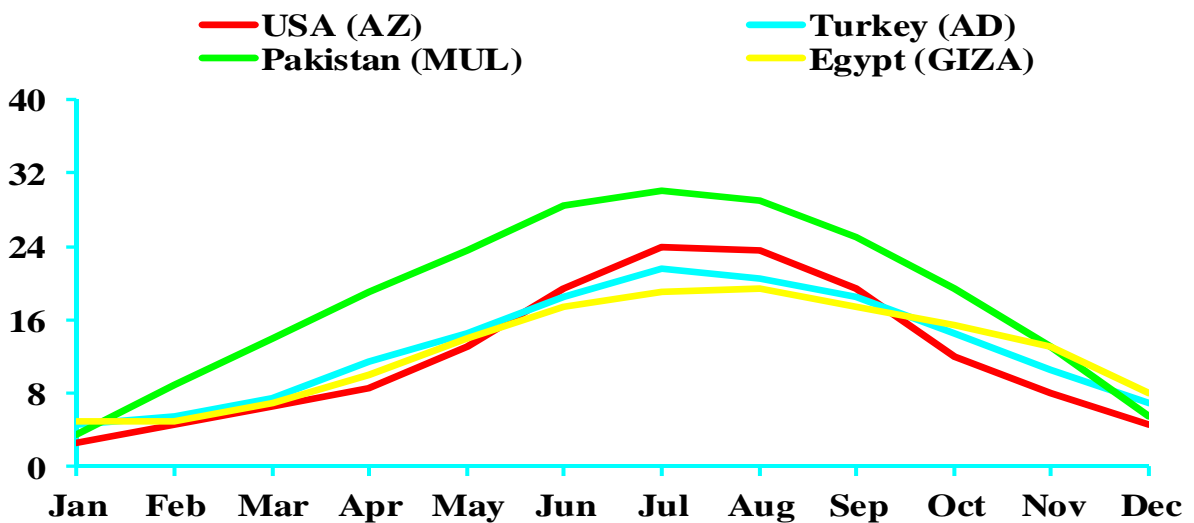


Figure 4.

EFFECT OF HIGH TEMPERATURES

- ✓ Stunted Growth
- ✓ Fruit Shedding
- ✓ Small Boll Size
- ✓ Water Stress

ACHIEVEMENT AND PROSPECTS

CONTROL MEASURES FOR CLCuV

Germplasm from across the world collected and studied. Resistance found in indigenous cotton (*Gossypium arboreum* @ herbecium) which is under test & trial across Pakistan.

SHIFT IN SOWING PATTERN TO ESCAPE FROM CLCuV

Increase in Feb-March Cotton Sowing

Table I

Year	Area Sown (000 ha)
2008	3.46
2009	6.74
2010	167.18
2011	273.45

Source: Department of Agriculture Extension, Punjab

SHIFTING FROM CONVENTIONAL TO BT COTTON VARIETIES TO AVOID BOLLWORM INFESTATION

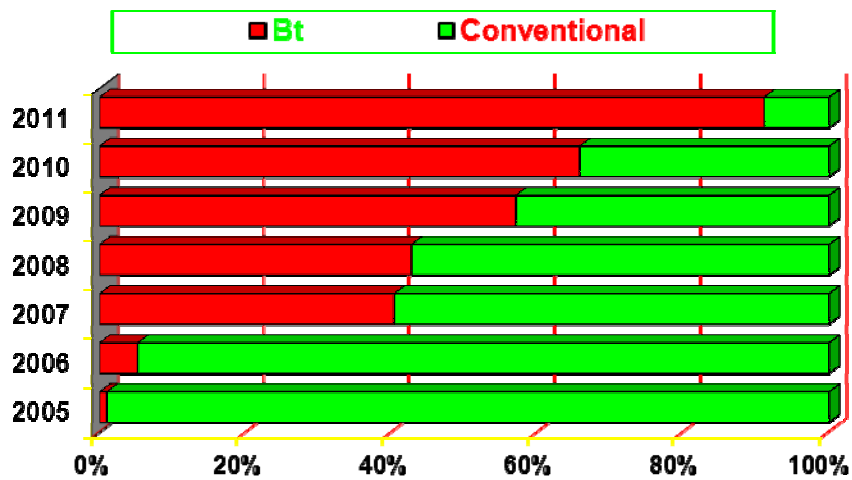


Figure 5.

Source: Department of Agriculture Extension

Mealy Bug Control

- Biology / phenology of the pest studied
- Identified local, natural enemies (predators and parasites)
- Obtained exotic predator '*Cryptolaemus*' from USA.
- Artificial rearing of beneficial predators has started
- Screening of effective chemicals for the control of mealy bug
- *Aenasius* sp. : Identified as most effective parasite against Mealy bug

Adult Stage



Figure 6.

Mummified Mealy bugs



Figure 7.



Figure 8.

COTTON STANDARDIZATION

- ❖ PCSI established for standardization, classing & grading system.
- ❖ Trained 220 Cotton Classers; 1800 cotton selectors from the public and private sector.
- ❖ Official Cotton Grades and Standards developed and recognized by the Liverpool Cotton Association
- ❖ KCA switched over from its traditional variety wise marketing system to quality based marketing system on the basis of PCSI Grades subject to premium /discount.
- ❖ Successful implementation of Grades and Standards at number of Ginneries

CLEAN COTTON PROGRAMME 2006-07

Programme was launched in selected Ginning Factories of major cotton growing districts across cotton belt of the country.

PUNJAB

17 ginning factories

Target: 70,000 bales; Achieved: 60,800 bales

SINDH

6 ginning factories

Target: 30,000 bales Achieved : 13,100 bales

Premium Rs.50 per 40 kgs after evaluation by the Cotton Classers of PCSI

PROSPECTS

- Pakistan has high potential in production of organic cotton in newly developing areas like ***Baluchistan***.
- Pakistan is very active in the Better Cotton initiative.
- Pakistan has one of the best breeding program in the world; public & private sector.
- Pakistan has been able to contain production costs. Extending support to Africa, C4 group, sponsored by private seed companies
- 29mm staple length has been achieved. From 24-26mm, 3 decades back.
- 32mm varieties are about to be launched.
- Pakistani breeders incorporated Bt gene in local cultivars through hybridization & selection.
- 8 Bt varieties approved.
- 25 Bt varieties in approval process.
- This year 2.33 M ton is expected comprising last year 1.94 M ton.
- 3.2 M ton can be achieved, no longer.