

## **COTTON DEVELOPMENT TRUST ZAMBIA**

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Presentation  
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## **Zambia's Potential**

- Cotton loves a warm climate for good yields and good fibre quality, favourable temperatures for growth between 22-32 °C
- The best potential in Zambia is therefore in Agro Ecological Region I and II of Zambia.
- Region I usually has limitation of rainfall but makes up for a warmer temperature.
- Region II has limitations in earlier colder temperatures but makes up in higher rainfall and longer rainy season.

## **Contd**

- Total land suitable for Cotton production is about one million hectares.
- Only about 200,000 ha is devoted to cotton.
- About 280,000 farmers produced 200,000 metric tons of seed cotton in (2004/2005) season.

## **Cotton Production Under Economic Liberalization and Privatization - 1996-2006**

### Characteristics

- Private Sector Driven – Production and Ginning
- Main original players - Dunavant and Clark Cotton -1996
- Now fifteen Ginning companies
- Increased Production(more farmers, hactorage)
- Increased investment – more ginneries
- Reduced government support to maize production through reduced fertilizer subsidies and marketing.
- Increased/improved farmer support extension/marketing
- Improved input credit/loan recoveries from farmers (Distributor System).
- Improved quality of seed cotton (particularly polypropylene free).
- Improved prices to farmers?

## **Marketing**

- Production of seed cotton by small scale farmers is pre-financed by cotton promoting and marketing companies through provision of:-
  - Seed,
  - Pesticides,
  - Spraying equipment, and
  - Harvesting and packing materials.
- Farmers should always deliver their seed cotton only to companies that provided them the inputs loan and extension services.

### **Side buying**

- When farmers sell their cotton to companies and individuals who did not advanced them the credit loan on inputs.
- Disadvantage to the genuine players in the industry who find it difficult to finance input credit to farmers the following season and should never be practiced.

## **COTTON DEVELOPMENT TRUST**

- CDT created in 1999 as a public/private sector partnership institution
- Widespread consultations among stakeholders for increased and improved service delivery in research and development (1997-1999)
- New initiatives for organizing research and development through enhanced private sector participation

### **CDT's OBJECTIVES**

- The Trust's aim is:-
  - To contribute to the increase of farm yields and seed cotton production in Zambia.
- CDT's main objectives are:-
  - Promote, develop, and improve cotton production through research, extension and training of farmers and extension staff and seed multiplication.
  - To contribute to the agricultural development of Zambia through innovative commercial production and enhanced partnership in technology development and information dissemination with local and international institutions

### **Major Concerns in Cotton Industry**

- Low yields among the largely small scale producers (350 – 750kg/ha).
- Major factors contributing to low cotton yields.
  - Poor soil fertility
  - Prolonged dry spells (poor soil moisture infiltration and retention capacities)
  - Inadequate labour and inadequate animal draft power (HIV/AIDS)
  - Low production skills.
  - Pest control problems

### **Poor Soil fertility**

- Inherent or as a result of inappropriate cultural practices.
- Cotton soils are usually acidic (ph below 4.8), low organic matter content, inadequate available Phosphorus and Boron but adequate Potassium.
- First correct the ph, replenish used up nutrients and correct the nutrient imbalance by external fertiliser.
- The use of all available organic fertilizer including residues should be encouraged.
- Crop rotations that include legumes improve soil fertility.

### **Prolonged Dry Spells**

- The problem is not in the skies but in the soils
- Widespread soil erosion due to lack of soil cover and inappropriate tillage (mouldboard plough)
- Poor moisture infiltration and retention in most soils (low organic matter, poor physical and chemical condition)
- Improve soil cover and reduce soil erosion through cover crops and mulches.
- Encourage appropriate minimum tillage

### **Inadequate Labour and Animal Draft Power.**

- Cotton more labour intensive than most crops (land preparation, weed control, thinning, pest control and harvesting)
- AIDS and livestock diseases pose a big risk to cotton production
- Need to develop gender sensitive and labour saving technologies (land preparation, weed control, thinning, pest control, picking)
- Up-scaling of Magoye Ripper can revolutionise cotton production (less labour and ADP requirements, early planting)
- Non availability of Ripper hindering wide spread adoption.
- Zam-wipe has big potential in weed control
- Ultra-low volume sprayers.

### **RESEARCH AND DEVELOPMENT CDT's Programmes and activities**

- Research Objective
  - To improve productivity and quality of fibre for increased farmer incomes.
- CDT's Research Department has 4 units.
  - Agronomy
  - Breeding
  - Pest management
  - Extension and Training

## Agronomy Unit

### Specific Objective

- Generation of new production technologies & technical information for improved cultural practices.

### Activities

- **Tillage Systems Research**
  - Conventional Methods studies e.g. Ploughing
  - Conservation Methods studies - Minimum tillage using ox-drawn Magoye ripper and Planting Basins
- **Production Practices Research**
  - Planting dates studies
  - Early and late planting studies
  - Plant population studies
  - Foliar and Granular Fertilizers studies
  - Lime Trials and Demonstrations
  - Weed management studies
  - Crop rotation, intercropping and Cover crops on cotton studies

## Contd.

### • Contract Research

Evaluation of agro-products for their efficacy and cost effectiveness.

- Granular & Foliar fertilizers
- Inoculants
- Seed Dressers
- Pesticides
- Herbicides
- Growth promoters

### • Recommendations

- Develop production recommendations and formulate farmer messages in close collaboration with extension institutions & promoters of cotton

## Breeding unit activities

- **Maintenance Breeding**
  - Maintains genetic purity of commercial cotton varieties through production of embryo, nuclear, and breeders seed.
- **Germplasm Evaluation**
  - Screening of germplasm materials for disease and pest tolerance, seed cotton yield and fibre quality.
- **Hybridisation**
  - Making intra- and inter-specific crosses.
- **Progeny Evaluation**
  - Early generation selections and their evaluation in comparison with the parental material.
- **Preliminary Evaluation**
  - Evaluation of promising crosses, introductions and mutants.
- **National Cotton Variety Trials**
  - Evaluation of promising lines at a much wider environment.
- **Monitoring of Seed Multiplied by Cotton Companies**

## Pest Management Unit

### • BACKGROUND

- Only chemical control methods have been used for over 30 years.

### • OBJECTIVE

- To develop Integrated Pest Management strategies for smallholder cotton farmers.

### • ACTIVITIES

- Monitoring pest population levels in the country
- Study population dynamics
- Study and evaluate various control measures

### • CURRENT

- Cotton has been planted this season to observe cotton pests and their natural enemies.

## Extension and Training Unit

- This unit responsible for CDT's technology transfer programmes.
- **ACTIVITIES**

### 1. Training of Trainers

- The target group is extension staff from the ministry of agriculture and cooperatives and cotton promoting institutions.
- Broad areas that are covered during such trainings:-
  - Cotton farming as a business entity
  - Cultural practices as they impact on cotton productivity
  - Weed control using herbicides
  - Insect pest control
  - Cotton harvesting and quality management
  - Motivational talk in relation to productivity and social economic well being of cotton farmers.

### 2. Centralised Community Based Trainings

- The target group for this training are the smallholder cotton farmers.
- Trainings are done in cotton farmers communities in all provinces.
- Over 50 smallholder farmers attend these trainings in each community and topics covered include:-
  - Conservative tillage methods
  - Early planting
  - Correct plant population
  - Pest management at all critical growth stages
  - Weed control at all critical growth stages
  - Harvesting methods and timing

### 3. Cotton Productivity Model Groups

- **Aim** - To increase cotton productivity among selected smallholder farmers through:
  - adoption and dissemination of gender sensitive conservation farming technologies.
  - **HIV/AIDS** Training on Abstinence, No sex before marriage, Sticking to one faithful partner, Use of condoms, Voluntary Counselling and Testing
- The model group comprises of 50% females smallholder farmers.
- Model groups used as a tool for farmer to farmer extension of improved production technologies.
- Major emphasis is to increase cotton productivity through adoption of improved cotton production techniques such as:
  - Conservation farming,
  - Correct plant population,
  - Early and effective weed control
  - Effective pest management
  - Crop rotation
  - Fertilization of cotton crop using foliar feeds

## Potential for Higher Yields

### Strategies:

- Intensive and focused training and extension work
- Up-scaling the use of Magoye Ripper (land preparation)
- Promoting the use of herbicides
- Correcting soil Ph through the widespread liming.
- Use of fertilizers
- Effective pest control (threshold based spraying)

## Opportunities for Zambia's cotton

- Favourable soil and climatic conditions
- Political stability and favourable economic and monetary policies
- Adequate land
- Increased private sector participation and investment

## Threats for Zambia's Cotton

- HIV/AIDS & Livestock diseases
- Bad practices e.g. side buying
- Appreciating Kwacha
- Poor rural infrastructure (roads, storage sheds and Tele-communications)

## Achievements of CDT

- Released one Cotton Variety CDT II and at least three more are at advanced stage.
- Tested and Evaluated 125 agro-products from the industry and from abroad
- Undertaken training courses-reached more than 120,000 farmers through various activities: field days, publications, training, radio etc
- Made more than 12 major publications (Hand book, two editions of production guides Cotton News 2003 and 2004)
- Satisfactorily Managed the Government cotton outgrowers scheme

## CDT's Constraints

- Inadequate financial resources – now expanding farm area to address this.
- Lack of irrigation at Magoye – now being addressed
- Inadequate farm land and seed multiplication

### **Present Challenge**

To make cotton production financially and materially more meaningful for the 280,000 cotton farmers in Zambia.

**THANK YOU**