



INTERNATIONAL TEXTILE MANUFACTURERS FEDERATION
FEDERATION INTERNATIONALE DES INDUSTRIES TEXTILES
INTERNATIONALE VEREINIGUNG DER TEXTILINDUSTRIE

Spinners Committee

Travel Report

East Africa (Kenya, Uganda and Tanzania) & Mozambique

July 3 - 10, 2010

From July 3-10, 2010 the ITMF Spinners Committee visited East Africa (Kenya, Uganda and Tanzania) and Mozambique on behalf of the ITMF.

The Spinners Committee would like to express its gratitude to Mr. Barry Fisher, African Cotton & Textile Industries Federation (ACTIF), who assisted in organising the visit, to Kenya, Uganda and Tanzania, and Mr. Nick Earlam, Executive Chairman, Plexus Cotton, who helped organise the visit to Uganda and Mozambique. Throughout the visit the Committee received outstanding hospitality from everybody with whom the Committee came in contact, which was deeply appreciated.

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Objective of the Visit

- To evaluate the situation of cotton growing and ginning
- To evaluate the evolution and sustainability of BIOTEC cotton
- To evaluate the production of organic cotton
- To evaluate the handling and quality improvements
- To evaluate the potential for increased production over the next years
- To evaluate the comments of the textile industry and their vision on cotton

EXECUTIVE SUMMARY AND CONCLUSIONS

TRADITIONAL COTTON

During the visit the Committee was able to judge that there is clearly a huge potential for increasing cotton production in the countries visited. A lack of technology, finance, infrastructure, and principally commercial stewardship, prevents a more efficient and productive manner of cotton production. The ginning sector in all the East African countries visited could be improved in terms of organisation, that is, excluding Mozambique.

The Committee therefore recommends that there is a concentrated focus on improving the cotton sector's performance. The main concern must be the infrastructure, such as the problem of the inefficiency of the small farms system, and the lack of independent finance from banks or governments, forcing the independent ginning facilities to competing in recovering their loans from the farmers. This results in an inefficient support to cotton production, by increasing the private sector reluctance to invest in the farmers.

In this respect the Committee appreciated the system of concessions utilised in Mozambique and recommend that this structure could be adopted in the East African countries. By agreeing the cotton price with the farmer and the authorities prior to planting, and insuring that the farmer can only deliver to the company financing the crop, inspires confidence to invest and encourage improvements in production and quality. This would be a positive approach in these countries.

In all the areas visited however the problems of small farms will continue to limit much of the potential for growth, so that studies could be made to open new areas on a large scale allowing the use of mechanisation for cost efficiency and quality production.

Given that the cotton growing conditions in these countries are good with regard to soil fertility and weather conditions, the other areas of concern are the relatively low yields and the degree of contamination, which clearly requires improvement over the next few years.

The Committee could find no fault with the intrinsic quality of the cotton seen in the fields, gins or spinning mills in Uganda, Tanzania and Mozambique. However generally speaking roller gins are gentler to the cotton fibres and therefore preferable as compared to high-speed saw gins especially for hand picked cotton.

Contamination (i.e. hair, polypropylene, etc.) is a problem. The Committee suggests that coloured, rather than white bags of polypropylene should be introduced, if cotton or hessian bags, which would be the first choice, are found to be too expensive. Coloured bags increase the chances detecting such contamination in the blow room.

BIOTEC COTTON

In this regard the Committee agreed with representatives of the cotton industry visited in the region, that sustainable rather than pure "organic" cotton production should be the way forward to guarantee both the quantity and the quality of cotton, and ensure a fair return to the grower. Though in theory organic cotton meets the requirements of sustainable production, in many of the areas visited the reduction of the corresponding yields makes it unsustainable financially. There are other methods of cultivation, which provide a return to the growers and guarantee the consumers with cotton grown in a sustainable manner. The Committee men-

tioned Better Cotton Initiative (BCI) as an example with the objective “to make global cotton production better for the people who produce it, better for the environment it grows in and better for the sector’s future” (see: www.bettercotton.org).

The Committee is of the opinion that BIOTEC Cotton, also known as Bt cotton should be included in the concept of sustainable production, as this technology is here to stay, and in fact assists in preserving the environment, as spraying of herbicides/insecticides is greatly reduced, thereby preserving the soil and the effects on workers, and achieving the aims of sustainability.

COTTON TEXTILE INDUSTRY

As far as investments in the textile industry are concerned it was noted that while such downstream investments certainly has some potential based on domestic demand, it should not distract from the primary objective to increase the quantity and improve the quality of cotton production.

Investments in updating old and new textile capacities are expensive and competition very fierce. Since the region’s textile industry is knowledgeable regarding consumer demand in their own markets, as well as neighbouring markets, concentration in these markets should be the direction to be taken.

Individual Visits

July 3, 2010

Meeting with Cotton Development Authority (CODA), Nairobi/Kenya Mr. Powon Micah Pkopus, CEO

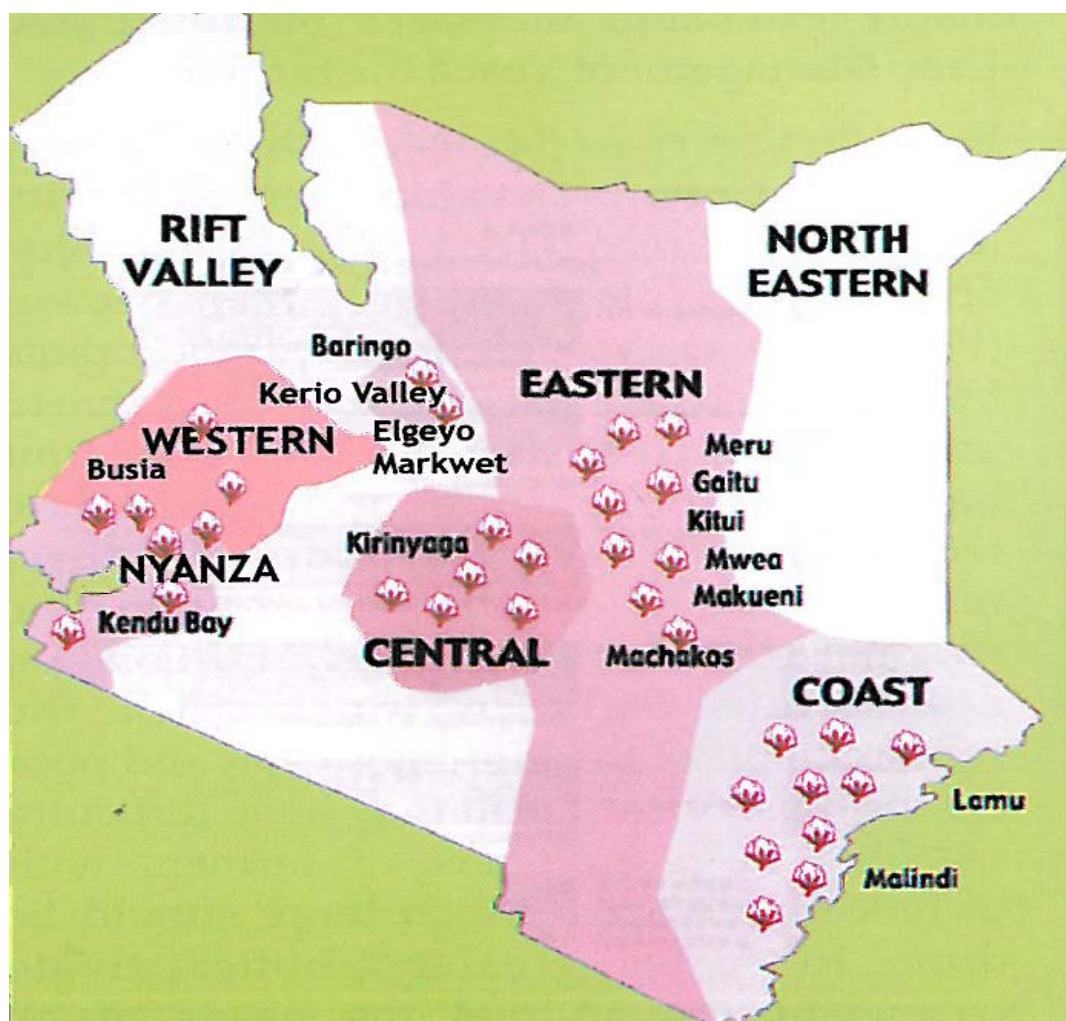
CODA is a state corporation established under the Cotton (Amendment) Act in 2007 as the successor of the Cotton Board of Kenya, which was the successor to the Cotton Lint and Seed Marketing Board established in 1955. The CODA-Board is constituted from farmers' representatives, cotton growers association, ginners association and government departments. The day to day activities are run by the management headed by the CEO and technical officers. CODA has two regional offices (Kisumu and Kitui) and six zone offices (Homa-bay, Bungoma, Kabarnet, Malindi, Garissa and Meru).

The vision of the CODA is to be the leading agent in the creation of a vibrant and sustainable cotton industry in Kenya. Therefore, CODA promotes, coordinates, monitors, regulates, and directs the cotton industry in Kenya. The core function also includes promotion of the cotton value chain and facilitation of the marketing of cotton and cotton products.

According to CODA cotton plays a very important role in the economy. There is potential to employ 10 million people, directly and indirectly, which is equivalent to one quarter of the population. Cotton is a cash crop and contributes to farmers' income and therefore food security. The production of cotton in Arid / Semi Arid Lands (ASALS) areas with 300 ml rain helps to reduce poverty in these areas. There is also a significant potential to contribute to the national vegetable oils requirements. Currently, cotton oil contributes less than 0.5% of total requirement. Whereas only about 45'000 ha is under cotton production there is potential for around 385'000 ha. The main reason for this low area is low yields. Average yields in Kenya are relatively low. In comparison to the world average of cotton lint of around 730 kg/ha in 2009/2010, the average in Kenya is around 250 kg/ha.

At the moment only rain-fed cotton production is taking place in Kenya; but there is scope for irrigated cotton production in dry areas.

There are 4 cotton growing areas in Kenya: Western, Central, Eastern and Coast



Of the 58'000 bales expected for 2010 approx. 35'000 are harvested in the Eastern region and 15'000 in the Western region whereas the remainder is harvested in the Central and Coast regions.

| Year | 2005 | 2006 | 2007 | 2008 * | 2009 * | 2010 ** | 2013 |
|--|--------|--------|--------|--------|--------|---------|---------|
| Production (bales) | 20'000 | 50'000 | 45'035 | 27'194 | 26'821 | 58'000 | 108'000 |
| * drought; ** projection Source: CODA | | | | | | | |

The average seed-cotton production reaches approx. 572 kg/ha as compared to a maximum potential of approx. 2'500 kg/ha. The national production target of CODA is set at 1'500 kg/ha by the year 2013 which is equivalent to an output of 108'00 bales (growth rate of 10%).

Currently the following issues prevent a higher cotton production in Kenya:

- Inadequate quality cotton seed
- High input costs, including labour
- Management of pests and diseases
- Inefficient marketing channels
- Flooding of market with cheap imports of cotton lint
- Over dependence on rain-fed cotton

- Inadequate management practices
- Competition from food crops as priority crops
- Lack of fertilizers
- Lack of herbicides
- Old varieties (KSA 81, developed in 1981, is grown in the Western region and HART 89M, developed in 1989 is grown in the Coastal and Central regions)

According to CODA the following areas have to be addressed:

- Improved seed cotton marketing system to motivate farmers
- Improving production efficiency at farm level
- Farmer empowerment through cotton farmer groups (economies of scales)
- Quality control and standards
- Promotion of partnerships
- Introduction of new technology (Bt cotton and new varieties).

Acquiring new varieties, characterizing, evaluating and multiplying the seed give the breeder a vast germplasm for selection of superior varieties. In Kenya this is pursued through either direct acquisition or selection from those already maintained at the National Gene Bank of Kenya (NGBK).

It is expected that drought tolerant and Bt cotton lines from other countries including India and China will be acquired within the next 2 years (by 2012). In 2004 Kenya started testing BIOTEC cotton with the single-gene insect resistant character (Bollgard I) followed by Bollgard II. The results of field tests for Bollgard II are almost completed and it might be approved for commercialisation by the respective National Biosafety Authority as of 2012.

On average the farm size is around 3 acres (= 1.2 ha). Through the promotion of partnerships and bigger farms cotton production can become more productive.

CODA informed the Committee that there are also opportunities for foreigners to invest in farm land. 2'000-3'000 acres of farm land which can be irrigated are available for lease.

With regard to cotton classification still manual and visual methods are applied in Kenya. Cotton is graded at the time of picking in the field. The pickers differentiate between clean (Grade A) and spotted, stained as well as immature cotton (Grade B). Grade A cotton receives a price fixed by the government, while Grade B cotton receives less than 50% of Grade A's price. It is estimated that approximately 10% of the cotton is graded B. Grade A and B cotton is ginned, baled and marketed separately. CODA is in the process of introducing High Volume Instrument (HVI) testing system which will allow for reliable instrument testing of cotton fibres.

With respect to ginning there are in total 23 ginneries in Kenya of which only 11 are working. The capacity utilization is only between 17-31%. Of the 325 gins only 184 are working with a capacity of 44'160 bales during 120 ginning days per year or 67'000 bales during 180 ginning days per year. With all 325 gins running during 180 days per year a capacity in total of 117'000 bales is possible.

The ginneries are equipped with roller gins from India and Turkey which are very suitable for medium staple cottons produced in Kenya as they preserve best the intrinsic values of the cotton.

But it has to be noticed that ginning productivity is relatively low with around 33% on average as opposed to 40-42% that should be possible with the two main commercial varieties (HART 89M and KSA 81M).

The challenges for the cotton industry with regard to ginning are:

- Frequent breakdowns in ginneries due to lack of spare parts
- Poor ginning practices (poor material preparation prior to ginning and missing basic components for quality control)
- Multiple VAT along the whole value chain (disincentive to domestic consumption and exports)
- High electricity costs (0.18 US Cents per Kwh) and poor energy conservation measures
- Low labour productivity due to missing skills training and inadequate calibration of machines
- High ginning costs and low quality lint
- No diversification (i.e. seed mills due to missing funds)
- Low capacities utilization
- Lack of finance to purchase seed cotton from farmers and pay them on time.

Areas of intervention in ginning:

- Incentives or appropriate long term credit schemes for efficient ginnery technology acquisition by investors
- Revolving fund to support development of contract farming and credit for timely purchase of seed cotton
- Encourage ginners to apply efficient energy solutions
- Upgrading of skills for ginnery operators
- Quality evaluation systems to support lint quality control at ginneries and marketing of lint
- Strengthening the ginning sector association: Kenya Cotton Ginning Association (KCGA)
- Increasing production and improving capacity utilization

There are 6 textile mills in Kenya spinning and weaving cotton lint, but the average capacity utilization is estimated at less than 50%.

Areas of intervention in textile production

- Increased supply of local cotton lint, yarns and fabrics
- Consistency in the supply of local lint, yarns and fabrics
- Incentives for investments
- Reduction of production costs
- Restrictions of imports
- Promotion of locally produced textiles and garments
- Skill development (fashion, design, clothing)
- Reduction of energy costs

General Remark: there is a lack of sufficient technology for competitive products. Domestic demand exists but is often not met by domestic producers.

July 4, 2010**Meeting with the Cotton Development Organisation (CDO), Kampala/Uganda
Mrs. Jolly Sabune, Managing Director**

The Cotton Development Organization (CDO) was established in 1994 by an Act of Parliament. It has the responsibility to monitor the production, processing, and marketing of cotton so as to enhance the quality of lint exported and locally sold, to promote the distribution of high quality cotton seed and generally to facilitate the development of the cotton industry.

In 2009 a severe drought and more attractive alternative crops were responsible for a loss of 70% of the expected cotton crop. As a consequence only 70'000 bales were produced.

The average farm size reaches 1-5 acres. The cotton farmers receive the certified seeds for free from the government. For the following year the seeds have been distributed and the weather forecasts are promising.

There are two main cotton growing areas in Uganda on an altitude of about 1'000 meters with temperatures in the range from 15-26° Celsius. In the North and East planting takes place between May and July, while in the South and West the planting season is between August and September.

Only one cotton variety is used for all cotton growing areas. Cotton in Uganda is 100% hand-picked and almost 100% roller-ginned. Maize is one of the main intercrop of cotton farmers.

The potential for cotton growing is around 60'000 acres, though currently only 30'000 acres are planted. A maximum seed-cotton yield of 2'000 kg/acre or 5'000 kg/ha is possible whereas the average is only around 400 kg/acre. The lint ratio is 35%. The all time high was 250'000 bales. In 2010/2011 approx. 200'000 bales were expected.

The Western part of the country is very suitable for cotton growing as it consists of volcanic soil and the farmers apply more advanced farming practices. Also the North has a very good potential for cotton growing.

There is the potential problem of wasted seeds because farmers might decide not to plant cotton due to various reasons like more attractive alternative crops, low cotton prices, etc.

The North of Uganda is suitable for organic cotton production as it was not cultivated during the years of the civil war. In 2006 approximately 3'000 farmers started growing organic cotton in the North.

Cotton is an important crop for economic and social reasons:

- It provides employment at all levels along the cotton and textile value chain from farming, ginning, textile, and garment production.
- Cotton is a cash crop needed for the people living in rural areas.
- Cotton is an ideal crop to rotate with crops such as millet, sesame, groundnuts or peas.
- Cotton provides the raw material for the textile and garment industry, for the edible oil industry or the seedcake for the livestock.

Therefore, cotton production in general is promoted by CDO in Uganda.

With respect to organic cotton, as it is the main objective of the CDO to protect the farmers from losses, in the case of large scale planting there is concern as regards the low yields as compared to conventional cotton production. According to research conducted by CDO on organic cotton yields are lower and are not compensated for by higher prices (premiums). Yields are approximately 20% lower whilst the premium is only 5-10%. In summary, according to CDO organic cotton production does not make sense on a large scale in Uganda.

BIOTEC Cotton

CDO is currently in testing BIOTEC cotton over a period of 3 years and is currently in the second year. Two varieties are under review for herbicide tolerance and boll worm, and the genes have been introduced in a local variety. As such the successful Indian Bt cotton has not been authorised yet, but is expected to be released next year if testing is completed successfully.

CDO is of the opinion that the situation in Uganda with regard to introducing BIOTEC cotton can be compared to India prior to the introduction of the Bt cotton trait.

CDO shares the opinion that BIOTEC cotton should be regarded as organic if spraying becomes obsolete. Rather than organic cotton production the objective should be sustainable cotton production. In their opinion the concept of BCI is the right way forward.

Quality of Cotton

High Volume Instrument (HVI) testing is regularly conducted on Uganda cotton. The main findings are:

| Property | Mean |
|----------------------------------|-------------|
| Spinning Consistency Index (SCI) | 62 |
| Micronaire | 4.0 |
| Strength (g/tex) | 30 |
| Length (mm) | 29 |
| Uniformity (%) | 85 |
| Short Fiber Index (SFI) | 4.5 |
| Elongation | 5.0 |
| Color Grade (CG) | 31-1 |
| Rd | 75 |
| +b | 7.5 |
| Maturity (%) | 85 |

At the laboratories of the South Indian Textile Research Association (SITRA) in Coimbatore spinning trials were conducted on the spinning potential of Uganda cotton. 4 cotton samples from the Northern, West Nile, Eastern and Kazinga regions were tested for their spinning potential. The results were as follows:

| Sample | 2.5% Span Length (mm) | Micronaire Value | Trash (%) | Spun Yarn Counts |
|---------------|------------------------------|-------------------------|------------------|-------------------------|
| Northern | 29.24 | 4.01 | 2.2 | 44s & 50s |
| West Nile | 29.24 | 4.12 | 2.0 | 44s & 50s |
| Eastern | 29.76 | 4.04 | 1.5 | 44s & 50s |
| Kazinga | 30.15 | 3.85 | 2.0 | 44s, 50s & 60s |

July 4, 2010

Meeting with Plexus, Uganda Mr. Stuart MacCullam

Cotton production began in 1903 and reached a peak in 1974 (400'000 bales = 76'000 tons). The fibre quality in Uganda is very good and the bulk of the cotton is exported.

In 1994 organic cotton production began. Farmers are small scale farmers averaging a field of 0.4 ha. The numbers of farmers vary depending on the seed cotton price of the preceding year.

All ginners in Uganda are required to join the respective association. In Uganda many ginners do not look at the international cotton prices when fixing prices.

There are only a few textile mills in Uganda consuming a small percentage of total cotton production. The main reason for this is cheap imports of fabrics.

Organic Cotton

As a result of low usage of artificial agrochemicals and prohibitive high costs of artificial fertilisers Uganda was ideal for organic cotton production.

A large part of the area in Uganda became organic by default and predator insect populations (i.e. Lady Bird Lava eats many white flies (aphis)) were able to recover and grow in numbers. Many indigenous pest remedies are freely available and are effective. Organic production encourages the improvement of soil fertility and conservation. Plants have to be cut down in order to prevent pest breeding. A popular intercrop is beans. In Uganda small scale irrigation is possible, if this was pursued.

Organic production allows ginners to offer higher seed cotton prices to farmers. Unlike the market for conventional cotton the organic cotton lint market tends to be a more stable market.

Currently there are three organic cotton projects operating in Uganda:

| | |
|----------------------|--------------------|
| Lira district | NBCC 6'000 farmers |
| Gulu district | CCIU 3'500 farmers |
| Amru/Nwoya districts | GADC 4'000 farmers |

Organic Program

1. Internal Control System (ICS)
2. Management Structure

3. Farmer Registration

- Field history data collection
- Mapping of gardens and villages
- Farmer contracts: This means that the company provides training and support and to buy the cotton at a favourable price. In return the farmer follows the rules of the program and sells the seed cotton to the company.

4. Training

- Fundamentals on organic production
- Mapping and collection of field history data
- Organic techniques
- Internal inspection procedures
- Estimation of yields
- Harvesting and storage – Quality Control

5. Pest Management and Fertilisation

- Pest control remedies (i.e. animal urine, chillies, ash, cow dung and extracts from a number of local herbs)
- Fertilisation (i.e. liquid manure, composting, foliar application of herb extracts, green manure, etc.)
- Preparation of pesticides and fertilizers
- Equipment



6. Inspection of organic gardens

- Every field is inspected to ensure that it adheres to the international standards Farmers that do not comply are disqualified.

7. Yield estimation

- The potential yield of each organic farmer is estimated in order to prevent conventional cotton from being sold by farmers as organic cotton.

8. Buying network

- Buying stores are set up
- Storekeepers are trained in quality control
- Stores are inspected to ensure they meet quality standards
- Seed cotton is packed into hessian bags
- Seed cotton is transported to ginnery in inspected trucks

9. External Inspection by Control Union

- Seed cotton stores and ginning hall quality inspections are carried out
- Ginning equipment is inspected prior to use
- Extra care is taken to remove contaminants prior to ginning

Organic cotton has to be managed in small areas in order to control/manage the production properly.

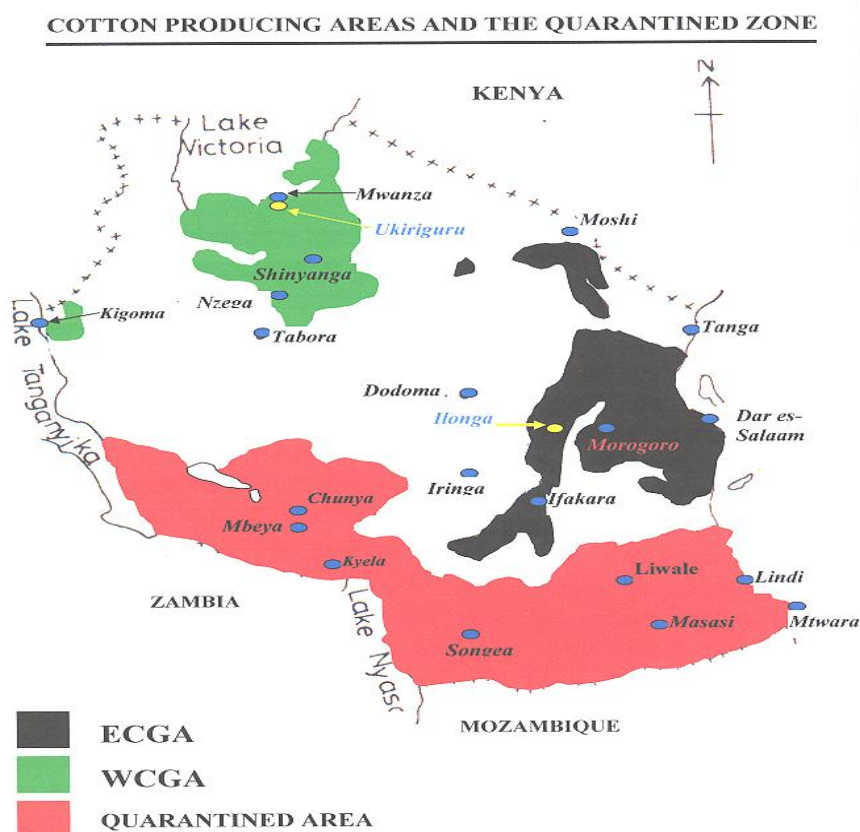
Conclusion

The Northern parts of Uganda are well suited for organic cotton production. The intensive control and training network ensures the cotton produced is of a very high standard.

July 5, 2010

**Meeting with Tanzania Cotton Board (TCB), Tanzania Cotton Association (TCA) and Tanzania Cotton Growers Association (TACOGA), Mwanza/Tanzania
Mr. Marco Mtunga, Executive Director**

Approximately 40% of the population of 38 million people in Tanzania are directly or indirectly dependent from cotton. Cotton is grown in 46 of 121 districts, in 13 of 21 regions by an estimated 350'000 to 500'000 small-scale farmers. The farm size ranges from 0.5 ha to 5.0 ha. The crop is 100% rain-fed.



During 2004/05 and 2005/06 financial years, cotton was the first foreign exchange earner among agricultural commodities. Sustainable cotton production therefore has the potential to significantly contribute to poverty alleviation as well as socio-economic development in the country.

The area put under cotton per annum fluctuates between 400'000 and 450'000 ha mainly in relation to farm gate prices paid the preceding season, weather pattern and profitability compared to competing crops.

The implementation of the Commodity Liberalization Policy in 1993 stifled cotton production as service delivery to farmers was left to a non-existent private sector. As a result cotton production dropped to 196'000 bales in 1999/2000.

Cotton production reached its peak during 2005/06 when 700'000 bales or 130'000 tons of cotton lint were produced. 90% of total cotton production is produced in the West and only 10% in the East. In the South of the country there is a quarantine area protecting Tanzania's cotton areas from pests.

Planting in the WCGA is carried out between November and December and in the ECGA between February and March. Picking takes place in the WCGA between May and July and in the ECGA between September and November. Ginning follows in the WCGA between July and February and in ECGA between September and January. The first part of the crop can be available as early as July.

Following liberalization of the cotton industry, the sub-sector has made remarkable achievements in the marketing of cotton:

- The number of actors has increased from 10 in 1993/94 to above 40 at present.
- Farmers on average are being paid above 60% of the world market and payments are effected promptly.
- The ginning efficiency has increased. Number of ginneries has increased from 36 in 1993/94 to 77 at present, although not all of them are operational.
- Exports are VAT zero rated.
- Effective since the 2006/07 marketing season all cotton buying, ginning and export licences are issued free of charge.

Cotton contamination has not disappeared but remains a serious issue.

Over 70% of the crop is exported. The major export markets include China, Indonesia, Thailand, India, Bangladesh, Vietnam and Kenya.

By 1980 Tanzania had up to 50 spinning mills most of which were state owned. To date there are 21 privately owned mills which consume about 30% of Tanzania's lint and employ up to 50'000 people. There are currently 12 spinning mills, 11 weaving mills, 4 knitting mills, 11 KKK (local gowns) manufacturers, 3 nets producers, 5 garments manufacturers.

Local cotton consumption remains limited due to

- old technology of the mills
- uncompetitive cost of production due to high utility costs
- competition from second hand clothing
- dumping and unfair trade practices
- failure to utilize preferential trade agreements/incentives offered by EPZA.

Tanzanian Cotton

Tanzania's cotton is within the medium staple length range of between $1\frac{1}{16}$ " and $1\frac{1}{8}$ ". It is hand-picked and over 70% grade is middling and above. More than 50% is roller-ginned with low nep and short-fibre content. Foreign matter contamination is seriously being pursued. Over 95% is within the prime micronaire range of 3.5 - 4.9. The cotton has a high uniformity ratio of 81 - 85%. The fibre strength ranges between 25 and 29 gms/tex, HVI testing services are available. The new crop is available as early as July.

Future

The industry is gearing towards rolling out “contract farming” during the 2011/12 farming season. Contract farming means that farmers and ginners are partners. On the one hand ginners are providing input and services to the farmers; on the other hand farmers are selling the entire cotton crop to the respective ginner. Results from the pilot project indicate that contamination will be reduced significantly once contract farming is adopted. Yields should go up and the goal of producing 1.5 million bales by 2014/15 should be realized.

Discussion

During the discussions it became evident that the middle-men do not pay attention to the importance of eliminating contamination in the cotton. Yields are low with seed cotton producing on average 300 kg/acre. Bt cotton could contribute increasing yield, but there is no timetable yet for its introduction. Finally the premium for organic cotton is insufficient and does not compensate for lower yield.

July 6, 2010**Meeting with BioRe Tanzania Limited in Metau
Mr. Niranjan Pattni, Managing Director**

The Committee travelled to visit this special project created with international finance.

On a five year average the farmers participating at the BioRe project in Metau receive a premium of 15% for their seed cotton. In addition they receive 4-5% of their turnover as credit in order to be able to purchase the input for the following year. The yield is about the same for both conventional and organic cotton. In a good season since the organic fields receive additional attention, the yield of the organic cotton can even be higher.

It was disappointing to note that there is no specific selection of seeds. The cotton seeds from the previous crop are used in the following year, despite the deterioration of the seed's quality.

The soil structure appeared to be good, and there is some research on farming methods and soil quality being carried out.

Any farmer can join the project, but only if the land has been left fallow for a period of time, otherwise they have to wait for a certain transition period.

The yield of the organic seed cotton production is on average approximately 300 kg/ acre. The maximum is approx. 600 kg/acre as compared to 1'200 kg/acre in conventional cotton production though only very few producers of conventional reach the maximum.

The farmers appreciate the premium as well as the service/support, though there are of course also farmers who find it too tedious to participate in the project.

The ginning is commissioned.

Some cotton is sold to textile mills in Japan and cotton merchants but the majority is sold to textile mills in Tanzania.

| | |
|----------|---------------------------|
| 2008/09: | 7'980 tons of seed cotton |
| 2009/10: | 4'120 tons of seed cotton |
| 2010/11: | 6'812 tons of seed cotton |

July 6, 2010

Visit of a BioRe Cotton Field



The fields visited by the Committee were already fully harvested or just completing the harvest, so there was no cotton visible on the plants, which for the sparse terrain were taller than had been seen in other areas, which showed the “special” treatment the crop had received and explained the above average yields in this model project.

The visual appreciation of the cotton was excellent and the project organisers can be congratulated with the success so far obtained.

On average the farmer owns 80 acres of which 10-15 acres are cultivated with cotton and rotated with other crops every three year.

Farmers are clearly willing to learn and improve their farming practices.

July 6, 2011

Visit of a Ginnery in Shinyanga/Tanzania



The Committee visited two gins in the in the Shintanga District.

The first consisted of 28 standard roller gins. They appeared well maintained but with an overhead manual (feet) loading system leaving much to be desired.

The ginnery buys the seed cotton from farmers and sells the cotton lint to international merchants (FOB). On average the quality produced is between type 1 and type 2. The 5% samples are sent to the merchants for approval.

There were some signs of the message regarding contaminated cotton since a premium of 10 cents/pound was being offered for contamination free cotton.

The ginneries run for a period of 6 months.

July 6, 2010

Visit of a Ginnery and Oil Mill (Jambo Group of Companies) in Shinyanga/Tanzania



This ginnery consisted of 6 saw gin stands, with a production of 27'000 bales/year.

The Committee noticed that the gins are second hand Continentals imported from the USA. The price paid for saw ginned cotton is generally inferior to the roller-ginned cotton, and is graded type 2.

The seeds are crushed at an adjacent factory and the oil sold domestically while the cake is exported to Kenya or Uganda.

July 8, 2010

Meeting at the Cotton Institute of Mozambique (Capo Delgado) and at Plexus (Mozambique) in Capo Delgado



History

The concession contract system in Mozambique is unique in that the law requires the ginner to supply cotton seeds gratis and make available inputs (Art.3) such as agrochemicals, application equipment as well as sacks for collection. Furthermore the ginner is obliged to purchase all the seed cotton for sale produced in the concession area from farmers (Class I and II).

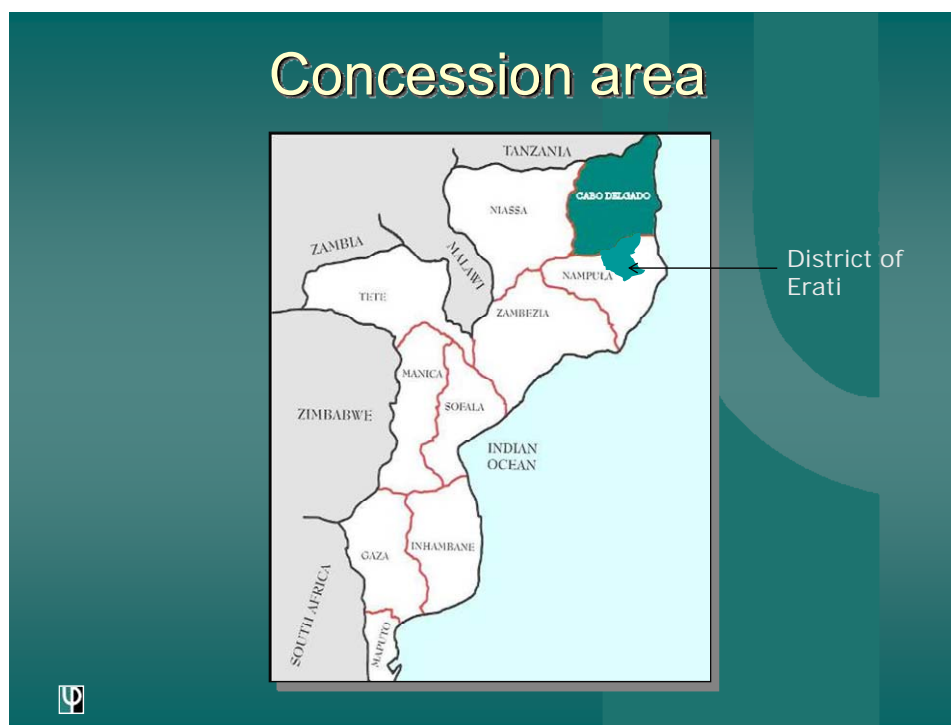
The Committee was received and guided during the visit by Plexus Mozambique Ltda (PML) and again extends its gratitude to Mr. Nick Earlam for having organised this visit.

In 2002 Plexus Mozambique Lda (PML) was created as a joint venture between Plexus Cotton and Caravel Developments.

In 2003 PML acquired the concession and operating equipment in Montepuez.

In 2006 PML acquired the concessions in Chiure and Erati & the Namapa ginning facility.

PML has exclusive rights for the concession of the province of Cabo Delgado & the district of Erati (Nampula).



Impact of the Population of Cabo Delgado

The crop is produced by 60'000 farmers and has a social and economic impact over 300'000 people in the province of Cabo Delgado and in Erati.

PML employs 320 people permanently in Cabo Delgado including 4 expatriates – and around an additional 700 during the season, all Mozambique nationals. The annual employment costs reach \$2 million. As such certainly Plexus contributes significantly to improve the quality of life of the rural population.

Seed Variety Purification and Multiplication

Seed variety CA324 developed in Cabo Delgado from a West African variety, giving a gin out-turn of between 40% and 42.5%.

Now there are signs that through cross breeding this variety has lost and gained different characteristics which in some cases has led to a reduction of yield and germination problems unfavourable planting conditions.

To deal with this, Plexus has started seed multiplication. A seed breeder has been contracted to manage each plant in this field to choose the best plants given the CA324 characteristics and optimise future production and quality.

Production Systems

Family Sector

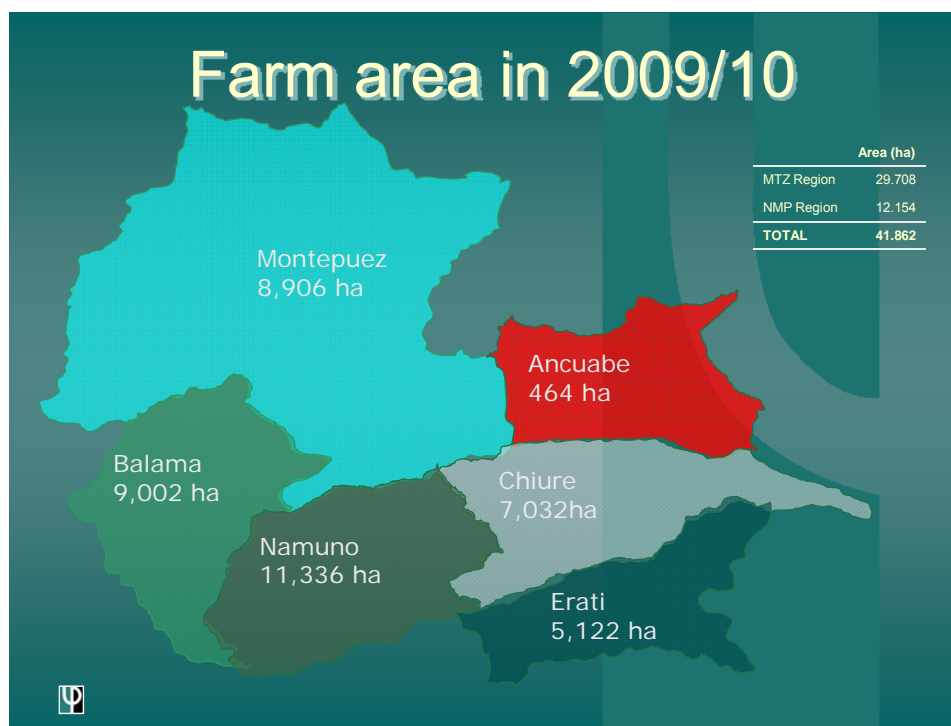
The family sector is made up of single private farmers who grow anything from half a hectare to 5 hectares. Traditionally they are a family unit although they may use hired help and need financial assistance during the season.

Associations

Associations are based on the co-op system. All ginning/trading company inputs are provided to the association, and not directly to the farmer as in the family sector. The benefit to the company is the limited extension work with maximum results. The associations receive a 9% premium for their seed cotton.

Private Farmers

These are single farmers, as in the family sector, with an area greater than 5 hectares. The largest private farmer has 60 hectares. The private farmers do receive significant support from the company and - on average - produce an excellent yield of 1'000 kg/ha.



Yields

Yields are a balance of various factors and so can vary from 200 kg – 1'500 kg being impacted by:

- Plant spacing 80x20 poor / 90x30 good soils
- Soil fertility (crop rotation, acidity)
- Rainfall/sunshine, dry land farming requires frequent short showers with sunny periods over full life cycle.
- Plant thinning

- Weeding
- Pesticide spray program
- Cross cropping (plant competition for nutrients and loss of plant population)

Production

The Plexus ginning complex has a capacity of 46'000 tons. The current lower production has been caused by alternative crop competition and cotton prices that made alternative crops more attractive. Opportunities will be in the form of higher cotton prices, and/or lower crop competition prices.

Input to Farmers

The concession contract requires Plexus to supply cotton seeds, inputs such as agrochemicals, application equipment and bags for the harvesting. In return for the concession Plexus must purchase all seed cotton for sale produced in the concession area.

The concession contract also stipulates that Plexus should supply cash advances for picking and weeding, tractors, transport and other assistance when the company benefits directly from it.

Plexus' operational plan is the following:

- Treated seeds are distributed between October and November to the "chefes do produção (Chefs of Production)" who will supply farmers with seeds and will keep records of who receives them. Treated seeds protect against pests for 6 weeks (equivalent to 2 sprays for untreated seed).
- After the first rains, herbicides are distributed to farmers who want to use them (herbicides, have significantly increased yields, well above the additional cost to the farmers).
- After another 12 weeks (between January and April) the company has a 5 spray program. Each spray will counteract different types of pests.
- Recovery of the cost of chemical distribution is around 80%, the major risk being low yields or abandonment.

Commercialization

This starts in June and finishes in October. The basic company plan is to purchase about 300 tons per day, using 17 buying brigades (5 in a team) and a fleet of 15 trucks with trailers to transport the seed cotton.

They utilize private transporters to ensure the daily collection targets are met.

During the Committee's visit the cotton price paid to farmer was 8.1 MZN/kg. This is paid in cash immediately on receipt of cotton less cost of chemicals and other advances.

Ginning Factories

The combined equipment at the factories in Montepuez and Namapa consist of five continental gins with capacity to produce 95 tons of lint fibre and 135 tons of seed per day. The factories are powered by mainline electricity.



There is significant capacity for warehousing seed cotton with over 10'000 tons which is only required if the crop is significantly larger than normal.

Transport

After ginning the seed cotton, the lint bales and seed are packed into containers and transported direct to Pemba Port.

230 tons of lint and seed have to be transported to Pemba daily. For the transport the company has 12 lorries with trailers. Private transporters are used also if necessary.

Exports of Lint and Seed

Plexus Mozambique exports nearly all of its production through the Port of Pemba.

For the 2009/10 season around 18'000 tons of lint and seed were exported.

Plexus Cotton Limited purchases were predominant sold to the textile mills in Asia, whilst the majority of seed was sold to South Africa, Italy and Madagascar in 2009.

| <u>Cotton 2009</u> | <u>Percentage</u> |
|--------------------|-------------------|
| Indonesia | 64% |
| Thailand | 25% |
| Japan | 4% |
| China | 4% |
| Korea | 3% |
| TOTAL | 100% |

Exports generated revenues of \$11m in 2009 (record 2008: \$21m)

Setting of Seed Cotton Price

Cotton is the most regulated agricultural commodity in Mozambique.

Cotton has its own governing body, being a branch of the Ministry of Agriculture called “Instituto do Algodão de Moçambique (Cotton Institute of Mozambique)”, which has powers to:

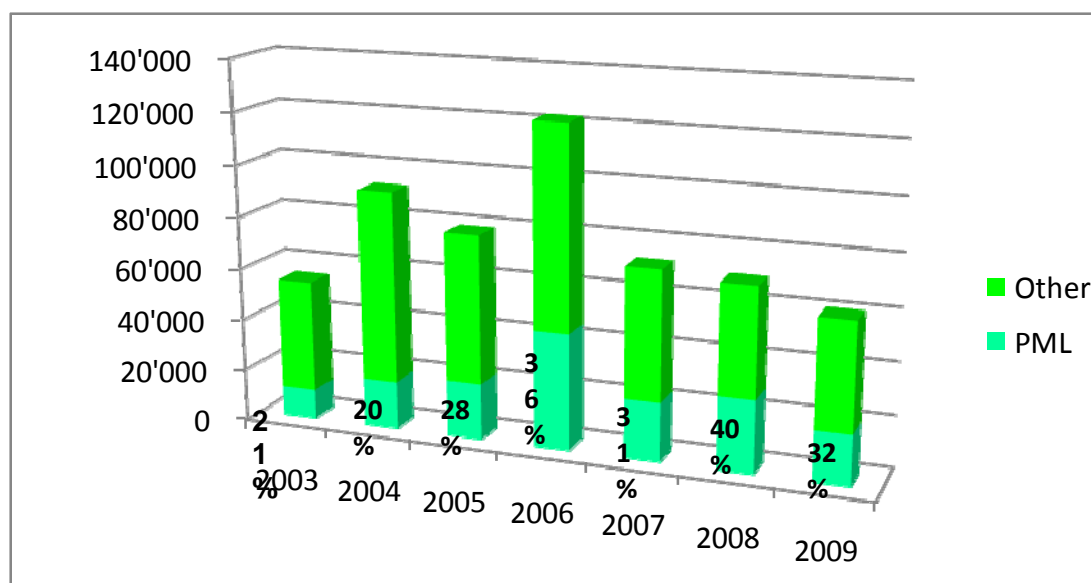
- approve concession areas, and ensure that the rules are being followed
- regulate the price that cotton fibre can be export from the country
- mediate the setting of the price of seed cotton.

Although the seed cotton price for the campaign is subject to agreement between the concessionaires and the farmers, a formula has been agreed upon to help.

The formula is designed so that the farmers will receive between 50% and 55% of the revenues generated from the lint and seed.

The selling price of lint is known by all parties as the Market Price of lint is based upon the Cotlook ‘A’ Index published daily and all selling contracts require approval from the IAM prior to export.

National Seed Cotton Production



Future Plans and Investments

- Increase of the area under production to 100'000 hectares with 110'000 farmers.
- Increase the utilization of herbicides for the farmers diminishing the costs compared to weeding manually.
- Test new varieties of seeds to increase yields and to better protect against pests.
- Provide training and inputs for demonstration plots at local schools for education and school funding purposes.
- Build a seed crushing plant.

July 8, 2010**Visit of a Cotton Collection Yard and of a Cotton Field**

The Committee visited a cotton field and a market yard of a small remote village, where the hand-picked seed-cotton is brought in by the farmers and their families, weighted, graded and then transported to the ginnery before the cotton lint is transported to the sea-ports.



A woman on a small field hand-picking the seed-cotton.



The seed-cotton is piled on a field before being packed into jute bags.



The seed-cotton is carried in jute bags by the farmer and their family to the market yard.



The seed-cotton is weighted publicly and signed off by the farmer.



There are two grades (A and B) of which about 80-90% of the seed-cotton is graded A (white) and 10-20% B (spotted).



After weighing the seed-cotton the farmer gets paid in cash by Plexus under the supervision of a government official. The price for the seed-cotton had been negotiated between the farmers, the government and Plexus.



The seed-cotton is then transported on bumpy roads to the ginnery.



Plexus gins the seed-cotton with saw-gins at low speed which preserves the good properties of the fibre.

Conclusion

The Committee was extremely satisfied with the information and in-sights received during the entire trip in East Africa and Mozambique, and must repeat the conclusions contained in the executive summary that there is very substantial potential to increase production in these countries and bring more prosperity to the people of their countries. They need to be able to breakout of the traditional mode, which continues to hold them back in this modern and expanding world, where the demand for cotton will continue to grow.