

The Cotton Sector Of Cameroon

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Abstract

This country study is a background paper prepared for the comparative analysis of organization and performance of cotton sectors in Sub-Saharan Africa, a study carried out by the World Bank, with the objective of analyzing the links between sector structure and observed performance outcomes and thus draw lessons from reform experience that can provide useful guidance to policy-makers, other local stakeholders, and interested donors agencies.. It describes and reviews the cotton sector situation in Cameroon, a country where no major structural reform was undertaken during the last decade in the sector; it is still dominated by a vertically integrated parastatal cotton company, Sodecoton, who has a monopoly/monopsony position for input supply and marketing of seed cotton.

Despite the fact that the cotton sector suffers from several geographic and climatic challenges, as well as an overpopulated and overworked growing area, the sector has performed relatively well, compared

to other West and Central African cotton sectors, in terms of cost efficiency, financial management, lint quality and technical performance in general. This success can be partly explained by the strong managerial capacities of the cotton company, the good co-operation between the cotton company and the farmer organization, and the ability of the cotton company to avoid political interference, thanks to the distance of the cotton area from the capital city, and finally the fact that it integrates cotton seed processing activities. As for other cotton sectors in the CFA zone, the future of the sector is however endangered by the declining trend of cotton prices in local currency, which calls for more cost effective soil management techniques than massive fertilizer usage. The privatization of the cotton company, currently considered by Government, will have to be carefully managed, in order to preserve the efficient support to rural development that it has been providing in the cotton growing areas.

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**COMPARATIVE ANALYSIS OF ORGANIZATION
AND PERFORMANCE OF AFRICAN COTTON SECTORS**



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Paper prepared for the World Bank by

Nicolas Gergely

March 2009

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Abbreviations

AFD	Agence Française de Développement
CFDT	Compagnie Française de Développement des Fibres Textiles
CICAM	Cotonnière Industrielle du Cameroun
CMDT	Compagnie Malienne pour le Développement des Fibres Textiles
COPACO	Compagnie cotonnière (subsidiary of DAGRIS)
DAGRIS	Développement des Agro-industries du Sud
FCFA	Franc de la Communauté Financière Africaine
FOB	Free On Board
GoC	Government of Cameroon
IRAD	Institut de Recherche Agronomique et du Développement
ONCPB	Office National Camerounais des Produits de Base
OPCC	Organisation des Producteurs de Coton du Cameroun
SODECOTON	Société de Développement du Coton du Cameroun
SMIC	Société Mobilière d'Investissements du Cameroun
WCA	West and Central Africa

Executive Summary

While the cotton sector of Cameroon represents nearly a quarter of the country's agricultural exports, the sector accounts for a mere six percent of total export earnings. Cotton is not a major contributor to the Cameroon economy, but it is the major cash crop for the North and Extreme North provinces. Cotton is also vital to rural livelihoods and has been since the parastatal SODECOTON was founded in 1974 with a mandate to purchase all seed cotton grown in Cameroon at a fixed price. This gave SODECOTON a monopoly on both seed cotton purchasing and processing. The government currently retains 59 percent of the shares of the company, while DAGRIS has 30 percent and a local investor 11 percent. According to farmer surveys, more than 90 percent of farmers in the cotton belt grow cotton.

Production of seed cotton increased considerably from 20 000 MT in 1974 (at the creation of SODECOTON) to a peak of 300 000 Mt in 2004, and declined since then (to less than 220 000 MT), due to a reduction in the producer price, which makes cotton less attractive to producers. The yields, which were among the highest in WCA (1400 kg of seed cotton/ha), have remained stagnant or even decreasing since the mid 80s, probably due to declining soil fertility and sub-optimal fertilization.

The cotton sector suffers from several geographic and climactic challenges, as well as an overpopulated and overworked growing area. The Northern part of the country is essentially isolated from all major transport routes adding cost and time delays to cotton. Soil conditions continue to decline due to increasing cultivation and an inappropriate land tenure system.

The number of cotton farmers increased with production, and the average area cultivated per farmer remains very small compared to the other African producers, around .67 hectare per farmer. Given the small farm size and current levels of prices for seed cotton and inputs, cotton does not provide enough income for the smaller farmers to maintain them above poverty level, but it has undoubtedly contributed to the limiting of massive emigration from the Northern regions to the central and southern cities.

Though the cotton sector of Cameroon has not undergone serious reform in the last 20 years, it is unlikely that reopening the failed privatization process will significantly improve the livelihoods of rural cotton farmers, who are feeling pressure from the falling price of cotton globally and the appreciation of the CFA Franc against the dollar—as is the case in all FCFA-zone cotton-producing countries. The combined effect of both factors is now contributing to SODECOTON's present dilemma: lacking the cash reserves to maintain producer prices, production levels are expected to plummet. In the past, while production levels remained relatively high, SODECOTON was able to offset ten straight years of profit losses through the sale of oil and cakes; however, expected production levels are raising concern.

While not especially profitable, SODECOTON has managed to avoid major government intervention despite rebuffing calls from the IMF and World Bank to privatize the company. Reasons for this vary but include comprehensive and relatively efficient extension services, functional independence from GoC, and a strong management system whose geographic distance helps them resist political intervention. Additionally, SODECOTON's financial management is sound, which is more than can be said for most other parastatals, and further decreases any reason for political tampering. Despite comparative disadvantage due to the

landlocked situation of the cotton belt, SODECOTON compares favorably to other parastatals in terms of cost efficiency. It also managed to significantly improve the lint quality in recent years. The sector organization is characterized by a good cooperation between SODECOTON and the Farmers Association, which is sharing with SODECOTON the provision of extension services, decision on seed cotton prices and procurement of inputs.

Sustainability of the cotton sector will depend on an adjustment of producer prices in accord with world lint prices. Effective soil fertility management techniques, like the use of organic manure, coupled with diversification into sunflower or soya beans, may alleviate the resultant increase in poverty. However, the main issue raised by the Cameroon model is the high cost of inputs, which are unsustainable at current cotton prices. It is therefore essential to improve soil management techniques and the need for fertilizers.

The future of the cotton industry will depend to a large extent on the privatization of SODECOTON, which must be managed thoughtfully and with the interests of rural cotton producers in mind. It is therefore critical that professional investors be chosen following a consultative process involving producer associations and that the need to maintain an efficient rural development support and extension system in the cotton belt be fully taken into account.

1 INTRODUCTION

The cotton sector of Cameroon

The cotton sector of Cameroon is unique among its West and Central African peers in that no major structural reforms have been implemented over the last 20 years. SODECOTON, the national cotton company, remains under the control of the Government of Cameroon's (GoC). It has nevertheless expanded its operations and is able to operate without external support, in spite of the strong appreciation of its currency (the CFA Franc) against the US dollar in recent years. However, the company's suppliers continue to operate under difficult conditions, one of the major constraints being that the cotton growing area in the North is landlocked. Land pressure is also very high. As a result, farmers' holdings are small (incurring high extension costs) and chronic soil fertility problems only limit production.

Cameroon's vertically integrated cotton conglomerate performs a wide range of activities related to cotton ginning, notably cotton oil production. While virtually every other cotton company in Western and Central Africa has abandoned direct oil production, SODECOTON still compensates to some extent for its losses in cotton lint sales with profits by the sale of oil and cakes.

Despite strong sales over the past decade and a prudent pricing policy, the sustainability of the cotton sector is presently threatened by the combined effects of low prices and the appreciation of the local currency. SODECOTON is now facing a difficult dilemma: without cash reserves to maintain producer prices at their current level, the company fears that production levels will drop drastically.

Importance of cotton in the economy

Representing only six percent of total exports in 2005, (22 percent of agricultural exports), cotton does not play a prominent role in the national economy. It is however the only cash crop cultivated on a large scale in the Northern part of the country and is vital to the rural livelihoods, social well-being and political stability in this poor, landlocked region.

2 HISTORICAL BACKGROUND AND REFORM PROCESS

2.1. Historical background of the cotton sector

Cotton production began in Cameroon in the early 1950s, at the end of the colonial era. It was under the control of CFDT, a French parastatal which was created a decade earlier to supply the French textile industry with fiber.

In 1974, a decade after independence, SODECOTON was created as a mixed-economy company (*société anonyme d'économie mixte*), with the majority of capital belonging to the Government and a minority to CFDT (later renamed as DAGRIS). The company was granted a monopoly for developing cotton in the Northern part of Cameroon, purchasing seed cotton from farmers, as well as processing and marketing lint cotton. In return, the company assumed an obligation to buy all seed cotton produced anywhere in Cameroon at a fixed price.

Similar to CMDT in Mali, SODECOTON's mandate was not restricted to cotton, and included a more general rural development mandate as well.

Immediately after its creation SODECOTON intensified the country's cotton production, which was fully extensive up to that time, without any fertilizer application. From 1974 until 1988, GoC and SODECOTON supported production through public investment initiatives, input subsidies, and favorable producer prices. This policy successfully expanded cotton production but resulted in huge deficits for SODECOTON (more than 60 billion FCFA of cumulative deficit,) which threatened the very existence of the company. In 1987, the *Office National Camerounais des Produits de Base* (ONPCB), a parastatal in charge of financing subsidies to the agricultural export sectors, went bankrupt after posting more than 20 billion FCFA in losses in 1986. With the assistance of donors (in particular *Agence Française de Développement - AFD*) SODECOTON and GoC, agreed upon a safeguard strategy in 1988. The strategy included an adjustment of the producer prices, an increase in prices for agricultural inputs, the development of a research program devoted to reducing production costs, and a drastic reduction in the extension costs borne by SODECOTON.

2.2. Pre-reform institutional set-up

For the purposes of this paper, the pre-reform period will correspond to the time before the safeguard strategy was set up and the sector reorganized along the lines described in the following paragraph. The pre-reform period encompasses most of the 1980s.

During the pre-reform period, overall management responsibility of the cotton sector fell upon GoC under the auspices of SODECOTON: input subsidies financed production, and SODECOTON's extension staff rigorously monitored farm activities. The company also extended credit to farmers for input purchases that was payable at the sale of the farmer's seed cotton. Marketing of seed cotton was fully organized by SODECOTON at a country-wide uniform price, though COPACO (a subsidiary of DAGRIS, which specialized in trading) assisted in the marketing of lint cotton. SODECOTON even ran its own cotton seed oil processing plant.

2.3. Past institutional and organizational changes

Granting of management autonomy to SODECOTON

In 1988 the GoC and SODECOTON signed the safeguard strategy performance contract by which management responsibility for the cotton sector transferred to SODECOTON while GoC retained a monitoring role as the company's dominant shareholder. By the early 1990s, SODECOTON was setting the national producer prices for seed cotton and inputs, and assumed the potential risk associated with poor central pricing. SODECOTON also began to distribute bonuses to producers after profitable seasons.

Building up producers associations

The sector's main institutional and organizational change over the past decade has been the rise of producer organizations, which are now fully entitled partners in SODECOTON's sector management strategy. Village cotton producers' organizations first appeared in the 1980s as informal groups composed exclusively of cotton producers responsible for the distribution of non-cotton agricultural inputs to their members; by 1994 they were granted legal status and have since operated as officially registered associations or GIE (*groupements d'intérêt économique*). An AFD-financed project incubated the groups and trained their members, and SODECOTON began capacity building programs. The goal is to progressively

transfer certain activities like the operation of local seed cotton markets on behalf of the cotton company, input distribution and credit recovery, as well as extension to those producer organizations with the greatest management capacity.

The path towards co-management of the sector by SODECOTON and producers

With the assistance of SODECOTON, village groups created regional associations and an apex organisation, *Organisation des Producteurs de Coton du Cameroun* (OPCC) in 2000. OPCC is a legal entity (*Groupement d'Intérêt économique*) that represents the interest of cotton producers by participating in the producers' price negotiations with SODECOTON, and procuring and selling inputs to farmers. The OPCC also staffs an in-house "technical department" to advise producers.

Since its creation, OPCC has been increasingly involved in the management of the sector. It plays an important role providing extension services and a supply of inputs, as well as determining the producer price. While the initial producer price is ultimately decided by SODECOTON, the final price is generally the product of a consensus with OPCC. The premium paid by SODECOTON at the end of profitable seasons is now paid to OPCC and not directly to producers. OPCC decides whether to save the premium in a reserve account or pay it out the following season to producers as a complement to SODECOTON's producer price.

2.4. Structural Reforms: Failed Attempts, Rationale, And Agenda

Bowing to pressure from the IMF and the World Bank, the GoC privatized SODECOTON in 1994 within the framework of Cameroon's structural adjustment process. At the time, GoC owned a number of parastatal companies involved in agricultural production and processing, few of which were profitable. The decision to privatize SODECOTON was never clear, and certainly not based on a study of possible options; the company recorded consistent losses throughout the previous ten years and incurred further losses in 1992 and 1993 due to overvaluation of the local currency.

The process was aborted when the investor declared bankruptcy and a legal dispute blocked privatization until 2002¹. This first attempt revealed the danger of privatizing SODECOTON and similar parastatal companies in a political environment characterized by a high level of corruption and inefficiency.

The IMF and World Bank continued to put pressure on the GoC to privatize SODECOTON and in 2003 a tender was prepared to select a consultant who would facilitate the process. Though terms of reference were drafted for the consultancy, no one was ever chosen to carry out the work due to disagreements within in GoC relating to the consultant's objectives and the central premise that SODECOTON ought to be privatized. Some in the GoC assumed that the only option was full liberalization of the sector, which implied free-market competition among producers; the other camp felt that the consultant should study a range of options and let the report make recommendations for the future.

Though privatization is still on the GoC agenda, no new decision has been made on the procedure or on the schedule of such a reform. The attitude towards privatization is mixed among major stakeholders: while the Ministry of Finance is still keen to proceed with the privatization, other branches of GoC fear that a failed privatization would be politically and socially disastrous. Farmers organizations are not against the move, provided the input supply

¹ The private investor purchased shares of SODECOTON held but not owned by parastatal companies. It was ultimately impossible to track down the proceeds of those sales.

system is maintained, and they retain a stake which guarantees their continued input in management decisions. In fact, the Cotton Producers Organization has built up financial reserves to participate in the privatization of the company if it takes place.

GoC currently holds 59 percent of SODECOTON’s capital while DAGRIS retains 30 percent; the remaining 11 percent is controlled by Societe Mobiliere d’Investissement du Cameroun (SMIC), an indigenous holding company managed by a consortium of senior politicians from the north.

3 OVERVIEW OF THE COTTON SECTOR

3.1. Key macro-economic factors influencing the sector

As in all FCFA-zone cotton-producing countries, the two main macro-economic factors influencing the Cameroon cotton sector are the decline in world prices and the appreciation of CFA Franc against the dollar since 2002. As shown in the figure below, the nominal dollar value in FCFA declined substantially between 2000 and 2006.

Figure 1: Evolution of world prices in USD and FCFA

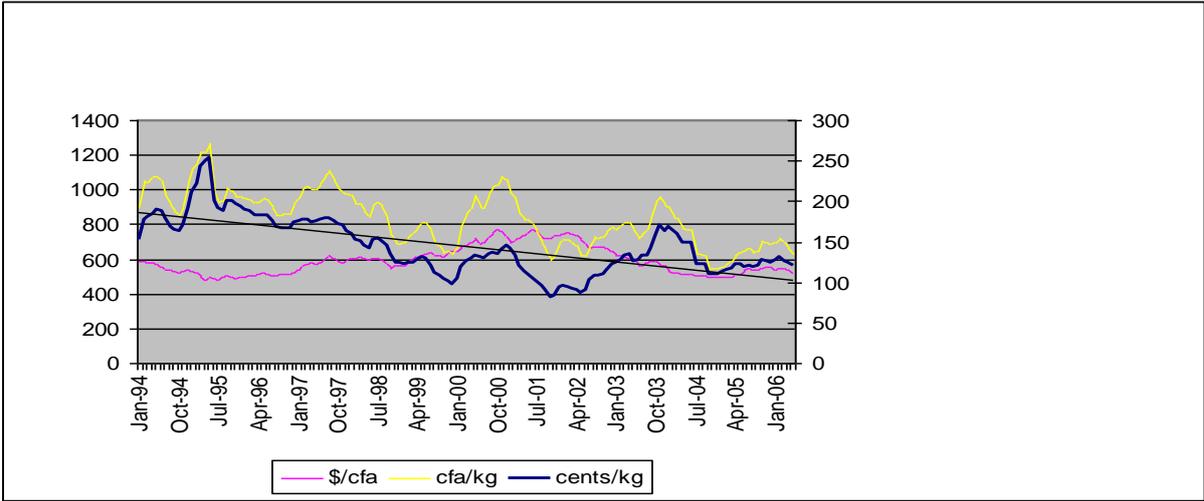
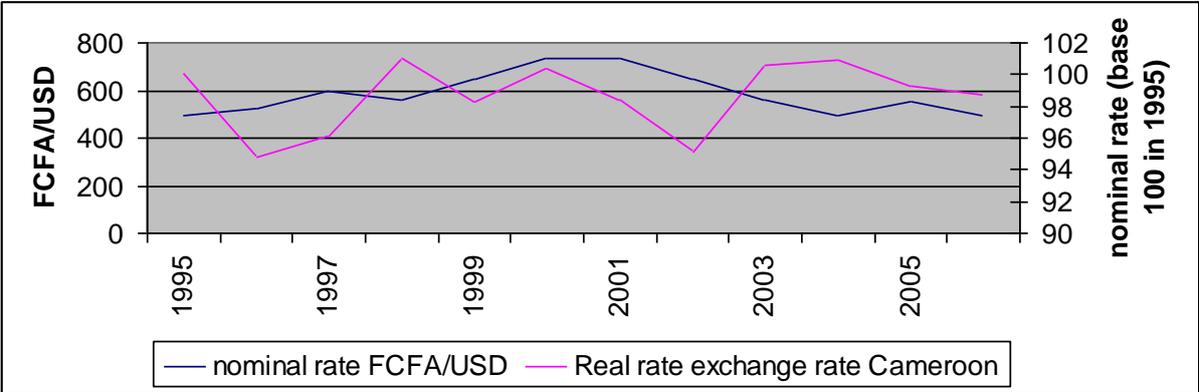


Figure 2: Nominal and real exchange rate in Cameroon



3.2. Production and yields trends

3.2.1 *The cotton belt*

The cotton belt covers the Northern part of Cameroon and includes three provinces: North, Extreme-North, and a small part of Adamaoua. The cotton belt population (3.6 million) represents one quarter of the country's total. It is the poorest part of the country, with a high level of illiteracy and the recurrent risk of food deficit due to climatic hazards. The region and its inhabitants are largely governed by a traditional feudal power structure manifested in tribal chieftains called lamidé, who control most social and economic activities.

The Northern part of the cotton belt (Extreme-North Province) is the primary historic growing zone where cotton was first introduced and developed, but represents less than one-third of total production. The zone is overpopulated, land pressure is high, and climatic conditions are less favorable than in the southern section of the cotton belt. Average rainfall hovers around 700mm yearly so the province is subject to a high risk of drought, especially at the beginning of the planting season. In the southern section of the belt (North and Adamaoua Provinces), rainfall is higher (around 1200mm yearly), so the risk of drought more limited, and land pressure lower. Consequently, there is higher soil fertility, higher yields, and larger farm sizes; more than two-thirds of the cotton produced comes from these two provinces. The potential for development is concentrated in this southern belt and this development has been stimulated by the migration of farmers from the Extreme-North. Nevertheless, large swaths of the southern belt have been designated national parks in which it is forbidden to fall trees and clear land; much of the remaining land is reserved for livestock, with which agriculture is often in competition.

The cotton belt is effectively isolated from major transport routes with very difficult links to the capital and to the main port of Douala. Bales are transported on trucks from the ginneries to the railroad terminal Ngoundere where they are sent on to Douala. Both roads and railroads are in poor condition and result in delays and extra costs.

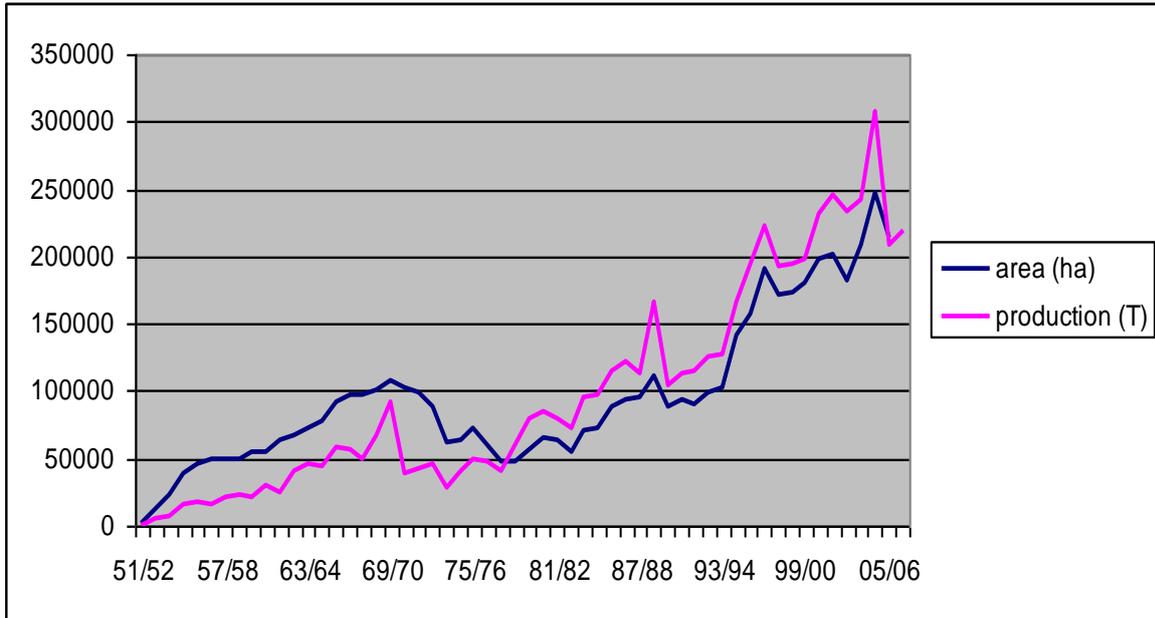
The soil conditions vary locally, but tend everywhere to be on the decline because of an inappropriate land tenure system perpetuated by the lamidé chieftains (farmers have usually no secure ownership on the land they cultivate), high land pressure, increasing cultivation on marginal and fragile lands, erosion, and inappropriate techniques for maintaining soil fertility.

3.2.2 *Production and area trends*

Phases in production growth

Several phases can be identified in the production growth process. From 1951 to 1974 cotton producers used extensive agricultural practices with very limited inputs. After a peak in 1969 (27,000MT of seed cotton), production fell below 20,000MT following a succession of droughts. From 1974 to 1988, production increased rapidly, reaching 165,000MT in 1988, thanks to the intensification policy of GoC and SODECOTON. Production stabilized between 1988 and the 1994 devaluation of the FCFA, in response to the safeguard policy and the overvaluation of the FCFA, which had made cotton an unattractive investment. The devaluation of the CFA Franc, gave to the sector a new and sustained impetus for growth and production reached a new peak of 300,000MT in 2004. Production has since declined remaining between 208,000 and 220,000MT for the two past years.

Figure 3: Evolution of production and areas



Source : SODECOTON

Evolution of areas cultivated with cotton and explanatory factors

The area under cotton did not exceed 100,000 ha until 1994, but started to grow at a rapid pace after the currency devaluation. This growth was concentrated in the cotton belt's south and included not only new lands but new growers as well. The growth in area is related to SODECOTON's policy of developing the southern cotton belt. However, the past decade's increase in area is also clearly correlated to the increase in the seed cotton producer price, as shown on the table below.

Figure 4: Producer price and areas cultivated with cotton

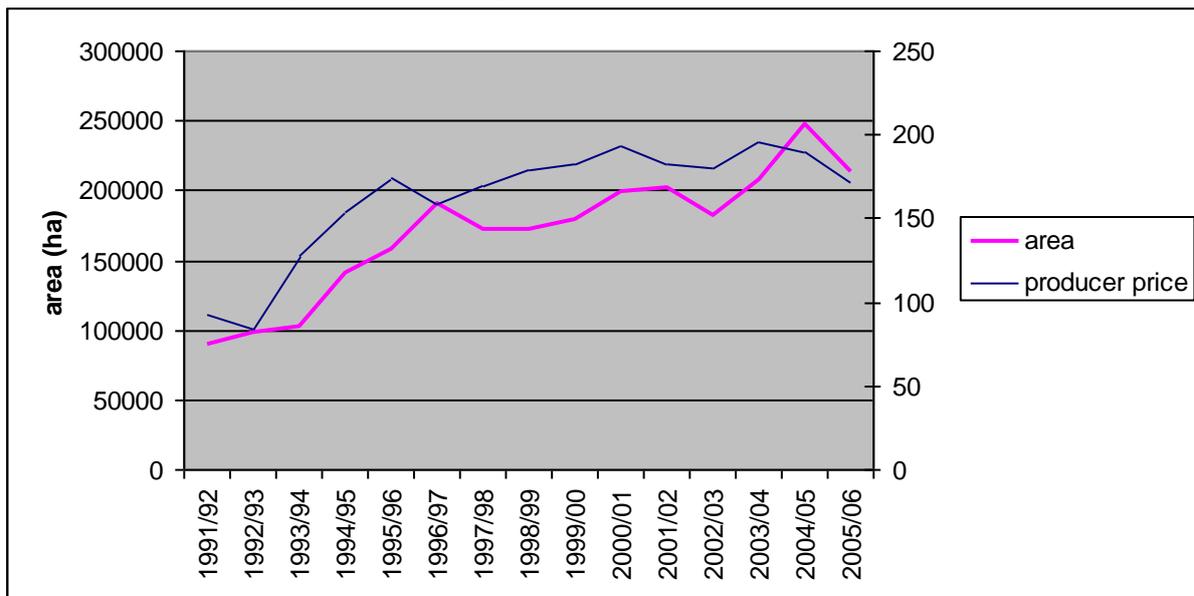


Table 1: Cotton Production Area and Yields, 1994-2007

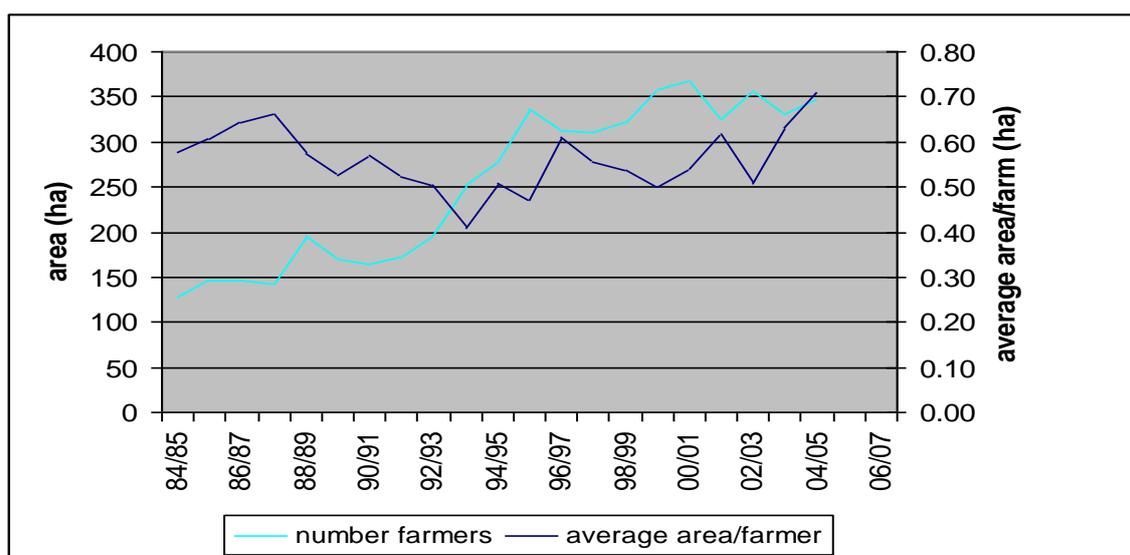
	Area (Ha)	Production (T)	Yields (kg/ha)
94/95	141061	165737	1175
95/96	157897	195214	1236
96/97	190920	223100	1169
97/98	172246	193332	1122
98/99	172521	194689	1128
99/00	179576	197266	1099
00/01	198559	230931	1163
01/02	201576	246070	1221
02/03	181811	233839	1286
03/04	208204	242884	1167
04/05	247000	307000	1243
05/06	213500	208000	974
06/07		220000	

3.2.3 Number and size of cotton farms

Farm size and number of growers

Unlike its counterparts in Mali or Burkina Faso, SODECOTON registers cotton growers within the same farm individually. Consequently, the number of cotton growers registered with SODECOTON and receiving inputs was 350,000 in 2006, significantly higher than the number of farms growing cotton. The changes in the number of cotton growers and the average cotton area per grower are shown on the figure below:

Figure 5: Evolution of areas cultivated with cotton per grower



According to the most recent available SODECOTON M/E survey (2002/03), the average area under cotton per farm is 1.21ha. Considering that the season's total cotton area was 233,000 ha, one can estimate that the average number of farms growing cotton at 192,000, and the average number of cotton growers per farm at 1.8. The average area of cotton cultivated is thus very small (around 0.67 ha) as compared to other African producers. This makes extension services as well as the collection of seed cotton more difficult and costly for the cotton company.

Characteristics of cotton farms

The M/E unit of SODECOTON regularly administers an agricultural survey, sampling more than 1,800 cotton and non-cotton farms in 55 cotton belt villages. The full results of this survey are only available for the 1998/99 and 2002/03 seasons. In the 2002/03 season, the

average total farm size was 3.1 ha (excluding 0.48 ha of fallow) and the average number of residents per farm was 7.4. That figure is much smaller than in Burkina Faso and Mali. The average cultivated area per worker is also substantially lower than in neighboring cotton producers, reflecting land pressure. These average figures disguise regional differences: smaller farms are more common in Extreme-North and mountainous areas where the average farm size is less than 2 ha and the cotton area per farm is less than 1 ha. Larger farms are more common in the southern cotton belt, especially in areas with migrant inflows. In the south, the average farm size is around 5 ha and the cotton area above 2 ha. In all cases the cotton area per farm represents around 39 percent of the farm area.

Table 2: Characteristics of cotton farms according to M/E surveys

	2002/03	1998/99
Cotton Area (ha/Farm)	1.21	1.03
Total Farm Area (Excluding Fallow)	3.14	3.02
Cotton/Total Area	39%	34%
Number Of Persons/Farm	7.4	7.5
Number Of Active/Farm	3.931	4.0
Number Of Active/ha	1.25	1.32
Number Of Cattle/Farm	2.4	2.7

Changes in farm size

The average cotton area per farm increased between 1998/99 and 2002/03 from 1.03 to 1.21 ha. This growth was concentrated in the southern part of the cotton belt. Unlike Sahelian countries, there is no indication that any of the sub-regions underwent major changes in farm size or in the cropping pattern over the last 10 years (according to available time series), which suggests that the total increase in area cultivated with cotton is essentially due to the increase in the number of farmers. As the average area per farm has not substantially increased, probably as a result of land availability, the total increase in area must be due to an increased number of farmers growing cotton. This fact is probably related to land pressure which limits the expansion capacity of farms in the Northern part of the cotton area.

Farm types and farm characteristics by type

The SODECOTON M/E team segregates cotton farms into three classifications based on the level of their equipment: type C farms rely on manual cultivation; type F farms use mainly rented animal traction equipment; type D farms have one pair of oxen and their own equipment. The distribution and socio-economic characteristics of farms are synthesized on the following table:

Table 3: Socio-economic characteristics of farm types (based on 2002/03 SODECOTON survey)

	Average	Manual cultivation (Type-C)	Rented animal traction equipment (Type-F)	Farms equipped for animal traction (Type-D)
% Of Farms Belonging To This Type	100%	25%	32%	43%
Cotton Area (ha/Farm)	1.21	1.05	0.88	1.54
Total Farm Area (Excluding Fallow)	3.04	2.51	2.3	4.09
Cotton/Total Area	40%	42%	38%	38%
Number Of Persons/Farm	7.4	6.2	5.9	9.1
Number Of Active/Farm		3.2	3.2	4.9
Number Of Active/ha		1.3	1.4	1.2
Number Of Cattle/Farm	2.4	0.2	0.6	5.3
% Literacy (Local Language)	20%	16%	17%	26%
% Food Self-Sufficient Farms	43%	39%	39%	49%

The table shows that the level of equipment is correlated to the size of the farm. Equipped farms are 50 percent larger than non-equipped ones.

As expected, equipment also corresponds positively to larger families and cattle holdings. Equipped farms also have a higher-than-average literacy rate and are closer to food self-sufficiency, although the survey finds that all farm types tend to purchase food from non-cotton farms. It is worth noting however that cotton farms are altogether more homogeneous than in other West African cotton producing countries, where the socio-economic characteristics of farms are usually more diversified.

The table also shows that the percentage of farms still using manual cultivation is relatively high compared to other West African countries. Only 48 percent of farms are equipped with a plough and only 28 percent have two pieces of equipment. The level of equipment remained relatively stable between 1998 and 2003.

3.2.4 Yield trend, yield distribution and explanatory factors

Explanatory factors for yield trend

Cultivated virtually without inputs, yields did not exceed 500 kg/ha of seed cotton until 1974. It rose rapidly to a 1982 peak of 1,400 kg with the development of input supply on credit. Until recently, yields were also assisted by GoC input subsidies. Yields have declined since the early 1980s, as evidenced by the graph below.

According to SODECOTON staff, pest pressure is lower in Cameroon than in other West African countries--instead, soil fertility is the limiting factor for improving yields. Declining yields are the likely outcome of sub-optimal fertilizer applications, a lack of organic matter, and erosion. It is interesting to note that the decline in yields started after a reduction in the average fertilizer application in the 1984/85 season (see Figure 9). The low yields in 2005/06 are mainly believed to be due to a sharp decrease in fertilizer applications following a decision by SODECOTON to limit the amount of fertilizer sold on credit to 100 kg/ha. Ostensibly, this contraction of credit reduced the risk coefficient (calculated by the amount of credit for input granted by the cotton company for one hectare to the value of cotton produced in the same area) for farmers.

Figure 6: Evolution of areas, production and yields

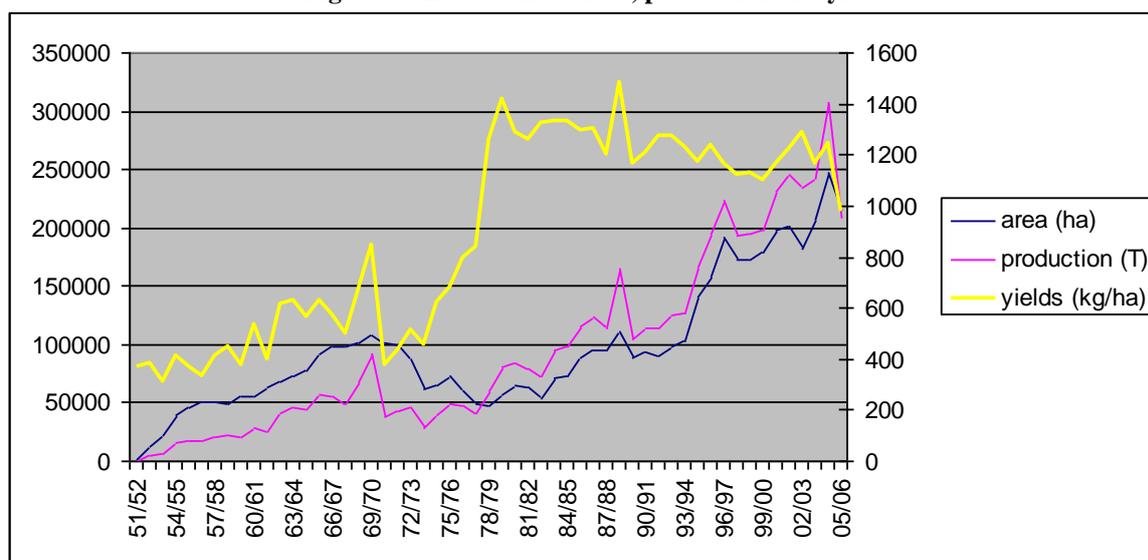
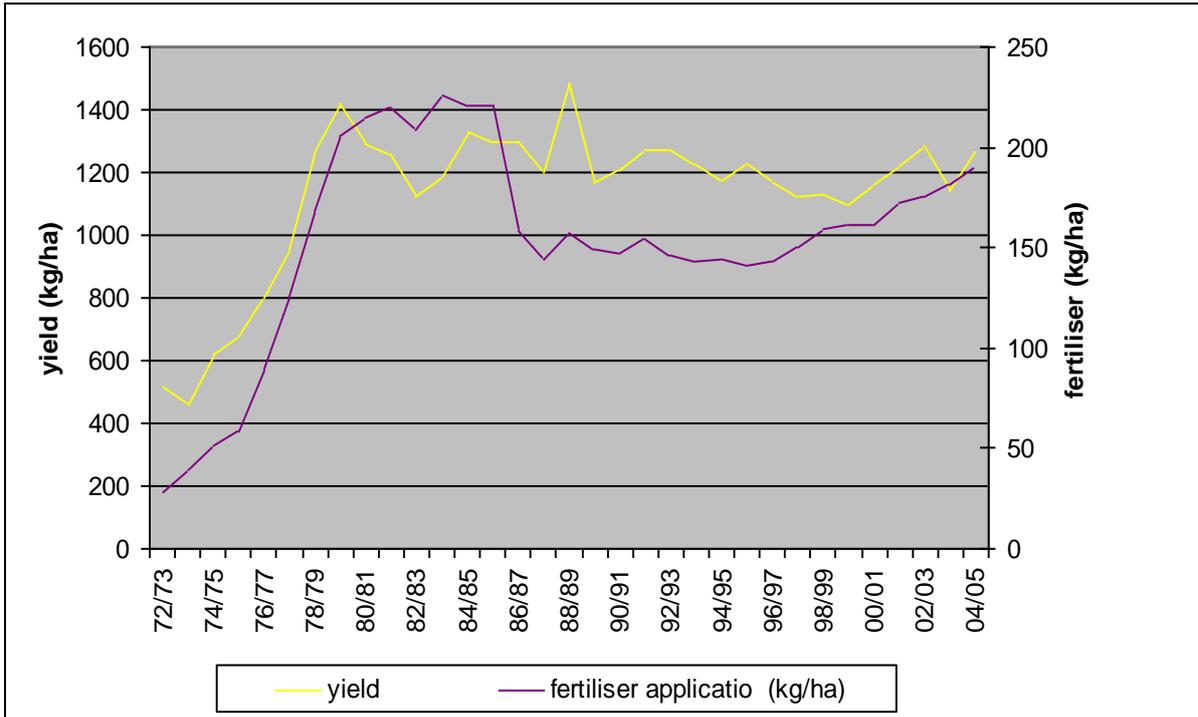


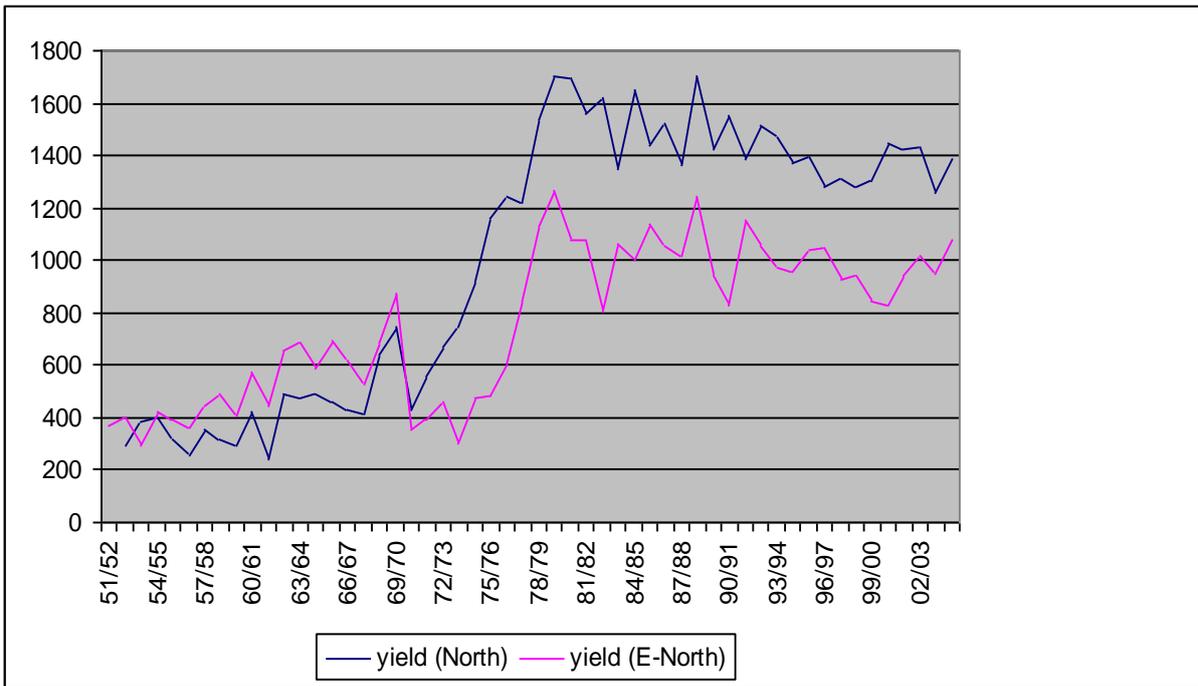
Figure 7: Evolution of fertilizer applications and yields



Yield distribution and explanatory factors

With relatively favorable climatic and soil conditions, yields are significantly higher in the southern cotton belt where yields per hectare average some 1500kg compared to the Extreme-North where average yields per hectare are closer to 670kg according to the 2002/03 M/E survey. Geographic location is by far the main factor in this yield differentiation as shown in Figure 11 which compares yields in the northern and southern halves of the cotton belt. Note that both regions show declining yields.

Figure 8: Comparison of yields in Northern and Southern Cameroon



Level of equipment is another differentiating factor for yields:

Table 4: Yield differentiation per type of farms (2002/03 survey)

	Average	Manual Cultivation (Type C)	Rented Animal Traction Equipment (Type F)	Farms Equipped For Animal Traction (Type D)
Yield	1188	1090	1120	1259
Percent Deviation From Average	100%	92%	94%	106%

Additionally, the M/E field surveys show that the average yields per farmer are also correlated to the area cultivated with cotton, as the yield for farms with small cotton plantings are around 20 percent below the yields for larger cotton growers. This difference may be partly due to the fact that farms are larger in the southern part, where yields are higher.

Table 5: Yields and size of farms

Cotton area/farm	Average yield (kg/ha)	% of average
[0.125 ha - 05 ha]	1.061	89%
[0.5 ha - 1ha]	1.119	94%
[1ha - 2ha]	1.175	99%
More than 2ha	1.254	106%
Total	1.188	100%

3.2.5 Proportion of farms growing cotton

According to field surveys, 92 percent of farms in the cotton belt grow cotton. Those farms that do not grow cotton are on average poorer and less developed: with the same population per farm, they have lower literacy rates, less equipment, fewer cattle, and less area per person suggesting limited access to land.

Table 6: Comparing characteristics of cotton and non-cotton farms (2002/03 M/E survey)

	Cotton Farms	Non-Cotton Farms
Percentage Of Total Farms In The Sample	92%	8%
% Literacy (In Local Language)	20%	9%
Number Of Cattle/Farm	2.4	1.6
Number Of Ploughs/Farm	0.66	0.3
% Of Farms Owning A Plough	48%	25%
Area Cultivated/Farm (Ha)	3.14	1.92

3.3. The ginning industry

The right to commercially process seed cotton belongs exclusively to SODECOTON, although marginal quantities are reportedly smuggled into Nigeria. SODECOTON has nine ginneries scattered throughout the production area--six of which use electrical power--and a total processing capacity of 279,000 MT of seed cotton (which corresponds to the average present production), on the basis of 140 days of operation.

In the past ten years, SODECOTON has built ginneries representing 110,000 MT of additional capacity (one new ginnery every three years on average), while others, with a capacity of 40,000 tons, were retired as part of normal turnover after 30 or more years in operation. The country's ginning equipment is generally considered to be in fair condition.

3.4. The domestic spinning industry

The main textile manufacturer is CICAM, a local firm producing printed and traditional batik garments. CICAM represents more than 90 percent of the domestic cotton based manufacturing activity. The supply of lint cotton for the local industry increased from 2,000 MT in the 1980s to 4,500 MT in 1997 then decreased steadily to less than 1,000 MT in 2004/05. As in all CFA zone cotton producing countries, the textile industry is in a very difficult strategic situation, struggling to compete with smuggled Asian and Nigerian imports and imports of second hand garments. The selling price of a traditional *pagne* garment, a traditional West African loincloth, produced by CICAM is reported to be twice the imported equivalent, assuming the imported article escapes import duties.

CICAM has recently made drastic staffing cuts and continues to shoulder heavy losses. Payments to SODECOTON for their purchase of lint are often late, which increases the financial difficulties of the cotton company.

3.5. The oil processing industry

SODECOTON has two of its own cotton seed processing plants making refined oil and cakes. The capacity of the plants is sufficient to process the country's whole seed production (around 100,000 MT) over an 11 month period. Oil is sold in the whole country through a network of wholesalers. The operation is profitable, although selling prices have fallen recently thanks to competition from oils imported from Asia. Cakes are sold as animal feed, with seed cotton producers enjoying first purchasing rights. Profits from oil processing help offset the overall market risks associated with the sale of cotton.

4 CURRENT INSTITUTIONAL ARRANGEMENTS AND PERFORMANCES

4.1. Producers organization and overall sector management

Village level producers associations

1900 village associations are classified by SODECOTON into three categories:

- The weakest organizations (Group 1) still need close monitoring by SODECOTON as they operate local seed cotton markets. These groups are assisted by a seasonal extension agent from SODECOTON. Group 1 accounts for roughly 48 percent of village groups.
- Intermediate groups (Group 2) are in charge of input distribution and credit recovery on behalf of SODECOTON. In addition to their role in gathering seed cotton, these groups have their own extension agents, recruited and paid by the group. They account for almost 48 percent of village groups.
- The best organized associations (group 3) take full responsibility for input distribution and credit recovery. There were 70 such groups in 2006. SODECOTON and OPCC plan to increase their number.

These associations average 150 members, but some exceed 400 members. SODECOTON and OPCC consider these larger groups unmanageable.

Considering that most of the village associations were created more than 20 years ago, the transfer of responsibilities to village groups has been plodding and cautious. SODECOTON and OPCC have been hesitant to give management responsibilities to village associations whose membership show high levels of illiteracy. Citing fears of mismanagement, SODECOTON and OPCC did not extend credit to one hundred associations in 2006.

Intermediary structures and OPCC

Village level associations are grouped into 46 informal sector associations. All village level associations belong to the apex association, OPCC. OPCC has a technical department headed by a SODECOTON-approved manager. It is primarily funded through the sale of pesticides. The annual budget is 400 million FCFA/year, of which 25 percent is dedicated to overhead costs, 60 percent is set aside to support village associations, and 15 percent supports animal production. OPCC has a reserve fund managed by SODECOTON and is funded by the company's producer price premiums. OPCC also has a reserve account for their future participation in the capital of SODECOTON, built up on a levy on seed cotton collected.

The board of OPCC is elected through local and regional assemblies of village groups. Elections are reported to be transparent in 90 percent of village groups and take place regularly.

4.2. Pricing of seed cotton

The price mechanism

As explained in Section 2.3, SODECOTON sets the initial producer price after consultation with OPCC. In profitable years, SODECOTON can add a bonus premium at season's end which is deposited into an OPCC account held on SODECOTON's books. OPCC can use these resources to complement the producer price or as it sees fit.

Two coordinate procedures work side-by-side within the current pricing mechanism to mitigate the impact of world price variations on the fixed producer price. If OPCC considers SODECOTON's initial price as too low, it can issue a price complement financed by the premiums accumulated in previous years. SODECOTON created a similar price stabilization reserve fund in 1990 with a 2 billion FCFA grant from the *Agence Française de Développement* and has since been supported by the company's profits². SODECOTON's reserve fund was used once during the 1993/4 season, and then fully depleted in 2005/6 when the total 11 billion FCFA balance was used to offset pricing shortages.

The management of the price mechanism and its consequences

Until 2004, SODECOTON set the initial price at a conservative level, paying a premium to OPCC at the end of nearly every season. OPCC was thus able to accumulate 10 billion FCFA in 2004.

As in all countries of the FCFA zone, producers' prices have steadily improved from their lowest levels during the 1994 devaluation. The ratio of total price received by producers to the average Cotton Outlook index remained below 50 percent for any given season until 1998. In that year, OPCC became intimately involved with initial pricing and the ratio jumped up to 58:100. The ratio has stayed above 60:100 over the last three seasons.

² The share of benefits allocated to the Price stabilization reserve fund and the amount of the fund to be used to support producer prices are decided by the General Assembly of the company, without any fixed rule.

Following reform, the combined strategies of SODECOTON and OPCC resulted in relative price stability for producers and avoided a sharp decline in the price expressed in constant value (see Figure 12 and Table 7 below). The producer price has ranged between 170 and 195 FCFA per kg since 1997, despite the fall of world prices and the appreciation of local currency. In fact, the prices received by producers in 2005/06 and 2006/07 (respectively 170 and 175 FCFA) were the highest of all countries in the FCFA zone and resulted in considerable losses for SODECOTON. Even with the burden of this price stabilization borne jointly by SODECOTON and OPCC, the cotton company suffered heavy losses. Unsustainable pricing quickly exhausted the reserves of both SODECOTON and OPCC.

Thanks to SODECOTON's prudent policy before 2004 and its corresponding reserves, high producer prices have not had the same disastrous consequences on the financial viability of the sector as they had in Burkina Faso and Mali. Nevertheless, the stabilization of the producer price at its current level is clearly not sustainable.

Figure 9: Evolution of producer prices and share of Cotlook Index

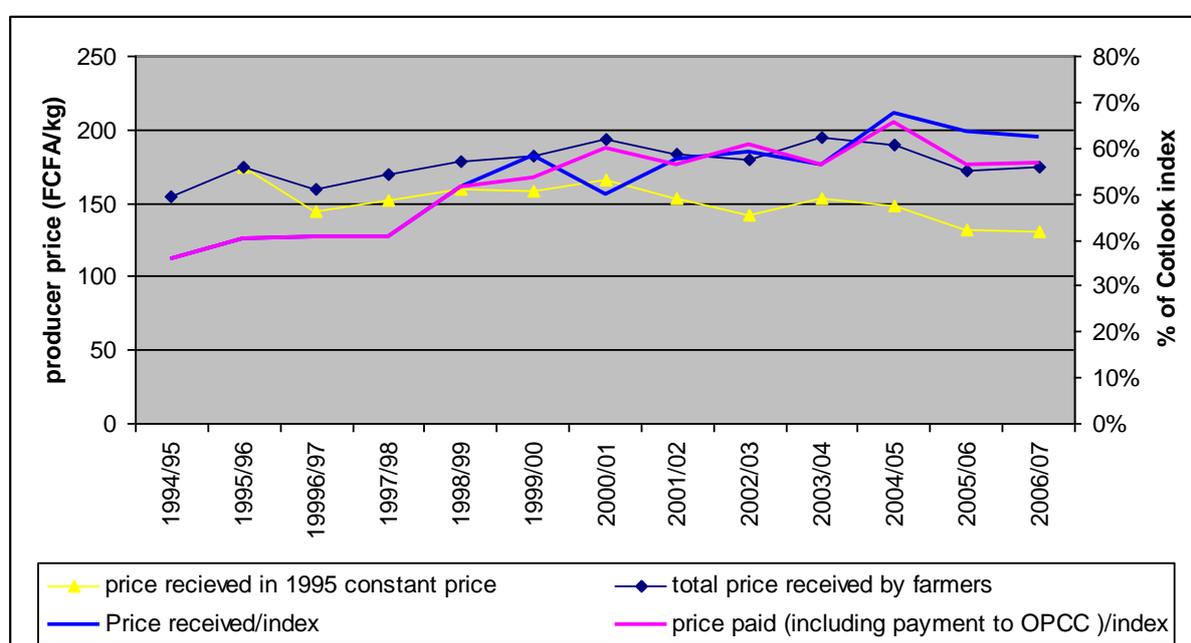


Table 7: Evolution of producer prices and share of Cotlook index

	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07
Producer Price (1st Quality)	135	160	160	175	175	155	180	160	175	175	185	150	160
Premium Paid By SODECOTON To Farmers	20	20	20	15	20								
Premium Paid By SODECOTON To OPPC						10	45	15	5	10			
Average Total Price Paid By SODECOTON	154	174	159	170	179	167	233	178	185	195	185	152	160
Premium Paid By OPCC To Farmers						25	5	20		10	5	20	15
Total Price Received By Farmers	154	174	159	170	179	182	193	183	180	195	190	172	175
Cotlook Index	1029	1032	929	996	825	741	925	755	727	825	671	643	670
Price Received/Index	36%	40%	41%	41%	52%	58%	50%	58%	59%	56%	67%	64%	62%
Price Paid (Including Payment To Opcc)/Index	36%	40%	41%	41%	52%	54%	60%	56%	61%	56%	66%	56%	57%
Price In Dollars						0.36	0.27	0.25	0.26	0.33	0.37	0.33	0.33
Price Received In 1995 Constant Value		174	149	152	160	158	166	153	142	153	148	132	131

4.3. Research and extension

Research

Research is the responsibility of the *Institut de Recherche Agronomique* (IRAD), under the Ministry of Research and Innovation. The cotton research agenda is reviewed every year in cooperation with SODECOTON. It is then implemented under a contract agreement in which SODECOTON agrees to provide the program's funding. The program received 170 million FCFA in 2005 or USD \$340,000. The research program is focused on entomology and genetics, specifically variety development, fiber quality (micronaire) selection, and ginning outturn ratio improvement. IRAD also manages a test plot of 10ha dedicated to organic fertilization research. Trials are also underway for introduction of sunflowers and soya in rotation with cotton.

Two new varieties have been introduced in the last 10 years and are still in use: A 12-39 on the main part of the cotton zone, and D 742 on more marginal zones.

The research has been relatively successful in the development and dissemination of other crops: maize has replaced coarse grains, and direct sowing with the use of herbicides has been adopted by a large number of farmers, they are also using organic manure on a greater basis. However, the research has been less successful promoting integrated pest management techniques based on scouting by village groups in which the numbers of insects in a given area are surveyed. The village applies pesticides when the surveyed populations exceed a predetermined ceiling. Village oriented scouting produced unsatisfactory results and was progressively replaced by individual scouting.

The GoC does not currently permit research into genetically modified cotton in the absence of a bio-safety regulatory framework.

Extension

The Ministry of Agriculture-managed extension services are virtually nonexistent in the production area, despite a costly World Bank project to rehabilitate them. Extension for cotton farmers is therefore provided by SODECOTON in conjunction with OPCC. The scope of the extension services varies widely and includes advisory services to farmers, input supply supervision, credit and seed cotton marketing, and data collection. The same extension agents are also responsible for rural development including food crops, soil fertility management techniques, and animal production. Finally, extension agents provide advisory services to the management of farmers groups.

SODECOTON used to have a very dense network of extension agents with 1,300 full time agents in the 1990s. However, many of these agents have since been transferred to farmers associations and the OPCC. SODECOTON cotton extension services fall under the company's Agricultural Production Department.

The cotton area is divided into nine regions, 37 sectors, and 266 zones. SODECOTON's own cotton extension system is now composed of 312 permanent agents working at the sector and zone levels and a number of part-time agents for those village groups who have not yet been able to recruit their own staff. Farmers associations tend to form groups of two or three in order to recruit and pay for their own extension staff at a typical rate of 3500 FCFA/ha plus a fee of 1.5 FCFA/kg of seed cotton.

In terms of rural development activities, SODECOTON is implementing the Project Eau-Sol-Arbre (Water, Soils and Trees) project with GoC and AFD funding support. The project employs a team of technicians to develop soil fertility management techniques. In particular, the program promotes Sowing Under Vegetal Cover (SCV), which is still at the experimental stage, but preliminary results are encouraging.

SODECOTON and OPCC both contribute funding for advisory services to animal producers. Some 30 technicians are employed to promote the use of organic manure, improve animal nutrition, veterinary care, and increase the sale of veterinary products. SODECOTON and OPCC also employ 9 regional supervisors and 76 sector supervisors respectively to provide management support to village-level producers associations, as well as providing literacy training to some 2000 farmers annually.

The new system under which village-level agents are recruited directly by producer groups from among village members, is considered more efficient and much less costly than the previous regime. The unit cost for a locally recruited village level agent is only 150,000 FCFA/year.

4.4. Input and credit provision

Until recently, farmers' organizations were only involved in credit provision through a mutual guarantee whereby the groups were jointly responsible for the defaults of their members on credit for inputs. Input procurement and logistics are overseen by SODECOTON. SODECOTON begins the procurement process by assessing the magnitude of input demand on the bases of planting forecasts. OPCC then organizes international tenders for corresponding procurement. The OPCC arrangement allows SODECOTON to avoid internal procurement procedures. Procurement bids are accepted or rejected by a joint technical commission including SODECOTON and OPCC. Once inputs are purchased, SODECOTON transports them to villages where, depending on local capacity, the company or village associations handle distribution. The company is now looking to gradually devolve management responsibility for inputs supply.

SODECOTON claims that its policy of importing generic products in bulk results in lower costs for farmers; the process is facilitated by the relatively dense network of field agents able to disseminate the formulation, preparation and application techniques to farmers.

The OPCC determines the selling price of inputs to farmers and is calculated on a full cost basis with a markup for pesticides but not for fertilizers. Until 2006, there was no credit charge added to the cost as the inputs were financed by the OPCC and SODECOTON. However, in 2007 the OPCC and SODECOTON had exhausted their reserve funds and now borrow from banks to cover the initial purchase costs.

By and large, cotton inputs are sold on credit reimbursable upon delivery of seed cotton. Credit is guaranteed by mutual guarantee groups made up of representatives from SODECOTON and village associations. Inputs for food crops are also supplied by OPCC, but the organization offers only limited credit for these items. Village groups have to pay 50 percent of the cost by the end of June (two to three months before harvest), which limits demand.

In 2005/06, the total credit extended for inputs was 14 billion FCFA for cotton and 1.6 billion for food crops. Until 2005, credit recovery performance was good, with recovery ratios

ranging from 95 to 99 percent. This rate deteriorated dramatically in 2006, falling to only 90 percent, because of declining producer prices combined with low yields. OPCC also grants a two year credit for the purchase of animal traction equipment (300 million FCFA in 2005/06.) This credit is increasingly focused on carts as plowing is replaced by direct sowing.

Strater Foundation seeds are produced by the Research Institute, and pre-multiplied in a seed farm belonging to SODECOTON. They are in turn multiplied by contract farmers under SODECOTON's control. Seeds are not delinted.

4.5. Lint marketing and quality performances

Grading seed cotton

Seed cotton is gathered by farmers associations at 2,700 assembly points, and then collected by SODECOTON's trucks.

Seed cotton is bought on the basis of two quality grades, with 10 FCFA difference in prices between grades. Until 2005, SODECOTON was rather lax in grading seed cotton, and the first grade represented more than 95 percent of purchases. Though purchased at a premium, much of that seed cotton was ultimately discarded for its low quality. In 2005, SODECOTON decided to dramatically change its purchase policy, launching a quality campaign, and enforcing strict guidelines for sorting and grading of seed cotton. In 2005/06, 20,000 tons were rejected as below standards, while the grade 1 represented only 30 percent of seed cotton collected. This new policy was finally accepted by farmers, who subsequently took much better care in cleaning and sorting their seed cotton. This move resulted in a substantial improvement in the quality of the lint cotton and lower losses corresponding to impurities.

Marketing of lint cotton

Marketing of lint cotton is the exclusive responsibility of SODECOTON. In its first years, COPACO (a subsidiary of DAGRIS) acted as SODECOTON's selling agent, taking a one percent fee. In 1994, SODECOTON began marketing 40 percent of its own production raised, selling directly through weekly auctions to a number of selected traders. This system was generalized in 2000. The company now sells its entire weekly output through such auctions to the three highest bidders and less than 5 percent of total output is now sold to COPACO. The base price for the auction is based on the Cotton Outlook Index, with a 50 FCFA/kg deduction to bring it to FOB levels for lint cotton. The base price is also adjusted for grade and fiber length with a 1 Eurocent/kg premium for the SODECOTON's higher grade and 1 Eurocent for 1/16th kg of length.

Lint cotton grading and quality

In keeping with regional custom, SODECOTON uses its own quality types based on color and cleanliness, with an additional grading according to fiber length. All grading of lint cotton is done manually in one location (Garoua), allowing for standardized grading. SODECOTON does not use Standardized Instrument for Testing of Cotton (SITC)

In the early 1990s, Cameroon cotton was significantly depreciated on the market due to a pervasive "stickiness" problem. The reputation of cotton suffered and prices were sharply discounted. In the subsequent decade SODECOTON developed a quality improvement strategy which is successfully addressing the problem. As stickiness mostly comes from late harvest, the company offered farmers incentives for early picking. Despite these improvements the country's reputation continues to suffer.

SODECOTON has also had to manage a trade off between using the IRMA 1239 variety, which has short fiber but a high ginning outturn ratio, and the BLT variety, with lower ginning outturn but longer fibers. SODECOTON’s quality improvement drive has increased the share of BLT in recent years. This production shift has allowed SODECOTON to enter the segment of fine cottons. More than 90 percent of the lint cotton sales by volume are reportedly of higher than standard quality.

Contamination problems are considered moderate. As most contamination originates at the stage of harvesting and seed cotton collection, the use of cotton sheets has been generalized to meet the new strict seed cotton grading policy introduced in 2005.

Overall performance

According to SODECOTON's statistics, the marketing price (636 FCFA in equivalent CIF price) was, on average, 97 percent of the Cotlook index average for standard quality in 2004/05 (a season of high production, but lower quality), 106 percent in 2005/06 (713 FCFA in CIF equivalent), and 101 percent (665 FCFA in CIF equivalent) in 2006/07 (as of end of September).

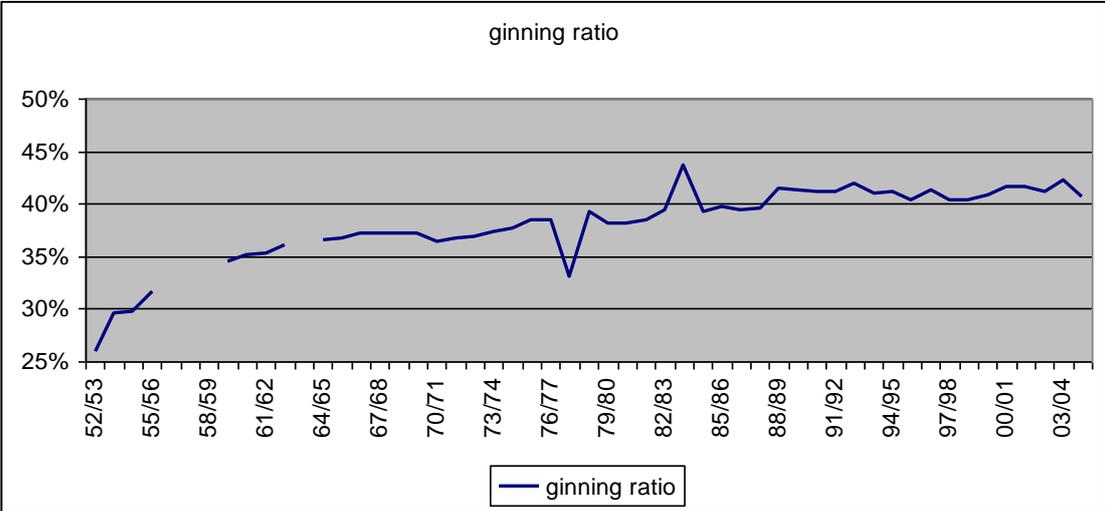
SODECOTON reports that its highest quality is usually sold with a premium of 40 FCFA on the Cotlook index. Sub-standard output can sell at a similar discount. The overall marketing performances can therefore be considered good.

5 COST, RETURNS TO PRODUCERS AND SUSTAINABILITY

5.1. Ginning outturn ratio

The ginning ratio increased from less than 30 percent in the 1950s to a peak of 43 percent in 1983/84. It remained around a relatively stable 42 percent thereafter. According to SODECOTON's management, the ginning ratio is influenced by a number of factors, primarily the variety grown, but also the cleanliness of the seed cotton; however, in 2005/6 local climatic and soil conditions accounted for local ratio variations from 41.9 to 44.0 percent. As mentioned above, SODECOTON used to favor low outturn, high quality varieties with long fibres but SODECOTON has recently decided to reemphasize a higher ratio, lower quality variety. This decision should result in a further increase of the ginning ratio.

Figure 10: Evolution of the ginning ratio



5.2. SODECOTON's performance

5.2.1 Processing and marketing costs for cotton

SODECOTON's labor productivity

Since the 1994 devaluation, SODECOTON has been able to increase its labor productivity. While the total number of employees has remained stable since 1993, lint production has increased 200 percent, resulting in a productivity gain per employee from 45 tons/man-year in 1993 to 104 tons/man-year in 2005. Meanwhile, salaries have increased an average of 6 percent annually, well exceeding inflation. Over the same time period, the ratio of total salaries over sales has remained stable at around 10 percent.

Table 8: Evolution of Labor Productivity

	1993/9 4	1994/9 5	1995/9 6	1996/9 7	1997/9 8	1998/9 9	1999/0 0	2000/0 1	2001/0 2	2002/0 3	2003/0 4	2004/0 5
Number Permanent	1,527	1,527	1,604	1,726	1,629	1,726	1,767	1,786	1,746	1,784	1,807	1,863
Number Seasonal	1,314	1,474	1,557	1,397	1,272	1,223	1,350	1,438	1,175	1,049	1,204	1,098
Salaries (MFCFA)	390	695	898	1,024	917	725	693	940	1,678	1,564	1,401	1,528
Tons/Employee	45	55	62	71	67	66	63	72	84	83	81	104
Salary Cost/Turnover	10%	9%	7%	7%	8%	9%	9%	7%	11%	10%	11%	10%

Production and intermediary costs

The net intermediary cost (total FOB sale price of lint cotton minus the purchasing price of seed cotton and the value of seeds), a good measure of cost, remained remarkably stable since devaluation (after deduction of taxes, which were important until 1998, and decreased substantially when expressed at a 1995 constant value³ (See Table 9).

Table 9: Evolution of intermediary costs

FCFA/kg Lint Cotton	1995/ 1996	1996/ 1997	1997 /1998	1998/ 1999	1999/ 2000	2000/ 2001	2001/ 2002	2002/ 2003	2003/ 2004	2004/ 2005
Total Intermediary Costs (Before Taxes)	236	284	332	293	258	239	255	278	308	258
Minus: Value Of Seeds	24	29	31	32	25	38	29	30	29	25
Net Intermediary Costs (Before Taxes)	213	255	301	261	233	201	226	248	279	233
Taxes	137	105	69	6	5	5	2	2	2	2
Net Intermediary Costs (After Taxes)	350	360	370	267	238	205	228	250	281	235
Net Intermediary Cost Before Taxes In 1995 Constant Value	350	338	330	238	207	177	190	197	220	183
Net Intermediary Cost After Taxes In 1995 Constant Value	213	239	269	233	202	173	189	195	218	182

Source: SODECOTON

Net result on cotton activities

Despite the good performance in terms of intermediary costs, cotton processing was only profitable until 1998. With the exception of the 2004/05 season, high producer prices resulted in losses for SODECOTON.

Table 10: Net result on cotton activities (FCFA/kg of lint cotton)

FCFA/kg Lint Cotton	1995/ 1996	1996/ 1997	1997/ 1998	1998/ 1999	1999/ 2000	2000/ 2001	2001/ 2002	2002/ 2003	2003/ 2004	2004/ 2005	2005/ 06
Net FOB Cost	782	746	793	711	648	766	656	700	754	689	664
FOB To CAF Cost	77	82	76	74	70	72	48				
Average Selling Price	879	830	873	727	686	834	656	678	784	598	663
Net Margin On Cotton	20	3	4	-58	-32	-4	-48	-22	30	-91	-1

³ Using the CPI as deflator

Detailed analysis of the intermediary costs

Net intermediary costs in 2004/05 amounted to 235 FCFA/kg of lint cotton, on par with regional standards; they are much lower than in Mali, but slightly above Burkina Faso. When compared to a theoretical standard based on an analysis of unit costs, Cameroon's performance is acceptable, despite a number of disadvantages or adverse externalities. These issues include:

- High extension costs associated with the rural development functions still performed by SODECOTON.
- A poor road network and an expansive cotton belt result in high marginal collection costs.
- Ginnery to port logistics are relatively expensive (35 FCFA/kg) due to the geography of the cotton belt and rail transport pricing.
- Tolls and administrative fees associated with transit (also 35 FCFA/kg) are extremely high (and even increased in 2006), mainly due to hidden taxes at the port of Douala.

In fact, Cameroon outperforms the theoretical standard on financing costs, because at least until 2006 SODECOTON was able to minimize the use of external credit relying instead on its reserve funds and OPCC's funds deposited with SODECOTON.

Table 11: Detailed analysis of the intermediary cost (2004/05) and comparison with standard

	2004/05		Theoretical Model	
	FCFA/kg	USD/kg	USD/kg	
Collection Of Seed Cotton	48.8	0.097	0.083	Scattered production area
Processing Costs	67.7	0.134	0.135	Normal
Financing Costs (Short Term)	6.4	0.013	0.038	Low because mainly self financed
Cost From Ginnery To FOB	76.0	0.151	0.128	Landlocked area + high transit costs (including taxes on transit)
Sub-Total	198.9	0.394	0.383	
Capital Costs (On Investment)	4.035	0.008	0.035	Mainly self-financed (not included in costs)
Overhead And Contingencies	26.6	0.053	0.052	
Dagris Fee	6.0	0.012	0.000	Not included in the theoretical model
Total Intermediary Costs	235.5	0.467	0.470	
Purchase Cost Of Seed Cotton	454.7	0.901		
Critical Functions (Extension, Research, Seeds)	21.1	0.042	0.019	High, because of rural development function
Taxes	2.0	0.004		Not included in the theoretical model
Total FOB Cost	713.3	1.413		
Minus: Value Of Seeds	24.6	0.049	0.050	Normal
Net FOB Cost	688.7	1.365		

5.2.2 Processing cost and margins for oils and cakes

The production cost of refined oil is 410 FCFA/litre assuming a book value of seeds of 30 FCFA/kg, which is 30 to 50 percent higher than the market price. The current factory gate price is 538 FCFA/litre excluding VAT. In addition, cakes are sold between 50 and 100 FCFA/kg, depending on their content. The production amounted to 19 million liters of refined oil, and 64,000 Mt of cake in 2006.

Oil extraction appears to be a very profitable activity for SODECOTON with an aggregate average net profit of more than 5 billion FCFA annually. It is all the more valuable when lint cotton prices are low.

Based on the accounts of SODECOTON's two oil processing plants, one can calculate the breakeven value of seeds (the price of seeds at which the oil factory would breakeven). This figure reaches 85 FCFA/kg, well above the prices that other FCFA zone cotton companies fetch for their seeds. This clearly demonstrates the profitability for a cotton company in operating its own oil processing facility. This profitability does not translate perfectly to regional competitors as Cameroon's domestic demand for cotton oil outstrips supply. Prices are therefore subject to less downward pressure from imports or potential substitute oils. Difficult commercial transportation in northern Cameroon means that some of SODECOTON's largest oil markets are inaccessible to competition.

Table 12: Breakeven value of seeds

	Maroua	Unit	Garoua	Average
Seed Supply	42,279	T	74,555	116,834
Crude Oil Produced	6,639	000 liters	14,826	
Yield	16%		20%	
Unit Production Cost Of Crude Excl Seeds	8.3	per liter	14.3	12.5
Refined Oil Produced	5,936	000 liters	13,374	
Refined/Crude Oil	89%		90%	90%
Refined Oil/Seeds	14%		18%	17%
Quantity Of Cakes Produced	18,284	T	45,523	
Yield Cake/Seeds	43%		61%	53%
Selling Price Of Refined Oil (Excl Taxes)	538	FCFA/l	538	
Selling Price Of Cakes (Excl Taxes)	70	FCFA/kg	70	
Production Cost Of Refined Oil (Excl Seeds And Packaging)	102	FCFA/l	108	105.2
Package Cost Of Refined Oil	105	FCFA/l	122	113.5
Cost Of Bottled Refined Oil Excl Taxes	207	FCFA/l	230	219.0
Total Production Cost Of Refined Oil Excl Seeds	1,228,108	M FCFA	3,082,096	
Unit Production Cost Of Cakes Excl Seeds	11.3	FCFA/kg	8.4	9.7
Total Production Cost Of Cakes Excl Seeds	206,609	MFCFA	380,370	
Total Cost Excl Seeds	1,434,717	MFCFA	3,462,466	4,897,183
Selling Value Of Refined Oil	3,193,568	MFCFA	7,195,212	10,388,780
Selling Value Of Cakes	1,279,880	MFCFA	3,186,610	4,466,490
Total Selling Value	4,473,448	MFCFA	10,381,822	14,855,270
Margin	3,038,731	MFCFA	6,919,356	9,958,087
Breakeven Value Of Seeds	72	FCFA/kg	93	85

5.2.3 Financial results of SODECOTON and the cotton sector

SODECOTON profited every year between 1995 and 2004. During those years the shortfall of lint cotton was counterbalanced by the profits on oils and cakes. In 2005 the company registered a net loss of 11 billion FCFA in 2005, its first loss since devaluation.

SODECOTON's cumulative net profit from 1990 to 2004 was 20 billion FCFA. These profits have been used to repay existing debts (6.7 billion FCFA from 1993), to pay dividends to shareholders (9.8 billion FCFA), and to increase the Price Support Fund (11.5 billion accumulated between 1993 and 2004). The Price Support Fund was emptied in 2005 to compensate for SODECOTON's loss.

Despite the favorable pre-2005 results, the cotton supply chain is presently facing fiscal hardship. SODECOTON had to use the totality of its Price Support Fund to compensate for losses in 2005. With no cash on hand, the company can expect its capital costs to increase in

the upcoming years. OPCC had accumulated 11 billion FCFA in its reserve fund (used to finance inputs) and another 4 billion FCFA in 2005/06 to pay a premium to producers. The 2006/07 season will probably result in a further loss, for which SODECOTON has no more reserves to balance. More than likely, some level of external support for the company will be necessary for the next season.

Cameroon's cotton supply chain has been able to maintain its current level of productivity and output up to now without external support. Thanks to accumulated reserves, the company has offered producer prices higher than what would otherwise be profitable given the prevailing combination of low world prices and low dollar-to-FCFA exchange rate. However, the company can no longer draw on its financial reserves to maintain this price level.

5.2.4 Contribution of SODECOTON to the national budget

Over the past 14 years, SODECOTON paid GoC 3.3 billion FCFA per year for miscellaneous taxes (export duties, taxes on land, and vehicle registration fees among others), 870 million for taxes on earnings, 2.3 million for import duties (mainly on inputs), and 350 million in dividends. The total yearly transfer to GoC averaged 6.9 billion or 10 percent of the company's total sales.

5.3. Cost competitiveness at farm level

5.3.1 Input consumption and agricultural practices

The use of fertilizer on cotton started in the early 1970s and reached a peak between 1980 and 1986 when fertilizers were subsidized, as shown on Figure 11. Since that time fertilizer usage has increased and decreased in tandem with GoC and SODECOTON policies. When GoC subsidies ended, fertilizer usage dropped, but trended upwards between 1995 and 2004. In 2005, fertilizer usage dropped again as SODECOTON decided to reduce its credit offering to cover only 100 kg/ha of fertilizer. The apparent consumption⁴ of fertilizer in 2004/05 was 170 kg/ha, of which 50 kg was urea and 120 kg was compound fertilizer. This is lower than the amount recommended by SODECOTON (200 kg in the Extreme-North and 250 in the North). In reality, the quantity of fertilizer actually applied to cotton fields is probably much lower. According to M/E surveys, as much as 17 percent of the cotton fertilizer purchased on credit is sold by cotton farmers (probably to farmers without cotton), due to urgent cash needs. M/E surveys do not show significant difference in fertilizer consumption for cotton between farm types.

The average seed consumption is 50 kg/ha. Seeds are sold to farmers at a subsidized price, but farmers have to buy pesticides for seed treatment at market values.

Herbicides are used by an increasing proportion of farmers thanks to the growth of direct sowing, which skips traditional land preparation in favor of herbicide application. 49 percent of cotton farmers now practice direct sowing while 51 percent still plough their land with animal traction. Insecticide usage depends on the pest pressure, and varies accordingly from year to year. The average number of sprays is not known.

Organic manure is used to a limited extent. According to the 2002/03 M/E survey, organic manure is applied in more or less equal proportions on cotton, maize and sorghum. The average area of organic manure application is 0.15 ha per farm or 1 percent of the area under

⁴ quantity of cotton fertilizer purchased by farmers

cultivation. However, if the impact of manure application is assumed to last three years, the proportion of the farm with manure rises to 45 percent. When applied, the average dose per hectare is 2.3 MT.

5.3.2 *Input prices*

The unit price for inputs (including credit cost) is given on the table below. One should note the substantial increase in the price of compound fertilizer and urea in 2006/07 that followed recent increases in world prices. Fertilizers are sold at cost by OPCC, which for urea is twice the world price for bulk product FOB Europe (USD 304/MT or 154 FCFA/kg), reflecting the high transport cost that OPCC has to pay. The price of fertilizer is 20 percent higher on average than in Mali and Burkina Faso and points to potential cost inefficiencies in OPCC's input supply operation.

Table 13: Price of inputs

(FCFA)	Unit	2005/06	2006/07	2006/07 (USD)
Seeds	kg	15	15	0.03
Compound Fertilizer (15.20.15.6.1)	kg	270	310	0.61
Urea	kg	230	304	0.60
Herbicide (Gramoxone)	liter	3500	3400	6.73
Insecticides (Endosulfan 500)	liter	4500	4333	8.58

5.3.3 *Production cost per farm type*

M/E surveys do not collect all data necessary to calculate production costs. In the absence of a participatory rapid appraisal, the estimated production costs are calculated on the basis of data available, complemented, when necessary, by findings in Mali and Burkina Faso. Two criteria for farm differentiation have been used:

- Level of equipment (using SODECOTON's typology which identifies manual farms, farms with rented equipment and farms with their own equipment)
- Direct sowing versus plowing: direct sowing is less labor intensive and implies the use of herbicides.

In general, operations employing direct sowing show lower production costs. According to M/E surveys, the cost of hired labor (on which 50 percent of farms rely at least in part) is substantially higher than in Sahelian countries (Mali or Burkina Faso). Labor cost varies depending on the type of work, ranging between 600 and 800 FCFA per man-day (against 500 FCFA in Sahelian countries). All other conditions being equal, the total production cost (including labor, whether family or hired) is therefore slightly higher than in Sahelian countries and varies between 124 and 156 FCFA/kg.

Table 14: Estimated production cost depending on farming practices and type of farms (in 2006/07)

	Manual		Rented Equipment		Own Equipment	
	Herbicide	Ploughing	Herbicide	Ploughing	Herbicide	Ploughing
Inputs (1)						
Fertilizer	31,000	31,000	31,000	31,000	31,000	31,000
Urea	14,896	14,896	14,896	14,896	14,896	14,896
Insecticide	17,680	17,680	17,680	17,680	17,680	17,680
Herbicide	12,354		12,354	0	12,354	0
Seeds And Treatment	750	750	750	750	750	750
Sub-Total	76,679	64,326	76,679	64,326	76,679	64,326
Rental Of Equipment Or Maintenance (2)	4,602	4,602	6,122	6,122	6,024	6,024
Depreciation Of Equipment (3)					7,000	7,000
Maintenance Of Oxen (3)					9,000	9,000
Land Renting (2)	1,927	1,927	1,927	1,927	1,927	1,927
Total Excluding Labor	83,208	70,854	84,728	72,374	100,631	88,277
Number Of Days Harvesting (30 kg/Man-Day)						
(3)	36	37	42	37	42	42
Number Of Days Other Works (2)	73	104	73	55	73	55
Value/Day (2)	700	700	700	700	700	700
Total Cost Of Labor	76,767	98,933	80,710	64,867	80,710	68,110
Total Cost/Ha	159,974	169,787	165,438	137,241	181,341	156,387
Yield (2)	1,090	1,090	1,120	1,120	1,259	1,259
Cost/kg	147	156	148	123	144	124
Price Of Seed Cotton (1)	175	175	175	175	175	175
Gross Income	190,750	190,750	196,000	196,000	220,325	220,325
Remuneration Of Man-Day	981	848	965	1,334	1,038	1,357

(1) data collected from SODECOTON reports

(2) M/E survey 2002/03

(3) own estimate (based on findings in Mali and Burkina)

The hypotheses for the calculation are the following:

- Inputs: all models are assumed to have the same inputs consumption level (except herbicides), which corresponds to the findings in the M/E surveys; prices are 2006/07 prices; quantities/ha are assumed to be 100 kg for complex fertilizer (corresponding to maximum allowed on credit by SODECOTON), 49 kg for urea (M/E survey), 4.1l/ha for insecticides and 36l/ha for herbicides (when used), on the basis of the 2005/06 actual consumption.
- Labor requirements: labor requirements excluding harvesting have been calculated by M/E unit, both for direct sowing, and ploughing without herbicide; for harvesting, a standard of 30 kg/man-day (lower than in Mali, but equal to the Burkina standard, is assumed).
- Yields: yield averages found by the M/E survey for each type of farm are used, assuming that yields are not significantly different whether direct sowing or ploughing.
- Price of seed cotton: the price received by farmers in 2006/07.

The difference in production cost is only 30 FCFA/kg between manual farms, which have the highest cost, and fully equipped farms. This is a function of the small variability in yield between farm types. The yield phenomenon, peculiar for the region, can be explained by the fact that farm sizes are much more homogeneous than in Sahelian countries due to land pressure. Additionally, existing farm typologies do not take into account yield differentiation by region which is more important than the differentiation by type of farm. With a yield of 750 kg/ha, which seems to be the "normal" yield for a manual farm in the northern part of the zone, the production cost would be 200 FCFA. That cost drops to 125 FCFA with a yield of 1500 kg, which seems to be the "normal" yield for a fully equipped farm in the Southern part.

5.4. Return to farmers and impact on poverty

5.4.1 Return per day of work

Table 15 above shows that at the price of seed cotton paid in 2006/07 (175 FCFA/kg), the return per day of work is, in all cases, above the average agricultural wage.

5.4.2 Margin after payment of inputs

Between 1994 and 2004, the gross margin after payment of inputs ranged from 140,000 to 180,000 FCFA/ha, depending on the fluctuations of producer prices and yields. The rate dropped precipitously to 103,000 FCFA in 2005/06 due to a fall in the producer price and the average yield, coupled with an increase in input costs. At a 1995 constant value, the margin declined even more drastically and is currently only half of what it was after devaluation.

Figure 12: Evolution of the gross margin after payment of inputs

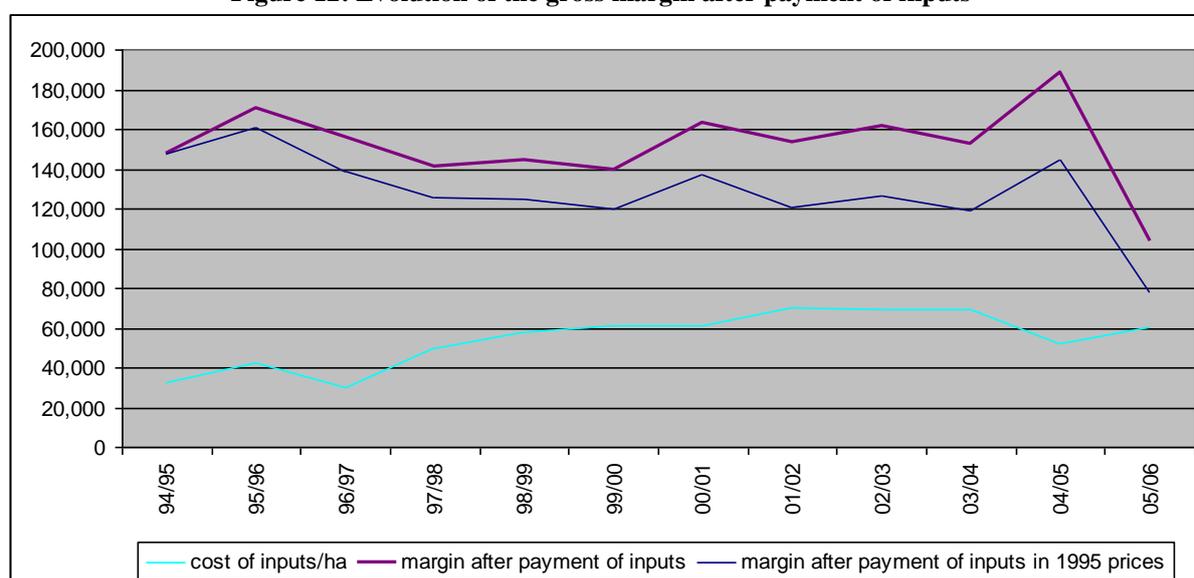


Table 15: Evolution of the gross margin after payment of inputs

	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06
Yield/Ha	1,175	1,229	1,169	1,122	1,128	1,099	1,163	1,221	1,286	1,142	1,270	952
Price/kg	154	174	159	170	179	182	193	183	180	195	190	172
Gross Income/Ha	180,950	213,846	185,871	190,740	201,912	200,018	224,459	223,443	231,480	222,690	241,300	163,744
Cost Of Inputs/Ha	32,850	42,846	29,971	49,640	57,812	60,818	60,859	70,143	69,780	69,790	52,600	60,044
Margin After Payment Of Inputs	148,100	171,000	155,900	141,100	144,100	139,200	163,600	153,300	161,700	152,900	188,700	103,700
Margin After Payment Of Inputs In 1995 Prices	148,100	160,413	139,151	125,941	124,994	119,785	136,948	120,720	126,576	119,329	144,381	77,334

5.4.3 Importance of cotton in the farming system and income comparison between cotton and non-cotton farms

Total income for cotton and non-cotton farms can be derived from the M/E field surveys done in 1998/99 and 2002/03 (see Annex 1). According to 2002/03 data, cotton accounts for 43 percent of farm gross total income, including production for home consumption. Cotton accounted for 57 percent of total cash income for cotton farms.

The total net margin of the average cotton farm, after deducting the cost of inputs, amounted to 408,000 FCFA, or 132,000 FCFA/ha (with an average of 3.1 ha/farm). That is 55,000 FCFA/person (with 7.4 people/farm). The margin increased slightly between 1998 and 2002 thanks to higher cotton yields.

Non-cotton farms showed cereal yields 10 percent higher than those for cotton farms. On average, non-cotton farms sell more cereal than cotton farms despite the fact that non-cotton farms often lack self sufficiency. The average total net margin of non-cotton farms is 293,000 FCFA/farm, (153,000 FCFA/ha or 40,000 FCFA/person).

According to this survey, cotton farms have higher income than non-cotton farms. However, the difference is not due to higher cereal yields or higher production value per hectare (the net margin per hectare is lower for cotton farms than other farms), but that cotton farms typically have more land. This suggests that the difference in income between the two types of farms is not due to cotton cultivation, but rather that farms with limited access to land cannot cultivate cotton for income.

Unlike Burkina Faso and Mali, cotton cultivation has no obvious impact on cereals yields, which are lower on cotton farms than on others (2.3MT/ha against 2.7 MT/ha in 2002/03). This surprising finding could be explained by the fact that there is an active black market for inputs through which non-cotton farmers, who cannot receive credit for input supply directly, can still get access to inputs. The high percentage of cotton farms explains the evident surfeit of cotton inputs used on non-cotton farms.

5.4.4 *Impact of cotton on poverty*

According to the GoC's 2002 Poverty Assessment, the incidence of poverty in the cotton-producing Extreme-North and North Regions is slightly below the rural average. However, the poverty incidence increased from 44.4 to 45.7 percent between 1996 and 2001, a period of time during which cotton developed rapidly. During the same period, poverty decreased for the overall rural population from 59.6 to 49.9 percent.

The fact that poverty has not fallen with the development of cotton must be related to the economics of cotton income. At 55,000 FCFA per person per year, cotton farmers register an average yearly income far below the poverty threshold of 232,000 FCFA per person per year. Under current cropping conditions and current prices cotton is probably not profitable enough to reduce the incidence of poverty in the cotton growing region. This is evidenced by:

- The lack of dynamism within the cotton economy of Northern Cameroon relative to Mali or Burkina Faso;
- The size of farms and the area under cotton per farm remains stable due to land pressure;
- The level of equipment remains relatively low because farms are often too small to take full advantage of animal traction equipment;
- There is no evidence that cotton farms have better yields in other crops.

On the other hand, cotton has probably played a major role in maintaining the rural population in the Northern part of the country. Thanks to cotton employment, the North has avoided massive migrations, and because of the relative abundance of land in the Northern Region, it has absorbed migrants from the Extreme-North into its own cotton sector. If cotton production collapsed, farmers would probably shift en masse to cereals. This would undoubtedly result in a market glut and further increase poverty.

5.4.5 Spillover effect of cotton on other crops

Despite the fact that cereal yields are no higher on cotton farms, it can still be argued that cotton (or rather SODECOTON) had a strong spillover effect on other crops. The company developed maize varieties which reach very impressive yields given the soil fertility problems in the cotton area; moreover, the company gave the farm sector access, either directly or indirectly through sales between farmers, to inputs. SODECOTON disseminated new cropping techniques, like direct sowing with the use of herbicides, and markedly reduced illiteracy. Finally, it contributed to improvements in animal production and developed the now critical use of organic manure.

5.5. Sector sustainability

Assuming stable world cotton prices, the sustainability of the cotton sector is contingent on a downward adjustment of the producer price to a level around 155 FCFA. This corresponds to the breakeven producer price at a world price of USD \$0.60/lb and an exchange rate of 1.3 Euro/dollar. However, a further decline in producer prices will undoubtedly result in increased poverty in a region where the poverty index is already high. A decline in producer prices will probably also result in a further decline of areas and production, as the price elasticity of supply comes into play. Moreover, this scenario may cause an increase in the risk coefficient on input credit and make the intensive package recommended by SODECOTON less and less financially sustainable.

One way to overcome this dilemma might be to develop alternate and more cost effective soil fertility management techniques, such as sowing under vegetal cover and the use of organic manure. For the cotton company as well as for farmers, production diversification might represent another improvement. For instance, SODECOTON management is considering the development of new oil seeds like sunflower or soya beans.

6 LESSONS LEARNED

Cotton has undoubtedly played a key role in the rural development of Northern Cameroon although it has not generated sufficient income to eliminate poverty. To date, the cotton sector's successes have been a function of:

- (a) A comprehensive and relatively efficient extension system, which introduced an intensive production regime in a difficult context. The sustainability of such a costly extension services network, as well as the sustainability of the intensive packages which are presently in question because of declining world prices and unfavorable exchange rates.
- (b) The integration of a well managed oil production operation within SODECOTON, which has allowed the company to offset recent losses in the ginnery sector.
- (c) The overall efficient management of SODECOTON and a functional independence from political pressure, despite the fact that the government still has a majority stake in the company's ownership. This counter intuitive situation can be explained by:
 - The strong regional lobby to support cotton in Northern Cameroon;
 - The geographic isolation of cotton company headquarters far from GoC offices which reduces the risk of political pressures;
 - The cotton company's historic profitability;

- The support of cotton by local chieftaincy which is very powerful in Northern Cameroon;
- The company's strong management. Serving for years at a time, management administrations have left few obvious opportunities for politically motivated outsiders to influence decisions.

(d) The close cooperation between the cotton company and producers' associations.

The risks associated with the company's current business model are:

- A weak financial position which necessitates a reduction in producer prices in order to avoid further losses. This will likely have a negative impact on poverty and production in the absence of alternative cash crops.
- Precarious soil fertility, which demands innovative and cost effective soil fertility management techniques in an area where land and demographic pressures are limiting factors for profit and production.
- The geography of the cotton belt which makes logistics costly and reduces the competitiveness of the cotton sector.
- The deterioration of good governance and the rise of corruption in Cameroon, which is a chronic sector-wide liability.

In such a context, the future privatization process should be carefully planned and studied in order to avoid dismantling the sector. The process must ensure transparency and avoid attracting non-professional investors. At the same time it must remain open to the input of producers' associations in the management of the sector and take into account the need for an efficient rural development support and extension system in the cotton belt.

ANNEX 1: INCOME PER FARM IN 1998 AND 2002

Income/Farm	Cotton Farms								Non Cotton Farms									
	Production	Price	% Sold	Gross Income	%	Gross Monetary Income	%	Production Cost (Excluding Labor)	Net Margin (Excluding Labor)	Production	Price	% Sold	Gross Income	%	Gross Monetary Income	%	Production Cost (Excluding Labour)	Net Margin (Excluding Labour)
<i>In 1998/99</i>																		
Cotton	1,150	173	100%	198,950	39%	198,950	54%			0			0	0%	0	0%		
Maize	1,051	80	42%	84,080	16%	35,314	9%			404	88	41%	35,552	15%	14,576	9%		
Sorghum	1,047	70	22%	73,290	14%	16,124	4%			1153	67	24%	77,251	32%	18,540	12%		
Groundnut	357	208	52%	74,256	14%	38,613	10%			91	231	48%	21,021	9%	10,090	7%		
Other Crops (Onions And Misc)				27,000	5%	27,000	7%						71,000	29%	71,000	46%		
Total Agriculture				457,576	89%	316,001	85%						204,824	84%	114,207	74%		
Livestock				37,300	7%	37,300	10%						21,500	9%	21,500	14%		
Other				18,500	4%	18,500	5%						18,500	8%	18,500	12%		
Total Farm Income				513,376	100%	371801	100%	147,400	365,976				244,824	100%	154,207	100%	62,000	182,824
<i>In 2002/03</i>																		
Cotton	1,436	175	100%	251,300	43%	251,300	57%			0			0	0%	0	0%		
Maize	1,394	76	50%	105,944	18%	52,972	12%			1561	79	80%	123,319	34%	98,655	40%		
Sorghum	895	75	19%	67,125	12%	12,754	3%			1223	83	20%	101,509	28%	20,302	8%		
Groundnut	393	210	58%	82,530	14%	47,867	11%			133	220	54%	29,260	8%	15,800	6%		
Other Crops (Onions And Misc)				24,000	4%	24,000	5%						59,000	16%	59,000	24%		
Agriculture				530,899	91%	388,893	88%						313,088	86%	193,757	79%		
Livestock				35,000	6%	35,000	8%						28,000	8%	28,000	11%		

Other				17,000	3%	17,000	4%						25,000	7%	25,000	10%		
Total Farm Income				582,899	100%	440,893	100%	174,000	40,899				366,088	100%	246,757	100%	73,000	293,088

source: M/E SODECOTON survey

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