

IS WEST AFRICAN COTTON COMPETITIVE WITH THE U.S. ON THE WORLD COTTON MARKET?

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Abstract

The African franc zone (AFZ) is the second largest exporter of cotton on the world market after the U.S. Cotton production in Africa is labor intensive, whereas it is capital intensive in the U.S. Productivity in the AFZ is much lower than in the U.S. Nevertheless, despite an overvalued domestic currency, AFZ production is cost competitive with the U.S. thanks to the low cost of labor. Cotton is hand picked and the average quality of cotton fiber is better than the average quality produced in the U.S. However, the U.S. cotton industry has a competitive edge in terms of marketing.

Introduction

Production in the African franc zone (AFZ) countries has increased dramatically over the last five decades, rising from 30,000 tons of lint in 1950/51 to 200,000 tons in 1980/8, and climbing to one million tons (4.6 million bales) in 2001/02, about 5% of world production. Production in the other Sub-Saharan African countries increased at a slower pace, from 400,000 tons in 1980/81 to 600,000 tons (2.8 million bales) in 2004/05. Taken as a group, the African franc zone emerged as the second largest exporter in the world, with a market share of about 15% in 2003/04. Three-quarters of exports from AFZ countries are shipped to Asia, and China (Mainland) accounted for 40% of total exports in 2003/04. Nevertheless, the U.S. remains by far the largest exporter with a market share of 41% in 2003/04. Cotton exports are vital to the U.S. cotton industry and to the least developed economies of the African franc zone. Domestic mill use in the AFZ is extremely low and unlikely to take off because the AFZ has no comparative advantage in textile production. Likewise, domestic mill use in the U.S. has been dropping since the mid-1990s and is heading lower because of competition of imported textiles and apparel.

The purpose of this paper is to explore the competitiveness of AFZ cotton vis-à-vis the U.S. in terms of productivity, cost, quality and marketing.

Overview of the African Franc Zone Cotton Sector

Cotton is produced in eleven countries of the African franc zone (Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Côte d'Ivoire, Guinea Bissau, Mali, Niger, Senegal, Togo), sharing a common currency, the CFA franc, pegged to the euro by a fixed parity of 656 CFA franc. Cotton is produced in the Northern hemisphere sub-tropical savannahs, with ecological and climatic conditions suitable for cotton cultivation. In particular, after a five-month rainy season, there is no risk of rain or frost during the harvesting period. Overall, the environment in the AFZ cotton belt is much less diverse than in the U.S. cotton belt.

Cotton production in the AFZ countries developed along the same lines and has similar characteristics. Upland cotton, grown on small-scale farms, is entirely rain fed. All seed cotton is harvested by hand and saw-ginned.

Cotton is central to farming systems in the African franc zone producing countries. It is the only cash crop with guaranteed marketing in most cotton areas, fostering innovation, contributing to rural development and food security. The African franc zone countries are extremely export-dependent as 97% of the AFZ production is shipped abroad.

The 8 countries producing over 20,000 tons of lint each (Benin, Burkina Faso, Cameroon, Chad, Côte d'Ivoire, Mali, Senegal, Togo), account for 99% of the total output in the African franc zone. Cotton production is atomized between an estimated 2 million cotton growers in the AFZ, grouped in more than 1,000 producers associations or cooperatives.

The AFZ cotton sector is characterized by its vertical integration ('filère intégrée') from farm to gin. In 4 countries (Cameroon, Chad, Mali and Senegal), a single company has a legal monopsony in the purchasing and ginning of all seed cotton and is responsible for the sale of cotton lint to the domestic and the export markets. Ginning has been liberalized in 4 countries (Benin, Burkina Faso, Côte d'Ivoire and Togo) in the second part of the 1990s, and similar moves are planned in the other countries. Although there is still state regulation and intervention, governments are divesting from the cotton sector, and offer very little support to producers and ginners. Ginning companies are required to purchase all the seed cotton produced, and producers are required to sell all of their seed cotton to ginners, at a fixed national producer price announced in advance of each season. Seed cotton production is sold directly by producers or by their associations to the ginning companies, without a layer of private traders or middlemen in between. Altogether, in 2004/05, there are 25 ginning companies and a total of 84 gins in the eight major countries.

Productivity

Cotton is grown on an estimated 2 million farms in the AFZ, and the total area is about 2.3 million hectares (5.8 million acres). The average area planted to cotton by growers is one hectare (4 acres), compared with 225 hectares (550 acres) in the U.S.

Cotton production in the AFZ is labor intensive, using manual or ox-drawn implements and relatively few purchased inputs per ton of production, whereas it is capital intensive in the U.S. Cotton cultivation requires about 150 man days per hectare (60 man days per acre), including 50 man days for hand picking. On average, a grower harvests about one ton of seed cotton per season, equivalent to only 2 bales after ginning, compared with some 950 bales per farm in the U.S. in 2004/05. For most cotton farmers, the net income from seed cotton (about 120,000 CFA francs or \$240) is the only money they receive during the entire season, for a family of 6 to 8 people.

The commercial ginning outturn of 42% (ratio of lint to seed cotton) is the highest in the world, because cotton breeding had been focused on that parameter. All production is saw-ginned in U.S. made modern high-capacity equipment. Average production is 12,500 tons (55,000 bales) per gin per season, more than in the U.S. (about 25,000 bales).

Natural conditions in the AFZ are less stressful for the cotton crop than in many parts of the U.S. cotton belt. Smallholder cotton producers have access to quality inputs on a timely basis, but input use is low and agricultural practices used by farmers are often outdated owing to lack of knowledge. As a result, the average yield is 430 kilograms of lint per hectare (385 lbs or 0.8 bales per acre), 45% of the U.S. average yield this season. However, about 40% of U.S. cotton area is irrigated. The variability of yields among farmers is much higher in the AFZ than in the U.S.

The average yield in the AFZ is much higher than in the other Sub-Saharan African countries (270 kilograms per hectare or 0.5 bales per acre). However, the productivity gap with the rest of the world is widening. The average yield in the AFZ rose until the mid-1980s but it has stagnated since, while the average yield in the U.S. stagnated from 1985/86 through 2002/03 averaging 720 kilograms per hectare (1.3 bales per acre), but rose to a record of 948 kilograms per hectare (1.75 bales per acre) in 2004/05. Cotton production conditions in the AFZ today are very similar to those in the U.S. in the days before mechanical harvesting. In 1930, cotton was grown on 2 million farms in the U.S., out of a total of 6.3 million farms. On many of these farms, there was no cash income other than from cotton. Cotton was planted on 17 million hectares (42 million acres), and the crop reached 2.8 million tons (13 million bales), averaging 160 kilograms per hectare (0.3 bales/ acre), 21 acres (8.5 hectares) and 6.5 bales (1.4 tons) per farm. In sharp contrast, there were less than 25,000 cotton farms in the U.S. in 2004/05, and the crop reached a record of 23 million bales (5 million tons) on 13.7 million acres (5.5 million hectares) planted.

Costs of Production

Despite lower yields, cotton production in the AFZ is cost competitive with the U.S.

The official minimum procurement price for seed cotton is generally announced before planting. Pan-seasonal and pan-territorial pricing is the rule. In 2004/05, producer prices ranged from 175 to 210 CFA francs per kilogram of seed cotton, equivalent to 39-47 cents per pound of lint (exchange rate 1US\$ = 485 CFA franc). There is almost no other attractive cash crop in most producing areas and the fixed price system offers a protection to cotton producers in the AFZ.

African cotton growers rely on unpaid family labor and have almost no fixed costs. Purchased inputs costs account for most of their cash costs. Average cash costs amount to 75,000 CFA/ha (\$ 63/ac) or 16 cents/lb, about 40% of gross income, significantly less than in the U.S. The cost of inputs is not paid up front by farmers, and is deducted from the sales of seed cotton. As there are very few other opportunities for labor in the rural areas, farmers are likely to grow cotton as long as they can cover their cash costs.

The AFZ producing countries are price-takers on the world cotton market. The use of price risk management instruments by producers and ginners is almost non-existent.

Most producing areas are landlocked, as far as 1,500 kilometers (1,000 miles) from the shipping ports on the Atlantic Ocean. Inland transportation by road is relatively expensive, and most cotton is loaded into containers at the port, not at the gins. Sea freight rates from the West African Coast to the Far East are much higher than those from the U.S. on the westbound transpacific route. As a result, the cost of cotton delivered to importing ports ranged between 710 and 825 CFA francs per kilogram in 2004/05, equivalent to 66-77 cents per pound CFR Far East main ports, depending on the origin. The producer price is by far the most important component, accounting for about 60% of CFR total costs.

As cotton is sold in dollars on the world market, the exchange rate is a very important factor of competitiveness. Devaluation of the CFA franc in January 1994, by 100% against the French franc, boosted cotton production in the following seasons, while the U.S. dollar was strengthening, climbing to a peak against the euro in February 2002. The trend has been reversed since, severely affecting the profitability of cotton production in the AFZ. CFR costs were equivalent to 45-50 cents per pound in early 2002 (with 760 CFA franc to the dollar), among the cheapest in the world. All things equal, the strengthening of the euro, and, consequently, of the CFA franc, against the U.S. dollar, increased cotton production costs expressed in dollars by close to 50%. The currencies of AFZ competitors on the world market did not appreciate as much against the U.S. dollar, except the Australian dollar.

Nonetheless, the AFZ remains cost competitive with the U.S. where the national average cost of production is about 70 cents per pound ex-gin.

Quality

At the national level, AFZ crops are more homogeneous than U.S. crops in terms of quality, despite the fact that cotton is grown without irrigation by numerous small farmers. This can be explained by the relative uniformity of the environment and by the standardization of varieties. Only one to three varieties, at the most, are cultivated in each country, and those varieties were bred from the same sources and with a common objective to maximize the ginning outturn. However, the variability within the bales is greater than in the U.S. because one single bale can mix the production of several farmers.

The base quality is above the type quoted in *Cotton Outlook* and taken into account for the calculation of the benchmark Cotlook A Index:

- . Grade Middling+ and SM white;
- . Staple 1-3/32" to 1-3/16";
- . Micronaire 3.7 – 4.2;
- . Strength 27 – 30 grams per tex.

The U.S. base quality SLM 1st1-16 (41-34) is not produced in the AFZ. Staple 36 or above (up to 38) accounts for 60% of AFZ production, whereas about 40% of the U.S. crop is classed 35 or more. However, AFZ cotton tends to have a slightly creamy color, and is not as white as U.S. cottons.

Therefore, from a quality standpoint, AFZ cotton is competing with California/Arizona and California SJV cottons. The AFZ exports more medium and high-medium cottons than the U.S., and its market share exceeds 30% on the segment of ring spun combed yarns. The U.S. produces and exports a lot of low and medium quality cottons for open end and ring spun carded yarns. There is an export market for cottons that are discounted due to parameters, micronaire or strength, outside the premium range.

AFZ cotton is classed manually (instrument-classing data are available in some countries on a sample basis), and sold on types (generally national types), not on description. Universal Density bales are wrapped in polypropylene, not in cotton, and country damage during inland transport and storage is not uncommon.

Machine-picked cotton is more liable to deteriorate by ginning practices. Seed cotton drying and lint cleaning result in U.S. cotton contains more fine trash (pin leaf), short fiber, neps and seed-coat fragments short fiber than AFZ hand-picked cotton, lowering its spinnability and the quality of final products. Therefore, being hand picked, AFZ cotton should fetch a premium compared to machine picked-cotton.

However, contamination of the lint by foreign matters (mostly plastic strings) during picking and storage of seed cotton and stickiness due to pests annihilate the comparative advantage. Contamination has worsened as production increased, because the volume has been detrimental to care during picking. The ITMF 2003 contamination survey rated the U.S. among the least contaminated origins, whereas more AFZ origins are among the most contaminated. These surveys have no statistical value but for the market, perception and reputation are more important than the facts. Price differentials between AFZ origins essentially reflect their respective contamination factor.

In summary, fiber quality in the AFZ is superior to the average quality produced in the U.S. because the environment is more favorable and because cotton is hand picked. As a matter of fact, cotton is a tropical crop, which is often produced in the U.S. at the limit of suitable natural conditions. However, contamination annihilates the comparative advantage, to the extent that AFZ hand-picked cotton is now discounted to U.S. machine-picked cotton. Some quality-conscious mills even refuse by principle to buy any manually harvested cotton to avoid the risk of quality claims downstream.

Marketing

Cotton from the AFZ is very competitive with U.S. cotton, price-wise and quality-wise. However, as Cotton Council International promotes it, U.S. cotton is 'more than just fiber'. The export performance of the U.S. cotton industry is due to several factors. These include efficiency of the marketing system and of export promotion programs, high industry standards, volume offered, wide range of qualities, year-round availability, reliability of deliveries, shipping efficiency, and fast and cheap transportation. Reliable and dependable classification data (100% HVI) are also a factor. Due to the wide variation in quality parameters, HVI classing is more necessary for U.S. cotton than for AFZ cotton, where the range of parameters is much narrower. However, having the knowledge of what fiber properties are available are just important as the actual fiber properties to many spinners.

Last but not least, is the U.S. price competitiveness mechanism; the farm bill is a true safety net, with marketing competitiveness provisions enabling U.S. cotton to be offered competitively price without limitation in volume and regardless of the actual cost of production. Cotton exports from the AFZ are not benefiting from government support equivalent to the very efficient marketing competitiveness provisions of the U.S. farm bill. Cotton production does not receive any government support, except occasional emergency price support in some countries. There are neither export taxes nor import taxes on raw cotton.

AFZ cotton is ginned from November through April. Cotton can be shipped all-year round starting December, three months later than U.S. new crop first shipments. Over 15 international cotton merchants, including the world's largest cotton trading companies, are engaged in the trade of African franc zone cotton, buying cotton from ginners, selling to foreign textile mills, and arranging shipment to destination. AFZ cotton is sold to several hundreds

spinners in more than fifty countries. Overall, marketing cotton from the African franc zone has no particular problem. Ginning companies are established and considered reliable by merchants. Merchants consider it much easier to purchase cotton in AFZ countries than in East Africa because offers are not atomized between numerous trading companies and the volume is sufficient to ensure all-year round shipments, while quality standards are relatively consistent. Unfortunately, political instability in Côte d'Ivoire during recent seasons has affected also neighboring landlocked Burkina Faso and Mali, casting a doubt on the reliability of shipment from the whole region. Producers and ginners in the African franc zone lack technical expertise and market knowledge. Smallholders are not able to benefit from tools of price risk management to provide protection against the inevitable price fluctuations. Know-how of price risk management tools is almost non-existent. Language is also a considerable obstacle, because 'cotton trade speaks English'.

Summary and Conclusions

Cotton exports are vital to the U.S. cotton industry and to the least developed economies of the African franc zone. The way cotton is harvested, manual in the AFZ and mechanical in the U.S., is critical for productivity, production costs, and fiber quality. Cotton produced in the AFZ is very competitive with U.S. cotton in terms of production costs and fiber quality. However, the price of the AFZ is discounted on the world market because of its contamination. In addition, the U.S. has a competitive edge in terms of marketing. In order to improve the competitiveness of its cotton exports, the African franc zone should:

1. Increase productivity and reduce costs

Improving the yield of the least efficient producers, which implies education, would reduce the productivity gap. However, harvesting will remain a major constraint. The introduction of biotech varieties could help but it would not be a panacea. Novel gene characteristics should be introduced through local varieties as a component of an integrated pest management system, and biotech should not be seen as a replacement or alternative to sound pest management practices. In any case, the existence of a centralized regulatory process to evaluate and control biotech varieties, the capacity to educate farmers in the use of biotechnology, and legislation to protect germplasm and technology are pre-requisites for the successful evaluation and adoption of biotech cotton.

Liberalization is due to continue and there is certainly room for improvement in the management of the cotton companies, leading to reduced operating and overhead costs. However, one should not expect a big impact on producer prices because the parastatals are not as inefficient as many people believe. As a matter of fact, industry standards and constraints in the AFZ are such that reducible costs represent only a limited proportion of the total cost of cotton.

The fact that cotton producing areas are landlocked is a heavy handicap, and improvements in transport infrastructures would improve competitiveness of the AFZ cotton sector.

2. Improve Quality

Instrument-based evaluation systems are superior to traditional hand-classing methods of grading cotton, and the implementation testing of cotton with standardized instrument testing methods and procedures is needed to compete with U.S. exporters.

The reduction and the eventual elimination of contamination is certainly the most promising avenue for increasing the competitiveness and the selling price of cotton from the African franc zone. Prices are discounted by more than 5 cents per pound (10%) compared to cotton produced in Zimbabwe (which has similar characteristics and is also hand-picked) because of contamination by foreign matter in the lint. At the current exchange rate, the discount is equivalent to 25 CFA/kg of seed cotton. Eliminating contamination is possible provided that the right signals are sent to farmers through a more rigorous pricing system, discounting contaminated seed cotton, or giving a premium to uncontaminated cotton. No other component of the cost of production could possibly have a higher impact on producer prices.

3. Devalue the CFA franc

An overvalued currency does not make economic sense for the export-dependent “true” LDC’s countries of the African franc zone. Devaluation of the CFA franc against the euro is urgently needed to restore the competitiveness of AFZ cotton exports.

4. Develop use of price risk management tools

NYBOT cotton futures can be an effective tool to manage international cotton price risk. Nevertheless, fluctuations in the basis cannot be hedged, reducing the benefit from hedging AFZ cottons on the NYBOT futures contract.

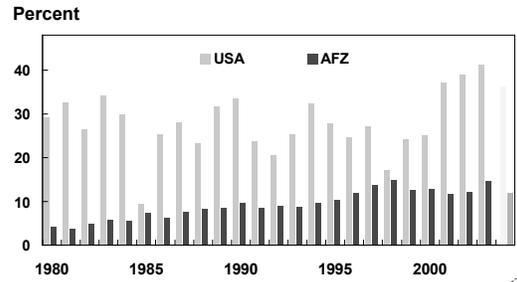
5. Eliminate subsidies

Finally, the AFZ countries should continue to fight for the elimination of subsidies that distort cotton production and trade. Research by the ICAC Secretariat suggests that the removal of subsidies worldwide would result in average international cotton prices 5 cents higher than realized in 2002/03 and 2003/04, and production would shift to non-subsidizing countries in the medium and long terms.

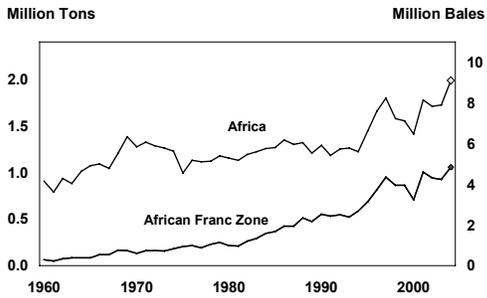
African Franc Zone Cotton Areas



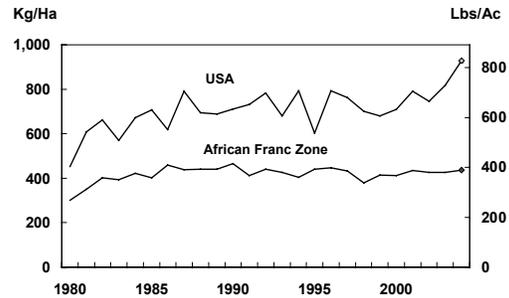
SHARE OF WORLD EXPORTS



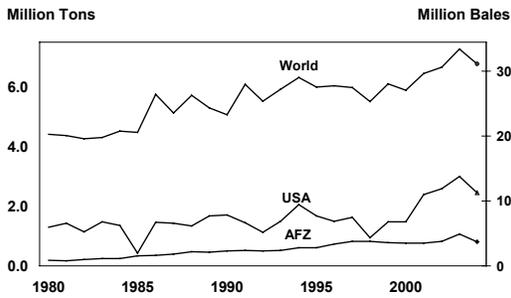
AFRICAN COTTON PRODUCTION



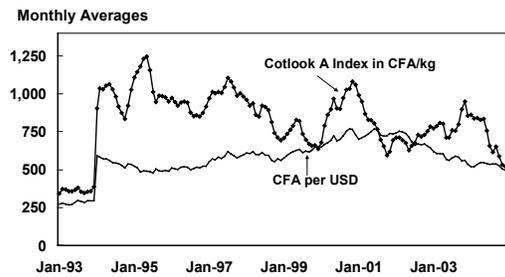
COTTON YIELDS



COTTON EXPORTS



EXCHANGE RATE and PRICES



Is West Africa Competitive with the U.S. on the World Cotton Market?



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Outline

- Overview
- Productivity
- Costs
- Quality
- Marketing
- Prospects



African Franc Zone Cotton Areas

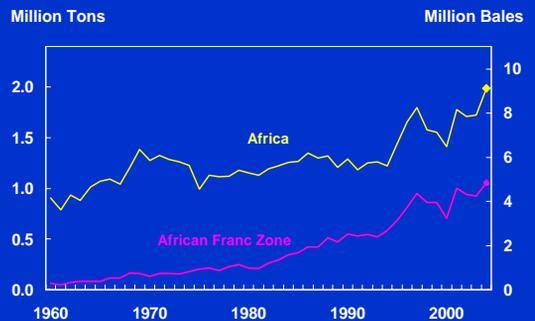


Overview of the Cotton Sector in the CFA zone

- 11 countries sharing currency (1 euro = 656 CFA franc)
- 1 million tons (4.6 mn bales; 5% of world)
- Upland cotton; 100% rain fed; small-scale farms
- 100% hand picked; 100% saw ginned
- 97% exported
- Outperforms East Africa



AFRICAN COTTON PRODUCTION

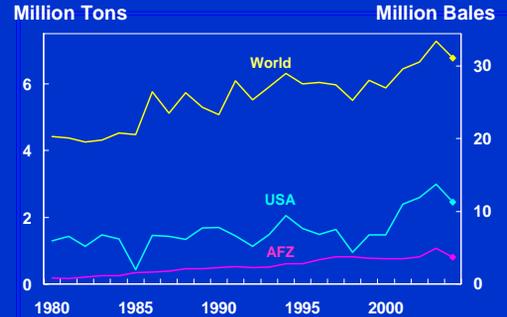


Cotton Sector Structure

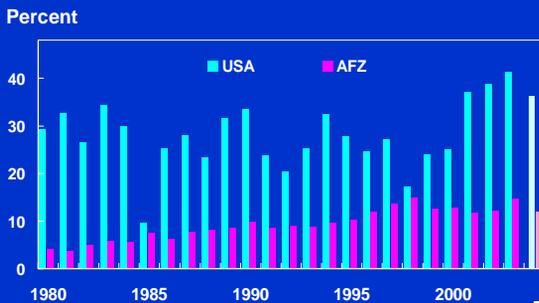
- 8 countries producing over 20,000 tons (100,000 bales)
- Vertical integration ('filière intégrée')
- About 2 million producers
- Over 1,000 producers associations
- No middlemen between producers & ginners
- 23 ginning companies (83 gins):
Monopsony in Cameroon, Chad, Mali, Senegal
Liberalized in Benin, Burkina Faso, Côte d'Ivoire, Togo



COTTON EXPORTS



SHARE OF WORLD EXPORTS

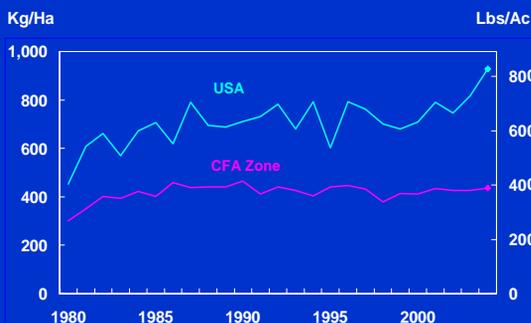


Productivity

- Average cotton area: 1 ha (4 acres) per farm
- Labor intensive: 150 man days per ha (picking: 50)
- Average yield:
1,000 kg seed cotton per ha
Ginning outturn above 42%
430 kg lint per ha (385 lbs/ac)
- Average production:
2 bales per farm
12,500 tons (55,000 bales) per gin per season
- Productivity gap is widening



COTTON YIELDS



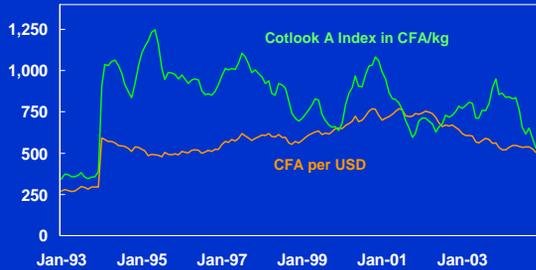
Costs

- Producer price:
175 to 210 CFA/kg seed cotton (39 to 47 cents/lb lint)
No other attractive cash crop in producing areas
- Unpaid family labor & few purchased inputs:
Average cash costs 75,000 CFA/ha (\$ 63/ac) or 16 cents/lb
- High transportation costs from gins:
Total costs 710 to 825 CFA/kg CIF (66 to 77 cents/lb)
- Price-taker (15% of world exports):
Little use of price risk management instruments
- Impact of Exchange Rate:
CIF costs were between 45 and 50 cents/lb in 2001/02



EXCHANGE RATE and PRICES

Monthly Averages



Quality

- . Hand-picked; saw ginned: less neps & short fiber
- . UD standard bales; wrapped in polypropylene
- . Homogeneous Crops:
 - One or two varieties in each country
 - Grade Middling+ to SM; Staple 1-3/32" to 1-3/16"
 - Micronaire 3.7 – 4.2; Strength 27 – 30 gpt
- . Manual classing; private commercial types
- . Creamy color; Contamination; Stickiness
- . Hand picked cotton discounted vs machine picked

Marketing

- . Ginning from November through April
- . All year round shipments starting December
- . 15+ international cotton merchants
- . 300+ importers/spinners in over 50 countries
- . No govt support (except emergency); No export taxes
- . Landlocked producing areas; Political instability
- . 'U.S. Cotton – more than just fiber'

Prospects

- . Increase Productivity:
 - Biotechnology is not a panacea
 - Manual picking is a constraint
- . Improve Quality:
 - Instrument testing needed to compete
- . Eliminate Contamination:
 - Emulate Zimbabwe & Zambia
- . Devalue CFA franc
- . Develop use of price risk management tools
- . Fight price-distorting subsidies