

AN OVERVIEW OF FOOD SECURITY IN UPPER VOLTA

a report prepared for
USAID / Upper Volta

by

Steve Haggblade

July 16, 1984

TABLE OF CONTENTS

	<u>Page</u>
Executive Summary	vii
I. INTRODUCTION	
A. Background and Objectives	1
B. Defining Food Security	1
C. Relationship to USAID Goal of Nutritional Self-reliance .	4
II. STATISTICAL REVIEW OF FOOD SECURITY STATUS	
A. A Current Snapshot of Nutritional Well Being	
1. National measures	6
2. Regional variation	12
B. Trends in Nutritional Status	
1. Seasonal variation	15
2. Long-term trends	19
C. Financial Implications of Food Imports	22
D. Conclusions	24
III. FOOD POLICY	
A. Key Institutions and Policy Documents	25
B. Policies for Stabilizing Food Consumption Around Current Trend Levels	
1. Inter-annual consumption stabilization	27
2. Seasonal consumption stabilization	35
C. Policies Designed to Close the Nutritional Gap	
1. Production policy	37
2. International trade policy	46
3. Distribution policy	48

TABLE OF CONTENTS, CONTINUED

	<u>Page</u>
SELECTED REFERENCES	50
APPENDICES	
I. General Supplement	
A. Minimum Cereal Requirements	52
B. Supplementary Tables	55
II. Trade Data	
A. A Primer on Upper Volta's Official Trade Statistics . . .	61
B. Trade Statistics	63
III. Statistics by Commodity Subsector	
A. Cereals	71
B. Oil and Oilseeds	83
C. Meat	92
D. Tubers	100
E. Fruits and Vegetables	102
F. Cotton	104

LIST OF TABLES

	<u>Page</u>
1. Nutritional Well-Being as Measured by Food Consumption	8
2. Food Composition of Diet	10
3. Nutritional Well-Being as Measured by Anthropometric Evidence	11
4. Regional Food Production	13
5. Regional Differences in Nutritional Status	14
6. Seasonal Differences in Nutritional Status	18
7. Long-term Trends in Per Capita Food Supply	20
8. Long-Term Trends in Food Production	21
9. Affordability of Food Imports	23
10. Establishment of Cereal Banks, by Region	30
11. Responsiveness of Cereal Imports to Production Shortfalls	32
12. OFNACER Sales by Region, 1982/83	34
13. Evolution of Input Use in Upper Volta's Agriculture	39
14. Regional Variation in Input Availability in Upper Volta's Agriculture	41
15. Evolution of Official Producer Prices for Selected Agricultural Commodities	43
16. Tariff Rates, April 1984	45
17. Government Transfers to and from Commodity Subsectors	47

LIST OF FIGURES

	<u>Page</u>
1. Sub-Saharan Africa: Projected Dietary Gap	3
2. Distinction Between Food Security and Nutritional Self-Reliance	5
3. Food Supply Calendar	16
4. Monthly Variations in Adult Body Weight	17

APPENDIX TABLES

- I.1 OFNACER Purchases and Sales, 1971-1982
- I.2 OFNACER's Leverage in Supporting Producer Prices
- I.3 Details of Government Transfers Among Commodity Subsectors
- I.4 Assumed Commodity Distribution of Government Expenditure
- I.5 Producer Pricing Policy, Commodity Comparisons
- I.6 Consumer Pricing Policy, Commodity Comparisons
- II.1 Food Export Values, Official Statistics
- II.2 Food Export Quantities, Official Statistics
- II.3 Food Import Values, Official Statistics
- II.4 Food Import Quantities, Official Statistics
- II.5 Difference Between Official Statistics
and Actual Trade Flows
- II.6 Comparative Food Aid Estimates
- III.1 Cereal Production
- III.2 Area Planted in Cereals
- III.3 Cereal Yields
- III.4 Cereal Import Quantities
- III.5 Value of Cereal Imports
- III.6 Cereal Exports, Quantity and Value
- III.7 Sorghum Prices
- III.8 Millet Prices
- III.9 Maize Prices
- III.10 Rice Prices
- III.11 Wheat and Miscellaneous Prices
- III.12 Oilseed Production and Yields
- III.13 Area Planted in Oilseeds
- III.14 Imports of Edible Oils
- III.15 Export Quantities of Oil and Oilseeds
- III.16 Export Value of Oil and Oilseeds
- III.17 Sheanut Prices
- III.18 Peanut Prices
- III.19 Relative Peanut Prices
- III.20 Sesame Prices
- III.21 Livestock, National Herd Size
- III.22 Recorded Slaughters
- III.23 Meat Production
- III.24 Meat and Poultry Consumption Estimates
- III.25 Value Of Meat Exports
- III.26 Quantity of Livestock Exports
- III.27 Meat Imports and Prices of Livestock Products
- III.28 Tuber Production
- III.29 Tuber Prices
- III.30 Fruit and Vegetable Production
- III.31 Fruit and Vegetable Prices
- III.32 Cotton Production, Area and Yield
- III.33 Cotton Exports
- III.34 Cotton Prices

LIST OF ACRONYMS

ADS	- Agricultural Development Support Project
AVV	- Autorite des Amenagements des Vallees des Volta
BCEAO	- Banque Centrale des Etats de l'Afrique de l'Ouest
CEDRES	- Centre d'Etudes et de Documentation pour la Recherche en Economie Sociale
CENATRIN	- Centre National pour le Traitement d'Information
CERCI	- Centre d'Etudes et de Recherches sur les Cultures Irrigees
CFJA	- Centre de Formation de Jeunes Agriculteurs
CILSS	- Comite Permanent Interetats de Lutte Contre la Secheresse dans le Sahel
CNCA	- Caisse Nationale de Credit Agricole
CRED	- Center for Research on Economic Development
CRS	- Catholic Relief Services
CSPPA	- Caisse de Stabilization des Prix des Produits Agricoles
CTFT	- Centre Technique Forestier Tropical
DAAF	- Direction des Affaires Administratives et Financieres
DEP	- Direction des Etudes et Projets
DIRC	- Direction des Institutions Rurales et du Credit
DSA	- Direction des Services Agricoles
ESSEC	- Ecole Superieure des Sciences Economiques
FAO	- Food and Agriculture Organization
FED	- Fond Europeen de Developpement
FSU	- Farming Systems Unit
GOUV	- Government of Upper Volta
HER	- Direction des Services de l'Hydraulique et de l'Equipement Rural
IBRD	- International Bank for Reconstruction and Development
IFPRI	- International Food Policy Research Institute
INSD	- Institut National de la Statistique et de la Demographie
IRAT	- Institut de Recherches Agronomiques Tropicales
IRCT	- Institut de Recherches du Coton et des Textiles Exotiques
IRHO	- Institut de Recherches sur les Huiles et Oleagineux
MCH	- Maternal Child Health
MCODIM	- Ministere de Commerce, du Developpement Industriel et des Mines
MDR	- Ministere de Developpement Rural
MET	- Ministere de l'Environnement et du Tourisme
OFNACER	- Office Nationale des Cereales
ONAC	- Office National du Commerce Exterieur
ONBI	- Office National des Barrages et de l'Irrigation
ONERA	- Office National d'Exploitation des Ressources Animales
ORANA	- Organisme de Recherche sur l'Alimentation et la Nutrition Africaine
ORD	- Organisme Regional de Developpement
PAM	- Programme Alimentaire Mondial
PAN	- Plan Alimentaire National
SAFGRAD	- Semi-Arid Food Grain Research and Development
SATA	- Service de l'Alimentation et de la Technologie Alimentaire
SOFITEX	- Societe Voltaique des Fibres Textiles
SOVOLCOM	- Societe Voltaique de Commercialisation
USAID	- United States Agency for International Development
UVOCAM	- Union Voltaic de Cooperatives Agricoles Maraicheres

EXECUTIVE SUMMARY

Food security is defined as the ability to assure consumption of a nutritionally adequate diet to all members of a country's population. In the short run, this involves the ability to stabilize consumption in the face of temporary shortfalls in production and incomes. And in the long run, it entails raising consumption up from sub-standard to minimally acceptable nutritional levels.

A review of the statistical evidence reveals the magnitude of the task currently facing Upper Volta's food policy makers. All measures of nutritional well-being - national food balance sheets, household consumption studies and anthropometric measures of nutritional status - point to chronic deficiencies in overall food consumption and health environment. Over the past 20 years, while protein intake has been adequate on average, the availability of calories and lipids (fats) has not. Aggregate caloric intake normally remains at 85% and lipid consumption at only 50% of nutritionally recommended minimum levels. These low levels of food intake combine with general features of the health environment - lack of potable water, prevalence of disease and parasites - to produce high mortality rates and widespread chronic malnutrition.

Over the past 20 years, increases in food availability have generally kept pace with population growth, allowing per capita consumption to remain roughly constant. While the per capita food deficit has not widened, neither has it been reduced. Domestic food production has declined slightly over the last two decades on a per person basis, so maintaining steady consumption levels has meant an increase in the importance of food imports. But food imports have grown more slowly than overall imports and at the same rate as total export revenues. So while Upper Volta does face increasing balance of payments pressure, increases in food imports do not appear to be responsible.

The long-term trends in food consumption disguise considerable variability from year to year. Because Upper Volta's is an agricultural economy whose production depends largely on the highly unpredictable Sahelian rainfall, output as well as incomes and prices vary considerably from one year to the next. These fluctuations lead to substantial short-term variation in food consumption. During the drought of 1972-74, consumption fell about 20% below trend levels, bringing caloric intake to a bone-wrenching 70% of nutritional standards.

So food policy makers in Upper Volta face two major challenges. The first is to stabilize food consumption in the face of short-term drops in production and incomes. Second is the long-term challenge of raising up food consumption to minimum nutritional levels.

In tackling the first challenge, the short-term stabilization problem, the GOUV has adopted the following strategy. They have built up local security stocks of grain adequate to provide a first line of defense in years of poor harvest. Their goal is to buy sufficient time by distributing the security stocks to enable food imports to be brought in, filling the remainder of the consumption shortfall. The two key institutions holding

GOUV security stocks are OFNACER (the National Cereals Office) and a network of cereal banks run by village cooperatives. The storage capacity of these two institutions has increased from negligible levels in 1970 to about 95 thousands tons in 1984. Actual carryover grain stocks, measured just before harvest, have averaged about 24 thousand tons over the past four years, a 3-month supply for 8% of the country's population.

Since the early 1970's, institutional capacity to hold and distribute grain in times of need has certainly increased as has the ability of the donor community to deliver food aid. But related food policies - particularly consumer pricing policies - may have diminished the willingness of the private sector to import, stock and move grain to deficit areas. So in spite of the increased official capacity to respond to short-term food needs, it is not clear that the country's overall responsiveness has improved. Evidence on privately held food stocks and marketing conduct will be required before a clear assessment can be made of Upper Volta's net ability to respond to short-term food shortages.

In meeting the second challenge, the long term task of raising trend consumption levels, the government has made two key decisions: a) they have made food self-sufficiency their overall national objective, giving clear priority to local food production rather than production of tradeable non-food items; and b) among the food commodities to be promoted, GOUV has chosen cereals as their highest production priority. Analysis of government resource flows indicates that actions indeed match their words: the government tax and budgetary allocation system effects large net transfers to cereal producers. The transfers are financed by net taxes on cotton production and on non-cereal food commodities, principally livestock and sheanuts.

In evaluating the government's long-term strategy for closing the food gap, three major comments may be made. The first concerns GOUV's focus on cereals. The admittedly imperfect data on which our assessments must be made indicate that lipid deficiency is a critical dietary problem and one which policy makers are doing relatively little to address. While cereals, which contribute 70% of overall dietary calories, are clearly deserving of government attention, the oilseeds should not be ignored. Government intentions to move into increasingly active promotion of peanut production is a step in this direction; but particularly enticing are the prospects for a relatively inexpensive solution to be found through a focus on sheanuts. Currently sheanuts are exported in large quantity, so there is already a production surplus on which to draw. While we have little more than speculation to go on, it appears that breaking a processing bottleneck may be the key to boosting local sheanut butter consumption. Currently bearing a substantial tax burden, sheanuts find virtually no government resources channeled back to their support. Yet a modest investigation into sheanut processing and marketing might yield substantial nutritional dividends.

A second comment concerns the means of promoting cereal production. Government currently relies heavily on input subsidies and incentive producer prices. GOUV's strong commitment to positive producer prices for cereals is both uncommon and laudable. It is worth emphasizing, though, that price incentives will only raise production if farmers have the means to respond. And many reviewers of Upper Volta's agriculture question whether a technical package exists that will allow an aggregate supply response on the part of

farmers. While output prices for cereals must remain attractive, particularly relative to cotton, it may be necessary to emphasize the conjoint need for higher priority to adaptive agricultural research.

A third general observation on long-term policies is that government does not clearly target food to low income and at risk groups. Since much of the food gap is a distributional problem, the current policy which makes substantial food subsidies available to all income groups is an expensive and inefficient means of closing the nutritional gap. While standard methods of targeting food to low income groups - food stamps and fair price shops - may be administratively cumbersome and expensive, the targeting of subsidies to specific food commodities can be much less so. To design effective targeting interventions will require that some key data to be generated on consumption profiles by income group and on income elasticities for various food commodities. The beginning of such research is currently underway, and when the results become available a year or two down the road, it may be possible to design commodity specific price policies that will be both more effective than present policy in closing the nutritional gap and also less costly.

Considering the total policy package, one major need becomes apparent: that of explicitly integrating consumer pricing policy into food policy analysis. To date, written policy documents have largely neglected discussion of consumer pricing policy - probably because the documents have emanated from the Ministry of Rural Development, while consumer pricing remains largely the prerogative of the Ministry of Commerce, Industrial Development and Mines. Explicit policy documents to date have not really come to grips with the interrelationships between consumption policy and production policy, and between consumption and nutritional well-being. And consumer pricing policy as implemented frequently conflicts with stated general precepts of overall food policy. If rigorously enforced, current consumer pricing policy would strongly discourage the private sector from importing cereals during poor harvest years; it would discourage private stocking of grain as well as private transfer of grain to deficit regions of the country. The drafting of the National Food Plan, begun over a year ago under the auspices of the World Food Council, represents a good opportunity to begin bridging the current gap between consumer pricing and the rest food policy.

To produce a viable National Food Plan as well as the capacity for ongoing policy research, it will be necessary to improve the quality and range of policy-relevant data as well as to augment government's analytical resources. In improving Upper Volta's food policy data base, particular priorities should be on: a) generating income/consumption data; b) improving the quality of food production data; c) generating reliable information on privately held food stocks, d) improving understanding of food marketing structures and their performance; and e) building ongoing nutrition monitoring systems. To boost GOUV analytical capabilities will require not only training but also the material resources necessary to carry out sustained policy analysis. A substantial volume of research and policy analysis is currently performed outside of government by donors. While this work is of some use, the hard policy decisions will have to be made by government itself, and effective decision making will only be possible when GOUV has the necessary data and analytical tools at its disposal on an ongoing basis.

I. INTRODUCTION

A. Background and Objectives

The mandate of this study is to provide a " cursory yet comprehensive" review of food security in Upper Volta. The study is comprehensive in that it is to consider all food commodities - meat, cereals, oils, tubers, fruits and vegetables - as well as the full range of policies affecting food production, trade, distribution and consumption. It is cursory in that it was completed by one person in 8 calendar weeks.

Commissioned by USAID/Upper Volta for use in their long-term programming, the study includes two major parts. First is a statistical review of trends in food consumption, production and nutritional well being. And second is a review of government food policy.

In order to provide the range of commodity analysis required by USAID while at the same time avoiding a crush of detail, the following strategy has been adopted. The main body of the report houses a synthesis of both the statistical and the policy findings, highlighting general features of the food system but not necessarily entering into great detail on each commodity subsector. For those specialists interested in particular commodity groups, individual appendices have been prepared delving into more detail on each of the five major food commodity subsectors.

Before entering into the main body of the report, the reader must be cautioned that the quality of statistics bearing on food availability in Upper Volta is extremely variable. Production data are thought to be correct to plus or minus 15%; official export statistics are known to underestimate the actual value of trade flows by about 40%; and until recently, data on privately held food stocks were virtually non-existent. Yet decisions must be made; policies and programs must be designed. To assist the decision makers, a number of statistical appendices have been added detailing the calculations by which many of the tables in the main body of the report were produced and allowing some insight into the various margins of error. An attempt has been made to sort through the available data gingerly. But in the end, the conclusions in this report are only as sound as the data on which they are founded. In the future, as the quality and range of available data improve, so too will our understanding of food security issues.

B. Defining Food Security

Food security, for purposes of this review, is defined as the ability to assure a nutritionally adequate level of food consumption to all segments of a country's population. The relevant nutritional requirements for Upper Volta are: 2,370 kilocalories, 50 grams of protein and 60 grams of lipids per

person per day[1]. To achieve food security in the short run requires two capabilities: a) the ability to stabilize aggregate food supply in the face of temporary declines in income and production; and b) the ability to distribute available food as needed - among people and regions as well as throughout the year. In the long run, a secure food system must be able to meet the aggregate food needs of a growing population as well as provide the shifting mix of foodstuffs consumers demand as their incomes rise. It is worth highlighting at the outset that food consumption, not its production, is the ultimate objective of food security.

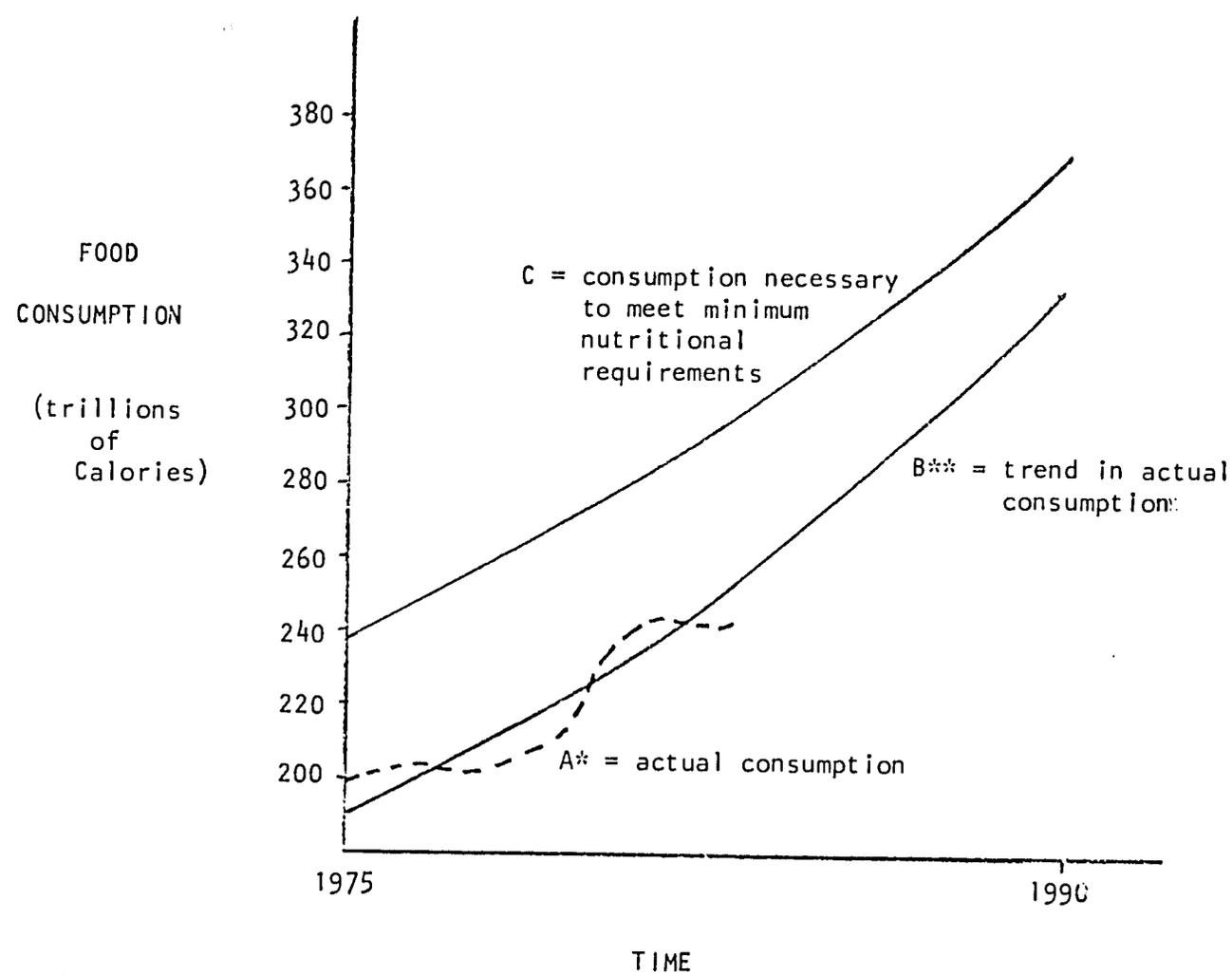
The term "food security" has been used often in international forums, although what the users mean by the term has varied widely. To avoid potential confusion, the reader should be alerted to divergent views concerning two related and key parameters: time frame and target consumption levels. A great many analysts of food security - particularly those associated with the work done at the International Food Policy Research Institute (IFPRI) - have confined themselves to a short-run time frame and have adopted as their target stabilization of food consumption around current trend levels. While recognizing that actual trend levels of consumption may be significantly below minimum nutritional requirements, they consider efforts to raise up consumption to the nutritionally required standards to be a long-term objective outside the purview of their food security discussions. But more recent work on food security - such as that supervised by the World Food Council and by the FAO Committee on World Food Security - has added to short-term stabilization objectives the long-term goal of raising consumption to minimum nutritionally required levels. Figure 1 highlights the differences between these two views of food security. Analysts using the IFPRI definition evaluate ways of maintaining consumption at level B, while proponents of the newer view adopt the more ambitious goal of seeking ways to stabilize consumption and ultimately of raising it to level C.

This review adopts the second, broader definition of food security for two main reasons. First of all, government and donors alike will find IFPRI's an unacceptably narrow view of food security in a country such as Upper Volta where stabilizing consumption at trend levels will perpetuate endemic malnutrition. Second, work that is to be operationally useful to policy makers must recognize that important potential conflicts exist between short-term stabilization goals and long-term attempts to raise production and consumption levels. Because of these conflicts, practitioners will find it necessary to weigh the tradeoffs involved in potential policy interventions by considering the long-term dimension of food security together with the short-term stabilization issues.

1. The calorie requirement is the widely referenced FAO standard found in "La Situation de l'Alimentation et de l'Agriculture, 1982," FAO, Rome, 1983, p.193. The protein requirement is that computed by the World Bank in their "Upper Volta Health and Nutrition Sector Review," November 12, 1982, p.7. And the lipid standard is the one adopted by the Food and Food Technology Service (SATA) of the Ministry of Rural Development. To avoid potential confusion, the reader should remember that one kilocalorie, the equivalent of 1,000 calories, is often written as one "Calorie" with a capital C.

Figure 1

SUB-SAHARAN AFRICA: PROJECTED DIETARY GAP



Source: "Food Needs of Developing Countries: Projections of Production and Consumption to 1990" International Food Policy Research Institute, REsearch Report, No.3, December 1977, p.63. Wheat equivalents converted to Calories at 332 Cals. per 100 grams of wheat.

* Actual consumption is stylized, not based on IFPRI data.

** This is the most optimistic consumption estimate based on IFPRI's highest level of estimated income growth.

C. Relationship to USAID Goal of Nutritional Self-Reliance

Food security, as defined in this review, is very closely related to USAID/Upper Volta's primary objective of "nutritional self-reliance". While USAID's Country Development Strategy Statement (CDSS) labels the mission objective as "nutritional self-sufficiency", the more recent Agricultural Development Support (ADS) Project Paper refers to it as "nutritional self-reliance". Apparently synonymous, these two terms are defined as an absence of stunting and wasting as well as the elimination of low live birth rates. Since these objective indicators of nutritional self-reliance are measures of vulnerable group malnutrition, their absence implies achievement of adequate nutritional standards for all segments of the population. This corresponds with the definition of food security adopted in this review as does the CDSS recognition that, in view of current low levels of food consumption, nutritional self-reliance will be a long-term goal.

Although the two terms are closely related, food security is a narrower concept than that of nutritional self-reliance. The difference, illustrated in Figure 2, stems from food security analysts' use of food consumption as a proxy for nutritional well-being. Food consumption they have normally estimated from food balance sheets, largely because time-series production and trade data are available for a wide range of countries. Focussing on the portion of the hunger problem that is due to inadequate food intake, the food security literature has largely ignored health-related environmental variables affecting nutritional well-being. In contrast, nutritional self-reliance encompasses the broader field of enquiry by implicitly including factors of the health environment (safe water, prevalence of disease, access to health services and so on) that affect the effectiveness with which the body assimilates the food it consumes. So aiming for nutritional self-reliance is a more ambitious undertaking than is aiming for food security. Attainment of food security is a necessary but not a sufficient condition for achieving nutritional self-reliance.

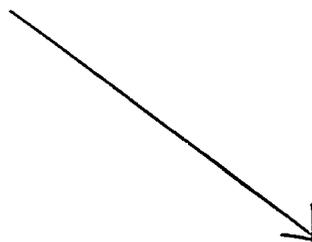
Despite this slight difference, the area of overlap is considerable. So the ensuing discussion of food security should, in fact, contribute directly to efforts aimed at outlining a strategy for achieving nutritional self-reliance in Upper Volta.

Figure 2

DISTINCTION BETWEEN FOOD SECURITY AND NUTRITIONAL SELF-RELIANCE

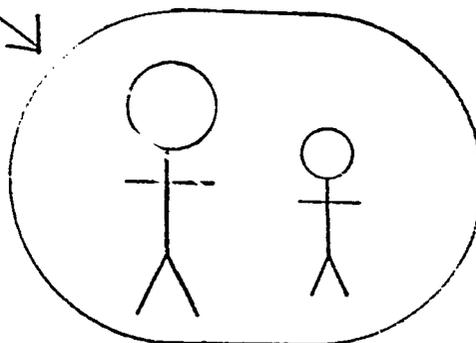
FACTORS AFFECTING NUTRITIONAL STATUS

A. FOOD CONSUMPTION



B. HEALTH ENVIRONMENT

- sanitation
- clean water
- prevalence of disease
- access to health services
- parasitic infestation



MEASURES OF NUTRITIONAL WELL-BEING

1. FOOD CONSUMPTION

- *a. food balance sheets
$$\frac{(\text{prodn.} - \text{losses} + \text{imports} - \text{exports})}{\text{population}}$$
- b. household consumption surveys

**2. Anthropometric measures of how well food assimilated to meet bodies needs

* Normal measure of food security.

** Measure of nutritional self-reliance as defined by USAID/Upper Volta.

II. STATISTICAL REVIEW OF FOOD SECURITY STATUS

A. A Current Snapshot of Nutritional Well-Being

1. National measures.

The goal of a secure food system is to ensure that all members of a country's population consume a nutritionally adequate diet. As was shown in Figure 2, nutritional adequacy can be measured from two main perspectives: 1) through measurement of food consumption; or 2) by using anthropometric measures of how well the body makes use of the food it consumes. Although these two approaches are closely related, the anthropometric yardstick is a more demanding one, since it requires not only that a person consume a nutritionally satisfactory diet, but also that the health environment be sufficiently favorable that the body can make full use of the food it consumes.

Because food consumption is normally measured in one of two different ways, this results in a total of three commonly-used measures of nutritional well-being:

1. Measurement of food consumption
 - a. food balance sheets
 - b. household consumption surveys
2. Anthropometric measures.

Each of these three common measures has advantages and disadvantages which are best understood by briefly reviewing how each measure is undertaken. The first breed of analysts are those who estimate food consumption by producing national food balance sheets. They do so by taking aggregate national production of each food commodity, subtracting out estimated storage and processing losses, adding imports and subtracting exports to arrive total estimated national consumption. Using standard nutritional composition tables, they then translate the food quantities into nutrient values. The advantage of this approach is that food production and trade figures are normally easily available, so the calculation can be performed for a wide range of countries with little data collection or expense. The disadvantages of the food balance sheets are that they say nothing about interpersonal food distribution - among regions, individuals or income groups - and they probably undercount consumption of wild gathered foods which, particularly during certain seasons, appear to be important supplements in Voltaic diets.

The second method of measuring food intake is to interview households and ask them what they ate during a specific reference period. This approach yields important breakdowns by income group, region and by season; but it is much more expensive than constructing food balance sheets. Although to a lesser extent, this approach is also likely to undercount consumption of wild gathered foods, particularly those consumed away from the home by household members other than the ones being interviewed.

Anthropometric measures offer a third means of assessing nutritional well-being. They entail physical measurements - usually of height, weight or arm circumference - from which any of several common ratios [2] are computed and compared with standard growth charts to assess nutritional status. Nutrition specialists take these measurements either in clinics or in randomly selected households. The main advantage of this approach is that it clearly identifies interpersonal differences in health status; and, at least in theory, it represents a true measure of nutritional status, measuring the net effect of both food intake and general features of the health environment. One drawback is that it is expensive to do outside of clinics, yet it is only in random samples outside the clinics that one obtains a truly representative measure of the nutritional status of a population. Nutritionists, especially in Africa and Asia, also worry that the absolute scales against which growth rates are measured may not be universally valid since they are based on observed growth patterns of caucasian children in temperate northern climates. Some suggest this results in inappropriate standards that tend to overestimate the extent of malnutrition in African settings.

Nutrition analysts have used all three measures in their assessments of nutritional status in Upper Volta. The results of their work are displayed in Tables 1, 2 and 3.

Table 1 summarizes the evidence on nutritional status as measured by food consumption. Both the food balance sheets and the household consumption surveys are broadly consistent and highlight three main features of nutritional status in Upper Volta. First, it appears that protein consumption is adequate on average. Second, caloric intake - although varying substantially from year to year - has tended, over the last two decades, to hover around 85% of nutritionally recommended norms. And third, lipid consumption has been computed to be at only 50% of minimum nutritional requirements. It must be admitted that, because of the difficulty of measuring wild foods, the caloric shortage computed from both consumption-oriented approaches may overstate the energy gap. But the consistency of the food balance sheets and the household consumption studies - particularly when considered in conjunction with the anthropometric measures of nutritional status - lead one to believe that caloric intake is, in fact, often at substandard levels. Even recalculating the FAO food balance sheets for Upper Volta's best production years (instead of using three-year averages) raises caloric intake to only 90% of the recommended minimum. And the lipid problem appears very real. Sensitivity analysis of the 1975-77 food balance sheet indicates that even under the most optimistic estimates of peanut, sheanut [3] and sesame consumption, daily intake of lipids would

2. See note 7, page 12 for a brief description of the commonly used indicator ratios.

3. Sheanuts, called "karite" in French, are not a cultivated crop. They are a wild nut gathered from trees that grow naturally throughout Upper Volta.

UPPER VOLTA
NUTRITIONAL WELL-BEING AS MEASURED BY FOOD CONSUMPTION
(average per capita consumption)

	<u>Calories</u>	<u>Protein</u>	<u>Lipids</u>	
		-----	grams	-----
		----- per person per day -----		
I. <u>Minimum Nutritional Requirements</u>	2370	50	60	
II. <u>Actual Consumption</u>				
A. <u>National Food Balance Sheets</u>				
1. 1979-81 average	2009	64	36	
2. 1975-77 average	2002	64	33	
3. 1977	2060	n.a.	n.a.	
4. 1976	2203	n.a.	n.a.	
5. 1971	2054	n.a.	n.a.	
B. <u>Consumption Studies</u>				<u>Coverage</u>
1. 1978/79, Fada area	1574	54	17	17 villages **
2. 1978, Kaya area	1535	48	13	3 villages *
3. 1963/64, national	2015	57	34	202 localities **
4. 1955, Ouahigouya area	3180	83	30	3 villages **
5. 1952, Bobo area	2639	82	37	**

Sources: I. Calories - "La Situation Mondiale de l'Alimentation et de l'Agriculture, 1982," FAO, Rome, 1983, p.193. Protein - IBRD, "Upper Volta Health and Nutrition Sector Review," November 12, 1982, p.7. Lipids - Food and Food Technology Service (SATA), MDR.

- II.A.1. Preliminary FAO food balance sheet obtained from World Food Program Office, Ouagadougou.
2. FAO, "Bilans Alimentaires Moyenne 1975-77," Rome, p.442.
3. CILSS data as reported by SATA, MDR.
4. & 5. Ministry of Plan estimates as reported by SATA, MDR.
- II.B.1. & 2. MDR, SATA surveys in Fada'N-Gourma and Kaya regions.
3. "Enquete Budget Consommation, 1963/64," Ministere du Developpement et du Tourisme, Juin 1966, Table 20, p.85.
4. A. Serre, "Etudes monographiques de villages: Borodougou, Sinorosso, Karakoro," mimeo, ORANA, section de Bobo-Diolasso, 1955.
5. A. Serre, Enquete alimentaire en Haute Volta, region de Ouahigouya, mimeo, ORANA, Dakar, 1952.

* Indicates single interview - one period during year.
** Multiple interviews, throughout the year.

still attain only 61% of nutritional requirements.[4]

A disaggregated view of the consumption statistics highlights several important features of Upper Volta' nutritional landscape. Of major significance is the preponderant place held by cereals in local diets. As shown in Table 2, cereals supply the bulk of both calories and proteins available in Voltaic diets.[5] This has important policy implications as will be seen later.

It is also important in disaggregating national consumption figures to consider interpersonal variations in food intake. Distributional questions magnify the danger of the food gap. Food balance sheets, after all, simply compute total food availability and divide by total population, implicitly describing a situation in which an impartial allocator divides up food equally among all members of the population. But instead food is allocated by market mechanisms, and the rich enter the market with more purchasing power than the poor, doubtless emerging with a greater per capita share of the available food. Since intake of calories and lipids appears to be inadequate in the aggregate, low income groups are likely to be significantly worse off than even the average national figures suggest. Similarly, even the adequate overall protein availability may disguise substantial shortages among low income groups and vulnerable members of the population.

While recent data giving breakdowns of food consumption by income group are, unfortunately, not available [6], the anthropometric evidence displayed

4. This is calculated taking 1976 peanut production, the highest during the 1975-76 period, along with the CSSPA's informal most optimistic guesstimate of local sheanut consumption. Their guess is that, in the best harvest years, a maximum of 100 thousand tons is consumed locally, while the FAO figures use the average figure of 31 thousand tons. Further calculation show that the introduction of hand-operated extraction equipment, which could double extraction rates for sheanuts, would boost overall lipid intake to 68% of nutritional requirements.

5. Table 2 is at the center of the debate over cereal consumption requirements. The government maintains that 215 kg per person per year are necessary to achieve minimum nutritional standards, while many donors feel the FAO figure of 180 kg is more realistic. This significant discrepancy is a major bone of contention in discussions of how much food aid is required in any given year. Appendix I.A delves into this debate and suggests an intermediate standard.

6. A 1983 consumption survey of Ouagadougou is currently being analyzed by FSU/SAFGRAD personnel at Purdue University, and ESSEC/CEDRES did a pilot consumption study in Ouagadougou in October 1983. The FSU results are not yet available, and the ESSEC data, gathered for a single month, were really a pilot effort which will be followed up shortly with IFPRI support in a detailed year-long urban consumption study. Until these results are out, there is little evidence available on the important question of consumption by income profile.

TABLE 2

UPPER VOLTA: FOOD COMPOSITION OF DIET

	CALORIES				PROTEINS				LIPIDS				
	NAT'L 63/64	PLAN 76	FAO 75/77	KAYA 78	FADA 78/79	NAT'L 63/64	FAO 75/77	KAYA 78	FADA 78/79	NAT'L 63/64	FAO 75/77	KAYA 78	FADA 78/79
1. Cereals	73%	71%	73%	88%	80%	70%	64%	73%	59%	36%	41%	66%	47%
2. Roots & Tubers	1	7	2	-	-	-	1	17	27	-	-	-	-
3. Legumes	-		10	8	13	-	18			-	6	22	29
4. Oils & Oilseeds	8	7	9	-	1	2	6	-	-	48	52	-	-
5. Fruits & Vegetables	11	4	-	3	3	17	1	8	7	-	-	8	6
6. Animal Products	7	3	2	1	3	11	9	2	7	16	1	4	18
7. Drinks and Misc.	-	8	4	-	-	-	1	-	-	-	-	-	-
8. Total Percent	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
9. Total/Person / day	2015	2203	2002	1535	1574	57g	64g	48g	54g	33g	33g	13g	17g

Sources: As in Table 1.

TABLE 3

UPPER VOLTA
NUTRITIONAL WELL-BEING AS MEASURED BY ANTHROPOMETRIC EVIDENCE

<u>Population Group</u>	<u>Percent Wasted*</u>	<u>Percent Stunted**</u>	
1. <u>ORD of Kaya</u> , Jan. 1978			
children < 5 yrs.	22%	n.a.	
2. <u>ORD of Fada-N'Gourma</u> , Dec. 1979			
children < 5 yrs.	16%	n.a.	
3. <u>ORDs of Center East, North East, Sahel and Volta Noire</u> , March-May 1978			
children < 6 yrs.	19%	28%	
children 7-10 yrs.	5%	28%	
youth 11-20 yrs.	20%	n.a.	
adults 21-80 yrs.	19%	n.a.	
4. <u>Northern Upper Volta</u> (north of Ouagadougou and east of Ouahigouya)			
children			
- May-June 1974	6 mo. - 5 years	4%	20%
- March-Apr. 1975	"	3%	37%
- May-June 1975	"	3%	32%

* Wasted is defined as less than 80% of median weight for height.

** Stunted is defined as less than 90% of median height for age.

Source: IBRD, "Upper Volta Health and Nutrition Sector Review,"
November 12, 1982, p.56.

in Table 3 does enter into some of the distributional questions by examining nutritional status according to population age group. Representing results of the most recent local anthropometric studies, Table 3 indicates high levels of both chronic and acute malnutrition, particularly among pre-school children. Between 20 and 40 percent of the children in the studies cited were found to be stunted, while up to 20 percent were wasted.[7] Particularly vulnerable groups, according to these studies, are children of weaning age and pregnant and lactating women.[8].

2. Regional variations.

National averages disguise considerable regional variation in food consumption and health status. It is well known that milk is most commonly consumed in the livestock producing regions of the Sahel, that meat is consumed more heavily in urban than rural areas and that the production of tubers, fruits and other food crops are available in greater abundance in the South West than in other regions of the country. Tables 4 and 5 attempt to quantify the magnitude of these regional differences in food availability and consumption.

Regional food balance sheets are very difficult to produce given the virtual non-existence of reliable data on inter-regional trade flows. As a proxy for food consumption, Table 4 provides comparative data on food production by region. The overriding conclusion is that the South West has a far greater food availability than other regions. Presumably food consumption is higher there as well, especially given that incomes are highest in the South West, Upper Volta's cotton growing center.

The anthropometric evidence in Table 5 certainly corroborates what the food production figures suggest - that nutritional status is better in the South West than in other regions. The data in Table 5 are taken from the Cathwell Maternal and Child Health (MCH) clinics around the country where participating mothers bring their children once a month to monitor the nutritional status of the child, to receive health and nutrition education and to obtain food allocations. Analysis of the data from these clinics needs to be tempered with two notes of caution. First, since the children measured by Cathwell's ongoing monitoring system are self-selected, they do not necessarily represent a random cross-section of the overall population. Second, the numbers visiting the clinics may vary from month to month, and particularly over longer periods of time due to participant turnover. So the data do not refer to a rigorously controlled group of the same children whose

7. Stunting, the common indicator of chronic malnutrition, is measured by comparing height for age against a "normal" growth standard. Wasting, an indicator of acute malnutrition, is defined in terms of weight for height. A third, and very commonly used indicator of undernutrition is that used by Cathwell and the Ministry of Health - weight for age. It is a general indicator of nutritional status combining characteristics of acute and chronic malnutrition.

8. IBRD, "Upper Volta Health and Nutrition Sector Review", pp.6,7.

TABLE 4

UPPER VOLTA

REGIONAL* FOOD PRODUCTION

(Kg/Capita)**

	<u>MOSSI PLATEAU</u>	<u>EAST</u>	<u>SAHEL</u>	<u>SOUTH WEST</u>
1. <u>Cereals</u>	147	220	129	550
2. <u>Tubers</u>	.6	2.8	0	5.9
3. <u>Oils</u>				
- Peanuts	8	10.	4.6	37.1
- Sesame	.3	0	2.7	6.3
4. <u>Vegetables</u> (for export)	.2	0	0	.6
5. <u>Fruit</u>	?	?	?	?
6. <u>Meat Production</u> (Consumption)	5.6 (6.8)	16.7 (5.9)	41.4 (5.7)	8.0 (7.6)

* Regions are defined along ORD boundaries. Mossi Plateau = Center, Center North, Center East, Center West and Kaya; East and Sahel = ORDs of the same name; South West = Volta Noire, Bourguiba, Hautes Bassins & Comoé.

** Figures are 5 year averages, 1977/78 - 1981/82, for all food groups except meat which are for 1969.

Source: 1, 2, 4 - MDR, "Bulletin de Statistiques Agricoles, 1978/79 - 1981/82", and "Annuaire de Statistiques Agricoles, 1977".

2 - Calculations based on Demeaux, "Etude de faisabilité pour l'organisation d'un centre sur les racines et tubercules en Haute Volta", FAO, January 1982.

6 - Calculations based on Herman & Makinen, "Production, Commercialisation et Exportations de Bétail et de Viande en Haute-Volta," CRED, 1981, p. 122.

TABLE 5

UPPER VOLTA

REGIONAL DIFFERENCES IN NUTRITIONAL STATUS

(Index indicating prevalence of malnutrition
among children visiting CRS Maternal Child
Health Centers)*

<u>REGIONS**</u>	Month of <u>February 1980</u>	Month of <u>January 1981</u>	Month of <u>January 1982</u>	Month of <u>February 1983</u>
Mossi Plateau	100	105	108	103
East	104	90	95	97
Sahel & Center North	93	110	110	104
South West	72	61	70	66

* Index level of 100 equals the level of malnutrition occurring in Mossi Plateau clinics in February 1980. That level was 45.5% of children below 80% of median weight/age on The Harvard Standard.

** Regions refer to Health Regions which correspond closely, although not exactly, to the regional breakdowns defined along ORD boundaries.

Source: Cathwell.

progress is followed over time. The bulk of the children represent a regular core of participants, but this is not strictly so. While the data are not ideal, they are summarized in Table 5 (and later in Table 6) because they constitute essentially the only extensive, ongoing analysis of regional and seasonal differences in health status in Upper Volta. In addition, the large numbers of children measured (an average of 45,000 per month between 1980 and 1983) allow one to generalize with some confidence. Examination of Cathwell's anthropometric evidence does clearly indicate that children visiting clinics in the South West are less likely to be stunted than are their counterparts in other regions of the country. As will be seen shortly, this is true seasonally as well as over time.

B. Trends in Nutritional Status

1. Seasonal variation.

In Upper Volta, nutritional well-being varies considerably on a seasonal basis as well as from year to year. Seasonal variation is closely tied to the harvest calendar and food availability which is described in Figure 3 for the five major food groups. Because cereals - the major food staple - as well as peanuts, sesame, tubers and some meat products are most readily available during the late fall and early winter, food prices are lowest and food consumption highest in those months. With the exception of fruits, sheanuts and other wild gathered products, little food is produced during the rainy season, from May to September. Hence the common reference to May through September as the "hungry season".

Unfortunately from a nutritional standpoint, the hungry season is also the time of year when caloric expenditures are highest due to the labor requirements for planting, weeding and harvesting agricultural crops. As indicated in Figure 4, the seasonal food shortage combined with heavy agricultural labor results in significant weight loss among adults. So for adults, the most stressful nutritional period appears to run from the rainy season through to just before the cereal harvest.

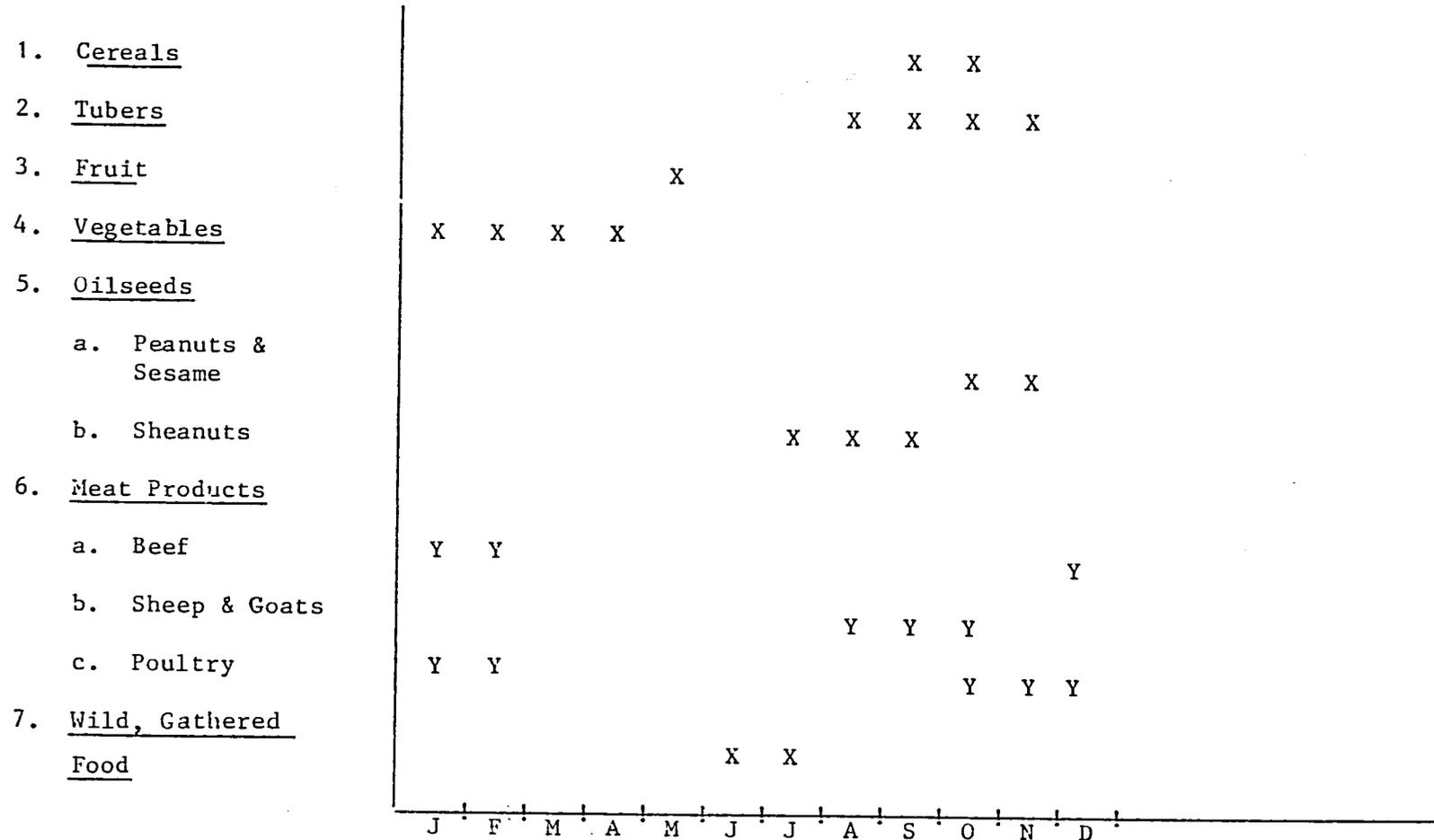
But for children, the nutritional nadir may occur at a different time of year - just before the rainy season, not during it. At least this is what is suggested by the Cathwell MCH data displayed in Table 6. In all regions, these data indicate that the nutritional status of children visiting the MCH clinics is at its lowest ebb during the months of April and May, just before the rains. Cathwell staff speculate this is due to the prevalence of disease during these months, to the extreme heat at this time of year, and to water supplies being at their lowest level which leads to substantial drinking water contamination and personal dehydration. The very important implication of these Cathwell data is that nutritional status is not solely a function of food consumption but also of the general health environment. So any health monitoring system that focuses solely on measuring food intake may well fail to identify periods of the most acute nutritional stress.

FIGURE 3

UPPER VOLTA

FOOD SUPPLY CALENDER

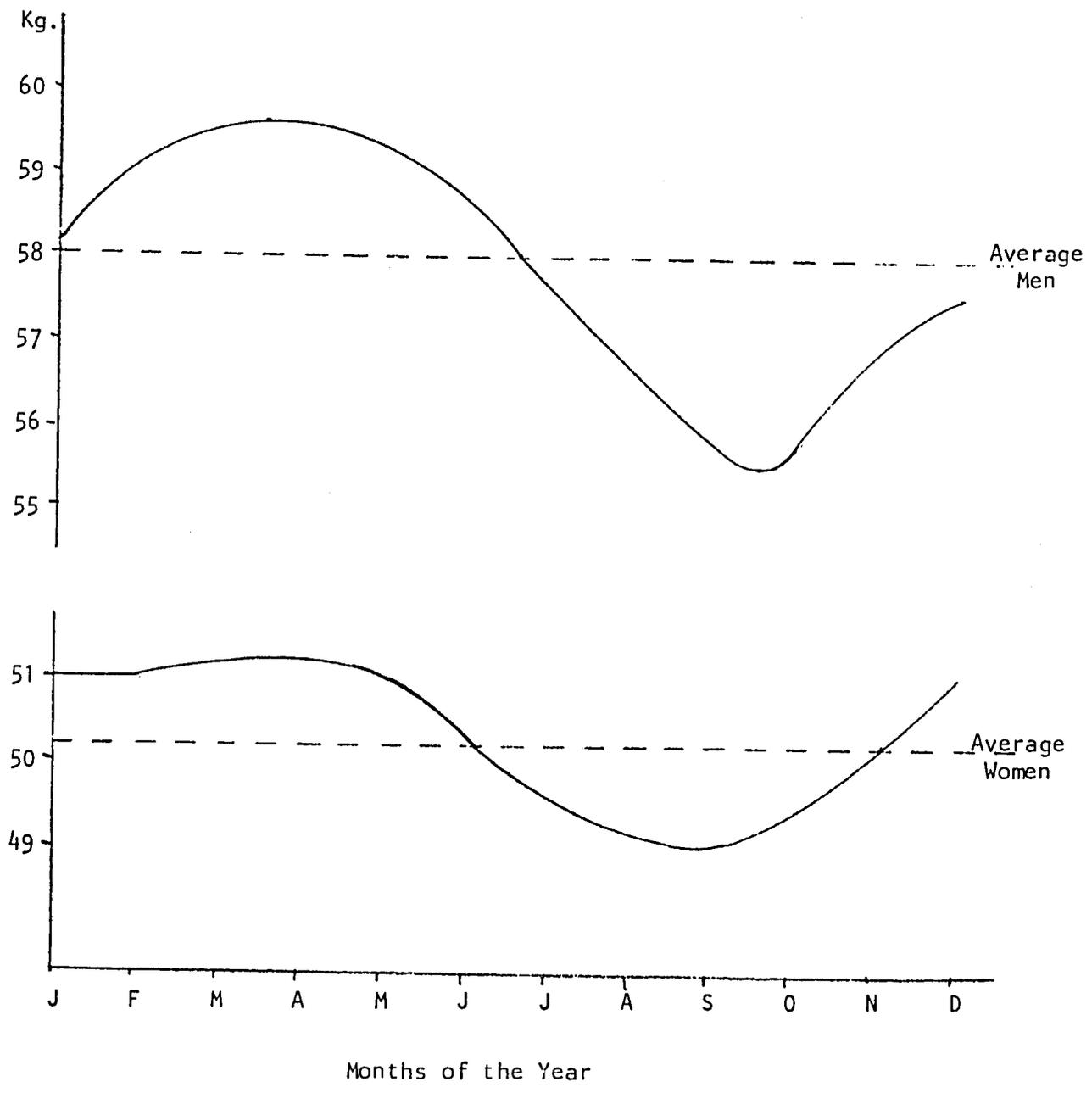
(X = Normal Harvest Months)
 (Y = Peak Months For Livestock Sales)



Source: 1. MDR.
 2. Marc Demeaux, "Etude de Faisabilité Pour l'Organisation d'un Centre sur les Racines et les tubercules en Haute-Volta" FAO, 1982.
 3, 4, & 7. discussions with SATA, MDR.
 5. CSPPA.
 6. Holtzman, "Small Ruminant & Poultry Marketing in the Mossi Plateau of Upper Volta", USAID, May 1983, pp. 6, 16, 43.

Figure 4

UPPER VOLTA
MONTHLY VARIATIONS IN ADULT BODY WEIGHT
(1976/77 in the Mossi Plateau)



Source: Thierry A. Brun, Fanny Bleiberg, Sylvie Bonny and G. Ancey, "Food Consumption and Energy Expenditure Among Mossi Peasants," African Environment, Vol.14, 1980, p.437.

TABLE 6
UPPER VOLTA

SEASONAL DIFFERENCES IN NUTRITIONAL STATUS

(Index indicating prevalence of malnutrition
among children visiting CRS Maternal Child
Health Centers)*

REGIONS**	1980				1981				1982					1983				
	Feb.	May	Aug.	Nov.	Jan.	Apr.	July	Oct.	Jan.	Apr.	July	Oct.	Dec.	Feb.	May	July	Oct.	Dec.
Mossi Plateau	100	116	110	108	105	115	105	109	108	123	113	99	100	103	118	110	106	98
East	104	112	93	90	90	115	90	93	95	99	112	104	95	97	128	112	121	110
Sahel & Centre North	93	104	97	104	110	106	106	110	110	108	108	104	108	104	117	108	119	108
South West	72	76	66	68	61	70	70	78	70	76	74	81	81	66	83	77	76	67

* Index level of 100 equals the level of malnutrition occurring in Mossi Plateau clinics in February 1980. That level was 45.5% of Children below 80% of median weight/age on the Harvard Standard.

** Regions refer to Health Regions which correspond closely, although not exactly, to the regional breakdowns defined along ORD boundaries.

Source: Cathwell.

2. Long-term trends.

Because Upper Volta has had no long-term health monitoring system in place [9], a reconstruction of food balance sheets over time is the only means available for estimating long-term trends in nutritional status. Such exercises, it must be recognized, are subject to substantial margins of error, particularly given that food production data were more impressionistic in the early 1960's than they are today. Nonetheless, these data afford the only available glimmers of evidence on long-term trends in food consumption and so bear examination, albeit with caution.[10]

The FAO has produced food balance sheets for Upper Volta covering the period from 1960 to 1981. Three major conclusions emerge from their time-series data which are presented in Table 7. First, caloric intake appears not to have changed appreciably over the past 20 years. It remains at approximately 2,000 kcals per person per day, or about 85% of minimum nutritional requirements. So the energy gap appears not to have widened; but neither has it narrowed. While food availability has kept pace with population growth, the government appears to have a significant distance yet to travel in raising up caloric intake to acceptable levels.

A second interesting - and at the same time sobering - feature of the FAO data is that they measure the magnitude of the nutritional deterioration that occurred during the Sahelian drought of 1972-74. During the worst years of the drought, 1972 and 1973, it appears that caloric intake dropped from the trend level of 85% down to only 70% of nutritional requirements.

Finally, one can discern from the FAO figures a slight decrease in per capita domestic food production. According to the FAO calculations, the value of Upper Volta's per capita food production has declined by 10% since 1960. Table 8 indicates this is largely due to cereal production not keeping pace with population growth. Certainly the rapid rise of cotton production over the past 20 years has been a contributing factor, diverting agricultural

9. Cathwell has been analyzing its monitoring data for the past four years. And while the Ministry of Health has begun collecting similar information in their clinics, they have not been able to find the necessary resources to analyze the data on an ongoing basis.

10. One might be tempted to use Table 1 to make long-term inferences by comparing the results of consumption studies which took place at different periods of time. Although the two consumption studies undertaken during the 1950's do show markedly higher levels of consumption than those performed in the last two decades, it would probably be unwise to construe this as representing a generalizable long-term trend. Because one of the early studies took place only in the South West, because consumption varies so substantially among regions and from year to year, and because different researchers may use different methods of measuring food intake, long-term assessments based on the smattering of available consumption studies is likely to be ill-advised.

TABLE 7
UPPER VOLTA
LONG-TERM TRENDS IN PER CAPITA FOOD SUPPLY

	<u>1961-1965</u>	<u>1966-1968</u>	<u>1969-1971</u>	<u>1972-1973</u>	<u>1974-1977</u>	<u>1978-1980</u>	<u>1981-1982</u>
1. <u>Index of Total Per Capita Domestic Food Production*</u> (1961-65=100)	100	106	99	81	85	86	90
2. <u>Total Per Capita Food Supply**</u>							
a. Calories per person per day							
- absolute amount	1943	2010	1971	1662	1980	2018	-
- percent of nutr. min.	82%	85%	83%	70%	84%	85%	-
b. Grams of protein/ person/day							
- absolute amount	63	66	65	54	63	65	-
- percent of nutr. min.	126%	132%	130%	108%	126%	130%	-
c. Grams of lipids/ person/day							
- absolute amount	32	35	33	26	31	35	-
- percent of nutr. min.	53%	58%	55%	43%	52%	58%	-

Source: FAO Production Yearbooks, 1976 and 1982.

* Production: Price weighted sum of output (minus seeds) for all food groups.

** Supply : domestic production - seeds - losses - feed + change in stocks - exports + imports.

TABLE 8

UPPER VOLTA

LONG-TERM TRENDS IN FOOD PRODUCTION(annual growth rate*
of total production, 1961-1982)

	<u>FAO</u>	<u>MDR</u>
1. <u>Cereals</u>	1.4%	1.0%
- sorghum	(1.6)	(.4)
- millet	(1.8)	(2.0)
- maize	(-1.1)	(.7)
- rice	(.4)	(2.0)
2. <u>Meat**</u>	3.7%	-
3. <u>Tubers</u>	1.6%	-
4. <u>Fruit & Vegetables</u>	-	-
5. <u>Oils</u>		
- peanuts	.2%	-3.5%
- sesame	1.8%	3.5%
- sheanuts	-	
<u>Rate of Growth of Resident Population</u>		1.7%

Sources: 1) FAO data: 1961-1976 from IBRD, "Upper Volta Agricultural Issues Study," October 11, 1982, p.199; 1977-1982 directly from FAO Production Yearbooks, 1978-1982.

2) MDR data: 1961-1969 from Statistics Unit, Direction Etudes et Projets, MDR, compiled from ORD reports; 1970-1982 from DEP, "Annuaire de Statistiques Agricoles," 1970 - 1981/82.

* Calculated from simple trend line regressions.

** Meat includes beef, mutton, goat and pork.

resources from food to non-food production.

To maintain average consumption at constant levels in the face of declining per capita food production has been made possible by an increase in food imports - both commercial and food aid. Table 9 indicates that the value of food imports has indeed increased - and at the rythm of 11% per year. The trend is healthy to the extent it represents the play of comparative advantage and international special'ization. But many countries have encountered difficulties in financing ever-increasing food imports, so is is important to assess the financial implications of the rising food import bills.

C. Financial Implications of Food Imports

Because balance of payments difficulties have been commonly associated with increases in food imports, analysts generally consider a country's ability to finance its food imports as an important measure of food security. They do so by computing the ratio of the value of food imports to total exports. In making this calculation for Upper Volta, official trade data must be adjusted very carefully, as overall export data are known to underestimate the value of actual trade flows by about 40%. Because of the sensitivity of the results to these adjustments, all raw data and modifications are furnished in Appendix II.B.

Table 9 summarizes the importance of food imports as well as Upper Volta's ability to finance them.[11] Two conclusions may be gingerly drawn from this table. First, Upper Volta appears well able to finance its food imports from export earnings. At least this was so through the end of 1981, the last year for which published trade statistics are available. And second, the share of food in total imports has not increased over time as it has in many countries; in fact, Upper Volta's food share of imports has declined. So while Upper Volta does face increasing balance of payments pressure, increases in food imports do not appear to be the cause.

11. The role of food aid in food imports is discussed in Part III, Section C.

TABLE 9
UPPER VOLTA
AFFORDABILITY OF FOOD IMPORTS

YEAR	Value of Food Imports	Total ** Food Imports Total Exports	Commercial Food Imports** Total Exports	Total Food Imports Total Imports	Food AID Total Imports
	(Million CFA)				
1961	1,284.8	1.011	1.011	.183	0
1962	2,295.8	.570	.570	.258	0
1963	3,006.6	.683	.683	.320	0
1964	2,687.6	.563	.563	.283	0
1965	2,673.2	.504	.504	.292	0
1966	3,261.9	.568	.568	.351	0
1967	2,995.6	.469	.469	.334	0
1968	2,100.6	.276	.276	.208	0
1969	2,241.2	.292	.297	.180	0
1970	2,756.4	.378	.378	.201	0
1971	3,155.0	.497	*	.202	*
1972	3,568.0	.482	*	.207	*
1973	4,048.0	.502	*	.187	*
1974	11,356.0	.906	*	.328	*
1975	5,976.0	.443	*	.185	*
1976	6,052.0	.331	*	.176	*
1977	9,327.0	.475	*	.182	*
1978	12,856.0	.929	.533	.252	.107
1979	12,173.0	.520	.368	.190	.056
1980	13,486.0	.491	.363	.178	.043
1981	19,740.0	.688	.520	.216	.053
	<u>Mean</u>	.55	.45	.23	.06
	<u>Standard Deviation</u>	.19	.09	.06	.03
	<u>Rate of Growth</u>	11%	0%	-2.1%	-1.8%

TABLE 9 (Cont'd)
UPPER VOLTA

AFFORDABILITY OF FOOD IMPORTS

- * Extremely difficult to compute with precision given: a) that official statistics did not categorize food aid separately until 1978; and b) the wide variation in food aid statistics kept by various organizations. See Appendix Table II. 6 for details.
- ** Ratios computed from official statistics adjusted by multiplying by a factor of .694 to account for known inaccuracies in official trade statistics. See Appendix Table II. 5.

Source: Official trade statistics. See Appendix Tables II.1 - 4.

D. Conclusions

Several major themes emerge from this review of food security status. The first is that most conclusions must be tentative in view of the wide variation in the quality of data on which they rest. The most eagerly awaited improvements in the Upper Volta data base relate to food production, food consumption by income level, ongoing anthropometric monitoring systems, and reliable information on privately held food stocks.

Based on the evidence available to date, several additional conclusions may be reached. Although not deteriorating, aggregate food consumption in Upper Volta remains significantly below minimum nutritional requirements. The aggregate caloric shortfall is about 15%; and for lipids, the gap rises to an even more substantial 50%. Over the long run, the government will have to close these gaps by increasing real income faster than population grows. And in the short-run, they need a security system to cushion consumers during years of production shortfall. Government efforts at addressing both these key short- and long-run issues constitute the two major challenges of their food policy.

III. FOOD POLICY

A. Key Institutions and Policy Documents

Two principal institutions - the Ministry of Rural Development (MDR) and the Ministry of Commerce, Industrial Development and Mines (MCODIM) - are involved in formulating food policy for Upper Volta. And a third, the Ministry of Environment and Tourism (MET), is also a potentially important actor in the food policy arena.

The Ministry of Rural Development plays front and center, both formulating and implementing food policy. It was charged, over a year ago, with coordinating an interministerial committee whose task is to draft a National Food Plan (Plan Alimentaire National, PAN). Following guidelines set by the World Food Council, the PAN is to deal with the full gamut of policies affecting food production, distribution and consumption. Although progress on the plan has been stalled for the past year by political uncertainties, it appears that the present government will come out shortly with a written statement of its food policy priorities, hopefully providing enough guidance so the technicians in MDR can proceed with the drafting of the National Food Plan.

In addition to their role in spelling out explicit food policy, the MDR effectively sets many of the major parameters of food production policy through implementation of its ongoing portfolio responsibilities. On the input side, they decide annually on quantities and types of fertilizer to import and on the rate of subsidy at which they will be sold. They work closely with the National Agricultural Bank (the Caisse Nationale de Credit Agricole, CNCA) and the Regional Development Organizations (Organismes Regionaux de Developpement, ORDs) in distributing agricultural credit. On the output side, the MDR takes a lead role in setting producer prices for agricultural commodities. They chair the Commission Technique, an inter-ministerial committee charged with setting official producer prices for cereals each year before the planting season. They also sit on - although they do not chair - similar commissions charged with setting producer prices for exported food commodities such as peanuts, sesame and sheanuts.

The Ministry of Commerce, Industrial Development and Mines (MCODIM) plays a less prominent role in writing explicit food policy, but they set many crucial parameters governing actual policy: consumer prices of various food commodities, import tariffs, export and import regulations, and regulation of domestic commerce. The ministry takes a lead role in consumer price policy by setting allowable margins on imported food and non-food commodities. They also chair the Commission d'Homologation which sets consumer prices for locally transformed food products. Represented on the Commission Technique which sets both producer and consumer prices of cereals, they also chair the commission which sets producer prices for exported food commodities such as peanuts and sesame. MCODEM is the parent ministry for: a) the Caisse de Perequation which regulates importation and pricing of certain key

commodities designated "produits de grande consommation"[12]; b) the Caisse de Stabilization des Prix des Produits Agricoles (CSPPA) which stabilizes fluctuations in the producer prices of major export crops such as cotton, sheanuts, sesame and peanuts; and c) the Societe Voltaic de Commercialisation (SOVOLCOM), a government trading company that directly retails certain food as well as non-food products. The ministry also licenses domestic traders and regulates foreign trade of both food and non-food commodities; while through its Brigade des Prix, it is charged with policing all regulated consumer prices in Upper Volta. So effectively the MCODEM plays a central role in formulating and implementing food policy.

Less directly involved, but with the potential to make a significant impact on food policy, is the Ministry of Environment and Tourism (MET). The MET is charged with chairing an interministerial committee designated to write an Agro-Pastoral-Sylvesteral Code, the goal of which is to iron out current legal question governing land use. Questions currently exist about the land tenure rights of migrants and the regulation of land use among potentially conflicting uses in crop agriculture, gathering of wild products and grazing of livestock. The issues involved are thorny, and work on this code does not appear to be very far advanced.[13] Yet if it is ever actually produced, the Agro-Pastoral-Sylvesteral Code will constitute a cornerstone of food policy. The legal procedures for allocating land among different potential uses will go a long way in setting effective priorities: a) between food and non-food production; and b) among various food commodities, some of which are cultivated, some gathered and some raised on the hoof.

Although the broad jurisdictional powers accorded to the three key ministries are fairly clearly defined, there currently exists no official written statement of the present government's food policy. But previous governments have effectively stated their food policies in the written proceedings of a series of seminars chaired by the Ministry of Rural Development. Three such seminars are particularly deserving of note: a) the "Deuxieme Conference des Cadres" of June 1981; b) the MDR seminar on food policy which took place in April 1983; and c) the "Journee de Reflexion Sur la Campagne Agricole 1983/84", chaired by the MDR in April 1984. The documents emanating from these conferences are all consistent with one another and do represent stated policy - at least under previous regimes. The consistency of the April 1984 document with its predecessors is an indication that the present government is not espousing a food policy dramatically different from those of the past. So the following discussion - which attempts to distinguish between explicit and implicit policy - takes the positions in these conference proceedings to be the explicit, official policy of the recent past.

In August 1984, the current government will convoke yet another seminar

12. Foodstuffs currently designated as "produits de grande consommation" are rice, wheat, cereal flours, sugar and vegetable oil.

13. But this may change since the Ministry of Interior was recently (in June 1984) asked to work with the MET on some of the land tenure questions.

in order to put its own policy stamp clearly on the record. Chaired once again by the MDR, the seminar will address rural development policy in general, but ministry representatives indicate that food policy will comprise a major element of the discussions. The seminar will bear close observation for those interested in the latest government thinking on food policy. Perhaps the technicians charged with drafting the National Food Plan will be able to proceed with its formulation after the broad policy lines of the current government are laid out at the August seminar.

B. Policies for Stabilizing Food Consumption Around Current Trend Levels

1. Inter-annual consumption stabilization.

Food consumption in Upper Volta varies considerably from year to year, the result of wide swings in real income, food prices and food availability. Real income varies because forty percent of GDP is earned in agriculture where undependable rains lead to wide swings output, hence in incomes, from year to year. Food prices fluctuate for related reasons. Because most farmers consume the bulk what they grow, their marketed surplus - and therefore food prices - fluctuates more violently even than does aggregate production. Upper Volta faces a third problem that makes it more difficult to counteract the fluctuations in consumption. Being a land-locked country with only moderate internal infrastructure, Upper Volta faces logistic problems in importing and distributing food supplies in years of production shortfall.

In attempting to attenuate year to year fluctuations in consumption, the GOUV focuses its attention primarily on the third problem, that of securing food supplies in bad harvest years. In the short-run, there is little they can do to stabilize incomes given the magnitude of the variation and the paucity of government resources. And stabilizing consumer prices from one year to the next would require herculean efforts given the price volatility.[14] So it appears that GOUV does not try to buck the wide year to year price swings. After all, pricing laws suggest that official consumer prices be set not only after the harvest but after the OFNACER buying campaign as well, presumably so the price setters can get a good feel for the market supply situation before setting a consumer price they are willing to defend. And official consumer prices have moved up and down from year to year suggesting a pragmatic consideration of market forces in setting new

14. "Stabilization" of grain prices is a goal widely enunciated in official government documents. While discussion of exactly what is to be stabilized is less than crystal clear, the strong implication one has is that stabilization refers to diminishing the seasonal fluctuations in consumer prices, not the inter-annual variations.

prices each year.

Government efforts, then, focus on the most tractable of the problems leading to year to year variations in food consumption; they concentrate on stabilizing food supplies in years of production shortfall. And they have chosen cereals - mainly coarse grains - as the exclusive food commodities to be used in this supply stabilization. Cereals were selected doubtless because they supply 70% of total caloric intake in the country and because they can be safely stored for long periods of time, much more easily than can commodities such as peanuts, tubers or meat.

To stabilize cereal supply, the GOUV has adopted a two phased strategy. They have developed officially held domestic cereal stocks which are to act as a first line of defense in years of short supply. In years when official reserves are insufficient to fill the supply gap, the strategy is to distribute the official stocks, buying enough time to permit food imports to arrive. In both facets of the strategy - storage and importing - the government has had to decide whether to intervene directly or to promote private sector storage and trade.

a) Domestic storage of security stocks. GOUV has opted for officially held security stocks supplemented by those of village cooperatives called cereal banks. OFNACER, government's cereals marketing parastatal, has been charged with setting up the official system of security grain stocks. The system in place includes not only domestic stocks but provisions for regional security stocks as part of a Sahel-wide supply stabilization system. In addition to earmarked security stocks financed by the Federal Republic of Germany, OFNACER holds stocks which it rolls over as part of its efforts to support producer and defend consumer grain prices. As a result of their stocking program, total OFNACER storage capacity has increased substantially since the 1972-74 drought. Capacity now stands at 80,000 metric tons, 20,000 of which is temporary facilities. But carryover stocks have yet to reach capacity levels. From 1980 to 1983, OFNACER stocks as of the 1st of October - that is at the low tide mark just before the annual buying campaign - have gone from 14 to 11 to 36 to 17 thousand tons respectively.

Quantitatively much less important are the security stocks held by cereal banks. Promoted starting in 1974 by private voluntary organizations, cereal banks aim to provide storage of cereals on-site in participating villages. By holding stocks in their villages, cereal banks strive to improve the local supply situation late in the season, at the same time saving on transport costs over the normal situation in which private traders buy grain at harvest time, ship it out of the village and then ship other grain back in during the hungry season. In addition to holding security stocks, the cereal banks' second objective is to moderate price fluctuations over the course of the crop year. They attempt to support producer prices and to reduce seasonal increases in consumer prices by acting as an additional buyer at harvest time and as an additional seller of grain during the hungry season when supplies are short.

Managed by village pre-cooperatives called "groupements villageois", the cereal banks have increased rapidly in number over the past 10 years. As of 1982, approximately 500 cereal banks were in existence, and they were being

established at a rate of about 100 per year. As can be seen from Table 10, they were originally most popular in the grain deficit regions of the Sahel and in the northern Mossi Plateau, but in recent years numbers have been growing in the South West as well. Although they were originally launched by Private Voluntary Organizations (PVOs), cereal banks now receive official government support through the Direction des Institutions Rurales et du Credit (DIRC) of the MDR.

The magnitude of stocks held by cereal banks is probably about 4,000 tons. Although storage capacity may reach 30 tons per bank, or about 15,000 tons in all, initial stock endowments totalled only 6,000.[15] Given the banks' tendency to sell more than they buy each year, it appears that current stocks are considerably below that initial endowment.

Cereal banks are potentially an extremely useful tool for increasing market competition and providing security storage, but key management questions loom large in any assessment of their long-term viability. While the banks can survive for a few years on their initial allocation of grain, cereal banks appear to be vulnerable to tendencies towards destocking.[16] The effectiveness with which groupements villageois can orient scarce management skills to their cereal bank operations will ultimately determine how effectively cereal banks can supplement government food security efforts.

And what of privately held cereal stocks? What role are they to play in supply stabilization? Unfortunately, we have virtually no information on the magnitude of privately held grain stocks - either on-farm storage or those held by commercial traders.[17] Guesses as to the volume of on-farm storage vary from 100,000 to 200,000 metric tons of stocks carried over from one harvest to the next. Under either scenario, the on-farm carry-over stocks substantially exceed in volume those held by OFNACER and the cereal banks. We haven't even guesses as to the stocks held by commercial traders, so serious assessment of the potential role for private stocks in food security efforts must await results of the data collection efforts currently under way.

What can be said of private grain storage is that, if implemented to the letter of the law, government grain pricing policy would tend to strongly discourage private stocking. This is because official consumer price ceilings for cereals appear to be rapidly surpassed by market prices in years of production shortfall. In May 1984, for example, the Ouagadougou market price of white sorghum was at 130 CFA/kg while the official price ceiling

15. Jan Kat, "Cereal Banks in Upper Volta", FAO, Rebruary 1983, Annex 1.2 and 2.3.

16. Kat, "Cereal Banks", para 6.9.

17. Current work by the German firm Agro-Progress, by the Farming Systems Unit of SAFGRAD, and by the University of Michigan's Center for Research on Economic Development (CRED) is beginning to fill in this lacuna.

TABLE 10
UPPER VOLTA

ESTABLISHMENT OF CEREAL BANKS, BY REGION

(Number of Cereal Banks)

<u>ORD</u>	1974/76	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82	Total
1. a.Center North	0	4	26	33	22	14	24	123
b.Center West	0	0	0	17	10	4	4	35
c.Center East	0	0	0	0	0	4	4	8
d.Center	13	6	13	11	23	13	22	101
Total Mossi Plateau	13	10	39	61	55	35	54	267
2. Sahel	2	6	12	0	4	5	2	31
3. East	0	0	3	15	0	0	0	18
4. ORDs of South West	0	0	4	22	7	30	43	106
TOTAL*	15	18	60	99	82	100	99	473

Source: Jan Kat "Cereal Banks in Upper Volta" February 1983, Annex 1.2.

* Totals for any given year may be slightly greater than the sum of the 4 regional figures. This is because, in a few cases, Kat was unable to determine the exact location of established banks.

remained at 88 CFA/kg. It should be emphasized that, except in a few instances, official consumer prices for cereals are normally not enforced except through competitive pressure of OFNACER selling at the official prices. Although by law anyone selling cereals above the official ceiling can be jailed, have their stocks confiscated and are liable to fines of up to 5 million CFA francs, in practice the Brigade des Prix of the MCODEM does not normally enforce the official price. But there have been several exceptions to this general practice. One was in late 1983 when the newly formed Committees for the Defense of the Revolution (CDRs) were actively policing grain sales. INSD market price data for 1983 show virtually no monthly variation in grain prices, a fact they attribute to traders' fear of selling to suspected government officials at other than official prices. 1982 may also have seen some concerted attempts at enforcing grain price ceilings, as INSD data for that year as well show a suspicious absence of seasonal price variation. So government has, on occasion, tried to enforce grain price ceilings, and if they do so again or if traders fear they will, it would certainly discourage both private grain storage as well as sales during the hungry season when supplies are shortest.

b) Food imports. The second part of the GOUV supply stabilization strategy is to bring in food imports if domestic stocks appear to be inadequate to meet consumption demands. Here the basic question is how much can be left to the commercial imports and how much should be brought in as food aid. Explicit government policy is to count on the country's own resources and to discourage food aid. In practice, they regularly request food aid in years of production shortfall.

Policy on commercial cereal imports is mixed. Nominally commercial imports are encouraged. Import regulations are not cumbersome, and for example in January 1984, when it became clear that 1983/84 would be a deficit year, the government lowered its import tariff on cereals from 18% to 12% specifically to encourage private importation. But this incentive may be counteracted by consumer pricing policy. Official consumer price ceilings for cereals were so low in May 1984 that the landed cost of all imported cereals except wheat and rice exceeded the official retail price ceilings. So importers could not import and legally sell coarse grains at a profit.[18] In this case, tariff and consumer pricing policy work at cross purposes.

Table 11 gives a quantitative feel for the role of cereal imports - both commercial and food aid - in supply stabilization over the past 10 years. Although the data are far from totally reliable [19], two tentative conclusions can be drawn. First is that commercial imports of cereals and

18. But they can make money bringing in rice or wheat. This asymmetry in pricing policy also makes it more attractive for private traders to distribute wheat internally, since regional price differentials are allowed on this preferred cereal but not on coarse grains. Appendix Table I.6 outlines these and other asymmetries in current consumer pricing policy.

19. See Appendix II for details.

TABLE 11
UPPER VOLTA

RESPONSIVENESS OF CEREAL IMPORTS TO PRODUCTION SHORTFALLS

	<u>1970/71</u>	<u>1971/72</u>	<u>1972/73</u>	<u>1973/74</u>	<u>1974/75</u>	<u>1975/76</u>	<u>1976/77</u>	<u>1977/78</u>	<u>1978/79</u>	<u>1979/80</u>	<u>1980/81</u>	<u>1981/82</u>	<u>1982/83</u>
	(Kg per capita, all cereals combined)												
1. <u>Domestic Prodn.</u>	167	168	157	127	177	164	170	148	171	168	138	170	157
2. <u>Production short-fall</u> *	13	12	23	53	3	16	10	32	9	12	42	10	23
3. <u>Commercial Imports</u>	6	4	7	11	13	5	5	14	7	9	31	8	9
4. <u>Food Aid</u>	0	7	7	17	4	4	4	15	7	6	6	9	6
5. <u>Total Per Capita Grain Consumption</u>	173	180	171	154	195	172	179	177	184	184	175	187	172

Source: Calculations based on USAID "Agricultural Development Support Project (686-0255) Paper," June 25, 1983, Vol.II, Annex R, Table 7.

* Estimated, desired consumption at 180 kg/capita.

	<u>Correlation Coefficients</u>		
2. <u>Production shortfall</u>	1		
3. <u>Commercial imports</u>	.56	1	
4. <u>Food aid</u>	.67	.18	1
	<u>PS</u>	<u>CI</u>	<u>FA</u>

food aid do appear to respond to production shortfalls. Commercial imports, though, appear less responsive. This could be due to any number of factors: a) unmeasured clandestine imports; b) poorly developed commercial import channels; c) displacement by food aid; or d) official consumer pricing policy which makes it unprofitable to import grain; or e) inadequate effective demand. Second, while food aid does loom largest in years of deficit harvest, there is a floor level below which it has not fallen in the past 8 or so years. Certainly the procedures by which food aid is brought into Upper Volta are much more clearly articulated than they were in the early 1970's, so at least in this respect Upper Volta is now better able to access food imports in deficit production years.

c) Distribution of security stocks and food imports. Once they are brought in or released, food imports and security stocks must be channeled to consumers. The channels selected for distribution go a long way in determining whether or not the imports and security stocks in fact go to the people whose diets are most deficient in deficit years.

In brief, the vast majority of security stocks and food imports are sold to consumers: 80% are sold while 20% are given away through various programs. A detailed breakdown of food aid distribution is available from the World Food Program office, although only for the years 1979 to 1982/83. Over that four-year period, the total distribution of cereal imports - commercial and food aid - plus releases of domestically procured OFNACER stocks averaged 120 thousand tons per year. Those 120 thousand tons reached consumers through the following channels: 54% was sold at market prices; 27% was subsidized by being sold through OFNACER at official prices; 13% was given away in Cathwell school feeding programs and through their MCH clinics; 4% was distributed as Food for Work; and various church groups distributed the remaining 2%, presumably as gifts, according to their own criteria.

OFNACER, its price subsidy made possible by food aid financing, distributes grain according to clear regional criteria. They sell primarily in Ouagadougou (the Center ORD) and in the grain-deficit north of the country, the ORDs of Sahel and Center North. Table 12 gives the exact breakdown of their sales by ORD for the year 1982/83, the only year for which OFNACER was able to supply such a breakdown.

In terms of nutritional impact, probably the major weakness of this distribution system is that most food is not targeted to consumers whose diets are most deficient or whose incomes are most affected by increases in food prices. OFNACER cereal stocks are sold at official prices on a first-come first-served basis to rich and poor alike. This is an expensive and inefficient means of closing the food gap, since scarce resources go to subsidizing wealthy consumers whose diets are not deficient. To some extent the GOUV does target food subsidies in that coarse grains represent the bulk of food aid and the bulk of cereal subsidies through OFNACER sales at official prices. But the limited consumption evidence available indicates that moderate and even upper income groups consume substantial quantities of

UPPPER VOLTA

OFNACER SALES BY REGION, 1982/83

<u>ORD</u>	Quantity of all Cereal Sold by <u>OFNACER</u> (Tons)	<u>OFNACER</u> Sales <u>Per Capita</u> (Kg/Person)
1. a. Centre	5,736	5.3
b. Centre Est	373	.8
c. Centre Ouest	450	.5
d. Centre Nord	5,041	7.0
e. Yatenga	796	1.3
<u>Total Mossi Plateau</u>	<u>12,396</u>	<u>3.3.</u>
2. East	300	.6
3. Sahel	1,297	2.9
4. a. Volta Noire	263	.4
b. Bobo-Dioulasso	260	.4
c. Comoé/Hauts Bassins	203	.4
<u>Total South West</u>	<u>726</u>	<u>.4</u>

Source: OFNACER

sorghum, millet and maize.[20] And prices of a preferred cereal, rice, have been periodically subsidized by the Caisse de Péréquation. So there probably does exist room for improving consumption stabilization efforts by targeting food subsidies. But this embellishment will be most effective if designed with the aid of the currently unavailable, but forthcoming, income and consumption statistics.

2. Seasonal consumption stabilization.

The GOUV attempts to stabilize seasonal food consumption through intra-annual consumer price stabilization. After a given harvest, incomes will be determined for most consumers and the major factor then influencing the seasonality of food consumption will be food price variation over the course of the year. GOUV policy is to try to stabilize consumption by diminishing the normal seasonal price increases. In doing so, because cereals occupy such a preponderant position in the local diet, government focuses its attention exclusively on coarse grains and rice. The prices of tubers, oilseeds, meat, fruit and vegetables are left free to fluctuate with supply and demand over the course of the year. Even wheat prices can vary seasonally in response to changes in import prices.

Seasonal cereal price stabilization is a popular cause, as it is an article of faith among Voltaics that unscrupulous, collusive traders buy grain at low prices after harvest and sell at excessive mark-ups late in the year. Expatriate economists, on the other hand, are generally convinced that free market prices rise over the course of the year only enough to defray storage costs and the opportunity cost of capital. It will be very important to resolve the empirical question of whether or not the seasonal price increases are excessive. For if they are, effective government intervention will result in a transfer from exploitative traders to consumers, presumably with a favorable impact on income distributions and national nutritional welfare. But if the annual price increases do not result in above normal profit margins, there is no efficiency gain to be had by trying to depress prices further. Private traders will simply be squeezed out of the market and consumers subsidized at considerable cost to the state. Hopefully the grain marketing research currently underway by CRED will shed some light on the important question of seasonal price rises and trader profit margins.

Convinced that seasonal cereal price increases are indeed too great, GOUV intervenes by setting ceiling consumer prices. These official prices, in theory, are enforceable by the inspectors of MCODEM's Brigade des Prix. In practice, official cereal prices are normally only enforced by competitive pressures of OFNACER selling at the official price ceiling. OFNACER defends the ceiling price by releasing stocks through its 120 retail outlets. Unlike many price support schemes, OFNACER's is legally a retail not a wholesale operation; since they sell only at the official maximum consumer price. This year (1984), because supplies are short, they have taken to rationing grain.

20. L. Thiombiano, L. Koulidiati and C. Some, "Systemes Alimentaires a Ouagadougou", Colloque International Ouagadougou UNSRID/CEDRES, 30,31 mai et 1er juin, 1984, p.113.

But in years when supplies are less tight, they have a more elastic policy; purchasers may buy more than one 100 kg. bag at a time. In general, there is no clear absolute limit on individual purchases, so OFNACER's operation often resembles a semi-wholesale trade. Because many consumers can't afford to buy 100 or even 50 kg. sacks at one time and because OFNACER normally sells only in these quantities, intermediaries are required who can buy from OFNACER and break the grain down into smaller quantities for sale to consumers. This also reinforces the semi-wholesale nature of normal OFNACER operations. But still in theory, OFNACER's mandate is to sell directly to consumers at retail prices thereby cutting out middlemen and applying maximum downward pressure on consumer prices.

OFNACER's cereal sales are not targeted at specific income groups. Any one who arrives at their outlets can purchase grain at the official price. But they do have a distinct regional focus to their sales. As was shown in Table 12, the preponderance of OFNACER sales are in Ouagadougou and in the chronically grain-deficit ORDS of the Sahel and Center North. This is part of a conscious policy to target deficit areas. Concentrating their sales in this fashion increases the likelihood that OFNACER will be effective in dampening seasonal price increases in those three areas.

This raises the important question of just how effective OFNACER is in diminishing seasonal consumer price increases. Since we have little regular evidence on seasonal price variation outside of Ouagadougou [21], it will be some time before we can judge OFNACER's impact directly by comparing market prices in areas they serve with those they do not. In the mean time we are constrained to judging effectiveness by looking at their market shares. The most careful work in this area is currently being finished by the USAID Office of Agriculture. The study under way involves modeling with production and consumption parameters to estimate marketed surpluses and inter-regional trade flows over the past four seasons. A look at the preliminary estimates for 1982/83 alone indicates that OFNACER had about a 12% market share in Ouagadougou, the Sahel and Center North ORDS and that its market share elsewhere was insignificant. While no one really knows how large a share is required to influence prices, it is probably safe to say that OFNACER has been able to influence prices downwards in Ouagadougou, the Sahel and Center North. But the situation will certainly vary from year to year, so this conclusion must be tentative pending the release of the USAID study.

Even if OFNACER is successful in depressing consumer prices late in the season, it is not certain consumers will be better off. The distinct possibility exists that lower consumer prices will crowd out private traders, particularly in the remote markets. Consumer pricing policy requires OFNACER to sell at a uniform price nation wide, increasing the size of the subsidy to consumers in distant corners of the country. Since private traders must pay

21. Since 1961, INSD has collected monthly price data, but only for the Ouagadougou market. For the past year, CRED has been collecting data on market prices of cereals for a wide range of markets. And since the fall of 1983, OFNACER has as well been systematically recording market prices from 120 locations around the country.

transport costs, the depression of consumer prices may drive them from the far-away markets. Thus, particularly in the Sahel and Center North, it is at least possible that effective price stabilization may reduce overall grain sales and therefore nutritional welfare in those regions.

One clear difficulty with current price stabilization policy is that it is not sustainable. OFNACER's gross margin - the gap between the producer prices they pay and the consumer prices receive - is not nearly sufficient to cover its operating costs. Government has not supported OFNACER's recurrent deficits; it is only the steady inflow of food aid that allows OFNACER to subsidize consumers by holding official consumer prices at below market levels. If the food aid were ever to run out, government would have to finance the consumer subsidy itself, raise consumer prices or seek less expensive methods of intervention.[22]

The really fundamental issue in seasonal price stabilization is the one raised early on - whether or not it is a desirable objective. To answer this question will require empirical evidence on the competitiveness of the free market and enough knowledge about marketing margins and conduct to be able to judge the likelihood of crowding private traders out of given regional markets.

C. Policies Designed to Close the Nutritional Gap

Over and above efforts to stabilize consumption around actual trend levels, Upper Volta faces the long-run challenge of raising food consumption up to a nutritionally adequate standard. Efforts to increase food intake have focussed on three main areas: production, trade and distribution.

1. Production policy.

Since food consumption depends on real income, the key to boosting consumption will be the broader goal of raising incomes. What is sometimes overlooked in food policy discussions is that incomes - and consequently food consumption - can be raised in one of two ways: a) by increasing food production; or b) by increasing output of non-food items which can then be traded for food. So macro planners must examine production costs, comparative advantage and the risk associated with import dependence on foods to determine whether their production policy will focus on food or non-food commodities.

22. One commonly suggested inexpensive intervention is that governments improve the efficiency of private market channels by announcing regional market prices on the radio better enabling private traders to move grain to deficit areas.

Upper Volta has clearly opted for a production strategy focussing on direct food production rather than on the production of tradeable non-food items. Food self-sufficiency is a major goal of the current development plan and is the centerpiece of written food policy documents[23]. And food policy makers have clearly specified commodity preferences within the food sector: they indicate that among food products, priority should be given to cereal production.

But do deeds match words? Are government resources actually channeled in line with their stated priorities? The remainder of this section will be devoted to answering these questions, to comparing implicit with explicit policy. Since production can be promoted from the input side or through output pricing and taxation policy, the discussion that follows examines government allocations from each perspective.

a) Input allocations On the input side, government can promote production of particular commodities by providing credit, input subsidies, extension support, research or infrastructure. Tables 13 and 14 attempt to shed light on government priorities by summarizing evidence on government allocation of resources for production inputs. The first observation from Table 13 is one that analysts of production policy in Upper Volta frequently single out for attention: the issue of input subsidies. Compound fertilizer [24], urea and phosphates are all highly subsidized. Although the subsidy rates have diminished in recent years, they remain between 36 and 50%. And judging from the rapid increase in volumes, the subsidies have been successful in stimulating fertilizer use by farmers.

But fertilizer subsidies, as can be seen from Table 13, tend to benefit cotton production more than that of food crops. Over half of the major fertilizer, "engrais coton", is used in cotton production, while the remainder is divided among all other crops. Given that acerages planted in cotton are significantly less than those devoted to food crops, this results in fertilizer use per hectare that is 25 times greater for cotton than for all other crops. The cost of the fertilizer subsidy reached 1.4 billion francs CFA in 1982, roughly half of it going to cotton producers[25]. So from this perspective at least, it appears that actual policy deviates from stated positions. The fertilizer subsidy clearly favors cotton production over that of food commodities.

With credit allocation, too, one senses a pro-cotton bias, although it is more difficult to quantify than the fertilizer preferences. The pro-cotton bias in credit allocation stems from a regional preference. While animal

23. See, for example, "Rapport de Synthese de la Deuxieme Conference des Cadres", p.14

24. Called "engrais coton", this compound fertilizer was specially formulated for cotton, but it is also used on other crops.

25. "Journées de Reflexion sur la Campagne Agricole 1983/84", MDR, pp.5,8.

TABLE 13

UPPER VOLTA

EVOLUTION OF INPUT USE IN UPPER VOLTA'S AGRICULTURE

	<u>% Price Subsidy</u>	<u>COMPOUND FERTILIZER</u>			<u>UREA</u>		<u>VOLTA PHOSPHATE</u>		<u>INSECTICIDES Used on Cotton (Thousands of liters)</u>	<u>PLOWS No. in Use</u>
		<u>Total Used (Tons)</u>	<u>Total used on Cotton (Tons)</u>	<u>Total used Other Crops (Tons)</u>	<u>% Price Subsidy</u>	<u>Qty Used (Tons)</u>	<u>% Price Subsidy</u>	<u>Qty Used (Tons)</u>		
1972	-	1,998	-	-	-	-	-	-	-	-
1973	-	2,241	1,680	561	-	-	-	-	171	-
1974	-	2,842	1,782	1,060	-	-	-	-	238	-
1975	71%	3,765	2,403	1,362	-	-	-	-	304	-
1976	61	5,603	3,810	1,793	-	-	-	-	513	-
1977	51	8,699	5,277	3,422	42%	-	-	-	647	18,491
1978	53	11,475	5,930	5,545	42	-	-	-13	377	26,619
1979	56	14,071	7,607	5,464	61	500	-	373	308	30,331
1980	57	17,524	9,569	7,955	50	800	-	233	752	36,419
1981	61	15,977	7,539	8,438	50	700	72%	859	418	42,247
1982	64	18,314	8,162	10,152	42	1,250	41	239	417	-
1983	50	21,818	11,426	10,392	36	1,700	47	985	-	-

Source: "Journées de Reflexion sur la Campagne Agricole 1983/84, les 12, 13 et 14 Avril 1984 à Ouagadougou" Ministère du Développement Rural, Avril 1984, PP. 2, 15; "Bulletin de Statistiques Agricoles Campagnes 1978/79, 79/80, 80/81, 81/82" PP.50,51; "Annuaire de Statistiques Agricoles," 1977, P.64.

traction credit is distributed throughout the country by CNCA, short-term pre-planting credit, "credit de campagne" has, since 1979, only been available in the cotton producing regions.[26] This strongly suggests that cotton receives a disproportionate share of such short-term credit. Of the non-cotton commodities, though, the only explicit evidence available is for livestock which reportedly receives a mere .2% of CNCA credit allocations.[27]

Extension services, too, are more readily available in the South West than they are elsewhere. Table 14 quantifies the extent of the bias. Because the technical training and expertise of extension workers vary considerably among ORDs and among age cohorts and because of the regional influence of specific projects on the activities of extension staff, it is very difficult to calculate the extension hours available for each agricultural commodity. Nonetheless, it is frequently said that cotton production is better supported than is that of other commodities, and one suspects that the disproportionate share of extension staff in the South West is at least partially due to the focus there on cotton.

Concerning infrastructure, it is very difficult to make an assessment of commodity biases. Road construction and irrigation infrastructure serve entire regions, not just particular commodities.

Agricultural research is a final, and extremely important, input necessary for promoting increased production. In theory, an examination of relative research budgets for various commodities would constitute an important statement on relative commodity priorities. In fact, the bulk of agricultural research in Upper Volta is externally financed, and such measures would probably tell more about donor priorities and technical competencies than it would about government priorities. The recent IBRD "Agricultural Issues Study" indicates that about 80% of total research expenditures are devoted to crop production, although they do not give a commodity specific breakdown.

To summarize on the input side, there appears to be a divergence between government's stated policy and their resource allocations. GOUV maintain's that food production - and among food commodities cereals - are their highest priority. Yet it appears that a non-food commodity, cotton, in fact receives priority on government allocations of productive inputs.

26. "Journées de Reflexion", p.9. Note that vegetable growers are one exception to this. Those belonging to UVOCAM can, regardless of their geographic location, receive "credit de campagne" from CNCA, because UVOCAM will guarantee their loans. AVV also furnishes planting credits outside cotton growing regions, but these are part of a special credit program.

27. "Rapport de Synthèse de la Deuxième Conférence des Cadres", p.47.

TABLE 14

UPPER VOLTA

REGIONAL VARIATION IN AVAILABILITY OF
AGRICULTURAL INPUTS

<u>REGION*</u>	<u>RURAL POPULATION (1975)</u>	<u>CREDIT (1981-1983)</u>		<u>FERTILIZER USE (Compound Fertilizer) "Engrais coton" & urea (1981)</u>	<u>EXTENSION STAFF (1979)</u>
		<u>Seeds, Fertilizer Insecticides</u>	<u>Animal Tractions</u>		
SOUTH WEST	28%	100%	41%	77%	44%
MOSSI PLATEAU	58%	0	52%	21	40
EAST	8	0	2%	1	13
SAHEL	<u>7</u>	<u>0</u>	<u>3%</u>	<u>1</u>	<u>3</u>
TOTAL	100%	100%	100%	100%	100%
ABSOLUTE TOTALS	5,695,790	n.a	658 million CFA	16,322 Tons	1,349 Staff

Source: "Journées de reflexion sur la campagne agricole 1983/84, les 12, 13, et 14 Avril 1984 à Ouagadougou" Ministère du Développement Rural, April 1984, PP. 5.9.20; IBRD, "Upper Volta Agricultural Issues Study," October 29, 1982, P.224.

* Regions defined along ORD boundaries. East + Sahel = Those ORDs; Southwest = Hauts Bassins, Bourguiba, Volta Noire + Comoé; Mossi Plateau = Center, Center West, Center East, Center North + Yatenga.

b) Output pricing and taxation. On the output side, government can promote its production priorities through its influence on output prices and through taxation policies. Consider first government policy on relative producer prices. The commodities on which they focus reveal several implicit priorities. The GOUV intervenes in setting producer prices for cereals, cotton and the oilseeds - peanuts, sesame and sheanuts. But they make no concerted attempt to influence producer prices for other food commodities such as livestock, fruits, vegetables or tubers. One infers from this that cereals, cotton and oilseeds represent particular government priorities.

For cereals, cotton and oilseeds - the commodities whose producer prices the government does try to influence - Table 15 attempts to uncover implicit government policy by examining trends in relative output prices. It is recognized that official producer prices may vary substantially from prices actually received by farmers, so the sceptic may worry that trends in official prices may not reflect trends in actual prices received. In fact, though, it appears that market prices have actually followed trends very similar to those followed by official prices. This can be verified by the relative market price trends displayed in the commodity sections of Appendix III. One presumes that actual producer prices follow market consumer prices and that prices received by farmers have, in fact, followed the trends displayed by the relative official prices in Table 15. But even if official prices were unrelated to prices actually received, the evolution of official prices could still be interpreted as a statement of government intent.[28] It is that intent that Table 15 lays bare.

From Table 15 it is clear that movements in official producer prices have, in fact, been consistently favorable to cereal producers. On this score, government action squares well with their stated priority of promoting food over non-food (particularly cotton) production. Their stated priority for cereals over other food commodities is also consistent with the official price movements. While cereal prices were rising steadily relative to cotton, relative peanut and sesame prices remained stagnant through about 1977. Only in response to the steady and substantial decline in peanut output did the government, in the past several years, begin to substantially redress the peanut price incentives. Government policy documents devote considerable attention to the importance of favorable producer pricing, and their actions match their words in favoring cereal production over other foods and over

28. The sceptic can even challenge this notion by observing that different government commissions set prices for cereals, oilseeds and cotton. While the decision making bodies are indeed different and meet at different times, they house a common membership core from MDR and MCODEM. This strongly suggests that movements in relative prices are explicitly sanctioned by GOUV and do represent a statement of policy intent.

TABLE 15

UPPER VOLTA

EVOLUTION OF OFFICIAL PRODUCER PRICES FOR
SELECTED AGRICULTURAL COMMODITIES
(CFA Francs/Kg)

YEAR	SORGHUM	PRICE SORGHUM PRICE COTTON	RICE	PRICE RICE PRICE COTTON	PEANUT	PRICE PEANUTS PRICE COTTON	COTTON
1964	-	-	-	-	18.2	0.54	34
1965	-	-	-	-	18.2	0.54	34
1966	-	-	-	-	18.2	0.54	34
1967	12	0.35	-	-	18.2	0.54	34
1968	12	0.38	-	-	18.2	0.54	34
1979	12	0.38	19	0.59	18.2	0.57	32
1970	12	0.38	19	0.59	17.5	0.55	32
1971	12	0.38	19	0.59	17.5	0.55	32
1972	14	0.44	19	0.59	18.9	0.59	32
1973	18	0.51	19	0.59	17.5	0.55	32
1974	22	0.55	30 ^{1/}	0.86	18.3	0.52	35
1975	18	0.45	35	0.88	23.1	0.58	40
1976	21	0.53	35	0.88	23.1	0.58	40
1977	32	0.58	35	0.88	25.8	0.65	40
1978	40	0.73	63 ^{2/}	1.15	29.9	0.54	55
1979	40	0.73	63	1.15	36.9	0.67	55
1980	45	0.82	63	1.15	36.9	0.67	55
1981	50	0.81	68	1.10	55.7	1.01	55
1982	58	0.94	68	1.10	-	-	62
1983	64	0.91	74	1.06	94.4	1.52	62
					94.4	1.35	70

Source: For 1970-1983, "Bulletin de Statistiques Agricoles, Campagnes 1978/79 - 1981/82" Ministère du Développement Rural, Direction des Etudes et Projets, P.113. For the 1960's, MDR, Service de la Production Agricole (SPA).

^{1/} IBRD "Agricultural Issues Study", P. 206 gives this price as 28.
^{2/} IBRD "Agricultural Issues Study", P. 206 list this price as 55.

non-food production.[29]

In addition to output prices, government tax policy can aim at favoring one commodity group over another. Export taxes, import taxes and taxes levied via government marketing agencies are the three major means through which government fiscal policy influences food production and consumption. Table 16 lists current import and export tax rates. The structure of import taxes, not surprisingly, is designed to encourage local food processing by taxing transformed goods at much higher rates than raw commodities. More surprisingly, one notes that no distinction is made among types of cereals. Preferred cereals such as wheat and rice are taxed at the same rate as sorghum and millet.

On the export side, the major implicit policy statement concerns livestock. It is heavily taxed while other food commodities are not.[30] The stated reason for the export tax on livestock is to encourage local meat consumption and local processing. Another is undoubtedly that it is an easy means of collecting revenue. Because of its substantial export tax, livestock shoulders 80% of the direct tax burden borne by the rural sector.

A third and easily overlooked means of taxation is that secured through the profits of state marketing companies, the CSPPA and SOFITEX. Effectively

29. One could write a whole treatise on pricing policy, but two central questions must at least be raised parenthetically. The first is: Can government really influence producer prices? And secondly, even if they can, how much mileage can be had from doing so? The abbreviated answer to the first question is yes for cotton, fairly well for peanuts and sesame and probably to some degree for cereals. In the case of cereals, Appendix Table I.2 calculates that in good harvest years OFNACER purchases in the range of a 15% market share in the important grain producing region of the South West. But the equally important second question, that of price responsiveness, is rarely addressed. Government policy documents, which seldom fail to emphasize the importance of positive producer price, rarely raise this second issue. Yet two major analyses of Upper Volta's agriculture strongly suggest that prospects for an aggregate supply response are very questionable. Both the World Bank "Agricultural Issues Study" (p.10) and the Development Alternatives Incorporated (DAI) "Agricultural Assistance Sector Strategy" (p.39) indicate that Upper Volta's major constraint to increased aggregate production is absence of a proven technology that will profitably raise output under farmer conditions. Sustained technical research, they assert, will be necessary to boost production over the long run. The question here is one of emphasis. Government policy documents strongly emphasize the importance of positive producer pricing; but in view of the technical constraints to increasing production, this game must not be oversold. Research must move forward to supply farmers with technologies that allow them to increase production in response to favorable movements in output prices.

30. Cotton oil is also heavily taxed, the objective being to encourage local oil processing rather than the export of untransformed seeds.

Table 16

UPPER VOLTA:
TARIFF RATES*, APRIL 1984

-45-

<u>Commodity</u>	<u>Import Duties</u>	<u>Export Duties</u>
A. FOODS		
1. cereals		
-sorghum & millet	12%	0%
-rice	12	0
-maize	12	0
-wheat	12	0
2. flour		
-sorghum & millet	69	0
-rice	69	0
-maize	69	0
-wheat	69	0
3. Oils & oilseeds		
-karite nuts	0	
-peanuts	0	
-cotton seed	0	8.5
-karite butter	101	.5
-peanut oil	101	.5
-cotton oil	101	.5
-palm oil		
4. Meat		
a. live animals		
-cattle	26	17.5
-small ruminants	26	17.5
-poultry	0	6.5
b. meat		
-beef	69	6.5
-small ruminants	69	6.5
5. Roots & tubers		
-ignames	51	0
-sweet potatoes	35	0
-cassava	35	0
6. Fruits & vegetables		
- green beans	35	0
- potatoes	35	0
- oranges	35	0
B. NON-FOOD ITEMS		
1. cotton fiber	0	0
2. electric appliances	69	0
3. razors	69	0
4. flashlight	55	0
5. automobiles	83	0

* Includes all duties except a 3% "taxe statistique" which is applied to all imports and exports.

Source: Direction de la Douane.

controlling the export of cotton and oilseeds, these agencies make substantial profits on their marketing operations by paying local producers below world market prices. As can be seen from Appendix Table I.3, cotton producers furnish 95% of these marketing revenues, while karite producers pay out the remaining 5%.

c) Net policy impact. To summarize this review of implicit policy, Table 17 attempts to quantify net government transfers to and from individual commodity subsectors. The goal is to assess actual government priorities by measuring their net resource allocations. It should be clearly stated that the revenues and expenditures in the table refer only to GOUV expenditures; the figures exclude donor allocations. In country where 60% of annual expenditures are donor financed, one must candidly admit that measuring only government resource transfers may not be a perfect measure of official intent. One can argue for the existence of biases running in many different directions. We can only hope that, if any bias exists, it is not large. This seems a reasonable expectation. In a country such as Upper Volta, where government revenues are very scarce, one expects they will be parcelled out at least in rough accordance with official priorities. So the numbers in Table 17 should offer a sensible measure of implicit policy.

The major conclusion to be drawn from Table 17 is that actual policy does follow stated priorities. Cotton, although it receives highly visible and very expensive input subsidies, pays heavy marketing taxes through producer prices well below world market levels. The overall effect is a large net transfer from cotton growers to producers of other commodities. Besides cotton, livestock and sheanuts are the other two large net contributors to government coffers. On the receiving end, the major beneficiary of the cotton, livestock and sheanut revenues is the cereals subsector. So GOUV's stated policy of favoring food production and particularly cereals appears to be backed by its resource allocations.[31]

2. International trade policy.

Since trade policy was discussed at some length in Section III.B, the following summary will be abbreviated and aimed only at the high points.

Clearly government policy on international trade in food is closely tied to its production policy. Having opted to encourage domestic food production, GOUV implicitly adopts a strategy of minimizing the magnitude of food imports.

Policy documents state quite clearly the government's desire to reduce dependence on food aid. Recognizing the potential depressing effects on prices and the potential for discouraging production, the recent "Journee de Reflexion" proceedings suggest a gradual replacement of food aid with aid in

31. It could be argued that the magnitude of the transfer may be less than commensurate with the importance of cereals in the economy; but the direction, at least, of the resource flows does seem clearly in line with government's stated priority for cereal production.

TABLE 17

UPPER VOLTA

GOVERNMENT TRANSFERS TO & FROM COMMODITY SUBSECTORS

(1977-1979 average, Millions of CFA Frs)

	<u>GROSS VALUE OF OUTPUT</u>	<u>VALUE OF EXPORTS</u>	<u>GOVT. REV. FROM SUBSECTOR</u>	<u>GOVT EXPENDITURE ON SUBSECTOR</u>	<u>NET TRANSFER TO SUBSECTOR</u>
1. All Rural	-	10,732	3,166	3,291	125
2. Food					
a) Cereals	153,400	10	3	890	887
b) Livestock	15,000	3,922	838	364	- 474
c) Peanuts	9,900	181	9	106	115
d) Sesame	1,600	372	12	13	1
e) Sheanuts	5,200	1,402	161	1	160
f) Fruit & Veg.	n.a	264	9	52	43
f) Tubers	7,200	0	0	7	7
Total Food		6,151	1,014	1,433	419
3. Non-Food					
a) Cotton	4,581	4,581	2,152	619	- 1,533
4. General Rural Dev. Institutions	n.a	n.a	0	1,239	1,239

Source: Calculations based on IBRD, "Agricultural Issues Study," October 29, 1982, pp.233,235,237; IBRD, "Livestock Subsector Review," November 30, 1982, pp.113,117; MDR, "Journées de Reflexion sur la Campagne Agricole 1983/84,"; and annual reports of the CSPPA, various issues. For details of calculations, see Appendix Tables I.3 and I.4.

* Includes CFJA, HER, Road Maintenance, Rural Radio + MRD Directions DEP, DAAF.

the form of productive inputs for agriculture. Such a redirection of aid, they argue, would better help Upper Volta in its efforts to produce what it needs at home.

While indicating they wish to diminish food aid imports, GOUV has not in fact done so. Perhaps, given the aggregate food deficit even in good harvest years, they feel they cannot reduce food aid for the foreseeable future. Whatever the reason, it is clear from Table 11 that food aid does not drop below a floor level, even in years of good harvest.

Policy statements say little about commercial food imports. But in practice Upper Volta follows a relatively liberal trade policy. Although some food commodities require special import permits, there are few restrictions on food coming in so long as local agribusiness firms are not able to supply the entire local market. In fact, Upper Volta has a history of substantial commercial importation of wheat which, unlike in many other countries, is sold at unsubsidized market rates. And food imports - at least unprocessed commodities - face low import tariffs. Perhaps the biggest surprise in commercial import policy is the uniform import tariff levied on all cereal products. Taxing wheat and rice imports at a higher rate would raise revenues without adversely affecting nutritional status, since the preferred cereals are likely consumed by upper income groups. And by raising the market price of those preferred cereals, the government would shift consumption in favor of cereals that can be more easily grown locally.

One discordant note in the policy that generally favors commercial food imports is - as discussed previously - the result of consumer pricing policy for cereals. Currently only rice and wheat can be imported and sold profitably at official prices.

A final facet of trade policy concerns food exports. Livestock, the principal food export, is also the one taxed most heavily. This is intended - in addition to raising revenue - to favor local consumption and processing by making beef more expensive to export. One other notable export policy is that, in deficit years such as the present one, government has prohibited cereal exports in order to preserve domestic supplies.

3. Distribution policy.

Official policy documents deal only partially with the question of food distribution. On the important question of private versus public distribution systems, GOUV seems to come down in favor of a large private sector role. After a disastrous attempt, in the mid-1970's, to institute a government marketing monopoly for cereals, government has recanted and now specifically acknowledges the important role to be held by private grain traders. While they promote the participation of cereal banks, groupements villageois and OFNACER in cereal markets, these interventions are viewed as moderating influences designed to provide more competitive cereal markets. In practice, most cereal trade is handled by the private traders. This is also the case for local distribution of meat, tubers, oilseeds fruits and vegetables, all of which reach consumers through private traders at free market prices. It is only in the export of oilseeds and vegetables that government plays a role. The CSPPA exports oilseeds, but even so they

procure the commodities from licensed private traders. And in the case of fruit and vegetable exports, government provides some support to UVOCAM, the umbrella union of vegetable and fruit cooperatives.

Government does explicitly designate regional targets for food distribution, but only in the case of cereals. They clearly charge OFNACER with seeing that the remote, grain deficit regions of the country be provisioned with grain. As shown in Table 12, OFNACER does indeed target its sales to those deficit areas.

The weak link in current food policy is in the failure to clearly target low-income consumers or vulnerable groups of the population. A number of food commodities are subsidized, at least periodically, by the GOUV. But these range from rice to industrially processed vegetable oil to coarse grains. Rice and oil subsidies will most likely benefit upper income groups whose diets are not deficient. And the coarse grain subsidies are not restricted to low-income groups but rather are available to all. Given the apparent magnitude of Upper Volta's nutritional gap and the paucity of government resources, the failure to target income groups or specific food commodities consumed by the poor results in a very inefficient system for trying to make maximum inroads in the food gap. As better consumption information becomes available, it should be possible to design food policies that go much farther with given resources in meeting Upper Volta's food needs.

SELECTED REFERENCES

1. Consumption and Nutrition.

Bleiberg, Fanny. "Etat nutritionnel, consommation alimentaire et depense energetique du paysan Mossi," Thesis, doctorat du troisieme cycle, l'Universite Pierre et Marie Curie, Paris 6, 1979.

Brun, Thierry A.; Bleiberg, Fanny; Bonny, Sylvie; and Ancy, G. "Food Consumption and Energy Expenditure Among Mossi Peasants," African Environment, Vol. 4, 1980, pp.426-448.

Government of Upper Volta, Ministry of Development and Tourism. "Enquete Budget Consommation, 1963/64," Ouagadougou, June 1966.

Government of Upper Volta, Ministry of Rural Development, Food and Food Technology Service, "Enquetes anthropometriques et de consommation alimentaire dans l'ORD de l'Est, Fada-N'Gourma," Ouagadougou, February 1981.

IBRD. Upper Volta Health and Nutrition Sector Review, November 12, 1982.

Thiombiano, L.; Koulidiati, L., and Some, C. "Systemes alimentaires a Ouagadougou," paper presented at the Colloque International UNSRID/CEDRES, Ouagadougou, May 30,31 and June 1, 1984.

2. General Agriculture and Food Policy

Agroprogress, GmbH. Enquete Haute Volta 1981/82: Collecte, par de jeunes agriculteurs, de donnees de base choisies en vue de la constitution de donnees fondamentales permettant de preciser la strategies alimentaire et de formuler une politique cerealiere nationale. Bonn, September 1982.

Agroprogress, GmbH. Enquete Haute Volta 1980/81: Repercussions d'un relevement des prix payes au producteur sur la production, la commercialisation et le stockage de cereales au niveau de l'exploitation agricole. Bonn, November 1981.

Agroprogress, GmbH. Etude sur l'organisation de la collecte du traitement, de la commercialisation du riz produit par les Petites Plaines. Ministry of Rural Development, December 1982.

Development Alternatives Inc. Agricultural Sector Assistance Strategy for Upper Volta. Washington, DC, May 1982.

Government of Upper Volta, Ministry of Rural Development. Rapport de Synthese de la Deuxieme Conference des Cadres. Ouagadougou, June 1981.

Government of Upper Volta, Ministry of Rural Development. "Journées de Reflexion sur la Campagne Agricole 1983/84," Ouagadougou, April 12-14, 1984.

IBRD. Upper Volta Agricultural Issues Study, October 29, 1982.

3. Cereals.

Berg, Elliot. Marketing, Price Policy and Storage of Cereals in the Sahel. University of Michigan, Center for Research on Economic Development, July 1977.

Brandt, Hartmut; Leibfrit, Willie; Pollak, Christian; Schug, Walter. Evaluation du programme de securite alimentaire de la Haute Volta: resultats essentiels. Institut Allemand de Developpement, July 1982.

Kat, Jan. "Cereal Banks in Upper Volta: Review of Concepts, Performance and Impact." FAO, Rome, February 1983.

Ouedraogo, Ismael. "A Socioeconomic Analysis of Farmers' Food Grain Marketing Linkages and Behavior in Eastern Upper Volta." Ph.D. dissertation, Michigan State University, 1983.

Santana, Suha. "Etude comparative des banques de cereales en Haute Volta." USAID, Ouagadougou, July/August 1981.

SCETAGRI. Technologie des cereales traditionnelles dans les pays du Sahel: son role dans l'autosuffisance alimentaire. Paris: Ministry of Cooperation and Development, April 1982.

Sherman, Jacqueline. "Grain Markets and the Marketing Behavior of Farmers: A Case Study of Manga, Upper Volta." Ph.D. dissertation, University of Michigan, 1984.

USAID, Office of Agriculture, Division of Agricultural Economics. "A Simulation Model of Grain Production, Consumption, Trade and Storage for Upper Volta, 1980/81-1983/84." Ouagadougou, June 1984.

Wilcock, David C. "The Political Economy of Grain Marketing and Storage in the Sahel." African Rural Economy Working Paper, No.28, Michigan State University, January 1978.

4. Livestock and Meat.

Herman, Larry and Makinen, Marty. "Production, commercialisation et exportations de betail et de viande en Haute Volta." in Edgar J. Ariza-Nino, Larry Herman, Marty Makinen and Charles Steedman, La Commercialisation du betail et de la viande en Afrique de l'Ouest. Vol. 1, Rapport de Synthese Haute Volta, pp.47-258, University of Michigan, Center for Research on Economic Development, 1981.

Holtzman, John. "Small Ruminant and Poultry Marketing in the Mossi Plateau of Upper Volta." USAID, May 1983.

IBRD. Upper Volta Livestock Subsector Review. November 30, 1982.

5. Tubers, Oils, Fruits and Vegetables.

Demeaux, Marc. "Etude de faisabilite pour l'organisation d'un centre sur les racines et tubercules en Haute Volta." FAO, January 1982.

A. Minimum Cereal Requirements

Every year just after the harvest, the Ministry of Rural Development (MDR) produces a cereal balance sheet in which they estimate crop production, potential storage losses, seed requirements and ultimately the volume of cereal available for human consumption. By comparing cereal availability with minimum per capita requirements, they pronounce the existence of a surplus, adequate or deficit production year. In deficit years, GOUV routinely uses the projected deficit as a basis for the volume of food aid they request.

But the volume - indeed even the existence - of a cereal deficit depends critically on the level of assumed minimum consumption requirements. Often debate over minimum cereal requirements becomes a central bone of contention in discussions of how much, if any, food aid is required in a given year. Many donors take the FAO figure of 180 kg per capita as the level of cereal consumption necessary to meet minimum nutritional requirements. Yet the MDR, based on field surveys in Kaya and Fada'N-Gourma regions, insists that minimum cereal consumption requirements are 215 kg per year. And one donor, USAID, uses an intermediate figure of 192 kg per person per year.

The purpose of this brief review is to clearly lay bare the key assumptions embodied in each of the three proposed minima. In doing so, the FAO standard daily calorie requirement of 2,370 Kcals is adopted as the minimum necessary in Upper Volta. For purposes of the current debate, none of the three camps dispute the appropriateness of this figure. As a second important given, one must know that one kilogram of cereal - be it wheat, maize, millet or rice - furnishes about 3.5 kilocalories. With these two pieces of information, it is possible to explore the assumptions implicit in each of the three proposed minimum cereal requirements.

1. FAO 180 kg minimum. The FAO estimates that, to meet the minimum calorie requirements of 2,370 Cal./person/day, the average Voltaic must consume 180 kg of cereals annually. Although the 180 kg figure is widely cited, its exact interpretation and method of calculation are unclear, even to the FAO office in Ouagadougou.[1] Personnel at the World Food Program have written to FAO Rome requesting details on the computation of the 180 kg figure. Pending their response, the following can at least be said with safety.

The consumption of 180 kg of cereal per year yields an intake of 493 grams per day which, at 3.5 calories per gram, is the equivalent of 1,726 Calories per person per day. So use of the 180 kg minimum implies that cereals contribute $1,726/2,370 = 72.8\%$ of minimum caloric requirements.

1. IBRD, "Upper Volta Health and Nutrition Subsector Review," November 12, 1982, p.29 appears to interpret the FAO figure as a production rather than a consumption requirement. They are alone in doing so. When final word comes from the FAO on their method of calculation, it will be possible to state unequivocally who is correct. For now, since all other interested parties treat the 180 figure as a consumption requirement, the following discussion does so as well.

2. USAID 192 kg minimum. USAID staff indicate their 192 figure is derived by taking the FAO's 180 kg as valid - but for coarse grains only. USAID believes the FAO computation excludes preferred cereals such as wheat and rice. Assuming wheat and rice account for about 6.6% of cereal consumption, USAID takes the total cereal consumption requirement to be $180 \text{ kg} \times 1.066 = 192 \text{ kg}$ per person per year.

In using their 192 kg statistic, USAID introduces an interpretation that may well be a common source of confusion. They use their 192 figure to estimate "effective demand" for cereals - not minimum nutritional requirements but rather actual trend level of consumption.[2] Given the significant difference between actual consumption and minimum nutritional requirements, it will be important to determine whether or not this is a legitimate interpretation of the FAO-based statistic. Here again, clarification will be required from the FAO.

3. MDR 215 kg minimum. MDR's position is that 215 kg of total cereals are required annually to meet minimum caloric requirements in Upper Volta. This is the equivalent 589 grams per day which, at 3.5 Calories per gram, equals 2,062 Calories per person per day. It is equivalent to assuming that $2,062/2,370 = 87\%$ of total calories must be supplied by cereals.

So the difference between the FAO and MDR positions appears to boil down to their assumption of what percentage cereals comprise in local diets. Looked at the other way around they seem to disagree over how much other food commodities can contribute to energy intake. It should be possible to make a judgement as to who is correct by using Table 2 (page 10) which summarizes the evidence on the food composition of diets from both consumption studies as well as food balance sheet calculations. The figures from that table indicate that cereals comprise between 73% and 88% of caloric intake. But remembering that "drinks", at the bottom of Table 2, consist almost exclusively of sorghum beer (dolo), the total calories furnished by cereals increases to 73%, 79%, 75%, 88% and 80%, respectively. A figure of 75%, the FAO cereal plus dolo percentage, represents a conservative estimate of the caloric contribution of cereals in local diets.

MDR is well aware of the consumption evidence and the fact that cereals do not currently supply 87% of caloric intake. Recognizing this, they nonetheless arrive at their 215 kg estimate by making the following key assumption: If diets are deficient in calories, the entire deficit must be made up by increases in cereal consumption. Based on actual consumption studies around Kaya and Fada'N-Gourma, they compute cereal supplements necessary to bring caloric intake up to minimum requirements. Taking the Fada'N-Gourma region as an example, if the entire observed calorie gap there were to be filled by cereals, the actual cereal contribution of 80% of total calories would have to be boosted to 87% to bring up the diet to minimum

2. See USAID, "Agricultural Development Support Project Paper," June 25, 1983, Vol. II, Annex R, p.9.

required energy levels.[3]

So the apparent debate over what share cereals contribute to caloric intake really comes down to different assumptions of how the energy deficit is to be met. MDR assumes it must be met entirely by increased cereal consumption, so they come up with a higher estimated cereal consumption requirement than does the FAO. FAO implicitly assumes that other foods can be made available to supply the 25 or so percent of calories not contributed by cereals.

Resolution of this debate may be an elusive goal given the differing incentives facing the GOUV, the FAC and the donor community. Nonetheless, three observations may be made about the contested cereal consumption requirement. First is that the FAO figure, if intended as a nutritional minimum consumption requirement, is probably too low, since it apparently overlooks the caloric contribution cereals make through their consumption in the form of dolo. Including the cereal used in dolo would, using their figures, raise the cereal contribution to 75% of the total actual calories consumed. If cereal consumption and that of all other foods could be increased in tandem to meet minimum energy requirements, a total of $.75 \times 2,370 = 1,778$ Calories/day would be supplied by cereals. This is the equivalent of 508 grams of cereal per person per day or 185 kg per year. Since most consumption studies indicate cereals occupy larger than a 75% share in local diets, this would appear to be a conservative estimate of the minimum cereal consumption requirement.

A second - and crucial - observation is that any discussion of minimum consumption requirements should not overlook distributional issues. Even if 185 kg of grain were available for every person in Upper Volta, all would not consume that amount unless it were distributed through an impartial quota system. But grain, like all other food commodities, is distributed by markets which allocate more to the rich because of their greater purchasing power. A standard rule of thumb has it that aggregate food consumption must be equal to 110% of minimum nutritional requirements in order for the poor to achieve minimum consumption levels under a market allocation system.[4] So the conservative 185 kg figure should probably be increased by 10% to about 205 kg in setting national minimum cereal consumption requirements.

And finally, users of cereal consumption estimates - whoever they may be - should clearly specify what interpretation they intend for the figure they

3. In the village of Diapaga, for example, the minimum cereal requirement was computed as follows. Total measured food consumption generated 1,792 calories per person per day of which 1,482 came from 430 grams of cereals. So the calorie gap was $2,370 - 1,792 = 578$ Calories per person per day. If the gap were to be filled by cereals, it would require an additional $578/3.5 = 165$ gram supplement of cereals. This would bring actual consumption up from 430 to $430 + 165 = 595$ grams of cereals per person per day. This is the equivalent of $595 \times 365 = 217$ kg per person per year. Rounding off, they arrive at a minimum cereal requirement of 215 kg per person per year.

4. IFPRI, "Food Needs of Developing Countries: Projection of Production and Consumption to 1990," December 1977, pp.61,62.

use. Of particular importance will be an indication of whether the figure advanced is: a) a consumption or a production requirement; and b) if it is a consumption requirement, whether it refers to an estimate of effective demand or minimum nutritional requirements. It may well be that much of the current confusion stems from differing interpretations of what is being measured.

Much more could be said about this very complex issue. It is hoped that the foregoing at least brings into focus the current areas of dispute so future discussions can avoid running skew and instead address the key areas of disagreement head on.

TABLE I.1

OFNACER PURCHASES & SALES, 1971 - 1982
(thousands of tons, all cereals combined)

	<u>1971/72</u>	<u>1972/73</u>	<u>1973/74</u>	<u>1974/75</u>	<u>1975/76</u>	<u>1976/77</u>	<u>1977/78</u>	<u>1978/79</u>	<u>1979/80</u>	<u>1980/81</u>	<u>1981/82</u>	<u>1982/83</u>
1. <u>Local Purchases</u>	1.5	.8	2.8	15.4	16.8	9.8	8.8	15.3	9	2.6	28	24.8
2. <u>Local Consumer Sales</u>	30.8	24.9	33	28	21	28.3	24.6	23.6	25	26.9	22.6	61

Source: IERD, "Upper Volta Agricultural Issue Study" October 29, p.225;
& OFNACER

TABLE I.2

OFNACER'S LEVERAGE IN SUPPORTING PRODUCER PRICES
(thousands of tons of all cereals combined)

	1978/79				1979/80				1980/81				1981/82				1982/83			
	a	b	c	c/b	a	b	c	c/b	a	b	c	c/b	a	b	c	c/b	a	b	c	c/b
	Prod.	Mktd surpl	OFNAC Purch		P	MS	OF		P	MS	OF		P	MS	OF		P	MS	OF	
1. South West	468	117	7.2	6%	470	114	3.7	3%	507	142	.9	.6%	480	113	18.7	17%	503	128	16.4	13
2. Mossi Plateau	548	40	6.6	17%	561	44	2.6	6%	473	-44	.3	-	636	93	7.1	7.6%	527	13	6.4	-
3. East	101	30	1.2	4%	112	39	2.3	6%	63	-7	1.3	-	88	15	2.6	17%	103	27	2	7
4. Sahel	53	2	.3	15%	44	-7	.1	-	45	-14	.1	-	68	13	.2	1.5%	58	4	0	0
Total Upper Volta	1013	189	15.3	8%	1031	190	8.7	4.5%	898	77	2.6	3.3%	1102	234	28.6	12%	1191	146	24.8	17%

Source : a. (P) Production Figures: Table 4.

c. (OF) OFNACER Purchases: OFNACER.

b. (MS) Marketed Surplus estimated as :

$$\text{prodn} \times .9 (\text{losses} + \text{seeds}) - \text{rural population} \times \begin{cases} 180 \text{ kg in SW} \\ 140 \text{ kg in MP + E} \\ 120 \text{ kg in Sahel.} \end{cases}$$

TABLE I. 3

DETAILS OF GOVERNMENT TRANSFERS AMONG COMMODITY SUB-SECTORS
(millions of CFA francs, 1977-79 average)

	<u>GOVERNMENT REVENUE FROM SUBJECTOR</u>			<u>GOVERNMENT EXPENDITURE ON SUBSECTOR</u>				<u>NET TRANSFER TO SUBSECTOR</u>
	Taxes	Marketing Rev.	Total Revenues	Budget Expenditure	Input Subsidies	Grants from Parastatals	Total Expenditure	
1. All Rural	1073	2,093	3,166	1,957	814	520	3,291	125
2. Food								
a) Cereals	3	0	3	354	355	181	890	887
b) livestock	838	0	838	319	0	45	364	- 474
c) peanuts	6	- 15	- 9	42	29	35	106	115
d) sesame	12	0	12	4	9	0	13	1
e) sheanuts	49	112	161	1	0	0	1	- 160
f) fruit & veg.	9	0	9	35	0	17	52	43
g) tubers	0	0	0	7	0	0	7	7
Total Food	917	97	1,014	762	393	278	1,433	419
3. Non Food								
a) cotton	156	1,996	2,152	136	421	62	619	- 1,533
4. General Rural Dev. Institutions	0	0	0	1,059	0	180	1,239	1,239

Source: Calculations based on IBRD "Agricultural Issues Study" Oct. 29, 1982 pp. 233, 235, 237, IBRD, "Livestock Subsector Review," pp. 113, 114, 117; MDR "Journées de Reflexion sur la Campagne Agricole 1983/84", pp. 2, 5, 8, 15; and assumptions in Table I.4.

TABLE I.4

ASSUMED COMMODITY DISTRIBUTION OF GOVERNMENT EXPENDITURES

COMMODITY SUB SECTORS

	General	Livestock	Cotton	Sheanuts	Peanuts	Sesame	Cereals	Fruit & Vegetables	Tubers	Total
Title II. Operating Expenditure										
1. DSA	0	0	20%	0	20%	5%	50%	3%	2%	100%
2. HER	100%	0	0	0	0	0	0	0	0	100%
3. Livestock	0	100%	0	0	0	0	0	0	0	100%
4. CFJA	100%	0	0	0	0	0	0	0	0	100%
Title II. Public Interventions										
5. International Organizations	100%	0	0	0	0	0	0	0	0	100%
6. AVV	100%	0	0	0	0	0	0	0	0	100%
7. ONERA	0	100%	0	0	0	0	0	0	0	100%
8. ONBI	0	0	0	0	0	0	0	0	0	100%
9. OFNACER	0	0	0	0	0	0	80	20	0	100%
							100	0	0	100%
Title IV. Equipment & Investment										
10. MDR	0	13%	18%	0	10%	0	52%	15%	0	100%
11. ORD	0	13%	18%	0	10%	0	52%	15%	0	100%
12. IRAT	0	0	0	0	10%	0	60%	20%	10%	100%
13. IRCT	0	70%	0	0	0	0	30%	0	0	100%
14. IRHO	0	0	0	10	60	30	0	0	0	100%
15. CTFT	0	0	100%	0	0	0	0	0	0	100%
16. CERC	0	0	0	0	0	0	0	0	0	100%
17. Counterpart contributions	10%	15%	25%	0	10	0	100%	0	0	100%
							45%	5%	0	100%

TABLE I.5

PRODUCER PRICING POLICY: COMMODITY COMPARISONS

	<u>Producer Price Set By Govt?</u>	<u>When Announced?</u>	<u>Basis for Setting Official Price</u>
1. FOOD COMMODITIES			
a. <u>Cereals</u>			
- Sorghum + millet	yes, floor price	Theoretically before planting in practice, at harvest or after.	Theoretically, country wide average cost of production. In practice, increase 5%-10% each year.
- maize	yes, floor price		
- rice	yes, floor price		
b. <u>Meat</u>			
	no	-	-
c. <u>Oilseeds</u>			
- sheanuts	yes	at harvest	local market price incentive price
- peanuts	yes	at harvest	
d. <u>Tubers</u>			
	no	-	-
e. <u>Fruit and Vegetables</u>			
	no	-	-
2. NON-FOOD ITEMS			
a. <u>Cotton</u>			
	yes	before planting	?

Source: Discussions with MCO DIM, MDR + CSPPA.

TABLE I. 6

CONSUMER PRICING POLICY: COMMODITY COMPARISONS

	Consumer Price Set by Govt?	Enforced?	Uniform Nation Wide?	Allow Seasonal Price Variation?	Official Price Represent Subsidy?	How financed?
1. FOOD COMMODITIES						
a. <u>Cereals</u>						
- sorghum millet	yes, ceiling price	sporodically	yes	Theoretically not above price	yes	Food Aid
- maize	yes, ceiling price	in	yes	ceiling. In	yes	Food Aid
- rice	yes ceiling price	cities	yes	practice, ceiling often not enforced.	periodically	GOUV, Caisse de Perequation
- wheat flour	yes by homologation	yes	no	no	no	-
b. <u>Meat</u>						
	no	-	no	yes	-	-
c. <u>Oil seeds</u>						
	no	-	no	-	-	-
Oil - locally produced	yes, by "homologation"	yes	no	yes	periodically	GOUV,
- imported	yes, by "taux de marge"	yes	no	yes	periodically	Caisse de Perequatic
d. <u>Tubers</u>						
	no	-	no	yes	-	-
e. <u>Fruit + Vegetables</u>						
	no	-	no	yes	-	-
2. NON-FOOD ITEM						
a. <u>Cotton</u>						
	no	-	-	-	-	-
b. <u>Locally produced manufactured goods</u>						
	yes, by homologation	yes	no	no	no	-
c. <u>Imported manufactures</u>						
	no, but maximum margins set	yes	no	yes	no	-

Source: Discussions with MCODEM, OFNACER Caisse de Perequation.

A. A Primer on Upper Volta's Official Trade Statistics

The raw materials from which Upper Volta's official trade statistics are built are found in the import and export figures collected by the Customs Department. Customs personnel, in principle, keep records of all trade transactions regardless of whether or not the merchandise involved is subject to tariff duties. So those interested in food policy analysis should know that official totals include both commercial trade and movements of food aid. But even though food aid is included in the totals, it is only since 1978 that the proportion of commercial versus food aid imports has been separated out by the keepers of official trade statistics.

Upper Volta's official trade statistics are subject to considerable margins of error both because of clandestine trade flows and because of incentives to underreport the value of certain exports. Clandestine trade flows are difficult to control along Upper Volta's highly permeable borders; and even in the case of declared exports, livestock traders in particular have a strong incentive to underestimate the value of their animals in order to reduce the substantial export duties they pay. So the official trade statistics collected by the Customs Department - and which are normally reported by the BCEAO, MCODEM, INSD or ONAC - represent considerable underestimates of actual trade flows.

The BCEAO tries to estimate the degree of underreporting embodied in official trade statistics. They do so when preparing balance of payments accounts. To make an estimate of actual trade flows, BCEAO staff make essentially two adjustments to official statistics. First, to address the undervaluation problem they compare reported export prices with local market prices and make upward adjustments where necessary. Second, they try to make a rough estimate of clandestine exports. To do so, they assume that all clandestine trade is settled in cash. Because all CFA bills circulating in the West African Monetary Zone are tagged with a country designation^[5], clandestine exports will result in non-voltaic CFA notes circulating in Upper Volta. Unregistered imports will be evidenced by voltaic notes circulating in neighboring countries. In reshuffling the CFA notes back to originating countries in the monetary zone, BCEAO regularly observes the volume of notes returning to Upper Volta to be in excess of what official trade flows would lead them to expect. Although much cash in circulation lies outside the banking system, by using estimates of bank deposits to total money supply the return flow of notes does allow them to make a rough estimate of the real overall trade balance. As can be computed from Table II.5, the BCEAO estimates that in recent years official import statistics have underestimated the value of actual flows by about 15%,^[6] and official export data underestimate trade values by about 40%.^[7]

5. Notes circulating in Upper Volta have a "C" printed in the upper right hand corner.

6. Computed as $(1 - 1/1.18)$.

7. Computed as $(1 - 1/1.70)$.

In light of the gap between official statistics and actual trade flows, the food policy analyst must proceed with caution in analyzing trade data. As a first concession to the fragility of the trade statistics, the standard measure of the ability to finance food imports - the ratio of food imports to total exports - must be adjusted as described in Table II.5 to take account of the official statistics' differential bias in reporting the value of imports and exports. Second, the analyst must realize that it is unfortunately only possible from 1978 on to use official statistics to examine movements in food aid and commercial exports. So for the early 1970's, the official trade data cannot be used to investigate interesting questions about relative responsiveness or potential crowding out. Finally, the trade statistics provide yet another reminder of the delicacy of the statistical base on which the food policy analyst must construct his or her evaluations and recommendations.

TABLE II.1 FOOD EXPORT VALUES, OFFICIAL STATISTICS
(millions of CFA francs)

<u>YEAR</u>	<u>Total Exports</u>	<u>Animals & Meat</u>	<u>Oil & Oilseeds</u>	<u>Fruit & Vegetables</u>	<u>Cereals</u>	<u>Total Food</u>
1961.00	882.000	528.500	53.5000	44.8000	0.00000	626.800
1962.00	2797.00	1897.80	213.800	113.600	2.20000	2227.40
1963.00	3057.00	1959.10	210.000	71.7000	1.30000	2242.10
1964.00	3314.00	1973.90	403.800	51.1000	6.70000	2435.50
1965.00	3680.00	2218.90	435.900	141.100	19.1000	2815.00
1966.00	3985.00	2411.70	529.900	95.0000	25.0000	3061.60
1967.00	4429.00	2532.00	585.200	83.0000	7.40000	3207.60
1968.00	5290.00	2806.30	930.100	204.000	10.5000	3950.90
1969.00	5329.00	2184.00	747.800	286.600	6.60000	3225.00
1970.00	5056.00	1783.00	1364.00	200.000	15.0000	3362.00
1971.00	4408.00	1866.00	1031.00	195.000	11.0000	3103.00
1972.00	5141.00	2293.00	886.000	183.000	3.00000	3365.00
1973.00	5596.00	2441.00	1050.00	149.000	10.0000	3650.00
1974.00	8702.00	3223.00	2561.00	264.000	3.00000	6051.00
1975.00	9368.00	3498.00	2987.00	325.000	4.00000	6814.00
1976.00	12690.0	1506.00	3323.00	410.000	270.000	5509.00
1977.00	13614.0	3986.00	2169.00	413.000	8.00000	6576.00
1978.00	9600.00	3560.00	1376.00	142.000	4.00000	5082.00
1979.00	16238.0	4389.00	2325.00	239.000	17.0000	6970.00
1980.00	19066.0	4668.00	2166.00	206.000	17.0000	7057.00
1981.00	19919.0	3916.00	3303.00	331.000	5.00000	7555.00

Source: 1961-66 - "Bulletin Mensuel de Statistique," Ministere de l'Economie Nationale, various issues.
1967-69 - "Bulletin Mensuel d'Information Statistique et Economique," Ministere du Plan et des Travaux Publics, various issues.
1970-81 - "Indicateurs Economiques," various issues; and CENATRIN computer listing of trade statistics at INSD, BCEAO & ONAC.

TABLE II.2 FOOD EXPORT QUANTITIES, OFFICIAL STATISTICS
(metric tons)

<u>YEAR</u>	<u>Animals & Meat</u>	<u>Oil & Oilseeds</u>	<u>Fruit & Vegetables</u>	<u>Cereals</u>
1961.00	22631.0	MISSING	1416.00	MISSING
1962.00	23427.7	8714.30	4300.00	118.000
1963.00	23387.8	8498.30	1626.00	47.2000
1964.00	25465.3	18885.0	1518.80	604.000
1965.00	27586.5	15324.0	4098.00	1371.00
1966.00	27949.7	21747.0	3060.00	MISSING
1967.00	29778.1	20686.0	2684.20	133.700
1968.00	34244.0	34383.1	6915.20	846.500
1969.00	25938.0	25668.0	7300.00	428.000
1970.00	23050.0	43929.0	5433.00	MISSING
1971.00	23927.0	28414.0	4207.00	534.000
1972.00	32635.0	33325.0	5134.00	154.000
1973.00	30089.0	26909.0	3228.00	390.000
1974.00	32216.0	32695.0	6892.00	78.0000
1975.00	28853.0	36354.0	9522.00	189.000
1976.00	7403.00	55689.0	12739.0	9566.00
1977.00	19792.0	39558.0	13782.0	234.000
1978.00	25030.0	24688.0	3119.00	125.000
1979.00	34571.0	35680.0	6224.00	413.000
1980.00	25469.0	39774.0	4790.00	339.000
1981.00	18788.0	46648.0	5954.00	109.000

Source: As in Table II.1; 1962, and 1963 figures computed using values for those years along with commodity prices interpolated from 1961 and 1964.

TABLE II.3 FOOD IMPORT VALUES, OFFICIAL STATISTICS
(millions of CFA francs)

YEAR	TOTAL IMPORTS	CEREAL PRODUCTS*	EDIBLE OIL	FRUIT & VEGETABLES	MEAT & FISH	SUGAR	DRINKS **	MILK	TOTAL** FOOD
1961.00	7004.00	184.900	12.4000	55.6000	38.4000	431.300	193.000	93.2000	1284.80
1962.00	8896.00	334.100	12.1000	48.7000	40.8000	423.700	234.800	123.900	2295.80
1963.00	9382.00	316.000	6.30000	49.8000	36.8000	474.000	253.400	145.200	3006.60
1964.00	9484.00	361.400	0.400000	346.500	39.8000	532.800	214.300	184.600	2687.60
1965.00	9169.00	434.600	0.400000	233.700	171.000	473.100	153.400	146.300	2673.20
1966.00	9293.00	572.600	0.00000	172.000	167.000	397.000	154.100	178.000	3261.90
1967.00	8970.00	660.100	0.00000	181.700	232.000	424.600	121.800	134.800	2995.60
1968.00	10119.0	512.100	0.00000	125.600	180.000	633.200	119.200	128.500	2100.60
1969.00	12450.0	912.500	6.20000	121.000	161.000	576.100	122.000	199.000	2241.20
1970.00	13701.0	732.400	15.0000	87.0000	149.000	489.000	121.000	214.000	2756.40
1971.00	15611.0	861.000	10.0000	82.0000	116.000	557.000	218.000	237.000	3155.00
1972.00	17269.0	741.000	6.00000	85.0000	172.000	844.000	242.000	288.000	3568.00
1973.00	21690.0	1355.00	38.0000	130.000	115.000	680.000	289.000	328.000	4048.00
1974.00	34664.0	4707.00	105.000	659.000	279.000	1174.00	383.000	2709.00	11356.0
1975.00	32386.0	2407.00	198.000	673.000	222.000	1039.00	408.000	713.000	5976.00
1976.00	34423.0	2389.00	193.000	384.000	165.000	92.0000	515.000	1958.00	6052.00
1977.00	51357.0	4504.00	287.000	569.000	268.000	126.000	625.000	2510.00	9327.00
1978.00	51075.0	6537.00	668.000	623.000	377.000	62.0000	440.000	3487.00	12856.0
1979.00	63916.0	6285.00	700.000	805.000	281.000	188.000	557.000	2320.00	12173.0
1980.00	75614.0	6860.00	873.000	796.000	623.000	111.000	498.000	2888.00	13486.0
1981.00	91443.0	8287.00	1901.00	1419.00	540.000	838.000	551.000	4764.00	19740.0

Source: As in Table II.1.

* Includes cereals, flours, malt, and all other cereal products.
For a breakdown of cereals and flour only, see Table III.5.

** Includes alcoholic beverages, coffee, tea and soft drinks.

*** Includes alcoholic beverages and tobacco.

TABLE II.4 FOOD IMPORT QUANTITIES, OFFICIAL STATISTICS
(metric tons)

YEAR	Cereal & Products *	Edible Oil	Fruits & Vegetables	Meat & Fish	Sugar	Drinks **	Milk
1961.00	4565.00	256.000	2133.00	195.000	8117.00	4261.00	1375.00
1962.00	9636.00	263.000	5610.00	196.000	7433.00	5870.00	1361.00
1963.00	9647.00	135.000	11926.0	177.000	8317.00	6334.00	1595.00
1964.00	10756.0	10.0000	10581.0	179.000	8550.00	5908.00	1633.00
1965.00	11929.0	10.0000	5295.00	86.0000	8033.00	2315.00	1137.00
1966.00	15680.0	0.00000	4073.00	1549.00	8798.00	2433.00	1372.00
1967.00	19916.0	0.00000	3829.00	1329.00	8299.00	1946.00	1074.00
1968.00	15560.0	0.00000	3802.00	1233.00	12484.0	1682.00	963.000
1969.00	17400.0	55.0000	2500.00	2100.00	10200.0	1900.00	1600.00
1970.00	23319.0	63.0000	737.000	1000.00	11826.0	1774.00	1679.00
1971.00	26375.0	42.0000	705.000	791.000	11969.0	2356.00	1633.00
1972.00	25719.0	25.0000	739.000	1206.00	16834.0	2474.00	1794.00
1973.00	41227.0	158.000	835.000	675.000	10303.0	2869.00	1959.00
1974.00	1.06106E+05	441.000	18712.0	1600.00	9406.00	2728.00	7449.00
1975.00	31959.0	786.000	17597.0	979.000	5376.00	2549.00	3404.00
1976.00	35709.0	637.000	8948.00	533.000	276.000	2759.00	5285.00
1977.00	64070.0	1232.00	9916.00	1272.00	421.000	3112.00	5933.00
1978.00	1.15399E+05	2485.00	13729.0	1270.00	1357.00	3709.00	12786.0
1979.00	99358.0	3042.00	32985.0	1175.00	710.000	11270.0	11401.0
1980.00	88518.0	3836.00	19376.0	1604.00	667.000	2469.00	14967.0
1981.00	77321.0	7125.00	18121.0	1722.00	5575.00	2101.00	15247.0

Source: As in Table II.1.

* Includes cereals, flours malt & cereal products such as biscuits & cookies. For breakdown of cereals & flour, see Table II.5.

** Includes alcoholic beverage, coffee, tea & soft drinks.

TABLE II. 5

UPPER VOLTA

DIFFERENCE BETWEEN OFFICIAL STATISTICS
& ACTUAL TRADE FLOWS
(millions of francs CFA)

	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>Average</u>
1. Total Exports as estimated by BCEAO	28,230	32,020	33,190	
2. Total Exports as Recorded in Official Statistics	16,240	19,070	19,920	
3. Ratio 1/2	1.74	1.68	1.67	1.70*
4. Total Imports as estimated by BCEAO	78,670	90,000	101,300	
5. Total Imports as Recorded in Official Statistics	63,920	75,610	91,440	
6. Ratio 4/5	1.23	1.19	1.11	1.18*

Source: BCEAO as reported in "Upper Volta, Recent Economic Developments," IMF, June 7, 1983, pp.100, 102

* Note: In view of These Biases in official statistics (o), The following adjustment was made in estimating Food imports (FM)/Total Exports (TE) in Table 9.

$$\frac{FM(o) \times 1.18}{TE(o) \times 1.70} = \frac{.694 \times FM(o)}{TE(o)} = \text{estimate of true FM/TE.}$$

TABLE II. 6

COMPARATIVE FOOD AID ESTIMATES
(tons)

	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
1. <u>Sorghum, Millet & Maize</u>													
a) Official	-	-	-	-	-	-	-	-	-	-	-	-	-
b) PAM 1/	-	-	-	-	-	-	-	-	-	9,184	1,085	19,682	-
c) OFNACER 2/	-	33,900	30,000	26,000	19,200	0	0	-	30,091	8,710	32,297	33,137	20,614
d) USAID 2/	-	-	-	-	-	-	-	28,939	15,617	14,691	9,945	27,267	12,584
e) French	-	22,000	22,000	54,000	3,000	1,000	17,000	84,000	32,000	29,000	30,000	42,000	30,000
f) FED	-	21,900	22,000	53,500	2,900	700	18,000	106,000	31,000	-	-	-	-
								70,200	34,000	-	-	-	-
2. <u>Rice</u>													
a) Official	-	-	-	-	-	-	-	-	-	-	-	-	-
b) PAM	-	-	-	-	-	-	-	-	-	5,503	3,558	929	-
c) OFNACER	-	200	0	700	0	0	0	-	5,377	5,940	5,366	4,355	3,449
d) USAID	-	-	-	-	-	-	0	3,262	2,397	2,696	0	2,372	3,030
e) French	0	1,000	3,000	9,000	0	0	-	4,000	6,000	8,000	7,000	4,000	3,000
f) FED	-	500	3,000	8,500	0	0	3,000	0	3,000	-	-	-	-
							3,300	2,500	5,400	-	-	-	-
3. <u>Wheat & Wheat Flour 3/</u>													
a) Official	-	-	-	-	-	-	-	-	-	-	-	-	-
b) PAM	-	-	-	-	-	-	-	-	-	219	167	3,430	-
c) OFNACER	-	5,246	5,900	10,300	4,700	3,791	2,800	-	768	403	223	10,475	14,599
d) USAID	-	-	-	-	-	-	0	0	0	1,397	1,417	10,121	6,759
e) French	-	20,000	35,000	23,000	8,000	14,000	0	-	3,000	2,000	1,000	10,000	6,000
f) FED	-	5,300	12,000	7,000	4,300	6,200	0	2,000	1,000	-	-	-	-
							0	2,900	700	-	-	-	-
4. <u>Total Cereal Equivalents 4/</u>													
a) Official	-	-	-	-	-	-	-	-	-	-	-	-	-
b) PAM	-	-	-	-	-	-	-	41,870	37,022	18,659	12,527	28,261	-
c) OFNACER 5/	-	39,346	35,900	37,000	23,900	3,791	2,800	-	43,764	31,467	37,991	58,348	54,879
d) USAID	0	39,000	37,000	95,000	24,000	23,000	25,000	32,201	18,014	18,784	11,362	39,760	22,373
e) French	-	43,000	60,000	86,000	11,000	15,000	20,000	88,000	41,000	39,000	38,000	56,000	39,000
f) FED	-	42,700	59,600	85,800	12,700	14,400	21,300	108,000	35,000	-	-	-	-
								75,600	47,400	-	-	-	-

TABLE II.6 (Continued)

COMPARATIVE FOOD AID ESTIMATES

	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
5. <u>Oil</u>													
a) Official	-	-	-	-	-	-	-	1,732	1,348	2,576	3,616	2,688	-
b) PAM	-	-	-	-	-	-	-	-	2,049	4,028	3,572	3,253	4,369
c) USAID	-	-	-	-	-	-	-	1,000	1,000	6,000	7,000	4,000	5,000
f) FED	-	-	200	1,900	900	1,200	0	2,600	2,300	-	-	-	-
6. <u>Milk Food</u>													
a) Official	-	-	-	-	-	-	-	7,286	5,506	7,396	5,474	4,242	-
b) PAM	-	-	-	-	-	-	-	-	6,545	10,354	8,039	8,902	5,613
c) French	0	2,000	3,000	4,000	2,000	4,000	4,000	8,000	6,000	-	-	-	-
f) FED	-	2,000	2,600	4,300	2,200	3,500	3,800	8,400	6,300	-	-	-	-

- Sources:
- a) Official - Ministère des Finances, "Balance des Paiements 1979" + "1980", and ONAC.
 - b) PAM - World Food Program Office has kept records of food aid from all sources since 1979.
 - c) OFNACER.
 - d) USAID - Agricultural Development Support Project, "June 25, 1983, Vol. II, Annex R, PP. 10, 48, 51.
 - e) French - "Technologie des Céréales traditionnelles dans les pays du Sahel" SCETAGRI, Ministère de la Coopération et du Développement, France, April, 1982, P. 20.
 - f) FED - "Aperçu de l'Aide Publique Extérieure accordée à la Haute-Volta", Ouagadougou, various years, cited in IBRD "Agricultural Issues Study", P. 227.

69a

APPENDIX III

STATISTICS BY COMMODITY SUBSECTOR

This appendix contains detailed data on production, imports, exports and prices for each commodity subsector. In order to assemble such a large quantity of data accurately and in the time allotted, the tables have been reproduced from a statistical software package. The printing convention adopted by the software package uses scientific notation for numbers exceeding six digits and for those with only figures to the right of the decimal point. For that reason, in the following tables the reader will occasionally find numbers - the very large and the very small - written in scientific notation.

Because of the important potential tradeoffs between food and non-food - particularly cotton - production, the following statistics include a section on cotton as well as on each of the five major food commodity subsectors.

TABLE II. 6 (Continued)
COMPARATIVE FOOD AID ESTIMATES

- Notes: 1/ PAM figures for 1979-1981 are for calendar years. Thereafter they switched to a fiscal year running from July 1-June 30. In this table, 1982 = their 1981/82; 1983 = their 1982/83.
- 2/ OFNACER & USAID figures are for consumption years running from October 1 - September 30. In this table, 1972 = their 1971/72 & so on.
- 3/ All figures convert flour to grain equivalents at a 70% milling rate, except for the French who do not indicate whether or not a conversion was used.
- 4/ Total may exceed sum of 1, 2 + 3 because of miscellaneous cereal imports.
- 5/ OFNACER figures (Categories 1-4) include country to country aid & sometimes PAM imports. They always exclude Cathwell, other PVO's & Church groups..

TABLE III.1 NATIONAL CEREAL PRODUCTION
(Thousands of metric tons)

YEAR	SORGHUM		MILLET		MAIZE		RICE	
	FAO *	MDR **						
1961.00	411.000	410.700	195.000	194.900	75.0000	75.0000	30.0000	21.0000
1962.00	508.000	508.300	261.000	261.500	78.0000	78.3000	45.0000	45.2000
1963.00	460.000	719.300	316.000	315.800	109.000	108.800	25.0000	24.8000
1964.00	660.000	877.700	378.000	377.700	127.000	126.600	34.0000	33.8000
1965.00	530.000	718.300	350.000	314.800	110.000	108.700	34.0000	24.7000
1966.00	540.000	700.000	350.000	310.000	124.000	110.000	34.0000	30.0000
1967.00	604.000	404.900	300.000	253.800	124.000	64.6000	44.0000	43.5000
1968.00	530.000	529.700	368.000	367.700	137.000	46.6000	40.0000	40.9000
1969.00	547.000	506.900	382.000	281.600	60.0000	59.6000	34.0000	39.1000
1970.00	563.000	546.400	378.000	394.900	55.0000	55.2000	34.0000	36.3000
1971.00	576.000	474.400	397.000	297.700	55.0000	66.4000	36.0000	36.9000
1972.00	512.000	512.400	400.000	265.700	59.0000	58.7000	30.0000	33.6000
1973.00	481.000	481.400	253.000	252.500	58.0000	58.3000	31.0000	31.8000
1974.00	705.000	637.300	370.000	334.300	62.0000	73.1000	36.0000	35.2000
1975.00	650.000	735.200	350.000	385.700	62.0000	84.4000	40.0000	39.9000
1976.00	717.000	534.000	406.000	347.300	46.0000	60.0000	41.0000	45.4000
1977.00	610.000	654.800	389.000	354.700	54.0000	73.7000	54.0000	37.6000
1978.00	621.000	635.000	443.000	377.900	100.000	107.700	28.0000	39.7000
1979.00	600.000	653.200	444.000	377.700	104.000	99.5000	47.0000	46.9000
1980.00	559.000	546.900	330.000	350.700	98.0000	104.500	29.0000	40.2000
1981.00	750.000	658.800	400.000	442.800	100.000	118.600	29.0000	45.2000
1982.00	700.000	608.700	420.000	441.400	100.000	111.300	40.0000	42.3000

Sources: * FAO data - 1961-1976 as reported in IBRD, "Agricultural Issues Study," p. 199; 1977 on from FAO production year books, 1978-1982.

** MDR data - 1961-1969 from Statistics Unit, DEP, MDR compiled from ORD reports; 1970 on from "Annales de Statistiques Agricoles" 1970,1971,1977,1976,1977 and "Bulletin de Statistiques Agricoles 1978/79-1981/82" both published by MDR. 1982 from DEP, MDR.

TABLE III.2 AREA PLANTED IN CEREALS
(thousands of hectares)

YEAR	SORGHUM		MILLET		MAIZE		RICE	
	FAO	MDR	FAO	MDR	FAO	MDR	FAO	MDR
1961.00	908.000	907.500	615.000	615.300	149.000	149.400	54.0000	33.8000
1962.00	1042.00	1041.60	597.000	597.000	160.000	160.900	67.0000	66.8000
1963.00	908.000	1302.70	823.000	822.900	160.000	159.100	33.0000	34.1000
1964.00	1173.00	1404.30	807.000	806.500	167.000	166.800	35.0000	34.8000
1965.00	964.000	1237.30	800.000	540.400	164.000	211.500	35.0000	43.8000
1966.00	1018.00	1248.30	800.000	510.300	165.000	167.300	35.0000	44.0000
1967.00	1312.00	MISSING	700.000	MISSING	225.000	MISSING	36.0000	MISSING
1968.00	831.000	MISSING	612.000	MISSING	228.000	MISSING	46.0000	MISSING
1969.00	1094.00	MISSING	867.000	MISSING	100.000	MISSING	40.0000	MISSING
1970.00	1041.00	1041.30	850.000	850.800	85.0000	85.9000	40.0000	40.7000
1971.00	1070.00	1016.10	672.000	811.700	90.0000	89.8000	41.0000	40.0000
1972.00	1051.00	1050.70	711.000	711.400	81.0000	80.9000	32.0000	32.4000
1973.00	1037.00	1054.00	720.000	703.000	89.0000	89.2000	39.0000	38.9000
1974.00	1200.00	901.000	850.000	601.000	90.0000	79.0000	40.0000	29.7000
1975.00	1200.00	1250.00	850.000	833.000	90.0000	110.000	42.0000	41.3000
1976.00	1138.00	1015.40	911.000	828.400	90.0000	93.1000	45.0000	37.5000
1977.00	1000.00	1089.10	900.000	841.900	90.0000	103.000	90.0000	31.9000
1978.00	1100.00	1098.40	910.000	767.600	150.000	115.700	40.0000	34.0000
1979.00	1000.00	1106.30	900.000	767.900	98.0000	109.700	50.0000	31.0000
1980.00	880.000	956.700	800.000	719.900	100.000	115.700	40.0000	36.6000
1981.00	1200.00	1084.00	900.000	900.000	100.000	142.900	40.0000	39.2000
1982.00	1100.00	1139.60	900.000	797.900	100.000	161.400	40.0000	MISSING

Sources: As in Table III.1.

TABLE III.3 CEREAL YIELDS
(kg/hectare)

YEAR	SORGHUM		MILLET		MAIZE		RICE	
	FAO	MDR	FAO	MDR	FAO	MDR	FAO	MDR
1961.00	453.000	452.562	317.000	316.756	502.000	502.008	560.000	621.302
1962.00	488.000	487.999	438.000	438.023	487.000	486.638	677.000	676.647
1963.00	507.000	552.161	383.000	383.765	689.000	683.847	762.000	727.273
1964.00	563.000	625.009	469.000	468.320	761.000	758.993	977.000	971.265
1965.00	550.000	580.538	438.000	582.532	667.000	513.948	986.000	563.927
1966.00	530.000	560.763	438.000	607.486	752.000	657.502	980.000	681.818
1967.00	460.000	MISSING	429.000	MISSING	550.000	MISSING	1215.00	MISSING
1968.00	638.000	MISSING	601.000	MISSING	600.000	MISSING	871.000	MISSING
1969.00	500.000	MISSING	440.000	MISSING	600.000	MISSING	836.000	MISSING
1970.00	541.000	524.729	444.000	464.152	645.000	642.608	850.000	891.892
1971.00	538.000	466.883	591.000	366.761	655.000	739.421	891.000	922.500
1972.00	488.000	487.675	373.000	373.489	725.000	725.587	941.000	1037.04
1973.00	464.000	456.736	351.000	359.175	658.000	653.588	799.000	817.481
1974.00	588.000	707.325	435.000	556.240	683.000	925.317	906.000	1185.19
1975.00	542.000	588.160	412.000	463.025	683.000	767.273	952.000	966.102
1976.00	630.000	525.901	370.000	419.242	511.000	644.468	911.000	1210.67
1977.00	610.000	601.230	350.000	421.309	600.000	715.534	600.000	1178.68
1978.00	565.000	578.114	403.000	492.314	667.000	930.856	700.000	1167.65
1979.00	500.000	590.437	400.000	491.861	1066.00	907.019	944.000	1512.90
1980.00	658.000	571.653	412.000	487.151	983.000	903.198	716.000	1098.36
1981.00	625.000	607.749	444.000	492.000	1000.00	829.951	725.000	1153.06
1982.00	636.000	534.135	467.000	553.202	1000.00	689.591	1000.00	MISSING

Sources: As in Table III.1.

TABLE III.4 CEREAL IMPORT QUANTITIES
(metric tons)

YEAR	Sorghum & Millet*	Maize*	Rice*	Rice**	Wheat Grain*	Wheat Flour*	Wheat & Wheat Flour** ^{1/}
1961.00	0.00000	0.00000	525.000	500.000	130.000	3485.00	4900.00
1962.00	0.00000	0.00000	3317.00	2500.00	249.000	5683.00	8000.00
1963.00	0.00000	0.00000	3368.00	3100.00	80.0000	5293.00	7100.00
1964.00	0.00000	0.00000	3483.00	3500.00	0.00000	6893.00	9600.00
1965.00	0.00000	0.00000	3257.00	3300.00	0.00000	8315.00	11500.0
1966.00	0.00000	0.00000	4114.00	4100.00	0.00000	11167.0	15500.0
1967.00	0.00000	3209.00	3817.00	3800.00	0.00000	11971.0	16700.0
1968.00	0.00000	198.000	1350.00	1300.00	0.00000	13033.0	18100.0
1969.00	0.00000	200.000	1500.00	1475.00	0.00000	14300.0	19921.0
1970.00	4.00000	421.000	2185.00	2656.00	0.00000	19296.0	26805.0
1971.00	337.000	875.000	1116.00	1262.00	7748.00	12213.0	16962.0
1972.00	1.00000	273.000	38.0000	139.000	24789.0	12.1000	34422.0
1973.00	1909.00	10646.0	2571.00	20.0000	23853.0	3.00000	14380.0
1974.00	37193.0	39575.0	2908.00	0.00000	14134.0	4008.00	20835.0
1975.00	2615.00	164.000	9721.00	10000.0	11313.0	1489.00	13000.0
1976.00	308.000	501.000	12364.0	12000.0	14698.0	283.000	15000.0
1977.00	8203.00	71.0000	18382.0	18000.0	25360.0	2025.00	28000.0
1978.00	29231.0	6746.00	10251.0	14000.0	18313.0	3970.00	24000.0
1979.00	18549.0	1809.00	25580.0	26000.0	21818.0	9427.00	34000.0
1980.00	19579.0	259.000	30323.0	30300.0	8076.00	13558.0	26908.0
1981.00	7932.00	740.000	15079.0	15000.0	22098.0	1683.00	24400.0
1982.00	MISSING	MISSING	MISSING	25000.0	MISSING	MISSING	34500.0

Sources: * Official trade statistics; sources as in Tables II.1 and II.2.

** FAO Trade Yearbooks: 1961-1974 as reported in Berg, "Marketing, Price Policy & Storage of Cereals in the Sahel," 1977, p.26; 1975-79 as reported in SCETAGRI, "Technologie des cereales," 1982, p.20; and 1980-1982 directly from yearbooks.

^{1/} Wheat flour converted to grain equivalents at 72% milling rate.

^{2/} Includes unweighted sum of cereals, flour, malt and all other cereal products.

^{3/} For official statistics, includes sorghum, millet, maize, rice, wheat and wheat flour. FAO data also include all other cereals and cereal flours. Both sets of figures exclude malt and other cereal products. All flour converted to grain equivalents at 72% milling rate.

TABLE III.4 CEREAL IMPORT QUANTITIES (CONT.)

<u>YEAR</u>	ALL CEREAL PRODUCTS * <u>2/</u>	TOTAL CEREALS * <u>3/</u>	TOTAL CEREALS ** <u>3/</u>
1961.00	4565.00	5495.28	5400.00
1962.00	9636.00	11459.1	10200.0
1963.00	9647.00	10799.4	12800.0
1964.00	10756.0	13056.6	13800.0
1965.00	11929.0	14805.6	15200.0
1966.00	15680.0	19623.7	21700.0
1967.00	19916.0	23652.4	25100.0
1968.00	15560.0	19649.4	19600.0
1969.00	17400.0	21561.1	21600.0
1970.00	23319.0	29410.0	29880.0
1971.00	26375.0	27038.5	19100.0
1972.00	25719.0	25117.8	40560.0
1973.00	41227.0	38983.2	58400.0
1974.00	1.06106E+05	99376.7	74840.0
1975.00	31959.0	25881.1	27000.0
1976.00	35709.0	28264.1	56000.0
1977.00	64070.0	54828.5	54000.0
1978.00	1.15399E+05	70054.9	63000.0
1979.00	99358.0	80849.1	78000.0
1980.00	88518.0	77067.6	77100.0
1981.00	77321.0	48186.5	48000.0
1982.00	MISSING	MISSING	97000.0

TABLE III.5 VALUE OF CEREAL IMPORTS *
(millions of CFA francs)

<u>YEAR</u>	<u>Sorghum & Millet</u>	<u>Maize</u>	<u>Rice</u>	<u>Wheat</u>	<u>Wheat Flour</u>	<u>All Cereal <u>1/</u> Products</u>
1961.00	0.00000	0.00000	14.6000	5.30000	127.600	184.900
1962.00	0.00000	0.00000	89.6000	9.90000	198.900	334.100
1963.00	0.00000	0.00000	90.9000	3.20000	185.300	316.000
1964.00	0.00000	0.00000	90.1000	0.00000	235.100	361.400
1965.00	0.00000	0.00000	114.500	1.00000E-01	280.300	434.600
1966.00	0.00000	0.00000	158.000	0.00000	372.000	572.600
1967.00	0.00000	27.6000	162.900	0.00000	393.700	660.100
1968.00	0.00000	2.30000	41.1000	0.00000	410.200	512.100
1969.00	0.00000	1.40000	49.2000	0.00000	398.200	512.500
1970.00	0.00000	3.30000	84.0000	0.00000	561.000	732.400
1971.00	7.00000	9.00000	37.0000	268.000	389.000	861.000
1972.00	0.00000	4.00000	3.00000	667.000	1.00000	741.000
1973.00	47.0000	268.000	161.000	699.000	0.00000	1355.00
1974.00	1424.00	1420.00	125.000	617.000	261.000	4707.00
1975.00	0.00000	5.00000	810.000	648.000	133.000	2407.00
1976.00	0.00000	22.0000	925.000	726.000	25.0000	2389.00
1977.00	611.000	3.00000	1336.00	1313.00	95.0000	4504.00
1978.00	2089.00	286.000	691.000	1004.00	235.000	6537.00
1979.00	671.000	41.0000	2043.00	1060.00	466.000	6285.00
1980.00	924.000	14.0000	2619.00	573.000	896.000	6860.00
1981.00	746.000	270.000	1752.00	1570.00	136.000	8287.00

* Source: Official trade Statistics, Sources as described in Table II.1.

1/ Includes cereals, flour, malt, biscuits & all other cereal products.

TABLE III.6 CEREAL EXPORTS, QUANTITY AND VALUE

YEAR	QUANTITY (tons)		VALUE (millions of CFA francs)	
	Sorghum & Millet	All Cereal Products	Sorghum & Millet	All Cereal Products
1961.00	MISSING	MISSING	0.00000	0.00000
1962.00	118.000	118.000	2.00000	2.20000
1963.00	47.2000	47.2000	0.700000	1.30000
1964.00	604.000	604.000	6.70000	6.70000
1965.00	1371.00	1371.00	19.1000	19.1000
1966.00	MISSING	MISSING	0.00000	25.0000
1967.00	17.6000	133.700	0.500000	7.40000
1968.00	806.000	846.500	9.50000	10.5000
1969.00	357.000	428.000	5.00000	6.60000
1970.00	MISSING	MISSING	MISSING	15.0000
1971.00	MISSING	534.000	MISSING	11.0000
1972.00	MISSING	154.000	MISSING	3.00000
1973.00	MISSING	390.000	MISSING	10.0000
1974.00	MISSING	78.0000	MISSING	3.00000
1975.00	MISSING	189.000	MISSING	4.00000
1976.00	MISSING	9566.00	MISSING	270.000
1977.00	MISSING	234.000	MISSING	8.00000
1978.00	MISSING	125.000	MISSING	4.00000
1979.00	MISSING	413.000	MISSING	17.0000
1980.00	MISSING	339.000	MISSING	17.0000
1981.00	MISSING	109.000	MISSING	5.00000
1982.00	MISSING	MISSING	MISSING	MISSING

* Source: Official trade statistics, Sources as described in Table II.2.

TABLE III.7 WHITE SORGHUM PRICES
(CFA francs/kilo)

a. YEAR	b. Official Producer Price	Consumer Price		e. Import -Price	f. Column b P.P. Cotton*	g. Column d P.P. Cotton*
		c. Official	d. Ouagadougou Market			
1961.00	MISSING	MISSING	18.0000	MISSING	MISSING	MISSING
1962.00	MISSING	MISSING	27.0000	MISSING	MISSING	MISSING
1963.00	MISSING	MISSING	MISSING	MISSING	MISSING	MISSING
1964.00	MISSING	MISSING	MISSING	MISSING	MISSING	MISSING
1965.00	MISSING	MISSING	24.0000	MISSING	MISSING	0.705882
1966.00	MISSING	MISSING	26.0000	MISSING	MISSING	0.764706
1967.00	12.0000	MISSING	27.0000	MISSING	0.352941	0.794118
1968.00	12.0000	MISSING	20.0000	MISSING	0.375000	0.625000
1969.00	12.0000	MISSING	39.0000	MISSING	0.375000	1.21875
1970.00	12.0000	20.0000	32.0000	MISSING	0.375000	1.00000
1971.00	12.0000	20.0000	40.0000	20.7715	0.375000	1.25000
1972.00	14.0000	26.0000	41.0000	MISSING	0.437500	1.28125
1973.00	18.0000	30.0000	60.0000	24.6202	0.514286	1.71429
1974.00	22.0000	32.0000 ^{2/}	68.0000	38.2868	0.550000	1.70000
1975.00	18.0000	30.0000	45.0000	MISSING	0.450000	1.12500
1976.00	21.0000	35.0000	57.0000	MISSING	0.525000	1.42500
1977.00	32.0000	45.0000	124.000	74.4850	0.581818	2.25455
1978.00	40.0000	57.0000	124.000	71.4652	0.727273	2.25455
1979.00	40.0000	57.0000	136.000	36.1745	0.727273	2.47273
1980.00	45.0000	69.0000	129.000	47.1934	0.818182	2.34545
1981.00	50.0000	80.0000	135.000	94.0494	0.806452	2.17742
1982.00	58.0000	83.0000	(80.0000) ^{1/}	MISSING	0.935484	(1.29032)
1983.00	64.0000	88.0000	(89.0000) ^{1/}	MISSING	0.914286	(1.27143)

Sources: b. MDR, "Bulletin de Statistiques Agricoles, 1978/79-1981/82", p.113; and DSA;
 c. OFNACER;
 d. INSD and "Bulletin mensuel de statistique "Ministere de l'Economie National, various issues;
 e. Calculated from quantities & values as listed in official import statistics;
 f, & g. for producer price of cotton, see Table III. 34.

* P.P. Cotton = Producer price.

^{1/} Because of threats of price enforcement, INSD staff indicate they had difficulty procuring grain at other than official prices during those years.

^{2/} IBRD, "Agricultural Issues Study, "October 29, 1982, p.206 lists this price as 37.

TABLE III.8 MILLET PRICES
(CFA francs/kilogram)

a. YEAR	b. Official Producer	Consumer Price		e. Import Price	f. Column b. P.P. Cotton*	Column d. P.P. Cotton*
		c. Official	d. Ouagadougou Market			
1961.00	MISSING	MISSING	18.0000	MISSING	MISSING	MISSING
1962.00	MISSING	MISSING	27.0000	MISSING	MISSING	MISSING
1963.00	MISSING	MISSING	MISSING	MISSING	MISSING	MISSING
1964.00	MISSING	MISSING	MISSING	MISSING	MISSING	MISSING
1965.00	MISSING	MISSING	24.0000	MISSING	MISSING	MISSING
1966.00	MISSING	MISSING	26.0000	MISSING	MISSING	0.705882
1967.00	12.0000	MISSING	27.0000	MISSING	MISSING	0.764706
1968.00	12.0000	MISSING	20.0000	MISSING	0.352941	0.794118
1969.00	12.0000	MISSING	39.0000	MISSING	0.375000	0.625000
1970.00	12.0000	20.0000	32.0000	MISSING	0.375000	1.21875
1971.00	12.0000	20.0000	40.0000	MISSING	0.375000	1.00000
1972.00	14.0000	26.0000	41.0000	20.7715	0.375000	1.25000
1973.00	18.0000	30.0000	60.0000	MISSING	0.437500	1.28125
1974.00	22.0000	32.0000	68.0000	24.6202	0.514286	1.71429
1975.00	18.0000	30.0000	45.0000	38.2868	0.550000	1.70000
1976.00	21.0000	35.0000	57.0000	MISSING	0.450000	1.12500
1977.00	32.0000	45.0000	124.000	MISSING	0.525000	1.42500
1978.00	40.0000	57.0000	124.000	74.4850	0.581818	2.25455
1979.00	40.0000	57.0000	136.000	71.4652	0.727273	2.25455
1980.00	45.0000	69.0000	129.000	36.1745	0.727273	2.47273
1981.00	50.0000	80.0000	135.000	47.1934	0.818182	2.34545
1982.00	60.0000	83.0000	(80.0000) ^{1/}	94.0494	0.806452	2.17742
1983.00	66.0000	90.0000	(89.0000) ^{1/}	MISSING	0.967742	(1.29032)
				MISSING	0.942857	(1.27143)

Sources: As in Table III.7.

* P.P. Cotton = producer price.

^{1/} INSD staff believe these do not represent market prices, since threats of enforcing official consumer prices made it difficult for them to procure grain at other than official prices during these years.

TABLE III.9 MAIZE PRICES
(CFA francs/kilogram)

YEAR	b. Official Producer	Consumer Price		e. Import Price	f. Column b. P.P. Cotton*	g. Column b. P.P. Cotton*
		c. Official	d. Ouagadougou Market			
1961.00	MISSING	MISSING	MISSING	MISSING	MISSING	MISSING
1962.00	MISSING	MISSING	MISSING	MISSING	MISSING	MISSING
1963.00	MISSING	MISSING	MISSING	MISSING	MISSING	MISSING
1964.00	MISSING	MISSING	MISSING	MISSING	MISSING	MISSING
1965.00	MISSING	MISSING	MISSING	MISSING	MISSING	MISSING
1966.00	MISSING	MISSING	MISSING	MISSING	MISSING	MISSING
1967.00	12.0000	MISSING	MISSING	8.60081	0.352941	MISSING
1968.00	12.0000	MISSING	24.0000	11.6162	0.375000	0.750000
1969.00	12.0000	MISSING	36.0000	7.00000	0.375000	1.12500
1970.00	13.0000	20.0000	40.0000	7.83848	0.406250	1.25000
1971.00	13.0000	20.0000	40.0000	10.2857	0.406250	1.25000
1972.00	15.0000	27.0000	48.0000	14.6520	0.468750	1.50000
1973.00	18.0000	30.0000	69.0000	25.1738	0.514286	1.97143
1974.00	22.0000	32.0000	65.0000	35.8812	0.550000	1.62500
1975.00	18.0000	30.0000	44.0000	30.4878	0.450000	1.10000
1976.00	21.0000	35.0000	57.0000	43.9122	0.525000	1.42500
1977.00	32.0000	45.0000	118.000	42.2535	0.581818	2.14545
1978.00	40.0000	57.0000	168.000	42.3955	0.727273	3.05455
1979.00	40.0000	57.0000	183.000	22.6645	0.727273	3.32727
1980.00	45.0000	69.0000	186.000	54.0541	0.818182	3.38182
1981.00	50.0000	80.0000	172.000	364.865	0.806452	2.77419
1982.00	55.0000	MISSING	(91.0000) ^{1/}	MISSING	0.887097	(1.46774)
1983.00	60.0000	MISSING	(92.0000) ^{1/}	MISSING	0.857143	(1.31429)

Sources: As in Table III.7

* P.P. Cotton= producer price,

^{1/} INSD staff believe these do not represent market price since treats of enforcing official consumer prices made it difficult for them to procure grain at other than official price during these years.

TABLE III.10 RICE PRICES

YEAR	b. Official Producer	Consumer Price		e. Import Price	f. Column b. P.P. Cotton*	Column d. P.P. Cotton*
		c. Official	d. Ouagadougou Market			
1961.00	MISSING	MISSING	MISSING	27.8095	MISSING	MISSING
1962.00	MISSING	MISSING	MISSING	27.0124	MISSING	MISSING
1963.00	MISSING	MISSING	MISSING	26.9893	MISSING	MISSING
1964.00	MISSING	MISSING	MISSING	25.8685	MISSING	MISSING
1965.00	MISSING	MISSING	MISSING	35.1551	MISSING	MISSING
1966.00	MISSING	MISSING	MISSING	38.4054	MISSING	MISSING
1967.00	MISSING	MISSING	MISSING	42.6775	MISSING	MISSING
1968.00	19.0000	MISSING	65.0000	30.4444	0.593750	2.03125
1969.00	19.0000	MISSING	79.0000	32.8000	0.593750	2.46875
1970.00	19.0000	MISSING	74.0000	38.4439	0.593750	2.31250
1971.00	19.0000	MISSING	62.0000	33.1541	0.593750	1.93750
1972.00	19.0000	MISSING	66.0000	78.9474	0.593750	2.06250
1973.00	30.0000 <u>1/</u>	MISSING	78.0000	62.6216	0.857143	2.22857
1974.00	35.0000	MISSING	93.0000	42.9849	0.875000	2.32500
1975.00	35.0000	60.0000	121.000	83.3248	0.875000	3.02500
1976.00	35.0000	80.0000	144.000	74.8140	0.875000	3.60000
1977.00	63.0000 <u>2/</u>	110.000	174.000	72.6798	1.14545	3.16364
1978.00	63.0000	125.000	165.000	67.4081	1.14545	3.00000
1979.00	63.0000	125.000	176.000	79.8671	1.14545	3.20000
1980.00	63.0000	125.000	176.000	86.3701	1.14545	3.20000
1981.00	68.0000	MISSING	198.000	116.188	1.09677	3.19355
1982.00	68.0000	MISSING	(151.000) <u>3/</u>	MISSING	1.09677	(2.43548)
1983.00	74.0000	MISSING	(152.000) <u>3/</u>	MISSING	1.05714	(2.17143)

Sources: b, d, e, f&g as in Table III.7.

c. Agroprogres 6mbH, "Etude sur l'Organisation de la collect, du traitement, de la commercialisation du riz produit par les Petites Plaines," December 1982 p.71.

* P.P. Cotton = producer price

1/ IBRD, "Agricultural Issues Study," p.206 lists price as 28.

2/ IBRD, "Agricultural Issues Study," p.206 lists price as 55.

3/ May not represent market prices, since INSD staff indicated difficulties procuring grain at other than official prices during these years.

TABLE III.11 WHEAT & MISC. PRICES
(CFA francs/kilogram)

YEAR	Import Price		e. d. Bread, General Consumer Ouagadougou Price Index,	
	b. Wheat	c. Wheat Flour	Mkt. Price	1958=100
1961.00	40.7692	36.6141	79.0000	136.700
1962.00	39.7590	34.9991	80.0000	138.900
1963.00	40.0000	35.0085	MISSING	148.900
1964.00	MISSING	34.1071	MISSING	149.700
1965.00	MISSING	33.7102	87.0000	148.400
1966.00	MISSING	33.3125	81.0000	151.900
1967.00	MISSING	32.8878	84.0000	146.100
1968.00	MISSING	31.4740	MISSING	145.300
1969.00	MISSING	27.8462	MISSING	156.600
1970.00	MISSING	29.0734	MISSING	161.700
1971.00	34.5896	31.8513	MISSING	165.100
1972.00	26.9071	82.6446	89.0000	160.200
1973.00	29.3045	MISSING	100.000	172.400
1974.00	43.6536	65.1198	120.000	187.400
1975.00	57.2793	89.3217	125.000	219.200
1976.00	49.3945	88.3392	125.000	203.900
1977.00	51.7745	46.9136	125.000	265.800
1978.00	54.8245	59.1940	125.000	286.900
1979.00	48.5838	49.4325	145.000	329.800
1980.00	70.9510	66.0865	186.000	367.500
1981.00	71.0472	80.8081	200.000	405.600
1982.00	MISSING	MISSING	288.000	438.100
1983.00	MISSING	MISSING	318.000	463.800

Sources: b,c & d as in Table III.7.

e. INSD and "Bulletin Mensuel de Statistique,"
Ministere de l'Economie Nationale, various
issues.

TABLE III.12 OILSEED PRODUCTION AND YIELDS

1 YEAR	Output (thousands of metric tons)				Yields (Kg per hectare)			
	<u>Peanuts*</u>	<u>Peanuts**</u>	<u>Sesame*</u>	<u>Sesame**</u>	<u>Peanuts*</u>	<u>Peanuts**</u>	<u>Sesame*</u>	<u>Sesame**</u>
1961.00	MISSING	110.400	MISSING	1.90000	MISSING	464.256	MISSING	200.000
1962.00	113.000	112.900	5.70000	5.70000	500.000	498.015	380.000	370.130
1963.00	50.0000	128.900	4.10000	4.10000	500.000	523.133	197.000	176.724
1964.00	70.0000	135.900	6.00000	6.30000	551.000	548.648	200.000	210.000
1965.00	73.0000	128.900	6.00000	7.10000	562.000	534.411	240.000	183.938
1966.00	76.0000	130.000	6.00000	8.00000	559.000	545.073	240.000	201.005
1967.00	80.0000	98.4000	6.00000	3.10000	563.000	MISSING	240.000	MISSING
1968.00	85.0000	92.1000	7.90000	7.90000	567.000	MISSING	379.000	MISSING
1969.00	71.0000	80.4000	3.70000	7.60000	519.000	MISSING	171.000	MISSING
1970.00	68.0000	78.0000	6.30000	4.30000	484.000	493.671	238.000	118.132
1971.00	66.0000	66.2000	4.00000	4.00000	458.000	458.449	182.000	181.818
1972.00	60.0000	60.4000	5.60000	5.70000	577.000	576.886	166.000	220.930
1973.00	63.0000	62.9000	5.20000	5.40000	376.000	377.098	143.000	MISSING
1974.00	65.0000	98.9000	8.00000	3.80000	382.000	666.442	150.000	MISSING
1975.00	80.0000	87.2000	8.00000	MISSING	444.000	533.007	175.000	MISSING
1976.00	87.0000	72.7000	7.00000	17.3000	533.000	503.463	175.000	452.880
1977.00	85.0000	57.1000	6.00000	9.40000	515.000	482.264	150.000	261.839
1978.00	70.0000	73.9000	7.00000	6.60000	412.000	485.227	175.000	224.490
1979.00	75.0000	77.8000	5.00000	8.70000	441.000	505.523	155.000	225.974
1980.00	77.0000	53.9000	7.00000	6.00000	453.000	509.934	178.000	267.857
1981.00	77.0000	77.7000	8.00000	8.00000	453.000	606.557	200.000	347.826
1982.00	78.0000	MISSING	9.00000	5.70000	459.000	MISSING	213.000	283.977

Source: * FAO production yearbooks, 1961-1976 as reported in IBRD "Agricultural Issues Study," p.199, remaining years directly from yearbooks.

** MDR estimates based on ORD figures. Sources as described in Table III.1.

TABLE III.13 AREA PLANTED IN OILSEEDS
(Thousands of hectares)

<u>YEAR</u>	<u>Peanuts*</u>	<u>Peanuts**</u>	<u>Sesame*</u>	<u>Sesame**</u>
1961.00	MISSING	237.800	MISSING	9.50000
1962.00	227.000	226.700	15.0000	15.4000
1963.00	100.000	246.400	21.0000	23.2000
1964.00	127.000	247.700	30.0000	30.0000
1965.00	130.000	241.200	25.0000	38.6000
1966.00	136.000	238.500	25.0000	39.8000
1967.00	142.000	MISSING	25.0000	MISSING
1968.00	150.000	MISSING	20.0000	MISSING
1969.00	137.000	MISSING	22.0000	MISSING
1970.00	140.000	158.000	26.0000	36.4000
1971.00	144.000	144.400	21.0000	22.0000
1972.00	105.000	104.700	34.0000	25.8000
1973.00	167.000	166.800	35.0000	MISSING
1974.00	120.000	148.400	30.0000	MISSING
1975.00	180.000	163.600	40.0000	MISSING
1976.00	164.000	144.400	40.0000	38.2000
1977.00	165.000	118.400	40.0000	35.9000
1978.00	170.000	152.300	40.0000	29.4000
1979.00	170.000	153.900	35.0000	38.5000
1980.00	170.000	105.700	40.0000	22.4000
1981.00	170.000	128.100	40.0000	23.0000
1982.00	170.000	MISSING	40.0000	20.0000

Sources: * FAO, as described in Table III.1.

** MDR, as described in Table III.1.

TABLE III.14 IMPORTS OF EDIBLE OILS

YEAR	Quantity (tons)	Value (millions CFA)
1961.00	256.000	12.4000
1962.00	263.000	12.1000
1963.00	135.000	6.30000
1964.00	10.0000	0.400000
1965.00	10.0000	0.400000
1966.00	0.00000	0.00000
1967.00	0.00000	0.00000
1968.00	0.00000	0.00000
1969.00	55.0000	6.20000
1970.00	63.0000	15.0000
1971.00	42.0000	10.0000
1972.00	25.0000	6.00000
1973.00	158.000	38.0000
1974.00	441.000	105.000
1975.00	786.000	198.000
1976.00	637.000	193.000
1977.00	1232.00	287.000
1978.00	2485.00	668.000
1979.00	3042.00	700.000
1980.00	3836.00	873.000
1981.00	7125.00	1901.00

Source: Official import statistics as described in Tables II.1 and II.2.

TABLE III.15 EXPORT QUANTITIES OF OIL & OILSEEDS
(metric tons)

YEAR	<u>Sheanuts</u>	<u>Sheanut Butter</u>	<u>Peanuts</u>	<u>Peanut Oil</u>	<u>Sesame Seeds</u>	<u>Cotton Seed</u>	<u>Total Oil & Oilseeds</u>
1961.00	2744.00	MISSING	564.000	0.00000	33.8000	MISSING	MISSING
1962.00	5448.00	681.000	1113.50	10.8000	624.000	837.000	8714.30
1963.00	447.000	316.000	3204.30	5.00000	2026.00	2500.00	8498.30
1964.00	8755.00	773.000	3267.00	0.00000	2048.00	4042.00	18885.0
1965.00	4340.00	1283.00	4019.00	140.000	2538.00	3004.00	15324.0
1966.00	11611.0	1142.00	5600.00	0.00000	1594.00	1800.00	21747.0
1967.00	3365.60	185.800	8581.40	55.0000	2931.30	5566.90	20686.0
1968.00	15084.0	1166.80	9033.40	0.00000	3448.30	5650.60	34383.1
1969.00	7236.00	1024.00	6832.00	0.00000	2780.00	7796.00	25668.0
1970.00	14280.0	1308.00	8294.00	0.00000	5490.00	14557.0	43929.0
1971.00	7667.00	1079.00	7867.00	0.00000	3348.00	8453.00	28414.0
1972.00	10648.0	2104.00	7564.00	0.00000	3425.00	9584.00	33325.0
1973.00	3821.00	662.000	11293.0	1.00000	4067.00	7065.00	26909.0
1974.00	8762.00	1632.00	16824.0	0.00000	4131.00	1346.00	32695.0
1975.00	11597.0	2103.00	17769.0	0.00000	4885.00	0.00000	36354.0
1976.00	40489.0	2357.00	11114.0	0.00000	1708.00	21.0000	55689.0
1977.00	30613.0	1172.00	4739.00	10.0000	3024.00	0.00000	39558.0
1978.00	21516.0	1626.00	24.0000	0.00000	1522.00	0.00000	24688.0
1979.00	23694.0	1331.00	1308.00	9.00000	9338.00	0.00000	35680.0
1980.00	34700.0	352.000	831.000	0.00000	3891.00	0.00000	39774.0
1981.00	43622.0	52.0000	133.000	0.00000	2841.00	0.00000	46648.0

Source: Official trade statistics. Sources as described in Tables II.1 and II.2.

TABLE III.16 EXPORT VALUE OF OIL AND OILSEEDS
(Millions of CFA Frs)

<u>YEAR</u>	<u>SHEANUT</u>	<u>SHEANUT</u> <u>BUTTER</u>	<u>PEANUTS</u>	<u>PEANUT</u> <u>OIL</u>	<u>SESAME</u> <u>SEEDS</u>	<u>COTTON</u> <u>SEEDS</u>	<u>TOTAL OIL</u> <u>& Oils Seeds</u>
1961.00	45.8000	0.00000	6.80000	0.00000	0.900000	0.00000	53.5000
1962.00	98.1000	42.3000	35.8000	0.00000	22.5000	15.1000	213.800
1963.00	7.90000	21.3000	101.400	0.00000	59.8000	19.6000	210.000
1964.00	117.500	37.4000	119.300	0.00000	60.5000	69.1000	403.800
1965.00	62.5000	62.3000	161.800	13.5000	88.3000	47.5000	435.900
1966.00	155.000	51.1000	204.000	0.00000	63.8000	56.0000	529.900
1967.00	68.3000	12.2000	283.300	6.00000	117.600	97.8000	585.200
1968.00	310.700	54.0000	302.500	22.4000	117.100	123.400	930.100
1969.00	267.000	48.6000	230.700	0.00000	115.000	86.5000	747.800
1970.00	528.000	73.0000	318.000	0.00000	251.000	194.000	1364.00
1971.00	210.000	67.0000	458.000	0.00000	219.000	77.0000	1031.00
1972.00	132.000	62.0000	373.000	0.00000	225.000	94.0000	886.000
1973.00	73.0000	37.0000	655.000	0.00000	230.000	55.0000	1050.00
1974.00	358.000	141.000	1698.00	0.00000	318.000	46.0000	2561.00
1975.00	638.000	374.000	1441.00	0.00000	534.000	0.00000	2987.00
1976.00	2089.00	437.000	666.000	0.00000	131.000	0.00000	3323.00
1977.00	1305.00	226.000	381.000	0.00000	257.000	0.00000	2169.00
1978.00	908.000	317.000	3.00000	0.00000	148.000	0.00000	1376.00
1979.00	1102.00	349.000	160.000	3.00000	711.000	0.00000	2325.00
1980.00	1535.00	103.000	90.0000	0.00000	438.000	0.00000	2166.00
1981.00	2984.00	9.00000	18.0000	0.00000	292.000	0.00000	3303.00

Source: Official trade statistics. Sources as described in Tables II. 1 and II.2.

TABLE III.17 SHEANUT PRICES
(CFA francs/kilo)

YEAR	PRODUCER PRICE	EXPORT PRICE		OUAGADOUGOU	IMPORT PRICE
		<u>SHEANUT</u>	<u>LOTTER</u>	MARKET PRICE	<u>EDIBLE OILS</u>
1961.00	MISSING	16.6910	MISSING	126.000	48.4375
1962.00	MISSING	18.0066	62.1145	106.000	46.0076
1963.00	MISSING	17.6734	67.4051	MISSING	46.6667
1964.00	7.00000	13.4209	48.3829	MISSING	40.0000
1965.00	7.00000	14.4009	48.5581	91.0000	40.0000
1966.00	7.00000	13.3494	44.7461	89.0000	MISSING
1967.00	7.00000	20.2936	65.6620	80.0000	MISSING
1968.00	7.00000	20.5980	46.2804	69.0000	MISSING
1969.00	7.00000	36.8988	47.4609	96.0000	112.727
1970.00	7.00000	36.9748	55.8104	119.000	238.095
1971.00	7.00000	27.3901	62.0945	119.000	238.095
1972.00	7.00000	12.3967	29.4677	107.000	240.000
1973.00	8.00000	19.1050	55.8913	88.0000	240.506
1974.00	20.0000	40.8583	86.3971	137.000	238.095
1975.00	20.0000	55.0142	177.841	164.000	251.908
1976.00	20.0000	51.5943	185.405	216.000	302.983
1977.00	22.0000	42.6290	192.833	212.000	232.955
1978.00	23.0000	42.2012	194.957	216.000	268.813
1979.00	24.5000	46.5097	262.209	275.000	230.112
1980.00	27.0000	44.2363	292.614	257.000	227.581
1981.00	43.0000	68.4059	173.077	360.000	266.807
1982.00	46.0000	MISSING	MISSING	447.000	MISSING
1983.00	58.0000	MISSING	MISSING	441.000	MISSING

Sources: As in Table III. 7; pre-1970 producer prices from CSPPA.

TABLE III.18 PEANUT PRICES
(CFA Frs/Kg)

YEAR	PRODUCER PRICE		EXPORT PRICE		OUAGADOUGOU MARKET PRICE		IMPORT PRICE	
	IN SHELL	SHELLED	PEANUTS	OIL	PEANUTS IN SHELL	SHELLED PEANUTS	PEANUTS OIL	IMPORT PRICE EDIBLE OILS
1961.00	MISSING	MISSING	12.0567	MISSING	42.0000	50.0000	115.000	48.4375
1962.00	MISSING	MISSING	32.1509	MISSING	37.0000	59.0000	115.000	46.0076
1963.00	MISSING	MISSING	31.6450	MISSING	MISSING	MISSING	MISSING	46.6667
1964.00	18.2000	26.8000	36.5167	MISSING	MISSING	MISSING	MISSING	40.0000
1965.00	18.2000	26.8000	40.2588	96.4286	33.0000	53.0000	115.000	40.0000
1966.00	18.2000	26.8000	36.4286	MISSING	34.0000	65.0000	115.000	MISSING
1967.00	18.2000	26.8000	33.0133	109.091	37.0000	51.0000	115.000	MISSING
1968.00	18.2000	26.8000	33.4869	MISSING	39.0000	51.0000	115.000	MISSING
1969.00	17.5000	25.8000	33.7676	MISSING	37.0000	71.0000	115.000	112.727
1970.00	17.5000	25.8000	38.3410	MISSING	43.0000	66.0000	115.000	238.095
1971.00	18.9000	25.8000	53.2179	MISSING	49.0000	94.0000	118.000	238.095
1972.00	17.5000	25.8000	49.3125	MISSING	44.0000	80.0000	125.000	240.000
1973.00	18.3000	26.8000	58.0005	MISSING	83.0000	69.0000	125.000	240.506
1974.00	23.1000	34.0000	100.927	MISSING	60.0000	92.0000	158.000	238.095
1975.00	23.1000	34.0000	81.0963	MISSING	67.0000	285.000	250.000	251.908
1976.00	25.8000	38.0000	59.9244	MISSING	76.0000	158.000	250.000	302.983
1977.00	29.9000	44.0000	80.3967	MISSING	110.000	190.000	310.000	232.955
1978.00	36.9000	54.3000	125.000	MISSING	127.000	219.000	300.000	268.813
1979.00	36.9000	54.3000	122.324	333.333	146.000	263.000	328.000	230.112
1980.00	55.7000	81.9000	108.303	MISSING	121.000	291.000	325.000	227.581
1981.00	88.0000	130.800	135.338	MISSING	171.000	301.000	348.000	266.807
1982.00	94.4000	138.800	MISSING	MISSING	MISSING 1/	MISSING 1/	411.000	MISSING
1983.00	94.4000	138.800	MISSING	MISSING	MISSING 1/	MISSING 1/	454.000	MISSING

Sources: As in Table III. 7; pre - 1970 producer prices from CSPPA.

1/ After 1981, INSD stopped collecting market prices for peanuts because they were dropped from the standard market basket used in computing the consumer price index.

TABLE III.19 RELATIVE PEANUT PRICES

YEAR	$\frac{\text{PPP in shell}^{***}}{\text{PP cotton}^{**}}$	$\frac{\text{PPP shelled}^{***}}{\text{PP cotton}^*}$	$\frac{\text{MP in shell}^{**}}{\text{PP cotton}^*}$	$\frac{\text{MP shelled}^{**}}{\text{PP cotton}^*}$
1961.00	MISSING	MISSING	MISSING	MISSING
1962.00	MISSING	MISSING	MISSING	MISSING
1963.00	MISSING	MISSING	MISSING	MISSING
1964.00	0.535294	0.788235	MISSING	MISSING
1965.00	0.535294	0.788235	0.970588	1.55882
1966.00	0.535294	0.788235	1.00000	1.91176
1967.00	0.535294	0.788235	1.08824	1.50000
1968.00	0.568750	0.837500	1.21875	1.59375
1969.00	0.546875	0.806250	1.15625	2.21875
1970.00	0.546875	0.806250	1.34375	2.06250
1971.00	0.590625	0.806250	1.53125	2.93750
1972.00	0.546875	0.806250	1.37500	2.50000
1973.00	0.522857	0.765714	2.37143	1.97143
1974.00	0.577500	0.850000	1.50000	2.30000
1975.00	0.577500	0.850000	1.67500	7.12500
1976.00	0.645000	0.950000	1.90000	3.95000
1977.00	0.543636	0.800000	2.00000	3.45455
1978.00	0.670909	0.987273	2.30909	3.98182
1979.00	0.670909	0.987273	2.65455	4.78182
1980.00	1.01273	1.48909	2.20000	5.29091
1981.00	1.41936	2.10968	2.75806	4.85484
1982.00	1.52258	2.23871	MISSING	MISSING
1983.00	1.34857	1.98286	MISSING	MISSING

Source: Calculations based on Tables III. 18 and III.34

* PP = producer price

** MP = Ouagadougou market price.

***PPP= producer price of peanuts

TABLE III.20 SESAMI' PRICES
(CFA Frs/Kg)

YEAR	b. Producer Price	Export Price	d. Ouagadougou Market Price	e. Import Price Edible Oils	f. Column b PP. Cotton*	g. Column d P.P.Cotton*
1961.00	MISSING	26.6272	MISSING	48.4375	MISSING	MISSING
1962.00	MISSING	36.0577	MISSING	46.0076	MISSING	MISSING
1963.00	MISSING	29.5163	MISSING	46.6667	MISSING	MISSING
1964.00	26.8000	29.5410	MISSING	40.0000	0.788235	MISSING
1965.00	26.8000	34.7912	61.0000	40.0000	0.788235	1.79412
1966.00	26.8000	40.0251	64.0000	MISSING	0.788235	1.88235
1967.00	26.8000	40.1187	67.0000	MISSING	0.788235	1.97059
1968.00	26.8000	33.9588	73.0000	MISSING	0.837500	2.28125
1969.00	26.8000	41.3669	79.0000	112.727	0.837500	2.46875
1970.00	26.8000	45.7195	85.0000	238.095	0.837500	2.65625
1971.00	26.8000	65.4122	119.000	238.095	0.837500	3.71875
1972.00	26.8000	65.6934	128.000	240.000	0.837500	4.00000
1973.00	27.8000	56.5527	112.000	240.506	0.794286	3.20000
1974.00	34.0000	76.9789	143.000	238.095	0.850000	3.57500
1975.00	34.0000	109.314	148.000	251.908	0.850000	3.70000
1976.00	39.0000	76.6979	157.000	302.983	0.975000	3.92500
1977.00	45.0000	84.9868	244.000	232.955	0.818182	4.43636
1978.00	63.9000	97.2405	242.000	268.813	1.16182	4.40000
1979.00	90.8000	76.1405	327.000	230.112	1.65091	5.94546
1980.00	75.0000	112.567	286.000	227.581	1.36364	5.20000
1981.00	83.7000	102.781	396.000	266.807	1.35000	6.38710
1982.00	89.0000	MISSING	MISSING <u>1/</u>	MISSING	1.43548	MISSING
1983.00	96.0000	MISSING	MISSING <u>1/</u>	MISSING	1.37143	MISSING

Source: As in Table III. 7.

* P.P.Cotton = Producer Price.

1/ After 1981, INSD stopped collecting market prices for sesame because they were dropped from the standard market basket used in computing the consumer price index.

TABLE III.21 LIVESTOCK, NATIONAL HERD SIZE
(Thousands of head)

YEAR	CATTLE		SHEEP		GOATS		PIGS	
	FAO*	Other**	FAO*	Other**	FAO*	Other**	FAO*	Other**
1961.00	MISSING	1840.00	MISSING	MISSING	MISSING	2545.00	MISSING	86.0000
1962.00	MISSING	1840.00	MISSING	MISSING	MISSING	2730.00	MISSING	89.0000
1963.00	1956.00 ^{1/}	2000.00	1140.00 ^{1/}	MISSING	1920.00 ^{1/}	3000.00	100.000 ^{1/}	110.000
1964.00	MISSING	2000.00	MISSING	MISSING	MISSING	3000.00	MISSING	110.000
1965.00	MISSING	2400.00	MISSING	MISSING	MISSING	3850.00	MISSING	131.000
1966.00	MISSING	2340.00	MISSING	MISSING	MISSING	MISSING	MISSING	MISSING
1967.00	MISSING	2395.00	MISSING	MISSING	MISSING	MISSING	MISSING	MISSING
1968.00	MISSING	2448.00	MISSING	MISSING	MISSING	MISSING	MISSING	MISSING
1969.00	MISSING	2500.00	MISSING	MISSING	MISSING	MISSING	MISSING	MISSING
1970.00	MISSING	2556.00	MISSING	1600.00	MISSING	2400.00	MISSING	150.000
1971.00	MISSING	2613.00	MISSING	1656.00	MISSING	2484.00	MISSING	150.000
1972.00	MISSING	2617.00	MISSING	1714.00	MISSING	2571.00	MISSING	150.000
1973.00	MISSING	2732.00	MISSING	1774.00	MISSING	2661.00	MISSING	150.000
1974.00	1600.00	2435.00	MISSING	1836.00	MISSING	2754.00	MISSING	150.000
1975.00	1700.00	2500.00	1000.00	1854.00	2000.00	2732.00	120.000	150.000
1976.00	1900.00	2500.00	1100.00	1600.00	2100.00	2400.00	140.000	150.000
1977.00	1900.00	2500.00	1300.00	1600.00	2300.00	2400.00	150.000	150.000
1978.00	2600.00	2601.00	1700.00	1697.00	2500.00	2556.00	160.000	159.000
1979.00	2650.00	2653.00	1750.00	1748.00	2600.00	2632.00	165.000	164.000
1980.00	2700.00	MISSING	1800.00	MISSING	2700.00	MISSING	170.000	MISSING
1981.00	2760.00	MISSING	1855.00	MISSING	2870.00	MISSING	174.000	MISSING
1982.00	2800.00	MISSING	1900.00	MISSING	2900.00	MISSING	180.000	MISSING
1982.00	2880.00	MISSING	1970.00	MISSING	2970.00	MISSING	187.000	MISSING

Source: *FAO - FAO Production Year books, 1976-1982.

**Other - 1961-65 and 1969-78 in IBRD, "Upper Volta - Livestock Subsector Review", November 30, 1982, P.103; 1966-1968 in Herman + Makinen, "Production Commercialisation et Exportations de Betail et de Viande en Haute-Volta", CRED, 1981, P.73.

^{1/} Five year average for the years 1961 - 1965.

TABLE III.21 NATIONAL HERD SIZE (CONT.)
(Thousands of head)

1 YEAR	<u>FAO*</u>	<u>Other**</u>
1961.00	MISSING	MISSING
1962.00	MISSING	MISSING
1963.00	9050.00 <u>1/</u>	MISSING
1964.00	MISSING	MISSING
1965.00	MISSING	MISSING
1966.00	MISSING	MISSING
1967.00	MISSING	MISSING
1968.00	MISSING	MISSING
1969.00	MISSING	10000.0
1970.00	MISSING	10000.0
1971.00	MISSING	10000.0
1972.00	MISSING	10000.0
1973.00	MISSING	10000.0
1974.00	6700.00	10000.0
1975.00	7200.00	10000.0
1976.00	8000.00	10000.0
1977.00	10400.0	10000.0
1978.00	10600.0	10000.0
1979.00	1100.00	MISSING
1980.00	11041.0	MISSING
1981.00	11300.0	MISSING
1982.00	11600.0	MISSING

TABLE III.22 RECORDED SLAUGHTERS
(Thousands of head)

<u>YEAR</u>	<u>CATTLE</u>	<u>SHEEPS + GOATS</u>	<u>PIGS</u>
1961.00	MISSING	MISSING	MISSING
1962.00	MISSING	MISSING	MISSING
1963.00	MISSING	MISSING	MISSING
1964.00	MISSING	MISSING	MISSING
1965.00	MISSING	MISSING	MISSING
1966.00	MISSING	MISSING	MISSING
1967.00	MISSING	MISSING	MISSING
1968.00	73.6000	44.1000	MISSING
1969.00	58.1000	87.6000	MISSING
1970.00	68.8000	133.600	MISSING
1971.00	75.2000	164.200	MISSING
1972.00	68.2000	199.100	MISSING
1973.00	74.2000	225.300	MISSING
1974.00	72.7000	236.100	13.0000
1975.00	61.5000	258.700	13.4000
1976.00	72.1000	330.100	16.7000
1977.00	73.8000	375.300	23.4000
1978.00	83.3000	426.100	20.3000
1979.00	90.5000	463.300	20.3000
1980.00	89.0000	414.800	19.0000
1981.00	93.0000	468.900	21.3000

Sources: 1968 - 1973 - IBRD, "Upper Volta Livestock Subsector Review",
Nov. 30, 1982, P. 105;

1974 - 1981 - Service de l'Élevage as reported in Holtzman, "Small
Ruminant + Poultry Marketing in the Mossi Plateau of Upper Volta,
"May, 1983, P.42.

TABLE III.23 MEAT PRODUCTION*
(Thousands of metric tons)

YEAR	<u>Beef</u>	<u>Mutton</u>	<u>Goat</u>	<u>Pork</u>	<u>Poultry</u>
1961.00	MISSING	MISSING	MISSING	MISSING	MISSING
1962.00	MISSING	MISSING	MISSING	MISSING	MISSING
1963.00	12000.0 ^{1/}	3000.00 ^{1/}	6000.00 ^{1/}	2000.00 ^{1/}	33000.0 ^{1/}
1964.00	MISSING	MISSING	MISSING	MISSING	MISSING
1965.00	MISSING	MISSING	MISSING	MISSING	MISSING
1966.00	MISSING	MISSING	MISSING	MISSING	MISSING
1967.00	MISSING	MISSING	MISSING	MISSING	MISSING
1968.00	MISSING	MISSING	MISSING	MISSING	MISSING
1969.00	MISSING	MISSING	MISSING	MISSING	MISSING
1970.00	MISSING	MISSING	MISSING	MISSING	MISSING
1971.00	MISSING	MISSING	MISSING	MISSING	MISSING
1972.00	MISSING	MISSING	MISSING	MISSING	MISSING
1973.00	MISSING	MISSING	MISSING	MISSING	MISSING
1974.00	8000.00	3000.00	6000.00	2000.00	28000.0
1975.00	11000.0	3000.00	6000.00	3000.00	32000.0
1976.00	13000.0	4000.00	7000.00	3000.00	37000.0
1977.00	22000.0	4000.00	8000.00	3000.00	10000.0
1978.00	25000.0	5000.00	9000.00	3000.00	10000.0
1979.00	27000.0	5000.00	9000.00	3000.00	12000.0
1980.00	29000.0	3000.00	6000.00	4000.00	11000.0
1981.00	31000.0	3000.00	7000.00	4000.00	11000.0
1982.00	34000.0	3000.00	8000.00	4000.00	12000.0

Source: FAO production year books, 1976-1982.

* Production: Slaughters + exports - imports
^{1/} Five-year average for 1961-1965.

UPPER VOLTA

MEAT AND POULTRY CONSUMPTION ESTIMATES

(Kg per Capita)

	<u>1967</u>	<u>1977</u>	<u>1978</u>	<u>1981</u>
Beef	4.3	4.0	4.7	3.7
Mutton/Goat Meat	2.5	2.5	2.0	1.9
Offals	1.3	1.3	-	1.2
Pork	.5	-	.5	.5
Poultry	<u>1.0</u>	<u>-</u>	<u>.9</u>	<u>1.3</u>
Total	9.7	9.6	6.1	8.3

Source: Holtzman, "Small Ruminant & Poultry
Marketing in the Mossi Plateau of Upper
Volta," USAID, May 1983, P.11.

TABLE III.25 VALUE OF LIVESTOCK EXPORTS
(millions of CFA francs)

YEAR	Live Animals				Meat	Total Animals & Meat
	Cattle	Sheep & goats	Poultry	Total		
1961.00	342.300	181.600	MISSING	524.800	3.70000	528.500
1962.00	1231.80	508.600	64.8000	1809.00	88.8000	1897.80
1963.00	1167.20	576.000	128.100	1876.10	83.0000	1959.10
1964.00	1257.10	436.400	142.300	1839.80	134.100	1973.90
1965.00	1441.00	487.700	211.600	2142.70	76.2000	2218.90
1966.00	MISSING	MISSING	MISSING	2208.00	203.700	2411.70
1967.00	1501.00	642.600	124.600	2271.00	261.000	2532.00
1968.00	1588.60	713.100	221.500	2525.00	281.300	2806.30
1969.00	MISSING	MISSING	MISSING	1967.00	217.900	2184.00
1970.00	MISSING	MISSING	MISSING	1579.00	204.000	1783.00
1971.00	MISSING	MISSING	MISSING	1602.00	264.000	1866.00
1972.00	MISSING	MISSING	MISSING	2100.00	193.000	2293.00
1973.00	MISSING	MISSING	MISSING	2286.00	155.000	2441.00
1974.00	MISSING	MISSING	MISSING	3061.00	162.000	3223.00
1975.00	MISSING	MISSING	MISSING	3382.00	116.000	3498.00
1976.00	MISSING	MISSING	MISSING	1479.00	27.0000	1506.00
1977.00	MISSING	MISSING	MISSING	3949.00	37.0000	3986.00
1978.00	MISSING	MISSING	MISSING	3536.00	24.0000	3560.00
1979.00	MISSING	MISSING	MISSING	4282.00	107.000	4389.00
1980.00	MISSING	MISSING	MISSING	4512.00	176.000	4668.00
1981.00	MISSING	MISSING	MISSING	3509.00	407.000	3916.00

Source: Official trade statistics. Sources detailed in Table II.1 and II.2.

TABLE III.26 QUANTITY OF LIVESTOCK EXPORTS

1 YEAR	Metric Tons				Thousands of Head			
	Cattle *	Sheep & Goats*	Poultry *	Total live Animals*	Meat*	Cattle**	Sheep & Goats***	Poultry**
1961.00	17205.0	1183.00	MISSING	22575.0	66.0000	92.8000	223.000	MISSING
1962.00	15041.0	7212.00	417.000	22707.7	720.000	102.700	250.800	MISSING
1963.00	15006.0	6776.00	1347.00	23258.8	129.000	112.200	267.600	MISSING
1964.00	17501.0	5214.00	1706.00	24471.1	993.900	114.600	232.100	MISSING
1965.00	20033.0	5229.50	1840.00	27133.2	453.300	135.200	293.200	2900.00
1966.00	MISSING	MISSING	MISSING	26952.0	997.700	97.9000	198.600	2400.00
1967.00	20947.6	6444.10	924.800	28362.4	1415.70	88.5000	259.300	1700.00
1968.00	23489.7	7603.90	1359.30	32495.0	1749.40	107.700	292.300	2300.00
1969.00	MISSING	MISSING	MISSING	24415.0	1523.00	90.0000	219.100	3500.00
1970.00	MISSING	MISSING	MISSING	21614.0	1436.00	90.2000	233.200	4000.00
1971.00	MISSING	MISSING	MISSING	22211.0	1716.00	89.4000	238.000	4700.00
1972.00	MISSING	MISSING	MISSING	31355.0	1280.00	78.7000	279.800	5200.00
1973.00	MISSING	MISSING	MISSING	29006.0	1083.00	89.0000	301.800	4000.00
1974.00	MISSING	MISSING	MISSING	31117.0	1099.00	88.3000	273.600	3400.00
1975.00	MISSING	MISSING	MISSING	28226.0	627.000	70.8000	302.600	3800.00
1976.00	MISSING	MISSING	MISSING	7226.00	177.000	36.4000	177.700	2900.00
1977.00	MISSING	MISSING	MISSING	19636.0	156.000	40.2000	144.400	3300.00
1978.00	MISSING	MISSING	MISSING	24933.0	97.0000	55.3000	197.800	3800.00
1979.00	MISSING	MISSING	MISSING	34236.0	335.000	MISSING	216.700	MISSING
1980.00	MISSING	MISSING	MISSING	25040.0	429.000	MISSING	209.000	MISSING
1981.00	MISSING	MISSING	MISSING	17737.0	1051.00	MISSING	158.900	MISSING

Sources: * Official trade statistics. Sources detailed in Tables II.1 and II.2.

** IBRD, "Upper Volta-Livestock Subsector Review", November 30, 1982, p. 105.

*** Holtzman, "Small Ruminant & Poultry Marketing in the Mossi Plateau of Upper Volta," May 1983, p. 36.

TABLE III.27 MEAT IMPORTS AND PRICES

YEAR	<u>Total Meat & Fish Imports</u>		<u>Milk Imports</u>		Ouagadougou market price beef w. bones	Consumer Price Index 1958=100
	<u>millions of CFA</u>	<u>metric tons</u>	<u>millions of CFA</u>	<u>metric tons</u>		
1961.00	38.4000	195.000	93.2000	1375.00	115.000	136.700
1962.00	40.8000	196.000	123.900	1361.00	120.000	138.900
1963.00	36.8000	177.000	145.200	1595.00	MISSING	148.900
1964.00	39.8000	179.000	184.600	1633.00	MISSING	149.700
1965.00	171.000	86.0000	146.300	1137.00	95.0000	148.400
1966.00	167.000	1549.00	178.000	1372.00	116.000	151.900
1967.00	232.000	1329.00	134.800	1074.00	107.000	146.100
1968.00	180.000	1233.00	128.500	963.000	105.000	145.300
1969.00	161.000	2100.00	199.000	1600.00	117.000	156.600
1970.00	149.000	1000.00	214.000	1679.00	130.000	161.700
1971.00	116.000	791.000	237.000	1633.00	104.000	165.100
1972.00	172.000	1206.00	288.000	1794.00	137.000	160.200
1973.00	115.000	675.000	328.000	1959.00	121.000	172.400
1974.00	279.000	1600.00	2709.00	7449.00	141.000	187.400
1975.00	222.000	979.000	713.000	3404.00	254.000	219.200
1976.00	165.000	533.000	1958.00	5285.00	270.000	203.900
1977.00	268.000	1272.00	2510.00	5933.00	314.000	265.800
1978.00	377.000	1270.00	3487.00	12786.0	330.000	286.900
1979.00	281.000	1175.00	2320.00	11401.0	369.000	329.800
1980.00	623.000	1604.00	2888.00	14967.0	426.000	367.500
1981.00	540.000	1722.00	4764.00	15247.0	464.000	405.600

Sources: Import statistics are official trade statistics. Sources as indicated in Tables II.1 and II.2. Price data from INSD and "Bulletin Mensuel de Statistique," Ministère de l'Economie Nationale, various issues.

TABLE III.28 TUBER PRODUCTION
(Thousands of tons)

<u>YEAR</u>	<u>CASSAVA</u>	<u>SWEET POTATO</u>	<u>OTHER*</u>	<u>TOTAL TUBERS</u>
1961.00	MISSING	MISSING	MISSING	MISSING
1962.00	30.0000	32.0000	23.0000	85.0000
1963.00	32.0000	40.0000	22.0000	94.0000
1964.00	32.0000	35.0000	23.0000	90.0000
1965.00	32.0000	35.0000	24.0000	91.0000
1966.00	27.0000	35.0000	25.0000	87.0000
1967.00	30.0000	33.0000	30.0000	93.0000
1968.00	30.0000	16.0000	34.0000	80.0000
1969.00	30.0000	26.0000	32.0000	88.0000
1970.00	30.0000	34.0000	30.0000	94.0000
1971.00	30.0000	34.0000	30.0000	94.0000
1972.00	30.0000	32.0000	28.0000	90.0000
1973.00	20.0000	40.0000	45.0000	105.0000
1974.00	30.0000	27.0000	41.0000	98.0000
1975.00	35.0000	35.0000	48.0000	118.0000
1976.00	35.0000	40.0000	50.0000	125.0000
1977.00 ^{1/}	40.0000	35.0000	50.0000	125.0000
1978.00	40.0000	40.0000	55.0000	135.0000
1979.00	42.0000	42.0000	55.0000	139.0000
1980.00	42.0000	44.0000	33.0000	119.0000
1981.00	42.0000	44.0000	33.0000	119.0000
1982.00	43.0000	45.0000	36.0000	124.0000

Source: FAO Production Year books, 1962 - 1973 as reported in SCETAGRI, "Technologie des Cereals", 1982, P.18; 1974 - 1982 directly from yearbooks.

* Primarily Yams.

^{1/} Totals computed from Demeaux, "Etude de faisabilité pour l'organisation d'un centre sur les racines et tubercules en Haute-Volta, "January 1982 for the year 1977/78 are: 55,000 tons of yams, 15,000 tons of sweet potatoes and 3,300 tons of cassava for a total of 73,300 tons of tubers.

TABLE III.29 TUBER PRICES
(CFA Frs/Kg)

<u>YEAR</u>	<u>YAMS</u>	<u>CASSAVA</u>	Consumer Price Index 1958=100
1961.00	34.0000	28.0000	136.700
1962.00	30.0000	24.0000	138.900
1963.00	MISSING	MISSING	148.900
1964.00	MISSING	MISSING	149.700
1965.00	26.0000	26.0000	148.400
1966.00	38.0000	31.0000	151.900
1967.00	32.0000	32.0000	146.100
1968.00	27.0000	21.0000	145.300
1969.00	44.0000	22.0000	156.600
1970.00	40.0000	30.0000	161.700
1971.00	42.0000	37.0000	165.100
1972.00	55.0000	45.0000	160.200
1973.00	55.0000	45.0000	172.400
1974.00	63.0000	53.0000	187.400
1975.00	MISSING	71.0000	219.200
1976.00	62.0000	45.0000	203.900
1977.00	70.0000	80.0000	265.800
1978.00	71.0000	39.0000	286.900
1979.00	74.0000	60.0000	329.800
1980.00	122.000	56.0000	367.500
1981.00	127.000	MISSING	405.600
1982.00	128.000	MISSING ^{1/}	438.100
1983.00	121.000	MISSING	463.800

Source: INSD and "Bulletins Mensuel de Statistique", Ministère de l'Economie Nationale, various issues.

^{1/} From 1982 on, INSD stopped collecting market prices for Cassava because it was dropped from the standard market basket used for computing the consumer price index.

TABLE III.30 FRUIT AND VEGETABLE PRODUCTION
(Thousands of tons)

<u>YEAR</u>	<u>FRUIT</u>	<u>VEGETABLES</u>
1961.00	MISSING	MISSING
1962.00	MISSING	MISSING
1963.00	MISSING	MISSING
1964.00	MISSING	MISSING
1965.00	MISSING	MISSING
1966.00	MISSING	MISSING
1967.00	MISSING	MISSING
1968.00	MISSING	MISSING
1969.00	MISSING	MISSING
1970.00	MISSING	MISSING
1971.00	MISSING	MISSING
1972.00	MISSING	MISSING
1973.00	MISSING	MISSING
1974.00	MISSING	MISSING
1975.00	32.0000	55.0000
1976.00	35.0000	60.0000
1977.00	45.0000	58.0000
1978.00	48.0000	65.0000
1979.00	53.0000	72.0000
1980.00	55.0000	70.0000
1981.00	58.0000	70.0000
1982.00	61.0000	77.0000

Source: FAO Production Year Book s, 1976-1982.

TABLE III.31 FRUIT AND VEGETABLE PRICES
(CFA Frs/Kg)

1 YEAR	MANGOES		GREEN BEANS		Tomatoes	Consumer
	Ouagadougou Market Price	Export Price	Ouaga Market Price	Export Price	Ouaga Mkt Price	Price Index 1958=100
1961.00	45.0000	MISSING	152.000	MISSING	55.0000	136.700
1962.00	58.0000	MISSING	149.000	MISSING	49.0000	138.900
1963.00	MISSING	MISSING	MISSING	MISSING	MISSING	148.900
1964.00	MISSING	MISSING	MISSING	MISSING	MISSING	149.700
1965.00	41.0000	MISSING	101.000	MISSING	43.0000	148.400
1966.00	60.0000	MISSING	166.000	MISSING	49.0000	151.900
1967.00	33.0000	MISSING	153.000	MISSING	56.0000	146.100
1968.00	36.0000	MISSING	135.000	MISSING	65.0000	145.300
1969.00	50.0000	MISSING	197.000	MISSING	96.0000	156.600
1970.00	35.0000	33.5052	146.000	43.2692	44.0000	161.700
1971.00	33.0000	43.9306	170.000	60.7288	68.0000	165.100
1972.00	34.0000	28.5054	124.000	133.028	76.0000	160.200
1973.00	36.0000	39.9274	119.000	140.957	101.000	172.400
1974.00	38.0000	36.1653	172.000	134.380	84.0000	187.400
1975.00	48.0000	33.0680	277.000	144.000	467.000	219.200
1976.00	MISSING	36.7290	225.000	78.3730	96.0000	203.900
1977.00	64.0000	8.90373	346.000	80.0000	144.000	265.800
1978.00	84.0000	27.9188	197.000	71.0117	114.000	286.900
1979.00	69.0000	21.5108	292.000	60.9091	177.000	329.800
1980.00	67.0000	29.3006	248.000	82.8789	211.000	367.500
1981.00	77.0000	50.3145	240.000	90.5588	231.000	405.600
1982.00	MISSING	MISSING	MISSING ^{1/}	MISSING	135.000	438.100
1983.00	174.000	MISSING	MISSING	MISSING	190.000	463.800

Source: Ouagadougou market prices and consumer price index from INSD and "Bulletin Mensuel de Statistique", Ministère de l'Economie Nationale various issues. Export prices computed from official trade statistics.

^{1/} From 1982 on, INSD stopped collecting market prices for cassava because it was dropped from the standard market basket used for computing the consumer price index.

TABLE III.32 COTTON PRODUCTION, AREA & YIELD

<u>YEAR</u>	<u>PRODUCTION</u> (000 tons)	<u>AREA</u> (000 ha)	<u>YIELD</u> (Kg/ha)
1961.00	2.30000	22.9000	111.000
1962.00	6.60000	36.0000	180.000
1963.00	8.00000	45.8000	190.000
1964.00	8.80000	52.5000	170.000
1965.00	7.50000	49.7000	140.000
1966.00	16.3000	52.4000	310.000
1967.00	17.3000	65.4000	260.000
1968.00	32.0000	71.6000	450.000
1969.00	36.2000	84.1000	430.000
1970.00	23.5000	80.6000	290.000
1971.00	28.1000	74.1000	380.000
1972.00	32.6000	70.1000	470.000
1973.00	26.7000	66.6000	410.000
1974.00	30.6000	61.5000	500.000
1975.00	50.7000	68.0000	750.000
1976.00	55.3000	79.2000	700.000
1977.00	38.0000	68.8000	550.000
1978.00	60.0000	71.5000	839.000
1979.00	77.5000	82.0000	945.000
1980.00	62.5000	75.4000	829.000
1981.00	57.5000	65.2000	882.000
1982.00	75.6000	72.0000	1050.00
1983.00	MISSING	MISSING	MISSING

Source: SOFITEX - 1961 - 1978 as reported by IBRD, "Agricultural Issues Study", October 29, 1982, P.199; 1979 - 1981 MDR, "Bulletin de Statistiques Agricoles 1978/79 - 1981/82", pp. 99,100; 1982 SOFITEX Annual report.

TABLE III.33 COTTON EXPORTS

YEAR	VALUE (Millions of CFA frs)			QUANTITY (Thousands of tons)		
	Cotton Seed	Fiber	Fabric	Seeds	Fiber	Fabric
1961.00	0.00000	0.00000	MISSING	MISSING	MISSING	MISSING
1962.00	15.1000	97.3000	12.4000	837.000	705.000	27.6000
1963.00	19.6000	80.6000	65.1000	2500.00	1189.00	56.5000
1964.00	69.1000	90.1000	177.800	4042.00	1884.00	131.200
1965.00	47.5000	257.200	68.5000	3004.00	1947.00	97.0000
1966.00	56.0000	304.000	MISSING	1800.00	2432.00	MISSING
1967.00	97.8000	842.100	2.60000	5566.90	5949.40	58.8000
1968.00	123.400	913.500	25.3000	5650.60	6314.00	304.500
1969.00	86.5000	1365.00	45.0000	7796.00	7625.00	418.000
1970.00	194.000	1297.00	10.0000	14557.0	13356.0	67.0000
1971.00	77.0000	834.000	318.000	8453.00	7963.00	71.0000
1972.00	94.0000	1021.00	163.000	9584.00	8909.00	206.000
1973.00	55.0000	1205.00	98.0000	7065.00	10473.0	173.000
1974.00	46.0000	1546.00	253.000	1346.00	8241.00	224.000
1975.00	0.00000	1524.00	60.0000	0.00000	9540.00	101.000
1976.00	0.00000	5785.00	27.0000	21.0000	20671.0	58.0000
1977.00	0.00000	5400.00	11.0000	0.00000	15305.0	60.0000
1978.00	0.00000	3002.00	113.000	0.00000	10633.0	318.000
1979.00	0.00000	5341.00	327.000	0.00000	21427.0	293.000
1980.00	0.00000	8369.00	73.0000	0.00000	27890.0	109.000
1981.00	0.00000	8174.00	79.0000	0.00000	22151.0	106.000

Source: Official trade Statistics. Sources as detailed in Tables II. 1 and II.2.

TABLE III.34 COTTON PRICES
(CFA francs/Kg)

YEAR	Producer Price	Export Price Cotton Fiber	Consumer Price Index 1958=100
1961.00	MISSING	MISSING	136.700
1962.00	MISSING	138.014	138.900
1963.00	MISSING	67.7881	148.900
1964.00	34.0000	47.8238	149.700
1965.00	34.0000	132.101	148.400
1966.00	34.0000	125.000	151.900
1967.00	34.0000	141.544	146.100
1968.00	32.0000	144.679	145.300
1969.00	32.0000	179.016	156.600
1970.00	32.0000	97.1099	161.700
1971.00	32.0000	104.734	165.100
1972.00	32.0000	114.603	160.200
1973.00	35.0000	115.058	172.400
1974.00	40.0000	187.599	187.400
1975.00	40.0000	159.748	219.200
1976.00	40.0000	279.861	203.900
1977.00	55.0000	352.826	265.800
1978.00	55.0000	282.329	286.900
1979.00	55.0000	249.265	329.800
1980.00	55.0000	300.072	367.500
1981.00	62.0000	369.013	405.600
1982.00	62.0000	MISSING	438.100
1983.00	70.0000	MISSING	463.800

Source: Producer price from 1961-1969 in IBRD, "Agricultural Issues Study", October 29, 1982, P.206; from 1970-1981 MDR, "Bulletin de Statistiques Agricoles 1978/79," P.113; 1982,83 from MDR, DSA.

Export prices computed from official trade Statistics.

Consumer Price index from INSD and "Bulletin Mensuel de Statistique", Ministère de l'Economie Nationale, various issues.