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CLUB DU SAHEL
Working Group on Marketing, Price Policy and Storage

MARKETING, PRICE POLICY AND STORAGE OF FOOD GRAINS IN THE SAHEL

A SURVEY

Volume II: Country Studies

Submitted by

CENTER FOR RESEARCH ON ECONOMIC DEVELOPMENT
UNIVERSITY OF MICHIGAN

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ERRATA

Chad

p. 2	line 5	However, imports of wheat and flour ..
p. 16	footnote 1, line 6	...must be less than for the rural areas.
p. 30	line 15	Its monetary costs on this operation
p. 32	bottom of table	year under each section should read, in order: 1973, 1974, 1975, 1976
p. 47	footnote 1	Conseil Militaire Supérieur.
p. 48	line 3	(See Appendix 2)
p. 51	Table IX, line 3	"official" producer price 45 1.(13.95) 45 ...
p. 56	line 23	(See Appendix Table 7B)
p. 56	line 25	(See Table XIV)
p. 58	line 4	...products, price increases for millet have...
p. 60	footnote 1, line 5	See Appendix Table 8...
p. 61	line 9	Handling, protection
p. 80	line 22	...ONDR has...
p. 84	Appendix 5, ONDR	Mr. S. Souillanriba, Director of Extension Services

The Gambia

p. 13	line 13	... yields per acre from 1000 to 1500 lbs.
p. 17	line 10	...which will utilize modern inputs and reach, during
p. 75	line 10	...in June or July.
p. 75	Table 4, line 2	unsubsidized price

Mali

p. 6	line 15	...Mopti and the bottom-land
p. 10	line 16	There are three prices...
p. 10	line 17	...parboiled whole rice.[3] (See Diagram 1)
p. 14	line 12	...to a price schedule (French: barème)
p. 43	Table XIX	table heading should read: Monetary Cost / Return per workday
p. 51	line 16	These credit bills are rediscounted at the Banque...
p. 68	line 19	...two channels: one private and one official.
p. 69	line 8	...has been distorted.
p. 84	footnote 1	...p. 84.
p. 100	line 20	...cases, the lack of adequate...

Niger

p. 9	footnote 1	FAC-..., the French foreign assistance agency
p. 11	footnote 3, line 2	...illustrates. During the team's visit,...
p. 15	line 16	...than twice the figure of 2000 CFA/ton...
p. 16	line 12	...of the 2000 CFA/ton reported...
p. 17	line 5	...(see page 15).
p. 29	line 5	The commission to UNCC has been raised from 1100 CFA/ton in 1975/76 to 1500 CFA/ton in 1976/77.
p. 39	line 18	Of interest is only r, the coefficient of correlation ((Cov.(AB)/[Var.(A)·Var.(B)]$^{1/2}$))
p. 45	lines 17,18	the unit of measurement should read CFA/ton-km.
p. 46-48	Table IV	should be Table VI
p. 59	line 1	...the problem but there are...
p. 62	line 19	(see page 56)
p. 75	line 19	(see Appendix Table 10)
p. 120	line 2 after Table 2	...cooperatives buy the paddy from...
p. 121	line 2 after Table 4	...which it buys at 38 CFA/kg...
p. 126	Glossary	add: SNTN Société National de Transports Nigeriens, National Transportation Company

Senegal

p. 17	footnote 1	This is true at any realistic...
p. 20	line 20	... as well as by country of origin,....
p. 27	line 20	BUD is a private enterprise.
p. 30	line 15	...for first quality grain cotton...
p. 39	line 26	...there are 13 wholesale depots.
p. 48	diagram	broken arrow should appear between "Approved Wholesaler" and "Trader"
p. 49	line 22	...due to the small volume of these purchases.

UPPER VOLTA

p. 69	line 9	...these are matters...
p. 94	line 20	...a correlation coefficient (r=Cov(AB)/[Var(A)·Var(B)]$^{1/2}$)

Preface to Volume II

Because some readers of this volume may not have access to Volume I, it is worth repeating here some of the remarks made in the general introduction to the study. The study originated at the request of CILSS/Club du Sahel Working Group on Grain Marketing, Price Policy and Storage. At its Dakar meeting in July, 1976, the Working Group requested that a "diagnostic survey" be undertaken, in order to bring together existing information on marketing, price and storage, and to identify main issues. This study was undertaken in response to that request. It was financed by the Sahel Development Program of the Agency for International Development.

The country studies in this volume are based on field trips, on the study of documents and reports gathered in the field as well as from multilateral and bilateral aid agencies, on a survey of published literature and on responses to questionnaires sent to the CILSS countries in August, 1976.

The field trips took place between November 1976 and February 1977. At least three work-weeks were spent in each country; in most cases, it was closer to a month. During the ensuing write-up in Ann Arbor, the team benefitted from the presence, for brief periods, of the President of the Working Group, M. Ibrahima Sy; the Rapporteur of the Group, M. Charles Leroy; and M. Serge Michailof of the Caisse Centrale de Coopération Economique, Paris. Also, the final report benefits from a review of preliminary findings, held during a Working Group meeting in Brussels, March 16-18, 1977.

Considerable autonomy has been given to the authors of the country studies. They, of course, had guidance of several sorts. The terms of reference set down a long list of specific questions about which information was to be sought. The entire team spent some 10 days together in the Upper Volta, and three of the four authors of country studies went to Niger together. In Niger, a more detailed set of analytic questions was worked out, and this was used to guide the inquiry in the remaining field work. In Ann Arbor, we have had much discussion, and each draft country study underwent extensive editing.

It nonetheless remains true that each country study is the responsibility of its author, and will reflect his perceptions and ideas to a considerable extent. Such a devolution of responsibility seemed desirable for several reasons. (a) The field work could only be organized by specializing individual team members in given countries; it would have been too difficult for any one or two individuals to visit all seven Sahel countries. (b) Attribution of individual responsibility has obvious positive effects on the authors' incentives. (c) Perhaps most important, the study of marketing systems is peculiarly subject to the preconceptions of the investigator. It therefore seemed preferable, as well as necessary, to allow each country study to reflect its author's understanding and insight, which is to say, also his biases. This has resulted in differences of emphasis and outlook in the country studies--differences which are

accounted for also by the fact that marketing and price policy problems arise in different contexts in each of the Sahel countries.

The authors responsible for the country studies are: Boubacar Bah, Mali and Mauritania; Elliot Berg, Upper Volta; Daniel Kohler, Niger and Chad; Clark Ross, Senegal and the Gambia. In addition to overall editing by me, Aimée Ergas made major editorial contributions, Judy Brooks assisted on the Upper Volta, Charles Steedman worked on Mali and Mauritania, and Annick Morris was responsible for the French translations. Greg Conboy and Bijan Amini helped with statistical material.

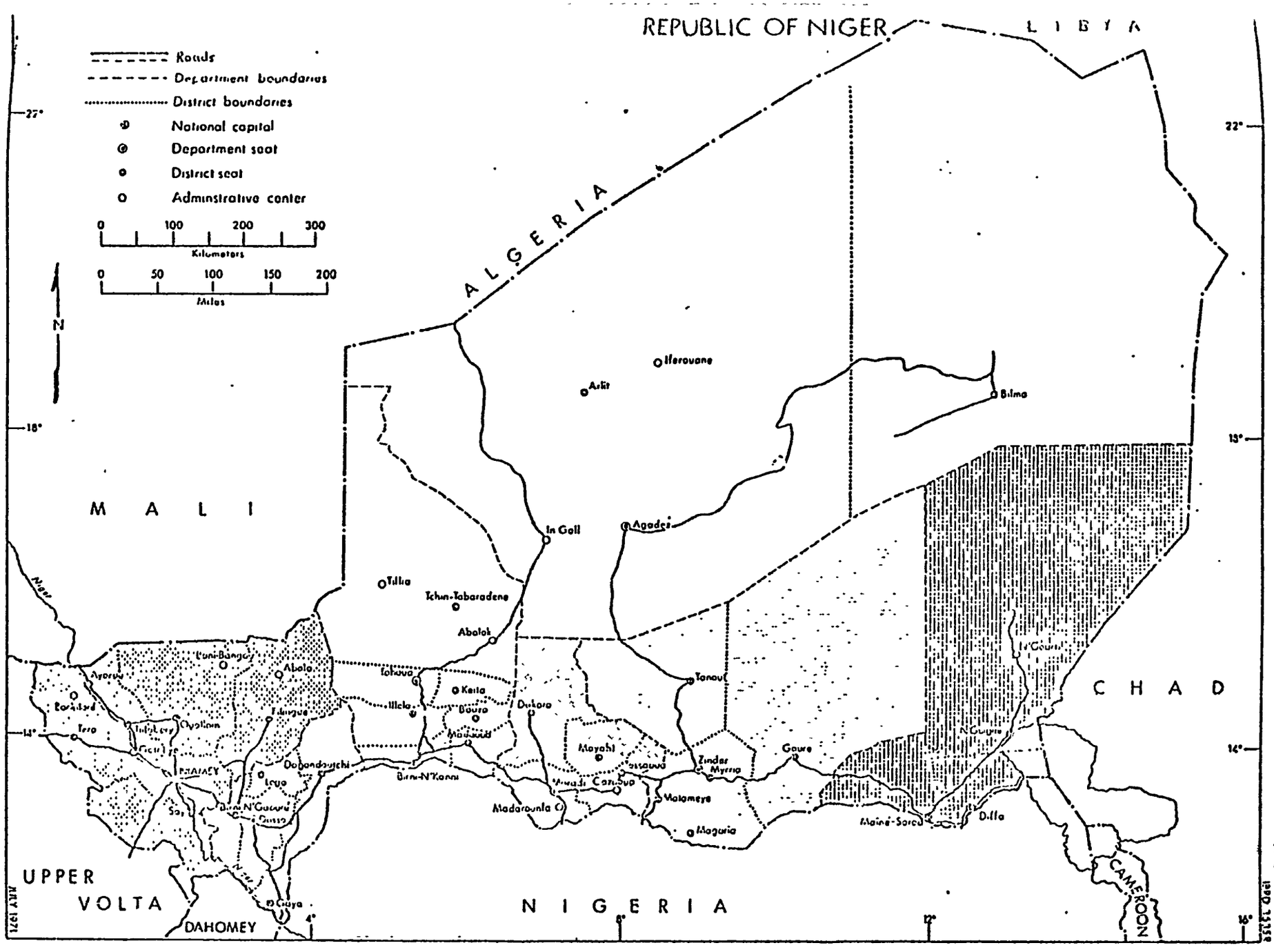
The major emphasis in all the country studies in this volume is on marketing and price policy. Each study discusses storage issues, but these receive less intensive attention than marketing and prices. The reason is that we were originally requested to survey only marketing and price policy; storage was to be the responsibility of another group of consultants. For various reasons the Club Working Group was not able to find storage consultants, so we did some work on storage, but necessarily gave it less attention than the other issues.

Finally, this is an étude diagnostique, a phrase for which there is no good English translation. It means an analytic survey, but without recommendations on policy. Authors of country studies were instructed to avoid drawing policy conclusions, but the line between assessment of options and recommendations on policy is difficult to draw. The basic purpose of these studies, in line with the mandate we were given by the Working Group, is nonetheless fact-finding: bringing together what is known, underscoring what needs to be known for more effective policy-making, setting out options and assessing these options in the light of existing constraints. The reader will therefore not find here detailed and specific recommendations on what grain marketing agencies such as ONCAD or OPVN ought to do, how they might be made more effective organizationally, whether and by how much millet and sorghum prices in Mali or Niger ought to be raised. These are the kinds of questions appropriate to more focussed policy studies, not to an étude diagnostique such as we were requested to do.

Elliot Berg
Project Director

Ann Arbor, Michigan
July 1977

NIGER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INTRODUCTION

Niger is a landlocked country of approximately 1,267,000 km^2 situated in central West Africa. It suffers from the basic problem facing most Sahelian countries; only a narrow strip of fertile land in the south can be used for agriculture. The remaining lands in the north are saharan or sub-saharan ranges, some of which can be used only marginally for livestock raising in transhumance.

The population of Niger is estimated to be approximately 4.7 million in mid-1976.[1] Almost half of these people are under 14 years of age. A large majority lives in the fertile south, producing mainly millet and sorghum for their own consumption, peanuts and niébé as cash crops as well as for subsistence purposes, and some cassava, maize and cotton. Along the Niger River, rice is grown.

Traditionally, the sedentary farmers in the south have had an informal agreement with the Fulani and Tuareg nomads from the north. They trade grain for milk in the dry season, when the herds are in the south. During the rainy season, the herdsmen move their animals northward to allow the sedentary farmers to plant their fields undisturbed by the passing herds. After the harvest, two to three months into the following dry season, the herders move back to the south, where the herds feed off the harvested fields and fertilize them with their manure.

Niger's agricultural zone is considered the area below the 350 mm. isohyet. This strip of land extends along the borders of Upper Volta, Benin, Togo and Nigeria and accounts for approximately 25 percent of total

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[1] First results of a new census conducted in 1977 seem to indicate that this commonly used figure underestimates the actual population. The true figure seems to be closer to 6 million.

land. But, due to the unreliable climatic conditions, it can happen in any given year that large areas which theoretically lie within the agricultural zone do not get sufficient rain. Consequently, the variations in total production are quite large.[1]

It is impossible under these circumstances to hedge completely against possible production shortfalls. It is almost unavoidable that a succession of bad years will lead to serious food deficits, as have occurred repeatedly before, during and since colonial times. The biggest of these occasional famines have their names in popular oral history. In precolonial times, one was called "Ize Nere," the sale of children, another "Gaasi Borgo," the milling of the calabashes.

Famines also occurred during colonial times. In 1913-14, there was a widespread famine which earned the name of "Grande-Bari" (large chest), probably reminiscent of the blown-up torsos caused by malnutrition. In 1931-32, there was "Doo izo jire," year of the locust larvae, and in 1951-52 "Gaari jire," year of the manioc flour.[2]

These are only a few examples, but they show clearly that a drought, such as that which struck the Sahel during the early 1970s, is not an isolated and unique event. Susceptibility to drought and food deficits explains the great importance that the Niger government attaches to cereals policy, since cereals (millet and sorghum) are the basic staple foods of the country.

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[1]See Appendix Tables 1,2 and 3A-C.

[2]André Salifou, "Crise alimentaire au Niger," Institut Africain de Développement Économique et de Planification, Dakar, Feb. 1974.

I. STRUCTURE OF THE PRESENT PRODUCTION AND MARKETING SYSTEM

A. The Production System for Cereals

According to P. Perron,[1] 75 percent of the total population in Niger can be described as sedentary farmers. They are, virtually without exception, producers of millet and sorghum. Their number has probably been augmented during the last few years by the number of nomads who lost their herds due to the drought and were forced to start tilling the soil.[2] Further, a large fraction of the urban population, especially in the towns outside of Niamey, still farms some land on the outskirts of the settlements; town-dwellers are thus part-time millet growers and partially self-sufficient in staples and produce.

Of the approximately 150,000 km^2 of agriculturally usable land in Niger, only about 15-20 percent is planted in any given year. The remainder lies in bush fallow which, on the average, lasts 5 to 6 years. Such a long regeneration period seems necessary to avoid desertification. The bush fallow may be used as grazing grounds; however, its carrying capacity is very limited. Too much grazing may prevent the land from recuperating and turn it into desert despite the fallow period.[3]

Most farms in Niger are very small. According to the latest survey,[4]

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[1]Paul Perron, OPVN training seminar notes, 1974.

[2]The FED (Fonds Européen de Développement), in a survey conducted in 1974, put the percentage of cattle lost in Niger between 1972 and 1973 at 36 percent. This loss destroyed the income earnings base and food supply for many Fulani and Tuareg herders who now, as the team could verify in several villages, accumulate around Haussa and Djerma villages, where they work on the fields of the sedentary farmers in exchange for the right to a plot of land of their own. Cited in Elliot Berg, Recent Economic Evolution of the Sahel, Center for Research on Economic Development, 1975.

[3]D.S. Ferguson, A Conceptual Framework for Evaluation of Livestock Production Development Projects and Programs in Sub-Saharan West Africa. mimeo, n.d.

[4]République du Niger, Ministère de l'Economie Rurale, Direction de l'Agriculture, Section Statistiques Agricoles. Enquête Agricole par Sondage. 1972/1973.

almost 70 percent of the farms are less than five hectares and are operated by 2.4 to 3.1 adult labor equivalents. Ninety-five percent of the total surface planted is planted with millet or sorghum, but about half of this in association with some other crop (i.e., peanuts or cowpeas).[1] The estimated total production of millet and sorghum is summarized in Table 1. Becker[2] estimated that, between 1960 and 1971, production of grain has grown .85 percent annually (millet, +1.36%; sorghum, -.82%). This has to be contrasted with a nearly three percent population growth.[3] The implications of this trend for a strategy which aims at self-sufficiency in the year 2,000 are, of course, enormous.

Some other studies also offer evidence that Niger is developing a structural deficit in food staples. According to Morris,[4] an increase in the area planted in cash crops (mainly peanuts) and general population pressure have led to an extension of the northern limit of production into land which is very marginal, even under "normal" rainfall. The recent drought has forced farmers to abandon some of these fields in the north and to expand the acreage in the south by shortening the fallow period. Appendix Table 3c, compiled by Shapiro,[5] and amended by the author, clearly shows the effect of the drought. In column six, (millet and sorghum area index) it can be seen that, after the first deficit year (1968-69), the area planted increased by more in one year than during the eight preceeding years. This, Morris claims, overburdened the soil resource and led

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[1] See Appendix Table 6.

[2] John A. Becker, An Analysis and Forecast of Cereals Availability in the Sahelian Entente States of West Africa, AID, 1974.

[3] The new 1977 census suggests a population growth rate considerably larger than 3%.

[4] W.H.M. Morris, "Entente Food Crop Production," unpublished paper, 1975.

[5] K.H. Shapiro, "Report on the (Nonlivestock) Agricultural Sector of Niger," unpublished paper, AID, 1974.

to a long-run decline in average productivity which could not be offset with traditional methods. Niger is trying to develop the application of fertilizer using domestic rock phosphate, but this is unlikely to offset the decline in fertility. Because reserves of non-marginal land are limited, and population growth presently stands at almost three percent, fears that Niger might remain a net importer of cereals for the next few decades seem justified.

Peasants retain most of their total cereals production for their own needs and the portion which is marketed is generally believed to be 10-15%.[1] Trying to quantify this fraction with any degree of accuracy is futile, since both production estimates and estimates concerning the volumes traded are unreliable. Some is traded on a barter basis with nomads for milk, hides and animals (small ruminants).

Morris states that agricultural prices and price elasticities have traditionally encouraged the farmer to cover family needs with a 10-20% margin of safety, and then turn the remaining resources to the production of the much more profitable cash crops (in Niger, mainly peanuts; see Appendix Table 8). This behavior was reinforced by maintaining low cereal prices for the urban population.

One of the drawbacks of such a marketing system is that it leads to variations in the quantities marketed which exceed considerably the variations in production. This is best illustrated by reference to a hypothetical calculation, which also shows how estimates of marketed output are derived. The information on which this example is based can

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[1]Becker estimates the marketed output to be about 16%. Morris gives a figure of 10-15%, while a SEDES study found 10% (SEDES, Les Produits Vivriers au Niger, Paris, 1963).

be found in Appendix Tables 5, 6 and 8.

Given the average farm size (4.67 ha) with 45-50% of the area exclusively in grain production, and another 45-50% in combined cultures (i.e. grain and peanuts), we get an average equivalent for pure production of millet of around 3.3 ha per farm family; multiplied by an average yield of 450 kg/ha, we get production per farm of about 1485 kg in a good year. The average family size is 5.69 people. Using a reasonable estimate of per capita consumption (190 kg), and taking into account a 20 percent margin for safety and seed, this gives a family subsistence requirement of 1297 kg and a marketable surplus of 188 kg (12.7% of total production). Since the needs are fairly stable, it is obvious that the proportional variation in the quantity marketed is considerably larger than the variations in total production. A reduction of yield per hectare to 420 kg (-6.67%) would result in a reduction of output by 99 kg. Since the need would remain unchanged, this small change in productivity would result in a change of over 50% in marketed surplus.

This calculation suggests that a peasant's estimated grain requirements have a large influence on the commercial supply of grain. Becker goes as far as to claim that the relation between expected consumption by the peasant family and total availability (production plus stocks carried over from preceding years) is <u>the only</u> determinant of market supply. He states that "the motive force behind commercial supply is not price" and that the marketed quantities are "unresponsive to prices." These questions will be examined more closely in the section on producer prices. At this point, let us just state that the absence of production for the market can certainly be regarded as a rational response to (the absence of) a price incentive.

In summary, we can characterize the production system for cereals in Niger as follows:

-small farms, operated by family units,

-absence of any use of input other than labor and land (no fertilizer),

-45-50% of agriculturally used land planted exclusively with cereals, plus an additional 45% planted with cereals in combination with another crop (i.e. niébé or peanuts),

-increasing fraction of potentially usable land planted with cereals,

-decreasing average productivity per acre in cultivation, due to the decreasing average fertility of land caused by planting on marginal land and shortening of the fallow periods.

-determination of marketed surplus primarily on the basis of availability and requirements for subsistence consumption. However, the influence of prices cannot be ruled out on an a priori basis.

B. History of Cereals Marketing Policy

Since Niger was capable of producing sufficient cereals, in normal years, to feed its people (and in good years, even a surplus), it was widely believed that one of the reasons for the periodically occurring food shortages was an "inefficient" marketing system,[1] inefficient in the sense that it did not create adequate storage. An efficient marketing system would carry stocks from good years over to lean years, thus alleviating deficits.

Other factors helped convince policy-makers of the inefficiency of the private cereals marketing system. The growth of the cities placed strong demands on private trade. The World Bank estimates that the urban population increased between 1960 and 1970 from 6% to 8% of

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[1] AID/AFR/CWR, Cereals Production Staff Paper, 1974.

total population.[1] The areas supplying the cities had to be expanded and, with increased distances, transport and other marketing costs increased. The increasing divergence between rural and urban prices was taken not only as an indication of inefficiency, but also as evidence of exploitative practices of traders.

Besides this problem of absolute price level, there was the problem of seasonal price fluctuations, which added to the government's determination to influence grain marketing. Very few attempts were made to quantify and explain intra-annual price fluctuations. The view that the price increase from the time just after the harvest to the "soudure"[2] was "excessive" rested primarily on casual observation. The most frequently encountered explanation of the cause of these price fluctuations was speculation and the purported collusion among traders.

This rather broad indictment of the private trade as insufficient, collusive, exploitative and inefficient was the justification for the creation of the Office des Produits Vivriers du Niger (OPVN). According to Law No. 70-17 of August 27, 1970 and Decree No. 70-228/PRN/MER of October 10, 1970 (the statutes of OPVN), its responsibilities were to:

1) Organize the marketing of staple food crops (sorghum, millet, maize, wheat, cowpeas, etc.) and help improve production;

2) Establish annual estimates of both food resources and requirements and, on the basis of these estimates, propose a program for storage, imports and exports of staple food and monitor its execution;

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[1]The new census figures indicate that the city of Niamey grew 25% between 1974 and 1977.

[2]"Soudure" is the period before the harvest when supplies of foodstuffs are low.

3) Build regulatory stocks for the purpose of: (a) stabilizing both producer and consumer prices, (b) assuring inter-regional equilibrium of food resources and requirements within Niger, and (c) participating in a multinational program of price stabilization and harmonization of trade;

4) Make all useful propositions with an aim of organizing and controlling the markets of staple foods and their derived products;

5) Create and guide the direction of enterprises involved in the processing of staple foods within the conditions defined by the government;

6) Assume the preparation and execution of food aid programs established through national or external means;

7) Foster or assist in the favorable development of the cooperative movement.

OPVN received technical and financial assistance from ACDI, FAC and USAID[1] through the Entente Fund. This assistance concentrated primarily on the construction of storage capacity, the provision of PL 480 grain that was to be sold to create an operating fund, and technical assistance by storage and marketing experts.

For its first campaign (1970/71), OPVN had at its disposition 4,900 T in storage capacity which had to be expanded by renting capacity from various organizations. With only one truck and insufficient sacks and scales, OPVN was in no position to have a strong influence on the market. It is to the office's credit that it was nevertheless able, by concentrating its efforts, to support grain prices in the surplus regions (Maradi and Zinder), to buy approximately 5,000 tons of grain and 103 tons of niébé and to break even on its operation. Part of the reason is certainly the gift of 2,000 T of USAID sorghum that was sold to create working capital.

---

[1]ACDI - Agence Canadienne pour le Développement International, the Canadian foreign assistance agency.
FAC - Fonds d'Aide et de Coopération.
USAID - United States Agency for International Development.

Almost 65% of all the grain purchased by OPVN was sold in the capital city.[1] Buying prices varied from 10 to 12 CFA per kilo, and the grain was resold starting in April for 15 CFA (Tessaoua) to 25 CFA (Niamey) per kg of millet, 10 CFA per kg of sorghum.

The fact that the entire stock was resold within a year emphasizes the point that inter-annual price arbitrage was the main purpose of OPVN. That this remained the primary preoccupation is illustrated in Appendix Table 12.

Only during the last few years has OPVN been able to carry over considerable stocks from one year to another. One reason for this is certainly the recent drought which made it impossible for OPVN, despite considerable international aid (food aid contributed over 70% of all the foodstuffs handled by OPVN), to build up a reasonable security stock. Thus, whatever was left at the end of any one year was purely incidental and not the result of a conscious effort to build up such a stock.

During visits to several regional OPVN bases, the team was able to get an impression of the condition of these stocks. Generally, the grain remaining at the end of the year is either of a quality which consumers do not like or is already attacked by insects. Its conservability is usually nil, and several OPVN warehouse managers told us that it would be better if the leftover sacks were simply thrown out or fed to the animals. "All it does is contaminate the new stocks that come in," said one of them. This problem will be discussed again in the section on storage.

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[1] It is interesting to note that, during the same year (1970/71), none of the USAID sorghum, most of which probably entered Niger via its western border, was sold in Niamey, but was shipped east to Dosso, Tahoua and Maradi at a cost of between 3000 and 6000 CFA per ton. This is probably caused by the clear consumer preference for millet in Niamey.

For the campaign of 1976/77, a good year for Niger from the point of view of aggregate production, OPVN has a target of buying 50,000 tons of cereals through licensed traders and the cooperatives of UNCC.[1] By the end of November, approximately 14,800 tons of grain had been bought, and experts voice skepticism that the goal of 50,000 tons will be attained.

C. Structure and Functioning of the Cereals Market

Niger has a typical dual marketing system, dominated by OPVN which, according to the law, has a monopoly on the marketing of cereals.[2] However, in a normal year, OPVN handles only about 20% of the marketed cereals. Most of the grain goes through the hands of private traders or is sold by the farmer directly to the consumer.

1. Official Marketing Channels

The organization of the official marketing system has undergone numerous changes during recent years. The decision, for instance, concerning who should be allowed to perform the primary collection (OPVN directly, the cooperatives or private traders) has been changed 3 times during the past three years. This has generated considerable confusion and uncertainty among the producers who do not know to whom they are allowed to sell.[3] This is not a situation designed to encourage increases

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[1] UNCC - Union Nigerien de Crédit et de Coopération, the national organization of the cooperatives.

[2] Arrêté No. 36./SEP/AE/CI/DCI of Sept. 24, 1975 states: "la commercialisation du mil, du sorgho...reste du domaine exclusif de l'OPVN..." and "Tout achat de ces céréales par les commerçants est interdit..."

[3] Sometimes even government officials are confused, as an experience at one prefecture illustrates during the team's visit, it was mentioned that a Sous-Prefect had arrested some private traders who had bought grain on their own account. The ensuing discussion between the Prefect, his secretary and another Sous-Prefect on whether these arrests were legal, documented clearly the general confusion on the matter.

in production.

The diagram on page 13 gives an overview of the present system.

OPVN is no longer allowed to buy directly from the farmers. The primary collection is presently performed by the cooperatives and by certain "approved" traders. The prefects have the power to determine which traders are allowed to buy in which markets. The traders have to pay the legal minimum price (25 CFA/kg) and sell everything they buy at this price, plus a commission of 4.50 CFA/kg (including the sack) to OPVN, delivered at the regional OPVN warehouse. However, the government's means to enforce either of these two rules are very limited. The law concerning the minimum price, in particular, is easily circumvented, because no trader buys cereals by weight, and demand and supply conditions determine the volume he buys for 25 CFA.[1]

The number of traders licensed per department varies widely. In the department of Tahoua for instance, there are 65 traders licensed to buy for OPVN, and according to the Prefect, they are all delivering considerable quantities. On the other hand, the Prefect of Dosso was only able to find 8 traders interested, despite the fact that Dosso's production in grains is about 4 times larger than Tahoua's. None of these eight traders has delivered any grains to OPVN yet. Apparently, traders use their OPVN license as a sort of insurance; if market prices drop below 29.50 CFA, they sell to OPVN at the guaranteed price, otherwise they sell privately at the higher market price. In the department of Dosso, the illegal border

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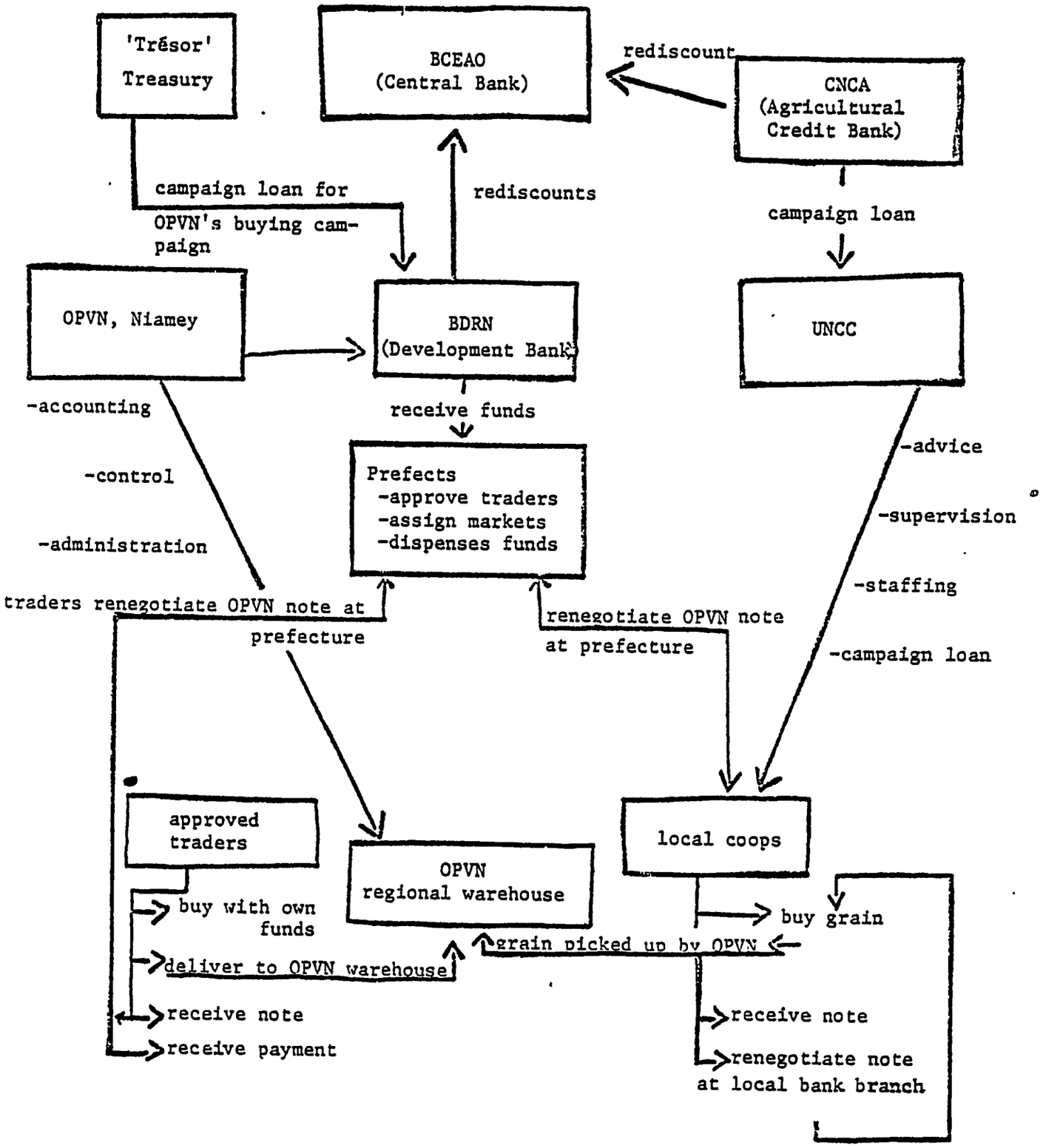
[1]The team saw only UNCC agents using scales. The impression was very strong, however, that the majority of farmers accepted the prices paid to them on faith. The concept of selling by weight is alien to them. They seemed to be more at ease with traders with whom they could bargain over price and quantity.

Organisation of OPVN - Buying Campaign (76/77)



See glossary for explanation of abbreviations.

trade with Benin or Nigeria is presently much more profitable.

Primary collection takes place almost exclusively on the rural markets on market day. In surplus regions, UNCC might accept daily deliveries of grains. Private traders may occasionally visit villages on days when there is no market in order to buy grain, or a "part-time trader," himself primarily a farmer, may offer not only his own production for sale on the local market, but also grain he collected from his neighbors. In general, however, many farmers attend weekly markets for a variety of reasons other than to sell their surplus grain. Selling their product by themselves directly does not, therefore, impose an additional cost on them.

The diagram (p. 13) shows clearly the important position held by the political administration (Prefects and Sous-Prefects). They not only approve traders and assign markets, but also handle all funds. This system, intended to reduce graft and corruption, has the disadvantage of slowing down the marketing process. UNCC officials especially complained about this organization. UNCC in Niamey has to take up a commercial loan from the CNCA at 6 1/2% as an intermediary for the individual cooperatives. Until last year, the more efficient cooperatives were able to repay most of this loan within a few weeks and use the receipts from their sales to OPVN to continue buying. Under the present system, they often have to wait several weeks until they receive payment which forces them to take up a larger loan and keep it for a longer period of time. This cuts directly into their commission of 1.50 CFA/kg.

OPVN's role can be compared to the one played by a wholesaler. It accepts the grains bought by the traders at its warehouses and collects grain from the cooperatives with its own trucks.

For its first campaign (1970/71), OPVN had only one 10-ton truck at its disposal. OPVN has, since then, built up a considerable fleet of trucks, almost exclusively with foreign assistance. It was commonly assumed, by technical assistance and OPVN people, that the least expensive solution was for OPVN to provide its own transportation capacity. Unfortunately, this assumption was never thoroughly tested and, even now, the absence of an analytical accounting system makes an evaluation of the OPVN's transport operation almost impossible.

However, an approximation of OPVN's transportation costs in 1974/75 (the last year for which data exists) can be arrived at as follows:

Total costs of the transport operation	589,736,436 CFA
deduct revenue from transport services to third parties	219,065,732 CFA
Net costs of transport for OPVN	370,670,704 CFA

Divided by the total quantity of foodstuffs bought that year (67,000 metric tons), this results in transport costs of approximately 5500 CFA/ton. This is more than twice the figure of 2200 CFA/ton which appears in the official "barèmes." It is also probably higher than transport prices which would have to be paid on the open market.

There are several facts which explain this apparently low level of efficiency. One is certainly the policy followed by some donor countries of favoring their own industries when donating equipment to Niger. This has led to the absurd situation that OPVN, at one point, owned between 30 and 40 trucks of 14 different makes, all donated by different sources and only a few of them really suitable for Sahelian conditions. This obviously makes reasonable maintenance, personnel training and spare parts acquisition almost impossible.

However, this excuse does not explain the cumbersome administration, lack of organization in the ranks or the absence of a sufficient work

discipline. Drivers and mechanics are not responsible for their trucks and, as is common in LDC's, drivers' helpers abound.

Furthermore, trucks are widely used for assignments other than hauling grain. Before Tabaski, the team saw OPVN trucks hauling firewood into the city of Niamey.[1] This was in the midst of harvest time, when one would expect all trucks to be used to their utmost capacity for evacuating the grain from the surplus regions.

The inefficient transport operation is one of the main reasons for OPVN's losses.[2] Another reason is the lack of flexibility of government regulations which impose uneconomical behavior on OPVN. The agency is required to sell grain in Agadez at the same price as in Niamey. Yet, transportation costs to Agadez are a multiple of the 2200 CFA/ton reported in the official "barèmes." The present overall margin does not appear to cover the average costs. In 1975/76, OPVN used the following calculation:

Commission to UNCC	1.10	CFA/kg
HOH Treatment (disinfectant)	.15	"
9 month storage	.10	"
Transport	2.00	"
Handling	.40	"
Management	2.00	"
Amortization of warehouses	2.00	"
Phostoxin treatment	.50	"
Total commercialization costs:	8.25	CFA/kg

[1] "Tabaski," the Moslem holiday, when every family is to slaughter and roast a sheep. The wood was to be used for the cooking.

[2] In 1974/75, these losses amounted officially to 17 million CFA, despite a considerable inflow of food aid which was partially sold by OPVN.

Some of these figures are rather unrealistic. Storage costs of .1 CFA/kg would barely cover a 1/2% p.a. opportunity cost on the invested capital (buying price of 25 CFA/kg plus commission of 1.10 CFA/kg). That the transportation costs are grossly underestimated has already been pointed out (see p. 16). Indeed, OPVN officials estimate that the true cost lies closer to 16.50 CFA/kg, double the amount above.[1]

OPVN's grain is sold directly from the warehouses. When, during the soudure, the demand for cheap OPVN grain exceeds the available supply, rationing systems are often necessary. The team was present in Niger during the harvest season, and the crop had been quite good. OPVN was, therefore, selling only rice, a commodity consumed almost exclusively by government officials and rich merchants. The sale and distribution of domestic and food aid millet and sorghum had been suspended.

Given the very adverse conditions under which OPVN had to operate during the past years, one must admit that it has fared rather well. The criticisms voiced in this paper should not be misunderstood as a denial of all the positive effects which were brought about by the agency. They should much rather help to pinpoint weak spots so that ways of improvement can be found.

The purely technical problems - high transportation costs, inefficiencies, etc. - do not touch the basic question of the role of OPVN and whether an organism like OPVN can at all fulfill this role. In the case of Niger, one of the fundamental problems lies in the fact that OPVN has too many

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[1] This fact is supported by information provided by SONARA. This agency calculates a markup of 16.28 to 17.99 CFA/kg before export. (See Appendix Table 18). It is hard to see which of the costs of SONARA would be lower for OPVN. OPVN has to pay a lower commission to its suppliers, but its transport costs must be higher because millet production is not as localized along good roads as peanut production is.

functions to fulfill, and these functions are sometimes contradictory. OPVN is supposed to do all of the following:

1) Supply the cities with foodstuffs.

2) Supply Agadez and other remote areas. (That this operation costs considerably more than the price OPVN is allowed to charge has already been pointed out.)

3) Pay the producers a higher price than they receive from traders.

4) Sell the grain to the consumers at a lower price than they would have to pay to the traders.

5) Purchase - for storage or immediate sale - all, or at least most, of the marketed grain.

These five objectives are not without problems. 3) and 4), for instance, stand in direct contradiction to each other. Barring direct subsidies, simultaneous fulfillment of both of these objectives is only possible if the present marketing span exceeds marketing cost considerably. This, in turn, implies that the present market is monopolistic. This claim is very hard to substantiate, as we shall see in Section II.

Also, point 5) could prove to be a formidable task. The production of grain is dispersed and it is simply impossible to send agents to every village market every market day, in order to buy grain. OPVN must, therefore, rely at least partially on private traders to do the primary collection. These traders receive a regional monopoly. They have the exclusive right to buy on certain markets. There is no way to prevent these traders from exploiting their monopoly positions. The result is that farmers probably receive lower prices than they would under a system where traders are allowed to compete against each other.

In a system where production is so widely dispersed, the bottleneck clearly is the primary collection. In the traditional system, described in the following section, it is mainly the small traders who assure this service.

The only way they can cover their costs is by trading several commodities simultaneously. They sell soap or oil-lamps and other consumer products on the village market, as well as buy grain. Thus, they avoid empty hauls and utilize their resources much more effectively. It is doubtful whether the small quantities of grain sold on most village markets would warrant a special trip. If the government tried to replace these small traders, its costs would almost certainly be considerably higher than the average marketing margins. That the policy-makers in Niger realize this fact is documented by the decision to turn over at least part of the primary collection to private traders.

These problems do not arise in the same way for cash crops. The production of cash crops is usually quite localized. A much smaller number of producers market a considerable volume as compared to food grain sales. This makes it worthwhile to form a specialized marketing agency to buy the entire marketed output. It is not surprising that the cooperatives of the UNCC are most successful in areas where cash crops are grown.

It is reasonable to utilize this existing structure whenever possible and, indeed, the cooperatives have been providing a large share of the cereals bought by OPVN (see Appendix Table 14). Assuring, primarily, the marketing of this grain would be a reasonable concentration of OPVN efforts.

2. Traditional Marketing Channels

Information on private trade is hard to come by. Private traders are, for understandable reasons, very reluctant to give out information about their illegal activities, and government officials deny any knowledge about private trade. Most of the following relies on a study conducted by

SEDES[1] in 1963, amended by information gathered by the study team. In the literature, there are also some studies to be found that were conducted for similar areas.[2] Some of their findings may be generalized to apply to Niger as well.

A predominant feature of a Sahel-type marketing system is its high degree of fragmentation. The number of participants in the market is very large. Very few traders seem to handle more than 1000 sacks of grain per year and grains are usually not their only commercial activity. The market is the central event in African village life. Farmers or their wives walk considerable distances in order to be able to attend a market, to sell their small surplus and to buy whatever they need. In addition, a market provides them with an opportunity to meet friends and relatives, to hear news and to socialize. Because a farmer's opportunity costs are low and because of these non-economic attractions, most peasants attend practically every market in their village or town.

In the early 1960s, SEDES[3] found that 75-80% of all the grain marketed was sold by producers on the periodic rural markets. The remainder was usually sold or traded in small quantities directly from producer to consumer or changed hands in the form of a kinship gift. These gifts are often a firm obligation. Rarely do farmers sell their grain directly off their farm to a trader or merchant.

Several agents can be distinguished according to their functions in the marketing chain:

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[1] SEDES, "Les Produits Vivriers au Niger, Production et Commercialisation, Paris, 1963.

[2] i.e., H.M. Hays, Jr., "The Marketing and Storage of Foodgrains in Northern Nigeria," Ahmadu Bello University, Zaria, Nigeria, 1975.

[3] SEDES, op.cit.

The assembler (or trader) visits the various village markets and buys grain in small quantities from producers. His capital base is narrow and cereals trading is almost always a seasonal, part-time occupation. He also sells consumer items, sugar and tea, on the village markets. He may be the one who advances money or consumption goods to the farmer during the "soudure" in exchange for cash crops and millet after the harvest. But this "troque" (barter) on an advance basis is rather rare.

Most traders to whom the team talked seemed to follow a more or less fixed circuit of several weekly markets. They may occasionally visit a few large producers on off-market days, in order to buy cereals from them, but the small quantities marketed by the average peasants would not appear to warrant such visits as a general practice. On the individual markets they may cooperate with an intermediary, called "Rabatteur," who functions as an interpreter if necessary, helps assemble bulk quantities, fills the sacks and sews them shut. These intermediaries are usually paid in kind (grain).

The local transporter may be the same individual as the local assembler. He transports the grain to the regional market,[1] usually by donkey or camel.

The assembler usually sells his grain on the weekly regional market to a wholesaler.

The wholesaler, who may be a transporter at the same time, owning one or a few trucks, usually handles grain only as a sideline business when he has extra funds or excess transportation capacity available. He

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[1]We describe a "regional market" as any major weekly or more frequent market which serves an area of several "cantons." In each "department," 3 or 4 major regional markets can be distinguished. They are usually in a "chef lieu" and almost always accessible by truck.

will rarely make a special trip for cereals.

The wholesalers whom the team had the opportunity to interview seemed very aware of profit opportunities. They explained that other products, particularly imported consumer goods such as oil lamps, soap, etc., were considerably more profitable. Some used bank credit on occasions and were familiar with payment methods by check. They received credit from their suppliers and usually extended credit to their customers.

Some wholesalers have agents, frequently members of their own family, stationed at different markets. These agents supply them with market information and transact business on their behalf. There seems to be no commonly accepted principle of reimbursing these agents, though a commission seems to be most frequently used. If the agent is a member of the family, he may get reimbursed for his expenses plus a lump sum "gift."

Although most of these merchants own or rent warehouses, they rarely store goods over long periods of time. They rarely buy without already having at least a possible customer for their goods. Their primary interest seems to be to turn over their capital as quickly as possible.

If a wholesaler owns no trucks, the trader has to rely on private transporters. The state owned SNTN (Société Nationale de Transport Nigerien) controls over 50 percent of the market. But it hauls almost exclusively mineral products, imported goods, petroleum and cash crops. The remainder of the market is shared by a large number of relatively small entrepreneurs. Frequently, they own only one truck and operate it themselves. They are the ones who provide the necessary links to all the regional markets.

There is no established rate structure for transporters in Niger. The price of transportation is independently determined for each load and depends solely on the supply and demand condition. Many transporters practice

"tramping." They do not follow predetermined routes and are not based in a particular location. Instead, they will go wherever they perceive a profit possibility.

The retailer rents a stall in a daily city market. He buys in bulk quantities from the wholesaler and may occasionally make a trip to the surrounding villages in order to supply himself with cereals. He usually specializes in cereals. His capital base is narrow and his storage capacity is limited to the size of his stall.

Retailers on urban markets have to compete against market women and farmers from the surrounding areas who choose to directly retail their grain. These markets participants occupy no stalls and can be found in the informal section of the market, where they pay no market fee. Their entire stock usually consists of one sack of grain or less.

The team was told by some traders that the turnover among retailers was high, and that few stay in business for more than five years. Unfortunately, we could find no hard evidence supporting that claim. But if it should be true, it would indicate that there are no exceptional profits being made in retailing cereals.

Hays makes the observation that the share of the final consumer price going to the numerous marketing agents in Nigeria rarely exceeds 35 percent. His findings of a total markup of approximately 53 percent over the producer price has to be compared to OPVN's costs, which amount to over 65 percent of the buying price. However, it must be kept in mind that the 53 percent in Nigeria's case is based on a higher producer price.

No specific cost information is available for the private trade in Niger. The absence of distinguishable producer and consumer market prices make the estimation of the overall marketing spans impossible.

OPVN's cost structure is probably not representative and there exist no studies of the private sector which would clarify this question.

A large number of participants in the market are only temporarily engaged in cereals trading. A passing traveler or truck-driver will often buy a few sacks of grain to sell at his destination if he sees an opportunity and has the capability to transport them. Since the opportunity costs of such part-time traders are usually very low, they are content with a small markup, which tends to lower the overall marketing margin. The presence of so many of these "opportunity traders" is strong evidence that entry into the market is essentially free.

These typical features of Niger's cereals market- the large number of temporary dealers and the absence of large-scale enterprises specialized in trading with cereals- evoke an impression of apparent confusion and lack of organization. It would be premature, however, to draw the conclusion that these features necessarily imply that the traditional system is inefficient. It is very difficult to understand and evaluate such a market structure, but inability to measure its efficiency must not imply that it is inefficient.

The team found no evidence of collusion among traders or any other form of monopolization of the markets. To the contrary, most of the information collected indicated that the market operated relatively freely. The fact that most traders seemed much more interested in other products can be taken as an indication that speculating in cereals is not as profitable as commonly believed. None of the people interviewed - farmers, traders or government officials - could cite any restrictions to free entry into the market, except for government regulations. The necessary capital investment is small, so that practically anyone can break into the cereals market. It is difficult to perceive how, under

such conditions, excessive profits could persist over long periods of time.

These findings are consistent with results from studies in other areas.[1] Also the SEDES Study[2] in 1963 found no evidence of profits in excess over costs in cereals marketing. Nevertheless, most studies supporting intervention into the cereals market[3] claim that producers and consumers are exploited by traders; this allegation is used as their main argument in support of intervention. They base their conclusion on casual observation of price fluctuations, which seem to imply large profit possibilities. This evidence is rather weak, however, especially when we take into consideration the following points:

1. The price fluctuations are not as large as generally believed. Only on rare occasions, twice in all eleven years for which data could be found, do prices double on a given market over a one year period. (See section on price policy). In addition, they are rather unpredictable. In some years, the prices even decline from harvest time to "soudure."
2. Marketing costs are probably much higher than was assumed in the Checchi, Kansas State and A.I.D. reports. Also, the fact that private traders prefer to invest in other commodities (i.e. imported consumer goods) seems to indicate that the opportunity cost of

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[1] H.M. Hays, op.cit.
W.O. Jones, Marketing Staple Food Crops in Tropical Africa. Ithaca: Cornell University Press, 1972

[2] SEDES, op.cit.

[3] Checchi and Company, Food Grain Production and Marketing in West Africa, Washington, March 1970.
Kansas State University, Regional Grain Stabilization in West Africa, December 1970.
AID memos and project proposals.

trading capital is higher than the return that can commonly be earned in cereals marketing. OPVN's experience, though probably not representative for the marketing sector as a whole, shows clearly that marketing-cost estimates of 8 CFA/kg or less are unrealistic. (See above, p. 16 and 17.)

3. It is inconsistent with the otherwise highly rational behavior of the peasant to assume that he would sell his entire marketable surplus immediately after the harvest. He has the possibility of storing it at very low cost, and he does indeed do so. (See section on storage).
4. Most farmers have other sources of cash income which they use before selling grain. The team talked to farmers in Kao (Dept. Tahoua) and Bonkoukou (Dept. Niamey) who had gone as far as Abidjan, Ivory Coast; Lagos, Nigeria and Libya to work during the off-season (January through September). Their families plant the fields and they return in time for the harvest. They also sell the cash crops and small ruminants before they consider selling part of their grain reserves.
5. The increase in consumer prices over the past years was primarily due to a genuine shortage of food grains and not due to exploitive behavior by traders. Prices rose on all markets, urban and rural, and if anyone profited from this increase at all, it was primarily the producers.

3. Summary

For the traditional system, these features seem to stand out:

- The <u>primary collection</u> takes place on the rural markets. It does not appear that the assemblers/traders regularly visit

peasants on the farms. None of the farmers ever recalled having been visited by a trader. The small additional profit that could be made on the minute volume of cereals marketed by an individual farmer would probably not warrant such marketing practices.

- Transport does not seem to be formally organized in any way. Most grain dealers haul their produce by loading it on general purpose trucks which pick up business according to opportunity.
- Large grain dealers are often transporters at the same time. However, grains are only a sideline business for them. They do not like to tie up more than a fraction of their funds in the cereals trade, which they consider too risky. This can be taken as an indication that profits in this business are not quite as exorbitant as is generally believed.
- Only large general traders (not specialized in cereals) use formal banking credit and payment-by-check methods. A considerable number of traders, however, stand in an agent-like relationship to their suppliers or customers and operate on advances. The third major source of credit is relatives.
- Only a few merchants have enough funds to be able to carry speculative stocks. Most traders seem to be primarily interested in turning over their capital as quickly as possible, meaning that they try to sell as soon as possible in order to regain their funds and transact more business. In an economy where bank credit is difficult to obtain, it would be unwise for a businessperson to tie up large sums in stocks unless these stocks can be expected to appreciate considerably. That this is not always the case with grain is shown in Part II.

- Most of the inter- and intra-annual storage appears to take place on the farm. Farmers are quite aware of price fluctuations. In the village of Kao, Department of Tahoua, the team could observe how farmers, who had had a production shortage, carefully stored their entire harvest for consumption during the "soudure." They would try to hold out as long as possible by selling their labor and buying grain as long as prices remained relatively low.

The official marketing system changes only a few of these aspects slightly.

- There is no reason to believe that "approved traders," buying for OPVN, follow different buying practices than their "illegal" counterparts.
- UNCC buys in larger surplus areas daily at its warehouse (usually a building rented for the post-harvest period) and on all the markets where it has the buying monopoly on market days. They buy from any farmer, not only from members of the cooperative.[1] In some instances, UNCC also buys in areas where there are no cooperatives. For instance, in the Arrondissement of Ouallam, the Prefect could find only one trader willing to buy for OPVN. He therefore requested that the UNCC buy on certain markets, even though they were not represented there before. The team was told, though that this is an exception.
- UNCC officials are the only ones who buy by weight.

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[1]This is a slightly confusing statement since, according to UNCC statutes, all the farmers of an area where the UNCC is represented are automatically members of the cooperative. The term "non-members" can only apply to people who live outside of the cooperative area, but nevertheless use the same market.

- UNCC finances its campaign by means of a 6 1/2% commercial loan from the CNCA. But the funds reach the individual cooperative through the Prefects, a procedure described by UNCC officials as too slow and therefore too costly. The commission of 1500 CFA/ton covers all direct costs of the buying operation. However, the costs of the central administration in Niamey are covered by the government budget.
- Transport is provided by OPVN trucks, which pick up the grain from the local cooperatives and haul it to the regional OPVN warehouses.

D. The Decision Making Process

Even though OPVN is the executing agency of cereals marketing policy, its input in the decision-making process is rather limited. Policy decisions, and these include the fixing of buying and sales prices, are made in the Ministry of Economic Affairs. Once a year (in 1976, on January 15), the National Committee for Cereals meets under the presidency of the Minister of Economic Affairs.[1]

It is unclear how much influence the CNC (Comité National des Céréales) actually has. It appears that the Minister of Economic Affairs has final veto power over all its decisions. This reduces the CNC to an advisory body at best. From the minutes of the meetings, it also appears that primarily technical matters are discussed, i.e.

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[1]The committee consists of: Minister of Economic Affairs (President), Undersecretary of State for Rural Economy (Vice-President), Secretary-General of the Ministry of Planning (Secretary), Sec. General of the Min. of Economic Affairs, Director of Agriculture, Chief of the Service for Human Advancement, Director of Political Affairs (Min. of Interior), Sec. General of the UNTN and Directors of OPVN, Transport, UNCC, CNCA, BDRN and "Le Riz du Niger," a public enterprise operating the rice mills. The director of "Riz du Niger" is also the director of UNCC.

which agency should fill which role in the marketing process. The agenda for the meeting of 1976 had only two items: the results of the past crop season and preparations for the new "campaign." Under the latter, there were only three headings: material requirements, personnel requirements and financial requirements.

There is no indication that, in reviewing the results of the preceding "campaign" (1975/76), there was any discussion of policy issues. Millet and sorghum production for that year had been estimated at 994,000 tons. After an allowance of 15% for seed and other losses, this yields a net production of approximately 845,000 tons. Since this was a deficit year, it is safe to assume that only about 10% of net production was marketed, resulting in a marketed surplus of around 85,000 tons, of which OPVN, despite its legal monopoly, was able to buy only about one-fourth. This fact should indicate that there are considerable problems with the cereals policy that is being followed. Unfortunately, discussion of these matters does not seem to be carried on in the CNC.

E. Storage

1. Traditional System

In the traditional system, cereals are typically stored on the farm. Granaries are constructed out of mud (by the Haussas) and straw (by the Djermas). They are above ground, on stilts to prevent rodent attacks and to allow for proper ventilation. The grain is bundled and kept unthreshed until it is used. This allows the air to circulate. Ashes smeared over the insides of the granary act as an insecticide.

Opinion as to the efficacy of this type of storage is not unanimous. Some experts assert that this technique, which has been developed over hundreds of years, is optimal given the particular climatic conditions of the Sahel; others claim that losses are as high as 20 per cent during the first year. The study team had the chance to inspect some granaries that contained millet and sorghum from the harvest of 1975. Even though this grain was over 12 months old, the team found it to be in good condition, dry and free of insects. It certainly seemed to be in better condition than the year-old grain seen in OPVN warehouses. Probably, storage losses during the first year in traditional granaries are not as high as is generally believed. But the granaries deteriorate fast during the rainy season, and it is doubtful whether they can keep grains dry for longer than one to two years.

2. OPVN Storage

Storage in warehouses is done by OPVN and probably by a few traders. The OPVN warehouses are usually banco or cement structures with a tin roof. The newer ones are equipped with sufficient window openings to allow ventilation and have cement floors. The grain is stacked in sacks. All these warehouses have constant problems with insect attacks, and no suitable insecticide is presently being used. Phostoxin fumigation has proven to be difficult to apply because the warehouses cannot be made airtight and tarpaulins are in short supply and not very effective. Furthermore, some storage experts claim that phostoxin is being used incorrectly.

The total capacity of OPVN warehouses stood at the level of 34,500 T in August 1976. But several projects are under way (sponsored by Germany, Sudan, U.K.) and this capacity is expected to more than double within the next year or two.

Some of this capacity will consist of airtight Nylon, Trevira or Butyl silos for inter-annual storage of up to five years. Apparently, the manufacturer of the Trevira silos guarantees the product for that time period. But not enough experience has been gathered with this type of storage in sub-saharan conditions to allow a valid judgment.

3. Emergency Storage

Besides, and in addition to, storage required for price stabilization, so-called emergency storage has taken an increasingly prominent place in policy discussions in Niger. A study conducted by the Entente Fund in 1975[1] defines emergency stock ("stock de réserve") as follows:

> "On le conçoit comme un stock national minimum tenu par l'Etat à tout moment, pour rallier aux imprévus. Ce stock est supplementaire aux besoins normaux utilisés pour la stabilisation du marché (stock regulateur)."

The main problem lies in the determination of the appropriate size of such an emergency stock. The natural desire for guaranteed food security, for certain protection against the threat of famine, must be balanced against cost considerations.

Storage costs are considerable. The Entente Fund study estimates them to be 6,500 CFA/ton per year, 2,600 CFA/ton per year if amortization and interest are excluded (storage in underground silos). A more recent World Bank study[2] estimates the annual handling and maintenance costs of conventional silo or warehouse storage to be 4,150 CFA/ton (3,150 CFA/ton if amortization is excluded). Over five years, the cost of storing one ton of

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[1] Entente Fund, Etude relative à la constitution d'un stock de réserve en Céréales pour le Niger," 1975.

[2] International Bank for Reconstruction and Development, 1975

grain would thus amount to 20,750 CFA/ton (15,750 CFA/ton without amortization). Added to the current initial cost of placing grain in storage (35,000 CFA/ton), this results in a total cost of 55,750 CFA ($223) per ton (50,750 CFA, $203 per ton respectively). This is more than twice the projected[1] world market price (FOB US). The critical issue in this equation is overland transportation costs, which could be very expensive, especially in a food deficit crisis. Even allowing a generous markup for transportation costs, the alternative of importing grain in a case of emergency could still be the more economic alternative.

These kinds of considerations incline many economic analysts to recommend relatively small emergency stocks.[2] One World Bank study, for example, proposes an emergency stock of only 20,000 tons. This is intended as a first line defense against a disaster. It should allow the feeding of the stricken population for approximately one month, allowing enough time to organize imports in a reasonable way.

During the team's visit to Niger, an aid project of the Federal Republic of Germany was under consideration by the government of Niger, which called for an emergency stock of 40,000 tons, in multi-year storage facilities. Germany would also provide technical assistance to OPVN, which would manage the stock. Earlier proposals for under-ground silos[3] seem to have been discarded.

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[1]International Bank for Reconstruction and Development, 1976.

[2]They also recommend improvements in transport, transport planning and warehouse location so as to facilitate movements of overseas grain to vulnerable regions.

[3]Entente Fund Study, op.cit.

The rotation of such an emergency stock would have to be done simultaneously with OPVN's stabilization activities. The coordination between storage policies and price-and-marketing policies becomes very important, and ultimately all these policies must be brought into line with an overall development strategy. If a country's development potential lies in its agriculture, as is the case for Niger, storage-, marketing- and price policy for the benefit of consumers must be used cautiously to avoid damaging the development potential.

II. MARKETING POLICY

A. Introduction

The primary goals of cereals marketing policy are to assure an efficient distribution of foodstuffs, improve the equalization of supplies and demands between surplus and deficit regions and, especially in the case of Niger, to stimulate production by guaranteeing the farmer an outlet for his product. If other goals are taken into account, such as equity, social justice or inducing shifts from the production of one agricultural commodity towards an increased production of the other, we are talking rather about income and price policies. Marketing policy can be used, however, to implement these two policies. It is then to be considered a tool of income or price policy.

Marketing policy in Niger during the past 10 years has been ill-defined. It has been marred by the inefficiencies, the pursuit of contradictory objectives and uncertainties described in the preceding chapter. Furthermore, government failure to take account of the special characteristics of the traditional cereals market has often led to unrealistic policy decisions. Even now, policy-makers continue to base their decisions on assumptions about reality which are unproven. The standard assumptions are:

(a) The traditional marketing system has inefficiencies which benefit middlemen to the detriment of producers and consumers.

(b) The existing inefficiencies are related to the spatial inequities in the market (the fact that surplus and deficit areas exist).

(c) The government must intervene by buying and selling grain itself.

(d) The government agency can intervene in the market by buying from the farmer at a higher price than he would receive from traders and selling to the consumer at a lower price than he would have to pay on the open market without making a loss because the margins of the private traders are in excess of the costs.

(e) The personnel to operate such an agency is either available or can be made available through training in a relatively short time at very low costs.

The government of Niger is certainly aware of the existence of the private trading sector but, so far, marketing policies have aimed at combatting it, instead of integrating it into a comprehensive marketing policy. Letting private traders do part of the primary collection (as licensed agents) cannot be regarded as an effective integration into the marketing system, because their role is simply one of being agents of the official monopoly. One reason for this inability to make use of the positive aspects of the private system is lack of knowledge about and acknowledgement of the private sector.

Therefore, the first step toward a more rational marketing policy for Niger would be recognition of the private sector and of the services it performs. Many of these services, such as transferring grain from the surplus regions to the deficit regions or, to some degree, storing grain during the year for consumption later, are very crucial and beneficial to society. If the government wants to fight the excesses of private profiteers, it should not have to prohibit the beneficial behavior at the same time.

So far, very little research has been conducted into the activities of the private sector. This lack of knowledge has been replaced by a set of assumptions, which, as has been already pointed out several times, are not easily substantiated by the available evidence. Obviously, a short visit, such as we were able to make in Niger, does not allow a thorough exploration of this subject. The team has, nevertheless, tried to collect as much information as possible and has subjected the data to some analysis. The following section deals with this analysis. In addition, as much qualitative information as possible was gathered through numerous interviews and discussions with officials, traders and farmers in Niger. This type of information has been and will be referred to throughout this paper.

B. Analysis of the Price Data

1. The Type of Price Data Available

Lack of reliable data has become a common complaint for all researchers operating in less developed countries. But quite frequently, this has been exaggerated. Claiming that it isn't reliable, researchers frequently refuse to take certain data into account. This convenient twist of logic makes it possible to consider only the facts which happen to coincide with one's beliefs. Any desired conclusion can be reached if this form of argument is permitted.

Past investigation of the cereals marketing system in Niger is no exception to this practice. All studies mention the scarcity and unreliability of the available price data and then proceed to ignore it. Instead, assumptions, based on commonly-held beliefs and prejudices, are used to justify policies of considerable importance. The assertion that cereal prices on a given market increase fourfold between the harvest season and the "soudure" is a typical case in point.

It is true that marketing data in Niger is of rather poor quality. But, it is not true that it is inexistent altogether, and ignoring it certainly cannot be justified. The team has been able to find series of monthly prices for several markets in Niger. Unfortunately, these series usually extend over one year only and contain frequent gaps. However, the number of observations is sufficient to allow the calculation of some crude measures of market efficiency and the effectiveness of government policy. The major drawback is that the resulting confidence intervals are rather large due to the small number of observations.

For the city of Niamey, there exists an almost complete set of consumer

price statistics since the early 1960s. This information is collected by the Statistical Service. Price information for markets outside of the capital is reported monthly by the agents of the Department of Agriculture. The raw data is kept in the Departmental Prefects' offices and only maxima and minima are passed on to the Ministry of Agriculture for publication in their annual report. Through visits to the departmental offices in Niamey, Dosso and Tahoua and through correspondence with Zinder, some of this raw data was recovered. It is published in the Appendix Tables 10A-C.

There is no reason to believe that this data contains any systematic biases. It is very inaccurate, but one can safely assume that these inaccuracies are random. Therefore, they do not materially influence the conclusions. At worst, some of the tests will be inconclusive.

The present store of data is insufficient to allow definitive conclusions regarding the marketing system for cereals in Niger. More complete and longer price series, preferably on a weekly basis, are needed not only for Niamey, but also for a representative number of rural markets. It is necessary to obtain estimates regarding the quantities offered on a given market, and how much is traded effectively at the given price. Presently available price series do not distinguish between different qualities of the same product. This problem must also be confronted.

The present data is sufficient, however, to allow the examination of some generally believed assertions. In other words, it is possible to find out whether the data actually supports them. If it does not, this is by no means a proof of their falseness. It would be a very strong indication that an assertion is probably untrue and should be re-examined. The only way in which this re-examination can take place is by gathering more information and conducting additional research.

2. Tests of Efficiency of the Market

This section attempts to investigate whether the marketing system for cereals in Niger fulfills two of its main functions, spatial and temporal arbitrage. How well the marketing system transmits price signals from one market to another is generally believed to be a prime measure of the efficiency of markets. If the cereals market were monopolistic and the traders actually held such a strong market power, as is generally believed, one would have no reason to expect any efficient arbitrage at all. The merchants would have no reason to pass on to producers the benefits of higher prices in the capital city. Price rises in Niamey would not be paralleled by price increases in the rural markets and price declines in the rural markets would not lead to price declines in Niamey. A similar point could be made if it could be shown that the average price increase over the course of one year exceeds the average storage costs.

a. Spatial Integration of Markets

This question is best investigated by means of so-called "correlation analysis." Each market is correlated against every other market by simple least squares method. Of interest is only R^2, the coefficient of correlation. The closer this coefficient is to unity, the more perfectly integrated are the two markets.

Obviously, this analysis could only be conducted for years in which data for more than one market is available. It would have been interesting to compare the degree of market integration before and after OPVN's intervention. But, unfortunately, the available data permitted such calculations only for the years 1971, 1973 and 1975. However, OPVN bought insignificant amounts of

cereals in 1970/71 (4,600 tons) and 1972/73 (7,000 tons) so that the results can be taken as fairly representative of the effectiveness of the private sector.

The coefficients of correlation are listed in the following tables (1971, Table I; 1973, Table II).

Table I. Coefficients of Correlations (r) of Millet Prices Between Markets in Niger (1971)

Significance 5%=.5760 (See Table II 1%=.7079 for explanation)

MARKET							
Niamey (City)	1.0000						
Konni	.7005	1.0000					
Galmi	.5739	.9295	1.0000				
Guidan-Ider	.5660	.7656	.7182	1.0000			
Bouza	.4624	.5399	.4489	.6510	1.0000		
Keita	.3547	.3275	.2260	.5870	.7481	1.0000	
Tamaske	.6326	.5097	.4821	.6389	.2900	.4607	1.0000
	Niamey (City)	Konni	Galmi	Guidan-Ider	Bouza	Keita	Tamaske

The results are not very impressive, particularly for 1971. Several reasons can account for this:

i. The markets which show a low correlation with the remaining markets are all isolated and not accessible by heavy trucks. (Bouza, Keita, Tamaske).

ii. The harvest of 1970 was deficient and only about 2,000 tons of food aid arrived in Niger during 1971. The harvest of 1972 was somewhat better.

iii. The transportation infrastructure must have improved from 1971 to 1973, so one would expect higher correlations for 1973.

iv. When only 12 observations are available, correlations will necessarily be low. Table III, showing the correlations over both years (for the

TABLE II.

Coefficients of Correlations (r) of Millet Prices Between Markets in Niger (1973)

Coefficients de Corrélations (r) des Prix du Mil Entre Marchés au Niger (1973)

level of significance* 5%=.5760
1%=.7079

MARKET-MARCHE	Niamey (City)	Niamey	Tera	Filingue	Tillabery	S.M.A. Kolo	Ouallam	Say	Konni	Galmi	Guidan Ider	Madoua	Takora	Tahoua
Niamey (City)	1.0000													
Niamey	.6307	1.0000												
Tera	.5658	.8549	1.0000											
Filingue	.7496	.8301	.8115	1.0000										
Tillabery	.7372	.8122	.8540	.7812	1.0000									
S.M.A. Kolo	.6528	.8771	.8495	.8112	.8101	1.0000								
Ouallam	.6536	.8014	.8349	.7549	.9356	.7707	1.0000							
Say	.6507	.8038	.8106	.6819	.8750	.7888	.8146	1.0000						
Konni	.7051	.7332	.9159	.7806	.9318	.7898	.8369	.8103	1.0000					
Galmi	.7398	.6891	.8706	.8252	.8320	.7917	.7123	.7063	.9554	1.0000				
Guidan Ider	.7801	.7217	.8799	.8283	.8867	.8111	.8290	.7448	.9672	.9578	1.0000			
Madoua	.6696	.7179	.7701	.6621	.8861	.7114	.9549	.7820	.7945	.6409	.8087	1.0000		
Takora	.7234	.8392	.9457	.8310	.9285	.8693	.8329	.9000	.9594	.9218	.9130	.7744	1.0000	
Tahoua	.7080	.7685	.8068	.8971	.8117	.7253	.8199	.5972	.7947	.8055	.8103	.7055	.8085	1.0000

*The level of significance shows the probability of a correlation occurring by pure chance. In this case, if a correlation coefficient is .5760 or larger, there is less than a 5% chance of the correlation of prices between two markets being accidental.

An r of .7 implies that 49% of the price variations in one market can be attributed to variations in the other market (coefficient of determination, $R^2 = .49$).

markets for which sufficient data was available) verifies that this was the major reason for low correlations. The correlation for 1971 and 1973 was in all six cases higher than for either 1971 or 1973 alone.

Table III. Coefficients of Correlations (r) of Millet Prices Between Markets in Niger (1971/1973)

significance 5%=.4044
1%=.5151

MARKET				
Niamey (City)	1.0000			
Konni	.9351	1.0000		
Galmi	.9290	.9865	1.0000	
Guidan-Ider	.9502	.9879	.9830	1.0000
	Niamey (City)	Konni	Galmi	Guidan-Ider

Table III is in many ways the most representative concerning the efficiency of the private sector. It is based not only on a larger number of observations, but also based on two years when OPVN activities were at a low level. Furthermore, the four markets are linked with a relatively good road, so transportation possibilities to take advantage of price differentials are available.

Of the six correlations, three show a correlation coefficient in excess of .98, and only two are lower than .95. Even the lowest coefficient (.929 between Galmi and the city of Niamey) still indicates that over 86% of the price variation in one market can be explained by variations in the other market. These results suggest a very high degree of market integration. They compare favorably with the results obtained for India by Uma Lele.[1] They in no way support the notion of a monopolized and inefficient market.

[1] Uma J. Lele, Food Grain Marketing in India: Private Performance and Public Policy. Cornell University Press, 1971.

TABLE IV.

Coefficients of Correlations (r) of Millet Prices Between Markets in Niger (1975)

Coefficients de Corrélation (r) des Prix du Mil Entre Marchés au Niger (1975)

level of significance 5%=.5760
1%=.7079

MARKET-MARCHE	Niamey (City)	Tillabery	Konni	Guidan-Ider	Keita	Tamaske	Doutchi	Bellande	Gaya	Illela	Mirriah	Guidimouni	Takieta	Magaria	Matameye	Kantche
Niamey (City)	1.0000															
Tillabery	.4834	1.0000														
Konni	.0809	.2994	1.0000													
Guidan-Ider	.0538	.4408	.8511	1.0000												
Keita	-.2708	-.0082	.6387	.4443	1.0000											
Tamaske	-.3908	-.0393	.6439	.5477	.9010	1.0000										
Doutchi	.0477	-.1099	-.0502	-.1425	-.3321	-.4593	1.0000									
Bellande	.2998	.3263	-.0991	-.2980	-.2724	-.2634	-.1531	1.0000								
Gaya	-.1087	.3887	.7882	.8989	.5954	.6939	-.3412	-.3445	1.0000							
Illela	-.0139	.4225	.5579	.4854	.3918	.4381	-.0041	.3306	.3919	1.0000						
Mirriah	.0694	.1730	.2432	.0894	.2900	.2624	.1883	.2905	-.0797	.6873	1.0000					
Guidimouni	-.2164	.4286	.4723	.6177	.4197	.6200	-.1390	-.0885	.5538	.7090	.5769	1.0000				
Takieta	-.2912	.0464	.4115	.3805	.3566	.5118	.2402	-.0366	.2377	.6139	.7531	.7843	1.0000			
Magaria	-.3381	-2159	.3986	.3443	.4254	.5806	.1908	-.2154	.2412	.5983	.7056	.6964	.8990	1.0000		
Matamete	.3097	.4213	.6456	.6420	.0905	.1625	.3036	.0366	.4584	.4412	.4594	.4631	.5863	.4484	1.0000	
Kantche	.3132	.5359	.5818	.5597	.0794	.0799	.4419	.0417	.4256	.4942	.4634	.4507	.5333	.3829	.9438	1.0000

The results for 1975 are devastating to say the least. For only a few very obvious exceptions (i.e. Konni and Guidan Ider, which are less than 30 km apart and connected by a black top road) is the correlation between cereals prices even significant. The markets are very poorly integrated in this year which coincides with the year of larger OPVN activity. The team could not find any obvious reasons which would explain why the results for 1975 are so poor. (See Table IV).

Another possible way of investigating the spatial efficiency of the marketing system is by looking at the differences in prices between different markets. Table V gives an overview of the results of this method.

Table V. Niger - Price Differences and Distances Between the City of Niamey and Various Other Markets (CFA/100 kg)

	1971		1973		1975		DISTANCE IN KM	
	MEAN	STD.DEV.	MEAN	STD.DEV.	MEAN	STD.DEV.	BLACKTOP OR LATERITE	DIRT ROAD
Tillabery	-	-	715.33	976.85	104.17	430.07	110	
Madoua			1,056.70	836.71	-	-	512	
Illela	-	-	-	-	462.50	833.70	482	+ 43
Mirriah	-	-	-	-	741.67	1,047.50	909	+ 14
Magaria	-	-	-	-	1,466.70	921.79	909	+ 95
Konni	883.33	271.64	991.67	624.08	264.67	631.41	422	
Galmi	566.67	312.13	883.33	594.04	-	-	472	
Guidan Ider	916.67	313.58	1,020.8	502.93	400.00	800.28	422	+ 14

This table reveals some interesting patterns. The difference in prices (for the markets for which data was available) was, without exception, lowest in 1975. This was the same year in which OPVN bought a considerable stock locally (47,300 tons) and sold over 72,000 tons of cereals, presumably mostly

in urban centers. This must have depressed prices in Niamey. Food aid arriving in Niamey must have reinforced this effect. OPVN seems, therefore, to have succeeded in reducing the price differences between different markets.

The variance of this price difference, however, has increased dramatically. This is primarily due to considerable price increases in the rural areas towards the end of the year when it became apparent that the following harvest (1975) would be very deficient.

These differences are of interest only when they can be seen in relation to transfer costs. Unfortunately, there is almost no information available regarding trucking costs, wages to be paid for loading and unloading or any other costs involved in transferring cereals from one market to another. Reasonable assumptions have to be made, therefore. As an approximation, the following figures are used:

Labor (loading and unloading)	400 - 600 CFA/ton
Bags (reused four times)	60 CFA/ton
Truck rental (blacktop or laterite roads)	20 CFA/ton/km
Truck rental (on dirt roads)	50 CFA/ton/km

Based on these figures a "break even" line is drawn in the following graphs (Table VI). If the price difference exceeds this limit (the scatter plot moves to the right of this line), it would be profitable to conduct an arbitrage operation between the two markets, by buying on the rural market and selling in Niamey. In other words, in this case the profit margins would exceed the costs.

The results of this test are not very conclusive. Quite frequently, the price differences exceed the transfer costs. This can be due to several reasons. First, our crude estimates of transfer costs is inappropriate. It

TABLE ~~IV~~ VI

Plots of Price Differences

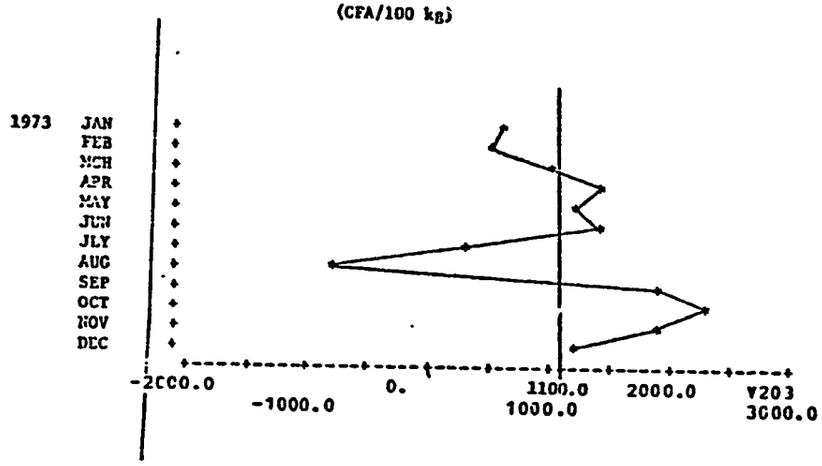
Graphiques des Différences de Prix

VI-A

Difference in Millet Prices Between Niamey and Madoua

Différence de Prix du Mil Entre Niamey et Madoua

(CFA/100 kg)

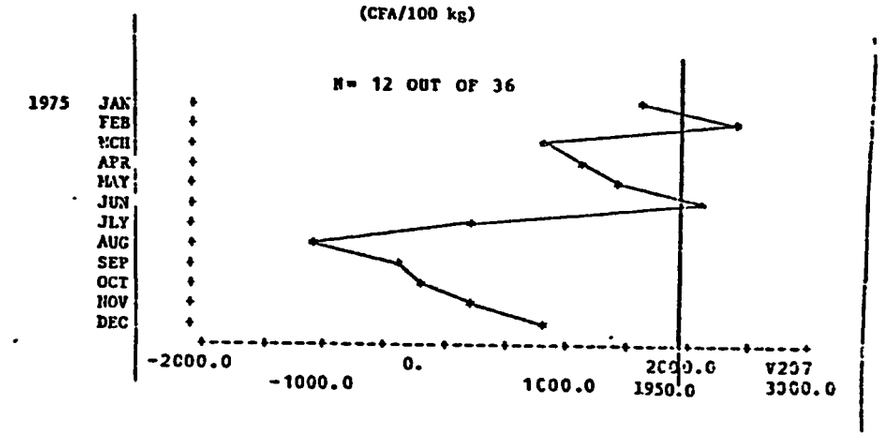


VI-B

Difference in Millet Prices Between Niamey and Mirriah

Différence de Prix du Mil Entre Niamey et Mirriah

(CFA/100 kg)

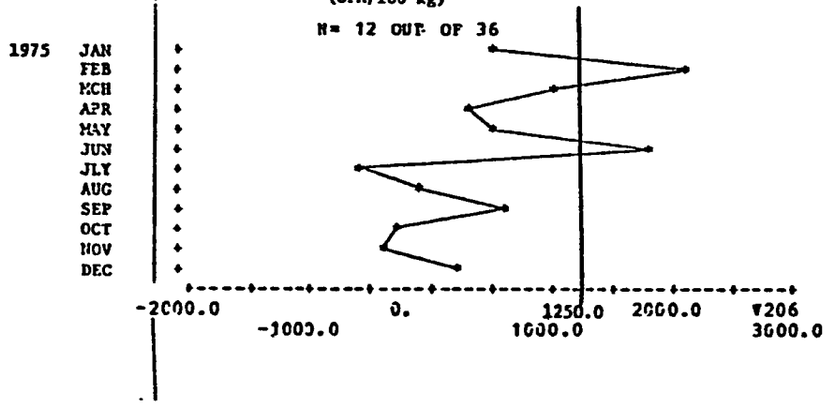


VI-C

Difference in Millet Prices Between Niamey and Illela

Différence de Prix du Mil Entre Niamey et Illela

(CFA/100 kg)



VI-D

Difference in Millet Prices Between Niamey and Magaria

Différence de Prix du Mil Entre Niamey et Magaria

(CFA/100 kg)

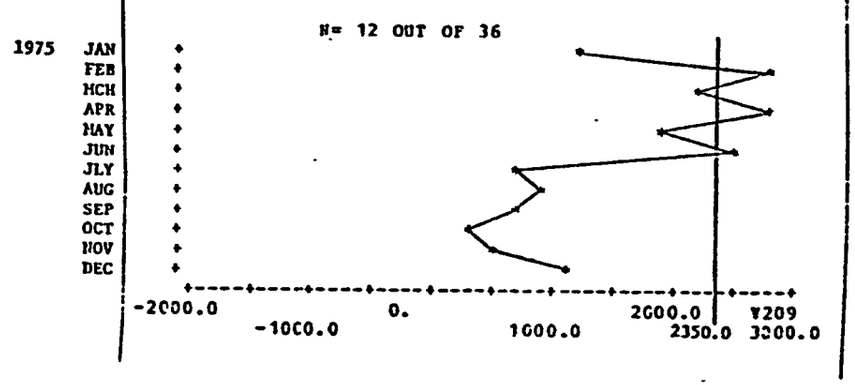


TABLE VI. (Continued, Suite)

Plots of Price Differences

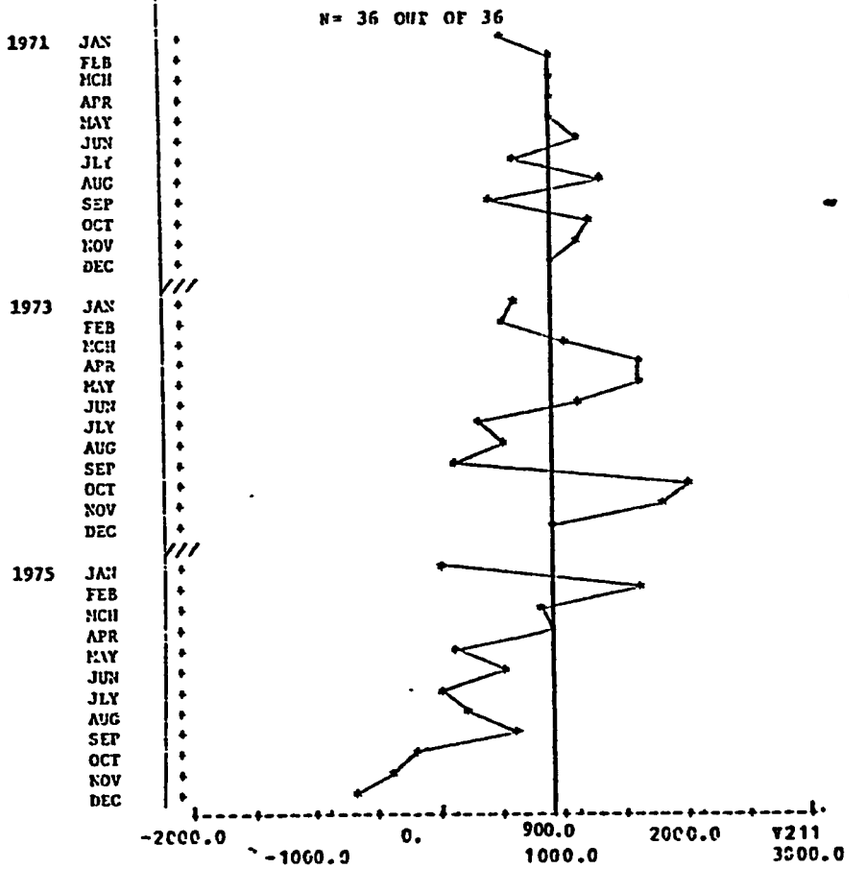
Graphiques des Différences de Prix

VI-E

Difference in Millet Prices Between Niamey and Konni

Différence de Prix du Mil Entre Niamey et Konni

(CFA/100 kg)



VI-F

Difference in Millet Prices Between Niamey and Tillaberry

Différence de Prix du Mil Entre Niamey et Tillaberry

(CFA/100 kg)

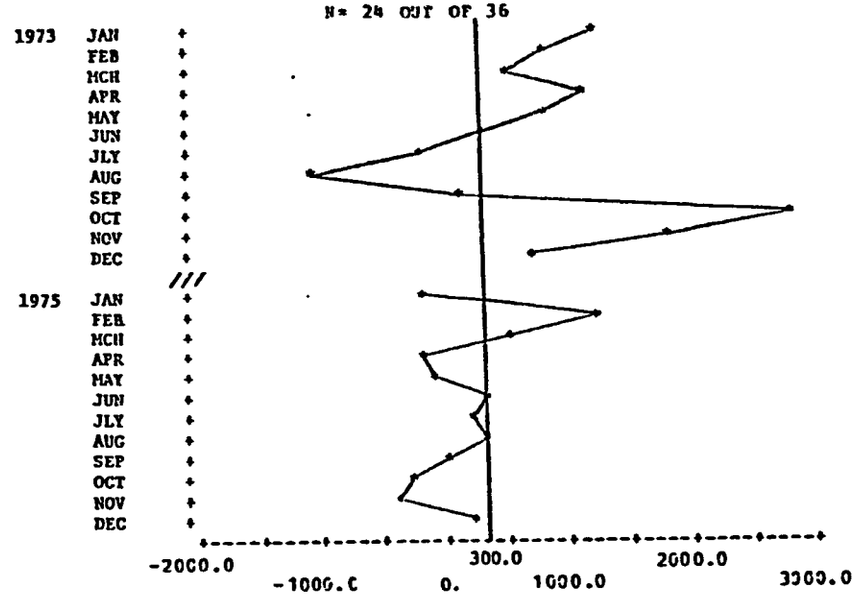


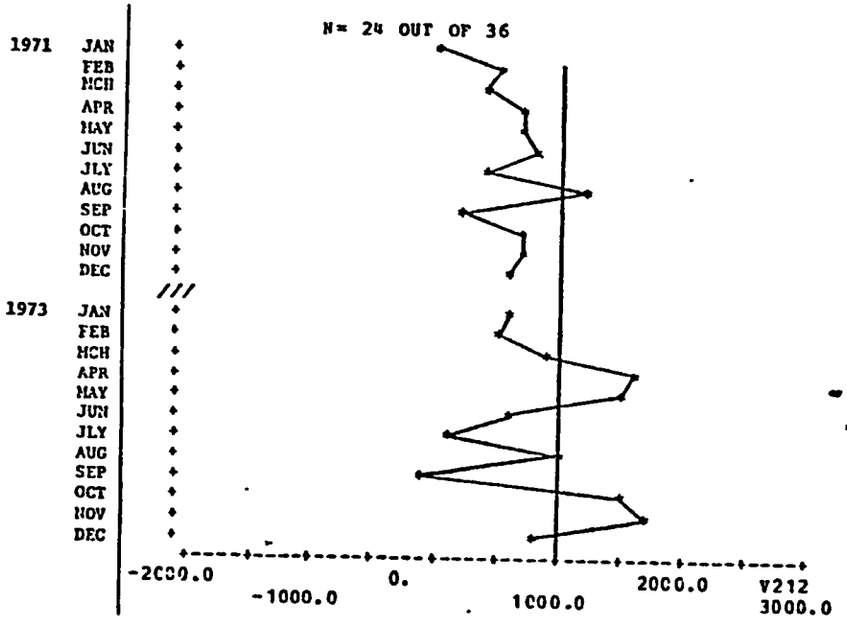
TABLE VI. (Continued, Suite)

Plots of Price Differences

Graphiques des Différences de Prix

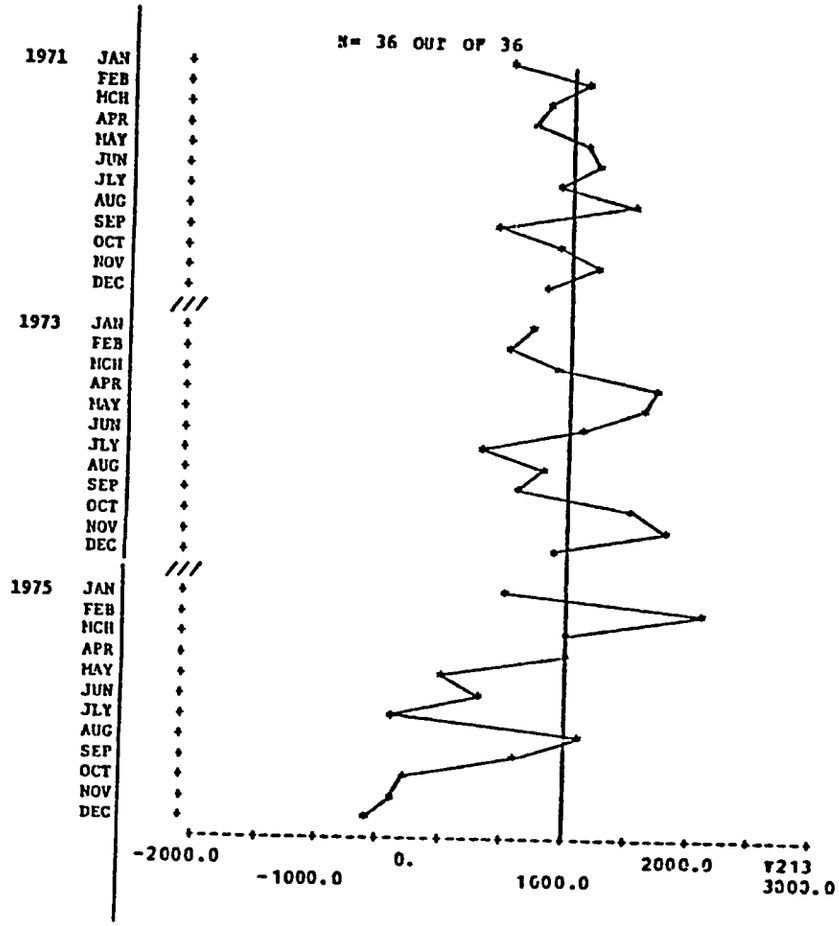
VI-G

Difference in Millet Prices Between Niamey and Galmi
Différence de Prix du Mil Entre Niamey et Galmi
(CFA/100 kg)



VI-H

Difference in Millet Prices Between Niamey and Guidan Ider
Différence de Prix du Mil Entre Niamey et Guidan Ider
(CFA/100 kg)



disregards the traders own displacement and opportunity costs. Second, even though a tariff exists for truck transportation, it is not at all clear that trucking capacity will be available at this price. All the traders, whom the team had the opportunity to interview, lamented the lack of available trucks. Third, truck fares vary according to supply and demand. Since grain is usually hauled on general-purpose trucks, changes in any other market do affect the availability of trucks for grain transport, as well as their price. And fourth, our data is probably too rough for this type of a test. When two inaccurate figures are subtracted from each other, the expected relative error of the resulting difference exceeds the error of either of the two first figures. Until more and better data is available, this test remains inconclusive.

b. Interseasonal price variations

In the section on price policy, the argument will be made that the price increases between harvest and the soudure are not as large as generally believed (Table XI, page 79). Appendix Tables 10A-C and 11 further show that the variation of prices is not so extremely large. The coefficients of variation $\left(\frac{\text{Standard deviation}}{\text{mean}}\right)$ are small, and rarely is the highest price during any given year more than twice the lowest price $\left(\text{see ratio } \frac{\text{maximum price}}{\text{minimum price}}\right)$. Furthermore, this measure is biased upwards because there are instances when the maximum price is not during the soudure, and the minimum price not in December or January. The real increases between harvest time and soudure were therefore less. Table VII shows the frequency distribution of the percentage increases within one year of all the price series that could be found.[1]

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[1]See Appendix Tables for details and sources.

Table VII. Increase of Maximum Price Over Minimum Price

Increase	Number of Instances		% of Total		Cumulative %	
	All Markets	Niamey only	All Markets	Niamey only	All Markets	Niamey only
Less than 10%	0	0	0	0	0	0
10.1%-20%	0	0	0	0	0	0
20.1%-30%	1	1	2.3	7.7	2.3	7.7
30.1%-40%	3	1	6.8	7.7	9.1	15.2
40.1%-50%	3	0	6.8	0	15.9	15.2
50.1%-60%	6	4	13.6	30.8	29.5	46.2
60.1%-70%	8	3	18.2	23.0	47.7	69.2
70.1%-80%	4	2	9.1	15.4	56.8	84.6
80.1%-90%	1	0	2.3	0	59.1	84.6
90.1%-100%	2	0	4.5	0	63.6	84.6
100.1%-110%	2	0	4.5	0	68.1	84.6
110.1%-120%	1	0	2.3	0	70.4	84.6
120.1%-130%	1	0	2.3	0	72.7	84.6
130.1%-140%	5	1	11.4	7.7	84.1	92.3
140.1%-150%	1	0	2.3	0	86.4	92.3
More than 150%	6	1	13.6	7.7	100.0	100.0
	44	13	100.0	100.0		

It is interesting to note, that in 56.8% of the cases, prices increased 80% or less. For the city of Niamey, this ratio is even higher (84.6%). The median of both distributions is around 60%, which pinpoints the "typical" price increase at approximately 1/5 of what most obervers claim it to be (300%).

But these figures only show how much prices typically increased. They give no indication of the efficiency of the market. In this context, it is of particular interest to see how frequently the price increase between the price at harvest time and the price during the soudure actually exceeds the storage costs for this period. This necessitates an attempt to quantify the storage costs for

the 9-month period. Unfortunately, this has never been carefully done.

The Entente study on an emergency stock places the storage costs for one year between 2460 and 5700 CFA/ton, depending on whether interest costs on the invested capital (warehouse) and amortization are included. All the remaining costs (sacks, filling of warehouse, etc.) are fixed per storage cycle and do not depend on the duration of the storage period.

For a private trader, the rental of the warehouse would have to be added to the minimal figure from above. As a rough approximation of the storage costs, net from interest on the funds invested by buying cereals, this study will assume:

9/12 of amortization and interest costs of a warehouse as approximation of rental costs for warehouse space

9/12 of (5700-2460)	=	2510 CFA/ton
plus fixed costs per storage cycle as above		2460 CFA/ton
Total:		4970 CFA/ton

One would therefore expect prices to increase from harvest time to soudure time by at least 5 CFA/kg due to storage costs alone. In addition, one must account for the opportunity cost (interest) on the funds invested in buying the cereals at harvest time. This amount is taken to be the residual. In other words, we try to answer the question: how much would a trader have earned on his capital, had he bought each year in November and sold in the following year in July.

Using the prices in Appendix Table 10, the following table can be constructed:

Table VIII. Profitability of Speculation in Cereals on the Market in Niamey

Year	Retail Price at Harvest (November)	Retail Price at "Soudure" (following July)	Gross Increase	"Profit" (Gross-Storage Costs)	Rate of Return ("Profit" as % of harvest price)
61/62	1700	2100	400	-100	-6%
62/63	1700	2300	600	+100	+6%
63/64	1400	1900	500	0	0
64/65	1500	1800	300	-200	-13%
65/66	1700	5400	3700	3200	+180%
66/67	2000	2300	300	-200	-10%
67/68	1500	1500	0	-500	-33%

73/74	5100	3800	-1300	-1800	-35%
74/75	3100	4000	900	400	+13%
75/76	3200	5000	1800	1300	+40%

These numbers show that speculation in cereals is far less profitable than generally asserted. There are only two years (65/66 and 75/76) when speculators earned an exorbitant profit and only two (62/63 and 74/75) when they earned what could be termed a "normal" return. These good years are more than offset by six losing years, when a speculator would have lost up to 35% of invested capital.

These calculations are hypothetical and rely heavily on some rather strong assumptions, especially regarding storage costs. But even if storage costs were 20 to 30% lower than the 5 CFA/kg assumed in these calculations, the fact would remain that less than half of the years for which data are available would have been profitable for speculators.

In this light, price fluctuations no longer seem "excessive". If a trader had bought cereals in November 1961, sold them in July 1962 and reinvested the profits in the following year, and if he had repeated this operation

every year, he would have earned the same amount as if he had invested in 1961 at 10% and let the interest accumulate. A rate of return of 10% on business capital can hardly be termed "excessive" in a capital- and enterprise-scarce economy such as Niger's.

C. Alternatives for Marketing Policy

The government of Niger has essentially three alternatives in marketing policy:

(a) Full government monopoly of the grain trade,

(b) Free private trade, with varying degrees of government control,

(c) Open market intervention by the government.

Whichever alternative is chosen, it is necessary to know and to be able to predict the reactions of the private sector. Failure to know the workings of the private trade can lead to unexpected results which might counteract the intended effects. The decision to let some licensed traders do part of the primary collection in Niger is a case in point.

Private traders do not use scales. Instead, they bargain with the farmer over the price of a given quantity of cereals, which is hardly standardized. It does not make sense, under these circumstances, to fix a legal minimum price per kilogram. Due to the absence of scales, the farmer has no opportunity to check whether he has received the stipulated minimum price or not. In addition, the fact that licensed traders are given a monopoly in their respective markets puts the farmer at even more of a disadvantage. Because they do not have the competition from other traders, licensed traders can offer an even lower price than under a system of free trade. The farmer cannot determine whether this price conforms to the legal minimum price, he cannot sell his grain to another trader who might offer him a higher price, and he has to

accept whatever price is offered to him.

1. Marketing Policy Based on a Government Monopoly

This is the marketing policy presently followed by the government of Niger.[1] However, so far, it has not succeeded in effectively monopolizing the cereals market, and at least half of the marketed output still passes through the traditional channels. Even in the city of Niamey, OPVN has only a very small market share. If we accept the official estimate for cereals requirements of Niamey (city) (approx. 30,000 tons per year, on the basis of 220 kg per person per year) and contrast this figure with the total amount of cereals sold by OPVN from its Niamey warehouse in 1975 (6,600 tons of millet and sorghum plus 2,200 tons of rice and maize), we arrive at a market share of less than 30%.[2] Even if we assume a more realistic annual consumption of 26,000 tons of cereals for the entire city of Niamey (190 kg per person), OPVN sales would still account for less than 35% of consumption.

Even in years of good harvest, OPVN succeeds only in buying a small portion of the marketed output. Appendix Table 13 shows OPVN purchases as a percentage of total production for the 1974/75 crop season, which was by far OPVN's most successful year. Countrywide, the agency succeeded in buying 5.3% of total production or roughly one-third of the supposed marketings of 15% of gross production. This success was primarily due to good results in areas where the cooperatives are well represented (Diffa, Zinder, Maradi and Tahoua). In Dosso, where proximity to the border of Benin offers more profitable possibilities, OPVN's market share was a mere 10%. In the Department of Niamey, farmers and small traders probably preferred to sell their grain

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[1]See Footnote 2, page 11.

[2]Source: OPVN

directly to the consumers in the city of Niamey.

There are several possible explanations for this apparent failure to effectively monopolize the market, and they seem to suggest that it is very difficult, if not impossible, to exclude the private sector from the marketing of cereals.

1. The production of cereals is very dispersed. Marketed supply is derived from a large number of producers each marketing a small surplus. Assembling these small quantities to bulk size requires a tremendous number of agents.

2. Because cereals are produced throughout the south, they are available on practically every southern market after harvest time. Under these conditions, it is impossible to restrict entry into the market and to prevent individuals from buying grain from the farmers. A black market would be the result.

3. Niger's long border with its southern neighbors can never be completely closed off. The only way in which an outflow of cereals into these countries can be prevented is by offering the farmer a comparable price in Niger. This would force the government agency to continously adjust its prices to the fluctuating prices abroad. Under a competitive system, these adjustments take place by themselves.

4. The numerous informal and part-time traders operate at a much lower cost than any government agency ever could. By combining the cereals trading with other commercial and non-commercial activities, they are able to utilize their time and resources much more efficiently. Under these circumstances, it is a questionable use of Niger's scarce resources to have a state monopoly for trading cereals, even if it would be theoretically feasible.

5. Trading in cereals is a seasonal activity. A state trading monopoly would require a lot of manpower during part of the year (i.e. harvest time), which would be idle during the rest of the year. Cereals trading can only be handled efficiently if it is being combined with another activity, as indeed it is by the majority of private traders.

6. The prices which a state monopoly would pay and receive would be politically determined. Thus, there would be a strong tendency to subsidize food prices, as is already the case in Niger. This practice can only sustain itself as long as OPVN receives subsidies, most of which come from foreign assistance. The FAO states:[1]

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[1]FAO, "Une politique et un plan d'action pour renforcer la securité nationale alimentaire au Niger," Nov. 1975.

> "En vendant systematiquement à perte sans discernement, l'OPVN est en train de créer une situation irreversible et de désorganiser les structures de base existantes en les remplaçant par un systeme de prix subventionées qui ne pourra se prolonger sans aide nationale ou internationale."

There are other reasons which speak against monopolization, not from the point of view of feasibility, but from the point of view of desirability. Some of them have already been mentioned; the inherently lower costs of the private sector, or the higher flexibility in adjusting prices. Another reason is the possibility of testing and applying new innovations.

If an individual trader learned a new way of reducing cereals losses during storage, he could try this method out. He would logically use the most efficient method, in order to minimize his losses. However, if an agency has a monopoly, it does not have the same incentive to reduce cost. Any losses can easily be covered through either an increase in prices, or in subsidies received. As long as these subsidies are covered through foreign assistance, these losses are of no further consequence. But, if we work from the assumption that it is Niger's desire to become independent from foreign aid, this becomes a very important point. Nothing will assure that the monopoly agency knows the most efficient techniques and applies them.

A final reason which speaks against a monopolization of the cereals trade is the large number of trained people who will need to be employed for essentially unproductive activities. Many economic "policemen" will be necessary, border guards and administrators, who contribute essentially nothing to the productive wealth of the country. Moreover, they would be employed in preventing other Nigeriens from performing a productive service. No estimates can be made concerning the numbers involved but, for the monopolization to be successful, they must be staggering. It is doubtful whether Niger can afford such an expense and such a waste in productive, skilled manpower.

Moreover, a monopolistic system would offer enormous possibilities for fraud and corruption. Possibilities would exist for individuals to enrich themselves on the black market. The temptation for economic policemen to accept bribes and to look in the other direction when a profiteer buys a few sacks of grain on a village market will be great. All this imposes additional costs and will never be completely controllable.

The problems posed by an attempted monopolization of the market for food crops are exponentially more complicated than in the case of cash crops. This has been the experience of all the countries in the region and elsewhere which have attempted an all out monopolization of the cereals market. In Niger, this monopolization, though stated in government documents, has never been enforced with full strength. This section has attempted to show that such an enforcement would require enormous resources. It would probably be very difficult to justify these costs in terms of benefits of a monopolized marketing system.

2. Marketing Policy Based on Free Competition

At the other extreme of possible policy alternatives lies the variant of primarily free competition. This is essentially the system which prevailed in Niger before 1969, when OPVN was created. There is very little information available, though, regarding the workings of the system at that time. Few basic studies were made and hardly any data collected. The data analyzed in Part B of this chapter is all more recent. However, for the years in which OPVN intervention was very small, it can be taken as being indicative of how well a marketing system without OPVN would function.

The results are inconclusive. More data collection on the private trade is needed before any conclusions can be drawn. But no matter what type of policy is chosen, such an analysis of the "status quo" should precede any

policy decision and government intervention.

This is no different for a marketing policy relying primarily on private traders. Such an analysis is needed to pinpoint areas of market failure. Once the reasons for such shortcomings have been found, the government can concentrate its effort on removing the specific obstacles which prevent the marketing system from becoming more efficient. A reasonably efficient marketing system in this context implies one which fulfills its social role as a distributor of goods at a minimum possible cost. It buys from the farmer at the highest price economically possible and sells to the consumer at the lowest possible price. Price increases in one market (i.e. Niamey), which indicate a shortage in that particular market, would induce traders to ship more grain from the surplus regions (i.e. Zinder) to the market with higher prices, thus checking the price increase. Once the difference in prices no longer covers the transportation costs, no additional profits can be made by shipping more grain to Niamey and the inflow will stop.[1]

There are several factors which can interfere with the functioning of the market. It is possible, for instance, that no trucks would be available to ship the grain from Zinder to Niamey, or that the traders would agree not to ship any additional grain or to prevent other traders from doing so. There are several ways in which they might attempt to monopolize the market, in order to realize higher profits. A rational marketing policy will have to deal with such market failure. Prohibiting private trade altogether is

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[1]It is important to notice that, in a reasonably functioning market, there will always be at least one trader who will start shipping grain once the prices in one market start rising. There will always be a possibility of making additional profits by shipping in grain, instead of letting the price differences persist. Because traders want to make as much profit as possible, they will always seize this opportunity, thus assuring the equalization of demand and supply.

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certainly the most radical way of dealing with this problem and there are certainly more rational and efficient solutions. It does not make much sense to prevent traders from acting beneficially in fulfilling their proper marketing role in order to keep them from exploiting their market power.

A marketing policy relying primarily on the workings and the mechanisms of the private sector would, therefore, concentrate on strengthening its beneficial effects, fighting only its harmful excesses. There are many ways in which this can be done, of which the following are examples.

1. The government can enforce laws prohibiting restrictions on the free movement of goods. Taking the example from above, it could fine traders who prevent others from shipping goods to the deficit markets or who agree not to do such shipments themselves. Enforcing this type of law would be considerably easier than enforcing a monopoly, because there would be a plaintiff (the trader who is being prevented from doing his business), who would have a considerable interest in reporting such obstructions. No new agencies would be required; this form of enforcement could be handled within the justice system.

2. If one of the reasons for inefficient marketing is the unavailability of credit to traders, the government could find ways to provide this credit. But more important, certainly in the case of Niger, is the unavailability of credit to the peasants. They are sometimes forced to take up loans from the merchants during the soudure and are thus required to sell after the harvest at an unduly low price to the same merchant. A much more efficient way to deal with this problem would be not to prohibit the trader from buying altogether, because this way the farmer would not receive the very important loan at all, but to provide the farmer with alternative possibilities of obtaining a loan at reasonable terms. This would free him from dependence upon the merchant, and would allow him to sell his grain after the harvest to the the trader who offers him the best price.[1]

3. The government could step in and provide certain services. A market information service could inform traders and farmers of the presently prevailing prices in the different markets. In this way, it could be made easier for a trader in Zinder to learn about the

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[1]This is not to understate the difficulties of a viable rural credit program.

price increase in Niamey and this could convince him to ship grain into the capital. Farmers will know what prices traders are likely to receive for their product, thus improving their marketing position. Reliable and adequate harvest forecasting will allow traders to plan ahead and to decide where they should plan to buy.

In short, this kind of marketing policy would rely on influencing the private sector, so that it will "automatically" provide the necessary marketing services. It would use the existing structures to their fullest capabilities. It would prevent the government from redoing work which is already being done by the private sector out of its own initiative and would thus prevent inefficient duplication of services. The government's resources could be used more profitably in the overall development effort. Less manpower would be needed to enforce ethical behavior by the traders and to prevent excesses.

But most advantageous of all, the state would not have to assume large risks as it does now. Every bag of grain that OPVN cannot sell causes a loss. During the team's visit to the various OPVN warehouses, several tons of grain and niébé were seen rotting away or being eaten by insects. A private trader would try to sell these products at whatever price he could get for them, probably at a considerable discount. But OPVN agents are not allowed to do this. The grain continues to spoil, because nobody is willing to buy it even at the official price, and it continues to infest the arriving fresh grain. Thus, the loss to OPVN is even larger than just the original amount of spoiled grain.

It is conceivable that, in an extremely good year, the market price for cereals would never rise to the level of the official price. This problem was not important during the general shortage due to the drought. But if it should happen in future years, as it did indeed during the sixties,[1] OPVN would hardly be able to sell any grain at all. Because it would have had to buy large quantities after the harvest, it would wind up with a huge inventory

[1]See price series in Part B.

of unsalable grains. Probably, most of this grain would spoil before the next selling season, causing OPVN and the government of Niger a tremendous financial loss.

A marketing system relying on private trade would have the merchants carrying part of this risk. But each trader, because he is not tied by regulations and does not have to follow the channels of a cumbersome administration, could react much more quickly to such extraordinary situations and try to minimize losses. An official marketing agency like OPVN would have to consult with the "Comité Céréalier", which meets once a year, for each price change. OPVN could never react fast enough and, most likely, would have to absorb considerably larger losses.

3. Direct Market Intervention

OPVN was originally intended to be an agency which would conduct limited direct market intervention. It was to buy limited amounts of grain in the surplus regions, by offering a slightly higher price than the traders, and to sell this grain during the soudure in the deficit areas, particularly the city of Niamey. This limited market intervention, controlling approximately 25% of the market, was believed to be sufficient to stabilize prices, and generally to influence the private sector in a favorable way.

OPVN's effects on prices are discussed in the section on price policy. This section is concerned, in a more general way, with the effects of an official marketing agency like OPVN on the market structure as a whole, taking into account the peculiarities of the cereals market in Niger.

The underlying assumption of OPVN's creation was that there existed a serious malfunctioning of the market, presumably reflected in profits in excess

of costs. If this is not the case, if the structure of the market is essentially competitive, then the individual firms, and the market as a whole, do operate efficiently - i.e. marketing margins reflect the real economic costs of providing the services of collecting, transporting and distributing cereals. Under these circumstances, it would be impossible for an agency like OPVN to enter the market by buying at a higher price and selling at a lower price without incurring a loss.

As a matter of fact, marketing margins in private trade would have to be quite excessive to make it possible for OPVN to break even. It has been pointed out in the section "Marketing Policy Based on a Government Monopoly" that OPVN's costs are probably higher than the costs of the private sector. The dispersed nature of the market makes the application of large-scale techniques very difficult. On the other hand, the private traders can combine cereals marketing with a variety of other seasonal or part-time activities, thus using their time and resources much more efficiently. For them, the dispersed nature of the cereals market is an advantage.

If OPVN operates at a loss, as is presently the case, this implies a subsidy either to consumers or producers or both. The disadvantages of such a policy have been pointed out by the FAO, among others (see page 59). Subsidization has the following serious drawbacks:

(1) It devotes funds (either public or foreign assistance) to consumption. These resources could be invested more effectively in the overall development program, i.e. for improving the production system for cereals. This would increase the availability of cereals in the future and could subsequently lead to a decline in consumer prices on a more permanent basis.

(2) It tends to raise relative producer prices of cereals and reduce consumer prices, thus inducing undesirable shifts in both consumption and production patterns. This leads to an inefficient allocation of resources.

These effects will be analysed more carefully in the section of price policy.

(3) It drives efficient traders out of the market. If the margins previously reflected real costs and a reasonable return for enterprise, then the entry of new competition like OPVN, which is not bound by the commercial principle of having to cover its costs, will place the commercial traders at a disadvantage. In the long run, they will have to leave the market. In this way, a possibly efficient and useful structure can be destroyed.

If margins in the private sector do exceed costs considerably, direct market intervention can have the desired effect of narrowing this margin, and an official marketing agency could possibly cover its costs. The question then arises whether this form of open market policy is the best possible alternative.

This is rather doubtful. The inherently higher costs of an official cereals marketing agency have been mentioned several times. It is quite possible that it costs OPVN more to operate its own trucks than it would cost to hire private transportion to haul the grain. This inherently higher cost structure will make it very difficult to compete with private traders.

The reaction of the private sector will most probably be a concentration on the most profitable sections of the market, leaving to the official agency the unprofitable ones. This is exactly what happened in Niger. OPVN is forced to sell its grain at the same price in Niamey as well as in Agadez. Selling grain in Niamey at the official price would probably bring a small profit, but the costs of shipping grain to Agadez are so high that selling grain there at the official price must result in an enormous loss. It has already been shown that OPVN holds only a small share of the profitable Niamey market because it is being undersold by private traders. From its Agadez warehouse, however, OPVN sold 7,693 tons of grain in 1975/76. The primarily

Tuareg population consumes less grain than most people in Niger.[1] Thus, an assumption of an average per capita consumption of 150 kg of cereals per year is certainly high. With this assumption, all the grain sold by OPVN would have been sufficient to feed more than 51,000 people. The population of Agadez, however, is only about 11,000. OPVN must have supplied not only the entire population of Agadez and the surrounding villages, but also a large fraction of the nomad population. If we take further into account the local production, minimal as it is though, it becomes clear that there can be only very few private traders selling grain in Agadez. OPVN must virtually be the exclusive supplier, and traders probably operate only when OPVN runs out of stocks.

Due to the necessarily more cumbersome organization of an agency like OPVN, it will always be at a disadvantage in comparison with the more versatile private traders. A danger exists that the agency will feel sabotaged by the private sector, and may demand a monopoly as a result, eliminating the private trade altogether. This has all the undesirable consequences mentioned in the section on monopolies, and is exactly what seems to have happened in Niger.

Many conditions must be fulfilled before an open market intervention policy can be successfully applied. Besides the conditions mentioned earlier, especially the existence of excess profit margins in the private sector, ways must be found to assure that the official agency can effectively compete against the private traders.

The official agency must essentially be structured to resemble a private commercial enterprise as closely as possible. Most of all, it must be financially independent. It must be allowed to demand prices which cover its cost

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[1] SEDES, op. cit.

and adjust its prices according to market conditions. For example, the justification for selling grain in Agadez at the same price as in Niamey can be only an explicit policy of subsidizing the population of Agadez with all the drawbacks such a subsidy entails. But, a subsidy must be paid from somewhere and unless OPVN receives government funds which make up the difference between its costs and the selling price for the grain sold in Agadez, it will never be able to break even and to compete with the traders.

The danger of all public grain marketing agencies, like OPVN, is that they become income policy instruments. A decision to subsidize certain portions of the population, by selling grain below cost or by buying their products at a price above the equilibrium price, is essentially an income policy decision. This necessarily limits OPVN's effectiveness as an instrument of marketing policy.

D. Conclusions

The government can attempt to replace the private sector with a government monopoly. Section C of this chapter has shown that such a monopoly would be very difficult to institute due to the characteristics which differentiate cereals marketing from the marketing of other products. It has further been shown that such a monopoly might have very undesirable effects, such as preventing innovation and technical progress. Thus, even if it were technically feasible to impose an official monopoly, which is something to be doubted very severely, the costs would be high.

The other two alternatives open to the government are described in part 2 (strengthening competition in the private trade) and part 3 (complementing the private trade by limited open market intervention). These have the following advantages:

- They are flexible and can be adjusted to changing circumstances or new information gathered through experience;
- They provide a communication link between producers and consumers through their ability to transmit price signals;
- They can be introduced gradually. The government can devote as many resources to it as it can afford;
- They use the existing structures to their fullest potential and advantage.

Combinations of private trade and market intervention policies are, of course, conceivable. It is quite possible that they might enhance one another's effectiveness considerably. But any policy decision, regardless of the alternative ultimately chosen, requires a careful investigation of the existing private trade structures. Without the basic information, any policy, not only marketing or price policy, is a proverbial shot in the dark.

III. PRICE POLICY

A. Introduction

By price policy, we mean all actions by the government of Niger which are intended to bring about a change in the prices of cereals, either in relation to other products or over the course of the year. Examples of price policy goals are:

- To protect the buying power of the urban consumers' incomes, the government of Niger follows a policy of keeping consumer prices as low as possible.
- For reasons of production strategy, the government of Niger has varied the relative producer prices. The price of cowpeas, for instance, was increased relative to the prices of other agricultural products to stimulate the production of cowpeas. Soon, abundant supplies came onto the market and OPVN had difficulty selling the peas in Nigeria, so the price was lowered again.
- The government of Niger would like to keep prices as stable as possible throughout the year. To achieve this, OPVN tries to influence the relative price between cereals in December and cereals in July.

There are essentially three ways in which prices can be influenced, and they are not all equally well-suited to the task. Furthermore, the tools which might be effective in changing consumer prices might have an undesirable influence on producer prices. The three major price policy tools are:

1) Tax policy: Excise taxes have rarely been used in Niger for the purpose of influencing cereals prices. Foodgrains or other agricultural commodities were never taxed directly, even though taxes and subsidies could

theoretically be used for price policy goals, because of their influence on prices. In the case of cereals, however, such a system might prove too difficult to apply because the market is so fractionalized.

2) Instead, price policy has been attempted by means of fixing legal limits through government decree. This method is of little use, however, unless it is coupled with an effective mechanism to enforce the legal prices. It is doubtful whether the structure of the cereals market in Niger lends itself to such enforcement, for various reasons, most of which have been mentioned previously.

-The cereals market is very dispersed throughout the country. This kind of a market is much harder to control than a market for cash crops, which is generally located in one area. It is difficult to know where to apply control.

-Cereals trading is often only a part-time activity. A large number of occasional traders make up a large segment of the market. Therefore, it is difficult to know whom to control.

-Most transactions are made in terms of a bargained-for price for a given quantity. They often are coupled with other transactions, which cannot always be expressed in monthly prices ("troque"[1]). Traders use no scale, so that an official price determined in terms of CFA/kg becomes impossible to control.

3) Direct market intervention by OPVN is another form in which price policy in Niger was attempted. The presence of OPVN in the market, buying in

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[1]"Troque" or "troc", literally: barter. Farmers sometimes trade their millet directly for goods such as sugar or tea.

surplus regions and selling in deficit regions, was believed to be sufficient to force the traders to pay the official prices themselves. Some studies[1] asserted that a market share of 25 percent for OPVN would be sufficient to influence the market and to stabilize prices at the official level. But, the data gathered by the team suggests that OPVN's influence has been rather small. The general increase in producer prices during the past five years is probably more a consequence of the severe shortage during drought than any influence of OPVN's.

Consumer prices fluctuated freely, considerably above the official ceiling. Intra-annual price fluctuations have been small and probably more the result of a constant inflow of food aid than of any domestic OPVN activity.

There is only a very limited range of policy alternatives open to OPVN, and they all pose considerable problems. Excluding for the moment the problem of OPVN being unable to cover its costs, and thus subsidizing food prices, the alternatives of price policy, with respect to the price level of cereals, reduce to three: raising both consumer and producer prices, lowering both prices, or raising consumer prices and lowering producer prices. This last alternative can be eliminated immediately. Unless OPVN holds a monopoly which can be enforced effectively (a virtually impossible condition, as was pointed out in the section on monopolization), it would, in this alternative, be undercut by private traders, who would buy at higher prices from the farmer and sell at lower prices to the consumer. This is indeed happening presently on a few profitable markets in Niger[2] (i.e. Niamey).

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[1] cf. Chècci, op. cit.

[2] The price figures give the impression that traders charge higher prices than OPVN. But what these price series conceal are the large quality differences which often exist between OPVN grain and privately-traded grain. Good quality millet commands a considerable premium on the private market and inferior quality grain is frequently traded below official prices. OPVN grain is unfortunately often of inferior quality.

This leaves only two alternatives; either fixing consumer and producer prices below or above the equilibrium prices, the equilibrium prices being defined as the prices at which the markets would clear (quantity supplied would exactly equal quantity demanded). But, as can easily be verified by reference to the most basic economic theory, this will either lead to a situation of excess demand, if prices are too low, or an excess supply, if prices are too high. How this can happen in Niger will be demonstrated below. In either case, OPVN will be left with a considerable burden. In the former case it would not have enough cereals to satisfy demand and it would be forced to import. In the latter case, it might have to acquire enormous amounts of grain, of which it could not dispose. Policy-makers like to evoke, in this situation, a "deus ex machina" in the form of exports. However, Niger's cereals are not competitive on the international market at present prices. Sorghum costs, according to the World Bank, approximately 24,000 CFA/MT (FOB) at a U.S. gulf port. This situation would be even worse at higher prices.

In brief, a price policy, such as having OPVN offer prices which differ from equilibrium prices, does not appear to be a viable alternative. It can, furthermore, have negative effects on other policy goals. OPVN's marketing policy, for instance, has been severely hampered by the price regulations imposed by the "Comité Céréalier." Because it had to follow these price regulations, while private traders found ways to avoid them, OPVN was placed at a disadvantage. As a consequence, OPVN was unable to operate in the profitable markets, where it was undercut by the private traders. OPVN was left with unprofitable markets, such as Agadez, where traders could not compete with official prices. (See section on marketing policy, particularly page 63).

Once we allow subsidization of cereals production and consumption, either implicitly through OPVN losses or through explicit government policy, any price policy becomes possible. But problems arise as soon as we ask the question about where the subsidy funds ought to originate. Because the governments's resources are limited, paying such subsidies would undoubtedly divert funds from investment projects, thus impairing Niger's long-run growth potential.

Because official price policy has had relatively little effect, the following discussion of the development of producer and consumer prices in Niger is essentially conducted in terms of real market prices. This analysis of past developments is necessary before the question is raised as to what sort of price policy should be followed and what would be the most rational way of implementing it. These questions, as well as problems relating to the consistency of marketing and price policies, are discussed in Chapter IV.

B. Producer Prices

1. Relative Prices of Agricultural Products as Determinants of Production

The relative prices of food crops in terms of alternative agricultural products (i.e. cash crops or livestock) are the main determinants of production. It has often been denied that this fact, known as price responsiveness, holds true for peasant producers, such as farmers in Niger. As noted earlier, some sources claim that only non-price factors influence the farmers' decision about what to produce. While it is undoubtedly true that factors such as family size, status of stocks from preceding years, etc. have a large influence on the farmer's decision, this does not rule out price influences; peasants will still choose the crops which bring them the largest profit. Claiming that prices do not influence decisions is equivalent to denying peasants the ability to act rationally in a market of which they have been a part for decades.

There is some evidence available to support the notion that the famrer in Niger is, indeed, responsive to relative prices for farm products. The ratio of the acreage of different cash crops for food crops is a useful indication of the farmers' intended production. Unfortunately, there are no reliable data on producer prices. The following calculations are, therefore, based on official producer prices, despite the fact that they are probably not representative, and on retail prices in Niamey (average June-August) as a proxy for actual producer prices. The results are summarized in the following table:

Table IX. Influence of Relative Prices on the Peasant's Production Decision

	Millet Price[a] ÷ Peanut Price	Millet Price[b] ÷ Peanut Price	Millet Acreage ÷ Peanut Acreage
1964/65	.32	.77	6.1
1965/66	n.a.	.79	5.3
1966/67	n.a.	2.04	4.9
1967/68	n.a.	1.21	5.2
1968/69	n.a.	n.a.	4.4
1969/70	n.a.	2.25	7.1
1970/71	.48	1.2	6.5
1971/72	.54	1.4	6.0
1972/73	.52	n.a.	5.2
1973/74	1.04	7.49	5.5
1974/75	.45	.72	8.7
1975/76	.45	.74	5.3

[a]official producer prices

[b]millet -- Retail price in Niamey during preceding soudure (i.e. 1964/65 average June-August 1964). peanuts -- official producer price.

SOURCE: Appendix Table 10 and K. Shapiro, op.cit.

It is not difficult to distinguish a clear pattern in these ratios. The ratio of acreages hovers around 5.1 most of the time during the sixties, but then jumps to 7.1 and 6.5 in the first years after the poor harvests of 1968 and 1969. Indeed, due to the general shortage, the price of millet doubled, while the price for peanuts remained stationary.

The same pattern repeats itself in the years 1973 through 1975. The official producer price for millet doubled in 1973 and the consumer price in Niamey increased by over 80 percent as well. As a reaction, we see an increase in the acreage for millet which, at least partially, is at the expense of peanut production. The result is an increase in the ratio of the surfaces of almost 60 percent. In 1974-75, the price for peanuts increased dramatically and the farmers responded immediately with a reversal of the changes made during the preceding years. The ratio of the surfaces drops back down to 5.3:1.[1]

Despite the considerable increase in relative prices for cereals, and despite the fact that these prices are higher than in neighboring countries, cereals production remains the least profitable agricultural activity (see Appendix Table 8). This may account partially for the fact that cereals seem to be a commodity somewhat different from other agricultural products.

—Cereals are produced by virtually all farmers.

—They are primarily planted to satisfy the personal needs of the farmer and his family.

—They do not appear to be produced for the market. Cash crops provide a better source of cash income.

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[1]This analysis relies on very weak data. Both surface estimates and price statistics are very unreliable. The results are, therefore, also unreliable. The observed pattern and the conclusions remain the same, if prices from the preceding harvest instead of the soudure are used.

--Grain seems to the farmer to be a form of holding wealth (like herds are to nomads). A farmer, who owns full granaries, is considered "rich." If farmers sell grain, they only sell as much as they need to cover their immediate monetary needs.

--Grain from the family's reserve (not the "surpluses" after the harvest, when the results are much better than the expected need) is sold only if all other means of obtaining money are exhausted. The team was told by farmers that a man who sells his reserve grain, possibly even before the harvest, is regarded as a fool.

All these peculiarities of cereals as an agricultural product suggest that many factors influence the farmer's decision concerning the handling of his grain. It is probably true that "surplus" grain after the harvest is valued at a relatively low price and the farmer is willing to sell it cheaply. It is equally true that he must value his family's reserve stock very highly and that he demands a high price for it. But to infer from these characteristics an absence of "price responsiveness" or denying any influence of prices on the farmer's production decision is certainly unwarranted. That factors other than prices are more important in determining whether the farmer sells any of the grain presently in stock does not imply that the same factors are also more important when it comes to planning production for the next year.

2. The Agricultural Terms of Trade

Prices also determine the income of producers and have considerable influence on the real income of consumers. No government which is concerned with income distribution can disregard this aspect of price policy. In Niger, income distribution in fact seems to be the main concern of the policy-makers.

Appendix Table 9 gives an overview of the development of cereals prices compared to various other prices. Particularly interesting, of course, is the comparison to the legal minimum wage in urban areas in order to gain an impression about the evolution of relative income.

Minimum wages in urban areas increased 60% during the past 5 years. The consumer price index rose by 26% (30% for food), so that it is safe to say that real incomes of urban consumers increased by about 30%.

In comparison, the incomes of civil service employees did not keep pace with inflation, and their real incomes declined. In fact, nominal income levels had been fixed for 15 years prior to the recent small raise.

If official producer prices were actually paid, one could further conclude that the incomes of farmers increased even more than minimum wages. Unfortunately, official producer prices are a poor indicator of a farmer's revenue, because they do not take into account the quantities sold at this price, nor is there any assurance that this price is paid at all. The sketchy price data which are available for markets outside of Niamey are not sufficient to allow a reasonable estimation of producer prices. However, they suggest that the producer prices move in the same direction as consumer prices in Niamey (see Appendix Table 10). Thus, we can use changes in the level of prices in Niamey as a proxy for changes in farm prices.

These data indicate that actual millet prices have increased, though not quite as dramatically as the 100% increase in official producer prices. It is, therefore, safe to state that farm prices and probably farm incomes have increased over the past decade, probably faster than the incomes of civil servants, and possibly even faster than the urban minimum wage. Taking into account, however, the initial levels from which these relative increases are taken, the disparity between urban incomes and farm incomes is probably still considerable.

Appendix Table 8 shows that returns per work day in cereals production were approximately 150-160 CFA or about half of what an urban worker can earn. Even if the farmer devotes half of his resources to the production of the more profitable cash crops (peanuts, cotton), he cannot reach the income of an urban worker. These calculations do not take into account the farmer's outlays for seed and equipment.

The structure of the agricultural sector is such that each agricultural manpower equivalent farms about 1.45 hectares (see Appendix Table 6A - last column). This would allow him to earn a maximum of 36,000 CFA (peanuts with an average yield of 443.8 kg/ha) or roughly 3,000 CFA per month. If he had all this land in millet production, his monthly earnings would be only about 1,000 CFA. Taking into account the land constraint, therefore, leads to even lower estimates of a farmer's income. It is safe to say therefore, that despite the recent improvements in the agricultural terms of trade, earnings of farmers are still only a fraction (less than 50%) of the minimum urban wage.

C. Consumer Prices

Many of the problems relating to the consumer prices of cereals have already been discussed in the section on marketing policy. The preceding paragraphs on the agricultural terms of trade and Appendix Table 9 give a further account of the development of cereals consumer prices in relation to various other prices. What remains is to put these various results together and evaluate the consumer's situation under present conditions.

1. Proportion of Income Spent on Millet

If we assume the size of a typical urban family to be 5 people,[1] and

[1] This number is based on a few informal surveys. Larger families often have more than one wage earner so that the assumption of one wage earner per five people seems reasonable on the average.

accept the SEDES estimate of grain consumption of 140 kg/yr for urban consumers, then we can assume that the head of a family purchases 700 kg of millet per year and calculate how much of his income he has to spend on this basic staple. The results of these calculations are summarized in the following table:

Table X. Percentage of Income Spent on Millet

	1971	1973	1975
a) unskilled workers (minimum wage)	31.0%	57.0%	26.7%
b) civil servants			
-junior clerical	9.3%	17.1%	10.9%
-middle level	4.2%	7.8%	5.2%
-university graduate (starting salaries)	3.1%	5.7%	4.1%

This makes it possible to obtain an estimate of the effects of a price increase in cereals. Were millet prices to double over the high prices of 1975, an increase of about 10% in the salaries of all civil servants would more than offset the primary effects of this price increase. In the case of the unskilled workers, the wage would have to increase by approximately one fourth to compensate for the price increase in cereals and to maintain the buying power of this wage.

The table also shows that the proportion of income spent on millet varies greatly from year to year. But still, it never exceeds 17% for clerical employees. This would suggest price increases in cereals do not have as devastating an influence on the incomes of the urban population as is frequently claimed. On the other hand, in 1973, when prices were extremely high, unskilled workers had to spend over one half of their incomes on millet. It is probable,

however, that they substituted less expensive grains (i.e. sorghum) for millet to some degree, so that they actually spent a lower percentage on grain than is suggested by the above figures.

This type of calculation depends crucially on the assumptions regarding the per capita consumption. Therefore, its conclusions are to be used cautiously. Unfortunately, there are no reliable budget studies available which would allow a good estimate of the proportion of income spent on grain by each income class. In the absence of such studies, the above calculations can be accepted as an indication.

The incomes of the rural population and the population in the small towns are generally lower, so that they would have to devote a larger fraction of their income to purchasing millet. However, the SEDES study points out that many inhabitants of smaller towns and almost all the people living in villages grow at least part of the millet they consume. In addition, one must keep in mind that millet prices outside of the capital are generally lower (see Appendix Tables). Furthermore, people in villages often also have access to alternative wild grains, such as fonio, which help to bridge the gap during the soudure period. It is, therefore, likely that inhabitants of small cities and villages do not spend a much larger fraction of their incomes on the purchase of grains.

2. Variability of Consumer Prices

Stabilizing consumer prices is an important goal of Niger's marketing policy. OPVN buys grain at harvest time in order to raise the price and sells it later in the year to cause a decline in prices. Initial studies which preceded the creation of OPVN were based on the assumption that a market share of 15-20 percent would be sufficient for such an "effective control of prices and supplies.

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[1]Checchi and Company, "Food Grain Production and Marketing in West Africa," Washington, March 1970.

OPVN does control about this fraction of the market today and it is interesting to try to trace its influence on price fluctuations. A very rough measure would be the ratio of a given year's price during the soudure over the price during the preceding harvest. For all the years where quarterly price data could be found,[1] the following table was constructed:

Table XI: Quarterly Consumer Prices of Millet in Niamey
(CFA francs per kg.)

Year	"Harvest" Price (Nov-Jan)	"Soudure" Price (May-July)	"Soudure" Price ÷ "Harvest" Price
1961/62	15	21	1.4
1962/63	18	18	1.0
1963/64	14	17	1.2
1964/65	15	18	1.2
1965/66	21	45	2.1
1966/67	20	22	1.1
1967/68	16	15	.9
Mean			1.27

For the period since the creation of OPVN, we were able to find the following data:

Table XII. Quarterly Consumer Prices under OPVN

Year	"Harvest" Price (Nov-Jan)	"Soudure" Price (May-July)	"Soudure" Price ÷ "Harvest" Price
1970/71	25	30	1.2
1971/72	28	32	1.1
1972/73	36	58	1.6
1973/74	44	40	.9
1974/75	36	40	1.1
1975/76	42	57	1.4
Mean			1.22

[1] See tables in Section II-B.

If one excludes the abnormally high observation (1965/66) when prices in Niamey more than doubled, OPVN seems to have exercised no stabilizing influence. The data also show that the often-heard claim that prices more than double during a year is only true for 1 out of 12 observations. There are even years when the price at the time of the "soudure" was lower than right after the preceding harvest (i.e. 1968/69 and 1973/74).

One comes to similar conclusions if monthly price data are used. The price fluctuations are larger in relative terms, though, because the stabilizing influence of calculating the mean over a three month period is excluded. Based on the monthly data available, prices seem to rise typically 50-60 percent from the month with lowest prices to the month with the highest prices before, as well as after, the creation of OPVN. The specific time of the year during which the maximum and minimum prices occur is highly variable, though, and the typical increase between every December and July is considerably less than 70%.

It seems, therefore, that a market share of 15-25 percent is <u>not</u> sufficient to stabilize prices. It is questionable whether effective stabilization is at all possible, given the volatile supply conditions in Niger. And even if it were possible, it is not certain whether the benefits would warrant the costs.

The costs of stabilizing prices are essentially the storage and administrative costs which have been discussed in the section on storage. But stable prices could also have other unintended effects which could be quite costly for Niger. If OPVN should succeed in stabilizing prices, especially at a level favorable to consumers, it might become unprofitable for the peasant to store his own harvest, and more profitable to sell it entirely (at a guaranteed price) and then to buy back whatever is needed during the year at a fixed price. This

would not only free him from having to care for his granary, but would also reduce his risk. This would then place OPVN in a position of having to store reserves for the entire population. At an average yearly consumption of 190 kg/capita, this would require approximately one million tons of storage capacity for a population of roughly five million people. This calculation is quite unrealistic at the present stage, but it points to a problem that has to be considered when planning price stabilization policies.

If the price elasticity of demand is very small, if consumers have to purchase a minimum amount of this product regardless of price, even small variations in quantity can lead to large fluctuations in price. In Niger, this condition is amplified by notoriously large fluctuations in supply which lead to considerable price variations even in the short run. When OPVN attempts to stabilize prices, a consensus must be reached as to what degree prices should be stabilized. Should they stay at a certain level on the average during a month or should they be prevented from diverging from the official price altogether. While the additional benefits of a rigid price versus a price stabilized within certain limits are small, the additional costs could be considerable.[1]

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[1]The weekly price data collected by E. D. Eddy (see Appendix Table 10-B) further show that prices can vary considerably within one month. The monthly price data, which the team was able to collect, was probably gathered rather unsystematically on any day during the month. The figures do not represent monthly averages. This could be a possible explanation for the unexpected jumps in some of the price series.

But the high variability of weekly prices is a strong indication of the fact that market prices depend primarily on momentary supply and demand conditions. If the market was in any way manipulated, one would expect a persistently high price and not frequent large changes over short periods of time.

IV. CONCLUSIONS

The preceding chpaters on marketing and price policy have attempted to point out a number of problems in Niger's marketing and price policies, some of which have not received adequate attention in the past. In brief, the team's findings can be summarized as follows:

—A monopolization of the agricultural markets by the state may be feasible or even desirable for cash crops (especially export crops), but it poses serious problems when applied to the marketing of domestically produced and consumed staple foods. It is probably not the most efficient way to deal with profiteering merchants, who would simply continue trading on a black market, as is presently the case.

—The fact must be recognized that OPVN does not and cannot, even with enormous assistance, totally control the grain market. This leads to the conclusion that Niger must depend, for at least part of its marketing of cereals, on the private sector which, for various reasons (i.e. the fact that it combines cereals trade with other activities), can perform the same marketing services at a lower cost.

—Ways must be found to deal with profiteers and traders who manipulate the market in their favor. But this calls for a careful investigation of the private sector in order to identify possible areas of such damaging activity and to seek remedies. The evidence suggests that the general assumptions about the private sector are probably incorrect. This does not imply that the private sector is perfect and efficient, but it suggests that the problems might lie in some

areas not explicitly considered (high costs due to poor transportation infrastructure, high storage costs, scarce capital, etc.).

--The restrictions imposed on OPVN (uniform prices throughout the country, unreasonably low barèmes) have made it more difficult for the agency to stay in the market. The resulting inflexibility of OPVN has been exploited by traders (they sell in the profitable market of Niamey, but not in Agadez), so they profit from the very institution which had been intended to cut into their profits. If OPVN is to play an effective role in the market, it must be put in a position of being able to act and react, of being able to adjust prices to market conditions.

--It is important to clearly define the benefits of marketing and price policies so that they can be compared to costs. Only this process allows the government of Niger to determine how much of its scarce resources should be devoted to intervention in cereals marketing and how much should be invested elsewhere (e.g. in improving the production system).

Many conditions (dispersed markets, highly variable production) make the public control of marketing and price policy in Niger a very difficult task. The results of the market interventions of OPVN have not been quite as positive as had been hoped, primarily due to the fact that OPVN's creation was based on an incomplete and only partially correct set of assumptions about the private marketing sector. In addition, restrictions were imposed on OPVN which made it very difficult for the agency to operate. Then the drought struck a serious blow to the marketing system before OPVN had had

a chance to establish itself. If marketing is to improve, the true constraints to efficiency, in the private sector as well as within OPVN, must be investigated and means must be found to deal with them. But trying to apply remedies before the true reasons for the malady are identified can lead to positive results only by luck.

Appendix 1

Statistical Tables

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TABLE 1.

Niger: Agricultural Production, 1964-1976

Niger: Production Agricole, 1964-1976

		1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
MILLET	P	781	934	977	1,013	790	842	1,000	733	1,095	871	959	919	627	883	581	1,195
Mil	A	1,640	1,885	1,868	1,777	1,810	1,743	1,865	1,895	2,272	2,310	2,356	2,195	2,008	2,230	1,693	2,532
	Y	470	506	523	570	436	483	537	387	482	377	407	419	312	395	343	472
SORGHUM	P	275	315	353	315	266	277	342	215	289	230	267	209	126	218	253	308
Sorgho	A	454	464	485	453	465	530	556	596	596	593	579	567	448	542	791	633
	Y	607	680	727	696	571	523	615	361	486	388	461	368	282	404	320	487
COWPEAS	P	46	57	63	66	48	68	77	74	83	84	72	144	92	133	219	236
Niébé	A	405	454	484	493	432	608	690	745	968	980	1,000	921	823	919	839	857
	Y	112	112	131	134	111	112	112	99	86	86	72	156	112	145	261	275
RICE(paddy)	P	9.6	11.2	10.1	11.8	11.7	20.5	32.6	39.0	38.0	37.1	27.3	31.8	46.3	30.2	29.3	29.2
Riz(paddy)	A	9.1	9.1	9.4	9.4	8.7	9.2	11.5	15.3	15.5	16.4	17.1	17.2	17.8	14.8	16.2	21.1
	Y	1,043	1,228	1,072	1,260	1,340	2,218	2,829	2,553	2,521	2,262	1,595	1,850	2,605	2,037	1,820	1,384
GROUNDNUTS (in shell)	P	152	205	220	194	277	312	298	252	206	205	256	260	77	129	41	95
Arachides (en coques)	A	349	331	319	293	341	355	357	432	320	358	394	419	364	256	318	178
	Y	435	621	692	662	812	887	835	583	644	573	650	621	212	504	129	534
COTTON	P	3.4	5.1	6.4	6.1	7.0	6.7	6.2	7.0	12.6	10.5	9.0	6.1	3.6	7.9	9.4	--
Coton	A	8.2	10.3	12.9	14.6	16.3	16.3	17.2	17.3	20.2	19.9	20.6	15.9	10.1	15.7	17.4	--
	Y	414	498	497	418	429	411	360	405	624	528	437	384	356	506	540	--

P - Production (1,000 tons) A - Area,Superficie (1000 hectares) Y - Yield, Rendement (kg/ha)

SOURCE: Direction de l'Agriculture, Rapport Annuel, Tome II,various years, divers années.

TABLE 2

Niger - Regional Production of Major Crops 1972-1976
Niger - Production Régionale des Produits Principaux 1972-1976

		1972			1973			1974			1975			1976		
		P	A	Y	P	A	Y	P	A	Y	P	A	Y	P	A	Y
NIAMEY	MILLET-MIL	378.301	820.246	438.0	245.163	719.690	340.6	227.400	728.60	312	149.800	488.10	307	239.600	796.80	300.7
	SORGHUM-SORGHO	51.447	90.179	462.0	9.637	23.675	407.0	47.500	102.20	460	38.000	98.40	385	36.600	82.90	441.5
	COWPEAS-NIEBE	60.045	364.125	178.0	24.137	258.169	65.4	34.000	286.70	118	28.300	241.40	117	22.600	191.70	117.9
	RICE-RIZ	31.240	16.69	2,746.0	45.808	16.98	2,698.0	29.750	14.00	2,100	28.100	14.50	1,810	27.500	19.30	1,424.9
	GROUNDNUTS-ARACHIDES	0.003	0.018	144.0	0.357	1.612	221.6	0.500	1,200.00	416	1.06	2,150.00	460	1.130	2.70	418.5
	COTTON-COTON	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DOSSO	MILLET-MIL	222.500	430.000	550.0	162.851	390.757	416.8	164.900	441.10	374	169.200	436.60	387	362.600	526.00	620.9
	SORGHUM-SORGHO	40.348	75.500	406.0	37.012	85.980	430.0	9.100	32.20	280	12.100	31.70	380	18.500	32.70	565.7
	COWPEAS-NIEBE	9.850	92.500	235.0	29.803	120.950	246.4	26.500	171.70	150	44.200	119.70	370	80.300	189.00	424.9
	RICE-RIZ	0.350	0.300	350.0	0.104	0.290	356.9	0.200	0.50	400	0.940	12.20	770	1.450	1.45	1,000.0
	GROUNDNUTS-ARACHIDES	16.600	44.750	425.0	15.078	54.475	276.8	5.200	11.60	450	8.000	15.60	510	18.450	22.30	827.4
	COTTON-COTON	0.199	0.370	500.0	0.108	0.400	268.8	0.140	0.30	460	0.150	0.25	600	NA	NA	NA
ZINDER	MILLET-MIL	146.713	375.692	420.8	81.145	313.500	258.8	213.300	408.60	522	136.400	335.80	406	247.900	489.00	507.0
	SORGHUM-SORGHO	39.308	139.128	308.4	20.846	79.650	261.6	34.900	87.60	400	94.700	239.10	395	89.900	169.00	532.0
	COWPEAS-NIEBE	31.364	228.441	164.2	23.169	216.600	107.0	32.900	229.30	144	89.400	266.00	336	84.900	248.20	342.1
	RICE-RIZ	72.000	0.105	550.0	77.000	0.105	734.0	0.090	0.12	750	0.025	0.12	200	--	--	--
	GROUNDNUTS-ARACHIDES	146.971	182.100	633.0	31.799	122.950	258.6	71.400	140.40	500	15.400	192.60	79	46.400	100.30	462.6
	COTTON-COTON	0.022	0.052	370.0	0.017	0.030	550.0	0.010	0.02	500	0.010	0.02	500	NA	NA	NA
DIFFA	MILLET-MIL	4.952	13.573	333.3	5.100	15.500	329.0	5.100	15.50	329	10.800	28.60	378	6.200	37.30	166.2
	SORGHUM-SORGHO	0.468	1.987	295.0	0.520	2.520	206.3	20.300	21.20	955	9.300	8.80	1,055	8.300	11.50	721.7
	COWPEAS-NIEBE	0.085	1.030	98.5	0.038	1.100	34.5	0.200	3.00	67	1.100	5.80	180	0.800	4.00	200.0
	RICE-RIZ	0.124	0.090	1,125.0	0.320	0.400	800.0	0.135	0.16	500	0.255	0.30	850	0.220	0.30	733.4
	GROUNDNUTS-ARACHIDES	0.429	1.086	350.0	0.089	3.750	23.7	0.900	3.00	300	1.300	2.60	500	0.500	1.20	416.7
	COTTON-COTON	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Suite page suivante
See following page

TABLE 2 (Continued, Suite)

Niger-Regional Production of Major Crops 1972-1976
Niger - Production Régionale des Produits Principaux 1972-1976

		1972			1973			1974			1975			1976		
		P	A	Y	P	A	Y	P	A	Y	P	A	Y	P	A	Y
MARADI	MILLET-MIL	101.900	297.000	345.0	95.651	316.642	302.0	154.700	355.30	435	79.200	268.90	295	194.300	364.10	533.6
	SORGHUM-SORGHO	79.610	147.000	240.0	29.784	139.571	213.4	50.900	162.20	315	68.200	264.60	260	77.300	182.70	423.1
	COWPEAS-NIEBE	22.280	143.000	124.6	22.495	150.357	83.1	28.700	152.30	190	50.500	149.90	335	36.000	156.80	229.6
	RICE-RIZ	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	GROUNDNUTS-ARACHIDES	93.700	176.500	487.5	28.634	169.000	169.4	47.700	89.00	540	15.200	103.80	145	27.900	49.80	560.2
	COTTON-COTON	0.945	3.950	210.4	0.322	1.760	282.7	0.730	1.85	394	0.485	1.00	500	NA	NA	NA
TAHOUA	MILLET-MIL	64.475	250.000	255.8	36.995	256.600	147.0	117.200	280.90	417	35.900	134.90	226	144.300	318.40	453.2
	SORGHUM-SORGHO	41.067	113.000	353.3	28.335	116.600	243.0	56.200	136.20	413	31.500	148.30	210	77.300	154.60	500.0
	COWPEAS-NIEBE	1.275	94.500	15.0	2.541	75.800	33.57	10.400	70.80	147	5.000	56.50	88	11.100	66.80	166.2
	RICE-RIZ	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	GROUNDNUTS-ARACHIDES	2.480	14.000	270.0	1.100	12.000	91.7	3.400	10.80	300	0.800	2.95	270	1.075	1.92	559.9
	COTTON-COTON	4.925	10.875	448.0	3.125	7.950	393.1	7.050	13.50	518	8.800	16.08	550	NA	NA	NA
TOTAL	MILLET-MIL	918.801	2,186.511	390.5	626.938	2,007.669	312.3	882.600	2,230.00	395	581.300	1,692.90	343	1,194.900	2,531.60	472.0
	SORGHUM-SORGHO	208.357	566.794	344.1	126.134	477.996	281.6	218.900	541.60	404	253.800	790.90	320	307.900	633.40	486.1
	COWPEAS-NIEBE	124.899	923.596	152.6	92.184	822.976	112.0	132.700	913.80	145	218.500	839.30	260	235.700	856.50	275.2
	RICE-RIZ	31.785	17.185	1,193.0	46.309	17.775	2,605.3	30.175	14.78	2,040	29.320	16.14	1,820	29.170	21.05	1,385.8
	GROUNDNUTS-ARACHIDES	260.183	418.454	621.8	77.056	363.787	211.8	129.100	256.00	505	41.760	319.70	130	95.455	178.02	536.2
	COTTON-COTON	6.077	15.202	382.1	3.571	10.140	352.1	7.930	15.67	506	9.445	17.35	544	NA	NA	NA

P - Production (1000 Tons) A - Area, Superficie (1000 Hectares) Y - Yield, Rendement (kg/ha)
NA - Not available, Non disponible
SOURCE: Direction de l'Agriculture.

TABLE 3: Rainfall Data-Statiques Pluviometriques

A. Variability of Rainfall by Region (Hmm.)
Ecarts Pluviometriques (Hmm.)

REGION-DEPARTMENT	1972	1973	1974	1975
NIAMEY				
Maximum	412.1(Niamey)	447.4 (Kolo)	761.5 (Torodi)	867.2 (Kolo)
Minimum	224.4(Dolbol)	150.2 (Toukounos)	286.2 (Ayerou)	231.3 (Dolbel)
DOSSO				
Maximum	694.5(Gaya)	566.0 (Dosso)	847.3 (Gaya)	945.4 (Gaya)
Minimum	238.2 (D. Doutchi)	284.7 (D. Doutchi)	518.4 (Dosso)	513.2 (Loga)
TAHOUA				
Maximum	414.3(Bouza)	315.9 (Tama)	630.8 (Illéta)	530.0 (Madoua)
Minimum	203.0(Kao)	110.8 (Tchin Tabaraden)	60.6 (Bouza)	280.5 (Bambeye)
MARADI				
Maximum	479.1(Makara)	390.0 (Gazoua)	656.6 (Korgom)	560.6 (Maraka)
Minimum	194.6(Dakoro)	117.8 (Dakoro)	348.7 (Kornaka)	276.8 (Dakoro)
ZINDER				
Maximum	463.9	479.2 (Matameye)	608.0 (Matameye)	623.2 (Magaria)
Minimum	141.5(Goure)	130.3 (Goure)	282.9 (Ollélewa)	171.0 (Mallama)
DIFFA				
Maximum	339.9(Chetimari)	261.5 (Maine-Soroa)	503.2 (Goudoumaria)	425.5 (Goudoumaria)
Minimum	74.5(N'Guimi)	85.1 (N'Guimi)	222.8 (N'Guimi)	168.6 (N'Guimi)
AGADEZ				
Maximum	75.9(Agadez)	73.9 (Agadez)	130.9 (Agadez)	137.5 (Agadez)
Minimum	.5(Blima)	19.8 (Bilma)	.1 (Bilma)	14.8 (Bilma)

SOURCE: République du Niger, Direction de l'Agriculture, Rapport Annuel Tome II Statistiques, Années 1973, 1975

TABLE 3: Rainfall Data - Statistiques Pluviometriques

B. Variability of Rainfall over time (Hmm.)
Ecarts Pluviometriques par Année (Hmm.)

	1972	1973	1974	1975
Niamey (ville)	412.1	370.7	474.7	667.7
Tahoua (ville)	267.1	244.9	421.2	421.2
Dosso (ville)	504.8	566.0	518.4	595.5
Maradi (ville)	288.5	349.7	490.6	350.9
Zinder (ville)	302.8	297.5	480.3	470.7
Diffa (ville)	220.6	138.8	n.a.	n.a.

n.a.= not available, non disponible

TABLE 3: Rainfall Data - Statistiques Pluviometriques

C. Influence of Rainfall on Millet/Sorghum Production
Impact de la Pluviosité sur la Production du Mil/Sorgho

ar née	Rain Index * Indice Pluviometrique *	Production (1,000,000 tons)	Production Index * Indice de Production *	Yield Index * Indice de Rendement*	Area Index* Indice de Superficie*	Domestic Availability Disponibilite Nationale
60	100	.940	100	100	100	Normal
61	108	1.056	112	114	98	Normal
62	106	1.249	133	123	108	Normal+
63	85	1.330	141	128	110	Normal+
64	121	1.329	141	135	105	Normal+
65	106	1.055	112	105	107	Normal
66	93	1.119	119	111	107	Normal
67	113	1.342	143	127	112	Normal
68	119	.947	101	88	115	Deficit
69	93	1.385	147	110	135	Normal
70	73	1.101	117	86	136	Deficit
71	81	1.225	130	95	138	Deficit
72	56	1.071	114	87	129	Deficit
73	52	.757	80	70	129	Deficit
74	82	1.099	117	90	130	Deficit
75	87	.834	89	77	129	Deficit

* Base = 1960

Table 4: Population (1000's)

	1960	1964[1]	1970[2]	1974[3]
Niamey		50-100		122
Other Urban Autres Centres Urbaines		90-140		
Total Urban Totale Urbaine	140	190	331	246
Sedentary Population Sedentaire		2380		
Nomadic Population Nomade		604		
Total Rural Population Rurale Totale	2773	2984	3517	4172
Total Population of Niger Population Totale du Niger	2913	3174	3848	4418

1. Republique du Niger, Comptes Nationaux 1964. Niamey, 1966.

2. FAO projection base on 1960 figures. World Bank estimates total population of Niger in 1970 at 4,016,000. Estimation de la FAO basée sur des chiffres de 1960. La Banque Mondiale quant à elle estime la population du Niger en 1970 à 4,016,000.

3. Projected from UN figures for 1973. Estimés à partir des chiffres de l'UN pour 1973.

TABLE 3

Estimated Cereals Consumption (Kg/Capita/Year)
Estimation de la Consommation Céréalière (Kg/Personne/Année)

Population Group Groupe démographique	% Population	Consumption estimates* Estimations de consommation*		
		1	2	3
Agricultural-Agricole	75	212.8	250	--
Nomadic-Nomade	20.7	120	--	--
Urban-Urbain	4.3	140	--	--
Weighted Average Moyenne pondérée		190.5	229	220

*FAO sources usually quote 190 Kg/year as a necessary base for adequate nutrition. Hays ("Marketing and Storage of Food Grains in Northern Nigeria") estimates, for northern Nigeria, an annual per capita consumption of 150 kg. and notes that this figure varies widely with different ethnic and income groups. Les sources FAO citent habituellement 190 Kg/année comme base nécessaire à une nutrition suffisante. Hays ("Marketing and Storage of Food Grains in Northern Nigeria") estime pour le nord du Nigeria une consommation annuelle par personne de 150 Kg. et fait remarquer que ce chiffre varie grandement selon les différents groupes ethniques et leurs différentes niveaux de revenues.

SOURCES:

1. SEDES, Les Produits Vivriers au Niger, Paris, 1963.

2. John Becker, An Analysis and Forecast of Cereals Availability in the Sahelian Entente States of West Africa, Jan. 1974.

3. Republic of Niger, Ministry of Agriculture. Republique du Niger, Ministère de l'Agriculture

TABLE 6A

Distribution of Agricultural Land & Labor
Distribution du Terrain et de la Main d'Oeuvre Agricoles

Taille des exploitations (en ares*) Size of Farms (in ares*)	Exploitation Farm (N.E.)		Actifs Agricoles (A.A.) Active Farmers			Parcelles (N.P.) Parcels				Surfaces (S. = ares*) Area				
	%	Cumul	%	Cumul	A.A./N.E.	%	Cumul	N.P./N.E.	N.P./A.A.	%	Cumul	S/N.E.	S/N.P.	S/A.A.
Less than Moins de 100	14	14	11	11	2.42	8	8	1.18	0.47	2	2	60	51	24
100-199	18	32	15	26	2.66	14	22	1.69	0.63	6	8	152	89	57
200-299	16	48	14	40	2.83	15	37	1.99	0.70	9	17	251	125	88
300-399	11	59	9	49	2.73	10	47	2.00	0.73	8	25	341	170	124
400-499	10	69	10	59	3.12	10	57	2.27	0.72	9	34	447	196	143
500-599	8	77	8	67	3.07	10	67	2.37	0.77	10	44	545	230	177
600-699	5	82	5	72	3.21	6	73	2.56	0.79	7	51	645	251	200
700-799	4	86	5	77	3.53	5	78	2.91	0.82	6	57	758	260	214
800-899	3	89	4	81	3.90	6	84	4.32	1.10	5	62	869	201	222
900-999	3	92	4	85	3.50	5	89	3.02	0.86	6	68	940	310	268
1000 et plus and greater	8	100	15	100	5.63	11	100	2.86	0.50	32	100	1840	641	326
Total Ensemble	100	--	100	--	3.12	100	--	2.12	0.66	100	--	467	220	145

*Ares - 10^2 meters

TABLE

Percentage of farms and Surface Area Planted with Major Crops
Pourcentages d'Exploitations et Superficies Consacrées aux Cultures Principales

	N.F.* (%)	S* (%)	S / N.F.	S / N.P.
Millet-Mil	95	92	453	273
Cowpeas-Niébé	43	39	429	307
Sorghum-Sorgho	32	18	264	165
Groundnuts-Arachides	22	7	142	91

N.F. = Number of farms, Nombre d'Exploitation
S. = Surface in hectares, Superficies en ha.
N.P. = Number of parcels, Nombre de parcelles.

*These columns do not add up to 100% because there is interplanting of crops.
Ces colonnes ne totalisent pas 100% en raison de la multi-utilisation des terres.

TABLE 7

Official Producer Prices (CFA/Kg)
Prix Minimum D'Achat A La Production (CFA/Kg)

Year Année	Millet Mil	Sorghum Sorgho	Cowpeas Niébé	Rice Paddy
1970-71	10	--	--	17
1971-72	12.5	10	20	21
1972-73	12.5	10	25	21
1973-74	25	20	30	30
1974-75	25	20	40	35
1975-76	25	20	40	35
1976-77	25	20	30	35

SOURCE: OPVN

TABLE 8

Official Producer Prices, Yields and Earnings Possibilities 1975/76

Prix Officiels au Producteur, Rendements et Possibilités de Gains 1975/76

	Mil Millet	Arachides Peanuts	Coton Cotton	Niébé Cowpeas
Official Producer Price (CFA/Kg) Prix Officiel au Producteur	25(67.76)*	55	47 (83.94)	40 (159.84)
Average Yield-Rendement Moyen (1969-75) (Kg/Ha)	329.5	447.8	483.7	127.9
Possible Earnings-Gains Possibles (CFA/Ha)	8,237.50	24,359	27,733.90	5,116
Number of workdays of work/ha[a] journées de main d'oeuvre par ha[a]	55	60	100	50
Return per workday Rendement par journée de main d'oeuvre (CFA)	149.75	406	227	102.30
Calculations Based on Yield of Preceding Crop Year (1974/75) Calcul Fondes sur les Rendements de la Récolte Précédente (1974-75)				
Average Yield-Rendements Moyen (1974/75) (Kg/Ha)	343	130	544[b]	260[c]
Possible Earnings-Gains Possible (CFA/Ha)	8575	7150	25,568	10,400
Return per workday (CFA) Rendement par journée de main d'oeuvre (CFA)	155.90	119.15	255.70	208

*The prices in parentheses denote producer prices which would equate the returns per work-day to the returns of peanut production. Les chiffres entre parenthèses indiquent les prix au producteur qui seraient atteints si une parité avec les rendements de l'arachide était faite.

a) Estimates by the author based on studies for Mali and Chad as well information gathere through interviews in Niger. Estimations faites par l'auteur d'après les études sur le Mali e Sur le Tchad ainsi que sur l'information donnée par les interviews au Niger.

b) 1974/75 was an exceptionally bad year for peanut production due to a fungus which destroyed most the harvest. 1974/75 a été une année exceptionnellement mauvaise pour l'arachi. à cause d'un fongus qui a détruit la majorité de la récolte.

c) A yield of 260 Kg/ha for cowpeas is more representative of the present situation than of the long run average because it is strongly biased by low results obtained during the first years of production with the use of a low-yield seed variety.

Un rendement pour les niébés de 260 Kg/ha reflète mieux la realité actuelle. La moyenne s'etalant sur plusieurs années est biaisée à cause des résultats mauvais des premiers années de production, quand on utilisait des semences inferieurs.

TABLE 9. NIGER: Wages and Consumer Prices
Salaires et Prix au Consommateur

	1960	1968	1969[1]	1970	1971	1972	1973	1974	1975[4]
I. WAGES (in CFAF) SALAIRES (en CFAF)									
A. Legal minimum wage, urban areas (SMIG) Salaire minimum interprofessionnel garanti (SMIG), zones urbaines									
per month mensual	4,679		4,809	5,199	5,199	5,199	5,199	7,279	8,313
per hour horaire	27		27.75	30	30	30	30	42	48
index indice (1972=100)	90		93	100	100	100	100	140	160
B. Monthly Starting Rates; Civil Service[3] Taux Mensuels Administration									
(a) Junior Clerical (Elementary School Graduate: Category D_2) Employé de Bureau (école élémentaire: Catégorie D_2)	17,416		17,416	17,416	17,416	17,416	17,416	17,416	20,299
(b) Middle level Clerical/Technical (2eme Bac. Category B_2) Employé de bureau/Technicien Intermédiaire (2e Bac, Catégorie B_2)	38,317		38,317	38,317	38,317	38,317	38,317	38,317	42,849
(c) University Graduate (Licence Category A_2) Diplôme Universitaire (License Category A_2)	52,250		52,250	52,250	52,250	52,250	52,250	52,250	54,475
Indices									
(a) Junior Clerical: Employé de Bureau	100		100	100	100	100	100	100	115
(b) Middle level: Situation intermédiaire	100		100	100	100	100	100	100	109
(c) University Graduate: Diplôme Universitaire	100		100	100	100	100	100	100	104
II. CONSUMER PRICES PRIX AU CONSOMMATEUR	1966								
A. Index of African Consumer Prices in Niamey (December 1972 =100) Indice des Prix africains au consommateur à Niamey (decembre 1972=100)									
General Index: Indice Général	79		87	87	91	100	112	115	126
Food: Alimentation	74		83	80	84	100	119	120	130
B. Index of European Consumer Prices in Niamey (1972=100) Indice des Prix Européens au Consommateur à Niamey (1972 =100)									
General Index: Indice Général	78		91	95	98	100	103	105	116
Food: Alimentation	78		89	93	96	100	106	113	129
C. Retail Prices in Niamey, selected consumer goods. Prix de Détail à Niamey, biens de consommation sélectionnés									
Bread (320 g.) Pain		30	-	-	30	30	30	31	37
Millet (kg.) Mil		16	-	-	24	31	51	39	37
Red Rice (kg.) Riz Rouge		53	-	-	68	73	94	91	90
Beef Filet (marche) Filet de Boeuf		230	-	-	225	270	247	336	539
Local peanut oil (liter) Huile d'arachide locale		95	-	-	115	109	130	209	200
Sugar (cubes) sucre (morceaux)		80	-	-	87	128	111	169	229
Electricity (3rd category KWH) Electricité (3ème catégorie KWH)		19.78	-	-	19.78	19.78	19.78	21.01	21.13
Kerosene (liter) Essence (liter)		45	-	-	50	50	50	71	75
Cinéma (3rd category) (3ème catégorie)		40	-	-	40	40	45	45	45
Taxi Ride (town) Course en Taxi (ville)		100	-	-	100	100	100	100	100
III. PRODUCER PRICES PRIX AU PRODUCTEUR									
Millet in Konni Mil à Konni					18.92	-	41.25	-	35.17
" in Guidan Ider Mil à Guidan Ider					18.91	-	40.96	-	33.11
" in Keita " " Keita					22.10	-	-	-	39.64
" in Tamaske " " Tamaske					22.50	-	-	-	40.15
Official Producer Price (OPVN) Prix Officiel au Producteur (OPVN)				10.00	12.50	12.50	25.00	25.00	25.00

1/Annual average: SMIG raised from 27 to 30 CFAF on 1 October 1969. Le 1ere octobre 1969 le SMIG a été élevé de 27 à 30 CFAF
2/Annual Average Moyenne Annuelle
3/Includes 10% residence allowance. Y compris 10% d'allocation logement
4/Increase as of 1 January 1975: 20% of index for lowest paid civil servants, with 10% for those in middle salary levels and 5% for those in higher levels. The actual rise for most university level civil servants was 5%. It was at the index 314, just above the university graduate starting index (300) that the increase changed from 10% to 5%. Hausse en date du 1er janvier 1975: 20% de l'indice pour les fonctionnaires les moins payés, 10% pour ceux aux niveaux moyens salaire, et 5% pour ceux aux niveaux supérieurs. La hausse réelle pour les fonctionnaires à niveau universitaire fut de 5%. C'est à l'indice 314, presque au-dessus de l'indice de début du niveau universitaire (300) que la hausse passa de 10% à 5%.

TABLE 10-A

NIGER: RETAIL PRICES OF MILLET ON VARIOUS MARKETS

NIGER: PRIX DE DETAIL DU MIL, DIVERS MARCHES

Marché Market	Année Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Niamey[1] (City) (Ville)	1961	1600	1800	2000	3100	2800	2500	2300	1800	1600	2100	1700	1300
	62	1600	1900	1780	2200	2500	1700	2100	2000	1800	1500	1700	2000
	63	1600	1500	1500	1500	1500	1600	2300	2000	2000	1600	1400	1300
	64	1400	1500	1400	1600	1600	1600	1900	1700	1500	1500	1500	1500
	65	1400	1400	1400	1600	1800	1700	1800	1900	1700	1500	1700	2200
	66	2400	2700	3100	3500	4000	4200	5400	4300	3600	2600	2000	1700
	67	2200	2200	2200	2200	2300	2100	2300	2300	2300	2000	1500	1700
	68	1700	1400	1600	1600	1500	1500	--	--	--	--	--	--
	71	2000	2600	2600	2900	2900	3100	3100	3500	2400	2700	2800	2700
	73	3900	4000	4700	5400	5400	6100	5800	6000	5100	5500	5100	4400
	74	4500	4400	4300	5100	4200	3800	3800	4300	3700	3100	3100	3300
	75	3000	4600	4000	4300	3700	4300	4000	3900	3600	3300	3200	3800
	76	3900	4800	5400	4800	5700	6300	5000	6300	6000	--	--	--
Konni[2]	1971	1500	1700	1700	2000	2000	2000	2500	2200	2000	1500	1750	1850
	73	3300	3500	3750	3800	3850	5000	5500	5500	5000	3500	3300	3500
	75	3000	3000	3250	--	--	--	4000	3750	3000	3500	3650	4500
Galmi	71	2000	--	2200	2250	2200	2300	2700	2300	2250	2000	2100	--
	73	3300	3500	3800	3850	3900	5500	5700	5000	5250	4000	3400	3600
Guidan-Ider	71	--	1500	1800	2250	1800	1900	2200	2000	2000	1800	1650	1900
	73	3250	3500	3800	3750	3800	5000	5500	5250	4500	4000	3300	3500
	75	2500	2500	3000	--	--	--	4400	2800	3000	3600	3600	4400
Bouza	71	1500	1150	1700	2000	2000	2450	2500	--	3000	--	2000	2000
Keita	1971	1300	1750	2000	2500	2050	2000	2500	2500	3000	--	--	2500
	75	2500	2500	3750	3750	3600	3250	3750	5000	4000	3500	8000	--
Tamaske	71	1250	--	2600	--	2600	2400	2500	2200	2100	--	--	2350
	75	2500	2800	2800	3500	3750	3300	4500	4500	4000	--	8500	--

Pour les notes, voir fin du tableau.
See end of table for footnotes

Suite Page Suivante
See Following Page

TABLE 10A (Continued, Suite)

NIGER: RETAIL PRICES OF MILLET ON VARIOUS MARKETS

NIGER: PRIX DE DETAIL DU MIL, DIVERS MARCHES

Marché Market	Année Year	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Niamey	1973	2713	2804	4289	4175	4047	4445	5160	4200	3502	2333	2837	2600
Tera	73	3490	3590	3690	3825	3875	5025	6025	5000	4530	2600	2750	2700
Felingue	73	2600	3900	4000	4150	4600	5500	6000	4500	4150	3633	3650	3666
S.M.A. Kolo	73	2950	3535	4500	4325	3810	5660	5025	4750	--	--	2400	2833
Guallam	73	--	3700	4360	4530	--	--	--	7500	4000	3000	3300	4300
Say	73	2543	2790	2910	3500	3490	3325	3510	3890	3420	2530	2320	2550
Madoua	73	3270	3550	3750	4000	4250	4750	5500	6800	3250	3200	--	--
Takora	73	3250	3750	4000	4800	4500	5900	6250	6000	5600	3250	--	--
Tahoua	73	3300	3500	3700	4250	4250	6000	6250	5000	4100	3200	4200	4250
Mogheur	73	3300	3500	3700	4250	4250	6000	6250	5000	4100	3200	4200	4250
Bagaye	73	3300	3500	3700	4250	4250	6000	6250	5000	4100	3200	4200	4250
Tillabery	1973	2700	3200	4250	4300	4633	5833	6000	7100	5000	2750	3300	3750
	75	3200	3450	3500	4500	3850	4020	--	3632	3618	--	--	--
Doutchi	1975	3100	2500	2500	2500	2500	2950	3100	3150	3000	2250	2250	2500
Bellandi	75	2150	2300	2450	2750	2150	2050	2150	2650	1800	2500	2000	--
Gaya	75	2400	2400	2400	3000	3500	3500	3500	2500	2500	--	3800	--
Illela	75	2500	2500	3000	4000	--	2500	4600	4000	3000	3600	--	--
Mirriah	75	1400	2200	3200	3200	2300	2200	3800	5000	4000	3500	3000	3000
Guidimoni	75	--	1900	2000	3200	2700	2600	3500	2800	3400	3700	3200	3200
Takieta	75	2000	1600	2000	2200	1700	--	3200	3200	3000	3300	2700	2700
Magaria	75	--	--	1800	1500	1800	1800	3300	3000	2900	3000	2700	2700
Matameye	75	1800	2200	2400	2500	2700	3800	3600	3400	2500	3000	2500	2800
Kantchi	75	1800	2000	2000	2700	2700	3700	3600	3500	2500	2500	2500	--

1 Source of price series for city of Niamey, Sources des prix de Niamey (ville): Republique du Niger, Ministère du Plan, Direction de la statistique et des comptes nationaux, Bulletin de statistique, Various years, Divers années.

2 Source of price series for recent years, Sources des prix des années recentes, Republique du Niger, Ministère du Dévelo,pement Rural, Direction de l'Agriculture: Departmental offices, Unpublished price series collected by officials, Séries des prix inédit ramassées par des fonctionnaires.

TABLE 10B

Weekly Retail Prices of Cereals: Kao, Niger Aug. 24, 1976-Jan. 25, 1977[a]
Prix de Détail Hebdomadaire des Céréales: Kao, Niger 24 Aout, 1976-25 Jan. 1977[a]

Date*		Millet Mil	Sorghum Sorgho	Cowpeas Niébé	Wild Grains Fonio
Aug.	24	85	90	110	—
	31	n.a.	n.a.	n.a.	n.a.
Sept.	7	85	83	79	62
	14	n.a.	n.a.	n.a.	n.a.
	21	78	68	88	72
	28	n.a.	n.a.	n.a.	n.a.
Oct.	5	53	53	90	58
	12	54	58	82	70
	19	n.a.	34	n.a.	n.a.
	26	55	43	64	—
Nov.	2	47	32	64	—
	9	44	42	71	—
	16	n.a.	n.a.	n.a.	n.a.
	23	44	41	56	128
	30	56	43	56	—

Date		Millet-Mil				Sorghum-Sorgho				Beans-Niébé			Wild Grains Fonio
		1	3	4	5	1	3	4	5	2	3	4	
Dec.	7	44	48	46	40	56	51	53	30	42	43[b]	42	—
	14	62	86	74	n.a.	30	42	36	n.a.	58	52	55	98
	21						n.a.						
	28	46	66	56	n.a.	49	59	54	n.a.	68	68	68	91
Jan.	5	54	71	62	n.a.	47	54	50	n.a.	87	79	83	—
	11	52	84	68	53	63	49	56	43	90	74	82	111
	18	56	53	54	60	47	61	54	50	89	89[b]	89	69
	25	59	59	59	60	45	57	51	40	100	109	105	115

Symbols-Symboles:

n.a. = not available, non disponible
— = commodity did not appear on the market, produit non paru sur le marché

Column Headings-Titres des Colonnes:

1 = Size of purchase: 50 F: Valeur de l'achat
2 = Size of purchase: 75 F: Valeur de l'achat
3 = Size of Purchase: 100 F: Valeur de l'achat
4 = Average of prices per kg. obtained from two different size purchases.
Moyenne des prix par kg. obtenue à partir de deux achats de différente valeur.
5 = Price per kg. of 100 kg. sack of grain. Prix au kg. de 100 kg. de grain.

Notes:

*Prior to December, no distinction in the size of purchase was made. Avant décembre, pas de distinction pour la ~~valeur de~~ l'achat était faite.

a - Data from- Données provenant de: E.D. Eddy, Center for Research on Economic Development, University of Michigan.

b - Size of purchase: 50 F: Valeur de l'achat.

Table 10C-1

Niger, Department of Niamey

Price of Millet - Prix de Mil, 1973

(Fr/Kg)

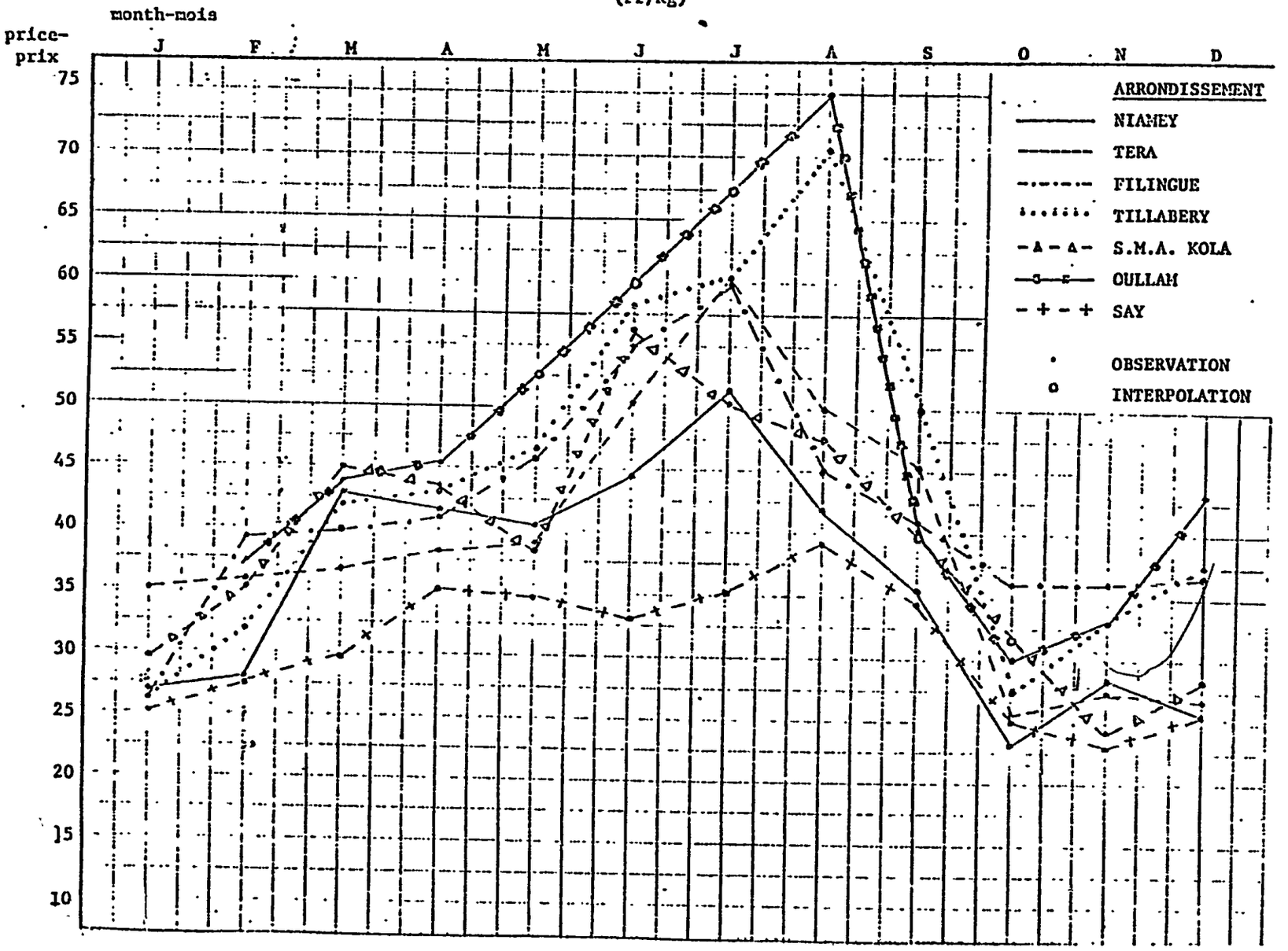


Table 10C-2

Millet Prices in Seven Cities, 1975

Prix de Mil dans Sept Villes, 1975

(Fr/Kg)

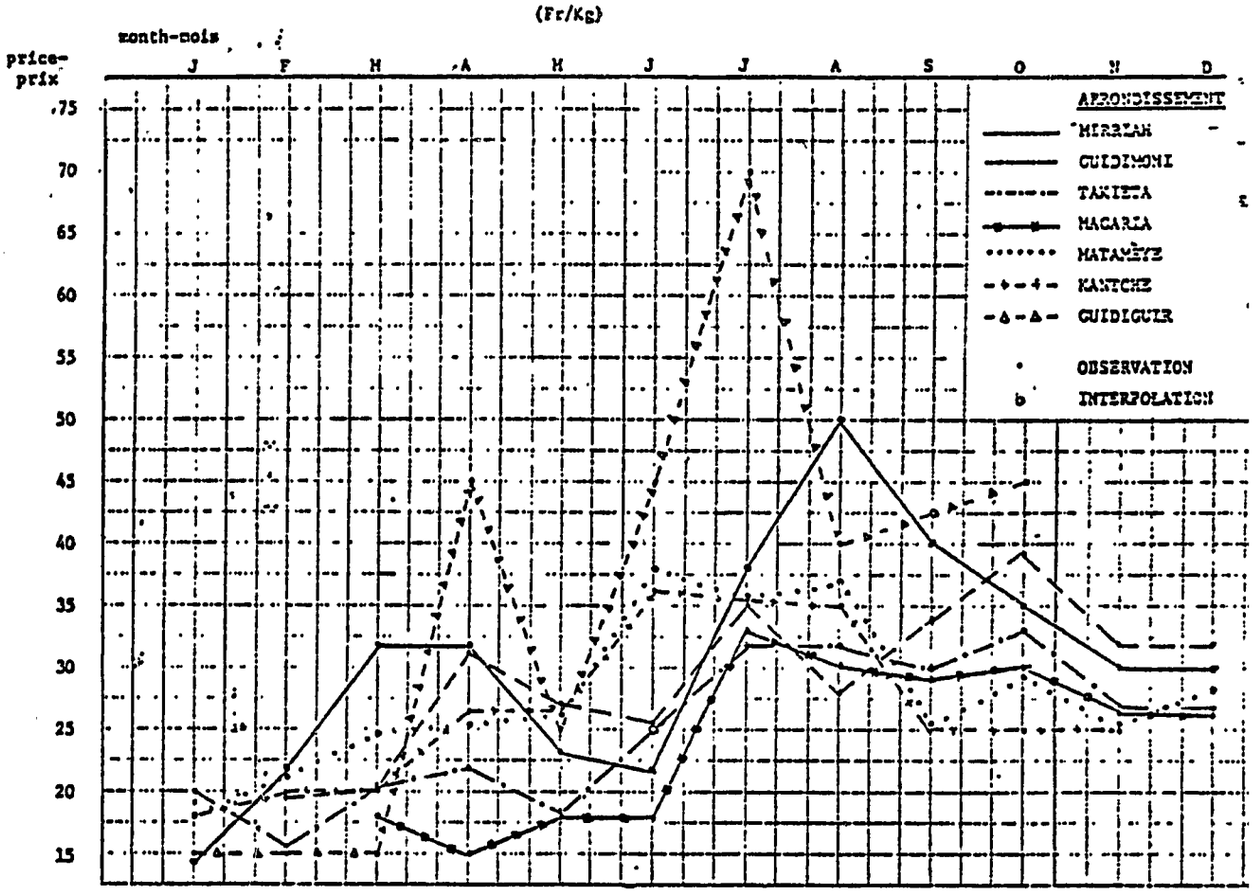


Table 10C-3

Niger, Department of Zinder

Sorghum Prices in Seven Cities, 1975

Prix de Sorgho dans Sept Villes, 1975

(Fr/Kg)

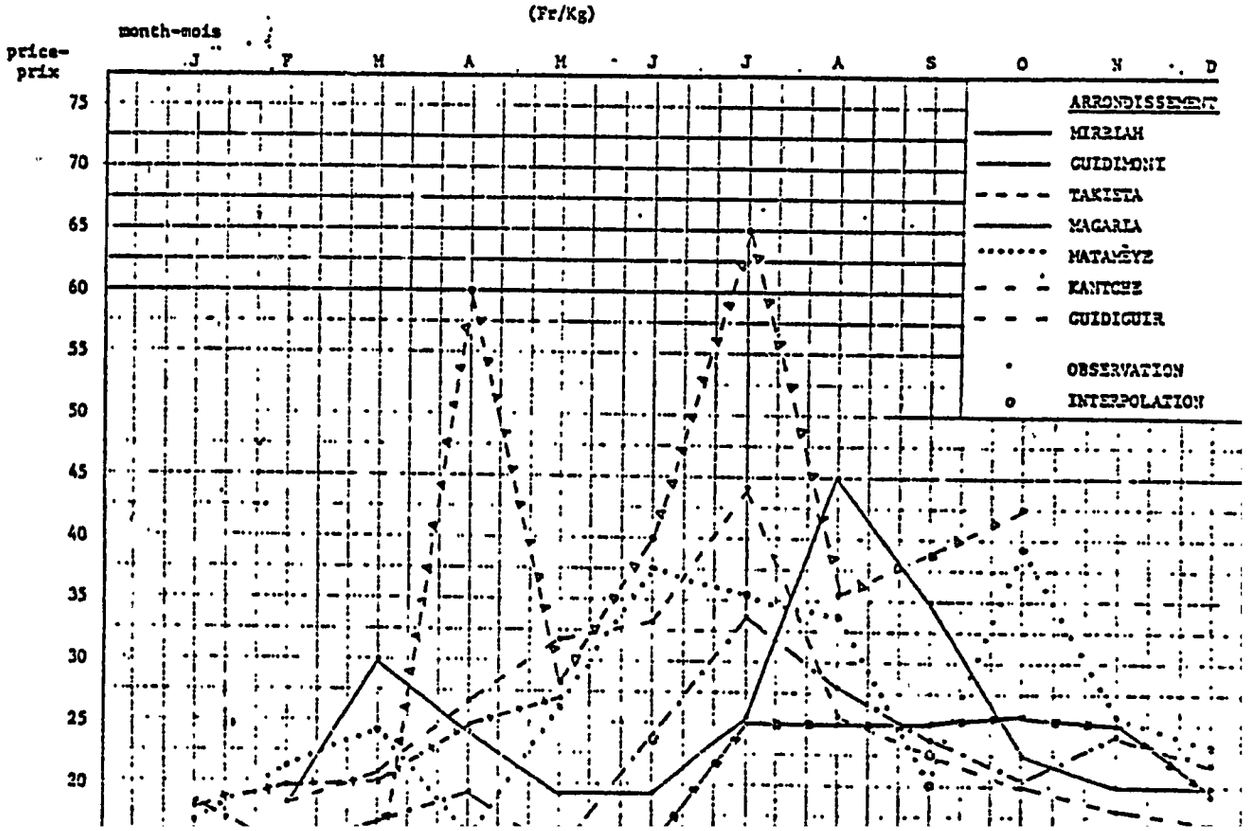


Table 10C-4

Niger, Department of Tahoua

Price of Millet - Prix de Mil, 1971

(Fr/Kg)

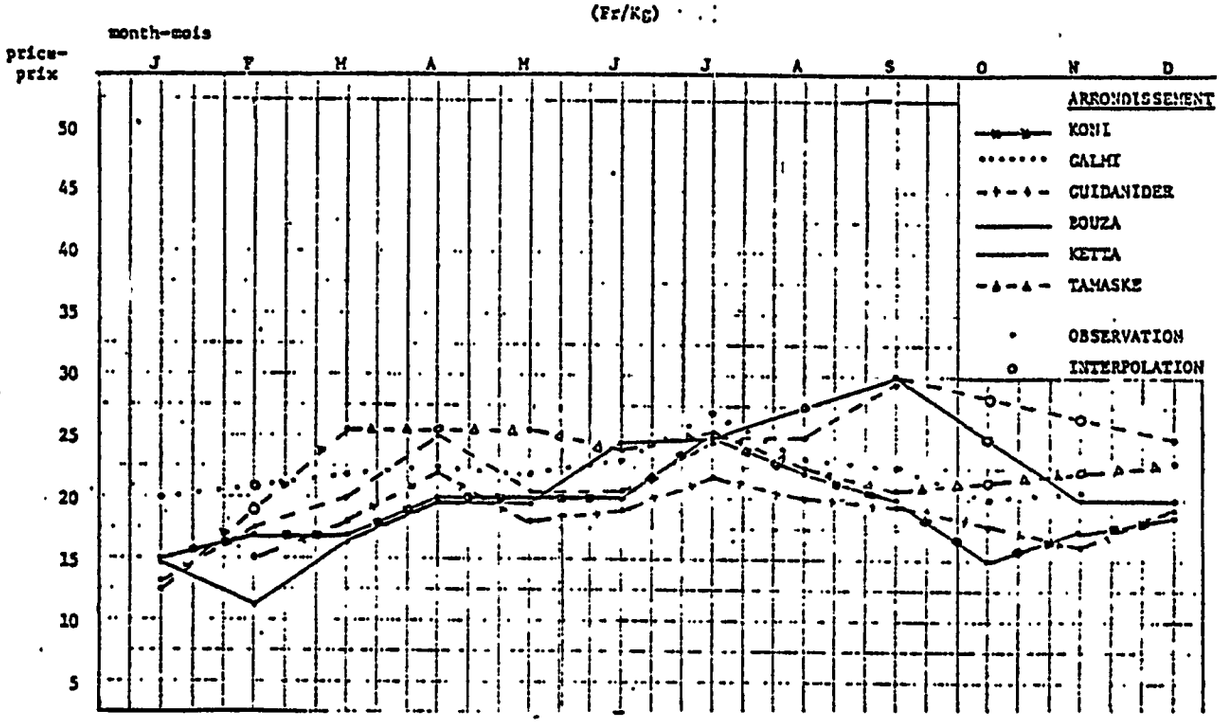


Table 10C-5

Niger, Department of Tahoua

Price of Millet - Prix de Mil, 1973

(Fr/Kg)

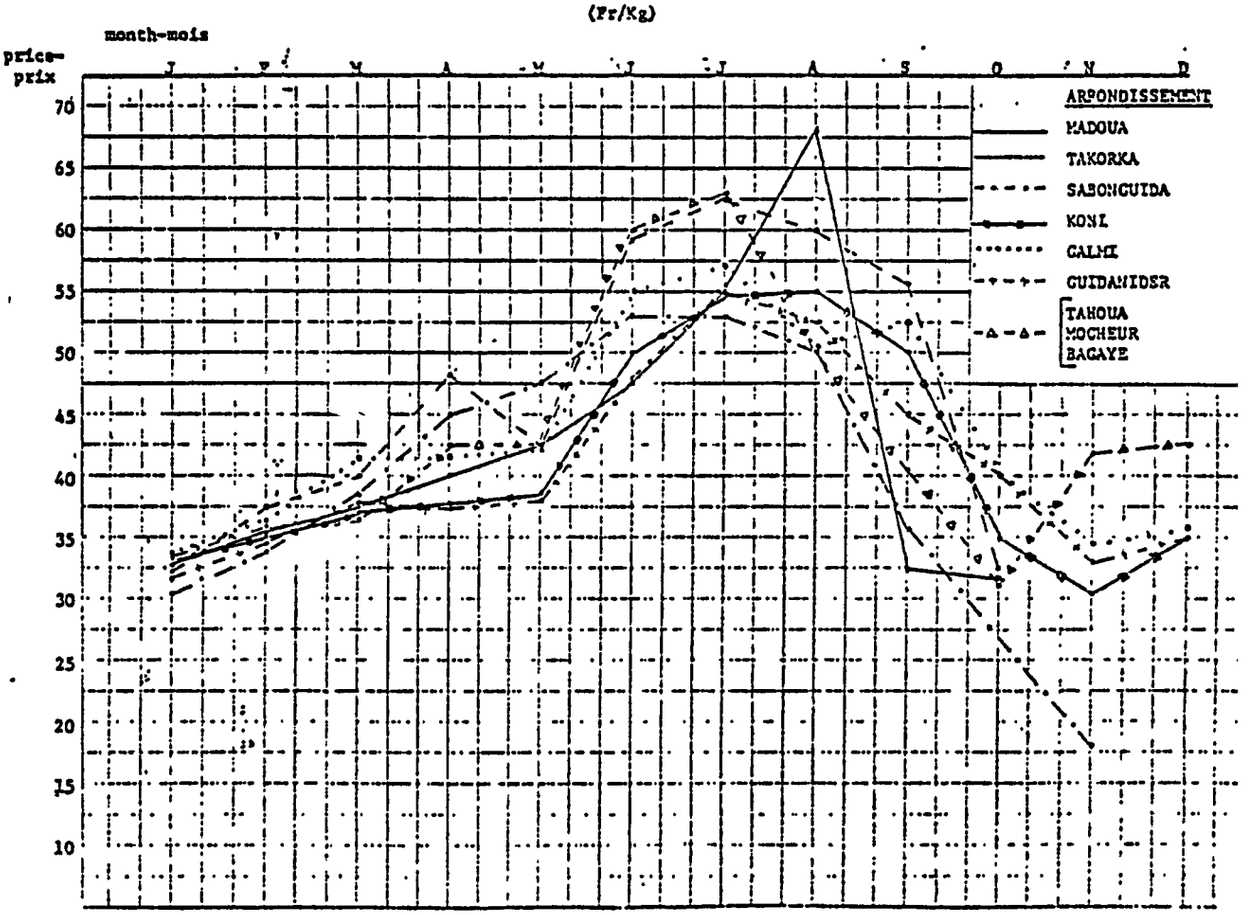


Table 10C-6

Niger, Department of Dosso

Millet Prices in Four Cities, 1975

Prix du Mil dans Quatres Villes, 1975

(Fr/Kg)

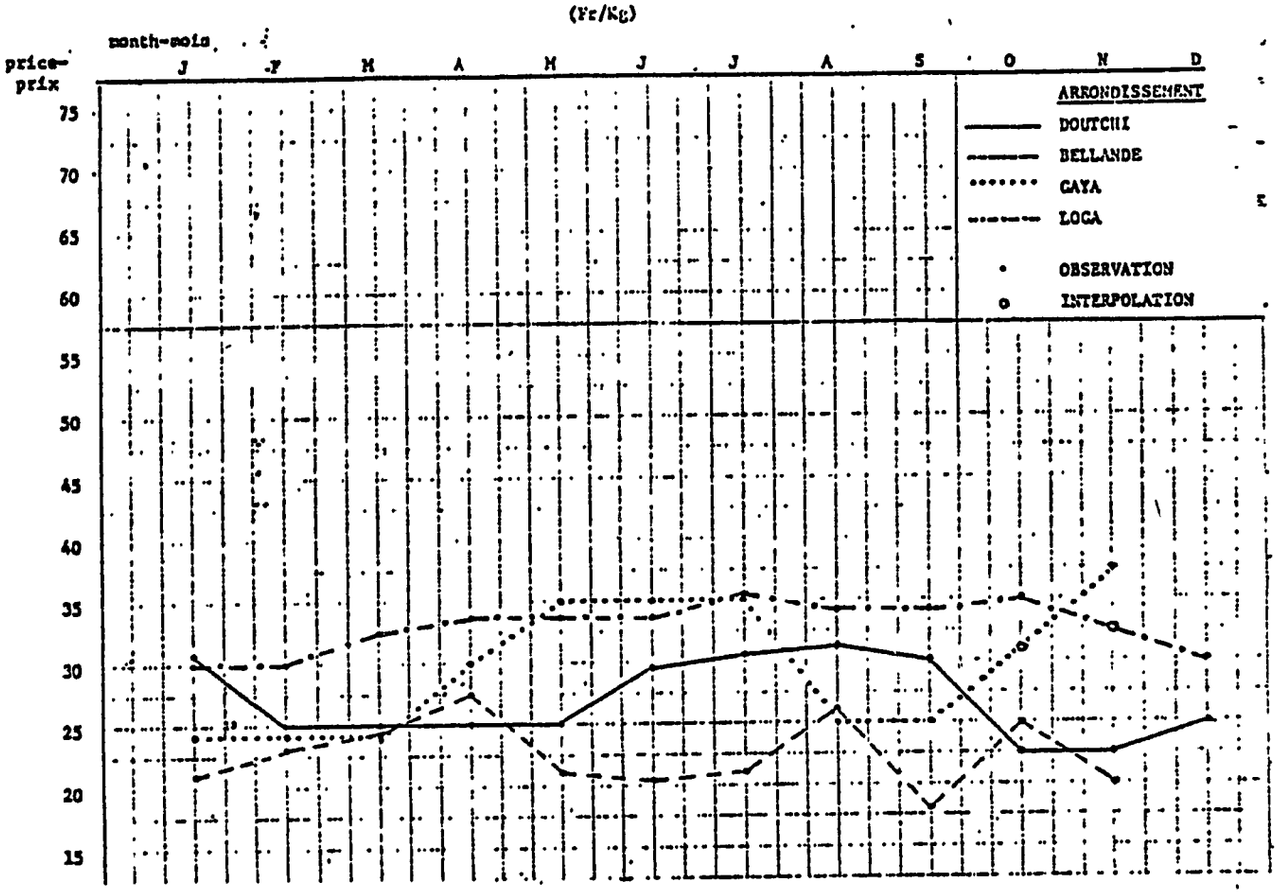


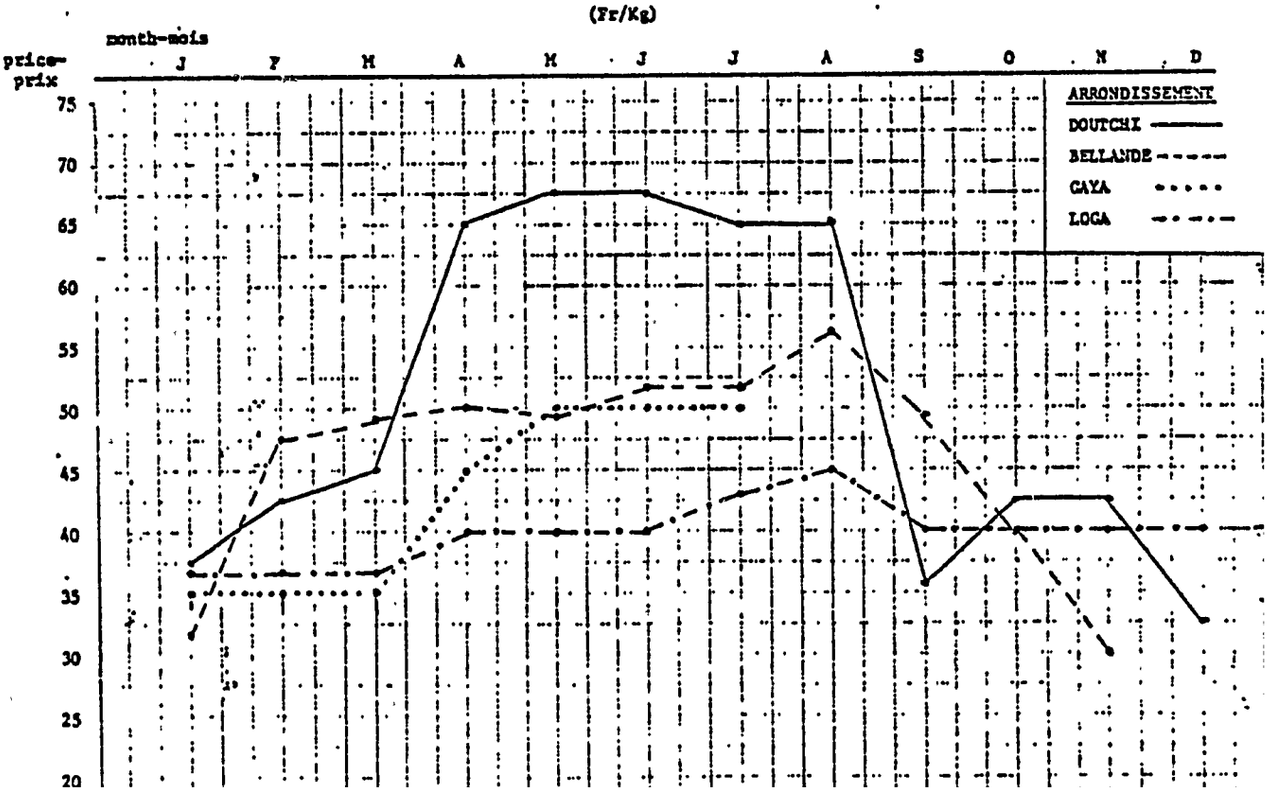
Table 10C-7

Niger, Department of Dosso

Coupea Prices in Four Cities, 1975

Prix de Nièbe dans Quatre Villes, 1975

(Fr/Kg)



VARIATIONS IN MILLET PRICES ON THE SAME MARKET WITHIN ONE YEAR (CFA/100 KG)

VARIATIONS ANNUELLES DES PRIX DU MIL SUR UNE MEME MARCHÉ

MARCHÉ MARKET	ANNÉE YEAR	MINIMUM	MAXIMUM	MOYENNE MEAN	ECART TYPE STD.DEV.	ECART TYPE / MOYENNE STD.DEV. / MEAN	MAXIMUM / MINIMUM	% HAUSSE % INCREASE
NIAMEY (City, Ville)	61	1300	3100	2050.0	535.13	.2610	2.385	138.5
	62	1500	2500	1898.3	280.32	.1476	1.667	66.7
	63	1300	2300	1650.0	293.88	.1791	1.769	76.9
	64	1400	1900	1555.3	137.90	.0885	1.357	35.7
	65	1400	2200	1675.0	237.89	.1420	1.571	57.1
	66	1700	5400	3308.3	1,085.00	.3280	3.176	217.6
	67	1500	2300	2108.3	257.46	.1221	1.533	53.5
	68*	1400	1700	1550.0	104.88	.0677	1.214	21.4
	71	2000	3500	2775.0	379.29	.1367	1.750	75.0
	73	3900	6100	5116.7	734.64	.1436	1.564	56.4
	74	3100	5100	3966.7	611.01	.1540	1.645	64.5
	75	3000	4600	3808.3	479.50	.1259	1.533	53.3
	76*	3900	6300	5355.6	804.85	.1503	1.615	61.5
KONNI	71	1500	2500	1891.7	288.28	.1756	1.666	66.6
	73	3300	5500	4125.0	861.68	.2089	1.666	66.6
	75	3000	4500	3543.7	451.42	.1274	1.500	50

*Figures for 1968 based on Jan.-Aug., Figures for 1976 based on Jan.-Sept. Chiffres de 1968 basés sur Jan.-Août, Chiffres de 1976 basés sur Jan.-Sept.

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Suite page suivante

VARIATIONS IN MILLET PR... WITHIN ONE YEAR (CFA/100 KG)

VARIATIONS ANNUELLES DES PRIX DU MIL SUR UNE MEME MARCHÉ

MARCHÉ MARKET	ANNÉE YEAR	MINIMUM	MAXIMUM	MOYENNE MEAN	ECART TYPE STD.DEV.	ECART TYPE / MOYENNE STD.DEV. / MEAN	MAXIMUM / MINIMUM	% HAUSSE % INCREASE
GUIDAN IDER	71	1500	2250	1858.3	238.21	.1282	1.500	50
	73	3250	5500	4095.8	777.37	.1898	1.692	69.2
	75	2500	4400	3408.3	667.03	.1957	1.760	76
BOUZA	71	1150	3000	2129.2	533.20	.2504	2.609	160.9
KEITA	71	1300	3000	2300.1	487.56	.2120	2.308	130.8
	75	2500	8000	4300.0	1,848.30	.4298	3.200	220
TAMASKE	71	1250	2600	2248.8	381.04	.1982	2.080	108
	75	2500	8500	4575.0	2,090.50	.4567	3.400	240
NIAMEY	73	2333	5160	3592.2	911.10	.2536	2.212	121.2
TERA	73	2600	6025	3925.0	1,050.90	.2677	2.317	131.7
FILING	73	2600	6000	4195.8	893.61	.2130	2.308	130.8
S.M.A. KOLO	73	2400	5660	3911.5	980.52	.2507	2.358	135.8
OUALLAM	73	3000	7500	4702.8	1,406.90	.2992	2.500	150
SAY	73	2320	3890	3064.8	515.29	.1681	1.677	67.7
MADOUA	73	3300	5500	4125.0	861.68	.2089	1.666	66.6
TAKORA	73	3250	6250	4483.3	1,192.10	.2659	1.923	92.3
TAHOUA	73	3200	6250	4333.3	974.06	.2248	1.953	95.3
TILABERY	73	2700	7100	4401.3	1,382.90	.3142	2.630	163
	75	3200	4500	3704.2	325.38	.0878	1.406	40.6

See following page
Suite page suivante

TABLE 11 (page 3)

VARIATIONS IN MILLET PRICES ON THE SAME MARKET WITHIN ONE YEAR (CFA/100 KG)

VARIATIONS ANNUELLES DES PRIX DU MIL SUR UNE MEME MARCHE

MARCHÉ MARKET	ANNÉE YEAR	MINIMUM	MAXIMUM	MOYENNE MEAN	ECART TYPE STD.DEV.	ECART TYPE / MOYENNE STD.DEV. / MEAN	MAXIMUM / MINIMUM	% HAUSSE % INCREASE
DOUTCHI	75	2250	3150	2691.7	341.01	.1267	1.400	40
BELLAN	75	1800	2750	2245.8	287.99	.1282	1.528	52.8
GAYA	75	2400	3800	3037.5	573.32	.1887	1.583	58.3
ILLELA	75	2500	4600	3345.8	675.36	.2019	1.840	84
MIRRIAH	75	1400	5000	3066.7	965.15	.3147	3.571	257.1
MATAMEYE	75	1800	3800	2766.7	589.81	.2132	2.111	111.1
KANTCHI	75	1800	3700	2666.7	631.50	.2368	2.056	105.6

BUYING PRICE (CFA/KG)	QUANTITY BOUGHT (T) BY OPVN	FOOD AID (METRIC TONS)	OFFICIAL SELLING PRICE (CFA/KG)	QUANTITY SOLD (T)	STOCKS END OF CAMPAIGN	STORAGE CAPACITY (T)	COMMENTS
70-71 Millet: 10.0 Rice: 17.0	4,600	2,000	Millet: 15-25 Rice: 65	6,600	-0-	4,900	Selling and buying prices by regions, quality and origin of product.
71-72 Millet: 12.5 Sorghum: 10 Rice: 21.0 Cowpeas[1]: 20	2,800 800 2,600	13,600*	Millet: 18-25 Sorghum: 11 Rice: 70	3,700 9,300 600 2,800	400 (Rice)	5,500	
72-73 Same as 71-72 Cowpeas: 25.0	7,000	125,000*	Millet: 35 **	n.a.	n.a.	n.a.	
73-74 Millet: 25 Sorghum: 20 Rice: 30 Cowpeas: 30	25,000 ? 3,500	120,000*	Millet: 45	n.a.	8,400 (mostly Food Aid)	34,500	OPVN sources quote food aid figures of 185,000 tons, which is probably an exaggeration. This figure of 120,000 tons is from a presentation by Mr. T. Jomni, technical director of OPVN, at an OPVN training seminar
74-75 Millet: 25.0 Sorghum: 20.0 Rice: 35 Cowpeas: 40.0	47,300 1,200 ? 18,800	56,000* +15,000 Millet & Sorghum (OSRO)	Millet: 45 **	72,200 including OSRO & Food Aid +13,800 (Niébé)	19,500 (incl. OSRO) 5,000 500 1,000 13,500 (Food aid***)	34,500	OSRO (Office for Sahelian Relief Operations, special agency of the FAO) bought millet & sorghum in Mali & Upper Volta & donated it for resale by OPVN in Niger 11,800 tons of Niébé were exported to Nigeria.
75-76 Millet: 25.0 Sorghum: 20.0 Rice: 35.0 Cowpeas: 40.0	12,900 8,500 3,100 25,800 +11,500 Millet 4,000 Sorghum imported from Mali, Upper Volta & Nigeria	- 43,000 - - + 6,000 (Maize)	Millet: 45	39,000 30,000 6,500 9,500 + 3,000 (Maize)	30,000	35,500 +35,000 funded & partially under construction	15,000 tons of Niébé were exported to Nigeria by OPVN. In addition SONARA bought 13,900 tons of Niébé through the cooperatives & exported them to Nigeria.

Source: OPVN, various reports

[1]Cowpeas -more commonly referred to as niébé.

*Sum of all types of food aid, sometimes including flour and milk-powder.

**Selling prices vary by product (niébé, millet, rice,etc.) & origin of the product (European sorghum, American sorghum, etc.).

***Sales and stocks at the end of period don't add up to total quantity bought, received as gifts and in storage at beginning of period, because some of the food aid was distributed free by the gendarmerie. Furthermore, paddy reduces by weight to rice at a ratio of about 10:7.

TABLE 13

Millet Production and OPVN Purchases by Region, 1974/75 and 1975/76
Mil: Production et Achats par l'OPVN par Région, 1974/75 et 1975/76

Region Département	1974/75 Estimated Production Production Estimée (1000 tons)	1974/75 Purchased by OPVN Achetés par OPVN (1000 tons)	1974/75 % Production	1974/75 %Total Marketing* %Commercialisation* Total	1975/76 Estimated Production Production Estimée (1000 tons)	1975/76 Purchased by OPVN Achetés par OPVN (1000 tons)	1975/76 %Production	1975/76 %Total Marketing* %Commercialisation* Total
Diffa	5.1	1.0	19.6	130.1	10.8	0.6	.5	3.6
Zinder	213.3	12.3	5.8	38.6	136.4	7.40	5.40	36.2
Maradi	154.7	14.6	9.4	62.7	79.2	2.47	3.1	20.7
Tahoua	117.2	11.6	9.9	66.0	35.9	.04	.1	.6
Dosso	164.9	2.5	1.5	10.0	169.2	.3	.2	1.2
Niamey	227.4	4.3	1.2	8.0	149.8	2.59	1.7	11.5
Niger Total	882.6	47.3	5.3	35.3	581.3	12.85	2.2	14.6

*Assumed to be 15% of total marketing. Supposée atteindre 15% de la commercialisation totale.

TABLE 14
Share of Individual Suppliers in OPVN Purchases
Provenances des Achats de l'OPVN

	Direct Purchases by OPVN / Achats Directs par OPVN		Purchases through Cooperatives / Achats par Intérmediaire de Coopératives		Purchases through Private Traders / Achats par Intérmediaire de Négociants Privés	
	1000 tons	% total	1000 tons	% total	1000 tons	% total
1974-75						
Millet-Mil	8.2	17.3	15.3	32.4	23.8	50.3
Sorghum-Sorgho	.6	52.6	.4	29.5	.2	17.9
Cowpeas-Niébé	2.4	13.2	9.9	52.3	6.5	39.5
1975-76						
Millet-Mil	2.7	20.9	10.2	79.1	purchase not allowed	
Sorghum-Sorgho	1.9	22.4	6.6	77.6	achat interdit	
Cowpeas-Niébé	6.3	24.4	19.5	75.6		

Purchases through Cooperatives and Traders
Achats par intermediaire de Coopératives et de Commerçants

		1000 tons	% total
1976-77*			
Millet-Mil	direct purchase not allowed	14.5	100
Sorghum-Sorgho	achat direct interdit	.3	100

*As of Nov. 30, 1976. Target for entire campaign: 50,000 tons of millet and sorghum combined. En date du 30 nov. 1976. Objectif pour toute la campagne: 50.000 tonnes de mil et sorgho combinés.

SOURCE: OPVN, various reports, rapports divers.

TABLE 15

Purchases by OPVN during 1976-77 Crop Year (in tons)*
Achats par l'OPVN pendant la Campagne 1976-77 (en tonnes)*

	Through UNCC Par Intermédiaire de l'UNCC		Through Traders Par Intermédiaire de Commerçants	
Bases:	Millet-Mil	Sorghum-Sorgho	Millet-Mil	Sorghum-Sorgho
Niamey II	38.500		231.900	--
Niamey III	177.300	11.100	14.800	--
Dosso	26.524		29.174	10
Konni	40.140	6.536	--	--
Tahoua	2.834	1.611	251.500	--
Maradi	953.000	24.200	158.000	--
Tessaoua	2,778.200	1.000	146.000	--
Zinder	2,390.700	83.800	1,238.600	1.9
Magaria	4,066.900	38.600	--	--
Diffa	--	--	--	--
TOTAL+	10,414.098	166.847	2,069.974	11.9

*Bought until 11-20-76. Achetés jusqu'au 20.11.76.

+According to latest figures, totals stood at 14,529.4 tons of millet and 286.4 tons of sorghum as of 11-30-76. D'après les chiffres les plus récents, les totaux s'élevaient à 14.529,4 tonnes de mil et 286,4 tonnes de sorgho à la date du 30.11.76.

SOURCE: OPVN

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OPVN Sales by Individual Warehouses (tons)
Provenances Géographiques des Ventes par les Entrepôts de l'OPVN (tonnes)

	Millet Mil	Sorghum Sorgho	Rice Riz	Corn Maïs	Cowpeas Niébé	Wheat Blé
Niamey I	5,719	877	1,553	737	356	171
Niamey II	9,101	7,626	206	427	50	--
Niamey III	2,166	1,923	157	87	7	--
Dosso	3,872	3,139	1,008	805	1	--
Konni	3,410	1,704	258	171	1,116	--
Tahoua	3,154	2,377	244	111	12	2
Maradi	2,289	1,737	1,041	201	931	--
Tessaoua	1,473	1,108	290	17	465	--
Zinder	2,526	1,443	700	165	4,123	40
Magaria	1,324	1,105	473	108	2,285	--
Maïne	1,297	3,126	156	30	1	92
Agadez	2,747	3,790	423	158	--	575

Table 17

Cost Calculation Used by OPVN in 1975/76
Calcul de Prix de Revient Utilisé par l'OPVN en 1975/76

	CFA/kg
Commission to UNCC Commission de l'UNCC	1.10
HOH Treatment (disinfectant) Traitement à l'HOH (disinfectant)	0.15
Storage (9 months)-Stockage (9 mois)	0.10
Transport	2.20
Handling - Manutention	0.40
Management - Gestion	2.0
Amortization of Warehouses Amortissement des Entrepôts	2.0
Phostoxin Treatment Traitement au Phostoxin	0.50

TABLE 18
Cost Calculation of SONARA
Calcul des Prix de Revient par Produits

Costs Coûts	Groundnuts - Arachides			Cowpeas Niébé
	Unshelled (bought+ sold) Coques (achats+ ventes)	Unshelled (bought) Shelled (sold) Coques (achats) Décort. (ventes)	Shelled (bought & sold) Décort. (achats+ ventes)	
Purchase Price - Achats	40,000	60,000	55,000	30,000
Commission - OS	2,400	3,600	3,000	1,700
Product Prep. - Conditionnement	—	—	40	40
Unloading - Bebardage	2,000	3,000	1,500	1,500
Temporary labor - Personnel Temporaire	200	300	200	200
Handling and Stockpiling - Manutention + Mise en Pyramide	200	300	200	300
Processing - Traitement	120	180	120	300
Sacks + Twine - Sacherie + Ficelles	2,096	4,623	1,527	2,298
Tarpaulin + Rope - Baches + Cordes	2,300	1,200	1,200	945
Shelling - Frais de Decorticage	—	3,000	—	—
Sale of shells + broken pieces - Ventes de sons et brisures	—	(-1,470)	—	—
Costs of Delivery to Client - Frais de Livraison/Client	2,400	2,800	2,800	5,100
Total Marketing Cost - Coûts Total Campagne	51,716	77,533	65,587	42,282

Suite page suivante
See following page

TABLE 18 (Continued, Suite)
Cost Calculation of SONARA
Calcul des Prix de Revient par Produits

Costs Coûts	Groundnuts - Arachides Unshelled (bought+ sold) Coques (achats+ ventes)	Unshelled (bought) Shelled (sold) Coques (achats) Décort. (ventes)	Shelled (bought & sold) Décort. (achats+ ventes)	Cowpeas Niébé
Fixed costs - Frais fixes	2,259	3,320	2,809	1,812
Costs of financing - Frais Financiers	3,620	5,427	4,591	2,960
	= 5,779	8,747		
Ex-factory Price - Prix de revient rendu carreau-usine	57,595	86,280	72,987	47,055 (PM)
Export Costs - Frais d'Exportation				
Statistical tax - et Statistiques	—	2,157	1,825	1,176
Export Tax - Droit unique de sortie	—	2,250	2,250	2,000
Niger River Crossing - Transit Niger	—	500	500	500
Insurance - Assurance (1%)	—	863	730	471
Border Toll - Intervention Pays de Transit	—	3,890	3,890	—
Ocean Freight - Fret Maritime	—	5,000	5,000	—
Transport costs - Nigeria Transport Nigeria FOB		10,880	10,880	—
		25,540	25,537	4,147
CIF Price, Europe - Prix de Cession CAF, Europe	P.M.	111,820	98,524	51,202

SOURCE: SONARA

Niger: Imports and Food Aid, 1976/77
Niger: Importations et Aide Alimentaire, 1976/77

Product-Produit	1975/76 or 1976 ACTUAL IMPORTS IMPORTATIONS EFFECTIVES		1976/77 or 1977 IMPORT REQUIREMENTS IMPORTATIONS NECESSAIRES						
	Total	%FA*	Total	of which covered by: partie couverte par		Total covered, couvert	Estimated to be not yet covered Partie estimée non encore couvert		Estimated ocean freight cost coût estimé du frêt maritime
				Commercial Purchases Achats Commerciaux	FA. Committed Allouée		quantity quantité	value valeur	
	(.....Thousand tons..... en milliers de tonnes)						(.....Million US $.....)		
Wheat-Blé	27.0	64.8	10.0	0.0	5.5	5.5	4.5	0.5	0.1
Rice-Riz	5.8	100	5.0	0.0	0.0	0.0	5.0	1.3	0.1
Coarse Grain-Céréales	97.5	80.1	31.0	0.0	31.0	31.0	0.0	0.0	0.0
Total:	130.3	77.8	46.0	0.0	36.5	36.5	9.5	1.8	0.2

SOURCE OF SUPPLY - SOURCE D'APPROVISIONNEMENT	Commercial	FA	Total
Wheat-Blé			
CANADA	0.0	5.0	5.0
EEC	0.0	0.5	0.5
TOTAL	0.0	5.5	5.5
Coarse Grain-Céréales			
EEC	0.0	26.0	26.0
USA (Tital II PL 480 Alloc. F.Y. 1977)	0.0	5.0	5.0
TOTAL	0.0	31.0	31.0

REFERENCE PERIOD:
Wheat and Coarse Grains: July/June - Rice: Calendar year

PERIODE DE REFERENCE:
Blé et Céréales: Juillet/Juin - Riz: Année Civile

*FA = Food Aid, Aide Alimentaire

Appendix 2

The Marketing of Cash Crops

The major cash crops, niébé, peanuts and cotton, have always been marketed through cooperatives, which also provide input and extension services. The cooperatives buy not only from their members, but from all farmers at the same official price. They buy either on the markets or at warehouses, which they rent for the duration of the marketing season. The extension workers and the advisors of the UNCC assist the local cooperatives to varying degrees. For weaker cooperatives, they provide marketing services.

The export organizations, SONARA (for peanuts and, since 1975/76, niébé) and CFDT (for cotton) must buy the products from the individual cooperatives within a specified period of time (usually 10 days). These organizations collect the products from the cooperatives. The cooperatives receive a commission to cover their costs. The benefits of the operation belong to the individual cooperatives which finance the campaign through a loan from the CNCA. UNCC acts only as an intermediary.

Some peanuts and cotton are marketed by the Organismes Stockeurs. These organizations are a form of pre-cooperative and provide essentially the same services.

CFDT and SONARA assure the export of cash crops. Their profits and losses are neutralized by the CSPPN (Caisse de Stabilisation des Prix des Produits du Niger). During the past years, SONARA had run up a considerable debt to the CSPPN, because it invested its profits in other operations instead of delivering them to the Caisse. These other operations (trade in land rover spare parts, imports of discotheques) caused considerable losses, and SONARA had to divest itself of them.

CSPPN seems determined to fight tendencies of becoming the source of funding for all types of government agencies. It does lend money to the CNCA, though, and plans are presently underway to involve it in the financing of OPVN. This step must be considered carefully, though, because it would involve "taxing" the producer of cash crops (by not transferring all export earnings back to the farmer). These earnings would be used to subsidize urban consumers by allowing the purchase of cereals below cost. Given the income distribution and the social objectives of the government of Niger, such a step would be inadvisable. The FAO has also pointed out the dangerous precedent which is being set by letting OPVN operate at a loss.

Appendix 3

The Production and Marketing of Rice

A. Production

Rice is produced with pump-irrigation in the department of Niamey, on fields along the Nigeer River. The following table gives an overview of the production results in 1975/76.

Table 1. Rice

	Surface (ha)	Production(tons)	Yield(kg/ha)
Rainy Season	1,046.5	3,969.5	3,790
Dry Season	643.4	2,985.32	4,640
TOTAL:	1,689.9	6,954.82	4,116

The production of rice is primarily organized by the UNCC. This agency provides inputs, arranges the maintenance of irrigated fields and provides extension services. For this service, it receives a subsidy of 3,000 CFA/ha. The farmers themselves pay up to 50,000 CFA/ha for maintenance, administrative services, seed, fertilizer, etc. If production costs exceed this amount, the government makes up the difference. In 1975/76, the average costs of production per hectare amounted to CFA 52,000. Thus, the subsidy to rice production was 5,000 CFA/ha, not taking into account the general subsidization of agricultural inputs, such as fertilizer. In fact, the true subsidy was considerably larger, because farmers who had lower costs retained their profits. According to UNCC figures, it was closer to 17,000 CFA/ha, which corresponds to a subsidy of approx. 4 CFA/kg for paddy, or close to 7 CFA/kg for rice. (See Table 2).

Table 2. Rice Production Costs and Subsidization (Currency: CFA)

Surface (ha)	1,689.9
Production (tons)	6,954.8
Value of Production at Official Producer Prices	243,418,000
Production costs:	
borne by producers	58,977,119
subsidy to producers	28,819,321
subsidy to UNCC	5,069,700
TOTAL:	92,866,140
Net Profit	150,551,860
Net Profit per ha.	89,089
Total production subsidy	33,889,021
per ha	20,054
per ton of paddy	4,872.75
per kg of rice[a] (approximately)	7.50

[a]Conversion from paddy to rice as follows:

Gross Paddy	6,954.8 tons
5.2% impurities yields	6,593.2 tons
Yield 68.5% white rice	4,516.3 tons

B. Marketing

Like most cash crops, rice is marketed through the cooperatives of the UNCC. The cooperatives buy the rice from their members at 35 CFA and sell it to the rice mills at 38 CFA. The commission of 3 CFA goes entirely to the individual cooperative.

The rice mills are a public enterprise under the name of "Riz du Niger".* They are operated by the UNCC, whose director is simultaneously director of "Riz du Niger". Table 3, based on last year's results, indicates the technical efficiency of the rice mills.

*One is located in Kirkissoye and another in Tillabery.

Table 3. Rice Yields

		Yield	Yield
	Gross Paddy	100% (base)	
Cleaning	Impurities	5.2%	
	Net Paddy	94.8%	100% (base)
	Rice 33 (1st quality)	.3%	.3%
	Rice 32 (2nd quality)	42.6%	44.8%
	Broken Rice (incl. flour)	22.2%	23.4%
	Total White Rice	65.1%	68.5%
Milling	Bran	9.6%	10.0%
	Milling losses (hulls etc.)	20.1%	21.5%

SOURCE: Riz du Niger

Riz du Niger sells its output to OPVN. Table 4 lists the prices as well as the gross revenue per ton of gross paddy based on the yields listed in Table 3.

Table 4, Price and Revenue of Rice (Currency: CFA)

	Price/kg.	Revenue per ton of gross paddy
Rice 33 (1st quality)	167	500
Rice 23 (2nd quality)	81	34,506
Broken Rice	55	≈ 15,500*
Rice Flour	85	
Bran I	11	≈ 950*
Bran II	8.8	
	TOTAL:	51,500

*Because separate yields for rice flour and broken rice, bran I and bran II are not available, it is assumed that these categories yield about 50% of each quality.

For a ton of paddy, which it buys at 38 CFA, mills and then sells to OPVN as rice and bran, Riz du Niger receives approximately 51,500 CFA.

There were no balance sheets available but the team was assured that the rice mills, in normal years, can cover their costs. No additional subsidization seems to enter at this stage of the rice market.

OPVN handles rice like all food crops which it distributes. There is no separate accounting available to determine whether OPVN's rice operation was any more or less profitable than millet or sorghum trading. This would imply an additional subsidy for rice at this stage.

There is not as large a private market for rice as for millet and sorghum. The main reasons are probably that production can be controlled quite effectively because it is very localized, and that the sale price to consumers is very low, due to the many subsidies. This does not make it very profitable for private traders to try to enter the market. During its visits to various markets, the team saw very few traders selling rice, while numerous millet traders were present in almost every market.

Appendix 4

Provision of the Rural Areas with Inputs, Credit and Consumer Goods

The cooperatives are practically the only source of inputs and credit to the farmer. They advance inputs for the production of cash crops and are reimbursed at the end of the season when they buy the products from the farmers. The individual cooperatives are supplied by the UNCC.

UNCC imports the inputs, if necessary, and sells them to the coops, presumably at cost. The director of the UNCC explained to the team that he understood the role of UNCC to be one of providing services to the cooperatives and acting as an intermediary to banks. According to its statutes, the UNCC should induce all farmers to form independent cooperatives, but, quite frequently, cooperatives function only with the technical assistance provided by UNCC. Forty percent of the present 396 cooperatives, however, seem to be quite viable and could exist without the continuous support of the UNCC. The operating expenses of the UNCC in Niamey, and of its extension agents, are paid out of the national budget. Thus, the cooperatives are indirectly subsidized by the state.

Credit to the cooperatives is provided by the CNCA, which was part of the UNCC until 1967. CNCA's funds consist of an initial endowment of 370 million CFA by the government of Niger, and IDA credit of 16 million CFA, plus reserves, withheld earnings and an Entente Fund loan, which bring total funds to 564 million CFA. In addition, CNCA received credits from various sources (among others, Treasury-400 million CFA) and deposits by UNCC, the cooperatives and a few other creditors. The total resources amount to 1,617 million CFA (in 1975).

CNCA provides production credits to cooperatives and to individual farmers, as well as credits for the marketing season to UNCC, the cooperatives, OPVN and SONARA. It charges a uniform rate of interest of 6.5 percent, half of the market rate of 13 percent. This allows CNCA to earn about 4 percent on its own invested capital. The director of CNCA, Mons. Abdou Kane, explained to the team that there is presently no opportunity for the farmer to obtain a loan for any purpose other than agricultural production, except from private traders. The CNCA is considering granting consumption-type loans to farmers in the near future, but nothing definite can be said as of now.

The commercialization loans comprise approximately two-thirds of all the funds which CNCA lent in 1974-75 (748 million CFA of a total 1,116.4 million CFA in total loans granted). These campaign loans are low risk, quick turnover operations which can be rediscounted at the central bank. They seem to constitute the backbone of CNCA's activities.

The production loans are divided about equally between short term (1 year) and medium term loans. Over 70 percent go to collective borrowers (cooperatives). In the following table, loans are divided by usage:

Table 1. The Use of UNCC Production Loans (CFA)

	1970/71	1971/72	1972/73	1973/74	1974/75
"Amenagements"*	82,521	116,311	223,308	402,020	70,165
Fertilizers, Seed	18,585	2,888	1,250	220,676	55,602
Equipment	13,303	15,387	14,767	14,985	73,702
Reconstitution of Herds	--	--	--	--	13,839
Improvement of agricultural land	16,282	24,326	8,829	102,986	87,270
Improvement of pastoral land	--	--	--	8,843	67,812
	130,691	158,912	248,154	749,510	368,390

*Under this heading fall a variety of loans, primarily to pilot farms and research stations. It also includes loans to functionaires and salaried employees, which were discontinued after 1974.

CNCA claims to recover about 90 percent of its normal credits and 60 percent of its high risk credits. High risk credits amount to about 25 percent of the total. The ratio of recovered credits has improved since 1974, when CNCA introduced a program of stringent control of the cooperatives to which it extends credit.

There are no official organizations which provide the rural sector with consumer goods. COPRONIGER has a monopoly over certain imports, but seems to intervene at the wholesale level only. The UNCC started to provide certain deficit cooperatives with millet during the recent drought (1,700 tons in 1973/74; 800 tons in 1974/75). The major suppliers of consumption goods to the rural areas are, as always, the private traders.

Appendix 5 People Contacted in Niger

Local agencies:

OPVN:	Mr. Anabo, Director Mr. Doro Mr. Herssens, technical advisor, UNDP Mr. Bosch, technical advisor, UNDP Mr. Hayward, technical advisor, UNDP Mr. Stegmann, technical advisor, UNDP
UNCC, Riz du Niger	Mr. A. Garba
C.S.P.P.N.:	M. I. Koussou, Director
Ministry of Economic Affairs:	Mr. I. Mayaki, Secretary General Mr. D. Soulaymane, Director, agricultural production
SONARA:	Mr. Souna, Director
CNCA:	Mr. Abdou Kané, Director Mr. A. Favre
Ministry of Rural Development:	Squadron Commander Boulama Manga, Minister of Rural Development and Minister Coordinator of CILSS Mr. Saley, Director of Agriculture Mr. I. Katché, Head of the office of statistics Mr. Y. Boulanger, technical advisor
Ministry of Planning:	Mr. Oumarou Sani, Director of Planning
B.C.E.A.O. (Central Bank):	Mr. Boukary Aji
Chamber of Commerce:	Mr. Cusman, Director Mr. Zakari Garba

International agencies:

UNDP:	Mr. Piers de Raveshoot
USAID:	Mr. Al Barron, Mission Director Mr. G. Wood, F.F.P. program director Ms. S. Shayes Mr. Keith Williams
A.C.D.I. (Canadian Agency for International Development	Mr. C. Desjardins, Administrator Ms. K. Fenton
German Embassy:	Mr. J.S. Reitberger, Ambassador

GLOSSARY

BCEAO: Banque Centrale des Etats de l'Afrique de l'Ouest, central bank.

BDRN: Banque du Développement de la République du Niger, the commercial bank which carries the accounts of OPVN.

CNC: Comité National des Céréales

CNCA: Caisse Nationale du Crédit Agricole, commercial bank which carries the accounts of the UNCC, formerly a part of the latter.

CSPPN: Caisse de Stabilisation des Prix des Produits du Niger

OPVN: Office des Produits Vivriers du Niger, the official grain marketing agency

OS: Organismes Stockeurs, cooperative-type organisations for the marketing of peanuts

SONARA: Société Nigérienne de Commercialisation de l'Arachide.

UNCC: Union Nigerienne de Crédit et de Coopération, national agency in charge of forming rural cooperatives. It assists them and provides them with inputs. It also functions as their intermediary to banks. Theoretically, the individual cooperatives are independent, UNCC officials admit however, that only about 40% of the total of 396 cooperatives function without constant supervision from Niamey.