PN ABQ-105

AGRICULTURAL MARKETING IMPROVEMENT STRATEGIES PROJECT

Sponsored by the

U.S. Agency for International Development

Assisting AID Missions and Developing Country Governments
to Improve Agricultural Marketing Systems

Prime Contractor Abt Associates Inc

Subcontractors Postharvest Institute for Perishables, University of Idaho,
Deloitte Haskins & Sells,

AID Contract No. DHR-5447-Z-00-7074 AID Project No 936-5477

AGENCY FOR INTERNATIONAL DEVELOPMENT
PPC/CDIE/DI REPORT PROCESSING FORM

PN ABQ-165
84917

ENTER INFORMATION ONLY IF NOT INCLUDED ON COVER OR TITLE PAGE OF DOCUMENT

1 Project/Subproject Number: 936-5447

2 Contract/Grant Number: DHR 5447-Z-00-7074

3 Publication Date: December 1992

4 Document Title/Translated Title: Niger Export Marketing Of Nigerien Onions

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6 Contributing Organization(s)

7 Pagination

8 Report Number

9 Sponsoring A I D Office: S&T/RD

10 Abstract (optional - 250 word limit)

11 Subject Keywords (optional)
1
2
3
4.
5.
6

12 Supplementary Notes

13 Submitting Official: Jerry Martin

14. Telephone Number: (301) 913-0500

15 Today's Date: 10-14-93

DO NOT write below this line

16 DOCID

17 Document Disposition: DOCRD [ ] INV [ ] DUPLICATE [ ]

AID 590-7 (10/88)

NIGER

EXPORT MARKETING OF NIGERIEN ONIONS

DECEMBER 1992

NIGER

EXPORT MARKETING OF NIGERIEN ONIONS
FINAL DRAFT

Submitted to:

U.S. Agency for International Development
Niamey, Niger

By:

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December 1992

TABLE OF CONTENTS

INDEX OF TABLES

INDEX OF FIGURES

GLOSSARY

AMEP	Agriculture Marketing and Export Promotion Project
BIAO	Banque International de l'Afrique de l'Ouest
BIT/ILO	Bureau International de Travail/International Labor Office
CCCE	La Caisse Centrale de Coopération Economique, the French bi-lateral financial assistance agency
CFA	Central African Franc, 250 CFA = U.S. $1.00
CEAO	Communauté Economique de l'Afrique de l'Ouest; see ECOWAS
CIF	Costs-Insurance-Freight price is FOB price plus additional costs of delivery to point of sale
CLUSA	Cooperative League of the U.S.A.
CNCE	Centre Nigerien du Commerce Extérieur
CNUT	Centre Nigerien des Utilisateurs des Transports
CORVO	Comité de Réception et de Vente des Oignons, Malanville, Benin
CRD	Centre Régional de Développement
ECOWAS	Economic Community of West African States; see CEAO
FAO	Food and Agriculture Organization of the United Nations
FED	European Development Fund
FFW	Food for Work
FOB	Free-On-Board price is price of goods delivered to freight forwarding service or transporter
GIE	Groupement d'Intérêt Economique
GON	Government of Niger
INRAN	Institut de Recherche Agricole Nigerien
LWR	Lutheran World Relief

MAE/C	Ministère des Affaires Etrangères et de la Coopération
MAG/EL	Ministère de l'Agriculture et de l'Elevage
MDR	Ministère du Développement Rural
MC/T	Ministère du Commerce et du Tourisme
MP/F	Ministère du Plan et des Finances
MOC	Ministry of Commerce
NEPRP	Niger Economic Policy and Reform Project
ONAHA	Office Nationale des Aménagements Hydro-Agricoles
PBVT	Projet de la Basse Vallée du Tarka, Madaoua
PIK	Projet Intégré du Développement de l'Arrondissement de Keita
PPME	Projet Monitoring and Evaluation
RN/MP/F/DGD	République du Niger/Ministère du Plan et des Finances/Direction Générale du Développement
RT/MC/DS	République Togolaise/Ministère du Commerce/Direction Statistiques
SAA	Service de l'Agriculture de l'Arrondissement
SNT	Syndicat Nigerien des Transporteurs
SONARA	Société Nigerienne de l'Arachide
UCOBAM	Union des Coopératives Burkinabé
URC	Union Régional des Coopératives
USRC	Union Sous-Régional des Coopératives
UNC	Union National de Coopératives
USAID	United States Agency for International Development
WMSII	Water Management Synthesis Project Phase II
WOCCU	World Council of Credit Unions

EXECUTIVE SUMMARY

Annual onion production estimates for Niger are found in Table 1. Production has doubled since 1980 to around 200,000 tons. Regional onion production data collected for each of the departments of the country shows that Tahoua department continues to produce most of the nation's onions. Tonnage produced is strongly related to area cultivated, and secondarily, yield. This indicates that neither innovative technologies nor costly inputs are broadly applied to onion farming. There is very little hard data to be had on the topic of agricultural inputs. Many producers report shortages of reliable seed, fertilizers, and pesticides. Low-cost pumps are obtained easily in Nigeria.

The limited availability of cost-efficient water lifting technology, poor rural roads, and a shortage of agricultural credit are probably the major factors accounting for the gap between area currently cultivated in onions and potential area (29,000 ha). Large numbers of producers rent onion-producing land, but there is no absolute land shortage. The Projet de la Basse Vallée du Tarka (PBVT) predicts that by 1998 extension of improved water lifting technology will double the area cultivated in Madaoua and the southernmost part of Bouza arrondissements alone to about 1,200 ha.

Assessing Exports and Export Potential

Data on Nigerien onion exports were brought up to date based on government export and import data. Table 6 shows quantities of onions declared for export at the Galmi customs post in Tahoua department. Exports reached a peak in 1990; shipments in 1992 were well below these levels.

Data were collected to better differentiate quantities of onions traded to Togo and Benin from those traded to Côte d'Ivoire, Burkina Faso and Ghana. According to data collected in Gaya, Niger on the Benin border, it is estimated that between 9 and 16 percent of total onion exports are destined for Togo and Benin. In 1991, 19,000 tons or a 70 percent market share were exported to Côte d'Ivoire; about the same amount was exported to Nigeria. In 1990, 1,700 tons were exported to Togo, or a 39 percent market share; a smaller amount is exported to Benin. In 1989, Burkina Faso imported over 800 tons. Data from Ghana were gathered from informal sector sources and suggest that Ghana imports 3,000 to 5,000 tons annually. Due to data collection and processing weaknesses in many countries these data must be interpreted with considerable caution.

Nigerien data shows continued growth in exports. As shown in Table 6, exports grew 11 percent from 1987 to 1992. Data from other countries provides some information useful for assessing competition and market potential for Nigerien onions over time. It is safe to say that imports have increased in Côte d'Ivoire, Togo, Benin, and Ghana, but the quality of official import data is too poor to estimate the amount of increase. Nonetheless, competition is increasing from onions produced in Burkina Faso, Ghana, and Nigeria, the latter two countries benefitting from the overvaluation of the CFA against their currencies. European onions are a strong competitor in the Ivoirian market.

Onion production in the savannah regions of Benin, Burkina Faso and Ghana is increasing. For example, Burkinabé production was 10,000 tons in 1990, of which perhaps a tenth was exported. Beninois production was on the order of 3,960 tons in 1991; Togolese production was 2,000 tons in

1988. Togolese marketing channel participants argue that no onions are exported. Total Ghanaian production is on the order of 20,000 tons. Ivoirian production is only 2,000 tons annually.

Seasonal windows of opportunity in coastal markets favor Nigerien onions. The December-January dry season onion harvest in Tahoua department follows the November-December onion harvest in the savannah producing regions. The June-September rainy season harvest occurs at a time when price are extremely high on the coast and when conditions are unfavorable for savannah zone production and storage. Nigerien onions also maintain a fragile consumer preference advantage.

The weak development of international transportation and communications infrastructure such as telephone, telex and telefax links in the producing zone is a constraint to export marketing. Many marketers use such services when available.

Policies and Investments Related to Onion Marketing

Policy and Regulatory Reform

Due to a number of recent policy reforms, Niger's formal policy climate is conducive to an expansion of onion production and export. Unfortunately, informal policies, especially rent-seeking behaviors by government agents, constitute a constraint to the expansion of production and marketing. Onion traders have no incentive to pay commercial taxes and licensing fees since having ones dossier in order provides no protection from rent-seeking by agents of the state.

Niger is ill-equipped to keep its citizens abroad abreast of commercial developments at home. Niger's Embassy in Côte d'Ivoire has a limited staff that can barely serve the social service needs of Nigeriens living on Ivoirian territory. In Ghana, there is a lack of communication between the ambassador and the Nigerien commercial community in Accra. Government of Niger (GON) commercial policies are not widely disseminated and not in languages other than French. This is a constraint to traders of perishable commodities such as onions who are not primarily French speakers. In Ghana, Togo and Burkina Faso, some marketers either speak an international language or have access to someone with basic international language skills.

The overvaluation of the CFA against the Naira and the Cedi puts Nigerien onions at a disadvantage compared to Ghanaian and Nigerian onions, respectively. Nigerian onions are marketed in Benin and provide significant competition to Nigerien onions. On the positive side, the weakness of the English-speaking countries' currencies provides interesting savings in transport costs for Nigerien onion marketers using Ghanaian or Nigerian trucks. However, use of Ghanaian trucks by Nigerien traders has provoked conflict with the Syndicat Nigerien des Transporteurs (SNT) in Niger.

Official import regulations are relatively homogeneous among the ECOWAS/CEAO countries. In recent years, most countries have undertaken some actions to simplify the import process and reduce import duties to between five to fifteen percent of their official value. One of the most serious barriers to importing Niger's onions and other perishable commodities is posed by conflict between marketers and the various policing bodies--customs, gendarmes, police--and marketers and transporters in the consuming countries. Illicit rent-seeking activities not only add to the CIF price, but create confusion and uncertainty and increase marketers' risks. Rent-seeking in the importing

countries limits the extension of marketing channels to the secondary cities and rural areas that are currently underserved.

Most countries have undertaken some actions to facilitate the conduct of business. However, in many cases bureaucrats have little understanding or sympathy for what free market enterprise actually means. The official policy climate is complicated by the fact that overlapping regulatory structures are each pressured by salary compression, budget constraints, and falling state revenues. Each structure acts to maintain a grip on limited private sector resources. The result is that regulations and necessary steps to start a new business or even maintain an existing one are confusing and contradictory.

Infrastructure Investment

Three kinds of infrastructural barriers to improved onion production and marketing exist in Niger: the road network; telecommunications; and storage.

The construction of rural feeder roads in the Tarka Valley should revolutionize both production and marketing patterns in Tahoua department. More improved rural roads would benefit both producers and marketers, lowering transport costs for producers and opening up new market centers to foreign marketers. Competition between these centers should transfer some economic benefits from intermediaries to farmers. Further investments in rural roads in the southern part of Tahoua department would be beneficial. Bad roads across international borders and in the northern border regions of Togo and Ghana also limits the development of onion exports.

Transport costs are high but stable, and do not prohibit marketing channel participants from making a profit. Traders maintain that transport is easy to arrange. Onion transport in open, metal sided tractor trailer trucks contributes to losses, especially if customs officials oblige truckers to off-load onions en route. New innovations in transport technology should be encouraged, but air shipment is probably not cost-effective.

Increased access to modern telecommunications is needed. Links between producing and consuming zones are weak. While major marketers in the major cities have access to some phone communications, it is erratic. This contributes to disorder in the marketing channel, and increases marketers' risks of losing money. Marketers in Côte d'Ivoire and Lomé Togo do make use of the phone system, as do producers in Tamaske and the Galmi areas of Niger. Some informal sector marketers are still unaware of benefits that might result from improved phone, telefax, and telex services. Improved telecommunications would be more effective than broadcast prices in improving the flow of market information.

Opportunities for investment in improved appropriate technology on-farm storage exist in Niger. Financing both storage costs and improved infrastructure would provide handsome returns to producers and shipment assembly agents in the producing region. According to BIT/ILO figures, net margins per ton stored over a four to six month period increase from 55,433 CFA for a 2.5 ton capacity traditional rudu storage structure to 80,043 CFA for a 12-ton capacity improved adobe storage unit. Both the Projet Intégré du Keita (PIK) and the Projet de la Basse Vallée du Tarka (PBVT) have successfully experimented with promoting deferred onions sales. The method that has worked best is to advance onion producers money both to build improved individual storage

facilities (rudu) and to withhold onions from the market. Further investments in these activities could benefit several thousand producers over the next few years.

In the consuming countries, storage costs to wholesale importers are nominal. The reason for these low storage costs is that wholesalers are quick to place their inventories with small wholesalers and retailers. This spreads the costs of storage among participants in the marketing channel. Thus there is little incentive to invest in storage infrastructure in the consuming countries.

Technology Investment

There is virtually no formal sector financial support available to make investments in technology associated with Nigerien onion production and marketing. One exception is PBVT, which has provided over 70 million CFA in credit to 350 producers in the Tarka Valley in the form of pump sets and tube wells.

The traditional thatch storage facility or rudu provides effective storage for several months but inconvenient access to stock for monitoring. Minor improvements in the rudu along with regular monitoring of stocks can dramatically improve storage performance. BIT/ILO has perfected an appropriate technology-based, improved adobe storage facility. There is room in the marketing system for new participants to concentrate on storage.

Almost no onions produced in the sub-region undergo any form of processing besides artisanal drying of bulbs and leaves (kullen albasa). Traders recognize the virtue of plastic net sacks for superior conservation of onions in the more humid coastal countries. One Ghanaian firm produces these sacks, but traders prefer European sacks that are of superior strength. One formal sector retailer in Ouagadougou has experimented successfully with selling various weights of sorted onions in plastic net sacks.

All retailers sort and grade onions by size and quality. Wholesale and retail marketers recognize institutional customers' preference for larger bulbs and individual housekeepers' preference for smaller bulbs. The major reason for the latter preference has to do with price; smaller bulbs are less expensive. Sorting and grading probably should remain a retail function for the near term given the risk of further product damage/loss during shipment.

Human Capital Investment

Few of even the largest informal sector onion marketers have received any technical, financial, or functional literacy training. Perhaps five percent of retailers are fluent in an international language. Some larger marketers have children or assistants who are literate and numerate in international languages and provide accounting or communications functions.

In Tahoua department, PBVT, PIK and CLUSA have invested in cooperative accounting training. The effectiveness of this training should not be overestimated. While basic literacy and numeracy training has been conducted in many onion-producing villages, few cooperatives have substantial capital to manage with the skills they have acquired.

Overall, the emergence of modern, free markets in Niger will be impeded without training in modern marketing and language for cadre at the Ministries of Commerce and Foreign Affairs, students at the University of Niamey, and informal sector operators.

Conditions that Contribute to Onion Marketing Efficiency

Price/Cost Distortion

Nowhere in the marketing channel is it possible to detect exaggerated profit-taking. Perhaps shipment assembly agents in Tahoua, who serve as intermediaries between producers and wholesale exporters, procure higher than average profits. However, these agents provide important shipping, storage, negotiation, financing and facilitating functions to producers and exporters.

Government policies in most countries are moving toward simplified, stream-lined and lower cost procedures in commerce generally and for gaining entry to the onion trade. Nonetheless, regulations are unstable, and conflicting rules persist. Most channel participants often confuse formal regulations with informal arrangements.

All onion production and marketing channel participants, as well as the national treasuries of the nations concerned by the onion trade, suffer from the effects of rent-seeking by agents of the state. Consumers face higher prices than they would if rent-seeking were not practiced. Rent-seeking discourages marketers from undertaking investments in extending distribution channels to consumers who are currently ill-served. Further, it discourages them from undertaking investments in improved storage and processing that would call attention to their apparent wealth, and from regularizing their status with tax authorities. Rent-seeking helps to suppress prices marketers are willing to pay to producers It may even discourage producers from undertaking major investments that might attract too much attention. Rent-seeking and other informal arrangements between agents of the state and marketers rob national treasuries of large amounts of revenue. These sums could total fifty percent of legitimate fees and revenues.

Physical Market Infrastructure

Market intermediaries in the wholesale shipment assembly markets have invested in adobe "shipping docks", which are little more than traditional adobe houses costing on the order of 150,000 CFA each.

Very little storage is undertaken anywhere in the marketing channel. Storage costs are low, less than five percent of the CIF price. Storage in the marketplace is discouraged by the disinclination of most traders to tie up capital in a perishable commodity such as onions. Most storage takes place on the farm or at the shipment assembly point. Given the high cost of cold storage facilities and the low value of the crop, investments in cold storage probably are not warranted.

Opportunities for investment in improved appropriate technology on-farm storage exist in Niger. Financing both storage costs and improved infrastructure would provide handsome returns to producers and shipment assembly agents in the producing region.

Financial and Information Services

In Niger, formal private sector actors are few and banks such as BIAO are unable or unwilling to finance onion production and marketing. As a result, producers and marketers self-finance many of their activities. Incentives for investment in onion production and marketing consist primarily of high levels of export-led demand for Nigerien onions.

Limited extension and financial services are available to producers and bulk wholesalers outside of the informal sector. In Tahoua department, donor-financed programs and projects provide the bulk of agricultural extension and rural financial assistance. These include PIK, PBVT, CLUSA and WOCCU. The banks are relatively inactive in the rural sector.

There is almost no formal sector financial participation in Nigerien onion marketing. Financial services are available to Ivoirian companies importing from Holland. Still most of the "semi-gros" and retail trade is undertaken on credit. The financial fragility in the channel and the heavy burden of informal taxes contribute to retailer defaults on loans from wholesalers and to wholesaler insolvency.

Only the three or four private sector importers to be found in each country, and one informal sector player in Ghana, have access to formal credit facilities. None of the informal sector players have access to insurance. Most of the thousands of retailers have access to informal sector credit. Wholesalers advance goods to retailers with a theoretical delay of 15 to 20 days to repay the loan amount. Wholesalers often have considerable capital tied up in these arrangements. Wholesalers receive credit from transporters as well; only half the transport costs are paid before delivery.

Almost every wholesaler has access to some market information. At the minimum this amounts to information on prices in the wholesale shipment distribution markets in the coastal countries at the time they make orders in the producing zone. As telecommunications facilities improve, so does wholesalers' access to market information. Retailers have little access to any information beyond the expected arrival dates of shipments and the price they must pay.

Market Participants

Indicative data on the number of persons or villages active in onion production were collected in each country. In spite of impressive growth in production in Ghana, Burkina Faso, Nigeria, and Benin, producers in Tahoua department, Niger remain the most important numerically.

Where possible, an attempt was made to assess the number of major shipment assembly agents and wholesale marketers operating in each major market town. In the Tahoua wholesale markets there are probably less than fifty main intermediaries.

Hausa marketers of Nigerien origin play an important role in the onion trade in Côte d'Ivoire and in Ghana. In Abidjan there are five major Nigerien Hausa wholesalers, each handling about 1000 tons a month. In addition there are another ten to fifteen Nigerien traders who together handle another 1,000 tons a month, and approximately 100 more smaller scale operators, each of whom might handle ten tons a month.

In Ghana, Songhay speaking Malians are also important onion market participants. There are probably five major Songhay importers in the Accra market, and fewer in the Kumasi market. Bawku market is dominated by local Hausa speakers.

The most organized network of wholesalers and agents is based in Togo and involves women in all the major decision-making roles. There are several dozen women involved in the importing business, but they are headed by no more than five or six major players. Women are also the most important wholesalers of Nigerien onions in Benin, but competition from male marketers who buy in Nigeria is increasing.

Both men and women are active players in Burkina Faso. One of the four most important wholesalers in Ouagadougou is a woman. She indicates that there are four other wholesalers working out of Ouagadougou.

Katako (Boukoki) market in Niamey is the major wholesale shipment distribution point in western Niger. About fifteen wholesalers are active in this market. They handle about two trucks a week of onions throughout the year, or 2,700 tons.

Estimates were made of the number of retailers active in a given market on a given day; however, firm estimates of the number of retail players are impossible to provide based on this rapid reconnaissance study. Thousands of people are involved in every country. For many, onions are just one of several product lines they carry.

A handful of firms import small quantities of onions into coastal countries for expatriate consumption from Europe, and play a minuscule role in African consumption behavior. European imports are most important in Côte d'Ivoire. Formal sector importers advance Dutch onions to Nigerien wholesalers for resale when Nigerien onions are in scarce supply. When Nigerien onions become plentiful, Nigerien wholesalers become competitors of the import firms. This creates considerable conflict between channel participants, especially between African traders and one firm which controls 70-80 percent of the import market in Côte d'Ivoire.

Caution should be used in evaluating the numerical estimates of the numbers of players involved in onion marketing for the following reasons. First, the consultants did not visit producing areas in Zinder or Tillabery departments in Niger. Second, the consultants did not visit some important market towns such as Bouake, Côte d'Ivoire; Djougou, Benin; and Bobo-Dioulaso, Burkina Faso. Third, visits to Malanville, Benin and Bawku, Ghana coincided with the periods of lowest production. Finally, the study covered neither Sokoto and Zaria, potentially important producing regions in Nigeria, nor Lagos, which is an important wholesale market.

Onion production is likely to provide stable levels of employment for current and prospective producers over the next five years, not only in Niger but throughout the sub-region.

Major onion marketers are likely to provide stable levels of employment for themselves, the handful of assistants each employs, and some casual laborers over the next five years. Retail sales is likely to provide stable levels of employment as well. Turnover is somewhat high among intermediate wholesale marketers who may easily be driven out of the market by a single lost shipment. There is room for new market players in storage, packing, and retailing both in Niger and in the coastal markets. These players could provide incremental new employment possibilities. There is also

room for a new actor to develop links with importers in the formal sector in Côte d'Ivoire. This actor could export Niger onions packed in conformity with modern commercial norms.

Public Sector Participation

Neither, Benin, Ghana, nor Togo boast significant public sector competition in onion production or marketing. Côte d'Ivoire, Burkina Faso and Niger do have technicians who have participated or will be participating in garden crop production related activities. Innovations in storage, packing, and transport are not imminent from public sector players at this time. FLEXFASO in Burkina Faso is the only example of public sector support (from La Caisse Centrale de Coopération Economique, CCCE) leading to long term private sector involvement in onion marketing (i.e. packing and retailing) that was identified.

There is no evidence in any of the countries in the sub-region of direct control over onion marketing. Apart from the unsuccessful attempts of the Société Nigerienne de l'Arachide (SONARA), no marketing board has become involved in onion marketing.

Around the sub-region a few project activities will be undertaken to promote and/or regulate onion production. Most of these activities involve production. For example, an upcoming project in Côte d'Ivoire aims to increase production from 3,000 to 15,000 tons over five years. Growth in private sector-initiated production can be expected in all of the countries in the sub-region except Togo, but including Nigeria.

Initiatives are also underway through donor funding to support agribusiness development. Among USAID Missions, USAID/Accra seems to have invested the greatest resources in agribusiness development. CCCE seems to be the most dynamic player in support of private sector development among other donors.

Onion Marketing Efficiency and Cost

Based on existing reports and data collected during July and August 1992, the consultants estimated price differences in onion marketing across space. The results do not represent a radical departure from the results of previous studies. Seasonal price variations of 100 percent and more are common in the coastal markets. These price differences across time primarily reflect supply and demand factors rather than storage costs and arbitrage functions.

Profit margins are modest given the high levels of risk involved. Inefficiencies are primarily due to three factors: limited on-farm crop storage and withholding; long marketing channels and mediocre communications and transport infrastructure; and illicit rent-seeking. Crop storage and withholding have been discussed above. Regarding marketing channel length, six intermediaries intervene between producer and consumer: a shipment assembly agent, a buying agent, a transporter, an import wholesale dealer, a "semi-gros" dealer, and a retailer.

Prospects for Onion Marketing Based on Existing Cost and Efficiency Levels

Producer Price Incentives

As shown in Table 26, farmers' margins vary between approximately 19 and 308 percent of variable production costs. Producers may expect to receive 23 to 96 percent of the FOB price depending upon the market served and the season of sales. Most probably receive about 50 percent. An in depth study would be required to develop better estimates of costs and returns on investment.

Farm level price data were collected in Niger, Ghana, Benin and Burkina Faso. There is remarkable consistency in these prices. Harvest prices in the main producing season average around 1,500 to 3,000 CFA per 100-130 kg sack. Increases of up to 10 times these prices are reported for off-season (rainy season) production. Current prices provide adequate incentives to increase production and invest in improved agricultural technologies.

It is possible to estimate likely adoption of improved technologies over the next six years; however, these estimates are likely to underestimate actual usage. Total acreage in onions may increase to 4,000 ha by 1996 as PBVT drills new tube wells in the Tarka Valley. If so, the number of producers might increase from just under 1,700 (in 1991/1992) to over 3,000. If these pumping technologies diffuse to Keita, Bouza, and the Maggia Valley of Konni, further increases in onion production area might be expected.

If experiments with improved storage technologies are expanded and producers' experience with withholding onions for market price improvements is positive, improved revenues should encourage further expansion of production over the next five years.

Consumer Price Incentives

Nigerien onion consumption is difficult to estimate reliably without a major research input. Onion consumption data can be estimated by monitoring the quantity of onions consumed weekly in Niamey and using this quantity as a consumption indicator in other major population centers and the country as a whole. Using such an estimate, it appears that average annual per capita onion consumption is on the order of 2.79 kg. National consumption would then be on the order of 22,400 tons annually. There is untapped demand for onions outside of the major population centers. Due to unreliable distribution channels and seasonal price and supply fluctuations, onions are not always available to rural consumers at prices they consider reasonable.

There is no good source of wholesale or retail onion sales levels or trends. The only published source of data is official import/export figures and the price series available for some countries. These data allow only onion prices in the consuming countries to be estimated. Long price series were available only from Ghana. These data show that prices rose 94 percent between 1987 and 1991 when adjusted for inflation. In Lomé, prices fell 35 percent over the same period, but this estimate is based on very poor quality data. In Ouagdougou, prices rose by 15 percent over the same period; the quality of this data is unknown.

There is considerable annual and inter-annual fluctuation in retail onion prices. In Ouagadougou, mean prices varied from a low of 78 CFA/kg in April to a high of 356 CFA/kg over the past five years. During the same period, prices in Lomé varied from a low of 319 CFA/kg in May to a high of 377 CFA/kg in October. Prices in Malanville, Benin vary from a seasonal low of 54 CFA/kg in May to a high of 296 CFA/kg in October. In coastal Beninois markets prices vary from a seasonal low of 164 CFA/kg in April to a high of 561 CFA/kg in November. These fluctuations are primarily due to seasonal changes in supply. However, lower overall prices on the Togolese coast than on the Beninois coast, and comparatively smaller inter-seasonal fluctuations in consumer prices, reflect Togo's better overall marketing channel organization.

Consumers in the sub-region are avid onion users even when forced to use onions that do not lend themselves to African culinary practices. Price is a significant constraint to consumption. This constraint explains the preference for small onions in many retail markets (smaller onions are less expensive than larger onions), and the lack of loyalty to Galmi onions when consumers are faced with considerably less expensive European or Nigerian alternatives. Dutch onions enjoy a 64 percent price advantage over Nigerien onions in the off-season. Thus, Dutch onions imported into Côte d'Ivoire also appear in Lomé, Accra, Kumasi and Ouagadougou markets. The competitive price advantage of European onions should not be underestimated in contemplating an expansion of Nigerien onion production and export.

Reinforcement and extension of marketing channels would create economies of scale for wholesalers that, in turn, would reduce consumer costs throughout the marketing network. In addition, increased production and vastly increased on-farm storage in Tahoua should help to even out inter-seasonal fluctuations in consumer prices. However, considerable marketing channel extension cannot be expected in the current commercial climate.

Agribusiness Investment and Gross Returns

Data were collected from informal sector marketers that allow returns on investments in trade to be estimated. Profits on sales can also be calculated. Three estimates of gross returns on onion exports to Abidjan range from one to 10 to 145 percent of costs. Estimates of gross returns on exports to Cotonou Benin range from 7 to 15 percent. Gross returns on exports to Lomé are estimated at 13 percent. Profitability, as marketers themselves point out, varies dramatically depending on the assumptions made regarding rent-seeking, retail market prices and other factors. For example, demand for onions was depressed in Togo during July and August 1992 because of the political crisis rocking the capital.

Traders undertake little investment in improving productive capacity because limiting fixed costs is one of the only ways they have of hedging against high levels of risk. Such investments would expose them to greater risk should one or more shipments be lost, and might expose them to increased rent-seeking by various policing agents. Some large marketers invest in trucks. Investments in storage facilities are kept to a minimum. Investments in water lifting equipment and on-farm storage are the least risky in the current political/economic climate.

Both formal sector importers in Côte d'Ivoire (SABIMEX and DISTRIMEX) are interested in Niger onions. Importers would be interested in very large quantities of onions of relatively uniform size, properly cured and sacked. Further, they would require that their Nigerien partners have

access to modern communications technology and sufficient capital to open bank accounts, and be able to furnish letters of credit, etc. Above all, importers want partners who can deliver specified amounts on time at specified prices. A few informal sector marketers could already meet such conditions with a minimum of technical assistance. However, no formal sector actor is contemplating a major agribusiness investment in onion marketing or processing in the future.

Conclusions

Onions are an important high value crop for Niger. Farmers, traders, truckers and GON enjoy a reliable revenue stream from onion export marketing. In addition, Niger onions enjoy a competitive advantage in regional markets, where the Violet de Galmi variety is known for its taste, cooking and medicinal properties. Improvements in production technology, transportation and storage technology, if coupled with improved access to agricultural credit, could result in continued increases in production in Niger. Improvements in telecommunications and international transport routes could facilitate expanded marketing prospects. New participants in the marketing channel could take immediate advantage of opportunities to profit from seasonal windows of opportunity in production and storage, linkage with marketers in the formal sector, and new packing techniques. More long-term opportunities are available through improving onion transport and extending marketing channels in the consuming countries. These opportunities for Niger's onions are threatened by rent-seeking, over-regulation of commerce, the expansion of onion production in Burkina Faso, Ghana, and Nigeria, and imports of European onions in the Ivoirian market.

Problems Encountered in the Channel and Possible Donor Interventions

A summary of problems in the onion marketing channel and possible donor interventions is appended. Macro-economic policy and institutional problems are perhaps the most intractable and will require long-term solutions through bi-lateral and multi-lateral dialogue. Problems confronted by producers, cooperatives, traders and consumers are more tractable. However, long-term solutions to both technical and organizational problems require progress on the resolution of the larger policy and institutional problems that constrain the development of regional trade in West Africa.

EXPORT MARKETING OF NIGERIEN ONIONS

I. INTRODUCTION

Onions are an important crop in the Niger Republic (Figure 1). They are one of the few high value crops produced in the country. Onions enjoy a competitive advantage in regional markets, where the Violet de Galmi variety is known for its spicy taste and cooking properties (it disintegrates when boiled). Farmers, traders, and truckers enjoy a reliable cash income stream from onion sales. Further, the GON derives considerable tax revenue (25 million CFA in 1992) from onion exports to neighboring countries. In the current climate of economic and political liberalization, onion production and trade is important because it has developed in the private sector. Thus, production and trade are relatively free from the distorting effects of public sector marketing board interventions that have plagued the development of other cash crops (e.g., groundnuts, cotton, palm products) throughout Niger and West Africa as a whole. Both the GON and Niger's bi- and multi-lateral partners are anxious to learn from the successes of onion marketing in order to better develop and diversify Niger's agricultural economy.

The purpose of this study is to explore the nature of onion marketing more fully and to estimate the potential for marketing Nigerien onions in Niger and across West Africa over the next six years (See Appendix A: Scope of Work). The study focuses on the details of the marketing channel dynamics by which Nigerien onions are produced and marketed in the sub-region. It is based on official statistics and interview data collected from many significant onion production and marketing channel participants in Niger as well as in Benin, Burkina Faso, Côte d'Ivoire, Ghana, and Togo (See Appendix B: List of Persons Contacted). This is a study of marketing channels but does not pretend to be a macro- or micro-economic analysis of onion production and marketing. In most cases, neither the quality nor the quantity of available data are sufficient for rigorous economic analysis.

The study aims to provide information useful to the design of USAID/Niger's Agriculture Marketing and Export Promotion Project (AMEP), Project No. 683-0274. It follows several other useful studies of onion production and marketing in Niger (Barhouni 1990; Iddal 1991; Lev and Gadbois 1988; Mahamadou 1987; Ouedraogo 1991a, 1991b; Smith 1986). It has profited from, but does not attempt to duplicate these studies. The report is divided into five major sections, each of which examines specific aspects of the onion production/marketing system:

- Information to Better Assess Domestic Production
- Policies and Investments Related to Onion Marketing
- Conditions that Contribute to Onion Marketing Efficiency
- Onion Marketing Efficiency
- Prospects for Onion Marketing Based on Existing Cost and Efficiency Levels

Following these sections are conclusions and recommendations for possible USAID/Niger interventions to address identified constraints to Nigerien onion production and marketing.

II. INFORMATION TO BETTER ASSESS DOMESTIC PRODUCTION

A. Annual Onion Production

Annual onion production estimates have been updated for Niger as a whole. Table 1 summarizes onion production from 1968 to 1991; Figure 3 presents this information in graphic form. Since 1968, area cultivated has increased by 356 percent, while production output (tonnage) has increased by 504 percent. Production increased regularly until 1980, then fell off dramatically during the 1981 drought. Production again increased in the aftermath of the drought, as the GON began to actively promote off-season garden production. Production increases may be largely due to population pressure as well as increased yields. Increased yields can be attributed to expanded motorized pump irrigation and perhaps to expanded fertilizer use. Unfortunately, no time series data on fertilizer or pump use are available from MAG/EL.

A regression analysis was conducted using Table 1 data to further characterize the effects of yield and area cultivated on production output. Time series data on rate of technology adoption and fertilizer use are unavailable and hence could not be included in the regression model. Area and yield are powerful predictors of output (adjusted r^2 = .9336; F = 176.76 alpha = .0000; t-values of the betas are significant at .0000). As one would expect in a context of limited agricultural intensification, area cultivated is more highly correlated with output than yield (r = .919; r = .708, respectively). A Durbin Watson test (= 1.84) indicates that the two predictor values are not significantly auto-correlated. A plot of the residuals suggests no significant anomalies. However, with aggregate level data of this type it is best to exercise caution in interpreting the results.

Onion production data at the departmental level from 1980/81 to 1992 are presented in Table 2 and Figure 7. Tahoua department (Figure 2) remains the dominant site of onion production, with limited production in other departments. Production figures from 1980/81 to 1992 are presented. Data collected after 1985 can be considered more trustworthy than data collected previously due to improved recordkeeping practices. Overall, it is likely that production is underestimated. In 1985, Tahoua department was responsible for 72 percent of national onion production and in 1991 for 82 percent (MAG/EL 1991: 1) Significant quantities of onions are also produced near the riverside town of Gaya in Dosso department, and near the town of Tillabery in Tillabery department; there is probably some scope for expansion in these two departments. Zinder has also emerged as an important producing region.

Onion production data for each arrondissement within Tahoua department was also collected. Unfortunately, figures were available for the 1991/92 season only. This data is presented in Tables 3 and 4. Figures 4, 5, and 6 are maps of three of the four arrondissements in which onion production and productive potential is concentrated. Almost the entire central part of the arrondissement of Madaoua (Figure 4), from the towns of Leyma in the north to Kabobi in the south, is involved

in onion production. According to the Service d'Agriculture de l'Arrondissement (SAA), Madaoua produced close to 37,000 tons of onions in 1991/92. The construction of the feeder roads to Kabobi in the south and Leyma in the north should have a salutary effect both on onion production and marketing in this region. In the arrondissement of Bouza (Figure 5) the region of Karafane, Kuban Banza, and Galba in the northern part of the Tarka valley, is suitable for garden cultivation. According to the SAA, Bouza produced 24,000 tons of onions in 1991/92. The Projet de la Basse Vallée du Tarka (PBVT) intends to expand into this zone by 1996. In the arrondissement of Konni (Figure 6), Tsernawa and Galmi (in the eastern part of the arrondissement) are centers of production and sales. Both towns straddle the main east-west national highway, RN1. Galmi serves the market hinterland of the Maggia Valley which crosses RN1 at this point The western part of Konni arrondissement lies outside the productive zone. According to the SAA, Konni produced 29,000 tons of onions in 1991/92. Keita is as important a center of production as Madaoua, producing nearly 37,000 tons of onions in 1991/92. Tamaske is emerging as an important wholesale market in Keita.

B. Land Availability for Production

The data presented in Table 3 shows that a total of at least three thousand hectares are planted to onions in four of the six arrondissements in Tahoua department: Keita, Bouza, Madaoua and Konni, respectively. Table 4 summarizes onion production on the Galmi irrigated perimeter (Konni department) managed by the Office Nationale des Aménagements Hydro-Agricoles (ONAHA). Galmi is a potential site for controlled onion seed (F1 & F2 generations) production. The partial data presented on cultivable area in Keita and Bouza arrondissements shows that there is significant scope for production expansion. PBVT estimates that extension of improved water lifting technology will double quantities of onions produced in Madaoua arrondissement by 1996.

The availability of land for future production was assessed where possible. It is difficult to obtain accurate estimates of Tahoua department's productive potential. In 1991, MAG/EL planned for 70,369 hectares of off-season gardening; however, only 23,769 ha (33 percent) were exploited. MAG/EL estimates that this amounts to only 17 percent of the area that could be put into production in the off-season for all crops. MAG/EL also identified 257 sites that could be cultivated for off-season horticulture; 239 sites were worked in 1990/91. In that year, onion production was depressed by seasonal labor migration that followed poor cereals production in the previous rainy season. Onion production will continue to be influenced by rain-fed cereal production outcomes in the future, since farmers rely on rain-fed cereal production and labor migration for a significant share of household food requirements.

The partial production data available for Keita and Bouza presented in Table 3 suggest that there is significant scope for production expansion in these arrondissements. The lack of sufficient water lifting technology, limited access to seed, and poor rural roads are probably the major factors contributing to the gap between area potentially cultivable and that currently cultivated in onions. PBVT

predicts that by 1998 extension of improved water lifting technology will cover an area equal to that currently cultivated in Madaoua and the southernmost part of Bouza arrondissements, i.e. about 1,200 ha. PBVT expects these activities to result in a doubling of onion production.

C. Agricultural Input Supplies

Agricultural input supplies, such as they are, have been investigated; however, there is very little hard data available. Onions respond well to fertilizer although overuse increases post-harvest storage losses. PBVT estimates that farmers used very little fertilizer on project perimeters. Fertilizer use in the region as a whole is limited. For example, due to the collapse of the Union Nigerien des Coopératives (UNC), the Union Sous-Régional des Coopératives (USRC) in Madaoua marketed only 5-10 tons of urea in 1991/92, down markedly from the 80-100 tons sold in previous gardening seasons. Producers in Tamaske and Arewa also complained of the lack of fertilizer. Export restrictions on fertilizer from Nigeria limits its use in Tahoua. Furthermore, neither Ghanaian nor Nigerian fertilizer production is sufficient to meet estimated national demand, let alone provide exports to Niger. Finally, the failure of marketing channel development from Ghana or Côte d'Ivoire has also resulted in a dearth of imported European/U.S. fertilizer in the region.

Aphids (thrips, Fr.; bunsuru, Hausa) are the only serious insect pests that impact onion production mentioned by producers, especially by those in Tamaske. Insecticide is available in very limited quantities from the Arrondissement Crop Protection Services. They provide free treatment when insecticide is available. Producers sometimes obtain the insecticide "Decis" themselves for a price of about 2,000 CFA per liter.

In Niger, Violet de Galmi onion seed is available only from local sources. Several persons, especially in the towns of Nakonni, Tumfamfi and Kolle, have become specialized producers because this seed is in such high demand. It is also expensive. Indicative prices quoted include 15,000 CFA per kg in Tamaske, 3,000 CFA per 600 g in Madaoua and 2,000 CFA per 600 g in Tumfafi. Seed in Magaria costs 1,250 CFA for a small Nescafe box full and 15,000 CFA for a tiya, a local measure weighing over 2 kg. In short, seed costs between 3,400 and 6,500 CFA per kg. Informants reported some cases of "false seed" sales, i.e. sales of seed produced from bulbs that have gone to seed, rather than specially produced seed. Seedlings are also sold by the "planche" or seed bed. A seed bed in Magaria sells for between 4,500 and 7,000 CFA. A 0.40 ha plot requires five to seven beds of seedlings (costing 18,000 to 28,000 CFA).

By way of comparison, data was collected in Burkina Faso on the cost of imported seed produced under European commercial norms. The French firm TECHNISEM (7, Ave. de Garigliano, 91601 Savigny s/Orge CEDEX France) produces Violet de Galmi seed (Catalogue No. 11101G3V1BT100). In Ouagadougou, the private firm NANKOSEM sells this seed for about 500 CFA per 10 g packet (or about 50,000 CFA per kg!). Commercial seed was not available in Tahoua. NANKOSEM may also be the source of seed for the Caribbean Red and Red Creole onion varieties

produced in Burkina Faso, the "oignon noire" also available on the Bawku and Tamale markets in Ghana and other savannah markets. A similar variety is produced in Nigeria and was available on the Dantokpa market in Cotonou, Benin.

III. INFORMATION TO BETTER ASSESS EXPORTS AND ADDITIONAL EXPORT POTENTIAL

A. Export Potential

Table 5, Factors Influencing Demand for Nigerien Onions in Neighboring Countries, updates Lev and Gadbois' (1988) Table 3 based on data collected in July-August 1992. Estimates of local production have been made current. It has been possible to improve estimates of exports from Niger to outside markets. Data on Nigerien onion exports has been brought up to date based on Nigerien, Ivoirian, Togolese, Burkinabé, Beninois and Ghanaian government official export and import data. These data must be interpreted with considerable skepticism due to the improper recording of import data traceable to government agents' rent-seeking and traders' defensive tactics, as well as to more general data processing weaknesses in most countries. For purposes of argument, the analysis in the next paragraph assumes the data are accurate.

Côte d'Ivoire is said to be Niger's biggest customer, although official GON export data record substantial exports to Nigeria. Distribution channels to Côte d'Ivoire are well-developed and demand remains strong despite economic stagnation. Surprisingly, no one interviewed mentioned Nigeria as a significant market. The data presented in Table 5 suggest that Ghana should represent a growth market for Nigerien onions. Its urban population, which today is the primary market for Nigerien onions, is as great as that of Côte d'Ivoire. Although the GNP per capita is a little more than half that of Côte d'Ivoire, per capita consumption in urban Ghana is only one-fifth as great. Modest growth in market demand for onions may also be expected in Burkina Faso. While Burkina Faso's GNP per capita is one-fourth that of Côte d'Ivoire, its onion consumption is eight times less. At the same time its urban population is greater than that of either Benin or Togo. With modernization of the marketing channels so that onions reach markets outside the major wholesale markets, Benin, Togo and Côte d'Ivoire can be expected to continue to be modest growth markets for Nigerien onions. As economic liberalization proceeds, rising GNP per capita in both Togo and Benin should result in increased demand. Without extension and modernization of marketing channels, however, European onions probably will continue to take market share from Nigerien onions in Côte d'Ivoire.

1. **Onion Exports to Côte d'Ivoire, Burkina Faso, and Ghana.** Table 6 and Figure 8 present onion exports as registered at the Galmi customs post from October 1987 to June 1992. In theory, export duty is paid on most Tahoua-produced onions in Galmi. An informant at the Tahoua customs office could not recall of any cases of onion truckers paying duty at the important customs post in Konni during all 1991, for example. The table and

figure show that the volume of exports increased until the end of 1991; in 1992 quantities exported fell from levels recorded in the last quarter of 1990 and the first quarter of 1991. 1992 exports were well below 1991 levels. Figure 8 shows that exports vary seasonally, picking up in December, reaching a high point in May, then falling off dramatically in July through October. It would make sense to encourage production and exports given low levels of production recorded in other countries during this period. The April-June high point in exports follows the period of greatest exports from savannah producing regions in December-March.

Table 6 also shows that the official valuation of onions was lowered from 90 to 30 CFA in December 1988. This reduced the official customs burden on exporters. It also dramatically reduced the value of taxes entering GON coffers, as shown in the last column of Table 6. Nevertheless official national customs receipts have averaged over 20 million CFA for the years 1990-1992.

2. **Onion Exports to Togo and Benin.** In order to better differentiate the percentage of Niger onions exported from Niger toward Togo and Benin from those sent toward Côte d'Ivoire, Burkina Faso and Ghana, data were collected from the Agriculture control post in Gaya on the Niger-Benin border. Table 7 and Figure 9 present the most up-to-date data available on onion exports passing through the Gaya control post. Virtually all onions passing through this point go to Benin and Togo, although some Togolese traders ship through Burkina Faso rather than Benin. These traders claim that illicit rent-seeking is less severe in Burkina Faso than in Benin. Table 7 shows that there has been a definite increase in total exports moving through Gaya over time, a fact that fits the data collected on imports into Togo. Figure 9 underscores the seasonality of exports, with exports generally rising abruptly in January and February, falling in April and rising again through May and June. The first peak represents exports of local onions; the latter onions produced in Tahoua.

Table 8 and Figures 10 and 11 compare quantities of onions registered with Galmi Customs with those recorded passing through the Agriculture control post in Gaya. The table shows that in general less than 15 percent of exports are shipped through Gaya to Benin and Togo; the bulk goes to Burkina Faso, Ghana, and Côte d'Ivoire. Gaya exports represent a very high percentage of total exports in some months: February 1989, January 1990 and 1992, for example. These data may be explained by the fact that onion production is increasing in Gaya, and are exported to Benin at this time of the year. Onions produced along the Niger River in Gaya are harvested slightly before onions in Tahoua, and thus exploit a favorable seasonal market niche. Gaya production is added to Tahoua production and enters the marketing channel at Gaya. Like onion production in the savannah zones outside Niger, production in Gaya helps to stabilize seasonal supplies in the regional onion market. Thus, production in Gaya contributes to the

high levels of total exports recorded in January through March and shown in Figure 11.

3. **Nigerien Onion Imports in Côte d'Ivoire.** Tables 9 and 10 and Figure 12 illustrate Niger onions' shifting status in the Ivoirian market. According to these data, Niger exported only 128 tons of onions to Côte d'Ivoire in 1982, representing one percent market share. European onions, especially Dutch, Moroccan and Argentinean onions, and from 1987 on, Malian shallots, have competed with Niger onions. Niger onions were pushed out of this market entirely between 1984 and 1989. Then, inexplicably, Niger suddenly returned to the market. Over 5,400 and 19,000 tons were imported in 1990 and 1991, respectively, in spite of the continued presence of Malian shallots and the arrival of Burkinabé onions on the Ivoirian market. Niger's market share jumped from 0 in 1989 to 24 percent in 1990 and 69 percent in 1991, largely at the expense of European onions.

These official figures probably understate the facts of Niger's export performance. It seems likely that Nigerien onions have actually maintained a more significant market share over this time than official data indicate, despite competition from several extremely powerful importers of European onions, and the arrival of Malian shallots and Burkinabé onions in Ivoirian markets. The 1990 and 1991 data are consistent with informants' statements that Nigerien onions are preferred by Ivoirian consumers who are willing to pay a small price premium for Nigerien onions. In addition, these data are consistent with the finding that Dutch onion importers are unable to penetrate the Ivoirian market beyond Abidjan and a few other major cities. These importers are compelled to work with Nigerien wholesalers in the informal sector to ensure sales of imported, non-Nigerien onions to African consumers.

Table 11 presents some comparative cost figures based on interviews conducted in Abidjan with both formal and informal sector traders. The table shows that without a consumer preference for Nigerien onions, Nigerien onions would cease to be competitive with Dutch onions when the purchase price in Galmi/Tamaske/Arewa rises above 3,000 CFA/120 kg sack. When the purchase price in Tahoua department reaches 7,000 CFA, Dutch onions should drive Nigerien onions out of the market. Nigerien onions' failure to compete is due to relatively high transport costs (100 percent of the purchase price in Tahoua), formal import fees (33-35 percent of the purchase price in Tahoua), and illicit rent-seeking (about 100 percent of the purchase price) in Côte d'Ivoire. Little can be done about transport costs, but increasing export volume and negotiating lower importing fees and transit fees would facilitate the task of Nigerien onions importers. The CIF costs for Dutch onions are stable and moderate over the course of the year, and rent-seeking at the port is also moderate.

The future of Nigerien onions in Côte d'Ivoire is in some doubt. Informants in Tamaske, Katako, and Abidjan explained that the Ivoirian market has been depressed for the last two years. Apparently one cause is actions taken by the largest importer of Dutch onions, SABIMEX. SABIMEX has a 70-80 percent market share of the Dutch onion imports. SABIMEX has sought to exert local marketing channel control over the Hausa onion traders, who are both their customers and competitors. During the period when Nigerien onions are abundant and inexpensive, the Hausa traders' Nigerien onions compete with Dutch onions When Nigerien onions become scarce and expensive, the Nigerien traders then buy Dutch onions on credit from SABIMEX to distribute through their networks of "semi-gros" and retail traders. SABIMEX claims to have dozens of Hausa traders who act as distributors. The Hausa traders control extensive networks of distributors that elude the formal sector firm due to language barriers and the personalized nature of kinship and credit relationships. There is no alternative formal sector distribution network.

SABIMEX management is irked by informal sector competition. An examination of retail prices suggests that profits on Dutch onions are slim; the management seems to feel that they cannot afford the competition provided by Nigerien onions. They are especially troubled by the alleged tendency of Hausa traders to use profits from the sales of Dutch onions to buy Nigerien onions. Hence, they think they are financing their own competition during the months of February-April when Nigerien onions are abundant. They seem to feel that they have a proprietary claim on profits made in the informal sector by their Nigerien creditors. The firm is perhaps justified in complaining that loans are not repaid in a timely fashion because of Nigerien traders' alternate use of profits, i.e. purchase of Nigerien onions. According to both the firm's management and to its formal sector competitors, SABIMEX's response has been to dump Dutch onions on the Abidjan market below cost in an attempt to drive Nigerien onions out of the market, and to bring the Hausa traders to heel. In modern marketing terminology we would refer to this as an attempt to exert down stream channel dominance. As a compromise, the firm would like the Hausa traders to let SABIMEX dominate the import market for 8 months of the year, and then the firm will let them import the Nigerien onions for 4 months of the year. DISTRIMEX, SABIMEX's Ivoirian competitor (with 10-20 percent market share) claims SABIMEX has so far lost 62 million CFA in this attempt to exert channel control. Whatever the impact on SABIMEX's earnings, traders up and down the channel complain that the Ivoirian market has been stagnant for the last two years. It seems unlikely that SABIMEX can break the Hausa traders, but the firm has already taken considerable market share away from Nigerien traders and Nigerien onions.

As a footnote, Table 12 illustrates Niger's share of the Ivoirian import market for other selected products in 1990. Curiously, Niger had a major share of gum arabic and other vegetable gums imports, tamarind pods, and

natural vegetable colorings. Niger's share of the date market was also significant, although these dates may be reexports from Algeria.

4. **Nigerien Onion Imports in Togo.** Tables 13 and 14 and Figure 13 show official Nigerien onion imports into Togo from 1986 to 1991, and Nigerien onions' share of the Togolese onion market. If these figures are to be believed, they show European suppliers have lost market share to African suppliers. Further, Niger's share has varied between a low of 0 in 1986 and a high of 39 percent in 1990. Niger seems to have lost market share to Burkina Faso, while Benin figures as Togo's major supplier. Despite the presence of onions from Nigeria on the Togolese market, official figures do not show that onions from Nigeria are gaining market share at the expense of Nigerien onions despite an observed price advantage

   Great caution must be used in interpreting these figures. Togolese traders insist that their major source of supply is Niger. One importer alone had already imported over 1,100 tons into Togo in 1992, and although she is the largest importer, several other large importers operate in this market as well. Further, data presented below indicates that Benin produced only about 4,000 tons in 1987 and 3,000 tons in 1991. It seems unlikely that 33 and 44 percent, respectively, of Benin's national production was exported to Togo in those years. This is especially implausible given imports of Nigerien onions into Benin in those years of 1,500 to 3,000 tons (Krogt and Klaassebos 1987). Thus it seems likely that a considerable portion of the "Benin" onions imported into Togo are really Nigerien onions re-exported by Benin. Togolese importers insist there is more room for Nigerien onions in the Togolese market, especially during the late summer when onions are hard to find in the sub-region. They claim that they then import Nigerian onions (produced in Sokoto and Zaria) via Maytouef market near Lagos when supplies on the market are scarce, and only as a last resort.

5. **Nigerien Onion Imports in Burkina Faso.** Table 15 and Figures 14 and 15 present data concerning Burkina Faso's onion imports and exports. Over time, the figures show a declining commercial trade surplus for onions and a negative trade balance in onions when values rather than volumes are considered. In support of these data, Burkinabé traders claim that the Burkinabé market can absorb more onions, that Burkinabé are great onion consumers, and that Galmi onions are preferred to Burkinabé onions. Burkinabé onions are typically either a Red Creole or Caribbean Red variety that is not as "spicy" as the Violet de Galmi variety. One large trader felt there was room for a 30 percent increase in quantities of onions marketed in Ouagadougou alone. The biggest constraint traders cite to increased importation of Nigerien onions is the informal taxes they pay that inflate the cost of imported onions on local markets. One large trader also noted that dramatic upward and downward shifts in import taxes increase traders' uncertainty and increase their risks. As noted above, GNP per capita in Burkina Faso is significantly lower than in other important regional markets.

As a footnote, Table 16 summarizes Burkina Faso's agro-pastoral imports from Niger for the four most recent years for which data is available. While spotty, these data show that there were consistent Burkinabé markets for livestock, gum arabic, tamarind, and dates in addition to onions. Considerable quantities of fish and skins and hides have been imported to Burkina Faso from Niger in some years.

5. **Nigerien Onion Imports in Ghana.** No disaggregated official Ghanaian import data could be obtained from Ghanian officials in Accra in spite of repeated attempts. Table 17 presents data obtained at the Chamber of Commerce in Accra on Ghana's official aggregate imports of fresh and dried vegetable materials from 1983 to 1987. Although it is unclear which category includes onions, they are probably included among dried vegetables. If so, the three data points suggest an increase in Niger's volume of exports to Ghana. According to this data in 1987, Ghana's principal ECOWAS trading partners were Senegal, Côte d'Ivoire, Guinea-Bisseau and Togo.

Besides the data shown in Table 17, national onion wholesale prices were also obtained (Table 18, Figure 16). Prices have risen and fallen in a regular and expected seasonal pattern over the last five years. When expressed in constant 1987 CFA to control for devaluation of the Cedi, Ghanaian prices seem to have risen dramatically in the past few years, reaching a high of nearly 31,000 CFA/sack in October 1991. While these high prices undoubtedly represent distortions provoked by rent-seeking activities, they also may suggest a long term disparity between supply and demand that should work in Niger's favor. Prices are highest during the period when Nigerien exports drop, i.e. August through November. This fact reinforces the recommendation that Nigerien producers and exporters be encouraged to fill this seasonal window of opportunity in coastal markets.

Names and addresses of major players in the onion and vegetable export-import trade have been collected where pertinent. These are included in Appendix B.

Formal sector importers such as SABIMEX and DISTRIMEX in Côte d'Ivoire and perhaps FLEXFASO in Burkina Faso could be interested in importing Niger onions. Packing requirements vary, but in Côte d'Ivoire importers would be interested in large quantities of onions (e.g. 4,000 tons/month of onions uniformly sized, properly dried, sacked and palletized) shipped from Niger. Further, importers would require Nigerien partners with access to modern communications technology, sufficient capital to open bank accounts, ability to furnish letters of credit and the like, as well as to deliver specified amounts on time at predetermined prices. In addition, Nigerien suppliers would have to provide Ivoirian formal sector importers with the same kinds of credit facilities as European suppliers, i.e. payment within several months of delivery, rather than within several weeks as is typical in the informal sector. A few informal sector traders, such as Elhadji

Ouraman in Accra, Elhadji Abdoulaye in Adjame, Abidjan, and GIE ALBASA in Niger could conceivably meet such conditions with moderate technical and financial assistance.

It is difficult to estimate national market capacity in the consuming countries. Import data does provide some information relevant to assessing competition and market potential for Nigerien onions over time. Between 1982 and 1991, total onion imports to Côte d'Ivoire increased 64 percent (Table 9); between 1986 and 1991, Togolese imports increased 500 percent (Table 13); and between 1983 and 1987, Ghanaian imports of dried vegetables from ECOWAS countries increased 216 percent (Table 17) while fresh vegetable imports from ECOWAS countries remained stable. Burkinabé onion imports increased 164 percent from 1981 to 1989, while the commercial export balance in onions decreased from +266 percent to +120 percent during the same period (Table 15). Nigerien shares of these markets have fluctuated dramatically between 1986 and 1991; there is no clear trend in this data (Tables 10 and 14). For example, Niger's share of the Ivoirian market has varied from 0 to 69 percent, and from 0 to 39 percent of the Togolese market. Table 19, based on official import statistics, shows that Niger's share of the Burkinabé import onion market has remained high, 98 to over 100 percent, over the past four years. Data from Benin, shown in Table 20, is too poor to provide any reliable estimate of Niger's share of the market. But the data does show that Nigeria is a capable competitor in this market even if one accepts the official figures with suspicion, as Beninois governmental cadre themselves urge.

Neither the Ministries of Commerce nor Chambers of Commerce officials in the consuming countries could provide either quantitative or qualitative estimates of market capacity. Therefore, merchants in every market visited were asked what quantities of Nigerien onions they were currently importing, and how much more they thought the market could handle. Table 21 presents the results of the interviews. Overall, if administrative difficulties could be diminished, roads improved, and the economic liberalization process sustained, traders' combined estimates suggest that there is immediate scope for shipping an additional 157 tons/month or 1808 tons/year through informal channels. If, however, formal channels could be established between Abidjan and Niger, this figure could increase substantially, as formal sector importers in Abidjan claim that demand for onions is 4,000 tons per month.

Limited markets for Nigerien onions, cowpeas, natron, and to a very limited extent, red peppers and garlic, exist in the coastal countries. Traders in Accra, for example, noted that at one time Ghanaian consumers sought them out with cries of "Tahoua, Tahoua" by which they meant Nigerien cowpeas! The ban on cowpea exports from Niger during the Kountche era destroyed this market opportunity. Traders in Accra would also like to import natron, but have had trouble with the SNT in Zinder, which refused to allow Ghanaian trucks to move goods between the natron market in Nguigmi on

the old shore of Lake Chad and Zinder. Some Togolese market women have experimented with importing other commodities in the past, but do not do so on a large scale now. The impression gathered from interviews with informal sector marketers was that ignorance of the GON's trade liberalization policies, lack of clarity about official trade legislation in transit and importing countries, lack of financing, formal barriers to currency conversion, and the high risks associated with international trade constrain coastal country marketers from developing markets for other Nigerien products. While some might argue that exchange rates are a barrier to trade, they were not a notable barrier to cross-border trade between Ghana, Côte d'Ivoire and Togo in the recent past, nor have they ever been a barrier to trade across the Niger-Nigeria border.

This study of export markets is marked by one major omission, if official export data (RN/MP/F/DGD 1990) are to be believed. Appendix C summarizes Nigerien agro-pastoral exports to its neighbors in the sub-region in 1990. This table highlights the well-known importance of Nigeria as a market for a multitude of Nigerien products. What is shocking, however, is the fact that over 28,000 tons of onions and garlic are said to be exported to Nigeria. If this is true, why did few of the informants questioned during the course of this study mention this important trade? How is it that Nigerien onions are able to compete with onions of the same variety (albeit of lower quality) that are produced less expensively in Nigeria? What are the future prospects for this market? It may be that expanded onion production in Zinder accounts for some of these exports, but clearly further investigations of the Nigerian market for Nigerien onions is warranted.

B. Sources of Competition: Production in Other ECOWAS Countries

As Tables 1 and 6 show, both production and export volumes of Nigerien onions increased dramatically over the past five years and have reached a plateau. Unfortunately for Niger, production in the savannah regions of Benin, Burkina Faso, Côte d'Ivoire and Ghana is also increasing or is expected to increase.

Beninois production is concentrated in the Malanville region just across the border from Gaya. The Comité de Réception et de Vente des Oignons (CORVO), the Beninois onion producers' organization, estimated their production at 27,500 sacks or 3,084 tons in 1987, and 30,000 sacks or 3,960 tons in 1991. CORVO claims that Beninois and Togolese consumers prefer their variety to the Galmi variety because it is stronger in flavor than the Galmi variety. Of course, shipping from Gaya to coastal markets is less expensive by at least 90,000 CFA per truck (due to illicit rents taken in Niger) representing about three percent of the sales price in Cotonou, than shipping from Tahoua.

Côte d'Ivoire produces only 2,000 tons of onions annually, but an FAO/UNDP project aims to increase production in the northern regions to 15,000 tons by 1998. MAG/CIDV estimates this quantity to represent one-third of annual national consumption. However, this project is still in the pre-implementation stage.

No data is available from Ghana's Ministry of Agriculture on Ghanaian onion production. Onions are not a target for donor investment. Instead, Ghana is diversifying into fruit and non-traditional vegetable production, and is trying to modernize its production of traditional cash crop exports (coffee, cocoa, palm oil). Shallots of a violet variety are produced in the Volta region, northeast of Accra. At the time of this study, shallots were not abundant and were very expensive at 1,325 CFA/kg in Tamale.

The region around the town of Bawku near the Ghana-Burkina Faso-Togo border has emerged as a significant source of a Red Creole or Red Caribe variety of onions over the past ten years. During the harvest period as many as 150 tons are shipped daily from Bawku market according to market participants. Traders interviewed in the Bawku market also claimed that production is significant for nine months of the year. Further, they claim that Ghanaian consumers prefer the Bawku region's darker red onion to the Galmi variety because it is much stronger in flavor. However, if the Bawku market functions like the markets in Tahoua and Malanville, one would expect that the peak market lasts no more than three months. If so, total annual production would be on the order of 13,500 tons. Further, at the time of this study in mid-August 1992, there were very few onions to be had in Bawku; by contrast, both Kumasi and Tamale markets were filled with Galmi onions. This is evidence that Galmi onions still dominate the market.

The only data available on onion production in Togo is from a single national survey conducted in 1988 (Table 22). National production is just under 2,000 tons, a quantity equivalent to official figures for quantities imported. As far as this study was able to determine, onions are not a target for investment by donors or private firms in Togo at this time. Importers claim onions do not grow well in Togolese soil; Violet de Galmi variety seed yields only shallots, for example. Nonetheless, shallot production is increasing in the coastal garden areas west of the capital, Lóme.

Data on Burkinabé onion production is available from a single national study of dry season gardening conducted by MAG/EL/SG/DEP in 1991. Results of this study are summarized in Table 23. The data show that Burkina Faso produced 10,000 tons of onions in 1990, of which perhaps a tenth was exported. Four provinces were the primary onion producers· Sanguie, Yatenga, Sourou and Boulgou. The most well-known onion-producing towns are Lanfiera and Lombila in the northwest; Bagre towards the border with Togo; Bandguedo in the south, and Moktedo on the eastern road to Koupella from Ouagadougou. Meanwhile, UCOBAM, the National Cooperative Union, is discouraging members from growing onions in favor of green beans and fruit, since they have found onion export to be unprofitable. Nonetheless, production seems to be increasing in the border region adjacent to Bawku, Ghana.

Relatively small quantities of onions are imported into coastal countries from Europe and are destined mainly for expatriate consumption. European onions play a minuscule role in African consumption except in Côte d'Ivoire (imports of 19,000 and 8,000 tons in 1990 and 1991, respectively). They are not preferred by consumers but fill seasonal market windows of opportunity and enjoy a price advantage over Nigerien onions during the summer and fall months. This price advantage should

not be underestimated in assessing the future of Nigerien onions in Côte d'Ivoire. The presence of significant quantities of European onions in Côte d'Ivoire is due to market dominance exerted by of a single Lebanese trading firm, SABIMEX, which accounts for 80 percent of the quantity imported. The CIF price of 80 CFA/kg means that Nigerien onions are competitive with Dutch onions only during the period when the coastal onion market is glutted by Nigerien onions from May through July. This situation could be changed in favor of Nigerien onions. Donors might intervene to encourage farmers to increase Nigerien production, especially in the rainy season; to decrease rent-seeking in Niger at least; to help modern players enter the Nigerien export market; and to help farmers increase on-farm onion storage in Niger to even out fluctuations in exports.

In sum, there are competitive onion products in the sub-region: Dutch onions in Côte d'Ivoire, and local production in Ghana, Benin, Burkina Faso, and Nigeria. Nonetheless, Niger's competitive position for onion exports is relatively favorable. First, Niger is by far the largest producer in the sub-region. Second, international distribution channels are more firmly established for Nigerien onions than for any of the competing national productions. Third, Beninoise and especially Togolese traders who dominate the onion trade in consuming countries prefer Nigerien onions to all other varieties because of local consumer preferences. The onions produced elsewhere are either small, such as the Voltaic and Malian shallots; more perishable, such as the over-fertilized Nigerian onions; or ill-adapted to African culinary practices, such as Dutch onions. Nigerien onions maintain a fragile consumer preference advantage in many markets, due to their flavor, cooking quality and alleged medicinal properties. Consumer preference is, as mentioned above, influenced by price. Demand for Nigerien onions is price elastic and threatened in some markets by less expensive Nigerian and Dutch imports. Fourth, traders of Nigerien origin dominate the import trade in Côte d'Ivoire and to a lesser extent in Ghana. Fifth, Niger benefits from two seasonal market windows of opportunity. The first is the main harvest period from February through April, following the onion harvest in the savannah regions from November through January. Indeed, producers in Galmi and Malanville have an informal agreement to allow the Malanville market to clear before Galmi onions are shipped through Benin in significant quantities. The second window of opportunity is the July-September rainy season which is unfavorable to both onion production and storage in the savannah regions. This latter period is only beginning to be exploited by producers, due in part to the lack of suitable water-lifting equipment.

IV. POLICIES AND INVESTMENTS RELATED TO ONION MARKETING

A. Policy and Regulatory Reform

1. **Niger.** The formal policy climate in Niger is conducive to an expansion of onion production and marketing. As a result of donor-led policy dialogue, GON is moving towards greater economic liberalization. Due to intervention by USAID/Niger's Economic Policy Reform Project (NEPRP), official customs fees have been reduced from 1400 CFA per sack to 90 CFA per

sack (this "taxe statistique" equals 4.5 percent of the value of the commodity). As a result of reforms effected through NEPRP between late 1988 and April 30 1991, anyone could export onions who had paid 90 CFA per sack to the Customs Service and a 100-150 CFA per sack market tax collected by the arrondissements. In an attempt to streamline and clarify business licensing procedures, only the following documents are required of Nigerien exporters:

1. a commercial registry number provided by the "tribunal de première instance";

2. a receipt indicating that the commercial license fee (la patente) of 550,000 CFA has been paid for the current fiscal year, or a certificate that one is enrolled on the list of license holders, therefore indicating that a part of the license has been paid;

3. a receipt indicating that a contribution of 50,000 CFA has been paid to the publically controlled Chamber of Commerce;

4. a receipt indicating that a contribution of 30,000 CFA has been paid to the Nigerien Center for Transport Users (CNUT); and

5. the Statistical Form ("feuillet statistique") indicating the expected export volume. This form costs 2,000 CFA plus 6,000 CFA of fiscal stamps, or 9,000 CFA of fiscal stamps if onions are to be exported to a country outside the CFA zone such as Nigeria or Ghana. The Statistical Form is good for 90 days.

Officially, foreign marketers are free to purchase onions and export them, paying nothing more than the market taxes. However, if their operations on Nigerien soil extend over a period longer than 90 days per year, they must obtain the same documents as Nigerien marketers. The vagueness of this 90-day-per-year provision provides an opening for traders to minimize the amount of time any individual agent spends in Niger. Officials charged with monitoring foreign commercial activities in Niger may also interpret this rule to mean 90 days from date of issue. However, no foreign merchants were registered with the Chamber of Commerce in Tahoua in July 1992.

While there may be good reason to support the Chamber of Commerce and CNUT, the regulations enumerated above do complicate the marketing process. Further, there seems to be no good reason for imposing purchase of the statistical form, since Customs already collects data on the volume and destination of exports. Payment of a commercial license seems a reasonable fiscal burden to impose on traders if it protects them from illicit rent-

seeking. However, paying fees and taxes and obtaining licenses does not protect traders from the practice of illicit rent-seeking. On the contrary, it probably increases exposure to this practice by bringing commercial activities to the attention of the authorities. Illicit rent-seeking by government agents constitutes a serious constraint to the expansion of production and marketing. From interviews and observational data, these illicit rent-seeking behaviors can be estimated reliably to cost onion traders between 90,000 and 100,000 CFA per truckload (five to six percent of CIF Niamey) between Galmi in Tahoua department and Makalondi on the Niger-Burkina Faso border.

It is likely that the failure of GON to suppress illicit rent-seeking is in part responsible for the decline in the number of marketers who conform to the formal legislation outlined above. In 1989, there were 42 marketers in conformity according to the Chamber of Commerce in Tahoua; only fifteen were in conformity as of mid-July 1992. The preference of commercial firms for informality and a low profile can be seen as a response to exposure to illicit rent-seeking. A representative of the Caisse Centrale de Coopération Economique (CCCE) in Niger cites the invisibility of Nigerien businesses as one reason his organization has been unable to identify actors to whom CCCE could provide financial support as part of its program of private sector development.

There are no significant formal restrictions to importing onions into Niger from other producing regions, but such imports are insignificant due to price advantages, consumer preferences and lack of demand (Krogt and Klaassebos 1991). Table 24 that shows onion/garlic imports for the years 1987-1990 were negligible (less than ten tons) except for 1987 when over 500 tons were imported.

The overvaluation of the CFA against the Naira and the Cedi puts Nigerien onion exports at a disadvantage compared to Ghanaian and Nigerian onion exports, respectively. Nigerian onions are marketed in Benin and provide significant competition to Nigerien onions. On the positive side, the weakness of the currencies in English speaking Ghana and Nigeria allows for savings in transport costs for Nigerien onion traders. For example, Nigerien onion traders in Ghana say that Ghanaian transporters offer them a 300 to 500 Cedi discount per sack relative to Nigerien transporters. This amounts to substantial savings of up to 36,000 CFA per truckload.

2. **Countries Importing Niger Onions.** Import regulations have been assessed in the importing countries. Official regulations are relatively homogeneous in ECOWAS countries. Most countries have undertaken some actions to simplify the import process and decrease tariff barriers in recent years. ECOWAS member countries now use standardized forms to certify products' origin and for customs control. Further, import duties on fresh produce have been reduced to levels comparable to export duties now

imposed in Niger. For example Togo's import duties has been reduced to about seven percent and Ghana's to about 15 percent. The Chamber of Commerce and the Centre de Commerce International d'Abidjan maintain that the only tariffs collected on products from ECOWAS countries in Côte d'Ivoire are a four percent tax (droits fiscal) and a five percent customs fee (droits de dédouanement) on the CIF value of imports. Burkina Faso's import duties have fluctuated but have decreased under pressure from importers, and now stand at about six percent. Thus, official import duties are now less than 15 percent in most countries.

While import duties have decreased, several countries have imposed transit fees payable to parastatal firms with offices at the border points. According to documents provided by wholesalers in Côte d'Ivoire, they must pay 396,000 to 459,000 CFA per 30 ton truckload of onions to the Société Ivoirienne de Commerce Générale (SICG) for nominal transit fees from Ouangolo, Côte d'Ivoire (on the border with Burkina Faso) to Abidjan. In Burkina Faso, a transit fee of 7,500 CFA per 15 ton truck is required. The Beninois customs service charges 79,500 CFA per 30 ton truck (265 CFA/sack) to which is added a 9,000 CFA tax on onions in transit to Togo, for a total of about 88,500 CFA per truck. These official rents are a constraint to trade bitterly resented by traders. During the July 1992 meeting of the ECOWAS/CEAO heads of state, the issue of liberalizing the flow of goods among member states was raised; however it is unclear what further steps towards liberalization will be implemented.

Across the sub-region, the most serious barriers to importing Niger onions and other perishable commodities are posed by the imposition of transit fees and tariffs, and conflict between various policing bodies--customs, gendarmes, police--and private traders and transporters. The latter situation generates rampant rent-seeking. Fees and illicit rents add from two to 30 percent of CIF prices on the coast (see Table 30 below), depending on destination and how fees and rents are imposed. Fees and rents create confusion and uncertainty, increase traders' risks dramatically, and limit the extension of marketing channels to regions which are currently underserved.

Every country visited is taking steps to simplify and streamline entry into the private sector. These procedures are reported in some detail below in order to highlight potential barriers to development of onion exporting.

a. Côte d'Ivoire. The following documents are required to import each load of goods into the Côte d'Ivoire from neighboring countries:

- -- l'ordre de dédouanement (customs declaration)
- -- le certificat d'origine (certificate of origin)
- -- les titres de transport (payment guarantees to the transporter?)
- -- la liste de colissage (list of the contents of the truck)

- la quittance (a copy of the customs declaration issued in the exporting country)
- la facture de commissionaire (intermediary's bill)
- le décompte de frais d'assurance (insurance card)
- les pièces concernant les débours annexés (receipts for miscellaneous expenses)
- le bon de livraison (delivery slip or order form from receiving agent or shipping company); in addition to which are appended:
- le certificat phytosanitaire (verification of the product's purity and safety); issued in Burkina Faso
- le bulletin de verification (verification of contents and quality); issued by the Service de Conditionnement in Burkina Faso.

b. Togo. The Ministry of Commerce in Lomé claims that onions would be subject to a three percent taxe statistique (statistics tax), a redevance informatique (or computerization fee) of 1,000 CFA per customs declaration, a taxe de payage (meaning unclear) of 200 CFA/ton; and a taxe général réduite or TGR (reduced general tax) of five percent (rather than the 20 percent levied on products imported from outside of ECOWAS/CEAO). Similarly "negligible" taxes are applied to imports of agricultural produce in Benin according to the Director of External Trade in Cotonou.

c. Ghana. As a result of the Government of Ghana's Economic Reform Policy, the number of steps required to import goods into the country has been dramatically reduced. Further, repatriation of foreign capital is no longer restricted nor is foreign exchange controlled, and the exchange rate between the Cedi and other currencies is market determined. The black market in currency has disappeared. Import licenses were abolished in 1989, but any foreigner who wishes to operate in the formal sector in Ghana must follow the "Regulation for Operation as a Foreign Business" and register with the Registrar General's Department. This requires an equity bond of $100,000; in the case of joint ventures, at least $40,000 of which must be paid by a Ghanaian. These fees would appear to constitute a very high barrier to market entry, impassable to all but the largest onion traders. Certificates of Registration and Incorporation must be obtained and renewed annually. A Form 3, "Returns of Particulars" and a Form 4, "Declaration that the Conditions of Section 28 of the 1963 Code have been complied with" must also be obtained and stamp duties of 0.2 percent of the stated capital paid. An annual Company Tax of 50 percent on commercial enterprises is levied, and in return a Tax Clearance Certificate is issued. In addition, foreign drivers must obtain an International Driver's License valid in Ghana, while Ghanaian drivers must obtain a similar license that is valid only outside of Ghana. Obtaining these

licenses requires additional stamps and fees. Only one "informal" trader interviewed in the Makolo market in Accra had completed all the necessary paperwork in order to import onions (300 tons) from a Dutch supplier, Minaar.

In Ghana, the documents required for importing agricultural produce include: an Import Declaration Form costing 5000 Cedis (or 2941 CFA), a document used mainly for statistical purposes; a Single Administrative Document, also costing 5000 Cedis and used for customs clearance procedures; and an A-2 Form available from any commercial bank in the country and used to ensure that export profits will be repatriated. In addition, agricultural imports are untaxed or taxed at 10 or 20 percent depending upon whether they are judged by Customs to be inputs, raw materials, or finished goods, respectively. Distinctions between products are not entirely obvious; for example, rice is considered a "finished good." Vagueness such as this provides opportunities for illicit rent-seeking by government employees.

d. Burkina Faso. In Burkina Faso as in the other importing countries, a number of documents must be obtained by the importer. These include: a copy of the customs form from the exporting country; an agricultural purity certificate; verification of contents and quality; a receipt from Burkina Faso's Transit Agents' Union (Union des Transitaires de Burkina Faso); a highway tax receipt; and a form called the Simplified Declaration of End Use (Déclaration Simplifiée de la Mise à la Consommation); along with proper vehicle insurance and registration forms. Merchants also claim that local commercial licenses (at a cost of 48,000 CFA/yr) must be paid to Burkinabé authorities, even if one is of foreign origin.

Commercial policies are not widely disseminated in the importing countries visited outside of the capital cities, and certainly not in languages other than French or English. This is a constraint to many of the operators active in the trade of perishable commodities such as onions who are not primarily French or English speakers. In the capital cities, most traders do have access to someone who has at least rudimentary international language skills. Policies should be disseminated in national languages; however, it would not be sufficient to translate them into Hausa only. Although Hausa is a useful lingua franca in Malanville, Abidjan, and, Kumasi, and Bawku, the consultants were struck by the limited utility of Hausa in Cotonou, Lomé, and Ouagadougou

The GON is ill-equipped to keep Nigerien citizens abroad abreast of commercial developments at home. Niger's embassy in Côte d'Ivoire has a limited staff that can hardly serve the many thousand "Nigeriens" living on Ivoirian territory. Staff are kept busy with numerous administrative duties apart from commercial activities. In Ghana, effective communication

between the ambassador and the Nigerien commercial community in Accra is limited. New commercial regulations are not available in languages other than French. GON commercial policies are not widely disseminated and certainly not in languages other than French. This is a constraint to operators active in the trade of perishable commodities such as onions.

To conclude, many positive steps have been taken toward trade liberalization throughout the sub-region. However, much remains to be done. In most countries, former agents of government parastatals are in charge of the conversion to free market economies. Ghana's Chamber of Commerce, for example, is the only private Chamber of Commerce visited in the sub-region. Further, bureaucracies with overlapping mandates (Ministries of Commerce, Chambers of Commerce, Ministries of Transport, Customs Services, etc.) regulate and license the trade in agricultural commodities. Because of salary compression, budget constraints, etc., many of those bureaucracies are unwilling to give up their regulatory prerogatives. Thus, regulations and necessary steps to start a new business--or even maintain an existing one--are confused and contradictory. Confusing and inconsistent regulatory requirements provide ample opportunity for rent-seeking and blockage of private sector initiatives

Throughout the sub-region, three common myths about the private sector persist among public sector cadre, although they are no longer part of official policy in most countries: first, that the private sector, especially the informal private sector, consists of parasitic intermediaries who exploit the farmer and the consumer; second, that the private sector is collusive and oligopolistic; and third, that private businesses obtain supernormal profits. These myths must be dispelled if an effective and firm commitment is to be made to support and facilitate private agribusiness activity. In Niger, they translate into a climate of insecurity and unreasonable scrutiny of formal sector economic operators. Economic operators may be subject to investigation and excessive penalties by the Economic Police for even minor infractions. Some donors consider this to be a serious damper on the development of the private sector in Niger.

B. Infrastructure Investment

There are three infrastructural investments that are important to agricultural exports: storage facilities, the road network, and telecommunications facilities.

1. **Storage and Warehouse Facilities.** Storage and warehouse facilities are an important component of agricultural marketing channels. Indications of investments in onion storage facilities and estimated storage costs were collected where possible. Market intermediaries in the shipment assembly markets at Galmi, Magaria, and especially Arewa, have invested both in traditional rudu storage huts and "shipping docks". The latter are little more than traditional adobe houses that cost on the order of 150,000 CFA each, and should be amortized over a five year period. Storage costs in the these markets are nominal; producers may tip intermediaries a small sum for the

privilege of placing sacks in the adobe shipping docks constructed by intermediaries to protect the onions from occasional rain showers or the sun.

Table 25 provides a comparison of returns on investments in onion storage. The traditional thatch storage facility or rudu provides effective storage for several months, but inconvenient access to stock for monitoring. If left unchecked, rotting bulbs can spread damage to the entire stock resulting in a total loss. Nonetheless, minor improvements in the rudu structure along with regular monitoring of stocks can improve storage performance. Improvements include lifting the rudu well off the ground with stones, and use of termite-resistant doum (Hyphaene thebaica) or rhun (Borassus, sp.) palm beams and tumfafi supports. The International Labor Office (ILO/BIT) rural machinery project in Madaoua seems to have perfected an appropriate technology-based, improved adobe storage facility. In this facility, bulbs are placed on shelves along a central walk/airway. The building is oriented so as to take advantage of prevailing wind currents to provide ventilation. Not only does the facility provide for improved access to monitoring and drying of stocks, but spoiled onions also tend to dry out, limiting damage to adjacent stock.

Table 25 clearly illustrates the benefits of deferred onion sales, as well as the increasing returns to scale as the size of the improved adobe storage facility increases. There is opportunity in the marketing system for new participants to concentrate on storage. Expanding financing available for deferred sales through improved storage and other technologies to more of the producers who rent land also would transfer economic benefits from shipment assembly and wholesalers to producers. The obstacles to increased investment in storage are not so much technical as economic and political. Farmers lack the cash reserves necessary to forgo the immediate cash benefits of onions sales in favor of storage and deferred sales.

Importers in the consuming countries, like farmers, have tended not to invest in onion storage facilities. Major importers in Abidjan, Accra, Kumasi, Lomé, Cotonou, and Ouagadougou rent simple shelters, cement market stalls, or warehouse rooms, in or adjacent to the marketplace, from other individuals or the state. For importers, there are significant disincentives to invest in improved storage infrastructure. These include the risk of exposure to rent-seeking behaviors by agents of the state (acting on the three myths cited in section IV.A. above), and the opportunity cost of capital tied up in relatively unproductive infrastructure. Rather than invest in storage infrastructure, importers and traders specializing in shipment assembly prefer to speed stock turnover so that only small stocks remain in storage at any time.

An additional disincentive to invest in storage facilities in the consuming countries is that storage costs to wholesale importers are nominal, averaging between 45 and 200 CFA/sack in Abidjan. It costs about 150,000 CFA/mo to rent a warehouse in Abidjan. It costs 800 CFA/mo per stall in the

Makolo market in Accra. Wholesalers in Lomé pay 75 CFA/sack for warehouse space. The reason for this low storage cost is that wholesalers are quick to place their sacks with "semi-gros" sellers and retailers, thus spreading the costs of storage among marketing channel participants.

2. **Road Network.** The road network is a second major component of the infrastructure necessary to expand onion export marketing. Bad roads across international borders and in the northern hinterlands of Togo and Ghana limit the development of trade in those areas. However, roadwork underway in Ghana should dramatically improve transport from Paga and Bawku to Tamale in Burkina Faso within the next five years. Roads from Niger to Burkina Faso via Makalondi, and to Benin via Gaya are comparatively good, as are the roads from Malanville to Cotonou, from Cotonou to Accra via Lomé, and from Accra to Abidjan and Kumasi. The poor state of rural roads in Ghana, Togo, and Benin hinders the extension of Niger onion distribution channels.

The international highway network is gradually improving in the sub-region. Transport costs are high because of the distances involved and the high costs of imported fuels. However, because of considerable competition in the sector, transport costs have remained relatively stable at least since 1987. Transport costs per se are not a serious disincentive to onion marketing. Traders interviewed stated that trucks are always available for onion transport, and that it is never difficult to hire one. Average transport costs from Tahoua department to the consuming markets are as follows:

Abidjan	3000 CFA/sack
Accra	3000 CFA/sack
Lomé	2500 CFA/sack
Ouagadougou	2000 CFA/sack
Bobo-Dioulaso	2500 CFA/sack
Cotonou	3000 CFA/sack
Malanville	1000 CFA/sack
Niamey	1000 CFA/sack

Similarities in transport costs between destinations of varying distances such as Abidjan and Cotonou are explained by differences in the quality of the road network between Tahoua and these destinations.

In Niger, the mediocre state of rural feeder roads in Tahoua department limits further development of onion production and marketing. The recent construction of improved rural roads in the Tarka Valley should revolutionize both production and marketing patterns to the benefit of both producers and marketers. More potential shipment assembly markets, such as Kumassa south of Madaoua, will become available to exporters at lower costs. Further investments in rural roads in the Maggia Valley and other low-lying areas in the southern part of Tahoua department would be

beneficial to producers in the hinterlands of Madaoua, Bouza, Keita, and Konni arrondissements who currently have difficulty getting their crop to market.

3. **Telecommunications.** The final infrastructural investment crucial to onion export marketing is telecommunications. Limited communications infrastructure--telephone, telex and telefax--in the producing zone is another constraint to expanding onion exports. Some informal sector traders remain unaware of the benefits that might result from improved phone, fax, and telex services, but others would be pleased to have improvements in this area. Intermediaries in Arewa, for example, who lack access to adequate communication facilities, claim they are ignorant of market prices in coastal markets.

By contrast, traders in Abidjan, Lomé, and Ouagadougou make regular use of the phone to communicate price and demand information. Producers and importers' agents in the Tamaske and the Galmi areas also use public phones. Agents of merchant wholesalers in these areas regularly telephone Abidjan to monitor both market prices and quantities available. If the market becomes glutted (kasuwa ta cika, Hausa), then agents moderate their buying schedule and seek to sell off onions en route to Abidjan. A wholesaler in Ouagadougou reported a similar practice of selling excess stock in Burkina Faso en route to Ouagadougou. Togolese buying agents in Galmi monitor prices in Lomé by phone as well. It would be possible to install direct phone links to connect the producing zone to international lines. Both the hospital at Galmi and the FED project in Madaoua have such lines at a cost of about three million CFA/year.

The inability of marketers in Accra, Kumasi, Lomé, Parakou, Cotonou, Ouagadougou, Bobo-Dioulaso, and a few other major market towns to telephone Galmi and Madaoua easily contributes to disorder in the marketing channel and increases the risks of traders losing money. Two key pieces of information are needed on a timely basis: market prices and quantities in stock in consumer markets. In addition, information concerning prices and quantities traded in markets in the secondary producing zones such as Bawku, Ghana, and Malanville, Benin would be useful to shipment assembly agents and importers on a seasonal basis. An improved telecommunications grid would be a more effective intervention to improve market information than radio broadcasts of prices.

While increased access to modern telecommunications is needed, computers are unknown to all but the modern Lebanese and European firms that service a small part of the market. Complete computerization of Customs operations is underway in Niger; this should improve the quality of information concerning quantities and destinations of Nigerien onions.

Finally, as a footnote, the difficulty of obtaining decent lodging in Galmi is a minor inconvenience for traders, especially the women traders from Togo and Benin. For some reason they have found it difficult to purchase property there. Improvements to lost-cost lodging facilities in the producing zone would be appreciated by these traders.

There is virtually no formal sector financial support available for investment in infrastructure associated with Nigerien onion marketing. The only exception is PBVT, which has provided 13.9 million CFA to 278 individuals for deferred onion sales. These advances have included funding for the construction of traditional onion granaries or rudu.

C. Technology Investment

1. **Production.** In terms of fixed cost investments in agricultural production, both irrigated perimeters and improved garden sites exist in onion producing areas of Tahoua department. However, most onion production goes on in garden plots where farmers lift water by hand. The NGO Lutheran World Relief (LWR) had installed roughly 500 cement wells in the area by the mid-1980s. Four improved garden production sites exist in Keita arrondissement besides the Ibohamane (750 ha) and Badeguichiri perimeters. However, Keita also has 400 improved wells (390 installed by the Projet Intégré du Keita, PIK), or one well for every 4.1 ha of exploitable ground. To draw sufficient water, two to three wells per hectare are required. In Konni, Galmi (261 ha) is the main improved site for onion production, although four smaller perimeters (268 ha) produce onions and some other crops. In Madaoua arrondissement, PBVT has created nine collective irrigated perimeters covering 31.5 ha and involving some 21 wells. In addition, the Madaoua Regional Development Council (CRD) has dug some 470 wells in the area around Tumfafi and Arewa in Madaoua arrondisement. Since 1991, PBVT has also installed 440 individual improved tube wells in 30-40 villages, involving some 400 individual producers and covering some 160 ha.

In Tamaske, PIK has experimented with a system of renting pumps to cope with a perceived pump shortage. Four persons join together to rent a pump for 15,000 CFA/month or 60,000 CFA/season. PIK put six pumps at the disposal of producers in Tamaske using this system in 1991/92. Producers liked the system because they avoided exposure to financial risk, although it does not make much sense from a financial perspective given that a pump purchased in Nigeria only costs 110,000 CFA.

Labor and other onion production costs are compared in Table 26. The best data exist for pumping and irrigation costs. Pumping costs have been estimated for hand lifting and small motorized pump sets (Hart 1987; Norman and Sani 1990; Norman and Gandah 1990; Norman 1991; Norman and Diallo 1991). Substantial human labor or energy investment is required to irrigate an onion crop in the Tarka Valley using either rope-and-calabash

or motor pump lifting techniques. Irrigation costs per cubic meter of water for Tarka Valley open well micro-systems are shown in Table 27. In fact, costs are higher on these micro-systems than for the Maggia gravity fed or Niger River electric power-fed systems. In spite of somewhat high costs, Norman and Gandah (1990, p. 17) show that the irrigation efficiencies attained by individual farmers on individual micro-irrigated plots in the Tarka valley range between 60-90 percent of technical optima. Further, farmers studied adjusted water volume applied to ensure adequate leaching of salts below the root zone.

Rope-and-calabash systems are used to draw water from both traditional and improved wells in the onion producing zone. They produce from 5 to 21 m^3 of water per day depending on the depth of the well (usually 2 to 6 m). Hart (1987) noted that manual lifting techniques generate employment, and therefore, the social advantages to maintaining manual lifting are substantial. However, as Table 27 shows, shifting to a motor pump greatly reduces labor costs (0.159 vs. 0.449 hr/m^3), freeing up labor and time that farmers tend to use to increase the area farmed. In addition, motor pumps increase water supply, so that the water demand/supply ratio improves. Norman and Sami (1990) suggest that the actual increase in labor available as one moves from rope-and-calabash irrigation to motor pump irrigation is roughly 60 percent.

According to Hart's analysis, rope and calabash techniques will only survive where the total lift is 2 m or less. Norman found them in use with lifts up to 8 m (Norman and Diallo 1991, p.23). Hart recommended introducing improved manual lift pumps, but there is little evidence for the diffusion of improved manual lifting pumps in the onion producing zone; the performance characteristics of these methods probably do not exceed those of local technologies such as the chadouf used in Niger's Maradi Valley (Norman and Diallo 1991, p.22). At the time of Hart's assessment in 1987, the growth rate in use of 3.5 to 5.0 HP portable pump sets was 15-20 percent per year. The continued growth in onion exports since then, and field research data generated from this study, indicate continued growth in use of pump sets. Attendant field size increases in the onion producing region can be expected.

Norman noted that many pumps were operating at flow rates of about 1.5-2.0 l/s, while optimum operation occurs at 3.5-4.0 l/s. These pumps are only effective in open wells when water is drawn from a depth of 2-6 m. PBVT has developed an improved yield tube well that may improve operating efficiencies and lower production costs. The expansion of onion production in onion producing areas in much of Tahoua department will depend on the continued spread of tube wells and other pumping technologies. This is true especially in Keita and Bouza where the Tarka Valley water table lies at a depth of 6 and 8 m, and in the Maggia valley north of Konni where the water table may lie at a depth of 10 m or more in the dry season.

As mentioned above, PBVT has perfected a tube well and pump set technology for individual producers that costs only 200,000 CFA. This is less than half the cost of previously available improved technolcgies. Each pump set can irrigate 0.40 ha of land, about as much land as a single onion farmer can work. Furthermore, these sets can be installed in one day. In addition, farmers can cap and lock the wells in the dry season or before a rainy season storm, thus avoiding the problem of digging them out each year or after a storm. Finally, unlike previous technologies used in Niger, farmers can easily pay back the cost of a PBVT well and pump set in a single season of onion production (0.40 ha yields 100 sacks = 200,000 CFA @ 2,000 CFA/sack). All of these cost factors were a cause of dissatisfaction with the old technologies and a limitation to expanded production. Unfortunately, these wells can be sunk to a depth of no more than 12 m.

Using their pump sets and wells, PBVT estimates water costs from 8 to 12 CFA per m^3 when lifted through 3 to 4 m. PBVT bases its estimates on data collected in the Tarka Valley near Tumfafi, a center of expanded of onion production. Near Sabon Guida, where the water table is deeper, costs rise to 32 CFA/m^3. Cost data from other sites yields intermediate results (PBVT 1992). It is difficult to evaluate the reliability of these estimates. The PBVT pumps seem to run more cost efficiently than pumps Hart observed in the mid-1980s (Hart 1987, p.25). The PBVT pumps also seem more cost effective than those observed by Norman (Table 27), with a cost per m^3 of 68 CFA. Known as a meticulous and impartial observer, his measures are probably accurate. Even if pumping costs are underestimated, the PBVT pumps undoubtedly produce labor efficiencies for farmers at least as good as those reported by Norman.

In Tahoua, the key technological investment in production is tube wells and pump sets. The lack of cost effective water lifting has been the primary constraint to the expansion of production in the producing zone. As discussed above, PBVT seems to have resolved this problem for much of the producing zone. Over the next six years, the project intends to continue adapting tube well and pump technology to areas in the northern Tarka valley where the water table lies deeper (10-12 m).

2. **Storage.** A second key technological investment is in storage as discussed above (see Table 25). Storage for deferred sales at the point of production is amply repaid by producer price increases. Opportunities for investment in improved appropriate technology storage exist in both Niger and Ouagadougou, Burkina Faso. The BIT project in Madaoua (Arrachart 1991) has perfected an improved storage facility, while the Ministry of Energy in Ouagadougou has apparently conducted successful experiments along similar lines. Storage losses over a six month period in the improved facilities are on the order of 20 percent, as opposed to up to 40 percent in the traditional rudu. Donor financing of both storage costs for deferred sales and improved infrastructure could provide handsome returns to producers and shipment

assembly agents in the producing region (see Table 29). As shown in Table 25, net margins per stored ton over a six month period range between 55,433 and 80,043 CFA. The latter figure represents margins earned when improved storage facilities are used.

3. **Packing.** Virtually no onions produced in the sub-region undergo any form of processing or special packing aside from artisanal drying. Recycled jute sacks and locally produced baskets remain the packing materials of choice. Dealers in Katako market, Niamey, are aware of the use of improved nylon sacks on the coast but do not use them; they are not available in Niamey. Nigerian onions are often transported in huge baskets. In Togo and Benin, onions are typically transferred from the jute sacks in which they are transported from Tahoua, to large baskets to improve aeration. In Lomé and Cotonou, contents of individual sacks are typically divided up among four to five baskets. In addition, small baskets containing forty onions and still smaller baskets containing no more than six onions are typically offered to retail customers.

There are two innovations which might provide the basis for medium term donor or private sector investment in improved sorting and packing. Onions in Accra and Abidjan are sometimes repackaged in recycled 25 kg net sacks of European or Ghanaian origin. Everyone in the market in these two cities recognizes the virtue of plastic net sacks for superior onion conservation in the more humid coastal environment. One Ghanaian firm produces these sacks at a cost of only 300 Cedis each. Traders prefer to recycle European sacks which are of superior strength. Thus, to improve shelf-life and promote consumer recognition, donors might help private sector firms develop distinctive packaging for Nigerien onions using nylon sacks displaying the national colors and a "Product of Niger" label.

Some onions in Burkina Faso are repackaged by FLEXFASO for sale in 2, 5, and 30 kg nylon net sacks for retail sale. FLEXFASO buys selected onions from producers who bring product to Ouagadougou to sell to the firm. UCOBAM, a parastatal cooperative organization, also sorts and packs some 100 tons of Burkinabé onions for sale in Ouagadougou each year using these nylon net sacks. Use of the sacks is already diffusing to informal sector traders, and now other products are sometimes presented in two and five kg nylon net sacks. It would be worth investigating the development of nylon sacking techniques for retail sales of Nigerien onions.

Sorting and grading of onions is widely undertaken at the retail level in consumer markets. Sorting, grading, and locational utilities provided by retailers add value to the product and provide the rational for product markup. Wholesale and retail traders recognize institutional customers' preference for larger bulbs and individual housekeepers' preference for smaller bulbs. The major reason for the latter preference concerns price: smaller bulbs are less expensive than larger bulbs. If the price is right, most

customers will buy larger bulbs. Retailers typically sort onions into three or four grades on the basis of bulb size and quality. They are then sold in piles of four to five bulbs for either 100-150, 75-100, 50, or 25 CFA depending on grade. Sorting and grading should probably remain a retail function for the near term given the uncertainties associated with shipment. Traders reason that it is better to lose some portion of every shipment due to spoilage than an entire shipment of some particular grade. Neither shipment assembly agents in the producing region nor wholesale marketers could afford many such losses.

D. Human Capital Investment

Human capital investment pertinent to agricultural marketing in Niger includes university level training in business disciplines and technical training of governmental cadre and business professionals in contemporary business techniques.

The University of Niamey currently offers no courses in business disciplines. Thus there is no national institution developing the kind of cadre that will be needed to help informal sector entrepreneurs make the transition to modern commercial enterprises. The number of cadre who may have received technical training in business fields and what sorts of training they may have received were not assessed during the course of this study.

Less than ten percent of even the largest informal sector traders have received any sort of technical, financial, or functional literacy training. While West African lingua franca and Arabic are perfectly adequate media of communication for transacting business in the sub-region, many traders' limited international language skills can be a barrier to communicating with formal sector firms. Perhaps five percent of the retailers are fluent in French or English, and a number of them have children/assistants who are literate and numerate in French or English. Some assistants provide accounting or communications functions for the senior traders. Technical training to improve informal sector traders' knowledge of contemporary banking and import/export practices could facilitate the expansion of linkages between the informal and formal sectors of the economy.

Both PBVT and PIK as well as CLUSA report having invested in cooperative accounting training. Scores of cooperative members are also reported to have received such training. CLUSA-trained cooperative managers have received the training necessary to keep accounts and to develop dossiers for obtaining commercial bank credit. Between 20 and 60 persons have been trained in Tamaske and Sarakolle coops in the Tamaske region alone. Given the poor results of cooperative training achieved through regional agricultural productivity projects in the 1970s and 1980s, however, it would be imprudent to overestimate the impact of the training received by villagers from PIK and PBVT. Nonetheless, basic literacy and numeracy training has been conducted in each of the villages where PIK works; similar training has been conducted in at least 48 of the 308 villages reached by PBVT in the Tarka Valley.

Neither Benin, Ghana, nor Togo boast significant public sector investment in technical training of persons active in onion production or marketing. Côte d'Ivoire, Burkina Faso and Niger do have technicians who have participated or will be participating in garden crop production-related activities. It is unknown what innovations, if any, in production, storage, packing and transport may be part of upcoming training programs sponsored by the public sector in these countries.

V. CONDITIONS THAT CONTRIBUTE TO ONION MARKETING EFFICIENCY

A. Price/Cost Distortion

Consumer prices might be distorted by the existence of a number of cost factors, including excessive profit-taking by market intermediaries, government revenue policies, or rent-seeking. Each of these factors are addressed in turn below.

There is little evidence of exaggerated profit-taking by marketing intermediaries throughout the onion marketing channel. Nonetheless, some traders in the Galmi, Arewa and Tamaske shipment assembly markets may be earning above average profits by requiring foreign wholesale agents to deal with them rather than directly with producers. These trader's gross margins are about 1,000 CFA/sack of onions bought from producing villages in Madaoua arrondissement and delivered to the wholesale market at Arewa. Table 28 estimates returns to agents assembling product for export in the Galmi and Arewa markets based on interview data. The rate of return to agents investing in shipment assembly activities (50 percent) is quite high compared to the rates of return realized by wholesale and retail sellers as well as producers who rent their land. The net return of almost 86,000 CFA per truck becomes a staggering sum when multiplied over the scores of trucks that load in any of the three markets over the course of the season.

As mentioned above, government policies in most countries in the region are moving towards simplified, more stream-lined and lower cost procedures for gaining entry to the onion trade as well as to other commercial activities. Nonetheless, regulations are unstable, conflicting rules persist, and formal regulations are confused with informal arrangements in the minds of most informal sector channel participants Ministerial cadre continue to subscribe to the three myths about informal sector marketers mentioned in section IV.A. above.

Private traders as well as the national treasuries of the nations concerned by the onion trade suffer from the effects of rent-seeking undertaken by agents of the state. Illicit rents, strictly defined, account for two to ten percent of the CIF price in the consuming markets. However, a number of the agriculture and laissez-passer controls imposed abroad constitute little more than formalized rents that add costs (2 to 30 percent of CIF), but no value to Niger's onion exports. In addition, because of long delays at border posts, transport times escalate. These delays add marginally to transport costs and increase transport losses.

Data was collected on total transport costs per unit of capital invested in onions. Table 30 shows that total transport costs from Tahoua department to various destinations, including transport costs per se and formal and informal fees, vary dramatically between destinations, trips, and seasonally. As a result of these transport costs, consumer prices are one-tenth to one-fifth higher. In addition, rent-seeking practices discourage traders from investing in extending marketing channels to ill-served areas between major distribution centers; from investing in improved storage and processing that would call attention to their apparent wealth; and from regularizing their status with tax and licensing authorities. Illicit rent-seeking helps to suppress prices traders are willing to pay to producers, and may even discourage producers from undertaking major investments in production that might attract too much attention. Illicit rent-seeking and informal arrangements between agents of the state and traders rob national treasuries of significant amounts of revenue, perhaps as much as fifty percent of legitimate fees and revenues.

B. Physical Market Infrastructure

Physical market infrastructure might include roads and transportation, and warehouse, grading/sorting, or packing facilities. It was not possible to obtain information on transport costs per unit of capital invested in trucks despite repeated attempts to contact the Nigerien Truckers Union (SNT). Nor was it possible to gather capital investment cost data on roads. Informed sources agree that the construction and repair of secondary and rural feeder roads in Tahoua department has stimulated onion production dramatically, but the roads are too new and regional production data too scanty to permit quantification of the effects of improved roads on onion production.

Investment in storage in the marketplace is discouraged by the disinclination of most traders to tie up their capital in a perishable commodity such as onions. Traders tell dark tales about those who have tried to store against price rises and have incurred substantial losses. Further, many wholesalers seek to keep a low key profile to avoid becoming the target of investigation by rent-seeking agents of the state. Thus, they avoid holding large stocks or making costly infrastructure investments.

Very little storage is undertaken anywhere in the marketing channel. Storage costs in the consuming markets are low, less than five percent of the CIF price. Costs are usually charged on a quantity rather than time basis. Wholesalers in Katako Market, Niamey pay 13 CFA/sack; in Lomé, 50 CFA/sack; in Dantokpa Market, Cotonou, 200 CFA/sack; in Accra, 118 CFA/sack; and in Abidjan, 38 CFA/sack.

Most storage is and will probably remain at the farm or shipment assembly point level. Given the high cost of fixed capital investment in cold storage facilities and the relatively low value of the crop, such investments at the wholesale and retail level are probably not warranted. Firms such as UCOBAM in Ouagadougou which have considered cold storage have decided against it. SABIMEX and DISTRIMEX in Abidjan use their cold stores for higher value products such as butter and fresh fruits.

Onion processing is basically limited to sorting for damage on-farm, at the wholesale level and ultimately at the retail level. At the wholesale level, costs incurred for sorting consist of labor including the cost of supervision by the wholesalers or their agents. Such costs might amount to about 300 CFA per sack. At the retail level processing consists primarily of sorting onions into different sizes; these costs are difficult to differentiate from retailers' other variable costs.

C. Financial and Information Services

The availability of rural production credit in Niger was examined. Few formal financial services are available to producers and wholesalers outside of the informal private sector. Even savings accounts in the post office (Caisse Nationale d'Epargne accounts) belonging to agricultural cooperatives have been frozen for the duration of the GON transitional government. However, CLUSA, PIK, and PBVT have all intervened successfully to fund either marketing or deferred onion sales activities in the past two years. By all accounts these activities have had a net positive impact on producers. PIK loans to cooperatives of 17 million CFA have returned over 27 million CFA in Keita arrondissement (See Table 29). PBVT has provided over 70 million CFA in credit to 350 producers for pump sets and tube wells; one million CFA to ten mechanics; and 13.9 million CFA to 278 individuals for deferred onion sales. CLUSA has helped the cooperatives in Tamaske and Sarakolle to obtain bank loans from BIAO, the only bank operating in the interior of the country. Unfortunately, recent loan requests to BIAO from the CLUSA cooperative in nearby Magaria have gone unanswered. The ongoing reorganization of BIAO accounts for this situation; however, the persistent disarray of Niger's formal banking sector may well frustrate future attempts by agricultural cooperatives and private organizations to develop onion export marketing (J.E. Austen & Associates, et al. 1991; Darbera and Hall 1992).

Assessment of sources and availability of equity capital for value-added processing in Niger shows that formal financial sector actors in rural Niger are few. Only the three or four major private sector importers identified in each country, and one informal sector player in Ghana, have access to formal credit facilities. The absence of formal sector credit limits informal sector traders' abilities to develop linkages with formal sector import-export firms. Instead, according to intermediaries in the producing region, much of production and some primary marketing is self-financed. However, wholesale assemblers pay cash for produce that is brought to the shipment assembly markets such as Arewa, Galmi, Tumfafi or Tamaske in response to the arrival of exporters' trucks.

There are significant disincentives for expanded investment in trade. The perishability of the crop induces shipment assembly agents to keep 50 percent of their working capital in cash, about 25 percent in stored onions, and no more than 25 percent in exported onions (Mahamadou 1987, p.48). No informal sector players have access to insurance that would shield them from shipped product and loss. While total loss of shipments is unusual, it does occur, and would spell bankruptcy for most traders. The threat of unsecured loss heightens traders' perceived risk, adding to disincentives for expanded trade. The instability of the banks makes onion

producers and intermediaries unwilling to place assets with them. Further, fear of exposure to rent-seeking by state agents induces successful market participants to minimize investments in infrastructure and rolling stock.

In the informal sector, a range of credit transactions were reported in this study. Wholesalers make credit advances to producers, who need cash to take care of household expenses while the onions are growing. There is no way to measure the extent of such credit practices in Tahoua department as a whole, but Mahamadou (1987) estimates that 50 percent of producing families around Galmi become indebted to collectors or wholesalers in this way. Because less than 25 percent of producers can afford to stock onions in anticipation of later price rises, shipment assembly agents and wholesalers obtain onions on very favorable terms (1000-1500 CFA/sack) at harvest. Shipment assembly agents in general have no access to credit; they are self-financing. Therefore they need to collect on advances to farmers quickly at harvest. Wholesale exporters receive transport services from truckers on payment of half the freight charges to resale markets. Wholesalers normally pay truckers the balance of freight charges within ten days to two weeks of delivery to Abidjan and Accra. In addition, goods are advanced to retailers by wholesale traders. Theoretically, payment is due in full after a delay of from 7 (Niamey) or 15 to 20 days (Lomé, Abidjan). Wholesalers often have considerable amounts of capital--the retail value of one or two truck loads of onions--tied up in these arrangements with retailers.

Virtually every wholesaler has access to some market information. At the minimum, this amounts to information on prices in coastal country distribution markets at the time wholesalers make their orders in the producing zone. As telecommunications facilities improve, so will wholesalers' access to market information. Wholesalers try to keep informed of prices in the final consumer market, selling in markets en route when prices at the final destination fall, and rushing shipments through when prices in the coastal markets stabilize or rise.

Retailers have little access to any information beyond the expected arrival dates of shipments and the price they must pay. Little advance knowledge is available to them; however, this does not seem to be a particular problem.

D. Market Participants

In order to have some idea of the numbers of persons who might be affected by a donor-funded project in onion marketing, indicative data on the number of persons and/or villages active in onion production were collected in each country. In spite of impressive growth in production in Ghana (20 villages around Bawku), Burkina Faso (five major village areas), Nigeria, and Benin (20 villages around Malanville), producers in Tahoua department (some 10,000 persons) remain the most important numerically.

Indicative data on the number of persons active in onion marketing were also collected in each country. The three most important shipment assembly points in Tahoua department are Galmi, Arewa and Tamakse, serving Konni, Madaoua, and

Keita arrondissements, respectively. In Tamaske the members of the CLUSA cooperative have a single elected representative who deals with truckers arriving from Côte d'Ivoire. There are hundreds of active Ivoirian onion producers, over 100 of whom participated in a deferred sales operation financed by PIK involving approximately 110 tons of onions. In Arewa there are five major intermediaries (dillalai, Hausa) organized under a single head intermediary. Overall there are 20 intermediaries (masu magana de albasa, Hausa), all of whom are required by the major intermediaries to be producers as well. In Galmi there are three major intermediaries and probably 15 minor players. In addition, up to ten Togolese women are present at any given time serving as agents for importers in Lomé.

Hausa traders of Nigerien origin play an important role in the onion trade in Niger, Côte d'Ivoire and Ghana. Organizing trade along ethnic lines is a traditional West African response to marketing channel risks caused by the physical and temporal length of the channel and the necessity to mobilize credit over time and space. In Abidjan there are five major Nigerien Hausa wholesalers, each handling about 1000 tons of onions a month. In addition there are another 10 or 15 Nigerien traders who handle another 1,000 tons a month, and still another 100 or so smaller scale operators each of whom might handle ten tons a month.

Accra, Kumasi, and Bawku are the most important onion markets in Ghana. Nigerien Hausa are important players in the Accra markets where there are seven major players. Songhay speaking Malians are also important players in both the Accra and Kumasi markets; there are probably five major Songhay importers in Accra, fewer in Kumasi. Bawku market is dominated by local Hausa speaking traders.

The most organized network of wholesalers and agents is based in Togo and involves women in all the major decision-making roles. There are several dozen women involved in the importing business, but they are headed by no more than five or six major players. The most important of these women handled over 1,100 tons of onions in the first half on 1992 alone.

Women are the most important wholesalers of Nigerien onions in Benin, and the trade from Malanville to Cotonou is dominated by a pair of sisters, "Jana" and "Ayoun". Competition from a handful of male traders who buy in Nigeria is increasing. In addition to Cotonou and Malanville, Djougou is apparently an important market town as is Bohicon. While neither Djougou nor Bohicon was visited during the course of this study, it is known that Malanville processed about 30,000 sacks of onions in 1991. Cotonou receives weekly shipments from the north of about 100 tons.

Both men and women are active players in Burkina Faso. The major shipment distribution wholesale markets are in Ouagadougou and Bobo-Diolasso. Ouagadougou serves a market area that stretches from Dori to Ouahgiya and south to the Ghanaian border. One of the four most important wholesaler in Ouagadougou is a woman, and claims to handle about 144 tons of onions a month. She says there are four other wholesalers working out of Ouagadougou, who

together handle an equivalent tonnage, or 288 tons overall. She says there is room for 192 more tons a month on the Ouagadougou market. There are several other merchants who work out of Bobo as well.

Katako or Boukoki market in Niamey is the major wholesale point in western Niger. About fifteen wholesalers are active in this market which handles about 2 trucks a week of onions throughout the year, or about 2,700 tons.

Estimates of the number of retailers active in a given market on a given day were made, but firm estimates of the number of retail players are impossible to provide on the basis of a rapid reconnaissance study of this kind. Thousands of people are involved in every country. For many, onions is just one of several product lines they carry.

There are some 25 to 50 retailers active on any given day in the Petit Marché in Niamey, and an equivalent number in the Grand and Wadata markets, each handling 120 to 240 kg per week. Volume of retail sales at these markets might be estimated at 160 tons per year (120kg*52 weeks*30 retailers*3 markets).

In Lomé's main and Diatikpodi retail market (two blocks from the U.S. Embassy) there are probably two dozen active traders. In these busy markets, one retailer claimed that she could sell 840 kg of onions a week (or twenty-five 120 kg sacks in three months).

In Cotonou's vast Dantokpa market, there are hundreds of women onion dealers, both small wholesalers and retail vendors. Several dozen small wholesalers encountered in July were each carrying stock of some ten 120 kg sacks of onions, which they expect to turn over in a three month period. Onions from Dantokpa are carried by the headload to Cotonou's petit marché in the commercial district, where some 25 retailers operate. Cotonou serves all of the surrounding area as well. Onions in Cotonou are sold in lots of 40 bulbs.

In Accra's Makola market, there were dozens of retailers operating alongside several dozen wholesalers. The wholesalers are organized into two groups, one Malian Songhai, the other Nigerien Hausa. In Kumasi, there were probably 50 retailers active in the main marketplace. In Tamale, Aboaba (Tamale), and Bawku there were about 25 women retailers active in the marketplace.

In Ouagadougou's main market there are about 20 active retailers, most of whom are women, and a similar number operate in both the Zabredonaga (evening) and Larlin markets. In the markets between Kantchari, on the Burkina Faso border with Niger, and Ouagadougou, there are probably no more than fifty retailers active in the markets of Fada, Koupella, and Monhoudou.

Any numerical estimates of the numbers of players involved in onion marketing in the region should be considered with care for the following reasons: first, onion producing zones in Zinder and Tillabery departments in Niger were not visited. Second, some important market towns were not visited, such as Bouake, Côte

d'Ivoire; Djougou, Benin; and Bobo-Diolasso, Burkina Faso. Third, visits to Malanville, Benin and Bawku, Ghana coincided with the periods of lowest production. Fourth, none of the visits made were long enough to permit the consultants to earn the confidence of a major trader so that his/her daily activities might be observed. Thus the unloading and distribution of a major shipment in any of the coastal towns was not witnessed. Further, there was no opportunity to examine either the simple notebooks in which informal sector traders sometimes keep their accounts, or the balance sheets of formal sector traders or agribusiness enterprises. Finally, the study did not include visits to Sokoto and Zaria, potentially important onion producing regions in Nigeria, or to Maytonef market near Lagos, which is surely an important onion wholesale market.

E. Public Sector Role

There is no evidence in any of the countries in the sub-region of direct public sector control over onion marketing. Apart from the unsuccessful attempts of the Société Nationale de l'Arachide (SONARA) in Niger, no marketing board has become involved in onion marketing. FLEXFASO in Burkina Faso is the only example identified where public sector support (from the French aid agency Caisse Centrale de Coopération Economique, CCCE) led to long term private sector involvement in onion marketing.

Nonetheless, initiatives are underway through donor funding to support agribusiness development in a number of countries, notably Ghana and Burkina Faso. In francophone countries, CCCE seems to be the most dynamic public sector player supporting private sector development, e.g. UCOBAM and FLEXFASO in Burkina Faso. Among USAID Missions, USAID/Accra seems to have invested the greatest resources in agribusiness development. More diversified agribusiness firms are now developing in Ghana to take advantage of seasonal windows of opportunity in Europe for tropical fruits and vegetables. However, most agribusiness activity still concerns the traditional exports, cocoa and palm products. Côte d'Ivoire obviously has the most developed agribusiness sector of the countries visited, but most activity concerns traditional exports of coffee, tea, pineapple and palm products.

VI. ONION MARKETING EFFICIENCY AND COST

Based on existing reports and data collected in July-August 1992, onion price differences across space can be estimated. Price data for the markets visited in various countries are presented in a series of tables and are discussed below.

Table 32 and 33 and Figure 17 show retail onion prices for Benin by month in 1991 and 1992. Table 32 shows prices from the northernmost department of the country, Borgou, to the southernmost department, Atlantique. The onion producing center of Malanville is located in Borgou department; Cotonou, the most important market, is located in Atlantique department. As shown in the last column of Table 32, prices in Atlantique department average almost 200 percent of those in Borgou department. Atlantique department prices reach a seasonal high of 316 percent of Borgou department prices in

November/December, when onions are beginning to be harvested in Malanville, but have not yet reached Cotonou. The December price spike in coastal markets shows up dramatically in Figure 17. Even in April 1992, prices in Malanville (Table 33) are twice as high as prices reported in interview data in Tahoua department, Niger. Transport costs between Malanville and Cotonou are about 1,200 CFA/sack. Some part of the discrepancy in prices may be a distortion due to rent-seeking activities between Malanville and Cotonou. According to Lomé traders, Benin's customs agents, gendarmes and police are very demanding. This is one of the reasons traders often transit through Burkina Faso rather than taking the more direct route to Lomé from Galmi via Malanville and Parakou.

A few onion prices were collected from reports prepared by the Benin National Cereals Office, and are shown in Table 34. Wholesale prices in Malanville just after the harvest period are shown at the top of the chart. Prices are comparable to those at harvest in Tahoua department (1,500 - 2,500 CFA/120 kg). It is not surprising, therefore, that producers in Malanville discourage Nigerien traders from bringing onions to Malanville during the harvest, since Nigerien onions would be lower in price than locally produced onions. Despite the flow of Nigerien onions through Malanville, retail prices in Malanville in May 1989 were double wholesale prices in January 1991 as shown in Table 34.

One informant in Cotonou indicated that onions sold wholesale in Cotonou in January-February, 1992 for 7,000-8,000 CFA/sack, that the price fell to 6,000 CFA/sack in March-April with the arrival of the new Malanville harvest, and then rose steeply in May-June to 11,000-12,000 CFA/sack with the arrival of Galmi onions. In early August 1992, the price of Galmi onions in Cotonou was 18,000 CFA/sack and rising. At that time, Nigerian red onions were selling for only 10,000 CFA/sack but were available in smaller quantities.

As with all official price and customs data, the data presented in Tables 32, 33 and 34 should be interpreted with caution. Retail onion prices in Malanville have increased from about 54 CFA/kg in May in 1989 (Table 34) to 94 CFA/kg in May 1992 (Table 32), almost a 100 percent increase. If this is true, the increase may reflect an increase in demand associated with economic liberalization in Benin, inflation, and the intervention of CORVO, the producers' organization in Malanville, which is seeking to keep producer prices high through deferred onion sales.

Table 35 and Figure 18 present data concerning onion price trends in Lomé. The data do not suggest a consistent trend towards higher or lower overall prices over time. Instead, they show the effects of seasonal fluctuations in demand: prices tend to rise toward the end of the calendar year when stocks become scarce and the new harvest has yet to be brought in. At their lowest point in 1991, many consumer prices in Togo were six times higher than minimum producer prices in Tahoua (Table 37); at their highest point in 1990, they were 12 times higher than maximum producer prices in Tahoua recorded during the same year. What is most interesting about Figure 18 is the relatively smooth mean price curve. This curve is one indication of the efficiency with which the Togolese market women provision the Lomé market.

In August 1992, when Dantokpa market in Cotonou appeared glutted with onions, Lomé's wholesale market seemed empty by comparison. Yet average 1991 retail prices in Lomé at 220 CFA/kg (Table 35), were lower than retail prices in Benin's Atlantique department

at 316 CFA/kg. Since Cotonou is only 150 km down the coast from Lomé, and is closer to several onion producing areas than Lomé, these cost differences may be interpreted to reflect the greater efficiency of onion distribution channels in Togo. Market information is communicated between wholesale and retail traders in Togo, so that markets clear more quickly and efficiently than in Benin.

Table 36 and Figure 19 present recent retail onion price figures for Ouagadougou, Burkina Faso. Like prices in other consuming centers, these prices are also subject to considerable seasonal variation. This reflects the lack of warehousing anywhere in the distribution channel. It also reflects the fact Burkinabé traders are unable to tap alternate sources of onions as effectively as Togolese traders. Unlike the coastal markets, however, the highest prices are registered in Ouagadougou in October, rather than in November and December. This is because onions produced in Burkina Faso and around Bawku in northern Ghana are harvested in considerable quantities in November-December. Ouagadougou is closer to these production centers than Lomé or Cotonou. Lomé is separated by two customs frontiers from these zones, and Cotonou is separated by internal trade barriers (i.e. illicit rents) from its main production center. Again, the short time series data do not show any clear trend towards higher or lower inter-annual prices.

The data presented in Table 18 and Figure 16 from Ghana also indicate seasonal onion price fluctuations. In contrast to the data presented above, these data also show a dramatic increase in onion prices over the past several years. Data in this table are presented in constant 1987 CFA, thus eliminating the influence of inflation on prices during the period shown.

Results on returns to spatial arbitrage functions do not represent a radical departure from results presented in previous reports. The structure of the onion production and marketing channel in the producing zone is essentially as described by Mohamadou (1987) and Lev and Gadbois (1988). A network of producers and buying agents funnels product to Nigerien export wholesalers and foreign importers' agents. In the consuming countries, channel structure is essentially the inverse with major wholesalers selling to both small wholesalers who handle 10-20 sacks of onions at a time, and retailers selling one sack at a time. An examination of Tables 30 and 31 reveals that margins on cost of goods sold are modest given the high levels of risk involved. They also reveal that inefficiencies are primarily due to three factors: limited on-farm crop storage and withholding capacity; the length of the distribution channel (four to six intermediaries between farmer and consumer) and poor transport and telecommunications infrastructure; and rampant rent-seeking.

Price differences between wholesale and retail levels reflect processing costs. These differences include the costs of storage, sorting, transport, and payment to the retail "sales force", that is, income to the retail trader and his/her family members and casual employees.

Price differences across time primarily reflect supply and demand factors rather than storage costs and arbitrage functions. This again is due to the absence of significant storage activity anywhere along the marketing channel and fairly constant arbitrage costs.

VII. PROSPECTS FOR ONION MARKETING BASED ON EXISTING COST AND EFFICIENCY LEVELS

A. Producer Price Incentives

Comparative data on production costs and returns to labor invested in onion production in Tahoua department are presented in Table 26. This data was compiled from a variety of studies that were based on area cultivated. The figures for the private diesel pump user at Gaya are estimates from interview data alone. They seem reasonable when placed alongside the other figures that come from more systematic observations. These data show a variety of situations in which onion production is profitable. Margins as a percent of costs range from 19 to 308 percent. Surprisingly, margins from pump irrigation are not always higher than manual lift irrigation, as reported from Keita.

The data should be treated with considerable caution. For example, onion sales price assumptions vary. PBVT provided a sale price figure of 36.5 CFA/kg for the small group perimeter in the Tarka Valley. This may be higher than average sales price. The margin calculations for the Galmi gravity-fed perimeter, the Galmi off-perimeter case, and the Gaya diesel pump operation assume a 20 CFA/kg sales price, while the margin calculation for the Keita manual lift case assumes a 27.5 CFA/kg sales price. If the sales price is reduced to 20 CFA/kg for all cases, then the margin percent of costs for the Tarka Valley small perimeter system falls to 119 percent, and that of the manual lift system to 197 percent. Meanwhile, the small motor pump system at Galmi is unprofitable at a 20 CFA/kg price; percent margin of costs is 80.4 percent.

The apparent profitability of onion production also depends on what cost assumptions are made. PBVT provided the Tarka Valley small perimeter system cost data shown in Table 26. These data assume that 326 days of household labor are paid out in cash at the rate of 500 CFA per eight-hour day. Of course, Hausa farmers have recourse to various forms of labor inputs in economic terms. The 500 CFA labor rate is generally applied to non-family members. Furthermore, an eight-hour workday would be needed primarily on irrigation days, 30-40 days out of a 110-120 day growing season. Thus, these labor costs may be dramatically overestimated and profitability underestimated. If the household labor costs are reduced to the more reasonable level of 100 CFA per day, then the percent margin of costs remains favorable even at a sales price of only 15 CFA/kg on the Tarka small perimeter (149 percent) and the manual lift system (297 percent). As noted above, since labor costs are already built into the small pump system at Galmi, this system becomes unprofitable even when the onions sale price falls to 20 CFA/kg.

Several of the calculations in Table 26 also build in other costs. For example, it was found that 80 to 90 percent of onion producers (as reported in interviews in the Tarka Valley and around Tamaske in Keita arrondissement) obtain access to land through customary land loan arrangements. Around Galmi, over a third of producers borrow land to produce onions. They must pay ten percent or more of

their output to the owner of the land. In addition, it should be noted that average pumping costs are higher in the northern part of Keita, Madaoua, and Konni arrondissements where the water table is deeper, than in the lower Tarka and Maggia valleys. The Tarka Valley manual system data include a shadow price for irrigation energy expenditure and an additional nominal sum to cover out-of-pocket costs to household laborers.

When the figures in Table 26 on profitability from motor pumps are compared with Norman and Sami's (1991) profitability data (Table 27), we see that percent margins for the motor pump operator are close to PBVT estimates for small perimeter producers. Margins for the manual lift producer--24.5 percent--are much lower than that reported from Keita in Table 26. While there is little doubt of the accuracy of Norman's technical data, the percent margins for both the pump and manual lift operator are not necessarily accurate. They calculate that farmers earn only 15 CFA/kg of onions, but at the same time they fail to consider marketing and some other variable costs.

Examples of transportation costs from the point of production to wholesale markets were gathered from a number of market participants; there is little variation between estimates. These costs, including sorting, sacking and transportation per se, have been included in Table 25 under the heading of marketing costs. When the Water Management Synthesis Project Phase II (WMSII) irrigation study was conducted in the lower Tarka Valley in the late 1980s, farmers complained that it cost them 500 CFA to transport a sack of onions by donkey or camel to the Arwea market (Zalla et al. 1984). Both PBVT's construction of the rural feeder roads through the Tarka Valley and PIK's work to improve roads in the Keita arrondissement have benefitted producers by reducing their transport costs sharply. It may now be estimated that those costs have been cut by half to two-thirds. Producers and shipment assembly agents around Galmi seem to pay roughly 100 CFA/sack in transport costs from field to market. Thus, improvements in marketing infrastructure have reduced producers' marketing costs in some cases.

Table 37 and Figures 8 and 9 provide estimates of producer prices in Niger from 1984 to 1991 based on MAG/EL and interview sources. These aggregate figures should be treated with caution; better price data is not presently available and should be collected at the arrondissement level. For example, the SAA in Keita claims producer prices were at a high of 67 CFA/kg in June 1991. The downward trend in producer prices shown in Table 37 reflects increases in production and the inability of most producers to withhold onions from the market at harvest. A hopeful sign for producers is URC/Madaoua's claim that PBVT's "deferred sales" intervention kept 1991 producer prices from falling below 25 CFA/kg at harvest. Both PBVT and PIK hope to expand this activity in the future.

Producers may receive 23 to 96 percent of the FOB price at harvest (2500 CFA/sack) depending upon a variety of factors. The low end of the range represents the case of a producer who rents land, has taken advances on the harvest from intermediaries, must transport the crop over some distance to market, and who provides sacks for the crop. The high figure represents the case of a producer who

owns land, does not have far to transport the crop to market, has taken no advances from intermediaries, and does no sacking.

Farm level onion price data were also collected through interviews in Ghana, Benin and Burkina Faso. There is remarkable consistency in these prices. Harvest prices in the main producing seasons average around 2,000 to 3,000 CFA per 100-130 kg sack in Tahoua, Niger; Bawku, Ghana; or Malanville, Benin. Price increases of up to 10 times this amount are reported for onions produced in the off-season. Evidently, given the enthusiasm reported in Tahoua department for onion production, current prices provide adequate incentives to increase production and invest in improved water lifting technologies. Off-season prices for Galmi onions may reach 6,000 to 13,000 CFA/sack in Tahoua markets. In consuming centers such as Lomé, off season prices reach highs of 45,000 CFA/sack at the wholesale level, and 60,000 CFA/sack at the retail level.

Data have been presented on production in Togo, Burkina Faso, Benin, and Côte d'Ivoire (See Tables 5, 23, 24). The high value of onions is stimulating production throughout the savannah area in the sub-region. However, seasonal saturation of major urban markets is beginning to occur. During August 1992 visits to Dantokpa market, Cotonou; Makolo market, Accra; and Katako market, Niamey, both large and small wholesalers were reporting slow sales due to depressed purchasing power and abundant stocks. No data on onion production costs in countries other than Niger was available, therefore analysis of producers' comparative production advantages across countries is not possible.

Table 3 provides some data to estimate the potential impact of adoption of improved technologies on onion production over the next six years. According to PBVT, area cultivated in onions may increase to 2,000 ha by 1996 as a result of drilling of new tube wells in the Tarka Valley. If so, the number of producers (all crops) in Madaoua alone might increase to over 3,000 (from 1,679 in 1991/1992). If tube well pumping technologies diffuse to Keita, Bouza, and the Maggia Valley of Konni, 10 to 15 percent increases in area in onion production might be expected. These figures may underestimate technology adoption.

The successful experiments being conducted by a number of projects in improved crop storage and withholding for market price improvements should provide increased incentives to producers to expand production over the next five years. Table 29 presents 1988-1990 results and 1992-1995 projections of PIK interventions to promote deferred onion sales in Keita arrondissement. If this activity were to continue with the support of PIK or another donor, one quarter of Keita's production could be affected by the middle of the decade, resulting in a possible increase in returns to producers of almost one million CFA (an increase of 1,000 CFA/sack), if producer prices hold steady. If PBVT continues to support deferred onion sales as well, in theory another 1,700 producers could be positively affected over the next five to six years.

B. Consumer Price Incentives

A reliable assessment of Nigerien national onion consumption would require major research. There are no consumption studies that focus on onions, although a consumption study that might include onions is underway at the Ministry of Plan and Finance. One expert interviewed estimates that only five percent of the onions produced in Madaoua are consumed in the arrondissement; one might generalize this estimate to the whole of Tahoua department. For the purposes of discussion, national onion consumption can be broadly estimated by subtracting production estimates from export data. Results of this calculation are shown in Table 38. The table shows that official exports are now between ten and fifteen percent of production. In contrast to the conclusion drawn by Lev and Gadbois (1988), we think exports are under-recorded. We also think the export share of production is increasing. Another way consumption might be estimated is by monitoring the number of trucks that unload weekly in Niamey and other major population centers. Such a calculation might yield a national urban consumption figure of about 10,000 tons, with an additional 4,000 tons consumed by rural Nigeriens. It is clear, however, that there is untapped demand. Due to instability in distribution channels and fluctuations in seasonal price and supply, onions are not always available to Nigerien consumers at prices they consider reasonable. Thus, fermented onions leaves (kullen albasa, Hausa) that sell for only 1,400 CFA/sack at the height of the rainy season, serve a substantial, but as yet undetermined proportion of the quantity demanded by rural markets.

Consumers throughout the sub-region are avid onion users. Even when they are compelled to use onions that do not lend themselves to African culinary practices, such as the Dutch varieties, demand remains strong. Price is, however, a significant factor in purchase decisions. This is why consumers prefer small, less expensive onion bulbs. Price also explains the lack of loyalty to Galmi onions when consumers are offered a considerably less expensive alternative. For example, Table 11, which compares Dutch and Nigerien onion wholesale prices in Abidjan, clearly illustrates how price may cause consumers to purchase Dutch onions in spite of a taste preference for Nigerien onions. The 64 percent seasonal price differential in favor of Dutch onions may help explain their recent diffusion to markets in Ghana and Burkina Faso. Similarly, importation of Nigerian onions into Dantokpa market, Benin may be explained by their 56 percent seasonal price advantage over Nigerien onions (10,000 CFA/sack for Nigerien onions vs. 18,000 CFA/sack for Nigerien onions, August 1992).

Reinforcement and extension of marketing channels to areas in the consuming countries that are currently underserved would create economies of scale for wholesalers. These economies should in turn bring down consumer costs throughout the marketing network. Increased production and especially increased on-farm storage should smooth out inter-season price variation for consumers. However, considerable extension of marketing channels cannot be expected in the current climate of unofficial barriers to commercial activity in the form of illicit rent-seeking.

C. Agribusiness Investment and Gross Returns

Data were collected from informal sector traders that allow returns on investments in trade to be estimated. Returns on investments can be calculated for onion traders operating in a number of markets. Excluded from consideration are traders' fixed cost investments. This is because traders undertake little investment in maintaining or improving productive capacity through storage, packing/sorting, or transport; limiting fixed costs is one of the few ways they have of hedging against high levels of risk incurred in onion export marketing. Such investments would expose traders to greater risk in case of the loss of one or more shipments, and might expose them to increased illicit rent-seeking by various policing agents. Nonetheless, some of the big traders invest in trucks, but they are a minority. As mentioned, investments in storage facilities by traders are kept to a minimum.

Tables 30 and 31 provide estimates of the margins realized by wholesale and retail onion traders on investments in trade. Table 30 brings together estimates made on the basis of August 1992 study data with estimates made by other researchers. The table suggests that wholesale traders realize margins ranging from -14 percent to 145 percent depending upon the traders' luck and skill, the market, and degree of market saturation at the time of the study. These figures are based on a variety of estimates under particular conditions, but it seems likely that wholesale margins of less than 15 percent are the norm.

Table 31 shows two examples of traders' costs and margins on onion sales in Niamey. In August 1992, a small wholesale trader in Katako market, Niamey was realizing a four percent margin. A retail trader selling in the Petit Marché was realizing an 11 percent margin on the cost of goods sold.

To estimate true returns on investments and long term profitability of informal sector activity in onion marketing, in-depth, longitudinal research would be required. This would allow enough time to gain the confidence of one or more traders so that financial accounts could be examined. Such research was beyond the scope of this report.

There is no reliable data on the volume of onion sales or trends in onion sales. The only published sources of data are the official import/export figures and the abbreviated price series available in some countries. From these data the overall value of exports and sales can be estimated. Data presented in Table 6 and 7 suggests continued, if erratic, increases in exports from Niger. Onion production is likely to provide increased income and employment for current and prospective producers over the next five years, not only in Niger but throughout the sub-region. Côte d'Ivoire and Burkina Faso are developing production oriented projects, while producers in Niger are making use of new water-lifting technologies to increase rainy season production.

Major onion traders are likely to provide stable levels of employment for themselves, their assistants, as well as casual laborers over the next five years. Retail sellers are

likely to provide stable levels of employment as well. However, turnover is relatively high among intermediate wholesale traders who may easily be driven out of the market by a single lost shipment. There is room for the entry of new storage, packing and retailing operations both in Niger and in the coastal markets. These operations could provide incremental new employment possibilities.

This study identified no formal sector actor contemplating a major agribusiness investment in onion marketing or processing in the near future. However, there are a number of formal sector actors who would like to expand their activities in storage, packing, and retailing of Niger onions. Ivoirian importers (e.g. DISTRIMEX, SABIMEX) are hampered in making agribusiness investments by the insecurity associated with overland transport, the small volume capacity of trucks as opposed to ocean-going ships, and the lack of formal sector participants in Niger able to function at the level of competency the Ivoirian importers require. However, representatives of both of these firms claimed that they were willing to import major quantities of Nigerien onions under secure, formalized conditions. Burkinabé marketers (e.g. UCOBAM, FLEXFASO) are hampered in making such investments by their inability to cope with the high costs of transport (including illicit rents) and the barriers to entry constituted by informal sector traders. Nigerien exporters in the informal sector are hampered in making such investments by lack of access to capital, high costs of transport and barriers to entry constituted by informal sector traders in consuming countries. Nonetheless, there is room for Nigerien individuals or firms to develop modern commercial ties with formal sector firms in Côte d'Ivoire for importation of Niger onions packed in conformity with modern norms.

VIII. CONCLUSIONS

Onions are an important crop in Niger. They are one of the few high value crops produced in the country. In addition, they enjoy a competitive advantage in regional markets, where the Violet de Galmi variety is known for its spicy taste as well as cooking and medicinal properties. The recent dramatic expansion in onion production is a response to a number of factors. Among these factors are drought and crop disease that have reduced production of other cash crops; population pressure; greater availability of inexpensive irrigation pumps; and high levels of demand for onions throughout the region. Farmers, traders and truckers enjoy a reliable cash income stream from onion sales. GON derives considerable direct tax revenue (25 million CFA in 1992) from onion exports. In the current climate of economic and political liberalization, onions are also important because production and trade have developed in the private sector. Thus, the onion marketing channel is relatively free from the distorting effects of public sector interventions that have plagued the development of other cash crops (e.g. groundnuts, cotton, palm products) in Niger and throughout West Africa. Improvements in production, transportation and storage technologies, if coupled with improved access to agricultural credit, could result in continued production increases in Niger. Improvements in telecommunications and international transport routes could facilitate expanded marketing prospects. New participants in the marketing channel could take immediate advantage of opportunities to profit from seasonal windows of opportunity in production and storage, linkage with marketers in the formal sector, and new packing techniques. More long-term opportunities are available through improving onion transport

and extending marketing channels in the consuming countries. These opportunities for Niger's onions are threatened by rent-seeking, over-regulation of commerce, the expansion of onion production in Burkina Faso, Ghana, and Nigeria, and imports of European onions in the Ivoirian market.

Data collected for this study are consistent with previous research on onion production and marketing in Niger. The results of the study are also consistent with the results of previous work conducted on the macro-economic and institutional environments for agribusiness development in Niger, especially Darbera and Hall's report on Local Public Finance and Institutional Reform (1992), and the J.E. Austin Associates MAPS Niger-Phase II report (1991). They suggest that the structure of onion marketing in Niger and the sub-region is consistent with a Stage II Marketing System as outlined in the Strategic Framework for Promoting Agricultural Marketing and Agribusiness Development in Sub-Saharan Africa (ANRD/OTR/AFR/TR 1991). In developing its AMEP project, this framework provides good general guidance for the kind of support USAID/Niger may wish to consider providing specifically to the onion production and marketing sub-sector and more generally to the agricultural marketing sector, in Niger.

IX. PROBLEMS ENCOUNTERED IN THE MARKETING CHANNEL AND POSSIBLE USAID/NIGER INTERVENTIONS

A summary of problems in the onion marketing channel and possible donor interventions follows. Macro-economic policy and institutional problems are perhaps the most intractable and will require long-term solutions through bi-lateral and multi-lateral dialogue. Problems confronted by producers, cooperatives, traders and consumers are more tractable. Solutions to these technical and organizational problems require progress on the resolution of the larger policy and institutional problems that constrain the development of regional trade in West Africa.

PROBLEMS ENCOUNTERED IN THE ONION PRODUCTION/MARKETING CHANNEL AND POSSIBLE DONOR INTERVENTIONS

PROBLEMS	POSSIBLE INTERVENTIONS
Macro-economic/Institutional	Macro-economic/Institutional
Overvaluation of the CFA.	Initiate and sustain dialogue with GON on necessity for some action on overvaluation.
Loss of government revenues through rent-seeking.	Hold round table meetings with GON officials to bring their attention to revenues lost to the treasury due to this problem.
Constraints to development of onion production and export because of rent-seeking by government agents.	Initiate counterpart fund to provide adequate salary support to customs, gendarmes, and police for a transition period.
	Support RN/MAE/C efforts to negotiate suppression of internal customs and control points with ECOWAS/CEAO partners.
	Hold round table discussions between truckers, wholesalers, customs, gendarmes, police, and RN/MOC and RN/MP/F on problems and progress towards resolution.
	Broadcast in French and national languages regulations concerning vehicular maintenance, commercial licensing, liberalized export rules, etc., both in Niger and in Nigerien communities abroad.
	Monitor customs, gendarmes and police check points to ensure compliance with ECOWAS rules governing free circulation of persons and goods.
	For a transitional period reduce commercial licensing fees to a minimum. Use counterpart funds to defray lost GON revenues.

PROBLEMS	POSSIBLE INTERVENTIONS
Macro-economic/Institutional	Macro-economic/Institutional
Governmental cadre and ordinary citizens in Niger lack access to University level training in modern marketing practice.	Donors might consider helping University of Niamey to develop a curriculum in modern business practice, esp. marketing and accounting.
Producers	Producers
Seed quality.	Provide loans to private seed importing firm.
Seed availability.	Provide funding to INRAN and ONAHA, RN/MAG/EL to produce seed at Tarna and Galmi.
Fertilizer quantity and type available.	Help private sector firm develop links with foreign suppliers.
	Help GON rethink its agricultural input supply strategy.
Storage quality and quantity.	Expand program of applied research and extension of improved on-farm storage based on BIT and Tarka project models.
Liquidity at harvest.	Expand funding for harvest storage loans and deferred sales based on Tarka project models.
Knowledge of market prices.	Improve telecommunications links between producing zones and consuming zones.
Absence of rural feeder roads.	Provide funding to private sector contractors to develop labor based feeder road construction projects on USAID/Accra model.
	Provide FFW funding for labor based feeder road construction.
Lack of investment capital.	Expand CLUSA, CARE, and WOCCU project activities in the production zone. Consider providing short term solution to private banks' (BIAO, etc.) liquidity crisis.
Lack of means to counteract seasonal fluctuations in production.	Expand applied research and extension on improved on-farm storage.

PROBLEMS	POSSIBLE INTERVENTIONS
	Expand funding for a program to provide PBVT/LWR water lifting units on credit to farmers in other producing zones and potential production zones on Niger's fadama lands, e.g. Dallols, Korama.
Lack of knowledge about demand structure in consuming countries.	Improve telecommunications links between producing and consuming zones.
	Facilitate encounters between market participants in consuming countries and producing zone.
Overvaluation of the CFA.	Initiate and sustain dialogue with GON on necessity for some action on overvaluation.
Cooperatives	Cooperatives
Lack of "fonds de roulement" or operating capital.	Reinforce CLUSA, CARE and WOCCU training and financial support activities in producing zones.
Lack of storage capacity.	Expand applied research and extension on improved on-farm storage.
Lack of market contacts.	Improve telecommunications links between producing and consuming zones.
	Facilitate encounters between market participants in consuming countries and producing zone.
Absence of rural feeder roads.	Provide funding to private sector contractors to develop labor based feeder road projects on USAID/Accra model.
	Provide FFW funding for labor based feeder road construction.
Limited financial management capacity.	Expand CLUSA, CARE and WOCCU project activities in the production zone. Consider providing short term solution to private banks' (BIAO, etc.) liquidity crisis.
Limited knowledge of market prices.	Improve telecommunications links between producing zones and consuming zones.

PROBLEMS	POSSIBLE INTERVENTIONS
Limited knowledge about structure of demand in consuming countries.	Facilitate encounters between market participants in consuming countries and producing zone.
Overvaluation of the CFA.	Initiate and sustain dialogue with GON on necessity for some action on overvaluation.
<u>Traders</u>	<u>Traders</u>
Confused procedures required for licenses.	Publish and broadcast in French and national languages regulations concerning vehicles, commercial licensing, liberalized export rules, etc., both in Niger and in Nigerien communities abroad.
Lack of knowledge about commercial legislation.	
Ministry of Foreign Affairs staff in foreign embassies lack training in modern marketing practice.	Reinforce Nigerien Embassy staffs with a donor-trained commercial attaché whose tasks include briefing Nigerien marketers on export opportunities in Niger, transmitting and explaining commercial regulations in Niger and the sub-region, etc.
	For a transitional period reduce commercial licensing fees to a minimum. Use counterpart funds to defray lost GON revenues.
Lack of telecommunications facilities.	Reinforce phone, fax, and telex links between producing regions and the exterior by developing direct outside linkages.
Lack of incentives to conform to licensing legislation.	Negotiate suppression of internal customs and gendarmes control points.
Disincentives to invest in improved infrastructure and expanded marketing channels.	Hold series of round table discussions between transporters, wholesalers, customs, gendarmes, police, and Ministries of Commerce, and Plan and Finance on the problem of rent-seeking, restraint of trade and progress towards resolution.
High cost of informal taxes collected.	
Delays in transhipment & delivery.	Provide funds to strengthen and maintain cross border highway infrastructures.
Mediocre state of cross-border highways.	

PROBLEMS	POSSIBLE INTERVENTIONS
Lack of storage capacity.	Expand program of applied research and extension of improved shipment assembly storage based on BIT and Tarka project models.
Lack of available modern packing and packaging products.	Fund private sector partner to begin import of plastic net sacks from Ghana or European supplier. Work with transporters to build transport into onion shipping. Explore feasibility of local sack production. Explore feasibility of producing local tags with GALMI ONIONS and PRODUIT DU NIGER and orange, yellow and green labelling.
Rudimentary sorting and retail packaging.	Work with private sector actor to develop net packaging for local sales of onions and other fresh produce on the FLEXFASO model.
Lack of means to counteract seasonal fluctuations in delivery to markets.	Provide funds to strengthen and maintain cross border highway infrastructures.
	Improve telecommunications links between producing and consuming zones.
	Expand program of applied research and extension of improved shipment assembly storage based on BIT and Tarka project models.
Conflict over use of non-Nigerien transport on Nigerien highways.	Support working group of transporters, wholesalers and relevant government ministries to work out problems related to access.
Lack of access to formal sector customers	Support groups such as GIE ALBASA which can serve as a link between informal and formal sectors.
Lack of knowledge of modern marketing practice.	Provide national language training in modern marketing practice.

PROBLEMS	POSSIBLE INTERVENTIONS
Customers	Customers
Demand for Galmi onions is threatened by production of other violet and red onions in Benin, Ghana, and Burkina Faso.	Fund private sector partner to begin import of plastic net sacks from Ghana or European supplier. Work with transporters to build transport into onion shipping. Explore feasibility of local sack production. Explore feasibility of producing local tags with GALMI ONIONS and PRODUIT DU NIGER and orange, yellow and green labelling.
Only some customers are aware of the distinctive characteristics of Galmi onions; they may confuse Galmi onions sacked in Dutch bags with Dutch onions; they may confuse other violet-colored onions grown in Benin or Burkina Faso with Galmi onions.	Work with private sector actor to develop net packaging for local sales of onions and other fresh produce on the FLEXFASO model. Develop awareness-building radio & television commercials for broadcast in consuming countries promoting Galmi onions' spiciness (yagi), suitability for cooking and healthful qualities (Ghana).
Rural customers in Benin and Ghana have trouble obtaining Niger onions at affordable prices.	Programs to strengthen and support distribution channels through support to private sector in Niger, and support to GON for ECOWAS negotiations on liberalizing movement of perishables should help resolve this problem.

Table 1

Onion Production in Niger

Year	Area (ha x 100)	Production (Tons x 1000)	Yield kg/ha
1968	18	38.9	21.5
1969	17	27.4	16.11
1970	19	30.9	16.15
1971	21	36.0	17.14
1972	15	20.3	13.53
1973	17	29.0	17.05
1974	26	44.1	17.00
1975	26	70.8	27.23
1976	28	79.4	28.35
1977	20	62.7	31.35
1978	29	78.4	27.03
1979	34	104.3	33.68
1980	34	107.8	33.68
1981	8	17.1	21.39
1982	36	103.6	28.77
1983	19	53.9	28.36
1984	24	43.8	18.25
1985	29	62.7	21.62
1986	31	73.2	23.00
1987	34	108.5	31.20
1988	54	123.5	23.00
1989	64	220.0	34.00
1990	53	170.0	32.07
1991	64	196.0	30.62
Percent Increase From 1968	356	503.9	142.42

Source: RN/MAG/EL.

Table 2

Nigerien Onion Production by Region (Tons)

Dept.	Years										
	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91
Agadez	N/A	N/A	N/A	N/A	N/A	N/A	4,470	7,708	11,474	5,674	3,957
Diffa	N/A	N/A	N/A	N/A	N/A	N/A	304	1,723	1,880	2,309	2,449
Dosso	N/A	N/A	14,065	14,345	N/A	3,350	2,313	972	2,926	14,492	2,873
Maradi	N/A	N/A	N/A	N/A	N/A	1,715	1,066	1,539	1,237	2,855	1,820
Tahoua	104,670	20,375	86,050	36,135	15,334	35.308	55,460	72,260	92,772	175,201	146,127
Tillabery	N/A	N/A	N/A	N/A	N/A	6,295	6,579	13,723	6,211	5,996	3,998
Zinder	3,075	2,796	3,570	3,445	3,580	3,200	3,052	6,623	7,194	16,464	7,787
TOTAL	107,745	23,171	103,685	53,925	18,914	49,868	73,244	104,548	123,644	219,991	169,011
Annual Percent +/-		-78	347	-48	-65	164	47	43	18	78	-23

NB: Recordkeeping improved after 1985.

Source: RN/MAG/EL-Various reports.

Table 3

Off-Season Garden Production in Tahoua Department

Arrondissement	Area (ha)		Number of Producers (all crops)	Tons/ha	Production	
	Total Available	Cultivated in Onions			1991/92 (Tons)	1990/91 (Tons)
Keita						
–Keita	1,335		1,065			
–Tamaske	1,065		880			
–Garhanga	1,045		1,159			
–Gadamata	810		822			
Sub-Total	4,255	837	3,926	44	36,828	N/A
Bouze						
–Taboye	5,549	154	900			
–Garadoume	5,965	250	2,424			
–Karoufan		59	489			
–Kouka	602	4	254			
–Tabataki	5,760	40	447			
Sub-Total	17,876	507	4,514	34	24,260	N/A
Madaoua						
–Leyma		51	531	29	1,479	
–Ourno		67	153	30	2,010	
–Bangui		6	57	48	248	
–Magaria		363	419	34	12,342	
–Sabon Gida		619	519	34	20,706	
Sub-Total	3,780	1,106	1,679	35	36,785	N/A
Konni						
–Galmi		305		50	15,250	
–Malbaza		80		38	3,040	
–Tsernaoua		88		47	4,113	
–Gn. Ider		99		47	4,590	
–Dossey		30		55	1,650	
–Yayya		3		31	78	
–Illela		609		26	131	
Sub-Total				43	28,851	13,505
TOTAL		3,059	10,119	39	126,724	

Source: Services d'Agriculture des Arondissements de Keita, Bouza, Madaoua, Konni.

Table 4

Onion Production: Galmi Irrigated Perimeter

Year	Area Cultivated (ha)	Yield (Tons/ha)	Production (Tons)
1984/85	61.00	35.00	2,135.00
1985/86	103.00	38.00	3,914.00
1986/87	124.67	36.50	4,550.46
1987/88	58.30	37.75	2,201.00
1988/89	N/A	N/A	N/A
1989/90	144.55	30.00	4,337.00
1990/91	144.59	30.00	4,338.00
1991/92	23.14	43.52	1,007.00
AVERAGE	94.18	35.82	3,211.78

Source: ONAHA Regional Office, Konni.

Table 5

Factors Influencing the Demand for Nigerien Onions in Neighboring Countries

Country	Population (Millions, 1984)	GNP per Capita (Dollars, 1984)	Urban Population (Millions)	Local Onion Production (Tons)	1990 Imports From Niger (Tons)
Niger	6.2	197	.87	196,000	0
Côte d'Ivoire	9.9	610	4.55	2,000	19,000
Benin	3.9	270	.59	3,000	2,000
Togo	2.9	250	.67	2,000	2,000
Ghana	12.3	350	4.80	?	4,000
Burkina Faso	6.6	160	1.45	10,000	750
Nigeria	96.5	730	28.95	?	28,000
Gabon	0.8	4,100	?	?	0
People's Republic of the Congo	1.8	1,140	1.01	?	0

Source: Lev and Gadbois (1988), study data.

Table 6

Onion Exports Through Galmi Customs, Niger

Date	Volume (Tons)	Value (CFA)	Statistics Tax (CFA)
OCT 87	239.8	21,582,900	4,796,200
NOV 87	224.8	20,228,400	4,495,400
DEC 87	154.3	13,885,200	2,997,500
Sub-total	618.4	55,696,500	12,289,100
JAN 88	161.4	14,527,800	3,228,400
FEB 88	394.4	35,494,200	7,887,600
MAR 88	600.9	54,081,900	12,018,200
APR 88	1,353.9	121,854,600	27,078,800
MAY 88	2,551.2	229,611,600	13,281,200
JUN 88	2,828.2	254,539,800	14,141,100
JUL 88	1,970.8	177,372,000	9,854,400
AUG 88	1,961.8	177,087,800	9,834,800
SEP 88	1,032.5	92,924,800	5,163,500
OCT 88	N/A	N/A	N/A
NOV 88	520.2	22,398,000	932,300
DEC 88	662.0	19,860,000	595,800
Sub-total	14,037.4	1,199,752,500	104,016,100
JAN 89	285.4	8,562,000	256,860
FEB 89	235.9	7,077,000	212,310
MAR 89	952.1	28,563,000	856,890
APR 89	2,324.3	69,729,000	2,091,870
MAY 89	3,995.2	118,656,000	3,559,680
JUN 89	3,442.4	112,272,000	3,368,160
JUL 89	2,493 4	74,803,680	244,110
AUG 89	1,874.6	56,237,010	1,687,110
SEP 89	946.1	28,284,020	851,521
OCT 89	824.0	24,720,000	741,600
NOV 89	242.9	7,287,000	218,610
DEC 89	477.1	14,313,000	429,390
Sub-total	18,093.4	550,503,710	14,518,111

Table 6 (continued)

Date	Volume (Tons)	Value (CFA)	Statistics Tax (CFA)
JAN 90	340.5	10,215,000	306,450
FEB 90	1,680.0	50,400,000	1,512,000
MAR 90	2,423.9	72,717,000	2,181,510
APR 90	3,343.0	100,029,000	3,000,870
MAY 90	4,151.8	124,554,000	3,736,620
JUN 90	2,984.8	89,544,000	2,686,320
JUL 90	2,334.3	70,029,000	2,100,870
AUG 90	1,949.0	58,470,000	1,754,100
SEP 90	1,133 9	34,017,000	1,020,510
OCT 90	711 6	21,384,000	641,520
NOV 90	910 0	27,300,000	819,000
DEC 90	2,076 6	62,298,000	1,868,940
Sub-total	24,039.4	720,957,000	21,628,710
JAN 91	2,096.2	62,886,000	1,886,580
FEB 91	2,497.2	74,916,000	22,447,480
MAR 91	2,661.3	79,839,000	2,395,170
APR 91	3,592 8	91,778,400	2,753,352
MAY 91	3,817.9	114,537,000	3,436,110
JUN 91	4,004.7	120,141,000	5,189,940
JUL 91	2,341 7	70,251,000	3,161,295
AUG 91	2,109 1	63,273,000	2,847,285
SEP 91	N/A		
OCT 91	257.2	7,716,000	347,220
DEC 91	154 4	4,632,000	208,440
Sub-total	23,532.5	689,969,400	24,472,872
JAN 92	255.3	7,659,000	34,655
FEB 92	512.0	15,360,000	691,211
MAR 92	949.4	28,479,000	1,281,555
APR 92	2,014.6	60,483,000	2,721,735
MAY 92	2,916 2	87,486,000	3,936,870
JUN 92	1,945 6	58,362,000	2,626,290
Sub-total	8,593.1	257,829,000	11,602,316

Source. Lev and Gadbois (1988); Direction Régionale des Douanes, Tahoua

Table 7

Onion Exports Through Gaya Agriculture Post, Niger
(Tons)

Year	Month												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1986				48	325	267		48		100	203	258	1,249
1987	63	232	48	33	410	248	93	215	172	111	97		1,722
1988		168	36	98	98	195	59	138	148	33	64	215	1,252
1989	106	431	439	36	170	338	305	129	129	188	63	40	2,374
1990	294	283	91	68	83	280	177	224	224	198	143	95	2,160
1991	297	143	141	166	318	214	260	115	115	22	70	64	1,925
1992	321	165	68	246	398	249							1,447
Mean	216	237	137	99	257	256	179	145	158	109	107	134	

Source: Poste de Contrôle Phyto-Sanitaire de Gaya.

Table 8

Comparative Onion Exports: Galmi and Gaya, Niger
(Tons)

Year	Month												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Gaya 1986				48	325	267		48		100	203	258	1,249
Galmi 1986													
Gaya 1987	63	232	48	33	410	248	93	215	172	111	97		1,722
Galmi 1987										240	225	154	619
Gaya 1988		168	36	98	98	195	59	138	148	33	64	215	1,252
Galmi 1988	161	394	601	1,354	2,551	2,828	1,971	1,962	1,033		520	662	14,037
Gaya 1989	106	431	439	36	170	338	305	129	129	188	63	40	2,374
Galmi 1989	285	236	952	2,324	3,995	3,442	2,493	1,875	946	824	243	477	18,092
Gaya 1990	294	283	91	68	83	280	177	224	224	198	143	95	2,160
Galmi 1990	340	1,680	2,424	3,343	4,152	2,985	2,334	1,949	1,134	712	910	2,077	24,040
Gaya 1991	297	143	141	166	318	214	260	115	115	219	659	64	2,711
Galmi 1991	2,096	2,497	2,661	3,593	3,818	4,005	2,342	2,109		257		154	23,532
Gaya 1992	321	165	68	246	398	249							1,447
Galmi 1992	255	512	949	2,015	2,916	1,946							8,593
Total Gaya	**1,081**	**1,422**	**823**	**695**	**1,802**	**1,791**	**894**	**769**	**788**	**949**	**1,229**	**672**	
Total Galmi	**3,137**	**5,319**	**7,587**	**12,629**	**17,432**	**15,206**	**9,140**	**7,895**	**3,113**	**2,033**	**1,898**	**3,524**	
Mean Gaya	**216**	**237**	**137**	**99**	**97**	**256**	**179**	**145**	**158**	**142**	**205**	**134**	
Mean Galmi	**627**	**1,064**	**1,517**	**2,526**	**3,486**	**3,041**	**2,285**	**1,974**	**1,038**	**508**	**475**	**705**	

Source: Direction Régionale des Douanes, Tahoua; Poste de Contrôle Phyto-Sanitaire de Gaya.

Table 9

Onion Imports to Côte d'Ivoire (Tons)

	Year									
Source	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Europe	17,270 41	14,890.34	11,070 41	16,337.56	18,354 74	9,279.80	[illegible],179.50	19,645.90	15,941 00	7,831.70
Morocco	187.22	62.85	112.78	0	142 54	0	0	0	0	0
Niger	127 87	52 05	0	0	0	0	0	0	5,461.20	19,089.60
Argentina	0	14 09	0	9.00	0	61.10	18.50	0	0	0
Mali	0	0	0	0	0	417.80	325.90	578 40	977.30	443.70
Zimbabwe	0	0	0	0	0	0	.20	1.92	0	0
S Africa	0	0	0	0	0	0	62	7 10	2.20	0
Burkina Faso	0	0	0	0	0	0	0	0	0	37.20
Other	2.73	54.57	12.29	40.52	54.21	40 95	24 00	39.30	52.64	88.95
TOTAL	17,588.23	15,073.90	11,195.48	16,387 08	18,551.49	9,799.65	22,848.72	20,272.62	22,434.34	27,491.15

Table 10

Onion Imports to Côte d'Ivoire (Relative Market Shares)

	Year									
Source	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Europe	98 19	98 78	98.88	99.70	98.81	94.70	98.38	96.91	71.06	28 49
Morocco	1 06	42	1 01	00	.86	.00	.00	.00	.00	00
Niger	73	.35	00	.00	00	00	00	00	24.34	69.44
Argentina	00	09	00	05	00	.62	.08	.00	.00	.00
Mali	.00	00	00	.00	00	4.26	1.43	2.85	4.36	1.61
Zimbabwe	00	00	.00	00	00	00	00	.01	.00	00
South Africa	00	00	00	.00	00	00	.00	04	01	.00
Burkina Faso	00	00	00	.00	00	00	00	.00	.00	.14
Other	02	.36	.11	.25	.33	.42	.11	.19	.23	.32

Source: République du Côte d'Ivoire, 1987, 1988, 1989, 1990, 1991 Statistiques du Commerce Extérieur. Exportation-Importation. Pays/Produits. Abidjan: Ministère du Commerce.

Table 11

Comparative Costs of Dutch and Nigerien Onions in Abidjan, Côte d'Ivoire (CFA)

Country	Purchase Price	Transport (including bribes)	CIF-Abidjan	5%	Sales Price (CIF + 5%)
Holland			7,500	375	7,875
Niger	2,500	4,685	7,185	359	7,544
	3,000	4,685	7,685	384	8,069
	7,000	4,685	11,685	584	12,269

Source: SABIMEX; Study data.

Table 12

Market Share of Selected Nigerien Products in Côte d'Ivoire, 1990

Products	Market Share (percent)
Dates	23
Cowpeas	06
Mangos	01
Tamarind	83
Cattle	00
Fruit Trees	03
Spices (various)	01
Friable Gum Arabic	100
Other Gums	66
Vegetable Coloring	100
Potassium Hydroxide	33

Source: République du Côte d'Ivoire, 1990, Statistiques du Commerce Extérieur. Exportation-Importation. Pays/Produits. Abidijan: Ministère du Commerce.

Table 13

Onion Imports to Togo
(Tons)

Origin	Year					
	1986	1987	1988	1989	1990	1991
Benin	144.7	1,362.9	898.2	1,113.7	2,344.2	1,306.4
France	143.7	6.4	7.1	10.4	13.4	0.7
Germany	0	0.1	0	.3	9.6	0
Ghana	0	108.2	28.3	0	0.5	10.5
Low Countries	111.8	22.3	55.0	28.3	41.7	76.3
Niger	0	298.1	531.3	383.4	1,715.2	165.1
Nigeria	0	6.0	30.0	400.4	12.3	4.1
Burkina Faso	0	198.3	29.9	330.3	294.6	454.9
Spain	0.5	0	0	9.6	0	0
Côte d'Ivoire	0	0.2	0	0	0	0
Great Britain	0	3.6	0	0	0	0
TOTAL	400.7	2,006.1	1,579.8	2,276.4	4,431.5	2,018.0

Source: République Togolaise. 1987, 1988, 1989, 1990, 1991. Statistiques du Commerce Extérieur. Exportation Importation. Pays/Produits. Lomé: Ministère du Commerce.

Table 14

Shares of Togolese Onion Market (Percent)

Country	1986	1987	1988	1989	1990	1991
Benin	36.11	67.94	56.85	48.92	52.90	64.73
France	35.87	.32	.45	.45	.30	.04
Germany	.00	.00	.00	.01	.22	.00
Ghana	.00	5.39	1.79	.00	.01	.52
Low Countries	27.89	1.11	3.48	1.24	.94	3.78
Niger	.00	14.86	33.63	16.84	38.70	8.18
Nigeria	.00	.30	1.90	17.59	.28	.21
Burkina Faso	.00	9.88	1.89	14.51	6.65	22.54
Spain	.12	.00	.00	.42	.00	.00
Côte d'Ivoire	.00	.01	.00	.00	.00	.00
Great Britain	.00	.18	.00	.00	.00	.00

Source. Burkina Faso, 1987, 1988, 1989, 1990, 1991. Statistiques du Commerce Extérieur. Exportation-Importation. Pays/Produits. Ouagadougou: Burkina Faso/Institut National de la Statistique et de la Démographie.

Table 15

Onion Imports and Exports, Burkina Faso

Years	1981	1982	1983	1984	1985	1986	1987	1988	1989
				Tons					
Exports	1,345	2,259	1,232	2,116	2,069	1,186	1,398	1,302	1,003
Imports	506	246	536	682	880	806	1087	1230	833
Balance	839	2,013	696	1,433	1,189	379	311	71	169
				CFA (Millions)					
Exports	41	69	65	107	102	61	74	74	55
Imports	31	18	37	65	90	82	115	92	37
Balance	10	51	29	41	13	-21	-41	-18	18

Source: Burkina Faso, 1987, 1988, 1989, 1990, 1991. Statistiques du Commerce Extérieur. Exportation-Importation. Pays/Produits. Ouagadougou: Burkina Faso/Institut National de la Statistique et de la Démographie.

Table 16

Burkina Faso's Agro-Pastoral Imports from Niger (Tons)

	Year			
Category	1987	1988	1989	1990
Onions	1,062.5	1,237.3	823.7	1,599.5
Livestock	3.4	0.3		3.2
Fish	25.5	11.4		
Potatoes	393.7			
Sweet potatoes	0.2			
Vegetables		34.5		
Leaves				0.7
Dates	5.3	5.5	2.0	10.4
Tamarind		2.9	56.9	19.8
Skins & hides				249.7
Hard gum arabic	0.7			
Soft gum arabic		9.1	3.8	
Spices	1.6	7.3	3.9	1.8
Wheat	0.2			
Manioc flour	0.3			
Millet & sorghum		28.1		
Other vegetable products	1.3	1.8	1.1	
Raw tobacco	452.0		579.7	

Source: Burkina Faso, 1987, 1988, 1989, 1990, 1991. Statistiques du Commerce Extérieur. Exportation-Importation. Pays/Produits. Ouagadougou: Burkina Faso/Institut National de la Statistique et de la Démographie.

Table 17

Ghana Imports of Vegetable Products from ECOWAS Countries, 1983-1987
(000s CFA @ 250 CFA = $1.00)

Fresh Vegetables					
YEARS	1983	1984	1985	1986	1987
COUNTRIES					
Côte d'Ivoire			500	250	250
Liberia		250	250	250	
Mali	250				
Nigeria	2,000	16,750	14,500	250	1,750
Sub-Total	2,250	17,000	15,250	750	2,000
Dried Vegetables					
Burkina Faso					250
Côte d' Ivoire	22,250	25,300	10,500	44,500	30,500
Gambia	250	1,500	750	1,000	250
Ghana	250	3,500	2,250	6,000	3,000
Guinea	10,000	13,000	12,750	11,750	1,750
Guinea-Bissau					13,250
Liberia			1,250	6,000	
Mali	250	250	500	1,000	1,000
Mauritania	500	500			2,250
Niger	250			250	750
Nigeria	7,500	9,500	52,500	4,500	3,000
Sénégal	47,750	36,500	32,000	100,500	133,750
Sierra Leone					1,000
Togo	1,500	2,500	1,000	1,500	5,000
Sub-Total	90,500	92,750	113,500	177,000	195,750

Source: Ghanian customs documents.

Table 18

Ghana National Onion Wholesale Prices (per 110 kg Sack)

MONTH	YEAR					MEAN
	1987	1988	1989	1990	1991	
1	6,650	11,559	15,110	17,362	16,280	13,392
2	7,032	9,334	11,516	11,781	12,607	10,454
3	6,874	6,866	11,056	10,574	11,280	9,330
4	6,084	7,818	N/A	11,232	12,553	9,422
5	7,386	8,906	11,721	13,207	13,325	10,909
6	9,822	10,641	13,183	13,775	18,200	13,124
7	9,963	11,397	16,588	17,818	18,920	14,937
8	10,708	12,775	18,096	N/A	24,578	16,539
9	11,740	12,482	19,568	19,892	30,408	18,818
10	13,171	13,745	21,994	20,789	30,666	20,073
11	16,273	17,931	23,140	23,843	27,582	21,754
12	16,886	20,788	22,086	20,760	21,921	20,488
MEAN	10,216	12,020	16,733	16,458	19,860	

NB: Prices are quoted in constant 1987 CFA.

Source: Project Monitoring and Evaluation Unit. Ghanaian Ministry of Agriculture.

Table 19

Niger's Share of Onion Imports to Burkina Faso
(Tons)

	Years			
	1987	1988	1989	1990
Official Imports Total	1,087	1,230	833	N/A
Official Imports from Niger	1,062.5	1,237.3	823.7	1,599.5
Niger's Market Share (%)	97.7	100.5	98.7	99.7*

*Projection based on previous years.

Source: Burkina Faso, 1987, 1988, 1989, 1990, 1991. Statistiques du Commerce Extérieur, Exportation-Importation. Pays/Produits. Ouagadougou: Burkina Faso/Institut National de la Statistique et de la Démographie.

Table 20

Official Benin Onion Imports, 1985-1988
(partial data)

Year	Source	Quantity (Tons)	Taxes (CFA)
1985	Nigeria France	0.656 1.250	37,259 79,950
1986	Nigeria	118.975	1,686,152
1987	Nigeria France	5.012 0.277	470,314 112,408
1988	Niger	0.153	35,123

Source: République du Benin, 1987, 1988, 1989, 1990, 1991. Statistiques du Commerce Extérieur, Exportation-Importation. Pays/Produits. République du Benin/Ministére du Commerce et du Tourisme.

Table 21

Traders' Estimates of Additional Monthly Market Capacity for Onions

	Estimated Amounts Currently Available			
Cities	Tons/mo	Sacks (120 kg)	Trucks @ 275 Sacks/Truck	Additional Capacity (Tons)
Abidjan[1], Côte d'Ivoire	3,000	25,000	90	?
Katako, Côte d'Ivoire	324	2,700	12	0
Treichville, Côte d'Ivoire	2,640	2,200	80	?
Lomé, Togo	270	2,250	10	81
Cotonou[2], Benin	378	3,150	14	0
Accra, Ghana	324	2,700	12	27
Kumasi, Ghana	31	258	1	1
All Ghana	648	5,400	24	0
Ouagadougou, Burkina Faso	72	600	4[3]	48
Total	7,687	44,258	247	157

[1]Estimates were made in several markets.
[2]While the market in Cotonou is saturated, Benin as a whole is not.
[3]at 150 sack capacity.

Source: Study data.

Table 22

Onion Production in Togo, 1988

Province	Area (ha)	Production (Tons)
Maritime	114.80	209.38
Plateaux	3,440.10	1,756.17
Kara	.15	.25
Savannes	.25	47
National	3,555.30	1,966.27

Source: MDR/DGDR/DESA 1989, Tableau No. 38.

Table 23
Onion Production in Burkina Faso, 1990

CRPA[1]	Province	Area (ha)	Yield (Tons/ha)	Production (Tons)
Centre	Ganzourgou	87.2	N/A	N/A
	Kadiogo	2.6	3.4	8.8
	Oubritenga	37.5	4.4	165
Centre-Est	Boulgou	357.0	3.7	1,320.9
	Kourittenga	31.3	3.1	97.0
Centre-Nord	Bam	17.1	4.8	82.1
	Namentenga	37.5	3.7	138.8
	Sanmantenga	28.9	3.9	112.7
Centre-Ouest	Boulkiemde	35.1	1.3	45.6
	Sanguie	1,596.9	1.4	2,235.7
	Sissilli	1.9	1.1	2.1
Centre-Sud	Bazega	121.8	3.6	438.5
	Nahouri	4.9	3.0	14.7
	Zoundweogo	47.2	3.3	155.8
Comoe	Comoe	24.1	2.4	57.8
Est	Gnagna	28.9	3.6	104.0
	Gourma	6.8	1.6	10.9
	Tapoa	5.0	2.2	11.0
Haut-Bassins	Houet	86.2	2.2	189.6
	Kenedougou	386.7	2.2	850.7
	Kossi	39.8	1.7	67.7
Boucle de Mouhoun	Mouhoun	40.5	1.5	60.8
	Sourou	930.3	2.0	1,860.6
Nord	Passore	21.4	5.1	109.1
	Yatenga	266.3	7.1	1,890.7
Sahel	Oudalan	8.9	2.9	25.8
	Seno	17.3	2.1	36.3
	Soum	7.8	2.6	20.3
Sud-Ouest	Poni	1.6	4.0	6.4
	Bougouriba	10.2	1.5	15.3
TOTAL		4,288.7	29.0	10,134.7

[1]Centre Régional de Production Agricole

Source: MAG/EL/SG/DEP, 1991, Campagne Agricole 1990/91. Résultats de l'Enquête Maraîchère. Ouagadougou; République du Burkina Faso/Ministère de l'Agriculture et de l'Elevage/Secrétariat Générale des Etudes et de la Planification.

Table 24

Niger Onion/Garlic Imports

Year	Volume (Tons)	Value (CFA)
1987	564.64	22,485,316
1988	1.68	1,212,818
1989	9.05	1,088,439
1990	3.68	788,915

Source: Direction Générale des Douanes.

Table 25

Comparison of Onion Storage Costs for Four Facility Types

Type	Capacity (Tons)	Construction/ Ton Stored	Cost of Typical Loss[1]	Value of Remainder[2]	Amorization /Year	Value Less Amorization	Net Margin Per Ton Stored
Rudu (trad.)	2.5	21,200	25,000 4 months (40%)	156,250	17,667 3 years	138,583	55,433
ILO (mixed materials)	2.4	40,254	12,000 6 months (20%)	200,000	8,051 5 years	191,949	79,979
ILO (improved adobe)	4.2	28,571	24,150 6 months (23%)	336,875	2,857 10 years	334,018	79,528
GIE-ALBASA (improved adobe)	12	19,783	69,000 6 months (23%)	962,500	1,978 10 years	960,522	80,043

[1]Assumes average purchase price of 120 kg sack at harvest is 3,000 CFA and also estimates the value of the loss at 3,000 CFA per 120 kg sack.
[2]Assumes that the value of the stored onions has risen to 12,800 CFA per 120 kg sack during the storage period.

Source: Arrachart 1991; GIE ALBASA 1992; Mahamadou 1987; Ouedraogou 1991.

Table 26
Comparison of Onion Production Costs (CFA)

Costs	Small-Group Pump Tarka Valley (PBVT)[1]	ONAHA Gravity-fed On-Perimeter Galmi[2]	Private Diesel Pump Gaya[3]	Manual Lift System, Keita[4]	Small Off-Perimeter Pump Galmi[5]
Crops					
–Seed	48,555	80,000	(30,000)[6]		20,000
–Fertilizer	5,125	13,350	20,000		13,000
–Insecticide	11,250	11,250			
–Transport					
Other Labor	28,450	180,000	30,000		38,000
–Plowing		10,000			20,000
Sub-Total	93,380	294,600	80,000		91,000
Land Rental		50,000		121,000	50,000
Irrigation					
–Fuel	23,868		10,944		
–Oil	4,949		2,298		
–Maintenance	5,000				
–Operator	2,000	10,000	84,000		54,000
Sub-Total	35,817	10,000	97,242		54,000
Amortization					
–Pump	5,2..		74,000		160,000
–Motor	22,571				8,000
–Tubing	6,400		6,400		
–Wells			33,333		4,000
Sub-Total	34,183	700	113,733		172,000
Taxes	56,880				
Household Labor[7]	163,000	163,000	163,000[8]	163,000	
Marketing Costs[9]	12,600	12,600	12,600	12,600	70,000
Total Costs	395,860	530,900	466,575	296,600	437,000
Revenues					
–Onions	1,581,488[10]	870,480[11]	555,000[12]	1,210,000[13]	788,400[11]
–Other Crops	11,462				
Total Revenues	1,592,950	870,480	555,000	1,210,000	788,400
Gross Margin	1,197,090	339,580	88,425	913,400	351,400
Margin % Costs	302 4	64 0	19 0	308 0	80 4

[1]PBVT 1991
[2]Direction Régionale de ONAHA, Konni, Zalla, et al, 1984
[3]Figures are based on interview data
[4]Calculations are based on SAA Keita's contention that it costs 20,000 CFA to produce one ton of onions
[5]Mah.. ..dou, 1987
[6]Shadow cost of self-produced seed
[7]Assumes 326 days labor at 500 CFA/day
[8]Assumes all production costs are subsumed under family labor costs
[9] Assumes 315 CFA/sack of labor for sacking and transport
[10]Assumes a sales price of 36.5 CFA/kg
[11]Assumes a sales price of 20 CFA/kg
[12]Reports on overall earnings figure provided by the farmer interviewed
[13]Assumes a sales price of 27 5 CFA/kg

Table 27
Irrigation Water Costs and Performance Variables for Tarka Valley Onion-Producing Microsystems

	SYSTEM TYPE	
	Open Well (Motor Pump)	**Open Well (Manual Lift)**
Season Length	106	110
Area (ha)	.169	.0125
Irrig. Demand (m^3)	1,318	1,020
Irrig. Supply (m^3)	1,871	827
Energy Cost (CFA)	30,000	37,120
Land Rent (CFA/ha)	0	551.25
Other Fixed Costs (CFA)[1]	20,222	14,000
Actual Rent (CFA)	0	551.25
Wage Labor (CFA/hr)	100	100
Crop Value (CFA/kg)	15	15
Yield (kg/ha)	85,000	49,000
Farmer's Income (CFA)	215,475	70,633.5
Farmer Cost Per Cubic Meter of Water (CFA). •Actual Costs •Max. Theoretical Demand	 27 31	 68 64
Farmer Cost Per Irrigated Hectare (CFA): •Actual Costs •Max. Theoretical Demand	 297,172 244,724	 452,960 522,552
Farmer's Irrigation Costs (CFA)	50,222	56,620
Performance Variables •Demand/Supply Ratio •Water District Labor (hrs/^{3}) •Production Value (CFA/m^3) •Income Less Irrigation Cost •Income % Cost	 .7 .159 114 165,253 329.04	 1.23 .449 110 14,014 24.75

[1]Fixed and variable costs other than seed, fertilizer and insecticide.

Source: Adapted from Norman and Sami 1991.

Table 28

Estimate of Income to Onion Shipment Assembly Agents at the Galmi/Arewa Markets (CFA/300 - 120 kg sacks)

Income		Expenses	
Commission from Producers @ 50 CFA/sack	1,5000	Loading Costs	30,000
Commission from Truckers @ 100 CFA/sack	30,000	Transport Costs	30,000
Difference between Producer and FOB price @ 500 CFA/sack	150,000	Quality Control	15,000
		Payment to Conveyor from Niamey	15,000
		Annual License	250
		Boarding for Trucker/Exporter	8,000
Total	195,000	Total	98,250
Net Income	96,750		
Margin % Cost	49.6		

Source: Adapted from Mahamadou 1987, p. 50 and interview data.

Table 29

Deferred Onion Sales, Keita Integrated Development Project (PIK)

Year	No. of Villages	No. of 120/kg Sacks	Equivalent Tonnage	Amount Advanced (CFA)	Village Resources[1] (CFA)
1988	3	1,471	176.52	2,942,000.00	735,500.00
1989	9	5,190	622.80	10,380,000.00	2,595,000.00
1990	11	10,181	1,221.72	20,362,000.00	5,090,500.00
1992*	16	16,324	1,958.80	32,648,402.29	8,162,100.57
1993*	22	26,174	3,140.80	52,348,402.53	13,087,100.63
1994*	32	41,968	5,036.16	83,935,355.33	20,983,838.83
1995*	45	67,291	8,074.92	134,581,831.22	33,645,457.81

* Projections based on 1988-1990 data.

[1]Monetary value of onion stocks mobilized by the deferred onion sales operation.

Source: Projet Intégré du Développement de l'Arrondissement du Keita.

Table 30

Comparative Variable Cost Estimates of Onion Marketing per 120 kg Onions
(CFA)
Destination

Costs	Niamey Niger	Lomé Togo[1]	Malanville Benin[2]	Cotonou Benin[2]	Abidjan Côte d'Ivoire[4]	Abidjan Côte d'Ivoire[3]	Abidjan Côte d'Ivoire[1]	Ouagadougou Burkina Faso[1]	Cotonou Benin[1]	Accra Ghana[1]
Purchase Galmi	9,000	8,000	7,000	6,000	2,000	2,500	8,000	8,000	3,500	8,000
Arrondissement Tax	200	100	100	100	100	100	150	150	100	150
Shipment Assembly Agent	100	100	100	100	100	100	100	100		100
Loading	250	200	150	150	100	100	100	200		200
Sacks	600	200	600	600		374	37	600		117
Breathing Cap	100	75					10			
Filing Costs (Tenue de dossier)						25			1,000	25
Statistics Tax		200	190	190	1,400	258	200	200		200
Transport	2,000	2,500	1,000	2,000	3,000	361	2,500	2,000	2,250	3,000
Informal Taxes	240	2,250	360	640	450	321	533	1,050	950	2,500
Guaranty Fund, Niger						12				
Guaranty Fund, Burkina Faso					200	43		50		
Insurance @ 0.5%						46				
Togo Customs		665								
Benin Customs		2,000	20	20						

Table 30, Continued
Destination

Costs	Niamey Niger	Lomé Togo[1]	Malanville Benin[2]	Cotonou Benin[2]	Abidjan Côte d'Ivoire[4]	Abidjan Côte d'Ivoire[3]	Abidjan Côte d'Ivoire[1]	Ouagadougou Burkina Faso[1]	Cotonou Benin[1]	Accra Ghana[1]
Ghana Customs @ 10% CIF										1,400
Burkina Customs								500		
Côte d'Ivoire Laissez passer/transit			870				1,133			
Phytosanitary			250					85		
Other Costs		40							71	
Unloading	500	75	50	50			150	50		75
Carting	250									
Intermediary				200						
Warehouse		50		200			38			118
Market Tax	200	100	100	100			0	25		59
Cost Price (CIF)	13,440	16,555	9,670	10,350	8,470	4,240	12,951	13,010	7,571	15,944
Sub-total of Formal and Informal Taxes % CIF	240 2	4,955 30	380 4	660 6	1,770 21	421 10	1,667 13	1,685 13	1,021 13	3,900 24
7% Loss	941	1,159	677	725	593	297	907	911	551	1,116
Cost Price	14,381	17,714	10,347	11,075	9,063	4,537	13,858	13,921	8,422	17,060
Asking Price	15.000	20,000	15,000	12,000	10,000	11,113	14,000	12,000	9,000	17,646

Table 30, Continued
Destination

Costs	Niamey Niger	Lomé Togo[1]	Malanville Benin[2]	Cotonou Benin[2]	Abidjan Côte d'Ivoire[4]	Abidjan Côte d'Ivoire[3]	Abidjan Côte d'Ivoire[1]	Ouagadougou Burkina Faso[1]	Cotonou Benin[1]	Accra Ghana[1]
Margin	619	2,286	4,653	925	937	6,576	142	-1,921	578	586
Margin % Cost	4.3	12.9	45.0	8.4	10.3	147	1.0	-13.8	6.9	3.4

[1] Study data
[2] Krogt and Klaassebos 1991
[3] Barhouni 1990
[4] Lev and Gadbois 1988

Table 31

Estimated Returns to Trade, Niamey--August 1992 per 120 kg Onions (CFA)

KATAKAO		PETIT MARCHE	
Ave. Purchase Price	7,750	Wholesale Price	10,000
Arrondissement Tax	100		
Carting	150		
Intermediary	100	Market Taxes @ 100 F/day	200
Packing	350		
Loading	100		
FOB Galmi	8,550	5% Loss	600
		Cost Price	10,800
Transport	1,000		
Informal Taxes	32	Revenues 120 kg @ 100 CFA/kg	12,000
Unloading	50		
Miscellaneous	50		
Market Taxes	10	Retail Margin	1,200
		Margin % Cost	11.0
CIF Niamey	9,692		
Sale Price	10,000		
Wholesale Margin	308		
Margin % Cost	3.2		

Source: Study data.

Table 32

Monthly Retail Onion Prices, Benin, 1991-1992 (CFA/kg)

	Department						
Month	Atlantique	Oueme	Mono	Zou	Atacora	Borgou	Atlantique/ Borgou%
7/91	121	200					
8/91	291	342	N/A	178	N/A	169	172
9/91	284	373	N/A	342	N/A	207	137
10/91	444	446	N/A	322	N/A	270	164
11/91	561	200	N/A	266	N/A	232	242
12/91	625	N/A	N/A	198	N/A	198	316
1/92	N/A	N/A	N/A	225	N/A	186	N/A
2/92	166	N/A	N/A	355	N/A	115	144
3/92	256	N/A	N/A	273	N/A	143	179
4/92	164	128	131	136	96	88	186
5/92	178	155	143	145	155	94	189
6/92	199	161	128	180	161	119	167
Mean	299	250	134	238	137	165	181

Source: Direction du Contrôle et du Conditionnement, Ministère du Développement Rural, Cotonou.

Table 33

Characteristics of Monthly Retail Onion Prices In the Malanville Market, Benin, 1989 - 1992 (CFA/kg)

Year	Month	Maximum Price	Minimum Price	Mean Price
1989	December	160		
1990	February	38		
	March	30		
	April	35		
	May	55		
	June	50		
	July	55		
	August	55		
1991	August	154	102	128
	September	250	125	188
	October	500	200	350
	November	357	250	304
	December	214	109	162
1992	January	167	91	129
	February	111	40	76
	March	111	33	72
	April	67	63	65
	May	63	45	56
	June	125	100	113
Mean		137	105	149

Source: Monographiques du Marché, Office National des Céréales, Cotonou.

Table 34

Malanville, Benin Market Price Data
(Wholesale Prices)

Wholesale Prices

Unit	Dates				
	1/10/91	1/21/91	2/2/91	2/9/91	2/16/91
Price/120 kg Sack	3,500	3,000	2,250	2,500	3,250
Price/kg	29	25	19	21	27

Retail Prices

Unit	Dates			
	5/5/89	5/12/89	5/20/89	5/27/89
Price/120 kg Sack	4,800	6,480	6,480	6,960
Price/kg	40	54	54	58

Source: Monographiques des Marchés, Office National des Céréales, Cotonou.

Table 35

Retail Onion Prices in Lomé, Togo, 1985 - 1991
(CFA/kg)

	Year						
Month	1985	1986	1987	1988	1989	1990	1991
January			253	455			
February			207	490			
March			390	390	174	383	
April			174	260	195	428	
May			325	260	245	608	159
June			390	260	265	495	172
July			390	260	194	491	181
August			390	260	225	454	
September			390	260	225	415	
October	390	390	390	260	283	421	240
November	475	390	390	260	410	405	309
December	520	390	390	260			258
Mean	462	390	340	3,675	2,216	4,100	220

Source: Direction de la Statistique, Ministère du Plan et des Mines, Lomé.

Table 36

Retail Onion Prices in Ouagadougou, Burkina Faso, 1987-1991
(CFA/kg)

Year	Month												
	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	Mean
1987				111	303	179	161	105	217	455	333	191	228
1988	104	83	68	109	122	208	194	222	263	185	333	143	170
1989	153	75	96	75	116	200	179	208	172	435	294	227	186
1990	121	82	67	116	80	143	152	188	130	216	288	180	147
1991	88	102	82			144	163	187	327	490			198
MEAN	117	86	78	103	155	175	170	182	222	356	312	185	186

Source: INSD, Bulletin d'Information Statistique & Economique. Ouagadougou: Ministère du Plan et de la Coopération/Institut National de la Statistique et de la Démographie.

Table 37

Dry Season Onion Producer Prices in Niger, 1984-1991

Year	CFA/kg	
	Minimum	Maximum
1984 - 1985	45	50
1985 - 1986	30	40
1986 - 1987	30	40
1987 - 1988	30	35
1988 - 1989	20	30
1989 - 1990	20	35
1990 - 1991	25	50

Source: RN/MAG/EL.

Table 38

Nigerien Onion Production, Export and Consumption, 1986-1991 (Tons)

	Years				
	1986/87	1987/88	1988/89	1989/90	1990/91
Production	73,244	104,548	123,644	219,991	169,011
Exports	2,475	14,037	18,093	24,039	23,532
Exp/Prod. (%)	3.4	13.4	14.6	10.9	13.9
Consumption	70,769	90,511	105,551	195,952	145,479
Consumption/ Production (%)	96.6	86.6	85.4	89.1	86.1

Source: MAG/EL; RN/MP/F, Direction Générale des Douanes.

Figure 1

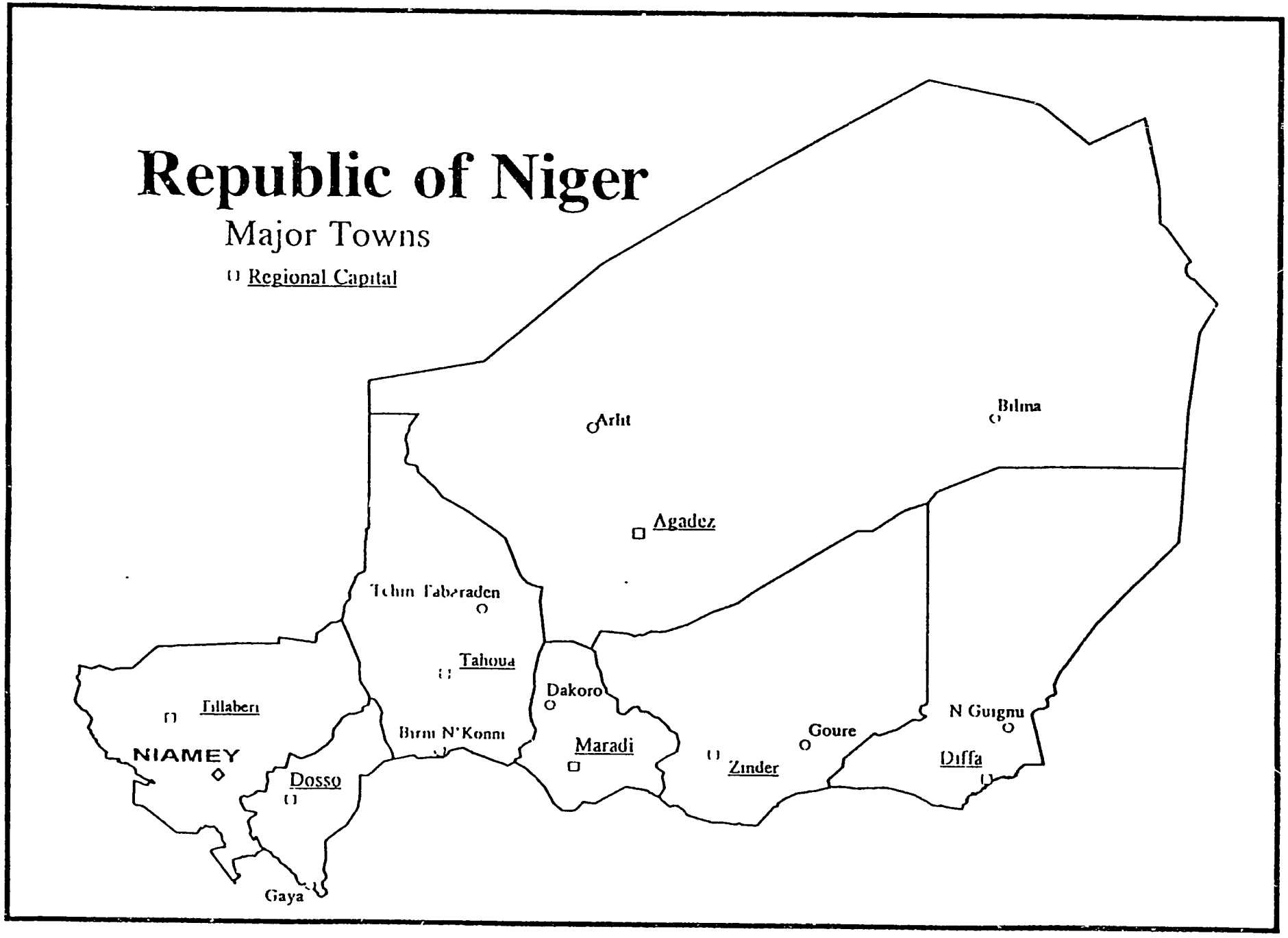
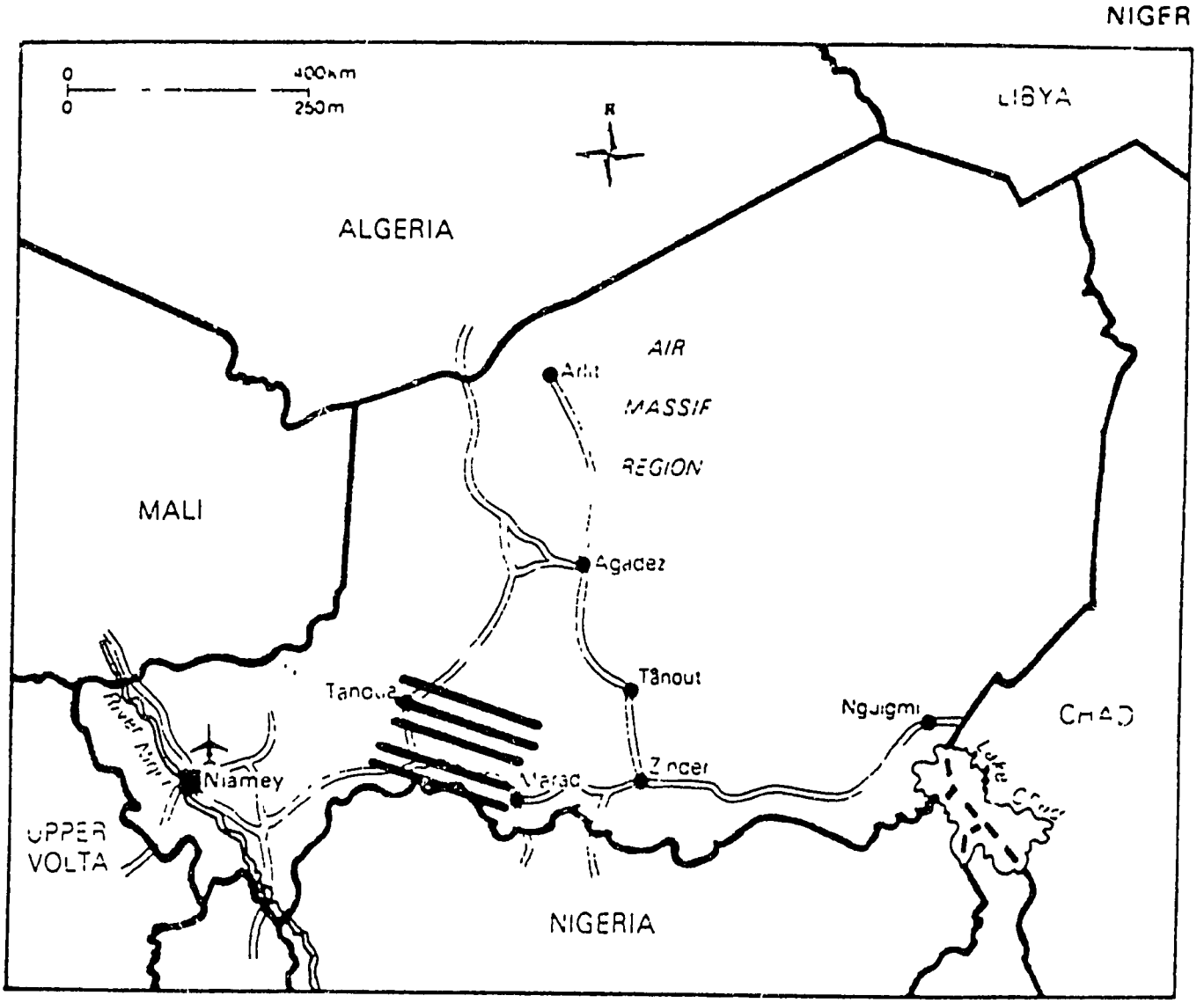

Republic of Niger
Major Towns
Regional Capital
Arlit
Bilma
Agadez
Tchin Tabaraden
Tahoua
Dakoro
Tillaberi
NIAMEY
Birni N'Konni
Maradi
Goure
N Guigmi
Zinder
Diffa
Dosso
Gaya

Figure 2

Map of Niger



Shaded Area Designates Most Important Producing Zones

Figure 3

Onion Production in Niger

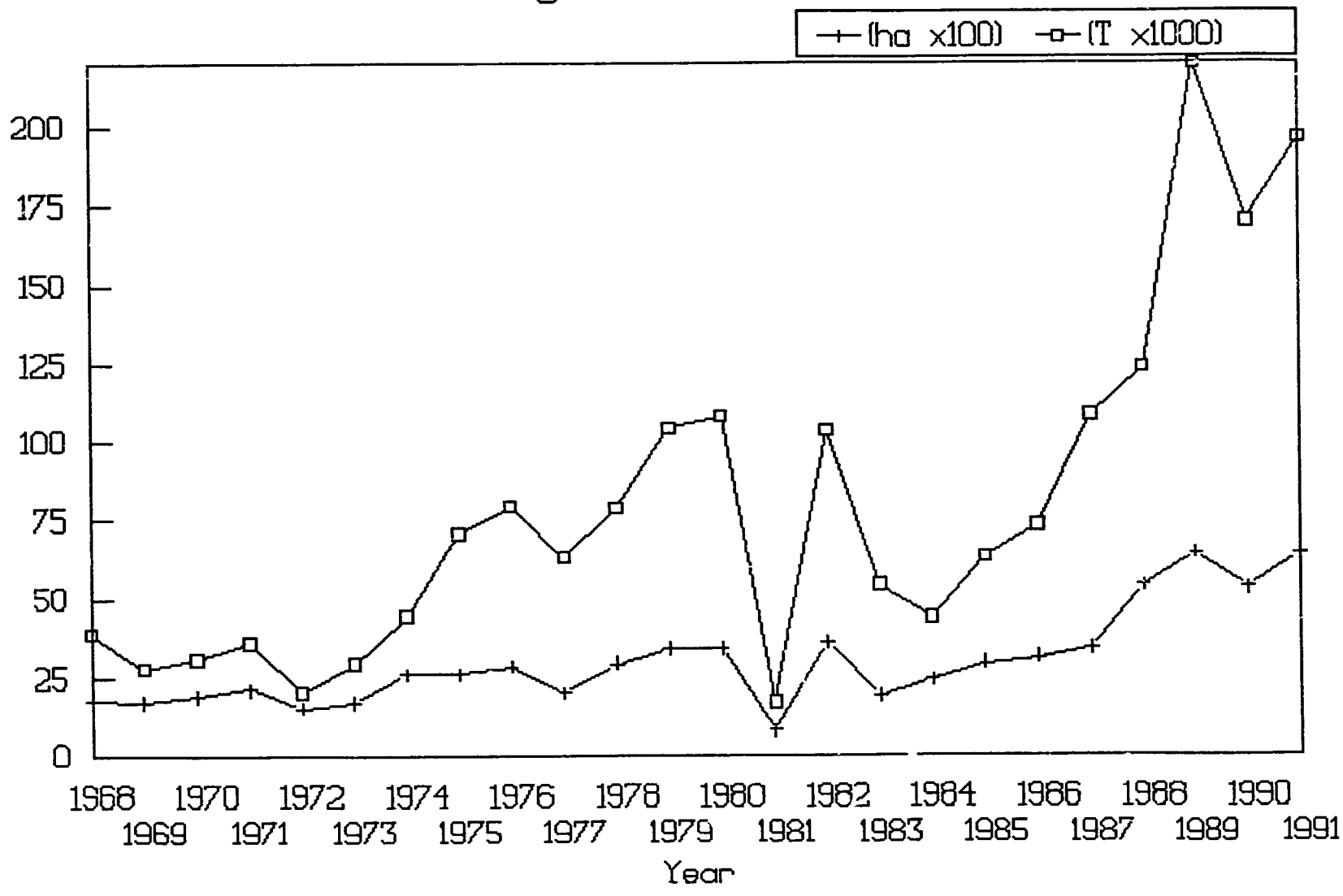


Figure 4

ARRONDISSEMENT DE MADAOUA

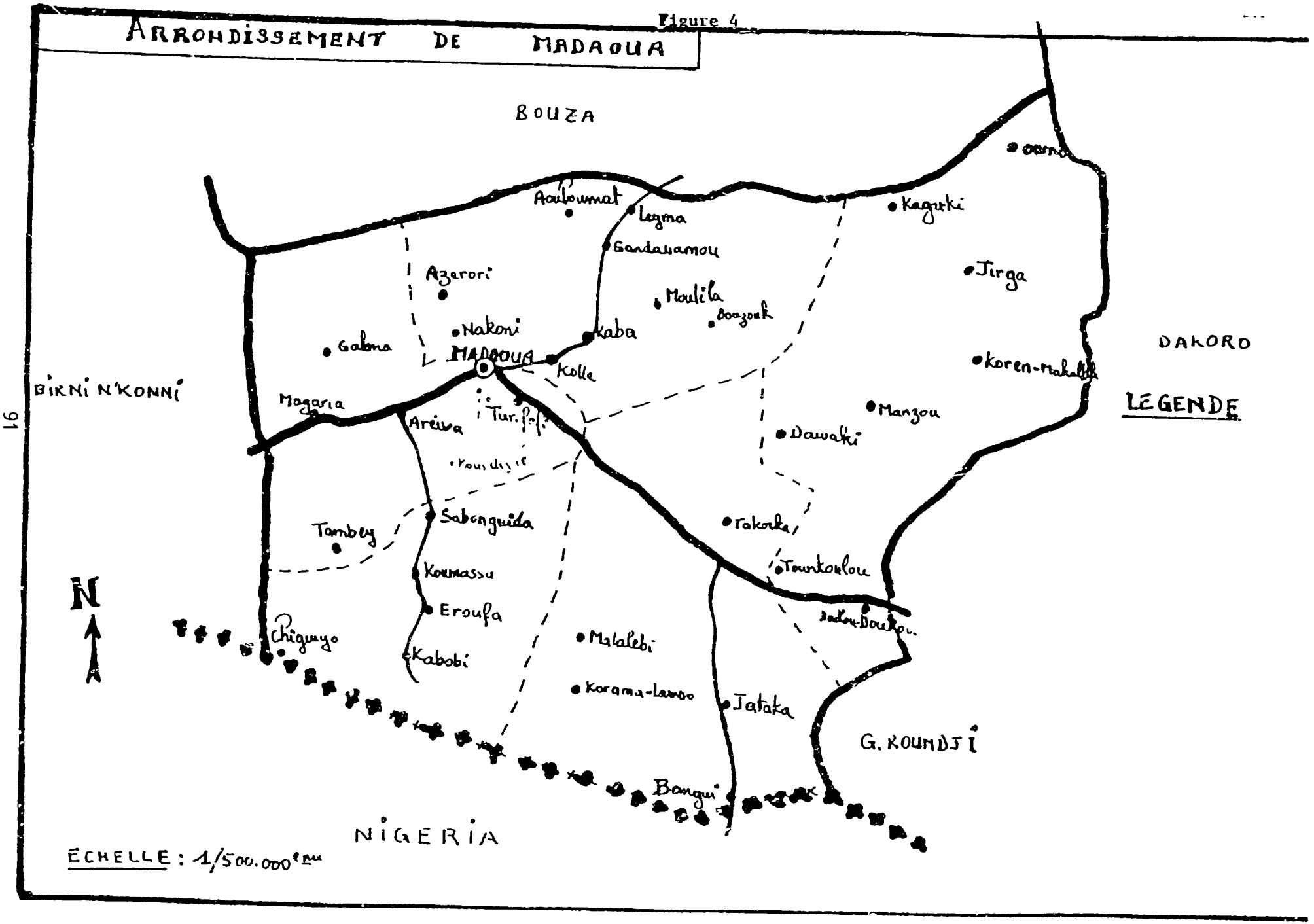


Figure 5

Arrondissement of Bouza

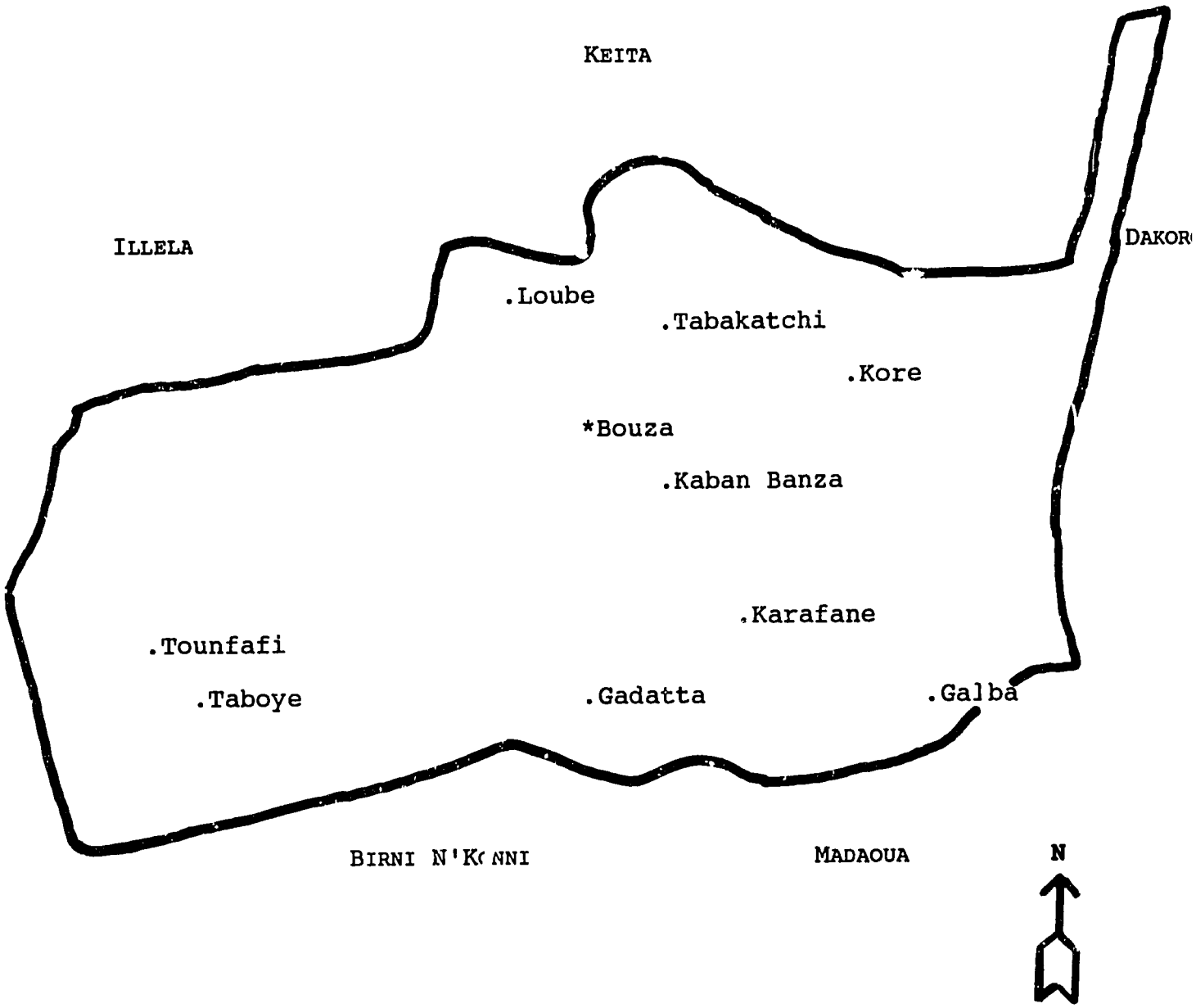
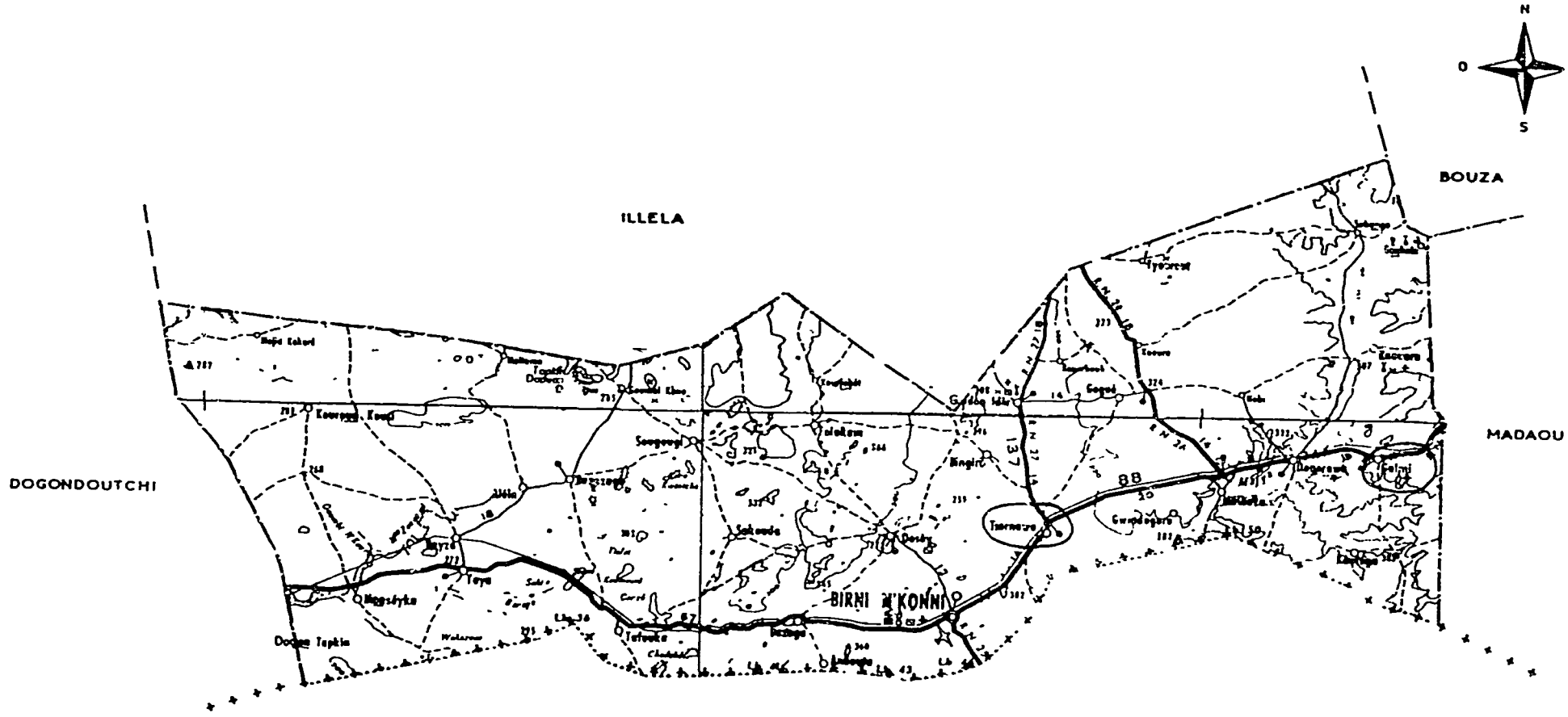


Figure 6

ARRONDISSEMENT DE BIRNI N'KONNI



xtrait Carte 1/500 000ème

Service Topo

Figure 7

NIGERIEN ONION PRODUCTION BY REGION

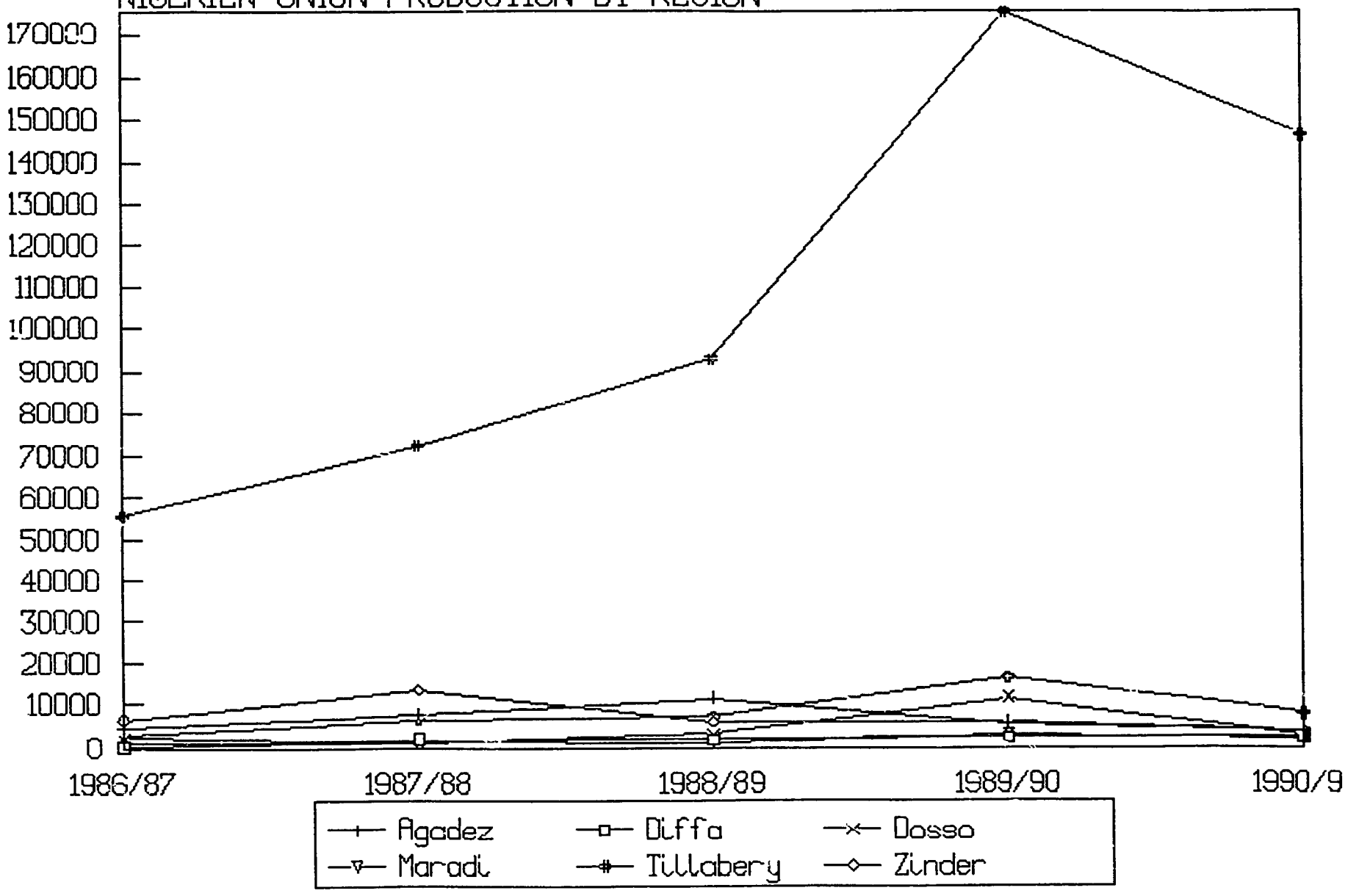


Figure 8

ONION EXPORTS THROUGH GALMI CUSTOMS

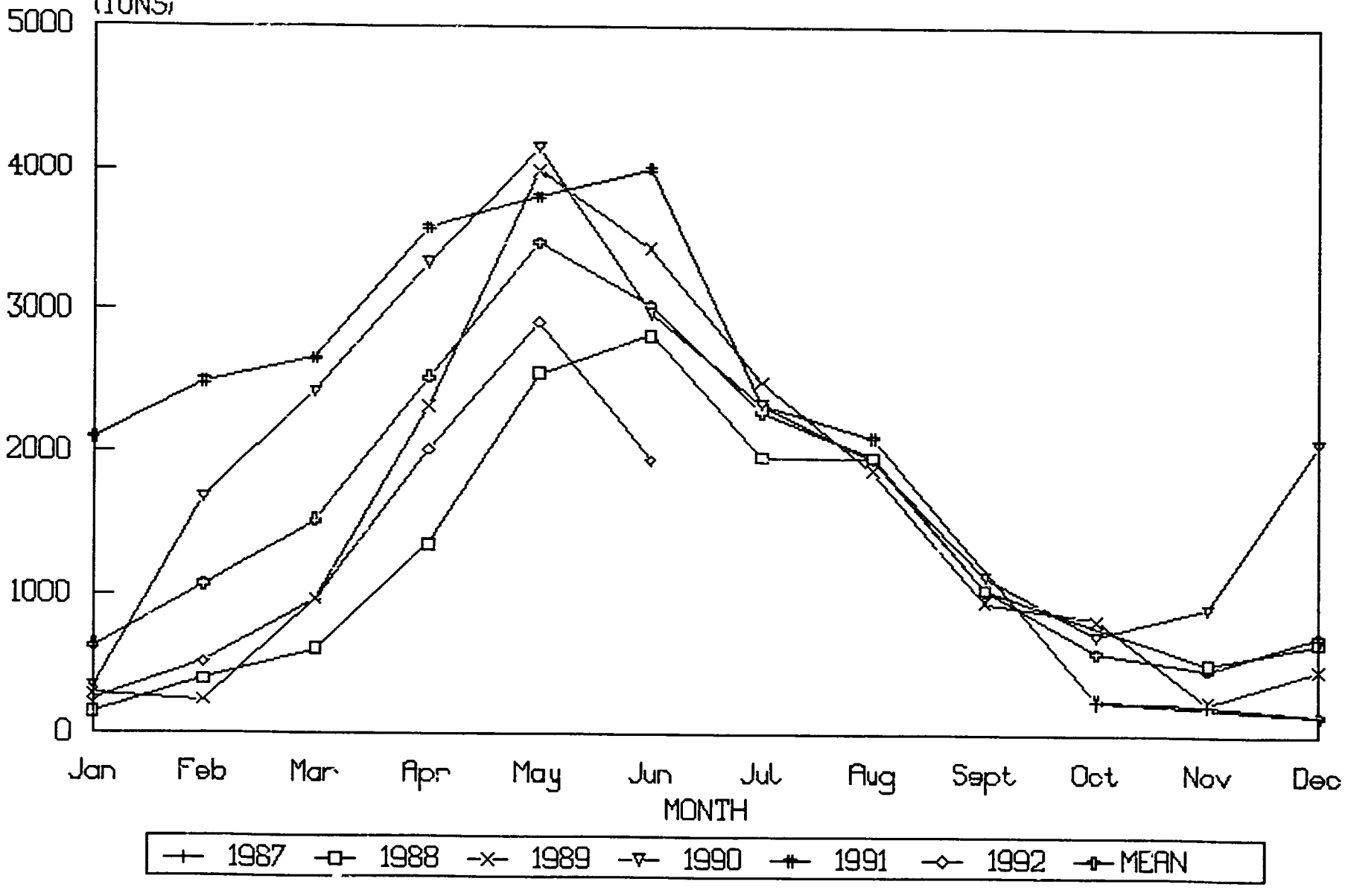


Figure 9

ONION EXPORTS THROUGH GAYA

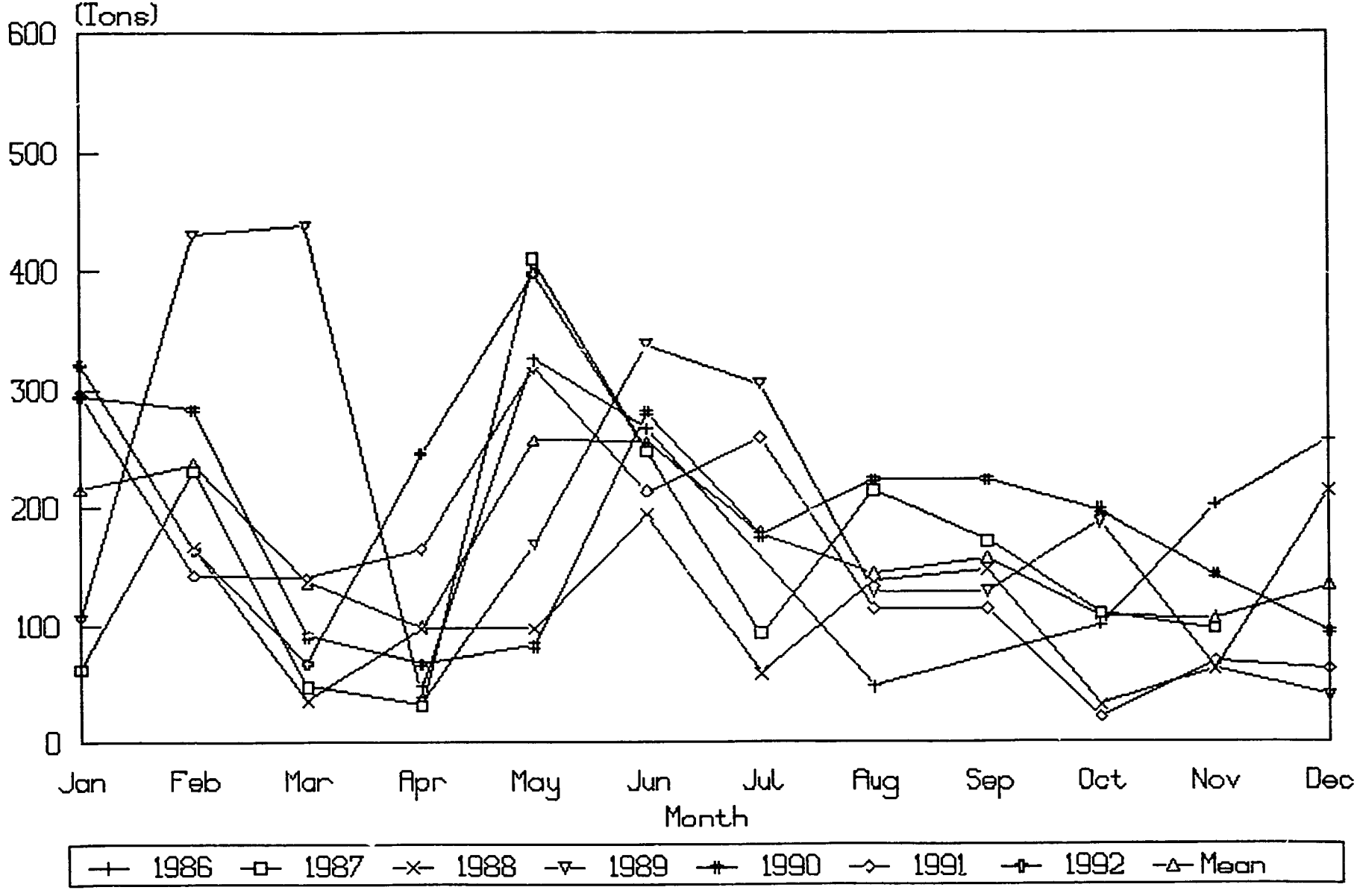


Figure 10

ONION EXPORTS THROUGH GALMI AND GAYA

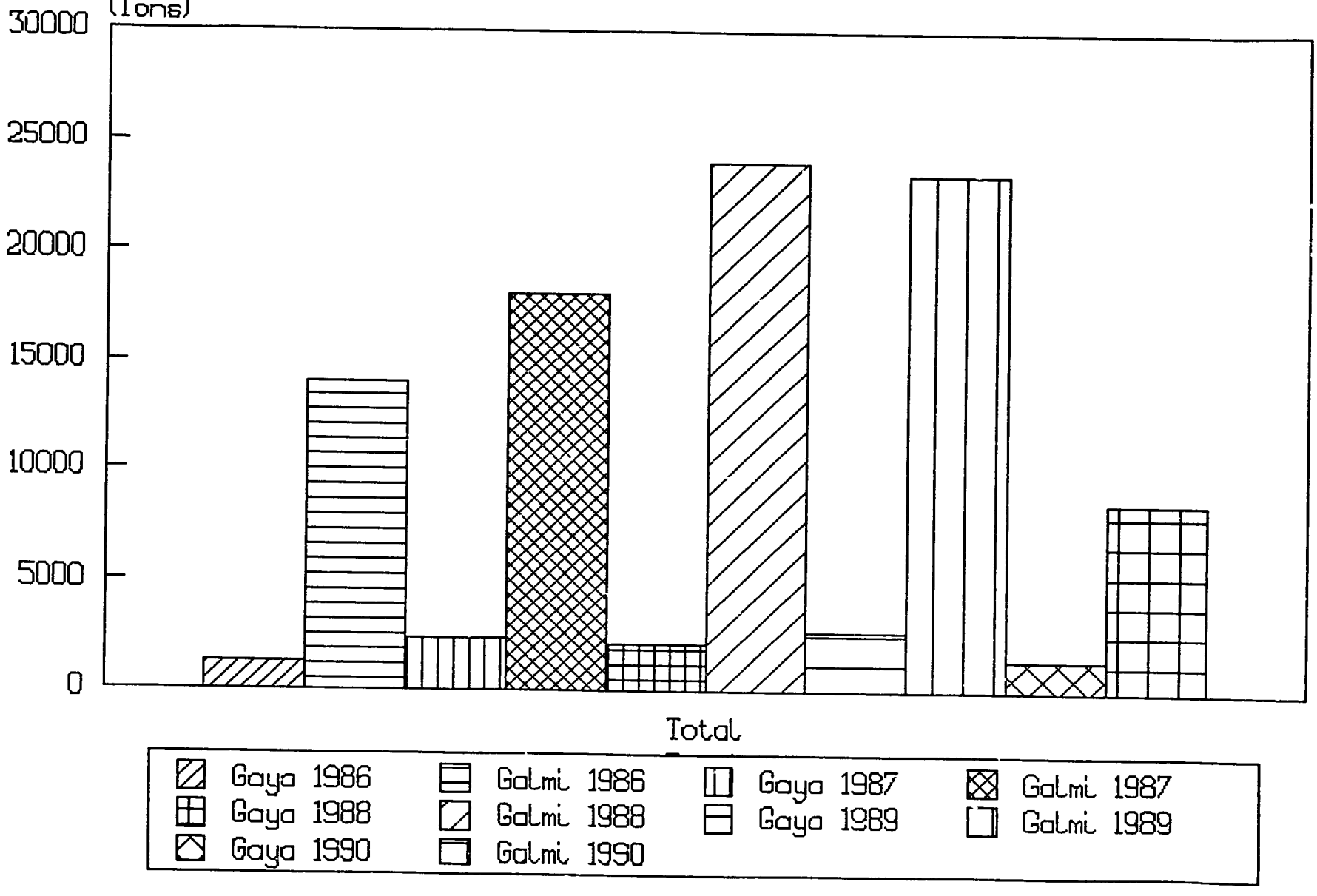


Figure 11

ONION EXPORTS THROUGH GALMI AND GAYA

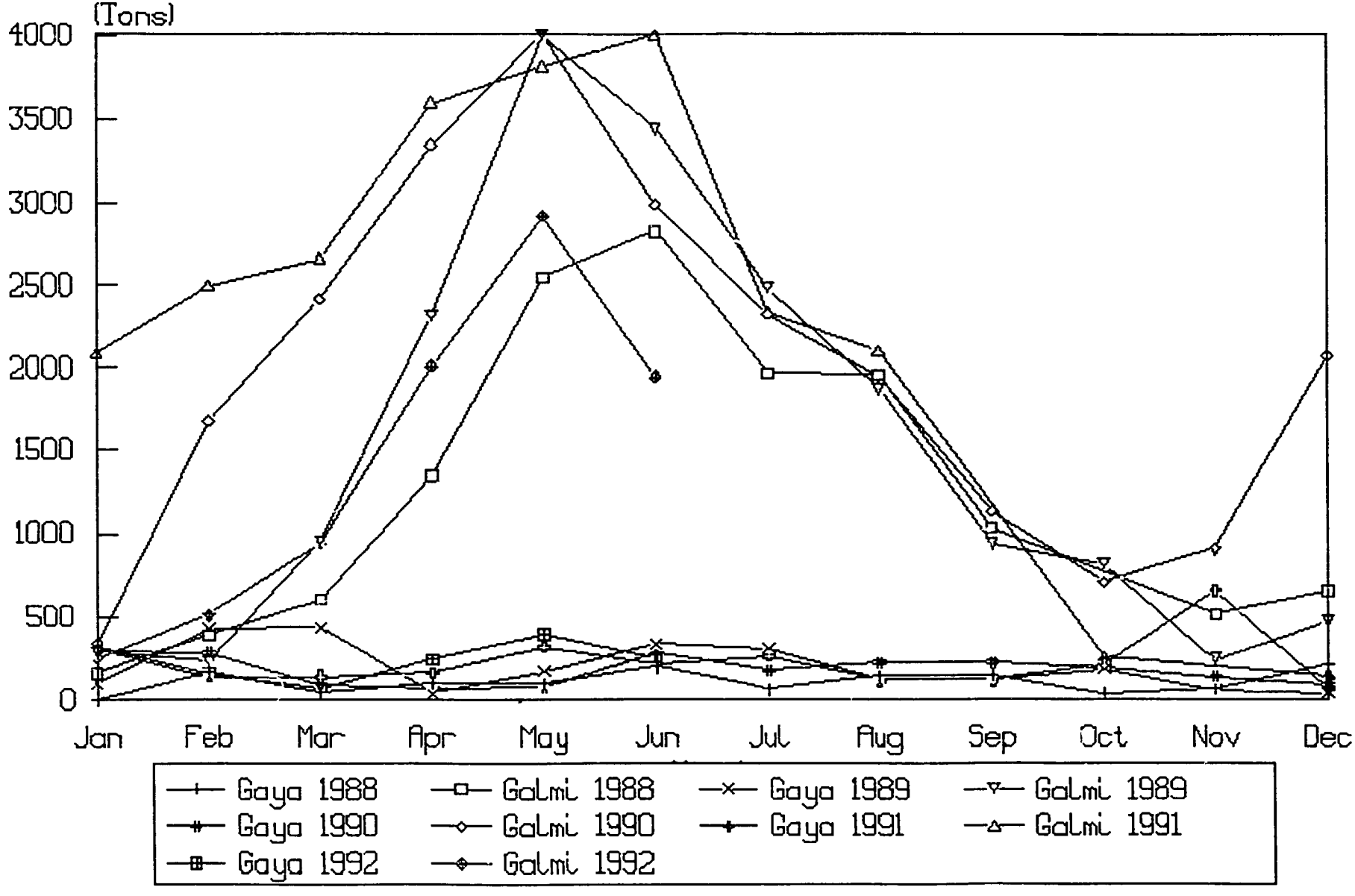


Figure 12

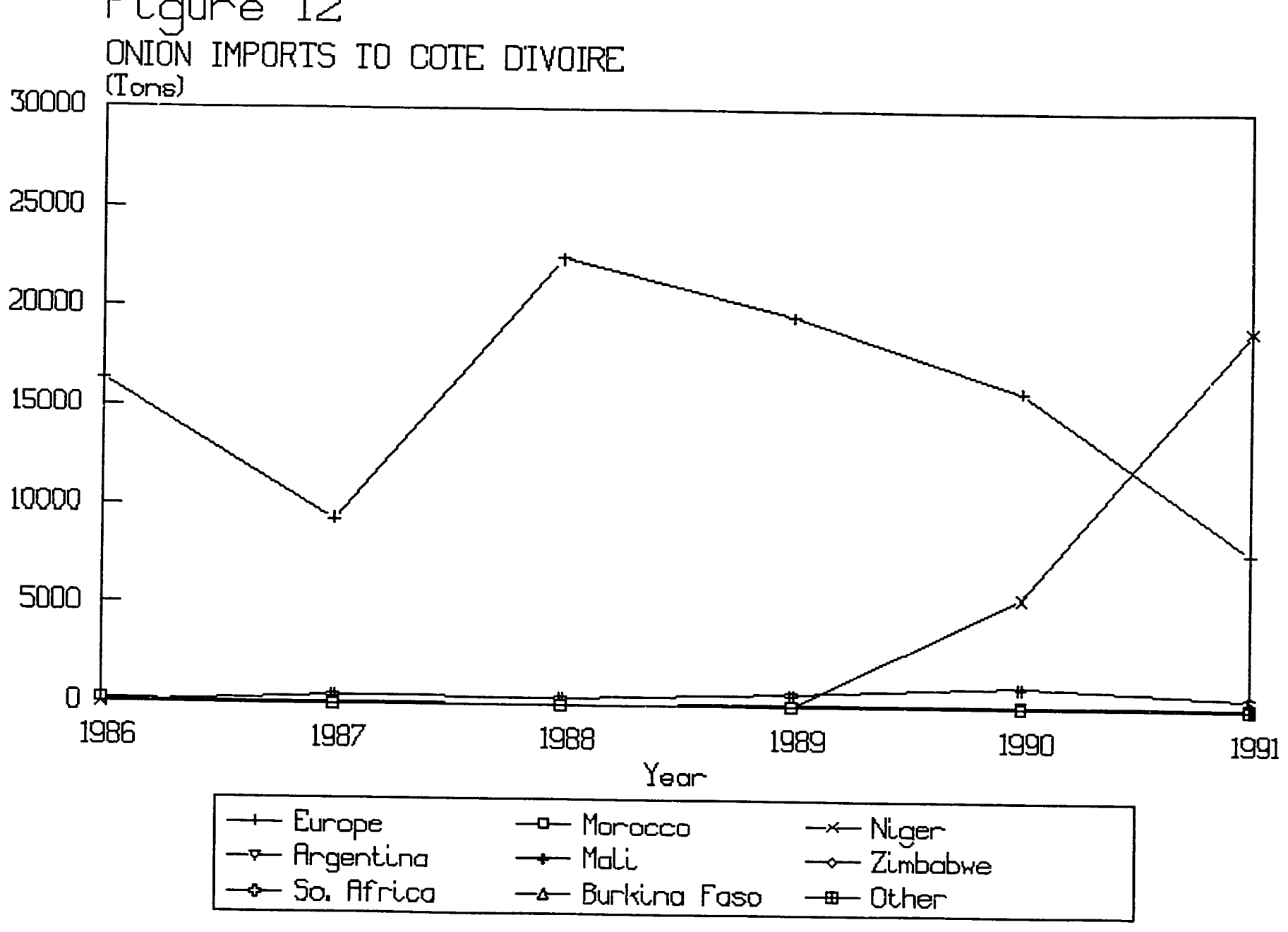

ONION IMPORTS TO COTE DIVOIRE
(Tons)
30000
25000
20000
15000
10000
5000
0
1986
1987
1988
1989
1990
1991
Year
Europe
Argentina
So. Africa
Morocco
Mali
Burkina Faso
Niger
Zimbabwe
Other

Figure 13

Onion Imports to Togo

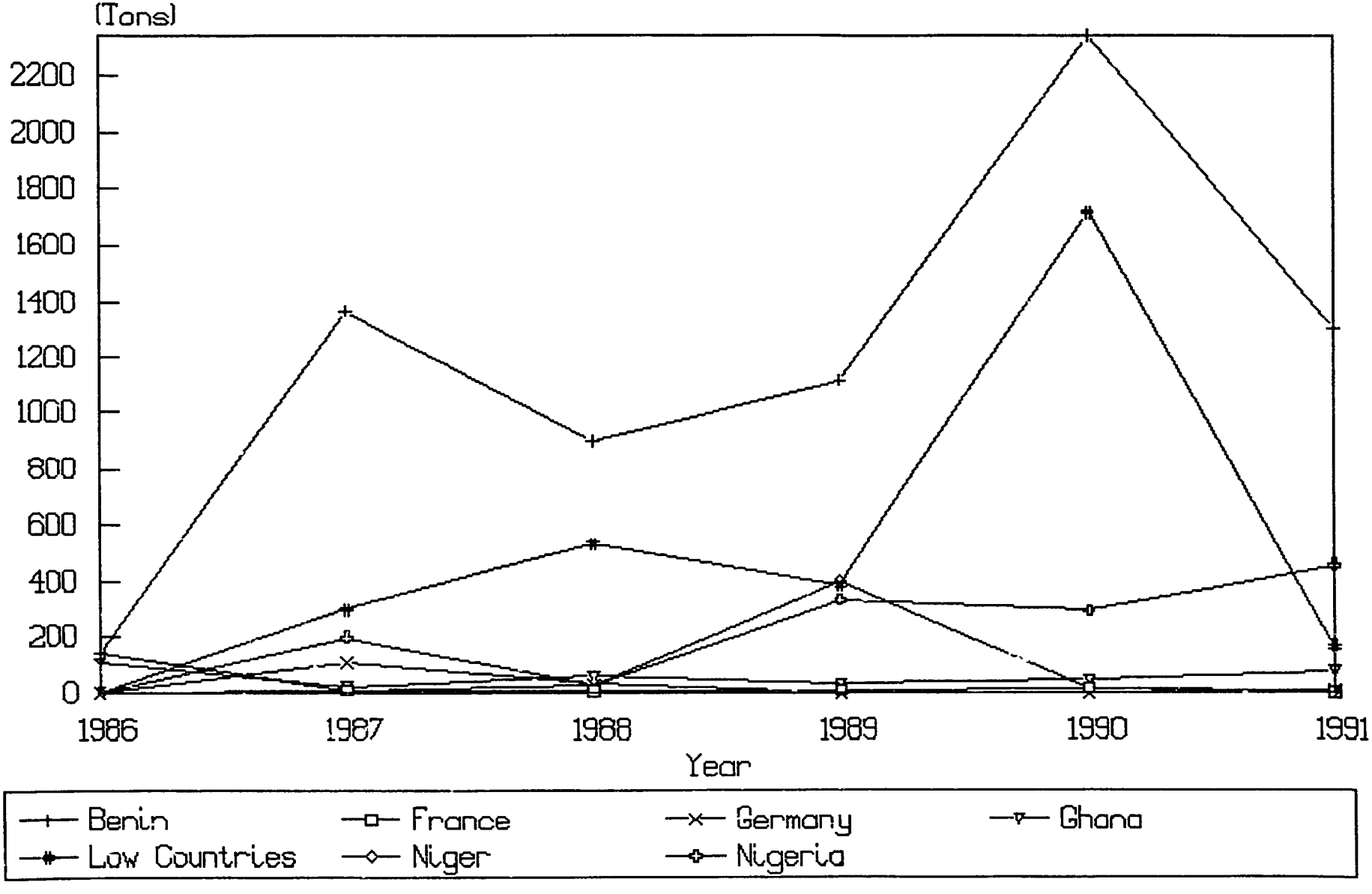


Figure 14

Onion Imports and Exports, Burkina Faso

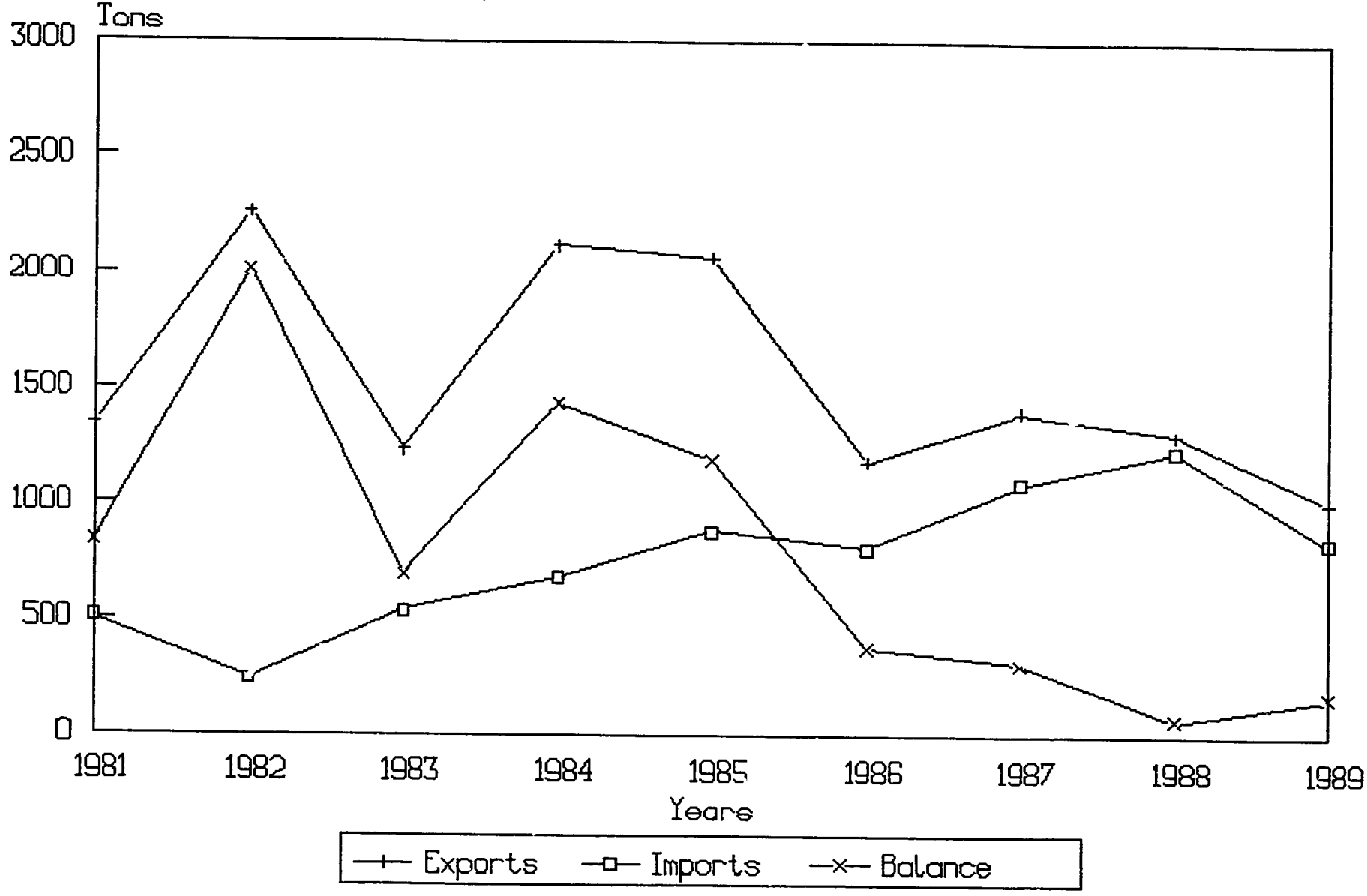


Figure 15

Onion Imports and Exports, Burkina Faso

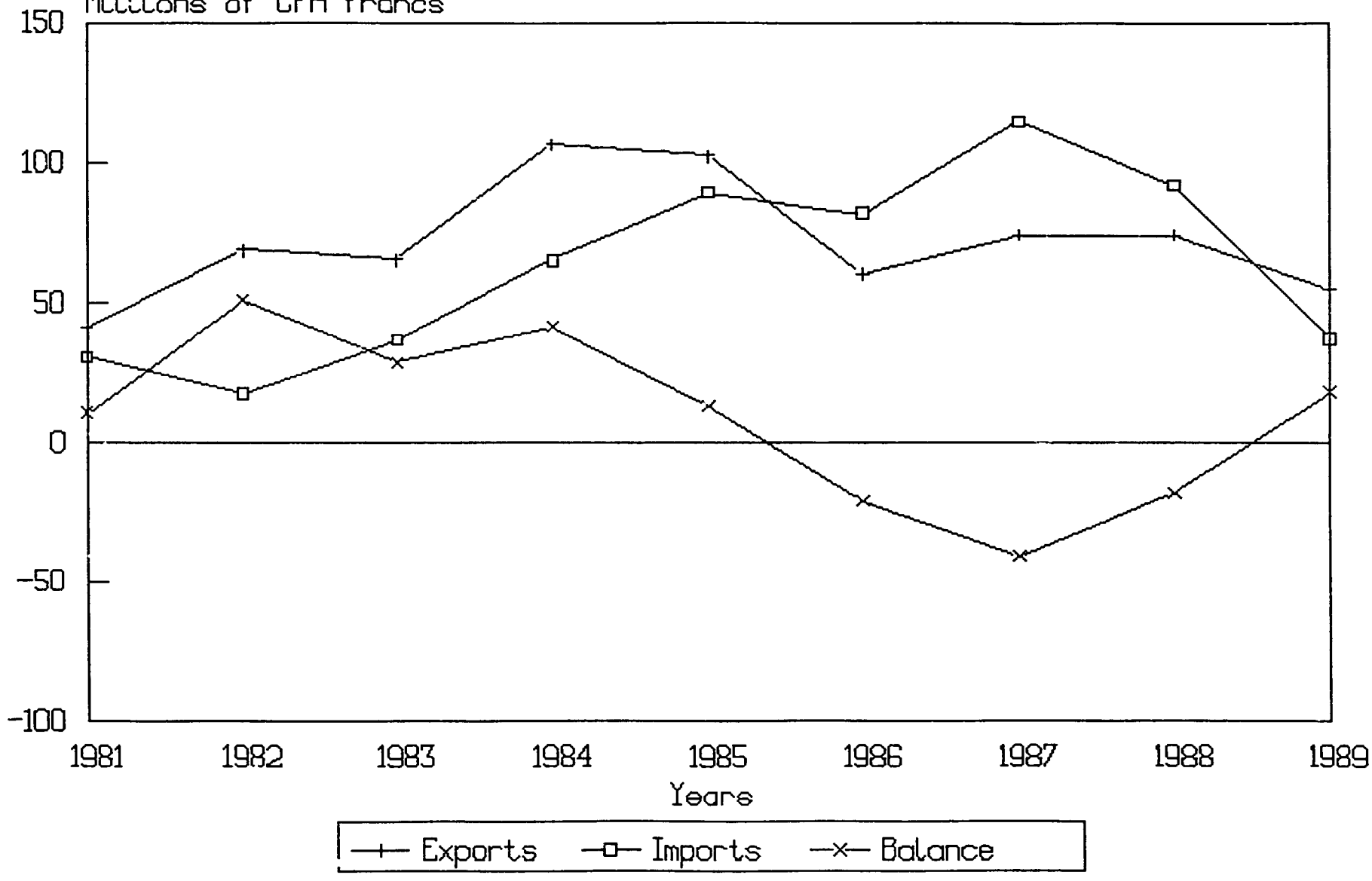


Figure 16

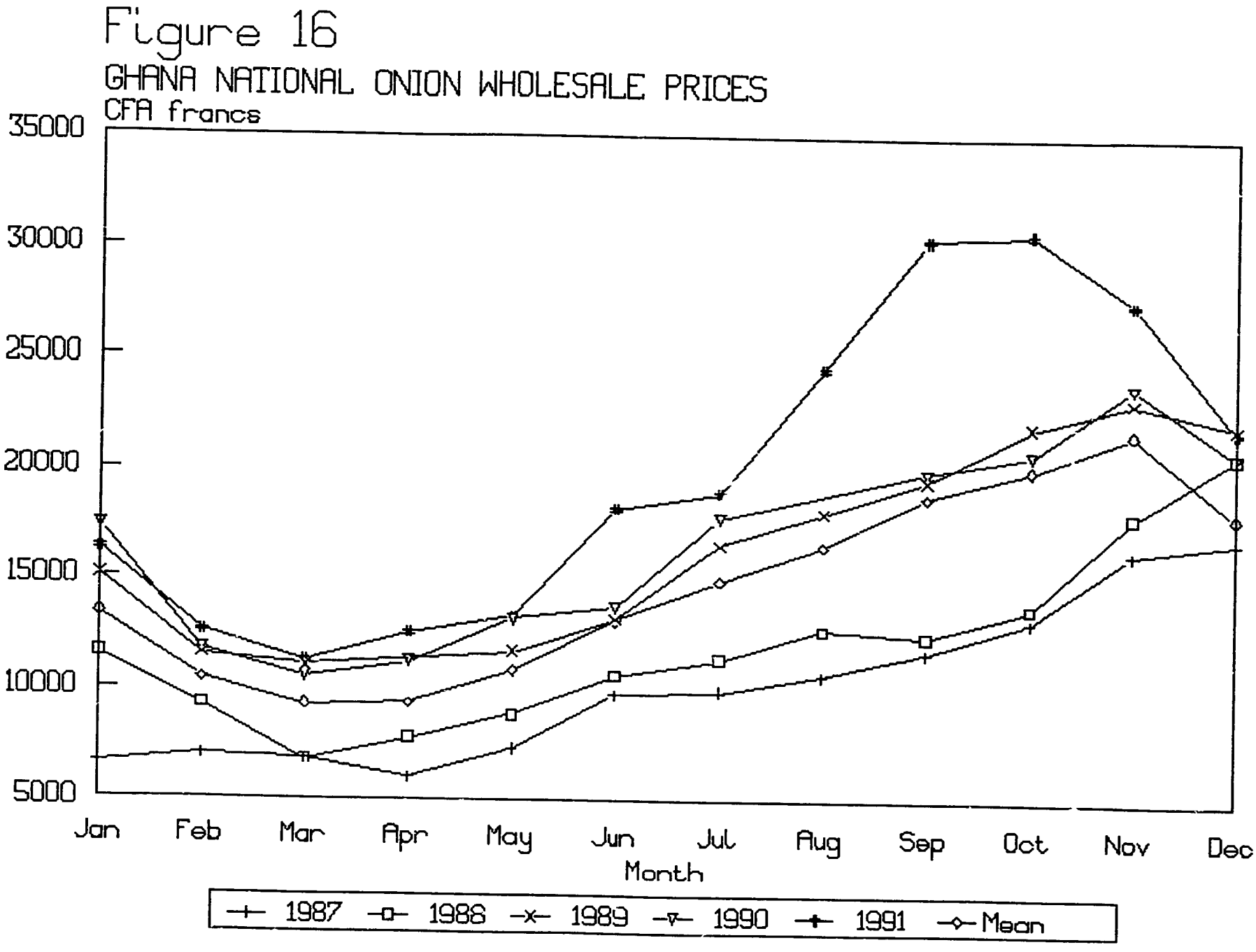

GHANA NATIONAL ONION WHOLESALE PRICES
CFA francs
35000
30000
25000
20000
15000
10000
5000
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month
1987
1988
1989
1990
1991
Mean

Figure 17

Monthly Onion Prices in Benin, 1991-1992

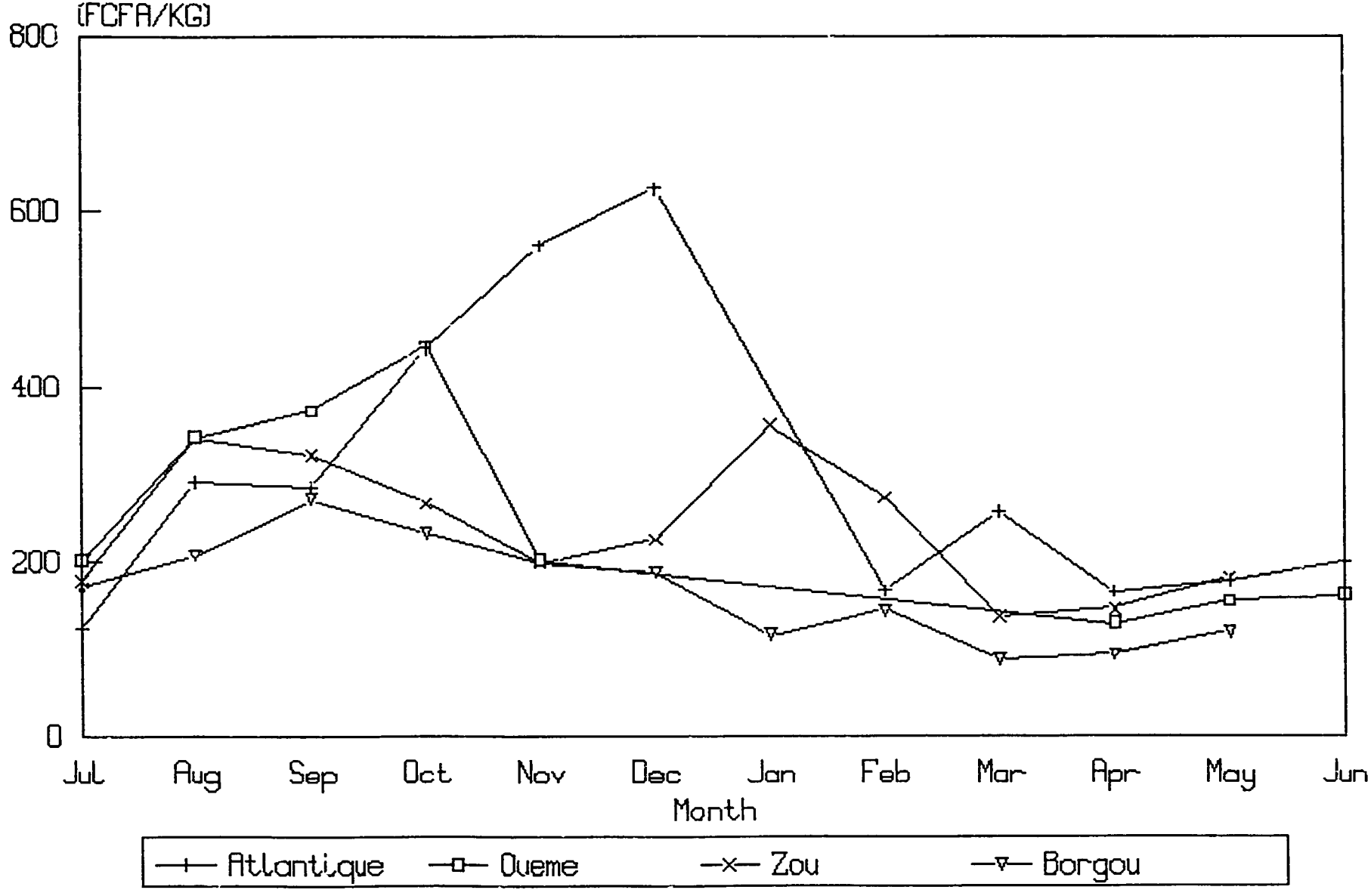


Figure 18

Consumer Prices for Onions in Lome

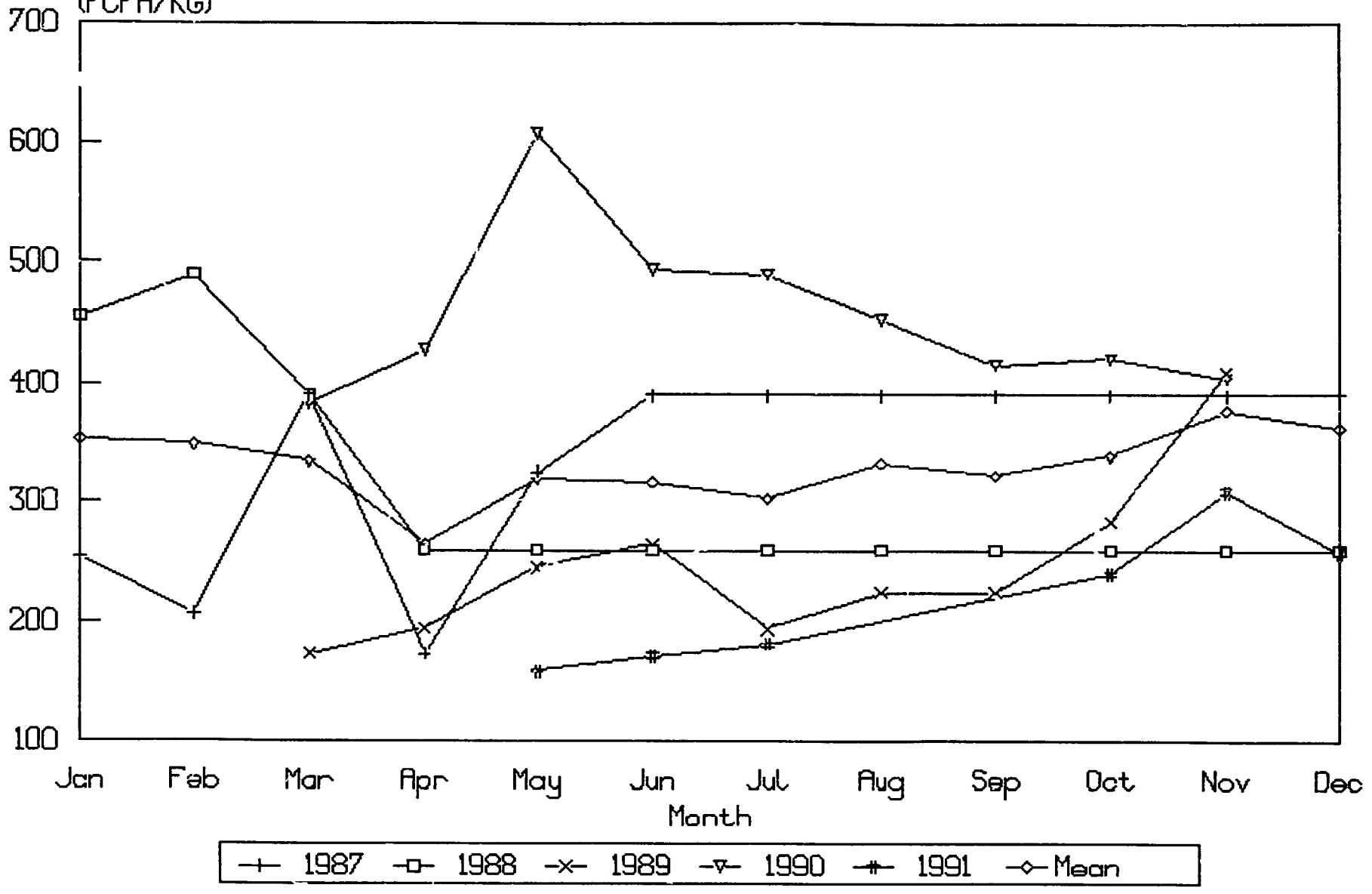


Figure 19

Consumer Prices for Onions in Ouagadougou

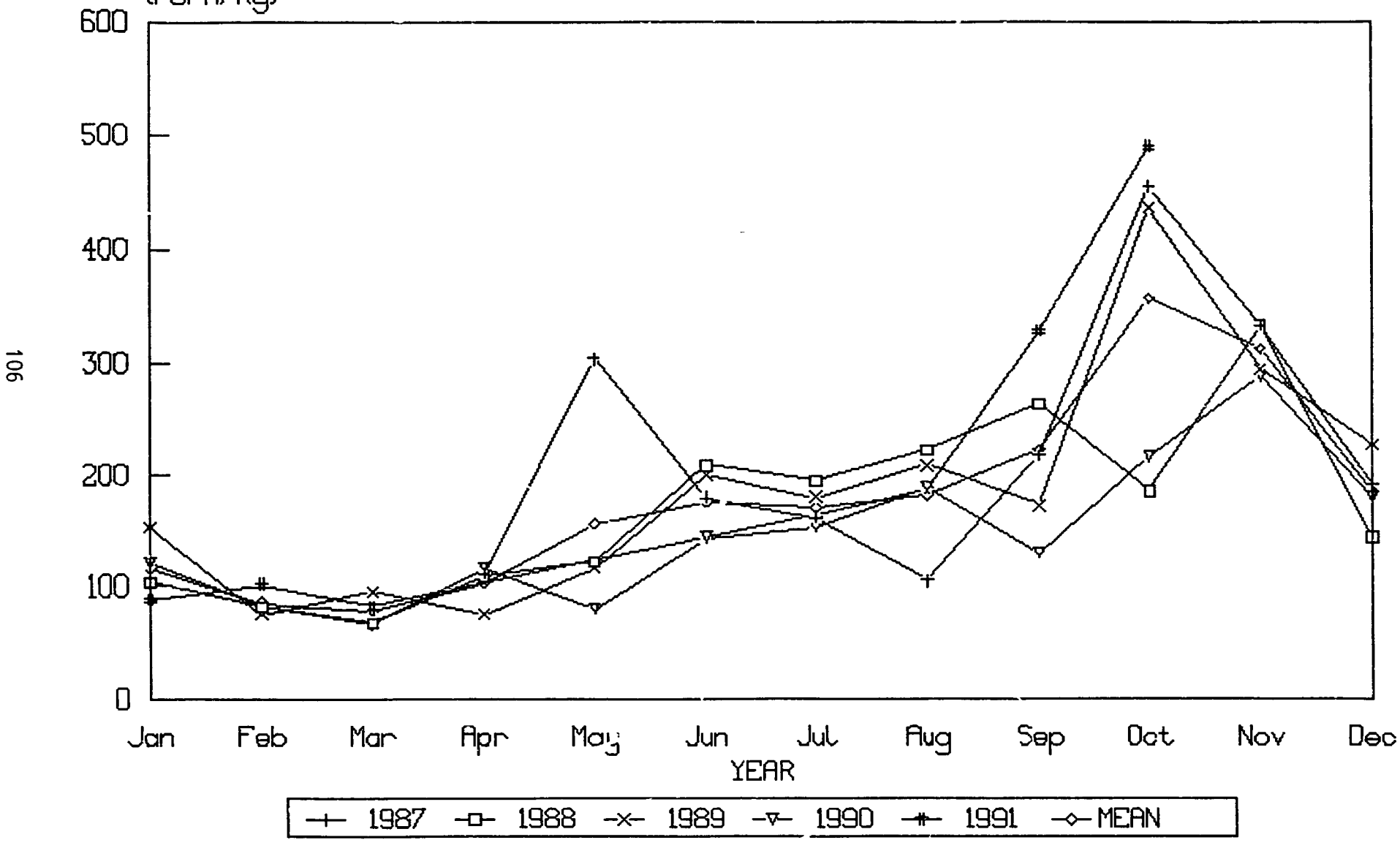
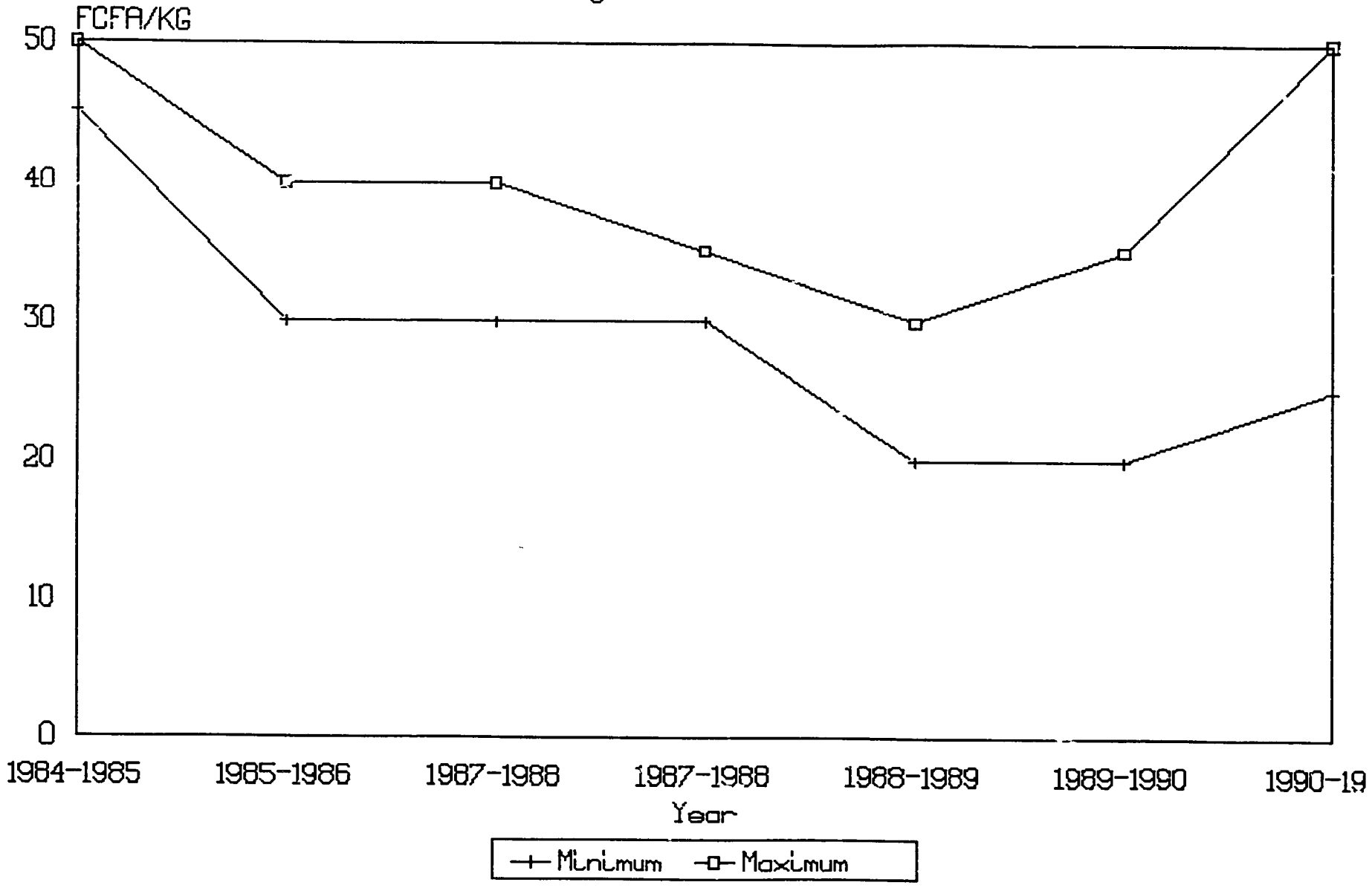


Figure 20

Onion Producer Prices in Niger



XII. BIBLIOGRAPHY

Abdoul Azziz, Combary, Aissa Diallo et Zibio Alassane, 1987. Rapport de la Mission Commerciale Effectuée du 4 au 26 Avril 1987 en République du Cameroun, Congo, Gabon et Côte d'Ivoire. mimeo. Niamey: Chambre de Commerce/Centre Nigerien du Commerce Extérieur.

AGROVETS, 1991. The Potential of Agribusiness in Ghana's Agriculture and Economic Development. ms. Accra: USAID/AGROVETS.

ANRD/OTR/AFR/TR/USAID, 1991. A Strategic Framework for Promoting Agricultural Marketing and Agribusiness Development in Sub-Saharan Africa. Publication No. 91-1. Washington, DC: USAID/Agriculture and Natural Resources Division/Office of Technical Resources, Africa Bureau.

Arrachart, J.L., 1991. Note sur les Essais de Conservation des Oignons, mimeo, Niamey: UNDP/ILO.

Barhouni, Maliki, 1990. Etude sur la Commercialisation des Principaux Produits Agricoles au Niger. Projet PNUD/ONUDI/NER 88/003. Niamey: Niger/Ministère de la Promotion Economique/Direction du Développement Industriel.

Brown, Meg, 1992. Proceedings of the Credit Seminar. mimeo. Niamey: USAID/ADO/ANR.

Burkina Faso, 1987, 1988, 1989, 1990, 1991. Statistiques du Commerce Extérieur. Exportation-Importation. Pays/Produits. Ouagadougou: Burkina Faso/ Institut National de la Statistique et de la Démographie.

CILSS, 1989. L'Impact de l'Urbanization sur les Modèles de Consommation Alimentaire de Base au Niger. Mise à Jour des Premiers Résultats. Lomé: CILSS/Instituto Italo-Africano/RN/MP/Direction de la Statistique et Informatique.

Coudert, Jean P. B., 1980. Culture et Commercialisation des Oignons dans les pays du Sahel et l'Afrique de l'Ouest: Leur Développement dans le Cadre des Petites Exploitations Maraîchères. Rapport ITC/DIP/8. mimeo. Centre de Commerce International/CNUCED/GATT.

Darbera, Richard and Robert Hall, 1992. Local Public Finance and Institutional Reform in Niger. Decentralization, Finance and Management Project. Burlington, VT: Associates in Rural Development/USAID.

FINETRAC INC., 1991. Ghana's Horticultural Sub-Sector: The Potential for Export Diversification. A Report for the USAID Mission to Ghana. Washington, DC: FINETRAC Inc./USAID.

Ghana National Chamber of Commerce, 1992. Demand Survey on Manufactured Fertilizers. Prepared for the ECOWAS Secretariat & International Trade Centre (UNCTAD/GATT). Project RAF/37/05. Accra: Ghana National Chamber of Commerce.

Groupement d'Intérêt Economique ALBASA, 1992. Dossier du Projet ALBASA. mimeo, Niamey: GIE ALBASA.

Goggin, J., n.d. Crop Profile-Onions. mimeo. Niamey: USAID/ADO.

Goggin, J., n.d. Storage and Processing: Review of Literature and Assessment of Constraints. mimeo, Niamey: USAID/ADO.

Hart, Terence J., 1987. Irrigation Water-Lifting in Niger. Washington, DC: IT Power/CID/USAID/S&T.

Holtzman, John, Jerry Martin, and Richard Abbott, 1988. Operational Guidelines for Rapid Appraisal. Agricultural Marketing Improvement Strategies Project. S&T/R&D Project 936-5447. Washington, DC: Abt Associates/USAID/S&T/RD

Iddal, Sidi Mohamed, 1991. Trip report on onions. ms. Niamey: USAID/GDO.

J.E. Austin Associates and The Services Group, 1991. MAPS Niger-Phase II: Private Sector Description. Final Report. Private Enterprise Development Support Project II. Ernst & Young/USAID.

Krogt, Stijn van der and Andries Klaassebos, 1991. Les Echanges Frontaliers de Quelques Produits Vivriers entre le Benin et le Niger, Amsterdam: Université d'Amsterdam, Faculté des Sciences Economiques et Econométrie, ISMOG (Département d'Economie Rurale et de Développement).

Kulibaba, Nicolas and Jim Brown, 1991. USAID/Niamey, Agricultural Marketing and Export Promotion Project: Technical Annexes to the Project Implementation Document. mimeo. Niamey: USAID/ADO.

Lev, Larry S. and Millie A. Gadbois, 1988. Rapid Reconnaissance Study of Nigerien Onion Subsector: A Policy Oriented Analysis of Market Performance, GTS Report No. PIP/Niger/Jan 88/99 Moscow, ID: Postharvest Institute for Perishables/ USAID.

Mahamadou, Saley, 1987. La Commercialisation des Oignons dans le Département de Tahoua. Cas de la Zone de Galmi, Cotonou: Centre Panafricain de Formation Coopérative.

MAG/EL/SG/DEP, 1991. Campagne Agricole 1990/1991. Résultats de l'Enquête Maraîchère. Ouagadougou: République du Burkina Faso/Ministère de l'Agriculture et de l'Elevage/Secrétariat General/Direction des Etudes et de la Planification.

Nicholson, Dan and Charlie Stathacos, 1992. Niger: The Marketing and Processing of Garden Crops. Draft Report. Abt Associates/USAID.

Norman, W. Ray 1991. Characteristics and Development of Irrigation Distribution and Rotation Methods among Small Systems of the Sahel. Presented at the 1991 International Summer Meeting, The American Society of Agricultural Engineers, 23-26 June, Albuquerque, NM.

Norman, W. Ray and Soumana A. Diallo, 1991. Performance Characteristics of Water Lifting Methods for Small-Scale Irrigation in Niger, West Africa. Presented at the 1991 International Winter Meeting, The American Society of Agricultural Engineers, 17-20 December, Chicago, IL.

Norman, W. Ray and Mohamadou Gandah, 1990. Characteristics of Irrigation Water Management Among Small Traditional Systems of Rural Niger. Presented at the 1990 International Winter Meeting, The American Society of Agricultural Engineers, 18-21 December, Chicago, IL.

Norman, W. Ray and Abdou Sami, 1990. Irrigation Water Costs Among Different Sahelian Systems: The Case of Niger. Fresented at the 1990 International Winter Meeting, The American Society of Agricultural Engineers, 18-21 December, Chicago, IL.

Ouédraogo, Ismael, 1991a. Niger: Synthesis of NEPRP Findings and Recommendations---An Agricultural Marketing and Agribusiness Agenda. Agricultural Policy Analysis Project, Phase II. Report No.119. AID Contract No. DAN-4084-Z-00-8034-00. Cambridge, MA: Abt Associates.

Ouédraogo, Ismael, 1991b. Niger: The Impact of Government Policies on Onion Production and Marketing in Region: A Rapid Assessment of Recent Developments. Agricultural Policy Analysis Project, Phase II. Report No.120. AID Contract No. DAN-4084-Z-00-8034-00. Cambridge, MA: Abt Associates.

PBVT/SPA, 1992. Compte Rendu de la Campagne de Contre-Saison, 1990-1991 sur les Perimètres Collectifs. Madaoua: Fonds European de Développement/ Projet de la Basse Vallée du Tarka/ Service de la Production Agricole.

République du Benin, 1987, 1988, 1989, 1990, 1991. Statistiques du Commerce Extérieur. Exportation-Importation. Pays/Produits. Cotonou: République du Benin/Ministère du Commerce et du Tourisme.

République du Côte d'Ivoire, 1987, 1988, 1989, 1990, 1991. Statistiques du Commerce Extérieur. Exportation-Importation. Pays/Produits. Abidjan: Ministère du Commerce.

République du Niger, 1990. Recensement Général de la Population R.G.P. 1988. Tableaux des Données. Brut Echantillon de 10 percent. Niamey: Ministère du Plan, Bureau Central du Recensement.

République du Niger, 1991a. Résultats Definitifs de la Campagne Agricole, 1990. Niamey: MAG/EL, Direction de l'Agriculture, Service des Statistiques Agricoles.

République du Niger, 1991b. Rapport Annuel: Campagne de Cultures de Contre-Saison 1990-1991. Niamey: MAG/EL, Direction de l'Agriculture, Service des Statistiques Agricoles.

RN/MAG/EL/PDOR/CLUSA, 1991. Atelier de Reflexion sur la Production, la Conservation et la Commercialisation de l'Oignon, Niamey: République du Niger/Ministère de l'Agriculture et de l'Elevage/ Projet Développement des Organisations Rurales/Cooperative League of the USA

RN/MP/F/DGD, 1990. Commerce General. Balance Commerciale par Pays/Produits. Import. Niger - Année 1990. Niamey: République du Niger/Ministère du Plan et des Finances/Direction Générale des Douanes.

RT/DT/SAA-Keita, 1991. Rapport Final, Enquête Cultures de Contre Saison, 1991, mimeo. Keita: République du Niger/ Département de Tahoua/Service de l'Agriculture de l'Arrondissement de Keita.

République Togolaise, 1987, 1988, 1989, 1990, 1991. Statistiques du Commerce Extérieur. Exportation-Importation. Pays/Produits. Lomé: Ministère du Commerce.

Seydou, Idrissa and Larry Lev, 1988. Rapport de Mission de Prospection Effectuée du 16 au 23 Janvier 1988 en République Populaire du Benin et en République de Côte d'Ivoire. Niamey: Chambre de Commerce/ Centre Nigerien du Commerce Extérieur.

Smith, John Warren, 1986. Onion Marketing in Niger, mimeo, Niamey: CLUSA.

USAID/Niger, 1992. PID: Agriculture Marketing and Export Promotion Project. 683-0274. Niamey: USAID.

Zalla, Thom, Glenn Anders, Walter Firestone, Michael Gould, Emile Malek, Emmy Simmons, Malcolm Versel, Teresa Ware, 1984. Niger Irrigation Subsector Assessment. Volume II, Annexes. USAID: Niamey.

APPENDIX A

Onion Market Study

Scope of Work

I. Purpose

The purpose of this onion market study is to fully understand and estimate the potential for marketing Nigerien-produced onions in Niger and across West Africa over the next six year period.

II. Background

The onion market study requested in this scope of work will serve as a key input into the Agricultural Marketing and Export Promotion (AMEP) Project Paper design process. As it was described in the recently approved Project Identification Document (PID), the AMEP Project (683-0274) will be a six-year activity requiring $20.0 million in AID funding. The project will focus on the marketing of agro-pastoral commodities from the time crops are harvested or animals are ready for sale to when the products reach consumers. The marketing chain that concerns the project starts with producers and ends with retailers.

The AMEP project purpose will be to improve the efficiency of agro-pastoral marketing in domestic and export trade. AMEP will seek to develop both the organizational and technical aspects of agro-pastoral marketing. Different groups in the marketing chain, starting with producers, will be approached in different ways, according to their varying roles and needs.

This project will build on USAID/Niger's success in assisting the Government of Niger (GON) to carry out policy reforms in the agro-pastoral sector. Since 1984, the Mission has been engaged in a wide-ranging policy dialogue with the GON under three separate non project assistance programs. At the policy level, a great deal has been accomplished to rationalize government involvement in production and marketing. Agro-pastoral export taxes have been eliminated; export procedures have been decentralized and simplified; GON commercial representation abroad has been expanded; and a beginning has been made at supplying market information. Farmers, livestock raisers and marketers, however, although helped by a significantly improved policy environment, have continued to face problems regarding product quality, market infrastructure, storage facilities, export market access, product processing, and market information. By addressing these problems, the project will help agro-pastoral producers and marketers take fuller advantage of the opportunities policy reforms have brought them.

Niger has a number of agro-pastoral products with considerable domestic and foreign marketing potential, including onions, peppers, potatoes, garlic, cowpeas, pumpkins, tomatoes, ginger,

fodder and skins and hides. The project will start by working with onion producers and marketers, who have a large and growing export market in neighboring countries, especially Ivory Coast. Nigerien onions are mostly grown in Tahoua Department, and their production and marketing are entirely in private hands. Both onion production and marketing offer considerable scope for expansion. As project implementation progresses, AMEP will select other agro-pastoral products with which to work. Selection will be based on the presence of prospective producer and marketing groups to work with and domestic and export market potential.

In 1991, according to the best available figures, Nigerien onion production was 196,000 metric tons, which is almost double the level of production achieved in 1987. Of that total, approximately 35 percent of that crop was exported. Still, figures for onion production, price, export levels and value are not entirely reliable. At the same time, there has been no effort to project how much the regional market for Nigerien onions is likely to grow during the next six years. These are the kinds of questions that this market study will help USAID/Niger and the GON to answer. From this information, the Mission will be better able to determine the level of resources that the AMEP Project will need to devote to onion marketing.

III. Scope of Work

A. One AMIS consultant will be required to complete this onion market study. The consultant will report to the USAID/Niger Agricultural Economist. First, s/he will meet in Washington, D.C. with relevant AID/W staff for one day prior to leaving for Niamey. The consultant will meet with AFR/SWA Niger Desk Officer Nancy McKay, followed by AFR/ARTS Agricultural Marketing Specialist Tom Herlehy. Either the AMIS Project Manager or Tom Herlehy should identify the most appropriate person(s) for the consultant to meet with in the PRE Bureau. The consultant should request copies from the AMIS Project of the Niger Economic Policy Reform Program (NEPRP) onion study (1988), the Agricultural Policy Analysis Project (APAP II) study on onion commercialization (1991), the AMEP PID and technical annexes (1992), and the NEPRP garden crop study (1992).

B. For three additional days in the U.S., followed by the first three days in country, the consultant will collect the following information on onions as well as additional agro-pastoral products that may have strong marketing prospects over the six-year time horizon of this study:

1. Information to Better Assess Domestic Production and Marketing: Onion production estimates, seasonality, by region, land availability for additional production including recent trends and future projections, raw material supply (volume, prices), labor costs, availability of skilled labor, agroprocessing costs, utility costs and availability of services, transportation costs and availability, consumption estimates, patterns and trends, demand

estimates, major potential buyers, tax structure, interest rates, loan availability, sources of local equity capital, import duties, other import restrictions, policy and regulatory environment, investment incentives, availability of supporting services.

2. Information to Better Assess Exports and Additional Export Potential: All of the above, and world onion production (ten year trends, forecasts), volumes traded on world markets for major trading countries, world market price and demand trends, major world producers, future outlook, timing of seasonal windows of opportunity, names and addresses of major importing firms, packaging requirements, quality standards, shipping costs and availability, export regulations in producing country, import regulations/tariffs in importing country, and availability of trade financing.

C. Having collected and analyzed information related to the above areas as well as other relevant information, the consultant will work in Niger as well as Ivory Coast, Ghana, Burkina Faso, Togo, Benin and other CFA zone countries to address the following questions as they pertain to Nigerien onion production and marketing as well as to other Nigerien agro-pastoral products that may have strong marketing potential over the six-year time horizon of this study:

1. Policies/Investments Related to Onion Marketing:

a. Policy and Regulatory Reform: What is the divergence between official and parallel exchange rates, both in Niger and with its trading partners? What export fees remain? What are the interest rates? What is the number of regulatory steps involved in starting a new business and exporting? Are policies/regulations available in languages other than French? If not, is this a significant constraint?

b. Infrastructure Investment: Where are roads located? What major marketing areas remain unserviced by roads? What is the frequency and distribution of market price broadcasts? What is the size of the formal and informal financial sector and loan volume?

c. Technology Investment: What are yields, by arrondissement, department and nation-wide? What percent of onions are graded? What percent of onions are processed? What are the transport and storage costs? What are the key constraints to communicating with export markets? Is increased access to "modern" communication techniques needed? If so, what percentage of exporters have access to telephones, fax and/or telex machines? What percentage of exporters have access to computers? What are the international telephone/fax satellite slots?

d. Human Capital Investment: What number of private sector participants have been trained in the areas of technical training, financial management training and/or functional literacy? What number of civil servants have been trained in some support capacity to onion traders?

2. Conditions That Contribute to Onion Marketing Efficiency:

a. Price/Cost Distortion of Government Policies: What is the private/social price differential?

b. Physical Market Infrastructure: What are the per unit transportation costs per unit capital invested? What are the per unit storage costs per unit capital invested? What are the per unit transformation costs per unit capital invested?

c. Financial and Information Services: What are the number of private sector firms/individuals with access to formal credit? With access to informal credit? What are the number of people with access to market information?

d. Market Participants: Firm-level: What are the input/output coefficients? What is investment in productive capacity?

e. Public Sector Role: What is the extent of direct control activities such as price-setting? What evidence is there of institutions/interventions playing a regulatory/facilitative role for private sector (e.g. establishment of grades and standards)?

3. Onion Marketing Efficiency and Cost:

What are the price differences across space reflecting costs (transport, handling, losses, and transaction costs) plus normal return to spatial arbitrage functions? What are the price differences across time reflecting real storage costs (depreciation, interest and losses) plus normal return to spatial arbitrage functions? What are the price differences of unprocessed and processed onions which reflect real processing costs (depreciation of plant and equipment plus variable operating costs) and a normal return for performing transformation functions? What are the number of private enterprises engaging in agribusiness/ agricultural marketing activities by stage? What are the per unit marketing costs of onions?

4. Prospects for Onion Marketing Based on Existing Cost and Efficiency Levels:

a. Per Unit Producer Prices Which Serve as an Incentive to Intensify Onion Production: What are prices at farm-level or primary collection points? What is the percent of the f.o.b. price received by the producer? What are farm expenditures per unit land, labor or capital? What is the adoption of improved varieties; animal traction/mechanization; agrochemical use? What is the projection for these per unit producer prices and related figures for each year over the next six year period?

b. Per Unit Consumer Prices Which Enable Consumers to Increase Their Savings (Investment) or Consumer Expenditures: What is the retail price of onions? What percent of total household income is spent on food? What percent of total household income is in savings and investments? What is the projection for these per unit consumer prices and related figures for each year over the next six year period?

c. Agribusiness Investment and Gross Returns: What is the

return on investment? What are profits on sales (operating profit)? What are sales trends/levels? What are employment trends/levels? What are the number of new enterprises? What are the number of enterprises that fail? What are the number of employees? What are the value of sales? What are the value of exports? What is the projection for these agribusiness investments and gross returns for each year over the next six year period?

IV. Personnel

This study will require the services of one AMIS consultant for an eight week period. The consultant should have an MBA degree in marketing or finance. S/he should have experience working with private firms to design marketing schemes for the export of African goods to outside markets, or some kind of equivalent experience. S/he should have significant experience as a business person in West Africa, be fluent in French, have excellent writing skills, and be familiar with actors, systems and regulations related to the operations of the private sector in West Africa. Money will be available in the budget if or when it is needed to hire a local employee to assist the consultant with data collection and analysis.

V. Reports

The report will be a market study of the potential for marketing Nigerien onions in Niger and throughout West Africa over the next six year period. An outline will be submitted to ADO at the end of the consultant's first week in-country. The draft report will be submitted six weeks into the consultancy. There will be a Mission review of the draft sometime during the seventh week of the consultancy. The final report will be submitted to ADO during the eighth week, prior to the consultant's departure from Niger.

APPENDIX B
PERSONS CONTACTED

NIGER REPUBLIC

USAID/Niger

Greg Baker, Economist, ANP
Richard Macken, PPO
Commandant Moussa Saley, ANP
George Callen, NPERP
Iddal Sidi Mohamed, NPERP
Andre Nignon, ANP

GON Authorities

M. Sani Ali, Adjoint au Secrétaire Général de la Préfecture
M. Ousseini Rahaman, Sous Préfet de Bouza
M. l'Adjoint au Sous Préfet de Keita
M. le Sous Préfet de Madaoua
M. l'Adjoint au Sous Préfet de Gaya

Dr. Ouattara, Secretary General, INRAN, Niamey
M. Moussa Adamou, Responsable, Garden Crops, INRAN, Niamey

M. Aboubacar Mamane, Directeur Général, Commerce Extérieur, Ministère de Commerce
M. Idrissa Seydou Magagi, CNCE, Chambre de Commerce, Niamey
M. Hamidou Saley, Directeur, Chambre de Commerce,

M. Diallo Yuba, Directeur Général Adjoint des Douanes, Niamey
M. Bala Goga, Directeur, Direction Régionale des Douanes,
Lieutenant Ali Hamane, Direction Régionale des Douanes,
M. Boubacar Dan Malam, Controleur des Douanes, Gaya

M. Alpha Cisse, SG, Union des Syndicats des Transporteurs du Niger, Niamey
M. Tassiou Aminou, DG, Agriculture, MAG/EL, Niamey
M. Hassan Issak, ADG, Agriculture, MAG/EL, Niamey
M. Bouboucar, Commercial Crops, Agriculture, MAG/EL, Niamey
M. Atchebe Abdou, Seed Service, Agriculture, MAG/EL, Niamey
M. Doulaye Ali, Chef du Service de l'Agriculture, Gaya
M. Malam Kime Moustapha, Chef du Service de l'Agriculture, Konni
M. Aboubacar Azouma, Adjoint au Chef du Service de l'Agriculture,
M. Mounkaila Yaya, Chef du Service de l'Agriculture, Bouza
M. Aliman Alhartchi, ex-Chef du Service de l'Agriculture, Gaya, en stage au Projet Keita
M. Abdou Ouraman, Chef du Service de l'Agriculture, Keita
M. Akilou Ali, Directeur Départemental de l'Agriculture
M. Ali Maman, Responsable des Statistiques Agricoles

M. Guille Mahaman, USRC, Bouza
M. Lawaly Ibrahim, Responsable, USRC Madaoua

M. Souley Mohamadou, Directeur Régionale, ONAHA, Konni
M. Abdulazziz Oumar, Agricultural Engineer, ONAHA, Konni

M Sery, Représentant FAO, Niamey
M. Francis Feyn, Représentant de la Caisse Centrale de Coopération Economique

M. du Clos, Directeur, SCORE Supermarket/Niamey

M. Chefferou Mahatan, DG, Projet PRIVAT, Konni

M. Sidi Hachemai, Directeur Technique, Projet Intégré de l'Arrondissement de Keita

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Mssrs. Yaroh Bachir et Yaroh Abdurahman, GIE ALBASA, Niamey
Elh. Oumarou Seibou, Niamey
Elh. Mani Moussa, Niamey

M. le Président de la Coopérative, Tamaske
Mssrs. les Membres du Conseil de Gestion de la Coopérative, Tamaske
Mssrs. les Membres des Coopératives de Tamaske et Sarakolle

Serkin Tacha Elh. Abou Hamidou, Galmi
Elh. Talifou Ousman, Onion Exporter, Galmi

Elh. Bouge, Dillali, Arewa

Elhadji Hantchi, Onion Producer, Gaya

M. Sandi Arzika, Wholesaler, Katako Market, Niamey

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M. Kwame Housogbo, Onion Merchant, Diatikpodi Market, Lomé
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Onion Retailers, Dantokpa Market, Cotonou

M. Harouna Ismaila, Elh Soukara, Président, et M. le Secrétaire, du
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Onion Merchants, Bawku Market

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M. Bernard Kabore, Merchant, Rolowoko Market
Retailers in the Rolowoko Market

APPENDIX C--NIGERIEN AGRO-PASTORAL EXPORTS IN THE SUB-REGION, 1990 (Tons)

Product	Country												
	Algeria	Benin	Burkina Faso	Chad	Côte d' Ivoire	Egypt	Ghana	Libya	Mali	Mauritania	Nigeria	Senegal	Togo
Livestock	195.35	874 631	9 0	25.49	310.768		1.875	267.87	5 9		30,529.4	10.84	11.61
Meat											10.255		
Fish		138									239.389		
Onion & Garlic	32.0	2,661.35	1,596 4		21,825 8		3,365.92				28,261.0		2334 0
Other Legumes											633.857		
Cowpeas										2.9	32093.3		
Pumpkin											35.85		
Dates	19.2		10 595		390.122						288 46		
Tamarind													
Millet											2.0		
Wheat Flour			.03								6,548 0		
Peanuts	15.47										.25		
Gum arabic	6 785												
Sugar cane				555 45							4.305		
Natron		2.18		5.2			713.43				222.68		
Raw tobacco	912.42				.896						2.041		
Aromatic plants			1.8					3 75					
Hides and skins	141 84					97.96					371.22		15.892
Oleaginous fruit			9.76										
Potatoes							65.0						
Dried Tomato											27.264		

Source RN/MP/F/DGD, 1990, Commerce Général. Balance Commerciale par Pays/Produits. Import. Niger--Année 1990.