Agricultural Policy Implementation Project

Ministry of Agriculture, General Directorate for Development Planning and Agricultural Investments (DGPDIA)
Project Office: Boite Postale 24, 1003 Cité El Khadra, Tunis, Republic of Tunisia • Telephone: (216-1) 681-570/573

Agricultural Policy Reform in Tunisia: Structural Adjustment and Challenges for the 1990s

Seminar Proceedings

Hotel Abou Nawas, Gammarth
May 24-25, 1989

Prime Contractor: Abt Associates Inc., 4800 Montgomery Lane, Suite 500, Bethesda, Maryland 20814 • (301) 913-0500
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Structural Adjustment and Challenges for the 1990s

PROGRAM

Wednesday, May 24

8:00 - 9:00 Registration

9:00 - 10:00 Opening Speeches by the Secretary of State for Agriculture and by the United States Ambassador

Theme I - Structural Adjustment

Chairman: Mr. A. Saddam, Ministry of Planning
Reporter: Mr. A. Khaldi, Ministry of Agriculture, DGPDIA

10:00 - 10:45 **Structural Adjustment and Its Critics.** Dr. Elliot Berg, Elliot Berg Associates/Abt Associates Inc.

10:45 - 11:00 Coffee Break

11:00 - 11:30 **Structural Adjustment in Tunisia: Macroeconomic Policies and Agricultural Policies and Their Impact.** Dr. Monqi Safra, ISG
Discussants: Messrs. B. Ben Ammar, Director of Planning, DGPDIA, and P. Bloch, University of Wisconsin

11:30 - 12:30 Discussion

12:30 - 1:00 **Instituting an Agricultural Policy: Its Objectives and Its Contribution to the PASA.** Mr. M. Gharbi, Director, DGPDIA

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Theme II - Increasing Exports: Conpetitiveness and Export Markets of Agricultural Products

Chairman: Mr. M. Gharbi, Director General, DGPDIA
Reporter: Mr. A. Chaffai, DGPDIA

3:00 - 3:30 **Competitiveness and Export Markets for Tunisian Olive Oil.** Dr. Daniel Sisler, Ithaca International
Discussants: Mr. A. Tlili of ONH and Mr. M. Ben Salah of DGPV

3:30 - 4:00 **Competitiveness and Export Markets for Tunisian Specialty Citrus Products.** Dr. Edward McLaughlin, Ithaca International
Discussants: Mr. M. Ben Abdelhafidh of GIAF and Mr. M. Lasram of INRAT

4:00 - 4:30 **Competitiveness and Export Markets for Tunisian Wine.** Dr. Gerald White, Ithaca International
Discussants: Mr. N. Jegham of ONV and Mr. H. Hammammi of UCCVT

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Thursday, May 25

Theme III - Subsidy Reduction: Imapct on Supply and Demand

Chairman: Mr. S. Makhlouf, Director of Prices and Economic control, DGPDIA
Reporter: Mr. R. Akrout, Director, Agricultural Statistics, DGPDIA

9:00 - 10:30 Presentations
- **Reduction of Subsidies for Agricultural Inputs: Impact on the Demand for Inputs and Supply of Output.** Dr. M. Salah Redjeb, ISG/Abt Associates
- **Marketing of Fertilizers.** Mr. Ch. J. Heureux, Abt Associates
- **Marketing of Mixed Oils.** Mr. Radhi Meddeb, Comete Engineering

10:30 - 11:00 Discussants: Ms. L. Tuck of BIRD, Mr. A. Hammami of STEC, Mr. R. Touiti of DPCE, Mr. M. Cheikh of OC, and Mr. M. Rouissi of ONH

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Theme IV - Role of the Public and Private Sectors in the Agricultural Goods Market

Chairman: Dr. S. Hannachi, Ministry of National Economy
Reporter: Mr. B. Ben Ammar, Ministry of Agriculture

12:00 - 12:30 Presentation
What Role for Public and Private Sectors in Tunisia's Grain Assembly and Import Markets?
Drs. M. Newman and M. Boughzala, Abt Associates Inc.

12:30 - 1:30 Discussants: Mr. A. Debaya of OC, Mr. R. Zerzeri of GM Tunis, Mr. A. Ben Ayed of POULINA, and Mr. M. Sammoud of COCEBLE

1:30 - 2:00 Discussion

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SYNTHESIS

Chairman: Mr. M. Gharbi, Director, DGPDIA

4:00 - 5:00 Presentation of Conclusions by Reporters: Messrs. A Khaldi, A. Chaffai, R. Akrout, and B. Ben Ammar

5:00 Closing Speech by the Secretary of State for Agriculture

ACRONYMS

APIP	Agricultural Policy Implementation Project
ASAP	Agricultural Structural Adjustment Program
CCGC	Central Cooperative for Field Crops
CEPEX	Center for Export Promotion
CGC	Subsidy Fund (Caisse Générale de Compensation)
COCEBLE	Central Wheat Cooperative
CSA	Agricultural Service Cooperatives
DGPDIA	General Directorate for Development Planning and Agricultural Investments
DGPV	General Directorate for Agricultural Production
DPCE	Price and Economic Control Agency
EEP	Export Enhancement Program (also called "Bicep")
GIAF	Interprofessional Group for Citrus Fruits and Fruits
GOT	Government of Tunisia
IBRD	International Bank for Reconstruction and Development or World Bank
INRAT	Tunisian National Institute of Agricultural Research
ISG	Graduate Management Institute, University of Tunis
MOA	Ministry of Agriculture
OC	Cereals Office or Grain Board
ONH	National Office for Edible Oils
ONV	National Office for Wine
PASA	Agricultural Structural Adjustment Program
STEC	Chemical fertilizer company in Tunisia
UCCVT	Wine producers' cooperative in Tunisia
USAID	United States Agency for International Development
UTICA	Tunisian Union for Industry, Commerce & Handicrafts

FOREWORD

The Agricultural Policy Implementation Project (APIP), which is co-financed by the United States Agency for International Development (USAID) and the Government of Tunisia, is intended to support the implementation of measures advocated within the framework of the Agricultural Structural Adjustment Program (PASA).

The two principal components of this project are realization of the studies and reinforcement of the analytical capacity of executives.

The objective of the studies is to conduct the necessary economic analysis, to formulate recommendations, and to monitor the impact of economic changes in the framework of PASA.

The project, which was initiated in January 1988, has conducted several studies focusing on the competitiveness of export markets for certain agricultural products; the impact of subsidy elimination on agricultural input use; two action plans for vegetable oil and cereal marketing; and the fertilizer distribution system.

The seminar "Agricultural Policy Reform in Tunisia: Structural Adjustment and Challenges for the 1990s," organized by the General Directorate for Development Planning and Agricultural Investment (DGPDIA), in collaboration with USAID and Abt Associates, allowed us to present results of the studies conducted under APIP and to discuss them with policymakers, academics, researchers, and private agribusiness representatives.

This publication contains the seminar proceedings. It presents the work and research conducted in DGPDIA and can be considered a dissemination tool for the analysis conducted under APIP.

Opening Speeches

OPENING SPEECH BY MR. MOHSEN BOUJBEL, SECRETARY OF STATE, MINISTRY OF AGRICULTURE

It is my honor and pleasure to be here for the opening ceremony of this seminar on the "Agricultural Policy Reform in Tunisia: Structural Adjustment and Challenges for the 1990s."

I will take this opportunity to welcome all our guests to Tunisia and also to thank DGPDIA, USAID, and Abt Associates for the initiative they took in bringing together this group of experts, this group of people with a common interest in implementing agricultural policy in the context of structural adjustment.

The priority given to the agricultural sector in the last few five-year plans is justified for several reasons. First, the agricultural sector is dominant in our national economy, particularly because a large portion of the population earns its livelihood from agriculture.

It is further justified by the country's ambition to attain food self-sufficiency, given the context of a world market characterized by uncertainties in supply flow. Today more than ever before, independence cannot be achieved in a situation where there is dependence on others for foodstuffs.

Agricultural development is an imperative. Although it is a challenge, it can be accomplished if we remove all obstacles to the development of this sector.

It is for this reason that since 1986, Tunisia has undertaken a program of significant economic changes to reestablish macroeconomic equilibrium and lay a foundation for medium- and long-term growth. This program is based primarily on reduction of the budget deficit, rectification of the balance of payments, and establishment of a coherent price policy and a realistic exchange rate.

The Agricultural Structural Adjustment Program is a primary component of the overall program. Its objective is to increase the agricultural industry's contributions to general economic growth, to stabilize the balance of payments and the budget, and to create jobs by increasing private initiative and liberalizing economic activity in the sector.

For this reason, priority will be given to increased production of those agricultural products in which Tunisia has a comparative advantage, particularly cereals and export crops.

In order to attain these objectives, the Government has instituted a medium-term policy essentially based on the following:

1. **Gradual disengagement of the Government from commercial activity, combined with reinforcement of its regulatory role, which will allow the cereals sector to establish a plan of action for the purpose of progressing toward:**

   - More coverage of the costs of assembly, storage, and distribution of cereals;

- Storage incentives for local operators (producers, millers, and livestock feed manufacturers), with the possibility that facilities currently belonging to the Cereals Office could be rented out or directly transferred to the private sector; and

- Improved coordination of transportation so as to reduce costs.

With respect to the edible oils sector, the Government is conducting studies of new markets for olive oil and possibilities for improving edible oil marketing on the local market.

To this end, a plan of action is nearing completion that will indicate the measures needed to help realize these objectives.

2. **The second focus of our medium-term policy is the implementation of a price and subsidy policy oriented toward development. Since 1980, this policy has served to free and adjust production prices and to eliminate input subsidies in order to create an environment that fosters privatization and liberalization of economic activities based on real prices at all levels.**

Currently, producer prices for most agricultural products are subject to market forces. Prices for staple foods are controlled and fixed at remunerative levels. For example, cereal prices are reviewed annually, and in the 1988-89 season they reached levels comparable to those in international indexes.

An input subsidy reduction program has been implemented so that prices for fertilizers, livestock feed, seed, and herbicides reflect their real value. We will see to it that the reduction program takes into account the need to maintain incentives for agricultural production and modernization.

In addition to encouraging import substitution, the Government will support the promotion of agricultural exports in which the country has a comparative advantage. It is important to note that the 1987 figures, which were markedly favorable for both exports and the food balance, were influenced not only by favorable weather conditions but also by the measures taken.

3. **The third important element in our policy has to do with the improvement of investment. For this reason, it is important to note that the Government raised the priority level for the agricultural sector in the Seventh Plan, which provides that agriculture will receive 20 percent of total investment.**

Resources will be allocated with priority given to those who satisfy the following criteria:

- Efficiency of public investment and capacity to initiate private projects and activities;

- Improvement of food production; and

- Encouragement of private initiative in competitive activities.

4. **The fourth aspect of our policy concentrates on the improvement of support services established by the Government in conjunction with the liberalization and privatization programs, and on the gradual disengagement from public services. Measures have already been taken to encourage the private sector and cooperatives to increase their participation in this type of activity: fertilizer distribution was liberalized in 1987, and the Agricultural Investment Code now favors input distribution enterprises. Activities will gradually be turned over to the private sector as it develops.**

The priority given to the agricultural sector indicates our desire to modernize, to increase productivity, and to integrate the maximum number of small- and medium-scale agricultural producers into the economic system.

The agricultural sector is presently at the stage in which returns on productivity could be rapidly obtained by influencing the means of production of agricultural goods, prices, marketing channels, and the credit system.

Moreover, agricultural development requires the implementation of a coherent policy consistent with the agricultural sector adjustment program. It is also necessary to carefully examine other sectoral policies and to determine the relationship of agricultural policy to other macroeconomic options.

It is in this context that the U.S. Agency for International Development sponsored the Agricultural Policy Implementation Project, whose objective is to establish an efficient and operational system that provides economic studies to identify and support implementation of measures ensuring the success of the agricultural sector adjustment program. These economic studies will primarily deal with olive oil and cereals marketing, the impacts of subsidy reduction, export competitiveness, and export markets for traditional export goods.

This seminar is an opportunity to deepen our understanding of practical methods to implement an agricultural policy that prioritizes development.

On behalf of the Ministry, I emphasize our strong desire to take advantage of and follow up on the great effort devoted to these studies and analyses, so that the proposed plans of action can be properly implemented.

Ladies and Gentlemen, I am convinced that the earnestness and the perspicacity of your arguments will lead to pertinent and practical suggestions for better implementation of our agricultural policy.

Your thoughts and suggestions are critical to our success in a cooperative approach to agricultural reform. This is an absolute priority.

I wish you a great deal of success in your work and I thank you for your attention.

OPENING SPEECH BY MR. PELLETREAU, UNITED STATES AMBASSADOR TO TUNISIA

I thank you for giving me the opportunity to address all the Tunisian groups represented here today: those who make decisions regarding agricultural policy, as well as those who implement it. I am very pleased to see such a large gathering of decision makers. It is true not only that performance in the agricultural sector affects all other sectors of the economy, but also that all other sectors of the economy affect progress and development in agriculture. Agriculture cannot and should not be isolated; agricultural policy is the most important and efficient link between various sectors of the economy. The United States has a long and satisfying relationship with Tunisia in the area of agricultural development. We are proud of what has already been achieved but are well aware that much remains to be done.

First, we would like to thank the Tunisian Government for the continuous progress made with the structural adjustment program. You and your colleagues have taken and continue to take many courageous initiatives, particularly in view of the great variability in precipitation over the past five years and the drought over the last two years. Recent studies as well as experience have shown that the most daring initiative was the decision to liberalize and privatize. There were doubts about the success of such an initiative. Tunisia has proven that all of its efforts have been leading the country in a good direction.

Experience in other countries has shown that the success of a liberalization policy is usually manifested in rapid growth rates. Liberalization did not retard growth, even in the short term. The stronger the policy, the faster liberalization takes place, and the faster the growth occurs. In addition, where there was growth, it occurred at all revenue levels. The majority of the subsidies developed to protect the poor had the opposite effect. On the whole, the elimination of subsidies improved revenue for the poor despite the fact that it is often asserted that changes occur gradually. Liberalization also led to job opportunities for many people, which is an important consideration for Tunisia in the 1990s.

Agriculture is a key component in the economy, representing about 17 percent of the GNP and employing more than 30 percent of the active population. The structural adjustment program will allow agriculture to play an important role in the process of overall economic reform.

In many cases, the agricultural sector has led the manufacturing sector in contributing to change. The structural adjustment program has been and will continue to be a principal means to achieve change. Today, the change is occurring at all levels of Tunisian agriculture. Central planning is no longer the modus operandi.

The private sector is currently in the process of assuming a vital role in economic decision making formerly monopolized by the Government and parastatal organizations. The private sector should and will have a decision making role, not only in production but also in marketing, processing, transportation, and export and import of agricultural goods. It is unrealistic to assume that things will occur as they did in the past. The private sector must be ready to respond

:o the changes and to support them. Vigilance, innovation, self-confidence, and)f course, hard work will be needed.

I would like to submit to you the following questions in order to enrich 'our discussions:

- How can Tunisia best satisfy its total needs over the next 20 years?
- What are the agricultural products in which Tunisia has the greatest comparative advantage?
- Is self-sufficiency realistically the best option for Tunisia, or would it be more sensible to opt for rational interdependence with a friendly nation? Should we interest ourselves primarily in promoting exports of goods in which Tunisia has a comparative advantage so as to obtain the currency needed to cover deficits in other domains?
- How could Tunisia increase its competitiveness on the international market and increase the quality of its products?
- How can Tunisia better utilize its limited water resources? How can it improve the efficiency of its resources?
- What is the best way to liberalize and privatize most rapidly without negative repercussions?
- Is it possible to target food subsidies in such a way that they benefit only the poor?
- How can Tunisia encourage its private sector to participate in all aspects of the agricultural sector, not only in production, but also in marketing, processing, and imports and exports?
- What is the best way to adopt, import, and develop technology for high quality crops and livestock products?

Of course, we will not find complete answers to these questions here. But ? hope that all of these ideas, these surveys, and the professional knowledge :quired during these two days will be useful in the coming months and will aid)u in making the best possible decisions about the agricultural sector. I hope)at this conference will be both a stimulant and a success for all of you.

Synthesis and Recommendations

SEMINAR ON THE AGRICULTURAL POLICY IMPLEMENTATION PROJECT: PERFORMANCE AND PERSPECTIVES

SYNTHESIS AND RECOMMENDATIONS

A. SYNTHESIS

The Ministry of Agriculture (DGPDIA), in collaboration with Abt Associates Inc. and the United States Agency for International Development (A.I.D.), organized a seminar on May 24 and 25, 1990, entitled Agricultural Policy Reform in Tunisia: Structural Adjustment and Challenges for the 1990s.

The seminar allowed us to make a preliminary assessment of the Agricultural Policy Implementation Project (APIP) through the presentation of findings from the studies undertaken to date. It was also an opportunity for academics, researchers, private business representatives, executives, and administrators to exchange valuable ideas on agricultural policy.

Four themes were examined:

- Structural adjustment,
- Competitiveness and export potential for olive oil, specialty citrus fruits, and wine,
- Impact of input subsidy reductions, and
- Role of public and private sectors in agricultural product markets.

THEME ONE - STRUCTURAL ADJUSTMENT

In the late 1970s and early 1980s, certain developing countries facing economic disequilibrium called upon the international financial and foreign assistance communities to help stabilize their economies. Not only were these countries no longer able to repay their external debt, but the industrial sector in which they had placed so much hope was incapable of resuscitating the declining agricultural sector, the victim of policies that always placed it at a disadvantage.

The approach that was adopted was to reduce demand until it reflected the supply of goods and services available in the country. The measures taken in various programs focus on currency devaluation, trade liberalization, and reductions in subsidies and public spending. In 1983 the structural adjustment program was introduced, which made it possible for all reform measures to be focused on one sector, namely agriculture.

The common experience throughout the world is that structural adjustment programs established since the early 1980s have not yet yielded the expected results. It is evident that a certain degree of institutional rigidity has reduced effectiveness and at the same time increased social and economic costs. It is now essential to reevaluate structural adjustment programs and adapt them to a reality which economists have a tendency to oversimplify.

Tunisia was not spared a crisis caused by deficit and balance of payment problems, and in 1986 it adopted the Economic Rectification Plan, which is based on reduced demand and increased supply.

There have always been several strong criticisms of global adjustment strategy, which is based on liberalization policies:

- The programs are often imposed from the outside;
- The recommended measures and actions are sometimes inappropriate; and
- The social costs of these programs to the least advantaged segments of the population are usually overlooked.

It is appropriate to mention that adjustment programs are long-term and require a long period of time for their effects to be measured. Nevertheless, Tunisia has already seen some improvements, notably a reduction of the current balance of payments deficit, an easing of inflation, and more control over demand.

THEME TWO -- COMPETITIVENESS AND EXPORT MARKETS FOR AGRICULTURAL GOODS

Competitiveness and export markets were discussed with regard to three products: olive oil, specialty citrus fruits, and wine.

In olive oil, Tunisia has a definite comparative advantage, which it needs to improve by reducing production costs and improving productivity.

Tunisian olive oil already enjoys an excellent reputation for quality among the largest U.S. importers. But what strategy should be taken to ensure successful market penetration? The recommended commercial strategy, which will give immediate results at medium costs, is to enter into a joint venture with an American partner who already has a brand name and an efficient distribution network. Tunisia would be the exclusive supplier of the company and prices would be set according to international oil prices. Other options, such as marketing olive oil under a Tunisian brand name, are likely to be very expensive. Similarly, exporting in bulk would not permit sufficient value to be added.

In view of conditions in the international olive oil trade, including the influence of European Economic Community (EEC) policies, export practices of Spanish and Italian exporters, and restrictions on the North American markets that control distribution channels, the joint venture option is considered very appealing. It is always important to be very aggressive and to closely follow competitors' behavior.

Furthermore, the future of Tunisian olive oil exports depends on the arrangements made between Tunisia and the EEC after 1990. Production remains a key concern, and the decline in recent years must be addressed if markets are to be further developed.

As far as the high-quality Tunisian maltese orange is concerned, it is highly rated on the international market and will encounter no production flow problems on the external market.

However, export to European markets promises to be more lucrative than to North American markets, which are too distant for a perishable good to be transported. In addition, North American phytosanitary requirements are very restrictive (particularly in the United States).

A study on the competitiveness of the maltese orange should be conducted with a special focus on improved product appearance, packaging, grading specifications and controls, and reduction of delivery costs.

The introduction of refrigeration during handling will not only improve the condition of the fruit, but also prolong the time during which it can be exported, thus increasing its value.

A key factor which will become important in the future and which will most likely affect the level of citrus fruit exports is the development of production. Increased citrus fruit production can be accomplished through improved cultivation techniques, such as fertilization and water management.

For wine, the principal international client is the EEC, which also offers the highest prices. This market is composed entirely of red and rosé wines. Muskatel Kelibia is the only white wine exported.

The following are the principal marketing problems that Tunisia encounters:

- Discriminatory commercial practices by the EEC common agricultural policy, which grants subsidies to European exporters;
- France's control over the ordinary wine (vin ordinaire) market in francophone West Africa; and
- The lack of funds for product promotion, which handicaps Tunisian exporters in most new markets (e.g. North America). In very competitive markets, wine sales are directly linked to the exporter's ability to cover the publicity and promotion costs needed to find a distributor.

Given the limited availability of wine for export, it is unlikely that brokers will be found who will be willing to unilaterally assume these costs.

THEME THREE -- IMPACT OF FERTILIZER AND MIXED OIL SUBSIDY REDUCTION

The analysis focused on the impact of subsidy elimination on agricultural inputs (fertilizers) and blended vegetable oils for human consumption.

Regarding fertilizer subsidy reductions and their impact on demand for inputs, a study of subsidy allocation by region and by crop revealed that large enterprises benefit more from subsidies than smaller ones do; that agriculture benefits more in the North than in the Center and South; and that grain and

vegetable production benefit more than tree crops do. This means that no matter what the agriculturalists' reaction to the prospect of input price increases, large firms will be more affected than small ones, the North will be more affected than the Center and South, and cereal and farming cultures will feel the change more than any others.

Moreover, the elasticity of demand for fertilizer varies between 0.5 and 2, which means that a relative price increase of 10 percent will cause demand to fall between 5 percent in the short term and 20-25 percent in the long term.

Elasticity of cereal production as a function of relative prices is around 1.5 percent, which means that the elimination of subsidies will cause cereal production to fall 15 percent, while horticultural production will not change significantly.

Regarding mixed oils, the policy of substituting imported vegetable oils for domestic olive oil, which was instituted in 1962-63, has attained its objective of modifying the structure of edible oil supply and domestic consumption habits. The price and subsidy policies contributed the most to the success of this substitution policy. The evolution of domestic consumption of edible oils is characterized by increased overall consumption, which went from 107,000T in 1980, to 160,000T in 1984 and 174,000T in 1987. In addition, mixed oils benefitted from a subsidy of 19.8 MD in 1986 and 30.2 MD in 1988.

Furthermore, grain oil refining is a service whose efficiency has been frequently questioned. Concrete proposals have been made to revise the methods of bidding for refining services and paying for refining.

THEME FOUR -- PUBLIC AND PRIVATE SECTOR ROLES IN THE MARKET FOR AGRICULTURAL PRODUCTS AND INPUTS

The fertilizer marketing system is characterized by the predominance of public enterprises: SAEPA and SIAPE for production, STEC for wholesale distribution, and the Cereals Office for retail. This situation has led to the establishment of a monopoly which greatly benefits the three enterprises.

Furthermore, since fertilizers are subsidized and the Subsidy Fund (Caisse Générale de Compensation) pays subsidies with considerable delay, several private enterprises have abandoned the system (e.g. SEPCM and STIPCE).

As for the grain storage cooperatives, the distribution margin does not appear to allow them to cover marketing costs for seasonal products. In addition, the timing for cereal harvesting coincides with that of fertilizer application, which complicates matters.

Several proposals have been made in hopes of overcoming these difficulties. Certain private individuals and organizations have been given the authority to act as wholesalers, purchasing supplies directly from producers, and distribution circuits have become more dynamic due to increased intervention by private retailers.

Under the current system of cereals marketing, assembly and imports are monopolized by the Cereals Office, which delegates responsibility for assembly to the CCGC and COCEBLE cooperatives.

The Cereals Office responsibilities are as much functional as they are regulatory, which occasionally causes conflict. Study results indicate that the current system assures the availability of cereals and derived products throughout the country. However, under this system costs rise without interruption, placing additional pressure on the state budget.

In addition, this study proposed the basics for a plan of action to reduce the costs of the system by limiting public investment and cutting subsidy costs. At the same time the plan calls for satisfying demand for cereals and continuing to give production incentives, keeping in mind the goal of involving the private sector in cereal assembly.

B. RECOMMENDATIONS

THEME ONE -- STRUCTURAL ADJUSTMENT

- Better define agricultural policy options in line with the goal of increasing the sector's role in reducing the budget deficit and improving the balance of payments.
- Rationalize the allocation of available resources and take advantage of agricultural products in which Tunisia has a definite comparative advantage.
- Closely examine the relationship between macroeconomic measures and agriculture sector-specific measures.
- In implementing the SAP and ASAP (the Structural Adjustment Program and the Agricultural Structural Adjustment Program), consider the international environment, which is characterized by increasing protectionism, dumping, and special interest groups influence.
- Consider the social impact of all aspects of the ASAP.
- Reinforce the analytical capacities of organizations in charge of the ASAP.

THEME TWO -- COMPETITIVENESS AND EXPORT MARKETS FOR AGRICULTURAL GOODS

a. For olive oil

- Revive the olive oil sector by mobilizing significant financial resources in order to increase production and satisfy demand in foreign markets.
- Define an export strategy which considers new developments in the European market, the increased size of the EEC, and the competition European countries represent for Tunisian olive oil.

- Penetrate the North American market through an already established distributor (by means of a joint venture).

- Encourage the participation of organizations other than ONH in olive oil export.

b. For specialty citrus fruits

- Encourage agricultural research on producing healthy plants without viruses.

- Spread out the citrus fruit harvesting season.

- Coordinate the various Tunisian exporters in order to ensure a regular supply flow to foreign markets.

- Establish that export expansion into Europe and the Middle East as a priority.

- Exploit specific market niches in Canada and the U.S.

- Improve product presentation.

- Improve promotion of Tunisian products.

c. For wines

- Improve quality control and bottling practices. Establish norms for this purpose.

- Establish contacts with foreign importers and distributors, organize special visits, and participate in wine fairs.

- Initiate publicity campaigns in target markets.

THEME THREE -- IMPACT OF SUBSIDY ELIMINATION

- Fertilizers continue to be underutilized. The situation could be improved by making agricultural credit more accessible, particularly to small- and medium-sized agricultural producers.

- Other measures should accompany the fertilizer subsidy reduction policy, such as improving the availability of inputs.

- Regarding blended oil, the practice of combining olive oil and other vegetable oils must be terminated.

- A subsidized pure vegetable oil should be introduced to the market.

- Refining costs for grain oils should be better understood.

- Entry procedures for the grain oil refining market need revision.
- Refined grain oils going to packagers and wholesalers should no longer go through ONH.

THEME FOUR -- PUBLIC AND PRIVATE SECTOR ROLES IN THE MARKET

- Eliminate the distribution monopoly of the Tunisian Chemical Fertilizer Company (STEC) and allow other private individuals or organizations to establish themselves as wholesalers.
- Give preferential prices for pre-season delivery of fertilizer.
- Limit Cereals Office intervention in areas where the private sector is well-established.
- Make agricultural credit more accessible.
- Conduct a census of all private retailers.
- Transfer certain public sector distribution centers to agricultural technicians with resources.
- Create a monitoring and evaluation unit to follow input supply policy.
- Open cereal assembly to private individuals or millers who fulfill certain conditions.
- Improve and simplify the system of grain grading.
- Separate the commercial activities of the Cereals Office from its subsidy management role.
- Undertake a study on liberalizing imports of cereals to be used for animal feed.
- Improve understanding of operations of the parallel cereals market.

THEME ONE

STRUCTURAL ADJUSTMENT

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STRUCTURAL ADJUSTMENT AND ITS CRITICS

by

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I. INTRODUCTION

"Structural adjustment" has been the central concern of most of the developing world during the 1980s. Many countries--perhaps as many as fifty--have undertaken "adjustment programs," usually under the auspices of the World Bank and/or the International Monetary Fund (IMF). Since the mid-1980s there have been scores of conferences on one or another aspect of adjustment, and hundreds of articles in the press and learned journals.

Despite this vast amount of writing, and almost a decade of experience, the meaning of "structural adjustment" is not always precisely defined. For most economists, it means changing the structure of production so that the "adjusting" economy produces more "tradeables"--import substitutes and exports. This view reflects the situation in the early 1980s, when the concept of structural adjustment emerged. The problem at that time was defined in terms of balance of payments disequilibrium, due principally to the oil shock of the late 1970s. Many analysts recognized that slow growth and economic distortions could also be due to inappropriate domestic policies. But "adjustment" most often implied a response induced by external shocks.

Restoring equilibrium to the balance of payments is still an important element in the theory and practice of structural adjustment. But

nowadays the concept is usually defined more broadly--it means the adoption of measures designed to make an economy more productive, more flexible and more dynamic by using available resources more efficiently and by generating new resources. The importance of domestic policy deficiencies is more explicitly recognized. In terms of specific policy content, "structural adjustment" in the 1980s has invariably meant the introduction of more market-oriented policies--liberalization of markets, more efficient use of prices, greater openness, and a bigger role for private sectors. In the socialist or "centrally planned" economies, it has meant "marketization" or reduction of the role of administered prices, deregulation, creation of new incentives for private activity, encouragement of foreign investment and privately organized cooperatives, and leasing of state-owned assets. In the industrial world it has involved deregulation by sale of state-owned enterprises, and efforts to contain the growth of public expenditures.

In the mixed economies of the developing world--our principal concern here--"adjustment" means adopting many or most of the following policies and policy orientations.

- "Stabilization" or reduction of budget and balance of payments deficits by fiscal and monetary measures such as credit/wage constraints and employment freezes, cutbacks in public investment programs, and better targeting of subsidies.

- More intensive use of private agents by deregulation, contracting out of public services, sale of nonstrategic state enterprises, and, in general, creation of economic, institutional and political environments that are more congenial to saving, investment and entrepreneurship.

- Liberalization of markets, which implies more foreign and domestic competition, removal of exchange rate and other biases against exports, alignment of domestic prices more closely on world prices, reduction of price and other regulations, and removal of restrictions on entry.

- More general and more efficient use of prices. Two dimensions are involved:

  - use of prices as an instrument of policy. Where governments decide to stabilize food prices, for example, a market-oriented policy posture calls for buffer stocks and open market purchases and sales as the best way to do it, rather than price controls and mobilization of economic police to enforce them. Where foreign exchange has to be rationed, auctions are recommended, not administrative allocations;

  - "getting prices right," which means removing price distortions that lead to inefficient resource use and

inadequate resource mobilization. This implies exchange rates that don't encourage imports and discourage exports, interest rates that will encourage saving and the economically rational use of capital, prices that are close to border prices, and reduction and better targeting of subsidies.

- Rationalization of public sector institutions: civil service reform (usually meaning a smaller civil service, better paid at the top); rehabilitation of strategic state enterprises and liquidation or privatization of the others; reform of strategic activities such as agricultural research, education, and health; strengthening of public expenditure systems, and improvement of tax systems.

Many of these reforms, such as the rehabilitation of strategic enterprises and activities and better planning and budgeting arrangements, are universally accepted. But, with respect to many others, dissenters abound. And the overall strategy of adjustment by the adoption of liberalization policies has always had numerous critics. In recent years the critics have become more vocal and the range of their criticisms has broadened.

Four sets of these criticisms are especially insistent. The first is that the "standard" adjustment program is imposed from outside, and would not be adopted were it not for external pressure, especially from the World Bank and the IMF. The second criticism is more important: that the

intellectual/analytic foundations of market-oriented development strategies are incorrect--greater liberalization, opening up to more international competition, export orientation and reduction of the role of the state are not the right prescriptions for developing countries. The third set of criticisms, linked to the second, is that the structural adjustment approaches introduced in the 1980s have failed; there has been less growth in the past decade than before, and countries with adjustment programs have done no better than countries without such programs. Finally, structural reforms are said to be responsible for a worsening of the position of the poorest and most vulnerable groups in adjusting countries.

In this paper we assess each of these critiques. The assessments are necessarily simplified. Large and complicated analytic issues are involved, and the experience in many countries upon which judgments are based is often poorly documented. In this short paper, I try only to outline the main themes in the various criticisms and indicate some of the counter arguments. I am in general unpersuaded by the critics: I think we are on the right track, though not in every respect. "Adjustment" strategies based on liberalization and market-oriented policies are more likely than alternative policies to bring higher growth and more flexibility to economies in difficulty.

II. STRUCTURAL ADJUSTMENT AS EXTERNALLY IMPOSED

The market-oriented economic reforms which are so central a part of most adjustment programs are widely viewed as being imposed by outsiders, particularly by the IMF and World Bank, but also by some bilateral donors, such as the U.S. and France, which have "adjustment" or "policy-based" lending programs of their own. Two corollaries follow: that in adjusting countries there is little real conviction that these reforms are right; and that without outside pressures they would not be adopted.

This is only partly right. It is true that the IMF and World Bank have played major roles is defining economic reform programs as part of their policy-based lending programs. Some bilateral donors have also attached conditions to their policy-based loans. It is also true that in most of the Third World, especially in large portions of Latin American and Africa, the political and intellectual classes are generally skeptical about the effectiveness and desirability of liberalization-based development strategies.

However, most of the measures associated with stabilization/adjustment programs would have been widely adopted anyway during the 1980s, even without outside pressures via policy-based loans. This is so for a number of reasons.

- Some of the measures are quasi-automatic responses to economic distortions. The current account deficits of the

balance of payments are "automatically" reduced by import reductions due to the drying up of trade credits as foreign arrears mount. Real wages in public sectors tend to fall when revenues rise more slowly than prices. Food prices tend to rise faster than wages as heavily taxed or otherwise disfavored farmers shift to more profitable activities or sell in parallel markets.

- Other adjustment measures are required if large-scale economic disorder is to be avoided; they are imposed by political authorities anxious to prevent such disorders. Budget deficits and money expansion that generate high rates of inflation are, after all, shunned by most political authorities--at least ... Africa and Asia. Export promotion is a natural response to persistent foreign exchange scarcities, as are adjustments in exchange rates. Hiring for already overmanned public sectors becomes too costly in terms of real wage levels.

The measures associated with "orthodox" stabilization programs are thus, for the most part, not imposed by external agencies, but arise out of the imperatives of domestic economic stability. Any political elite with a moderate sense of responsibility for the economic welfare of their society will be forced to pursue "orthodox" policies in the face of severe economic distortions.

It is the same for the "adjustment" measures that favor export orientation, liberalized and competitive markets, restructuring of private sectors and resort to private actors: the objective circumstances of the 1980s explain their widespread introduction more than external imposition.

The shocks of the mid 1970s and 1980s made clear in many countries that many of the policies of the previous twenty years had to be changed. The emphasis on import-substituting industrialization had led many developing countries to industrial stagnation; they found themselves saddled with highly protected, inefficient, import-dependent industrial structures, often subsidized and rarely capable of competing in export markets.

The vast growth in the role of government in the 1960s and 1970s had also led to impasse. Government budgets had come to take 25-35 percent of GDP; the mushrooming of state enterprises had led most often not to profitable operation and high public savings and investment rates, but to dependence on subsidies and budget drains. The regulatory systems that were supposed to protect the vulnerable, in fact most often benefited the rich and powerful more than the poor, induced corruption and parallel markets, and often stifled enterprise.

In the quarter century after 1950, writers about economic development had been eloquent in their description of private market failures; they invariably jumped to the conclusion that where the private sector was deficient, the state should step in. Experience revealed, however, that public sector failures can be at least as constraining as those in private

markets. Some reassessment of the role of the state naturally followed, with a new realism about public sector capacity to take on developmental tasks.

For many countries, declines in rate of increase of government revenues, unfavorable external circumstances and a growing debt burden, stagnant agricultural production and slow output growth in general--all these internal and external factors forced a search for new sources of economic dynamism and faster growth. More positive policies toward the private sector followed naturally. Just as the need to restore internal balance imposes austerity on governments with or without the international financial institutions, so too the need for external balance forces attention towards export growth and towards measures that raise competitivity. Deregulation of controlled markets, a search for encouragement of private agents, and the restructuring of state sectors are "natural" choices. The hand of the IMF or the World Bank may be seen in some particulars, and in the determination of how fast policy changes are introduced. But the main impulse is endogenous; it comes from recognition of past policy failures and the need for new sources of growth.

III. THE ANALYTIC CRITIQUE

From the earliest days of theorizing about economic development, the intellectual community has been generally unimpressed with the development potential of free market policies in poor countries. We need only recall that

even so liberal-minded a writer as Ragnar Nurske, one of the early pioneers in development economics, believed that export-led growth was not feasible, and perhaps not even desireable for developing countries. Development economics textbooks before 1980 said lots about the role of the state and little about private markets.

The skepticism has both analytic and historic aspects. The analytic critique argues that many of the diagnoses and prescriptions in the reform agenda of the 1980s are unsound. The historical critique stresses the point that many of the now-developed countries pursued policies condemned by the World Bank and the IMF and that some of the examples cited as evidence of the soundness of free market growth (e.g. South Korea) are nothing of the kind.

One old and broad argument against market-oriented policies is that markets simply don't work the way the text books say. An early expression of this attack on orthodoxy was Dudley Seers' famous article of the early 1950s--"The Limitations of the Special Case," in which Seers argued that infrastructure, information, entrepreneurs, political stability and other factors assumed to exist in industrial economies were absent in most developing economies. More recently, this view has resurfaced in the United Nations Economic Commission for Africa paper, <u>African Alternatives to Structural Adjustment Programs (AA-SAP): A Framework for Transformation and Recovery</u> (1989, pp. 3.3-3.6). It is worth citing this document at length.

According to the authors of this paper, most of the underlying assumptions and the presumed universality of orthodox economic theory are largely inappropriate for poor countries.

> Underlying the current adjustment programmes is the well-known argument, based on classical economic theory, that output, employment, and prices (including wages, interest rates, and the exchange rates) are best determined by the free play of market forces, and that prices are the most effective instruments for the efficient allocation of resources. The argument is, of course, based on the assumption that economic structures are time invariant and sufficiently flexible so the demand and supply changes respond promptly to market signals.
>
> While the African experience does not completely negate these principles, it illustrates, perhaps in a most profound manner, the difficulties that would be encountered if the underlying assumptions are far from reality, and if economic aggregates are not very responsive to market forces. In the African situation the simple truth is that many countries have moved toward free markets without being in a position to take full advantage of available market opportunities because of low capacity to adjust their production structures. The consequences of these structural rigidities are evident in many areas, but most notably the limited capacities of African farmers to respond to price incentives without assured supplies of relevant production inputs and in the failure of domestic production to respond to new opportunities in export and domestic markets, following a currency devaluation, because of a myriad of technical and supply difficulties; and, in the slow response of savings to high interest rates. These rigidities imply that the main burden of adjustment has been borne by drastic reductions in domestic expenditures with serious economic and social consequences that have tended in many cases to retard rather than promote the process of structural transformation.

According to the authors of the ECA paper (and others with a similar vision) the orthodox prescriptions are wrong: raising interest rates only "encourages speculation" and discourages productive investment; devaluation fails to stimulate tradeables production because of "technological

rigidities"; if grain markets are liberalized, the gains from higher prices go mainly to middlemen because markets are not competitive.

The orthodox prescriptions for agricultural development are especially harshly judged in the ECA paper, which reflects the views of "structuralist" critics who have become more vocal in recent years. Orthodox "adjusters" emphasize better prices for farmers as part of overall improvement of incentive structures. But this, say the structuralists, puts the cart before the horse. What holds back agricultural growth is not so much inadequate prices but the absence of new technology and other nonprice factors such as the absence of good roads, poor extension systems, limited fertilizer availability, poorly functioning systems of rural credit, etc. This, they argue, is the message of the vast majority of econometric studies of aggregate supply elasticities in agriculture, which show them to be low--rarely higher than .2 or .3, even in the long run.

Moreover, in developing countries more than in rich countries, rural markets are said to be inadequately competitive, power relationships are highly unequal, and, even in the most underdeveloped agricultural systems, many rural households are net buyers of food. All of this is said to limit the utility of price policy interventions.

Liberalization of foreign trade regimes, another pillar of World Bank/IMF-sponsored structural adjustment programs, is similarly viewed as a flawed option. Genuine liberalization of imports might devastate much of local industry in most of the Third World, especially in the least developed

countries. And, more important, export-led growth is not viable for most countries. Protectionism and fierce competition by more advanced producers and import-replacing technological change make export-led growth problematic as the foundation of a development strategy. This is especially so for primary products. Price prospects for raw materials are equally poor. Low price and income elasticities make output expansion self-defeating, except for minor producers. If all the poor countries that produce beverages or fibers or oilseeds were to expand output, resulting falls in prices might mean lower export earnings rather than higher. There's no way, the critics say, that expansion of primary product exports can generate an acceptable rate of growth of output in exporting countries.

Privatization is attacked as another erroneous element in standard adjustment packages. Economic theory, according to many critics, does not say anything persuasive about ownership, only about competition. What matters, according to this view and according to most recent analysts, is competition and not ownership structures. In practice, moreover, the privatization process has revealed many flaws and dangers, notably the frequent granting of financial privileges (high protection, direct subsidies, special contracts with government, etc.) to encourage private takeovers of state enterprises. And, in the least developed countries, indigenous private sectors are too thin to buy and run state enterprises. Where foreigners are allowed to buy, fears of recolonialization are kindled.

Finally, the critics say that much of the enthusiasm for market-oriented adjustment strategies is based on a misreading of history. The great

success stories in East Asia (notably South Korea and Japan) never entailed dismantling the state, nor early exposure to external competition. The state was an active and important partner of the private sector in those cases. The same is true in most of Latin America, including such growth powerhouses as Brazil. Aren't the Bank and Fund recommending, for today's "adjusting" countries, policies that were not pursued in successful economies elsewhere?

Even when thus presented in capsule form, the far-ranging nature of intellectual or analytic attacks on orthodox adjustment policies is obvious. To fully assess these arguments would require more time than we have here. I will concentrate on some of the main issues.

First a few general points:

- No single set of specific adjustment policies is implied in a market-oriented strategy. The size of the country, its administrative capacity, its political and economic structure and other factors will determine what is an appropriate mix of public and private activity, of outward and inward-lookingness, of reliance on markets and controls. Much of what is right for South Korea will not suit Guinea. A market-oriented strategy, in other words, can encompass widely varying policy mixes.

- We are dealing always with imperfect alternatives--with flawed models, not ideal types. The implications of a weak,

small private sector has to be weighed against the existence of a heavily bureaucratized, ill-paid public sector. The obstacles to export expansion have to be considered in the light of the costs of a stagnant, inward-looking industrial sector, a handicapped agriculture, and the limited alternative uses of climate, land, and labor.

- The existence of "structural" deficiencies should lead to efforts to remove them, not to continuation of failed policies of the past. If markets function poorly, their operations should be improved; they should be made more transparent and competitive, for example, not returned to control by state monopolies/monopsonies. Moreover, the validity of any strategy depends on how effectively it erodes structural constraints to development. Encouragement of private provision of "public" services, for example, is the most obvious way to stimulate the growth of an entrepreneurial class. Entrepreneurship is rarely hatched inside public sector organizations.

Second, in agriculture, policy does matter. This means not only price policy, but also policies toward rural institutions and the level and quality of public spending in agriculture. Certainly it would be better if higher prices were accompanied by good credit systems, research and extension, etc. But in fact, in much of the world, especially in countries with lagging agricultural systems, it is not feasible. New technology is often sparse, as

in Africa. Credit and extension systems are usually paralyzed and input-supply arrangements crippled. Price policy may be the only feasible instrument available to spur agricultural growth.

Despite the pessimism about supply response, there do exist examples of how price and institutional changes (liberalized marketing systems, freedom of organization of production) can have large impacts on output and induce structural changes in agriculture. The most spectacular example is, of course, China after 1977. Agricultural production rose by more in the period 1978-1985 than it had in the previous thirty years. And this was achieved principally through better policies and freer, more market-oriented rural institutions. No new technology was at hand, and input use (land, labor, tractors) actually fell except for some additional fertilizer.

Less well known and dramatic are recent changes in Madagascar. A rice market liberalization program there has induced substantial change. Higher rice prices led farmers to improve their irrigation facilities, buy more inputs (tractors and fertilizers), reallocate land (with smallholders renting to larger, more efficient growers), drain old, neglected fields, and make new plantings of upland rice.

Many other examples of agricultural responsiveness to policy reforms could be cited, from Mauritania, Somalia, and Ghana to Bangladesh, among others. There is a paradox here. Pessimism predominates in the econometric studies of supply elasticities. But anecdotal and case study

evidence shows much more responsiveness to the policy environment.

Third, the attack on trade regime liberalization is exaggerated and fails to define viable alternatives. Almost nowhere do adjustment programs entail massive removal of tariff or other forms of protection. What Bank/Fund-sponsored programs generally seek is lower and more even levels of protection. In reality, very few countries are ready to dismantle tariff and other barriers, or to completely liberalize import regimes, and they are not asked to do so.

Also, while export pessimism has deep roots, the growth in developing country exports in the last forty years has exceeded all expectations. Even in the unfavorable period of 1975-1979, twenty-four developing countries managed to increase their exports of manufactures by more than 15 percent a year. It is true that the prospects for primary-product-led export growth are not good. But meat, citrus, fish, some fibers, and rubber are among commodities with higher income elasticity of demand or with environmental advantages that make their prospects brighter. And in any case, what are the alternatives for primary exporters? If individual countries or subregions do not continue to fight for export markets by increasing production and productivity they will lose market share to competitors. This happened between 1960 and 1980 to many African exporters who suffered dramatic losses in market shares in beverages, fibers and minerals.

In terms of viable alternatives, the "inward-looking" alternatives to an export-based growth strategy are hardly appealing--slower output growth;

lower income; greater constraints on imports; a reduction in the "training effect" that comes from competition in export markets; less exposure to new ideas and opportunities and hence reduced potentials for discovery of new economic options.

Where regional economic integration presents promise, it should be more actively pursued; unification of small national markets into larger regional ones is in fact a potential source of new growth. Opportunities undoubtedly exist also in new, more carefully studied, import substitution. But none of this need be incompatible with better performance in export production and marketing, which under any likely scenario is sure to be--at least for a generation--the principal engine of development in most of the poorest countries.

A fourth point is that the role of the state will remain extremely large and of critical developmental importance in all developing countries. But the state can't do everything and shouldn't try. This is common sense, not ideology. As ex-President Machel of Mozambique once said: "Marxism-Leninism doesn't mean that the state should sell tomatoes and matches." Concentration on strategically important activities will allow the public sector to work more efficiently. As for the mix of instruments, using the market has well-known economic advantages. Under an auction system, for example, the rents from foreign exchange scarcity go to the budget and not to private importers. Auctions also economize on human capital and are easier to run than administered allocations. Finally, the widespread weaknesses of personnel practices, of accounting and auditing capacity, of financial

management and budgetary practices, combined with low wages and freezes on employment, suggest that for many governments the administrative efficiency of public sectors is not likely to increase in the medium term. This gives greater urgency to the use of more economical policy instruments, and to the transfer to private agents of nonstrategic functions, and perhaps even some strategic ones.

Finally, privatization of state assets, the main target of anti-free-market critics, does indeed have its limits. The gains from the sale of state assets are not likely to be large, unless accompanied by other changes--for example the creation of a more competitive market structure. Moreover, many obstacles have become evident, and these suggest that asset sales will have a relatively limited scope, especially in the poorest countries. Privatization approaches can be improved by greater transparency in negotiation, and by greater willingness to allow nonviable enterprises to die. Most important, privatization is likely to have greater impact in areas other than privatization of property, notably privatization of management via leasing of state assets, arranging various types of management contracts, and, above all, bringing in private service providers by deregulation (allowing free entry) and by utilization of the many techniques available to privatize service delivery--contracting out, franchises, voucher systems, etc. These are feasible and still neglected ways to mobilize private energies and resources, and to nurture entrepreneurship at the same time.

IV. HAVE ADJUSTMENT PROGRAMS FAILED?

Adjustment programs were certainly oversold. The initial notion was that structural changes could be brought about in five years; this was the original World Bank vision when the first structural adjustment loans were introduced. Everyone now recognizes that this was wildly optimistic.

Good answers to the question of whether "adjustment" has failed or not are, in any case, extremely elusive. If the main criterion is growth in per capita income, then two fundamental truths make evaluation difficult. First, good policies are only one factor in explaining growth; the best policy reforms may not help much in the short and medium term if export markets collapse or if drought hits. Second, evaluation must take into account the "counterfactual" or "without-adjustment" scenario, which is difficult to do.

Other, somewhat less fundamental factors impede evaluation of success or failure in policy reform. There are many countries at issue, within each of which the speed and nature of reform varies. Countries that are star performers in one year fall off track two years later. The intensity of reforms varies; in one country, trade liberalization may involve a minor overall tariff reduction with small effects, while in another there may be a truly significant opening up to external competition. More important, reforms are only partially implemented in most instances. A decree may announce full liberalization of grain marketing, but multiple market restrictions may remain--movement controls, licensing requirements, etc. A tariff reduction

may be frustrated by informal increases in administrative controls of imports. A devaluation may occur, but fear of capital flight and other factors may lead to persistence of export-constraining administrative requirements on exporters. Another consideration is that where severe distortions prevailed before "adjustment," most of the economy may already have adjusted informally, via ubiquitous parallel markets; the effects of a formal reform program will thus be much diluted.

In many cases, finally, it is too soon to judge. In sub-Saharan Africa, for example, it was not until 1985 or so that effective reform programs predominated; in 1984, for example, real effective exchange rates had appreciated in more African countries than they had depreciated, and real producer prices showed little improvement over 1980. Effective reform in much of the region got under way only in 1985--too recently for serious evaluation of impacts.

The difficulties of evaluation have not prevented heated controversy on the question, however. In recent reports of UNICEF, the Economic Commission for Africa (see above) and other agencies, "structural adjustment," defined as economic stabilization measures plus market-oriented policy reforms, is severely criticized for its sparse results in terms of growth, as well as its heavy cost in terms of impact on the poor.

Africa has more formal adjustment programs than any other region--about thirty--and the debate has been especially vigorous there. The Economic Commission for Africa, in its draft report African Alternatives to Structural

Adjustment Programmes (March 1989) says; ". . . poverty in Africa has worsened in the 1980s. The average annual growth rate of per capita income in 1980-1986 was either stagnant or negative in most of the countries implementing adjustment and stabilization programs. In a few cases where improved per capita income was recorded, it was largely at the expense of higher external debt and the deterioration of social services. By 1988, average real incomes in Africa, south of the Sahara, are . . . no more than 80 percent of their levels in the 1970s."

The ECA paper cites in support of its analysis the findings of a major World Bank study (Report on Structural Adjustment Lending, August 1988), in which the sub-Saharan countries studied in that report experienced a fall in GDP growth to 1.8 percent after adoption of adjustment programs, compared to 2.8 percent growth prior to adoption. Also, investment ratios fell and budget deficits rose after implementation of adjustment programs.

The World Bank study, however, while noting slow growth in African countries, concluded that the adjustment programs worldwide seem to have had positive impacts in terms of growth. The thirty countries with adjustment programs did better than those without adjustment loans. The Bank study found also that middle-income adjusters did better than low-income, and twelve "adjustment-lending-intensive" countries did best of all. They note, however, that all countries did relatively poorly in the 1980s, that sustainability was not assured, that sub-Saharan African experienced especially slow growth, that social costs were high, and that the commitment of most governments is uncertain.

A new World Bank report, Adjustment and Growth in Africa in the 1980s (1989), has come out with a more positive assessment. It says that there are signs since the mid-1980s of faster growth, and that this is evidence that adjustment programs are working. Economic performance in nineteen African countries with "strong reform programs" is better than in other countries of the region. These conclusions have been strongly attacked by the ECA, among others. The ECA, defining country classifications differently, concludes that African "adjusting" countries have done worse than any other group of countries in terms of GDP growth and some other indicators.

In my view, these approaches to assessment of the "success" of structural adjustment inevitably yield contestable and fragile results. Problems of choice of time period, country classification, and "weighting" are monumental. The World Bank study, Structural Adjustment Lending, for example, defined "adjusting" groups to include any country that has received an adjustment loan by 1984. The Bank's report Adjustment and Growth in Africa in the 1980s defined reforming countries as those with an acceptable program in place in 1986-1987. So the Adjustment Lending report includes Sierra Leone, Sudan, Zambia, and Zimbabwe among the "adjusters," and excludes from this category, eight African countries that had programs in 1986-1987 but not by 1984: Burundi, Central African Republic, Gambia, Guinea, Madagascar, Mauritania, Niger, and Zaire. It's no wonder that conclusions about outcomes differ.

No firm answers, then, can be given about the economic "success" or "failure" of the overall adjustment effort of the 1980s. It may be that the question is wrong. We should be interested less in output and longer-term effects and more in processes and in proximate or intermediate effects. Has the process of defining adjustment programs increased insight into the obstacles to growth, and generated new ideas about overcoming them? Have the agreed programs been implemented, and if not, why? Have local officials and others learned something from the experience? Are policymaking processes and institutions stronger? Have institutional reforms put core economic agencies on a track that promises continued strengthening? Have any minds been changed about what is good and what is bad policy?

V. IMPACT ON THE POOR

This has become the most discussed aspect of the adjustment problem and among the most controversial. Two positions have been staked out. The first, championed by UNICEF, is that the "costs" of structural adjustment programs have fallen most heavily on the lower ends of the income and asset distribution. The removal of protective subsidies (on food, for example) and cuts in social sector spending hurt the poor, while middle class groups (higher civil servants and businessmen, for example) are little touched.

The second position, set out mainly in various World Bank documents, is that many of the "standard" structural adjustment policies in

fact help the poor. Liberalization of agricultural markets, reform of agricultural parastatals, devaluation, and export promotion schemes all tend to help rural people, who form the bulk of the poor in most developing countries. Subsidy reduction may hurt the poor, but since a bigger share of many subsidies is absorbed by better-off people than by the poor (housing, fuel, electricity, water subsidies, for example), the removal of subsidies or better targeting tend to make income distributions more equitable. And, of course, faster economic growth, which is supposed to result from policy reform, is the best way to reduce absolute poverty.

Better information will not resolve these differences, especially since the "with vs. without" conundrum remains. But it would help, since in fact little is known about the preadjustment condition of the poor or about what has actually happened during the 1980s. To know the equity impact of food price rises, for example, we have to know more about who in rural areas are net buyers and net sellers. Cutting of aggregate health and education expenditures is not so revealing as is detailed knowledge about the structure of cuts and spending: whether primary schooling is cut, or scholarships for university students, for example.

Better assessment of impacts on the poor will thus have to await fuller information. Given the large volume of resources now being devoted to this matter, better information should not be long in coming.

One final observation is worth noting. Most people can agree that it is better to have adjustment policies that spare the most vulnerable social

groups, all other things equal. That is, if there is no trade-off between the efficiency of adjustment policies and protection of the poor, the poor should be protected. But if there is a domestic political consensus to this effect, then the poor should receive this policy treatment, adjustment or no adjustment. If there is no domestic political consensus about it, then the donor community, which may have different concerns on this issue than local governments, may have to impose its view via new types of conditionality. Thorny issues of sovereignty and donor intrusiveness are raised.

Moreover, if there are trade-offs between an avoidance of "excessive social costs" and efficient adjustment policies, as is likely, broad issues of social policy are evoked. These include, from the donor perspective, the nature and objectives of policy-based lending, and in particular the relationship between lending for direct alleviation of poverty and growth/efficiency-focussed aid.

VI. CONCLUSIONS

Cynics suggest that policy-based lending and the structural adjustment which is its main objective are fads of the 1980s--the most recent in a long line of faddist notions that have characterized thinking about economic development, from technical assistance in the 1940s to capital investment in the 1950s and 1960s, to human needs in the 1970s. That is not my view. Policy reforms that involve moving economies toward free markets,

world prices and private activity reflect the lessons of experience since 1950. Never again can intellectuals, civil servants or political authorities adopt the asymmetrical approaches of the past, whereby governments were assumed capable of taking on economic functions that were inadequately performed by private actors. Everybody knows enough about public sector failures and deficiencies to ask the question: can the state perform better than private markets, even flawed private markets? Everybody also knows that new sources of growth are needed and that better mobilization of private resources and energies are therefore indispensable.

For reasons indicated earlier, no firm judgment is possible about the impacts of adjustment programs on economic growth. One consequence, however, is evident--as the World Bank Study, Adjustment Lending, indicates, countries that adopt adjustment programs receive more external support than countries that do not. Most observers would regard this as a positive indicator, though increased indebtedness and intensified external dependence are also implied.

Those who have crafted the adjustment program have produced, on many occasions, brilliant policy innovations as well as ill-conceived proposals. There has probably been more pointed discussion of policy issues in developing countries in the past decade than ever before, and the policy realism of thinking and writing about economic development has greatly increased.

Weaknesses in the process have impeded progress, and persist. The Bank and Fund continue to play too dominant a role in devising programs and pushing their implementation. Conditionality is excessive, frequently unnecessary, unmonitorable, and conducive to game playing and shoving of problems under rugs instead of genuine, joint problem solving. Creating a greater sense of "ownership" in the ideas of market-oriented reform, and addressing more appropriately the dilemmas of conditionality, are tasks of the 1990s.

Finally, it would be extremely helpful if those who deal in the language of economic development could find a way to ease the term "structural adjustment" out of common usage. It's a misleading term because it implies a one-time set of changes with a one-time result ("adjustment"). In fact, what is at issue is general economic policy. True "adjustment" is in fact an ongoing process of framing good policies, which means deepened knowledge, more rational decisionmaking procedures and strengthened policymaking institutions. In this sense, poor countries, like rich ones, are <u>never</u> beyond adjustment.

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STRUCTURAL ADJUSTMENT IN TUNISIA

MACROECONOMIC POLICIES AND AGRICULTURAL POLICIES AND THEIR IMPACT

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Adjustment plans are often devised to meet external payment crises reflecting domestic economic problems. Such crises break out when the balance of payments* situation reaches the point where reserves are depleted (i.e. July 1986 for Tunisia). The depletion of reserves serves notice on the state that the national economic situation is critical.

The crises generally result from inappropriate management of the national economy in the international economic environment; they follow and must adapt to technological, economic, financial, social, and political structural transformations. This is especially true in developing countries whose economies are generally small; the crisis is all the more urgent when the transformations are of a lasting, structural nature, and not short-term and transitory (price fluctuations, provisional quotas).

The profound disequilibrium affecting the developing countries, which often leads to adoption of a structural adjustment plan, occurs when national demand grows at an unbroiled pace in relation to total local supply, without being offset by stable capital flows (direct investment).

This situation could be sustained in the 1970s by the development of international financial markets (i.e. eurocurrencies) and the hopes for "sound" operation of the international economy. In the 1980s, however, the problems that arose in Latin America, the new rigorous management of the Western economies in terms of inflation, interest rates, capital and labor flows; and finally, the Asian countries' growing influence on economic relations between developed and developing countries have forced the latter to adjust so as to ensure repayment. The net flows have become negative even internationally. Bearing in mind these international considerations, developing countries such as Tunisia face the need for internal adjustment involving measures to reduce demand and stimulate supply.

Measures to limit demand originating abroad (direct and indirect) are the most effective and fast-acting if they are reenforced by political conviction. These efforts require internal coherence and a strong commitment on the part of the state, since half of the demand in the Maghreb countries, for example, originates in the government sector.

Even exchange rate measures may have an immediate impact on the demand for imports, depending on the initial gap between the official exchange rate and the equilibrium rate, and on the degree of economic protection.

Supply-side and economic restructuring measures, however, require a greater response time, especially in economies where supply was geared to on-farm consumption or the parallel markets, thus requiring structural transformations. The agricultural structural adjustment program in Tunisia is unfolding in the context of these latter measures.

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*The balance of payments is the difference between two national accounts. It is comparable to a firm's balance sheet.

1. GENESIS OF THE STRUCTURAL ADJUSTMENT PROGRAM

From 1981 to 1986 the Tunisian economy performed poorly. Per capita GDP practically stagnated throughout this period, inflation rose, the trade deficit reached alarming proportions, and unemployment continued to increase.

The poor performance resulted in part from external causes (deterioration of the terms of trade, greater international competition), but essentially it was due to the inappropriate economic policy adopted during this period.

1.1 Economic Growth: Distortions Between Supply and Total Demand

GDP increased by 2.7% per annum between 1981 and 1986, a rate very close to the rate of population increase (2.5%). This period was marked by stagnant production and per capita income, compared to the 4% growth in per capita income of the 1970s.

The slowdown in growth has affected the basic sectors, such as agriculture and agribusiness, hydrocarbons, construction, transportation, and tourism. Only manufacturing industries (chemicals, machinery) have seen considerable growth (6%), which has been costly in investment, however, leading to a decline in productivity.

Although the decline in oil production is explained by the depletion of natural resources, the weak performance of the agricultural sector is due above all to price and protection policies adopted to the detriment of the major crops and livestock production. Likewise, investment in this sector was limited to a maximum of 15% of annual revenues (i.e. a smaller share than the sector's average share of GDP). Finally, climatic conditions have exacerbated existing handicaps.

A decline in productivity has been observed in the other sectors, driving the capital coefficient from 5 in the 1970s to 9 in the 1980s.

Thus, supply has not followed the averages agreed upon because of the institutional problems, as in the mining sector where the inappropriate macroeconomic policy took a toll on textiles and tourism, which have felt the effect of an overvalued dinar.

In contrast, consumer demand continues to grow at an average rate of 5% per annum (i.e. about double the rate of production), causing a disequilibrium that can only be reabsorbed by increasing dependency on external resources, causing an increase in debt service which must be guaranteed and a slowdown in investment since 1985. As a result, the trade deficit has reached 9% of GNP, driving the rate of indebtedness to 60% of GNP.

This rapid growth of consumption is explained by an economic policy with the following characteristics:

- Negative real interest rates until 1985, discouraging savings;
- A policy of freezing prices and subsidizing certain items to encourage their consumption;

- An overvalued exchange rate which is appreciating in real terms, encouraging imports and discouraging exports;
- An incomes policy incompatible with the increase in production (especially in 1982);
- A policy of maintaining a high budget deficit (6% of GDP) financed by printing money and by external borrowing, favoring rapid growth of public consumption.

1.2 Inflation: Increasing Gaps Among Inflation Rates in Our Favor

Inflation accelerated in Tunisia between 1981 and 1986, especially in comparison to the worldwide slowdown. Inflation was 10% in Tunisia during this period, as compared to approximately 5% in the industrialized countries. The main cause was rapid growth of the money supply (some 20% per annum up to 1983, and 13% from 1984 to 1986). The second cause was the incomes policy, particularly in 1982, which did not contribute the goal of increasing productivity, and had an impact through regulations on prices and margins.

Hence a 25-point inflation differential accumulated in relation to Tunisia's trading partners from 1981 to 1985, with no correction of the exchange rate; rather, the nominal rate continued to be indexed to foreign exchange rates. The dinar thus appreciated considerably in real terms, destroying the competitiveness of Tunisian products abroad and favoring imports, especially as the competing countries of the Mediterranean basin adopted adjustment measures and floating exchange rates (e.g. Morocco, Turkey). Thus, the parity of the Tunisian dinar vis-a-vis the Moroccan dirham appreciated from 24% to 80-85% nominally, and 15% in real terms.

1.3 Unemployment

The fact that newly created jobs covered only 62% of the additional demand from 1982 to 1986 illustrates the gravity of the problem. Employment demand stood at 78% in the 1970s, driving unemployment up to 15% in 1986. The various subsidies that capital benefits from (overvalued dinar, low interest rates, fiscal measures) favor capitalist techniques; likewise, labor legislation and social protection measures, as well as collective bargaining agreements, have limited recruitment by private enterprise.

The poor management of the national economy has thus created acute problems for the country, which were hidden in the early 1980s, with the growing recourse to external resources such as new capital from the Gulf countries and larger loans from external sources. After only a few years, however, severe problems arose, due to the pressures of the debt service and the drop in direct foreign investment as a result of diminishing productivity and the declining competitiveness of the Tunisian economy.

The external payment situation in 1986 led to depletion of foreign exchange reserves in July 1986 and a crisis that prompted adoption of a recovery plan and initial use of IMF credit.*

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*Initial use is constituted by a stand-by loan of 83 million SDRs (i.e. 60% of Tunisia's quota at the Fund) and compensatory facilities of 115 million SDRs.

2. THE MEASURES ADOPTED

The goal of the recovery plan was a declaration in demand growth tc bring it more in line with local supply and to reestablish market mechanisms in order to ensure rapid growth of exports. This liberalization would also make it possible to conserve resources associated with public administration, and above all to avoid a period of easy and massive borrowing.

The goal of the first series of measures adopted in the second semester of 1986 and the first semester of 1987 was to slow down internal demand. The following measures to correct prices of goods and services were introduced:

- Ten percent (10%) devaluation of the dinar in August 1986 and a nominal depreciation to attenuate the effect of the inflation differential between Tunisia and its trading partners (clients or competitors). This nominal depreciation was on average 15% in 1986 and 10% in 1987, given the structure of the country's international trade.

- An increase in the interest rate in December 1986 following liberalization measures introduced in the banking sector and an earlier adjustment of rates effected in April 1985.

- Liberalization of the prices of certain agricultural and industrial products and adjustment of the prices for certain basic items.

Parallel to these price measures an effort was made to limit government spending, to put a cap on the growth of public demand, and, by acting on incomes, to retard the pace of private consumption. The detailed list of measures is presented in an annex.

While it is still too soon to accurately determine the impact of these measures on the Tunisian economy, the 1987 results and the preliminary 1988 results show that the overall balance is positive, especially in terms of the trade deficit and inflation.

In effect, the corrective measures with regard to exchange rates have made it possible to improve the cover rate of Tunisia's international trade, which increased from 80% in 1986 to 90% in 1987, and to almost 100% in 1988. Thus, the current deficit dropped from 8% of GDP in the course of the six-year plan to 1% in 1987 and disappeared in 1988.

Likewise, halting demand growth made it possible to initiate a deflationary process, despite the inflationary impact of the devaluation. Thus, the double-digit inflation of the six-year plan was reduced to 7% - 8%.

The demand-side recovery measures (devaluation, limiting public demand, increasing interest rates) also appear to have improved the current accounts balance. This solved the crucial problem that arose in 1986 in connection with the external deficit, which Tunisia could no longer bear.

In addition, the preliminary results of the first 10 months of 1988 showed that the measures continued to produce an impact without complementary measures. Thus, tourism revenues and export earnings continued to grow, with a slight additional depreciation of the dinar.

The parity of the dinar from December 1987 to May 1988 varied little, on average, with respect to Tunisia's partners. It depreciated approximately 10% in relation to the dollar and the SDR, after the rise of the dollar. Thus, our exports of goods increased 25% from January to October 1988, as compared to the first 10 months of 1987, and 19% for the entire year. Likewise, tourism revenues increased 75% for the same period (90% in the course of the whole year). Nonetheless, imports increased appreciably (+30% for goods over the same period), after recent liberalization measures and the various customs, fiscal, and exchange rate reforms. The cover rate also fell from 75% in 1987 to 68% in 1988, with economic health deriving from tourism.

Finally, the recovery plan has had a negative impact on the balance of payments, insofar as the debt service ratio held steady at 27% of current revenues in 1987, the same level as 1986. It is estimated that this figure will be 24% for 1988 because the recovery plan fails to address renegotiation or restructuring of the debt, as it does in other countries.

3. IMPACT ON GROWTH OF EMPLOYMENT

In 1987 the Tunisian economy yielded real GDP growth of 5.8%, due especially to agriculture, where value-added increased 17% (as compared to 1% in the course of the six-year plan). Good climatic conditions were responsible for the growth which was independent of the measures adopted. In addition, the development of exports of goods and services increased the growth of outward-oriented sectors such as tourism (+32%) and textiles (+6%); this is a positive impact of the plan on economic growth.

On the other hand, the constraints imposed on internal demand have slowed growth of those sectors geared to the domestic market, such as construction and public works (-5%) and the machinery and electronics industries (0%). As a result, overall growth of the industrial sector was zero: growth in exporting industries was offset by the industries geared to the local market as a consequence of the limited demand.

In addition, per capita consumption declined approximately 1%, as did the average standard of living; final consumption increased only 1% at constant prices. This decline has the greatest impact on those who depend on fixed incomes, which did not keep up with inflation (+8% in 1987).

In 1987 investment also slowed, as did employment. In effect, the FBCF already declined 10% at current prices as compared to 1985. This decline continued in 1987 (0.5%), which is even more serious at constant prices, driving the rate of investment down from 31% of GDP in 1984 to 21% in 1987.

Much more serious is the fact that this decline is due above all to private businesses, which reduced their investment 13% in 1986 in relation to 1985 and 18% in 1987 at current prices as the process of liberalizing and privatizing the economy began. This indicates low investor confidence in the

private sector, which was lacking before November 1987 following political disturbances, despite the growth reflected in the figures.

The decline in private and government investment (only public-sector businesses increased their investment in 1987) drove up unemployment in the very short term and will weigh heavily on future development, which depends on current investment.

It appears that growth recorded in 1987 was due to climatic conditions and a rebound in export performance (tourism, textiles) in the wake of the adjustment measures. Thus, it is not endogenous, internally-generated growth that results from restructuring of the economy. Moreover, worsening climatic conditions meant that the only levers remaining in 1988 were tourism and the reduction of trade barriers with Tunisia's neighbors. Growth linked to the development of external sectors was offset by the decline in agricultural production and the slowdown of inward-oriented sectors, for overall GDP growth of approximately 1%.

In the face of the continued lack of private sector confidence, the 1988 development plan is based on export-led growth. This plan has the advantage of solving the balance of payments problems but limits the standard of living internally, as local demand has not increased, at least in the short term.

This situation compelled the authorities to adopt a second series of measures (see annex) in 1988 with a view to boosting supply. They are as follows:

- Tax incentives and reforms aimed at restoring investor confidence and improving the status of certain economic actors;
- Monetary and financial reforms aimed at reducing the role of the Tunisian Central Bank, allowing economic actors with surpluses to directly finance those with deficits, reestablishing the role of the interest rate at the price of capital;
- Measures to restructure public sector firms and to privatize some of them;
- Measures to promote investment, reviewing sectoral investment codes (agriculture, industry, tourism, services);
- Measures to reduce red tape in relation to foreign exchange transactions and foreign trade; and
- Liberalization of domestic prices and reduction of trade barriers (customs duties).

The Agricultural Structural Adjustment Program (ASAP) is among the supply-promotion measures, especially considering that agriculture has declined significantly over the last 20 years in terms of production,* exports, and employment*. The lack of local supply has caused an ever more serious food deficit, especially of ceral grains, meat, milk, and sugar.

The main reasons for this new phenomenon are the price freeze policy, which discourages supply, and consumer subsidies, which stimulate demand. In addition, production of fruits and vegetables, which are not affected by the price freeze, has increased 5% per annum.

A second reason is the lack of protection for agriculture, while industry is highly protected. This imbalance is aggravated on the one hand by overvaluation of the dinar, which favors imports over local production, and on the other hand by developed country dumping, which subsidizes the production and export of agricultural products. As a result, the agricultural sector is overtaxed on a net basis, considering taxation on inputs and outputs and the overvalued exchange rate.

The measures proposed by the ASAP are increases in the prices of products subject to government controls (wheat, barley, milk, and meat) to bring them up to the international price plus at least 15% to account for the overvalued dinar. In addition, input subsidies, especially for water, should be reduced so irrigated crops are not favored over large-scale farming.

These price correction measures should be supported by the macroeconomic measures of the ASAP (i.e. depreciating the exchange rate, liberalizing prices, and reducing protection for the industrial sectors).

The other ASAP actions are as follows:

- Promotiong the export of agricultural goods and fish products by diversifying the products and markets and removing the obstacles posed by certain offices. Subsidies could be provided for exporters of agricultural goods and fish products if the dinar remains overvalued, because these products have little imported value-added, in contrast to textiles and electrical and mechanical products, whose inputs are mostly imported.

- Streamlining government spending and programs to better use farmers' potential. The new budgetary constraints of the Structural Adjustment Program must be taken into account, but they should not be imposed more on agriculture than elsewhere, especially since agriculture has been at a disadvantage in the past.

- Promoting private investment by adopting an agriculture and fishing investment code (April 1988) and designing a land audit.

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*Agriculture's share of GDP declined from 24% in the 1960s to 13% in the 1980s. Its share of exports declined from 60% to 8%, and of employment from 56% to 35%.

- Rationalizing the consumption of imported basic goods, clearly raising the problem of compensation.

It is still too early to determine the impact of these measures through published data, but investment rose in 1988 (+9% at current prices) and the number of additional projects increased. This upturn has been felt primarily by private firms (+27% over 1987) and is based in the machinery and electronics industries, textiles, and other industries. It has also affected agriculture, where investment surpassed the 1985 level, after a major decline in 1986/1987. Likewise, exports of goods increased 10% in real terms, which shows that exports continue to be dynamic. Finally, inflation did not increase, remaining at approximately 7%, thanks to the incomes policy and the restrictive budgetary policy adopted.

Moreover, the assessment of the impact of supply-side measures is more difficult for at least four reasons:

- These measures generally require a long time to produce an effect. The length of this period depends on rigidities in the economy and the response of other trading partners to the measures.

- Exogenous disturbances (i.e., climatic conditions, international environment) thwart assessment of the impact of the measures. Theoretically, to evaluate the effectiveness of the measures, one must compare what is observed after the implementation to what would have happened without these measures. Thus, one must isolate the effects of the actions taken to assess their effectiveness. The "without" situation, however, can be observed only in another country, and thus only in reference to different conditions or to a theoretical model.

- The J-curve phenomenon, in which the measures taken first have a negative impact on both the objective envisaged and other objectives, makes the situation deteriorate initially. Only later do positive effects appear, hence the reference to the letter "J". The length of time required to reach the ascending part of the "J" is hard to assess, as it depends on the behavior of the actors involved. For example, privatization of public sector firms initially increases unemployment, but once the firms are stabilized, they renew hiring.

- It is difficult to obtain recent sectoral cyclical data that would make it possible to asses the impact of the measures adopted in developing countries.

Because of climatic conditions in the agricultural sector it takes even longer for the effects of the supply-side measures to appear and to be isolated. This work will make it possible to entertain proposals for complementary measures to secure and strengthen the gains and to make possible an adjustment plan that can realize its full potental. A team-based effort should be initiated as soon as possible.

ANNEX

1. Monetary Measures

- Increasing interest rates in April 1985 and December 1986 (TMM + 3% for the borrower rates and TMM - 2% for the lender rates).
- Reducing interest rates in October 1987 by 2 points after a drop in the TPS and the decline in the TMM.
- Reviewing the RGFD, from 43% to 35%, distributed as follows: 10% (PAP), 20% (BEQUIP) and 5% (CNEL).
- Eliminating the AP-AR, placing more responsibility for lending in the hands of the banks.
- Reforming the monetary market (Dec. 12, 1987), making it the main regulator of liquidity.

2. Exchange Rate Measures

- Adopting a policy of maintaining a stable real exchange rate so as to bring about nominal depreciation of the dinar if the national inflation rate surpasses international inflation.
- Devaluating the dinar by 10% in August 1986 and accelerating depreciation in 1986/1987.
- Granting amnesty in matters relating to exchange rates (Law 87-72 of Nov. 26, 1987).
- Liberalizing imports to certain products (raw materials and equipment).
- Allowing resident exporters to hold accounts in foreign exchange.

3. Tax and Customs Measures

- Enacting a tax amnesty (Law 87-71 of Nov. 26, 1987).
- Establishing a value-added tax and reducing general income tax and profits tax through legislation (1988 budget).
- Reducing and harmonizing customs duties on certain goods.

4. Investment Promotion Measures

- Adopting a new investment code, which eliminated the prior licensing requirement and granted advantages and guarantees, in function of the criteria of export, decentralization and creation of employment, technological component, and integration.

- Restructuring public sector firms (Law 87-47 of Aug. 2, 1987), determining the modes for their privatization.

5. Wage and Price Measures

- Liberalizing domestic prices for certain goods.

- Adopting restrictive incomes policy with certain corrective measures: increasing the minimum industrial wage in July 1986 (from 2,640 to 2,900) and by 3% in November 1987.

The second series of measures adopted in the last quarter of 1987, and especially in 1988, was aimed at launching economic recovery by stimulating supply and improving utilization of existing productive potential.

6. New Tax Measures

- Reducing customs duties on equipment imports.

- Eliminating the VAT for certain goods and activities.

- Reducing other taxes.

- Reducing the recording fee on real estate transactions and measures adopted relating to income from transferable securities.

7. New Monetary Measures

- Reducing interest rates by 2 points in October 1987, following decreases in the TPS (1.5%) and the TMM (0.5%).

- Eliminating the AP-AR, maing the banks responsible for credit. As a result, the banks presently receive a larger margin than in 1986; but they are called on to share more actively the risk inherent in all private sector lending.

- Expanding the money market so as to include the other financial establishments, with a view to rendering it more dynamic and making it the main regulator of money creation and circulation.

These measures are in addition to those undertaken since September 1986, revising the RGFD so as to limit deposits to 35% instead of the 43% previously agreed to, giving the banks greater leeway in financing the economy but also more responsibility, with the corresponding remuneration.

8. Other Institutional Measures Taken Recently to Encourage Investment and Stimulate Supply

- Adopting new investment code (August 1987, 1988, 1989), eliminating the prior licensing requirement and granting advantages and guarantees in function of the criteria of export, decentralization and creation of employment, technological component, and integration (Law 87-50).

- Adopting a law to restructure public sector firms (August 1987), determining the modes of their privatization (Law 87-47).

- Encouraging competition, first among local firms and then vis-a-vis foreign firms.

9. Measures Taken to Stabilize the Social Climate

- Reemploying workers who had been laid off.

- Increasing the minimum industrial and agricultural wages (beginning January 1988).

- Increasing the pay scale of civil servants by no more than 3% for all wages and salaries.

In addition, other measures for regional development and promotion of employment for young people have been adopted as part of the effort to better allocate state resources.

10. Measures Taken or Under Discussion in the Agricultural Sector

- Rescheduling farmers' outstanding debts as of Dec. 31, 1987 and extending this measure to members of the SCMs and the World Food Programme cooperatives.

- Extending the repayment deadline for farmers whose unpaid debts are less than 1,000 D by one year.

- Revising the agricultural investment code.

- Encouraging young technical personnel to establish themselves on state-owned lands.

- Instituting real estate loans favoring young people.

- Improving the financing conditions for procurement of agricultural equipment.

- Drafting a bill on collective landholdings to clarify their situation.

- Drafting a bill to regulate the exploitation of private and state-owned lands by corporations.

- Making barley, bran, and hay available to livestock producers at subsidized prices.

- Using sugar beet, tomato, and olive-pomace by-products for cattle feed.

- Instituting a preferential rate for water to be used in additional irrigation of forage crops for 1988.

THEME TWO

INCREASING EXPORTS: COMPETITIVENESS AND EXPORT MARKETS FOR AGRICULTURAL PRODUCTS

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Competitiveness and Export Markets for Tunisian Olive Oil

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REPORT SUMMARY
EXPORT COMMODITY STUDY
OLIVE OIL

I. INTRODUCTION

Olives are one of the most widely grown commercial crops in Tunisia. Over the last decade, total olive oil production has averaged 104,000 metric tons per year and Tunisia has exported annually about 50 percent of its production. Export revenues have averaged 54,000,000 Dinars per year and only revenues from marine exports are comparable within the agricultural sector.

This study finds that, while Tunisian olive oils are currently competitive on the world market in terms of quality and price, exports are increasingly being challenged for market share by exports from the European Community. In the immediate future, holding or expanding market shares will require meeting price competition and engaging in effective marketing. For Tunisia, maintenance of market competitiveness depends on improving present productivities of production, processing and marketing.

II. DOMESTIC ISSUES

A. Production

At the production level, the study concludes that Tunisia is living off the capital investments made by earlier generations of olive producers and by the Government of Tunisia (GOT). Although some large, efficient olive plantations do exist, a large percentage of the nation's olive trees obtain low yields. These low yields are attributable to over-aged trees and poor cultural practices.

Since the full use of modern cultivation techniques, water catchment methods, and inputs other than labor has been restricted to a minority of existing olive plantations, average production costs on a per tree basis may be higher than in competing European countries. Moreover, the small size of most Tunisian olive holdings and the increasing fragmentation in tree ownership are making it extremely difficult for growers to adopt modern technologies, chiefly because they cannot spread the fixed costs of such modernization over a sufficient number of highly productive trees. Historically, Tunisia has had a cost advantage in olive oil production since production activities are highly labor intensive. As labor costs in Tunisia rise, this advantage is eroded, particularly if competing producers can offset higher labor costs by mechanizing weeding, water management, tree pruning, and olive harvesting.

To stay competitive in export markets, the study concludes that Tunisia must make strenuous efforts to:

1. Encourage regeneration of existing olive groves as the most economic way to improve yields and reduce costs;

2. Provide credit and other economic incentives to olive growers so that they can consolidate their holdings into management units containing highly productive trees;

3. Restructure producer price schedules so as to bring producer prices for the different qualities more in alignment with actual export demand. The current price structure with quality premiums favors production of virgin oils relative to pure oils, whereas effective demand in new markets, notably North America, is primarily for pure oils. Similarly, the structure of olive processing fees for producers needs to be changed from one based on the gross tonnage of olives pressed to one reflecting the amount of olive oil actually extracted per ton of olives processed. Finally, processors should be allowed to offer olive producers lower unit processing charges commensurate with more efficient processing technologies and thereby attract business from less efficient processors.

B. Processing

Tunisian olive oil is considered to be of high quality. However, much of the oil is processed at higher-than-necessary cost due to the obsolete nature and inefficiencies of many local processing plants. Efficiency can be improved by:

1. Encouraging modernization of olive presses. It is clear that the current flat rate fee structure of olive pressing encourages the use of obsolete presses, which in turn results in higher cost oils. In addition, the spatial distribution of presses is increasingly misaligned with olive production areas. GOT assistance to the sub-sector must include both a liberalization of present processing fee structures and more creative, direct incentives for oil processors to adopt more modern press technologies and, as necessary, site new presses closer to olive production areas.

2. Preventing olive fermentation before pressing. Better controls on harvest scheduling and storage of harvested olives are needed to prevent fermentation and preserve quality. In this regard, liberalization of processor fee schedules would allow for closer working relationships between growers and processors so that harvest schedules would more closely match the processor's capacity and scheduling requirements.

C. Marketing

To improve efficiencies in export marketing of Tunisian olive oils, three primary actions are essential:

1. Streamline the ONH

If the ONH is to be effective and efficient in increasing Tunisia's foreign exchange earnings from olive oil, four steps must be taken:

a) Work with the processors and distributors to improve the uniformity and quality of Tunisian olive oil;

b) Engage in an active campaign to promote Tunisian olive oil in overseas markets;

c) Limit government-to-government sales to situations where this is the only strategy which can achieve market penetration; and

d) Collect and disseminate market information useful to private exporters.

2. Provide incentives for better product packaging for olive oil entering the world market. Current GOT policies which encourage export packaging with a heavy domestic materials component result in high cost, low quality packaging and are one reason why most Tunisian olive oil is exported in bulk. The low quality packaging impairs the quality image of Tunisian exports in all external markets. Until it is possible to improve the quality of the export packaging, it will be extremely difficult to make meaningful inroads into the North American or other non-EC markets and capture the value-added receipts from shipment of packaged products.

3. Explore techniques to increase exports of non-bulk olive oil. It is imperative that a higher proportion of Tunisian olive oil be sold in non-bulk form. This will be difficult to achieve in the short run. One technique for facilitating the process would be to participate in joint marketing ventures. If partners were carefully chosen, appropriate sizing of export containers, improved product appearance, and lower unit costs of export offerings would be enhanced.

III. WORLD MARKET CONDITIONS

A. Production

During the mid-1980s world olive oil production ranged between 1.7 million and 2.0 million metric tons. Global olive oil production is becoming less volatile. In the most recent five years, annual production variability was less than 10 percent of average production. In the preceding decade, year-to-year production fluctuations were nearly 20 percent of average production.

Italy and Spain are, respectively, the leading world suppliers and the major contributors to the 75 percent world market share held by European Community (EC) countries. Over the past decade, Tunisia has produced between 7 and 9 percent of the world's olive oil and has exhibited relatively stable year to year export levels.

B. Exports

Over the past decade, the world olive oil market has become increasingly export oriented, exports rising from 10 percent to 27 percent of production. Spain is the leading world net exporter, followed closely by Greece. Tunisia is the fourth largest exporter in the world, selling an average of 54,800 metric tons annually in the period 1980-86. Of all major producers, Tunisia exports the largest share (50 percent) of annual production.

No reliable data are regularly reported on world export or import prices by grade and packaging. The gross value of exports is not a good indicator of prevailing prices since no reliable data are available to correlate prices, oil grades and package size by export market.

C. Imports

Italy is the leading importer of olive oils, purchasing over half of the total world exports in some years. Much of that volume, however, is processed and re-exported. The United States is the current leading purchaser of imported olive oils, buying about 10 percent of total traded oil (52,000 metric tons in 1986). The United States has exhibited steady growth in imports; however, there are significant year-to-year variations. Two other nations, France and Libya, both of which were leading importers in the past, have reduced imports sharply in the 1980s. Tunisia is the third largest supplier of olive oils to the United States, after Italy and Spain, but currently holds less than a five percent market share. Some Italian exports reaching the United States undoubtedly contain olive oils of Tunisian origin.

With Spain, Portugal and Greece entering the European Economic Community, the EC has become more self-sufficient in olive oil production. This may threaten Tunisia's export position. If the EC market quota for Tunisia is reduced, Tunisia will be forced to look for other market outlets.

D. North American Consumption

For the past fifteen years, average per capita olive oil consumption in the United States has increased at a rate of 2.5 percent per year. The annual rate of increase is slightly higher in Canada. Total annual per capita consumption in both countries, however, is low, at 0.19 kilograms in 1986. Currently, olive oil constitutes about two percent of total edible oil consumption, but increases in olive oil consumption are predicted.

E. Trade Restrictions

Tunisia has duty-free access to the North American market and no non-tariff barriers exist to constrain Tunisian market access. The absence of an accepted standard to define olive oils by grade in the United States, however, does make marketing more difficult. In the absence of such standards, U.S. marketing agents often promote their products using terms and labels -- e.g. "cold-pressed," "extra light" -- which have no equivalents in prevailing international product codes for olive oils.

IV. THE NORTH AMERICAN MARKET

Other than aggregate trade data, information on olive oil sales in North America is very limited. To gain insights, a total of 31 in-depth interviews were conducted in the United States and Canada with olive oil importers and other persons familiar with market and import conditions.

The composition of United States market demand has been evolving quite rapidly in the 1980s. This is due primarily to the entry of new customers who are health conscious and have relatively high income levels. The olive oil market had previously been restricted to consumers of southern European origin. These newer consumers tend to buy olive oils in small container sizes (250 milliliters), in contrast to the gallon purchases preferred by traditional consumers.

The Government of Spain is now encouraging a major expansion of Spanish olive oils into the United States market and is offering price discounts of 40 to 60 percent under comparable Italian oils. Olive oils remain relatively expensive and price-induced substitution for other edible oils is expected to be small. Sales increases are more likely to be associated with changing life styles and dietary considerations among American consumers. Most olive oil appears to be consumed in large cities, especially on the east and west coasts and in Chicago.

The North American market is dominated by sales of pure olive oil. Most North American consumers consider virgin oils too costly and strongly flavored. Blended olive oils labeled light, pure or clear are most popular.

About 70 to 80 percent of olive oil sales are made through supermarkets, with the rest being largely to the restaurant trade. Three brands, Bertolli, Berio and Pompeian, have a 70 percent value share of the United States retail market. This market share appears to be very secure due primarily to these companies' good distribution networks and to strong brand identity by consumers. A large number of brands make up the residual 30 percent of the market. In total, some 91 firms and subsidiaries import and distribute olive oils in North America. These firms may be classified as:

1. Subsidiaries of foreign firms;

2. Importers and distributors of own brand name products; or

3. Brokers.

The Canadian market for olive oils is even less well documented than the United States market, but is thought to share many of the same demand and supply characteristics. Canadian market demand is highly concentrated in two major eastern cities, Toronto and Montreal. In both countries, Tunisian olive oils are well-known and have a very good reputation for quality among the major importers.

Unfortunately, North American consumers do not appreciate the high quality of Tunisian olive oil. They prefer the lighter oils, and are willing to pay a premium for Italian oil. Italian processors recognize this and blend the high quality Tunisian oil with less costly oils to cater to the American preferences. As a result, it does not appear that in the short run Tunisia can capitalize on its high quality oils by obtaining a price premium in the North American market.

V. ALTERNATIVE STRATEGIES FOR INCREASING TUNISIAN OLIVE OIL SALES IN THE NORTH AMERICAN MARKET

Six possible market penetration strategies are selected as representative of the approaches which might be taken by the ONH in an attempt to further penetrate the North American market.

1. A Tunisian Brand Label With National Distribution

This strategy means development of a new label for Tunisian olive oil and national distribution in the U.S. and Canada. This approach would give better access to the retail market, which constitutes approximately 80 percent of sales. A well-accepted brand name would improve price stability since retail prices are traditionally more stable than wholesale prices.

The major constraint to this approach is the cost involved. A major cost would be the new product introduction ("slotting") fee demanded by supermarket chains. These fees can amount to $15,000 to $20,000 per item. With up to five pure olive oil container sizes required per supermarket chain, in addition to virgin and light oil sizes, the total cost per supermarket chain could easily be $100,000 to $150,000. Covering the major national and regional chains and including funds for sample products and promotions, the initial costs of this approach could easily be $2 million. This amount would have to be paid in advance, perhaps several years before desired results are achieved. Additionally, the initial market entrance for a new, non-Italian olive oil could require a price discount of 15 to 20 percent below comparable Spanish oils. This price discount would have to be retained for at least a year, as established brands would resist the entrance of a new brand by offering additional advertising and price concessions.

A new Tunisian brand is unlikely to challenge the three leading North American brands and, therefore, would be placed in direct

competition with the myriad of "lesser brands" who compete for approximately 30 percent of the market. That available share is likely to decline as the promotional activities for Spanish olive oils are increased. Overall, obtaining a one to five percent share of the U.S. market seems to be an upper limit, and this would not come for many years, if ever. Moving beyond a 5 percent share would mean capturing fully 20 percent of the market not controlled by the three market leaders. In 1988 a one to five percent share would translate to a quantity of between 455 and 2,273 metric tons of olive oil.

2. A Tunisian Brand Label With Regional Distribution

This approach is very similar to the first strategy, except that only supermarkets in selected regions would be targeted. For example, since the bulk of sales are made in a few regions of the U.S., it would be possible to obtain a high percentage of total market penetration by targeting outlets in four principal regions: the Northeast, the Atlantic Coastal States, the Great Lakes, and the Pacific Coast. Some cost savings could be obtained in this way, but it should be remembered that the bulk of promotion expenditures in a national campaign would also have been made in these target areas. Costs for a substantial campaign could range from $1 million to $1.5 million. The regional approach would be an appropriate means of testing the feasibility of a national campaign. A region, like the Great Lakes area of the U.S. and Canada, or a state like California, would be a good initial target.

3. Supplier for Institutional Sales

Under this approach, the ONH--or a private Tunisian exporter--supplies oil primarily in gallon containers to distributors for sale to restaurants, hotel chains and other major outlets. This approach is relatively straightforward but does involve the ownership of a brand name.

The limitation of this strategy is that very little high quality oil is sold in this way. Most oil sold to institution outlets is pumice oil. Distributors interviewed expressed an interest in carrying a Tunisian brand, but at a 10 to 15 percent discount below current Spanish oil prices. This market is extremely price sensitive and the brand franchise is weak. It is felt that there are two principal disadvantages of entering the institutional sales market. First, Tunisian oil would lose its quality recognition since this is considered an outlet for low quality olive oil. Second, the institutional market is a residual market and, as such, is subject to extreme price volatility. There would be no certainty that the discount below Spanish prices would remain constant from year to year.

4. Bulk Sales

This is essentially the approach presently taken by ONH in the North American market. These sales are relatively easy to control as they are handled on a case-by-case basis. When more profitable markets exist elsewhere, there is little commitment to ship to North America.

This benefit is also the greatest weakness because it results in a market with no year-to-year stability. Each sale is independent and Tunisia must compete directly on a price basis with all other suppliers Moreover, there is no clear promotional strategy that would increase the volume or stability of Tunisia's bulk sales. The open bulk market appears to be in decline and will remain so as long as Common Market packaging subsidy policies are maintained.

5. Bulk Sales With North American Stocks

This approach is the same as 4 above, with the additional feature that bulk storage is held in North America. Having local stocks would shorten delivery time and make it feasible for ONH to sell in smaller volumes. This would make the product more attractive for a new class of customers, especially smaller firms.

The increase in service costs implied by this approach is quite sizable. It also focuses attention on a segment of the market which seems to be in decline -- i.e., the small institutional supplier/mixer. The technique could lead to competition with current bulk customers -- an undesirable situation.

6. Sole Supplier for a Distributor-Owned Brand

Under this strategy, the distributor owns the brand name and bears the costs of market penetration. The ONH serves as a supplier of the olive oil for that brand. Given the fluctuations of international olive oil prices, the price agreement would have to be flexible and describe not an absolute price but by a formula for determining the price. Several firms have been identified which could serve the role of distributor.

A major benefit to this approach is the assurance of an outlet on a regular basis. Most likely, the volume would be relatively stable year to year. GOT investment costs would be minimal and ONH activities would be restricted to assuring the volume and quality of oil required by the North American distributor. A disadvantage of this approach is that the long term stability of this arrangement would be in doubt. The brand name owner could at any time find another major supplier. A multi-year exclusive supply agreement could reduce such risks.

VI. MARKETING STRATEGY RECOMMENDATIONS

In selecting which of these six marketing strategies is most appropriate, several factors must be considered. The strategy must not demand excessive resources in a single year, or require marketing support from ONH which could not reasonably be allocated to the North American market. Furthermore, in our judgment, a strategy should not be adopted unless it offers a reasonable prospect of increasing sales by 20 percent within two years.

Using these criteria, only one strategy (#6), sole supplier for a distributor-owned brand, seems appropriate. Strategies 1 and 2 would

involve major initial investments in a brand name and introductory distribution fees. Due to the high failure rate (over 50%) of new brands in the highly competitive U.S. market, product introduction is a risky undertaking. In the case of the ONH, the risks are compounded by the limited number of ONH staff who have expertise relative to the North American market distribution requirements. Taken together, these limitations suggest that the ownership of a U.S. brand is not an appropriate short term strategy. Strategy 4 has limited additional potential since this approach is the current marketing program.

The most attractive initial strategy then appears to be 6, the establishment of a sole supplier relationship for an established distributor-owned brand. This approach will provide access to the critical United States retail market via a known brand but without the costs and risks associated with establishing a new brand. An evaluation of the Canadian market leads to the same conclusion. Indeed, this approach is even more appropriate in Canada due to its small population, concentrated major olive oil markets in Montreal and Toronto, and its limited number of bottling facilities. This constraint would necessitate importation in retail containers, not bulk. The Canadian market is so small that a U.S. distributor could serve the Canadian market as well. The economies of size in product handling and distribution, as well as market oversight, dictate that arrangements be made to cover the entire North American market, not the two national markets separately.

Interviews made for this study led to the identification of two potential distributor cooperators, Lindsay Olive Growers of Lindsay, California and Casa Importing, of Utica, New York. These firms are predominantly regional in their distribution so that working with both would not lead to a conflict of interest. Casa could handle distribution in the eastern Canadian market. These firms are offered as suggestions for they have the necessary equipment and expertise, and their management has expressed an interest in a supply agreement.

If this approach is followed, it would be necessary to negotiate an agreement between the ONH and the distributor. Several factors must be included in the agreement. Given the vicissitudes of the world olive oil price, a price formula rather than a fixed price must be established. A price formula is typically based on some observable price, such as the EC support level. The duration of the contract is also critical for its cancellation would leave the ONH without an outlet for a substantial amount of its volume. At a minimum, it would be preferable to have contracts with several firms to reduce dependence on any one. Expiration dates of contracts should be staggered to avoid simultaneous negotiations and significant disruptions in the flow of exports into North America.

During the initial period of working with an existing distributor, a knowledge base relative to the operation of the North American market can be established. In the longer term, the potential of acquiring a brand name should be reevaluated.

It is difficult to be competitive in the North American market without intimate and daily knowledge of prices, the characteristics of

American consumers and the people who control the distribution system. A Tunisian export representative should be located in the United States and should have the authority to negotiate prices and terms of trade for olive oil exports on the spot since a fast response time is necessary to capitalize on existing sales opportunities. This person should be located near the offices of major customers. He should be fluent in English and thoroughly familiar with American commercial practices. This person should coordinate all North American sales agreements and develop rapport with U.S. or Canadian-based processors and brokers.

If this marketing strategy is to be successful, it must be supported by a number of key changes in Tunisia. The thrust of the following recommendations is to produce olive oil of a quality more commensurate with dictates of the North American market and to insure that Tunisian olive oil is packaged and priced in a way that will allow it to be competitive in the United States and Canada.

Tunisian producer prices must be restructured to bring producer prices for the different quality oils more in alignment with export market prices. The current producer price structure with quality premiums favors production of virgin oils relative to pure oil, whereas effective demand in the North American market is primarily for pure oils. If farmers are charged a flat rate per ton for pressing olives, there is little incentive to upgrade the quality and oil content of olives produced. Changes in the processing price structure should include charges that reflect the amount of oil extracted per ton of olives processed and not simply the number of tons of olives processed. More competitive charges for processing would also improve net returns to farmers by encouraging processors to locate operations nearer to producing centers, thereby lowering transport costs.

Modernization of olive oil presses should be encouraged by allowing market forces to set the olive oil pressing rate. The current flat average rate encourages the use of obsolete presses, which in turn results in higher cost and perhaps lower quality oils. A revised pricing system should be coupled with target GOT subsidies to encourage additional investments in modern processing plants.

The requirement that only domestic materials be used in packaging for export should be eliminated. The current GOT policy results in high cost, low quality export packaging and is one reason why most of the olive oil is exported in bulk. The poor quality, unattractive packaging impairs the quality image of Tunisian olive oils in all export markets. Until the quality of the packaging is improved, it will be impossible to make meaningful inroads into the North American or other non-EC markets. Removal of this blanket requirement would make it possible for the private sector to invest in equipment to package olive oil in appropriate size containers and competition would force local manufacturers of packaging materials to improve the quality and lower the unit cost of their offerings.

Labor costs in Tunisia are considerably below those in the United States. If the strategy of Tunisia being the sole supplier for distributors with an established brand is to be followed, both quality

and price considerations will be imperative. U.S. distributors who were contacted expressed a willingness to market olive oil packaged and labeled in Tunisia since they recognize the potential price advantage. To capitalize on this opportunity, it is imperative that they be able to meet container and labeling specifications, and produce a high-quality packaged product.

Agricultural Policy Implementation Project

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Competitiveness and Export Markets for Tunisian Citrus Products

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1 This paper is based on: "Export Commodity Study-Citrus," January 1989.

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REPORT SUMMARY
Export Commodity Study
Citrus

Citrus products were one of five export commodities chosen for analysis in 1988/1989 under the GOT/AID Agricultural Policy Implementation Project. Part A of this study was directed toward assessing the key factors affecting the export potential for Tunisian citrus fruits. Part B of the study investigated the prospects for increasing citrus export to the North American market. The results of Parts A and B were used to develop strategic marketing recommendations for the Tunisian citrus sub-sector of the Tunisian agricultural economy.

Part A: Citrus Competitiveness Study

INTRODUCTION

Citrus has been commercially produced in Tunisia since 1918. By 1986, there were approximately 3.4 million citrus trees on 13,200 hectares of land. Around 80% of citrus production in Tunisia occurs on the Cap Bon peninsula, and over 90% of production is privately owned. In 1986, 85% of citrus growers had fewer than 2 hectares of land planted to citrus trees.

Because of climatic conditions, Tunisia is the premium production zone for Maltese oranges. Due to slow replanting rates, citrus plantations in Tunisia have been aging. Other citrus fruits grown in Tunisia are navel oranges, valencia oranges, clementines, mandarins, tangerines, and lemons. Of these, Maltese oranges accounted for nearly 26% of total production in the 1986/1987 season. Citrus production totalled 250,000 metric tons in 1986/1987 of which approximately 20% was exported. Over 90% of citrus exports were Maltese oranges.

CITRUS PRODUCTION

Citrus production capacity is limited by climatic conditions. Prevailing coast winds are cited as one serious problem. Also, citrus may be damaged by hot, dry winds which also aggravate the problem of June blossom/fruit drop. Moisture is the most important constraint to increased citrus production in Tunisia because irrigation water supplies are limited and citrus does poorly under drought stress. Citrus also does not tolerate freezing temperatures although low temperatures are required to produce good flavor and color.

Although the Maltaise Demi-Sanguine (Maltese in English) is the most common citrus grown in Tunisia, lemons, and clementines are also significant. The Maltese is considered the best sweet orange in the world. The fruit in slightly oblong with a medium thick skin that is easy to remove and deep orange flesh with crimson spots or lines. One limitation is that the Maltese does not ship very well when it is fully mature. Moreover, a tendency to low yields and alternate production have been reported. Although general characteristics of the Maltese can be described, there is a great deal of genetic diversity present in

Tunisian planting of Maltese oranges. This influences fruit characteristics such as crimson coloring and data of maturity.

The Eureka lemon produces throughout the year, but production is heaviest in the spring. The quality of lemons produced in the cooler, coastal regions is excellent. The fruit yields a great deal of juice and is of medium size and uniform shape. Production is declining due to problems with the Mal Seco.

A 1988 report by Groupement Interprofessionel des Agrumes et des Fruits (GIAF) recommends that Tunisia citrus producers specialize in Maltaise Demi-Sanguine and Eureka lemons. The 1986 citrus tree census by GIAF found that tree density averages 262 trees per hectare and yields average 19 tons per hectare. Production has increased greatly over the previous 20 years due to young groves coming into production, the development of water resources, and improved cultural techniques. The GIAF has set a yield goal of 30 tons per hectare to be achieved by 1996 and ultimately to achieve 40 tons per hectare.

The key factors which affect production of citrus in Tunisia include yields, pest and diseases, irrigation, soil fertility management, pruning, and windbreaks. It is clear that yields could be greatly increased through improved cultural practices because the climate and soil conditions are well-suited for citrus. Yields, however, suffer because of diseased nursery stock, weak trees, and poor soil and water management practices.

The major pests affecting citrus are California red scale and the Mediterranean fruit fly. Virus diseases due to poor cultural practices at the nursery level adversely affect production. The most common virus problems are Psorosis, Blind Pocket, Exocortia, and Cachexia-Xyloporosis. Mal Seco is the only fungus which appears to be a serious problem.

Irrigation is the most limiting factor for production of citrus in Tunisia. Salinity is also often a problem in irrigation water. Government irrigation projects are problematic because they often deliver water to growers in large quantities over a short period of time. Better control of summer weeds as well as individualized irrigation systems, such as foggers and mini-sprinklers, can improve irrigation efficiency . Because of the timing of government water deliveries, the need for close monitoring, and tree moisture requirements and poor soil texture, drip irrigation has not been particularly successful. Many growers use furrow or basin irrigation, but these methods have a problem with seepage.

Because Tunisian soils tend to be light in texture and calcarious, soil fertility management is important. Water and nutrient retention tend to be poor unless soil organic matter is maintained at high levels. Nitrogen, phosphorus, calcium, and micro-nutrient additions are recommended as well as manure applications or green manure cropping. Legumes are the recommended green manure crop. Despite the high cost,

many Tunisian citrus growers apply animal manure.

Although all citrus requires some pruning for correct tree growth and fruiting, excessive pruning which often occurs in Tunisia is unprofitable and often counter-productive.

Windbreaks are essential for citrus production in Tunisia. Trees are planted perpendicular to the prevailing winds. Cyprus is most often used, but tamarack, casuarina, and sesbania are also used.

The key factors affecting the quality of citrus in Tunisia are pests, varieties grown, and climatic factors. Pests may cause damage to the flesh or rind of fruit therefore affecting quality. Post-harvest keeping quality varies among varieties, and post-harvest cooling facilities to retain quality are inadequate. Although the Tunisian climate is well-adapted to citrus growing, constant winds may scar fruits if precautions are not taken.

The key factors affecting the cost of citrus production are irrigation input use, and pruning. Irrigation is the greatest cost problem, but the introduction of individualized irrigation systems can increase efficiency and lower costs. The use of costly animal manure should be evaluated versus the use of chemical fertilizers and winter cover crop to reduce input cost. Because labor is abundant and inexpensive, much unnecessary pruning is done on citrus trees.

Other crops which may be considered instead of citrus include table grapes and off-season vegetable crops. Table grapes may be more profitable then citrus, but the fruit is more perishable. Vegetable crops also may be more profitable, but there are more risks involved i vegetable production and more management is necessary. Also, not all citrus growing regions are climatically suited to winter vegetable crops.

In order to improve citrus production, three factors should be considered. First, efforts to increase the production and exportation of Maltaise Demi-Sanguine and Eureka Lemons seem well-founded. Second monitoring of citrus stock production needs to be determined and disciplined to eliminate virus-infected nursery stock. Finally, individualized irrigation systems unique to soil conditions and water availability need to be developed.

CITRUS MARKETING

The citrus production system in Tunisia consists of many small scale firms and fragmented operations. Coordination within the industry is facilitated first, by that fact that almost all citrus production is located near Tunis, the largest domestic market and export port, and second, that the Cap Bon peninsula is small enough so that various citrus sector actors can easily interact. Three groups contribute to the viability of the production sector. First, the Groupement Interprofessionel des Agrumes et des Fruits (GIAF), a quasi-

governmental organization, provides materials and technical assistance as well as gathers and disseminates market information. Second, the Ministry of Agriculture (MOA) provides technical assistance, extension agents, organizational aid, and research support. Third, various private sector firms provide services similar to GIAF and MOA.

Citrus is marketed in three primary ways. First, a producer may sell to an itinerant buyer who undertakes all the marketing functions and then resells the citrus. Second, a producer may transport citrus to a local or national secondary market where the price is negotiated as a function of supply on a particular day. Third, a producer may deliver to a packer/shipper for resale. These latter deliveries are usually export destined and may account for as much as 20% of sales.

With Maltese oranges accounting for approximately 90% of citrus exports, they are the only real citrus export commodity. The Maltese season begins around the first of January, peaks in March and April, and drops off by the beginning of May. The majority of Maltese exports go to France where the 75/88 combined size category accounts for the largest proportion of exports and generally receives the highest average price.

Oranges for local consumption are marketed directly from farm to wholesale markets with few marketing functions occurring in between. Several marketing activities, however, occur for the export product. Oranges are graded by size and quality, treated for disease and fungus, sometimes waxed, packed in boxes, and then delivered unrefrigerated to the Port of Tunis. The fruit is then loaded onto pallets and placed into unrefrigerated and often poorly ventilated boats for shipment.

Currently, about 35% of Tunisian Maltese orange production is exported. In the 1987/1988 season, 42,000 metric tons were exported of which the majority were to France through the Port of Marseille. As much as 100% of exports have been shipped to France in past years. Recently, more export oranges have been shipped to Eastern European countries primarily under barter trades. The Eastern European markets will often accept smaller size fruits which may be unacceptable for other markets.

Quality, timing, and competition as well as the price of other citrus products affect the export prices received for Maltese oranges. Maltese orange prices are considerably variable. Prices generally increase as the season progresses because fruit quality improves. Because of its gourmet perception in France, the Maltese often receives a higher price than competing citrus from other countries. EC enlargement may have a dampening effect on Maltese exports to European countries in the future because of an expected increased supply of oranges from Spain.

Marketing costs associated with exporting Maltese oranges can be broadly classified into packing, shipping, and dock costs. These categories, which account for nearly 50% of all marketing costs, were identified as potential areas in which to reduce costs. Outmoded and

bulky wooden boxes could be replaced with cardboard boxes which are the worldwide industry standard. Handling costs are believed excessive, and some handling activities could be shifted to the producer or to the packer/shipper. Importer commission fees are generally higher than other products because of the higher risk associated with variable quality and arrival condition of the Maltese orange.

Domestic consumption absorbs more production variation than does the export market. Often the price differential between domestic and export markets is small enough so that producers are better off selling domestically. Tunisian consumers have a high preference for oranges in general, especially for the Maltese. Per capita orange consumption in Tunisia is among the highest in the world, about five times that in the U.S., for example.

The GIAF distributes much marketing information on internal and external production and marketing situations for citrus as well as other fruits. The information is generally timely and of high quality. The GIAF has a permanent representative in Marseille who collects and transmits information on the French market on a daily and weekly basis. In contrast, there is a lack of information available about other European countries and North America. A preliminary advertising and promotion campaign launched in the 1987/1988 season in France was quite successful.

Although GOT policies primarily operate on the production part of the citrus system, one marketing constraint which appears to limit the citrus industry is that retail margins on food products cannot exceed 20% of the wholesale price. Because this 20% margin is not adequate to cover retail merchant procurement and merchandising costs, a less efficient secondary distribution system has developed in order to avoid government surveillance. Often a retailer will mix fruit qualities in such a way that the average margin is 20%, but this prevents consumers from being able to purchase a higher quality product at a higher price if they wish as well as preventing producers from receiving the proper incentives to produce high quality product.

A government policy which h s a favorable impact on the citrus industry is a subsidy of 50% of transportation costs for shipments to new markets.

CONCLUSIONS

Three production constraints for citrus that need to be addressed are: first, the provision of disease free citrus nursery stock; second, the determination of the best adapted irrigation systems; and third, the review of various other production practices.

Several additional factors affect the export potential of citrus. First, although the Maltese orange can often command a premium price in export markets, the Maltese loses competitiveness if it is priced too high relative to other citrus products. Therefore, it is necessary to

keep marketing costs low. Second, bulky, unappealing wood boxes need to be eliminated. Third, package appearance needs to be improved as well as the high losses associated with poor packaging. Fourth, inconsistent grading of fruit needs to be replaced with better practices. Fifth, deterioration of appearance and shelf life of Maltese oranges needs to be improved through refrigerated storage and transport. Finally, because of increasing international citrus trade throughout the world, increased sophistication of marketing and distribution of Maltese oranges is necessary.

Government policy changes which may improve export potential include first, the possible creation of a collective sales agency to increase the efficiency of sales transactions instead of having each exporter making separate sales agreements. Second, because of keen competition for Maltese exports by the domestic market, especially at the end of the season when prices are highest, government policies need to encourage diversifying current production to other fruit products and maybe even to import other fruit. Lastly, more flexibility needs to be allowed in retail price margins, especially for perishable products such as citrus.

Part B. Citrus Export Marketing Analysis

WORLD MARKET CONDITIONS .

Total world production of oranges, tangerines, and mandarins averaged 46 million metric tons over 1980 to 1986. The United States is the largest orange producing country with approximately 18% of world production. Spain, Italy, and Mexico are the next highest producers.

An average of 5.2 million tons of oranges, tangerines, and mandarins enter the world market each year with Spain accounting for 30% of world trade. Morocco, Israel, and the United States follow. World exports of oranges account for 11-12% of total production.

Maltes. orange production and exports are extremely small when compared to world specialty orange output and trade and especially when compared to all citrus output and trade. While citrus is utilized both in processing (ready-to-serve and frozen concentrate juices) as well as fresh consumption, this report concentrates only on fresh markets.

In the United States market, Florida and California account for 70% and 28% respectively of citrus production. Florida produces primarily Navel and Valencia varieties of oranges and California produces primarily Navel. About 75% of the fresh oranges sold in the United States are produced in California, but Florida produces about 94% of the oranges for processing.

Specialty oranges grown in the United States which may compete with the Maltese include tangerines, tangelos, honey tangerines, temples, and K-earlies. Total U.S. specialty orange production in 1986 averaged 1.2 million pounds. Florida is the leading specialty orange producing

state, but much of the production is used for processing. On average, fresh utilization of specialty oranges is nearly half of production.

U.S. marketings of fresh citrus start in September, peak in December, fall off in January and February, peak again in March, and decline sharply in June. The first peak occurs when Florida comes into full production and the second peak occurs when of California comes into full production. Thus, Maltese oranges may be brought into the market in January and February when the U.S. market is less saturated. Florida specialty oranges follow different peak schedules. Tangerines and tangelos peak in December, Temples peak in January, and K-earlies peak in October.

Tunisian imports would miss the highest seasonal prices if they were imported into the U.S. in January and February when U.S. prices are only at intermediate levels. U.S. prices generally are much higher early in the season, but prices for both round and specialty oranges are quite variable. In general, the prices of specialty oranges in Florida are lower than in California. Coinciding seasonality is a significant obstacle to Tunisian exports capturing part of the citrus market.

U.S. citrus imports have been increasing recently with 73,560 metric tons imported in 1986/1987. Imports came primarily from Latin America (Mexico), Israel, and Spain all of which accounted for 90% of imports. Spain greatly expanded exports to the U.S. in the past several years and has obtained 30% of the U.S. import market.

In contrast to the U.S., Canada is totally dependent on citrus imports to meet domestic demand, and imports have been increasing recently. The U.S. accounts for 70-80% of Canadian imports, but Japan, Morocco, and Spain are also significant.

Consumption of oranges, tangerines, and tangelos in the United States has been fairly stable at 6.1 kg per person over 1983-1986. However, total citrus consumption in Canada averaged 27.4 kg per person in 1982-1984 and has been increasing significantly.

The U.S. imposes import duties of $0.01 per pound on citrus imports except for Caribbean Basin Initiative countries which pay no import duties. Some developing countries, not including Tunisia, pay a $0.00[illegible] per pound duty. Canada imposes no import duties.

In order to import into Northeast ports in the United States, oranges must undergo cold treatment before entry. No such phytosanitary regulation exists for Canada.

About three quarters of fresh fruits and vegetables in the U.S. are sold in supermarkets with foodservice accounting for almost all of the remainder. Although terminal markets have become increasingly less important in the United States and to a somewhat lesser extent, in Canada, they still play an important role in importing and distributing

foreign produce. Supermarkets rely primarily on wholesalers and importers at terminal markets at major ports of entry.

EEC countries may be attractive targets for Tunisian export expansion. Per capita consumption averaged 28.9 kg per person in 1985/1986 which is about twice that in the U.S. and about equal to Canada. Consumption varies greatly between countries. Lower transportation costs to European countries along with high consumption may make those markets more attractive than North American markets.

The EC has a complex system of tariffs. If the entry price for citrus falls below a predetermined reference price, a variable duty may be applied along with a customs duty to bring the price up to the reference price. Common customs tariffs are applied in the range of 0.8% to 4.0% depending on the season. Quality restrictions also apply. Some in the industry believe that a European quota of 28,000 tons will be applied to Maltese oranges beginning in 1992, the anticipated year of total European economic unification.

NORTH AMERICAN MARKET ANALYSIS

Due to the lack of domestic citrus production capacity, Canada imports nearly four times the volume of fresh oranges as the U.S. The volume of imports are quite variable from year to year and there is much substitution among suppliers. Morocco recently entered the market in 1981 and increases its share of imports nearly every year. There appears to be strong market opportunities for specialty oranges as well as round oranges. Canadian demand for oranges during the time period when the Maltese oranges are available for export (January to March) could be strong enough to absorb a significant share of Tunisia's total export volume.

The U.S. has approximately 110 bearing acres of blood oranges which is expected to triple in the next five years. However, U.S. brokers report that domestic blood oranges are of low quality and would not be likely to compete well against a product like the Maltese oranges if it was of high quality, juicy, and blemish-free.

Many North American citrus industry participants felt that a strong, albeit limited, market exists for blood oranges in the U.S. if the oranges are marketed as a specialty, high quality product. Current market opportunities would lie mainly with small specialty produce outlets and upscale metropolitan restaurants.

Importers felt that promotion at the distributor and consumer levels would be required perhaps at a cost as high as $75,000 to $100,000 per year. Price discounts and point of purchase displays would also be needed. The most important type of promotional materials indicated were price cards.

Without exception, importers indicated that they would handle the product on consignment terms only. After two or three years, FOB sales

may be possible. Container loads of 1000 cartons are the minimum amount that would be of interest.

U.S. importers indicated that the most desirable orange sizes would be between 56 and 88 count (per carton) with as much blood color as possible. Cardboard crates would be better for shipping than wire bound wood crates because the use of wooden crates increase product damage and cardboard crates facilitate the U.S. inspection process. Improving the appearance of shipping cartons would also increase marketing potential. Brokers were not interested in secondary consumer packaging. While in transit, crates with both netting and banding should be used.

One constraint which was identified by broker/importers in importing Maltese oranges was the 5 of 6 day delay required for federal inspection of the product upon entry into the U.S. but this might be resolved with on-sight inspection at the point of origin. Also, ten to sixteen day cold treatment of imported citrus is necessary to control the Mediterranean fruit fly. However, it may be possible to perform the treatment on board ship during the 3 week transit time. Quality may be negatively affected by cold treatment and needs to be further explored for the Maltese variety. Shipment in containers holding 1000 4/5 bushel cartons is necessary for the required cold treatment, but some U.S. brokers felt that no U.S. markets could absorb an entire container before product deterioration set in. One further constraint is that, by federal regulation, fresh citrus cannot be imported into any citrus-producing state or one that borders a citrus producing state.

Virtually every importer interviewed indicated a willingness to import Tunisian Maltese oranges under certain conditions, for example, under consignment sales.

CONCLUSIONS AND MARKETING STRATEGIES

The following conclusions can be drawn from the preceding analysis.

1. Given likely difficulties and costs of entering North American markets, first priority should be given to expansion in European markets.

If production levels were increased to the level that export quantities could be sustained to non-French markets, the first priority should be for export expansion in European countries adjoining France which would be less costly than exporting to North American markets.

2. As a secondary strategy, develop and exploit special market niche opportunities in Canada and perhaps the United States.

Although the costs of entering the U.S. and Canadian markets are high, consumer tastes for high quality and exotic fruit may be strong enough so that high market niches for most volumes of Maltese oranges may

possibly be developed.

3. Whichever market is ultimately selected, quality improvement is essential.

Uniform quality of export shipments is essential as well as durable and attractive packaging. Cooling facilities in packing houses and refrigerated transportation are necessary.

4. Promotional activities must accompany all export activity.

Promotion should be directed to buyers and distributors in the trade because export volume would probably not be sufficient to justify consumer level promotion. Displays at produce trade shows in European countries should have first priority.

5. Extend the harvest season.

The harvest season for Maltese oranges should be extended through development of early and late varieties, use of chemicals to hold fruit on trees longer, and use of refrigerated storage. This would especially facilitate taking advantage of the holiday season market opportunities in Europe.

STRATEGIC ACTION PLAN FOR CITRUS

Tunisia must develop a plan to reduce the cost of production and distribution of the Maltese orange as well as develop a strong quality image of the product and its packaging. Lower cost and a higher quality image are essential for competitiveness. The elements of this plan include production technology, market quality, and export expansion.

Production Technology:

1. Use only disease free nursery stock.
2. Develop individual irrigation systems.
3. Improve pruning practices.
4. Invite in an expert consultant on pruning, pest control, soil management, windbreaks, and variety selection.

Market Quality:

1. Eliminate the restriction on importation of quality packaging materials through greater use of the offshore export licensing arrangement.
2. Impose strict grading controls on export shipments.
3. Conduct experiments to determine the quality and cost implications of using precooling equipment in all packing sheds and of using refrigerated transport equipment for exports.
4. Eliminate the fixed wholesale and retail margin on domestic sales of citrus products.

Export Expansion:

1. Give first priority to developing European markets.
2. Establish a budget and a system for promotion in target markets.
3. Develop and exploit market niches in Canada and perhaps in the United States for limited volumes of high quality fruit.
4. Extend the harvest season.

Agricultural Policy Implementation Project

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Competitiveness and Export Markets for Tunisian Wine

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[1] This paper is based on: "Export Commodity Study-Wine," January, 1989.

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REPORT SUMMARY
EXPORT COMMODITY STUDY
WINE

I. INTRODUCTION

World wine markets have experienced a period of substantial stress and adjustment. Stagnating or falling consumption combined with continued increases in production have been placing downward pressures on prices in many countries.

The growing imbalance between supply and demand in the world market can be traced to changes in consumer tastes and preferences in a few key countries, particularly Italy and France. In each of these countries the wine market has shrunk by about 10 million hectoliters over the last 20 years. Increased urbanization, the aging of the population, concerns about the health implications of alcohol, and a shift in preferences to other alcoholic beverages, such as beer, or to non-alcoholic beverages, have had a dramatic impact on wine consumption in major wine consuming countries. At the same time, growing incomes have resulted in a shift in consumption patterns worldwide away from cheaper, low quality wines towards more expensive high quality wines. Producing countries have responded to this trend, particularly the major exporters. In the early 1970's, quality wines accounted for less than 25 percent of total production in the European Community. In recent years the share of quality wines has risen to over 30 percent.

In a world of increasing production and declining consumption, the North American market has been a relative bright spot for producers and exporters. The wine market in the United States expanded rapidly in the early 1970's. With an annual average consumption of 20 million hectoliters in 1981/85, it is the largest non-European market and accounts for seven percent of world consumption. The Canadian market has also increased in size, although with an annual consumption of roughly 2.3 million hectoliters it accounts for less than one percent of world consumption. In recent years, even the North American markets have begun to show signs of saturation. Total wine consumption in the United States declined in 1987 and 1988, and adult per capita consumption of table wine has been decreasing since 1982.

II. DOMESTIC ISSUES

The Government of Tunisia (GOT) has an ongoing program for agricultural sector structural adjustment. Priority has been given to the promotion of agricultural exports. Wine was one of five export commodities chosen for analysis in 1988/89 under the GOT/AID Agricultural Policy Implementation Project.

The Tunisian wine/grape industry has been in a state of prolonged decline since Independence. In order to restore the viability of the industry, improve export potential, and increase its contribution to the national economy, a number of domestic measures are required to improve

production practices, wine quality, and product presentation. These essential measures are as follows:

1. Improve wine grape production practices. Tunisia needs to improve the quality and consistency of the basic raw material for wine-making. Improvements in grape production should be made through the gradual abandonment or removal of low quality vines and the establishment of new vineyards on suitable hillside soils. Policies and procedures are needed to make supplemental irrigation water available on a regular basis. The use of irrigation for wine grapes needs to be expanded in order to stabilize grape yields, and ensure product quality.

2. Increase price incentives. In order to exploit the sames opportunities which exist in domestic and foreign markets, profitability of the industry needs to be improved. Better production practices are one element in improving profitability; the other is to improve price incentives. Incentives should be increased through: (i) eliminating the GOT/ONV practice of fixing prices and processing margins through administrative fiat; (ii) eliminating the practice of using tax revenues from domestic sales to cover losses of public sector wine producers; and (iii) changing the *ad valorem* tax on domestic sales to a lower flat rate tax per bottle.

3. Develop a domestic wine production and marketing plan. Several steps are needed to improve domestic wine production and increase the efficiency of wine marketing. These steps are important in improving wine quality both in order to expand exports and to develop the domestic tourist market. Sales to tourists is an area in which Tunisian wines have a clear competitive advantage. To exploit this advantage and to develop exports wine quality, product uniformity, and presentation must be improved. Essential components of a production and marketing plan for wine are: (i) redefine existing AOC wine regions to identify more clearly quality characteristics; (ii) consolidate the number of wine brands into a smaller number; (iii) eliminate excess wine-making capacity by closing obsolete state-owned wineries; and (iv) encourage cooperatives and private wineries to market their products directly, rather than requiring that all wines be marketed through the ONV.

The remainder of this report summary emphasizes the export marketing analysis for North America and suggests a strategy for exporting to North American markets.

III. MARKET PROFILE OF THE UNITED STATES AND CANADIAN MARKETS

The major factors influencing wine consumption and imports in the United States are as follows:

- the United States is a price and income sensitive market for wine;
- the most popular price range for sales is $2.76-$4.25 per 750 ml. bottle;
- the most important wine consuming groups are households with incomes of more than $35,000 and persons aged 30-49;

- advertising, especially television advertising, is important and tends to be used more for imports than domestic wines;

- the complexity of government regulations for wine sales at both federal and state levels means that there are substantial advantages for exporters in working through established importers and licensed distributors.

The growth in the Canadian market has also slowed in recent years. Major highlights of the market profile in the Canadian market are as follows:

- consumer preferences are changing away from red and rose wines toward white wine;

- consumption is concentrated in the most populated provinces (Ontario and Quebec in the east, and British Columbia and Alberta in the west);

- Canadian wine imports are dominated by white French table wines;

- imports have become more expensive with the depreciation of the Canadian dollar.

An important point regarding the Canadian market is that government regulation is much stronger and more pervasive than in the United States market, and is a key factor in marketing wine in Canada.

IV. MAJOR FACTORS IN MARKETING TUNISIAN WINE

In assessing the marketing potential and appropriate strategy for Tunisian wines, it is important to evaluate product characteristics and their relationship to the North American market. Consumer acceptability is a key issue in the pricing and positioning of wine in the market.

A. Consumer Acceptability

Wine is probably one of the most complex products to market. Not only is it highly differentiated, but its success or failure in the marketplace is determined by numerous subjective consumer factors which are constantly changing. First, there are the perceived characteristics of the product in terms of color, aroma, and taste. Second, there is the presentation of the product, in terms of bottling and labeling. Finally, there are the perceptions that may exist through knowledge (or the lack of it) about country or region of origin.

It is difficult to assess these factors completely without exhaustive market research, but in order to provide a preliminary assessment of major consumer perceptions two taste tests of Tunisian wines were conducted in Ithaca, New York under controlled conditions. The first was on July 7 and the second was on July 22, 1988. Ithaca, New York is not a "typical" small town of 50,000 people. It has two universities, one of which is a major

international research university. The population is younger, better educated, and more affluent than the national average. Because of these characteristics it contains a large proportion of wine consumers. It is therefore a good location to assess the acceptability of Tunisian wines among an important group of potential consumers of these wines.

The first tasting was a blind tasting in which invited participants compared Tunisian red and rose wines against selected wines from France, Spain, and California, without prior knowledge of the country of origin. These competing wines are priced in the eastern United States at between $3.99 and $5.99 per bottle. Participants included five wine experts and seventeen residents of the United States. The non-expert U.S. group was comprised primarily of researchers working on various aspects of the Tunisian export study project and their wives. The objective of the tasting was to determine the acceptability of Tunisian wines in comparison to other wines commonly drunk by United States residents. Competing products were chosen as wines somewhat similar in character and vintage to the Tunisian wines, in a price range at the lower end of the premium wine price band. It was thought that this price band would be the most likely for sales of Tunisian wines in the United States. The wines included in the tasting are shown in Appendix 1.

The experts scored both rose wines, on average in the "dislike" range, with the results heavily influenced by one who believed Wine A (a French Rose) to be oxidized. Comments by the experts indicated that both rose wines were too old to have the characteristics normally associated with a pleasant rose wine. The experts were most favorably impressed with Wine H, a Spanish red wine. Two Tunisian reds: **Prestige Lamblot**, Coteaux d'Utique, 1984 and **Pinot de Tunisie**, 1983 scored well and were clearly judged to be comparable in quality to the other reds tasted.

United States residents in the tasting were comprised of 9 females and 8 males. Three participants estimated that they drank fewer than 12 bottles per year (the approximate per capita United States consumption) while nine participants indicated they drank more than 65 bottles per year (approximately 50 liters, or the approximate per capita consumption of traditional heavy wine consuming countries such as Spain and Argentina). United States residents did not find either rose wine to their liking, and gave the highest average score to Wine F, a California wine. The non-experts rated **Prestige Lamblot** highly, but also rated **Pinot de Tunisie** and **Coteaux de Carthage**, 1984 as acceptable.

These scores reveal that, when the experts and United States residents were confronted with tastes comparisons which could not be influenced by product presentation or knowledge about wines regions or the origin of the wines, **Tunisian wines were judged to be about equal in preference to the competing products**. Except for a rather clear preference for the Spanish among the experts, and the California wine (the most expensive wine among the non-Tunisian wines tasted), consumer acceptance of the wine based on taste preference alone appears to be a neutral factor in the marketability of the three Tunisian red wines tasted.

At the second tasting, the participants were primarily local members of the American Wine Society. This group includes individuals who can generally be characterized as having a significantly above-average knowledge of wine.

They are a high income group and tend to be habitual consumers of wine. In this tasting, participants were served Tunisian wines in their original bottles so that the origin of the wine and the presentation (labeling, bottles, corks) were clearly evident. In addition, other persons (guests, other researchers working on the Tunisian study, etc.) were present. The same scoring system was used as for the blind tasting.

The results of the tasting reveal that the red Tunisian wines were generally well-received, as was the Blanc de Blanc. The Tunisian rose wines were rated below average, as in the blind tasting. The Pinot de Tunisie (1983) was particularly well-regarded, scoring high marks with the frequent consumer group of the tasting panel. As in the earlier tasting the Prestige Lamblot received high marks. Several individuals rated the Coteaux de Carthage highly, but the scoring of this wine was highly variable. Subsequent investigation showed substantial variability in quality across the bottles sampled, an issue which is taken up again below.

The Wine Society group was asked to specify a price that they would be willing to pay for each of the wines sampled. The average prices for the reds were in the $5-$6 range, about the range for some of the lesser French AOC wines. This is somewhat higher than the price range which the authors of this report would recommend, but this result tends to suggest that with appropriate marketing Tunisian red wines could find a market niche in the United States.

B. Presentation

Because of the subjectivity involved in wine consumption the visual image of the product is an extremely important factor in North America markets. The condition of the bottle, label, cork and seal are extremely important. Consumers interpret these as primary indicators of quality. They can be crucial factors in whether the product achieves first purchase, and hence whether the consumer actually has the opportunity to evaluate the product itself. The bottles of wine which we received as samples for our tastings were examined carefully.

One of the immediate characteristics apparent was that the labels on most of the bottles suffered from one or more of the following defects: wrinkling; crooked; glue on edges; peeling. These are problems which create an unfavorable impression with potential consumers. The quality of labeling must be improved if Tunisian wines are to be sold at remunerative prices in North America.

The design of wine labels is important. Since French wines have a favorable image in the United States, it is desirable that labels should continue to be in French, but several need to be simplified. North American consumers both appreciate and expect information on wine, particularly for those wines with which they may not be familiar. It would be desirable to have a small label on the back of each bottle in English with information about the origin of the wine (wine region, variety, etc.) and its serving characteristics. A number of the labels were relatively "cheap" in their appearance. A designer, familiar with U.S. packaging preferences, needs to work on these labels. Better quality materials need to be used for labels.

The labeling of Tunisian wines needs to be improved to increase their chance of success in North American markets.

Examination of the bottles revealed several examples of chipped necks. There were many loose-fitting and substandard corks. It is clear that higher quality bottles and corks need to be obtained for the export market. Finally, the color of some of the wines suggested premature deterioration. This could be due to the quality of the corkage, but may also reflect problems in the distillation, bottling or aging process. **Rigorous inspection and better quality control of bottles and their contents will be crucial** if Tunisian wines are to create a permanent and profitable niche in the North American market.

C. Distributional Characteristics and Needs: The United States

The distribution system is three-tiered in much of the United States. This means that it is mandatory for a wholesaler to act as an intermediary between the producer (supplier) and the retailer. As a practical matter, an importer is often added to the distribution system for imported wine. The importer handles such matters as label clearance through BATF, import arrangements and customs clearance. The importer also serves as a contact with the numerous distributors that may be required to move a sufficient volume of wine to make imports profitable.

Tunisian exports to the United States have been handled until recently through an exclusive agreement with Carthage Imports of Kingwood, Texas. This company has specialized largely in importing hand-made Tunisian craft items such as terra cotta, ceramics, baskets, tile panels, and carpets. The company attempted to distribute Tunisian wines in several states in the Southwest (Arkansas, Louisiana, and Oklahoma), and in California. Carthage Imports presented Tunisian wines at the major trade show, the Wines and Spirits Wholesalers of America annual convention in Boston in April, 1988.

Carthage Imports had considerable difficulty in finding distributors willing to handle Tunisian wines. Some wines deteriorated in storage, and the quality of labeling and presentation were found to be a severe handicap in the U.S. market. The prices of the wines ($8.40 per case for **Chateau Mornag**, $10.80 for **La Reserve** red, and $10.80 for **Pinot de Tunisie**, all F.O.B. Tunis) were too high to attract distributors given the current presentation of the wines according to Carthage Imports. In California, the company attempted to offer a tie-in package, in which German, Californian, Australian, and Tunisian wines were offered to distributors as a package. The Tunisian wines were consistently rated as the bottom choice among potential distributors, and were not judged to be acceptable, largely on the grounds of presentation. The management of the company has complained of not being able to obtain timely samples of the wines for use in their efforts to expand distribution.

In August 1988, Carthage Imports sent a letter and a report to the Director of the ONV indicating that they could no longer handle Tunisian wines without more support in the form of promotion and improved product presentation. At the present time, to the best of our knowledge, Tunisian

wines are not marketed by Carthage Imports or any other importer in the United States.

The authors of this report are in no position to assess the validity of the complaints made by Carthage Imports about the cooperation it received from the ONV in its marketing efforts. Certainly the firm's observations about the quality of product presentation are consistent with our own. As stated above, it is vital that this problem be resolved if a renewed effort to market Tunisian wines is undertaken in the United States. It also important to note that Carthage Imports is not a firm which specializes in wine marketing, and may have been limited by its lack of experience and contacts in attempting to expand the distribution of Tunisian wines. This raises the issue of what alternative organizational arrangements could be used if a decision is made to renew efforts to establish a market for Tunisian wines in the United States.

1. Organizational possibilities

The following options are open to foreign wine producers, as shown in the matrix in Table 1.

Table 1. Matrix of Organizational Alternatives

	A. U.S. Bottled	B. Importer Distributor	C. Distributor
Entry cost	L	M-H	H
Short-term revenue potential	M	L	L
Long-term revenue potential	L	H	M
Probability of success	M	L-M	L

H=high; M=medium; L=low.

Alternative A. Importation in bulk with bottling in the United States by the importer.

This method is advantageous if a supplier can find the right importer since this individual will supply all the marketing services needed. The major disadvantages are that a high volume of a uniform product is typically required and if the product is successful most of the financial returns are likely to accrue to the importer.

Alternative B. Bottled imports with Importer-Distributor-Retailer chain.

This is the most traditional route. The importer assumes the role of contact for distributors who usually operate in a single state. This approach needs substantial financial support for each brand exported, in order to get label clearance, and for promotion and advertising, in order to move a sufficient volume. The start-up costs are high and there is a low short-term payoff, but a higher potential long-term payoff.

Alternative C. Bottled imports with Distributor-Retailer chain.

This requires an agent in the United States, who develops contacts with distributors, advertising firms, and the wine industry, etc. There is a start-up cost in terms of travel, especially in building contracts with distributors. An existing importer has much lower costs in getting distributors to handle new brands.

For Tunisian wines the following characteristics are important:

-- There are numerous labels (brands) and imports of these would involve small volumes. This makes start-up and marketing costs per unit high;

-- Tunisian wines have no existing image with consumers in the United States. Their apparent "Frenchness" may help to give them an appearance of quality, but among knowledgeable consumers North African wines are generally associated with low price and quality;

-- There is no existing distribution system for Tunisian wines in the United States.

All these factors suggest that the Importer-Distributor-Retailer chain, Alternative B, is likely to be the most successful option for marketing Tunisian wines in the United States. It involves higher costs and lower returns, at least initially, but has the potential for the greatest long term gains.

In terms of contractual arrangements, where there is a history of business between an exporter and importer, credit can be extended to the importing firm. The French, for example, frequently have such an arrangement and even operate a credit agency with this function in the United States. Other exporters, particularly where there is no existing business relationship with an importer, will send a letter of credit when the wine is shipped and require immediate payment. This is the system that will probably be needed for Tunisian wines.

Several distributors and importers were contacted by the authors in major cities such as New York, Washington, and Houston, as well as in some minor cities such as Rochester, New York. Our experience was that distributors are not enthusiastic about handling the product. However, we did discover one firm which appears to meet the necessary organizational requirements indicated:

Exquisite Tasters International
233 E. 69th. Street, Suite 1-B
New York, NY 10021-5414
Tel: 212-517-7540
Contact: Dr. Edwin Fondo

Dr. Fondo, a native of Southwest Africa, was aware of Tunisian wines, and is interested in importing them. He is highly regarded by knowledgeable individuals in the wines and spirits trade. He handles various wines, including several from France and Australia. He has warehouse storage, enabling rapid response to orders. Dr. Fondo would require an exclusive agreement to handle Tunisian wines in the U.S. market. He has also indicated that he would need considerable promotional backup from GOT, and that in order to interest distributors in new brands the exporter margin must be low initially. These requirements, mirrored by comments with other individuals in the trade are part of the necessary up-front investment in a successful long-term marketing strategy. We recommend that the GOT explore the possibilities of establishing a commercial relationship with a specialized and experienced importer like Exquisite Tasters International to handle its wines, if a decision is made to renew efforts to market Tunisian wine in the United States.

2. Margins and Pricing

The issue of pricing of Tunisian wines in the U.S. market is critical, not only from the perspective of whether these wines are likely to sell, but also whether Tunisia would find it profitable to ship wines to the United States. There are a number of elements to be taken into account in estimating the likely sales price and returns.

In terms of product pricing, based on our observations of the product, the results of tastings, and consultations with those in the industry we would suggest that Tunisian wine should be priced in the $3.00 - $5.00 per bottle price range. This will place it in competition with "fighting varieties" ($4.00 - $5.00/bottle American produced Cabernet, etc.) and lower-priced premium wines from France, Italy, Spain, Argentina, and Chile. This price range includes the less well-known French AOC wines as well as many Italian DOC wines. However, in order to be successful in this price range it will be essential to improve the presentation of the wine, improve and maintain consistent quality, and work with importers-distributors-retailers on the establishment of an image for Tunisian wine.

The establishment of an image will require the preparation of good promotional materials developed by government (using recognized public relations experts in the American market), the use of trade shows (e.g the Wine and Spirits Wholesalers of America), the exploitation of wine and food exhibitions, contact with wine tasting groups, etc. It will also be necessary to generate good will and product awareness by sponsoring trips to Tunisia for potential importers, distributors, retailers and wine writers, etc. It is recognized that Tunisia will never be able to compete with some other countries in terms of media advertising, but Tunisia must be willing incur

significant expenditures in order to promote its wine image. A few favorable articles in the press, and the interest of a few key wine industry individuals in handling and selling the product could make the difference between failure and success.

D. Distributional Characteristics and Needs: Canada

The observations made above about presentation (labels, corks etc.) hold equally for the Canadian market. However, a major difference derives from the degree of government control of the distribution system. Bureaucratic control means that the time required to introduce a product into the market is far longer than in the United States. It can take several months to obtain a listing for a product through a provincial Liquor Control Board (LCB), and for the product to finally appear in the store. In Ontario, for example, less than 800 imported wines were listed by the Liquor Control Board in 1986, compared to almost 700 domestic wines. Only British Columbia lists a large number of imported wines (over 1,100). There is often little incentive for LCBs to seek out imported wines with a good quality/price ratio, and in some cases there are strong incentives to impede the sales of such wines. The Canadian market is fairly small. Only Quebec and Ontario have populations with wine consumption levels which are large enough to justify much effort in trying to establish a presence in the market. The opportunities for expanding sales of Tunisian wine in Canada on a profitable basis are severely limited. One possible exception is Quebec, where the affinity with French wines is stronger. Most of the top selling red wines in Quebec are French, unlike in Ontario where Italian wines are significant. The liquor board in Quebec lists more imported wines than Ontario (over 900, compared to less than 800). It might be possible to realize a limited volume of sales in Quebec by profiting from the French image of Tunisian wines.

V. STRATEGY FOR MARKETING TUNISIAN WINES IN THE UNITED STATES

Several steps are necessary in order to be successful in developing profitable sales of Tunisian wines in the United States:

1. Control quality

Tunisia must improve its quality control for wines and their bottling. Export standards need to be set and enforced. Consultants, familiar with the North American market, need to be engaged to work on improving product presentation, particularly labeling. Better quality materials, especially bottles, corks, and labels need to be used for export products.

2. Establish contacts

Tunisian exporters, and their representatives with English language capabilities need to attend U.S. wine industry trade shows, such as the Wine and Spirits Wholesalers of America annual meeting, on a regular basis in order to establish contacts and build relationships with importers and distributors, and to increase the visibility of their product.

3. Develop a regional strategy

Through such meetings and related travel, industry representatives need to select an importer to develop a regional strategy for marketing Tunisian wine. Promising areas geographically could be the Southeast and Southwest, although regional emphasis would have to be worked out with importers and distributors. Sales to ethnic restaurants may be a possibility in some areas.

4. Promote Tunisian wines

Undertake promotional activities to support the marketing activities of importers, for example, through advertisements in wine magazines such as the Spectator, the preparation of high quality publicity material on Tunisian wines and their distribution through importers, wholesalers and retailers, and the use of knowledgeable individuals to organize tastings and to present Tunisian wines to the trade as well as to consumer groups, such as wine associations or tasting societies.

5. Target visits

Selected wine writers and representatives of the trade should be invited to visit Tunisia for an organized program of activities to observe the wine-producing areas first hand, to increase their knowledge of the characteristics and quality of Tunisian wines, to build good will, and to generate favorable publicity for these wines in the United States.

6. Advertise

Tunisian exporters should employ a limited advertising campaign in selected target markets to support the promotional activities of importers and distributors. Such a campaign would be based on newspapers and magazines (possibly radio spots) rather than expensive television advertising.

If Tunisia continues to maintain the levels of production of AOC, VDQS and superior wines indicated in this report, and maintains its exports of these wines to Western Europe, possibly 50 to 75 thousand hectoliters of quality wine would be available for potential export to North America. It is extremely unlikely that such a large volume of wine could be sold profitably in North American markets. A realistic sales target would be between 7.5 and 11.5 thousand hectoliters for the U.S. market and 1 to 2 thousand hectoliters in Canada, primarily in Quebec. Although, given the particular difficulties of selling in the Canadian market, primary emphasis and the higher probability of success must be attached to the U.S. market. A summary of projections is shown in Table 2.

Table 2. Projections of Potential Sales, Revenue, and Advertising Expense

Year	Sales goal	Revenues	Direct advertising
	('000 cases)	('000 dollars)	
1989	15	172.5	22.5
1990	35	402.5	52.5
1991	60	690.0	90.0
1992	85	977.5	127.5
1993	100	1,150.0	150.0
Total	295	3,392.5	442.5

This sales target was established on the basis of current penetration of the North American market by countries which sell wines comparable to those from Tunisia, and use a level of resources to market their product similar to that indicated above. These countries had shipments to the U.S. market in 1987 of roughly 14 thousand hectoliters (Romania and Bulgaria) and 8 thousand hectoliters (Argentina). Argentina, in particular, has products which are similar to Tunisia's and has achieved its current level of market penetration by selling reasonably-priced, well-presented wines of good quality.

Should Tunisia be able to duplicate the success of these countries, the gross revenues from sales of the magnitude given above would be in the range of $1-$2 million annually (based on prices of F.O.B. Tunis of $10-$13 per 9 liter case). A reasonable sales goal in the first year of a sales effort would be 15 thousand cases, reaching perhaps 100 thousand cases in 5 years. In order to achieve this volume of sales it is estimated that advertising and promotion expenditures of $1.50 per case will be required. The advertising costs of a five year promotion program would be over $440,000.

In addition to these expenditures, additional outlays would be incurred during the first year or two of a sales campaign. These would be needed to cover travel for Tunisian sales representatives in the United States and Canada, promotional visits to Tunisia, the development of improved promotional material, and paid publicity through trade magazines and trade shows. The start-up expenditures over the first two years of the sales campaign would probably total $500,000. This level of commitment would be required, plus additional domestic expenditures to improve the presentation of the product (improved labels, bottles etc.), in order for Tunisian wines to make any significant inroad into the North American market.

Based on the wines that were available to us for tasting and evaluation (see list in Annex C, exhibit 3), we recommend **Prestige Lamblot**, Coteaux d'Utique and **Pinot de Tunisie** as the two initial wines to be targeted for export to North America. Too few bottles of **Chateau Mornag**, Grand Cru Mornag,

were made available to us for thorough evaluation, but based on the authors' subjective tastings, this wine also merits consideration.

Given the growing preference for white wines in North America, and the predominance of rose wines in Tunisian production, consideration was given to the **Muscat** brand, and to the rose wines, **La Reserve** and **Clairet de Bizerte**. The Muscat lacked the complexity and acid balance needed for a premium wine in the selected price range, and the rose wines were generally sub-standard. It should be noted that the roses we received, which were from the 1985 and 1986 vintages, are too old for market acceptability in North America, where the preference is for young and fresh rose wines. Should Tunisia be successful in establishing a presence in the U.S. market, it might be possible to develop new export products, such as blush wines from existing grape varieties. Tunisia should not compete in the U.S. cooler market, because of the extremely low-cost wines which are used in this product. Tunisia's first priority must be to improve the quality of its existing wines in order to find a profitable and secure market in the United States.

Ultimately, success in promoting sales of these wines in the United States will depend crucially on selecting the right distribution arrangement. It is the authors' belief that the importer-distributor system described above offers the best prospects for success. As indicated above, it is likely that the importer will demand an exclusive agreement to market the product. It will be important to identify an importer with superior marketing expertise, a good location, strong sales network, and commitment to the product. Even if such an importer can be identified, Tunisian wines will face stiff competition. Many table wines of reasonable quality are now available for $10 per case (CIF). Given the highly competitive nature of the U.S. market, it is our subjective assessment that the long-run probability of success in developing a permanent and significant presence for Tunisian wines in the United States through the importer-distributor system of marketing is only of the order of 25 to 50 percent.

Appendix 1.

WINE	SCORE	NOTES
A		Blanchard Rose D'Anjou, 1984 (France)
B		Chateau Mornag Vin Rose, 1986
C		Prestige Lamblot Coteaux d' Utique, 1984
D		George Duboeuf Cotes du Rhone, 1986 (France)
E		Pinot de Tunisie, 1983
F		Sonoma County California Old Wine Red
G		Coteaux de Carthage, 1984
H		Torres Coronas, 1984 (Spain)

BTI Hedonic Scorecard and Checklist

Dislike Extremely
Dislike Strongly
Dislike Slightly

6-7 Neither Like or Dislike

8-9 Like Slightly
10-11 Like Strongly
12-13 Like Extremely

Agecbility Citation (likely to improve 2 or more points with age)

Checklist of Characteristics for Reference in Note Taking

Appearance, Carbonation, Fragrance, Intensity, Grape Essence, Health, Alcohol, Acid, Sweetness, Body, Bitterness, Aftertaste, Balance, Style, Complexity/Simplicity, Reminiscent of ____, Changes ... Peculiar ...

THEME THREE

SUBSIDY REDUCTION: IMPACT ON SUPPLY AND DEMAND

Agricultural Policy Implementation Project

Ministry of Agriculture, General Directorate for Development Planning and Agricultural Investments (DGPDIA)
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REDUCTION OF SUBSIDIES FOR AGRICULTURAL INPUTS: IMPACT ON THE DEMAND FOR INPUTS AND SUPPLY OF OUTPUT

Presented by
M.S. REDJEB

This document is based on a longer study carried out as part of the APIP project.

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REDUCTION OF SUBSIDIES FOR AGRICULTURAL INPUTS: IMPACT ON THE DEMAND FOR INPUTS AND SUPPLY OF OUTPUT

INTRODUCTION: PRICE POLICY IN THE FRAMEWORK OF THE AGRICULTURAL STRUCTURAL ADJUSTMENT PROGRAM

As part of the Agricultural Structural Adjustment Program (ASAP), implementation of which began in late 1986, the Tunisian authorities undertook to phase out subsidies for three fertilizers (ammonium nitrate, Super 45, and Super 16), 2,4-D herbicide, certified cereal grain, and seed potatoes. These measures were to be accompanied by several other actions aimed at bringing domestic prices of agricultural products into line with their international prices.

The policy in effect prior to this program reduced the relative prices of subsidized inputs, particularly of fertilizers, to very low levels, but increased the outlays of the Subsidy Fund (CGC: Caisse Generale de Compensation). Chemical fertilizer subsidies came to 20 MD in 1985, accounting for 7 to 8% of all Subsidy Fund expenditures in recent years. The other inputs are far behind fertilizers, with seed potatoes absorbing 2.3 million dinars (MD) from the Subsidy Fund, herbicides 1.6 MD, and cereal seeds 0.8 MD in 1987.

The ASAP calls for the gradual elimination of chemical fertilizer subsidies over a five-year period, from 1986-87 to 1990-91; and of the subsidies for herbicides (2,4-D), selected cereal seeds, and seed potatoes over a period of three to four years, beginning in 1986-87. This calendar was slightly modified after poor harvests in 1987-88, and in view of the severe financial limitations resulting from those harvests.

Eliminating subsidies will affect the allocation of resources within the agricultural sector, use of inputs, supply of the corresponding products, farmer incomes, and the competitiveness of local as compared to foreign products. The study on the impact of eliminating subsidies as part of the APIP project analyzed the anticipated impact of these measures. This study mainly addresses cereals and vegetable crops; these crops are not, however, the primary users of subsidized inputs. This report presents a summary of said study, highlighting the principal results.

This report has three parts. The first addresses subsidy policy and the use of subsidized inputs in Tunisian agriculture. The second examines the impact of eliminating subsidies on farmer incomes and on the economic and financial return of the main subsidized products. The third part analyzes the impact of subsidy elimination on the demand for subsidized inputs and supply of the corresponding products.

I. SUBSIDY POLICY AND USE OF SUBSIDIZED INPUTS

I-1. ROLE OF INPUT SUBSIDIES

Chemical fertilizers are the most highly subsidized inputs, followed by seeds, and then herbicides and pesticides. Data for 1987 show that approximately 77% of the subsidies went to chemical fertilizers, 17% to seed, and 6% to pesticides and herbicides (see Graph I-1). Within the category of chemical fertilizers, the most highly subsidized products are Super 45 (34% of the subsidies) and ammonium nitrate (approximately 30% of the subsidies), followed by diammonium phosphate (DAP), which receives 8.5%, and finally Super 16, consumption of which is declining, which receives only 4.7%. Turning to seeds, 13% of total input subsidies are earmarked for seed potatoes, and 4.3% for cereal grains, four-fifths of which is for durum wheat. Finally, in the category of herbicides, 5% of agricultural subsidies are for broad-spectrum herbicides, as compared to 1% for 2,4-D.

The total subsidy for the three categories of inputs came to approximately 18 MD in 1987, accounting for 9% of total outlays of the Subsidy Fund. This sum places chemical fertilizers, pesticides and herbicides, and seeds at the same level of compensation as oils, and far ahead of milk, for which the total subsidy in 1987 came to 12 MD.

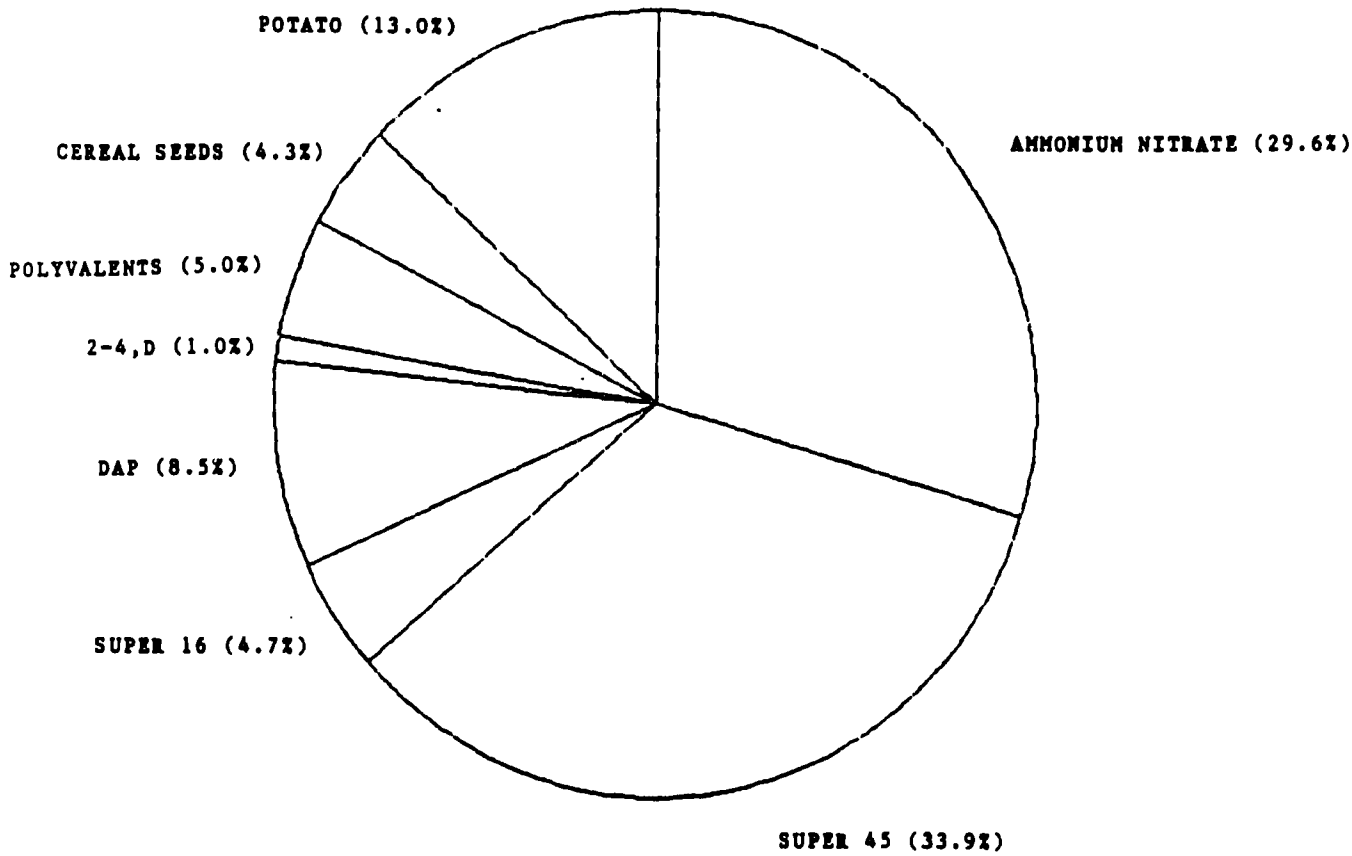
(a) Chemical fertilizer subsidies

Subsidies for the three main fertilizers (ammonium nitrate, Super 45, and Super 16) surpassed 10.7 MD in 1981, and came to some 12 MD in 1987. Subsidies for ammonium nitrate and Super 45 evolved in opposite directions. The price farmers paid for ammonium nitrate covers an ever larger share of the cost, whereas Super 45 subsidies have increased relative to cost. The subsidy for DAP, which has come into use only recently, increased from 0.3 MD in 1986 to approximately 1 MD in 1988. We note that a large share of the subsidies is financed by an 8% producer tax, which in 1985-86 was equivalent to 11 and 17.5% of the subsidy for TSP and ammonium nitrate respectively.

Overall, fertilizer subsidies are relatively small. This is explained in large measure by the relatively low levels of consumption. Maintaining the subsidies while at the same time improving distribution, financing opportunities, and output prices would require intensified use of fertilizer, which would mean significantly greater outlays by the Subsidy Fund.

GRAPH I-1

INPUTS SUBSIDIES IN 1987



(b) Seed subsidies

Certified seed for durum wheat and barley is distributed primarily by the Grain Board (OC: Office des Céréales) in exchange for farmers' grains. The exchange is made on the basis of one quintal of certified seed for a quintal of marketed grain, up to a maximum of 25 quintals. Over that amount, farmers can exchange 1.1 quintals of regular grain for a quintal of seed, up to 55 quintals. For any quantity greater than 80 quintals, the purchase is made at cost. Beginning in 1987-88, the exchange has been at the rate of 1 quintal of cereals for 1.15 quintals of certified seed, up to 80 quintals, and at cost for any amount in excess of 80 quintals. Subsidies for cereal seed vary depending on the system of exchange. These subsidies increased from 0.6 MD in 1981-82 to approximately 0.8 MD in 1986-87.

The subsidy for seed potatoes is quite significant, increasing to 2.3 MD in 1987. The subsidy for imported seed potatoes is much greater than for local ones. In 1987, this subsidy came to 2 MD for imported and only 0.3 MD for local seed potatoes.

(c) Pesticide and herbicide subsidies

There are no subsidies or price controls for insecticides and fungicides. Herbicides, however, are subsidized, and their prices are controlled. In 1975 these subsidies accounted for some 50% of the cost of the various products, for a total of .363 MD. This sum surpassed 1 MD in 1987. For the 1987-88 season, the overall total of this subsidy was estimated at 1.6 MD, accounting for 37% of the total cost. Subsidies for 2,4-D and the broad-spectrum herbicides are larger than those for Illoxan.

The outlays of the Subsidy Fund for the input subsidies studied here are relatively small. Nonetheless, the otherwise desirable increase in the use of most of these inputs in the future, and the probable increase in their prices, may well create financial problems for the Subsidy Fund if these subsidies are not eliminated. It is useful in this regard to recall the case of cereal grain subsidies, which at first were quite small, but which at present pose a major problem in the wake of price increases for cereals and the increased demand for cereal-based products.

In the cereals sector, the input subsidy policy combined with price adjustments for cereal products has led to a major fall in fertilizer prices in relation to the prices of cereal products, as illustrated by the data in Table I-1. In effect, from 1962 to 1987, the fertilizer price index increased at an average annual rate of 2.25%, as compared to an increase in the

TABLE I-1
TRENDS IN PRICE INDICES FOR CHEMICAL FERTILIZERS AND CEREAL PRODUCTS FROM 1962-1987
(INDEX OF 100 IN 1980)

YEAR	PRICE INDEX FERTILIZER	PRICE INDEX DURUM WHEAT	PRICE INDEX SOFT WHEAT	PRICE INDEX BARLEY	PRICE INDEX CEREALS	FERTILIZER DURUM	FERTILIZER SOFT	FERTILIZER BARLEY	FERTILIZER CEREALS
1962	83.5742	48.8372	44.8052	33.8983	45.5315	1.7113	1.8653	2.4654	1.8355
1963	83.5742	48.8372	44.8052	33.8983	45.5315	1.7113	1.8653	2.4654	1.8355
1964	86.5816	48.8372	44.8052	33.8983	45.5315	1.7729	1.9324	2.5542	1.9016
1965	102.3160	48.8372	44.8052	42.3729	47.1572	2.0950	2.2836	2.4147	2.1697
1966	95.2713	48.8372	44.8052	42.3729	47.1572	1.9508	2.1263	2.2484	2.0203
1967	102.9190	55.8140	55.8442	47.4576	54.2142	1.8440	1.8430	2.1687	1.8984
1968	99.4781	55.8140	55.8442	47.4576	54.2142	1.7823	1.7814	2.0961	1.8349
1969	102.5130	55.8140	55.8442	47.4576	54.2142	1.8367	1.8357	2.1601	1.8909
1970	102.5130	55.8140	55.8442	47.4576	54.2142	1.8367	1.8357	2.1601	1.8909
1971	76.8784	55.8140	55.8442	47.4576	54.2142	1.3774	1.3767	1.6199	1.4180
1972	76.8784	55.8140	55.8442	47.4576	54.2142	1.3774	1.3767	1.6199	1.4180
1973	76.8784	55.8140	55.8442	47.4576	54.2142	1.3774	1.3767	1.6199	1.4180
1974	76.8784	70.9302	71.4286	67.7966	70.3835	1.0839	1.0763	1.1340	1.0923
1975	76.8784	76.7442	77.9221	76.2712	76.7820	1.0017	0.9866	1.0080	1.0013
1976	100.0000	76.7442	77.9221	76.2712	76.7820	1.3030	1.2833	1.3111	1.3024
1977	100.0000	83.0233	84.8052	85.2542	83.6457	1.2045	1.1792	1.1730	1.1955
1978	100.0000	88.3721	90.9091	93.2203	89.5790	1.1316	1.1000	1.0727	1.1163
1979	100.0000	88.3721	90.9091	93.2203	89.5790	1.1316	1.1000	1.0727	1.1163
1980	100.0000	100.0000	100.0000	100.0000	100.0000	1.0000	1.0000	1.0000	1.0000
1981	100.0000	111.6280	112.9870	116.9490	112.7970	0.8958	0.8851	0.8551	0.8865
1982	130.2340	127.9070	129.8700	135.5930	129.5960	1.0182	1.0028	0.9605	1.0049
1983	137.3670	148.8370	151.9480	161.0170	151.5130	0.9229	0.9040	0.8531	0.9066
1984	137.3670	162.7910	181.8180	169.4920	166.1520	0.8438	0.7555	0.8105	0.8268
1985	150.7510	174.4190	188.3120	177.9660	176.6150	0.8643	0.8005	0.8471	0.8536
1986	164.0080	186.0470	207.7920	186.4410	188.4950	0.8815	0.7893	0.8797	0.8701
1987	184.4310	215.1160	220.7790	203.3900	213.4850	0.8574	0.8354	0.9068	0.8639
ANNUAL AVERAGE GROWTH RATE 1962-1987									
RATE		2.250%	5.699%	6.560%	7.804%	6.298%	-3.720%	-4.310%	-5.230%	-4.047%
STUDENT'S T		(4.90)	(15.49)	(17.30)	(22.54)	(17.01)	(12.98)	(15.02)	(16.67)	(14.28)
ANNUAL AVERAGE GROWTH RATE 1972-1987									
RATE		5.757%	8.849%	9.344%	9.665%	9.050%	-3.092%	-3.587%	-3.307%	-3.297%
STUDENT'S T		(13.06)	(25.12)	(22.60)	(22.42)	(26.09)	(6.62)	(7.15)	(6.21)	(6.82)

SOURCE: CALCULATIONS BASED ON DATA FROM THE DGPDIA, MINISTRY OF AGRICULTURE.

cereals price index of some 6.3%, yielding a decline in relative prices of approximately 4% annually. The general trend of relative prices is depicted in Graph I-2. This price policy has no doubt had an impact on the demand for subsidized inputs, yields, production, and the competitiveness of local production vis-a-vis imports, as shown in the analysis below.

I-2. USE OF SUBSIDIZED INPUTS

(a) Trends in the consumption of subsidized inputs in Tunisian agriculture

The main chemical fertilizers used in Tunisia are ammonium nitrate (33.5% N), Super 45 (45% P205), and Super 16 (16% P205). Use of fertilizer compounds and potash is limited. In recent years, thanks to the subsidies, DAP (18% N, 46% P205) has been used more and more. Only ammonium nitrate, Super 45, Super 16, and DAP have been subsidized.

Overall, use of fertilizers has increased significantly. Table I-2 shows average annual growth rates of consumption by type of crop and by region from 1975-76 to 1986-87. Total consumption in the country for the three main inputs (ammonium nitrate, Super 45, and Super 16) increased from 156,000 MT during the 1975-76 season to 268,000 MT in 1986-87, for an average annual growth rate of 6%. The greatest increase has been of Super 45, with an annual rate of 10.7%, and ammonium nitrate, with an annual rate of 7.7%. Consumption of Super 16 has actually declined at a rate of 4% annually, on average. Consumption of fertilizer compounds and potash has decreased; the decline in the use of fertilizer compounds has been particularly pronounced (-8.7% annually).

Use of DAP remains relatively limited despite subsidies. Until 1985, national production was earmarked exclusively for export. Use of this fertilizer would make it possible to reduce transport and handling costs for farmers. An effort to promote this product should be undertaken so as to encourage its use.

GRAPH I-2
TRENDS IN RELATIVE PRICES OF FERTILIZERS

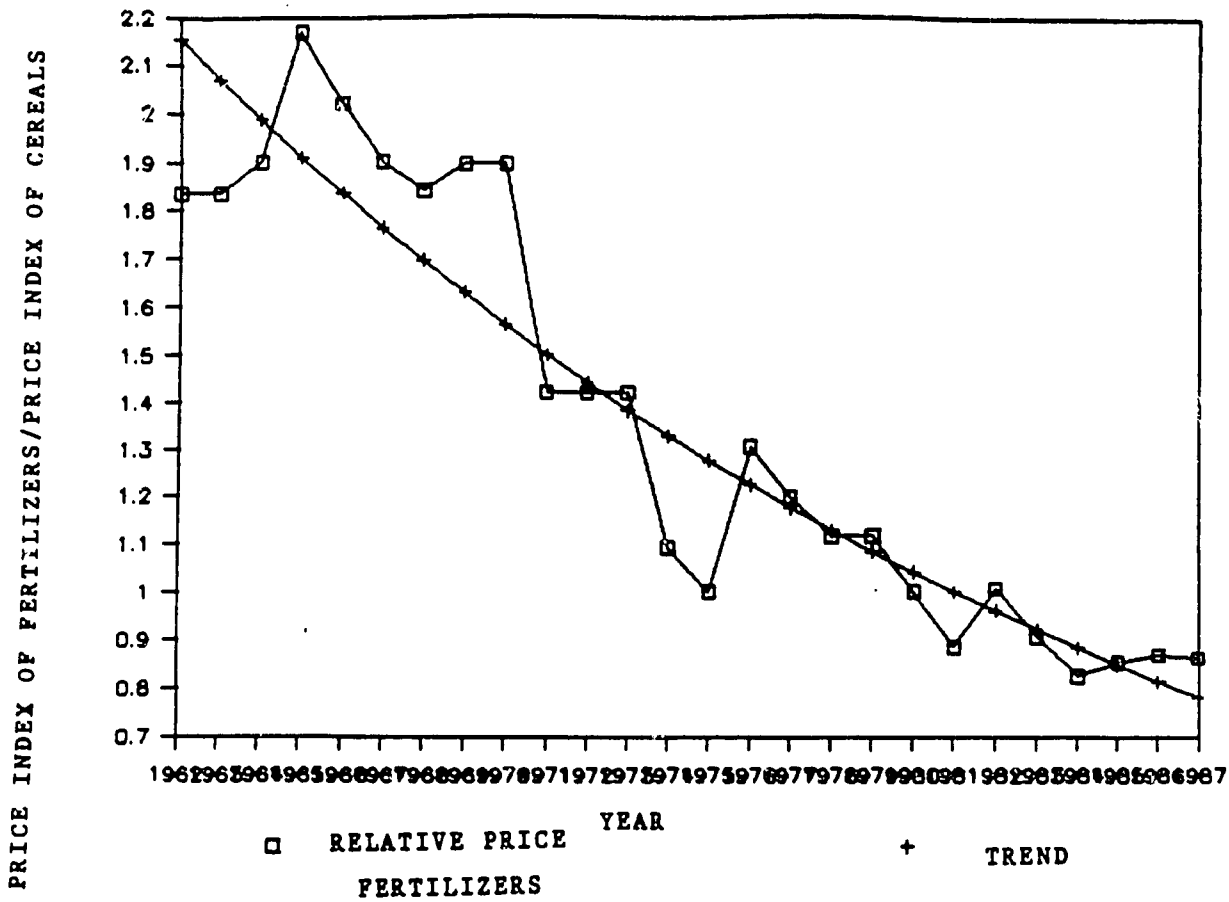


TABLE I-2

AVERAGE ANNUAL RATE OF GROWTH RATE OF FERTILIZERS IN TUNISIA FROM 1975-76 TO 1986-87

FERTILIZERS	CEREALS			FORAGES			VEGETABLE CROPS			TREE CROPPING			TOTAL		
	NORTH	SOUTH	TUNISIA	NORTH	SOUTH	TUNISIA	NORTH	SOUTH	TUNISIA	NORTH	SOUTH	TUNISIA	NORTH	SOUTH	TUNISIA
AMMONIUM NITRATE	7.8%	13.6%	7.9%	12.0%	18.18%	13.3%	16.0%	13.9%	15.0%	2.0%	-11.6%	-1.1%	8.4%	3.6%	7.7%
	(5.58)	(4.05)	(5.63)	(6.46)	(3.91)	(9.26)	(8.76)	(4.33)	(10.22)	(.63)	(-2.65)	(-.36)	(6.61)	(1.25)	(5.93)
SUPER 45	9.3%	25.5%	9.6%	13.7%	12.7%	13.6%	14.6%	21.4%	15.2%	4.7%	11.7%	5.2%	10.4%	16.9%	10.7%
	(8.69)	(7.31)	(8.98)	(13.39)	(3.46)	(12.66)	(5.55)	(4.6)	(15.2)	(1.39)	(2.58)	(1.61)	(10.59)	(4.52)	(13.1)
SUPER 16	-24.6%	-39.3%	-24.6%	-6.8%	--	-7.8%	14.7%	27.2%	15.2%	-1.1%	-1.0%	-0.5%	-4.9%	16.0%	-4.1%
	(-6.81)	(-1.16)	(-6.79)	(-4.53)	--	(-4.19)	(7.17)	(3.61)	(6.89)	(-.27)	(-.08)	(.14)			
THREE PUTS INPUTS	3.7%	14.9%	3.9%	9.0%	15.8%	9.4%	14.8%	16.8%	15.0%	2.0%	-6.7%	0.2%	6.0%	7.4%	6.0%
	(4.11)	(9.65)	(4.32)	(6.67)	(3.74)	(9.45)	(11.82)	(4.95)	(10.87)	(.71)	(-1.64)	(.08)	(11.06)	(2.76)	(11.52)
COMPOUNDS (a)	NA	NA	NA	NA	NA	NA	-5.4%	-0.8%	-6.3%	0.9%	-	-0.04%	-0.4%	-7.2%	-6.7%
							(-.55)	(-.02)	(-.67)	(.04)	-	(-.20)	(-.04)	(-.29)	(-3.09)
POTASH (b)	NA	NA	NA	NA	NA	NA	1.7%	-26.0%	-8.5%	0.2%	1.5%	-1.2%	-0.2%	-20.2%	-0.1%
				.			(.277)	(-3.11)	(-1.52)	(.04)	(.055)	(-.16)	(.06)	(-1.77)	(-.05)
MANURE (c)	-21.0%	17.2%	2.6%	11.5%	26.6%	18.2%	6.5%	-4.2%	1.8%	-2.0%	-1.4%	-1.7%	2.8%	-0.8%	13.5%
	(-1.71)	(1.21)	(.204)	(.99)	(1.72)	(1.40)	(.065)	-0.33	(.17)	(-.18)	(-.12)	(-.16)	(.2749)	(-.07)	(1.19)

NB: Figures in parentheses are Student's t.
NA = Not available.

Source: Calculations based on data from the Baseline Agricultural Survey, corrected with data from the STEC.

(a) Growth rates are for 1981-82 to 1986-87, except for the total for Tunisia, which reflects 1975-76 to 1986-87.

(b) Growth rates are for 1980-81 to 1986-87, except for the total for Tunisia, which reflects 1975-76 to 1986-87.

(c) Growth rates for 1978-79 to 1986-87.

Considering that total consumption of chemical fertilizer in 1964 was no more than 34,000 MT, there has clearly been a major increase in the use of fertilizers in Tunisian agriculture. The government subsidy policy has no doubt had a positive impact on the consumption of subsidized inputs. Nonetheless, the use of fertilizer in Tunisia is still quite limited as compared to other countries, as shown in the analysis below. Moreover, most farmers still do not use fertilizer. Table I-3 shows that for those cereals that absorb the most fertilizer, approximately 70% of the farmers do not use chemical fertilizer. This situation is explained primarily by lack of financial resources (in 36% of the cases) and the lack of rainfall (in 33% of the cases). Rainfall is an important factor, especially in the center and south (almost 38% of all holdings). The lack of financial resources appears to be a major factor, especially in the north (over 66% of all cases). Overall, about 12% of all farmers do not use fertilizer because they believe its use will not be efficient. Doubts as to the efficiency of fertilizers are more pronounced in the center and south than in the north (12.6% as compared to 4.5% of all cases), which is normal given the low levels and irregularity of rainfall in the center and south, which increases the risk involved in using chemical fertilizers.

The use of pesticides, fungicides, and herbicides has increased sharply, especially with vegetable crops and cereal grains. Insecticides and fungicides are used primarily in tree cropping (77% of the total). Grain uses the largest share of herbicides. During the 1986-87 season the total area of cereal grain crops on which herbicides were used came to 344,000 ha, i.e. 18.9% of the total area in cereals, as compared to 14,300 ha for legumes of a total area of 114,500 ha, or 12.5% of the total. The cereal crop area on which herbicides were used has doubled from 144,000 to 288,000, i.e. from 10 to 20% of the total area cultivated.

During this period there has been a structural change in the demand for fertilizer, which is reflected in a marked increase in broad-spectrum herbicides, from 16.8% in 1977 to 53.9% in 1985, and in a decrease of the share of 2,4-D from 83% in 1977 to 46% in 1985. This change in demand is explained by the proven efficiency of broad-spectrum herbicides, and by the relative prices of 2,4-D and the broad-spectrum herbicides, in favor of the latter. The elimination of subsidies for 2,4-D would further encourage the use of broad-spectrum herbicides, which are more efficient.

Table I-3

USE OF CHEMICAL FERTILIZERS WITH CEREAL CROPS

****

REGION	FARMERS: CULTIVATING CEREALS	FARMERS: NOT USING FERTILIZER	FARMERS: NOT USING FERTILIZER (%)	MAIN REASON FOR NOT USING FERTILIZER (in %): INSUFFICIENT	NOT AVAILABLE	USE MANURE	NOT CONVINCED	LIMITED FINANCES	OTHER	TOTAL
NORTHEAST	25700.0	4600.0	17.9%	1.2%	2.1%	10.0%	10.0%	56.8%	17.9%	100.0%
NORTHWEST	56400.0	13400.0	23.8%		3.6%	11.3%	2.7%	66.9%	13.5%	100.0%
TOTAL NORTH	82100.0	18000.0	21.9%	0.3%	3.2%	10.9%	4.5%	66.5%	14.6%	100.0%
CENTER-EAST	47300.0	45000.0	95.1%	22.5%		7.1%	16.1%	25.3%	29.0%	100.0%
CENTER-WEST	54900.0	53500.0	97.4%	27.4%	1.7%	2.4%	12.9%	46.0%	9.6%	100.0%
SOUTH	37400.0	37400.0	100.0%	68.6%		1.5%	8.2%	17.0%	4.1%	100.0%
CENTER/SOUTH	139600.0	135900.0	97.3%	37.7%	0.1%	3.3%	12.6%	31.9%	14.5%	100.0%
TUNISIA	221700.0	153900.0	69.4%	33.2%	0.1%	4.6%	11.7%	35.9%	14.5%	100.0%

Source: 1985 Baseline Agricultural Survey.

Despite the increase in cereal crop area weeded, herbicides are used on only 20% of the total area cultivated nationwide, and approximately 30% of the area in the north. According to data from the 1985 Baseline Agricultural Survey, more than half of all farmers who do not use herbicides weed manually. In principle this type of weeding is more costly than using herbicides, considering the cost of labor. This suggests that in general, for manual weeding, small farmers primarily use family labor, which has a relatively low opportunity cost. The study also indicates that approximately 18% of the farmers who do not use herbicides believe that they cost too much. In most cases, given the positive effect of weeding on yields, the cost-benefit ratio clearly favors use of herbicides, suggesting that in many cases financial limitations rather than their cost explain the failure to use herbicides.

Use of subsidized seed has also increased rapidly with the arrival on the market of certain high-yield seed varieties for bread wheat in the early 1970s, and in the 1980s of several varieties of high-yield varieties of durum wheat and barley, and of triticale, a new cereal species used for cattle feed. The demand for certified cereal seed has fluctuated widely because of climatic conditions; but there is clearly an upward trend. In effect, from 1969-1970 to 1987-88, the average annual growth rates for use of certified seed for durum wheat and bread wheat was, respectively, 8.2% and 6.2%. During the same period, the area planted in cereals was practically stagnant, which implies that there was an even greater increase in the average use of selected seed per hectare of cereal grain. The comparison of total area planted in cereal grains with that planted with high-yield seed in the north shows that on average high-yield varieties were used on 36% of all planted lands from 1977 to 1981, and on 45% from 1982 to 1985.

In contrast to fertilizers and to pesticides and herbicides, whose use is still relatively limited, the use of certified cereal seed appears to be excessive, especially among large farmers. In effect, it is the large farmers who tend to renew their seeds each year, while a renewal rate of 10 to 15% would generally be sufficient. In contrast, use of certified seed by small farmers is still relatively limited. The exchange system theoretically favors the small farmers by granting them more favorable rates, but in practice, the large farmers who sell their output to the OC benefit most.

The use of seed potatoes has also increased at an average annual rate of 10% from 1980 to 1986.

(b) Comparison with other countries

This comparison will be limited to consumption of chemical fertilizers, which is the largest single category of inputs from the standpoint of the C.G.C. In principle, comparisons of consumption among countries is valid solely for countries with similar agro-climatic conditions. This comparison does not take into account climatic differences, but still serves an illustrative purpose. Table I-4 shows consumption of fertilizers N, P, and K, in decreasing order of consumption in 1985 and 1970, for various countries and groups of countries. This table shows that in 1970 consumption of fertilizers in Tunisia was slightly less than that of developing countries as a whole (4.8 kg/ha in Tunisia as compared to 5.1 kg/ha for developing countries as a whole), but greater than that of Morocco, Syria, Algeria, Jordan, Iraq, Africa as a whole, Iran, and Libya. In 1985, despite the increase in consumption in Tunisia, its ranking dropped. Only Morocco, Algeria, Africa, and Libya were ranked below Tunisia. Thus in general, consumption of fertilizer in Tunisia grew more slowly than in the other countries. A 50% increase in consumption would be needed to bring Tunisia back to its 1970 ranking. To attain the present level of consumption in Spain, Tunisian consumption would have to increase five-fold; and to reach the levels in Greece, Tunisian consumption would have to increase by a factor of six. Therefore, there are excellent prospects for increasing the use of fertilizer. If Tunisian farmers are to become international competitors, they must increase their use of chemical fertilizer.

I-3. DISTRIBUTION OF THE USE OF SUBSIDIZED INPUTS AND THE ADVANTAGES OF SUBSIDIES

I-3-1. DISTRIBUTION OF THE USE OF SUBSIDIZED INPUTS

(a) Use by crop

The grain and vegetable subsectors are the largest users of subsidized inputs. From 1975 to 1987, the cereal grain sector used on average 51% of all chemical fertilizers, making this crop the main beneficiary of subsidies for chemical fertilizer. In second place were vegetable growers, with 17%, followed by forage crops and tree cropping, with approximately 12% each (see Graph I-3). Cereals production absorbs over 50% of the individual inputs, except for Super 16, 38.6% of which is consumed by the cereals sector. Vegetable production accounts for 31.5% of the consumption of Super 16.

TABLE I-4

CONSUMPTION OF FERTILIZER PER HA OF AGRICULTURAL AREA

KG N, P205, K20

(in decreasing order of consumption in 1985)

YEAR	1970	1975	1980	1985
EGYPT	131.3	177.4	271.4	347.3
EUROPE	106.3	124.4	137.6	142.3
LEBANON	131.3	37.7	84.2	115.2
ISRAEL	46.7	60.2	64.4	74.5
GREECE	36.8	50.8	57.3	74.4
PORTUGAL	36.4	71.8	78.5	73.3
YUGOSLAVIA	43.2	50.0	57.7	70.2
PAKISTAN	11.8	22.3	42.7	59.3
SPAIN	37.9	43.9	53.2	55.0
TURKEY	11.4	23.5	38.1	40.7
ASIA	10.5	14.7	28.0	35.1
IRAQ	1.9	3.5	9.8	18.7
DCs	5.1	7.7	14.4	17.3
SYRIA	3.4	5.1	9.1	16.2
IRAN	1.8	3.2	10.6	15.3
JORDAN	2.4	4.9	12.1	12.8
TUNISIA	4.8	6.9	8.2	12.0
MOROCCO	3.4	6.2	9.0	10.2
ALGERIA	2.5	2.8	5.4	7.1
AFRICA	1.7	2.4	3.4	3.8
LIBYA	1.9	2.8	5.2	3.6

CONSUMPTION OF FERTILIZER PER HA OF AGRICULTURAL AREA

KG N, P205, K20

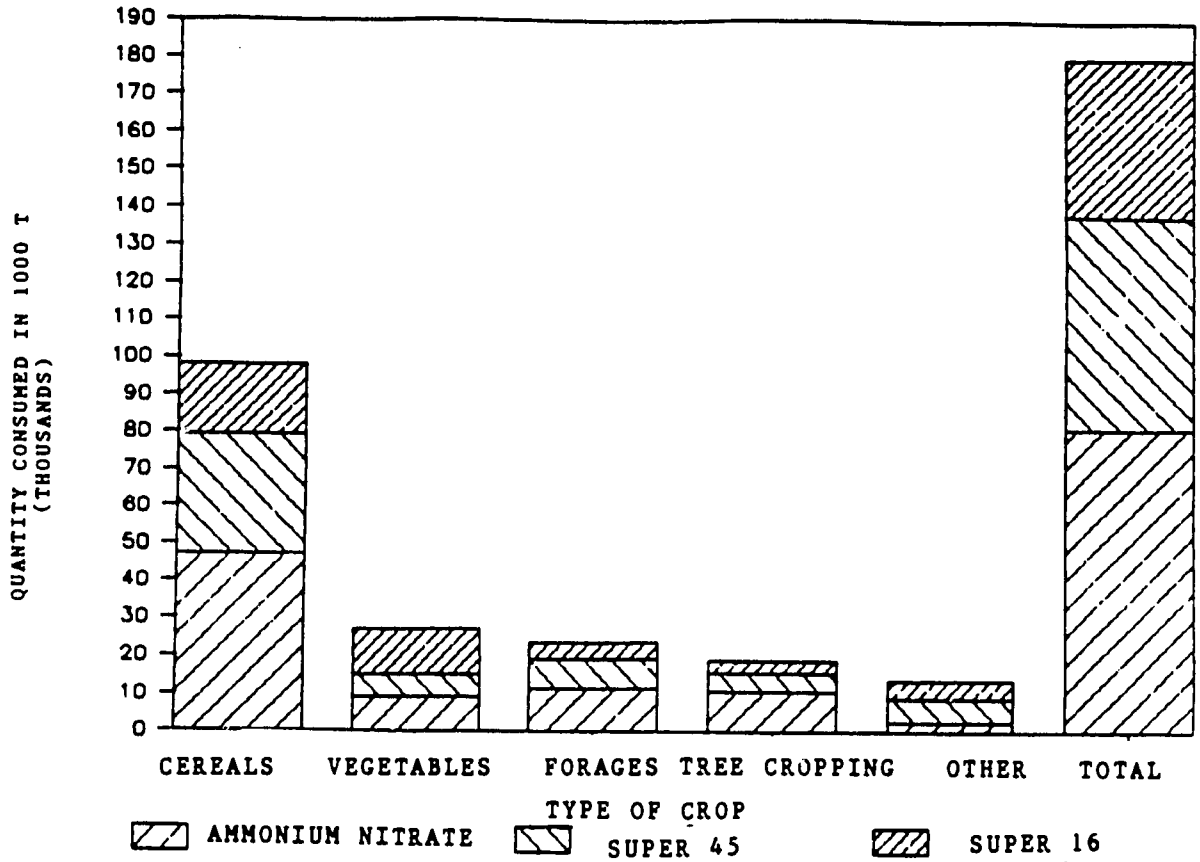
(in decreasing order of consumption in 1985)

YEAR	1970	1975	1980	1985
LEBANON	131.3	37.7	84.2	115.2
EGYPT	131.3	177.4	271.4	347.3
EUROPE	106.3	124.4	137.6	142.3
ISRAEL	46.7	60.2	64.4	74.5
YUGOSLAVIA	43.2	50.0	57.7	70.2
SPAIN	37.9	43.9	53.2	55.0
GREECE	36.8	50.8	57.3	74.4
PORTUGAL	36.4	71.8	78.5	73.3
PAKISTAN	11.8	22.3	42.7	59.3
TURKEY	11.4	23.5	38.1	40.7
ASIA	10.5	14.7	28.0	35.1
DCs	5.1	7.7	14.4	17.3
TUNISIA	4.8	6.9	8.2	12.0
MOROCCO	3.4	6.2	9.0	10.2
SYRIA	3.4	5.1	9.1	16.2
ALGERIA	2.5	2.8	5.4	7.1
JORDAN	2.4	4.9	12.1	12.8
IRAQ	1.9	3.5	9.8	18.7
AFRICA	1.7	2.4	3.4	3.8
IRAN	1.8	3.2	10.6	15.3
LIBYA	1.9	2.8	5.2	3.6

NB: DCs = developing countries

SOURCE: FAO, FERTILIZER YEARBOOK 1986.

GRAPH I-3
AVERAGE CONSUMPTION (1975-1987)



This suggests that the cereals and vegetables sectors may be most affected by the elimination of subsidies, since they are the main users of chemical fertilizers. Moreover, the elimination of seed subsidies and subsidies for herbicides may further affect the cereals sector, since it is the sole user of cereal seeds, and the main user of herbicides. Of the vegetable crops, potatoes will also feel the effect of eliminating subsidies on seed potatoes in view of the large percentage of production costs covered by subsidies.

(b) Use by region

Most fertilizer is used in the north. From 1975 to 1987, average consumption in the north for the three main inputs accounted for over 90% of the total. The north also consumed 83.7% of the potash and 84.4% of compound fertilizer from 1980-81 to 1986-87. The center and south tend to use manure, which is not subsidized, accounting for approximately 52% of all manure use from 1978-79 to 1986-87. Graph I-4, which shows consumption of fertilizer per hectare in the north in 1983, indicates that vegetables are the main consumers, followed by forage crops and grains.

The rate of growth of demand has varied by type of input and by region. From 1975-76 to 1986-87, average annual growth was 8.4% for ammonium nitrate in the north, as compared to 3.6% in the center/south; 10.4% for Super 45 in the north as compared to 16.9% in the center/south, and -4.9% for Super 16 in the north, as compared to 16% in the center/south.

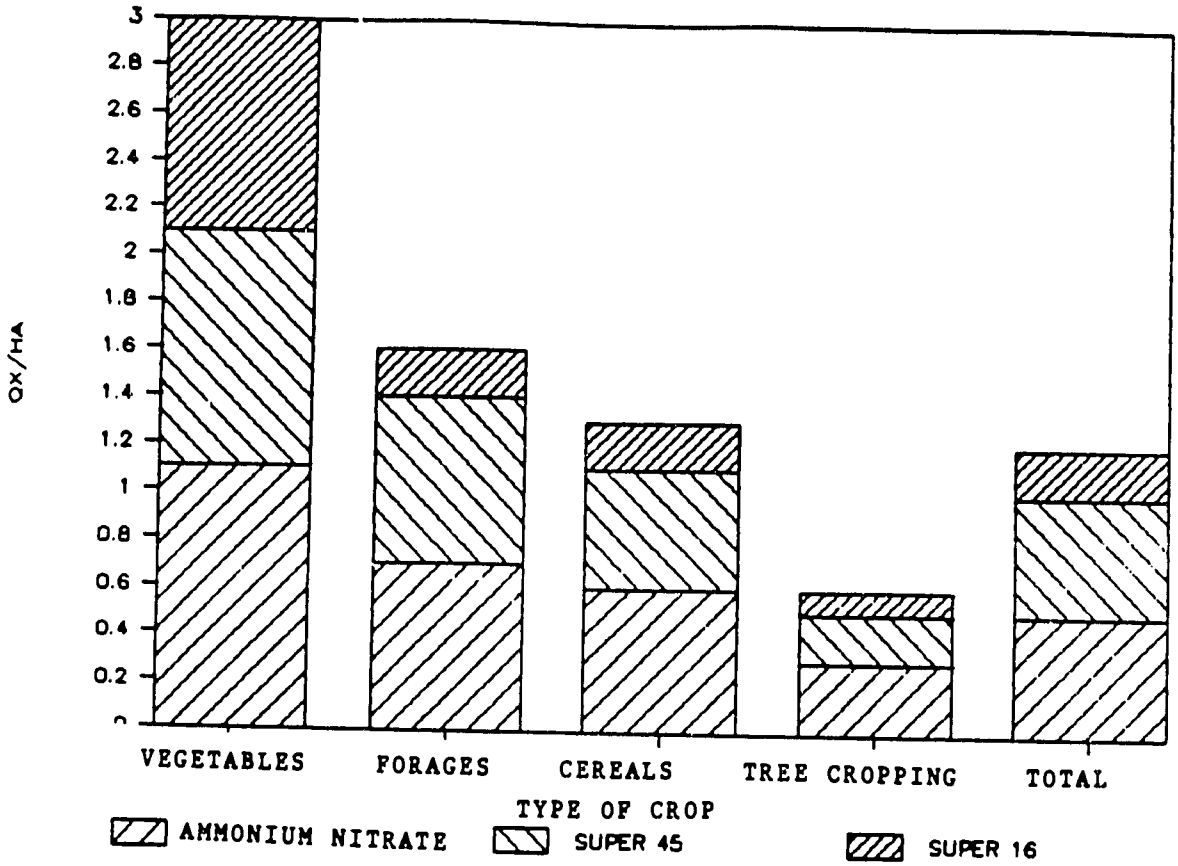
While most of the fertilizer is consumed in the north, which is understandable given the more favorable climatic conditions there, demand in the center/south appears to be growing more rapidly than in the north. Elimination of subsidies may bring this growth in consumption to a halt.

Comparing quantities used per hectare in the two regions for each of the main fertilizers clearly illustrates the relative importance of use of the different fertilizers in the north and the center/south. Overall consumption of the primary fertilizers is almost 20 times greater in the north than in the center/south. The difference is more pronounced in cereals, in which consumption in the north is 30 to 40 times higher.

(c) Use by size of farm

For ammonium nitrate and Super 45, there is a positive correlation between size and use level, except for tree cropping. In contrast, for Super 16 there is apparently a negative correlation in all sectors. Thus, if we exclude Super 16, whose use is steadily declining, the largest farmers are the largest

GRAPH I-4
FERTILIZER USE IN NORTH, 1983



consumers of chemical fertilizers. Also, most cereal production is concentrated on the large farms of the north. So at least in the cereals sector, eliminating subsidies may have a major impact on production to the extent that large farmers react by diminishing their demand for inputs or their total area planted.

I-3-2 DISTRIBUTION OF SUBSIDIES

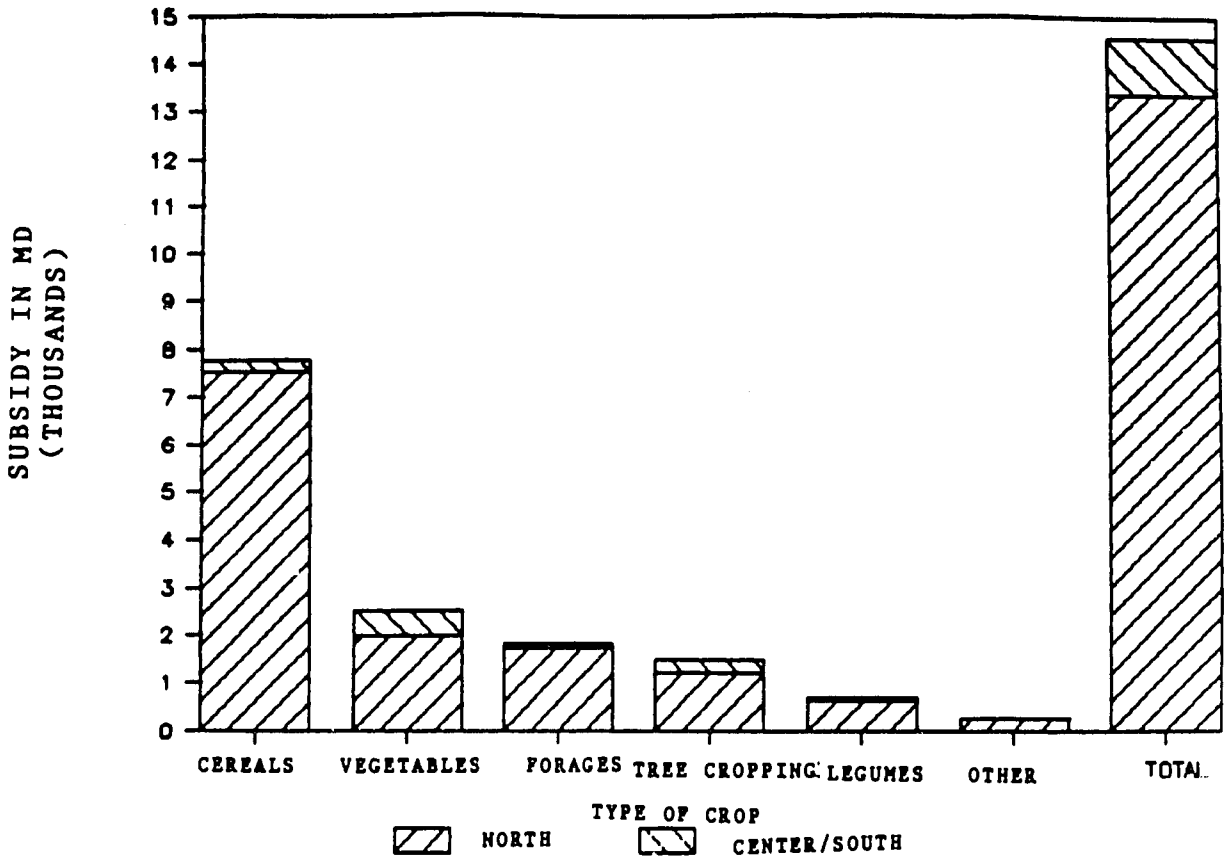
Analysis of the distribution of subsidies by region and by crop indicates who benefits most from the subsidy system, and at the same time who might be affected by elimination of subsidies. Data from the 1987 Baseline Agricultural Survey on the 1986-87 season make it possible to determine the distribution of chemical fertilizers that account for most of the subsidies by crop and region (see Graph I-5). Distribution of seed subsidies is difficult to determine because there is no information on the use of seeds. Finally, data on the use of herbicides specifies neither the quantity nor type of product used. A rough distribution for this category can, however, be made on the basis of certain assumptions.

Graph I-5 shows the region and crop-by-crop breakdown for all chemical fertilizer subsidies. The overall value of subsidies paid to farmers in the 1986-87 season came to approximately 14.5 MD. Of this total, almost 8 MD are earmarked for cereal crops, and 2.5 MD for vegetable crops. These figures account for 53.4% and 17.4% respectively of the total. The two northern regions receive more than 13 MD, or approximately 92% of all subsidies.

The total sum of subsidies for herbicides is relatively small. They came to .11 MD in the 1986-87 season. Most of these subsidies went to the cereals sector. The northern regions consume 99% of these subsidies.

The results presented above illustrate the extremely inequitable distribution of subsidies. Large farms generally benefit more than small ones, the agriculture of the north more than that of the center and south, and vegetables and cereals more than tree crops. This means that whatever the farmers' response to the price increases foreseen for inputs, the large farms will feel them more than the small ones, the north more than the center and south, and vegetable crops and cereal grains more than the other crops.

GRAPH I-5
FERTILIZER SUBSIDIES (1986-87)



II IMPACT OF THE REDUCTION OF SUBSIDIES ON FARMER INCOMES AND ON THEIR ECONOMIC AND FINANCIAL RETURN

This study of the impact of subsidy reduction on farmer incomes and on their economic and financial return is based on the technical/economic files of the Ministry of Agriculture, which include standards for the use of inputs.

(a) Input Subsidies and Financial Return

Financial return is measured by net farmer income, which is the difference between the value of output and the costs of all inputs, including those for which no expenditure is made, which are thus opportunity costs.

The crops included in this analysis are grains (durum wheat, bread wheat, and barley), potatoes, and citrus fruits (Maltese oranges for export). These products have been chosen by virtue of their share in the use of inputs for which subsidies are to be eliminated in the structural adjustment program.

Financial returns have been estimated on the basis of recommended practices and technical standards set forth by the Ministry of Agriculture. Work currently underway as part of the APIP project will permit similar analysis on the basis of actual farm practices. The technical standards are established by climatic zone and farm size. There are three zones: the moist-submoist zone, characterized by relatively high rainfall; the semi-arid zone, with medium levels of rainfall; and the central and southern regions, with very little precipitation. There are three categories of cereal grain farms: small (less than 20 ha); medium (20-100 ha); and large (over 100 ha). This distinction is important, since the per-hectare yield as well as the impact of the compensatory increase of the producer price will vary with farm size.

In addition, certified seeds are used intensively by the large farms of the moist-submoist zone, which produce durum wheat, bread wheat, and barley, and to a lesser degree by the large farms producing durum wheat in the semi-arid zone. All other farms use only ordinary seed. Of the fertilizers, Super 45 is used almost equally for all crops and farm sizes, while ammonium nitrate is used more intensively on the large farms and in the moist-submoist zone, where wheat is grown, than on the other farms. The small farms of the semi-arid zone and all the farms of the center and south use practically no ammonium nitrate, according to the norms. These fertilizers are used to a considerable extent for potatoes and citrus fruits, but the main fertilizer used on such farms is potash, which is not subsidized.

The herbicide 2,4-D is used at almost the same intensity by large and medium sized farms that cultivate wheat, and only by large farms producing barley; the small farms use little if any herbicide. Also, 2,4-D is not used for the potato or citrus crops.

(b) **Trends in financial yield: 1985-86 to 1987-88**

For most of the cereal crops, production costs per hectare increased more than 20% from the season prior to the adjustment program (1985-86) to the second year in which the program was implemented. Cost increases were small for cereals cultivated in the center and south of the country, where little use is made of subsidized inputs. Also, cost increases for potatoes and citrus fruits have been considerably lower than for cereals because of the importance of inputs other than the subsidized ones.

Prices of the inputs covered by the adjustment program have increased much more rapidly than those of other inputs, with the price of Super 45 and seed potatoes increasing most sharply, by 75% and 60% respectively from 1985-86 to 1987-88. Nonetheless, producer prices, which in the case of cereals are set by the government, have registered even greater increases, which are reflected in real net incomes rising for durum wheat and barley producers.

Differences in yield among farms by size and zone are such that the large farms of the moist-submoist zone have the highest net incomes per hectare. In most cases income per hectare of large farms in the semi-arid zone is more than three times greater than for medium-size farms of the same zone. Small farm incomes are close to zero or negative, with the exception of those located in the moist-submoist zone that grow durum wheat.

Producer price increases from 1985-86 to 1987-88 -- more than 30% for durum wheat and 27% for barley -- have led to significant improvements in incomes generated by these two crops, as shown in Table II-1. For durum wheat the improvement has been greater than 50%, while for barley it is greater than 20%, except for the small farms of the semi-arid zone, where nominal net incomes increased only 5%, and for farms of the center and south, where incomes became negative because of low productivity, with cost increases outweighing increases in the value of output. Taking into account the average inflation of 7% yearly for the same period, there has been a significant increase in real incomes for these two crops, with the exception of the two cases just mentioned. This increase is more than one-third for durum wheat and more than 7% for barley, indicative of a highly favorable trend relative to that of income generated by other non-agricultural activities.

TABLE II-1
ESTIMATE OF FINANCIAL AND ECONOMIC RETURN FOR THE 1985-86 TO 1987-88 SEASONS BASED ON THE STANDARDS

CROP	AREA	SIZE	ANTICIPATED FINANCIAL RETURN (d/ha) 1985-86	1986-87	1987-88	CHANGE 1985-86: 1987-88	ECONOMIC RETURN 1986-87	1987-88	CHANGE 1986-87 1987-88
DURUM WHEAT	MOIST-SUBMOIST	LARGE	105.50	131.90	157.50	49.29%	16.03	65.86	310.84%
		MEDIUM	26.70	44.30	61.80	131.46%	-52.93	-45.20	14.60%
		SMALL	28.20	40.50	53.00	87.94%	-28.89	-22.86	20.87%
	SEMI-ARID	LARGE	20.40	33.00	47.00	130.39%	-48.62	-45.42	6.58%
		MEDIUM	19.10	26.70	36.10	89.01%	-42.86	-43.64	-1.82%
		SMALL	-10.50	-10.30	-5.20	50.48%	-58.01	-56.04	3.40%
SOFT WHEAT	MOIST-SUBMOIST	LARGE	122.00	118.00	138.00	13.11%	5.02	40.07	698.21%
		MEDIUM	53.00	47.00	61.00	15.09%	-49.08	-24.59	49.90%
	SEMI-ARID	LARGE	40.00	33.00	44.00	10.00%	-53.87	-35.36	34.36%
		MEDIUM	38.00	31.00	40.00	5.26%	-37.60	-22.47	40.25%
BARLEY	MOIST-SUBMOIST	LARGE	82.00	80.00	99.00	20.73%	78.35	52.12	-33.48%
		MEDIUM	17.00	9.00	21.00	23.53%	19.71	2.45	-87.57%
		SMALL	2.00	-7.00	4.00	100.00%	6.40	-8.03	-225.47%
	SEMI-ARID	LARGE	24.00	20.00	32.00	33.33%	17.04	4.69	-72.48%
		MEDIUM	22.00	17.00	31.00	40.91%	15.82	6.48	-59.04%
		SMALL	-18.00	-25.00	-17.00	5.56%	-22.50	-31.33	-39.24%
	CENTER/SOUTH		12.00	-12.00	-7.00	-158.33%	-29.34	-34.87	-18.85%
POTATOES	EARLY IN SEASON		180.00	378.29	273.17	51.76%	3414.17	3693.91	8.19%
			380.00	589.76	484.70	27.55%	5553.80	5868.50	5.67%
CITRUSES (Round tree/ Mech. Trac.)			600.00	180.40	109.38		761.00		

In contrast, incomes from bread wheat have stagnated in real terms, or even dropped, as in the semi-arid zone, where nominal incomes have risen only 10% on large farms and 5% on mid-size farms. This is not enough to offset an increase in the general price level (measured by the consumer price index) of 14% in two years. This trend has motivated cereal producers to grow more durum wheat and, to a lesser extent, more barley, and less bread wheat, which has become less profitable.

Despite increases in producer prices, small farms outside the moist-submoist zone continue to run deficits because of their small yields.

Potato growers have seen an increase in their real incomes thanks to price hikes both during the season and in pre-season for early potatoes.

(c) **Financial impact of future subsidy reductions**

Scenario I: Maintain the initial program, which would mean that subsidies should be reduced in 1989-90 by an amount that will make up for the delay in implementation of subsidy reductions that occurred in the 1988-89 season.

Scenario II: Extend the period during which the program is implemented for one year.

In scenario I, fertilizer subsidies would be reduced by two-thirds in 1989-90 to make up for the extent to which subsidy reductions fell behind schedule in 1988-89. Considering that the total subsidy currently granted is equal to the difference between the cost to STEC and its transfer price, the sales price to the public of super 45 should jump from 10.9 D per quintal to 14,061 D. The remaining subsidy would thus be 1,581 D/quintal. This increase is on the order of 29%. The price adjustments will range from 13% for ammonium nitrate to 59% for seed potatoes.

The results of this simulation are shown in Tables II-2 and II-3. The first table shows the impact on per-hectare production costs. The impact is greater for large farms in the moist-submoist zone, which account for 4 to 5% of the 1987-88 cost. This is due to the relatively major role of subsidized inputs, with fertilizers and 2,4-D alone accounting for 16% of their production costs. The increase for the large farms of the semi-arid zone is not as great, on the order of 3 to 4%, since subsidized inputs account for a smaller share of costs. The impact on the costs incurred by small farms is small, no more than 2%. Potato costs are affected more than cereal costs, as they will rise by approximately 7%. The difference is due to the important role of seed potatoes in potato production. Production costs of citrus fruits will increase only slightly (1.2%), since

potash, which is not subsidized, is generally used rather than super 45 or ammonium nitrate.

TABLE II-2

POLICY SCENARIOS FOR INPUT SUBSIDIES IMPACT ON FINANCIAL PRODUCTION COSTS BY CROP, ZONE, AND SIZE

AREA	SIZE	FINANCIAL COST/HA (In D) 1987-88	% SHARE OF FERTILIZERS AND OF 2,4-D	SCENARIO I	CHANGE (in %)	SCENARIO II	CHANGE (in %)	YIELD /HA	COMPENSATORY INCREASE OF PRODUCT PRICE (D/QL) SCENARIO I	FINANCIAL COST/QL 1987-88	SCENARIO I	SCENARIO II
MOIST-SUBMOIST	LARGE	304.00	16.20	318.80	4.87%	311.70	2.53%	22.00	0.67	13.82	14.49	14.17
	MEDIUM	295.90	12.60	302.30	2.16%	298.70	0.95%	17.00	0.38	17.41	17.78	17.57
	SMALL	261.90	13.40	268.70	2.60%	265.30	1.30%	15.00	0.45	17.46	17.91	17.69
SEMI-ARID	LARGE	247.00	12.80	254.80	3.16%	250.90	1.58%	14.00	0.56	17.64	18.20	17.92
	MEDIUM	194.80	13.40	200.40	2.87%	197.60	1.44%	11.00	0.51	17.71	18.22	17.96
	SMALL	152.20	7.10	155.40	2.10%	153.80	1.05%	7.00	0.46	21.74	22.20	21.97
MOIST-SUBMOIST	LARGE	318.00	15.50	331.00	4.09%	323.00	1.57%	24.00	0.54	13.25	13.79	13.46
	MEDIUM	300.00	12.40	306.00	2.00%	303.00	1.00%	19.00	0.32	15.79	16.11	15.95
SEMI-ARID	LARGE	260.00	12.20	271.00	4.23%	264.00	1.54%	16.00	0.69	16.25	16.94	16.50
	MEDIUM	207.00	12.60	212.00	2.42%	209.00	0.97%	13.00	0.38	15.92	16.31	16.08
MOIST-SUBMOIST	LARGE	208.00	14.40	218.00	4.81%	213.00	2.40%	22.00	0.45	9.45	9.91	9.68
	MEDIUM	203.00	12.80	209.00	2.96%	206.00	1.48%	16.00	0.38	12.69	13.06	12.88
	SMALL	192.00	8.60	196.00	2.08%	194.00	1.04%	14.00	0.29	13.71	14.00	13.86
SEMI-ARID	LARGE	164.00	16.40	169.00	3.05%	166.00	1.22%	14.00	0.36	11.71	12.07	11.86
	MEDIUM	137.00	6.30	140.00	2.19%	138.00	0.73%	12.00	0.25	11.42	11.67	11.50
	SMALL	144.00	6.00	146.00	1.39%	145.00	0.69%	9.00	0.22	16.00	16.22	16.11
ENTER/SOUTH		59.40	0.00	59.40	0.00%	59.40	0.00%	4.00	0.00	14.85	14.85	14.85
ATOES	EARLY	2224.63		2544.29	14.37%	2384.46	7.18%			14.80	17.00	15.90
	IN SEASON	2290.56		2610.23	13.96%	2450.40	6.98%			11.50	13.10	12.30
IUSES (Round tree/ Mech. Trac.)		3893.96		3942.90	1.23%	3905.00	0.28%			12.50	15.30	14.20

Table II-3 shows the impact of reducing subsidies on net incomes, assuming that neither the other cost elements nor the production price will change from the baseline situation of 1987-88. In most cases incomes are projected to decline by more than 10%; the impact on small farms is relatively greater given their very small incomes to begin with.

If the objective includes maintaining net incomes at the level of the previous year, the adjustments to producer prices that should accompany the measures to be adopted under this scenario will average 0.5 d for durum wheat, 0.480 d for bread wheat, and 0.325 d for barley. Theoretically, the adjustments required are not uniform. The compensatory increases required are higher for large farms than for mid-sized ones; in certain cases the difference is greater than 50%. It will thus be impossible to compensate cereal growers at a uniform rate while maintaining all incomes at their previous level and ensuring that the Subsidy Fund is not affected by any of these measures.

(d) Input Subsidies and Protection

One of the objectives of ASAP I is to attain effective protection of 25% of all agricultural products by 1991, through product and input price adjustments. The effective protection coefficient that links the value added to domestic prices to international prices also depends on the nominal protection of both production and inputs. Effective protection is all the more important since inputs are very much unprotected, while production enjoys major protection.

TABLE II-3

INPUT SUBSIDY SCENARIOS
IMPACT ON FINANCIAL RETURN
****

CROP	AREA	SIZE	ANTICIPATED FINANCIAL RETURN/HA 1987-88	SCENARIO I	CHANGE (%)	SCENARIO II	CHANGE (%)
	MOIST-SUBMOIST	LARGE	157.50	143.00	-9.21%	150	-4.76%
		MEDIUM	61.80	55.00	-11.00%	58	-6.15%
		SMALL	53.00	46.30	-12.64%	49.7	-6.23%
DURUM WHEAT							
		LARGE	47.00	39.00	-17.02%	43	-8.51%
	SEMI-ARID	MEDIUM	36.10	31.00	-14.13%	33	-8.59%
		SMALL	-6.20	-9.00	53.85%	-7	34.62%
	MOIST-SUBMOIST	LARGE	138.00	125.00	-9.42%	133	-3.62%
		MEDIUM	61.00	54.00	-11.48%	58	-4.92%
SOFT WHEAT							
	SEMI-ARID	LARGE	44.00	33.00	-25.00%	40	-9.09%
		MEDIUM	31.70	25.7	-18.93%	27	-7.53%
	MOIST-SUBMOIST	LARGE	99.00	90.00	-9.09%	95	-4.04%
		MEDIUM	21.00	15.00	-28.57%	18	-14.29%
		SMALL	4.00	0.10	-97.50%	2	-50.00%
BARLEY							
	SEMI-ARID	LARGE	33.00	26.00	-18.75%	29	-9.38%
		MEDIUM	31.00	25.00	-9.68%	30	-3.23%
		SMALL	-17.00	-20.00	17.65%	-19	11.76%
CENTER/SOUTH			-7.00	-7.00	0.00%	-7	0.00%
POTATOES		EARLY IN SEASON	273.17	-46.49	-117.12%	113.34	-58.51%
			384.70	165.00	-65.95%	324.9	-31.57%
CITRUSES (Round tree/ Mech. Trac.)							
			109.39	-1.17	-101.18%	54.12	-50.52%

In recent years increases in producer prices of cereals have led to nominal positive protection for these products after years of effective taxation. Thus, in 1987-88 the nominal protection rates for durum wheat, bread wheat, and barley were 47%, 40%, and 37% respectively (Table II-4). Reduction of subsidies will not affect the extent of this protection unless the authorities boost producer prices to compensate. In that case, the nominal protection would increase three percent for each of the three grains.

The nominal protection coefficient for inputs is less than one with subsidies. In 1985-86, this coefficient was smallest (approximately 0.8) for the large farms of the north, since they use relatively more subsidized inputs. In 1987-88, price increases of these inputs brought local prices closer to international prices so that the nominal protection coefficient is at present approximately 0.92 for most crops and farms. The differences among farms of different sizes have become relatively small.

The result of this nominal protection for cereal products and of the net subsidy for their inputs has been that effective protection is greater than nominal protection. In 1985-86, bread wheat was the most highly protected cereal, with an average rate of 75%, followed by durum wheat at 55%, and barley at 17%. Changes in domestic cereals prices and in their world prices since 1985-86 have led to an increase in effective protection for durum wheat and barley despite the significant reduction of disparities between the local and international prices of subsidized inputs. At present durum wheat benefits most from protection, followed by bread wheat and barley (Table II-4).

Effective protection for potatoes and citrus fruits is largely determined by the nominal protection accorded these products, which is negative. The corresponding effective protection coefficients are quite small, less than 0.5. Nonetheless, these results should be interpreted with great caution, since the hypothesis may not be very realistic considering that potatoes may be exported in large quantities at prices already realized for small quantities exported to Marseille. The results for early potatoes and Maltese oranges would, however, largely remain valid.

The cost in domestic resources is an indication of the degree of efficiency at which productive resources are used for realizing a profit or for saving foreign exchange. It is measured by the ratio of the value of non-exchangeable inputs evaluated, in principle, at their reference prices, to the value in border prices of the net production of exchangeable inputs. A crop is all the more efficient when its cost in domestic resources is small.

The results of these calculations are shown in Table II-4. This table shows that the large farms of the moist-submoist region are the most efficient, especially for bread wheat and barley. The semi-arid region is only efficient for barley, while the center and south are highly inefficient.

The potato and citrus crops are very efficient, considering the high levels of income that they generate.

Since one of the objectives of suppressing subsidies is to reduce the distortions caused by excessive protection, it seems useful to forecast the impact of this measure on reduction of protection. The results of this forecast are illustrated in Table II-5. The measures of scenario I would bring the prices of exchangeable inputs down, on average, almost to the border prices, since the nominal protection coefficient is close to one. As a result, effective protection would be diminished, but by only 3 or 4% in most cases, because the share of subsidized inputs in the total production cost of cereals would remain low. Effective protection is still dominated by the difference between domestic cereals prices and their international prices. Standardization of effective protection for the different crops (at a rate of 25% from now until 1991) as foreseen in ASAP I will have a much greater impact on product prices than on input prices.

III. IMPACT OF ELIMINATING SUBSIDIES ON DEMAND FOR SUBSIDIZED INPUTS AND ON THE SUPPLY OF PRODUCTS

Eliminating subsidies on certain inputs such as chemical fertilizers, pesticides and herbicides, and seed, and bringing product prices into line with their international prices, should in principle have an impact on the demand for inputs as well as on the supply of products. This effect will be all the greater if the supply and demand elasticities are large. Estimates of supply and demand equations can be used as a tool for simulating the impact of different policies affecting the various prices that farmers pay. Also, different price policy scenarios may be studied; this helps decision makers to make enlightened choices. This part of the report presents a summary of the principal results from estimates of different elasticities for input demand and supply of products.

III-1. METHODOLOGY

For cereals and vegetables, which absorb the largest share of subsidized inputs, separate estimates were made of demand for fertilizers, area planted, yield, and output. The estimates for cereals were made for all farms and products, by region, and by product, for 1962-1987. Estimates for vegetable crops were made nationally and one-by-one for the main products for 1976-1987.

TABLE II-4

CHANGES IN INDICATORS OF PROTECTION AND EFFICIENCY BY CROP, ZONE, AND SIZE

CROP	AREA	SIZE	NOMINAL PROTECTION INPUTS 1985-86	1986-87	1987-88	CHANGE 1985-86 1987-88	NOMINAL PROTECTION OUTPUT 1985-86	1986-87	1987-88	EFFECTIVE PROTECTION 1985-86	1986-87	1987-88	CHANGE 1987-88 1985-86	COST DOMESTIC RESOURCES 1985-86	1986-87	1987-88	CHANGE 1987-8 1985-8
DURUM WHEAT	MOIST-SUBMOIST	LARGE	0.81	0.88	0.93	14.81%	1.22	1.40	1.47	1.65	1.80	1.77	8.83%	0.92	0.90	0.70	-23.
		MEDIUM	0.81	0.87	0.94	16.05%	1.22	1.40	1.47	1.90	2.02	2.01	5.53%	1.67	1.46	1.43	-20.
		SMALL	0.90	0.87	0.95	5.56%	1.22	1.40	1.47	1.50	1.79	1.84	22.87%	1.14	1.23	1.16	1.
	SEMI-ARID	LARGE															
		MEDIUM	0.85	0.86	0.92	8.24%	1.22	1.40	1.47	1.47	2.08	2.09	42.57%	0.82	1.54	1.45	77.
		SMALL	0.86	0.83	0.87	1.16%	1.22	1.40	1.47	1.44	2.08	2.14	48.15%	0.97	1.59	1.53	57.
			0.86	0.79	0.85	-1.16%	1.22	1.40	1.47	1.42	2.48	2.39	67.94%	0.80	2.59	2.25	180.
SOFT WHEAT	MOIST-SUBMOIST	LARGE	0.90	0.88	0.95	18.75%	1.34	1.43	1.40	1.83	1.88	1.69	-7.64%	0.89	0.96	0.81	-8.
		MEDIUM	0.81	0.86	0.94	16.05%	1.34	1.43	1.40	1.86	2.07	1.81	-2.78%	1.01	1.42	1.16	15.
	SEMI-ARID	LARGE	0.85	0.87	0.93	10.02%	1.34	1.43	1.40	1.63	2.15	1.87	14.98%	0.72	1.59	1.29	79.
		MEDIUM	0.86	0.87	0.92	4.55%	1.34	1.43	1.40	1.75	2.04	1.81	3.15%	1.09	1.46	1.21	10.
BARLEY	MOIST-SUBMOIST	LARGE	0.88	0.93	0.93	5.68%	1.05	1.16	1.37	1.18	1.25	1.59	35.09%	0.92	0.54	0.67	-27.
		MEDIUM	0.90	0.88	0.94	4.44%	1.05	1.16	1.37	1.22	1.31	1.66	36.09%	1.23	0.81	0.96	-21.
		SMALL	0.91	0.87	0.91	0.00%	1.05	1.16	1.37	1.23	1.35	1.68	36.53%	1.55	0.92	1.07	-31.
	SEMI-ARID	LARGE	0.89	0.88	0.93	4.49%	1.05	1.16	1.37	1.18	1.37	1.72	46.13%	0.71	0.80	0.93	31.
		MEDIUM	0.90	0.86	0.90	0.00%	1.05	1.16	1.37	1.13	1.35	1.68	48.12%	0.65	0.80	0.90	37.
		SMALL	0.89	0.85	0.88	-1.12%	1.05	1.16	1.37	1.18	1.51	1.95	65.68%	0.94	1.44	1.65	75.
	CENTER/SOUTH		0.98	0.98	0.98	-0.45%	1.05	1.16	1.37	1.09	1.29	1.66	52.10%	1.49	2.08	2.31	55.
POTATOES		EARLY	0.95	0.81	0.87	-8.64%	0.57	0.45	0.43	0.46	0.34	0.30	-34.80%	0.42	0.26	0.25	-40.
		IN SEASON	1.05	1.06	1.08	2.99%	0.48	0.37	0.36	0.34	0.27	0.24	-29.91%	0.27	0.18	0.18	-32.
CITRUSES (Round tree/ Mech. Trac.)			0.88	0.81			0.55	0.49		0.46	0.43			0.37	0.23		

TABLE II-5

SIMULATION OF INPUT SUBSIDY POLICIES:
IMPACT ON INDICATORS OF PROTECTION
AND EFFICIENCY BY CROP, ZONE, AND SIZE
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CROP	AREA	SIZE	NOMINAL PROTECTION INPUTS 1987-88	NOMINAL PROTECTION INPUTS SCENARIO I	NOMINAL PROTECTION INPUTS SCENARIO II	EFFECTIVE PROTECTION 1987-88	EFFECTIVE PROTECTION SCENARIO I	EFFECTIVE PROTECTION SCENARIO II
DURUM WHEAT	MOIST-SUBMOIST	LARGE	0.93	1.00	0.96	1.77	1.73	1.75
		MEDIUM	0.94	1.01	0.97	2.01	1.91	1.95
		SMALL	0.95	1.02	0.99	1.84	1.79	1.81
	SEMI-ARID	LARGE	0.92	0.98	0.95	2.09	2.03	2.06
		MEDIUM	0.87	0.91	0.89	2.14	2.10	2.12
		SMALL	0.85	0.90	0.87	2.39	2.29	2.34
SOFT WHEAT	MOIST-SUBMOIST	LARGE	0.95	1.03	0.99	1.69	1.63	1.66
		MEDIUM	0.94	1.02	0.98	1.81	1.72	1.76
	SEMI-ARID	LARGE	0.93	0.99	0.95	1.87	1.80	1.84
		MEDIUM	0.92	0.98	0.95	1.81	1.75	1.79
BARLEY	MOIST-SUBMOIST	LARGE	0.93	0.97	0.95	1.59	1.58	1.59
		MEDIUM	0.94	0.99	0.96	1.66	1.63	1.64
		SMALL	0.91	0.96	0.94	1.68	1.64	1.66
	SEMI-ARID	LARGE	0.93	0.99	0.96	1.72	1.67	1.69
		MEDIUM	0.90	0.93	0.91	1.68	1.66	1.67
		SMALL	0.86	0.92	0.9	1.95	1.72	1.92
CENTER/SOUTH			0.97	0.97	0.97	1.66	1.66	1.66
POTATOES	EARLY IN SEASON		0.87	1.10	0.99	0.30	0.24	0.27
			1.08	1.10	1.09	0.24	0.21	0.23
CITRUSES (Round tree/ Mech. Trac.)			0.96	0.98	0.92	0.39	0.34	0.37

In each case a partial adjustment and/or adaptive anticipation model was estimated. This has made it possible, in many cases, to calculate the short-term and long-term elasticities. The models took into account, to the extent possible, all relevant variables, such as climatic conditions and means of financing, to avoid having biased coefficients. Still the most important variables are the price of subsidized inputs and the amount of input used.

III-2. ASSESSMENT OF ELASTICITIES OF DEMAND FOR INPUTS AND SUPPLY OF PRODUCTS

The analysis has shown that trends in prices, as influenced by public policy, have exercised a considerable impact on the demand for fertilizers, production, and yield for cereals and vegetable crops. This quantitative result already shows that elimination of the fertilizer subsidies not followed by compensatory measures may reduce fertilizer purchases and yields. The second important result of this analysis is that the availability of borrowed funds has played a major role, independent of changes in the prices of fertilizer.

(a) Impact of the elimination of subsidies on the demand for fertilizers

Cereal and vegetable crops together absorb some 70% of all fertilizer. Changes in the demand for fertilizer in Tunisian agriculture, and especially the effects of the new price policy, will depend to a great extent on the farmers' response in these two sectors, and in particular in the cereals sector, which is by far the largest user of chemical fertilizers.

The main conclusion that can be drawn from the econometric estimates for cereal crops in the north is that demand for fertilizers is sensitive to their relative prices, with a short-term elasticity on the order of 0.4 to 0.6 when credit is included as a variable in the equation. Thus a 10% increase in fertilizer prices would lead to a 5% drop in purchases. The elasticity is clearly higher when credit is left out of the equation. A second conclusion is that credit, not production in the prior period, determines demand.

The long-term elasticities range from 0.7 to 2.25, with a real value greater than one but less than the upper limit of 2.25. The 2.25 figure is obtained by excluding credit and other effects such as dissemination of information, learning, and improvement of the productivity of fertilizers with the introduction of high-yield wheat varieties. The 0.7 value is obtained when taking into account the credit restriction. These elasticity values mean that increasing the prices of fertilizers vis-a-vis those of cereals by 10% would lead to a decline in

demand from 7 to 22.5%, once the farmers have fully readjusted their use levels. The implications for the ASAP are clear. Eliminating subsidies on fertilizer would be reflected in the cost price and public sale price for 1987-88 by a 23% increase in the sales price. Assuming that other factors remain constant, the analysis indicates that as a result of subsidy removal, demand for fertilizer would diminish over a few years in proportions varying from 17 to 51.7%, the most likely proportions being in the range of 20 to 25%. The response would be less in the short term (9 to 13%).

(b) Impact of the elimination of subsidies on planted area

From 1962 to 1987, the total area planted in cereal crops nationwide more or less stagnated, though it diminished slightly in the north and increased considerably in the center/south. The analysis showed that in general the price policy has not had an impact on the total area planted in cereal crops, at least in the north, which accounts for some 80% of production. Nationally, elasticity of the area sown in relation to the prices of fertilizers is small, from 0.15 to 0.2. This response of area sown to prices of fertilizer appears to occur immediately, since the estimated coefficient for area sown previously is small and statistically insignificant.

The analysis suggests that overall the area planted in vegetable crops may be affected by implementation of the measures set forth in the ASAP. The different short-term elasticities, which vary from 0.2 to 0.3, indicate that a 10% increase in fertilizer prices would lead to a reduction in area planted of 2 to 3% in the short term. In the long term this decrease would be 5 to 10%.

(c) Impact of the elimination of subsidies on yield and production

From 1962 to 1987, cereals production in the north grew at an average annual rate of 3%. Since the area was more or less stagnant during this period, the increase in production is explained primarily by the increase in yields. The subsidy policy has affected production by intensifying use of fertilizers and increasing yields. The analysis based on national data and data on the north indicates that 10% changes in quantities of fertilizer used lead to changes in production and yield on the order of 3%. The direct estimates of the sensitivity of production and yield in relation to relative prices are elasticities on the order of 0.7 for all cereals taken together, and higher values, greater than one, for durum wheat. Based on these coefficients, eliminating subsidies would lead to a 15% decline in production. For average production of 950,000 tons, the reduction would be on the order of 142,000 tons, with an increase of imports of some 20 MD.

As regards vegetable crops, the price effect has not been verified for all the products taken together. Only for tomatoes has the elasticity with regard to relative prices been estimated, the figure being 0.8 for the short term, and 1.3 for the long term. In these conditions a 10% increase in fertilizer prices would lead to a decline in production on the order of 8% the following year, and 13% in the long term.

Potato production appears to be relatively sensitive to seed prices, which are highly subsidized. An increase in seed prices of 10% could reduce production 2.6% in the short term and 10% in the long term.

III-3. ASSESSMENT OF THE SUBSIDY POLICY

The policy of subsidizing fertilizers has resulted in intensified use of fertilizers and a major increase in yields. Estimates indicate that at current fertilizer prices, farmers are motivated to increase their use, since the additional revenues resulting from fertilizer use are significantly greater than the commercial cost. Given the quantities and price in 1987, the ratio of marginal revenues to marginal cost would be about 4.5. Use of fertilizers remains less than optimal from the standpoint of cereal producers.

From the standpoint of society, the cost-benefit ratio is approximately 2.2, which means that each additional dinar yields a social value of more than two dinars. Thus, use of fertilizer is also less than optimal from the standpoint of society.

Measures should be taken to ensure that elimination of subsidies not have a negative impact on the use of inputs and on production. The foregoing analysis indicates that the use of these inputs remains less-than-optimal from the standpoint of both the farmers and society. The analysis shows that the means of financing play a major role, independent of prices, in the use of chemical fertilizers. This result is consistent with those of surveys administered by the Ministry of Agriculture. At present large farmers benefit from subsidies and from access to credit. The gap between the productivity of fertilizers and the commercial or social cost should be much greater for small and medium farmers than for large ones. Therefore, means must be found for making credit available to those farmers who for the most part have been excluded to date.

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MARKETING OF FERTILIZERS

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THEME 3: SUBSIDY REDUCTION--IMPACT ON SUPPLY AND DEMAND

MARKETING OF FERTILIZERS

INTRODUCTION

Since the impact of subsidy reduction on fertilizer demand was addressed in the Agricultural Policy Implementation Project (APIP) study, Reduction of Input Subsidies, this report will deal principally with the effects on marketing, and consequently, on the supply and distribution of fertilizers. We must first emphasize that the full impact on fertilizer marketing will not be apparent until subsidies are completely abolished, which will allow for the decontrol of fertilizer imports.

Nevertheless, decontrol of domestic marketing can be achieved without complete abolition of fertilizer subsidies if certain measures proposed in this paper are adopted.

After a brief overview of the use and marketing of chemical fertilizers in Tunisia, based on data from the APIP report entitled Possibilities for Improving Marketing of Chemical Fertilizers and Their Use on Farms, February 1989, this report aims to propose, within the framework of subsidy reductions on inputs, solutions that will allow for the removal of some of the constraints on the marketing of fertilizers.

A. FERTILIZER USE ON FARMS

1. Assessment

The current situation is characterized by the following:

a. Since 1960, annual overall consumption of fertilizer products has grown from approximately 10,000 tons to 100,000 tons, or approximately 250,000 tons of products at present. Use of phosphate and nitrogen fertilizers continues to increase, while use of potassium-based fertilizers remains stagnant, even decreasing.

b. Over 50% of fertilizers are used by farms larger than 100 hectares. Cereal crops use 45% to 50%. Ninety percent of fertilizers are marketed in the North.

c. The study of fertilizers has developed very little since the pre-1970 focus on the significant themes of agronomic research. Laboratory analysis of soils has followed the same course.

d. Recommendations for the use of manures have resulted from advances in research that is often dated, bibliographic data, and the opinions of technical experts, most often resulting in a compromise among these three sources of information.

e. The intensity of crop response to the manures and the profitability of fertilizer application are influenced by numerous factors. Satisfactory rainfall conditions, for example, are a key determinant.

f. The primary reasons for non-use of fertilizers are the lack of financial resources in the North and the lack of rainfall in the South. Users' underlying motivations, however, are poorly understood.

2. Future Perspectives

a. The potential of agricultural production is still underexploited and expansion of farming areas remains very limited. Consequently, increases in production can be realized only through intensified use of farming practices, particularly fertilizer use.

b. At present, the potential deficit of nitrogen fertilizer use is approximately 50%, and of phosphate fertilizer use, 40%.

3. Recommendations

a. Revitalize agronomic research regarding plant nutrition and orient the studies toward an integrated approach by understanding crops in their environment. A balance sheet of the results should be drawn up periodically.

b. Design or create a central laboratory at the national level responsible for fertilization analyses (soil, crop, irrigation water, fertilizer) and work out the terms of reference necessary for manure recommendations.

c. Research the motivations of farmers vis-à-vis stepped up use of agricultural inputs, particularly fertilizer.

d. Improve procedures for granting seasonal loans.

e. Promote farmer use of certain simple and inexpensive techniques (regular spreading of fertilizer, use of organic manure).

B. MARKETING OF FERTILIZERS

1. Assessment of Current Conditions

a Commercial lethargy on the part of the parastatal firms at the apex of the pyramid constituted by the fertilizer marketing circuits, whether local producers (SIAPE, SAEPA), the importer-distributor STEC, or grain stocking agencies (OC, CCGC, COCEBLE) acting as wholesalers (representing respectively 51,800t, 13,700t and 9,400t for the 12 months ending Aug. 31, 1988). Causes: the de facto monopoly that SIAPE, SAEPA, and STEC enjoy as a result of the subsidy policy; the payment delays of 12 to 18 months granted to STEC (importing-distribution) would have discouraged the private sector. The margin granted the wholesalers (OC, CCGC, COCEBLE) does not cover the expenses involved in a sales network. In addition, since their business in grain collection is much more profitable than fertilizer distribution, they allocate human and material resources accordingly.

b. Appearance of a network of private intermediaries-retailers (RDP) and several agricultural service cooperatives (CSA), whose numbers are increasing and whose total revenues (10.9 MD for STEC) surpass those of the stocking agencies (7.7 MD), but whose geographic distribution is poor; they

are not controlled upstream and are involved in a variety of products (e.g., pesticides, building materials, hardware, farming materials, spare parts).

(1) Annual sales of RDPs and CSAs varied from several hundred kilograms to 4,000 tons in 1987/88 (the 12 months ending Aug. 31, 1988). During this period, RDPs accounted for 43% of STEC sales, in contrast to 8% for CSAs, while in 1984 the percentages were only 19% and 5%, respectively.

(2)

Regions	% of fertilizer demand in STEC sales	Distribution of RDPs and CSAs by number	by percentage
Northeast	44	239	63
Northwest	45	37	10
Center/South	11	102	27
Totals	100	378	100

c. Lack of fertilizer stocking capacities at the start of the season by grain stocking agencies (coincidence of peak seasons), not feasible if fertilizers alone (cf. STEC buffer deposits) but potentially feasible for farmers and certain sectors for which the "high season" does not coincide with the high season for fertilizers (e.g., building materials).

d. Lack of financial resources for purchasing fertilizers when desired. Even the credit granted by STEC to the Grain Board (OC: Office des Céréales) is only partially passed on to the farmer. In fact, credit sales (three months from STEC to the Grain Board) rose to over 5 MD in 1987/88, while the Grain Board was able to pay farmers only some 2 MD per year. Those of the CCGC, Coceble and OMVVM were estimated at 1.6 MD. Hence the total comes to 3.6 MD, yielding overall retailer needs of some 23 MD in 1987/88.

e. A gross marketing margin that is, on the whole, sufficient, but which needs to be redistributed among the different groups (from the manufacturer to RDP), primarily to wholesalers and at the expense of STEC (importing-distribution). It is estimated that for the 1987 fiscal year this margin accounted for the following percentages, of the sales price to the public: 45% for ammonium nitrate (AN) and 36% for triple super phosphate (TSP) (68.3 and 62.3 DT/t respectively), of which 86% (AN) to 89% (TSP) go to STEC and only 14% (AN) to 11% (TSP) to retailers.

2. Recommendations

a. Objectives

- Vitalize distribution circuits to improve the quality of services to farmers (supply, transport, credit, technical information) through remuneration to distribution circuits that would constitute an incentive.

- Favor fertilizer stocking where it is potentially possible (i.e. by farmers and in the larger commercial sectors with complementary seasonal business cycles as in building materials) in order to improve supply while curbing distribution costs.

Total elimination of subsidies would permit the reappearance in importing--the highest level of fertilizer marketing--of private businesses involved in this activity several years ago, such as SEPCM and STIPCE. These firms dropped out of the circuits because they lacked the financial resources to withstand the long payment delays of the Subsidy Fund. Eliminating subsidies would help new businesses presently operating as part of the network of STEC retailers to enter importing activities. However, if a workable plan is adopted (such as that proposed below), the status quo should allow for the return of the private sector at the wholesale level.

A resurgence of the private sector in all areas of fertilizer marketing would revitalize circuits and benefit both farmers and lower government outlays. Sufficient nationwide competition should improve the quality of services to farmers (supply, transport, credits/price, and to some degree, technical information). These results have occurred in other countries, such as the Philippines, where decontrol of nitrogen and potassium fertilizer imports in 1986 resulted in the number of importers increasing from 5 to over 60 in a few months, concurrent with a price war that was extremely beneficial to farmers following the elimination of margins.

b. Strategy to Meet the Objectives Outlined Earlier

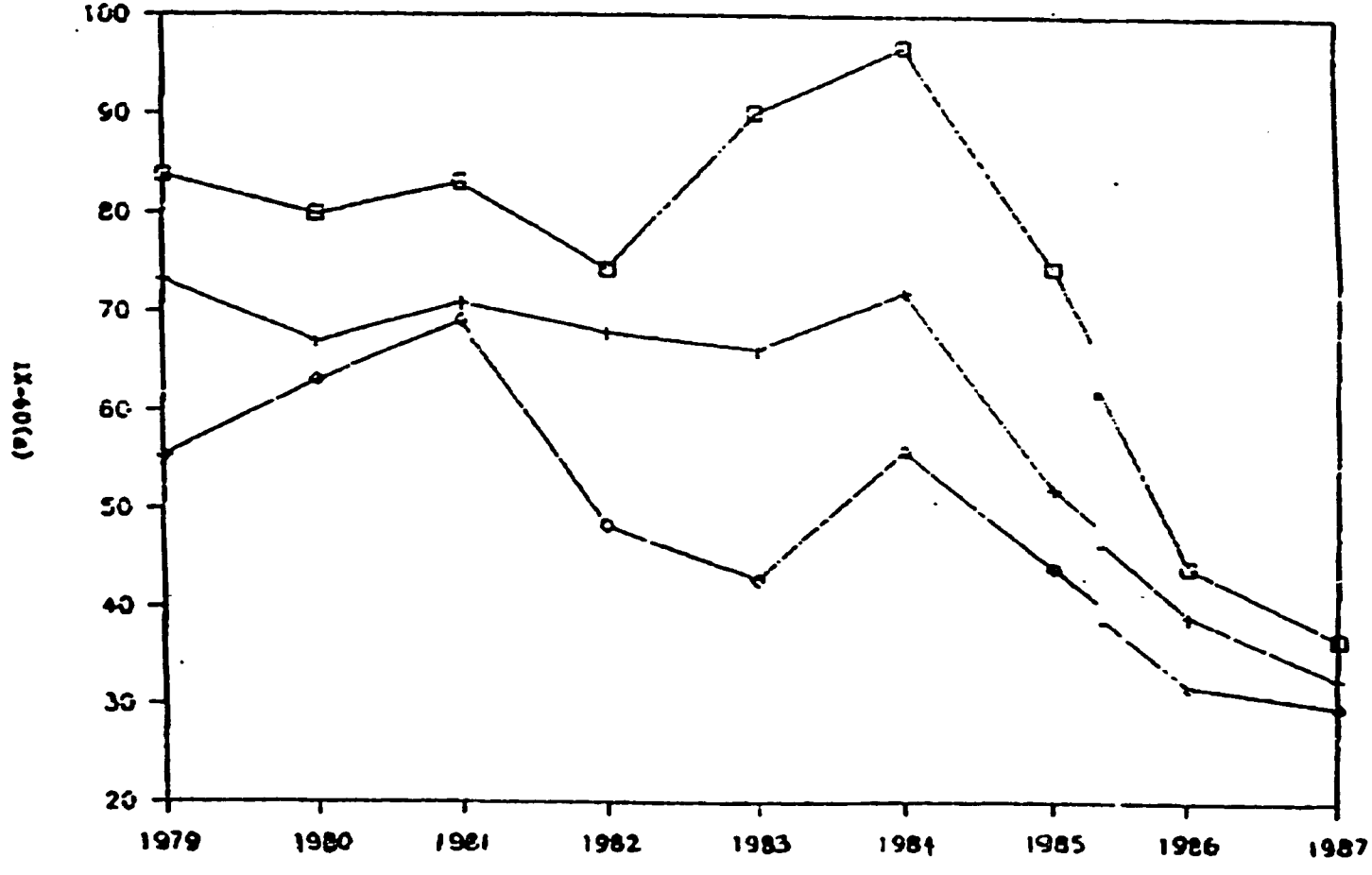
Gradually break up the de facto monopolies that benefit the local manufacturers, SIAPER and SAEPA, and the importer/distributor STEC, by applying the following timetable:

- In the first timeframe (1989), allow a new class of wholesalers to receive supplies directly from the manufacturers SIAPE and SAEPA on the same terms as STEC. The sine qua non condition is to pay the subsidies to the manufacturers, who will refund them to their wholesale distributors, invoiced (at their choice) either factory f.o.b. or c.i.f. destination. Also, grant the manufacturers payment delays for pre-season delivery. This last measure will allow farmers to build up security stocks without having to wait for the late release of conditional seasonal loans; it is understood that such supplier credit will be passed on to farmers throughout the distribution network.

- In the second timeframe (1990), adopt a regional differential for billing transportation costs, or better, bill them at the real price, the difference between transport costs of the Northwest and Northeast being only 2-3% of the price of fertilizers to the public.

- In the third timeframe (1992), when subsidies are abolished, eliminate the customs duties (15% on c.i.f.) and, if this has not already been done, bill transportation at real costs. These measures should enable wholesalers to

UREA: Import Costs, Wholesale & Retail Prices expressed in Pesos of 197 per 50 kg bag



Note: 1979-1985 Wholesale prices are the average maximum ex-warehouse price approved by FPA
While 1986-1987 figures refer to actual ex-warehouse average
Source: Prepared from data available at FPA (see Annex 9-4-18)

become importers/distributors and eliminate the de facto monopoly benefiting the local manufacturers. Thus, the latter would have a period of three years to prepare themselves to meet foreign competition on the local market, as they already are accustomed to do in the case of exports. If subsidies are maintained, decontrol of imports will not be possible unless the Subsidy Fund pays the subsidies to importers with much briefer delays and grants them arrears interest.

This gradual change will both give STEC the time to adapt to the competition that will arise in its local market sphere, and allow it to find a solution for getting rid of its buffer storage facilities (such as transfer to a complementary business sector). Buffer stocks could be held by the distribution network against payment facilities (perhaps for a disaster insurance fund). According to the 1985/86 study by AGRER, S.A. for STEC, 30% of annual consumption should be stocked before the onset of autumn (i.e. currently 80,000 to 100,000 tons of fertilizers) to reduce to 5% (one year out of 20) the risk of stock depletion.

Several surveys must be conducted to develop a reasonable plan that ensures harmonious integration of the private sector in all agricultural regions and at all levels of fertilizer marketing.

Fertilizer activities must be as profitable as other business activities if they are to provide an incentive. Whether or not it complements other business activities, it will attract sufficient economic actors to induce competition that benefits farmers. As a result, farmers would be assured of better prices and services, and Services Publiques (Public Utilities) could select among potential retailers, resulting in quality service and a level of profitability acceptable to the profession. This selection would be made by enforcing the conditions (notably, means of distribution and product knowledge) required to obtain fertilizer sales permits issued by the CRDAs. The surveys, listed below, would also make it possible to determine the optimal number of retailers needed in each governorship.

- o Evaluation of the motivations drawing economic actors into fertilizer distribution.

- o Evaluation of acceptable break-even point for wholesaler/retailers resupplying directly from the Sfax and Gabès production sources in each governorship, for intermediary-retailer activities.

- o Census of the present intermediary network (stocking agencies, offices, CSAs and RDPs): location, resources (stocking, transport, capital), revenues (total and fertilizer), other business activities and the extent of their activities.

NB: In the case of offices and stocking agencies, it is necessary to evaluate the resources actually used for fertilizers and transferable stocks to the RDPs and CSAs.

- o Evaluation of needs for financing (stocks, transport, capital) and training (management, logistics, fertilization) for the short, medium, and long term, and also of farmers' needs for construction of small fertilizer warehouses.

- o Historical review of institutional credit actually used and currently available for fertilizers, whose annual needs were estimated at approximately 23 MD in 1987/88. This trend goes back to the concerns outlined in the preceding presentation (Reduction of Input Subsidies) to find the means to make credit accessible to farmers who have been largely excluded; two-thirds of farmers have not used fertilizers because they lacked the financial means.

C. ROLE AND RESPONSIBILITIES OF PUBLIC UTILITIES

As imports are decontrolled and as the state disengages from the management of input marketing in general, and fertilizers in particular, the role of the public utilities will become more ambiguous, and its policy more difficult to formulate and implement. Thus, it is essential to establish a unit for formulating, coordinating, monitoring, and evaluating results of the input policy in the Ministry of Agriculture. This office should have the capacity and authority needed to act swiftly in all circumstances to win the collaboration of implementing agencies at all levels of the official hierarchy, private and parastatal. In addition, it should have easy and rapid access to the decisionmakers. In the Philippines, the Fertilizer and Pesticide Authority, an excellent model of the "inputs unit" that could be used in Tunisia, has an autonomous status within the Ministry of Agriculture, as its administrator is directly responsible to the minister, who serves as president of the agency.

The objectives, strategy, responsibilities, means of taking action, and personnel training proposed for this input unit are detailed in Chapter 4 of the APIP study, Possibilities for Improving Marketing of Chemical Fertilizers and Increasing their Use on Farms, February 1989 (pages 96-100), from which information and data used in this document were drawn.

Agricultural Policy Implementation Project

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MARKETING OF MIXED OILS

by Radhi MEDDEB

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INTRODUCTION

This introduction is a partial presentation of an effort to formulate a plan to market mixed oils in Tunisia. Edible oils are a strategic sector in Tunisia for a number of reasons:

- Olive trees cover a useful agricultural area of over 1.3 million ha, accounting for one third of all arable lands.
- Planting of olive trees makes it possible to make profitable use of the most arid zones, and the poorest soils, which are generally not suited to other crops.
- The olive oil industry is the main activity of approximately 30% of all farmers. Overall, 1 million people derive their subsistence directly or indirectly from the olive oil industry.
- A veritable food-processing agribusiness has emerged from this agricultural sector made up of oil mills, refining facilities, and other economic units that extract and process by-products.
- Olive oil is the fourth leading foreign exchange earner after petroleum, fertilizers, and textiles.
- Consumption of oils is a tradition rooted in Tunisia's dietary habits; hence, the government views edible oils as a basic necessity whose price should be kept down for the benefit of the most underprivileged sectors of the population.

Over the last 10 years (1978-1987), the main indicators of supply and demand of oils in Tunisia have been as follows:

	AVERAGE	MINIMUM	MAXIMUM
Production	101.7 mt/yr	58 mt/yr	155 mt/yr
Imports	84.1 mt/yr	35 mt/yr	115 mt/yr
Exports	58.8 mt/yr	37 mt/yr	87 mt/yr

Foreign trade in oils has averaged 143,000 T/yr over the last 10 years, for an average value of some 74 MD. Moreover, marketing of oils continues to grow. In 1987, foreign trade in oils came to 172,000 T, for a value of 96 MD.

This paper describes the present status of the cooking oils market and evaluates this market, presenting the results of a survey on edible oil consumption in urban areas. Finally, the paper outlines recommendations to improve the efficiency of administrative components of the oils market.

1. CURRENT STATUS

1.1 Imports of Grain Oils

The policy adopted by the Government of Tunisia in the 1960s to adjust supply and demand of edible oils in the local market was based on the following imperatives:

- Export as much olive oil as possible in view of the country's need for foreign exchange.
- Import grain oils at the lowest possible cost.
- Maintain the local market price at levels accessible to the most underprivileged sectors.

Thus, since the early 1960s Tunisian olive oil has been considered an export product. To guarantee sufficient supplies on the local market and to safeguard the place of Tunisian olive oil on the international market, grain oil imports began in 1962. These imports grew rapidly, particularly given the favorable financial conditions of the first deliveries (under the PL 480 food assistance program). Grain oils are now imported at international market prices.

A purchase commission made up of representatives of the ONH (Office National de l'Huile: National Office for Edible Oils) and the Ministry of Economy is responsible for entering into commitments for grain oil purchases. A review of the average prices at which ONH has imported grain oils indicates the wide fluctuations of import costs. Average prices for the most recent years were as follows:

Year	Average prices (in DT/T)	Fluctuations
1982/83	304	-
1983/84	516	+69.7%
1984/85	549	+6.4%
1985/86	311	-43.4%
1986/87	263	-15.4%

Fluctuations in import costs are due less to the composition of varieties of oils imported (soy and rapeseed, the latter being slightly less expensive than soybean oil) than to other factors affecting international edible oil prices. The grain oils imported by the ONH are almost always made up exclusively of crude soybean and rapeseed oils. Grain oil imports during the 1986-87 harvest season are described on the following table:

Grain Oil Imports
(1986-87)

Category	Country of origin	Quantity (in T)	Price (in 1000 DT)
Soybean oil	- Italy	6,052	1,691.0
	- Portugal	2,913	791.6
	- Spain	35,200	9,725.7
Soybean subtotal		44,165	12,208.3
Rapeseed oil	- Yugoslavia	6,169	1,520.0
	- Netherlands	3,000	702.2
	- France	54,746	13,971.5
Rapeseed subtotal		63,915	16,193.7
Grand total		108,080	28,402.0

1.2 Refining and Blending

The crude oils imported by ONH are distributed to 12 refineries in accordance with quotas based on their installed capacities for refining. The total is about 150,000 T/yr. The cost of refining, set by mutual agreement among UTICA, the Ministry of Economy, and ONH, is periodically updated. After the oils are refined, ONH collects and stores them at ONH facilities. Before marketing the grain oils, ONH blends them, mixing all the refined olive-pomace oils that it collected with part of the olive oil available.

For the 1982-1986 period, the blending operation involved the following categories of oils:

Composition of Mixed Oil

	1982/83	1983/84	1984/85	1985/86
Surplus mixed oil	314	1,258		
Refined grain oil	89,036	70,856	93,715	102,003
Olive oil	3,669	14,292	6,977	3,516
Refined olive-pomace oil	1,214	3,297	2,076	1,461
Mixed oil obtained	94,233	89,703	102,768	106,980

Source: ONH figures.

The average structure of mixed oil for the same period was as follows:

	in tons	in %
Refined grain oil	88,903	90.7
Olive oil	7,114	7.3
Refined olive-pomace oil	2,012	2.1
Total mixed oil	98,028	100.0

1.3 Marketing of Mixed Oils

Mixed oils are marketed nationally in bulk or in glass or PVC bottles. ONH returns the mixed oils to the packagers and wholesalers in the amounts to be sold in bulk. Storing is done by ONH; in view of the slim margins compared to storage costs, wholesalers and retailers avoid maintaining their own stocks. During the course of the last two seasons, the breakdown of mixed oils marketed by type of packaging was as follows:

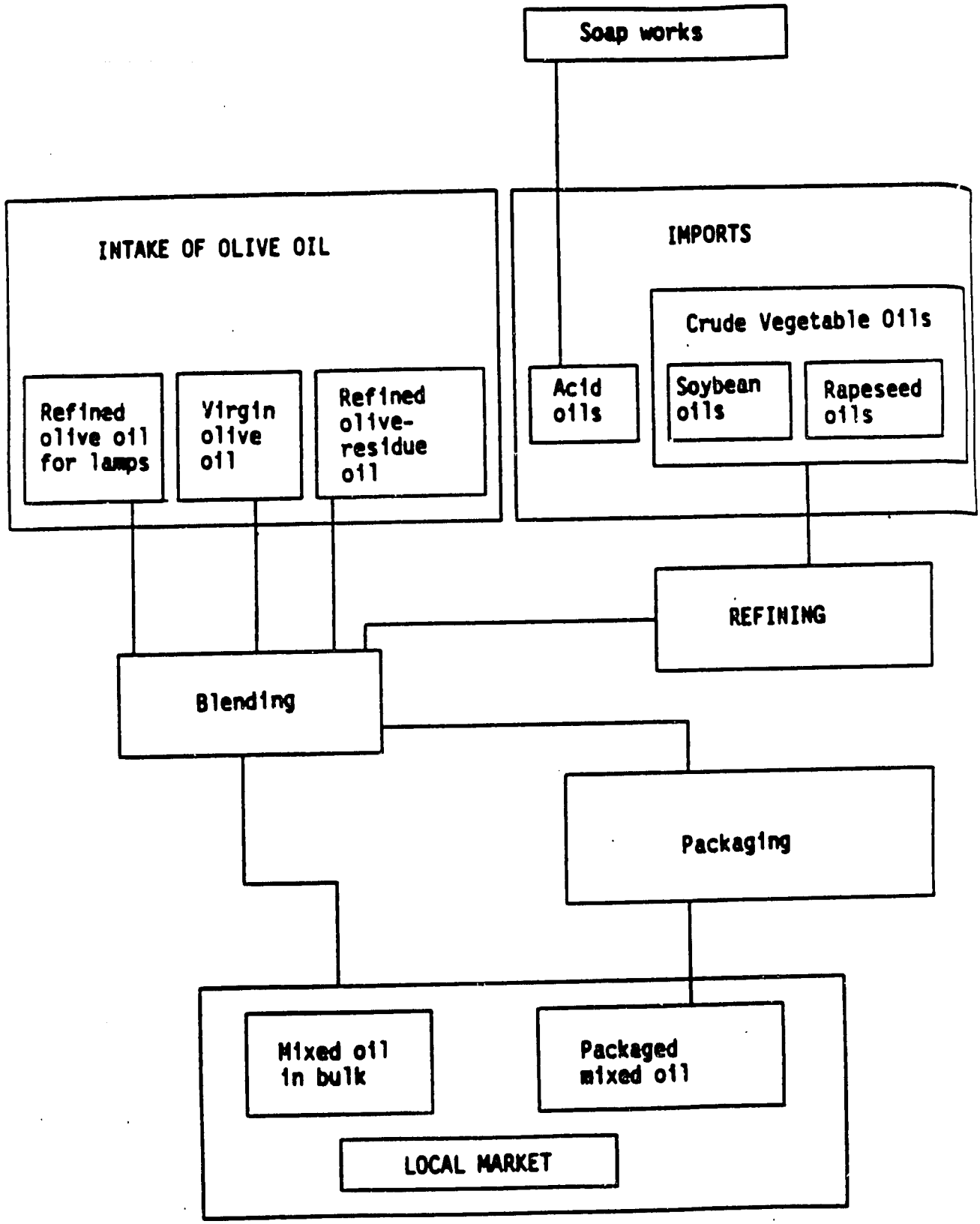
Mixed oil marketed	1986/1987		1987/1988	
	in T	in %	in T	in %
In bulk	79,137	72.2	89,538	71.6
Packaged	30,357	27.8	35,462	28.4
Total	109,674	100.0	125,000	100.0

Thus, approximately 28% of the mixed oils were packaged and 72% sold in bulk.

Schematically, the administrative process whereby mixed oil is imported, processed, and distributed, is as follows:

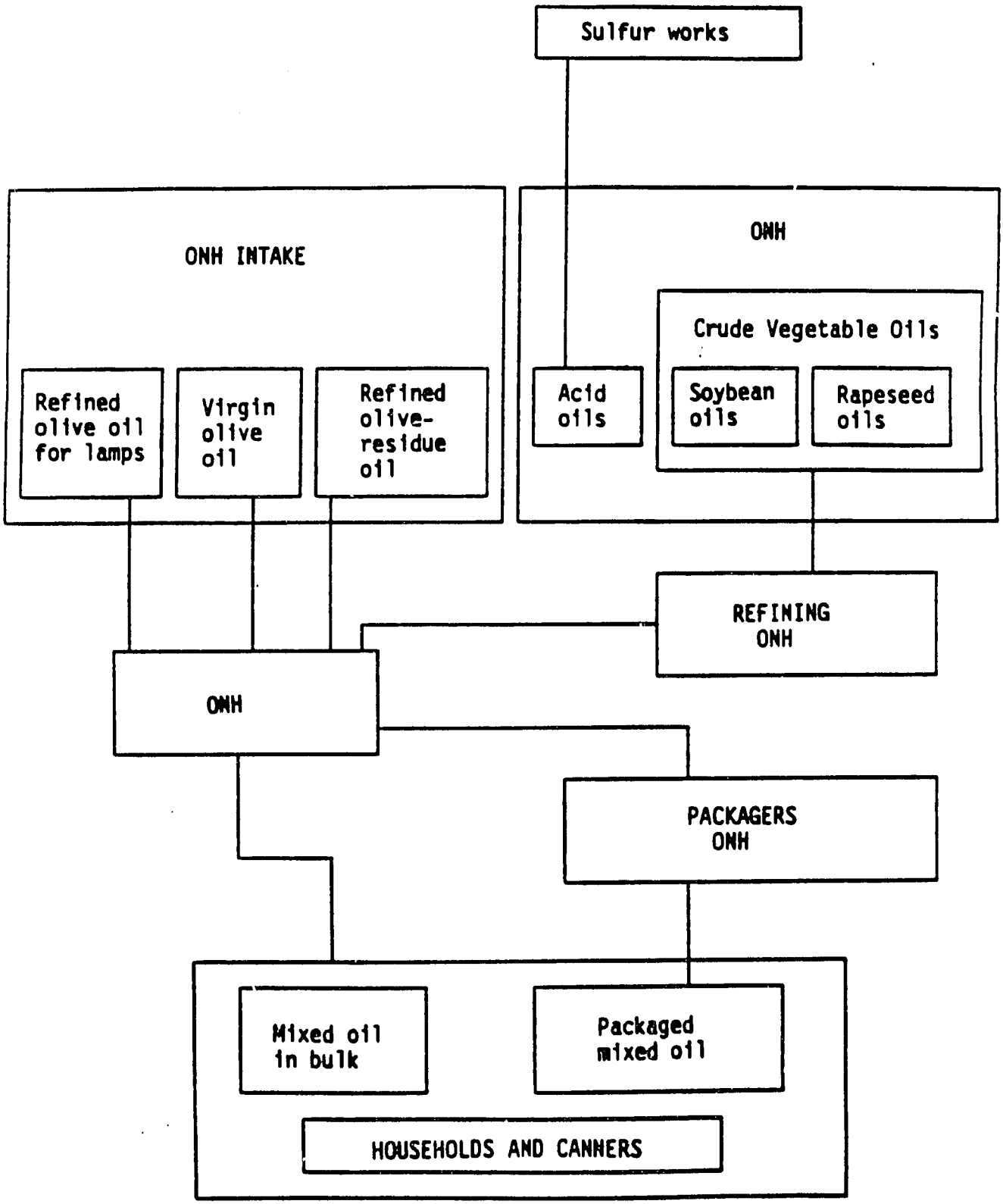
MIXED OIL

OPERATIONS AND PRODUCTS



MIXED OIL

OPERATIONS AND PRODUCTS



1.4 Subsidy on Mixed Oil

ONH maintains a separate accounting of its mixed oil activity and presents its accounts annually to the Subsidy Fund (CGC: Caisse Générale de Compensation) to cover the deficit generated thereby. During the 1985/1988 period, the Subsidy Fund compensated ONH for the following quantities in the following sums:

Compensation for grain oils and acid oils (1985-1988)

Categories	1985	1986	1987	1988
Mixed oil				
- Quantity (T)	95,000	105,000	110,000	125,000
- Compensation (MD)	43,800	19,800	14,300	30,225

Average compensation by the Subsidy Fund has been for 108,750 tons of mixed oil, which translates to an average subsidy of 27 MD. In 1989, the Subsidy Fund outlays were expected to account for 128,000 tons of mixed oil, for a total of 42 MD. The subsidy granted by the CGC may vary widely; such fluctuations depend on the volume of olive oil included in the mixture. We note that the quantities of olive oil incorporated in the mixture have fluctuated widely in this period, with a clear downward trend:

14,537 T in 1983-84
6,977 T in 1984-85
3,462 T in 1985-86

The average price charged by ONH for this oil has been 755.9 DT/T during the period in question. Also, the percentages of olive oil incorporated into the oil mixture fluctuate widely, depending on the total harvest and thus, on the levels purchased by ONH. The following table shows changes in the percentage of olive oil and olive-pomace oil in the oil blend:

	1982/83	1983/84	1984/85	1985/86	Average 1982/83-1985/86
Olive oil	3.89	15.90	6.79	3.29	7.47
Olive-pomace oil	1.70	2.67	2.02	1.36	2.19

The above table indicates that the % of olive oil in the grain oil/olive oil blend may vary from 1% to 4.8%. According to ONH, olive oil is included in the blend to ensure that "the consumer not lose the taste" for the national product; in practice, it amounts to subsidizing domestic consumption of olive oil.

Finally, all the refined olive-pomace oils collected by ONH are included in the blend and billed at the price that ONH pays. The quantities and average price for the period under study have been 2,154 T and 547.6 DT/T, respectively.

1.5 Structure of Edible Oil Consumption in Tunisia

The following table demonstrates the average structure of edible oil consumption in Tunisia for 1979-87.

Structure of Domestic Consumption of Edible Oils
(Average for 1979-87)

		Average Consumption in tons	in %	Per capita consumption (kg/person)
Olive Oil	Family Reserves	35,984	25.3	5.1
	ONH Sales	12,394	8.7	1.8
Total olive oil		48,378	34.0	6.9
Grain oils		94,125	66.0	13.5
Total edible oils		142,503	100.0	20.4

A review of this structure of domestic consumption of edible oils reveals that during the period covered, the average domestic consumption was 142,500 T/yr; dividing by the total population, this yields per capita annual consumption of 20.4 kg.

In addition, total quantities of edible oils consumed domestically increased from 107,000 metric tons in 1979/80 to 160,500 metric tons in 1983/84, and then to 174,000 metric tons in 1986/87. Since 1982-83, per capita consumption has leveled off, with only 10% variability over the last five years, from 20.8 kg to 22.8 kg.

Finally, the policy of substituting imported grain oils for domestic consumption of olive oil with imported grain oils, adopted in 1962/63, has attained its objective of changing the domestic supply structure of edible oils and hence the consumption habits of the Tunisian population. The factor that has contributed most to the success of this substitution policy has been the price policy.

This socioeconomic choice has resulted, 24 years after implementation of the policy, in local consumption of olive oil accounting for no more than one-third of domestic demand, with average consumption of 48,380 metric tons, 74% of which is due to the establishment of family reserves. In contrast, grain oil consumption has surpassed 100,000 metric tons in recent years, accounting for 66% of all edible oils consumed in Tunisia, with average annual consumption at 94,125 metric tons.

2. ASSESSMENT OF THE CURRENT SITUATION

Domestic consumption needs for edible oils are about 20 kg/person/year, for a total of some 150,000 metric tons/year. With the exception of the establishment of family reserves based on the olive presses, GOT ensures supply of the local market through ONH by importing grain oils and then marketing all the refined olive-pomace oils produced locally and part of the olive oils collected.

Local sales of olive and olive-pomace oils by ONH are characterized by the following:

- Fixed and inelastic component:
  - -- Incorporation of all refined olive-pomace oils in the oil blend
  - -- Packaging and canning of olive oil
- Insignificant component: sales to homes--approximately 570 metric tons/year
- Residual component, both quantitative and qualitative: including olive oil in the mixed oil.

The last component is considered residual in the sense that it accounts for a fraction, a quantity, and/or a quality that does not correspond to the structure of external demand, and that in certain cases is a complement, generally due to a cyclical upswing of international grain oil prices. On average, grain oil imports cover 66% of local consumption needs.

The reasons for including olive oil in the mixture are not always set forth clearly. According to ONH, the olive oil taste comes through in the mixture used by Tunisian consumers. However, the practice is criticized for the following reasons:

- It makes it possible for ONH to sell the non-exportable residue of oils collected on the local market.
- ONH includes olive oils in the mixture at variable rates because of difficulties in finding outlets abroad.
- Including olive oil in the mixture increases the total subsidy extended by the Subsidy Fund, which is borne collectively by all taxpayers.
- The blending camouflages the nature and quality of more than 58% of the olive oil ONH sells locally.
- Blending limits the consumers' choice among four types of edible oils (soybean, rapeseed, olive, and refined olive-pomace) to a single product.

- Finally, because the percentage of olive oil in the mixture is so low, the taste cannot be discerned, even by consumers with a keen palate, especially considering that olive oil is used for cooking, not for seasoning.

2.1 Supply of other Grain Oils: Financial Assessment

The price of grain oils imported by Tunisia fluctuates widely, depending on international prices, which reflect supply and demand forecasts, as well as incentive policies and speculation on futures markets. Although Tunisia has no control whatsoever over grain oil price formation, the Purchase Commission charged with making purchases on the international market attempts to keep import costs to a minimum, taking advantage of downswings on the market to build security stocks; inversely, when world market prices are high, the Ministry of Economy calls for a slowdown of imports, and consequently an increase in the percentage of olive oil included in the mixture.

Financial constraints limit the policy of controlling and regulating imports of grain oils. In effect, management of the country's foreign exchange often determines that ONH must finance imports through international lines of credit, which makes it difficult to take advantage of short-term market opportunities.

Thus, during the 1987/88 season, purchases of French rapeseed oil and American soybean oil, which accounted for 72% of all imports, were financed by medium-term loans (French loans in 1986 and 1987, and a GSM 102 American loan). This mode of financing has generated an average import price 3.1% greater than the average minimum price ($409.9 as opposed to $397.7). The price differential was 7.6% over imports from the United States ($459.7 as compared to $390.2 per ton). On the other hand, diversification of supply sources made it possible to purchase at average prices that are 12.3% and 42.7% less, respectively, than the purchase prices of American and French oils.

Marketing of imported crude grain oils generates additional costs, the largest being refining and blending with local oils. In effect, based on the average prices for 1983-1986 and taking 100 as the index for the average price for imports, the cost structure for marketing of imported grain oils is as follows:

Purchase of crude grain oils	100
Customs duties	7
Refining	13
Blending with local oils	18
Transportation	2
Other charges	3
Financial expenses	6
Share of ONH charges	4
	153

Thus, before distribution, the import price is increased by 53% due to the various components that enter the marketing cost. The effective rate of increase in the value is 46%, taking into account the following factors:

- Including local oils in the mixture, even though this increases the cost 18%, also contributes an additional 11% tonnage;

- The refining operation diminishes the tonnage of grain oils some 4%, which is the pulp from neutralization.

The mixed oil obtained is marketed through ONH sales to wholesalers and packagers. The subsidized prices are a function of the sales prices to the public, which are set by the authorities. Thus, the subsidized prices to packagers are approximately 20% less than the subsidized price to wholesalers to cover the processing costs while maintaining the small gap between bulk prices and prices for the packaged product. The Subsidy Fund assumes the difference between the subsidized price and the cost of mixed oils is in the form of a subsidy.

2.2 Financial Assessment of the Refining of Grain Oils

The efficiency of refining grain oil has often been questioned. Specific proposals to improve efficiency have been made, though no measures have been implemented. The criticisms are based on the weak socio-economic standing of this activity. An analysis based on financial considerations points out that the product is subsidized, which means that society bears all inefficiencies as direct costs. The points that are questioned relate to the procedure for placing orders on the refining markets, and the way that payment for this service is set.

An automatic distribution of imported oils among the various refining facilities, proportionate to their theoretical capacities, has made the refiners a sort of rentier class: On the one hand, they are guaranteed a given level of work, while on the other hand, as a sort of corporation around the ONH, they oppose all outside attempts to invest in this activity. Certain refiners even enter into agreements to increase their refining capacity (allowing them to increase their quota) under the pretext of integration (which results in a squandering of national resources).

Furthermore, the way in which refining prices are set is characterized by a quasi-automatic increase of 10% per annum. Having been set at 45 DT/T in 1983, the refining margin increased in later years to 48, 52, and 56 DT/T in 1986, reaching 72 DT/T for crude grain oil in 1988. Such price increases result not from a detailed study of refining costs, but from the refiners' demands, which are made by reference to a normative structure. Also, the fact that the three refining systems have different rates of return (some estimates place the net margins of the three systems at 25% to 60%) does not explain this procedure for setting refining prices.

Thus, the regulation of this activity must be revised. In 1987, refining costs accounted for more than 49% of the subsidies granted by the Subsidy Fund for edible oils. After being refined, the oils are collected by ONH to add the olive and olive-pomace oils, before being returned to the packagers and bulk distribution circuits. ONH justifies this back-and-forth

procedure out of fear that the subsidy may be removed, as a result of insufficient olive and olive-pomace oils being included in the oil blend. Although few figures are available on the cost of this two-step maneuver, it clearly increases the subsidy covered by the Subsidy Fund outlays.

2.3 Supplying the Local Market: Efficiency of the Current System

Meeting internal consumption needs for edible oils is imperative considering that the product is considered a basic necessity. The overall results of the national policy of substituting grain oils for olive oil, are as follows:

- A shift in habits and in the structure of domestic consumption;
- A net savings of foreign exchange in terms of international transactions; and
- Creation of an economic cost shouldered by the Subsidy Fund to attain a social objective.

Olive oil, which in the early 1960s was the only edible oil marketed domestically, now accounts for only 34% of local consumption. This shift, which was partially inevitable, would be difficult to reverse.

In effect, the recourse to imports of edible oil was inevitable to cover the growing deficit in local production. On average, it would be necessary to import at least 38,000 T of edible oils if all olive oil production were consumed locally.

Furthermore, ever greater consumption of subsidized grain oils has created financial dependency as well as a dependency in consumer habits, which make any change in the structure of edible oil supply on the local market slow and difficult.

The financial dependent is linked to the fact that grain oils marketed locally are subsidized. Harsh restructuring of this price policy appears to be unfeasible without a significant social cost. In addition to financial considerations, two other factors have facilitated integration of grain oils into consumer habits. First, marketing of grain oils in a blend that includes olive and olive-pomace oils has facilitated consumer acceptance of this new oil product. Second, apart from the formation of family reserves, the olive oil on the local market is sold through processors, who market Riviera quality oil. This blend of refined lamp oil and virgin olive oil produces an oil that is not very tasty, causing public preference to shift to other oils and leaving only the connoisseurs to purchase virgin oil from the oil presses.

In international transactions of edible oils, the net balance of foreign trade is positive, representing the difference between the value of olive oil exports and grain oil imports. Even though the net gain in foreign exchange is still substantial, the long-term trend observed is downward, following the gradual increase of imports.

As an essential consumer good, edible oils have benefited from subsidies for a large share of the costs of grain oil imports granted by the Subsidy Fund. In 1988, intervention of the Subsidy Fund came to 30.2 MD, representing a subsidy level of 242 DT/ton of imported grain oils.

Based on an average rate of import growth of 9.6% (observed over the last four years), and maintaining the current subsidy rate, the total subsidy after 10 years would reach approximately 75.6 MD (i.e. all else being equal, the relative share of grain oil subsidies in relation to total Subsidy Fund outlays would more than double).

Thus, it appears necessary to reduce Subsidy Fund outlays for oils which should be undertaken with sufficient lead time to avoid constraints of the dual dependence described above. Mixing, in addition to other harmful effects, aggravates the deficit subsidized by the Subsidy Fund. In the 1985/86 season, eliminating the olive and olive-pomace oils, included in the mixture at the respective rates of 3.29% and 1.36%, would have produced a savings of some 2.2 MD in Subsidy Fund outlays. Moreover, the varieties and qualities of imported grain oils are not necessarily the most appropriate for reducing Subsidy Fund outlays.

The example of refined grain oils ONH imported in the 1983/84 season may be illustrative in this regard. In effect, these refined oils were acquired at a price of 537 D/T, whereas the cost of importing crude grain oils and refining them locally that same year came to 642 D/T (i.e. a difference of some 20% of the final cost) which, all else being equal, means that the cost of local refining is more than double the cost of refining on the international market.

3. CONSUMER SURVEY

Parallel to the analysis presented above, we conducted a survey based on a representative sample of 450 households in the Tunis area to analyze consumer behavior regarding oils in general in urban areas, and to test certain propositions with a view to decreasing Subsidy Fund outlays by diversifying the vegetable oil supply. The survey results indicated the following:

1. Tunis-area households consume both olive oil and mixed oils independent of socio-professional category. Unknown on the market 30 years ago, mixed oils are accepted and consumed by all socio-professional groups today. Mixed oils have been integrated into the Tunisian diet as a natural complement to olive oil.

2. Although the poorest socio-professional categories consume the greatest quantities of mixed oils, subsidized oils account for more than 40% of the consumption of certain well-off categories (high-ranking executives, professionals, and mid-level staff), representing an economically unjustifiable burden on the Subsidy Fund.

3. There is a potential market for pure grain oils not subsidized by the Subsidy Fund. The extent of this market is directly linked to the sale price of such oil. The most interesting hypothesis is that of a pure grain oil sold at a price of some 600 millimes. In effect, according to this hypothesis, there would be a minimum demand of 30,000 T, generating savings of 7.3 MD for the Subsidy Fund.

4. This "potential demand" for pure grain oil varies significantly with the sale price. Demand would fall from 30,000 T at 600 millimes to 7,500 T if the price were set at 800 millimes/kg, and 1,200 T at a price of 1.4 dinars. Nonetheless, even at the highest price (1.4 D/kg), potential demand for this pure grain oil would be at least 1,200 T. The Subsidy Fund would not subsidize the share of pure grain oil that would replace the mixed oil and the share that would complement it.

This quantity of oil no longer subsidized (not taking into account the share that would directly replace the mixed oil) in function of the different price hypotheses represents at least the following: 27,000 T at a price of 600 millimes; 5,300 T at 800 millimes; 2,400 T at 1 D, and 1,000 T at 1.4 D.

5. These results indicate that the potential market share of pure grain oil depends largely on its price, and also that its impact on the consumption of olive oil in Tunisia is relatively limited (approximately 6% under the maximal hypothesis). The market share of mixed oils would diminish, representing a potential savings for the Subsidy Fund.

4. RECOMMENDATIONS

The above analysis suggests both strategic and immediate actions to improve the efficiency of the marketing of mixed oils in Tunisia. Strategic actions would define a coherent framework for intervention in the sector, setting up immediate actions as a means to develop this framework in the medium term.

4.1 Strategic Actions

4.1.1 Investment Policy

The financial criteria, strictly speaking, should be retained to measure the advantage of refining grain oils, using imported crude oils. The logical consequence of this position is elimination of the need for prior approval by ONH to create and/or extend refining capacities, as well as to liberalize the imports of certain grain oils.

4.1.2 Redefining the Role of ONH

Import activities detract considerably from business and industry. ONH should limit its intervention to making invitations for bids within certain bounds and to negotiating the conditions for importing grain oils formerly subsidized.

4.1.3 Price Policy

In the medium term, the price policy for edible oils should lead to the establishment of a pricing system that reflects, the following concerns:

- Consumer prices on the local market should be less of a deterrent to consumption of olive oil by reducing the major gap between olive oil and mixed oils. Olive oil now costs five times more than mixed oils.

- Support for the least efficient refining units, establishing the conditions for competition even if it requires a subsidy policy at first to attenuate the initial social cost necessary for this restructuring.

- The subsidy policy should more clearly target the social objectives it is intended to meet, especially by reviewing the array of products supported by subsidies.

- The financial criterion should be a determinant in the composition of the cost of supplying the local market with duly selected products, generating a burden for the government budget.

4.2 Short-Term Actions

Short-term actions are the beginning of the strategic actions recommended, reflecting the urgency of introducing certain reforms.

a. Eliminating the mixing activity by no longer systematically adding olive and olive-pomace oils to subsidized grain oils.

b. Eliminating mixing by no longer blending the different varieties and qualities of imported grain oils.

c. Marketing a subsidized pure grain oil whose type may vary along with the cyclical trends in international prices.

d. Marketing one or several unsubsidized pure grain oils.

e. Marketing an oil based on olive-pomace and olive oils or a blend of the two oils at intermediate prices.

f. Liberalizing unsubsidized grain oil imports.

g. More accurately determining the cost of refining subsidized grain oils and evaluating these costs in terms of the price differential on the international market between crude and refined oils and the differential in transport costs.

h. Reviewing the procedures for marketing the refining of subsidized grain oils and adopting the practice of inviting bids which should not emanate from the inter-professional organization.

i. Determining the inter-professional organization responsible for prior approval of investments in processing centers.

j. Reorganizing the modes of marketing to eliminate superfluous market movements whereby ONH transports refined grain oils to the packagers and wholesalers.

THEME FOUR

ROLE OF THE PUBLIC AND PRIVATE SECTORS IN THE AGRICULTURAL GOODS MARKET

Agricultural Policy Implementation Project

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What Role for Public and Private Sectors in Tunisia's Grain Assembly and Import Markets?

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What Role for Public and Private Sectors in Tunisia's Grain Assembly and Import Markets ?

1.0 Introduction

Tunisia's structural adjustment program focuses on four major goals:

- o increasing the role of market forces in determining prices of agricultural inputs and products;
- o increasing the role of the private sector in marketing farm inputs and products, both internally and internationally;
- o enhancing the effectiveness of government agencies in supporting agricultural production and marketing; and
- o protecting the welfare and nutritional well-being of poor consumers in urban and rural areas of Tunisia.

The grain subsector is pivotal to the future of Tunisia's structural adjustment program. Regardless of whether a Tunisian is a producer or consumer of cereals, the organization and operation of systems for assembly of local production, imports, processing, wholesaling, retailing, market regulation and subsidy administration all have an impact on his or her welfare.

The current system successfully assures availability of cereals and cereal products throughout Tunisia. However, its costs have been growing rapidly, leading the Government of Tunisia (GOT) to seek more cost effective options consistent with its objectives for the cereals sector as part of its Agricultural Structural Adjustment Program. As Tunisia approaches the 1990's it is clear that substantial investment will be required to update its aging cereal marketing system infrastructure. This paper presents findings from a study directed at identifying means to encourage a public-private partnership to bring about the necessary investment.

Under the current system, a public agency, the Office des Céréales (OC), has a legal monopoly over grain assembly and imports, which it shares by delegation on the assembly side with two Cooperatives, the Coopérative Centrale des Grandes Cultures (CCGC) and the Coopérative Centrale du Blé (COCEBLE). The OC's combined operational and regulatory responsibilities put the cooperatives at a competitive disadvantage. Their ability to sell or purchase is heavily dependent on the will and financing of the OC. As a result the cooperatives' performance cannot serve as a competitive yardstick against which the OC's performance can be measured.

This paper begins with an overview of supply and demand factors affecting the marketing system and demands upon it: production, imports, cereal

consumption and expenditures, price policy and subsidies. On the basis of a diagnostic overview of the marketing system, its operation, participants, and functional activities presented in detail elsewhere, elements of an Action Plan are presented and their rationale explained. The plan is directed at reducing costs of marketing operations, public investment and subsidy requirements, while protecting producer and consumer prices and incomes. Items requiring additional analysis are also identified.

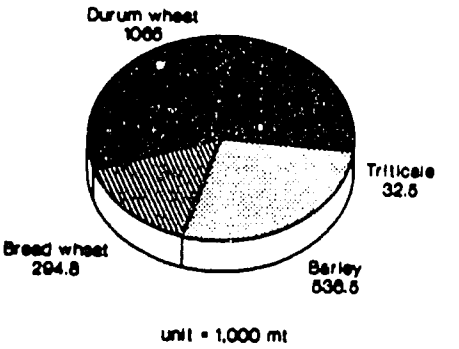
2. Supply and Demand Factors Influencing the Marketing System

2.1 Production

Drought and locusts combined to reduce Tunisia's 1988 cereals harvest to 289,800 metric tons (mt), with about 50,000 mt coming from irrigated areas. This was more than 1 million tons (mmt) below the average for 1983-87, and slightly more than 15 percent of 1987's record 1.9 mmt crop. One result of the lowest level of wheat production since the 1920's was planned imports of 2.1 mmt of cereals for 1988, about double 1987 levels. The Ministry of Agriculture estimated the 1989 crop at about 600,000 mmt.

Grain production in Tunisia is conditioned by the vagaries of seasonal rainfall which lead to swings from "good year" to "bad year" of a magnitude unknown in most other countries. Durum wheat (blé dur) production nationwide, which accounts for about 60 percent of all cereals production (see figure 1), averaged 686,000 mt over 1975-1988. However, recent years include two of the best crop years in recorded history (1985 and 1987) and two of the worst (1988 and 1986). Durum production in the good years was nearly 1.1 mmt, but only 167,000 mt in 1988 and 378,000 mt in 1986. The swings are even more pronounced in the marginal growing areas of the Center-South, where production averaged about 102,000 mt over the past fourteen years, with highs of 347,000 mt in 1985 and 185,000 mt in 1987 and lows of only 14,000 and 16,000 mt in 1986 and 1988.

Figure 1 Composition of Tunisia's Cereal Crop 1987/88



Source: Ministry of Agriculture Abt Associates Chart

Cereals make up about two-thirds of cropped area in the Northern part of Tunisia (Governorates of Le Kef, Siliana and northward) and about three-fourths in the center-south, for an annual total of about 1.6 million hectares (ha.) for the 1984-87 crops (see figure 2). About 60 percent of cereals area is in the North, where higher rainfall means that it accounts

for about 80 percent of production.

Although cultivated area has ranged from 1.2 to 1.9 million ha over the last five years, average yields fluctuate even more wildly. During 1982-86, annual average durum wheat yields ranged from .52 to 1.22 mt/ha; bread wheat (blé tendre), which has characteristics most closely akin to what is classified as hard wheat in North America, averaged .85 to 1.85 mt/ha. Average barley yields ranged from .32 to .8 mt/ha. (Khaldi, Enquête de Base).

Cereals produced in Tunisia are either consumed or used for seed on the farms where they are produced, sold through official channels, or sold on the parallel market. During 1982-86, the official market assembled an average of 39 percent of all cereals produced, including 40 percent of durum, 67 percent of bread wheat and 24 percent of barley. Official assembly rates are highest in the North, accounting on average for more than 98 percent of official assembly since 1975.

While there are no data available on crop marketings by farm size, data from the Enquête de Base indicate that almost two-thirds of Tunisian farms are smaller than 10 hectares, but that these farms account for about 17 percent of total arable land. These small farms probably account for an even smaller proportion of marketed production as they probably consume a large proportion of their own production and are perhaps the most likely to find economic interest in selling the portion of their production that remains on the parallel market.

At the other extreme, less than 5 percent of all farms are larger than 50 hectares, but they control almost 40 percent of arable land (derived from Khaldi). In the northern part of Tunisia, an estimated 2200 farms with more than 50 ha reportedly account for 437,000 ha of agricultural land, including 215,000 ha in cereals (FAO). This is about one-fourth of the area planted to cereals in the North.

While the above data are an imperfect proxy for cereals sales by farm size, they are indicative of a fundamental dilemma facing Tunisia's policy makers: A policy aimed at assembling a large proportion of the cereals crops for urban consumers could focus on a relatively small share of Tunisia's large farms. In contrast, a policy aimed at protecting the incomes of the bulk of Tunisia's agricultural producers through price supports and assured markets will have to focus on a small share of cereal production.

2.1.1 Future Production Prospects and Implications for Marketing

A Reform Program for the Cereals Sector must consider the future, as well as the present. A marketing system that is able to limp along satisfactorily in 1989 may break down completely under the demands of growing production and imports to feed the Tunisia of the year 2000.

Simple extrapolation of historical trends, shown in figure 2, indicates slow growth in total cereal production and rapidly rising imports for the remainder of the century. For bread wheat, which accounts for about half of imported grain (figure 3), the production trend is extremely flat, while imports have been rising more sharply than overall imports.

The regional distribution of production has a major impact on the types of services that are and will be required of the marketing and distribution system for cereals in different parts of the country. The majority of assembly operations can be expected to continue to be carried out in the North. Any opening of the market to assembly can be expected to lead to primary interest by additional operators in the North, where availability of abundant supplies will contribute to lower per unit assembly costs than in the South.

Under the current system, most of the so-called Assembly Centers in the South are primarily distribution centers. Under current conditions with the OC operating throughout the country, assembly operations in the North cover fixed costs that contribute to distribution in the South. The two cooperatives, CCGC and COCEBLE operate exclusively in the North.

In the event that the OC or some other government agency assumes responsibility for distribution in the South, but plays a more minor role in assembly in the North, the costs of distribution in the South will have to be faced explicitly. This topic should be addressed in greater detail in a separate analysis.

Figure 2. Tunisian Grain Production and Imports History and Trend Projections

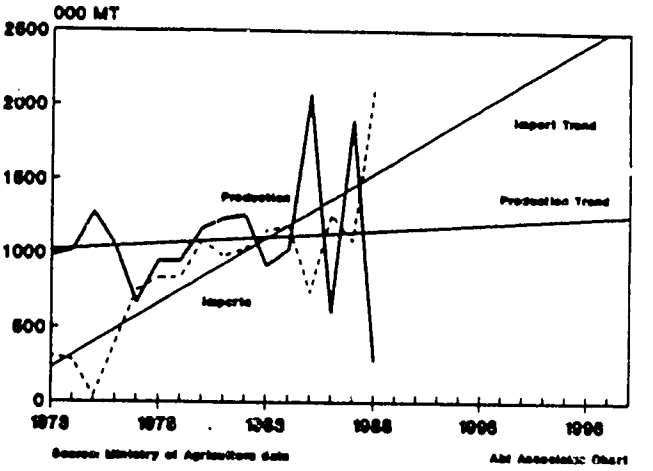
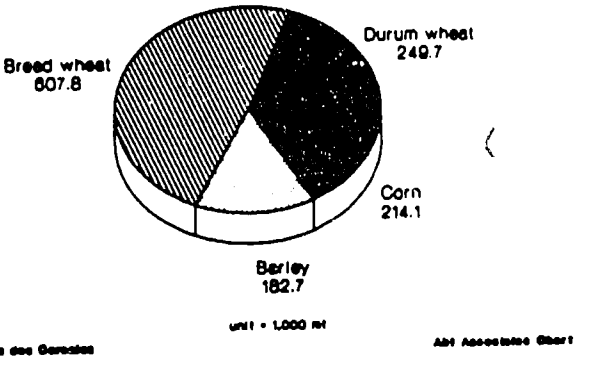


Figure 3. Composition of Tunisia's Cereal Imports 1987/88



Government targets for the Seventh Plan call for Tunisia to be 100 percent self-sufficient in durum wheat by 1991 and 31 percent self sufficient in soft wheat production. While the drought of 1988 and uncertain prospects for 1989 may make these goals difficult to attain, they imply a need for increased investment of resources in the system of local assembly and distribution. Policy decisions in the near future will influence the extent to which those resources may be obtained through some partnership of government, private business and the international aid and financial communities.

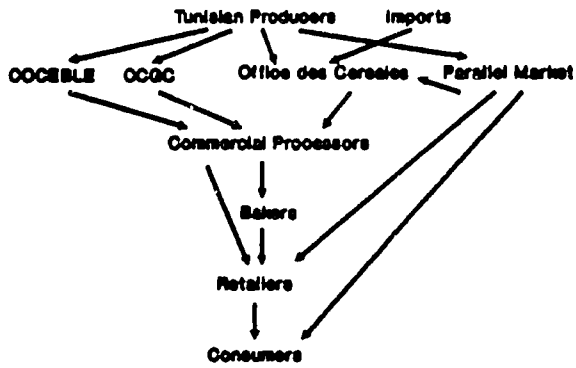
2.2 Imports

From a position of occasional exporter of durum wheat in the 1970's, Tunisia has become a major, if somewhat variable, importer. Planned cereal imports of 2.137 mmt for 1988 included 619,000 mt of durum wheat, 703,000 mt of soft wheat, 615,000 mt of barley and 200,000 tons of corn (maize). In contrast, total cereal imports were 307 mmt in 1974 and 1.3 mmt in 1986

In order to smooth import operations, a recently completed project has increased storage and distribution capacity by 170,000 mt. A combination of new construction, extension of existing facilities and rehabilitation was funded by a loan from the World Bank, with all except 18,000 tons of the affected capacity to be used for imported cereals.

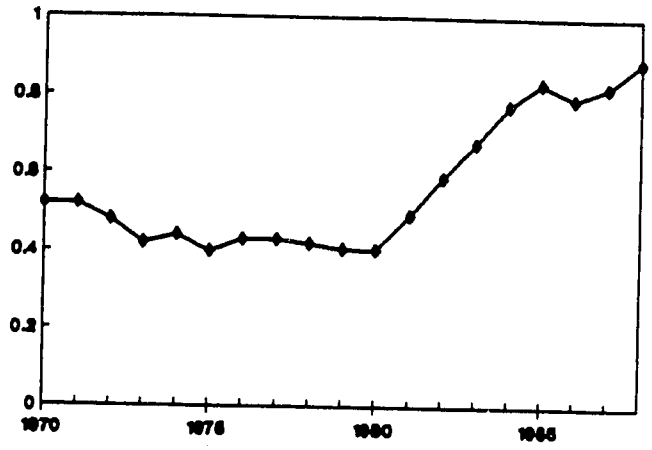
The cost of Tunisia's cereals imports is determined by the level of world prices, exchange rates, the types, classes and quality of cereals purchased, the costs associated with delivering grain to Tunisia, and available concessional sales, credit, and aid programs, such as the Export Enhancement Program (EEP or "Bicep") and PL 480 from the U.S.; Export Refunds from the EC; COFACE from France; and WFP (PAM) from the UN.

TUNISIA'S GRAIN MARKETING SYSTEM



Tunisia's devaluation of the dinar(TD) in 1986 has contributed to higher import costs.[1] However a weakening of the US dollar($) since 1985 has offset some of this increase (see figures 4 and 5). Availability of supplies on sharply concessional terms reduced per unit import costs until 1988, when drought and other factors pushed prices up, so that the cost (c & f) of imported bread wheat during the latter part of 1988 was about TD 150/mt ($165) and durum wheat cost TD 200/mt ($220). Imported barley cost TD 135/mt ($148). In contrast, Tunisian producers received TD 190/mt for bread wheat, TD 210/mt for durum and TD 140/mt for barley delivered to an official assembly center during 1988.

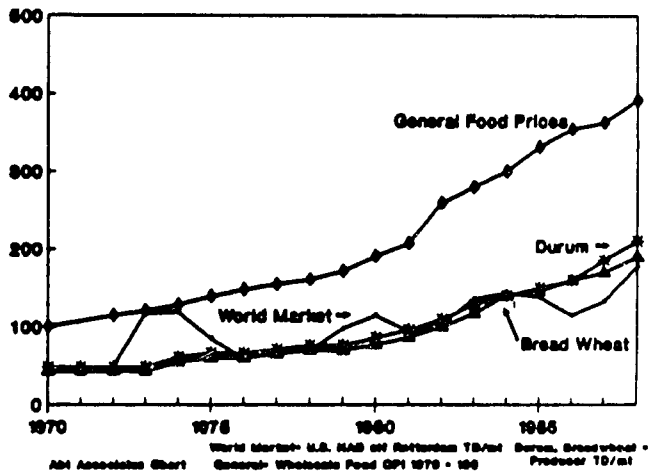
Figure 4. Exchange Rates
Tunisian Dinars per $ U.S.



2.3 Consumption and Expenditures

Tunisia's 7.8 million people currently consume about 1.6 million metric tons of cereals annually, with Durum wheat accounting for about 57 percent of total consumption, bread wheat for about 39 percent and barley for about 4 percent. Per capita consumption, estimated at an average of about 209 kg, ranges from about 162 kg per capita in large urban areas to about 247 kg per capita in rural areas. This makes Tunisians among the largest cereal consumers in the world. Bread wheat, primarily in commercially produced bread, accounts for about three-fourths of urban consumption, but less than one-fifth of rural consumption. Durum wheat, primarily in couscous, traditional breads and pasta products makes up three-fourths of rural consumption and about one-fourth of urban consumption. Barley accounts for a small amount of rural consumption, and is negligible in urban consumption. Barley is also used for animal feed.

Figure 5. PRODUCER CEREAL PRICES
Compared to World and General Prices



One important objective of Tunisian Policy has been to stabilize the cost of cereals and cereal products to consumers. Historically, consumer price stabilization was accomplished by paying producers a lower price than their products would bring internationally, effectively taxing agricultural producers in order to subsidize cheap food for consumers. More recently, as the government has increased producer prices in order to encourage production, low consumer prices and growing consumption have increased subsidy costs.

Per capita expenditures on cereals rose from 13.1 TD in 1975 to 28.9 TD in 1985 (INS). In real, inflation adjusted, terms expenditures were about the same in 1975 and 1985, actually falling from 1980 levels. At the same time, total expenditures tripled in nominal terms and rose almost 50 percent in real terms (133.7 to 183.5 1985 dinars).

Food fell from 42 percent of total expenditures in 1975 and 1980 to 39 percent in 1985. During the same period, expenditures on cereals fell from 21.4 percent of total outlays on food to only 15.8 percent in 1985. Increases in the share of expenditures on meat and poultry (18.2 to 22.2%), milk and eggs (7.2 to 9.9%) mean that some of the reduction in direct consumption of cereals is being replaced by cereals transformed to animal protein.

On a regional basis there is considerable variability in the importance of food and cereals in total expenditures. Per capita food expenditures have been highest in Tunis (250.5 TD) and in the East Central Region (202.2 TD). They have been lowest in the northwest (134.4 TD) and West Central regions. Nonetheless, as a share of total expenditures, food makes up the smallest share in the Tunis District (34.6%) and the highest share in the Northwest (47.3%).

Cereals make up only 11.7 percent of total food expenditures in the Tunis District, but 23.6 percent in the central Western Zone, where they were 32.8 TD per capita in 1985.

Overall, expenditures in Tunisia are somewhat skewed, with those with the largest half of income levels making 78.3 percent of outlays. One half of total expenditures were made by the 20.3 percent of the population that is best off.

As would be expected, food costs make up the largest share of expenditures of those spending the least, 60.6 percent of those spending less than 100 TD in 1985, compared to 26.3 percent of outlays of those spending more than 800 dinars. The latter spend almost eight times as much as the former on food, however.

Cereals also fall as a proportion of total expenditures as total expenditures rise, accounting for 32.6 percent of outlays for those with per capita outlays of less than 100 dinars annually, and only 10.4 percent of those spending more than 800 TD. Here the difference in total outlays was much smaller, growing from 15.8 TD per capita among those spending the least

to 39.7 TD among those spending the most.

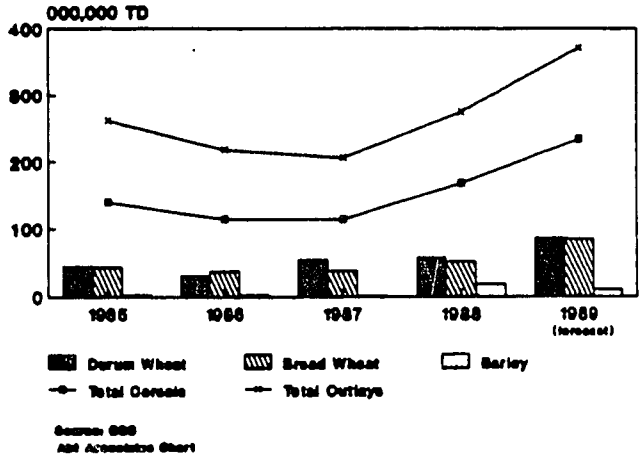
Future Consumption

According to Ministry of Agriculture estimates, growth in population and income are expected to lead to a 53 percent increase in total cereals consumption by the year 2001. A 4.2 percent increase in per capita consumption is projected. (derived from Chaffai, p.5) This implies that maintaining the current system and level of subsidies on cereal products will result in major cost increases over the coming decade.

2.4 Prices and Subsidies

Current Government of Tunisia (GOT) policy is directed at keeping prices for cereals the same at all places in Tunisia and at all times throughout the marketing year (June 1 - May 31). This is accomplished through payments of subsidies on cereals valued at 168 million dinars in 1988 and projected at almost 234 million dinars for 1989. These subsidies offset costs of storage, financing, transportation and resale and labor. Cereals subsidies make up between one half and two thirds of the total expenditures of the Subsidy Fund (Caisse Générale de Compensation - CGC) (figure 6).

Figure 6. Caisse Generale de Compensation
Composition of Outlays on Cereals and Total Outlays



The ultimate goal of the cereal subsidy program is to maintain the price of bread and cereal products such as couscous and pasta at low levels. During 1988, bread wheat purchased from the producer at TD 19 per quintal (100 kg) was sold to millers at an average of TD 7.4/qx. Durum purchased from the producer at TD 21/qx was resold at TD 9.1/qx, after paying costs of handling, transportation and storage, and often with 60 days free credit. The latter services result in marketing margin payments of about TD 2.7/qx to the OC and cooperatives.

Growing subsidies have kept cereal product prices from increasing as fast as other components of household expenditures. Between 1983 and 1988, prices of cereal based food products increased 38 percent, while overall food prices and the general consumer price index increased about 50 percent (Banque Centrale). Options for reducing the subsidy cost burden include increasing consumer prices, at least to those who are in the least need of subsidies, cutting producer prices, and gaining in efficiency in the marketing services that are provided. In light of the relative size of the gap and the marketing margin, there has been considerable pressure to consider price changes.

An attempt to double the price of bread in 1984 led to riots despite the fact that the political opposition appeared to accede to the move. Recent violence in response to increases in bread prices in neighboring Algeria is likely to contribute to continued sensitivity of Tunisian decision makers to subsidy reductions on cereal products. While gradual subsidy reductions may take place, the premise of this analysis is that any institutional reform must be undertaken in the expectation that some level of subsidies will continue.

Cereal subsidies for 1989 are forecast to cost the CGC an average of about 30 TD each for every man, woman and child in Tunisia. At subsidized prices this would purchase more than 400 baguettes per person each year.

The data presented above demonstrate that high and low income consumers alike receive some cereals subsidies. On a per capita basis, a very preliminary analysis indicates that those who probably have the largest incomes receive about 2.5 times the subsidy of those spending the least. At the same time, since cereals outlays make up a larger share of the total expenditures of the poorest Tunisians, this group would be the most affected if the cost of cereal products increased. It is beyond the scope of the current study to identify the most cost effective way to target subsidies, however this issue should be examined in further detail as one part of a strategy to reduce the cost of the current subsidy policy.

While current subsidy levels already contribute to higher CGC costs and budget deficits, the future promises even greater costs in the absence of policy reform (La Presse, January 12, 1989). The cost of cereal subsidies alone can be expected to reach 350 million TD by the end of the century if cereals consumption continues to grow at 3 percent annually, while prices and subsidy levels remain the same.

3.0 Working Toward a Public/ Private Partnership for Improving Tunisia's Cereals Subsector

Tunisia's current system of grain assembly and imports successfully assures availability of cereals and cereal products throughout the country. However, the costs of the current system have been growing rapidly, leading the Government of Tunisia (GOT) to examine options that can fulfill its objectives for the cereals sector on a more cost effective basis. The elements of the following proposal are intended to: reduce operating costs of the system; limit public investment requirements and contribute to subsidy cost reduction, while satisfying demand for cereals and retaining incentives to production. Probable impacts of individual elements of the Action Plan on each of these dimensions are summarized in Table 1. It should be underscored that many of the elements proposed below are interdependent. Thus, adoption of some parts of the plan may have a limited impact if essential complementary elements are not also put into place.

Any proposal for rethinking Tunisia's grain marketing system must reflect sensitivity to the social dimensions of government of Tunisia (GOT) policy. In the short to medium term, it is likely that the GOT will maintain

subsidies on cereals products. While cereals product price increases may be limited to somewhat less than the rate of inflation, gradual increases are likely.

In September, 1986, the size of a baguette was reduced from 300 to 250 grams, effectively increasing bread prices 20 percent. This means that gradual modifications of prices and reductions of cereals subsidies are possible.

The 1984 price increases that led to riots resulted from a doubling of prices. More gradual adjustments are both politically feasible, and likely. The current forecast of an TD 80 million deficit in the CGC for 1989 will be one motivating factor for attention to the level of subsidies, and to organizational reforms that can limit subsidy costs through efficiency gains rather than price increases alone.

The maintenance of a subsidy and price stabilization system will require a continued role for government as market regulator. This will include assurance of minimum producer prices, respect for official consumer prices for cereal products, and limitation of the potential for fraud in administration of subsidies.

While the current subsidy system places important limits on the range of reform options available, it does not eliminate them. Important strides can be made toward freeing up the current system, attracting additional investment in its further development as well as improving its efficiency, and reducing its dependence on the public treasury.

In pursuit of these objectives, an action plan for the cereals sector must include two major thrusts:

- Measures to open the market to greater participation and investment by farmers, private traders ("negotiants"), cooperatives, millers and other processors, so that modernization of the system can be achieved with a mix of public and private investment; and

- Measures to redefine the role and improve operations of the Office des Céréales, so that government objectives and interests can be protected through regulatory activity and subsidy administration at the same time that private capital investment is stimulated.

Some actions can begin in the very short term, in some cases before the beginning of the mid-1989 grain harvest. These include:

3.1.0 Short Term Measures to Free Market Operations and Encourage Investment

3.1.1 Price System Flexibility

To encourage producers to reduce harvest-time marketing system bottlenecks by spreading deliveries of cereals over a longer period of time and investment in storage capacity, introduce a system of bi-weekly increments

in local cereals prices paid at Assembly Centers, calculated on the same basis as storage payments to the OC and Cooperatives, and intended to offset storage costs. This is a first step toward making the price system more flexible to encourage private sales, purchases, storage and transportation.

Under this system, producers selling later than harvest could earn revenue from storing grain, while reducing the pressure on the marketing system that occurs when almost all of the officially marketed crop goes to assembly centers during a one to two month period. Private investment in storage could reduce public investment in the marketing system required to handle peak seasonal loads that are aggravated by the current pricing system.

The OC, as agent for the CGC, currently pays and receives warehousing margins reflecting storage and financing costs. Simply adding this margin to the base support price would have no impact on government costs. In cases where producers could afford to wait before selling all of their grain, this system would provide an incentive to do so, so long as the increments are at least equivalent to actual storage costs. As a result, some of the pressure to handle all marketed grain in 1-2 months would be reduced. If there is no interest in storing, the system would operate like it does now, with no cost impacts. Options designed to facilitate grain use as loan collateral, permitting farmers to get cash and still store their grain are discussed below.

3.1.2 Grading System Improvements

To assure the objectivity and consistency of the grading system, simplify the current system, and make provisions for assembly centers to have the equipment, staff and training to grade on an objective basis. Evaluate options for public regulation of grading in a system with a mix of public and private participants. At the present time, grading reportedly serves as a subjective basis for price competition at some points in the marketing system. Simplification and assurance of objectivity are essential if grain is to be traded and stored jointly (commingled) on the basis of grades.

While increased short term public sector costs would be associated with improved grain grading and a shift to a public sector role as regulator of grain quality, operating costs for the marketing system would be reduced by reliable grades. Furthermore, consistent grades would encourage producers to focus on the quality of the product delivered, rather than on the individual delivered to. Consumers could benefit through a system that would encourage production of cereals that will produce higher quality products.

3.1.3 Shift Point of Subsidy Administration

Introduce procedures to shift the focus of the subsidy payment system and control to the point of sales to millers and other processors. This would permit additional operators to participate in cereals assembly as well to sell directly to mills despite the current price subsidy system. Initially this may require a system whereby millers pay the "prix de retrocession" and sellers receive the subsidy component of the purchase price from the CGC

through the OC. With the subsidy representing as much as 150 percent of the price millers pay for cereals, financing the subsidy prior to payment by the CGC and protection from potentially fraudulent subsidy claims are critical to the success of this option. Availability of a range of options for monitoring physical processes makes control at the level of millers attractive. At the same time, recent problems with slow subsidy reimbursement by the CGC make assurance of funds to keep market participants solvent a critical consideration in implementing this strategy. In 1989, a pilot operation involving a small number of millers and a limited quantity of purchases should be tried. Alternative approaches to operation, financing and regulatory control should be evaluated in Phase II of this study.

Under the current system, millers and other industrial processors pay about 40 percent of the cost of their raw materials when local grain is purchased. In return, their products are sold to bakers and consumers at substantially lower prices than would otherwise be possible. The balance of the producer price and marketing costs are paid as subsidies from the CGC through the OC. Where private operators get involved in parallel assembly of cereals, they reportedly sell to the OC or Cooperatives at the official producer price by representing the cereals purchased as their own production.

As noted above, the fact that these activities occur and are permitted is an indication of some economic interest on the part of farmers, parallel market assemblers and the official market. If there are economies to be attained in the current marketing system by permitting other operators to participate, they are most likely to be the greatest in deliveries all the way to the door of the millers or other processors. However, the current pricing and subsidy system will only make this attractive if those assembling and delivering the grain can receive a price that approximates the sum of the official producer price plus the official marketing margin.

Concentrating subsidy payments at the level of millers opens up several options for working within the current pricing system but allowing Tunisia to benefit from potential economies in marketing attainable through a more open market, while limiting or decreasing monitoring costs. This will allow increased price flexibility in the system and permit government intervention to focus on floor prices at the farm level and ceiling prices at the consumer level. In light of the large proportion of total miller revenue that will be derived from subsidy payments, and experience with CGC difficulty in making rapid payments, the issue of financing subsidy payments must be addressed. At the same time, assurance that the large sums involved will not invite increases in fraud will require attention to monitoring and control.

In order for there to be some flexibility in prices at the assembly and import level, those involved in marketing need to be able to sell to individual millers, while government policy dictates that cereal products will continue to be subsidized. Assuming that it is possible to police actual deliveries and agree on actual prices paid, this system would have millers purchase cereals from storage organizations at their actual costs and then receive a subsidy in order to assure that the price of products

remained at subsidized levels.

Most subsidies that were previously paid to bakers have been paid to millers during the last two years because of difficulties encountered in operating and policing the system with a large number of bakers. Officials at the CGC believe that an effective system for administering and monitoring subsidies through the millers could be developed.

However, in the face of a projected 80 million TD deficit for 1989, the CGC is reportedly having difficulty making its payments. For the OC, this means that it obtains financing directly from the treasury instead. Private millers placed in the same situation would have to obtain loans from financial institutions and pay interest while waiting for subsidy payments. They would expect these financing costs to be covered by the CGC in order to continue to provide products at subsidized prices.

As several millers have closed in recent years, and the financial condition of several others limits their access to credit, further concentration in the industry might be expected to result from this shift. As some of the smaller, less efficient mills go out of business, average costs would be expected to fall, contributing to lower subsidy requirements. However, it is not clear that the Government would allow the less efficient mills to close their doors.

In light of the important financial issues to be addressed, we recommend that a pilot scheme be tried for 1989 whereby selected millers pay the "prix de retrocession" to "revendeurs," who than receive the subsidy component of the purchase price from the CGC through the OC. A limited share of total miller purchases could be permitted during this mechanism.

The DPCE reports that prevention of fraud with subsidy payments at the level of the mills is possible. Millers currently meet with the OC on a monthly basis to present planned monthly purchases. Historical data on monthly purchases and quantities processed ("trituration") are available. Utilities usage figures, payrolls and a variety of other factors could be monitored if necessary. These factors would all contribute to the GOT's ability to monitor purchases and utilization of cereals. Tough penalties for any cases of fraud would also help keep the system operate. In light of inadequate accounting in the current system, it is extremely difficult to estimate levels of fraud for comparison.

In sum, the impacts of the focus of subsidy payment at the point of miller/processor purchases are likely to include reduced public operating costs and required public investments in order to assemble and ship grain. As long as the option to sell to the OC remains, a more competitive market should actually contribute to farm prices staying the same or rising, all else being equal.

3.1.4 Open Market to Additional Legal Operators

Begin the process of officially opening the market to other operators. A first step could involve expansion of the OC delegation of authority for

local assembly to millers, followed by legalization of private sector activity that is currently tolerated as the parallel market. The latter step may require modification of the regulatory texts defining the roles of the OC and the Societé Nationale de Chemin de Fer Tunisienne (SNCFT), and some modification of the tax code. Although the parallel market currently operates unimpeded, it is technically illegal, which limits incentives to invest in the marketing system and makes it difficult to regulate.

While initially it is possible under its current mandate for the OC to delegate its assembly responsibilities to a broader range of market participants, elimination of the official OC monopoly on cereals assembly and reinforcement of its role as a market regulator and subsidy administrator should be accomplished by modifying its legal status. Although there have been no recent attempts to enforce the monopoly on the local assembly side, this change would facilitate the development of monitoring and regulatory programs to support Government regulatory objectives vis-a-vis the cereals sector, while increasing flexibility and encouraging investment in the sector.

Permitting additional participants in cereals assembly and storage would legalize what already exists, and permit monitoring of the parallel market prices and perhaps volumes. Some sort of licensing could be required, if judged necessary. In order to permit use of the current storage and transport system, access could be provided on a rental basis, either using rates fixed according to new cost estimates or some sort of auction. Some change in the current grading system will also be required in order to permit commingling of grain without fear.

3.1.5 Price Monitoring and Reporting

In order for the GOT to successfully regulate the cereals market in the public interest, an improved understanding of marketing costs, margins and parallel market prices and operations is essential. Price monitoring and reporting will improve understanding of parallel market operations, encourage competition, and permit regulatory control. Information on actual prices paid at points beyond official assembly centers will protect producers and ease estimation of marketing costs.

Increased monitoring will increase government costs, but reduce the need for government to bear costs of market intervention when it is not required. More effective market monitoring will be critical to government's ability to regulate markets. It will also give Tunisian policy makers the confidence to allow a liberalized market to operate. For producers and consumers, market information should be valuable in making a range of sales and purchase decisions.

3.1.6 Investment in Storage Facility Rehabilitation

Tunisia's Seventh Plan calls for improvement of local infrastructure for cereals assembly. Modernization of facilities dating from the colonial epoch is important to improved grain handling efficiency. The GOT should pursu investment in modernization of grain storage and transportation

facilities, especially those aimed at developing bulk handling capacity at key assembly and storage centers (OC second phase storage project). Private operators should be included.

It is consistent with GOT goals to continue and encourage additional investments in the marketing system, including modernization and construction of additional storage capacity and acquisition of additional transportation equipment. Further attention should be given to appropriate means to encourage public/private partnership in investment. Current incentives and subsidies often make it irrational for private firms and individuals to invest without additional subsidies.

3.2.0 Short Term Measures to Refine the Role of the OC and Streamline Operations

The organizational problems of the Office have been studied since at least the late 1970s, when they were recognized as quite serious: a large but inadequate staff, with too many untrained workers and too few qualified professionals; over centralization both geographically in Tunis and administratively in the office of the President Director General; lack of a coherent organization manual, well defined procedures, and job descriptions, lines of authority and responsibility. The result was a classic breakdown of institutional effectiveness, perhaps best exemplified by the loss of control of the financial accounting function, which remains over two years in arrears.

The proposed solutions have received a remarkable degree of consensus over the years, best described in CNEA/SORES. A thorough overhaul of the institution is necessary. To achieve this will require recognition by the authorities both of the seriousness of the problem and the degree of difficulty of the solutions. The solutions will require the allocation of substantial resources to rationalize and modernize the Office des Céréales. Because of limited internal resources we believe a plan of action must include a rather substantial multi-year capital budget for technical assistance by local and international management consultants to assist in the implementation of the reorganization, the training of existing staff and the hiring of new, qualified professional level personnel in most, if not all, service areas.

Among the components of such a reorganization would be:

3.2.1 Separate OC Commercial and Regulatory Functions

Take immediate steps to separate commercial services of the OC from regulatory services and subsidy administration. This action is the first step toward assuring that OC does not use its regulatory and subsidy administration role to gain unfair competitive advantage relative to Cooperatives and other potential market participants. It is an essential condition if the Cooperatives are to become truly independent of the OC.

To separate commercial activities from regulatory and subsidy management functions will require an extensive overhaul of the organization,

segregation of subsidiary operating accounts, and creation of separate operating and capital budgets for the two major services;

3.2.2 Strengthen OC Accounting and Controls

Strengthen OC financial accounting and controls, both at the headquarters and throughout the regional network, a total of 214 cost centers. Past efforts in this arena have only succeeded in developing a draft opening balance sheet for 1987. Transparent financial management and a cost accounting system are essential to the other elements of this plan. The new OC financial director should be provided the necessary resources, including reinforced staff, equipment and multi-year local and international technical assistance necessary to:

- o Design and implement an integrated general ledger accounting system and separate subsidiary cost accounting systems for commercial activities and for the administration of public funds, especially of the subsidy system as agent for the CGC and of taxes collected as agent for the National Treasury;

- o install regional accounting offices for control of the network of assembly and distribution centers where controls are particularly weak (approximately 160 of the Office's 214 Cost Centers);

- o strengthen computer resources of the head office and computerization of the regional accounting offices to improve the speed and reliability of reporting;

- o train existing staff and hire new, qualified professional level personnel in most, if not all, service areas; training should be accompanied by extensive review of job descriptions and a comprehensive program of bonuses in the spirit of new Government guidelines for encouraging worker productivity ("intéressement du personnel a la productivité".)

3.2.3 Redefine OC Mission

Take steps to redefine the mission of the OC to focus on a combination of market regulation, subsidy administration and limited commercial activity required to assure food security. In preparation for separation of activities not essential to these roles, they should be placed in a separate part of the OC. The range of activities currently required of the OC makes it responsible for almost four percent of GNP, a nearly impossible management task. Among the tasks that should be considered essential for the OC are:

- o regulation of all phases of the cereals market;

- o assuring floor prices to farmers by serving as a market of last resort, either directly or through cooperatives and other operators;

- o assuring availability of required imports, either directly or indirectly, and;

- o administrator of the subsidy system, as agent for the CGC.

On a slightly longer time horizon, a number of other actions are important:

3.3.0 Medium Term Measures to Free Market Operations and Encourage Investment

3.3.1 Define Procedures for Private Imports

In importing cereals, a shortcoming that is often noted is that the administrative apparatus of the bidding system prevents the OC, and therefore the GOT, from benefitting from market opportunities that sometimes arise. For example, shiploads of cereals are sometimes available at attractive prices on short notice due to situations affecting the ability of other ports on the Mediterranean to unload vessels that have been contracted for, and other factors. It is often argued that private operators should be permitted to take advantage of such opportunities.

In considering the OC's future role in grain imports, two factors are particularly important. First, imports can be an important tool in the process of price stabilization at the producer level and in assuring food security; and secondly, as long as a subsidy system remains in place, the public sector will play some role in regulating imports and subsidy payments. A number of options can nonetheless be considered for protecting public interests while pursuing efficiency gains in import purchasing, handling and distribution.

One option that is particularly attractive, and merits further development in the next phase of this study, would involve a government regulatory system whereby an independent OC Commercial service and private importers would bid for the minimum required subsidy for which they would be willing to import and sell cereals at official prices. Initially under such a system, the OC could delegate its power to import to those who would be the lowest cost importers. If regulatory and commercial activities of the OC are effectively insulated from each other, it should be possible for OC commercial service to compete on an equal footing with other potential importers. Where the OC is the low cost importer, it would continue to import.

The OC as regulator would continue to determine import levels required to assure food security. Imports levels would also be used as a regulatory tool for keeping producer prices within a band between a support price and a price ceiling. This would be accomplished by determining the quantities, quality and timing of cereals to be imported and sold at subsidized prices. Presumably there would be no need to regulate imports at unsubsidized prices. However, given current subsidy levels, this is not likely to be an issue in the near term.

Several years ago, the OC announced that rice imports were to be open to the

private sector, and found little interest. Experience with seed potato imports has been similar. These experiences should underscore the importance of placing the OC commercial service and any potential new importers on an equal competitive basis. A 25,000 mt shipload of grain is worth $3-5 million. It will be insufficient to simply announce that private importers may import, where the risk of important losses is aggravated by uncertainty as to the potential actions of the OC.

As a follow up to this study, procedures should be developed to permit private sector imports while preserving government's ability to assure food security and domestic market regulation. This will require that the OC relinquish its monopoly over imports and be empowered to delegate authority. While there may not be immediate interest in private imports, it is likely that these procedures will be first tested in feed ingredients imports. The option discussed above would encourage OC efficiency, while providing opportunities for Tunisia to benefit from any economies that private importers might achieve.

3.3.2 Develop New Sales Options for Producers

Introduce new sales options, such as forward deliverable contracts, and credit alternatives that would permit farmers to obtain cash without selling their crops immediately after harvest. This will require examination of credit markets and identifying sources of increased credit to farmers.

Forward deliverable contracts and warehouse receipts could be part of a strategy for reducing congestion at assembly centers immediately after harvest, while providing a means for farmers to obtain liquidity. The new OC regulatory division should work with the BNT to develop contracts and receipts that will be acceptable as loan collateral.

If bottlenecks are caused by farmers who are selling in order to meet cash flow requirements, two options should be considered:
1) Develop opportunities for credit worthy farmers to use grain as collateral for loans.

Farmers receive credit for agricultural inputs. While there are collection problems, some farmers are obviously more credit worthy than others. Credit could be extended through banks and or organismes stockeurs, preferably the former. It may be that those who can obtain credit are not those who require immediate cash payments. Nonetheless, establishment of a process whereby grain could be used for collateral for loans could serve as the basis for eventual financing of operating and storage loans, perhaps even financing additional storage facilities.

2) If producers are able to finance themselves without immediate cash, they still may want to be assured of a certain price. At the same time, ability to plan imports is one reason that the OC is often in a hurry to complete cereals crop assembly. Forward deliverable contracts (FDC) are a promise to deliver a specific quantity and quality at some specified date and price. The combination of a forward deliverable contract and credit worthiness should be sufficient to justify a loan to a farmer, even in a somewhat

liberalized market. The FDC would provide a guaranteed value for the commodity as collateral for a loan.

Protection against fraud would be required in either the case of cereals for collateral or forward deliverable contracts. Presumably, since the majority of loans for fertilizer are repaid, despite some important problems with reimbursement, a core of reliable farmers could be found for credit based on cereals inventories stored on farms or forward contracts. This would be sufficient for testing the concept, and access to future fertilizer or seed credit could serve as a concurrent stick to assure that responsibilities were honored.

Without some change in cereal price policy permitting prices to vary over time, there would be no incentive to bear the cost of storage, so the above options would not be interesting.

3.3.3 Develop Procedures for Rental and Joint Use of Storage Facilities

Develop options to permit joint use of storage facilities by the OC, producers, cooperatives and private agents. This should include providing storage services on a temporary per unit rental basis and methods for determining prices. A reliable grading system will be essential to making this process work without physically separating individual lots of grain.

As indicated above, under the current system, the OC and Cooperatives are unwilling to commingle grain in a single silo cell because of the grading process, but joint use of storage facilities does occur. In order to make more efficient use of the public investments in storage facilities that have been made to date, and those that are planned, a procedure for rental of storage space is required. More efficient use of storage silos will reduce required overall investments in storage capacity. While a proposal for joint management and use of silos by cooperatives and the OC was made by a group of consultants several years ago, (Palmer, et al) what is called for is a broader procedure whereby, the OC, cooperatives, farmers, millers or traders would be able to pay to store grain or use its elevating and blending capacity.

3.4.0 Medium Term Measures Affecting the OC and other Government Responsibilities and Expenditures

3.4.1 Eliminate Nonessential OC Functions

Eliminate OC functions that are not essential to its principal mission. Candidates for transfer or divestiture include equity investments in STIM and GIAB flour mills, SOTEBI industrial bakery, SNAC feed mill, STL yeast, minority interests in several tourist hotels and such activities as potato seed and insecticide imports and distribution. This will require additional study. Options might include sales to employees.

3.4.2 Eliminate OC Regulatory Responsibilities vis-a-vis Bakeries

Focus regulatory control on consumer prices of bread and cereal products (which is not the OC's current job) rather than at the bakery level. Transfer the OC responsibility for monitoring bakery worker salaries and benefits to another agency, eliminating its responsibility for bakery inspection, and consolidating the current 4 million TD subsidy paid to bakers with others administered and monitored at the mill level. A study of the operation of the bakery margin ("marge de panification") has been proposed under the APIP project.

3.4.3 Evaluate Cereals Subsidy Targeting

In order to reduce the cost of cereal subsidies while minimizing the negative impacts on economically disadvantaged groups, ways to target cereals subsidies should be examined. This will require a more rigorous analysis of current beneficiaries of the subsidy system, and potential economic and nutritional implications of subsidy reduction. There is a substantial body of international experience on this topic that could usefully be examined for Tunisian policy makers. One option to consider might be to introduce a new bread with little or no subsidy that will respond to quality preferences of parts of the population that do not need to be subsidized. As a potential means of reducing subsidies without harming the economic welfare of those most in need, targeted subsidies merit further study.

3.4.4 Evaluate the Transport Subsidy System

Rethink the transport subsidy system, either by eliminating subsidies or shifting to a basis that is less conducive to waste, and unfair competition. The costs of the current system were estimated as part of the CNEA-SIDES-TECI study. A study that will update earlier findings and examine options for reform is planned under the APIP project.

4.0 Conclusions

THis paper has laid out the components of the economic environment facing Tunisian decision makers as they seek an approach to policy reform in the cereals sector that will reduce costs of operations and public subsidies, while protecting government objectives regarding producer and consumer welfare.

The elements of an Action Plan presented here would result in some fundamental shifts in public and private sector roles in Tunisia's grain markets. Government responsibilities for protecting producers, consumers and taxpayers would be achieved through greater emphasis on market regulation and subsidy administration. THe commercial role of the Office des Cereales would shift from that of a monopoly with the power to delegate, to being a market participant on an equal footing with others.

The objective of the proposed changes are largely to: 1) provide greater incentives to producers and other private operators to invest in the modernization and improved operation of the marketing system; 2) to reduce

the required level of public expenditures - through subsidies and investments - by making the system more cost effective.

The proposals presented here are based on a combination of the authors own analysis and the best of proposals presented in numerous other studies over the last two decades. The challenge to Tunisia's policy makers will be to transform the proposed agenda for action into a set of implemented reforms leading to a marketing system that will respond to Tunisia's needs in the coming decade and beyond.

Table 1. POTENTIAL IMPACTS OF PROPOSED ACTION PLAN[2]

ACTION ITEM	EFFECTS ON OPERATING COSTS (reduction = +)	EFFECTS ON PUBLIC INVESTMENT (reduction = +)	INCENTIVES FOR PRODUCERS	EFFECTS ON SUBSIDY REDUCTION (reduction=+)
1.0 SHORT TERM MEASURES TO IMPROVE MARKET OPERATIONS AND ENCOURAGE INVESTMENT				
1.1 Biweekly price increases	+	+	+	0
1.2 Improve grading system	+	+ more cost for equipment/training; reduced movement	+ incentives to produce & deliver higher quality	0
1.3 Move point of subsidy payment	- short run costs, but necessary for control	+	+ as long as OC assures price floor	+ facilitate monitoring and control

[2] Key: + = positive impact
- = negative impact
0 = neutral in impact

ACTION ITEM	EFFECTS ON OPERATING COSTS (reduction = +)	EFFECTS ON PUBLIC INVESTMENT (reduction = +)	INCENTIVES FOR PRODUCERS	EFFECTS ON SUBSIDY REDUCTION (reduc-tion=+)
1.4 Open Market to additional operators and recognize parallel market	+	+ encourage comple-mentary private investment	0/+ competition should help	+ should facilitate
1.5 Price monitoring and reporting	-/+ some increase public costs reducing other costs	-/+ system costs increase - infrastruc-ture in-vestments reduced	+ improved knowledge of market conditions	0/+
1.6 Invest-ments in storage facility rehabilit-ation	+ more efficient system should cost less to operate	- will require investment but change in system can get private and donors to contribute	indirect impact of benefits of more efficient system	eventual reduction in required subsidies if system more efficient
2. SHORT TERM MEASURES TO REFINE AND IMPROVE EFFICIENCY OF OC				
2.1 Separate Commercial and Regulatory functions	+ will give better idea of actual costs	- short term increase in costs - greater ability to control costs	+ may lead to more sales options	+ improved control and ability to attract private in-vestment

ACTION ITEM	EFFECTS ON OPERATING COSTS (reduction - +)	EFFECTS ON PUBLIC INVESTMENT (reduction - +)	INCENTIVES FOR PRODUCERS	EFFECTS ON SUBSIDY REDUCTION (reduc-tion-+)
2.2 Strengthen accounting and controls	- short run costs, necessary for control	+ will permit improved control	0	+ necessary for better estimation of required subsidies
2.3 Redefine mission of the OC	+ eliminate costs unrelated to mission	+	0/+ potential advantage if OC better able to regulate grain market	0 same
3. MEDIUM TERM MEASURES TO FREE MARKET OPERATIONS AND ENCOURAGE INVESTMENT				
3.1 Define Procedures for private imports	0/+	0/+	0/+	0/+
3.2 Develop new sales options such as forward deliverable contracts	+ reduce bottlenecks	+ reduce bottlenecks	+ potential increased returns to production	0

ACTION ITEM	EFFECTS ON OPERATING COSTS (reduction = +)	EFFECTS ON PUBLIC INVESTMENT (reduction = +)	INCENTIVES FOR PRODUCERS	EFFECTS ON SUBSIDY REDUCTION (reduction=+)
3.3 Develop procedure for rental and joint use of storage facilities	+	+	+	+
4.0 MEDIUM TERM MEASURES AFFECTING THE OC AND OTHER GOVERNMENT RESPONSIBILITIES				
4.1 Eliminate Nonessential OC functions	+	+	0	+ unless losses simply transferred to another government agency
4.2 Eliminate OC Regulatory Responsibilities vis-a-vis Bakeries	+	0	0	0
4.3 Evaluate cereals subsidy targeting	+	0	0	+
4.4 Evaluate transport subsidy system	+	0	+/-	+

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Post Script

Since the first draft of the action plan discussed here was submitted to the Government of Tunisia, a new PDG has been names at OC. A number of steps have been discussed with private and cooperative market participants.