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Food Self-Sufficiency and Agricultural Research in Libya

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Abstract. In Libya, the total area suitable for cultivation is approximately estimated at 2.2 million ha of which 239,000 ha dedicated to irrigated agriculture. The average total allocation for agriculture is approximately 2,272 million US\$ per year of which 4.8 million US\$ for agricultural research.

Food security is one of the top issues of Libyan Agricultural policy which aims at self-sufficiency for some agricultural products in order to minimize reliance on foreign sources for food supply.

Libyan agriculture encounters a number of difficulties and constraints, such as: water shortage, unfavourable weather conditions, desertification, lack of technology transfer, a weak linkage between research and extension.

Agricultural research plays a vital role through optimistic five-year interval research plans designed to help in reaching self-sufficiency for the most important agricultural products.

Key words. Food – Self-Sufficiency – Agricultural Research – Libya

Titre. Auto-suffisance alimentaire et recherche agricole en Libye.

Résumé. En Libye, la surface cultivable totale est estimée à 2,2 millions ha dont 239 000 ha de cultures irriguées. L'aide annuelle moyenne à l'agriculture est proche de 2 272 millions US \$ environ dont 4,8 millions pour la recherche agricole.

La sécurité alimentaire est l'un des premiers objectifs de la politique agricole libyenne qui tente d'atteindre l'auto-suffisance pour quelques produits agricoles afin de réduire la dépendance vis-à-vis de l'approvisionnement alimentaire à l'étranger.

L'agriculture libyenne doit faire face à de nombreuses difficultés et contraintes telles que : la rareté de l'eau, des conditions climatiques défavorables, la désertification, le manque de transfert de technologique, les faibles liens entre recherche et vulgarisation.

La recherche agricole joue un rôle primordial grâce à des programmes quinquennaux ayant comme objectif d'atteindre l'auto-suffisance pour les principaux produits agricoles.

Mots clés. Alimentation – Auto-suffisance – Recherche agricole – Libye

I. – Introduction

The total area of Libya is estimated at 176 million ha. The area suitable for cultivation approximates 2.2 million ha of which 239,000 ha dedicated to irrigated agriculture and 1.55 million ha to rainfed farming, in addition to 14 million ha of forest and range lands. Total population amounts to 4.5 million inhabitants as estimated in 1990, with a population growth rate of 4% per year (the highest in

Africa); it is estimated that 14% of the population work in the agricultural sector.

Allocation to agriculture in the last two decades is estimated at 757.5 million Libyan Dinars per year (2,272 million US\$) of which 4.8 million US\$ for agricultural research.

Food security is one of the most important issues of Libyan agricultural policy which aims at least to reach self-sufficiency for some agricultural products which contribute largely in the diet of most of the country population thus entailing a decrease in food imports.

In Libya, although the authorities has made many efforts towards increasing the quality of agricultural production—bearing in mind that the aim is to achieve self-sufficiency through a long-run food policy—agriculture has to face a variety of constraints which must be tackled.

II. – The Situation of Agricultural Production

The major agricultural products in Libya are: cereals (wheat and barley), legumes, vegetable, fruits, meat and dairy products. When comparing the agricultural production for 1980 with that expected for the year 2000 (*Table 1*), it appears that self-sufficiency for vegetables can be achieved by the year 2000, but for meat it is expected to decrease, on account of the present poor and still deteriorating state of the range lands (as a result of short rainfall and desertification), and of their mismanagement.

Obviously, variations can be observed in agricultural products from one year to another. They affect the contribution percentage of local production to total food needs, and also the individuals' share in this production. These variations are largely attributed to a number of factors which can be: environmental, social, economic and technical.

III. – The Constraints of Agricultural Production in Libya

As mentioned above, Libyan agriculture is subject to a number of constraints, some of which need urgent solutions. For example, in Lybia, environmental conditions are among the most determinant factors in agriculture as the weather characteristics is a mixture of the types of weather prevailing near the sea coast and the desert. Rainfall which fluctuates monthly and annually is measured between 150ml to 450 ml/year in the coastal area. In addition to rainfall shortage, the available water is wasted and lost in different ways. In spite of the high technology used for producing wheat and barley on some state-managed projects, production costs are high due to a number of reasons such as:

- high transport cost due to long distances;
- poor soil quality and fertility requiring fertilizers for crops;
- the unsatisfactory role of agricultural extension which has to be further strengthened as it represents the minimum link between research and farmers.
- modern agricultural technology in Libya mostly serve state-managed large agricultural projects, while only few farmers can benefit from this technology. Small holders need to be convinced of the benefit they are likely to draw from agriculture technology, e.g., technology related to seeding, fertilizing, irrigation, agricultural practices, hybrids and certified seeds, harvest and storage and using agricultural research results.

IV. – The Role of Agricultural Research in Libyan Agriculture

Agricultural production in Libya has to face a number of problems and obstacles which affect severely its quality; obviously, achieving self-sufficiency in such conditions is not an easy task.

Agricultural research in the last two decades took over the responsibility of solving some of these problems and obstacles through consulting and research. The most important agricultural research program designed for helping Libyan agriculture requires the following.

- Priority has to be given to the quality of agricultural production which has to be improved, instead

of cultivating more land with a low yield and of deteriorated quality.

- Extensive research programs intended to improve local varieties of wheat and barley and introduce new varieties (tolerant to water stress, salinity and high temperature, and with a high yield);
- Improving local sheep and goat races for better production of meat and dairy products;
- Technology transfer to small landholders, and the need for more cooperation between farmers and research through direct contacts;
- Improving and good management of range lands and control of desertification.

V. – Cooperation Between Mediterranean Countries in Agricultural Research

It implies:

- identifying the majority of agricultural problems in the area;
- cooperation between regions and countries in the field of food security and agricultural research;
- joint research programs between regional countries having similar environmental conditions and similar agricultural crops, e.g., in the fields of desertification control, water and soil salinity problems, and improvement of important plant varieties;
- cooperation in the fields of technology transfer and efficient use of agricultural research results.

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Table 1. Total Agricultural Production (1000 tons) Total Needs, Deficiency and Percentage of Self-Sufficiency in Cereals, Legumes, Vegetables, Fruits, Meat and Dairy Products (1000 tons) in 1980 and Expected Production in the Year 2000 in Lybia

Products	1980				2000			
	Total production	Total needs	Deficiency	% of self sufficiency	Total production	Total needs	Deficiency	% of self sufficiency
Cereals	366,000	474,000	108,000	77.2	697,000	882,000	185,000	79
Legumes	10,000	16,000	6,000	62.5	32,000	34,800	2,800	91
Vegetables	346,500	352,500	14,000	98.2	638,000	638,000	000	100
Fruits	197,000	226,000	29,000	87.1	312,100	332,000	20,000	93.9
Meat	14,000	18,080	4,080	77.4	25,000	36,540	11,540	68.4
Dairy products	70,930	248,210	177,280	28.5	110,050	331,290	221,240	33.3

