



**Food
Legume
Improvement
and
Development**

Proceedings
of a
workshop
held at The
University
of Aleppo,
Syria,
2-7 May
1978

Geoffrey C.
Hawtin
and
George J.
Chancellor,
Editors

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Food Legume Production in the Hashemite Kingdom of Jordan

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Jordan has a classically Mediterranean climate, characterized by warm dry summers and mild winters, during which all the annual rainfall is received. Agroecologically, the country can be divided into three major zones: the Highlands with an annual rainfall of between 300 and 700 mm; the Jordan Valley, which receives about 250–350 mm of rainfall per year; and the Eastern Desert, where the rainfall seldom exceeds 100 mm.

Agriculture is the basic industry of Jordan, constituting about 30% of the gross national product. Of the total land area of the country, 13.3% is arable and, of this, 89% is devoted to the cultivation of winter cereals, mainly wheat and barley. Grain legumes occupy the bulk of the remaining 11%, or 28 000 ha of land concentrated in the northern and central highlands, where annual precipitation ranges between 300 and 450 mm (Fig. 1).

Lentils, chick-peas, and broad beans (fresh and dry) are the major food legumes grown, and the area, production, and yield of these crops for the 5-year period 1973-77 are given in Table 1. Although yield and production are erratic and generally low, there is considerable variation between the major production regions, the northern district of Irbid being the most important production area and together with the Amman district producing the highest yields. The extreme fluctuations in both crop area and yield can be attributed almost entirely to the erratic rainfall and traditional production methods used in the country.

Utilization and Marketing

Despite exports of lentils amounting to 10 000 tonnes in some years, Jordan may be considered a net importer of legume grains. With current market prices of \$600/tonne for lentils and \$700/tonne for broad beans, there is an increasing interest in expanding pulse production in the country, both for import substitution in the case of broad beans and as a means of increasing export earnings from lentil production. Classically, legume grains are considered to be a good substitute for animal protein in the diets of the poorer sections of the population; however, improved production and transport facilities have made red and white meats available to a large part of the populus, and legumes are now increasingly used as supplementary protein sources, both as dry seed in the case of lentils and chick-peas, and as dry and green seed in the case of broad beans. A canning industry is now evolving in support of chick-pea and broad bean production and distribution.

Production Practices

Food legume production in Jordan is carried out on very traditional lines. The pulses are part of an established 3-year rotation with cereals, and seedbed preparation is minimal.

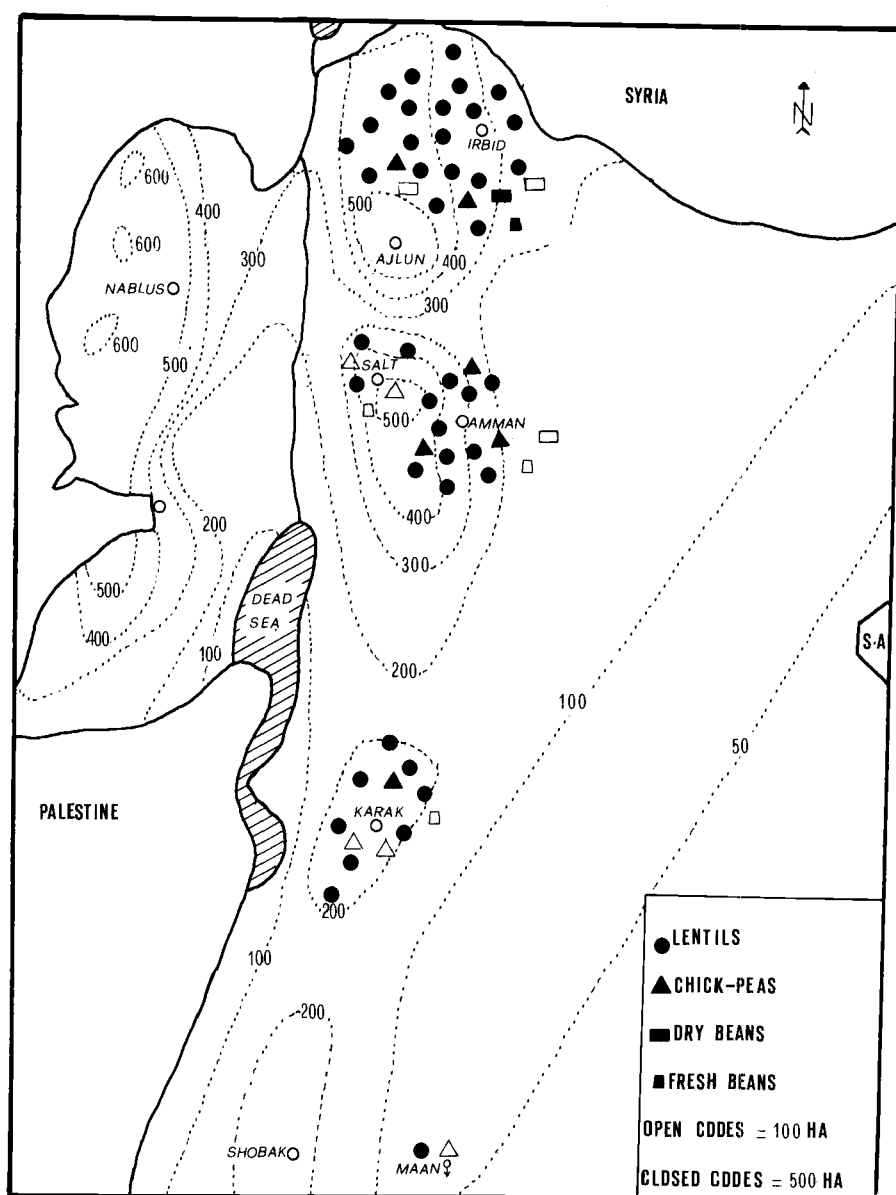


Fig. 1. Distribution of grain legumes in Jordan with reference to mean annual precipitation.

Lentils are broadcast by hand at a rate of about 100–120 kg/ha in the period mid-December to mid-January and covered by a shallow plough. Chick-peas and broad beans are also hand-seeded, but into a furrow opened with a local plough, the seed rates being 80–100 kg/ha and 60–80 kg/ha respectively. Rhizobial inoculation is not practiced and no fertilizers are applied to the crops. Harvesting in May/June is predominantly by hand, and the crop is left out in the field to dry before being threshed from the haulm by animal-drawn threshing boards or local threshers.

The problems of food legume production, which cause severe limitations on the more widespread cultivation and increased production of these crops, stem from the fact that all

TABLE 1. Area (ha), production (metric tonnes), and average yield (kg/ha) of the major legume crops in Jordan in the period 1973-77.

Year	Lentils			Chick-peas			Broad beans ^a			Yield		
	Area	Prod.	Yield	Area	Prod.	Yield	Area	Prod.	Yield	D	F	F
1973	18250	4490	246	3964	2579	651	679	896	370	7205	545	7253
1974	21802	21596	991	5662	3792	1023	1135	848	1290	7519	1488	9640
1975	22229	10476	471	3341	928	129	812	1337	240	16516	296	10025
1976	25016	10873	435	1892	778	42	793	987	482	7149	608	7243
1977	16179	7377	456	3216	1545	258	-	-	-	-	-	- ^b

^a D = dry seed; F = fresh beans.

^b Figures for 1977 broad bean area, production, and yield were not available at time of writing.

the production processes are carried out in the traditional ways. Improved technologies related to high-yielding and stable cultivars, cultural practices, and mechanization have not been applied to the pulse crops as yet. With the cost of labour rapidly becoming an inhibiting factor to legume production, the evolution of such technologies and their application to the real situation is now becoming a matter of urgency if the present level of production is to be maintained or increased in the future.

Research Activities

Research on food legumes is carried out mainly by the Ministry of Agriculture, at their experimental stations, and the University of Jordan's Faculty of Agriculture. A recent survey and collection of local germ plasm together with material provided by ICARDA has enabled a selection program aimed at identifying genotypes with improved yielding abilities under the local environment conditions to be initiated. Alongside this, investigations into crop agronomy, cultural practices, and improved production techniques (viz. mechanization) are also currently under way. Priorities should be given to the expansion of research activities and the establishment of a firm base to seed multiplication and distribution in the country so that the popularity of grain legumes can be increased to take advantage of the favourable market conditions that exist for pulse products at the present time.