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/IDRC publication/. Compilation of workshop papers on /legume/ /food production/ in the /Middle East/ and /North Africa/ — discusses agro/bioclimate and /cultivation system/s, /nutrition/al value and /food composition/; /plant production/ (particularly of /chickpea/s, /lentil/s, and /faba bean/s), /agricultural research/, /cultivation practice/s for /plant protection/, /plant disease/s, /insect/ /pest/s, /disease resistance/, /weed control/ problems (use of /herbicide/s in /arid zone/s); /plant breeding/ and /genetic improvement/. /IDRC mentioned/, /list of participants/. 

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Food Legume Improvement and Development

Proceedings of a workshop held at the University of Aleppo, Aleppo, Syria, 2–7 May 1978

Editors: Geoffrey C. Hawtin and George J. Chancellor

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The views expressed in this publication are those of the individual author(s) and do not necessarily represent the views of ICARDA or IDRC.
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Food Legumes in Iraq

Mahmoud A. Mayouf
Ministry of Agriculture, Baghdad, Iraq

The Iraqi climate is continental and arid, with temperatures reaching 47 °C in summer and dropping to -1 °C in winter. The annual rainfall, which is concentrated between the months of October and May, ranges from 50 to 1200 mm across the country. On this basis and from its overall agroecology, Iraq can be divided into three main zones:

1. the mountain region, where the annual rainfall of 600–1200 mm falls mainly as snow and where temperatures are extreme; the soils are brown and chestnut lithasols and are subject to considerable erosion; food legumes are, in general, not grown in this region;

2. the dryland farming region, in which rainfall varies between 250 and 500 mm and temperatures are less extreme; in the upper plains, the soil lacks organic matter, but in the steppe areas it is deep and fertile and well suited to the rainfed cultivation of chick-peas, lentils, and broad beans;

3. the central and southern region, which includes a large part of the Tigris and Euphrates Valley, with rainfall averaging only 50–150 mm per annum; the soil is mainly silty clay loam to clay loam with a high pH, and legumes such as broad beans, peas, blackeye beans, and green gram are grown under predominantly irrigated conditions.

The area production and yield of the food legume crops vary between regions (Table I).

Utilization and Marketing

Food legumes are predominantly utilized for human consumption in Iraq, and are eaten as green pods (broad bean, cowpea, and Phaseolus bean), green seed (broad bean and pea), and dry seed (chick-pea, lentil, broad bean, cowpea, and green gram). In addition, some crops, such as green gram, are used for pasture and as a green manure, and crop residues from grain production provide a valuable fodder for livestock.

All pulses are produced for the domestic market and there is no exportation of these commodities. Prices are unstable and vary over time as a result of variations in supply and demand. However, the prices paid to producers are fixed by the government each year and this lends some stability to the market. Prices (in Iraqi dinars/tonne (1 Iraqi dinar = ca. U.S. $0.035)) for 1978 are as follows:

<table>
<thead>
<tr>
<th>Crop</th>
<th>Green pods</th>
<th>Dry seed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broad beans</td>
<td>80</td>
<td>150</td>
</tr>
<tr>
<td>Cowpeas</td>
<td></td>
<td>250</td>
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<tr>
<td>Lentils</td>
<td></td>
<td>150</td>
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<tr>
<td>Chick-peas</td>
<td></td>
<td>140</td>
</tr>
<tr>
<td>Green gram</td>
<td></td>
<td>160</td>
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<p>| 55 |</p>
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<thead>
<tr>
<th>Year</th>
<th>Broad bean</th>
<th></th>
<th></th>
<th>Lentil</th>
<th></th>
<th></th>
<th>Chick-pea</th>
<th></th>
<th></th>
<th>Cowpea</th>
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<th>Green gram</th>
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<td>I&lt;sup&gt;a&lt;/sup&gt;</td>
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<td>568</td>
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<td>1040</td>
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<sup>a</sup> I = irrigation; R = rainfed.

<sup>b</sup> Unbracketed = dry seed yield; bracketed = green pod yield.
Production Practices

The production of pulses in Iraq relies mainly on the traditional techniques of cultivation. Chick-peas and lentils are grown in rotation with cereals in the northern dryland farming areas of the country, while government farms are developing different rotations under irrigated conditions for broad beans and green gram. All tillage involves traditional implements and the seed is broadcast in the case of chick-peas, lentils, and green gram, or hand planted in furrows in the case of broad beans, cowpeas, and peas. Broad beans and lentils are winter sown, generally being planted in November at seed rates of 120 kg/ha and 60–80 kg/ha respectively, whereas chick-peas, cowpeas, and green gram are summer crops sown from March, in the case of chick-peas, through to July. Chick-peas are sown at 60–80 kg/ha and cowpeas and green gram at 30 kg/ha. Only local unimproved varieties of all these crops are used. Although fertilizers are not normally applied by the farming community, government farms usually add about 200 kg/ha of ammonium sulfate and 100 kg/ha of superphosphate to their crops.

Pests and Diseases

The diseases of pulse crops of major importance in Iraq include rust (Uromyces phaseoli), leaf blotch (Alternaria sp.), and wilt (Fusarium sp.). Considerable yield losses can result from infections of these pathogens, and control measures in use and being developed involve an integration of resistant varieties with chemical and cultural methods.

Black bean aphid (Aphis fabae) is the single-most important insect pest affecting grain legumes throughout the country, causing damage from viral transmission as well as from its own infestation of the plants. Control is achieved through the use of Malathion and Fapoma sprays.

Despite favourable soil and climatic conditions, the production of grain legumes in Iraq is beset by several major problems that at present prevent any real expansion. These problems are based around the lack of improved varieties with higher yields, pest and disease resistance, and adaptation to the Iraqi environment, and the untimely and costly traditional production practices involving a high labour input. The high and increasing cost of manual labour and its scarcity at peak times are making the problems considerably more acute and are currently emphasizing the necessity for substantially expanded research efforts aimed at introducing new varieties and production technologies suited to the conditions of the country.

Research Activities

In appreciation of this need, a Legume and Forage Division has recently been added to the Field Crops Section of the Department of Research. This division is involved with the development of new varieties from selections made from local and introduced legume material and the evolution of agronomic practices suited to their widespread production. Specifically the work to date has involved screening nurseries received from FAO, the regional centre for legumes in Tehran, and other research institutes in the region; conducting yield trials on the promising lines identified in these nurseries; and establishing, through experimentation, optimum dates of planting, plant populations, and rates of fertilization. Although no breeding work has yet been undertaken, it is hoped to initiate several crossing programs in the near future.

With both weather and soil being well suited to the large-scale production of a wide variety of legume crops, the provision of improved varieties and appropriate mechanization for the main operations of sowing, weeding, harvesting, and threshing will enable the cultivation of grain legumes in Iraq to expand considerably. For this reason the legume and forage research program is looking toward expanding its activities through increased cooperation with research institutes throughout the region to provide technical training for its personnel and to interact with specialists from all over the region who are working with and toward solving the same critical problems.