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The situation of faba bean (*Vicia faba* L.) in Algeria

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SUMMARY - In Algeria, faba bean (*Vicia faba* L.) is grown on coastal plains and sublittoral areas. This species takes the first place among pulses with an annual area of about 65,000 ha. Interest on faba bean has increased in the last years, but to a lesser extent than on both chickpea and lentil. Improvement of faba bean in Algeria requires evaluation of the constraints limiting its production.

RESUME - "Etat actuel de la fève en Algérie". En Algérie, la fève (*Vicia faba*) est cultivée sur les plaines côtières et les zones sublittorales. Elle occupe la première place parmi les légumes secs avec une superficie annuelle d'environ 65,000 ha et une production comprise entre 20,000 et 38,000 tonnes. Au cours des dernières années, la fève a connu un certain développement mais elle demeure toujours marginalisée par rapport au pois chiche et à la lentille. A cet effet, l'amélioration de la fève en Algérie, passe nécessairement par la mise en place d'un programme d'intensification qui tient compte de toutes les contraintes qui limitent sa production.

Introduction

The position of food legumes in Algeria is rather low in comparison to cereals. In 1986/87, cereal area was 2,481,829 ha while that of pulses was 140,800 ha. The domestic production of these two groups of food crops in last years (65,000 t) was insufficient to meet the country's needs which are estimated at 165,000 t per year.

Amongst the pulses grown in Algeria, the faba bean occupies largest cultivated area. Chickpea and pea rank second and third, respectively (Table 1). The faba bean harvested area represents 45% of total under food legumes.

Since 1974, the harvested area of pulses has continuously increased (from 94,440 ha to 140,800 ha in 1987). Faba bean and chickpea have undergone the largest increases in cultivated area. The production of pulses has also increased steadily since 1984 (Table 2). Faba bean production represents 50 to 60% of the total pulses.

In Algeria, faba bean is usually grown for two purpose, green pods and dry seed; from almost 60% of faba bean area green pods are also harvested. Thus, the faba bean production shown on Table 2 does not take into account the faba bean harvested for green pods.

The average yields obtained for food legumes are low (Table 3). In the last few years a slight increase has been observed but production levels remain low. The portion of the crop harvested as green is difficult to estimate. Thus, yields obtained from dry grains do not give a real estimate of faba bean production in Algeria.

The situation of faba bean in Algeria

In the last few years, a program to increase and improve food legumes in general and faba bean in particular has been launched as these crops were considered marginal with little interest shown on their development. However, an increase in faba bean production has taken place during this period through an increase in area and an improvement in dry grain yield.

Faba bean is mainly grown on coastal plains and sublittoral areas. Half of its area is located in West Wil-ayate (Tlemcen, Sidi-Bel-Abbes and Mostaganem). Indeed, farmers harvest faba bean more often on small plots following cereals culture; 60% of this culture being consumed as green pods.

Table 1. Pulse acreage evolution in Algeria (000 ha).

Year	Faba bean	Chickpea	Lentil	Dry pea	Broad bean	Total
1973/74	34.00	32.90	16.40	5.95	5.19	94.44
1983/84	53.90	40.00	8.40	11.10	2.55	115.95
1984/85	64.65	41.00	12.30	12.20	1.82	131.97
1985/86	69.50	52.25	3.21	13.00	1.84	139.80
1986/87	62.60	60.45	5.51	10.60	1.64	140.80

Table 2. Pulse production (000 t).

Year	Faba bean	Chickpea	Lentil	Dry pea	Broad bean	Total
1973/74	22.78	16.59	5.10	2.68	3.91	51.06
1983/84	21.62	10.80	1.11	2.63	0.78	36.94
1984/85	24.55	13.56	1.85	4.90	0.73	45.59
1985/86	38.73	19.13	0.53	5.62	0.85	64.86
1986/87	33.09	25.14	1.34	3.31	0.48	63.36

Table 3. Pulse yield (t/ha).

Year	Faba bean	Chickpea	Lentil	Dry pea	Broad bean	Total
1973/74	0.67	0.50	0.31	0.45	0.75	0.54
1983/84	0.40	0.27	0.13	0.24	0.30	0.27
1984/85	0.38	0.33	0.15	0.40	0.40	0.33
1985/86	0.56	0.37	0.17	0.44	0.46	0.40
1986/87	0.53	0.42	0.24	0.31	0.29	0.36

Production constraints

Faba bean production in Algeria is constrained by different environmental and technical factors. These are discussed below.

Environmental constraints

- Frost, particularly during the flowering stage
- Early sirocco (hot wind from the South) which starts blowing in early May.
- Irregular and insufficient rainfall from March onward.

Technical constraints

- Plant material. Faba bean varieties like 'Aguadulce' and 'Seville' cultivated in Algeria have been introduced from Spain. The 'Sidi Moussa Precoce' variety was selected in 1965 at El-Harrach in Algeria. These varieties are suitable for the whole faba bean growing area. All of these varieties are harvested both for green pods and dry grains. The only faba bean *minor* variety cultivated in Algeria is 'Sidi Aich'. All these varieties are susceptible to fungal diseases (*Botrytis*), insects (aphids), plant parasites (*Orobanche* sp.) and nematodes.
- The production of certified seeds is small and does not meet the country's needs. Thus, it is necessary to import seeds.
- Sowing is performed by hand and the lack of manpower constitutes a major constraint to production and to the increment of the surface area.
- Mineral fertilization including phosphorus and potassium (P_2O_5 and K_2O) is very limited, even in the private industry.
- Harvesting and threshing are also performed by hand. As this operation needs a lot of manpower, it is a major constraint as indicated for sowing. The lack of adequate machinery for harvesting and threshing does not permit a better control of this operation and limits the possibility of improvement.

Faba bean improvement program

Little research has been carried out in the past to improve plant materials and techniques for faba bean production as opposed to other pulses (chickpea, lentil).

In order to overcome the different technical constraints linked to production, the Institut Technique des Grandes Cultures (ITGC) with the help of its experimental stations leads a modest research program whose main objective is to obtain new varieties with high yield potential. The characters needed in varieties are adaptability to growing areas, high yield, resistance to diseases and tolerance to cold and drought.

The different experiments accomplished in the station during the last campaign (1987-88) have so far given satisfactory results. These have been carried out in the Khroub and Sidi-Bel-Abbes stations, involving three international trials in the former and four in the latter. The Sidi-Bel-Abbes area has suffered from a prolonged drought and a period of intense frost. As a result, yields have been very low. However, yield levels obtained during an unfavorable year show us interesting possibilities.

Plant materials to be tested in the future, coming from ICARDA as well as from several countries, will be included in international and national trials. These materials consist of advanced lines and segregating generations.

Ten varieties of *major* and two from *minor* types from different origin have been identified at Sidi-Bel-Abbes and are being multiplied. The aim of these multiplications is to obtain improved material to be given to farmers and to diversify the range of varieties in our agriculture.

Conclusions

Faba bean has noticeably increased both in production and area in the last few years. However, constraints

linked to climate and technical aspects have prevented a possible breakthrough. Besides these constraints, little action has been taken to solve these problems. It is essential to obtain higher production levels. For this purpose, an enhancement program must be initiated. Actions to be accomplished are:

- Strengthening the research program concerning introduced plant material in order to adapt it to our environmental conditions.
- Identification of areas suitable for faba bean growing.
- Establishment of a scheme to obtain and multiply certified seeds.
- To understand the behavior of the crop in order to limit the main constraints.