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Present status and future prospects of faba bean production and improvement in Greece

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SUMMARY - Faba bean cultivation in Greece has steadily declined in the last 30 years, reaching a value of 8,100 ha in 1988. Yields have slightly risen from 1 to 1.9 t/ha during the same period. Faba beans are mainly used for human consumption as dry seeds or green pods and, to a lesser extent, as animal feed. Agricultural research is mainly focused on the production of new varieties with better agronomic characteristics and resistant to *Sclerotinia* disease. Drought resistance mechanisms and drought susceptibility of varieties are also simultaneously being studied. Further expansion of the faba bean cultivated area will depend very much on the reorganisation of the market and better information to farmers on new varieties and modern cultivation techniques.

RESUME - "Situation actuelle et perspectives de la production et amélioration de la fève en Grèce". La culture des fèves en Grèce a diminué progressivement pendant les derniers 30 ans, atteignant des valeurs de 8.100 ha en 1988. Le rendement a augmenté légèrement de 1 à 1,9 t/ha dans la même période. La fève est utilisée principalement pour la consommation humaine en grains secs ou gousses vertes, et en moindre degré, comme aliment pour le bétail. La recherche agricole se dirige surtout vers la production de nouvelles variétés ayant de meilleures caractéristiques agronomiques et résistantes à *Sclerotinia*. Les mécanismes de résistance et la susceptibilité à la sécheresse des variétés sont étudiés simultanément. L'accroissement de la surface de culture des fèves dépendra beaucoup de la réorganisation du marché et d'une meilleure information aux agriculteurs en matière de nouvelles variétés et techniques modernes de culture.

Introduction

Faba bean has been cultivated in Greece since antiquity mainly for human consumption (Panos, 1960). During the last 30 years, cultivation has steadily declined (Fig. 1 to 3). The area currently being cultivated is less than 10000 ha, and is mainly covered by large-seeded genotypes (*Vicia faba major*) for human consumption, and to a lesser extent by small-seeded genotypes (*V. faba minor* and *equina*) for animal feed.

There are several reasons for this declining trend. First human consumption of faba beans is continuously restricted because of favism and, therefore, other pulses, such as beans and lentils, are more preferred. It is already known that a high proportion of the human population of the Mediterranean countries is sensitive to favism because of the lack of the G6PD-enzyme in the blood (Podimatas, 1982). Secondly, more dryland fields are cropped with cereals because of their higher stability and

more intensive mechanisation. Furthermore, the conversion of dryland to irrigated areas favours the cultivation of more profitable crops such as maize, cotton and sugar beet (Roupakias, 1983). Besides, the state policy concerning marketing is more favourable towards cereals than towards legumes.

Finally, the bulk of protein needs for Greek animal production have been covered for several years now by importing soybeans. An effort to expand soybean cultivation in the last two years has been carried out, but with little success, in view of the relatively low yield (2.5 to 3 t/ha) of the soybean crops.

Agricultural research

Because of the many advantages of faba bean cultivation extensive research aimed at expanding the cultiva-

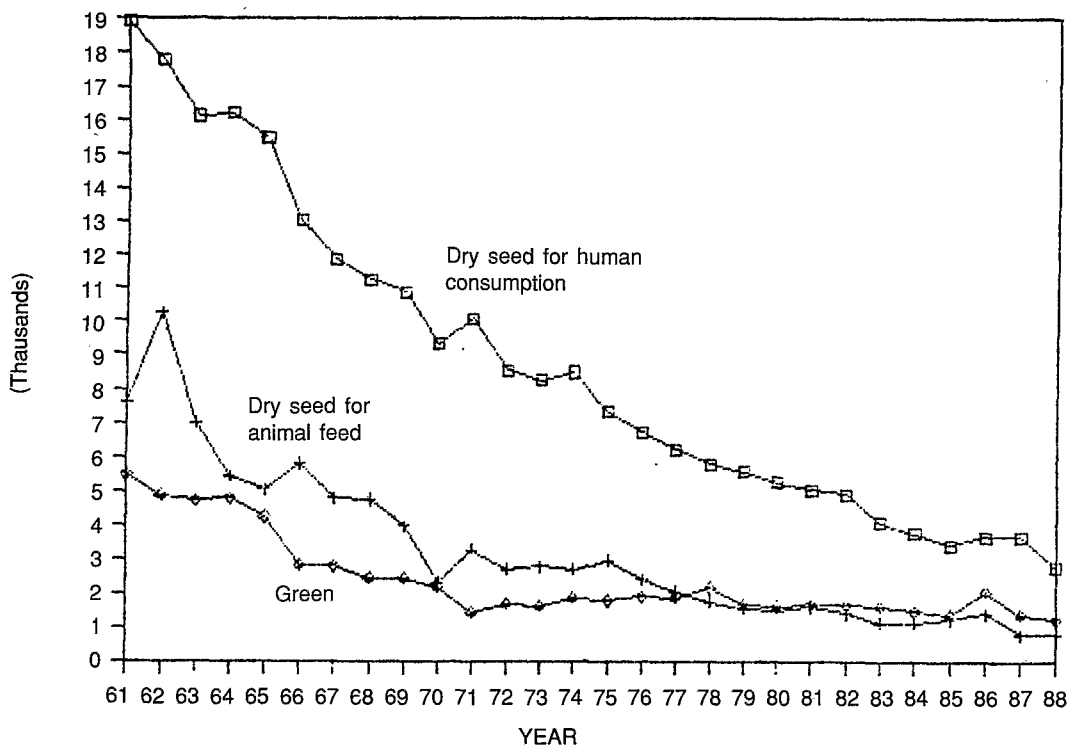


Fig. 1. The area cultivated with faba bean in Greece from 1961 onwards (ha), for dry seed for human and animal consumption and for green pods (data from the Greek Ministry of Agriculture).

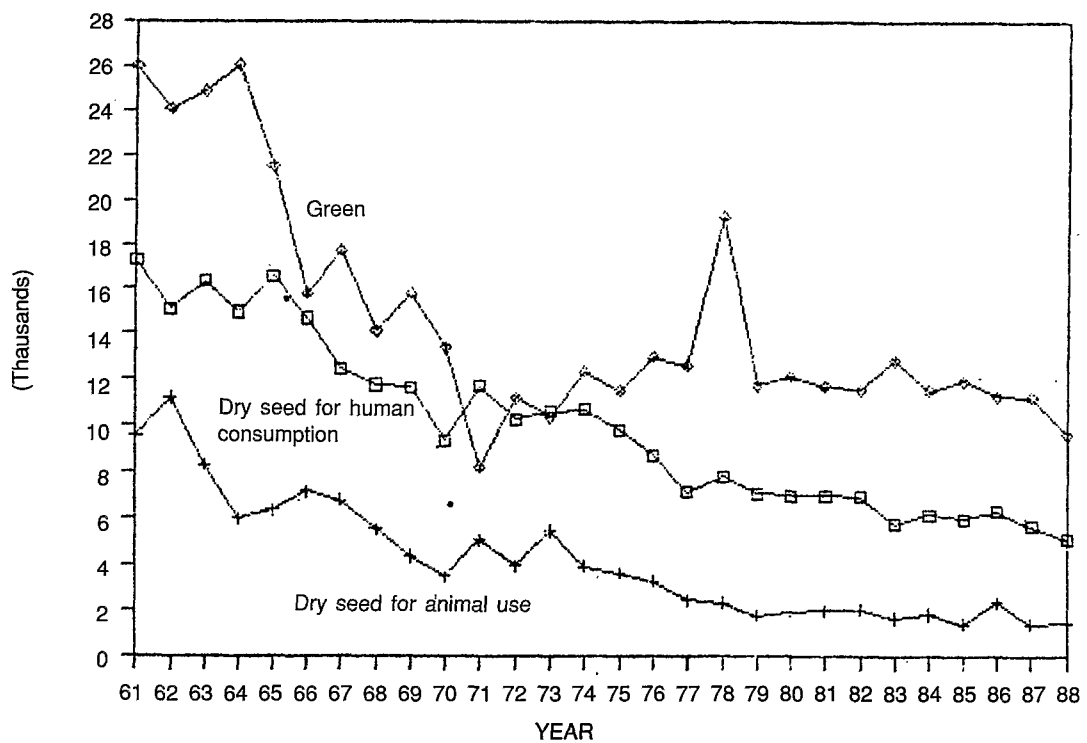


Fig. 2. Faba bean production in Greece from 1961 onwards (t) for dry seed and green pods.

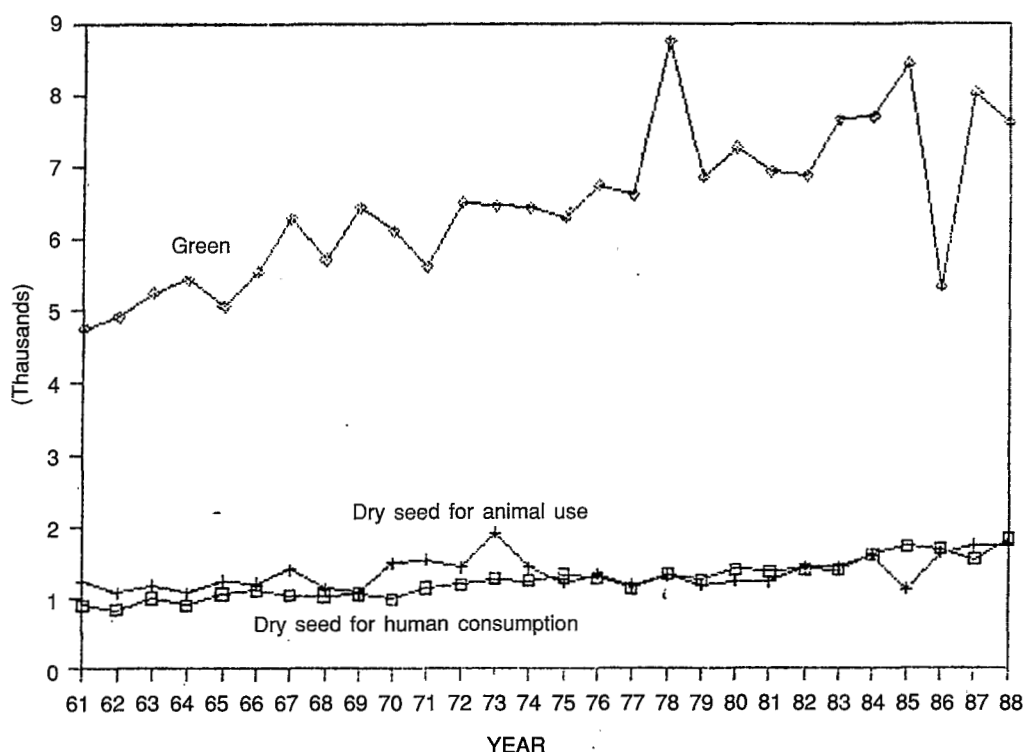


Fig. 3. The trends of faba bean yields in Greece from 1961 onwards (t/ha).

tion of small seeded faba bean has been undertaken by the Fodder Crops and Pastures Institute (Larissa) as well as by the Agricultural University of Athens (Laboratory of Crop Production) and University of Thessaloniki (Laboratory of Plant Breeding). A wide breeding programme has been carried out at the Institute of Fodder Crops and Pastures since 1958. The main target has been the production of varieties resistant to *Sclerotinia* disease, which causes problems during the wettest part of the cultivation period (January to April) (Podimatas, 1982). Research on *Sclerotinia*-resistant varieties started in 1974 with 185 faba bean genotypes collected all over the world. In 1985, five new varieties were produced and are currently being tested all over Greece for resistance to this disease as well as for other agronomic characteristics (yield stability, earliness, etc.). As far as we can judge from the results available, at least one variety (KY-188) seems to be quite promising.

Apart from this objective, considerable breeding has been done towards improving yield stability, earliness and mechanisation properties. A variety with very low tannin contents (N. 329) has been produced at the University of Thessaloniki, and has been included in the Joint Trials of the Southern group with very satisfactory results. The behaviour of different varieties under drought stress and possible mechanisms of drought resistance are the subjects of the research programmes

undertaken at the Agricultural University of Athens. Likewise, improvements in cultivation techniques (crop density, weed control, etc.) have also been studied by the research teams in both Larissa and Athens.

Perspectives

Considering the pressing needs for high protein animal feed and, at the same time, the massive import of soybeans, we conclude that there is a great scope for the expansion of faba bean cultivation in Greece. There are considerable advantages of faba bean over soybean cultivation: faba bean is cultivated as a dryland crop and can be a very effective break crop in cereal rotations. The cultivation of new varieties with improved techniques can easily increase yields to the levels obtained with soybean which requires irrigation and high soil fertility.

It is necessary to stress, however, that a reorganisation of the marketing of the final product to animal feed industries is absolutely necessary. In this context, the role of cooperatives appears to be crucial. Furthermore, better information to farmers on new varieties and modern cultivation techniques is regarded as a prerequisite for faba bean expansion.

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