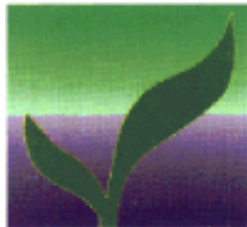


IENICA

Interactive European Network for Industrial Crops and their Applications

**REPORT ON
NON FOOD PRODUCTION
AND RESEARCH IN
MEDITERRANEAN**
FORMING PART OF THE IENICA PROJECT

IENICA is a project funded under the FAIR Programme
by DG XII of the European Commission



Prepared by:

Prof. LUIGI VANNINI

and

Prof. GIANPIETRO VENTURI

national coordinator for the IENICA project

UNIVERSITY OF BOLOGNA

Italy

NON FOOD PRODUCTION AND RESEARCH IN THE MEDITERRANEAN COUNTRIES

Within the peculiarities characterizing each reality, the agriculture in the EU countries of the Mediterranean area shows remarkable features of uniformity which distinguish this agriculture from the continental one.

These conditions imply specific research needs and therefore they must set up their own way of development within the field of agricultural non food production.

The uniformity factors, together with the environmental ones, are identified in some interstructural typologies and in some economic features of the enterprises.

However, there are outstanding divergences in the exploitation of the soil, in the research and cooperation fields, and also in the segment regarding the industrial processing of the non food production chain.

Natural factors: climatic features, supply of water resources and alternative use of such resources

In the countries on the North Mediterranean coasts, agriculture and the perspective for the agricultural non food production are strictly bound to the environment, specifically to the rain and temperature regime.

In fact, as it is well known, such variables are the causes of more or less intense and long periods of drought during the summer months in these areas.

It is not by chance that the agriculture of these areas is characterized by wheat, grapevine, and olive, whereas all the other species need a more or less systematic employ of the irrigation system.

Among few exceptions, there are some cereals and some protein-oil seeds which achieve good productive levels during drought periods. Besides, only the areas in the Po Valley and in the North of Spain offer a temperature somehow similar to the continental one in the Center and North Europe.

Therefore, any planning as to the development of a no food chain has to take into consideration either the limits of the summer water provision or anyway new alternatives in the use of irrigation water.

This opportunity results of little interest as far as there is shortage in the available supply but it acquires relevance when the chance is to apply it to highly remunerative crops, like permanent, horticultural and floricultural ones.

Foremost, the opportunity for non food crops results in a low input and low cost agriculture and it seems bound only to drought productive systems or to the use of irrigation limited only to particularly favorable local conditions. The latter should match the possibility for the industrial processing of the obtained raw material.

The above mentioned conditions are limited to few areas like the Po Valley in Italy.

Similarly, continental climatic conditions are to be found in Portugal going from East to West in the Braga regions where the average precipitation is about 1,500/mm/year.

In some Spanish areas like Galitia, Asturias, Cantabria and Basque regions the weather is influenced by the Atlantic Ocean, whereas others, like Navarra, present a very changeable weather with precipitation between 400 and 2,000 mm/year. Whereas in other regions, like Aragona, part of Catalugna, La Roja, Castilla-La Mancha, a Continental-Mediterranean weather prevails, there is a typically Mediterranean one in areas like Murcia, Estremadura, the Community of Valencia, and part of Andalusia.

In all these areas the opportunity for non food crops are mainly connected to area projects rather than to sector ones. These projects must foremost enhance the environmental existing resources and check the opportunity for the industrial processing of raw material.

Structural factors: plant dimension, entrepreneurs' age, economic dimensions, and innovation aptitude

As for the structural factors, the South-European countries on the Mediterranean Sea present some common conditions which distinguish them from the North-European ones.

The presence of several small agricultural enterprises, the system of direct management, and the low productive qualifications are common conditions which narrow the hypothesis of non food crops in these areas.

Besides, when there aren't the above mentioned conditions, the productive qualification and the highly remunerative crops impair the hypothesis of non food crops as an alternative to the present ones.

Similarly, labor aging, (the worst aspect is in Greece, with over 90% of workers older than 55), low education levels of the agricultural entrepreneurs ,and great difficulties in fitting the younger ones in this activity are typical situations of many Mediterranean areas which

thus appear of narrower interest and perspectives for untraditional techniques and crops. In fact, widespread aging and low education level are connected to a stronger opposition to innovation and to non food agriculture.

The use of soil and of agricultural productions

As for the use of both soil and agricultural productions, there are outstanding differences among the Mediterranean countries.

They depend on the local changes of agronomic macro variables but foremost on past choices regarding the economic policy.

From this point of view, the spreading of wood lands and their exploitative criteria are significant.

In Portugal, these areas are 3,200,000 ha, about 36% of the whole territorial surface, and are covered for 1,249,000 ha by *Pinus pinaster*, and for about 500,000 ha by *Eucaliptus*.

There are similar conditions in some Spanish regions where the wood lands cover a surface (16.4 millions ha, 460,000 *Eucaliptus*) which is almost the same of the fit for arable lands but it amounts to the double of the grazing ones.

In Italy forestry and pasture occupy each 19% of 20 million ha farm surface. Arable lands are 40%.

In Greece, forestry covers 15% of the territorial surface; 9 million ha of agricultural areas; 5 are in pasture and 4 millions ha in fit for arable areas, 30% of which well-irrigated ones.

Therefore, in Portugal and to a less extent in Spain, the wood predominance has destined non food crops to marginal areas or turned woodlands in the production of arboreal essences employed in the production of cellulose and paper.

Notwithstanding this, in Spain and Italy the use of the soil and the features of the fit for arable surfaces provide non food crops with wider space and more options.

After all, any actions headed to non food crops appear difficult, if not for restricted areas.

The above mentioned conditions show how the similarities set by the main agronomic production variables do not match the use of soil and the spreading potentialities of vegetal species employable in the production of renewable vegetal oils and no food products. Thus, it is necessary to develop projects according to areas supporting the use of the resources for this aim, enhancing the competitive advantages, and organizing, especially under the logistic perspective, the industrialization of the agricultural raw material.

It is important to underline the fact that, for example in Italy, Spain (Castilla, Leon, Castilla-La Mancha, Aragona, Catalugna), and in Portugal there are the best conditions for

the production of sorghum and sunflower. The latter, especially in Spain, amounts to 6% of the annual crops.

However, Italy is the only country presenting widespread and favorable conditions for soybean. In the same way, some *crucifereae* furnishing oil with a peculiar acidic composition find good spreading conditions only in some Northern and Central Italian areas and in some Spanish ones.

The fiber hemp, once favorably grown in the Italian regions of Emilia Romagna and Campania, is now grown only in Catalugna; flax growth finds its most fruitful conditions only in Aragona and Catalugna.

Besides, cotton can be grown only in Greece and Spain, the only countries where it is possible to advocate the alternative use of the resources unabsorbed by this crop.

Mediterranean research and cooperation

Differences in the use of soil and in the potentialities to impose a non food agriculture in the Mediterranean countries have the same connotations in the research and cooperation fields, being the latter characterized by common experiences only as far as segments of the chain are concerned and within a lack of coordination.

Italy and Spain seem the countries mostly employing their resources in this direction. However, the activities result uncoordinated, showing more willingness, intuition, or the interests of the single rather than of the institutions or of the representative organisms in the different joining - or to be involved - categories in a project which can't be but of the chain. The Italian Ministry of Agriculture has financially supported a project of research (PRisCA) in this field, which however focuses prevailingly on the agronomic aspects of non food crops, being this both an advantage and a drawback. Industrial groups have been interested, but no experience in the preindustrial phase has been concretely realized, even when a product and a commercial enterprise interested in its marketing were selected. It is not by chance, that one of the most stimulating Italian initiatives, also for the public institutions, is advocated and supported by a textile and clothing group able to involve the agricultural world. In the last four years this issue has been coped with by the agricultural sector but, notwithstanding the wider technological know how, no initiatives have found fulfillment in the chain.

In the same way, it was difficult and without practical results the attempt to coordinate a workgroup aimed at setting up a project for the most interested Mediterranean countries

(Italy and Spain) in order to enhance the highly oleic sunflower oil. The failure resulted in spite of the willingness of some seed and oil processing industries.

In Italy a similar inglorious end was for the consortium AIACE, precisely funded by joining enterprises, Universities and the representatives of the agricultural world in order to support non food crops production and research. The only effect of this consortium was to represent Italy in the European Agency ERMA (European Renewable Resources and Materials Associations).

Conclusions

The lack of coordination and cooperation within the research and experimentation activities in the non food crops in the Mediterranean countries seems to demonstrate the absolute priority of an action projected specifically for this area of Europe. The goal is to focus on the research financial needs and on the needs for innovation in the segments of the chains where there are possible advantageous competitive conditions but also limits and bottlenecks of the very same chain. This in order to overcome the experimental phase and start the preindustrial one.

An initiative with such features must be able to foresee the governments' willingness to cope with the existing obstacles, also the normative ones, in the possible activity fields and to determine the conditions for a competitive development of non food production.

Similarly, any initiatives in this field cannot disregard the involvement of all the actors interested in the chain. Such a result seems achievable within appropriate interprofessional organisms where the synthesis of the parts' interests might be represented. They might also be committed to join the co-financing of both the research and the industrialization of the singled out process.

With regard to this, there is a great interest in the French experience which resulted in the AGRICE (Agriculture pour la Chimie et l'Energie) a consortium of scientific interest unifying partners of different origin: the French Oil Institute, the INRA, the CNRS and the ADEME, the professional organizations of oil seeds (Unidol), cereals (AGPB), sugarbeet (CGB), the enterprises Rhone- Poulenc, Total, Limagrain, and EDF together with the Ministries of Agriculture, Research and Environment.

Anyway, a lasting development of the non food production requires a specific policy which in this phase doesn't appear sufficiently delineated in the programmatic lines of the EU agricultural policy.

With regard to this, a brand policy appears as the strategic means for the promotion of natural ecological products. The particular agronomic limitations characterizing the European countries of the Mediterranean area establish the necessity to define area projects selecting conditions to promote sustainable and low input interventions.

Among the vegetal species with a possible non food development there are: sunflower, soybean, some *brassicaceae* of particular aminoacid composition, hemp, flax, cotton, and some species for biomass with multi use destination (fiber, cellulose, energy). Several niche species still arouse interest for specific but limited areas and use destinations.