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## Analyses

### Agricultural restoration of the Mediterranean islands

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The Mediterranean islands are of interest for various reasons. As essential staging posts in the conquest of the sea and the continental territories, they arouse the curiosity of history enthusiasts. With their wave-lapped, sun-drenched shorelines and warm hospitable peoples, they whet the appetites of tourists. Because the island communities live in highly organised societies, they attract those interested in the functioning of human groups. Lastly, given that they are confined spaces, often with very little in the way of natural resources, the Mediterranean islands clearly have much to teach those concerned with development.

#### Characteristics of the Mediterranean islands

Analysing the question of agricultural development on the islands is a delicate matter: conditions on them vary enormously, if only because they are so numerous (as many as two hundred of them are inhabited). Despite their number, most of the islands are concentrated in the North of the Mediterranean Sea, which means that most of them have ties with the European continent. The vagaries of tectonics thus confer significant economic benefits upon them, given the greater prosperity of the "old continent". Despite their peripheral location, the islands receive significant economic aid (notably from the European Cohesion Fund) and also benefit from tourism flows from the European countries. To the south of the basin there are other islands, such as Malta and the small Italian islands of Lampedusa and Linosa, whose historical ties are with the European mainland, even though they are very close to the southern shore. The fact is that very few islands belong to any other geo-political zone: the Tunisian island of Djerba and the Syrian island of Arwald could almost be regarded as exceptions to the general rule.

If geological history sought to merge these islands to form a unified region, other factors have separated them. One such is size, which divides the islands of the vast Mediterranean archipelago into two distinct categories. Of the 3,000 or so islands in the Mediterranean Sea, only nine have a surface area greater than 1000 km$^2$. They are, in ascending order, Rhodes (1,401 km$^2$), Lesbos (1,630 km$^2$), Majorca (3,618 km$^2$), Euboea (3,655 km$^2$), Crete (8,259 km$^2$), Corsica (8,660 km$^2$), Cyprus (9,251km$^2$), Sardinia (23,818 km$^2$) and Sicily (25,462 km$^2$). They alone account for nearly 85% of the entire land mass the Mediterranean islands represent.

This is an important consideration, for the economic functioning and weight of certain inhabited islands in the Cyclades, which are very limited in size and located some way from the continental mainland, are not the same as those of large islands like Sicily and Sardinia. In the case of the latter it would be difficult to identify any form of economic operation that differed in any way from those found on the mainland (so much so that we refer to them as "continental islands"). On the smaller islands located further out to sea, however, a wide range of problems have to be faced.

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Moreover, in terms of surface area, the figure of 10,000 square kilometres has been adopted by UNESCO as the cutoff point at which a land mass ceases to qualify as an island. But in addition to the criterion of size, there is also that of population density. In this respect even the large islands tend to be different from the rest of the country to which they belong. Population densities in Sicily, Djerba and Majorca, for example are much higher than in the continental territories. As to Malta, its density of about 1,200 inhabitants per square kilometre makes it one of the most densely populated territories in the world. If islands have lower population densities, the presence of tourists tens to increase demographic pressure at certain times of the year and this demographic pressure on sparse resources might be regarded as the chief characteristic of the Mediterranean islands. Another criterion is the distance from the mainland, which varies from one island to another and may substantially increase the cost of producing and transporting agricultural goods.

**An agricultural and stock breeding tradition**

Despite the overall constraints, agriculture is still widely practised in the island territories, even though the tertiarisation of the island economies, resulting from increased tourism, has partly served to marginalise it. Being geographically isolated, the islands endeavour to satisfy their own food requirements, which makes agriculture an essential economic activity, on a par with fishing or extraction of valuable raw materials (asbestos, copper, marble, etc.) from the sub-soil. Even the small islands have large-scale agricultural operations, following the example of Naxos – admittedly the largest island in the Cyclades – which continues to make optimum use of its narrow plains.

Given that the islands are an integral part of the Mediterranean region, it is not surprising that their agriculture tends to concentrate on the emblematic trio of regional crops: cereals, vines and olives. In addition to these traditional products, livestock (mainly small ruminant) occupies an important place. More recently fruit and vegetable production has been expanded. Sheltered out-of-season crops have experienced something of a boom with the growth of tourism and the urbanisation of populations. Some islands (Cyprus, Crete and Rhodes have accordingly been able to develop greenhouse vegetable sectors, thanks to the impetus given by the large numbers of residents and tourists, and are now actually exporting produce. Of these island products, some have maintained a very high reputation, especially wines, whose quality is due to the high-calcium or volcanic soils. Wines from Samos, Crete, and Malta are among the most famous of them. The same high standards are to be found in the culinary arts that are so typical of the islands. The name "Crete" is after all given to a diet that is widely promoted through public health policies.

**Lack of land, water and investment**

For tectonic reasons, the islands are often made up of mountainous slopes, which reduce the arable land surface. Terraced agriculture has admittedly enabled farmers to make up for the shortage of land, but competition from the continent and the recent globalisation of trade have led to the partial abandonment of these areas in favour of the plains, which are better suited to agriculture. The plain of Aléria, once a hotbed of malaria, is now Corsica's principal agricultural area. In Crete, the abandonment of mountain land has been accompanied by an expansion of agriculture in the recent alluvial plains and the sedimentary hills, which are used to produce *inter alia* raisins, winter tomatoes and citrus fruit.

While they may hinder farming work, mountains can serve to block the circulation of damp air currents. The mountainous topography facilitates runoff on areas of land whose small size is not conducive to rainy periods under climate conditions that are normally dry. A large, more mountainous Mediterranean island such as Corsica is less likely to suffer from drought than a small, narrow island like Malta, which moreover is located further away from damp air currents. Some badly exposed areas of the large islands may admittedly suffer from drought, but in that case water can be transferred to them, as in Cyprus, where the Troodos mountains serve as a veritable water tower, supplying even the dry regions in the east via the new water transfer infrastructure (Southern Conveyor Project). Small islands close to the mainland may, for their part, be supplied by pipelines or tankers, as are the Dalmatian islands near the Croatian coast or Djerba in Tunisia. Despite these efforts, some islands still lack water: they are the smallest, the farthest from the mainland and the most tourism-oriented. But the large ones may also suffer. Since 2008 the southern part of Cyprus, for example, has been obtaining supplies from Greece during summer, while the north has been receiving water in large bags from Turkey since 1998. In these conditions of scarcity, competition between users is often very highly-charged on the Mediterranean islands and agriculture is not always capable of taking on the powerful tourism sector. Moreover, the agricultural sector also has to contend with a fall in the quality of water.

Water is often extracted from storage aquifers, which, given the narrowness of the territories, are typically located in the coastal zone. As more and more water is pumped out, the pressure in the aquifers falls, increasing the possibility of seawater intrusion and salination of irrigation water.

In terms of access to fresh water, Sardinia, Corsica and Crete are at the top of the ladder whereas Malta is clearly at the bottom, facing severe difficulties: not only is its water in short supply, it also tends to deteriorate owing to the karstic sub-soil, which is prone to seawater intrusion. On this island therefore agriculture is very difficult and all the more so because the small amount of (frequently poor) agricultural land is under pressure from a large population and a tourism sector with an insatiable appetite for space.

This land issue also has to be faced by the other islands, and even the continental territories of the Mediterranean Basin, given the demographic dynamics and systems of inheritance prevailing throughout the region: on the one hand, good agricultural land tends to lose out in face of the two-pronged onslaught of urbanisation and tourism; on the other, the parcelling up of land hampers investment and encourages the growth of part-time agriculture, which is not normally associated with high professional standards.

## Factors in restoring agriculture

Island agriculture, already seriously mismanaged, is therefore under threat, particularly on the small islands, where severe lack of resources makes it difficult for any enterprise to take advantage of trade opportunities. But the last thing anybody wants is to see agriculture die out, given that it has done so much to shape the island landscapes, whose appeal to tourists is quite plain. If there is one place where the multi-functionality of agriculture is a reality, it is the Mediterranean archipelago. In addition to producing landscapes that are pleasing to the eye, agriculture is a source of gastronomic delights. Many of the foodstuffs that have resisted competition from less expensive products are typical of the locality: wines, cheeses, olive oils, fruit, meat from goats and other small ruminants.

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For these highly typical products, the European islands, which comprise the bulk of the Mediterranean archipelago, employ a "designation of origin" system, which, without providing a comprehensive guarantee for marketing purposes, nevertheless represents a strong selling point. Work is under way to promote products using designation of origin certification (RDO and PGI) but is far from complete and therefore remains a crucial factor in restoring agriculture on the islands. Moreover the switchover to organic agriculture by many farms offers very real possibilities for the islands, in that their isolation may represent an asset in relation to parasite pressure, and of course their low-intensity agriculture facilitates soil conversion.

All of these products, distinguished by their quality labelling, can be made available to the tourism sector, whose growth is not without benefit to agriculture, as shown by the development of farming in sheltered conditions. However, the major distribution operations, which are often to be found on the large islands, require continuous large-scale supplies of produce, which cannot be provided under the limited agricultural conditions of small islands. There more than anywhere the social organisation of producers represents a way of responding to the situation. There can be no doubt that the highly developed restaurant sector on islands that welcome tourists provides an outlet for these very typical local products. Similarly the large-scale diaspora on the continental mainland, a long way from the islands, are another market for *terroir* produce. The development of the islands is directly influenced by the diaspora and local agriculture derives indirect benefit from it: the financial aid it provides for the embellishment of inland villages promotes the development of rural tourism, which supports, and is supported by, a multi-functional, often part-time agriculture.

Of course agricultural development cannot proceed without improvements in resources. Because water is a limiting factor on certain islands, it is necessary to resort to low-cost irrigation techniques. But acquiring the necessary equipment calls for large-scale investment, which can only be afforded by the most outstanding producers, notably those who specialise in typical local foodstuffs. In confronting the irrigation issue it is necessary to take account of all possible supplies of water. From this standpoint, progress in desalination of seawater could give further leeway to irrigated agriculture. While there would be no profit in using this rather expensive desalinated water for agricultural purposes, the transfer of these new quantities of potable water to the towns and the tourist sector would reduce pressure on a resource that is shared and even fought over.

**8th CIHEAM ministerial in Turkey**

Since 1999, CIHEAM has been organising meetings of its 13 member states' Ministers of agriculture, each one in association with the Mediterranean host country. The meetings have also been attended by high-level representatives of international partner institutions.

The 8th CIHEAM ministerial will be held from 8 to 10 March 2010 in Istanbul. Its main themes will be climate change and its effects on Mediterranean agriculture and food systems.

A sherpas meeting will be held in advance, on 12 January 2010 in Ankara, to prepare the CIHEAM ministerial and discuss the broad guidelines it might recommend.

Another resource that incites competition, land, calls for demarcation policies and management of inheritance procedures in order to maintain sufficiently large, joined up areas of agricultural land. It is worth mentioning the case of Cyprus, which has implemented an ambitious land regrouping policy and at the same time succeeded in separating agricultural areas from areas designated for urban development. This example highlights the possibility of overcoming the constraints of island agriculture, which we are all rather too inclined to regard as insuperable. The islands have never been unchanging environments. Quite the contrary: changeability is one of their defining characteristics, and why should agriculture be an exception?

*Pierre Blanc*

**MAI Bari**

The Italian Ministry of Foreign affairs, in collaboration with MAI Bari, has launched a new cooperation programme entitled "Multidisciplinary Training programme for Iraqi officers and technicians" (TECNOFORM).

The beneficiaries of the programme are 234 officers and technicians from the Iraqi Ministries of Agriculture, Planning and Water Resources, who have been selected with the aid of the Italian Embassy in Baghdad.

The programme, which runs from September 2009 to September 2010, will include 13 theoretical courses, each lasting two weeks, on such subjects as arboriculture, agricultural machinery, olive growing, agricultural statistics, and irrigation. Eighteen technical field trips are also planned, three of them in the Kurdistan region and 15 in the rest of Iraq.

## Agriculture and fisheries in Sardinia, marginalisation and innovation

**Giovanni Sistu**
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In Sardinia, the recent development of the agricultural sector has been largely determined by strategies pursued by different national and supranational bodies, in which multisectoral integration of operations has played an essential role. The process of transforming the socio-productive structure, made necessary by the crisis in traditional agropastoralism, is marked by rural-urban drift (caused by irreducible unemployment), a steady increase in set-aside land, and the settling of cattle breeding in hilly areas and plains abandoned by arable farmers. The new European Union agricultural policy, which instead of subsidising farmers' output and incomes now provides for "decoupled support", together with a structural agricultural policy and a renewed emphasis on the role of agriculture in the rural development process, has presented farmers with a new frame of reference, to which they are having difficulty adapting. There are nevertheless specific cases in which it is possible to observe a determination and ability to innovate through integration with other production sectors.

### Current situation

Since the middle of the nineteen-fifties, the irremediable state of the regional socio-economic system has modified the relationship between population and territory and radically transformed the distinctive features of the regional agricultural landscape, leaving marked effects on the environment and ecosystems.

Sardinia, with 1.6 million inhabitants on an area of 24,000 $km^2$, has a low population density: 68 inhabitants/$km^2$, which is well below the Italian national average (192 inhabitants/$km^2$). An analysis conducted at sub-regional level reveals a decline in the hinterland populations: in 280 inland communes the population has been falling steadily since 1970, while the remaining 97, located in coastal and sub-coastal areas, is home to 70% of the population. Characteristic of the island are its vast stretches of woodland and semi-natural areas (53%) and its extensive usable agricultural area (43%). Built-up areas make up 3% of the territory. The nineties saw a fall in the UAA, from 1.1 to about 1 million hectares.

The agricultural sector has turned sharply towards stockbreeding. The share of permanent grassland in the total UAA is more than 55% and is steadily increasing (up 22.2% between 2000 and 2003). Sheep and goat products (meat and dairy) are central to regional agricultural production and make up approximately 24% of all Sardinia's marketable output (with stock breeding as a whole accounting for 45%). The sector comprises around 17,000 sheep farms (3,000,000 sheep) and about 3,800 goat farms (274,000 goats). Sardinia is Italy's main producer both of ewes' milk (more than 68% of the total) and of goats' milk (nearly 52% of the total). Pecorino AOP accounts for 58% of Sardinian cheese production (Pecorino Romano 53%, Pecorino Sardo 4% and Fiore Sardo 1%). Cheese is produced in 85 dairies (79 of them using only ewe's milk), of which 30 are cooperatives. The sector is thought to be worth 350 million euros, accounting for about 22% of the regional agro-industry's turnover. In addition there are thought to be about 100 mini-dairies, 48 of them involved in the production of Fiore Sardo. However the poor profitability of basic produce has adverse repercussions for the management of the soil. The low price of milk requires farmers to reduce production costs and to increase grazing, which puts greater pressure on both natural and cultivated grassland. Other factors are the seasonal nature of production and the fluctuations in the availability of irrigation water according to the frequency of drought cycles. Production of cows' milk is by no means negligible, amounting to 2% of the national total, or around 2 million quintals in 2005. Of the 531 farms, 330 are located in the Arborea region (near Oristano).

Sardinia enjoys optimum pedoclimatic conditions for the production of quality fruit and vegetables (25.5% of the total value of the region's agricultural output in 2006). In quantitative terms, tomatoes and artichokes are the main crops. There are 8,482 farms, with 7,922 using traditional outdoor methods and 1,087 growing all their crops in protected environments. About 40% of these farms have less than one hectare of land; 23.3% cover between one and five hectares and only 22% have a surface area of more than 10 hectares. The horticulture and tree nursery sector covers a total area of 575 hectares (45.7% for horticulture and 54.3% for tree nurseries).

The vine sector represents another strong regional asset, producing a considerable number of cultivated varieties, 25 of which are indigenous. The most widely grown are, in descending order, Cannonau, Nuragus, Monica and Vermentino, and they alone cover 64% of all vine growing areas. There are more than 31,000 vineyards covering an area of 24,479 hectares (32.5% of all ligneous crops). The average size of a vineyard is 0.8 hectares or 1.8 hectares if AOC and AOCG wine production units are taken into account.

Sardinian olive groves typically produce a wide variety of species, often spread over small areas, which need to be protected to preserve biodiversity and plant genetic resources. According to the most recent data, of the 39,385 hectares cultivated 1,660 are used to produce table olives and 37,385 are for oil production (3.7% of the region's UAA). In all there are 34,140 plantations growing olives for oil production, the average size of an individual plantation being 1.1 hectares. Geographical indications are only given to agrifood products with specific qualities that link them to a particular geographical area and hence to its history and culture. Quality labels (AOCG, AOC, IGT) are granted to vineyard products (including the Cannonau variety, which is grown only in this region). Protected Designation of Origin status has already been granted to saffron "zafferano di Sardegna", lamb "agnello di Sardegna", extra virgin olive oil, and three cheeses (Fiore sardo, Pecorino sardo and Pecorino romano) and will soon be extended to the "Carciofo spinoso" artichoke.

The decline in agricultural activity has had a significant effect on the total area covered by farms (down by 17% between 1990 and 2000), and more especially on the usable agricultural area, which declined by 24.7% over the same decade. At the same time the number of farms fell, though to a lesser extent (by 4.4%). It followed that farmland was divided into significantly smaller units, with the estimated average size of each farm falling from more than 17 hectares (11.5 ha of UAA) in 1990 to 15 hectares (9 ha of UAA) in 2000.

Moreover, 54% of farms have a surface area of less than two hectares and only 46% of them are on the commercial register. Of the 112,000 farms only 2,500 cover more than 100 hectares and therefore account for nearly half the total area (corresponding to 35% of the UAA, two thirds of which are used for grazing). The large number of non-professional farms may be an obstacle to modernisation of the sector as a whole and restrict the widespread adoption and observance of standards governing environmental protection, health and well-being of animals, health of crops, food safety and occupational safety.

The decline of regional agriculture was observed in various areas, irrespective of altitude. In the inland mountain areas, it was most evident in the diminishing UAA (down 27.5%) and the falling number of farm production units (down 16.4%). In the plains, on the other hand, the same trend was less pronounced (UAA down by 21%) and the number of farms listed remained stable. As to the relationship between land ownership and enterprise, data from the most recent census reveals a significant number of agricultural units being set up by operators on their own land.

For its part, fishing tends to be carried out by very productive, small-scale undertakings using small fishing boats, which account for 75% of the regional fleet. The average age of the boats is 27 years. The fisheries sector employs around 3,300 people directly and generates one job in four in the regional economy. Consumption of fisheries products is higher than the national average, amounting to 25 kg per person, or about 40,000 tonnes in 2007. Sardinia produces approximately 13,000 tonnes per year and therefore covers only 32% of demand. Local consumption of fisheries products varies with the seasons and is highest in the summer. With annual expenditure at 262.4 million euros in 2007, imports amounted to 183.1 million while local production was worth only 79.3 million euros.

About 25% of the Sardinian coastline is used for military or conservation purposes (protected naval zones together with the parks of Villasimius, Sinis Mal di Ventre, Asinara, and the Maddalena Archipelago) and is subject to corresponding constraints. The regional government intervenes in this area by applying rigorous regulations, which require operators to have fishing permits and provide for annual biological rest periods.

The figures for agricultural exports as a whole reveal a lack of dynamism in this sector. Sardinia exports only 8.6% of its agricultural output, whereas the overall national average is around 20%. Moreover, tourism is a sector that could exert a strong influence on the export trend. Unfortunately, potential resources have not been adequately exploited hitherto, as is shown by the amount of added value generated by tourism fishing, which is reckoned to be 7% of the total in Sardinia, compared with 12% in other regions, where progress has been more marked.

## Outlook

Despite these different observations, the sector performed better in terms of added value (up by 8.2%) during the period 2000-2005. This result may be attributed to a fall in intermediate consumption and an increase in the volume of production, in contrast with the trend observed at national level.

There is therefore limited intervention in the market (with more occasional controls on supply and a strong reduction in integration for exports) and measures to place agriculture within a broader territorial development plan which is compatible with promotion of the environment and encourages the region to open up to international markets. At the same time it must be borne in mind, given the history of local action and the nature of the regional structures involved, that such a plan will be riddled with difficulties and inconsistencies. It is perfectly obvious that traditional productive functions will be unable to reverse the trend towards higher unemployment to any significant degree, particularly in a context marked by moves to improve competitiveness. Future prospects are therefore dependent on the multifunctional character of farming.

Sardinia's farmers are assigned the tasks of producing healthy, high quality foodstuffs and protecting the country's natural, cultural and landscape heritage. This heritage is regarded as an essential factor in the development of tourism and cottage industries in rural areas of the region and the success of more than 800 agritourism farms is a testimony to the importance of such an asset. Work in the field of organic agriculture is an integral part of the broader environmental initiatives under way, whose results can only be assessed in overall terms. In so far as they apply specifically to the agricultural world, it is worth drawing attention to measures undertaken in accordance with Regulation (EEC) 2078/92, Regulation (EEC) 2080/92 and Regulation (EEC) 2092/91: integrated waste management, water saving and training of officials. The last of these measures is proving to be more and more important, given the rapid developments in regulations and the organisation of the planned operations.

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***Internet links***

- http://www.sardegnaagricoltura.it

At the present time, despite its satisfactory economic performance and its moves to rationalise production processes (ISO 14001 and EMAS certification), the Sardinian food industry displays a lack of flexibility in its production, which is attributable to its geographical isolation and failure to produce agricultural goods in line with modern market trends. It should on the contrary be a leading player in the effort to make the most of an agricultural system that has great potential for high quality output as well as sustainable production. With these two major assets it should be possible to reverse the decline in competitiveness on national and foreign markets.

*Giovanni Sistu*

**CIHEAM Conference**

CIHEAM organised a conference-debate on "Food security: a strategic priority for the Union for the Mediterranean (UFM)?" on 24 November 2009, on the premises of Sciences Po in Paris.

The meeting was divided into two sessions. The first focused on the challenges facing Mediterranean agriculture (climate, health, food, food security).

At the second session representatives of the AFD, CIHEAM and the French UfM Mission presented the aims of cooperation and the prospects for these institutions in the fields of food and agriculture in the region.

A summary of the discussion was published in the form of a Briefing Note (No 64, December 2009), which can be consulted on the CIHEAM website.

**www.ciheam.org**

## The role of Agriculture in the Maltese Islands

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### Background

It is thought that prior to human settling and intervention, the Maltese Islands had vast areas covered with Mediterranean Sclerophyll Forest with an undergrowth of smaller trees, shrubs and climbers. In sheltered areas such as on hillsides and in valleys, the olive (*Olea europea*), the carob (*Ceratonia siliqua*), the bay laurel (*Laurus nobilis*) and several others dominated. The tenth-century Arab chronicler Ibn Hauqal wrote that Malta was inhabited only by savage donkeys, numerous sheep, and bees. Human settlement resulted in the falling of trees for their wood and the clearing of land for agriculture and habitation and in the management of best practice as permitted by the availability ob natural resources. Although today agriculture is the largest land user (47.8%) it is under constant treat of land sealing and urbanization, rural to urban migration and loss of local agricultural genetic resources. Having achieved an artificial area occupying 28.6% of the total land mass, the influence of human activity is strongly evident and further underlying the significance of the island's agricultural areas as a green lung.

### Natural resource limitations

Malta is handicapped by a number of structural constraints limiting its agricultural prosperity. The most obvious is the severe scarcity of land, followed by and equally severe scarcity of water. Malta's climatic conditions, including low and erratic rainfall patterns, that are not favourable to rain fed production, which together with the effects of climate change, will impose further severe disadvantages on productivity. All areas of utilisable agricultural land are affected by one or more of the following natural handicaps: unfavourable soil chemical status as a result of alkalinity and the calcareous nature of the soils, soil salinity, unfavourable soil physical characteristics, shallow depth to bedrock, low soil organic matter, high soil stoniness, and unfavourable water regime as a result of an impermeable surface crust. The consequences of the semi-arid climate are of particular relevance to water management. These include: variability in inter-annual and intra-annual rainfall, high-intensity, short duration rainfall events, seasonal scarcity of precipitation when the water requirements of the agricultural sectors are highest, frequent occurrence of low rainfall years when groundwater recharge is likely to be low and finally, frequent occurrence of high rainfall years when runoff is likely to be high. Additionally, the grazing of once abundant populations of sheep and goats caused damage to mature trees but more importantly prevents them from regenerating. Deforestation, especially followed by overgrazing with soil compaction, can be considered as the principal anthropic cause of land degradation. Over time, this intense human activity has resulted in a quasi complete deforestation of the islands, and in many cases with large denuded and exposed surfaces characterised by sporadic patches of thin layers of soils alternating with outcropping rock exposing and subjecting the soil to the elements. Consequently, Maltese soils are vulnerable to erosion by both water and wind and are acknowledged as a significant problem increasing the threat of long-term land degradation. Concurrently, the island ecosystem is undergoing a "tropicalisation" trend due to effects of climate change. Land degradation coupled with complications as a result of climate changes are a threat to natural ecological dynamic equilibriums with repercussions on environmental and social stability.

### Landscape

Human reaction to this harsh and demanding environment was to evolve the typical terrace landscape to capture and reduce soil and water loss, thus increasing the capacity of husbandry. These walls have a complexity of functions by: retaining naturally evolved soil, act as ramparts behind which man made soil accumulates slowly to form artificial fields, and as part of a larger technological structure involved in rain water management and harvesting. As a result of centuries of farming activity, including extensive terracing and moulding of the land, farmers have contributed immensely to the shaping of the rural landscape and the environmental character of the islands characterized by small-sized and fragmented agricultural land and a rich diversity of semi-natural habitats that are often under severe threat from human activities and urbanisation. Today agriculture remains a major contributor in maintaining the quality of the landscape. It is also an integral component of the cultural heritage and a crucial backdrop to the tourism industry. Agricultural and rural areas constitute a green lung and a venue of recreation to many. In short, agriculture exhibits multiple functions and values beyond its economic contribution.

**MAI Zaragoza**

The 2nd International Conference on drought management: "Economics of Drought and Drought Preparedness in the Mediterranean" will be held from 4 to 6 March 2010 in Istanbul (Turkey).

This conference is being organised by the General Directorate of Agricultural Research of the Turkish Ministry of Agriculture and Rural Affairs, the NEMEDCA network, the FAO, ICARDA and CIHEAM (represented by MAIZ), in collaboration with CEIGRAM (Research Centre for the Management of Agricultural and Environmental Risks) at the Polytechnic University of Madrid.

The conference will be in three stages: it will begin with scientific analyses of the impact of drought and presentation of drought preparedness measures, followed by a round-table discussion, and lastly a technical field trip.

More information:
**www.iamz.ciheam.org/nemedca/istanbul2010**

## Water availability

Malta being poorly endowed with fresh water resources, has a huge challenge in meeting the high and rapidly increasing water demand while protecting and conserving the resource base and the environment. There are no surface waters that can be exploited economically with the farming community focused on tapping into the underground water system to bypass the problem. Groundwater resources are subject to increasing competition. Agricultural water users continue to be more dependant on the vagaries of the climate and access to water resources for irrigation. Water shortages have resulted in farmers shifting towards cultivation practices and irrigation systems that make efficient use of water resources. The main source of water is groundwater pumped from private boreholes and conveyed to fields via pipe networks and water tankers. Although farmers are relatively more conscious of the importance of water conservation than urban water users, increased agricultural water use and the excessive groundwater abstraction in recent years has affected the sustainability and viability of the aquifer systems. Severe degradation has taken place in some areas, and the prognosis for other areas is not encouraging. Groundwater degradation linked to agriculture takes two distinct forms. First, there is increasing salinity of the Lower Coralline Limestone sea-level aquifer systems as a result of seawater intrusion. Second, there is nitrate contamination of practically all the aquifer systems as a result of intensive livestock production, high levels of fertilizer use, and leakages in the sewage collection systems. The forecasted sporadic reliability of precipitation due to climate change will unavoidably put increasing pressures on ground water resources.

## Farm Genetic Resources

Throughout its history, Malta's location in the Mediterranean Sea has given it strategic importance, as a hub of refuge to the various cultures groups from the neighbouring lands. With the constant exposure to visitors and traders, it is not surprisingly to imagine that over time new crop and animal genotypes types may have been introduced. A classical example is proposed by Dent (1972) who puts forth an interesting theory on the origins of the Maltese Donkey, now extinct in Malta. He speculates that it is very plausible that while Malta served as a base for Phoenician merchants, who also had business interest in Spain, the same Merchants may have brought selected Syrian donkeys to Malta and later brought their progeny westward to the Iberian Peninsula.

Given the small territory and limited natural resources, the potential ensemble and subsequent hybridization of various genetic types, coupled with the harsh environment conditions with constant demands to maximise production, gave over time a unique agriculture genetic resource that evolved through high selection pressures. The resultant populations are richer in genetic resources than other mainland areas. These species of pulses, vegetables, cereals, forages, industrial plants, spices condiments and livestock are renowned for their hardiness not only by the Maltese farmers but also beyond the shores of Malta.

During the 1800-early 1900's, Malta had strong economic links with the North African coast spanning from Egypt to Morocco (Donato 2002, Attard 2003), and also with the other larger islands namely: Cyprus, Sardinia, Gibraltar and Sicily (Attard 2003). It was commonly known that the many Maltese stationed in these regions took along livestock seeds and trees (Donato 2002). Very often the "Maltese" type is recognised as well adapted possessing hardy characteristics coupled with high productivity. Attard (1979) gives an account on how in 1800's a Maltese trader and his wife obtained a long lease of the island of Lampedusa, then lying abandoned and uninhabited. Taking with them a number of workers, livestock and trees from Malta, they repaired the Castle, built warehouses and prepared the land for farming.

Their success encouraged the British Royal Commission to suggest in 1812 the purchase of Lampedusa, Linosa and Lampione, and possibly also Pantelleria. Donato(2003) remarks that the Maltese were fast to recognise the potential of the Algerian soil, and large plots of land spanning the departments of Annaba and Sikkda were planted with fruit orchards all belonging to the Maltese. Donato makes a further interesting statement "All the Maltese are fruit growers and all the fruit growers are Maltese." The introduced cultivation of Maltese fruits included: the Maltese orange, mandarin, peaches, plumbs and a special variety of cactus fruit "baitar tad-dem". The Maltese oranges famous throughout Europe (Blondy 2003) can still be found in selected markets, but it today originates from Tunisian orchards. MacGill (1839) refers to the local silla *(Hedysarum coronarium),* as one of the most beautiful plants, and richest produce that is cut down in February and March for dry forage to be fed to ruminants.

### ARIMNET

Launched one year ago, the ARIMNET network, which is intended to coordinate agricultural research in the Mediterranean Region and is funded by the European Union as part of the Era-Net programme, continues to develop and to set up new initiatives.

The ARIMNET Steering Committee, of which CIHEAM is a member, met in Rome on 29 October 2009 to approve the project's annual report and review progress in its operation. Particular attention was paid to the structure of the information available on the project's website, progress in the production of country reports and the finalisation of a mapping of research programmes.

The Committee also addressed obstacles to cooperation and possible ways of identifying best practice in this area. It also decided to hold a conference in Valencia in October 2010, which would bring together partner countries.

For more information:

**www.arimnet.com**

Seeds have been sent to the East and West Indies, to different parts of America, to the British Isles, to France, Italy, Sicily and Greece. Maltese cabbage, cauliflower and broccoli also enjoyed prestige and fate, with seeds being requested from all over the Mediterranean basin (Blondy 2003).

The same can also be said on animal genetics. Most probably the best known example is the Maltese Goat widely praised for its unique docile characteristics and heavy milking abilities. This breed has been widely diffused and kept as a pure breed as in Italy, or to improve other rustic breeds as is the case in Sardinia or to develop an new breed such as the Golden Guernsey breed in the Channel Island. Mason (1996) states that the Comisana Sheep breed found in south-eastern Sicily, originated in part from the Maltese sheep in the late 19th and early 20th century. MacGill (1839) reports that the "Maltese Donkeys continued to be exported to different parts of Europe and America". Tegetmeier (1895) comments that the original Maltese jack from Gozo, had a great reputation in America as a mule getter to the extent that at one time the island of Gozo had been entirely depleted of the old breed by the Americans to form the breeding pool of the Kentucky mules and was extensively used as the foundation stock for the development of the American Giant Mammoth donkey. The report by the inspector of agriculture in 1911, notes the near extinction of the Maltese ass. Cesareo (1950) elaborates on how the Maltese Black chicken was developed in the mid 1930's from the local breed of chicken into a strong heavy egg layer. He further states that fertile hatching eggs were exported to Libya and Cyprus.

**Conclusions**

In view of these constraints, Maltese agriculture cannot attain the high productivity standards achieved elsewhere. Given the severe shortage of the basic agricultural resources; farming has had to adapt to intensive husbandry with continuous use of all available resources. It is thus very difficult to challenge the husbandry practices that have evolved over time with the main criterion adopted by default being that of maximising use of the limited available resources by intensive and continuous use of difficult landscapes and the minimising waste.

Considering Malta's small size, it may be surprising to note the high degree of agro-biodiversity. Changes in the Maltese production systems and consumer lifestyle have resulted in the setting aside of these local breeds to make way for the introduction of modern and imported hybrids and/or synthetic line type of animals. Some of these Maltese breeds can today only be found outside of Malta. The recuperation and reintroduction of these local genetic types into Malta may hold the key in the adaptation of agriculture to the challenges presented by climate change.

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*George Attard*

## Agriculture in Crete: Dynamics and Challenges

**George Baourakis**
Researcher, CIHEAM-MAI Chania

For many years agriculture has played a key role in the economic development of Crete, Greece. While nowadays agriculture doesn't seem to be a thriving economic sector, Crete is still a major producer of renowned high quality agricultural products such as olive oil, fruits and vegetables, wine and cheese. The favourable natural and climatic conditions, the tourism boom in the island and the new challenges faced, encourage certain initiatives ie synergies of tourism with agriculture and the conversion from the conventional to organic agriculture.

**MAI Chania**

CIHEAM and the FAO/*Silva mediterranea* organised a regional seminar on forest genetic resources from 24 to 26 November at MAI Chania, in collaboration with EFIMED, EUFORGEN/*Biodiversity*, IUFRO and the Greek Ministry of Rural Development and Food.

The meeting, which brought together experts from many Mediterranean countries, focused on the role played by forest genetic diversity in the process of adaptation to climate change in the Mediterranean Region. The speakers took stock of current policies on genetic resource management and reviewed training and research requirements in this field.

The conclusions and recommendations of the seminar will be presented at the EFIMED scientific seminar "Knowledge base management of Mediterranean forests under climate-driven risks: the ways ahead", to be held in Antalya (Turkey) on 15 and 16 April 2010.

## General Framework

Crete, located in the east Mediterranean, is the biggest island in Greece, with a surface of 8,393.2 sq. km and a population of 601.131 (National Statistical Service of Greece, census 2001). For administrative purposes, Crete is divided into four prefectures - Heraklio, Rethimno, Chania and Lassithi. Each of them has its own idiosyncratic peculiarities and economic tendencies. Even though the natural and climatic conditions in different parts of the island are noticeably similar, there are significant differences in the importance of the different kinds of crops in Crete.

Crete was traditionally an agricultural region whose economic development was limited by rocky terrain, a lack of concentrated resources, its isolation from the main part of Greece, as well as long-term infrastructural weakness due to the small and dispersed nature of agricultural land. Nevertheless, the region has a comparative advantage in the production of out-of-season fruits and vegetables, due to its favourable climatic conditions. The climate of Crete is considered Mediterranean and semi-arid, with hot summers and temperate mild winters. Rainfall is irregular, usually falling in a few torrential showers, mainly in the northern parts of the island. Furthermore, during the summer there is an almost complete absence of rainfall. Moreover, 50% of the land in Crete is at high risk of desertification (while the average index for all of Greece is 35%).

Across the island the area used for agriculture varies significantly, amounting to approximately 40% of the total land area of Crete, and constituting roughly 7.4% of the agricultural land of Greece. The specialization of Crete is mostly in traditional cultivations such as olives and viticulture. Crete contributes considerably to the Greek agricultural production; approximately 10% of Greek fruit and vegetables originate from Crete.

Crete as a region has been flourishing during the last decades. The economic situation here is of a higher standard than the average indices of Greece. In 2006, the GDP of Crete reached 9 508 million EUR, facing an increase of 1 015 million EUR compared to the year 2003 (NSSG, 2009). The most important sectors of the Cretan economy are the primary (agriculture) and tertiary (services) ones, while the main branches of the economy are tourism and agriculture. All the sectors are directly connected and interdependent. The contribution of the economic sectors to the GDP of Crete is displayed in Table 1.

*Table 1. Performance of the Cretan sectors of the economy, share in GDP, (as %)*

| Sector of economy | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|
| Primary sector - Agriculture | 9.5 | 9.9 | 9.3 | 8.2 |
| Secondary sector | 14.5 | 15.6 | 13.8 | 15.0 |
| Tertiary sector – Services | 75.9 | 74.4 | 76.9 | 76.8 |

Source: *Economic and Social Profile of the Prefectures and Regions of Greece, 2008*

The economy of Crete, which was traditionally based mainly on agriculture, started changing visibly during the 70's, when the share of the primary sector started decreasing dramatically, while the share of the tertiary sector leapt to a higher position. As indicated in Table 1, while there is still an emphasis on farming and stock breeding, constituting 8.2% of the GDP, the biggest income is earned from services, due to the tourism contribution.

## State of agricultural sector in Crete

The most developed branches in the Cretan agricultural sector are plant growing and stock breeding. Stock breeding has traditionally played an extremely important role in the life of Cretans, and still does. The region is very well known for the quality of its agricultural products, due to the favourable climatic conditions and the organic approach used in food manufacturing. The most common traditional types of products include olives and olive oil, grapes, wine, horticultural products, honey, oranges, pharmaceutical and aromatic plants and herbs, etc.

*Table 2. Agricultural production of Crete, tons (tonnes)*

| Product | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|
| Olive oil | 164,412 | 154,121 | 169,476 | 137,777 |
| Citrus fruit | 122,296 | 131,116 | 133,572 | 122,182 |
| Apples | 2,340 | 2,229 | 2,419 | 2,430 |
| Peaches | 691 | 585 | 574 | 628 |
| Potatoes | 89,513 | 84,444 | 85,486 | 82,582 |
| Tomatoes | 106,356 | 134,267 | 128,901 | 132,378 |
| Meat | 36,924 | 37,163 | 33,653 | 33,471 |
| Milk | 128,492 | 134,333 | 134,184 | 132,157 |
| Cheese (soft) | 3,181 | 3,048 | 2,898 | 2,808 |
| Cheese hard) | 8,326 | 8,082 | 7,994 | 8,068 |

Source: *Economic and Social Profile of the Prefectures and Regions of Greece, 2008*

Olives and olive oil have a long tradition of cultivation in Crete. Archaeological findings have revealed that the cultivation of the olive tree started during the early Minoan period. One of the main characteristics of the olive tree is that it can produce fruits even in rocky and unproductive land which is a very important peculiarity for this region. Average olive oil production in Crete is about 150 000 tons per year with a tendency to increase. Only 10% of the annual production can be consumed on the island by Cretan inhabitants and tourists (Greeks and foreigners), while the remaining 90% of the olive oil produced is exported either to various areas of Greece or, as is usually the case, abroad, which significantly increases the GDP of Crete (Association of Cretan Olive Municipalities, 2009). Vegetables cover only 3% of the total cultivated area, but 50% of the Greek greenhouses are concentrated in Crete (Region of Crete, 2009).

Stock breeding is not so developed and it is still carried out using traditional methods. Livestock production is primarily extensive, with few organized holdings. However, the production of hard cheese clearly indicates a dynamic involving 25% to the Greek domestic production (Region of Crete, 2009). Wine is another traditional product of Crete, whose production is deeply rooted in ancient civilization dating back as far as 2000 B.C. Approximately 20% of the Greek wine production originates in Crete. The area under vineyard growth constitutes nearly 50 500 hectares, concentrated mostly in the Heraklion prefecture (Association of Greek Winemakers, 2001). About 70% of the total wine production of Crete is produced in the Peza region (Heraklion prefecture). In addition to this area, there are three more wine-producing areas in Crete: Arhanes and Dafnes (Heraklion prefecture) and Sitia (Lassithi prefecture). There is also a smaller volume of wine production located in the prefecture of Chania. Finally, Crete has an advantage in beekeeping due to the climatic and flora conditions. Greece produces an average of 16 000 tons per year while Crete is the 4$^{th}$ producing Region with a production of 1.673 tons (2004) (NSSG, 2006).

Farming in Crete is represented by a small number of organized farming units. Apart from several large producers, these are mostly small family-owned firms, However, as the activities of these companies expand, they are faced with a situation where they are asked to serve customers abroad and deliver their products or services to a foreign and distant market (Baourakis, *et al.,* 2009). Industrial agriculture in Crete is comprised of cooperatives, which are one of the most popular forms of business in Crete, some of them representing hundreds of families cultivating a variety of produce on small plots of land.

In Crete, as well as in the rest of the country, the cooperative structure was built up vertically with provincial cooperative unions and a national federation of unions. This structure takes place nowadays with the formation of the cooperatives. Due to their significant share of the rural population, agricultural cooperatives in Crete constitute a significant share of all agricultural cooperatives in Greece. There are about 650 cooperatives in Crete out of a total of 7,000 in Greece (Pashkova, et al., 2009).

In Crete, there are currently 14 operating unions, compared with the 16 existing unions up to 1999. Negative economic developments forced four unions in the region of Chania to merge and form a new one three years ago (OECD, 2005). New generation agricultural cooperatives, which are more efficient and dynamic compared to the conventional cooperative schemes, have evolved in more recent times.

**MAI Bari**

The policy seminar on "The International Treaty on Plant Genetic Resources for Food and Agriculture: Global Challenges and Future Directions", will be held at MAI Bari from 15 to 18 December 2009. This event is being organised by the Italian government with the support of the Secretariat of the International Treaty on Plant Genetic Resources.

The conclusions of the meeting, which delegates of more than 50 countries are expected to attend, will be taken into account by the High-Level Round Table (HLRT) of the Treaty, planned for 2010. The purpose of the seminar is therefore to identify preparatory work for the HLRT and determine the priority issues to be addressed by it.

**www.planttreaty.org**

## New challenges and opportunities for agriculture in Crete

In compliance with the international challenges, during the last few years, certain initiatives related to agriculture have taken place to generate positive socio-economic and environmental impacts on the island. Such activities include the conversion of a large number of conventional farms to organic ones and the development of a number of diversified activities that promote synergies among tourism and agriculture.

Greece, and in particular Crete, with its beautiful and varied rural landscape, healthy environment, favourable soil, climatic conditions and extensive farming tradition, no doubt meets the basic requirements for the development of organic farming. Slowly, some cooperatives and individuals are converting to organic production, since organic products have indisputably entered the food market, while market demand for such products has expanded rapidly over the past decade (Baourakis, 2004). There are about 600 organic vegetable and fruit farmers in Crete, 50 % of who are in the Heraklion Prefecture. The main product is organic olive oil. The overwhelming majority of producers act independently, while there are a few official or unofficial producers' groups (OECD, 2005).

Crete is one of the most popular holiday destinations in Greece. Tourism in Crete is the most dynamically developing sector. At present, it is one of the main sources of income and employment in Crete. According to the National Statistical Service of Greece (NSSG), Crete has 1 538 resorts and hotels (with 154 492 beds), out of which 16 were camping sites (NSSG, 2009). Approximately 2.5 million tourists visit Crete annually, with a slight decline of 11% noticed for the year 2009 (MAICh, 2009).

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## Agriculture and fisheries in the Balearic Islands

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### Background

The Spanish Agriculture Sector, and that of the Balearic Islands, is constantly changing due to the existence of a common agricultural policy. Since Spain joined the European Union in 1986 the adaptation of agriculture to the European agricultural policy has meant not only an improvement in productivity, but also in forms of management as illustrated by the different business entities that have been arising to respond to the new behaviour of the sector stakeholders. This situation, together with the historical background, has been marking the agriculture of the Islands over time. Until the beginning of the 1920s, the active agricultural population engaged in crop farming was over 65%. Since then, the primary sector has lost weight to the industrial sector, dropping to lower values with the first expansion of tourism in the Balearic economy, interrupted by the civil war. During the 1960s, with the arrival of mass tourism, the main axis of the economy was oriented towards the hotel trade relegating the agricultural sector to second place. From then onwards, the islands went from a structure based on traditional production sectors to an open economic cycle integrated in the international market. As for the primary sector, this change supposed a progressive reduction in the number of farms.

**MAI Montpellier**

The second thematic meeting of expert on the agro-pastoral cultural landscapes in the Mediterranean was held from 12 to 14 November in Tirana, Albania. It was funded under the France-UNESCO Convention for Heritage and jointly organised by MAI Montpellier, the Tirana European University (in situ), and the Mountain Areas Development Agency (MADA).

For two days, about 40 experts from many different countries on the Mediterranean Rim discussed agro-pastoral identity, and agro-pastoralism and sustainable development. They also took stock of the agro-pastoral situation in the Balkans and considered its cultural ramifications.

The meeting was organised as part of the activity of an MAIM network which seeks to define Mediterranean Pastoralism as a mixed cultural and natural heritage, according to UNESCO criteria.

At present, the agricultural sector of the Balearic Islands finds itself in a new situation as a result of the agricultural and touristic policies, showing greater environmental responsibility, given the growing concerns for the use of water, for conserving biodiversity and many other perspectives including the insularity factor.

## Economic indicators of the agricultural sector of the Balearic Islands

The economic results obtained for any of the productive sectors are summarised in figures for crop and livestock farming, in order to enable the assessment of the economic flows that develop in the farms as well as their relationships with other economic units.

*Table 1. Economic data of agricultural production of the Balearic Islands*

| Agricultural production | Current euros |
|---|---|
| Crop production | 132,732,274 |
| Livestock production | 77,956,527 |
| Total agricultural production | **210,688,800** |
| Expenditure outside the sector | 128,128,292 |
| **GVA at market prices** | **82,560,508** |
| Subsidies | 65,794,870 |
| Taxes related to production * | 372,919 |
| **GVA at factor cost** | **147,982,459** |
| Amortisation * | 12,599,190 |
| **Agricultural income** | **135,383,269** |

*Estimations based on structural data
Source: *Estadísticas básicas 2008. Conselleria d'Agricultura i Pesca. Govern de les Illes Balears.*

This figure seems insignificant in comparison with the agricultural income of the whole country of Spain that rose to 18,429.90 million euros in 2006 (Statistics Yearbook of the Spanish Ministry of the Environment and Rural and Marine Affairs - MARM), which represents only 0.73% of the Spanish agricultural income. The results of the economic balance show a greater contribution from crop farming than livestock farming, values which have been changing since 1990, when crop production represented 47% and animal production 53%. This fact may be due mainly to the effects of the Common Agricultural Policy, that have led to a negative trend in the livestock sector with the closure of a large number of farms, secondly to the high transport costs due to the insularity of the region and finally to the positive development of the crop farming sector through greater specialisation. Arable farming now represents 63% of the primary production of the Balearic Islands whereas livestock farming accounts for the remaining 37%.

## Land use

The Balearic Islands are made up of the main islands, Majorca, Minorca, Ibiza, Formentera and Cabrera and the adjacent minor islands. The wide ranges of climates and soils, as well as certain socio-economic factors have an important influence on the wide diversity in production. Land use is mainly for crops, approximately 37% of the total surface area being occupied by sown fields, plantations of annual or pluriannual species (woody crops, irrigated and rain-fed herbaceous crops). In addition, forestland covers a large surface area, namely 35%, the remainder corresponding to urbanised areas or areas without vegetation.

*Table 2. Total surface area of the different islands*

| | Total BI | Majorca | Minorca | Ibiza | Formentera |
|---|---|---|---|---|---|
| Total surface area (ha) | 498,456.44 | 362,251.88 | 69,472.02 | 57,176.41 | 8,249.79 |

**Mediterra 2010**

The twelfth edition of the CIHEAM annual report, *Mediterra*, will consist of an atlas of Mediterranean agriculture, food, fisheries and rural areas.

Mediterra 2010 will be published in English and French in February 2010. The Spanish version will be out in the spring of 2010, followed by the Arabic version, which will be published in association with the Al-Ahram publishing house in Egypt.

It is hoped that this report will be an essential reference document in the 2010 technical and political discussions on the role of agriculture and food in Euro-Mediterranean cooperation.

## Climatological aspects

Climate is one of the conditioning factors in the development of arable and livestock farming and has become one of the main factors of production. The characteristics of the climate of the Balearic Islands are:

*Table 3. Mean climatic parameters*

| Climate parameter | Values |
|---|---|
| Mean temperature | 16-18ºC |
| Maximum temperature | 35-39ºC |
| Minimum temperature | -5; -0ºC |
| Rainfall | 300-700 mm |
| Hours of sunlight | 2300-2800 hours |
| Relative humidity | 68-78% |

## Analysis of the agricultural sector

Due to the insularity factor, the Balearic Islands show a strong specificity and are characterised by the heterogeneity of the terrain, a high degree of diversity and the presence of endemic species and biological species. A general analysis of the present situation and future prospects of the agricultural sector of the Balearic Islands points out the main weaknesses, threats, strengths and opportunities, some of which are indicated below.

Weaknesses

- Geographical isolation from the rest of the continent due to the insular nature of the area, besides a territorial fragmentation into four areas or islands.
- Reduced competitivity due to isolation and strong increase in transport costs.
- Low productivity of most of the obsolete farms.
- Ageing of the agricultural active population.
- Low level of associationism.
- Large differences in the rates of unemployment and active population according to sex.
- Strong urbanistic pressure making agricultural land very expensive.
- Lack of attractiveness for young people to settle in rural areas.
- Low level of education and research in the sector and few incentives.
- Small sizes of farms making investment in infrastructure and equipment difficult, which leads to a substantial technological delay.
- Marketing networks are not very competitive.
- High price of raw materials (fertilisers, phytosanitary products, drugs, etc.).
- Low agricultural income.

Threats

- Climatological conditions with long periods of low rainfall.
- Scarce water resources mainly destined to the population and not to agriculture.
- Low technification of the sector.
- Growing environmental problems related to agriculture.
- Strong dependence of the sector on community support, especially certain sectors such as nuts.
- Arrival of new pests and diseases.
- Low standard of living for farmers threatening the interest in forming part of the agricultural population.
- Strong intrusion of commercial plant varieties and breeds as a result of the local and foreign population.

**MAI Zaragoza**

The FUME project (*Forest fires under climate, social and economic changes in Europe, the Mediterranean and other fire-affected areas of the World, 2009-2013*) will begin operations in December 2009.

Coordinated by the University of Castilla-la Mancha (Spain), this European project involves 33 partners, including MAIZ, which is responsible for training and will be organising, among other things, two specialised courses at the end of the project.

The FUME project has to make an exhaustive assessment of changes that have occurred and factors that influence forest fire regimes, to make forecasts regarding the future effects of fires on vegetation and landscapes, and to evaluate different ways of adapting in order to deal with this problem.

**www.iamz.ciheam.org/wtnitmed**

Strengths

- High quality of traditional and autochthonous products.
- The agricultural sector is key to the territorial configuration of the islands contributing to the conservation of the ecological and cultural values and the comprehension of the characteristic social structure of the Balearic Islands.
- Promotion of the quality brands and designation of origin policies: wine, oil, cheeses, meat products.
- There is a greater awareness of the role of agriculture as an irreplaceable public service whose maintenance should be supported even though this aid is not yet effective.
- The strong tourist and services sector may enhance a local product market and activate the rural community and maintain it through rural tourism.

Opportunities

- Enhance the development of the agro-food industry, fundamentally that of traditional products.
- Enhance tourism in the rural environment as an additional complementary offer.
- Marketing of agrifood products through the tourist sector, directly from the producer to the consumer.
- Promotion of quality brands and designation of origin policies: wine, oil, cheeses, meat products, etc.).
- There is a greater awareness of the role of agriculture as an irreplaceable public service whose maintenance should be supported even though this aid is not yet effective.
- The strong tourist and services sector may enhance a local product market and activate the rural community and maintain it through rural tourism.

**The future of agriculture in the Balearic Islands**

Based on the present situation of the Balearic Islands, some guidelines may be provided regarding the future of the sector in the Balearic Islands:

- Enhance training and information for arable and livestock farmers to improve their technical knowledge, incorporate improvements, modernise the agricultural sector, etc.
- Facilitate advice on agribusiness management for the sector.
- Favour agrifood development based on the incorporation of innovation.
- Insist on the improvement of the quality of production.
- Promote the sustainability of resources associated to arable and livestock farming.
- Ensure an environment associated to a more environmentally friendly agriculture.
- Diversify the agricultural sector, incorporating new perspectives, new products and new focuses on the rural environment as has been practised through rural tourism.

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*Antoni Martorell Nicolau*

## Interview

**Jean Claude Bonaccorsi**
Executive Councillor and Chairman of the Office for the Agricultural and Rural Development of Corsica (ODARC)

**Q - What is the status of ORDAC? How does it operate and what are its main missions? Does the office have any particular features that distinguish it from those of other French regions?**

The Office for the Agricultural and Rural Development of Corsica (ODARC), established by the law of 2 March 1982 and subsequently modified by the laws of 13 March 1991 and 22 March 2002, is provided for under the Particular Statute of the *Collectivité Territoriale de Corse* (CTC).

**MAI Chania**

Between 30 November and 11 December 2009, MAICh organised a specialised course on field spectroradiometry, as part of the Graeco-Egyptian cooperation project GI@MED.

This project, set up in 2006 under an agreement between the Greek and Egyptian Ministers of Foreign Affairs, is intended to promote the application and sharing of modern geo-information technologies in the fields of agriculture and the environment.

MAI Chania, in collaboration with Egyptian partner institutions, is coordinating the project under the auspices of the Greek Ministry of Rural Development and Food.

The course, intended for Egyptian experts, was held in conjunction with the 3rd GI@MED workshop, providing an opportunity to assess progress on the project and coordinate future joint activity.

**www.gi-eastmed.net**

Attached to the 51-councillor Corsican Assembly and the nine-member Corsican Executive are six agencies or offices with special responsibility for the most vital areas of life: transport, tourism, environment, economic development, hydraulic equipment, and lastly agriculture and rural affairs, the areas administered by ORDAC.

This office is a regional industrial and commercial public undertaking (EPIC), presided over by an Executive Councillor with a governing board of 35 members, including 17 Councillors from the Corsican Assembly, 14 members of socio-professional groups and four representatives of the Office's staff. The Particular Statute empowers the CTC to set agricultural policy, which is implemented by ODARC. From this administrative base, unique in France, ODARC has drawn up a rural development plan (PDR) for the present programme phase, acting in association with the Corsican Assembly, the French Government and the European Union. The plan is specific to the Island and quite distinct from the plan for Metropolitan France and its overseas departments and territories. The Corsican PDR (PDRC) is the responsibility of the Corsican Executive Council (administrative authority) and ODARC (funding body). The office is also directly responsible for managing European funds once they have been transferred from the CNASEA, which further highlights its distinctive identity. The PDCR provides for measures that are quite different from those in the Metropolitan French plan. Once the Corsican Assembly had defined its agricultural and rural policy during discussions on 22 March 2002, ODARC drew up the PDRC with a view to continuing and finishing the work of implementation begun under the former plan. The main objectives were to continue the task of equipping farmers, organise our industries, encourage start-ups and give a boost to product quality by encouraging producers to obtain distinctive labels or practise organic agriculture. *(Editor's note: The Law of 22 January on Corsica stipulates that the Collectivité Territoriale de Corse shall set forth, in the sustainable land-use planning scheme, the broad guidelines for agricultural, rural and woodland development on the island. Implementation of these guidelines is the responsibility of the ODARC.)*

**Q - What are the main objectives of Corsica's current agricultural and rural development policy and what are the emerging challenges?**

The priority objects stem from the aforementioned considerations and from the situation after 2014, in so far as it can be forecast. The main issues have to do with reform of the CAP to cater for 27 countries at different stages of development, the dispute over its financial weight, and the pressure exerted by the WTO. There is also the uncertainty surrounding the national financial situation following the economic crisis and the record level of debt in France. We therefore consider it essential to continue the task of equipping our farms, make progress on quality and encourage start-ups.

Furthermore, given that Corsica is the least favoured of the French regions, largely as a result of the credit allocation method adopted nationally for the first pillar of the CAP, we are faced with a very specific challenge on that front as well.

**Q - Could you give examples of the success of these policies and of any particularly instructive experiences you have had in the past few years?**

The most striking progress since 22 March 2002 has been in sectors that have embraced quality standards and recognised the importance of Protected Designation of Origin status (PDO) for their wines, honey, chestnuts, and vegetable oils, and (in the dairy sector) "Brocciu" cheese. Our pig breeders are well on the way to gaining PDO status for their pork products. Our clementines already have a Protected Geographical indication (PGI) and producers of kiwis, grapefruit, plums, hazelnuts and lamb/kid products are taking steps to obtain the same label. We might also mention the organic sector, which is gaining ground day by day. Some farms concentrate on aromatic plants and, following a certain boom in sales of *"Immortelle de Corse"*, are now seeking PGI status for this essential oil. The establishment of 412 new farms since 2000 has not been sufficient to compensate for the 5% decline in farms, mainly in the periurban zone (in 2009 there were 2,298 farms), although the start-up rate has still been higher than the national average.

**Q - What cooperative ventures in agriculture and rural development has Corsica been involved in with other Mediterranean regions or regional institutional partners?**

The Corsican region participates actively in a number of inter-regional networks:

- AREPO, "European Association of Geographical Indications", an institutional and professional network, currently comprising 27 regions from five European countries, which seeks to ensure that original products, closely associated with a particular territory, are not overrun by the products of "globalised agriculture".

**MAI Montpellier**

The first Global Conference on Agricultural Research for Development (GCARD) will be held in Montpellier from 28 to 31 March 2010. More than 400 people from all over the world will be meeting to discuss priorities for agricultural research.

Conference events will include an exhibition devoted to Mediterranean research and innovation in agriculture and food. MAI Montpellier will be responsible for the preparation of this exhibition.

- GMO Free Network. The Collectivité Territoriale de Corse has ratified the "Charter of the Regions and Local Authorities of Europe on the Coexistence of Genetically Modified Crops with Traditional and Organic Farming".
- RURACT. This is a cooperation network bringing together 55 Europeans regions (from 16 member states) which are politically committed to the promotion of rural innovation.

Corsica is also working in partnership with the Italian Regions of Liguria, Tuscany and Sardinia on two projects that come under the EU's Operational Programme: Italy – Maritime France, 2007-2013 (a cross-border initiative involving Corsica, Liguria, Tuscany and Sardinia):

- TERRAGIR which seeks to set up a crossborder network to encourage innovation in the promotion of traditional rural products.
- BIOMASS whose aim is to promote biomass as a renewable energy source.

Lastly, Corsica is the leader of two projects that form part of the European Commission's Med 2007-2013 programme (a cross-border territorial cooperation programme involving countries on the Northern Shore of the Mediterranean):

- AGRISLES. In order to increase the effectiveness of their agricultural development policies, the Mediterranean island regions are working together to find better solutions to similar problems. Individual regions have difficulty overcoming these problems, which are closely related to their geographical isolation and the low critical mass of their output.
- FORET MODELE. The aim of the project is to provide a means of coordinating regional policies on the basis of a joint definition of a "Mediterranean model forest". It will also involve planting a first model forest in each partner region.

***Interview by the Editorial Board***

## News in Brief

### Liberalisation of agricultural trade between the European Union and Egypt

On 9 October 2009, after several months of negotiation on agricultural issues, The European Union and Egypt approved an amendment modifying the commercial provisions of their association agreement, which had been in force since 2004. Under the new agreement, all Egyptian exporters of agricultural and fisheries products will be able to access the European markets without paying import duties or being subject to quotas, except in the case of 11 products. Quotas on garlic and strawberries, for example, have been set at 4,000 and 10,000 tonnes respectively. For some other fruit and vegetables, including tomatoes, cucumber, marrows, artichokes and grapes, whose export to the EU is considered "delicate", some restrictions have been maintained, notably in terms of the scheduling of exports. Grapes, for example, can only be exported to the European market until mid-July, when Spain begins production, although Egyptian production normally continues until the end of October. On the other hand there are no longer any restrictions on the import of citrus fruits and potatoes, which account for 40% of the total value of Egypt's agricultural exports, or on the vast majority of fruit and vegetables. At the same time, Egypt is letting in European agricultural products, with the exception of certain items including tobacco, alcohol, pork, chocolate, dough and confectionaries. The new agreement cannot enter into force before it has been approved by the EU Council of Ministers and the European Parliament. The agreement provides for renegotiation of its terms two years after the entry into force of the amendment. The Egyptian authorities believe that this liberalisation will open up new opportunities to Egyptian exporters and that sales to the EU could double within a few years. However, Egyptian exporters are on the whole rather sceptical about the theoretically beneficial results of this liberalisation of agriculture, notably because of the non-tariff barriers, which are still very much in place, and the difficulties encountered by producers in adapting to the European judicial framework.

In particular, the sanitary and phytosanitary standards to which agricultural and agrifood goods are subject when they enter the European Market are extremely strict. The Egyptian potato, for example, has been banned from entering the EU market between August 2009 and next season on account of its brown spots, which are symptomatic of a disease that attacks the root but would not appear to threaten human health.

**CIHEAM - AFD**

The study on the outlook for agricultural policies in North Africa, which CIHEAM had been working on since 2008, was completed in the autumn of 2009. The AFD had commissioned the study to help it redefine its effort to develop agricultures in the zone.

The study has been published in the Options méditerranéennes collection and will be available in January 2010. It will also be freely accessible on the websites of CIHEAM and the AFD.

## Common approaches to meeting the challenge of food security

On 29 October 2009, the 15th session of the Arab Maghreb Union (AMU) Ministerial Committee on Food Security was held in Marrakech. Representatives of the Maghreb's five ministers of agriculture and fisheries used the occasion to address regional agricultural issues and consider measures to meet the challenge of food security.

During the meeting the Moroccan Minister of Agriculture and Maritime Fisheries, Aziz Akhennouch, emphasised that achieving food security and strengthening the agricultural sector depended very much on the promotion of public and private investment to increase agricultural output and conserve fish stocks. The Minister believed it was necessary to improve infrastructure (roads and ports) and called for realistic and feasible plans of action to deal with the threats to food security in the Maghreb. He said that the Maghreb countries would need to coordinate their national policies more closely, since the challenges posed by climate change and diminishing resources, particularly water, meant that a common approach was now a strategic necessity. He also pleaded for a clearer statement of the Maghreb countries' positions at global forums and conferences and for the inclusion of agricultural questions on the agendas of these meetings. Lastly he defended the idea of greater cooperation on scientific research and agricultural education to enable the region to cope with threats facing it, such as epizootics.

The address by the Secretary of the Libyan General People's Committee for Agriculture and Maritime and Animal Resources, Aboubaker Al Mabrouk Mansouri, was on the same lines. He asked above all for a joint effort to promote investment in the agricultural sector, responsible management of water resources, and improvements in infrastructure and marketing networks, and also for an expansion of scientific research. The other speakers all spoke of the need to redouble efforts and to ascribe more importance to the agricultural sector. Lastly the Secretary General of the UMA, Habib Ben Yahia, reminded the meeting that food security was a crucial factor in maintaining stability and peace in the North African countries.

## A modern conception of the Mediterranean diet

An international conference on "the Mediterranean diet as a model of a sustainable diet" was held on 3 November 2009 in Parma by CIISCAM (International Inter-University Centre for Studies on Mediterranean Food Cultures). This event, which brought together experts in nutrition from various countries in the Mediterranean region, was held in collaboration with a number of scientific partners, including the FAO, the Universities of Parma and Rome-La Sapienza, INRAN *(Istituto Nazionale di Ricerca per gli Alimenti e la Nutrizione)* and CIHEAM. The Centre played an active role in the organisation of the conference and also in the scientific debate on the Mediterranean diet.

Participants were presented with a new food pyramid, which was intended to provide a graphic representation of the benchmark "model diet" for the peoples of the Mediterranean Basin, as tailored to 21st century conditions. This new pyramid highlights the fundamental importance of physical activity and of conviviality at meal times, and recommends that preference be given to local, seasonal products. Drawn up on the basis of the latest scientific analyses, which point to a close correlation between the Mediterranean diet and human health, it offers the first concrete illustration of a main-meal diet pattern, showing how often different types of food should be consumed. It is intended for those aged between 18 and 65.

This meeting, and the presentation of the new food pyramid, has given still greater weight to the Mediterranean diet's candidacy for the UNESCO list of intangible cultural heritage. Apart from helping to promote typical Mediterranean products and develop traditional local agriculture in the region, the work on the Mediterranean diet has also served as a reminder that questions of food and nutrition are closely related to world health issues. While hunger increases dramatically, another regrettable trend is gaining ground: that of overweight and obesity. Regarded as a full-blown epidemic, obesity mainly affects the rising generations and urban populations. It is prevalent in every region in the world and could affect nearly 700 million people by 2015, according to the latest estimates by the World Health Organization.

## Publications

**World Bank**, *World Development Report 2010: Development and Climate Change*, Washington DC (USA), October 2009.

**Robine Mearns *et al* (Eds.)**, *The social dimension of climate change: equity and vulnerability in a warming world,* World Bank Publications, Washington DC (USA), December 2009.

**Ali Nefzaoui, Khalid El Harizi and Mohamed El Mourid (Eds.)**, *Autonomisation des ruraux pauvres et volatilité des politiques de développement en Tunisie,* ICARDA, Aleppo (Syria), May 2009.

**UNCTAD,** *World Investment Report 2009: Transnational Corporations, Agricultural Production and Development*, Geneva (Switzerland), September 2009.

**Milad Yacoub**, *Le développement local en Égypte : rencontres associatives dans un village*, L'Harmattan, Paris, July 2009.

**International Food Policy Research Institute (IFPRI),** *Climate Change: Impact on Agriculture and Costs of Adaptation,* Food Policy Report, Washington D.C. (USA), September 2009.

**FAO**, *The State of Food Insecurity in the World 2009. Economic crises - impacts and lessons learned,* Rome (Italy), October 2009.

**Humanitarian World Forum**, *Human Impact Report: Climate change, The Anatomy of a Silent Crisis*, Geneva (Switzerland), 2009.

**International Food Policy Research Institute,** *2009. Global Hunger Index Report. The Challenge of Hunger: Focus on Financial Crisis and Gender Inequality*, IFPRI, Washington D.C. and Dublin, October 2009.

## Events

**11 - 12 February 2010 – Sfax (Tunisia)**
International seminar "Environment and sustainable development: the contribution of the social sciences", organised by GEDES and the University of Sfax. *(information)*

**17 - 20 February 2010 - Nuremberg (Germany)**
BioFach, World Organic Trade Fair, under the patronage of the International Federation of Organic Agriculture Movements (IFOAM). *(information)*

**28 - 31 March 2010 – Montpellier (France)**
First Global Conference on Agricultural Research for Development (GCARD). *(information)*

**11 - 15 April 2010 – Alexandria (Egypt)**
BioVisionAlexandria (BVA), organised by the Bibliotheca Alexandrina and the World Life Sciences Forum, on "Health, Food and Agriculture, and Environment". *(information)*

**3 - 5 May 2010 – Setif (Algeria)**
Fourth Mediterranean meeting on no tillage and conservation agriculture, organised by Associations *Trait d'Union pour une Agriculture Moderne* and *Formation pour l'Epanouissement et le Renouveau de la Terre*.

**26 - 28 May 2010 – Samsun (Turkey)**
International Soil Science Congress on Management of Natural Resources to Sustain Soil Health and Quality, in collaboration with the Soil Science Society of Turkey. *(information)*

**31 May - 2 June 2010 - Chefchaouen (Morocco)**
3rd *Planète Terroirs* international Forum, organised by Terroirs&Cultures, on "Diversity, sustainability, *terroirs* and development". *(information)*

**Mediterra 2009**

The Italian version of Mediterra 2009, the CIHEAM annual report, has just been published by Laterza. This edition was translated by teams from MAI Bari with aid from the Puglia Region.

This edition of Mediterra will be the 3rd to be made available in Italian following those of 2007 and 2008.

Mediterra 2009, produced in collaboration with Blue Plan, analyses the new dynamics of the Mediterranean rural worlds with a view to assessing progress in the implementation of sustainable development strategies and taking a fresh look at the policies applied in the rural world.

# CIHEAM website

## *Recent publications*

### CIHEAM Analytical Notes

- *Developments and necessary adjustment of the agricultural sector in Algeria*, Mohamed Naïli, No 52, September 2009.
- *Egypt: Sustainable agricultural development strategy, towards 2030*, Adel M. Abul-Naga, No 53, December 2009.
- *Current events in Mediterranean Agriculture (September-December),* CIHEAM (collective), No 54, December 2009.

### CIHEAM Briefing Notes

- *Mediterranean agricultures in face of the climate challenge*, Paula Cusí Echaniz, No 62, November 2009.
- *Food security in the Mediterranean: A Strategic Priority for the Union for the Mediterranean?* CIHEAM, No 63, December 2009.
- *Adaptation of agricultural policy in Tunisia to climate change*, Meriem Baccouri, No 64, December 2009.

### NewMedit

- Summary of the 03/2009 edition of the review, September 2009.

### CIHEAM Watch Letter

- Watch Letter No 10, "Agricultural policies in the Mediterranean Region", Summer 2009.

### Reports

- Boubaker Karray, Monji Msallam et al., *Programmes et acquis de recherches pour la rénovation de la filière huile d'olive et l'amélioration de ses performances*, Institut de l'Olivier, Tunisie, October 2009.

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**CIHEAM Website and Observatory**

tools for analysis and discussion
of Mediterranean agriculture, rural affairs and food

**www.ciheam.org**

**The Watch Letter**

Every quarter CIHEAM issues its Watch Letter in English and French.

The next issue will be published in March 2010 and will be devoted to climate change and agriculture in the Mediterranean Region.

To receive the Watch Letter, contact:
**observatoire@ciheam.org**