

## Analysis

### The development of the Mediterranean aquaculture sector

When analysing total fisheries production in Mediterranean countries (capture and aquaculture), the statistics show a more or less stable trend, which is the result of a growing aquaculture sector that compensates for significant decreases in capture productions. Thus, in the year 2005, aquaculture production represented about 26% of total volume production, captures in Mediterranean and Black Seas accounting for 23%, and the rest coming from captures by countries in other seas.

Another element of interest is to consider its relative importance compared to the fishery sector. In previous sections the turnover of products from capture fisheries in the region was estimated at 10,000 million euro. Today the turnover of aquaculture production is around 3,000 million euro, that is, around 30% of the fishery sector economic weight.

As regards the role of aquaculture over fisheries, large differences exist between Mediterranean countries. Whereas for the main EU Mediterranean countries aquaculture represents about 27% of the total production, in some countries, such as Egypt and Israel, aquaculture already represents 60% and even 84%, respectively.

While Israel bases its development on high intensive production systems requiring large investments, Egypt does it with semi-intensive production systems aiming at satisfying local consumption. In the other extreme there are countries with a very low relative weight, partly due to the importance of capture fisheries or due to the lack of investment on aquaculture (e.g. Algeria, Portugal, Morocco, Tunisia).

Regarding aquaculture production, production is dominated by some countries: Egypt, France, Spain, Italy, Greece and Turkey; Egypt being the country that has shown the greatest expansion in the last years. These six countries supply 95% of the total production in the region.

Whilst in Spain, France and Italy the production is mainly based on molluscs (mussels, oysters, and clams, respectively), in Egypt the production is based in the semi-intensive production of freshwater (i.e. tilapia and carp) and marine finfish species (i.e. mullet). Greece and Turkey, among others, concentrate most of their production in the intensive production of finfish (seabream, seabass and trout).

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## CIHEAM

Founded in 1962,  
CIHEAM  
is an intergovernmental  
organisation comprising  
thirteen member  
countries from the  
Mediterranean Basin.

CIHEAM  
is made up of a  
General Secretariat  
(Paris) and four  
Mediterranean  
Agronomic Institutes  
(Bari, Chania,  
Montpellier and  
Zaragoza).

In pursuing its three  
central missions  
(education, research  
and cooperation)  
CIHEAM has established  
itself as a reference  
in its fields of activity:  
Mediterranean  
agriculture, food and  
rural development.

At present,  
Mr Abdelaziz Mougou is  
President of CIHEAM and  
Mr Bertrand Hervieu is  
Secretary General.

In European countries, the aquaculture sector, after a rapid increase observed over the last decades, seems nowadays more or less stabilised. This fact is probably due to several factors, such as the decrease of prices (normally seen after fast growth periods) observed for several marine finfish species (i.e seabass and seabream), to the scarcity of new potential production sites, to environmental concerns and new regulations and/or because the main production volumes are still concentrated in a few species. Actually, in these countries there are no real expectations, in the short term, for new species to be produced in large commercial volumes. In European countries, the possibilities of expansion may come from the development and application of new production technologies (recirculation systems and offshore production) which may help the sector to overpass environmental and space scarcity constraints.

As regards North African countries (with the exception of Egypt) aquaculture is not fulfilling the initial expectations that prevailed one or two decades ago. There, aquaculture represents a very small percentage of total production, and in some cases the sector has experienced the failure of some companies. As regards non-European countries, the importance of aquaculture in Egypt has been highlighted as well as its very fast growth over the past ten years (from 72,000 t in 1995 to 540,000 t in 2005). Egypt, with an aquaculture sector based on semi-intensive production techniques, is the leader in some finfish species (tilapia, mullet and carps). Turkey and Israel are also successfully developing the aquaculture sector, basing their production on more intensive production techniques.

### Aquaculture production by country (in tonnes)

Countries	1975	1985	1995	2000	2005
Bulgaria	6,188	10,560	46,150	36,540	31,450
Cyprus	31	56	452	1,878	2,333
France	164,937	226,903	280,786	266,802	258,480
Greece	1,520	2,377	32,644	95,418	106,208
Italy	51,088	104,301	214,725	216,525	180,943
Malta			904	1,746	736
Portugal	232	6,402	4,981	7,537	6,485
Romania	32,316	42,414	19,830	9,727	7,284
Slovenia			789	1,181	1,536
Spain	168,312	266,608	223,965	312,171	221,927
<b>EU-Med Zone</b>	<b>424,624</b>	<b>659,621</b>	<b>783,691</b>	<b>916,639</b>	<b>789,077</b>
Algeria		141	369	351	368
Egypt	9	41,846	71,815	340,093	539,748
Libya			100	100	266
Morocco	59	160	2,072	1,889	2,257
Tunisia	2	147	960	1,553	2,665
<b>North Africa</b>	<b>9,061</b>	<b>42,153</b>	<b>74,947</b>	<b>343,635</b>	<b>544,936</b>
Albania	85	1,208	340	307	1,473
Croatia			4,007	6,674	13,782
Israel	12,441	12,954	16,180	20,098	22,404
Lebanon	5	300	300	400	803
Syria	30	2,810	5,857	6,797	8,533
Turkey	770	2,700	21,607	79,031	119,177
Ex-Yugoslavia	16,968	11,086			
<b>Other countries</b>	<b>30,299</b>	<b>31,058</b>	<b>50,695</b>	<b>117,021</b>	<b>170,726</b>
<b>Total</b>	<b>463,984</b>	<b>732,832</b>	<b>909,333</b>	<b>1,377,295</b>	<b>1,504,739</b>

Source: FAO FISHSTAT

## Special CIHEAM Publication

This article provides an overview of aquaculture in the Mediterranean and is based on work conducted by B. Basurco and R. Franquesa for the report

"The Mediterranean fisheries sector: facts and figures", which was prepared for the 7<sup>th</sup> meeting of CIHEAM member countries' Ministers of Agriculture and Fisheries, held in Zaragoza (Spain) on 4 February 2008.

The full report, together with other analyses, is soon to be published in a special edition of the CIHEAM review  
**Options  
Méditerranéennes**

Production figures in value and also by species groups confirm the same recent trend observed in production volumes. Thus, despite an increase in production volumes of 9% for the whole region for the 2000-2005 period, production values have decreased by 3%. As regards the species groups, the production of Mollusc (bivalves) and Diadromous fishes (trout) has declined in the past 5 years. On the contrary, Marine fishes and Freshwater fishes have experienced a significant increase in production volumes, which however have experienced a negative growth in value. Currently, Marine fishes account for 25% of the volume and 43% of the value of aquaculture production.

Currently, marine fishes account for 25% of the volume and 43% of the value of aquaculture production. As regards Molluscs, it is interesting to note how the value of the clam, mussel and oyster sectors is more or less similar, although with different production weight. When considering finfish, the high value of the seabass (moronidae) and seabream (sparidae) sectors should be pointed out, followed by the trout (salmonidae), and the tilapia (cichlidae), the mullet (mugilidae) and the carp (cyprinidae).

Value (tonnes)						
Species	1985	1995	2000	2005	Share in 2005	Growth 2000-2005
<b>Aquatic plants</b>	6	5,1	3,032	45	0.0%	n.d.
<b>Crustaceans</b>	88	273	276	3,549	0.1%	n.d.
<b>Diadromous fishes</b>	75,328	148,180	179,446	156,123	10.4%	-13.0
<b>Freshwater fishes</b>	115,757	117,06	295,476	421,321	28.1%	42.6
<b>Marine fishes</b>	7,425	69,227	255,087	383,784	25.6%	50.5
<b>Molluscs</b>	523,283	569,862	644,329	540,285	36.0%	-16.1
<b>Total</b>	721,793	904,329	1,374,338	1,501,513	100.00%	9.3
Value (thousands of euros)						
Species	1985	1995	2000	2005	Share in 2005	Growth 2000-2005
<b>Aquatic plants</b>	1	1,453	10,904	13	0.0%	n.d.
<b>Crustaceans</b>	654	3,393	3,076	31,627	1.06%	n.d.
<b>Diadromous fishes</b>	317,271	329,998	432,121	395,354	13.26%	-8.5
<b>Freshwater fishes</b>	273,932	187,451	593,524	472,358	15.84%	-20.4
<b>Marine fishes</b>	32,576	367,817	1,304,920	1,287,237	43.18%	-1.4
<b>Molluscs</b>	575,146	643,769	734,552	794,748	26.66%	8.2
<b>Total</b>	1,199,578	1,533,879	3,079,096	2,981,338	100.0%	-3.2

Source: FAO FISHSTAT

Bearing this information in mind, we may conclude that the aquaculture sector is running the risk of facing development constraints and may even experience a slowdown in the future in many countries, if the sector is not able to generate more added value. A possible reading is the existence of a common business strategy based mainly on the increase of production. This strategy, accompanied by a reduction of production costs, can enable very competitive prices, but can also narrow margins too much, pushing many small companies out of the market. This has been observed, for instance, in the case of seabass and seabream.

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### Interview

**Zoubeir Alouini**, Director of the Higher Institute of Fisheries and Aquaculture (ISPA), Bizerte, Tunisia

***Q - Could you give an overall assessment of Tunisia's experience in the field of aquaculture?***

Tunisia's experience in aquaculture is fairly long-standing, going back to the sixties. It began as a private sector initiative with the establishment of a shellfish farm in Bizerte in 1963 and a marine hatchery in Ghar el Mehl in 1973. The shellfish facility was later taken over by the National Fisheries Office (ONP), which continued its operation. In the seventies the ONP began to construct ponds in the lagoons of Monastir and Tunis and to stock certain dam reservoirs for fishing. Experiments in freshwater pisciculture conducted in a dam reservoir by the National Scientific and Technical Institute for Oceanography and Fisheries (now called the National Institute of Marine, Sciences and Technologies) held out hopes for the rapid development of this activity.

At the beginning of the eighties, one of the first Mediterranean hatcheries was constructed in the south of Tunisia by private operators, supported by regional banks. Since then, despite the success of research work on both marine and fresh water species, freshwater pisciculture in indoor and extensive systems is the only activity to have undergone sustained development.

Tentative initiatives have been undertaken by private operators in two main areas. First, shellfish farming: there are currently four shellfish facilities in operation in Lake Bizerte, producing mussels and oysters. Mussel spat are collected locally from the Bizerte lagoon and juvenile oysters are imported from abroad. In 2005 these facilities produced 120 tonnes, although potential output is five times that amount. Second, marine pisciculture: five private facilities are currently in operation, producing sea bass and sea bream. In 2005, 1,208 tonnes were produced in the three facilities in operation at the time.

The past few years have seen the rise of a new aquaculture practice, which represents a ground-breaking innovation in breeding techniques: the fattening of red tuna. It provides not only for a weight gain of more than 20% in just a few months, but also ensures that the product can be sold on the international market at the best prices when the tuna meat is fatty. In 2003 four new red-tuna fattening operations were established, which helped double the total output. Tuna destined for fattening is caught by fishermen and transferred alive in cages submerged in the sea. It is kept there for a few months for fattening and is then sold fresh at a relatively high price.

It should be pointed out here that the total output from Tunisian aquaculture in 2006 was about 2,981 tonnes, comprising 1,140 tonnes of sea fish (sea bass and sea bream), 1,150 tonnes of fresh-water fish, 511 tonnes of red tuna and 180 tonnes of bivalve shellfish (mussels, oysters and clams).

***Q - How do consumers respond to Tunisian aquaculture products?***

Tunisian consumers are still quite wary about aquaculture products. Farmed sea fish are generally thought to have less nutritional value than wild fish. Fresh-water fish for their part tend to be judged by their flavour and are considered to be inferior to their salt-water cousins in this respect. Bivalve molluscs (mussels, oysters and clams) tend not to be fully appreciated by Tunisians either in terms of flavour and nutritional value or as a culinary ingredient. Consumers' reservations are further increased by the problem of biotoxins associated with these species.

On the other hand, the rise in prices and the shortage of fisheries products in recent years have prompted many consumers to try aquaculture products, particularly sea and fresh-water fish. In the end more information and media coverage is needed if demand is to increase.

## ISPAB

Founded in 2003, ISPAB (Higher Institute of Fisheries and Aquaculture, Bizerte) is a higher education and research establishment falling under the supervisory authority of the Ministry of Agriculture and Hydraulic Resources and the Ministry of Higher Education, Scientific Research and Technology.

ISPAB carries out research in a range of fields: aquaculture, fishing techniques, the aquatic environment, refrigeration engineering and conservation and processing of sea products.

ISPAB students currently study fishing, aquaculture and related matters. Upon completion of their three-year university course they are awarded the higher technician's diploma.

In order to comply with the BMD system requirements, ISPAB will be offering five courses as of 2008/2009: fishing technology, aquaculture, maritime environment, refrigeration and processing of fisheries products, and maritime instrumentation.

## Information

[www.iresa.agrinet.tn/fr/instit/ispab.htm](http://www.iresa.agrinet.tn/fr/instit/ispab.htm)

### ***Q - In your opinion, which areas of Tunisian aquaculture might attract local and foreign investors in the future?***

With a coastline of some 1,350 km, Tunisia offers numerous possibilities for the aquaculture sector. More importantly, it offers the right set of conditions for success: the climate is fairly well suited to the biology of the Mediterranean species most in demand, the natural environment is still well preserved compared with that of other Mediterranean coastlines, there is a generation of trained executives who have demonstrated their ability to manage this work, and it is close to the European market. Moreover Tunisia is on the A-list of countries eligible to export sea-food products to the EU market by virtue of the standard of hygiene in its private facilities and the effectiveness of its procedures for monitoring the marine environment and its products.

There is potential for a great many Tunisian aquaculture sectors. In marine pisciculture the submersible cage technique offers the most appropriate solution to the problem of selecting the best site. Species that bring in a fair return on the local and international markets include red tuna, croaker, meagre and *Diplodus puntazzo*. In continental pisciculture, integrated aquaculture in pools laid out next to dam reservoirs and hill lakes provide for optimum exploitation of fresh-water resources. Walleye, black bass and eels are of particular interest to operators on account of their flavour and market value.

In lagoon environments, the technique of suspending shellfish cages from wires is used to keep costs down, widen the range of possible sites and ensure greater mobility in the event of eutrophication or pollution. Species with the most potential are the flat oyster (*Ostrea edulis*) and the Pacific oyster (*Crassostrea gigas*) on account of their high market value. Lagoons are also used for algoculture, both of macrophytic species, notably *Gracilaria verrucosa* for its value in agar production, and microalgae, such as spirulina and *dunaliella* for their use in agrifood and various other applications.

In geothermal water, the tilapia (*Oreochromis niloticus*) has shown particularly good zootechnical performance and has adapted perfectly well to the environment. New directions in Tunisian aquaculture that might also be of interest to future investors include farming of frogs, sponges, shrimps, pearls, and squid, given the constant demand for these products and their increasing market value.

### ***Q In what ways might other Mediterranean countries contribute to the sustainable development of Tunisian aquaculture?***

Neighbouring countries could make a useful contribution by sharing technologies and experiences relevant to the different sectors. The experience of certain countries in recycling aquaculture waste, organic matter and mineral muds would certainly be of help in improving the monitoring and control procedures needed to preserve inland lake areas. It is also worth noting that other possibilities include developing models to determine long-term prospects for aquaculture, taking account of the trophic capacity of the environment, the socio-economic context, and above all the potential offered by the species in question.

We also propose that cooperative work with other countries in this field be consolidated to improve the quality of inert or consolidated feed and ensure that organic ingredients are introduced into the feed ration. Moreover it is now imperative that Tunisia take steps to improve the development of hatcheries, which play an essential role in aquaculture. On this score we urge the different players to work collectively and transparently to preserve biodiversity and protect the environment in general and the aquaculture environment in particular.

## **Interview by Hassane Tlili**

Journalist specialising in agricultural and environmental questions.

with contributions from Meher and Mouna BELLAKHAL (ISPA, Bizerte)

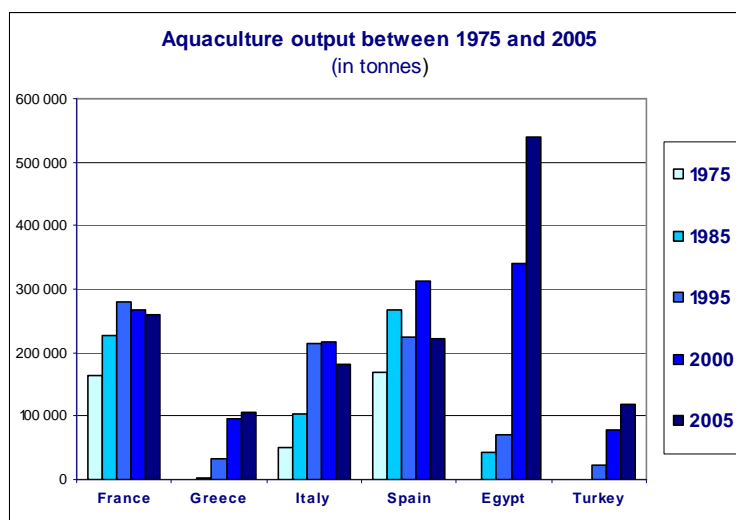
## Statistics and information

- **8.8%:** annual average growth rate of pisciculture sector worldwide between 1970 and 2005, which makes it the world's fastest growing food production sector in the past quarter of a century.
- **45%:** share of aquaculture in total world food consumption in 2007 (48 million tonnes) compared with 9% in 1980 and 4% in 1970.
- **85 million:** annual output level the aquaculture sector must achieve by 2030 to satisfy human demand for fish worldwide
- **70%:** China's share in world aquaculture output in 2005 (compared with 3.5% for the EU and 0.5% for the countries to the South and East of the Mediterranean).
- **91% :** share of aquaculture in Egypt's total fish output (marine and freshwater); the sector generates around 35,000 direct and indirect jobs and offers two specialities: mullet (world's biggest producer) and tilapia (world's second biggest producer)

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Source  
FAOSTAT FISH



## Links

**FAO – FAO Fisheries and Aquaculture Department**

<http://www.fao.org/fishery/>

**General Fisheries Commission for the Mediterranean (GFCM)**

<http://www.gfcm.org/gfcm>

**Instituto espanol de oceanografia (IEO)**

<http://www.ieo.es/inicial.htm>

**Fisheries Research Institute (FRI) - Greece**

<http://www.fishri.gr/>

**Malta Centre for Fisheries Sciences**

[http://www.maltafisheries.gov.mt/mcfs\\_aquaculture.htm](http://www.maltafisheries.gov.mt/mcfs_aquaculture.htm)

**Institut Français de Recherche pour l'Exploitation de la Mer (IFREMER)**

<http://www.ifremer.fr>

**Istituto Centrale per la Ricerca scientifica e tecnologica Applicata al Mare (ICRAM)**

<http://www.icram.org>

### Close-up on CIHEAM's 7th Ministerial Meeting

#### Zaragoza (3-6 February 2008)

CIHEAM organised the first meeting of its 13 member countries' Ministers of Agriculture in 1999 in Rome (Italy) with a view to establishing a dialogue between Mediterranean countries on agricultural and rural issues and promoting a common approach to them.

The 7<sup>th</sup> meeting was held from 3 to 6 February 2008 in Zaragoza at the invitation of the Spanish authorities and the Minister of Agriculture, Ms Elena Espinosa. Two Mediterranean themes were on the agenda: management and conservation of fish stocks, and water resources and agricultural production.

Regional cooperation in the effort to promote sustainable management of fish stocks and water resources in the Mediterranean Basin must be enhanced as a matter of urgency. This is the main idea to emerge from the recommendations adopted by the Ministers at the close of their 7<sup>th</sup> meeting in Zaragoza on 4 February 2008.

As to the increasing threats to fish stocks, the Ministers drew particular attention to "overfishing, pollution, invasion by non-indigenous species and degradation of the marine environment". In order that these threats might be countered effectively, they proposed the adoption of various measures as part of a cooperative effort based on solidarity. They consisted in:

- Basing fisheries policies on an analysis of objective, reliable data;
- Increasing and sharing knowledge relating to assessment of stocks and protective measures;
- Further harmonising regulations on fishing, while taking account of ecosystems and applying the precautionary principle.

Ministers believed it was necessary to improve coordination between players in the fisheries sector and those working to develop high-quality aquaculture. Countries that were members of both CIHEAM and the European Union called upon governments to take due account of the Mediterranean zone and its marine resources in the 7th Framework Programme for Research and Development (FP7).

In the course of his address, Mr Joe Borg, the European Commissioner responsible for fisheries and maritime affairs, told participants that a conference on the new integrated EU/Mediterranean maritime policy was to be organised for June 2008. At pains to point out that this event would involve all the Mediterranean countries, he informed the meeting that it had been organised at the joint initiative of the European Commission and Slovenia, which currently held the presidency of the Union.

As to the management of water resources, which were becoming increasingly rare and were threatened by - among other things - unsound irrigation practice and climate change, Ministers called for the introduction of appropriate checks in public policy on water. They accordingly urged the Mediterranean countries to adopt further measures designed to rein in water demand and modernise infrastructure. Ministers also recommended that CIHEAM, an organisation reputed for its expertise in agriculture, food and sustainable rural development, should help the Mediterranean countries, through its education and cooperative research work, in the task of identifying the water management techniques and policies and the irrigation zones that were most appropriate to each context.

Matters relating to basic agricultural products, notably cereals issues and food safety, were discussed at the meeting and were the subject of two recommendations:

- that the 8th meeting of CIHEAM member countries' Ministers of Agriculture, to be held in Turkey in 2009, be devoted to the strategic cereals market;
- that members support the Spanish request to have the Mediterranean diet inscribed on UNESCO's List of Intangible Cultural Heritage.



## News in brief

### 2008: International Year of the Potato

The United Nations Organization has declared 2008 to be the "International Year of the Potato", the object being to raise awareness among decision-makers and civil society representatives of the importance of the potato and the agricultural sector in general in fighting malnutrition and poverty and preserving natural resources. Throughout 2008 the potato will be celebrated internationally at a variety of events for its contribution to human health and the genuine benefits it offers in the field of sustainable development. First cultivated in the Peruvian and Bolivian Andes, the potato is said to be nutritious and rich in proteins and vitamins. Moreover, it is suited to nearly all climate conditions, will grow in poor soils, and consumes less water than other crops. Last but not least, about 85% of the plant is edible compared with only 50% of cereals. Brought to Europe by the Spanish in the 16<sup>th</sup> century, the potato is grown throughout the entire world on some 195,000 km<sup>2</sup>. China is the world's largest producer, growing 70 million tonnes out of a total of 300 million.

### Reform of EU wine sector finally adopted

On 19 December 2007, after lengthy and often very difficult negotiations, the European Commission and the EU member states finally reached agreement on reform of the wine sector, which has been in serious difficulty for a number of years. The plan now adopted will mainly involve the grubbing up on a voluntary basis of 175,000 hectares over a period of three years, with payments of degressive premiums to vine growers. This measure is expected to encourage producers to give preference to quality products. The reform is also designed to ensure complete liberalisation of plantation rights as of 2015 so that more can be produced in areas where demand is high. Another no less important measure on which the Commission is counting to help the sector out of its present difficulties consists in gradually winding down the funding of certain practices, such as crisis distillation and fortification of wine with grape must. The first enables wine growers to transform unsold stocks of wine into spirits. The second is frequently resorted to in southern European countries. For the most part chaptalisation, a common practice in northern European countries, is retained under the new arrangements. It consists in adding sugar to the wine in order to increase the alcohol level and thus compensate for the vineyards' lack of exposure to sunlight. The Commission is convinced that the reform could eventually prompt European producers to favour quality products capable of competing with wines from Australia, South Africa, South America or the United States, which are reputed to be of good quality and reasonably priced. However, European vine growers are afraid that certain aspects of the reform, most notably the liberalisation of planting rights, might gradually lead to the demise of traditions and *terroirs* and the industrialisation of wine production.

### Tunisia: good prospects for citrus fruit producers

It is the orange-picking season in Tunisia, and more particularly in the Cap-Bon region in the North-West of the Country. The latter is regarded as Tunisia's citrus Eldorado, producing as it does 85% of national output on the 10,500 hectares dedicated to the fruit. As was pointed out in the daily newspaper La Presse on 2 January 2008, this year promises a large harvest and therefore good economic results for the sector. If all varieties are taken together, the harvest is expected to bring in no less than 230,000 tonnes, a 20% increase on 2007 (when 181,000 tonnes were produced). The sector is expecting even better yields of the famous Maltese orange - a strategic asset in Tunisia's drive to export citrus-fruit - with harvests of up to 82,000 tonnes expected this year (a 25% increase on 2007). This speciality, representing about a third of all oranges produced in Tunisia, is widely exported, notably to the French market (where 25,000 tonnes are expected to be sold this year), and has contributed 11 million dinars (about 6 million Euros) on average to the Tunisian economy in recent years. It should be noted that the Tunisian citrus sector, which comprises as many as 8,700 farmers, has been able to achieve these excellent results because rainfall has been substantial in recent months and many young trees have now reached the age of seven or eight, when they become mature enough to bear fruit. More generally these figures reveal the scale of Tunisian efforts since the mid-nineties to galvanise the citrus-fruit sector using a carefully developed two-pronged strategy: expanding the area of land devoted to this activity and improving cropping techniques and phyto-sanitary protection.

## FORMDER

The object of the FORMDER Tempus project is to provide "polycentric", multidisciplinary training in sustainable development.

It brings together four establishments, each of which provides training in rural development, in order to help them update their theoretical course content (new themes) and meet the requirements of new development policies.

The four establishments are the Mediterranean Agronomic Institute of Montpellier (CIHEAM-MAIM), which is coordinating the project, the Faculty of Agriculture of the University of Cairo (Egypt), the University of Thessalie-Volos (Greece), and the Hassan II Agriculture and Veterinary Institute (Morocco).

Launched in 2004, the project will culminate in a final seminar at MAI Montpellier on 15 February 2008, which will be attended by all four partner institutions.

## information

<http://formder.iamm.fr/>



## News in brief

### New strategies for sustainable development of fisheries in Morocco

Several figures should be borne in mind in assessing the importance of the Moroccan fisheries sector. With 3,500 kilometres of coastline, the kingdom's annually renewable production capacity is estimated to be 1.5 million tonnes. In 2006 Morocco was the largest producer of fish on the African continent and 25<sup>th</sup> in the world, accounting for 1.5% of global output. Much of its operation involves a single species, the sardine (*Sardinia pilchardus*), of which Morocco is the world's largest producer and exporter. The sector contributes 2.5% of the kingdom's GDP and more than half its food exports. It employs 450,000 people including 152,000 seamen. Morocco is currently seeking to define new directions for fisheries management to ensure more sustainable fishing and more responsible exploitation of marine resources. The approach adopted is intended to conserve marine ecosystems while strengthening Morocco's position as an industrial fishing nation capable of supplying the world market with quality sea-food products. To this end, several objectives have been identified: maximisation of production, support for proximity policies, development of fisheries infrastructure and optimisation of the socio-economic repercussions of fishing. Appropriate technical recommendations have been put forward to strengthen Morocco's fishing sector: implementation of plans for the management and development of fisheries, development of aquaculture, improvement of monitoring procedures, introduction of programmes to conserve the marine environment, greater participation in the work of regional bodies responsible for management of fisheries and increased involvement in scientific research networks.

### Changes in the world agricultural markets hold out contrasting prospects

A recent report on *World Markets in Agricultural Produce by 2020*, by the IFPRI (International Food Policy Research Institute) and the OFCE (French Economic Policy Institute), reveals that the European Union is likely to derive very little benefit from the new world agricultural markets and that the rise in world food prices over the past few months will tend rather to benefit the United States, Brazil and Australia. This transformation in the world agricultural situation stems from a sustained increase in food demand, the emergence of biofuel (despite the increasing number of warnings about its development) and a moderate rise in living standards (leading to more consumption of processed products and meats). The report states that various regions in the world will quite probably see their agricultural output stimulated by the prevailing trend over the next ten to fifteen months. The authors of the report, noting that Europe is faced with overwhelming difficulties in the export market, explain that it will be unable to make the most of the opportunity presented by the rise in world food demand. As to cereals, the annual average growth rate for European exports between 2007 and 2015 is expected to be 0.7% compared with more than 2% for those of Australia and New Zealand. In the case of meat and livestock, it is expected to be less than 0.5% compared with nearly 3% for Brazil and more than 2% for the United States. The report also states that all agricultural prices are likely to go on rising by an average of 1% to 4% annually. In the space of a decade, the rise could be nearly 50% for some products. But the effects of this trend will differ from one region or state to another. The consequences for countries importing agricultural products are likely to be harsh, whereas the economic repercussions for producer countries will probably be good for agricultural sectors but bad for consumers.

### Italy's performance in agrifood trade

In an official ministry communiqué, Mr Paolo De Castro, the Italian Minister for Agriculture, food and forestry policy, recently outlined Italy's excellent performance in exporting agrifood products to markets outside Europe, which confirmed that the "Made in Italy" food brand was doing well and attracting as many customers as ever. No less than 3 billion euros' worth of Italian agrifood exports were recorded last year, an increase of 4.2% for processed food goods and 13% for agricultural produce compared with 2006. Particularly noteworthy was last year's increase in Italian agrifood exports to China (+32%), the Mercosur zone (+22%) and Russia (+22%), testifying as it did to diversified market penetration throughout the world. The Minister also emphasised that Italy had maintained substantial trade outlets in the United States, despite the weakness of the dollar, whereas other EU member states had lost their market share.

## AQUASTRESS

This European project addresses methods used to mitigate and manage the problems associated with hydric stress in the Mediterranean zone.

35 bodies from 17 Euro-Mediterranean countries are taking part in this programme, which falls under the 6<sup>th</sup> FPRTD.

The Mediterranean Agronomic Institute of Bari (CIHEAM-MAIB) is involved in this project, which is being conducted on eight test sites, five of them in the Mediterranean area (Portugal, Cyprus, Morocco, Tunisia and Italy).

Readers should note that a workshop on water resource conservation and drought management is to be held between 5 and 7 May 2008 in Sousse, Tunisia.

## Information

[www.aquastress.net](http://www.aquastress.net)

## Mediterra 2008

The 10th edition of the CIHEAM annual report, now entitled **Mediterra**, will focus on the future of agriculture and food in the Mediterranean countries

This prospective study on Mediterranean agriculture, food and rural affairs analyses current trends in the region, identifies five major fields in which action is required and suggests four possible scenarios for 2020.

### **Mediterra 2008**

will be published in five languages:

French, English, Arabic, Spanish and Italian.

**Mediterra 2008** will be available from 10 April 2008.

### Information:

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+33 (0)1 53 23 91 06

## Publications

**Options méditerranéennes**, *Syrian national strategic plan for olive oil quality*, under the dir. of B.Di Terlizzi, A.Dragotta and M.Jamal, CIHEAM-MAI Bari (Italy), Series A, No 73, 2007.

**P.Martinez Portela and A.Figueras Huerta** (dir.), *Genetica e Genomica en Acuicultura*, MAPA, OESA, Madrid (Spain), 2007.

**UNDP**, *Fighting climate change: Human solidarity in a divided world*, Human Development Report 2007/2008, UNPD, New York (USA), 2007.

**Options méditerranéennes**, *Study of the organic and safety agriculture in the Adriatic cross-border region and of training needs*, under the dir. of M.El Moujabber, L.Al-Bitar and M.Raeli, CIHEAM-MAI Bari (Italy), Series B, No 60, 2007.

**UNEP**, *Global environment outlook 4*, UNEP, Nairobi (Kenya), 2007.

**IEMed - Fundacio CIDOB**, *The Mediterranean Year Book 2007*, IEMed and CIDOB, Barcelona (Spain), 2007.

**FAO**, *Paying farmers for environmental services, The State of Food and Agriculture 2007*, Rome (Italy), 2007.

## Agenda

### **27-28 February 2008 - Cairo (Egypt)**

Agricultural and Land & Water Use Commission FAO for the Near East ([information](#))

### **26 February 2008 - Paris (France)**

International symposium "Tech For Food 2008" on new technologies at the service of agriculture and food production in Southern countries ([information](#))

### **3-7 March 2008 - Huelva (Spain)**

International Strawberry Symposium, organised by the "International Society for Horticultural Science" (ISHS) and partners ([information](#))

### **10-12 March 2008 - Koper (Slovenia)**

International Forum on "Fresh produce maritime logistics in the Mediterranean", organized by the GreenMed Journal ([information](#))

### **10-14 March 2008 - Barcelona (Spain)**

16th edition of the International Food and Beverages Exhibition "Alimentaria '08" on food and drink worldwide ([information](#))

### **22-24 March 2008 - Algiers (Algeria)**

4th International Conference on "Water resources in the Mediterranean Basin", organized by the Ecole nationale polytechnique d'Alger and Watmed4 ([information](#))

### **31 March - 5 April 2008 - Athens (Greece)**

14th meeting of GREMPA (Mediterranean research group for almond and pistachio), organised by the Agricultural University of Athens, MAI Zaragoza and partners ([information](#))

### **5-10 April 2008 - Alexandria (Egypt)**

10th International Barley Genetics Symposium (IGBS), organized by ICARDA and the Bibliotheca Alexandrina ([information](#))

## CIHEAM Mediterranean Observatory

### Recent publications

#### CIHEAM Analytical Notes

- *Hydraulic revolution in the Mediterranean*, Pierre Blanc and Philippe Le Grusse, No 26, November 2007
- *Decentralization and rural development strategy in Morocco*, Mohammed Bajeddi, No 27, November 2007
- *Current events of the Mediterranean agriculture since September 2007*, CIHEAM General Secretariat, No 28, January 2008

#### CIHEAM Briefing Notes

- *The Medroplan project on Drought management*, MAI Zaragoza, No 38, November 2007
- *1st festival on saffron in Taliouine*, Morocco, Jacques Ould Aoudia, No 39, December 2007.
- *Agricultural negotiations in the Euro-Mediterranean framework*, Alexandre Martin, No 40, December 2007.
- *Lebanese experience in aquaculture*, Ghassam El-Zein, No 41, January 2008.
- *Mediterranean prevalence among products certified in Europe*, Sébastien Abis, No 42, February 2008

#### NewMedit

- Summary of 04/2007 edition of the review, January 2008.

#### CIHEAM Watch Letter

- Watch Letter No 03, "Emerging diseases and zoonoses in the Mediterranean Region", autumn 2007.

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## CIHEAM Observatory

An instrument for analysis and discussion  
of Mediterranean agriculture, rural affairs and food

#### French version

[www.ciheam.org/observatoire/](http://www.ciheam.org/observatoire/)

#### English version

[www.ciheam.org/uk/observatoire/](http://www.ciheam.org/uk/observatoire/)

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### The CIHEAM Watch Letter

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

The next issue will be  
published in  
April 2008.

It will be devoted to the  
socio-economic  
repercussions of the rise in  
agricultural prices for  
countries on the  
Mediterranean rim.

To receive  
the Watch Letter, contact:

[observatoire@ciheam.org](mailto:observatoire@ciheam.org)