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— INTERNATIONAL OLIVE COUNCIL —



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Landmarks in the IOC's history

For the International Olive Council, 2012 is a particularly significant year. Those of you who have kept track of our activities for many years will realise that it brings the 25th anniversary of the method for the organoleptic assessment of virgin olive oils. Spawned in the spirit of international cooperation, the birth of this method marked a key stage in the lifetime of the Organisation. It was the end result of a team effort initiated in the 1980s, under IOC auspices, with the participation of experts from Spain, France, Greece, Italy, Portugal and Turkey.

Thanks to the hard work and determination of various panel leaders, this IOC-developed method was adopted by the Members, incorporated into their national regulations on foreign trade and cited for the first time in a regulation concerning the internal market of the European Union. In memory of one of those great professionals, the late Professor Mario Solinas of Italy, the IOC launched an eponymous competition, now into its 12th year, to reward the best extra virgin olive oils after organoleptic assessment by an international panel of judges.

In another sphere altogether, 2012 marks an end and a beginning for this magazine. After 117 issues, *Oliva* is to be given a radical overhaul. In step with the times and the present-day focus on digital technologies, it will drop its traditional format and be published exclusively online. But that's not the only change ...

To echo the words of the International Agreement on Olive Oil and Table Olives concluded in 2005, one of our fundamental objectives is to “maintain and amplify the role of the International Olive Council as a meeting point for all the operators in the sector and as a world documentation and information centre on the olive tree and its products”. As the voice and mirror of IOC activities, *Oliva* is duty-bound to fulfill this mandate assigned to the Council under the Agreement it is responsible for managing.

Readers will perhaps remember that in 2011, at the behest of the IOC Council of Members, the Executive Secretariat carried out an indepth survey of *Oliva*'s readership to sound out their points of view and expectations. We have decided to tailor the magazine gradually to the demands of the IOC Members and the opinions of industry representatives who were consulted in person and asked to reply to a questionnaire. On review, their answers show a clear desire for an essentially scientific and medical journal reporting on the results of the latest research into the health and nutritional benefits of olives and olive oil and ongoing and planned projects.

This opinion confirms one of our strongest convictions: scientific research and research findings are crucial in helping us to inform consumers properly about olive products and to carry out first-class promotion.

The Council of Members will take a final decision on this issue at its forthcoming extraordinary session in Buenos Aires (Argentina). An independent scientific committee will then have the job of reviewing the manuscripts for publication and a forum will be set up to allow readers and researchers to interact for the overall good of the olive industry and all its stakeholders. ■

Jean-Louis Barjol
Executive Director



IOC Executive Director continues networking abroad

Since the last issue of *Oliva*, the IOC Executive Director has continued networking abroad to cement cooperative ties between the IOC and current and prospective Members, and other international organisations. He has thus taken part in events alongside industry stakeholders in several countries as well as in technical and promotional events where he has outlined IOC activities, confirmed

IOC support for member country initiatives or launched new activities.

Two high points, both aimed at tracking IOC promotion, have been his attendance at the launch of the IOC promotion campaign in North America and his participation in promotional events in Russia and China.

Other highlights have been a trip to South America to

start preparations for the 18th extraordinary session of the IOC Council of Members in Argentina on 2–6 July 2012 (see brief article in this issue) and to discuss industry issues with the Argentine authorities, as well as to visit Chile and Peru to discuss the possibility of their joining the IOC. ■

Promotion campaign monitoring

The IOC drive to boost consumption of olives and olive oil in the **United States** and Canada kicked off officially on 12 September 2011 at New York's Lincoln Centre with a tasting and cocktail event arranged by Exponent, the winner of the call for bids to be the PR agency for the IOC's promotion campaign in North America. Around 20 food and lifestyle journalists from the print, digital and audiovisual media were invited to attend before viewing the fashion show staged by New York clothes designer Betsey Johnson. IOC representatives unveiled the broad lines of the promotion campaign with the focus on the many similarities between the worlds of olive oil and fashion where there is much to be discovered in the way of inspirational versatility, good taste and well-being. The PR agency announced the details of the planned recipe competition and other features, such as the bespoke website (www.addsomalife.org) and the campaign's Facebook page and Twitter feed. The journalists savoured dishes served up by chef and 2010 James Beard Foundation awardee Michael Schwartz, who has been chosen to be the campaign ambassador for olive oil, and cocktails mixed with olives created by Ryan Goodspeed.

Later, at the end of September, IOC representatives attended business to business (B2B) and business to consumer events (B2C) arranged as a feature of the programme of IOC promotion events in three regional capitals of **Russia** (Yekaterinburg, Novosibirsk, Russia's third largest city, and Samara). Meeting with dis-

tributors, marketers, restaurant owners and media professionals, the IOC team explained the remit of the IOC and the characteristics of the market for olive oil and table olives. They also visited supermarkets and neighbourhood minimarkets where they discovered a very wide range of table olives on offer.



IOC promotional activities in Russia





Hands-on olive oil demonstrations

Between 24 and 27 October, IOC representatives were in Beijing for a meeting with the new team at Hill&Knowlton, the agency hired to run the IOC promotion campaign in **China**. Discussion points included market conditions in China, where demand for olive oil is on the increase and people

are ‘discovering’ table olives, and recent trends such as the social networking explosion and growing diet consciousness. The IOC and agency team also talked over future activities, including the media familiarity tour to Greece and Italy later on in the year. The 10 finalists of the gourmet cook-off under-

way since September contended with each other at the cookery school of the *China Cuisine Association* (CCA) which groups 300 000 senior chefs from among the estimated 20 million chefs in China. The event was attended by around 10 journalists and filmed for release on the IOC China campaign website. When in China, Mr Barjol had an appointment with the official in charge of the Olive Department of the Chinese Academy of Forestry who told him that the question of China’s potential membership of the IOC had been referred to the Ministry of Trade and the Department of International Organisations. The Executive Director was also told about the olive variety acclimatisation trials underway in several provinces of the country. ■

IOC reaffirms its interest in Latin America

On 10 November the IOC Executive Director was in Chile to participate in the 9th National Olive Oil Conference. Organised by *ChileOliva*, this event drew a turnout of around 200 people. On the conference sidelines, Barjol had appointments with the local authorities to explore the prospective accession of Chile to the IOC and visited the extremely well equipped laboratory facilities – including an electronic nose – at the Faculty of Chemistry. The Executive Director outlined the steps for the laboratory's tasting panel, in training since 2009, to take part in the proficiency check tests held under the IOC recognition scheme.

The next stop on Barjol's Latin American tour was **Argentina**, where he met with the local authorities on 14 November to discuss the preparations for the next extraordinary session of the IOC Council of Members,

scheduled to take place in Buenos Aires in July 2012 (see article in this issue). He also had talks with the management of several public and private laboratories interested in earning IOC chemical or sensory testing recognition.

A meeting was also organised with representatives of the Chambers of Commerce of Argentina's olive growing regions (Catamarca, Mendoza, San Juan, Buenos Aires and La Rioja) at which Barjol outlined IOC activities and addressed the question of olive oils in Argentina whose campesterol content overstepped the official limit stipulated in the IOC and Codex standards. He had appointments with Minister of Agriculture Julián Andrés Dominguez, Secretary of Agriculture, Livestock Farming and Fisheries Lorenzo Basso, and Undersecretary of Agriculture Oscar Solis, besides attending the first meeting of the tripartite body

bringing together the ministry, regional authorities and the olive industry.

The third and last stop was **Uruguay**, on 16 and 17 November, where the IOC Executive Director had appointments with the Deputy Minister of Foreign Affairs, the Minister of Public Health and several high ranking officials from the agriculture ministry. Talks centred on IOC standards and the advantages and cost of joining the International Olive Oil and Table Olive Agreement. Barjol also met with staff from the Faculty of Chemistry of Montevideo who expressed interest in earning IOC recognition for their laboratory.

The authorities and industry in both Chile and Uruguay plan to hold talks on the possibility of initiating the procedure to join the IOC, which could be announced at the July session. ■

IOC attends 27th session of World Customs Organisation Scientific Subcommittee

The IOC provided input at the meeting discussions on the possible amendment of the Explanatory Notes for the goods classified under customs heading 15.09, which was on the agenda for the 27th session of the Scientific Subcommittee of the World Customs Organisation (WCO), held in Brussels, Belgium, on 10 January 2012. The IOC representative explained that the IOC member countries were keen for WCO nomenclature to move closer to international IOC definitions in order to enhance market transparency and consumer safety.

The chief matter of concern to the IOC member countries is the fact that lampante virgin olive oil is not separated from the other grades of virgin olive oil in the customs nomenclature. This is especially worrying because lampante virgin olive oil is not edible (it is intended for refining). This situation leads to confusion, particularly for countries without a long-standing tradition of olive oil consumption, and might be capitalised on by unscrupulous business operators for improper commercial means.

The fact that the customs nomenclature does not make



The IOC Executive Director

a distinction between extra virgin olive oil, virgin olive oil and ordinary olive oil is not good either for market transparency. ■

The IOC welcomes its first intake of graduate trainees

In an ever more competitive world, traineeships are one of the best ways of getting workplace training. If they're offered at an international, multilingual organisation, they're even more attractive, but more challenging too. November 2011 saw the launch of the IOC's new traineeship programme for young university graduates. Three successful applicants began a five-month stint that month at the offices of the IOC Executive Secretariat in Madrid, Spain. They tell us about their expectations, day-to-day experience and hopes for the future.

Three new faces have joined the Executive Secretariat staff as they clock in every morning for work. All three are young, but they come from different countries, different backgrounds and different universities. Mahdi Fendri from Tunisia, Maurizio Rems from Montenegro and Alejandro Sánchez Blázquez from Spain are the IOC's first intake of graduate trainees, paving the way for many other young people keen to see an international commodity organisation at first hand.

The traineeship scheme has several aims. Trainees get a chance to see the workings of an international organisation on the ground and

to apply what they learned at university. They are given a unique opportunity to gain professional experience in a multi-cultural, multi-lingual and multi-ethnic environment. Though small, the Executive Secretariat is no disappointment in this respect. Its staff are of various creeds and nationalities – Algerian, British, French, Italian, Portuguese and Spanish. It has two working languages, five official languages, and a few others thrown in for good measure. All are heard at some point along the corridors and in the offices and meeting rooms.

Mahdi hails from Sfax, the biggest olive oil producing province of Tunisia. Coming from an olive growing family, his dream was “to find out more about the wide and diversified world of olive

growing”. After earning a Master in Olive Growing and Olive Oil Technology at Córdoba University, he did a PhD at Granada University on the varietal discrimination of olive pollen on the basis of morphological characteristics and microsatellite markers. So, he certainly has the academic skills to go far. Mahdi is doing his traineeship with the Technical Unit under the close oversight of IOC Deputy Director Ammar Assabah. As he sees it, “the excellent mentoring and work tools at the Executive Secretariat have helped me to deepen my knowledge”. His job is to collect information on the latest scientific and technical innovations in the olive world reported in scientific journals or congress proceedings for inclusion in a database featuring fields such as paper titles, au-



The first IOC trainees: Mahdi, Alejandro and Maurizio

thors, institutions, abstracts and key words to make for easy searches for potential users from IOC member countries. “This data compilation will generate real added value at the different stages of the olive industry when the database is available to the Members”.

Our second trainee was born in Belgrade, where he studied agriculture at university. Maurizio’s end-of-degree thesis concentrated on establishing the ‘ID’ of an emblematic specimen of Montenegro’s olive heritage, the famous 2000 year-old Olive Tree of Mirovica in Bar. While a student, he worked during the holidays as a volunteer at the Centre for Subtropical Cultures in Bar, he taught olive and vine pruning at a Serbian monastery in Greece, he managed small fruit orchards in villages near Belgrade, Though young, his ties with olive growing already go back far.

In September 2009, he headed for the University of Perugia to study for a Master in Olive Growing and Olive Oil Technology where he wrote his thesis on the potential reuse of olive pomace for animal feed and its impact on the quality of the end product (milk, cheese).

“For the students on the Master course, the IOC was always something special; it was the pinnacle of the olive

world. That was one of the main reasons why I applied for the traineeship”, he tells us. This is Maurizio’s first real job. He has been hired to help the Technical Unit to design and set up a database of specialists from leading research and teaching institutions around the world who are able and willing to cooperate with the IOC in a variety of ways by lecturing at IOC courses and seminars, carrying out on-site consultancy assignments in member countries or contributing to IOC technical publications. In the process, he’s learned a lot about teamwork. “I’ve really enjoyed being involved in the creation of the database. I think it’s the most important thing I’ve done because it really will help to save time in the future and to organise IOC activities more easily.”

The third trainee, Alejandro, is no stranger to Madrid. In fact, he studied agronomy at the city’s Polytechnical University where he first became interested in olive growing after attending a course on pruning in intensive olive orchards. Later, amongst other things, he went on to do a Master degree in ecosystem restoration and to work as a research assistant with an environmental consultancy firm in Malta where he gained experience in EU-sponsored research projects and he improved his English at the same time. And then one day last year,

he saw the announcement about the traineeships at the IOC. “I have to admit I’d never heard of the International Olive Council”. Within a few months though, he’s learned all about the Organisation and what it does, and he has a better understanding of the olive sector.

Alejandro is attached to the Economic Survey Unit. His job is to search for and analyse all the information available on the national policies implemented by the IOC member countries in the olive growing, olive oil and table olive industries and to shape the data into individual profiles for each country. “At first, I thought it was going to be a bit monotonous, but things changed as time went by. I became more and more interested and found out more and more about the olive industry as I went along”.

There are other professional advantages to working at the IOC. For instance, the trainees sat in at the international seminar held at the IOC headquarters in December 2011. Along with the 84 participants, they were able to listen to 30 leading lecturers speak about key issues in modern-day olive farming.

Obviously, all work and no play makes Jack a dull boy. On a more personal note, the three get on well and have mixed well with the staff, and they’ve joined in at staff occasions (their corner

of the table at the staff Christmas lunch was definitely one of the liveliest). Mahdi, and Alejandro obviously, already know Spain but for Maurizio it's been a chance to discover a new country and new people.

But what about the future? "I hope my experience here will be the starting point for my future career in this fascinating field of work", Mahdi tells us. For Maurizio, "Being at the "heart" of olive growing helps me to understand what direction the sector is headed, how the market is

moving and what fields of specialisation are lacking the most. This will give me an idea of the best way forward for my future". As for Alejandro, although he says his future prospects are uncertain, "what is undeniable is that the work experience gained at the IOC will be a boost to my career as an agronomist".

By the time this article goes to press, these three young men will have moved on. We wish them the very best of luck in the future. And who knows, they may even return one day as IOC delegates or leading experts, fulfilling the Irish proverb: Praise youth and it will prosper. ■

Interested in a traineeship with the IOC?

Keep your eyes peeled for announcements on the IOC website at <http://www.internationaloliveoil.org>

IOC sessions on the agenda for 2012

This year will see the International Olive Council gearing up for two important sessions.

For its **18th extraordinary session**, it will be moving camp temporarily to Argentina from its Madrid headquarters in Spain. In the first week of July, delegates from the 17 Members of the Organisation will converge on Buenos Aires for what is to be the first IOC session ever held in Latin America. This will be a unique opportunity to network with stakeholders and institutional partners from Argentina and further afield in South America and to see olive growing at work in this relatively new addition to the international olive community.



As usual, the session will be preceded by a meeting of the IOC Advisory Committee on Olive Oil and Table Olives where stakeholders from every branch of the olive industry will have a chance to air their views and concerns. A large representa-

tion of local business circles is expected. The member associations of the IOC quality control scheme in place in target import markets will also convene to discuss key issues.

Through the week the specialist IOC committees will meet in succession to discuss economic trends and update the latest statistics on production, consumption, exports, imports and stocks; to track the progress in training activities, technical assistance assignments and prospective and ongoing projects; to discuss market research, select new target markets for promotion campaigns and consider the progress in ongoing campaigns; and to review the financial and budgetary management of the Organisation. Committee proposals will then go through to the plenary sessions for adoption.

This year's engagement diary will also include the next regular session of the

IOC. While it will keep to the usual format of private sector/institution meetings followed by ad hoc committees and plenaries, this will be no ordinary occasion. It will be the **100th session** of the Organisation. The Council has come a long way since its 1st session in October 1959. It has concluded several International Agreements, its membership has blossomed and it has witnessed and helped to shape the far-reaching changes that have occurred in world olive growing over the past half century.

The week of 19–23 November will therefore be a cause for celebration to mark this milestone in the lifetime of the Council, and the starting point for many more sessions and new initiatives. Celebrations will also coincide with the 25th anniversary of the IOC method for the organoleptic assessment of virgin olive oil, which has done so much to change the face of sensory testing. ■

Session diary at a glance

18th extraordinary session: Buenos Aires, Argentina, 2–6 July 2012

100th regular session: Madrid, Spain, 19–23 November 2012

Research & development and environmental work

Through its R&D and Environmental Department the Executive Secretariat looks to promote the use of modern techniques in the olive orchard as well as at the olive oil mill and table olive processing facility, all with the aim of increasing production, lowering costs, upgrading quality and protecting the environment. Its interest spans every area of olive growing: from breeding to genetic improvement, from pest and disease control to irrigation, from pruning to harvesting, from soil management to olive oil production and by-product recycling. The Secretariat can approach each question in different ways, for instance through projects carried out in the member countries, technical publications and guides or occasionally international seminars. Some of the projects implemented are financed exclusively out of the IOC budget while others are co-financed by the Common Fund for Commodities (CFC).

Some examples of IOC-funded work include the project for the characterisation, collection and utilisation of genetic resources in olive (RESGEN), the publication of a glossary of technical terms and a guide to good practice in geographical indications, the supervi-

sion of the world collection of olive varieties in Marrakech (Morocco) and the establishment of a further world varietal collection in Izmir (Turkey), and the design of a questionnaire on olive industry infrastructure.

RESGEN project

Having already been completed in 17 of the IOC's member countries on different sources of funding (EU, CFC and IOC), this project was launched in three new countries in 2011: Albania, Argentina and Turkey. Financed exclusively by the IOC, the project will identify, describe and conserve the genetic olive heritage of these countries. When activities are completed, the collaborating centres in the three countries will ship their genotypes to the world olive collections.

Technical glossary

The pace of change in the olive industry in recent years called for a glossary to clarify the proliferation of ambivalent, ambiguous terms and definitions in the olive world. A source of uniform multilingual terminology was needed to make it easier for people inside and outside the industry to communicate with each other. And so, the

IOC has brought out an on-line glossary giving the definition and translation into the five official IOC languages (Arabic, English, French, Italian and Spanish) of the commonest and most important terms used in olive oil technology, table olive processing, olive growing, olive oil chemistry and organoleptic analysis (<http://www.internationaloliveoil.org/glosario terminos/index>).

Guide to good practice in geographical indications

Geographical indications (GIs) are an important value-creation tool for agricultural foodstuffs. Identifying a product with a geographical origin opens up potentially significant opportunities for producers. But how does one go about obtaining recognition of a GI? The IOC Executive Secretariat has tried to answer this question in the guide posted on the IOC website (<http://www.internationaloliveoil.org>), which goes through the main points that have to be justified by GI applicants and checked by the authorities to protect a GI.

Objectives of the World Olive Germplasm Collections

- Conserve the genetic variability of the olive tree in line with the provisions of the Rio Convention, which seeks to prevent the risk of loss of biological diversity in view of the economic, social, cultural and environmental role of the olive tree.
- Ensure that the genetic biodiversity of the olive is conserved for future generations and allow the scientific community to research into the genetic material.
- Make results available to all users with a view to the sustainable development and optimal use of varietal potential according to soil and climate types.

Marrakech world collection

The second world germplasm collection, opened in March 2002 on land belonging to the National Agricultural Research Institute (INRA) in Tassaout, 63 km outside Marrakech (Morocco), is home to 565 varieties of olive from 13 countries (4 olive trees/variety distributed in three

plots). In 2011, the IOC commissioned the Agrifood Research & Technology Institute of Barcelona (IRTA) to evaluate collection activities. The purpose of the evaluation was to check that work complied with the terms and conditions of the agreement signed between the INRA and the IOC and to assess the progress made in conserving and protecting olive biodi-

versity. The positive findings of the evaluation prompted the Council of Members to extend the existing agreement in order to complete the collection.

Creation of a third world collection of olive varieties

The establishment of a third world collection has been planned in an Eastern Mediterranean country, with IOC backing, to complement the network comprising the collections created in Córdoba (Spain) in 1970 and Marrakech (Morocco) in 2002. The reason for creating a third repository in different environmental conditions at a distance from the Marrakech and Córdoba collections is to guarantee the survival of the genetic resources in the event of losses caused by catastrophes (climatic, plant health,...).

Five countries – Egypt, Iran, Jordan, Syria and Turkey – responded to the IOC's call for proposals. After appraisal of the candidacies by a committee of experts, the Council of Members decided to accept the proposal of Turkey to house the third collection at Kamelbecha, in the region of Izmir, on land belonging to the Bornova Olive Research Station, a facility specialising in olive research since 1937.



World collection, Marrakech

Questionnaire on olive industry infrastructure

Getting a better knowledge of olive industry infrastructure in the member countries is key to proper strategic planning and optimised, effective use of available resources. This is the objective the Executive Secretariat has set itself on designing this questionnaire in association with experts from IOC member countries. When the input data on crop area, number of farms, producer infrastructures, olive oil mills, number of olive nurseries and other subjects are processed, they will help to determine the existing categories of olive growing on the basis of the type of management and level of intensification. This will help to shed more light on how the olive sector works and to target priorities in order to propose the necessary support for member countries.

Two projects are singled out for attention among the projects implemented with financing from the Common Fund for Commodities (CFC):

Project for the creation of pilot demonstration and training olive nursery centres

This project is the second stage of the project implemented with financing from the Common Fund for Commodities for the conservation, characterisation, collection and utilisation of genetic resources in olive (RESGEN project), which has been successfully implemented in Algeria, Egypt, Morocco, Syria and Tunisia and has enabled these countries to identify, characterise and conserve autochthonous varieties of olive. Its prime goal is to set up olive plant production centres (pilot nursery centres) to enhance the quality of olive plants produced and to amplify the possibilities offered in terms of autochthonous varieties adapted to the environment. The installation of modern innovative nursery centres will help to supply premium quality olive plants. The use of suitable native varieties adapted to soil and climatic conditions and displaying top genetic quality limits the

risks entailed when planting new orchards owing to the better understanding of the potential of the plant material. The creation of nursery centres would help to guarantee the propagation and circulation of olive plants obtained from native varieties that are perfectly adapted to environmental and climatic characteristics. It is also an effective modern tool for disseminating good agricultural practices. The adoption of modern production and management techniques will bring significant and lasting improvements to the sector, thus helping to generate higher earnings for farmers. Proper harnessing of olive biodiversity will help to sharpen producer competitiveness on world markets. After analysing a project feasibility study conducted by external consultants hired by the IOC, the Common Fund for Commodities has agreed to finance the project in four countries – Algeria, Egypt, Morocco and Tunisia – provided the IOC puts forward a project executing agency. The agency selection process is underway.

Programme for the development and dissemination of sustainable irrigation management in olive growing (IRRIGAOLIVO, CFC/IOOC/06)

Launched in 2010, this programme looks to set up research and demonstration

plots in Morocco and Syria to demonstrate irrigation techniques to farmers and to collect fundamental data on crop response to differing soil and climatic conditions. Activities in 2011 went ahead according to the work plan: day-to-day plot management (tillage, irrigation, harvesting, etc.), chemical testing of the oils produced

and two courses for farmers on the calculation of olive irrigation applications. Farmers who decided to install an irrigation system or to upgrade existing equipment were given customised assistance. Two project monitoring meetings were held, one in March (Marrakech) and the other in November (Rabat). ■



IRRIGAOLIVO installations



Participants in IRRIGAOLIVO

Spotlight on cultivation systems and olive oil quality at international seminar

IOC headquarters, Madrid, 12–16 December 2011

BACKGROUND

The seminar was opened by Executive Director Jean-Louis Barjol who extended a welcome to participants and outlined the mandate and activities of the IOC, aimed at promoting olive growing and olive products in producer and consumer countries.

Held at the IOC headquarters from 12 to 16 December 2011, the seminar was a feature of IOC technical action to relay the latest research findings to technical officers.

Eighty-four agronomists from 14 of the IOC's 17 Members attended the seminar to learn about the current realities and changing planting systems employed in olive growing and how these systems affect the organoleptic characteristics and price of the end product from the papers given by 30 top-level speakers from institutions in Spain, Italy and Tunisia.

Besides listening to the presentations, participants were also given a tour of experimental trials underway on planting densities, varieties and orchard management systems at the IMIDRA, a research and rural development centre based in Aranjuez (Madrid), where

they were able to quiz the Centre's management about the objectives and main results of the trials.

An olive oil tasting session was also laid on for participants to introduce them to the basics of sensory analysis.

The seminar programme focused on the following subjects:

- Developments in cultivation systems;
- Plant material;
- Cultural techniques;
- Impact of the environment on planting systems;
- Olive oil processing and quality;
- Olive oil value chain.

INTRODUCTION

There are several cultivation systems in olive growing, differentiated by their productive potential.

The chief characteristics of traditional olive growing, largely located in the Mediterranean region, are the wide diversity and ability of olive orchards to adapt to all kinds of sites and terrain. The technology applied - from varietal choice to prop-

agation, harvesting and oil production - is largely based on empirical knowledge. Traditional olive growing can be viewed as a social crop because it requires a large amount of labour at harvest time and so provides a means of subsistence for people in many rural areas. It is still characteristic of large extensions of the world area under olives.

Since the end of World War II, social and technological transformations have gradually wrought changes in the concentration and development of olive orchards and olive oil mills. Marketing, promotion and distribution have also evolved to meet the growing demand for premium virgin olive oil.

These changes have led to new olive planting systems adapted to harvest mechanisation in the search for higher yields and better quality product for sale on what has become a globalised market.

Over the week, the papers presented at the seminar described, analysed and compared the characteristics of traditional, intensive and hedgerow or super-intensive planting systems, drawing a distinction between:

- Low-yield systems with no room for improvement because of their location in marginal growing areas: Olives continue to be cultivated in these areas because of their general-interest social and environmental role.
- Low-yield systems with room for improvement via technological measures or packages: This kind of system is characteristic of most of the olive growing areas of the producing countries, particularly in the Mediterranean region. However, their productive potential is limited despite the application of technological measures, which raises the question of alternatives such as to pull out the trees and establish new olive orchards.
- Intensive systems: These systems give high

yields and top quality product.

This last group of systems has been expanding in recent years and encompasses intensive, high density and super intensive olive farming. Work by public research, development and innovation centres and private initiatives has been at the core of this expansion. The papers given at the seminar testified to the increased efforts in the olive growing countries to carry out research and experimentation and transfer technology.

Cultivation systems were also explored from the sustainability and cost effectiveness angles, with the focus on concerns such as soil conservation and erosion control and water scarcity and efficient water management. Speakers also addressed the question of the gradual conversion of olive orchards with productive and mechanisation potential in order to

secure the future of traditional olive growing areas.

1. PLANT MATERIAL

The distinguishing feature of the varietal structure of traditional olive orchards is that there is a wide diversity of local varieties confined to specific districts. The establishment of new olive orchards and the development of olive nurseries have brought with them some degree of varietal uniformisation, with the ensuing potential risk of endangering traditional varieties. Coupled with the populations of wild olive trees and other species of *Olea*, these genetic resources constitute a world heritage which it is essential to conserve.

Recommendations had already been made along these lines at the IOC seminar held in Marrakech in 2008, when activities were proposed:

- To consolidate, coordinate and maintain the IOC network of 17 national germplasm banks and the two international germplasm banks in Córdoba (Spain) and Marrakech (Morocco) whose protocol plans to conserve over 1 000 accessions.
- To establish a third world collection in the Middle East. At its last session, the Council of Members gave the go-ahead for this interna-



Some of the seminar participants

tional repository to be established in Turkey.

- To encourage the *in situ* conservation of centuries-old olive trees and associated species.
- To complete primary varietal characterisation by applying a joint morphological marker and microsatellite protocol to guarantee the identity of the accessions held in the germplasm banks.
- To establish a database incorporating the characterisation data gradually collected on the varieties held in the IOC network of germplasm banks.

The seminar speakers gave overviews of the breeding programmes currently underway, aimed at:

- Crossbreeding varieties adapted to new planting systems (intensive and hedgerow) and tolerant of abiotic and biotic stress. Resistance to *verticillium dahliae* and efficient water management are general criteria for many olive growing countries.
- Pursuing research into the reduction of the olive's juvenile period and the performance of early selection trials.
- Expanding the genetic base by introducing wild genitors and genitors of other species of *Olea*.
- Conducting performance trials of competitive varieties in modern

orchards in each olive growing area.

2. CULTURAL TECHNIQUES

2.1. Irrigation

In recent years irrigation has significantly improved the prospects and profitability of both traditional and modern olive growing. Trials have been carried out in several producing countries to test irrigation application rates, scheduling and water quality. According to findings in the Mediterranean region, irrigation application rates of 1 500 m³/ha can give good harvests. The correct ET_c for each model of olive growing has to be calculated in the light of the climate and soil type.

Foliar analysis is a tool that should be used and encouraged to rationalise fertilisation practices in olive cultivation.

2.2. Soil management

Soil erosion is the principal problem facing olive orchards due to the fact that most traditional olive farms are on sloping land. In recent decades, traditional tillage has been replaced by the use of herbicides and, increasingly more, by the use of plant covers or a combination of plant covers and herbicide application under the tree canopies. However, for orchard management to be

sustainable and suitable for mechanisation, it is necessary to rotate plant covers (type and method of cultivation) and herbicides. New lines of research are focused on reducing compaction, disease, and herbicide and fertiliser use in order to balance and diversify the agricultural ecosystems of the olive.

2.3. Plant health protection

Approximately 30% of the olives produced in the Mediterranean region are lost to pests and diseases. Sustainable pesticide application tends to be the tool used to fight these problems. However, cultural techniques (pruning, irrigation and fertilisation), variety and planting systems influence the onset of certain pests such as the olive fruit fly, jasmine moth, olive leaf spot, verticillium wilt and olive knot.

Possible methods of pest and disease control were highlighted during the seminar when several approaches were broached:

- Legislative (plant and soil certification);
- Cultural (planting systems, pruning, nitrogen application, irrigation, and harvest timing in the case of attacks from olive anthracnose or olive fruit fly);
- Biological (bacteria, fungi, mycorrhizae etc.);
- Genetic (cultivar resistance);

- Chemical (authorised products, treatment optimisation, integrated control).

2.4. Pruning

Olive pruning is a costly operation, the severity of which depends on tree age and planting system. Canopy volumes per hectare must be adapted to the environment and available water resources. Pruning has to be adapted to each olive orchard and to the method of harvesting. In hedgerow systems, vigour control is a limiting factor in addition to restricted light exposure and air movement inside the canopy. As a result, when the trees reach 7–10 years old (depending on the latitude, altitude and available water resources), crop production decreases, alternate bearing is accentuated and pest and disease attacks increase. In this type of system the olive trees should be mechanically pruned to improve air and light penetration and to facilitate the passage of over-the-row harvesters.

Several trials run in intensive orchards have demonstrated that light annual pruning and bi-annual mechanical pruning lead to good levels of crop production at reasonable cost.

2.5. Mechanical harvesting

The need to lower harvest costs triggered the use of ma-

chinery for olive harvesting, i.e. discontinuous harvesters in intensive plantations (trunk shakers), which have recently been adapted to traditional groves, and over-the-row or straddler harvesters for hedgerow and high density olive orchards.

For this machinery to work efficiently, the orchards must be properly designed (layout and density) and the trees must be properly trained to a tall vase shape in intensive orchards and a central leader shape in hedgerow orchards. Machinery efficiency and harvesting costs vary sharply depending on the type of machine employed; in this respect over-the-row harvesters are more efficient than trunk shakers. Orchard size is another factor to bear in mind when opting to buy or rent harvesting machinery.

3. PLANTING SYSTEMS: EXPERIMENTATION IN DIFFERENT CONDITIONS

Confronted with the transformations that have marked olive growing in recent decades, research has focused on planting systems, varietal performance, the development of specific technology, production costs and end product quality.

The results of research carried out in Spain (Catalonia, Castile-La Mancha and Andalusia), Italy (Tuscany,

Umbria and Sicily) and Tunisia (North and South) were presented at the seminar.

These findings reported that while all autochthonous and foreign varieties adapt to intensive and high density systems, only 'Arbequina' and 'Arbosana', and to a lesser extent 'Koroneiki', are suited to super intensive olive cultivation. Speakers also outlined research conducted on new varieties in breeding programmes in place in Spain ('Sikitita') and Israel ('Askal') or developed by private sector companies ('Tosca').

It has been documented that the success of the three systems is dependent on the plant material used, which must be guaranteed to be authentic and healthy. Good crop management is also important, from site preparation to planting and harvesting.

The main limiting factor in the hedgerow system is the lack of light, which may have an impact on plant health and grave economic consequences. Hence, the recommendation is for hedgerow orchards planted on a rectangular pattern to face North/South.

Whether or not a cultivation system is sustainable depends on efficient management of inputs. Water usage must be based on correct irrigation management, particularly the measurement of the

real water requirements of the trees and their environment, as well as on the quality of water used and the critical irrigation periods.

Fertilisation should be based on foliar analysis to compensate for tree consumption. Likewise, to prevent excessive tree vigour in super intensive systems, the recommendation is to plant orchards on poor soils and to limit nitrogen and water application.

4. OLIVE GROWING, OLIVE OIL PROCESSING AND OIL QUALITY

The objective of any olive orchard is to produce olives that give a good yield of oil with a specific taste, which will allow producers to differentiate their product and generate added value. To do so, cultural techniques are essential (rainfed or irrigated farming, fertilisation, optimal harvest timing and methods), as are proper fruit handling during transportation to the mill and good mill management. At the mill, special care has to be taken over:

- Fruit reception, leaf removal, weighing and crushing, which should be immediate;
- Mill management: screens, mixing (temperature), centrifuging and settling;
- Storage.

The research presented at the seminar on the influence of planting systems on oil quality reported the following findings:

- There are no differences between the intensive and hedgerow systems when the same variety is cultivated in the same area.
- Agricultural factors (mainly irrigation rates and harvest timing) and climatic factors impact on oil characteristics.
- Harvesting and post-harvesting are crucial stages for olive oil quality and should be paid close attention.
- The minor components in olive oil (polyphenols and volatiles) have an effect on health (anti-inflammatory, antioxidant, prevention of cardiovascular disease) and on the product's shelf life and sensory characteristics. These components are what make some oils more bitter or peppery than others. The relationship between different volatile thresholds and the activation of certain parts of the brain associated with the sensory perception of specific attributes of virgin olive oil was also reported. The effect of climate, irrigation rates and varietal ripening on the intensity of certain aromas was also discussed. It was proposed using certain volatiles as chemical

markers for olive oil processing and the sensory characteristics of olive oils.

5. OLIVE OIL VALUE CHAIN

Olive oil production is tied up with the developments in the olive oil value chain. Olive crop area in traditional and new producing countries is believed to be expanding at a rate of 150 000 to 300 000 hectares per year. These new orchards are mainly intensive or super intensive; they are irrigated and cultural practices are mechanised.

In the countries of the European Union, the Common Agricultural Policy (CAP) has helped to expand these new orchards and to increase the returns from traditional olive growing, the permanence of which is necessarily linked to short and long term strategies. The strategies in the short term include promoting olive oil and maintaining a balance in the food chain to secure profitable prices for all the links in the chain. In the long term, it is considered essential: 1) to convert traditional olive orchards into potentially productive areas; 2) to apply olive oil quality and food security policies; 3) to seek competitive edge at every stage of the value chain; and 4) to achieve vertical and horizontal integration and supply concentration.

Two seminar papers on the economic analysis of production costs in the different cultivation systems reported that the new intensive and hedgerow planting systems are profitable in both irrigated and rainfed conditions. The choice of one system or the other is shaped by several factors: the harvest machinery available, farm size, access to capital, environmental conditions in the growing area and orchard management techniques. Continuing research is needed to determine the techniques which will ensure that these kinds of orchards remain profitable for as long as possible.

Food chain price observatory

Due to problems triggered by consumer behaviour, price volatility, strain between the different links of the value chain and system fragmentation, as well as by imbalance and economic instability inside the industry, the value chain has come under close review in Spain and the EU at large to pinpoint ways of keeping it in equilibrium. Since 2008, the Food Observatory at Spain's Ministry of Agriculture has been publishing surveys on the value chain of 38 foodstuffs. Surveys have documented heavy losses in the olive oil sector between the 2007/08 and 2009/10 crop years due to high production costs and the narrow margins of the various branches of the in-

dustry: processing, packing and distribution. Distributors make up for the narrow margins through their sales volume in a context similar to an oligopoly. The Spanish Olive Oil Agency advocates a concerted policy based on stringent descriptive studies which shed light on the food chain and promote its transparency with the ultimate aim of making it competitive and sustainable.

CONCLUSIONS

The global changes occurring in the olive oil industry are also impacting on orchard planting systems, olive oil production methods and the quality of virgin olive oil. The seminar was an opportunity to explore the most important aspects of these developments, particularly the sustainability of today's olive orchards, new orchards and olive oil quality.

PLANT MATERIAL

1. Until recently, traditional varieties were confined to their assumed area of origin but they are now starting to be replaced by new, more widespread varieties.
2. The conservation of traditional genetic resources (varieties cultivated in the olive producing countries and wild olives such as *Olea sylvestris*, *Olea*

africana and other associated species) is therefore a top priority.

3. The network of germplasm banks launched and coordinated by the IOC is the most advanced attempt to conserve and evaluate cultivated varieties of olive. The consolidation and expansion of this network must be high on the agenda.
4. Breeding programmes underway in several countries are searching for answers to meet the new demands of olive growing, for instance adaptation to new mechanised planting systems and resistance to biotic (verticillium wilt and others) and abiotic factors (efficient water use and salt tolerance).
5. Efficient regional research systems are needed to deal with the changes on the varietal scene.

CULTURAL TECHNIQUES

1. Orchard sustainability is reliant on erosion control and sensible use of water, fertilisers and crop chemicals.
2. The improved returns generated by irrigation must dovetail with sensible use of scarce water resources. Controlled deficit irrigation based on calculation of crop evapotranspiration (ETc) is the most effec-

tive water management strategy.

3. Foliar analysis should serve as a guide for fertilisation.
4. Mechanical tillage has gradually been replaced by systems combining herbicides and plant covers, or using several plant covers. The factors to take into account to determine the most suitable soil management approach are erosion risk, environmental pollution and product quality.
5. Pruning and harvesting are the most expensive components of olive production costs, and mechanisation is a way of making them cheaper. Orchard design and tree training are crucial to mechanisation. Farm size has to be taken into account when deciding whether to buy or rent harvest machinery.

PLANTING SYSTEMS

1. Recent research by official R&D centres and the private sector has led to the development of 'technological packages' for the design and management of the three most common planting systems in new olive orchards (in-

tensive, high density and hedgerow).

2. The crop technology and overall cost effectiveness of these systems is constantly changing (varieties, densities, new harvesting machinery, etc.). This will help to improve orchard design and further lengthen orchard life-time in the near future.
3. The two economic analyses of production costs reported that the new intensive and hedgerow planting systems are profitable, both when irrigated and rainfed.

OLIVE OIL PROCESSING AND QUALITY

1. Oil quality is determined by good crop management and proper fruit handling (during and after harvest), as well as by good mill management (fruit delivery, oil processing and oil storage).
2. No differences have been observed in the quality of oils produced from the same variety in the same area when grown under intensive or hedgerow conditions.
3. Factors such as irrigation rate, harvest timing and climate (frost,

drought, etc.) affect oil characteristics.

4. The minor components of olive oil (polyphenols and volatiles) affect its shelf life and sensory characteristics and have a positive health-related effect.

OLIVE OIL VALUE CHAIN

1. Production costs are the biggest burden in the whole of the value chain, accounting for 68% of the retail selling price of extra virgin olive oil.
2. Since olive oil processors, packers and distributors work with narrow margins, these stages have to be very efficient.
3. Own brands are important in olive oil distribution (they account for 44% of extra virgin sales and around 58% of the olive oils sold) and could become even more significant.
4. In the current crisis, the margin-paring policy applied in the distribution sector has had repercussions on the other links in the value chain.

Article written by the seminar technical coordinators: Luis Rallo, Joan Tous and Monji Msallem. ■

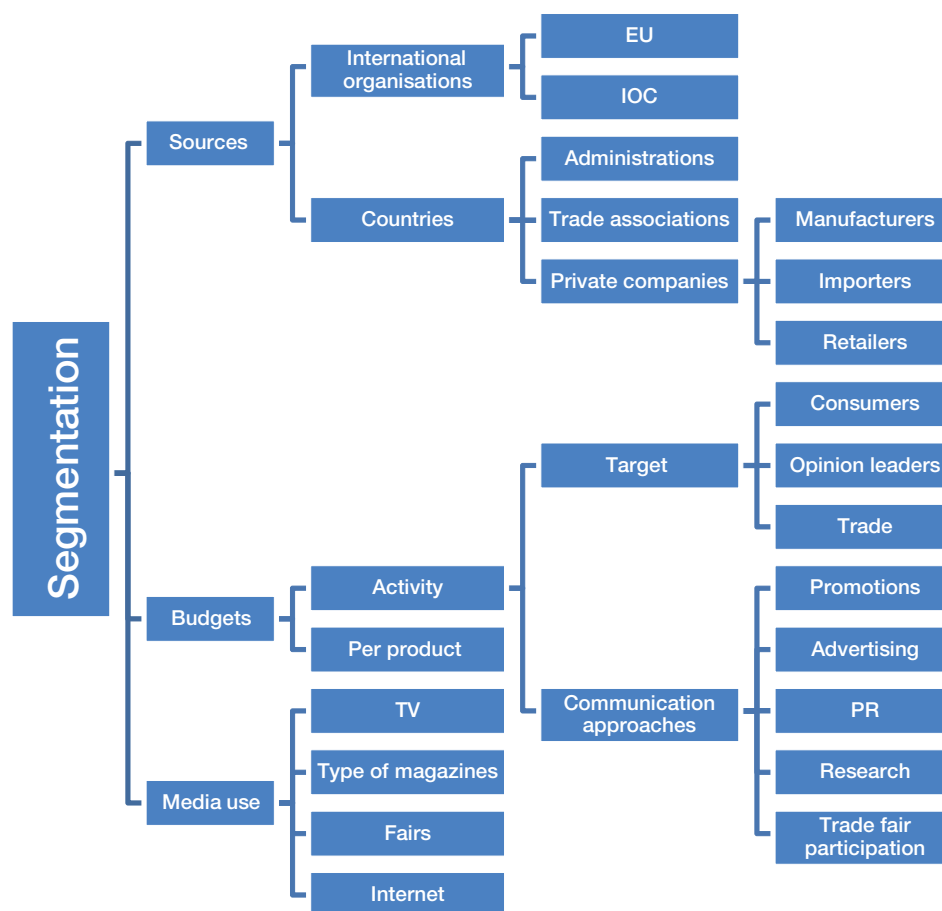
IOC launches Who's Who survey in olive oil promotion

The IOC headquarters in Madrid was the setting on 24 February 2012 for a meeting to present a major promotion-focused initiative, the *Who is Who of the Promotion of Olive Oil Worldwide*, commissioned by the IOC.

The purpose of the survey, undertaken by consultancy firm Agerón Internacional, is to identify the key players in the world olive industry who are involved in the international promotion of olive oil and to glean information on the activities implemented and their budget funding and scope. The survey has several component parts:

- Definition of objectives and scope
- Methodology
- Desk research
- Field work
- Time schedule
- Identification of current position
- Identification of issues at stake
- What is being asked of survey participants
- Expected output

The specific objectives of the survey can be summed up in the chart opposite:



Thirty-three countries in all will be surveyed: Albania, Algeria, Argentina, Australia, Brazil, Canada, Chile, China, Croatia, Cyprus, Egypt, France, Greece, India, Iran, Iraq, Israel, Italy, Japan, Jordan, Lebanon, Libya, Malta, Montenegro, Morocco, Portugal, Russia, Slovenia, Spain, Syria, Tunisia, Turkey and the United States.

To give readers a snapshot of the stages involved, the methodological approach to the survey entails:

1. **Intensive desk research**
2. **Field work**
3. **Personal interviews**

The first desk research stage involves:

- Review of past projects undertaken by Agerón in target countries to identify key stakeholders in the olive oil industry
- Review of the IOC database on the olive oil industry in the survey target markets
- Consultation of more than 300 sources to

source all the information relating to the survey

- Search for further contacts to complete the survey database
- Design of questionnaires for completion by different target stakeholders
- Data analysis of questionnaire replies and qualitative information and drafting of survey conclusions

The second **field work** stage encompasses:

- Around 400 questionnaires in different formats:
 - Online questionnaire for completion
 - E-mail questionnaire
 - Telephone calls
 - Personal visits

Personal interviews will comprise online and phone interviews with around 150 industry players such as exporters, trade associations and public institutions at a selection of international trade fairs and events in 2012.

Antalya Anfas food	February 15–18
Dubai Gulfood	February 19–22
Madrid Gourmet	March 3–9
Foodex Tokyo	March 6–9
Alimentaria Barcelona	March 26–29
Istanbul Private Label	March 28–31
MDD Paris	April 3–4
SIAL China	May 9–11

FIELD WORK: PERSONAL INTERVIEWS

Interviewing **will not be evenly divided** among all the countries. It will depend on the activities planned in the target countries, the priorities fixed, the importance of the promotion carried out and the weighting of the presence or potential of olive oil in each market.

In the case of staff interviews, the process will involve:

1. Project presentation, with a request for an interview
2. Follow up
3. Request for telephone interviews
4. Interviews proper

METHODOLOGY: OTHER PERSONAL INTERVIEWS

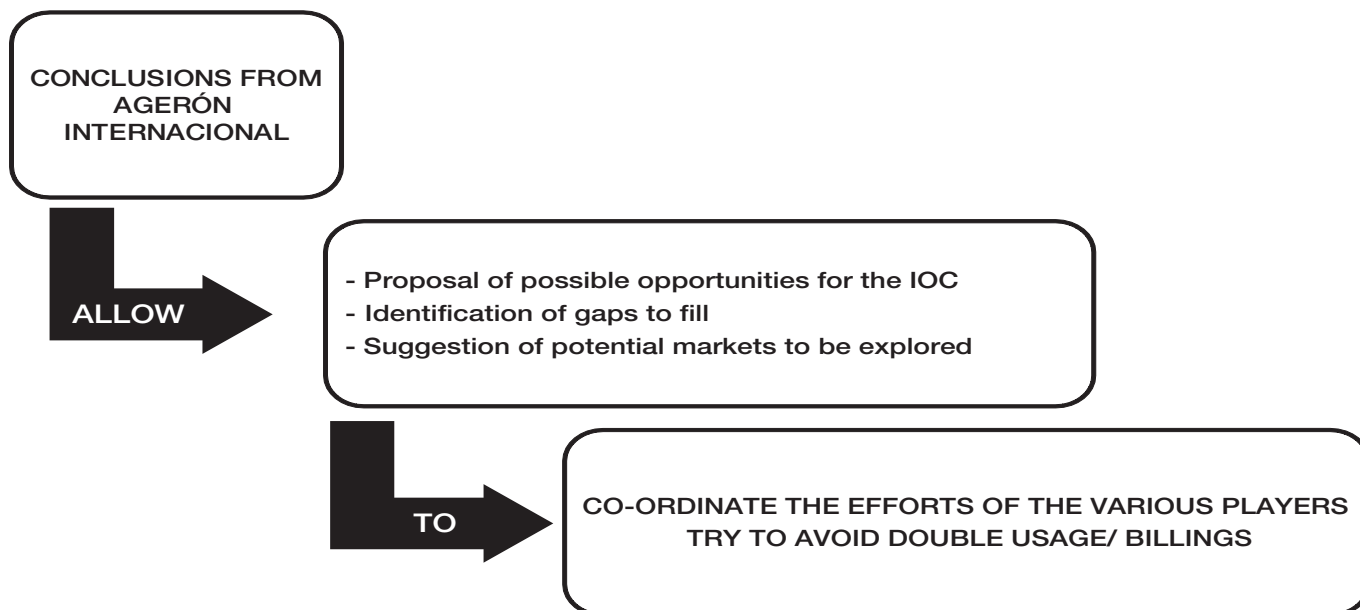
Other personal interviews

- Heads of IOC Delegations
- Trade associations
- Public institutions
- Other bodies connected with promotion in the olive oil sector

FIELD WORK: ONLINE AND TELEPHONE INTERVIEWS

- **First IOC e-mail to a list of institutions and administrations involved directly with the survey.**
- Issue of e-mail presenting the survey to all the database contacts explaining the possibility of replying:
 - a. By phone
 - b. Online
 - c. By completing the e-mail questionnaire attachment
- Telephone follow-up of e-mails to confirm addresses and other contact information
- Search for alternatives if contact details are not correct
- Tracking of questionnaire replies

• EXPECTED OUTPUT



TIME SCHEDULE

Kick-off meeting:	24 February
Progress meeting:	late March
Field work:	April
Drafting and delivery of survey conclusions:	second half of May

The world market in figures

OLIVE OILS

When congregating in Madrid in November 2011 for their 99th session, the Council of Members reviewed the position of the international olive oil market in the 2009/10, 2010/11 and 2011/12 crop years. The figures for the three years were final, provisional and estimated, respectively. They also discussed the levels of prices paid to producers in the European Union and the main factors on the world market.

Final data for 2009/10

The season opened with 669,500 t in stocks, down by 170,000 t from the level of stocks at the start of the preceding crop year.

Production (2,973,500 t) was 11% higher than the season before in world terms and 12% up in the IOC member countries. Good harvests in Morocco (+55,000 t or +64.7%), Syria (+20,000 t, i.e. +15%) and Turkey (+17,000 t, i.e. +13%) were behind this season-on-season rise. Taken as a whole, olive oil production in the European Union producing countries went up by 15% (+285,500 t). This increase was located primarily in Spain (+371,500 t = +36%), Greece (+15,000 t = +5%)

and Portugal (+9,100 t = +17%). The IOC member countries accounted for 98% of the world's olive oil, 75% of which was produced by EU/27 countries. In 2009/10, production overshoot consumption by 71,500 t.

At 2,902,000 t, **world consumption** was 2% above the level of the preceding crop year. Consumption rose in some of the IOC Members such as Morocco (+29%), Syria (20%) and Turkey (2%). It also followed suit in leading importing countries like Brazil (+20%), Canada (+23%), Japan (+35%), Russia (+47%) and China (+50%). Eighty percent of the world's olive oil was consumed in IOC member countries while the share of the EU countries was 64%.

On the **international trade** front, world imports (652,000 t) and exports (653,000 t) differed by a small tonnage of 1,000 t. By percentage share, IOC member countries exported 97% of the world's olive oil while exports by the EU (444,000 t, disregarding trading inside the EU) represented 68% of world exports.

The crop year closed at 31 October 2010 with **stocks** of 740,000 t, 99% of which were in the hands of the IOC member countries and 74% in those of EU countries.

Available supplies (starting stocks plus production) in 2009/10 amounted to 3,643,000 t at world level and 2,761,000 t in the EU.

Provisional data for 2010/11

The provisional figures for 2010/11 put **world production** at 3,018,500 t, equating with a rise of 45,000 t or 1.5% from the season before. Several IOC Members – Algeria, Israel, Syria, Turkey and Morocco – are responsible for this increase alongside others outside the IOC such as Palestine and Chile.

The olive oil produced in the 27-Member European Union accounted for close to 73% of world production. The breakdown of this percentage between its chief producing countries shows shares of 46% for Spain, 15% for Italy, 10% for Greece and 2% for Portugal.

According to the provisional figures, **consumption** (2,984,000 t) was 42,000 t higher than in 2009/10. Over 62% of this tonnage was consumed in the EU. Production outstripped consumption by 34,500 t.

World imports are provisionally assessed at 717,000 t and exports at 647,000 t. IOC Members accounted for

more than 96% of world exports while the share of the EU was equivalent to 65% of the world total.

Closing stocks (844,500 t) exceeded normal bridging requirements. The ending stocks of the EU/27 (599,000 t)

are provisionally assessed at 71% of the world total.

Through 2010/11 aggregate imports of olive oils and olive pomace oils into the nine importing countries listed in Table 1 recorded a year-on-year increase of 8%.

The breakdown shows increases in China (+61%), Russia (+47%), Brazil (+21%), South Korea (+12%), Canada (+8%) and the United States (+7%), contrasting with decreases in Japan (-13%) and Australia (-10%).

TABLE 1
Shifts in olive oil imports
(including olive pomace oils) (1000 t)

Country	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Australia	30.0	27.0	32.0	31.0	29.0	32.7	42.1	27.8	29.0	35.5	31.9
Brazil	25.0	23.0	21.0	24.0	27.0	26.0	36.0	44.0	44.5	53.8	65.0
Canada	26.0	24.0	25.0	26.0	32.0	30.0	34.0	34.0	32.0	37.9	41.0
South Korea	2.6	3.2	5.1	12.0	27.1	23.1	11.7	12.5	9.5	11.4	12.8
China	0.4	0.5	0.8	2.0	4.0	5.7	7.0	10.4	12.8	20.6	33.2
United States	215.0	218.0	216.0	248.0	246.9	242.5	262.0	264.0	276.5	272.0	292.0
Japan	30.0	32.0	31.0	32.0	33.2	30.2	32.0	30.0	33.3	43.0	37.5
India	0.5	0.9	0.9	1.0	1.0	1.4	1.5	2.5	2.7	3.4	5.0
Russia	3.0	5.1	7.7	8.6	11.7	10.5	16.6	19.3	16.5	24.8	26.6
Total	332.5	333.7	339.5	384.6	411.9	402.1	442.9	444.5	456.8	502.4	545.0

Estimates for 2011/12

Estimates for this crop year (at November 2011) assess olive oil **production** at 3,098,000 t, which works out at 3% more than the previous season. If confirmed, this will be the second highest tonnage after the 3,174,000 t produced in 2003/04. A step-up is also expected in **consumption** to a record level of 3,078,500 t. According to international trade forecasts, exports will come to 691,500 t, thus falling short of estimated imports (715,500 t).

Crop year comparisons

Graphs 1 and 2 compare world production and consumption of olive oil in two separate four-year periods and point to a rise of 6% in both cases.

Producer prices

The **prices paid to producers for extra virgin olive oil** on the three key producing EU markets –Bari (Italy), Heraklion/Messenia (Greece) and Jaén (Spain) – affect roughly 73% of the olive oil produced in the

world. They also have an impact on the prices paid elsewhere in the EU and in other producing countries, particularly on export prices.

Compared with the previous crop year, average prices in 2009/10 dropped by 6% in Jaén and 4% in Heraklion but rose steeply by 25% in Bari.

The first quarter of 2009/10 opened with a price downturn on the three EU markets (Graph 4). However, while prices later oscillated downwards in Spain and Greece, they climbed sharply

in Italy and peaked at €390.4/100kg in May 2011. By the end of January 2012, extra virgin was fetching prices around €233.0/100kg in Bari, down by -23% on the same month the season before, and €184.5/100 kg in Heraklion (-7%) and €177.0/100 kg in Jaén (-11%).

The prices and indices for extra virgin olive oil in 2009/10 are summarised in Table 4 and compared with the figures for the three preceding seasons and the year after.

The 2009/10 crop year opened with price drops on both European markets. In December 2011 prices in Córdoba were lying at around €168.0/100 kg, down by 10% on the same period of the previous season, and at €178.0/100 kg in Bari (-9%). No data are available for Greece.

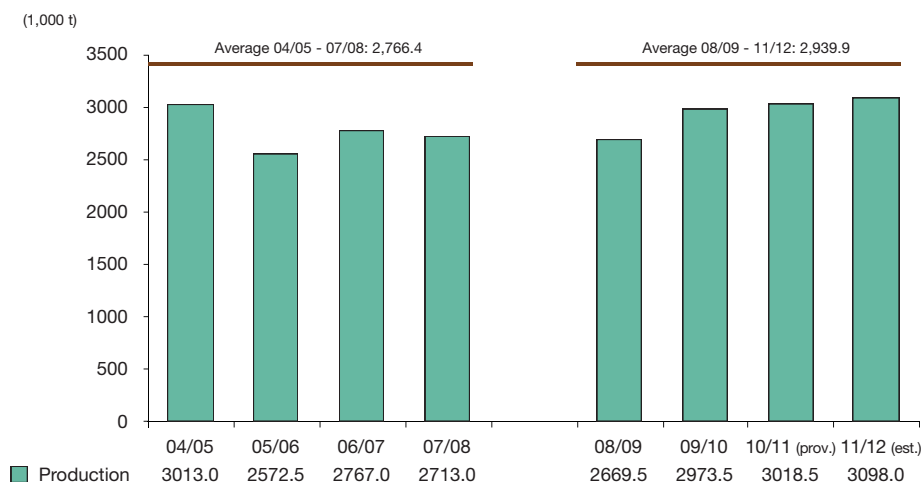
TABLE OLIVES

Final figures for 2009/10

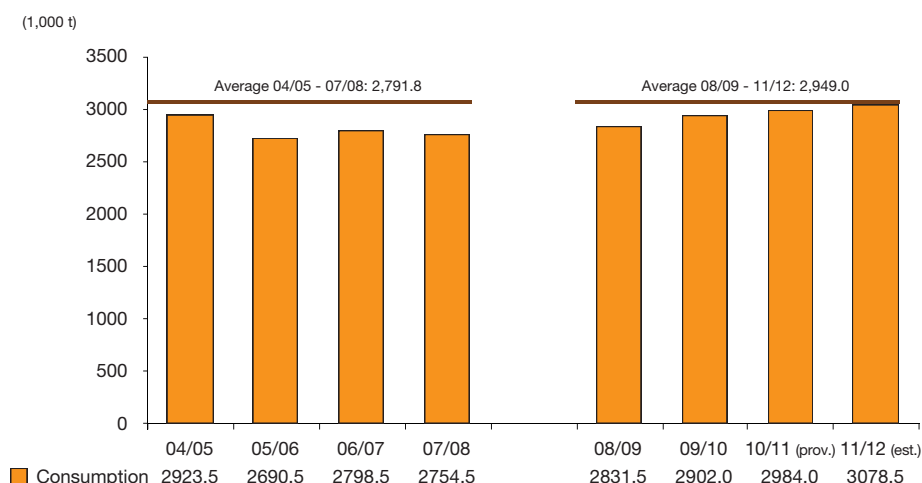
The crop year opened with **stocks** of 378,500 t. Approximately 95% of this tonnage was held by IOC member countries. The EU/27 accounted for 60% of the world total.

World production (2,369,000 t) was 286,500 t higher than the year before (+14%). Ninety-three per

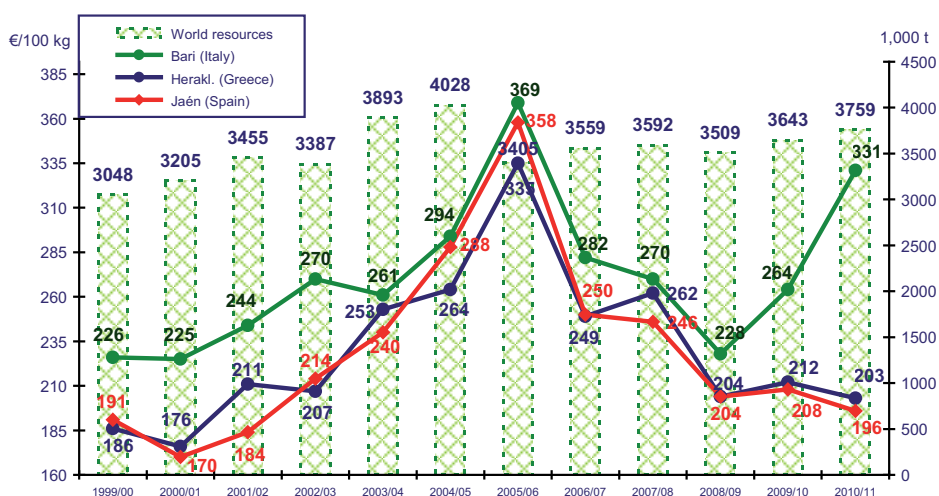
Graph 1. Olive oil production: comparison of two four-season periods (2004/05–2007/08 and 2008/09–2011/12).



Graph 2. Olive oil consumption: comparison of two four-season periods (2004/05–2007/08 and 2008/09–2011/12).



Graph 3. Average producer prices by crop year (1999/00 – 2010/11) for extra virgin olive oil.



Graph 4. Movements in average monthly producer prices for extra virgin olive oil.

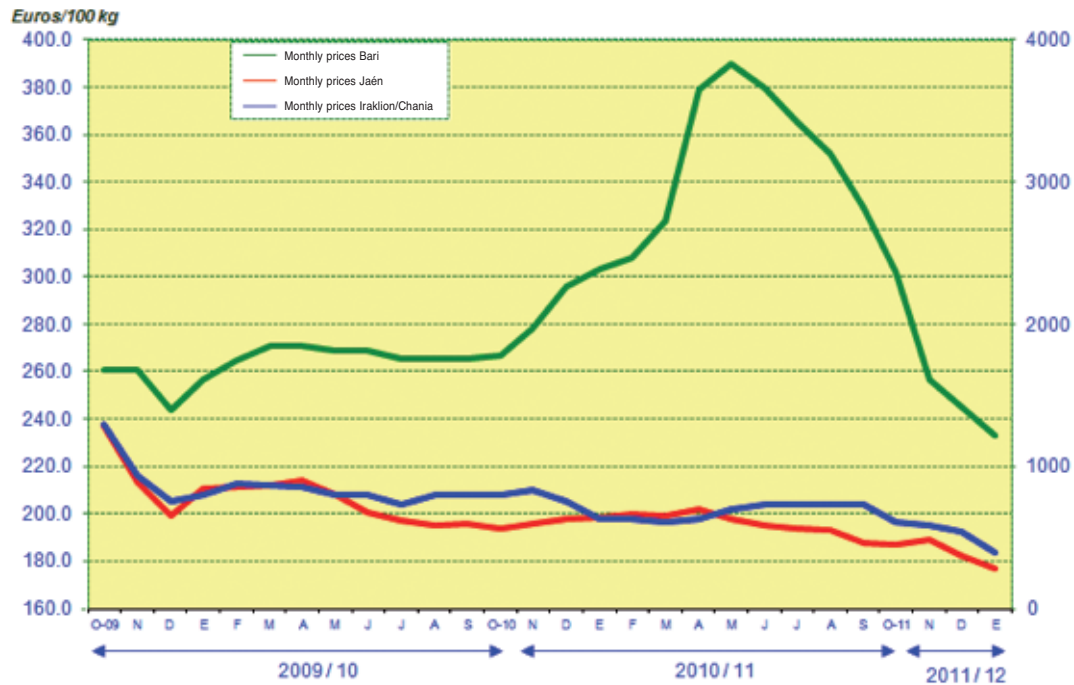


TABLE 2
Prices and price indices for extra virgin olive oil

Market	2006/07		2007/08		2008/09		2009/10		2010/11	
	€	I	€	I	€	I	€	I	€	I
Bari	281.9	76	269.9	73	227.7	62	263.9	71	331.0	90
Heraklion	249.0	74	261.7	78	204.3	61	211.7	63	203.0	61
Jaén	250.4	70	246.2	69	203.7	57	208.1	58	196.0	55
Mean Index	260.4	74	259.2	73	211.9	60	227.9	64	243.3	69

cent of the world's table olives were produced by the member countries of the IOC. The EU/27, Egypt, Turkey, Argentina, Algeria, Syria and Morocco were the top producers, taking an aggregate 87% share of world production.

Compared with the season before **world consumption** (2,199,000 t) was 89,000 t higher than in 2008/09 (+4%). IOC member coun-

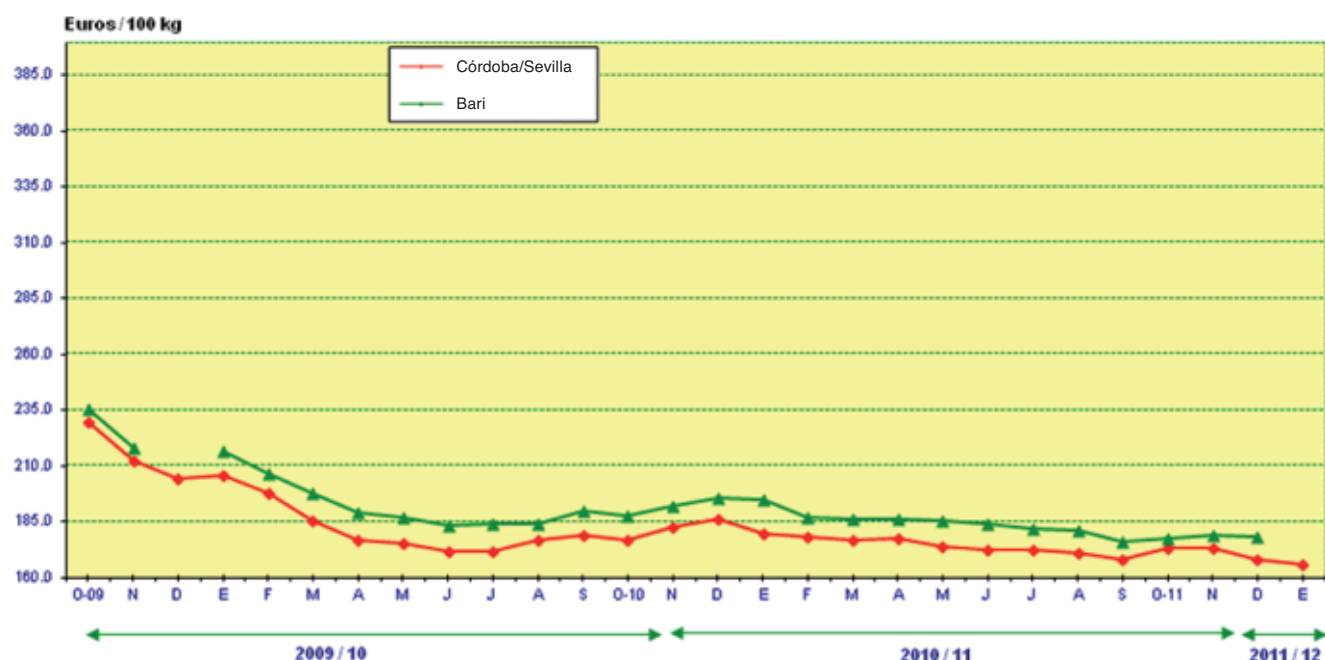
tries accounted for 73% of this consumption while the EU/27, Egypt, Turkey, Syria and the United States together accounted for 71% of the world total.

Looking at **international trade**, imports (628,500 t) were higher than the season before and exports came to 693,000 t. The EU/27, Egypt, Turkey, Syria, Argentina and Morocco were the leading exporters, ac-

counting for 92% of world exports, the bulk of which went to the United States, EU/27, Brazil and Russia.

At 30 September 2010, **closing stocks** amounted to 484,000 t, representing an increase of 105,500 t from the level at the start of the year. Ninety-six percent of these stocks were in the hands of IOC member countries, of which 38% was held in the EU/27.

Graph 5. Movements in average monthly producer prices for refined olive oil.



Provisional figures for 2010/11

The provisional figures for 2010/11 assess **world production** at around 2,440,000 t. This reflects a season-on-season increase of 71,000 t (+3%), chiefly prompted by higher production in the EU/27 (Spain and Greece), Argentina, Syria, Morocco and Jordan.

World consumption (2,205,000 t) of table olives is expected to be 6,000 t higher than the previous crop year. It is noteworthy that consumption has experienced constant growth in recent years.

World **exports** are expected to reach 595,500 t and imports 580,000 t, thus showing an export lead of 15,500 t.

As can be seen from Graph 6, average production between the 2008/09 and 2011/12 crop years is estimated at **2 364 100 t**, representing an increase of +20% with respect to the average for the preceding four seasons. It is striking that production topped the two-million-tonne mark from 2006/07 onwards, reflecting higher production in Egypt in particular.

Average table olive consumption in 2008/09–2011/12 is estimated at 2,223,100 t, which works out 13% above the average for the four preceding crop years (Graph 7).

In the case of **international trade**, exports during the period 2008/09–2011/12 average 658,800 t, showing a 20% increase on the same

previous period while the figure for imports is estimated at 591,100 t (+14% with respect to the same period).

Estimates for 2011/12

At November 2011, estimates assessed **world production of table olives** at 2,565,000 t, representing a step-up of 125,000 t from the season before (+5%). The source of this rise was chiefly higher production figures for Algeria, Egypt, Syria and Turkey.

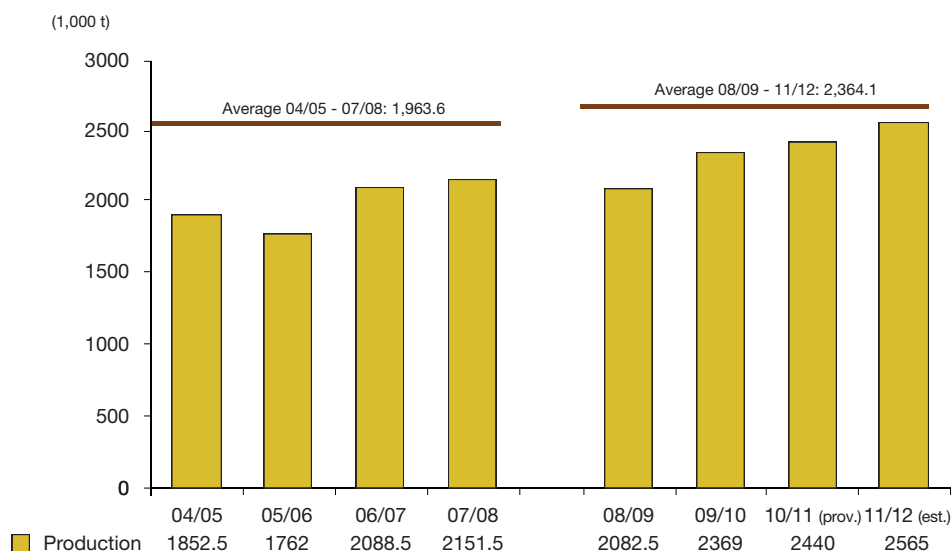
World consumption (2,387,500 t) was expected to rise by 182,000 t, an increase driven by good harvests and the impact of domestic and international promotional campaigns.

In the **international trade** arena, world exports came to 762,000 t and imports to 610,000 t according to estimates.

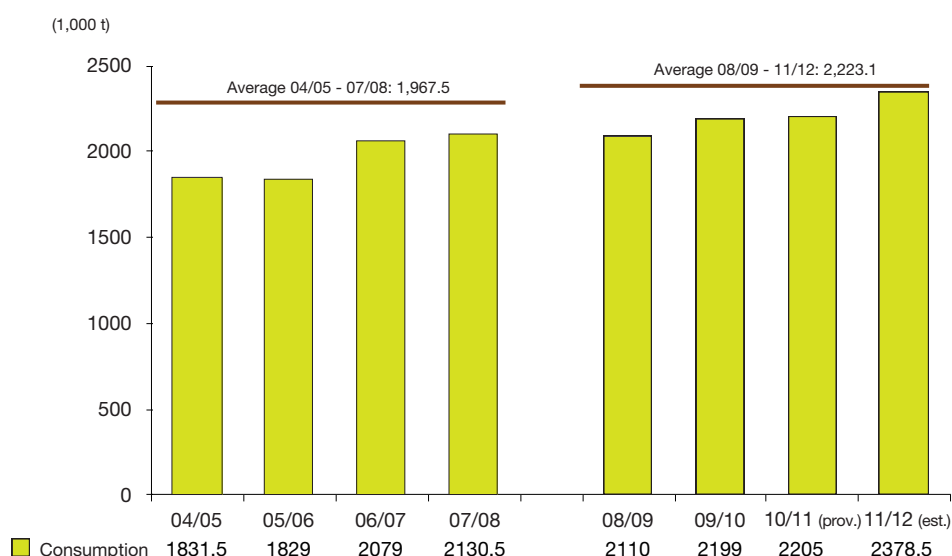
Trend of the table olive sector

The data available, coupled with Graph 8, confirm the expansion of the table olive sector. During the period between 2001/02 and 2010/11 world production of table olives grew by 82% and consumption expanded by 78% compared with the previous decade (1991/2–2000/1). ■

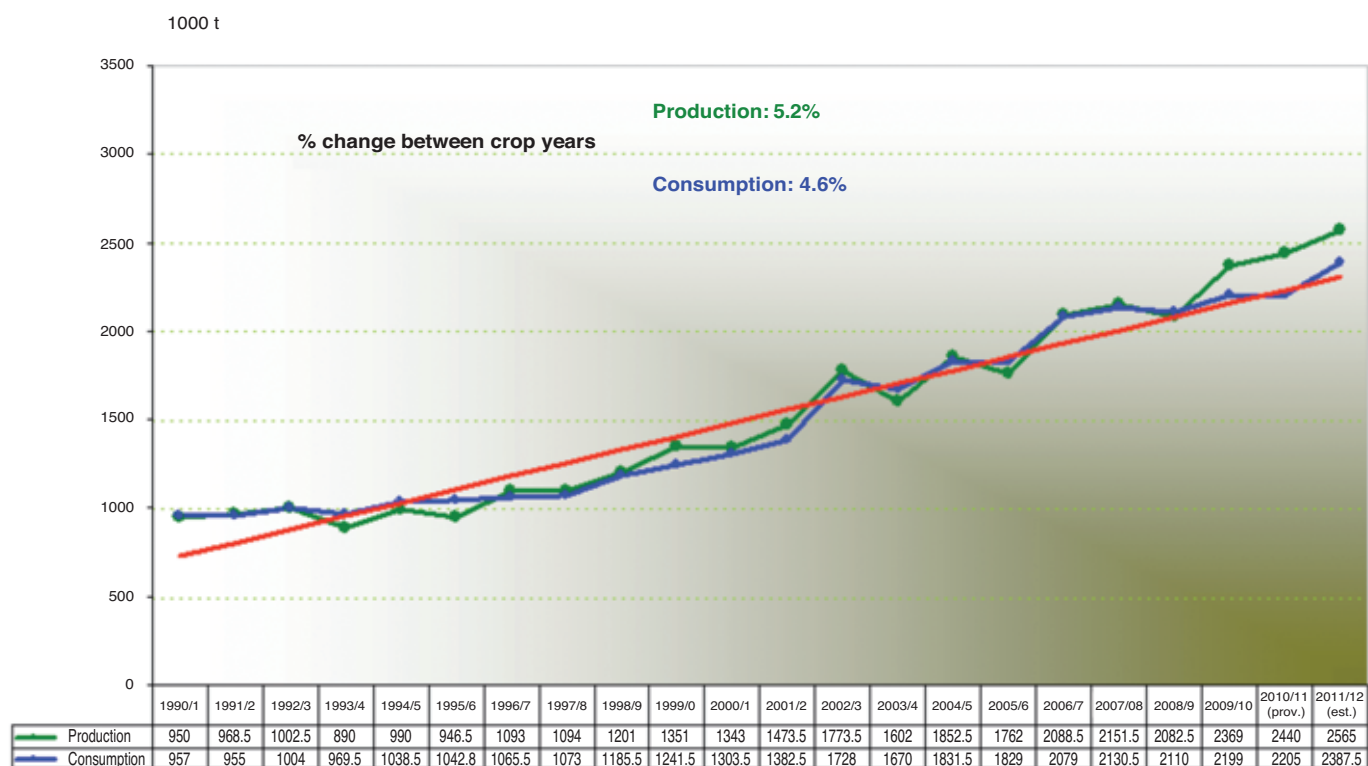
Graph 6. World production of table olives: comparison of two four-season periods (2004/05–2007/08 and 2008/09–2011/12).



Graph 7. World consumption of table olives: comparison of two four-season periods (2004/05–2007/08 and 2008/09–2011/12).



Graph 8. Trend of world production and consumption of table olives (1990/91–2011/12).



Standardising olive products

The International Olive Council is the world forum for all the players involved with olive growing, olives and olive oils.

Its activities are geared toward improving product quality by helping to modernise olive growing and the olive and olive oil industry without overlooking environmental concerns, by drawing up trade standards and stimulating the expansion of trade and by increasing consumption through promotion driven by the results of scientific research.

Since its inception, the IOC has worked on identifying analytical criteria to detect fraud and to determine the quality of olive oils and olive pomace oils. With the consensus of its Members, it has fixed limits for each analytical criterion and grade and established methods of analysis. These criteria, limits and methods have been incorporated into the international standards for olive oils and olive pomace oils, i.e.:

- The IOC trade standard, which Members pledge to apply in their legislation and to abide by in their international trade. It features the specifications for each grade of olive oil and olive pomace oil.
- The Codex Alimentarius standard, applicable to

edible olive oils and olive pomace oils, which fixes minimal compositional and quality criteria for application by the member governments of the Codex Alimentarius Commission. By accepting these criteria, governments agree to incorporate them into their legislation or to require their commercial partners to comply with them. It also features other compositional and quality criteria for optional application by commercial partners.

The alignment of standards is the key recipe to facilitate international trade, to encourage and monitor fair trading practices and to protect consumer health and make sure that product is true-to-label. The agreements concluded on sanitary and phytosanitary measures and technical trade barriers under the umbrella of the World Trade Organisation are thus safeguarded.

The IOC and Codex standards cite the same international methods of analysis. Complete with precision values, these methods have been validated and adopted by organisations such as the International Organisation for Standardisation (ISO), the International Union of Pure and Applied Chemistry (IUPAC), the IOC or the American Oil

Chemists' Society (AOCS). Methods developed under IOC auspices, identifiable from their COI/T.20 reference, are released on the IOC website.

The IOC and the Codex Alimentarius Commission have always worked closely on approximating their standards. Most recently, this drive for harmonisation led to the adoption of the revised trade standard by the IOC in June 2003 and the adoption of the revised Codex standard by the Codex Alimentarius Commission at its 26th session in June–July 2003 in Rome.

Another facet of IOC/Codex cooperation is the survey undertaken by the Executive Secretariat of the fatty acid composition of the olive oils made in the olive growing areas of every producing country in the world with the aim of fixing the maximum limit for linolenic acid content. When the 1% ceiling specified for linolenic acid in both the IOC trade standard and EU regulation was proposed for inclusion in the revised Codex standard, Codex Members were unable to reach a consensus due to opposition from Australia, New Zealand and Argentina in particular.

The findings of the IOC survey were presented to the

IOC Members and the Codex Committee on Fats and Oils at the beginning of 2007.

In February 2011, after several rounds of discussions, no agreement was reached and the CCFO did not adopt any limit for linolenic acid content. As a result, national limits will be applied.

A fresh three-year survey was launched in 2009/10 and is currently underway to examine the composition of olive oils with chemical parameters outside the limits fixed in the standard. The report on its conclusions will be submitted to the Council of Members for adoption at its 100th session in November 2012. After that, it will be presented to the CCFO in February 2013.

Organoleptic assessment of virgin olive oil, a complementary quality criterion to chemical analysis

The ISO defines sensory analysis as *the science which uses methods to examine the organoleptic attributes of a product via the sense organs*. Its beginnings can be traced back to the 1940s. Since then, particularly in the last 30–40 years, it has blossomed through the application of new statistical and mathematical techniques and the elaboration of standards on the physical conditions of sensory testing. Sensory analysis

draws on the psychology of perception and memory to optimise the testing tool, i.e. the taster or assessor.

The application of sensory analysis to olive oil began in the 1970s in studies carried out by the Fats & Oils Institute in Seville. A decade later, in 1981, the IOC decided to set about developing a method based on internationally accepted standards and methods for the objective assessment of the olfactory/gustatory characteristics of olive oils, which were defined at the time as *flawless*, *acceptable*, *good* or *defective* depending on their grade.

Between 1982 and 1986 experts on olive oil sensory analysis from six countries worked on a method, eventually adopted by the IOC in 1987 and incorporated into EU regulations in 1991. That makes the standardisation of organoleptic olive oil assessment 25 years old.

The inclusion of organoleptic assessment in the IOC trade standard and EU regulation as a quality grading criterion for virgin olive oil on a par with free acidity, peroxide value and ultraviolet absorbance caused disquiet in the olive oil industry and trade. Despite the fact that the precision values of the method were acceptable, the as yet short experience of the panels prompted talk of a lack of uniformity in the appraisals of the tasters.

This impelled the IOC to team up again with its experts in 1992 to review the method and establish a procedure for grading virgin olive oils based on the absence/presence of defects, the intensity of any defects and the perception of the oil's fruitiness, regardless of its description or intensity. Since this method was meant to remove any room for assessor subjectiveness, it incorporates mathematical formulas (robust statistics based on the median, robust coefficients of variation and confidence intervals at 95%). The taster is used as an instrument for measuring the intensity of perceptions on a continuous scale. This makes it easier for the data to be mathematically applied and automatically processed and leaves tasters free to note their perceptions without the constraints of intervals.

Since the integration of organoleptic assessment into the IOC standard and EU regulation, producers and others have centred their attention on achieving a very significant improvement in the sensory quality of virgin olive oils. The information relayed to consumers, the organisation of regional, national and international competitions and the growing number of applications for and award of geographical indications have combined to add lustre to the image of olive oil, particularly the organoleptic characteristics that make up its *fruitiness*.

IOC recognition scheme for physico-chemical and sensory testing laboratories

The IOC has a scheme in place for the recognition of the proficiency of physico-chemical testing laboratories. Recognition is issued for a one-year period (1 December–30 November) on the basis of a set of conditions most recently amended in November 2011 when the Council of Members approved a new Decision in place of the former Resolution in force since 1998. This activity is a core aspect of the drive for better quality control.

Around 70 laboratories take part in the annual proficiency check test, which is invaluable not just in monitoring laboratory competence but also in generating statistical data on testing methods.

But overseeing lab quality and establishing the precision values of testing methods are not the only objectives of the check test. It also produces a reference list of the chemical testing laboratories that have earned IOC recognition every year, which is updated annually and posted on the IOC website.

Mirroring the chemical lab scheme, the IOC has also passed a set of rules to award recognition to tasting panels which perform the sensory analysis of virgin olive oils. The Resolution adopted in

1996 requiring applicant panels to pass three annual check tests was replaced in December 2003 by a Decision requiring participation in two check tests a year.

Ever since it adopted the first method for the organoleptic assessment of virgin olive oils in 1987, the IOC has included training courses in its technical cooperation programmes in order to teach panels to apply the method.

It has recommended its Members to set up tasting panels in line with IOC standards besides running the annual panel proficiency tests and holding coordination meetings to discuss the test results and to unify application criteria.

At their 89th session (Madrid, 1–5 December 2003), the IOC Members agreed the rules for IOC recognition of tasting panels needed to be revised. So, it was decided that recognition would only be issued to applicants recognised to be official tasting panels by their home countries (or by the EU authorities in the case of EU countries) and accredited as olive oil sensory testing labs in line with ISO 17025 and the EA guide (European Cooperation for Accreditation) for the accreditation of sensory testing labs.

This way, the IOC has assurances about panel equip-

ment, installations, the ability of tasters and panel leaders and quality management. The check tests then appraise panel performance in terms of competence and uniformity.

The Executive Secretariat continues its drive to harmonise panel evaluation by supplying samples for training and monitoring tasters as well as control samples for independent bodies in charge of holding tests.

International extra virgin olive oil competition for the IOC Mario Solinas Quality Award

In 1993, the IOC decided to create an annual international competition for extra virgin olive oils as an initiative to help attain the objectives of the International Olive Oil and Table Olive Agreement. Entries are judged by an international panel and the prizes in the Award, named after the late Professor Mario Solinas, go to the oils with the top scores.

That this yearly competition is very important to people in the olive oil industry as an international plaudit for their efforts to market organoleptically impeccable extra virgin olive oils is proven by the fact that the number of entries is climbing by the year.

The competition rules are published on the IOC web-

site. They explain the rules for the admission of entries and the evaluation of the oils, which is done by a number of IOC-recognised panels and an international panel of judges who choose the prize winners from among the finalists.

Eligible entries are classified in one of three sections according to the type and intensity of their fruitiness after assessment by a recognised IOC panel. Prize winners can order a special prize logo from the Executive Secretariat for display on bottles of oil from the same tank as their winning entry.

The success of the Award in the previous twelve years augurs well for 2013, when it will enter its 13th year and it is expected to do an even better job of showcasing the organoleptic attributes of extra virgin olive oils to consumers and to bring additional benefits for producers.

Agreement for the quality control of the olive oils and olive pomace oils sold on import markets

The IOC strives to defend olive oil's image and to fight fraud. One way it does so is by sponsoring a scheme for the quality control of the olive oils and olive-pomace oils sold by IOC member countries on import markets. The aim is to guarantee that ex-

ported oils are properly defined and named, that their physico-chemical characteristics are true to grade and that they comply with IOC labelling criteria. The scheme was first set up in July 1991 in the United States and Canada where an agreement was signed between leading exporters from the IOC member countries and the North American Olive Oil Association (NAOOA). In 1993, it was extended to Australia where another agreement was signed with the Australian Olive Oil Association (AOOA). More recently, it has been extended to Brazil and Japan. To avoid fragmentation, the various separate agreements were merged into a single document known by the official title of *Agreement for the quality control of the olive oils and olive-pomace oils sold on import markets*. This agreement was revised in 2011 and signed on a voluntary basis by a good many associations representing producers and exporters from the IOC member countries and importers or distributors operating on the target markets.

Concluding remarks

Among its principal objectives, the IOC aims to encourage the expansion of international trade in olives and olive oil and to develop, update and harmonise trade standards for these products in order to improve product quality, ensure

product authenticity and protect consumers.

It is extremely important that the organoleptic assessment of virgin olive oil has been acknowledged and accepted by all the branches of the olive oil industry as the most representative criterion for quality analysis. It is likewise important that the IOC adopted a method for this purpose in 1997, based on sensory analysis science, which draws on psychology, the senses, mathematics, statistics and uniform testing conditions, and which has excellent repeatability and reproducibility values.

Fragrance and taste are the only characteristics that consumers perceive in virgin olive oil. By enhancing the sensory quality of the virgin olive oils they produce, olive growers and olive oil processors help to make consumers flavour conscious and to make them appreciate the gastronomic versatility and differing fruitiness of extra virgin olive oils, which is shaped by geographical origin, variety and extraction technology.

This experience is now starting to be applied to olives too. After adopting a method for the sensory analysis of table olives, the IOC has started organising the first training initiatives in 2012. ■

IOC olive oil chemistry and standards-related activities in 2011/2012

At the Executive Secretariat, work in the areas of olive oil chemistry and standardisation is coordinated by a Unit which is responsible for drawing up standards and developing chemical and sensory methods of analysis for application to olives and olive oils. The Unit also processes the applications received for IOC recognition from chemical testing laboratories and tasting panels that prove they are proficient in applying the recommended testing methods by passing regular check tests; it organises the *Mario Solinas*

Quality Award and it coordinates the olive oil quality control programme on import markets.

Among other things, Unit work has encompassed meetings with expert and discussion groups, namely:

- Expert technical committee responsible for **monitoring the proficiency of IOC-recognised physico-chemical testing laboratories** (3 February and 15 July);
- Discussion group on the **quality control programme** (15 February);
- Working group on the **organoleptic assessment of table olives** (9 March);
- Working group on the **harmonisation of the Codex and IOC table olive standards** (10 March);
- Expert chemistry group on **new testing methods** (7–8 April and 6–7 October);
- Expert technical group in charge of **monitoring the proficiency of IOC-recognised sensory testing laboratories** (19 May);



- Discussion group on the **quality control programme on import markets** (24 May);
- Expert group on **oil-olives** (26 May);
- Expert group on the **determination of contaminant residues in olive oils and olive pomace oils** (7 July);
- Working group on the **organoleptic assessment of virgin olive oils and harmonisation of tasting panels** (29 and 30 September);
- Working group on the **varietal composition of olive oils** (5 October);
- Groundwork meeting on **labelling** (1 December).

On top of these meetings, the Unit hosted the **22nd meeting of the ISO Subcommittee on Animal and Vegetable Fats and Oils** (ISO TC34/SC11) on 4 and 5 April.

As in previous years, it ran the four **annual proficiency check tests** (two each) held under the IOC recognition programme for **sensory testing** and **physico-chemical testing laboratories**.

For the **11th international extra virgin olive oil competition for the Mario Solinas Quality Award**, the Unit convened the international panel of judges made up of expert tasters from IOC member countries who met on 18 and 19 May to judge the 97 entries from a spectrum of IOC Members.



Prize giving ceremony, Mario Solinas 2011

The **annual international extra virgin olive oil competition for the IOC Mario Solinas Quality Award** was launched in 2000 to encourage individual producers, producer associations and packers to market 'harmonious' extra virgin olive oils and to promote their sensory attributes to consumers. By naming the Award after Mario Solinas, the IOC wished to pay tribute to the memory of this researcher who did so much, side by side with the Council, to standardise the quality criteria of olive oils.

The prize giving ceremony was held at the IOC headquarters on 17 June 2011, preceded by a tasting of the prize winning oils for the diplomatic corps and trade press.

Technical/scientific meetings of experts

These meetings are meant to allow scientists to hold discussion groups to review subjects of relevance to the industry and to identify the most significant innovations

for dissemination to the member countries.

One such meeting took place at the IOC offices on 19–21 September on the subject of the organoleptic assessment of table olives. Experts met to discuss the strategy for training leaders of table olive panels, to draw up the necessary documentation for training courses, to classify table olives and to establish reference samples of negative, gustatory, kinæsthetic and other attributes.

The work plan of the Unit also included coordinating two meetings of the **associations** which participate in the **olive oil quality control agreement** run on import markets, one in Istanbul, Turkey, during the 17th extraordinary session and the other at the IOC headquarters on 17 October. At the second meeting, association representatives approved a remodelled text of the agreement, which now incorporates organoleptic testing in addition to physico-chemical analysis.

99th session of the Council of Members (21–25 November 2011)

At the IOC's 99th session in November 2011, the members of the Technical Committee stressed the need to hold preparatory meetings with the Codex representatives of the IOC member countries in order to discuss the issue of olive oils whose composition is outside official limits.

The Council of Members also decided to recommend provisional application of the guide for the determination of the characteristics of oil-olives, to revise the method for the organoleptic assessment of table olives (whose application is not compulsory), to examine the arrangements for the award of IOC recognition to physico-chemical testing laboratories,

to revise the method for the organoleptic assessment of virgin olive oils and to adopt the method for the determination of the composition and content of sterols and triterpene dialcohols, applicable to olive oils as of 1 January 2012 and to olive pomace oils as of 1 January 2012, and to revise the IOC trade standard consequentially.

Priority lines of action for 2012

The chief objectives of olive oil chemistry and international trade standardisation activities are clearly defined in chapter I, article 1(2) of the International Agreement on Olive Oil and Table Olives, 2005, i.e.:

- To carry on conducting collaborative activities in the area of physico-chemical and sensory testing in order to add to the understanding of the composition and quality characteristics of olive products, with a view to establishing international standards enabling:
 - Product quality control
 - Fair international trading
 - Protection of consumer rights
 - Prevention of fraudulent practices
- To facilitate the study and application of meas-

ures for the harmonisation of national and international laws relating, in particular, to the marketing of olive oil and table olives;

- To lay the foundation of international cooperation to prevent and combat any fraudulent practices in international trade in any edible olive products by establishing close co-operative ties with the representatives of the stakeholders in the olive products sector.

To achieve these objectives, the chemistry experts will continue to study and update testing methods to detect fraud and identify quality criteria for each grade of olive oil and olive-pomace oil and ring tests will be held to determine their reliability.

The development of new testing methods takes into account industry needs in terms of olive oil chemistry and standards, fraud prevention and quality enhancement. Topics are put forward by the Members as well as by the chemistry experts who cooperate with the IOC and who represent official laboratories and agencies from the member countries. The Executive Secretariat includes the topics in the agenda for the chemists' meetings and schedules tentative dates for their consideration.

Topics are influenced by scientific research and by the

finalisation and adoption of methods, if considered reliable, which in turn depends on the results of ring-tests. Updating testing methods is useful for drawing up standards, making sure international trading is conducted fairly, detecting fraud and identifying quality criteria for each grade of olive oil and olive-pomace oil.

The annual proficiency check tests of physico-chemical testing laboratories and tasting panels will also be arranged to issue IOC recognition for the period from 1 December 2012 to 30 November 2013 according to the terms of the Decision revised at the 99th session. This activity is central to better quality control. The list of recognised laboratories will be released as soon as it is approved by the IOC at its 100th session.

The international competition for the IOC Quality Award for extra virgin olive oils will be arranged. This annual IOC accolade enjoys great prestige in the sector because of its international

scope. The aim is to acknowledge the expertise of producers, packers and distributors in producing extra virgin olive oils with harmonious attributes and to reward their efforts to improve quality and strengthen the consumer image of extra virgin olive oil as a quality flavour product. The prestige of the award leads to recognition from the sector. It is planned to publicise the Award more widely to draw more entries, especially from producing countries that are not yet IOC Members. The position and objectives of the Award vis-à-vis national competitions and the possibility of arranging a competition for countries in the southern hemisphere or a table olive quality competition are questions for potential future discussion.

In 2012, the IOC will:

- Carry on with the olive oil composition survey and research into oils whose parameters lie outside the limits specified in the standard

(third year and conclusions)

- Prepare for the Codex session in February
- Update the method and standards for the organoleptic assessment of virgin olive oil
- Continue working on the harmonisation of the Codex and IOC table olive standards with an eye to the 26th session of the Codex Committee on Processed Fruits and Vegetables, scheduled for 15–19 October 2012. Reference standards will be established for table olives and training will begin on table olive sensory analysis
- Test the processing yield formulas cited in the *Guide on the characteristics of oil-olives*, adopted provisionally in 2011
- Continue work on the determination of contaminant residues
- Continue work on olive oil labelling
- Continue to implement the quality control programme on olive oil import markets. ■



