Andalusian Bioeconomy Strategy

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www.ifapa.es
Area: 87,597 km\(^2\)  
(17% of the Spanish area, 2% of the UE28 area)

**Andalusian population** (8,4 M) represents 1.70% of the EU28 total population and 18.1% of the Spanish population

In 2014, the Production of the Agrarian Sector of **Andalusia**, worth **10,627 million €**, represented 2.6% EU-28 and **25.1%** of Spain

The **agri-food industry** is the first **industrial sector**. The value of the agri-food production is around **14.000 M€**, **17%** of Spanish total
Andalusian main farming systems

Dehesa

Andalusian farming systems

Extensive annual crops

Olive

Berries

Irrigation systems

Tropical crops

Protected crops

Mountain farming

Andalusian main farming systems

"Irrigation systems"
What is IFAPA?

- The Agricultural and Fishery Research and Training Institute (IFAPA) is an autonomous organisation of the Andalusian Regional Administration.

- OBJECTIVE: Contribute to the modernization of the agricultural, fishing and food sectors through applied research, innovation, transfer of technology, training and advisory services, ensuring the sustainability of these productive sectors.
What is IFAPA?

- **800 employees** and a network of 18 centres throughout the Andalusian region. Close to the farms and the agri-business industry.
- **1,311 Has** for trials and experimentation
- **Agroindustrial facilities** (wineries, oil mills, ...)
- **Aquaculture facilities** (breeding, fattening, ...)
- **Germplasm banks** (olive groves, legumes, cereals, vine, strawberries, horticulture)

**Trends**

- Demand for food will grow (+50% in 2050). Ever higher increase in meat, fruits and vegetables
- Increasing food demand is worsening competition for natural resources, land degradation
- Climate change is jeopardizing crop and livestock production
- Globally one third of all food produced is lost or wasted
- Outbreak of transboundary pests and diseases of plants and animals is growing alarmingly

**Challenges**

- Sustainably improve agricultural productivity to meet increasing demand
- Ensure a sustainable natural resource base. Sustainable intensification
- Address climate change and intensification of natural hazards
- Make food systems more efficient, inclusive and resilient
- Prevent transboundary and emerging agriculture and food system threats
Specific challenges in the Mediterranean region

- MEDITERRANEAN SYSTEMS HAVE THEIR SPECIFIC CHARACTERISTICS
- Specific crops (olive, almond, vine, citrus etc)
- Specific agri-systems (dehesa, woody permanent pastures...)
The importance of irrigation in Andalusia

**Cultivated area**
3,183,567 ha

**Final agricultural production 2013**
9,831 million €

**Jobs**
260,000 AWU

2,6 Mha hectares of the Andalusian area are included in the Natura 2000 Network (about 30% of the total of the region)

Specific challenges in the Mediterranean region: environmental problems

Mean soil erosion rates at NUTS-3 level for arable lands (tonnes per ha per year), 2010, EU-28

Source: Joint Research Centre, European Commission
Specific challenges in the Mediterranean region: climate change

Arctic
- Temperature rise much larger than global average
- Decrease in Arctic sea ice coverage
- Decrease in Greenland ice sheet
- Decrease in permafrost area
- Increasing risk of biodiversity loss
- Intensified shipping and exploitation of oil and gas resources

Coastal zones and regional seas
- Sea level rise
- Increase in sea surface temperatures
- Increase in ocean acidity
- Northward expansion of fish and plankton species
- Changes in phytoplankton communities
- Increasing risk for fish stocks

North-western Europe
- Increase in winter precipitation
- Increase in river flow
- Northward movement of species
- Decrease in energy demand for heating
- Increasing risk of river and coastal flooding

Mediterranean region
- Temperature rise larger than European average
- Decrease in annual precipitation
- Decrease in annual river flow
- Increasing risk of biodiversity loss
- Increasing risk of desertification
- Increasing water demand for agriculture
- Decrease in crop yields
- Increasing risk of forest fire
- Increase in mortality from heat waves
- Expansion of habitats for southern disease vectors
- Decrease in hydropower potential
- Decrease in summer tourist and potential increase in other seasons

Northern Europe
- Temperature rise much larger than global average
- Decrease in snow, lake and river ice cover
- Increase in river flow
- Northward movement of species
- Increase in crop yields
- Decrease in energy demand for heating
- Increase in hydropower potential
- Increasing damage risk from winter storms
- Increase in summer tourism

Mountain areas
- Temperature rise larger than European average
- Decrease in glacier extent and volume
- Decrease in mountain permafrost areas
- Upward shift of plant and animal species
- High risk of species extinction in Alpine regions
- Increasing risk of soil erosion
- Decrease in ski tourism

Central and eastern Europe
- Increase in warm temperature extremes
- Decrease in summer precipitation
- Increase in water temperature
- Increasing risk of forest fire
- Decrease in economic value of forests
Biomass as an opportunity

- Significant biomass potential in terms of agricultural biomass (extensive areas of olive groves, fruit and vegetables in the region). The biomass potential amounts to 3.955 ktoe of which 1.322 area agricultural waste, 1.023 industrial waste and 322 forest waste.
- Important concentration of the feedstock.
- Availability of other interesting waste streams such as paper & pulp, sewage sludge, plastics and MSW (waste).
Biomass as an opportunity

- Large amount that is not currently use and therefore available
- The olive oil biorefinary complex is well developed and the pomace oil is being used for different high-value applications.
- In horticulture and forestry waste streams only less advanced conversion options are operational in Andalusia

830 Olive mills

38 extraction plants

Olive oil

Olive pomace paste

Pomace oil
Andalusian Bioeconomy Strategy

• Strategy of the whole Government: 4 departments involved
• Now in process of elaboration.
• The overall objective of the strategy will be the growth and sustainable development of Andalusia by promoting actions aimed at encouraging the production of renewable biological resources and processes.
• Specific objectives:
  • To improve the sustainability and competitiveness of the agri-food, fisheries and forestry sectors, encouraging the use of innovative practices that develop a circular economy.
  • Promote the competitiveness of industries that work with biological resources, promoting innovation, knowledge generation and technology transfer.
  • To promote the reuse of resources, water, gases, nutrients and the use of vegetal residues to obtain other products, uses or energies.
  • Favor research, innovation and training related to the bio-economy.
  • To reinforce inter-administrative coordination, and synergies with other plans and work programs.
1. Introduction and definitions.
2. Description of the productive systems of Andalusia with repercussions in bioeconomics.
3. Description and evaluation of the existing biotechnology and bioenergy industries in Andalusia.
4. Evaluation and characterization of the potential of biomass resources in the agricultural, livestock, fisheries and agroindustrial sectors of Andalusia and its possible evolution.
5. Identification of the logistics necessary in Andalusia for the use of the resource flows that allow the stable supply chains.
6. Definition of research priorities aiming at multidisciplinary and multisectoral participation.
7. Drawing up an inventory of research and innovation activities, the centers and infrastructures available in Andalusia with competencies in these activities.
8. Creation of the Andalusian Bioeconomics network to improve synergies and dialogue between the Public Administration, researchers and civil society to facilitate the coherence of the policies adopted.
9. Proposals and measures of development and promotion of the different links that make up the processes of bioeconomy.
10. Description of indicators that allow to evaluate the progress and impact of the bioeconomy throughout the development of the strategy.
Model demonstrator region in Europe to lead the way towards a sustainable chemical production in Europe

Andalusia (Spain),
Groningen-Drenthe (The Netherlands)
Kosice (Slovakia)
Scotland (United Kingdom)
South and Eastern Ireland
Wallonia (Belgium).

- The 6 regions have been selected from 28 applicants from EU regions
- They will receive advisory support from the 'European Sustainable Chemicals Support Service' (ESCS), led by the European Commission and CIRCE (Center for Intelligent Research in Crystal Engineering).
- The aim is to encourage investments in sustainable chemicals production in Europe that will contribute to the development of the circular economy, for example by taking advantage of domestically available feedstock such as biomass, waste or CO2.
AGRI FOR VALOR

Video: https://www.youtube.com/watch?v=PBaI-z5z3Ls
S3P AGRIFOOD
Thematic Partnership on TRACEABILITY AND BIG DATA
SUBMEDIDA 4.2. APOYO A LAS INVERSIONES EN TRANSFORMACIÓN Y COMERCIALIZACIÓN O DESARROLLO DE NUEVOS PRODUCTOS AGRÍCOLAS.

- Cuantía máxima de la ayuda: 5.000.000 euros

- Intensidad de la ayuda:

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<th>Hasta el 31/12/2017</th>
<th>Pequeñas empresas y microempresas: 35%</th>
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<td>Desde el 1/1/2018 hasta el 31/12/2020</td>
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SUBMEDIDA 16.1. APOYO PARA LA CREACIÓN Y EL FUNCIONAMIENTO DE GRUPOS OPERATIVOS DE LA AEI EN MATERIA DE PRODUCTIVIDAD Y SOSTENIBILIDAD AGROALIMENTARIA

<table>
<thead>
<tr>
<th>OPERACIONES</th>
<th>GASTO PÚBLICO TOTAL PERIODO 2014-2020 (Euros)</th>
<th>INTENSIDAD AYUDA</th>
<th>CUANTÍA MÁXIMA AYUDA (Euros)</th>
</tr>
</thead>
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<tr>
<td>16.1.1. Ayudas a la creación de grupos operativos de la AEI.</td>
<td>1.250.000</td>
<td>100%</td>
<td>5.000</td>
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<tr>
<td>16.1.2. Ayudas al funcionamiento de los grupos operativos de la AEI.</td>
<td>12.550.000</td>
<td>100%</td>
<td>300.000</td>
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<td>16.1.3. Ayudas al funcionamiento de los grupos operativos de la AEI en el sector del olivar</td>
<td>5.594.591</td>
<td>100%</td>
<td>300.000</td>
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Se han identificado 33 Grupos Operativos relacionados con este proyecto de Química sostenible a través de la convocatoria año 2016.

MEDIDA 19. INICIATIVA LEADER – GRUPOS DE DESARROLLO LOCAL
THANK YOU VERY MUCH
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