

Forget Silicon Valley, Europe has its own Agricon Valley

The Spanish solar greenhouses in Almeria and Granada are known worldwide for their agricultural innovations

Spain is known for its beautiful landscapes, good food and plenty of sunshine hours. But in recent decades, the Spanish regions of Almeria and Granada have also emerged as a home for the world's leading biotechnology companies and start-ups. That is why this regio is also called the Agricon Valley. Dozens of multinationals that control 90% of the international seed market have established their research centres there. Before new agricultural technologies are spread to other parts of the world, they are first developed, researched and tested in the labs and solar greenhouses in southern Spain.

The Agricon Valley in southern Spain is known for its modern technologies and scientific innovations in agricultural techniques. These make it possible to increase production, extend the marketing calendar, ensure the profitability of cultivation and grow high-quality products. In addition, biotechnology companies also provide research to make fruit and vegetable production increasingly sustainable and environmentally friendly. All these innovations make it possible to produce some 4.5 million tonnes of fruit and vegetables annually in an area of 35,000 hectares in the provinces of Almeria and Granada. This production in Spain's solar greenhouses feeds 500 million Europeans throughout the year, both in summer and during the cold winter months.

"Our mission is to increase seed productivity, minimise cultivation risks and optimise resources. This way, we can make agriculture a more profitable, sustainable and scalable sector," says Roberto García, director of Agri-Food Innovation at Grupo Cajamar. "In the current context, where global warming is causing prolonged periods of drought, fossil energy is becoming increasingly scarce and unsustainable population growth is taking place, solar greenhouses are the most efficient, safe and sustainable alternative available to feed the world. This is also why many countries with similar climates, think Israel for example, are copying the Almeria model."

The five most important technological innovations in Spain's Agricon Valley are:

1. **Precision technology for the use of water**
2. **Genetic improvement**
3. **Biological control**
4. **The use of plastic sheeting**
5. **Digitalisation**

The PDF file below provides more info on the different innovations.

What is a solar greenhouse?

A solar greenhouse is a closed structure covered with a plastic film through which the sun's rays shine, giving the plants the light they need to maintain the right temperature for their development during the winter months so that they can carry out photosynthesis. In the process, the plants produce nutrients from the CO₂ they absorb from the air and release enormous amounts of oxygen into the atmosphere. Solar greenhouses are very different from the production methods used in other greenhouses, which use fossil fuel-based heating and lighting systems that consume up to 30% more energy and are therefore harmful to the environment.

What is NOT a solar greenhouse?

A greenhouse with solar panels that convert light energy into electrical energy that can then be used to artificially heat or illuminate crops.

About Cute Solar

Cute Solar is a promotion programme funded by the European Union (EU) and supported by a consortium of Andalusian fruit and vegetable growers' associations (APROA), the Spanish inter-branch fruit and vegetable association (HORTIESPAÑA) and the Assembly of European Fruit and Vegetable Growing Regions (AREFLH). The aim of the information and promotion campaign is to inform consumers about the sustainable and environmentally friendly production methods, the high standards of greenhouse technology and the quality of European fruit and vegetables.

The programme, with a total investment of €1.95 million, is co-financed by the proposing organisations and the European Union, will run for three years (2020-2022) and will be implemented in Spain, Germany and Belgium.

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PRESS CONTACT

Voor meer informatie kunt u contact opnemen met
Sam Jaspers
+32 499 28 34 00

PDF-file:

1. Precision technology for the use of water

Water is the world's most important, but often scarcest, resource for food production. In Almeria, where 24% of the land is dry, water is a rare commodity. Therefore, precision technology that ensures efficient water use is used in the solar greenhouses. Besides traditional scouring technology, drip irrigation, high-frequency, computer-controlled local irrigation or irrigation linked to climate control systems are most often used to conserve water in solar greenhouses.

2. Genetic improvement

Some of the world's leading biotechnology companies have their offices in Almeria. The centres of these multinationals conduct research into new varieties of fruit and vegetables that are better adapted to hot climates and more resistant to pests. They are also experimenting with seeds whose fruits vary in size, shape, colour and taste.

3. Biological control

The solar greenhouses in south-east Spain are world leaders in the use of insects as a natural pesticide to kill the pests that attack crops. Of the 35,000 hectares of protected crops in Almeria and Granada, 75% use this form of biological control. This practice benefits the quality of fruits and vegetables while promoting biodiversity and the sustainability of sunbelts.

4. Greenhouse covers

Almeria is the world's largest area for research, production and recycling of plastic sails. And although plastic sails seem very simple at first glance, they are the result of years of research and innovation.

"Scientists have succeeded in creating a plastic for the plastic tarpaulins that optimises crop growing conditions with the lowest possible energy consumption," said Roberto García, director of Agri-Food Innovation at Grupo Cajamar. "By constantly improving the external structures of the solar greenhouses, crop productivity increases and water and energy resources are optimised."

5. Digitalisation

Digitalisation has reached all sectors and the solar greenhouse sector has not escaped this revolution either: big data, artificial intelligence, drones, sensors, digital mapping, blockchain technology, machine learning, robotics, etc. These techniques aim to increase crop efficiency and productivity with the lowest possible use of inputs.