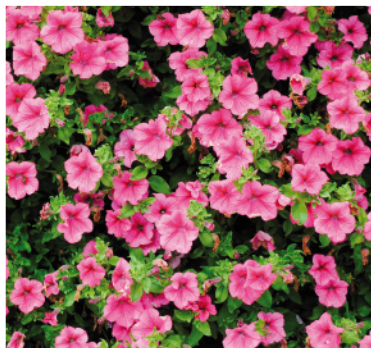




Plasticulture in Spain

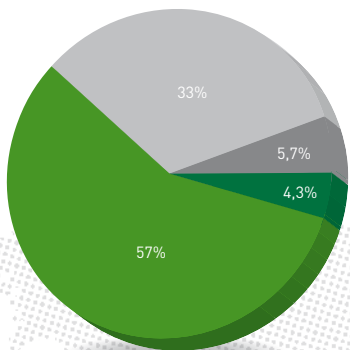


ANAIIP
Spanish Association
of Plastics Industry



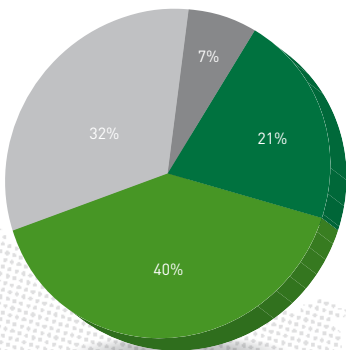
FIGURES OF PLASTICULTURE IN SPAIN (2015)

Plastics materials



- PE
- PVC
- PP
- Others

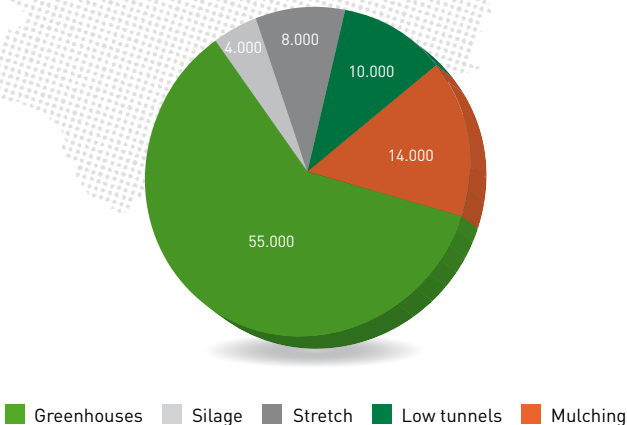
Application sectors



- Crop protection
- Irrigation
- Silage
- Others

Source: Ministry of Agriculture, Fisheries, Food and Environment (MAPAMA)

Plastic Films in Spain



- Greenhouses
- Silage
- Stretch
- Low tunnels
- Mulching

Source: APE Europe

Plasticulture in Spain

Plasticulture is the use of plastics in agriculture for **horticultural, fruit and animal production**. It has meant a true revolution for the agricultural world and for society in general.



In Europe, some 1.300.000 t of plastics are used in agriculture. Among the plastics, **polyethylene films** stand out in their many varieties. These films represent approximately 60% of the market of plastics in agriculture. **Spain is a leader in the manufacture and consumption of films** -more than 90.000 t- followed by Italy, Germany and France.

Spain consumed 220.000 t of plastics in agriculture in 2015 (packaging not included). Source: MAPAMA.

Agriculture is one of the **main consumer sectors** of plastics worldwide

Spanish Plasticulture, a world reference

The development of plasticulture in Spain is an example for many countries. It is in Andalusia where culture under plastic is more widespread (more than 75% of greenhouses and mulches and almost a 70% of low tunnels).

The famous **“Sea of Plastics”** in Almería is the largest concentration of greenhouses in the world, with **more than 40.000 hectares covered by plastic.**

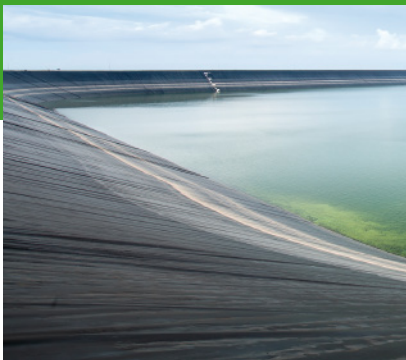




The versatility of plastics

makes them suitable for multiple applications in agriculture:

- ✓ Films for greenhouses, mulches, low tunnels, silage,...
- ✓ Crop protection meshes
- ✓ Thermal blankets
- ✓ Stretch films for bales
- ✓ Geosynthetic sheets and geotextiles for reservoirs
- ✓ Irrigation systems (pipes, tapes, drippers,...)
- ✓ Seedbeds
- ✓ Sacks and bags
- ✓ Trays and packaging
- ✓ Tutors and clips



Plasticulture, wealth engine

- Plasticulture **allows a new business model** which makes agriculture profitable, contributing to economic and social progress.
- **Increases the per capita income** and favors the permanence of the population, improving their living conditions.
- **Enhances agricultural productivity** in quantity and quality.

Protection and life

- **Plasticulture protects soil and crops** from the weather, chemical agents, pests.
- Contributes to the cultures development and **enables their greater precocity and extension over time.**



- **Eases the preservation of products** (vegetables, fruits, flowers, plants, fodder,...).

Increases the per capita income and **favors the permanence of the population**, improving their living conditions



Ecologically intensive agriculture

- Plasticulture makes possible an agriculture more related to the **natural biological phenomena.**
- A **biomimetic agriculture** respectful with ecosystems.
- **Accelerates growth** without harming biodiversity.

More with less

- **Decreases water and energy consumption** and makes it more efficient.
- **Reduces the use of pesticides,** phytosanitary products and fertilizers.
- **Higher crop yield, more control and better quality** of harvests with fewer resources.

Technological development

- **Continuous research** and technical advances responding to farmers' needs.
- **Compliance with demanding regulatory requirements** and control of climatic conditions (light, temperature, humidity, resistance, durability,...).
- **Discovery of new applications and use of alternative resources:** New plastics made from horticultural products and their waste. Developments in biodegradable plastics.



Higher crop yield and
better quality with **less**
resources

Reduction of the environmental impact

- Plastics **save** at a high percentage **the use of water, energy,...**
- **Reduce the greenhouse effect** thanks to the “**albedo effect**”: the solar radiation reflected by the plastic surface prevents the increase in temperature and delays global warming.
- The sunlight which plastics bounces off is seized **to produce photovoltaic solar energy.**
- **They favor the use of renewable energies** in agricultural activities (photovoltaic, solar thermal, wind, geothermal, biomass, biogas,...).

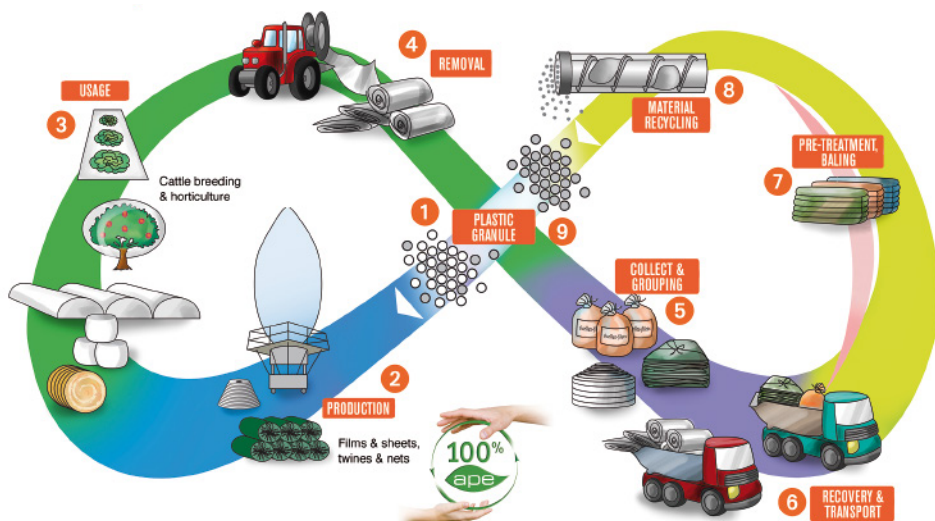
Plastics give life.

Let's give life to plastics

Plastics in agriculture close the loop in a process that is repeated infinitely: Raw Material Manufacturing / Transformation / Use / Withdrawal / Recovery and Transportation / Pretreatment / Recycling / Raw Material Manufacturing.

- Plastics are a **valuable resource**, why waste them in landfills?
- Many plastic **waste is mechanically recyclable and reusable** to manufacture new plastic products for agriculture and other application sectors.
- In 2016, **more than 39.000 tons of plastic waste** were recycled in Andalusia.
- Other plastic waste **is suitable for recovery in the form of energy**.
- **They stimulate the relocation of industrial activities and employment.**

The plastic contribution to the ecologically intensive agriculture and the circular economy in 9 stages:



ANAIP and the CEPLA Agriculture Division

ANAIP, the Spanish Association of Plastics Industry, groups and represents the plastics converters in Spain. Founded in 1957, it currently has more than 500 companies dedicated to the transformation of all types of plastics. It is structured into divisions by application sectors.

The **CEPLA Agriculture Division of ANAIP** has its origins in the Spanish Committee of Plastics in Agriculture, from which it takes its name. CEPLA, since its creation in 1977, has played an important role in the development and promotion of plastics for agriculture and has a great international recognition.

The **CEPLA Agriculture Division of ANAIP** focuses its activities on:

- Spread the benefits of plasticulture
- Foster the standardization of agricultural plastics
- Coordinate research in test methods
- Organize/participate in industry events
- Promote the internationalization of their companies
- Strengthen collaboration with other plasticulture associations and committees

He is an active member of the **International Committee of Plastics in Agriculture (CIPA)** and is in charge of **General Secretariat of the Iberoamerican Committee for the Development and Application of Plastics in Agriculture (CIDAPA)**.



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