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Analysis of Sustainable Practices in Greenhouse Horticulture in Almeria, Spain

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PROTECTED HORTICULTURE IN NUMBERS

ENVIRONMENTAL SUSTAINABILITY IN PROTECTED HORTICULTURE

Introducción



Greenhouse area 33.418 ha



Production 3.486.862 t

Value 2.094 M€



Solar greenhouse



Pollination of bumblebees



Integrated production



Waste management



Drip irrigation



Biological control



Ecological production



Circular economy

Material and methods

CUESTIONARIO "Actuaciones Sostenibles en horticultura protegida"

1. INFORMACIÓN GENERAL

1.1 Edad ☐ 1.2 Género ☐ Masculino ☐ Femenino ☐ Otro ☐ Prefiero no decirlo

2. FORMACIÓN

2.1 ☐ Primaria ☐ Secundaria ☐ Formación Profesional ☐ Bachiller ☐ Titulación Universitaria

3. CULTIVO

Sistema de cultivo: 3.1 ☐ Convencional ☐ Integrado ☐ Ecológico

4. MÉTODOS DE CONTROL DE PLAGAS, ENFERMEDADES Y MALAS HIERBAS

4.1 ☐ Fitosanitarios



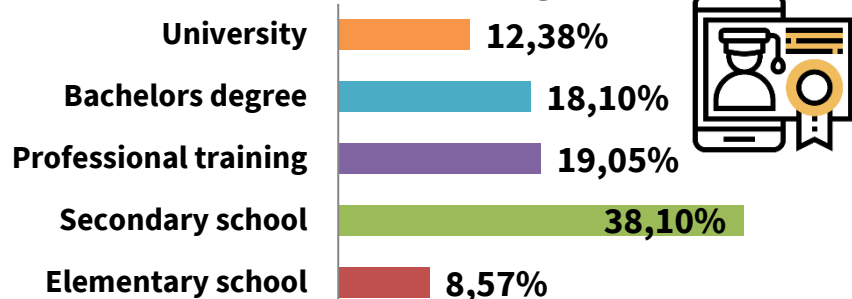
- 105 surveys
- Young farmers
- Incorporation to the Agricultural Enterprise
- Production sector: Protected horticulture
- Data processed with Microsoft Office 2010

PROFILE OF RESPONDENTS

GENDER



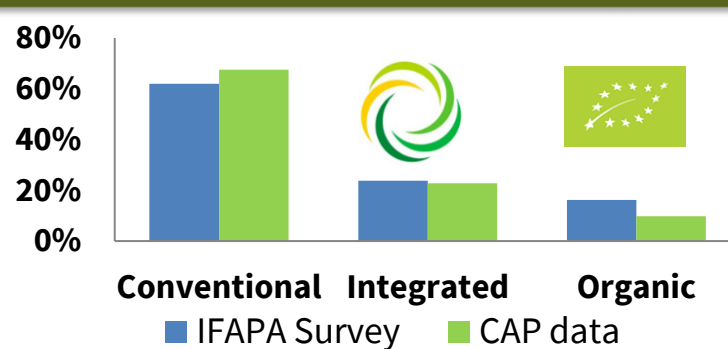
TRAINING



Results

- There is a higher **percentage of women in training** than women who later become farm owners.
- The **level of education has increased** compared to previous studies.

CULTIVATION SYSTEM



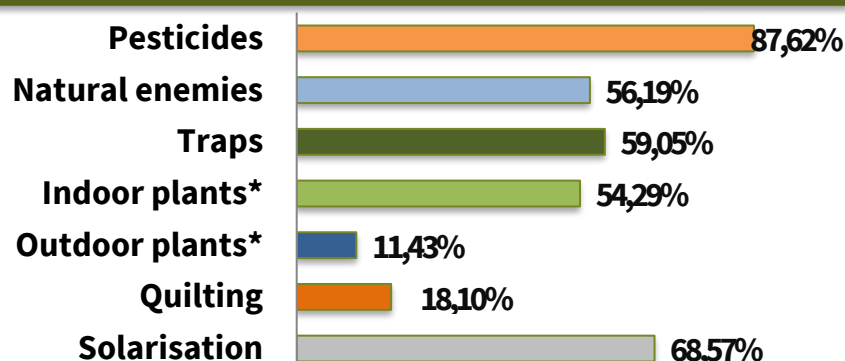
- **14%** use **organic** production, **24%** use **integrated** production and **62%** use **conventional** production.

USE OF SUSTAINABLE MATERIALS



- The use of biodegradable materials is **very recent** and **no data** is **available** to compare survey results.

PEST AND DISEASE CONTROL METHODS

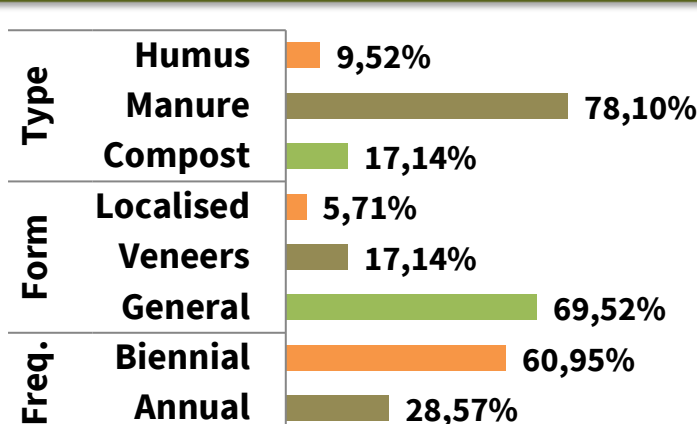


*Biological control by conservation

- **88%** of farmers use **pesticides** as a control method.
- Release of **natural enemies** is used by **56%** of farms.
- Trap, rearing and reservoir **plants** are used in **61%** of cases.
- **Solarization** is the disinfection method used by **68%**.



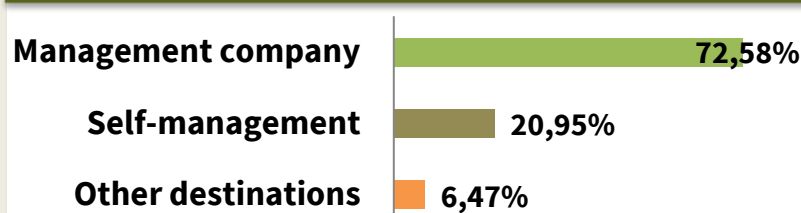
ORGANIC FERTILIZATION



- Organic fertilization is in the form of **manure**, applied as a **bottom dressing**, on average every **two years**.



ORGANIC WASTE MANAGEMENT



- **74%** of **organic waste** is delivered to a waste **management company** and the remaining **21%** is **managed on the farm**.

INORGANIC WASTE DELIVERED TO MANAGEMENT COMPANY



- **Inorganic waste** is mostly managed by a waste **management company**.

Conclusions

- The use of natural enemies and trap, breeding and reservoir plants is being consolidated as a common practice, thus promoting biodiversity in greenhouses.
- The percentage of self-management of plant remains has increased with respect to 2016, although it is still mostly delivered to a composting plant.
- The use of biodegradable material is a relatively recent practice so there is no published data.
- The significant percentage of inorganic waste from intensive agriculture in Almeria delivered from management companies is reducing the negative effects of these on the environment.

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