

Sustainable innovations for the development of cloth sacks for applications in ornamental horticulture and gardening.

Selection of substrates and species

Summary

The project focuses on finding innovative solutions for the materials, the structures of the fabrics, the design of the products and the manufacturing processes in order to obtain new, differentiated solutions in relation to the cloth sacks currently used for the cultivation and planting of ornamental plants. The proposal is the adoption of the circular economy philosophy, using as the base material by-products from the agricultural activities of other Catalan cooperatives, such as by-products from the harvesting of corn or other cereals. It will be necessary to characterise the new fibres, study how the sacks can be produced in these fibres and assess their behaviour in nursery and field conditions with respect to species of commercial ornamental plants.

Objectives

- Characterise the mechanical properties and morphology of the fibres made with the by-products.
- Prepare the structures of the fabrics.
- Determine the most suitable fibres to make cloth sacks for the cultivation of plants in accordance with mechanical behaviour, permeability, degradability and/or composition demands.
- Design the patterns and the assembly systems for the sacks, optimising the functional, mechanical behaviour, permeability, degradability and/or composition characteristics necessary for their manufacture.
- Design and make prototypes based on the application of the fabrics, patterns and assembly systems developed.
- Research the production of the sacks, including the substrate filling, with processes to be carried out at the plant or in situ, where necessary.
- Analyse the behaviour of the developed sacks in nurseries and fields, and determine the suitability of the cultivation of specific plant species in this medium.

Description of initiatives outlined in the project

- Assessment of different fibre extraction systems.
- Characterisation of the fibres obtained.
- Preparation of non-woven fabrics.
- Characterisation of non-woven fabrics.
- Design of the elements and pattern of the sack.
- Analysis of the assembly systems most suitable for manufacturing the sacks.
- Preparation of the data sheet for production of the sacks.

- Preparation of the first prototypes.
- Testing of the behaviour of the sacks in the nursery.
- Testing of the behaviour of the sacks in the field.
- Analysis of the results of the first prototypes.
- Preparation of the drawing and system to produce the sacks and fill them with earth.
- Development of perennial plant and sedum blankets. Characterisation of substrates and selection of species.

Expected results and practical recommendations

Be able to replace the current sacks used in gardening, which are normally imported and are either not biodegradable or, if they are, do not meet the technical requirements. This problem will be solved with the fibres obtained and the design of the optimised sacks. Moreover, it is based on the concept of the circular economy, thanks to the use of by-products from the activity of other Catalan farming cooperatives.

Task force leader

Entity: **Corma, SCCL**

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Typology of entity:
Forestry company

Task force coordinator

Other task force members (grant beneficiaries)

Other task force members

Entity: **Federació Catalana de Cooperatives (FCAC)**

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Typology of entity:
Cooperative

Entity: **UPC**

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Typology of entity:
University

Subject area(s) of application

Agricultural production system
Plant production and horticulture
Waste, by-product and residue
management

Geographical area(s) of application

Province(s)	Region(s)
Barcelona	Maresme

Dissemination of the project *(publications, conferences, multimedia...)*

Dissemination will be carried out via social media, websites, magazines/bulletins and technical seminars.

Project website

www.corma.es

More information on the project

Project dates

Starting date (month-year): June 2018

Completion date (month-year):

Current status: *Underway*

Budget approved

Total budget: **€63,666.43**

DARP funding: €25,402.91

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Own funding: €19,099.93

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Generalitat de Catalunya
**Departament d'Agricultura,
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Order ARP/133/2017, of 21 June, approving the regulatory bases of grants for cooperation for innovation through the promotion of the creation of European Association for Innovation task forces in terms of agricultural productivity and sustainability and the execution of innovative pilot projects by these groups.

Resolution ARP/1868/2017, of 20 July, calling for applications for grants for the year 2017.

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