

Use of anti-rain nets to reduce the application of fungicides to control apple scab disease

Summary

Apple scab is the disease that most impacts apple production in Girona. It is a polycyclic disease that starts at the end of winter. The primary inoculum, ascospore, comes from leaves on the ground affected by the disease in the previous autumn. Rain is the meteorological element that triggers the release of the spores and gives rise to the conditions necessary to germinate and infect the green tissues. The infections generate the first spots, from which new spores emerge to spread the disease. It can be kept under control by preventing primary infections from prospering. Accordingly, predictive models are used to issue warnings about conditions favourable to such infections. The RIMpro model is currently being used in Girona to predict the evolution of the primary inoculum. Fifteen to 20 fungicide treatments are applied per season, mainly to control scab disease. This number of fungicides could be substantially reduced by using physical barriers that prevent rainfall on the trees during the period when they are most sensitive to the disease.

The installation of anti-rain nets is being studied in various countries as an alternative to fungicide treatments (in France through the CTIFL's ECOPHYTO programme; in Italy through the Edmund Mach Foundation, and in Canada amongst other countries). The materials used are mainly plastic raffia and plastic film, the same as those used to protect against cracking in plums. In our climate conditions these installations could be more effective, given that episodes of rain are less intense than Atlantic storms, which are often accompanied by strong winds that make it difficult to control the effects of rain.

Objectives

The general objective of the project is the control of scab by means of the use of anti-rain nets that prevent fungal infection and, consequently, reduce the need to apply fungicides.

The following specific objectives are proposed:

- Install anti-rain nets, taking advantage of current installations in place to protect against hailstorms.
- Assess the effectiveness of these techniques in controlling scab.
- Quantify the reduction of fungicides that are still necessary following the installation of the anti-rain nets.
- Assess the effects on the production and quality of the fruit resulting from the application of the anti-rain nets.

Description of initiatives outlined in the project

Three actions are to be implemented in accordance with the objectives to reduce scab at apple plantations. These actions are based on: 1) Testing the efficacy of anti-rain nets to control scab; 2) Assessing the efficacy of the anti-rain nets in relation to reducing scab fungicide treatments and the effects on the yield of commercial apple plantations; 3) Transferring the results.

Expected results and practical recommendations

The envisaged results are included in the following main points:

1. Technical viability of the installation of anti-rain nets at apple plantations to prevent

scab contaminations.

2. Reduce the number of fungicide treatments in apple production.
3. Assess the possible beneficial effects of the anti-rain nets on the yield and quality of the fruit.

Task force leader

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Typology of entity:
Agri-food company

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Typology of entity:
Research centre

Subject area(s) of application

Agricultural production system
Farming practice
Fertilisation and nutrients management
Plant production and horticulture
Water management

Geographical area(s) of application

Province(s)	Region(s)
Lleida	Garrigues
Girona	Noguera
Barcelona	Urgell
	Pla d'Urgell
	Segrià
	Baix Llobregat
	Baix Empordà
	Alt Empordà

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

One of the most important aims of the project is to inform producers of the results. Accordingly, numerous knowledge transfer seminars will be held for technicians and producers in the sector.

Project website

More information on the project

Project dates

Starting date (month-year): June 2018
Completion date (month-year):
Current status: *Underway*

Budget approved

Total budget:	€81,938.00
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<i>EU funding:</i>	€25,261.64
<i>Own funding:</i>	€23,190.00

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

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