Control of Monilinia spp. in stone fruit: use of prediction models and cultural practices

Summay

Production of stone fruit in Catalonia has increased in the last years. Consequently, looking for a good strategy to control Monilinia continues being one of the main challenges for the sector. Currently, the strategy for its control is based on the application of synthetic fungicides by calendar. However, the requirements of legislation and distribution chains imply the need to develop control strategies that are more environmentally sustainable and more respectful for consumer health. The present project mains to integrate predictive models, prophylactic measures and decision tools in the strategy used for controlling Monilinia spp.

Objectives

The main objective is to improve the control of Monilinia in stone fruit by means of predictive models and cultural practices. Specific objectives are: Validate and improve the Monilinia prediction model and determine the presence of resistant strains to fungicides; Assess the feasibility of using DARP weather stations for the model or create a network of agrometeorological stations of its own; Study the effectiveness of applying treatments before and after rain; Determine the effectiveness when inoculum present in the field is removed before harvest; Develop a system to determine the risk of appearance of Monilinia in postharvest; Create a management guide for Monilinia control; Training courses.

Description of project activities

Obtain a prediction model for controlloing of Monilinia that includes the elaboration of a protocol for using the climatological stations and to study for which fungicides exist presence of resistant strains. Correlate the agroclimatic parameters of the DARP network stations with those of the stations located in the fields. Create a network of stations and classify the fields according to the risk of infection. To evaluate the effectiveness of fungicide treatments applied before or after rain. Know the effectiveness of removing the inoculum from the field before harvest. To develop a protocol to know, at the time of harvest, the risk of appearance of Monilinia in postharvest. Write a good practice guide and take training courses.

Final results and practical recommendations

1. Monilinia prediction model has been validated commercially and its automated version is available through a viewer designed in this project. In addition, protocols to help technicians to control the stations and to interpret and apply the model correctly have also been developed.
1.2. There has been no presence of resistant strains to the main active substances that are applied in our area. Exceptionally, a few resistant strains have been found to be resistant to piraclostrobine, iprodione and fluopyram.
2. The climatic data provided by the DARP stations are representative to those given in a station located within a field, moreover, correlation between them have not been found. These results make difficult to use them to apply the model.
3. The companies that participate in this project have a network of stations distributed throughout Lleida's area of stone fruit production, and all participants have access to it. A reference station has also been assigned to most of the fields of the project companies.

4. It has not been possible to conclude whether the effectiveness of applying treatments before rain is better or less than applying them afterwards. Further studies will be required to draw conclusive results.
5. The results obtained in this project have clearly shown that the practice of eliminating the inoculum of the fields before harvesting implies a lower presence of disease.
6. A protocol based on sampling stone fruit in the field has been developed to know, at the time of harvest, the incidence of fruits affected by Monilinia spp. during the postharvest.
7. With the results obtained it has been developed a guide for the production of stone fruit in accordance with the objectives of this project.
8. The necessary training has been done in order to make easy to apply the information generated under commercial conditions.

Conclusions

Monilinia spp. prediction model has been validated and improved. It's application allows a rationalized application of the fungicide products and, nowadays, is possible to visualize it comfortably with a viewfinder. This model can be applied in the network of agro-climatic stations of companies. It has been shown that there are very few strains resistant to the fungicides studied. No improvement has been observed if the treatments are applied before the rain, but it is observed, if the inoculum is removed from the field a few days before the harvest. The methodology based on sampling stone fruit 7 days before the harvest, will allow to know if there will be incidence of Monilinia spp. during the postharvest. Information has been made available to the sector to help them in defining the control strategies for Monilinia spp. for producing fruit according to legislation, and consumer demands. Therefore, producers will have more competitive fruit in the most demanding markets. The necessary training courses have been carried out to favor that all the advances are applied at the commercial level.

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Keyword-category

Agricultural production system
Farming practice
Pest / disease control

Territorial scope

Province	*County*
Lleida	Segrià
	Noguera

Project dissemination *(publications, seminars, multimedia...)*

Pàgina web del projecte

Other project information

Projecte period

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