FOREST4EU

ITHub 3 - Sustainable Forest Management and Ecosystem Services

FOREST4EU partner: SOLUTOPUS
OG: GI (PIN)
OG's country: Portugal
Type of Innovation: technological

Pine Wood Nematode

Introduction

This project aimed to overcome the constraints caused by PWD, combining new forms of forest management, fight, methods of early detection of infected trees and decrease their impact, control the natural dispersion of the insect vector (Monochamus galloprovincialis), reduce costs of disease control actions and contribute to restore the confidence of landowners for the maintenance, plantation and management of new areas of maritime pine. It is also intended to analyze the types of trees that can be infected, the influence of forest fires on the natural dispersion of PWN, to evaluate the emergence and flight of the vector under different climatic conditions, to minimize the risk of forest operations during their flight period and to create zones of active containment where it is possible to act more effectively to avoid the dispersion of PWN to the non-infected pine forests.

Phases and conclusions

1. Creation of an Active Containment Zone (ZCA), with borders, and it was observed that the Pine Wilt Disease (MPD) spread approximately 6 km in a year, within a maritime pine (Pinus pinaster) stand, without roads paved and with very limited access. Arrangement of multi-funnel traps along the border area of the transect.
2. Determination of early tree detection methods potentially infected- Assess the risk of disease installation in trees with different ages/dimensions. It was observed that larger pine trees are more likely to be selected by Monochamus galloprovincialis and becoming infected by the Wood Nematode Pine (NMP), mainly in populations with a low incidence of DMP.
3. Evaluation of new methods for controlling the natural dispersion of vectors infected with MPN- Evaluate the period of emergence and flight of the vector in different climate conditions. During 2021, 527 were captured in the traps installed in Seia. specimens of M. galloprovincialis. The largest number of insects was captured in the second week of October (131 copies, corresponding to 24.9% of the total captures). In the traps installed in Soure, only 62 specimens were captured and the peak of catches (61% of the total) occurred earlier than in Seia, between 11 June and July 9.

Lessons learned

Based on the commercialized trap model, and taking into account the results obtained in the test carried out in 2020, two changes were made to the collection cup to test the decrease in catches of non-target species. The experimental design used was the Latin square with rotation of the position of the traps weekly and the Galloprotect 2D-Plus attractant was identical for all. The results obtained reveal that the three trap models used captured 44 specimens of the target species M. galloprovincialis, in quantities statistically similar. It can be concluded that the use of the collection cup modified by the manufacturer is suitable for obtaining a targeted capture of the target species, which is the insect vector of PMN, being a considerable evolution with ecological importance as it causes a residual impact in the remaining entomofauna, namely auxiliary species (predators) or protected. The results of the project were afected by the delay in the financial subvention, Several presentations were made, but lacks of a broad dissemination of the lessons learned.

The information presented in this factsheet was developed by the FOREST4EU partner, drawing on the innovations and knowledge generated by the indicated operational group with their explicit authorization.

Further information

https://inovacao.rederural.gov.pt/2/114-gi-pin-gestao-integrada-do-pinhal-nematode-da-madeira-do-pinheiro

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https://inovacao.rederural.gov.pt/images/imagens/Docs_GO/29-_OG_GI_PIN.pdf

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