



BIOLOGICAL CONTROL AGAINST THE INVASIVE COMSTOCK MEALYBUG IN THE SWISS ORCHARDS

Locations Switzerland

Dates 01/04/2020 - 31/03/2023

Summary A new invasive pest of particular concern to Switzerland's orchard industry is the Comstock mealybug, *Pseudococcus comstocki*. Originating from Asia, the Comstock mealybug was first detected in 2016 in fruit crops of the Swiss canton of Valais. Following its detection, the mealybug has caused significant local economic damage to apricot, pear and apple production, especially during 2018 and 2019. Chemical control is one way of helping to fight the pest but it has produced mixed, and often, insufficient results. Biological control is another method and this project, therefore, aims to develop a sustainable and environmentally friendly, biological control method for the Comstock mealybug.

The problem

The rise in international trade as well as global warming has recently increased the frequency of the introduction, and dissemination, of invasive species which endanger the fruit and vegetable production in Switzerland. One invasive pest is of particular concern to the arboreal profession: the Comstock mealybug (*Pseudococcus comstocki*).

The Comstock mealybug is originally from Asia but is already known as an invasive pest species around the world, including in France and Italy. In Switzerland, it was reported for the first time in 2016 when it was found in the canton of Valais, a canton known for its production of apricots, pears, and apples. Since then, the damage caused by this pest has gradually increased and threatens the economic sustainability of fruit producers.

The damage of the Comstock mealybug in orchards is mainly indirect due to an abundant secretion of honeydew which promotes the development of sooty mold that depreciates the fruits and weakens the tree.

Chemical control, with currently authorized products, has so far produced insufficient results. Therefore, other methods of control are needed to limit the damage and in the long term, integrative pest management including biological control methods will be necessary to fight this new invader.

What we are doing

The objectives of the project are to study the biology and population dynamics of the Comstock mealybug and its natural enemies that are already present in Swiss orchards.

Once predators or parasitoids are identified as suitable for use in a biological control programme, rearing techniques will be developed and efficiency tests will be conducted for a possible augmentative biological control programme.

Tests to control the mealybug with biopesticides will also be carried out, as well as experiments to sanitize field equipment to avoid spreading the pest further.

Results so far

In 2020, one silver fly and three Asian parasitoids were found attacking the mealybugs in the Swiss orchards.

One parasitic wasp, *Acerophagus malinus*, has been identified as a suitable biological control agent and mass rearing in the quarantine laboratory of CABI in Switzerland has started. In July 2021, the first augmentative releases of the parasitoid took place to assess its suitability in the fight against the Comstock mealybug.

Donors

Swiss Federal Office for Agriculture (FOAG)

Partners

Local fruit producers, Office of the Canton Valais, Andermatt Biocontrol, Agroscope

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