

Ad hoc support

Multifaceted sustainability of agro-ecological pest management: tackling ecological, evolution and sociological challenges with fruit-fly research.

ABSTRACT

Past experiences with pest control has revealed sustainability challenges due to ecological, evolutionary and sociological processes. The evolution of resistances to chemical pest-control agents is one such example. Similarly, some methods of crop protection based on the use of natural enemies fail to spread among farmers due to cultural reasons. These highlight the need to include sustainability criteria from the onset of pest control research. Figure 1 illustrates our approach and the interplay between fundamental aspects (e.g. community ecology, sociology) and agro-ecological actions. Our study topic – sustainability challenges – will complement ongoing research by other groups on the response to invasion and the improvement of control efficiency. Sustainability is generally understudied in the context of pest invasions because they require emergency solutions. Devoting a network, and then projects, to sustainability upstream of new invasions and actions would allow future control programs to avoid sustainability pitfalls.

Keywords : Vigne et vin, Mango, Production system, Bio-aggressor, Agroecosystem

Year : 2015

Project number : 1500-030

Type of funding : SP

Project type : PC

Research units in the network :

Start date : 2016-03-01

End date : 2017-08-31

Flagship project : no

Project leader : Anais Chailleux

Project leader's institution : CIRAD

Project leader's RU : HORTSYS

Budget allocated : 10000 €

Total budget allocated (including co-financing) : 10000 €

Funding : Labex

GOAL

Our aim is to ensure that environment and human health friendly methods of pest-control blend into local agricultural practices and provide long-term protection. This will necessitate anticipating the trajectory of ecological communities in response to pest-control implementation, predict the (darwinian) evolution of the organisms involved and ensure the cultural acceptance and appropriation of control strategies by farmers. Taking into account these different forms of sustainability means new agro-ecological control programs must begin with the identification of obstacles to sustainability, and therefore avoid flawed solutions. As evolutionary ecologists and community ecologists we have identified several initial questions, but we lack expertise in human sciences regarding practice adoption and scaling up concerns. With the network we hence hope to attract sociologists and economists as well as representatives of farmers' associations. We (i) want to create/strengthen the link and relationship of the actors sharing interest for this subject and (ii) apply for proposal calls together to be able to answer the research challenges identified during network meetings.