UNIVERSITÀ DI PAVIA

Corso di Dottorato in Scienze della Terra e dell'Ambiente

FORM PER PROGETTI BANDO DOTTORATO

1. Project title

Greening Agroecosystments on the Bases of Nature Based Solutions: case studies in vineyards and olive tree plantations in the N-Apennines

2. Proposer

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4. Key words

(Max. 5 – at least 2)

Agroecology, native plants, seeds, drought control, ground cover

5. Abstract

(Max.1.500 characters with spaces)

Vineyards are extremely sensitive to environmental conditions (e.g. temperature and water) that impact production both quantitatively (yields) and qualitatively (fruit quality traits). However, in a complex scenario of changing climate conditions, vineyard management strategies must be modified at multiple levels.

To reduce the negative effects of prolonged water stress, during summer time and extended periods of water scarcity and high temperatures in vineyard as well as olive oil tree plantations located in the low altitude of the N-Apennines, the use of wild native plants must be better considered as a new opportunity, selecting the most suitable local wild species (i.e. annual vs. perennial; grasses vs. forbs, etc).

Moreover, maintaining and increasing of the plant component in vineyards characterized by non-productive inter-rows is pivotal for preserving ecosystem services like soil erosion mitigation and loss of organic matter due to intensive agricultural practices (e.g. tillage and herbicide use).

While grasses provide the root structure and surface cover to protect soil from erosion and drought, forbs promote nitrogen fixation and additional functions such as interactions with pollinators, beneficial insects and other wildlife. In this context, native plants, especially winter annuals, may be potentially suitable for ground covers, thereby supporting a nature-based solution in restoration practice. In this vein, the primary objective is to identify sets of wild herbaceous species reported to occur currently and persist naturally in selected vineyard agroecosystems and also in olive fields without producing negative effects.