

SELEZIONE PUBBLICA N. 2024N13
QUESITI COLLOQUIO

Busta 1

- La/Il candidata/o descriva l'impostazione di un allevamento di insetti fitofagi di colture agrarie o forestali.
- La/Il candidata/o descriva la strumentazione necessaria in un laboratorio entomologico.
- La candidata/il candidato descriva la figura del medico competente secondo il Testo Unico in materia di sicurezza sul lavoro, Decreto Legislativo 9 aprile 2008, n.81 e s.m.i., recante "Attuazione dell'art. 1 della Legge 3 agosto 2007, n. 123, in materia di tutela della salute e della sicurezza dei luoghi di lavoro"
- La/Il candidata/o legga e traduca:

Field edge habitat in homogeneous agricultural landscapes can serve multiple purposes including enhanced biodiversity, water quality protection, and habitat for beneficial insects, such as native bees and natural enemies. Despite this ecosystem service value, adoption of field border plantings, such as hedgerows, on large-scale mono-cropped farms is minimal. With profits primarily driving agricultural production, a major challenge affecting hedgerow plantings is linked to establishment costs and the lack of clear economic benefits on the restoration investment. Our study documented that hedgerows are economically viable to growers by enhancing beneficial insects and natural pest control and pollination on farms. With pest control alone, our model shows that it would take 16 yr to break even from insecticide savings on the US\$4,000 cost of a typical 300-m hedgerow field edge planting. By adding in pollination benefits by native bees, where honey bees (*Apis mellifera* L.) may be limiting, the return time is reduced to 7 yr. USDA cost share programs allow for a quicker return on a hedgerow investment. Our study shows that over time, small-scale restoration can be profitable, helping to overcome the barrier of cost associated with field edge habitat restoration on farms.

(<https://academic.oup.com/jee/article/109/3/1020/2648794?login=true>)

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Busta 2

- La/Il candidata/o descriva l'impostazione di un allevamento di parassitoidi e predatori di insetti fitofagi di colture agrarie o forestali.
- La/Il candidata/o descriva la gestione del laboratorio in vista delle attività di campionamento.
- La candidata/il candidato descriva la figura del preposto secondo il Testo Unico in materia di sicurezza sul lavoro, Decreto Legislativo 9 aprile 2008, n.81 e s.m.i., recante "Attuazione dell'art. 1 della Legge 3 agosto 2007, n. 123, in materia di tutela della salute e della sicurezza dei luoghi di lavoro"
- La/Il candidata/o legga e traduca:

Due to their ubiquity and their nature as generalist predators, ants have long been used as biological control agents in forest and agricultural systems. Several exotic ambrosia beetles (Coleoptera: Curculionidae: Scolytinae, Platypodinae) are considered emerging widespread pests of various trees and shrubs growing in forests, nurseries, orchards, and urban areas. Among them, the Scolytinae *Xylosandrus compactus* (Eichhoff) is an invasive fungus-farming species native to Asia and able to cause serious damage to a broad range of natural and cultivated plants worldwide, exerting significant ecological and economic costs. Its biology makes conventional control strategies often ineffective, while little is known about natural enemies. We explored the potential of native European predators as natural enemy of this pest, conducting laboratory tests with four widespread ant species using chestnut and laurel as beetle hosts. In particular, we evaluated the interactions between *X. compactus* and four species of native Euro-Mediterranean ants that usually forage on plants: *Crematogaster scutellaris* (Olivier), *Tapinoma magnum* Mayr, *Temnothorax affinis* (Mayr), and *Temnothorax mediterraneus* Ward, Brady, Fisher & Schultz. Results indicate that ants may significantly limit the reproductive success of *X. compactus*, increasing the mortality of the beetle foundresses and reducing their offspring. Smaller ant species may also invade *X. compactus* nests, killing larvae, pupae and adults, while female beetles avoid nesting in twigs previously visited by ants. These results encourage to explore possible applications of ants in the biological control of *X. compactus* and the ecological implications of these interactions in the field.

(<https://www.sciencedirect.com/science/article/pii/S1049964422001979>)

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- Top right: A stylized signature, possibly "R".
- Bottom left: A signature, possibly "S3".
- Bottom center: A signature, possibly "CP".
- Bottom right: A large, circular signature, possibly "GS".

Busta 3

- La/Il candidata/o descriva l'organizzazione e preparazione del materiale necessario ad un monitoraggio in campo di insetti fitofagi di colture agrarie o forestali.
- La/Il candidata/o descriva come può avvenire la gestione di una collezione entomologica.
- La candidata/il candidato descriva la figura del datore di lavoro secondo il Testo Unico in materia di sicurezza sul lavoro, Decreto Legislativo 9 aprile 2008, n.81 e s.m.i., recante "Attuazione dell'art. 1 della Legge 3 agosto 2007, n. 123, in materia di tutela della salute e della sicurezza dei luoghi di lavoro"
- La/Il candidata/o legga e traduca:

Bees are the most important group of insect pollinators, but their populations are declining. To gain a better understanding of wild bee responses to different stressors (e.g. land-use change) and conservation measures, regional and national monitoring schemes are currently being established in Germany, which is used here as a model region, and in many other countries. We offer perspectives on how to best design future bee monitoring programs with a focus on evaluating the implementation of conservation measures. We discuss different traditional and novel sampling methods, their efficacy depending on research questions and the life-history traits of target species, and how greater standardization of wild bee sampling and monitoring methods can make data more comparable, contributing to the identification of general trends and mechanisms driving bee populations. Furthermore, the potential impact of bee sampling itself on bee populations is discussed.

(<https://www.sciencedirect.com/science/article/pii/S1439179124000082>)

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Busta 4

- La/Il candidata/o descriva l'organizzazione e preparazione del materiale necessario ad un monitoraggio in campo di predatori e parassitoidi.
- La/Il candidata/o descriva il processo di preparazione e mantenimento di campioni entomologici per lo studio in laboratorio.
- La candidata/il candidato descriva gli obblighi del rappresentante dei lavoratori per la sicurezza secondo il Testo Unico in materia di sicurezza sul lavoro, Decreto Legislativo 9 aprile 2008, n.81 e s.m.i., recante "Attuazione dell'art. 1 della Legge 3 agosto 2007, n. 123, in materia di tutela della salute e della sicurezza dei luoghi di lavoro"
- La/Il candidata/o legga e traduca:

The two-spotted spider mite *Tetranychus urticae* and its predator *Phytoseiulus persimilis* are widely spread throughout the Mediterranean area. Predator-prey interactions in crops may be affected by pesticides used to control other pests, and thus knowledge of pesticide side-effects is essential when managing spider mite populations following integrated pest management (IPM). Toxicological studies evaluating the effects of pesticides on both predator and prey can better predict their impact on mite communities. The botanical and reduced-risk insecticides recommended for the control of aphids, whiteflies and thrips, Biopiren® plus (pyrethrins), Confidor® (imidacloprid), Naturalis® (*Beauveria bassiana*), Oikos® (azadirachtin), Plenum® (pymetrozine) and Rotena® (rotenone) were evaluated on *T. urticae* and *P. persimilis* females in the laboratory. Mite populations were collected on unsprayed vegetables in the Mediterranean area (island of Sardinia). Mite females were treated by micro-immersion and then reared on treated leaves in holding cells. The survival, fecundity and fertility of mites were assessed. All the products affected mite survival and/or fecundity. Pyrethrins and rotenone were more toxic to *P. persimilis* than to *T. urticae*; azadirachtin, *B. bassiana* and pymetrozine showed an opposite tendency. Imidacloprid had a similar impact on predator and prey. Additional toxicological trials were conducted with *T. urticae* and *P. persimilis* eggs. *Beauveria bassiana* was the most effective pesticide in reducing the hatching of *T. urticae* treated eggs and rotenone significantly affected *P. persimilis* egg hatching. (<https://www.sciencedirect.com/science/article/pii/S1049964408001679>)

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