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RESEARCH ON THE ENTOMOFAUNA OF RASPBERRY PLANTATIONS IN THE GURENI AREA, GORJ COUNTY

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ABSTRACT

The present study investigated the entomofauna associated with a raspberry plantation in the Gureni area, Peștișani commune, Gorj County, Romania. During the study period, 68 insect species were reported and identified, belonging to eight orders: Coleoptera (20 species), Lepidoptera (17), Hymenoptera (9), Diptera (7), Heteroptera (6), Orthoptera (6), Neuroptera (2), and Dermaptera (1). Based on their role in the agroecosystem and their effects on cultivated plants, 47 species were classified as harmful, whereas 21 were considered beneficial, mainly predators and parasitoids. The results emphasize the diversity of insect communities associated with raspberry cultivation and the importance of beneficial entomofauna in the natural regulation of pest populations.

INTRODUCTION

The entomofauna associated with agricultural ecosystems comprises both harmful species, which may affect crop growth and yield, and beneficial organisms, particularly predators and parasitoids that contribute to the natural regulation of pest populations.Antagonistic relationships between harmful and beneficial species represent an important component of agroecosystem functioning. In natural and semi-natural systems, population regulation is mediated by predators, parasitoids, pathogens and other biotic interactions, together with abiotic factors such as physical, chemical and mechanical conditions, food availability and competition (Toncea, 2011). In cultivated ecosystems, agricultural practices may modify these relationships and consequently alter the structure of the local entomofauna.

MATERIAL AND METHODS

The study was conducted in Gureni, Peștișani commune, Gorj County, Romania. The locality is included in the Natura 2000 Site ROSCI0129 – Nordul Gorjului de Vest, which covers approximately 86,958 ha across nine communes of Gorj County. The Gureni area also includes the Piatra Boroștenilor protected area of national interest. (Planul de management al Sitului Natura 2000 – Nordul Gorjului de Vest ROSCI0129)

Observations were carried out in a 1-ha raspberry plantation established in 2022 with the 'Lupita' remontant cultivar. According to the original field description,

the cultivar has large, firm, red and highly aromatic fruits and is characterized by high resistance to diseases and pests under the prevailing cultivation conditions.



Figure 1. Raspberry plants and fruit in the studied plantation.

The insect fauna was investigated using several complementary sampling and observation methods. Individuals were collected directly by hand from plants or soil, and observations included soil-surface surveys and visual inspection of the plantation. Sticky traps were used for flying insects, while light traps were employed for nocturnal or light-attracted insects. Biological material was examined in the field or laboratory using a binocular magnifying glass. Identification was performed with the aid of the identification manuals cited in the reference list (Chatened du Gaetan, 1990; Chinery, 1998; Godeanu, 2002).

In order to minimize disturbance to the ecosystem, photographic documentation was preferred whenever feasible instead of capturing living specimens and subsequently removing them from their natural environment

RESULTS AND DISCUSSIONS

A total of 68 insect species were reported from the studied raspberry plantation. The species belonged to eight orders: Coleoptera, Lepidoptera, Hymenoptera, Diptera, Heteroptera, Orthoptera, Neuroptera and Dermaptera. Coleoptera was the most represented order, with 20 species (29.4 % of the reported fauna), followed by Lepidoptera with 17 species (25.0 %) and Hymenoptera with 9 species (13.2 %). Diptera accounted for 7 species (10.3 %), while Heteroptera and Orthoptera each comprised 6 species (8.8 %). Neuroptera and Dermaptera were represented by 2 (2.9 %) and 1 species (1.5 %), respectively.

Table 1

Insect fauna identified in the raspberry plantation during the study period

Order	Reported no. of species	Harmful species	Beneficial species
Orthoptera	7	Gryllus campestris L.; Gryllus desertus L.; Caliptamus italicus L.; Dociostaurus maroccanus Thunb.; Tetigonia viridisima L.	Mantis religiosa L.
Dermaptera	1	Forficula auricularia L.	—
Heteroptera	6	Lygus pratensis L.; Dolycoris baccarum L.; Eurydema oleracea L.; Eurydema ornata L.; Grafosoma lineatum L.; Nezara viridula L.	—
Hymenoptera	9	Vespa vulgaris L.; Vespea germanica L.; Vespa crabro L.	Scolia flavifrons F.; Bombis terestris L.; Syrcopa violaceea F.; Formica rufa L.; Formica pratensis Retz.; Apis melifera L.
Neuroptera	2	—	Crisopa carnea Steph.; Crisopa perla Steph.
Coleoptera	20	Melolontha melolontha L.; Anoxia villosa F.; Phyllopertha horticola L.; Cetonia aurata L.; Pentodon idiota Hbst.; Cryptorrhynchus lapathi L.; Saperda carcharis L.; Epicometis hirta; Oxythyrea funesta; Opatrum sabulosum L.; Anomala solida Er.	Adalia decimpunctata L.; Adalia bipunctata L.; Coccinella 7 punctata L.; Carabus ulrichi L.; Carabus violaceus L.; Carabus cancelatus L.; Calosoma sycophanta L.; Dorcus paralelipipedicus L.
Lepidoptera	17	Lymantria dispar L.; Hyphantria cunea Drury; Agrotis segetum Schiff.; Plusia gamma L.; Pieris brassicae L.; Aporia crataegi L.; Leucoma salicis L.; Euproctis chrysorrhoea L.; Malacosoma neustria L.; Operophthera brumata L.; Erannis defoliaria Cerk.; Vanessa io L.; Tortrix viridana Drury; Mamestra brassicae L.; Pieris rapae L.; Aporia crataegi L.; Pieris napi L.	—
Diptera	7	Drosophila melanogaster Mei.; Resseliella theobaldi Barnes; Lasiopteria rubi Heeger.	Syrphus ribesii L.; Syrphus torvus L.; Sarcophaga carnaria L.; Musca domestica L.

CONCLUSIONS

Raspberry cultivation represents an economically relevant agricultural activity, with opportunities in both small family holdings and commercial plantations. The diversity of insect species recorded in the Gureni plantation demonstrates the complexity of the associated entomofauna and highlights the coexistence of harmful and beneficial components.

The beneficial entomofauna recorded in the study, together with the avifauna and the diversity of mammals and reptiles present in the surrounding area, may contribute to the natural regulation of insect populations. Consequently, conservation of non-crop habitats and natural enemies should be considered an important component of integrated and environmentally responsible raspberry crop protection.

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