SIR Publishers
CENTER FOR INTERNATIONAL SCIENTIFIC PUBLICATIONS
JOURNAL OF AGRICULTURE AND LIFE SCIENCES
ISSN(Online): 2984-6706
SJIF Impact Factor |(2023): 5.988|
Volume-6, Issue-5, Published |20-12-2023|

USE OF GOLDEN EYE IN BIOLOGICAL CONTROL OF THE COLORADO POTATO BEETLE

https://doi.org/10.5281/zenodo.10390125

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ABSTRACT

The article highlights the stages of development of the golden-eyed larva, some information on insect biology and its effectiveness in biological warfare.

Keywords

Golden eye, predator, female, slug, larva, humpback, mandible, macsilla.

АННОТАЦИЯ

В статье освещаются стадии развития личинки золотоглазки, некоторая информация по биологии насекомых и ее эффективность в биологической борьбе.

Ключевые слова

золотоглаз, хищник, самка, яйцо, личинка,кокон нижняя челюсть, верхняя челюсть.

Introduction. Golden eyes (Neuroptera, Chrysopidae) are an important component of natural and anthropogenic biocenoses. Goldeneyes are zoophagous in the larval period and nectar-feeding insects in the adult period. Currently, the main entomophages bred in the republic's biolaboratories are trichogramma, bracon, and predatory goldeneye.

Purpose of work: Currently, the role of entomophages in finding effective stages of biological control is increasing effectively, gradually abandoning chemical poisons.

Material and research methods: In 2021-2023, materials collected from the southeastern regions of Fergana region (Avval, Kuvasoi, Log'an, Kuva) were used. In laboratory cases, the laboratory of the Department of General Biology and

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Zoology of Fergana State University was used. From March, observations were made in nature and in laboratory conditions.

Results. These species are very greedy and active in the adult and larval stages, and benefit by destroying a large number of pests. In particular, the remarkable thing in the biology of golden-eyed larvae is that their larvae easily eat mushrooms, larvae, and eggs of pests, and they can even eat each other when there is not enough food. They move very actively on plant leaves and stems. Goldeneyes lay their eggs on infected plants. Eggs ripen in 3-6 days depending on environmental factors. In nature, golden eyes were observed in the middle of March, when the average temperature was 11-12 C. (2021.18.03. Kuva, Rohatoy farm) The female form of goldeneye lays eggs on long stalks along with wild plants, cultivated plants, including tomorrow's potato crop. Even those who are interested can easily observe the color change of the eggs during their development. Larvae hatched from the eggs shed their skin and often turn their heads around on the leaves of the plant. Larvae pierce the body of the prey with their upper jaw, making the inside of it liquid through a special liquid, and suck the liquid of the prey through a special tube located under the lower jaw. Larvae's active life lasts up to 4 weeks. The color of the prey tends to be brown-gray. They quickly find the prey through the sensitive hairs on the body. Aphids are visible in many places with wax-dust on them, that is, they are observed in a masked state. Larvae grow 1-8 mm after jumping 3 times. Larvae pupate at the age of 3. Depending on external conditions, larvae turn into cocoons after 14-15 days.

In laboratory conditions, depending on the feeding of the larvae, male and female forms can be determined, the female form consumes 2-4 more larvae in the daily diet than the male form. Larvae are resistant to temperature drop. Larvae are very active and active, they move quickly at the age of 2. We conducted a series of experiments to study the effectiveness of the entomophagus with the aim of using golden-eyed larvae against the eggs and larvae of the Colorado beetle, a pest of potato plants.

Experiments were conducted on infected potato plants in 10m long (5 pieces) isolated from the edge of the potato field at the farm "Rohatoy" of Fergana region. Larvae of the golden eye brought from the biolaboratory were applied to the leaves of the potato plant in the ratio of 1:5, 1:10 and 1:15 during the period of growth, flowering and nodulation of the potato plant, 22 plants per 10 m of the sample. When 32 2-year-old larvae were distributed to 110 seedlings in 5 farms, it was observed that the number of pest larvae decreased infinitely. According to the results of the conducted experiments, in all three variants of the experiment, much higher indicators of the efficiency of using golden eyes were obtained. Because chemicals are sprayed at least 3 times. Thus, the larvae of the common golden eye

can be successfully used in the fight against the pest Colorado beetle in the potato crop. It is the increase in average air temperature at the stage of flowering and budding of tomorrow's potatoes, the ratio of predator and prey is 1: 15, which ensures high efficiency. A ratio of 1:5 is observed in the 1st age of predators. The large number of pests indicates that it is more acceptable to work with chemical poisons than to use goldfish. However, chemical poisons do not always give the desired result. In addition, their use leads to the accumulation of residual amounts of various compounds in the nodules, which does not allow obtaining an environmentally friendly product. If you carelessly touch the larvae, they "bite" and cause a noticeable pain.

Adult golden-eyes fly to the houses at night, to the light, they mostly feed on nectar or honeydew. The means of protection of golden eyes is to emit a smell when used from the body.

Conclusions and recommendations:

1. During the research, it was observed that the efficiency of goldfish larvae is high, i.e. in the proportions of 1/20, 1/30, 1/40.

2. To strengthen cooperation of farms with biolaboratories operating in the region, because the larvae destroy the pests before they turn into mushrooms and justify the price.

3. The non-use of chemical poisons increases the shelf life of the crop.

4. Due to the lack of food, the predatory larva can attack the larvae of beneficial insects, for example, feeding on the larvae of the caterpillar or the smaller larvae of the golden eye.

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