THE EFFECT OF ABNORMALLY COLD WEATHER ON LOCUST EGG PODS IN THE KASHKADARYA REGION OF UZBEKISTAN

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ANNOTATSIYA

Ushbu maqolada zararli chigirtkalarning kuzgi va bahorda tuxum ko'zachalarining rivojlanishi, anomal sovuq havoning ta'siri hamda ularga qarshi kurash choralari va takliflari bo'yicha ma'lumotlar bayon etilgan.

Калит сўзлар: *Тухум кўзача, Марокаш чигирткаси, Италия чигирткаси, Отбосар чигирткаси, триангулин личинка, кимёвий препарат, яйлов, қишлоқ хўжалик экинлари.*

АННОТАЦИЯ

В статье приведены материалы о развитии кубышек саранчовых-вредителей в осенний и весенний сезоны, влияние аномального холода, а также о мерах и предложениях по борьбе с ними.

Ключевые слова: *кубышки, мароккская саранча, итальянская саранча, Атбасарка, личинка триангулина, инсектициды, пастбище, сельскохозяйственные культуры.*

ANNOTATION

The article describes information about the development of egg pods of locusts in autumn and spring seasons, impact of abnormal cold weather, as well as measures and suggestions for their control.

Key words: *Egg pods, Moroccan locust, Italian locust, Dociostaurus kraussi (Ingenitskii, 1897), larva triangulin, insecticides, pasture, agricultural crops.*

Introduction. In Uzbekistan identified more than 200 species of grasshoppers, among them maximum 8 or 10 species can be dangerous in agriculture or pasture. The most widespread and controling species are Moroccan locust, Asian locust and Italian locust (Gapparov, 2014, Nurjaniv AA, 2023, Tufliev, 2019, Gapparov, 2008). Every year we conduct locust control activities in 200 tousand hectares, in some years the amount of these hectare increase to 500 tousand.

During the field trip in November month in 2022, at the pastures named “Do‘ltali”, “Janqara”, and “Pilimthe” in the Guzar district of Kashkadarya region conducted monitoring to identify species composition, development, distribution, density, and natural damage of locusts according to egg-pods situation.

Guzar district is the area where harmful locusts are most common in Kashkhadarya region. On average, 60,000-80,000 hectares of pastures are sprayed with chemicals to control locusts in this district

Methods. Experiments carried out using method created by Chernyahovskiy (Chernyahovskiy, 1982). According to the method, the eggs were initially dug from 5-8 cm below the soil’s surface. then work was carried out to determine the type of grasshopper based on the shape of egg pods. Then, studies were conducted on the development of these eggs, the number of eggs in the egg-pods, contamination with natural entomophages, entomopathogenic microorganisms.

Results and discussion. According to the results of experiments, the number of egg pods was 18-20 per square meter. The monitoring showed that according to the analysing of shapes and number of eggs in the egg-pods, it has been identified that species spread at the area was moroccan locust. The number of eggs in the egg-pods was between 27 and 34. The number of eggs in egg-pods of the Maroccan locust are usually from 27 to 34(fig. 1).

Identified number of eggs shows that higher than middle number of eggs. According to the results conducted for identifying natural damage, it was recorded that natural enemies did not affected enough. Between the natural enemies mostly found the larvae’s of the genus Mylabris.

Fig. 1. Eggs in egg-pods of locusts during the monitoring in fall season in Guzar district of Kashkadarya region.

We decided that after spraying with chemicals the number of natural enemies of locusts are decreased drammatically.

Survey conducted to monitore the viability of eggs after the anomal cold in january month (winter) 2023 in Uzbekistan. During the survey we have recorded that at the pastures of Kashkhadarya region spread moroccan and atbasar locust. While at the pastures of Jizzakh region spread Moroccan and Italian locust. It has been identified that the number of egg in the egg-pods were around 28 and 34 which belongs to the moroccan locust. The main question was to research an impact of the anomal cold to eggs of the locusts. During the field experiments, it has been identified that the cold weathe did not kill the eggs of the locusts.

As a result, it has been once again proven that insects have evolved to withstand harsh climatic conditions over millions of years.

Pic 2. Monitoring of locust egg pods at spring.

In our spring observations, we conducted studies on the damage of eggs under the influence of natural entomophages and entomopathogenic microorganisms. According to the received information, it was found to be infected with "triangulin larvae," as in our autumn observations. In the "Doltali" area of the Guzor district of the Kashkadarya region, a small quantity of eggs infected with fungal diseases was found. This fungus was brought to the laboratory to determine its species composition.

Conclusion. Our research's findings indicate that the following should be taken into consideration given the unpredictable appearance of dangerous locusts from egg pods in the 2023 season:

1. Compared to other places, the Surkhandarya and Kashkadarya regions in the southern part of our nation may see the emergence of locusts from their eggpods between two and three and a half to ten days into March. It can be calculated that it corresponds to three days in March and one or two days in April in the Jizzakh, Samarkand, Navoi, Bukhara, and Tashkent regions. In light of this, they should be sure

to have an adequate supply of fuel, lubricants, processing equipment, and chemical insecticides;

2. The importance of continual observation in identifying the emergence patterns of dangerous locusts and how it helps in tracking their movements over time. Exploring the role of navigators or trackers in accurately documenting and recording the locations where locusts emerge, aiding in better understanding their behavior and potential impact on surrounding areas. Examining the effectiveness of chemical treatments at specific sites to control locust populations, emphasizing how targeting pupal sites during larval life can be particularly advantageous for long-term;

3. It is recommended to carry out intensive control of pest locusts during their young instar stage before they spread over large areas. Taking into account that the use of hand sprayers in the initial processing is also highly effective, it is recommended to use manual devices widely;

4. Before treatment against the nymphs of locusts, it is recommended to carry out chemical control measures when the number of swarming locusts is 5–10 pieces per 1 m2 and the number of non-swarming locusts is 10-15 pieces per 1 m2, taking into account the criterion of the economic threshold.

5. In our republic, it is recommended to use long-acting insecticides of the benzoylurea group in areas far from the pyrethroids, neonicotinoid drugs recommended for the fight against harmful locusts, and to carry out chemical control measures, taking into account the recommended rate of consumption of the pesticide and the correct distribution of working solutions.

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