International Journal of
Biological Engineering and Agriculture
ISSN: 2833-5376
Volume 1 | No 4 | Oct-2022

Locusts in Samarkand Region, Development and Distribution of Harmful Species, Methods and Means of Controlling of Them.

Tufliyev Nodirbek Khushvaktovich

[1] *Head of the laboratory, doctor of agricultural sciences (DSc), Scientific Research Institute of Plant quarantine and protection*

Abstract: *The article presents materials on the distribution, harmfulness, features of development and recommendations for measures to control gregarious and non-gregarious harmful locusts.*

Keywords. *Moroccan locust, Italian locust, egg pods, chemical preparation, pasture, ephemeral plants, agricultural crops, control.*

INTRODUCTION

More than 200 species of locusts have been identified, and 6-8 species of them are widespread and can cause damage to pastures and agriculture in Uzbekistan [4; p. 76], [2; p. 336], [3; pp. 40-43].

These pest locusts can be found in almost all regions of Uzbekistan. They can cause severe damage to pastures and agricultural crops if do not conduct regular monitoring of distribution and development. It is necessary to do control measures on time to prevent outbreaks.

In this way, scientific research will be carried out to determine the species composition of locusts found in the Samarkand region in 2020 and to determine harmful species from them. We conducted our research in the Nurabad, Samarkand, Jomboy, Bolungur, Payariq, and Kushrabot districts of the region, where locusts are widespread.

According to our research, it has been found that Moroccan locust (*Dociostaurus maroccanus* Thunb) was widespread in the Samarkand region, the first hatching was recorded in march 9th and 10th in "Mironkol", "Tepako'l", "Sarikol", "Sazagan" regions of the Samarkand and Nurabad districts. Then after 5-7 days at "the mountains of Gobdin" of Jomboy, Bulungur districts, and after 10-12 days in "Dostlik" district of Payarik region. In the Kushrabot district, in "Shovva", "Orta-Shovva", "Pangat", and "Navkat" regions, it was observed that Moroccan locusts hatched after 15-25 days from other regions. The young nymphs of the Moroccan locust when emerging from egg pods were initially white-yellow, and after 1.5-2 hours, they changed color to brown-black and gradually feed on young grass. 65-75% of controlling measures of pest locusts in the region conducts against the nymphs of Moroccan locust.

Results. The characteristics of the gradual hatching of the Moroccan locust make it convenient for the specialists of the pest control service to organize the process of control easily. The reason is that the development characteristics of locusts are compatible with the timely preparation of workforce, chemical tools, processing techniques, fuel, and lubricants for the process of harmful locusts and timely prophylactic against them

The reason for the sequenced hatching of Moroccan locust by districts is according to the originality of the Samarkand region. The areas of the Moroccan locust widespread across the region

mainly correspond to hills and pastures where seasonal ephemeral plants grow at heights of 250-800 meters above sea level.

A **B**

Picture 1. A- *The hatching process and the first young white-yellow nymphs of Moroccan locust.* ***B-*** *Imago of the Moroccan locus*

In addition, in the territories of the Samarkhand region, the solitary forms of Italian locust (*Calliptamus italicus* L.) and Turanian locust (*Calliptamus turanicus* Tarb.) were recorded. So it can be concluded that in the region, regular annual treatment against this species of locust has been carried out. If do not conduct monitoring and controlling measures against this species of locust for 3-4 years, they can turn into a swarming form and cause a serious threat to agricultural crops.

Hatching Italian and Turanian locusts in the areas of the neighborhood named "Ahmadjon Kurbanov" of the Jomboy district of Samarkand region, "Botbot" neighborhood of Bulung'ur district, "Juvozkhona", "Katta Saidov", "Taraqqiyot" neighborhoods of Payariq district were recorded on the 1st decade of April and on the 2nd decade of May in 2022.

Picture 2. *Italian and Turanian locusts found in the Samarkhand region*

The special feature of this species is that they take a long time to emerge from the egg pods, and we can observe their imagos in the fields even in September and October. As a result of chemical treatments against Moroccan locusts, the possibility of this species spreading over large areas or damaging agricultural crops is limited.

It was also noted that Asian locust (*Locusta migratoria migratoria* L.) was found in "Katta Saidov" and "Taraqqiyot" neighborhoods of Payariq District of Samarkand Region, and its solitary form was found in reed fields. It was observed that their occurrence does not exceed 2-3 pieces per square meter, that means, it spread less than the criterion of the amount of economic damage. In this case, the same chemical treatments applied to the Moroccan locust prevented Asian locust from multiplying.

In addition, in the regions of the Koshrabot district, as a result of chemical treatments, non target species of locusts are also recorded, they include *Chrotogonus turanicus* (Kuthy.), *Aziotmethis heptapotamicus* (Zub.), *Aziotmethis muricatus* (Pall.), *Pesotmethis karatavicus* (Uv.), *Pesotmethis migrescens* (Pyl.), *Pergoderma armada* (Fish.), *Pyrgomorpha bispinosa* (Walker.). The number of this species have decreased in other regions of our Republic or near to disappear in some regions.

Picture 3. *Micronair 8115 UVL was used in the treatment against locusts in the regions of Samarkand region.*

In the Samarkand region, chemical control measures against nymphs 1 and 2 instar of the Moroccan locust began to be carried out from the 2nd decade of March. Before chemical treatments, the average number of locusts per square meter of land was calculated, and special attention was paid to post-treatment. Because the number of harmful locusts in some regions is less than the criterion of the amount of economic damage, it is certain that their number will be limited under the influence of natural entomophagous, mosquitoes, and pathogen microorganisms. For chemical treatments, Atilla super, 10% em.c.-0.075-0.125 l/ha, Bagira, 20% em.c. Treatments were carried out by ordinary surface spraying at consumption rates of -0.05-0.1 l/ha. The biological effectiveness of these preparations against harmful locusts was not less than 95% in our observations.

But, based on the above circumstances, in order to prevent the death of locusts and other rare arthropod species in areas where harmful locusts are spread, we also conducted an experiment using 0.1 l/ha preparation "Bagira" with using barrier method in some areas. After every 100 meters of the

sprayed area, 50-100 meters of the area were not treated. We took into account the vegetation cover of the treated area (green plants), and the proximity of harmful locusts to agricultural crops.

It was found out from the conducted research that it is recommended to use the Bagira, which has a systemic effect (it has a toxic effect against harmful locusts for 10-15 days), against harmful locusts not only by the simple general method but also by the barrier method in areas far from vegetation and agricultural crops. In this case, there will be a possibility to save the existing creatures (except for the harmful locust species) in the areas where the drug was not sprayed.

REFERENCES.

1. *Гаппаров Ф.А. Биоэкологические особенности развития вредных саранчовых в Узбекистане и меры борьбы с ними. –Ташкент: "Наврўз", 2014. – 336 б.*
2. *Столяров М.В. Особенности мониторинга стадных саранчовых и противосаранчовых кампаний на юге России // Ж. Защита растений. – Москва, 2007 - №4. – С. 40-43.*
3. *Тавсиянома. – Ўзбекистон ҳудудларида тўғри қанотлилар туркумига кирувчи зарарли чигиртка ва чигирткасимонларнинг ривожланиши, ёппасига кўпайиш сабаблари, замонавий кураш чоралари / тузувчилар Гоппоров Ф.А., Лачининский, А.В., Туфлиев Н.Х. ва б. – Тошкент: "ART LINE GROUP", ЎзЎҲҚИТИ, 2008. – 76 б.*
4. *Қўлланма. - Ўзбекистонда тарқалган зарарли чигирткалар ва темирчаклар ҳамда уларга қарши кураш бўйича илмий-услубий қўлланма / тузувчилар Туфлиев Н.Х., Гаппаров Ф.А., Хайтмуратов А.Ф. ва б.; – Тошкент: "Fan Ziyosi", 2022. – 75 б.*
5. *Туфлиев Н.Х. Зарарли чигирткаларга қарши курашда замонавий усул ва воситаларнинг самарадорлиги.: Автореф. Дисс… . қ/х.ф.н. 06.01.11. – Тошкент, 2012. – 22 б.*
6. *Туфлиев Н.Х. Ўзбекистоннинг тоғолди, яйлов ва чўл ҳудудларида зарарли чигирткаларга қарши кураш мажмуини яратиш.: Автореф. дисс… . қ/х.ф.д. 06.01.09. – Тошкент, 2019. – 64 б.*