THE IMPORTANCE OF UNABI IN THE NATIONAL ECONOMY AND THE IMPORTANCE OF THE FIGHT AGAINST PROTECTION AGAINST PEST

Khudoikulov Azamjon Mirzakulovich
Ph.D., associate professor
Ochilov Musulmon Abduraximovich.,
head teacher of Storage and primary processing of agriculturel products department of the Tashkent State Agrarian University
Pardaev Abdurahmon Abduvait o'gli
master of the Tashkent State Agrarian University

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Abstract. *The article provides information on the classification of Unabi varieties grown in Uzbekistan, the distribution, damage, survival and bioecological characteristics of its main pest unabi fruit fly (Carpomya vesuviana Sosta). According to him, in order to determine the timing of the release of unabi flies from the winter, research was conducted on 1.0 hectares of unabi area of the training experimental farm "Information Consulting Center" at the Tashkent State Agrarian University. Based on the information obtained, conclusions and recommendations are made.*

Keywords: *Unabi varieties, unabi fruit flies, eggs, worms, mushrooms, special sieves, soil, experiment, variant, observations.*

ВАЖНОСТЬ УНАБИ В НАЦИОНАЛЬНОЙ ЭКОНОМИКЕ И ВАЖНОСТЬ БОРЬБЫ С ЗАЩИТОЙ ОТ ВРЕДИТЕЛЕЙ

Аннотация. *В статье представлена информация о классификации сортов Унаби, выращиваемых в Узбекистане, распространении, повреждении, выживаемости и биоэкологических характеристиках его основного вредителя плодовой мухи унаби (Carpomya vesuviana Sosta). По его словам, с целью определения сроков выхода мух унаби из зимовки были проведены исследования на 1,0 га площади унаби учебно-опытного хозяйства "Информационно-консультационный центр" при Ташкентском государственном аграрном университете. На основе полученной информации делаются выводы и рекомендации.*

Ключевые слова: *сорта Унаби, плодовые мушки унаби, яйца, черви, грибы, специальные сита, почва, эксперимент, вариант, наблюдения.*

Introduction. The plant of Unabi is one of the most widespread plants all over the world, and its fruit is one of the rare wonders of the plant world. The healing properties of the fruit of this plant are loved and consumed in all countries of the world due to its richness in vitamins and high productivity.

At present, in many parts of the world, unabi is widely used in traditional medicine. The leaves and fruits of the Unabi plant have been used in traditional medicine in China, Korea, Japan, India, Iran and Tajikistan. Unabi is grown in large quantities in countries such as China, India, South Korea, Afghanistan, Pakistan, the United States and Russia. However, the damage inflicted on the plant by pests in unabi has drastically reduced the fruit quality and yield of this plant. In Unabi, unabi flies cause great damage to the fruits.

According to research, the unabi mosquito (*Carpomya vesuviana* Sosta) is a monophagous insect that has been found to infect 80-95% of the unabi fruit in India [6; 7; 8; 9;].

According to the literature, unabi mosquitoes (*Carpomya vesuviana* Sosta) in Central Asia infect 90% of unabi fruits. According to many sources, unabi fruits grown in the southern latitudes of Russia, Ukraine and Moldova are not prone to disease and pests. According to AIKolesnikova and N.Naumova, unabi flies reproduce several times in India and twice in Azerbaijan. should sum up the temperature, which roughly corresponds to the end of June and the first decade of July [11; 1310-1317-b., 12; 11-77-b.].

In Uzbekistan, unabi fruit flies are registered in Samarkand, Jizzakh, Tashkent and Fergana regions, but unabi is also grown in other regions of the country. In all of the above regions, the rate of infestation of unabi mosquitoes of the fruits of this plant reaches 99-100% [4; pp. 76-77].

The average length of the Unabi fly is 0.5-0.7 cm. glossy orange, with black spots on the back, head and chest yellow. Female flies gnaw at the fruit of the unripe unabi fruit and form a pit and lay their eggs there, the young larvae that hatch from the eggs develop by eating the flesh of the fruit. Mushrooms from the winter flew in the first and second 10 days of June, when the average daily air temperature reached 25.6–25.8 oC and humidity 48–52%. The flight of the unabi fly from the winter coincides with the period when the unabi trees are in full bloom and fruit buds are beginning to appear. Flies initially begin to fly in small numbers, the number gradually increases to medium, and on June 20-24 they are observed to fly out of the fungus en masse, then the flight from the fungus decreases sharply and stops completely within 5 days [5; 273-314-b.].

The flying flies are very active and start laying eggs under the fruit skin after 13-15 days of additional feeding. It should be noted that the viability of the unabi mosquito imagos depends on supplementary feeding. Laboratory and field experiments show that the pest imag lives up to three days without food and up to 18 days in a nutrient environment.

Larvae (Fig. 1) and pupa (Fig. 2) of unabi flies detected in soil during field experiments.

1-picture

2-picture

Supplementally fed first generation female flies continue to lay eggs from the third decade of June to the end of July. One female mosquito lays an average of 35-40 eggs. An average of 1-3 or more larvae develop on a single fruit. After 5–6 days after laying eggs, the larvae emerge and begin to feed on the flesh of the fruit. Second-generation females, on the other hand, lay more than 35 eggs per fruit due to reduced yields, and up to 5 small black dots are clearly visible on the fruit. The larvae feed by forming different paths around the fruit kernels and filling these paths with the feces that separate them. After the larvae have been nourished in the fruit for 18-30 days, they form a hole in the skin of the fruit and fall to the ground, wavy for 1–2 hours, moving the soil 1–3 cm. at depth. The larval development of the larvae lasts from the second decade of July to the second decade of September. 14-15 days after hatching, in early August, the second generation of flies begin to fly and lasts until the first ten days of October. Egg-laying of second-generation flies begins in late August and lasts until mid-October. Larvae of this generation begin to damage the eggs in late August. Damage to the larvae. It lasts until the end of October or until the first frost. The fed larvae pierce the skin of the fruit, fall to the ground and turn into fungi and overwinter [19; pp. 56-68].

In the conditions of Tashkent region, the unabi fly develops by giving two generations. Second-generation larvae infect only ripe fruit.

Unabi fruit fly is a monophagous organism that only harms unabi fruits. The larvae of the pest cause great damage to the fruit, the larvae eat the flesh of the fruit around the seeds and replace them with their own feces, which makes the taste of the fruit bitter. Infected fruits ripen faster and fall to the ground along with reddish larvae so the presence of parasitic insects can be easily detected from spilled unabi fruits.

The larvae of the pest feed on the fleshy part of the fruit, at the same time in one fruit can be found 2–3 or more larvae. Such fruits become absolutely unfit for consumption and processing. In addition to consumption, unabi fruits also have medicinal properties. Therefore, it is important to protect unabi fruits from pests.

Research methods. In view of the above, research has been conducted to determine the timing of the emergence of unabi flies from the fungus. The research was conducted on the area of 1.0 hectares of unabi of the educational experimental farm "Information Consulting Center" under the Tashkent State Agrarian University. According to him, every meter of soil around the main body of the tree was excavated to study the condition and amount of the fungal phase of the unabi mosquito in the winter [2; pp. 32-37, 3; p. 631].

In this case, the size of each surveyed area (50x50x10 cm) was taken. The soil from the experimental sites was sifted through an entomological sieve and the fungi were collected. It was then calculated how many fungi were present per m2 of soil surface starting from the main body of the tree. The sponges in the winter were numerous near the main trunk of the unabi tree and decreased as the distance grew.

Research results. According to the results of the study, fungi were mainly found at depths of up to 3 cm in the soil. In particular, wintering mushrooms were found in each experimental area at an average depth of 25.0 pieces at a depth of 1 cm, 2 cm. and 16.5 pieces, 3 cm. 8.2 mushrooms were found in To determine from what depth and at what percentage the Unabi fly will fly out of the sponge, collect the collected mushrooms in 1 cm. li, 2 cm. li, 3 cm. li, 4 cm. li, 5 cm. li, placed in jars in 3 variants under the ground.

When placing the mushrooms in the jar, the soil extracted from the unabi area in entomological sieves was used. First add 10 cm to each jar. The surface was leveled to a thickness of 1 m and the mushrooms were placed on a flat surface.

According to our observations in the experimental variants, 20.3 butterflies flew out of 25.0 mushrooms (81.2%) in variant 1, and 9.2 butterflies (56.7%) flew out of 16.5 mushrooms in variant 2. , In our 3 variants, it was found during our observations that 4.4 butterflies (53.6) flew out of 8.2 mushrooms.

Table 1

In the laboratory, an unabi fly flies out of a sponge.

(1.0 hectare area of the educational and experimental farm "Information Consulting Center" under the Tashkent State Agrarian University. 2020-2021)

№	Total number of pupaes	Including			
		Number of pests flying out of the pupae, (pieces,%)		The number of pests that did not come out of the pupuae, (pieces,%)	
		number	Percent (%)	number	Percent (%)
1	25,0	20,3	81,2	4,7	18,8
2	16,5	9,2	56,7	7,3	44,2
3	8,2	4,4	53,6	3,8	46,3
average	16,5	11,3	63,6	5,3	36,4

During the study, the number of butterflies did not fly from 4.7 mushrooms (18.8%) in variant 1, 7.3 butterflies (44.2%) in variant 2, and the number of butterflies that did not fly in variant 3 was 3.8 (46.3%). formed.

The conclusion of the study is that the unabi moss overwinters at a depth of 2-3 cm in the soil. In the spring, it begins to emerge from the winter, beginning in the late decade of May. By timely determination of wintering times against this pest in the Unabi fields, the control measures will give the expected results and prevent the damage of the pest.

REFERENCES

1. Ахмедов, Э.Т.Бердиев Чиллонжийда – истиқболли шифобахш ўсимлик. Тошкент-2017 й. 4-б.
2. Айрапетов А.Г. Унабиевая муха–вредител плодов унаби в АзССР. //Бюллетен по културам сухих субтропиков. Баку, 1940, №5. Б-32-37
3. Косова В.В., И.Я.Поляков Прогноз паявление и учёт вредителей и болезней селскохозяственых култур. М.: Издателство. 1958 йил. б-631
4. Халмирзаева Л. Б. "Самарқанд вилояти шароитида Унаби кўчатини этиштириш технологиясини такомиллаштириш" диссертацияси. 2019 й. 76-77 бет.
5. Хўжаев Ш.Т., Холмуродов Э. энтомология, қишлоқ хўжвлиги экинларини ҳимоя қилиш ва агротоксикология асослари Тошкент-2009 й. 273-314-б.
6. Siwei Guo, Xuezhen Ge, Ya Zou, Yuting Zhou, Tao Wang 3 and Shixiang Zong. Article. Projecting the Potential Global Distribution of Carpomya vesuviana (Diptera: Tephritidae), Considering Climate Change and Irrigation Patterns24 April 2019.
7. Yao, Y.X.; Zhao, W.X.; Huai, W.X. Discussion on exotic pests, Carpomya vesuviana and its prevention and treatment technology. In Proceedings of the National Conference on Biological Invasion, Hai Kou, China, 15–18 November 2010; p. 366.

8. Lakra, R.; Singh, Z. Oviposition behaviour of ber fruitfly, Carpomyia vesuviana Costa and relationship between its incidence and ruggedness in fruits in Haryana. Indian J. Entomol. **1983**, 45, 48–59.
9. Azam, K.M.; Alansari, M.S.A.; Alraeesi, A.A. Fruit flies of Oman with a new record of Carpomya vasuviana Costa (Diptera: Tephritidae). Res. Crops **2004**, 2, 274–277.
10. Farrar, N.; Asadi, G.; Golestaneh, S. Damage and host ranges of ber fruitfly Carpomya vesuviana Costa (Diptera: Tephritidae) and its rate of parasitism. J. Agric. Sci. **2004**, 1, 120–130.
11. Karuppaiah, V. Biology and management of ber fruit fly, Carpomyia vesuviana Costa (Diptera: Tephritidae): A review. Afr. J. Agric. Res. **2014**, 9, 1310–1317.
12. Kimsanboev, K.; Murodov, B.; Yusupov, A.K. Unaby fly in Uzbekistan. Zashchita Karantin Rasteni˘ı **2000**, 11, 77.
13. Pramanick, P.; Sharma, V.; Singh, S. Genetic behaviour of some physical and biochemical parameters of fruitfly (Carpomyia vesuviana Costa.) resistance in ber. Indian J. Hortic **2005**, 62, 389–390.
14. Pareek, S.; Fagera, M.; Dhaka, R. Genetic variability and association analysis for fruitfly (Carpomyia vesuviana Costa) infestation in ber. Indian J. Plant Prot. **2003**, 31, 89–90.
15. Gyi, M.M.; Lal, O.; Dikshit, A.; Sharma, V. E_cacy of insecticides for controlling ber fruit fly. Ann. Plant Prot. Sci. **2003**, 11, 152–153.
16. Zhang, R.Z.; Wang, X.J.; Satar, A. Identification and precaution of the ber fruit fly, Carpomya vesuviana, a quarantine pest insect in China. Chin. Bull. Entomol. **2007**, 44, 928–930.
17. Metz, B.; Davidson, O.; Bosch, P.; Dave, R.; Mayer, L. Climate Change 2007 Synthesis Report: Summary for Policymakers; Cambridge University Press: Cambridge, UK, 2007.
18. Feng, G.E. Challenges facing entomologists in a changing global climate. Chin. J. Appl. Entomol. **2011**, 48, 1117–1122.
19. Муродов Б. Унаби мева пашшаси биоэкологияси ва унга қарши кураш чоралари. Диссертацияси. 2004 й. 56-68-б.