



ROLE OF ECOLOGICAL ENVIRONMENT TO DEVELOPMENT OF MULBERRY PYRALID

Kambarova Mukhtasarkhon¹, Nosirova Zarifaxon G'ulamjonovna²,

Turgumboyev Otabek Ulugbek o'gli³

¹ Plant Protection, Andijan Agricultural and Agrotechnological Institute in Andijan city

² doctor of philosophy in agricultural sciences (PhD), Tashkentstate agrarian university,

³ Student Agrotechnological Institute in Andijan city

<https://doi.org/10.5281/zenodo.4936673>

ARTICLE INFO

Received: 01st June 2021

Accepted: 05th June 2021

Online: 10th June 2021

KEY WORDS

mulberry pyralid, pest, insect, mulberry tree

ABSTRACT

The ecologic factors effect to development of mulberry pyralid has been studied. The phonological map of this insect on sample of Bo'ston district of Andijan region has been constructed. Based on the analysis of this map has been revealed that the pest gives for a season up to 5-6 generations and also the most premier air temperature is in region 25-35 °C and air humidity equals to 40-50%.

Introduction

Entering the territory of our country as an external quarantine insect in the 90-ies of the last century, the development, testing and implementation of measures against the pest – Mulberry moth (*Diaphania (Glyphodes) Pyloalis* Walker), which is currently causing serious damage to the mulberry trees of our country, is one of the most important issues of the silk industry today.

Increasing demand for environmentally friendly pure products today requires the development of a carefully planned harmonized method of combating fumes. In this regard, in our previous studies, we conducted a number of scientific studies on the application and testing of agrotechnical method “nimble belt” [8], as well as a number of

microbiological drugs such as lacewing [1], bracon [2], trichogram [3], taxine flies [4], microbiological preparations such as “Naturalis L” [5], “Prestige plus” [6], chemical preparations such as “Avaunt”, “Alexander” [7].

Literature review

As an important element of the pest control system and a logical continuation of our researches, this article presents an analysis of the results of our observational experiments on the impact of environmental factors on the development of mulberry pyralid.

Mulberry trees planted on the edges of the cotton crop were selected for the experiments, and the development processes and duration of mulberry moth eggs, worms, butterflies and fungi in them were observed in April-October 2018.



Research Methodology

In order to eliminate the influence of factors other than environmental factors on the development of the pest in selected trees, other species of pests and entomophagous mulberry pyralid were

mechanically destroyed. Based on the observations, a phenological map of the mulberry pyralid was compiled. The obtained results of experiences are presented in Table 1.

Table 1
The phonological map of mulberry pyralid
(Andijan region, Bo'ston district, 2018)

Months and decades																					
April			May			June			July			August			September			October			wintering
1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	
+	+	+																			
		•	•	•																	
			◆	◆																	
			○	○																	
			+	+																	
				•	•																
					◆	◆															
					○	○															
					+	+															
						•	•														
								◆	◆												
								○	○												
									+	+											
										•	•										
											◆	◆									
											○	○									
												+	+	+	+	+	+				
														•	•	•	•	•	•	•	
															◆	◆	◆	◆	◆	◆	
															○	○	○	○	○	○	
First generation			Second generation			Third generation			Fourth generation			Fifth generation			Sixth generation						
Middle temperature, °C																					
22-26			24-28			26-30			30-32			29-33			27-31						
Air moisture, %																					



50-60	46-56	45-55	46-56	52-62	55-65
-------	-------	-------	-------	-------	-------

Remarks: + - eggs; • - caterpillars; ♦ - pupae; ° - butterflies

In addition, white mulberry (*Morus alba*) trees, which are almost identical in height and width in these regions, were selected, and quantitative and qualitative

changes in the developmental stages of mulberry pyralid offspring in these trees were also recorded in writing.

Table 2
Influence of season periods to mulberry pyralid population
(Andijan region, 2017-2018)

variants	Experiences district	Ground features	Middle temperature, °C	Middle moisture, %	Rain days	Quantitative changes of different cycles of mulberry pyralid on 10 leaves of mulberry tree								
						eggs			caterpillars			Pupae		
						In the	In the end	Absolutely	In the	In the end	Absolutely	In the	In the end	Absolutely change
Period of first generation development (15 March – 1 May)														
1.	Qurgantepa	Good	21	80	10	0,2	-	0	2	3	50	-	2	2
2.	Baliqchi	Neutral	22	67	6	0,4	-	0	3	7	13	-	2	2
3.	Ulug'nor	Saline	23	60	5	0,7	-	0	4	11	17	-	6	6
4.	Buston	Saline	24	55	5	0,5	-	0	4	12	20	-	7	7
Period of second generation development (1 May – 1 June)														
1.	Qurgantepa	Good	22	75	6	-	10	10	3	5	2	2	1	-1
2.	Baliqchi	Neutral	23	62	4	-	15	15	7	11	4	2	1	-1
3.	Ulug'nor	Saline	24	55	3	-	22	22	1	16	5	6	3	-3
4.	Buston	Saline	26	51	3	-	24	25	1	17	5	7	4	-3
Period of third generation development (1 June – 1 July)														
1.	Qurgantepa	Good	24	70	3	10	15	5	2	3	1	1	1	0
2.	Baliqchi	Neutral	25	58	1	15	24	9	4	6	2	1	3	2
3.	Ulug'nor	Saline	26	52	1	22	34	12	5	8	3	3	6	3
4.	Buston	Saline	28	50	1	25	38	13	5	9	4	4	8	4



Period of fourth generation development (1 July – 1 August)														
1.	Qurgantepa	Good	28	74	3	15	21	6	3	8	5	1	2	1
2.	Baliqchi	Neutral	29	61	1	24	37	13	6	15	9	3	6	3
3.	Ulug'nor	Saline	30	56	1	34	49	15	8	19	11	6	10	4
4.	Buston	Saline	32	51	1	38	55	17	9	21	12	8	14	6
Period of fifth generation development (1 August – 10 September)														
1.	Qurgantepa	Good	27	78	7	21	10	-11	8	5	-3	2	1	-1
2.	Baliqchi	Neutral	28	64	4	37	25	-12	1	11	-4	6	3	-3
3.	Ulug'nor	Saline	30	59	3	49	34	-15	1	13	-6	10	5	-5
4.	Buston	Saline	31	57	3	55	35	-20	2	14	-7	14	6	-8
Period of sixth generation development (10 September – 1 November)														
1.	Qurgantepa	Good	25	81	11	10	-	-10	5	1	-4	1	0	-1
2.	Baliqchi	Neutral	26	67	5	25	5	-20	1	3	-8	3	1	-2
3.	Ulug'nor	Saline	27	62	4	34	7	-27	1	4	-9	5	2	-3
4.	Buston	Saline	29	60	4	35	9	-26	1	5	-9	6	2	-4

Analysis and results

Such observations were made in 4 variants in proportion to the selected areas. Emphasis was placed on the different life cycles of one-season offspring of mulberry pyralid insects in each region, i.e., the number of eggs, worms, and fungi of each generation during the season was quantified.

In order to facilitate the comparative analysis of options in the experiments, special attention was paid to the uniformity of the effect of other types of factors (agrotechnical, mechanical measures, chemical control, etc.). The observation results are presented in Table 2.

This table shows that, first, during one season in the Andijan region from 5.5 (in Qurgantepa district) to 6 (in the remaining 3 districts) reproduction was observed. This means that the last 6th generation in Qurgantepa district, unlike other districts, has not yet been fully formed.

Second, rising air temperatures and decreasing humidity and precipitation seem to accelerate the development of mulberry moths.

Conclusion /Recommendations

Third, due to the relatively low development rate of 1st and 2nd generation mulberry pyralids, at same time these insects do not cause significant economic



damage to mulberry trees, and thus to the development of silkworms through indirect effects. However, it would be wrong to conclude that this is possible even if there is no absolute fight against this pest.

Only at this time it means that it is not necessary to fight it with chemical

preparations and not to stop the fight in a biological way. In addition, this is actually the case for farmers. Because the negative effect of pesticides applied to the leaves of mulberry trees at this time is reflected in the development of silkworms.

References:

1. Kimsanboyev X.X., Nosirova Z.G'. Efficiency of lacewing entomophage in fight against of mulberry pyralid (in Russian) / Agrarnayanauka. 2017. 7. 4-6.
2. Nosirova Z.G', Kimsanboyev X.X. Effectiveness of the braconentomophages in fight against mulberry pyralids in Uzbekistan climate conditions. European Applied Sciences. 2017. 3. P. 3-5.
3. Nosirova Z.G', Kimsanboyev X.X. Trichogramma in fight against of mulberry pyralid (in Russian) / Zashitaikarantinrastenii. 2018. 4. 28.
4. Nosirova Z.G'. Taxine flies as entomophage of mulberry pyralid (in Russian) / VestnikAltayskogogosudarstvennogoagrarnogouniversiteta. 2018. 2 (160). 70-74.
5. Nosirova Z.G', Kimsanboyev X.X. Efficiency of microbiological preparation Naturalis L against of mulberry pyralid(in Russian) / Zashitaikarantinrastenii. 2018. 5. 45-46.
6. Nosirova Z.G', Anorbayev A.R., Qambarova M.X. Microbiological preparation Prestige plus in fight against of mulberry pyralid (in Russian) in the proceedings of international scientific practical conference dedicated to the 70th anniversary of the Honored Worker of the Republic of Kazakhstan Dosmukhambetov Temirkhan Minaidarovich. April 4-5, 2019 Almaty, Kazakhstan. 16-19.
7. Nosirova Z.G', Ubaydullaev S.I., Ruzikulov D.N. Effect of insecticides to mulberry pyralidentomophages. International journal of scientific & technology research 2019. 8. 11. P. 1408-1410.
8. Nosirova Z.G', Rakhmonov J.P., Rustamova M. Efficiency of the nonchemical methods in fight against of mulberry pyralid (in Uzbek)/ Agro kimyo himoya va o'simliklar karantini.2018. 3(7). C. 50-51.