

3. Григоров Петър. Да не ядеш новече червиви череши. / Петър Григоров // Земядел плюс. - 1997. - № 3. - С. 13-14.
4. Мирзоев А.И. Как бороться с вишневой мухой. / А.И.Мирзоев // Защита и карантин растений. - 2001. - № 2. - С. 39.
5. Сулейманов М.С. Некоторые биологические особенности вишневой мухи в связи с разработкой мер борьбы с ней / М.С. Сулейманов // Труды молодых ученых Дагестанского НИИ сельского хозяйства: сб. научн. ст. — Махачкала, 1966. - Т. 2. - С. 107-111.

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PEAR FRUIT PEST - BIOECOLOGICAL FEATURES OF LASPEYRESIA PYRIVORA

Annotation. The article provides information based on the study of bioecological features of pear pear-laspeyresiapyrivora in the conditions of tashkent and surkhandarya regions. Mainly in the there given information about the time required for *L. Pyrivora* to emerge from overwintering to re-overwintering, mating, laying eggs, worms hatching, feeding and turning into fungi, and the associated average air temperature and relative humidity percentages in the two different climatic zones of the republic. Phenological tables have also been drawn up, focusing on the number of generations of *laspeyresiapyrivora* in two different climatic zones.

Keywords: monophagous, pear fruit pest, pear varieties, phenological table of pear fruit pest.

Laspeyresiapyrivora is a monophage that infects only pears. Synonyms: *Carpocapsapyrivora*, *Cydiapyrivora*, *Carpocapsa-dannechli*, Pear moth. Early ripening pear varieties suffer a lot from this fruit pest and its reproduction is bisexual. The worms overwinter in the cocoon in the soil or in cracks in the trunk. Basically twice a year, sometimes a partial development of the third generation is observed. *L. pyrivora* was first identified in 1947 by A.S. Danilevsky. The biology of *L. pyrivora* is drastically different from that of apple fruit pest, so the control of these pests should be carried out taking into account the time of its development. *L. pyrivora* develops in one year giving two generations. The bioecological development of *L. pyrivora* is given in Table 1.

Table 1.

Bioecological development of <i>L. pyrivora</i>	
monophag	Pear fruit
Comfortable temperaure (°C)	+20–+25
Minimal temperature of development (°C)	+13
Lying eggs (pc)	38–76
Number of 1 year's generation	2 – 3
egg (mm.)	1,3
larvae (mm.)	16–20
cocoon (mm.)	11–13
Size of wings (mm)	17–22

L. pyrivora is widespread in the Caucasus in the foothills of the Main Mountain Range and locally in the Caucasus and the southern regions of Armenia. In the east, it is also found in the western regions of the Tien Shan and other regions of Central Asia.

L. pyrivora covers the nodules present in the foothills and lower forest plains of the upper North Caucasus and Dagestan. According to Kovalenko [1; 111-b., 4; 91-b., 5; P. 80] *L. pyrivora* causes great damage to the early summer ripening varieties of pears every year, while in apples they cause little damage. Massive primary damage to wild pear fruits in particular.

L. pyrivora belongs to a group of carpophagous insects that are highly specialized by type of feeding - a rodent pest that feeds mainly on the fruits of the pear tree.

A single worm of this pest can damage up to 4-6 pears. *L. pyrivora* causes serious damage to some early-ripening varieties of pear *Lesnayakrasavitsa*, *Lyubimitsa Klappa*, *SaryGuzal*, *Salom*.

Object of research. pear fruit pest - *Laspeyresia pyrivora*.

Research subjects. pear tree gardens and some varieties.

Research methods. The studies were performed in accordance with generally accepted entomological guidelines [7; 189-b., 8; 256-b.].

Average air temperature and relative humidity percentages were obtained using *Uzhydromed* data. Phenological observations were made using visual observations and pheromone traps in the experimental field of the laboratory "Pest control of orchards and vineyards" of the Research Institute of Plant Protection.

According to research conducted in Tashkent region in 2018-2019, pear butterflies (imagosi) began to fly in the first decade of May. The mass flight of butterflies took place on May 8-17. Their mating season began from May 19 to 21. From May 26, worms began to emerge from the eggs. In 2018–2019, the average air temperature in May was 23.2 °C and the relative humidity was 38%. Mass hatching of worms lasted until the first decade of June. The feeding of the worms lasted 28-31 days, and by the end of the third decade of June, the worms stopped feeding and began to fall into the cracks in the tree trunks to turn into cocoon. The average air temperature in June was 27.2 °C and the relative humidity was 23%.

The second-generation butterflies of *L. pyrivora* began to fly in the early second decade of July, i.e., July 22nd. Pairing was July 25-29, with an average air temperature of 29.2 °C and a relative humidity of 18%. The paired female butterflies began laying eggs on August 3rd. The worms began to emerge from the eggs 9–10 days later, and the mass proliferation of worms occurred on 30 August. The average air temperature was 27.3°C and relative humidity was 17%. In the middle of the

second decade of September, the worms stopped feeding and began to fall into the cracks in the tree trunks to turn into cocoon. The average air temperature was 22.8 °C and the relative humidity was 20%. Thus, in Tashkent region in 2018–2019, the 2nd generation worms of *L. pyrivora* went to winter.

In the conditions of the our Republic pear worms penetrate 5 cm of the soil. go into hibernation in the form of sponges in the depths or in cracks in the trunk. Light poles were placed in the garden to detect pest growth. The results of the study are as follows shown in Table 2.

Seasonal development of pear fruit pest-*Laspeyresia pyrivora* (Tashkent region, Bostanliq district, 2018-2019)

Steps of pests' development	period	Average monthly temperature °C	Relative monthly humidity %	Average speed	Average Raining rate
The beginning of the flight	07.05.	23,2°C	38%	3 m/s .	47,7 mm .
Mating period	11.05.				
Mass mating	14.05.				
Mass flight	17.05.				
The beginning of laying eggs	19.05.				
Mass egg laying	21.05.				
Beginning of hatching	27.05.	27,2°C	23%	3,4 m/s .	9,0 mm .
Mass hatching	02.06.				
Mass reproduction of worms	17.06.				
Becoming a cocoon(beginning of TB)	26.06.				
II– generation					
The beginning of the flight	22.07.	29.2°C	18%	3,5 m/s .	1,25 mm .
Mating period	26.07.				
Mass mating	29.07.				
Mass flight	02.08.	27,3°C	17%	3,4 m/s .	2,25 mm .
The beginning of laying eggs	03.08.				
Mass egg laying	05.08.				
Beginning of hatching	14.08.				
Оммавий тухумдан чиқиши	16.08.				
Mass reproduction of worms	30.08.				
Becoming a cocoon(beginning of TB)	13.09.	22,8°C	20%	3,2 m/s .	7,7 mm .

Table 2. Based on the obtained data, it is possible to construct the phenological development of pear fruit pest. Accordingly, *Laspeyresia pyrivora* develops in the Tashkent region, giving two generations (see Table 3). This can be based on the above data.

Based on the data of the phenological table, it can be said that *Laspeyresia pyrivora* winters in Tashkent region until the first decade of April in the form of winter worm. The worms develop into fungi in the same month, and in the first decade of May, butterflies (imago or mature) begin to emerge and mate, and the females begin to lay eggs. In late May, the worms hatch from the eggs. Feeding of worms continues until the end of June. *Laspeyresia pyrivora* worms can infect an average of 3-5 fruits during a 26-30 day feeding period. The worms then turn into a larvae inside a special cocoon they have made. After 15-19 days, on July 19-22, the 2nd generation butterflies fly out of the cocoon and start laying eggs in pairs. Similarly, the 2nd generation of *Laspeyresia pyrivora* continues to develop and stops feeding in mid-September and goes into winter. They spend the winter in the form of worms inside the cocoon, turning into a fungus inside the cocoon in early spring when the air temperature is 18-20oS and relative humidity is 35-40%.

Table 4 above shows the seasonal development of *Laspeyresia pyrivora*. According to the results of research in pear orchards of Surkhandarya region,

Table 3.

Phenological development table of pear fruit pest (in the conditions of Tashkent region in 2018-2019)

March	april			may			june			july			august			september			october		
III	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
(0)	(0)																				
	□	□	□	□																	
				+	+																
					•	•	•														
						0	0	0	0												
								□	□	□	□										
										+	+	+									
													•	•	•						
													0	0	0	0	0				
																(0)	(0)	(0)	(0)	(0)	(0)

• – egg; 0 – worm; □ – cocoon; + – fly(imago); (0) – wintering worm.

Table 4.

**Pear fruit pest - seasonal development of *Laspeyresia pyrivora*.
Surkhandarya region Kumkurgan district. (2018-2019)**

Steps of pests' development	period	Average monthly temperature	Relative monthly humidity	Average speed	Average Raining rate
The beginning of the flight	03.04.	17%	34%	4,3 m/s.	12,0mm.
Mating period	07.04.				
Mass mating	10.04.				
Mass flight	12.04.				
The beginning of laying eggs	14.04.				
Mass egg laying	16.04.	25,3%	28%	4,0 m/s.	7,0mm.
Beginning of hatching	23.04.				
Mass hatching	27.04.				
Mass reproduction of worms	15.05.				
Becoming a cocoon(beginning of TB)	29.05.				
II– generation					
The beginning of the flight	15.06.	29 %	18%	3,7 m/s.	0,1mm.
Mating period	19.06.				
Mass mating	22.06.				
Mass flight	23.06.				
The beginning of laying eggs	27.06.				
Mass egg laying	29.06.	29,6%	15%	3,4 m/s.	0,0mm.
Beginning of hatching	06.07.				
Mass hatching	09.07.				
Mass reproduction of worms	25.07.				
Becoming a cocoon(beginning of TB)	16.08.				
III – generation					
The beginning of the flight	05.09.	23,2%	17%	3,4 m/s.	0,2mm.
Mating period	08.09.				
Mass mating	11.09.				
Mass flight	12.09.				
The beginning of laying eggs	14.09.				
Mass egg laying	17.09.	15,8%	25%	3,9 m/s.	3,0mm.
Beginning of hatching	20.09.				
Mass hatching	25.09.				
Mass reproduction of worms	12.10.				
Wintering	20.10.				

pear fruit pest can be developed in the southern regions of the country by giving 3 generations. The time required for *L. pyrivora* to emerge from the winter diapause to re-overwinter, mate, lay eggs, hatch from worms, feed and turn into cocoon, average air temperature and relative humidity percentages are given. Based on the data obtained, the phenological development of pear fruit pest is formed (see Table 5). According to this, *Laspeyresia pyrivora* develops in Surkhandarya region, giving three generations. The above data is a clear example of this.

As control measures, agrotechnical methods, removal of plant debris from the fields, autumn plowing between rows are the most effective. Given that the larvae do not move openly around the fruit, the effectiveness of insecticides is appropriate if the effective temperature of the insect reaches a total of 380–400oC 35–40 days after mass hatching.

Conclusion.

1. Pear-bearer is a monophage, infecting only pears. Early ripening pear varieties suffer a lot from this fruit pest. The

Table 5

**Phenological development table of pear fruit pest
(2018-2019 in the conditions of Surkhandarya region)**

March	april			may			june			july			august			september			october		
III	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
(0)																					
□	□	□																			
	+	+																			
	•	•	•																		
		0	0	0	0	0															
					□	□	□														
						+	+	+													
							•	•	•												
										0	0	0	0	0							
													□	□	□						
															+	+					
																•	•				
																	0	0	0		
																		(0)	(0)	(0)	

• –egg; 0 – купти; □ – cocoon; + – fly (imago); (0) –wintering worm.

worms overwinter in the cocoon in the soil or in cracks in the trunk.

2. Basically twice a year, sometimes the third generation partially develops.

3. *L. pyrivora* was first identified in 1947 by A.S. Danilevsky.

4. *L. pyrivora* develops in Tashkent region with 2 generations, in the southern regions of the Republic, and in Surkhandarya region with 3 generations.

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REFERENCES:

1. Alekseeva S.A. Zashchitasemechkovyxiyagodnyx kultur / S.A. Alekseeva - N .: izd-vo "Elbrus" 1990. - 111 p.
2. Vasilev V.P. Vrediteliplodovyx kultur / - M .: Kolos, 1984. - 395 p.
3. Dospexov B.A. Methodology of field opyta. / - M .: "Kolos", -351 p.
4. Kovalenko O. V. Otchetyotdelazashchityplodovyx kultur "Severo-Kavkazskogonauchno-issledovatel'skogoinstitutagornogo ipredgornogosadovodstva" / - N .: "Elbrus" 1980. - 91 p.
5. Kovalenko O.V. Grushevayaplodojorka v Kabardinskoy ASSR / - N .: Kabardino-Balkarskoe kn. izd-vo. 1957. - 80 p.
6. Kovalenko O.V. VrediteliiboleznisadovKabardino-Balkarii / - N .: izb-vo "Elbrus". 1958. - 72 p.
7. Paliy V.F. Methods of studying fauna and phenology of insects / - Voronezh: - 1970. - 189 p.
8. Fasulati K.K. Polevoeizuchenienazemnyxbespozvonochnyx - M .: - 1974. - 256 p.
9. NazarovSh.R., Shukurov X.M., Abduraxmanova J.A., Umarov Z.A., Lapasov S.S. Effects and control measures of walnut gall (or wool) –*Aceriaerinea* N. and wart – *Aceriatristriata* N. mites // ACADEMICIA: An International Multidisciplinary Research Journal ISSN: 2249-7137 Vol. 10, Issue 12, December 2020. - rr. 47-53 Impact Factor: SJIF 2020 = 7.13 <https://saarj.com> doi number: 10.5958 / 2249-7137.2020.01686.9.
10. Shukurov X.M., Abdurahmanova J.A., NazarovSh.R., Mavlonova N., Muminova R., Nazarova M.J. Bioecology of orchard mites and the effectiveness of modern insecticides against them // The American Journal of Agriculture and Biomedical Engineering. –Vol. - 2, Issue-9, 2020. - rr. 48-57 (IF: -5.312) (ISSN – 2689-1018) Published: September 26, 2020 | Pages: 48-57 Doi: <https://doi.org/10.37547/tajabe/Volume02Issue09-09>, impact factor 2020: 5. 34.
11. https://www.pesticidy.ru/host/forest_pests.
12. https://ru.wikipedia.org/wiki/Grushevaya_plodojorka.

ТОШКЕНТ ВА НАМАНГАН ВИЛОЯТЛАРИ ШАРОИТИДА УРУҒ МЕВАЛИ БОҒЛАРДА УЧРАЙДИГАН КУЯЛАР ТУРЛАРИ ВА УЛАРНИНГ ТАРҚАЛИШ ДАРАЖАСИ

Аннотация. Мақолада Республикамизнинг уруғ мевали боғларида учраб сезиларли даражада зарар келтириб келаётган дўлана гирдак куясининг зарари ҳамда унга қарши кураш тўғрисида маълумотлар келтирилган. Дўлана гирдак куяси қарши 2019 йилда Чуст туманида ўтказилган тадқиқот натижаларига кўра намоён етган.

Аннотация. В статье представлены сведения о повреждениях и мерах борьбы против боярышниковой кружковой моли, которые нанесли значительный ущерб в плодовых садах нашей Республики. По результатам исследования, проведенного в Чустском районе в 2019 г против боярышниковой моли.

Annotation. The article provides information on the damage and control of apple leaf miner, which causes significant damage in the orchards of the Republic. According to a study conducted in Chust district, Namangan region in 2019 against apple leaf miner.

Тошкент ва Наманган вилоятлари шароитида уруғ мевали боғларда учровчи зараркунандаларнинг тур таркиби хилма хиллиги билан ажралиб туради. Улар ўсимликнинг барча генератив ва вегетатив органларини зарарлайди. Уларнинг яшаш шароитига қараб, шартли очик ҳаёт кечирувчи ва яширин ҳаёт кечирувчи зараркунандалар гуруҳига бўлиш мумкин.

Уруғ мевали боғларида учрайдиган зараркунандаларнинг тур таркибини ўрганиш учун 2019-йил давомида Наманган вилоятларининг боғдорчиликка ихтисослашган туманларидаги фермер хўжаликларининг мевали боғларда кузатувлар олиб бордим.

Наманган вилояти уруғ мевали боғларида зараркунандаларнинг аниқлаш мақсадида эрта баҳорда бошлаб зараркунандаларнинг қишловдан чиқиш фазаларини кузатдик. Бизнинг тадқиқотларимиз асосан уруғ мевали дарахтларда олиб бордик, дарахтлар остида тўкилган

ҳазонлар ва дарахтлар пўслоқлари, қалқонлар остидан зараркунандаларнинг қишлоф фазасидаги ғумбакларини териб олдик ва лаборатория шароитида кузатувлар олиб бордик кузатувлар натижасига кўра Наманган вилоятларининг мевали боғларида 5 оилага мансуб 8 тур куя зараркунандалари аниқланди, кўпчилиги асосан олма дарахтларини зарарлайдиган, 4 таси доминант тур эканлиги кузатилди. Аниқланган зараркунандаларнинг 4 тури олма боғларида, 2 тури нокда доминант тур ҳисобланиб катта иқтисодий зарар етказди. Беҳида эса 1 та тури доминант эканлиги маълум бўлди. Кузатилган зараркунандалардан 2 таси олма боғларида, 1 таси нок боғларида доминант турлар бўлиб, кучли зарар етказди. Беҳида эса Олма барг ости ковакловчи (мина) мева куяси (*Lithocolletis pyrifoliella* Grsm.) кўпроқ учраган бўлсада уларнинг зарари иқтисодий миқдор мезонидан юқори эмаслиги аниқланди [1,3,5]. (1-жадвалга қаранг).

1-жадвал.

Уруғ мевали боғларда учрайдиган куяларнинг тур таркиби ва учраши
(Тошкент ва Наманган вилояти 2018-2020 йй.).

№	Зараркунандаларнинг номи	Тошкент			Наманган		
		олма	нок	беҳи	олма	нок	беҳи
Гирдак куялар оиласи – Cemiostomidae оиласи							
1.	Дўлана гирдак куяси - Cemiostoma scitella L.	+++	++	+	+++	+	+
Ғилофли куялар – Coleophoridae оиласи							
2.	Ғилофли куя - Coleaphora hemoro-biella Scop.	+++	+	+	++	++	+
3.	Олма барг ости ковакловчи (мина) мева куяси (Lithocolletis pyrifoeiella Grsm.).	++	-	+	+++	-	++
Тоғда яшовчи куялар – Hyponomentidae оиласи							
4.	Олма куяси - Hyponomeuta malinellus Zell.	+++	++	+	+++	+	+
5.	Новда куяси (Blastodaena herrelella Drep.)	++	+	-	+	-	-
Ингичкақанотли миналовчи куялар оиласи – Lyonitiidae оиласи							
6.	Мева миначиси (Lionetia clerkella L.)	++	+	-	+++	+	+
7.	Олма миначиси (Lithocollethis corylifoliebla turanica Yerass	+++	-	-	+++	+	-
Митти куялар – Stigmellidae оиласи							
8.	Олма миначиси (Lithocollethis corylifoliebla turanica Yerass						
+++ - жуда кўп учради, ++ - кўп учрамади, + - оз учради, - учрамади							