



Economic and Economic Efficiency of Using Nomolt UMO Drug in a Very Small Volume Spraying Method

Utapov Nemat Egamqulovich ¹

¹ Ph.D, Tashkent branch of Samarkand State University of veterinary medicine, livestock and biotechnologies

Abstract: In the world today, scientific and research work is being carried out on the wide use of modern technologies in the fight against harmful species of locusts. In particular, based on the study of the biology, ecology and development characteristics of harmful locusts, due to the unfavorable location of the areas where they spread, it is important to develop a new resource-efficient control system against them, to determine the effectiveness of modern tools, and to conduct research on the development of technologies for the control of harmful locusts. is gaining importance.

It is known that locusts are widespread in our Republic mainly in mountainous, pasture and desert areas, and they pose a threat not only to existing plants in these areas, but also to all agricultural crops when they multiply. In order to ensure food security of our population, protection of seasonal and perennial plants in pastures and other agricultural crops from harmful locusts is one of our important tasks.

Keywords: Technical tools, production indicators, cost-effectiveness, arthropods, working capacity, additional harvest, harmful locusts, agricultural crops.

Special 5% m.s. Based on the results obtained from the use of Nomolt UMO drug, its economic efficiency was determined. Determination of economic efficiency, template - 5% em.k. It was studied based on comparison of costs of Atilla drug, which was used up to now with full volume spraying method, and Nomolt UMO drug with very small volume spraying method. In determining this efficiency, the number of technical tools used and their production indicators, as well as the costs incurred in their use, were taken into account. In order to determine the effectiveness of large-scale spraying, the indications for using the TTZ-80.10 tractor equipped with the OVX-600 sprayer at the consumption rate of Atilla drug at 0.2 l/ha were taken into account. Also, additional equipment - a TTZ-80.10 tractor with a 2PTS-4 water tank trailer and the costs incurred for it were determined.

Table 1. Economical advantage of low volume spraying method over conventional method in pest control of locusts

N	Indicators	Normal OVX-600 in spraying-200 l/ha (template)	Low volume spray (experiment)
1.	Used chemical agents and their consumption rates	Atilla, 5% em.k. (0.2 l/ha)	Nomolt, 5% m.s. UMO (0.150 l/ha)
2.	Used equipment	2 TTZ-80.10 tractors with OVX-600 sprayer attached and 2 PTS-4 water tanks attached	Micronaer AU 8115 UMO spraying device installed on UAZ-PICKUP car

3.	Number of employees involved	3	1
4.	Expenses for drugs, soum/ha	15000,0	16196,9
5.	Spraying coverage width of sprayers, meters	20-30	50-100
6.	The size of the working area per day (6-hour shift), ha	17,0	350,0
7.	Fuel consumption, l/ha	3,61	0,45
8.	Cost of chemical treatment, soum/ha	29 772,3	12724,4
9.	Total cost of processing, soum/ha	34772,3	28 921,3
10.	Effectiveness of drugs and duration of action, days	5-6 days, 94-100%. Additional processing may be required. Environmental damage.	30 days, 94-100%. No additional processing is required. Ecological decoration
11.	Amount saved compared to the model, soums/ha	-	6724,4

When determining the economic efficiency of the method of spraying in a very small volume, the costs of handling Nomolt UMO drug at a consumption rate of 0.150 l/ha using the Mikroneyer AU 8115 spraying device installed on the UAZ-469 car were taken into account. Other data and results taken into account to determine the cost-effectiveness of these two methods are presented in Table 1. As can be seen from the data presented in the table, despite the high price of Nomolt UMO preparation, due to the low cost of spraying in a very small volume, the total cost of processing one hectare was 12047,9 sums. This allows saving 18,772.32 sums/ha more than treatment with Atilla drug in the full volume spraying method. That is, 6724.4 sums will be saved for each cultivated hectare.

In 2010, in the fight against the Moroccan locust in our republic, 336.2 million soums were saved as a result of the spraying of 50,000 hectares using this method. In addition, the use of the drug Nomolt UMO is also important because of its long duration of action and low harm to the environment, including other arthropods and warm-blooded animals and humans, which brings great ecological and economic benefits.

In addition to the correct selection of techniques and tools, it is also important to select highly effective and less harmful chemical agents in the timely fight against harmful locusts. For use in the fight against harmful locusts in our country While more than 90 drugs are listed, only a small number of drugs directed to the use of a very small volume of spray.

Therefore, in our experiments, we determined the biological effectiveness of using aqueous solutions of pyrethroid preparations against locusts in very small quantities. According to the results of the experiments, it was found that the 0.2% aqueous solution of the drug Atilla has a much higher biological efficiency against the larvae of the Moroccan and Italian locusts.

A high biological effect was obtained even when the aqueous solution of the drug Bagira, VRK produced in our republic was used by the method of spraying in a very small volume. The use of aqueous solutions of pyrethroids in a very small volume spraying method has been proven in our experiments to be environmentally preferable to the use of their oil solutions. One of the main difficulties in the process of large-scale introduction of the method of spraying in very small quantities is the lack of production of ready-made UMO chemicals intended for use by this method by local enterprises. Therefore, spraying of available pyrethroid drugs with aqueous working liquid

Mikroneyer "AU 8115" and Mikroneyer "Ulvamast V3" sprayers (with a consumption rate of working solution of 2 l/ha) was carried out, and the productivity was 10 - 15 compared to the method of large-scale spraying times increase was achieved. The economic efficiency of using pyrethroids in the method of spraying the aqueous working fluid in a very small volume was determined.

In particular, the economic efficiency of using the drug Atila in large and very small spraying methods was studied. The results are presented in Table 2. According to the obtained results, it was found that the use of Atila drug at the rate of consumption of 0.2 l/ha in a very small volume of spraying (working liquid consumption of 2 l/ha) has a much higher economic efficiency compared to the method of spraying in a large volume. The total cost of processing was 8,851.0 soums per hectare in the method of spraying in a very small volume, and 18,772.3 soums in the method of spraying in a large volume. 9921.3 soums per hectare were saved as a result of spraying in a very small amount. In the season of 2010, a total of 308,000 hectares were treated with a very small amount of spraying, 9,921.3 soums were saved per hectare, and a total of 3,055.7 million soums were saved..

Table 2 the economic advantage of spraying Atila in a very small volume against the pest locusts compared to the conventional method

N	Indicators	Normal OVX-600 in spraying-200 l/ha (template)	Very low volume spraying - 2 l/ha (experiment)
1.	Used chemical agents and their consumption rates	5% em.c. Atila (0.2 l/ha) consumption of working liquid is 200 l/ha.	5% em.c. Atila (0.2 l/ha) consumption of working liquid is 2 l/ha.
2.	Used equipment	2 TTZ-80.10 tractors with OVX-600 sprayer attached and 2 PTS-4 water tanks attached	Micronaer AU 8115 UMO spraying device installed on UAZ-PICKUP car
3.	Number of employees involved	3	1
4.	Expenses for drugs, soum/ha	15000,0	15000,0
5.	Spraying coverage width of sprayers, meters	20-30	50-100
6.	The size of the working area per day (6-hour shift), ha	17,0	450,0
7.	Fuel consumption, l/ha	3,61	0,45
8.	Cost of chemical treatment, soum/ha	23 772,3	13851,0
9.	Total cost of processing, soum/ha	28772,3	10851,0
10.	Effectiveness of drugs and duration of action, days	5-6 күн 93,8-96,3%.	5-6 күн 94,6-96,5%
11.	Amount saved compared to the model, soums/ha	-	27842,6

Thus, the use of aqueous solutions of pyrethroids against harmful locusts with the help of special technical means provides an opportunity to save a lot of money in future production along with high economic efficiency.

Also, the economic effectiveness of various technical means used against harmful locusts spread in our republic was studied. Atila, 5% em.k., whose biological effectiveness was determined in our experiments. The cost of treatment of the means used against harmful locusts with the drug per 1 hectare was calculated (see Table-3).

The information of "OZAGROKIMYOHIYOY" JSC organization was used on the total costs of processing 1 hectare of the means used against harmful locusts.

The daily performance of all technical means used against harmful locusts in Uzbekistan and their costs for one hectare of treatment are given. In 2019, when calculated with the price of the drug used against harmful locusts, the possibility of a day's operation of the Micronair AU-8115 device for spraying in a very small volume was 150-300 hectares, and the total cost was 30,450 soums. In addition to the high daily productivity of this technical device, due to the fact that it is installed on an off-road vehicle (UAZ-469, UAZ-Pickup), it can be used in almost any area where harmful locusts are spread, and the need for its wide use in our Republic is increasing year by year.

Airplane AN-2, which has been used against harmful locusts for many years, has a capacity of 125-250 hectares, and the total cost is 87,050 soums. It can be seen that the fight against harmful locusts with the help of airplanes is expensive, as well as having a special aerodrome and the need for workers to serve it also creates some difficulties. In 2000, the motorized hang glider (Poisk-2), used in the fight against the harmful locusts that entered our country for agricultural use, had a daily working capacity of 150-500 hectares, and the total cost was 60,550 soums. From a distance, it can be observed that this device shows its good side. But there are several shortcomings of this flying device.

The fact that this aircraft cannot operate at an altitude of 1,200-1,800 meters above sea level (the Moroccan locust grows at this height), it cannot fly when the wind speed is 5 m/s, and there are other disadvantages, so that in the following years, in the fight against harmful locusts in some regions, airplanes will be used only in an emergency is being used.

Also, we can see that the OVX-600 tractor sprayer installed on a tractor, which has been used in agriculture for many years, has a daily productivity of 15-20 hectares, and its cost is 69,350 soums. One of the disadvantages of this technical device is the low productivity, the difficulty of transporting harmful water for the preparation of the working solution, especially in water-scarce areas, and the limited ability of the tractor to move in areas where harmful locusts are spread. Also, the VP-1 sprayer installed on a tractor is expressed by the low daily productivity (20-30 hectares) and the fact that this device has several disadvantages in areas where harmful locusts are spread, like the above device OVX-600.

The daily productivity of motorized hand sprayers (K-45, K-90) worn on the shoulders of workers fighting harmful locusts is 2-3 hectares, and the cost per hectare is 58,050 soums. There are several shortcomings of this technical tool thrown away. First of all, when the number of harmful locusts, which are mass-reproducing insects, increases, the effectiveness of these devices in pest control becomes almost invisible. In addition, it has a number of disadvantages, such as the high rate of poisoning by insecticides,

Table-3. Processing costs and productivity of means used against harmful locusts in Uzbekistan per hectare (soums/ha)

Tools name	Productivity of the tools used, 1 day/ha	Atilla, 5% em.k. consumption rate of the drug per hectare, l/ha	Drug cost per hectare	Processing cost per hectare	Total cost
Micronair AU-8115 Micronair Sprayer	150-300	0,25	18 750	11 700	30 450
Aircraft AN-2	125-250	0,25	18 750	68 300	87 050
Motor hang glider (Poisk-2)	150-500*	0,25	18 750	41 800	60 550
OVX-600 tractor sprayer	15-20	0,25	18 750	50 600	69 350

VP-1 tractor sprayer	20-30	0,25	18 750	32 900	51 650
Hand sprayer with hanging motor (K-45, K-90).	2-3	0,25	18 750	39 300	58 050

Above, when comparing the technical and other capabilities of the technical tools used against harmful locusts in Uzbekistan in their fight against them, it became clear that when processing with a low-volume spraying (UMO) device, an average of 21,200-56,600 soums per hectare is saved compared to other devices. while staying. The main thing is that it can move in any conditions (mountainous, hilly, desert), with low consumption of working solution, high productivity and prevention of mass reproduction of harmful locusts.

After the introduction of the use of this ultra-low-volume spraying (UMO) device in our republic (currently, about 60 of these devices are used in our republic), no cases of harmful locusts causing extensive damage to pasture plants and other agricultural crops were recorded, but in the neighboring republics (Tajikistan, Kyrgyzstan, Turkmenistan) due to the lack of research in this area, there are cases of harmful locusts damaging their agricultural crops and sometimes even flying into our country.

Thus, the economy and economic efficiency of chemical treatment against harmful locusts using an ultra-low volume spray (UMO) device was calculated. Harmful grasshoppers were calculated in terms of hay yield lost from pastures, considering that the grasshoppers are the first and most forage-infested plants in their development stages. The price of hay was calculated based on the price of 2019 (see table 3). The average amount of hay that can be obtained from 1 hectare of land during processing in experimental areas was 925 kg.

Table 3 Cost-Effectiveness of UMO Spraying of Locust Pesticides

Indicators	Nomolt, 5% m.s. UMO	Atila, 5% em.k.	Control
Hay yield, kg/ha	1 050	800	130
The price of the crop, sums/ha	984 000	750 000	122 000
Rate of use of chemical preparations, l/ha	0,15	0,25	-
Price of chemical preparations, soum/ha	30 250	18 750	-
Additional yield, kg/ha	920	670	-
Profit from additional harvest, soums/ha	844 000	610 000	-
Processing costs, sums/ha	11 700	11 700	-
Total expenses, sums/ha	41 950	30 450	10 500
Cost, sums/ha	724	725	720
Net profit, sums/ha	802 050	579 550	112 200
Justification of one soum spent on defense, times	19,1	19,0	-
The usefulness (profitability) of the protection method, %	191	190	-

From this, an average of 58 pieces of pressed hay can be obtained per hectare, and the average weight of 1 piece of pressed hay is 16 kg. The price of one piece of press hay in 2019 averaged 15,000 soums. Nomolt, 1050 kg per hectare compared to the control when chemical treatment was carried out using an ultra low volume sprayer (UMO) device with 5% m.s.UMO. Hay crop was harvested. 844,000 profit from additional harvest per hectare, 802,050 soums net profit was achieved. One soum spent on protection paid off 19.1 times, and the profitability of the protection method was 191%.

Also Atilla, 5% em.k. 800 kg per hectare compared to the control when chemical treatment was carried out using an ultra-low volume spray (UMO) device. Hay crop was harvested. 610,000 per hectare of additional harvest, 579,550 soums net profit was achieved. One soum spent on protection pays off up to 19.0 times, and the profitability of the protection method is 190%, and 130 kg in control. hay and hay harvest and the total price of the harvest was 122,000 soums.

It is known that harmful grasshoppers are omnivorous pests that not only harm plants in pastures, but also eat all agricultural crops if high biological, economic and economic control measures are not taken against them in time. This requires timely control of this type of pest with the help of an ultra-low volume spray (UMO) device to prevent the destruction of all agricultural crops and the high economic losses they can cause.

In conclusion, we can say that Nomolt, designed for spraying in very small volume, 5% m.s. Carrying out such spraying with the help of UMO drug allows to get a net profit of 802,050 soums per hectare and achieve high economic efficiency.

1. When Atilla insecticide (0.2 l/ha) intended for dissolving in water is used with a very small amount of spraying devices, the amount of money spent allows to achieve economic efficiency of 579550 soums.
2. Atilla, 5% em.k. 800 kg per hectare compared to the control when chemical treatment was carried out using an ultra-low volume spray (UMO) device. Hay crop was harvested. 610,000 per hectare of additional harvest, 579,550 soums net profit was achieved. One soum spent on protection is 19.0-19.1 times justified, and the profitability of the protection method is 190-191%, and in the control it is 130 kg. It was noted that hay and hay harvest and the total price of the harvest is 122,000 soums.

References.

1. Rashadi T. *Precis de lutte antiacridienne. Les pulverisations d'insecticides.* Ministre de la Cooperation et du Development, Paris – CIRAD-PRIFAS, Montpellier: 1991. - 312 p.
2. Tufliyev N.Kh., Agzamova H.K. Effectiveness of natural fungus samples against the Moroccan grasshopper / International Symposium "Microorganisms and Biosfera" MICROBIOS - 2015, material symposium. - Tashkent, 2015. - B. 251-252.
3. Khudanov Sh.A. Fighting against harmful locusts in the Republic of Karakalpakstan. Problems of zoology // 43 scientific conference abstracts. - Tashkent 1994. - B. 75.
4. Khojaev Sh.T., Kholmuradov E.A. Fundamentals of entomology, protection of agricultural crops and agrototoxicology - Tashkent: Fan, 2009. - 370 p.
5. Belayneh Y.T. Acridid pest management in the developing world: a challenge to the rural population, a dilemma to the international community. – Journal of Orthoptera Research 14(2): 2005. - P. 187 – 195.
6. **Bouaichi A., Coppen G.D.A., and Jepson P.C.** Barrier spray treatment with diflubenzuron (ULV) against gregarious hopper bands of the Moroccan locust *Doclostaurus maroccanus* (Thunberg) (*Orthoptera, Acrididae*) in NE Morocco *Crop Protection* 13 (4), 319 (1994).
7. Gapparov F.A. Locust management in Uzbekistan: new strategies and approaches for chemical control. – Beijing, China, May, 2004. - P. 11 – 16.