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BIOLOGICAL EFFECTIVENESS OF HERBICIDES USED IN COMBINATION WITH MUNG BEAN PLANTING TO CONTROL WILD WEEDS

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Abstract
In the article, the types, amount, damage of annual and perennial weeds found in fields planted with mung-bean crops in the Tashkent region, as well as herbicides used along with planting Stomp 33% emulsion concentration - 4,0 l/h 89,7% on annual weeds, Shansgard suspension concentration 500 g/l shut up It was reported that 88,2% biological efficiency was achieved on annual weeds when used at rates of - 4,0 l/ha.

Keywords: Mung-bean, annual and perennial weeds, dicotyledonous, cereal, distribution, harmfulness, quantity, herbicide, emulsion concentration, suspension concentration, biological efficiency.

Introduction

As in all countries, the demand for leguminous crops in Uzbekistan is increasing from year to year. By presidential decree, the obligation to prepare leguminous crops (mung beans, beans) for export has been imposed. Therefore, the main goal of specialists and farmers is to grow high-quality crops. To achieve this, it is necessary to solve the problem of obtaining products that meet all world requirements, creating an improved system of protection against diseases, pests

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and weeds that occur in them. The main task of protecting plants from weeds is to obtain high and high-quality crops. Why is it necessary to clear leguminous crops from weeds? The only system in developed countries today is to combat them using agrotechnical and chemical means. Weeds are a companion of everything in the fields where mung beans are planted, they consume solar energy, water, mineral fertilizers, all additional nutrients, and also lead to additional agrotechnical measures, additional costs. The greatest harm in the field of plant protection is becoming a source of reproduction of pests and diseases. Analyses have shown that up to 15-50% of the crop is lost due to the influence of weeds.

The main goal of studying weeds is to develop specific measures to combat them. However, weeds with extremely complex biological properties cannot be easily eliminated. Various methods of combating them have been developed.

One of these and the most important is compliance with all agrotechnical rules. It should be recognized that weeds differ from other plants in that, in addition to producing many seeds, their seeds do not lose their ability to germinate for a long time (50-60 years), do not germinate simultaneously, have a short or absent dormancy period, grow in different conditions, and are adapted to spread in different ways [1].

It is worth noting that many farms are conducting weed control work without knowing the types of weeds spread in the fields and their biological characteristics. Based on experience, it can be noted that in order to produce high-quality and high-yielding crops on farms, it is necessary to take agrotechnical or chemical control measures against weeds, knowing the type and quantity, biological characteristics and damage levels of weeds [3].

In recent years, the increase in annual and perennial weeds in mung bean fields has led to a sharp decrease in yield and deterioration of product quality. The main purpose of the study is to develop measures to combat weeds, which are currently a major problem in legume crops.

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Research Method

Research work was conducted to study the effectiveness of herbicides used together with planting in the experimental field of the Scientific Research Institute of Plant Quarantine and Protection in the Kibray district of Tashkent region in 2019-2021 to combat weeds in mung bean fields. The experiment was conducted in 9 variants and 4 repetitions.

Table 1. EXPERIMENT FORM

№	Herbicide name	Herbicide application rate, l/ha
1	Control (without herbicide)	-
2	Zorro, 33% em.c. (Template)	4,0
3	Stomp 33% em.c. (Pendimethalin)	2,5
4	Stomp 33% em.c. (Pendimethalin)	3,0
5	Stomp 33% em.c. (Pendimethalin)	4,0
6	Gezagard 50, 50% w.p. (Template)	4,0
7	Shansgard c.s. 500 g/l (Prometrin)	2,0
8	Shansgard c.s. 500 g/l (Prometrin)	3,0
9	Shansgard c.s. 500 g/l (Prometrin)	4,0

Observations have shown that the areas planted with legumes (mushrooms) are sufficiently damaged by weeds, that is, they are contaminated with more than 50-60 different weeds per 1 m2, which is scientifically substantiated. According to our work program, weed control measures were carried out in experimental plots in mushrooms in the 2019-2021 season. As in other crops, the effect of herbicides, which are considered effective against weeds found in legumes, was studied along with sowing. Stomp, 33% em.c. Shansgard sus.k. 500 g/l. herbicides, which are used in many agricultural crops, were tested at various rates of application. In the experiment, Stomp, 33% em.c. 3 types 2.5-3.0-4.0 l/ha, Shansgard sus.k. 500 g/l. 3 types 2.0-3.0-4.0 l/ha were used. The main purpose of using 3 types of application rates is to select the optimal amount.

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Research Results

In order to study the effect of herbicides on weeds, the number of weeds per 1 m2 was calculated on days 30, 45, and 60. In the control variant, the number of annual weeds per 1 m2 was 41.7, and the number of perennial weeds was 9.5. When using Zorro, 33% e.m. - 4.0 l/ha, the biological efficiency against annual weeds was 87.0%, against perennial weeds was 36.8%. Stomp, 33% e.m. When used at 2.5 l/ha, the biological efficacy against annual weeds was 85.1%, against perennial weeds was 33.7%, when this herbicide was used at 3.0 l/ha, this indicator was 85.8% against annual weeds, 35.8% against perennial weeds, when sprayed at 4.0 l/ha, it was 89.7% against annual weeds, and 37.9% against perennial weeds. When applied at a dose of Gezagard 50, 50% w.p. - When applied at 4.0 kg/ha, the biological efficacy was 86.6% against annual weeds, 36.8% against perennial weeds. Shansgard sus.k. 500 g/l. The herbicide, when used at 2.0 l/ha, had an efficacy of 84.2% against annual weeds and 30.5% against perennial weeds, and when used at 3.0 l/ha, it had an efficacy of 85.4% against annual weeds and 34.7% against perennial weeds.

Table 2. The effect of herbicides used together with mung bean planting on annual and perennial weeds
(OKHITI experimental field, Kibray district, Tashkent region, 2025).

№	Options	Herbicide consumption rate, l/ha	Annual weeds						Average number of weeds per 1 m^2 (units)	Biological efficiency, %	Perennial weeds						Average number of weeds per 1 m^2 (units)	Biological efficiency, %
			Account 1; (after 15th day)		Account 2; (after 30 days)		Account 3; (after 60 days)				Account 1; (after 15th day)		Account 2; (after 30 days)		Account 3; (after 60 days)			
1	Control (without herbicide)	-	40,2	-	41,3	-	43,5	-	41,7	-	8,7	-	9,5	-	10,3	-	9,5	-
2	Zorro, 33% em.c. (Template)	4,0	4,9	87,8	5,4	86,9	5,9	86,4	5,4	87,0	5,3	39,1	6,0	36,8	6,7	34,9	6,0	36,8
3	Stomp 33% em.c.	2,5	5,9	85,3	6,1	85,2	6,6	84,8	6,2	85,1	5,5	36,8	6,3	33,7	7,1	31,1	6,3	33,7
4	Stomp 33% em.c.	3,0	5,6	86,1	5,8	85,9	6,3	85,5	5,9	85,8	5,4	37,9	6,1	35,6	6,8	33,9	6,1	35,8
5	Stomp 33% em.k.	4,0	4,0	90,0	4,2	89,8	4,7	89,2	4,3	89,7	5,2	40,2	5,9	37,9	6,6	35,9	5,9	37,9
6	Gezagard 50, 50% w.p. (Andoza)	4,0	5,1	87,3	5,6	86,4	6,0	86,2	5,6	86,6	5,4	37,9	6,1	35,6	6,6	35,9	6,0	36,8
7	Shansgard c.s. 500 g/l.	2,0	6,3	84,3	6,5	84,3	7,0	83,9	6,6	84,2	5,8	33,3	6,6	30,5	7,4	28,1	6,6	30,5
8	Shansgard c.s. 500 g/l.	3,0	5,8	85,6	6,0	85,5	6,5	85,1	6,1	85,4	5,5	36,8	6,2	34,7	6,9	33,0	6,2	34,7
9	Shansgard k.s. 500 g/l.	4,0	4,5	88,8	4,7	88,6	5,5	87,3	4,9	88,2	5,3	39,1	6,0	36,8	6,7	34,9	6,0	36,8
	EKF_{05}=									2,2								3,4

At 4.0 liters per hectare, this indicator was 88.2% against annual weeds and 36.8% against perennial weeds.

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2 herbicides applied with sowing also showed good indicators, that is, the effect was as expected.

Conclusion. Against weeds found in mung bean fields, the use of Stomp 33% em.c.-4.0 l/ha and Shansgard sus.k. 500 g/l - 4.0 l/ha at a soil moisture content of 70% along with sowing in the spring and summer seasons shows good results.

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