

The influence of “Gezagard-50” herbicide norms on peanut’s yield

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Abstract: This article presents the results of research work on impact of “Gezagard-50” herbicide norms on the yield parameters of local peanut varieties “Kibray-4”, “Mumtoz” and “Salomat”: their general yield, stem yield, bean yield and grain yield standards.

The following data show that the total harvest of “Kibray-4” peanut variety in comparison to herbicide free version increased to 7,4 c/ha, “Mumtoz” variety to 5,9 c/ha, “Salomat” variety to 5,1 c/ha; The bean yield of “Kibray-4” peanut variety in comparison to herbicide free version increased to 4,4 c/ha, “Mumtoz” variety to 3,7 c/ha, “Salomat” variety to 3,6 c/ha; The grain yield of “Kibray-4” peanut variety in comparison to herbicide free version increased to 4,1 c/ha, “Mumtoz” variety to 3,2 c/ha, “Salomat” variety to 3,3 c/ha. Using the herbicide “Gezagard-50” in 3 kg/ha proportion the peanut yield parameters of “Kibray-4”, “Mumtoz” and “Salomat” varieties appeared to be more effective.

Key Words: herbicide, “Gezagard-50”, “Kibray-4”, “Mumtoz”, “Salomat”, typical sierozem soil, weeds, cm, kg/ha, centner/ha, variety, prometryn.

1. INTRODUCTION:

While the Earth’s population grows and demands more agriculture production, the problem of food shortage is still actual. To solve this problem there should be created and applied the modern methods and agro technologies for getting high and qualitative yield of agriculture crops.

The demand for vegetable oil is rising sharply in the world. In order to meet this demand, this problem can be solved by creating new varieties of high quality yields of oil-bearing plants and agro technologies.

To solve the mentioned problems there were conducted research works of applying the various norms of “Gezagard-50” herbicide against one-year weed appearing among peanut plants in typical sierozem soil conditions, which is ecologically pure containing oil (52-60%), protein (22-26%), carbohydrates, amino acids, as well as vitamin B₁, B₂, PP, C and D.

Weed grass shares the life factors of cultivated plants, that is why, it absorbs nutrients and moisture, sets off the crops and reduces photosynthesis productivity of plants. It causes the loss of wheat yield on the average for 11,9%, bean crops for 15,5%, linen-11,5 % beetvoot-9%, cotton-8,1%, potato-7,0%, vegetables-11%, the total crop production for 10,3%.

At present, the world’s crop loss due to weeds, diseases and pests is very high: grain crops are about 500-510 mln. tonnes, beetroot 65-75mln. tonnes, potato 125-135, vegetables 75-80 mln. tonnes, which is 30-40 % of total harvest or \$75 mln. US dollars.

“Gezagard-50” is of 50 % humid powder. It is produced by “Syngenta” company, Switzerland, and the date of re-registration is the 31st of December, 2007.

The substance prometryn influences on weeds and is applied for one-year dicotyledonous and grain weeds. The herbicide is administered with sowing procedure once a year in 3-5 kg/ha proportion.

2. RESULTS AND DISCUSSION:

The yield getting from peanut is one of the important indicators. In our experiment we have seen the considerable effect of the norms of herbicide on the yield of peanut varieties (Table 1).

The results of the research show that according to the average three-year data, the “Kibray-4” variety was 43,4 c/ha (c/ha) in control version, so when the herbicide used in 2 kg/ha in the 2 version accordingly for 3,3 c/ha, when used in 3 kg/ha in the 3 version for 7,4 c/ha, when used in 4 kg/ha in the 4 version for 8,0 c/ha was increased. The “Mumtoz” variety was 49,3 c/ha in control version, so after using the herbicide in 2 kg/ha in the 2 version accordingly for 2,9 c/ha, when used in 3 kg/ha in the 3 version for 5,9 c/ha, when used in 4 kg/ha in the 4 version for 7,0 c/ha was increased. The “Salomat” variety was 55,2 c/ha in control version, when the herbicide used in 2 kg/ha in the 2 version, accordingly for 2,2 c/ha when used in 3 kg/ha in the 3 version for 5,1 c/ha, and when used in 4 kg/ha in the 4 version the total yield was increased for 5,6 c/ha.

According to the stem yield the average three-year data: “Kibray-4” variety in control version was 14,1 c/ha, after using the herbicide in 2 kg/ha in the 2 version for 2,4 c/ha, after using 3 kg/ha in the 3 version for 3,0 c/ha, after using 4 kg/ha in the 4 version for 3,1 c/ha was increased. The “Mumtoz” variety was 19,2 c/ha variety in control version after using the herbicide in 2 kg/ha in the 2 version for 1,9 c/ha, after using 3 kg/ha in the 3 version for 2,2 c/ha, after using 4 kg/ha in the 4 version for 2,7 c/ha was increased. The “Salomat” variety in control version was 25,6 c/ha, and after using the herbicide in 2 kg/ha in the 2 version for 1,3 c/ha, after using 3 kg/ha in the 3 version for 1,5 c/ha, using in 4 kg/ha in the 4 version for 1,7 c/ha was increased accordingly.

As for bean yield the average three-year data of “Kibray-4” in control version was 29,3 c/ha, after using the herbicide in 2 kg/ha in the 2 version for 0,9 c/ha, in 3 kg/ha in the 3 version for 4,4 c/ha, in 4 kg/ha in the 4 version for 4,9 c/ha was increased. The “Mumtoz” variety in control version was 30,1 c/ha after using the herbicide in 2 kg/ha in the 2 version for 1,0 c/ha, in 3 kg/ha in the 3 version for 3,7 c/ha, in 4 kg/ha in the 4 version for 4,3 c/ha was increased. The “Salomat” variety in control version was 29,6 c/ha, after using the herbicide in 2 kg/ha in the 2 version for 0,9 c/ha, in 3 kg/ha in the 3 version for 3,6 c/ha, in 4 kg/ha in the 4 version for 3,9 c/ha was increased as well.

Table 1
The influence of the herbicide norms on peanut yield parameters
(2012-2014 y.)

№	Sorts	Variety	Herbicide norm, kg/ha	General yield, c/ha	Stem yield, c/ha	Bean yield, c/ha	Grain yield, c/ha
1	“Kibray-4” 70x25-1	Control (None herbicide treatment)	-	43,4	14,1	29,3	21,1
2		“Gezagard-50”	2	46,7	16,5	30,2	21,7
3		“Gezagard-50”	3	50,8	17,1	33,7	25,2
4		“Gezagard-50”	4	51,4	17,2	34,2	25,3
5	“Mumtoz” 70x25-1	Control (None herbicide treatment)	-	49,3	19,2	30,1	22,5
6		“Gezagard-50”	2	52,2	21,1	31,1	23,2
7		“Gezagard-50”	3	55,2	21,4	33,8	25,7
8		“Gezagard-50”	4	56,3	21,9	34,4	26,2
9	“Salomat” 70x20-1	Control (None herbicide treatment)	-	55,2	25,6	29,6	21,6
10		“Gezagard-50”	2	57,4	26,9	30,5	22,4
11		“Gezagard-50”	3	60,3	27,1	33,2	24,9
12		“Gezagard-50”	4	60,8	27,3	33,5	25,1

As for grain yield, the average three-year data of “Kibray-4” variety in the control version was 21,1 c/ha, after using the herbicide in 2 kg/ha in the 2 version for 0,6 c/ha, in 3 kg/ha in the 3 version for 4,1 c/ha, in 4 kg/ha in the 4 version for 4,2 c/ha was increased too. In the “Mumtoz” variety in control version was 22,5 c/ha, after using the herbicide in 2 kg/ha in the 2 version for 0,7 c/ha, in 3 kg/ha in the 3 version for 3,2 c/ha, in 4 kg/ha in the 4 version for 3,7 c/ha was increased. The “Salomat” variety was 21,6 c/ha, in the control version, and after using the herbicide in 2 kg/ha in the 2 version for 0,8 c/ha, in 3 kg/ha in the 3 version for 3,3 c/ha, in 4 kg/ha in 4 versions for 3,5 c/ha was increased.

3. CONCLUSION:

Based on the findings of scientific research, it is possible to conclude the following:

- The total harvest of “Kibray-4” variety is increased in comparison with un herbicide variety to 7,4 c/ha, “Mumtoz” to 5,9 c/ha, and “Salomat” to 5,1 c/ha.
- The varieties of “Kibray-4”, “Mumtoz” and “Salomat” yield parameters became higher after using the “Gezagard-50” herbicide in proportion of 3 kg/ha.
- Comparing the bean yield of peanut to un herbicide version the “Kibray-4” was higher for 4,4 c/ha, “Mumtoz” for 3,7 c/ha, and “Salomat” variety increased to 3,6 c/ha.
- By grain yield, comparing to un herbicide varieties “Kibray-4” increased to 4,1 c/ha, “Mumtoz” to 3,2 c/ha, and “Salomat” variety to 3,3 c/ha.

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