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The level of weed cleaning through herbicides and its dependence on the growth, development and yield of winter wheat

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Abstract: In this article, Puma super (1 l / ha), Granstar (15 g / ha) was applied against cereal weeds, and as a result of elimination, the Kroshka variety of winter wheat had a long stalk, a large number of grains in the stalks, and a large number of grains in the stalks. an increase in grain yield from a single spike, which has been reported to radically improve the grain structure of Puma super (1 l / ha) and Granstar (15 g / ha) herbicides against double-stranded weeds when mixed and thawed.

Keywords: Herbicide, Granstar Herbicide, Puma Super Herbicide, Winter Wheat, Weeds, Dicotyledonous Weeds, Rye Weeds, Control Options.

Introduction

To develop clear recommendation on increasing the viability of the winter wheat, elimination of rye and dicotyledonous weeds, the average state characterized of a 3 -year data on the application of the Puma Super(1l/ha) against rye and Granstar(15gr/ha) for dicotyledonous weeds, when they used together at a time the viability rate of winter wheat and number of stalks were observed to be more 22 pieces in comparison with non-herbicide control variant. However, it was determined that this figure was showed 8 pieces when Granstar herbicide was used alone and when Puma super was used it was 10 pieces [1,3].

Methods

Research work Testing varieties of agricultural crops; B.A.Dospekhov "Methods of field experiment"; Recommendations for the protection of grain crops in Uzbekistan from diseases, insects and weeds; recommendations for the use of Granstar herbicide in cereals; Conducted in accordance with the guidelines for the State testing of herbicides against weeds in the fields where agricultural crops are grown, as well as recommendations for high yields of cereals.

Results

The effectiveness of herbicides Puma super (1 l / ha) and Granstar (15 g / ha) when applied separately and together against rye and dicotyledonous weeds, which grows at the same time with winter wheat and adversely affect its growth, development as well as the yield, and the survival rate of winter wheat significantly changed.

According to the data given in the Tables 1 and 2, when herbicides applied for 20 times to control rye and dicotyledonous weeds, it was observed that the number of pieces of winter wheat per 1 meter square was slightly higher after 20 days rather than which sprayed on April 10. If the number of stalks of winter wheat per 1-meter square area before the application of herbicides was 351-354 pieces on March 20, this figure indicated 343-348 pieces on April 10.

In 20 days, due to the struggling with each other meanwhile the rapid growth and development of the of winter wheat, there was a decrease per square meter up to 8 pieces of grain during this period. As a result of the space disputes while growth and development of wheat grasses in the spring, the weak grasses are left in the shade of the steadily developing grasses and die. This is a normal process and in accidence with to the laws of the struggle for survival. After 20 days (Table 2), before 10^{th} of April, the second period of application of herbicides against common rye and dicotyledonous weeds to the winter wheat, the number of grasses were calculated and it was 343-347 pieces per $1m^2$ of area, and it was noticeable than the number of 20^{th} March. However, it was observed that the condition and development of the winter wheat on April 10 to be more vigor compared to March 20.

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In addition, along with winter wheat, rye and dicotyledonous weeds also develop mutually, their negative impact on the growth and development of winter wheat was also observed, negatively affecting the growth and development of wheat grasses and they have high impact on reduction number of pieces. Therefore, weeds have a negative effect on a slight decrease in the number of winter wheat grass on April 10 compared to March 20.

The reason for the description of the mentioned cases was to determine the degree of impact of herbicides applied against weeds along with weeds on the viability and other properties of winter wheat.

According to Tables 1 and 2, the viability of winter wheat treated with herbicides was higher than that of the control option without herbicides, and there was a slight decrease in the number of wheat plant due to the strengthening and full formation of wheat stalks where herbicides applied on 10th April compared to those applied on 20th March. When herbicides were applied to winter wheat on March 20, after 30 days the number of wheat plants decreased up to 31 compared to the variant of where herbicides not applied and this is a natural decline characteristic of cereal crops, and during this period due to the fast development rate of some wheat plants, it can be considered as dying of the weak plants which fragilely developed and left in the shadows by the strong plants.

Such situation was experimented in 2016 in the variant where herbicide was applied on March 20 and in herbicides not applied control variant it was concluded that the number of stalks consisted of 352 pieces, after 30 days it was 321 pieces, in 2017 before applying herbicides(March30) it was of 354, after 30 days 322 and in 2018 within herbicides not applied control variant on the date of 20th March it was 352, after 30 days this indicator was 320 where decrease of 31 pieces was observed (1 - 2-tables).

However, in experimental variants where herbicides used, it was observed that the viability of winter wheat ranged from 8 to 23 units in 30 days compared to the non- herbicides control variant**.**

Of course, it has also been observed that the survival rate of winter wheat varies over the years depending on herbicides. Therefore, in 2016, the number of stalks before spraying herbicides compared to the indicator after 30 days, in the herbicides used experimental variant, according to the types of the herbicides and their application the number of stalks were from 8 to 23 pieces. The same situation happened and there was 8-20 more units in 2017, and in 2018 –there was 10-23 more units of the viability of winter wheat was observed. An important feature of the study is to observe the survival rate of winter wheat which varies depending on the types of used herbicides and the method of application.

As shown in Table 1, when 1 liter/ ha of Puma super herbicide was applied on March 20th and after 30 days compared to the variant where applied non- herbicide, it showed that the number of stalks were more to 10 pieces than without application control variant, and where Granstar herbicide was applied 15 g/ha the indicator showed 8 pieces, when applied both herbicides as a mixed together it characterized to be higher viability rate of winter wheat and the number of stalks was more 23 pieces compared to non-herbicide variant (2016 year).

Table-1
Viability of winter wheat in the early phases (application of herbicides on March 20)

№	Experiment options	Number of wheat stalks before spraying herbicides, 1 m^2	Number of wheat stalks 30 days after spraying with herbicides, 1 m^2	Difference to control, pcs +,-
2016 year				
1	Control option without herbicides (st)	352	321	-
2	Puma super 1.0 l / ha	353	331	+10
3	Granstar 15 g / ha	354	329	+8
4	Puma super 1.0 l / ha Granstar 15 g / ha	351	344	+23
2017 year				

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1	Control option without herbicides (st)	354	322	-
2	Puma super 1.0 l / ha	353	332	+10
3	Granstar 15 g / ha	351	328	+8
4	Puma super 1.0 l / ha Granstar 15 g / ha	352	342	+20
2018 year				
1	Control option without herbicides (st)	351	320	-
2	Puma super 1.0 l / ha	352	330	+10
3	Granstar 15 g / ha	350	330	+10
4	Puma super 1.0 l / ha Granstar 15 g / ha	352	343	+23
2016-2018 average over the years				
1	Control option without herbicides (st)	351	321	-
2	Puma super 1.0 l / ha	353	331	+10
3	Granstar 15 g / ha	352	329	+8
4	Puma super 1.0 l / ha Granstar 15 g / ha	352	343	+22

Table-2
Viability of winter wheat in the early phases (application of herbicides on April 10)

№	Experiment options	Number of wheat stalks before spraying herbicides, 1 m^2	Number of wheat stalks 30 days after spraying with herbicides, 1 m^2	Difference to control, pcs +,-
2016 year				
1	Control option without herbicides (st)	346	324	-
2	Puma super 1.0 l / ha	345	329	+5
3	Granstar 15 g / ha	347	330	+6
4	Puma super 1.0 l / ha Granstar 15 g / ha	345	338	+14
2017 year				
1	Control option without herbicides (st)	348	326	-
2	Puma super 1.0 l / ha	347	328	+2
3	Granstar 15 g / ha	348	331	+5
4	Puma super 1.0 l / ha Granstar 15 g / ha	346	339	+13
2018 year				
1	Control option without herbicides (st)	345	325	-
2	Puma super 1.0 l / ha	343	327	+2
3	Granstar 15 g / ha	344	332	+7
4	Puma super 1.0 l / ha Granstar 15 g / ha	346	340	+15
2016-2018 average over the years				
1	Control option without	346	325	-

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	herbicides (st)			
2	Puma super 1.0 l / ha	349	328	+3
3	Granstar 15 g / ha	346	331	+6
4	Puma super 1.0 l / ha Granstar 15 g / ha	346	337	+12

In 2017, the same state happened that it was observed to become more 10 units of stalks when applied Puma super (1 l / ha), when applied Granstar (15 g / ha) to 8 units and 20 units by mixing both herbicides together. The situation of 2016 was same as in 2018, it showed the high effectiveness of using selected combined herbicides as an experimental object.

In order to organize the elimination of weeds in the winter wheat fields by application of Puma super herbicide (1 l / ha) against rye, Granstar herbicide (15 g / ha) herbicide against dicotyledonous on April 10 when formation of full germination of such weeds was observed in study the viability level of winter wheat, it was observed its high degree in comparison with March 20 application.

If we look at the data of the control variant in which non- herbicides were used to analyze the natural survival rate of winter wheat, we will witness the following cases. It was observed that the natural decrease in the number of stalks of winter wheat in the 30 days after March 20 was 31 pieces, while the natural decrease in the number of stalks during the 30 days after April 10 was 10-12 pieces. It is reasonable to indicate that it was the result of continuous increase in growth of winter wheat becoming more vigor and developing resistance to the negative effects of weeds.

However, in the experimental variants in which rye and dicotyledonous weeds were eliminated by herbicides, it was observed that the survival rate of winter wheat was higher than in the control variant where herbicides were not used. Because the winter wheat became slightly stronger on April 10, the number of stalks in the experimental variants which herbicides used on March 20th was more 8-23 pieces than in the control variant (Table 1), this indicator showed herbicides applied on 10th of April was 2-15 pieces according to the experimental variants identified after 30 days.

Conclusion

Thus, the combined usage of Puma super (1 l / ha) to control rye and Granstar (15 g / ha) herbicides for dicotyledonous on April 10 when annual weeds fully sprout, increases the preservation rate of the productive stalks of winter wheat till the end of the vegetation period.

Thus, in the conditions of irrigated serozem soils of Surkhandarya region, as result of the application of combined herbicides Puma super (1l/ha) to control rye, Granstar (15g/ha) against dicotyledonous weeds, due to eliminate of both types of weeds, the growth and development phases of winter wheat is significantly reduced, and achieved to reach maturity 4-11 days earlier.

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