The Level of Weed Cleaning Through Herbicides and its Dependence on the Growth 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]. The total number of surviving stalks is 18 pieces when both herbicides are applied separately, indicating that when the both herbicides used the number would be 22 pieces or 4 more, it shows that it is one of the most prospective methods to develop weed science even further by increasing viability of the winter wheat and application of herbicide against rye and certain dicotyledonous weeds [5,7,9].

Materials and 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.

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 10^{th} April compared to those applied on 20^{th} 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 20^{th} 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				
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 herbicides (st)	346	325	-
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 20^{th} was more 8-23 pieces than in the control variant (Table 1), this indicator showed herbicides applied on 10^{th} of April was 2-15 pieces according to the experimental variants identified after 30 days.

On 10 April, when Puma super (1 l / ha) was applied against rye and dicotyledonous weeds, after 30 days the number of stalks was more 5, when applied Granstar herbicide(15 g / ha) against rye and dicotyledonous weeds the number of stalks was more 6 pieces, and when the both herbicides used together the number of stalks became more 14 pieces. (2016 year) The same situation was detected in 2017-2018, the number of stalks differed by only 1-2 pieces.

Discussions

According to the average data (2016-2018), as the condition on April 10, the number of stalks per 1meter square area of winter wheat without herbicides was 346-349 units, while after 30 days it was observed that this figure was 325 units without herbicides in the experimental variant and decreased by 11 units. However, in experimental variants where herbicides were applied in terms of the number, there was more from 3 to 12 stalks compared to the non-herbicide control variant, depending on the type and method of application of herbicides. Thus, it was observed that when applied Puma super (1 l / ha) the number of units increased by 3 pieces, Granstar herbicide by 6 pieces, and when both herbicides applied together by 12 units. Hence, the combined application of such herbicides can be an effective method in the control of rye and dicotyledonous weeds in the winter wheat field.

Using both herbicides together once in the early stages of winter wheat to eliminate rye and dicotyledonous weeds will increase the viability of the winter wheat.

At the end of vegetation period, it was observed significant improvement in the yield of stalks and degree of conservation according to the usage of Puma super (1 l / ha) against rye and Granstar (15 g / ha) for dicotyledonous weeds separately and together in the winter wheat fields. To illustrate this situation even clearly, it is expedient to analyze the number of stalks of winter wheat per $1m^2$ area on 20 March and 10 April.

According to the experiment in 2016, it was observed that the number of wheat stalks per $1m^2$ area was 352 pieces on 20 of March, while this figure was 346 pieces on 10^{th} April. Since the number of productive stalks when herbicides were applied on April 10 was higher from 15 to 30 pieces depending on the type and method of application of the herbicides, this figure showed from 7 to 22 pieces when applied on March 20.

(Table 3) in 2016, as a result of the application of Puma super (1 l / ha) herbicide against rye characterized to be conserved the number of productive stalks of winter wheat was more 11 pieces than that of the non- herbicide control variant.

Whereas, when Granstar (15 g / ha) herbicide was applied during this period, the number of productive preserved stalks of winter wheat until the end of the growing season was more 7 than in the non- herbicide control variant. However, when the established rates of both herbicides were mixed together and applied on March 20, the number of productive stalks of winter wheat that remained until the end of the growing season was observed.

3-table

Viability of winter wheat until the end of the vegetation season (application of herbicides on March 20)

№	Experiment options	Number of wheat stalks before spraying herbicides, $1m^2$ pcs	Number of productive stalks of wheat at the end of the growing season, $1m^2$	Difference to control, pcs, +, -
2016 year				
1	Control option without herbicides (st)	346	262	-
2	Puma super 1.0 l / ha	345	282	+20
3	Granstar 15 g / ha	346	279	+17
4	Puma super 1.0 l / ha Granstar 15 g / ha	344	292	+30
2017 year				
1	Control option without herbicides (st)	347	265	-
2	Puma super 1.0 l / ha	346	284	+17
3	Granstar 15 g / ha	347	280	+15
4	Puma super 1.0 l / ha Granstar 15 g / ha	346	292	+27
2018 year				
1	Control option without herbicides (st)	345	263	-
2	Puma super 1.0 l / ha	344	282	+19
3	Granstar 15 g / ha	342	278	+15

4	Puma super 1.0 l / ha Granstar 15 g / ha	344	291	+28
2016-2018 average over the years				
1	Control option without herbicides (st)	346	263	-
2	Puma super 1.0 l / ha	345	283	+20
3	Granstar 15 g / ha	345	279	+16
4	Puma super 1.0 l / ha Granstar 15 g / ha	345	292	+29

4-table

Viability of winter wheat until the end of the vegetation season (application of herbicides on April 10)

№	**Experiment options**	**Number of wheat stalks before spraying herbicides, 1m^2 pcs**	**Number of productive stalks of wheat at the end of the growing season, 1m^2**	**Difference to control, pcs, +, -**
2016 year				
1	Control option without herbicides (st)	346	262	-
2	Puma super 1.0 l / ha	345	282	+20
3	Granstar 15 g / ha	346	279	+17
4	Puma super 1.0 l / ha Granstar 15 g / ha	344	292	+30
2017 year				
1	Control option without herbicides (st)	347	265	-
2	Puma super 1.0 l / ha	346	284	+17
3	Granstar 15 g / ha	347	280	+15
4	Puma super 1.0 l / ha Granstar 15 g / ha	346	292	+27
2018 year				
1	Control option without herbicides (st)	345	263	-
2	Puma super 1.0 l / ha	344	282	+19
3	Granstar 15 g / ha	342	278	+15
4	Puma super 1.0 l / ha Granstar 15 g / ha	344	291	+28
2016-2018 average over the years				
1	Control option without herbicides (st)	346	263	-
2	Puma super 1.0 l / ha	345	283	+20
3	Granstar 15 g / ha	345	279	+16
4	Puma super 1.0 l / ha Granstar 15 g / ha	345	292	+29

It was observed that application of herbicides to control weeds had an effect on viability of winter wheat by 22 units (average data for 2016-2018) compared to the variant. The same state which was in 2016 repeated in 2017-2018, and it was determined that the conservation rate of productive stalks varied 1-4 units.

On the 10^{th} of April, when all cereals full sprouted and an increase in the degree of conservation of the productive stalks of winter wheat until the end of the vegetation season was observed. If the usage of Puma super (1 l / ha) on March 20 results in to conserve as well as increase in productive wheat stalks by 11 units till the end of the vegetation period, while the number of productive stalks was observed to be 20 units, this herbicide applied on April 10. Similarly, it was observed that when Granstar (15 g / ha) herbicide was applied on April 10, achieved to be more 10 units of productive stalks compared to the variant that the herbicide applied on March 20, at the end of the wheat vegetation period non- applied control variant.

One of the key measures to ensure conservation of more productive stalks of winter wheat is to use such herbicides together on April 10. When both herbicides applied together on March 20, the conservation of winter wheat stalks by the end of the vegetation season increased by 22 units, while applied on April 10, this figure increased by 30 units. (4-table). The same situation happened in 2017-2018, and it turned out to be 2-3 units different from 2016.

In irrigated serozem soil conditions of Surkhandarya Region the usage of herbicide Puma Super (1l/ha) to eliminate rye and Granstar(15gr/ha) for dicotyledonous weeds in the winter wheat fields and clearly to prove high effectiveness of using together such compounds, a 3-year data for average state (2016-2018) given in a graphic form and it showed that there would be more 8 pieces preserved during the vegetation period of the productive winter wheat stalks when herbicides applied on April 10 compared to the variant when herbicides were applied on March 20.

The duration of growth and development cycles

Rye and dicotyledonous weeds show significantly negatively affect for the growth and development of winter wheat by overshadowing them. According to the results of our research it shows that the duration of growth and development cycle of the Kroshka variety of winter wheat, depends on the degree of weed control in the wheat field. (5-6-tables).

In the selected fields for the experiment, during the previous year's rye and dicotyledonous weeds widespread and the next year also it was planned to cultivate winter wheat, therefore the observations about its duration of growth and development cycles held immediately after cultivation of the type of winter wheat Kroshka. According to the tables and data, it consisted of average 7 days for flat sprout of winter wheat variety Kroshka, it was observed that accumulation of yield phase started later than 18 days after 3-4 leaves emerge, in autumn forming up to 4-5 stalks and it continued in spring too, formed up to 20 stalks.

The fully stalking of the variety of winter wheat Kroshka coincides to March 15-20 and during this period was fast growth of rye and dicotyledonous weeds. In other words, rye and dicotyledonous weeds also develop at the same time with winter wheat, on the March 20 when they start to use all the factors equally and because of their negative effect increasing to the winter wheat, at first place they will stop photosynthesis process when the Puma Super (1l/ha) and Granstar (15gr/ha) used separately and together, leads to the break of physiological and biochemical processes due to the fastening breathing process, and it intensifies self-absorption process, within the 15-20 days organs and roots of rye and dicotyledonous weeds belong to both types completely die, and it opens a condition to develop and thrive to the winter wheat.In other

words, it saves winter wheat from the negative effect of weeds and creates free and necessary condition to grow and develop of winter wheat.

In the non-herbicide control variant of the winter wheat, rye and dicotyledonous weeds develop together with winter wheat and under their negative effect the duration of the vegetation period extends. Due to the development of winter wheat under the shadow of rye and dicotyledonous weeds vegetation period extends, the need for water and nutrients increases, progress of different kinds of diseases and insects leads to fragile development of the winter wheat. The duration of vegetation period consisted 218-220 days in the non-herbicide variant of the winter wheat, and the duration of the vegetation period of the winter wheat which rye and dicotyledonous weeds were eliminated by herbicides differed according to the types of the herbicides and their usage method.

When herbicides Puma Super (1l/ha) and Granstar(15gr/ha) used separately and together against rye and dicotyledonous weeds, it was observed that there were no changes from the accumulation of yield to shooting phase, from tillering phase to ripening phase there were considerably changes in the duration of the phases, from the grain filling to the fully maturity phase there was no changes observed in the control variants.

It was determined that the cycle changes were coincide to each other when the herbicides used on March 20 (table 5) and April 10 (table 6) in the tillering, stalk extension, heading, riping.

In all years when the experiments were held, the duration of the tillering-heading phases consisted 31-33 days in non-herbicide control variant, when Puma Super(1l/ha) and Granstar(15gr/ha) used it consisted 29-31 days and the minor difference was observed. However, Puma Super and Granstar herbicides were used according to the established norms, sharp decrease was observed in the tillering and heading phases in 2016 for 7 days, in 2017 for 5 days, in 2018 for 6 days compared to the non-herbicide variant of the winter wheat. Such situation occurred when herbicides used together on April 10, in 2016 for 5 days, in 2017 for 3 days, in 2018 for 2 days acceleration was observed compared to the non-herbicide variant.

So, application of the herbicides together, at the expense of dying weeds, considerable reduction of the tillering-heading phases occurs.

The reduction of duration of the vegetation period happens at the expense of the rapid growth of the winter wheat during the heading-flowering, flowering-ripening phases and elimination of the weeds during these phases.

When Puma Super(1l/ha), Granstar(15gr/ha) herbicides were used separately as well as together, the duration of non- herbicide control option constituted 12 days and while this figure was 10-11 days when the herbicides were applied separately and a decrease was observed to 2-3 days.

For this reason, the Kroshka variety of winter wheat constituted for 220 days without spraying herbicides on irrigated lands in serozem soils of Surkhandarya region, when applied herbicides separately the days were 213-216, however, when applied Puma super (1 l/ha) to control rye and Granstar (15g/ha) for dicotyledonous weeds mixed together it constituted 209-212 days and 8-11 days shortened on duration of growth and development phases of winter wheat.

As a result of, the combined application of herbicides to eliminate of rye and dicotyledonous weeds, the reduction of growth and development cycles in the winter weed indicates that weeds are one of the major hinder to the free growth and development of winter wheat.

To more clearly show the effect of herbicide application on weeds on the duration of growth and development of winter wheat, we present a special graph on the data for 2018.

As shown in this graph, the 2018 experimental results showed that when herbicides applied on March 20, the non- herbicide control variant showed 220 days, while Puma super(1 l/ha) and

Granstar (15g/ha) were applied separately made up 215 days and when applied both of them together the days contained 209 days.
However, when applied herbicides on April 10, there is rather shortening of the growing season of winter wheat compared to applied herbicides on March 20.

Table 5

Duration of growth and development periods of winter wheat in fields where herbicides were applied against (application of herbicides on April 20)

№	Experiment options	Planting	Sprouting	Accumulation	Tubing	Start	Flowering	Milk ripening	Wax ripening	Full ripening	Vegetation period
2016 year											
1	Control option without herbicides (st)	30.10	06.11	24.11	03.04	05.05	07.05	21.05	01.06	05.06	220
2	Puma super 1.0 l / ha	30.10	06.11	24.11	03.04	03.05	08.05	19.05	30.05	03.06	213
3	Granstar 15 g / ha	30.10	06.11	24.11	03.04	04.05	08.05	20.05	31.05	04.06	215
4	Puma super 1.0 l / ha Granstar 15 g / ha	30.10	06.11	24.11	03.04	01.05	08.05	19.05	30.05	03.06	209
2017 year											
1	Control option without herbicides (st)	30.10	06.11	24.11	03.04	05.05	09.05	21.05	01.06	05.06	219
2	Puma super 1.0 l / ha	30.10	06.11	24.11	03.04	04.05	08.05	20.05	30.05	03.06	214
3	Granstar 15 g / ha	30.10	06.11	24.11	03.04	04.05	08.05	19.05	31.05	04.06	216
4	Puma super 1.0 l / ha Granstar 15 g / ha	30.10	06.11	24.11	03.04	02.05	08.05	19.05	28.05	02.06	210
2018 year											
1	Control option without herbicides (st)	30.10	06.11	24.11	03.04	04.05	09.05	21.05	01.06	03.06	220
2	Puma super 1.0 l / ha	30.10	06.11	24.11	03.04	03.05	08.05	19.05	30.05	03.06	215
3	Granstar 15 g / ha	30.10	06.11	24.11	03.04	04.05	08.05	20.05	31.05	04.06	215
4	Puma super 1.0 l / ha Granstar 15 g / ha	30.10	06.11	24.11	03.04	02.05	08.05	19.05	30.05	03.06	209

Table 6

Duration of growth and development periods of winter wheat in fields where herbicides were applied against (application of herbicides on April 10)

№	Experiment options	Planting	Sprouting	Accumulation	Tubing	Start	Flowering	Milk ripening	Wax ripening	Full ripening	Vegetation period
2016 year											
1	Control option without herbicides (st)	30.10	06.11	24.11	03.04	05.05	07.05	21.05	01.06	05.06	219
2	Puma super 1.0 l / ha	30.10	06.11	24.11	03.04	03.05	08.05	19.05	30.05	03.06	214
3	Granstar 15 g / ha	30.10	06.11	24.11	03.04	04.05	08.05	20.05	31.05	04.06	215
4	Puma super 1.0 l / ha Granstar 15 g / ha	30.10	06.11	24.11	03.04	01.05	08.05	19.05	30.05	03.06	210
2017 year											
1	Control option without herbicides (st)	30.10	06.11	24.11	03.04	05.05	09.05	21.05	01.06	05.06	219
2	Puma super 1.0 l / ha	30.10	06.11	24.11	03.04	04.05	08.05	20.05	30.05	03.06	215
3	Granstar 15 g / ha	30.10	06.11	24.11	03.04	04.05	08.05	19.05	31.05	04.06	216
4	Puma super 1.0 l / ha Granstar 15 g / ha	30.10	06.11	24.11	03.04	02.05	08.05	19.05	29.05	02.06	211
2018 year											
1	Control option without herbicides (st)	30.10	06.11	24.11	03.04	04.05	09.05	21.05	01.06	05.06	218
2	Puma super 1.0 l / ha	30.10	06.11	24.11	03.04	03.05	08.05	19.05	30.05	03.06	214
3	Granstar 15 g / ha	30.10	06.11	24.11	03.04	04.05	08.05	20.05	31.05	04.06	215
4	Puma super 1.0 l / ha Granstar 15 g / ha	30.10	06.11	24.11	03.04	02.05	08.05	19.05	30.05	03.06	212

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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