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Study of Residual Amounts of Rostbisol, Oxyhumate, Bahor and Dorilin in Wheat Grain

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ABSTRACT

Growth stimulators are gaining great popularity in agricultural production, as they contribute to a significant increase in yield, provide improved quality of crops. Currently, new plant growth stimulators of domestic production are intended for introduction in agriculture of the Republic of Uzbekistan: Rostbisol, Oxyhumate, Bahor and Dorilin.

Hygienic assessment of food products obtained from food crops treated with pesticides and the establishment of permissible residual amounts of pesticides in them is an important link in the system of measures that ensure the prevention of poisoning with pesticides and prevent the possibility of harmful effects on public health.

To solve the tasks, hygienic studies were carried out to determine the residual content of Rostbisol, Oxyhumate, Bahor and Dorilin in wheat grown with the use of the above plant growth stimulants.

Studies have shown that the growth stimulators studied were found in very small quantities and mainly only on the day of sowing the seeds they treated in the soil of the sown field and in the air above the field.

When spraying wheat plants with 0.5% Rostbisol on the day of treatment in the air, the drug was determined at a concentration of 0.07 mg/m3, in the soil of the sown field 0.15 mg/kg, in the leaves 0.3 mg/kg, in the roots 0.2 mg/kg. On the 2nd day after treatment: the drug was not detected in the air above the field, in the soil, Rostbisol was preserved in an amount of 0.06 mg / kg, in the leaves and roots of wheat - 0.2 mg/ kg. When treating wheat plants with 0.25% Rostbisol, its residual amounts were detected only on the first day of application: in the air – 0.002 mg/m3 and in the soil – 0.005 mg/kg. When using 0.12% Rostbisol, environmental objects and wheat plants did not contain residual amounts of the drug.

The study of the degree of pollution of environmental objects with the use of 0.005% and 0.001% Oxyhumate showed that only on the first day of treatment the drug was determined in the air at concentrations of 0.001 mg/m3, 0.002 mg/m3 and in the soil 0.005 mg/kg and 0.002

mg/kg, respectively.

The use of the growth stimulator Bahor 0.1% and 0.01% when growing wheat led to contamination of the air and soil with the drug only on the first day of processing. Pollution levels were insignificant: 0.02-0.01 mg/m3 in the air, and 0.09-0.05 mg/kg in the soil.

The use of Doriline in concentrations of 1.0% and 0.5% on the day of treatment polluted the air above the treated field in concentrations of 0.04-0.06 mg/m3, and the soil - 0.02-0.04 mg/kg. The use of 0.25% Doriline did not lead to pollution of environmental objects.

Rostbisol, Oxyhumate, Bahor and Dorilin were not found in the grain of the harvested crop.

Therefore, it can be concluded that the studied drugs pollute environmental objects slightly and only in the first 2 days. The wheat grain of the resulting crop does not contain residual amounts of plant growth stimulants. Rostbisol, Oxyhumate, Bahor and Dorilin were not found in the grain of the harvested crop.

Therefore, it can be concluded that the studied drugs pollute environmental objects slightly and only in the first 2 days. The wheat grain of the resulting crop does not contain residual amounts of plant growth stimulants. The essence of the method of assessing the impact on yield and grain weight is to count wheat grains from 15 plants (harvest) and weigh the mass of 1000 grains, separate whole grains, weigh the remainder and count the number of whole grains, and then divide the mass of whole grains by their number and express the result in relation to 1000 grains. Determination of the natural weight of grain is the most reliable indicator of the quality of grain. The bulk weight of the grain is influenced by the grain size. If the grain of 2 samples, all other things being equal, will differ only in size, then the nature of larger grains will be greater. However, the volume weight does not increase in parallel with the increase in grain size, uniformity of its size and grain density, which in turn depends on the biological structure of the grain and its chemical composition. The volume weight is also influenced by the ratio between large, medium and small grains. When determining the weight of 1000 grains in our studies, GOST 10842 – 89 was used. The results obtained are presented in Table 3.5.

Table 3.5. Effect of plant growth stimulants on yield and weight of 1000 wheat grains (g)

Name of the series of experiments	Yield (g from 15 plants)		Weight of 1000 grains (g)	
	M±m	P	M±m	P
Rostbisol				
0,12%	11,0±0,65	>0,05	33,2±0,21	<0,001
0,25%	11,9±0,13	>0,05	35,0±0,69	>0,05
0,5%	12,5±0,41	<0,05	36,1±0,35	>0,05
Oxyhumate				
0,001%	20,1±0,49	<0,001	38,9±1,39	<0,05
0,002%	21,8±0,65	<0,001	40,2±0,39	<0,001
0,005%	22,7±0,70	<0,001	42,1±0,55	<0,001
Bahor				
0,001%	15,2±0,35	<0,001	36,0±0,72	>0,05
0,01%	16,8±1,03	<0,001	36,0±0,39	>0,05
0,1%	17,2±0,73	<0,001	36,4±0,38	>0,05
Dorilyn				
0,25%	16,4±0,44	<0,001	36,1±0,51	>0,05
0,5%	17,3±0,21	<0,001	36,4±0,16	>0,05
1,0%	18,7±0,33	<0,001	39,1±0,64	<0,01
Control	11,4±0,33		35,7±0,64	

It was found that of the studied drugs, Oxyhumate has the best stimulating effect to increase yield, which increases grain yield from 15 plants by 2 times. Dorilin 0.25%, 0.5% and 1.0% solution increased yields to 16.4 g, 17.3 g and 18.7 at control values of 11.4±0.38 g (P<0.001). Bahor to a lesser extent, but also had a pronounced stimulating effect on increasing the yield of wheat grain from 15.2 g to 17.2 g, depending on the used consumption rate of the drug. Rostbisol increased wheat yield only in 2 concentrations used (0.25% and 0.5%), but the increase had no statistical significance (P>0.05).

The study of the mass of 1000 wheat grains showed that this indicator was the best in a series of experiments with Oxyhumate, which increased it to 42.1□0.55 g at 35.7 ± 0.64 g in the control (P<0.001).

Dorilin increased this indicator in comparison with the control with a high degree of statistical reliability (P<0.001) only at a concentration of 1.0% (39.1±0.64 g). The other two consumption rates of doriline had no effect on this indicator.

It should be noted that Bahor and Rostbisol did not cause statistically significant changes in the mass of 1000 wheat grains, and Rostbisol at a concentration of 0.12-0.25% even reduced this indicator to 33.2-35.0 g, with a control of 35.7 ±0.64 g.

The results of the study of the elasticity of both experimental and control samples allowed the samples to reveal a good elasticity of gluten, capable of quickly and completely restoring its original shape after pressing with fingers. Consequently, in terms of elasticity and extensibility, gluten of experimental and control samples of wheat grain belongs to group 1: elasticity is good, extensibility is average.

A comparative analysis of the results showed that Dorilin and Oxyhumate not only significantly increase the amount of raw gluten, but also contribute to improving its quality. The plant growth regulator Bahor also has a pronounced stimulating effect on the quantity and quality of gluten, but only in concentrations of 0.01% and 0.1%. The concentration of Bahor 0.001% did not cause statistically significant changes in the studied parameters. Spraying with Rostbisol did not affect the quantity and quality of raw gluten of wheat grains, and the concentrations of rostbisol of 0.12% and 0.25% led to a pronounced tendency to deterioration of the studied indicators, although it should be emphasized that these changes were not statistically significant.

LITERATURE

1. Бекбанов Б., Реймов Н. Озимая пшеница в Южном Приаралье // Узбекистон кишлок хужалиги. – Т., 2004. - №8.
2. Буғдой донини стандарт бўйича тула техник тахлил қилиш / Р. А. Хаитов, Р. И. Зупаров, В. Э. Раджабова, З. З. Шукуров // Дон ва дон махсулотларининг сифатини баҳолаш ҳамданазорат қилиш. – Т., 2002.
3. Буриев Х., Жураев Р., Алимов О. Дон ва уруғларнинг таркибий қисмларига моддалар таксимланиши // Дон махсулотларини сақлаш ва қайта ишлаш. – Т., 2003.
4. Долженко В. И., Новожилов К. В. Химический метод защиты растений: Состояние и перспективы повышения экологической безопасности // Защита и карантин растений. – М., 2005. - №3.