EFFECT OF HERBICIDE (2,4 DICHLORPHENOXIC ACID) ON THE EARLY STAGES OF DEVELOPMENT OF AUTUMN AND SPRING WHEAT VARIETIES

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Annotation: This article describes in detail the negative and positive effects of herbicides on spring and autumn wheat seedlings. The study was conducted at different concentrations of herbicides and the individual morphological characteristics of plant seedlings were analyzed for each concentration. The experiments were performed under laboratory conditions in a roll method and in Petri dishes. 9 morphophil marks were analyzed in the roulette method, 9 in wheat and Petri dishes.

Keywords: 2,4 Dichlorophenoxic acid herbicide, rolls, Petri dish, winter wheat, spring wheat, agricultural technology.

Introduction

We use herbicides in the cultivation of agricultural crops. Herbicides are applied before sowing, during sowing, during the growing season and after harvest, due to the specificity of crops and weeds. They are sprinkled in bulk and in a ribbon manner. Herbicides, which are sprayed in bulk before planting, are mixed into the soil with the help of harrows. During planting and growth, they are sown in strips or in bulk. Abiotic factors (dew, wind, temperature) are also important when using herbicides.

The type and concentration of the herbicide are important when using herbicides. Improper use of herbicides can lead to high doses, violation of treatment times, improper selection of herbicides, soil and soil environment, pollution of water bodies, and the death of plants and animals. It is important to find the desired concentration of the herbicide.

Determination of herbicide activity was determined from seedlings (experiments on Petri dishes and rolls). The following experimental scheme was used to test the effects of

herbicides and growth stimulants in petri dishes: 2,4-Dichlorophenoxic acid 10, 20, 40,80 mg / l The experimental method was applied by the roll method: 2,4-Dichlorophenoxic acid 60, 120, 240,480,720 mg / l.

In the experiment, 30 wheat seeds were sown for each experiment, and the effectiveness of the experiments was measured by measuring the length and mass of plant seedlings using 10 roll morphological features of the experiment (total length, total weight, surface area). weight, surface length, width of the first leaf of the plant, width of the first leaf (mm), number of roots, root length, root weight, surface weight and root weight ratio), in Petri dishes The experiment took into account 6 morphological features (total length, total weight, surface length, hypocatyl length, number of roots, root length).

The effect of herbicides on winter wheat varieties of Uzbekistan and spring wheat varieties of Bashkortostan was studied for the experiment. By comparing experiments with dichlorophenoxic acid to the initial (without herbicide) experiment, we can know the negative or positive effects of herbicides.

In the experiment with spring wheat, in comparison with the initial experiment, the number of roots was observed in the experiment with a high concentration of 60 mg / l, in the experiment with a low concentration of 480 mg / l (36.2%). In winter wheat, the highest value was observed at 120 mg / l, and the lowest value was observed at 480 mg / l (8.1%).

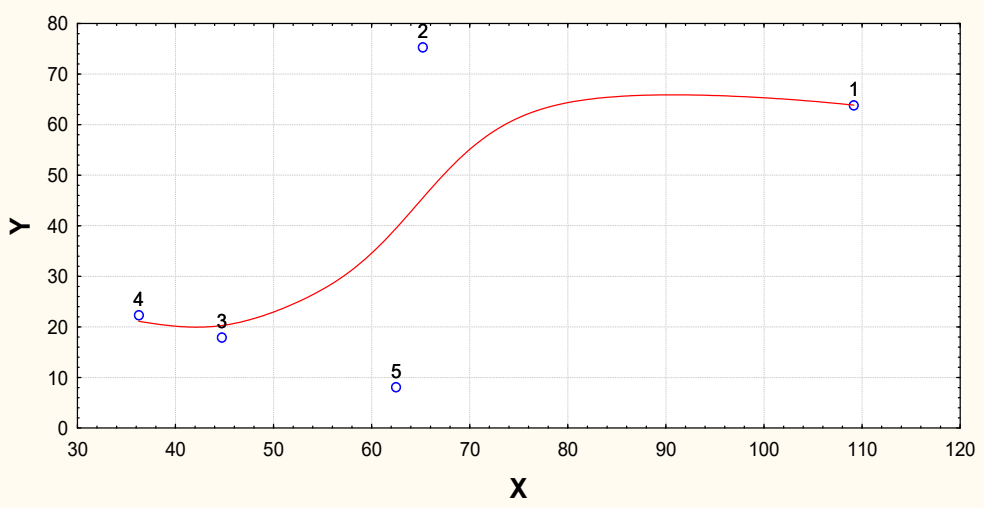

Figure 1. The ratio of the initial test to 2.4 Dichlorophenoxic acid (%).
X Spring wheat Y Autumn wheat
1) 60 mg / l 2) 120 mg / l 3) 240 mg / l 4) 480 mg / l 5) 720 mg / l

In experiments with a concentration of 0.10, 20, 40 mg / l in petri dishes, the average increase in the average length of seedlings of winter wheat seedlings in the experiment with an increase in concentration was only 10 mg / l (4.6 cm) and a decrease was observed in the remaining experiments. and we can observe a decrease in the coefficient of variability at concentrations of 0 and 20 mg / l, an increase in concentrations of 10 and 40 mg / l (22.7%, 45.3%) (Fig. 1), the average length of spring wheat seedlings is 0, Decreased in experiments with 10.20 mg / l (14.2.6.1 cm), partially increased in experiments with 40 mg / l (5.4 cm) and had the highest coefficient of variability (CV) at 20 mg / l. observed. In experiments on winter wheat with a concentration of 10 mg / l, we can see that the average length of the roots increased compared to other concentrations. In spring wheat seedlings, the average root length was observed in an experiment with a higher concentration of 40 mg / l than in other herbicide-treated experiments.

In the Roll experiment (60, 120, 240,480 mg / l), the use of herbicides reduces the weight (viability) and morphological integration of plants. With the increase in the concentration of the herbicide (60, 120, 240,480 mg / l) winter wheat led to a decrease in the average length of seedlings (19.84 ± 1.01; 8.095 ± 0.64; 7.15 ± 0.51 ; 5.4 ± 0.41; 4.87 ± 0.15; 4.73 ± 0.16) and the highest coefficient of variability (CV) at 240 mg / l (38.79). %). In spring wheat there was a difference in these indicators (14.95 ± 1.37 cm; 6.2 ± 0.28 cm; 4.98 ± 0.38 cm; 2.66 ± 0.14 cm; 2.79 ± 0.24 cm; 3.34 ± 0.14 cm) and the highest value of the coefficient of variability (CV) at 480 mg / l (38.77%). The total average mass of winter wheat seedlings is 0.108 g, depending on the concentration (60, 120, 240.480 mg / l); 0.082 gr; 0.078 gr; 0.059 gr; 0.043 gr; 0.049 g, while in spring wheat this figure is 0.079 g; 0.053 gr; 0.048 gr; 0.026 gr; 0.027 gr; 0.033 g. The average weight of winter wheat seedlings is 0.071 g; 0.058 gr; 0.053 gr; 0.029 gr; 0.026 gr; 0.027 g, if in spring wheat seedlings; 0.053 gr; 0.033 gr; 0.028 gr; 0.015 gr; 0.017 gr; 0.016 g.

The study of the variability of morphological structure traits showed that the traits varied from low to high (Zaitsev, 1973). Herbicide-treated spring wheat seedlings showed high variability (C V> 20).

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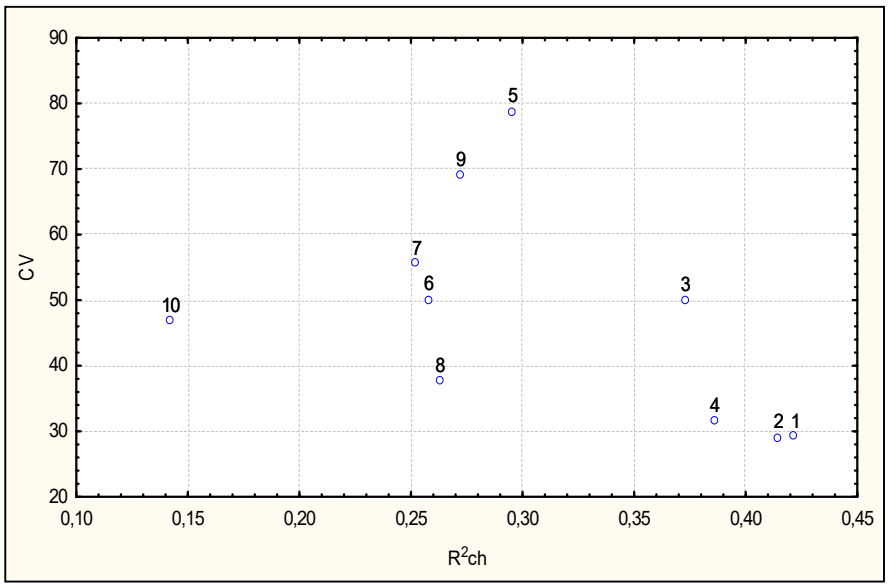

Figure 2. Forms of morphological variability of spring wheat seedlings. (CV-coefficient of variability, R2m-morphological integration)

Conclusion

Agrophytocenoses are highly unstable ecosystems, incapable of self-management. Additional measures should be taken to regulate the relationship between the components of the agro-ecosystem and optimize the conditions for planting in order to obtain high, quality and guaranteed yields. Experiments showed that 2.4 D herbicide with a concentration of 720 mg / l had a strong toxic effect on spring wheat seedlings. This effect was felt more strongly in the number of roots, root mass and total mass. Good results were observed in herbicides with a concentration of 60 mg / l. A different result was observed in winter wheat; 2.4 D herbicide with a concentration of 720 mg / l has a strong toxic effect, a herbicide with a concentration of 120 mg / l has a positive effect on wheat seedlings. . The use of herbicides in combination with agro-technical measures reduces field fires, reduces the cost of weeding and lowers the cost of production. The use of herbicides leads to a decrease in weeds of crops, which has a positive effect on the yield of cultivated plants. This is confirmed by many years of world experience. For example, on a wheat farm (Krasnodar Krai,

Berezanskoye village), the yield of winter wheat without the use of herbicides is 24.4 to 33.2 quintals per year, with a yield of 2.4-D herbicide crops. Increased by 1.7–5.7 kg / ha (average growth over six years was 3.1 kg / ha). Given the large areas occupied by wheat on this farm, the grain yield increased significantly.

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