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# IMPACT OF WEED HERBICIDES ON THE YIELD, GROWTH AND DEVELOPMENT OF MAIZE

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**Abstract.** The article presents data on the effect of the use of the herbicides Ximglifos and Ximstop against weeds in a corn field under typical gray soil conditions of the Tashkent region on the germination and development of corn. It was found that when Ximglifos was applied in the fall at a rate of 3.0 l/ha and Ximstop, 33% s.c. herbicide was applied simultaneously with sowing at a rate of 1.5 l/ha, it did not have a negative effect on the germination of corn, but rather increased germination.

**Keywords**: herbicide, Ximglifos, 54% s.c., Ximstop 33% s.c., weeds, germination, growth, development.

**Introduction.** Weeds with different biological properties grow among agricultural crops. In the fight against weeds, it is necessary to take into account their species and biological properties. It is important to conduct chemical control measures against weeds on a scientific basis and improve the technology of their application. In this regard, the use of alternating herbicides, pre- and post-application, and the use of their mixtures allow increasing the effectiveness of chemical measures [3, 4].

Therefore, in our experiments, we set the goal of achieving high and high-quality grain yields by increasing the effectiveness of weed control measures in corn fields.

**Materials and Methds.** Field experiments were conducted in the conditions of typical gray soils of the Tashkent region. Along with sowing against annual weeds in corn fields, the herbicides Himstop, 33% s.c., and against perennial weeds Ximglifos, 54% s.c., were applied separately and sequentially. Field experiments were conducted in 7 variants.

**Table 1**

**Experimental scheme**

| No | Options | Herbicide rate, l/ha |
|---|---|---|
| 1. | Control (without herbicide) | - |
| 2. | Stomp, 33% s.c., 1.5 l/ha | 1,5 |

| | | |
|---|---|---|
| 3. | Ximstop, 33% s.c., 1.0 l/ha | 1,0 |
| 4. | Ximstop, 33% s.c., 1.5 l/ha | 1,5 |
| 5. | Ximstop, 33% s.c., 2.0 l/ha | 2,0 |
| 6. | Ximglifos, 54% s.c., 3.0 l/ha | 3,0 |
| 7. | Ximglifos + Ximstop 3.0 +1.5 l/ha | 3,0 +1,5 |

The maize hybrid Uzbekistan 601 ESV was grown. Ximstop, 33% e.k herbicide was applied in the spring along with the planting of maize in a tape method against annual weeds. Ximglifos, 54% e.k. was applied in the autumn against perennial weeds in early October.

Phenological observations and biometric measurements in the experimental field were carried out according to the methods of UzPITI “Methodology of Field Experiments” [2] and B.A. Dospekhov “Methodology of Field Plant Protection”, [1].

**Results and Discussion**

Uzbekistan 601 ESV hybrid: A simple hybrid. Selected from the world collection of varietal samples of the Scientific and Production Company "Erkin" in the department of corn and sorghum breeding and seed production. Seed production is carried out on the basis of pure seeds according to the "regeneration" scheme. Light yellow toothed grains and cobs belong to the red variety, medium-late ripening. Vegetation period 120-125 days, mainly sown and grown for grain, average grain yield 7.1-9.4 t / ha, silage 45-52 t / ha. Plant height 315-320 cm, the number of leaves on the main stem is 18-20. The shape of the stalk is cylindrical, the height of the first stalk is 116 cm, the length of the stalk is 26-30 cm, the circumference is 5.2-5.3 cm, the length of the stalk is red, the number of rows of grains in the stalk circumference is 14-16, the number of grains in one row in the length of the stalk is 50-55, the weight of the stalk is 250-282 g. The mass of 1000 grains is 320-340 g. Resistant to lodging. Less susceptible to diseases and insects. Grain yield is 80-82%. Patent No. NAP 00029 was obtained for this variety in 2000.

**Table 2**

**Maize germination, % (2021 y.)**

| No | Observation days | | | | |
|---|---|---|---|---|---|
| | 24.IV. | 26.IV. | 28.IV. | 30.IV. | 2.V. |
| 1. | 13.2 | 42.6 | 77.4 | 92.0 | 96.8 |

| | | | | | |
|---|---|---|---|---|---|
| 2. | 14.5 | 43.3 | 78.8 | 93.3 | 98.0 |
| 3. | 14.8 | 44.5 | 79.0 | 92.3 | 97.2 |
| 4. | 15.7 | 45.8 | 80.6 | 93.5 | 98.3 |
| 5. | 15.0 | 45.0 | 79.7 | 93.0 | 98.2 |
| 6. | 13.0 | 43.0 | 78.7 | 92.0 | 97.0 |
| 7. | 15.8 | 46.2 | 81.8 | 94.2 | 98.8 |

Sowing is carried out with a SPCH-6 seeder for the main crop, seed consumption is 20.0-22.0 kg/ha, sowing depth is 5-6 cm, seedling thickness is 55 thousand/ha. In this case, in 70 cm rows, the plants are spaced at 25-30 cm intervals, i.e. 4 plants per meter, and in 90 cm rows, at 20-24 cm intervals, i.e. 5 plants per meter.

The growth and development of corn is greatly affected by weeds in the field and the herbicides used. Since herbicides are physiologically active substances, they affect the germination, growth and development of crops.

**Table 3**

**Maize growth, % (2022 y.)**

| No | Observation days | | | | |
|---|---|---|---|---|---|
| | 20.IV. | 22.IV. | 24.IV. | 28.IV. | 30.IV. |
| 1. | 10.4 | 39.5 | 74.5 | 89.2 | 96.6 |
| 2. | 11.5 | 40.4 | 76.4 | 90.5 | 97.8 |
| 3. | 11.2 | 40.2 | 75.5 | 90.0 | 97.0 |
| 4. | 12.5 | 41.5 | 77.2 | 91.2 | 98.0 |
| 5. | 12.1 | 40.2 | 77.0 | 91.0 | 97.8 |
| 6. | 10.7 | 40.0 | 75.0 | 91.4 | 97.0 |
| 7. | 12.9 | 42.0 | 78.5 | 93.2 | 99.0 |

The obtained data show that herbicides do not have a negative effect on the germination of corn seeds.

In the control variant, 15.8 seedlings sprouted per meter of row on May 2. The etolone variant, in which Stomp, 33% herbicide was applied at a rate of 1.5 l/ha, also had 15.9 seedlings/meter of row.

In the variant where Hemstomp, 33% herbicide was applied at a rate of 1.0 l/ha, there were 16.5 seedlings per meter of row. In the variant where this herbicide was applied at a rate of 1.5 -2.0 l/ha, there were 16.7-16.5 seedlings per meter of row. Hemglyphosate, 54% s.c. When the herbicide was applied at a rate of 3.0 l/ha, it was found that there were 16.1 seedlings per meter of land.

**Conclusion.** Therefore, based on the results obtained, we can conclude that the herbicides used at the rates used did not negatively affect the germination of corn, but rather created favorable conditions for its growth and development.

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