EFFICACY OF POST-STAGE HERBICIDES IN SOYBEAN CROPS

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Field research was conducted in 2017-2019 in the Kyiv region. The soil of the experimental field is low-humus chernozem. Weather conditions of vegetation periods for the years of research did not differ significantly from the average long-term indicators in terms of precipitation and temperature.

Over the years of research, soybean agrophytocenoses have had a mixed type of weediness, with dicotyledons and cereals. During the three years of research, the total number of weeds was 228-323 pieces / m2. The share of cereal weeds was in the range of 41-56% of their total number. In the study of 2019, the number of cereal weeds by herbicide variants was in the range of 6.5-58% of the total number of weeds. In 2017, the number of weeds was 44-56%, and in 2018 - 24-63% of the total number of contaminants.

Among perennial cereal weeds, creeping wheatgrass is present, and annuals include chicken millet and blue mouse. One-year-old dicotyledonous species were white quince and common sagebrush, much smaller numbers of talaban field, sagebrush and others.

The biological efficacy of Harmony has been studied both separately and when used in mixtures with basagran and miura. The application of Harmony at the rate of 8 g/ha helped to reduce the total weediness of crops in an average of three years, by 50% and dicotyledons died by 89%, and cereals did not show sensitivity to its action. Therefore, the total weight of weeds before harvest decreased by 65% compared to the control and amounted to 145 g/m^2.

Under conditions when new weed seedlings appeared in the soybean agrocenosis, their more complete destruction was achieved by successive application of Harmony in two terms. The first treatment of crops was carried out in the phase of 2-3 true leaves of the crop with Harmony - 3 g/ha + surfactant Trend 0.2 l/ha + Bazagran – 1.5 l/ha, and the next - Harmony – 5 g/ha. 3-4 days after the

last application, the anti-grass drug Miura was used – 0,4 l/ha. The use of such a tank mix provided effective control of weeds in the early stages of their development.

Option to add Miura graminicide (0,5 l/ha) to Fabian, the spectrum of action of such a composition was expanded, causing a reduction in the total level of weeds by 88%, and their raw weight decreased by 87% and amounted to 99 g/m^2.

In the variant Harmony (6 g/ha) + Bazagran (2,0 l/ha) weeds were reduced by 50% one month after application, and their raw weight at the end of the growing season decreased by 76% compared to the control.

The spectrum of action on both cereal and dicotyledonous weeds was significantly expanded with the use of a mixture of Harmony (6 g/ha) + Miura (0,4 l/ha). In these areas, both cereals and deciduous species were effectively suppressed, which led to a reduction in the overall level of weeds by 82-89 %.

The selectivity of herbicides and their mixtures to soybean plants in most cases was high. Liquefaction of seedling density of cultivated plants and inhibition of initial growth and their development was not observed.

The effect of herbicides on soybean productivity was directly related to the type of weeds they controlled and the nature of the weed infestation. When perennial dicotyledonous weeds predominated (white quince, common sagebrush, odorless chamomile, etc.), the herbicidal activity of miura was low. The harmful effects of weeds on crops were exacerbated by soybean plants.

By destroying only broadleaf weeds and not affecting cereals, the herbicides Bazagran – 2,0 l/ha and Harmony – 8 g/ha provided an increase in yields by 0,79 and 0,93 t/ha compared to variants on which the weed they were not destroyed. Application of Fabian herbicide – 0,1 l/ha increase in soybean yield was 0,83 t/ha compared to the area without the use of herbicide.

Mixtures of herbicides minimized the competitive pressure of weeds on the crop, so the productivity of soybean plants increased. The use of Fabian and Miura tank mixes allowed to collect 2,25 t/ha of soybeans.

The application of the tank mixture of Bazagran with Miura provided significant yield increases - the introduction of 1,75 l/ha Bazagran with 0,5 l/ha of

Miura contributed to an increase in yield by 0,97 t/ha compared to the control without herbicides.

The study of the action of mixtures of Harmony – 8 g/ha + Bazagran – 1,5 l/ha with Miura – 0,6 l/ha showed that the increase in the rate of consumption of anticancer drug led to a significant increase in soybean productivity. The option provided an increase in yield of 1,04 t/ha compared to the control, where weeds were not destroyed.

The maximum harvest – 2,45 t/ha provided the use of a mixture of Harmony – 3 g/ha + surfactant Trend - 0.2 l / ha + Bazagran – 1,5 l/ha in 8-10 days Harmony – 5 g/ha and Miura – 0,4 l/ha. Comparing yield data with controls that weeded manually and weeds were absent, this indicates that soybean yields in herbicide variants were lower. Soybeans are sensitive to the presence of weeds in crops, and even with low weeds, their yields are reduced. By the time herbicides were applied, weeds that appeared before the soybean seedlings had a negative effect on growth and development, resulting in reduced productivity.

It was found that mixtures of herbicides based on components with different mechanism of action, provided a reduction in the overall level of weeds by 82 -89%, which led to the preservation of the crop in the range of 0,57-1,11 t/ha. The use of post-emergence herbicides and their mixtures makes it possible to take into account the actual (actual) weediness of crops and economic thresholds of weed harmfulness.

In case of mixed type of weeding it is necessary to use one of the mixtures: Harmony – 3 g/ha + Bazagran – 1,5 l/ha in 8-10 days Harmony – 5 g/ha + Miura – 0,4 l/ha; Bazagran – 1,75 l/ha + Miura – 0.5 l/ha. If dicotyledons predominate, it is advisable to make: Harmony – 8 g/ha + Bazagran – 1,5 l/ha + Miura – 0,6 l/ha; Fabian – 0,08 l/ha + Miura – 0,5 l/ha; Bazagran – 1,75 l/ha + Miura – 0,5 l/ha.