

Қазақстан Республикасы Тәуелсіздігінің 30 жылдығына арналған «Сейфуллин оқулары – 17: «Қазіргі аграрлық ғылым: цифрлық трансформация» атты халықаралық ғылыми – тәжірибелік конференцияға материалдар = Материалы международной научно – теоретической конференции «Сейфуллинские чтения – 17: «Современная аграрная наука: цифровая трансформация», посвященной 30 – летию Независимости Республики Казахстан.- 2021.- Т.1, Ч.1 - С.10-13

WEED CONTROL IN THE FIELDS OF SPRING WHEAT IN THE CONDITIONS OF THE SHORTANDY REGION

Dogolakova K.N.

The main reasons for the increase in weediness of grain crops are: - violation of the zonal agricultural technology for growing grain crops (failure to comply with sowing dates, lack of fallow, poor quality of sowing); - sowing with seeds that do not meet the sowing standard due to insufficient provision of farms with grain cleaning machines with grading units; - insufficient use of herbicides in the pre-sowing and post-sowing periods; A one-time, even highly effective, fighter method does not provide a satisfactory result. The control system should not only ensure a reduction in the number of weeds, but also control their reproductive ability, which in the future will lead to a significant reduction in weed infestation.

The purpose of our research was to study weeds and measures to control them on crops of spring wheat in the conditions of the Shortandy district, Akmola region. Tasks:

1. Assessment of debris in fields
2. Impact of agrotechnical and chemical measures
3. To study the dependence of the yield of spring wheat on the weediness of the fields.

The main producers of commercial grain of spring wheat, legumes and oilseeds in Kazakhstan are Akmola, North Kazakhstan and Kostanay regions. It is here that every spring the foundation for the future harvest and the economic viability of farms is laid. A correctly chosen sowing strategy and the quality of technological operations largely determine the fate of the crop.

According to the specialists of the university them. A.I. Baraev, by the beginning of the sowing campaign of the current year, the reserves of productive moisture in the meter layer of soil reached average values. The best moisture supply, as a rule, is possessed by steam predecessors - 90-120 mm, on stubble and autumnal backgrounds, moisture reserves are 70-90 mm.

In the system of pre-sowing treatments, the first operation to preserve moisture after the snow melts is surface tillage (moisture closure) of fallow and autumnal areas. With early growth of weeds and volunteers, as well as on the blocky backgrounds of the university them. Barayeva recommends intermediate processing. In the current year, infestation by perennial root-sapling weeds and

seed stocks of annual weeds in the soil are still high. Their species composition and germination rate are determined by the prevailing weather conditions in a particular region and the biological characteristics of the weeds themselves. Nevertheless, after a period of cool weather, farmers should be ready for massive sprouting of weeds such as wild oats, shepherd's purse, field yarrow, white marsh, wormwood.

Of course, intermediate machining to kill weeds can slightly lower moisture reserves in the topsoil, but a reasonable compromise must be found. If there is still a long time before sowing, and the weed is actively developing, then naturally, the moisture reserve will decrease even without treatment. The main rule here is not to carry out intermediate processing deeper than the future sowing of seeds.

Both mechanical intermediate tillage and the use of chemicals were effective to control the weediness of fields and crops in the current year. The choice of one or another technological solution depends on the number of weeds appearing in a particular field. In case of incomplete germination of weeds, mechanical soil cultivation is more effective.

With a gradual increase in heat and the absence of mass growth of weeds, pre-sowing treatment, as close as possible to sowing, will have an advantage. The choice of methods and terms of pre-sowing treatment depends on the technical provision of farms and the technology used. Presowing soil cultivation can also be both mechanical and chemical and should be as close as possible to sowing. The use of chemical treatment with herbicides of systemic action is effective in the massive regrowth of weeds. When using preparations of soil action, treatment is possible before their shoots appear.

In addition to weed control and moisture retention, intermediate and pre-sowing mechanical treatment allows to close up spring wheat stubble affected by septoria and stem rust, and thereby reduce the infectious background, especially on non-stem predecessors.

Mechanical soil cultivation also enhances the current nitrification and decomposition of straw by increasing the activity of soil microflora. It should be borne in mind that sometimes the processes of nitrogen immobilization for straw decomposition require additional application of mineral nitrogen fertilizers.

In order to reliably retain moisture, intermediate and pre-sowing treatment can be carried out both with seeding complexes (Flexi-Coil-5000, John Deere, Concord, Horsh, Morris), and with cultivator seeders to a depth of 4-6 cm. In this case, it becomes possible to apply in advance mineral, primarily nitrogen fertilizers. Specific doses of fertilizers are determined according to the results of agrochemical field survey. But in the pre-sowing period, it is recommended to use nitrogen fertilizers, or randomly for machining, or simultaneously in rows during intermediate or pre-sowing treatment. Phosphate fertilizers should only be applied in spring when sowing in rows.

With a good supply of grain crops with nitrogen, it is necessary to control the content of phosphorus in the soil. On backgrounds with a low content of it (according to the cartogram <15 mg / kg of soil), it is necessary to apply simultaneously with sowing 30-50 kg, and with an average (15-30 mg / kg) - 20-40

kg / ha of double superphosphate or ammophos. If the content of mobile phosphorus is > 30 mg / kg, it is not recommended to use phosphorus fertilizers, or in order to maintain the phosphate level, apply them according to the yield of the previous crop by the yield of 1.4-1.8 kg of double superphosphate or ammophos per 1 centner of grain. It is always necessary to remember that a good supply of soils with phosphorus is: a decrease in water consumption for the formation of a crop unit, a reduction in the maturation of a crop, an increase in plant resistance to diseases, an increase in productivity. Therefore, neither in Canada, nor in America and European countries, as well as in the advanced farms of Kazakhstan, there are no soils with a low phosphorus content. In turn, for different levels of phosphorus nutrition of cereals, a different supply of nitrogen is required. So, when the content of mobile phosphorus in the 0-20 cm layer is less than 15 mg / kg of soil, the sufficient level of nitrogen nutrition of cereals in the 0-40 cm horizon is 8-10 mg / kg before sowing, at 15-30 mg / kg P205-12- 14 mg, with a phosphorus level of more than 30 mg-14-16 mg / kg.

Pre-sowing mechanical treatment, in addition to weed control, is also a preventive measure against Hessian and Swedish flies, locust egg capsules, caterpillars of the gray grain moth.

In recent years, new implements with disc working bodies have appeared - discators, which do not clog when working on soils with high humidity (up to 40%) and with a large amount of plant residues in the field. Tillage using disc implement implements mixes all crop residues with the topsoil. In this case, a mulching layer is formed from a mixture of plant residues and soil, which retains moisture well for 1-2 weeks after processing. Such processing is carried out to a depth of no more than 4 cm and contributes to the leveling of the field microrelief, the destruction of weed seedlings and protects the soil from erosion.

It is also necessary to pay attention to the germination energy of seeds, which affects the field germination, their preparation and dressing. Based on the actual state, when preparing seeds for sowing, the following measures can be recommended: to carry out air-thermal heating; regardless of the degree of disease damage to seeds, it is imperative to treat with systemic disinfectants; in order to increase the germination energy, treat seeds with stimulants extrasol, biosil, agrostimulin, raikatstartidr.

Modern systemic and combined preparations with a wide spectrum of action allow to completely destroy pathogenic microorganisms on seeds and protect seedlings from soil infection at the early stages of plant development within 30-35 days after sowing.

When choosing the timing of sowing, it is necessary to take into account soil moisture, weediness, the duration of the frost-free period, the varietal characteristics of the crop, the technical capabilities of the farm for timely sowing and harvesting.

Sowing should be started with later varieties, the second half of the optimal period in the zone of southern chernozems and dark chestnut soils should be used for sowing mid-ripening and mid-early varieties, in the zone of ordinary chernozems - mid-early, and in the zone of leached chernozems - early ripening. In

the mountain hummock zone on ordinary chernozems and in the moderately arid steppe, the sowing of mid-season varieties of soft and durum wheat should be completed by May 27, in the arid steppe by May 29, in the dry steppe by May 31.

In recent years, we recommend annually to start sowing 3-5 days earlier than the optimal sowing time. There are several reasons for this. Firstly, recent years have been characterized by fairly good soil moisture after the snow melts. Secondly, the summer period is quite cool, which leads to a delay in ripening and a decrease in grain quality. Thirdly, the share of mid-late varieties is high, and new varieties, regardless of the ripeness group, ripen 2-3 days later than the standard variety. Fourthly, due to zero and minimal cultivation technologies and refusal from autumn tillage during flat-cut tillage, soil moisture is better preserved in spring. It is also necessary to take into account the inability of many farms to carry out sowing at the optimal time for technical reasons.

It should be borne in mind that wheat harvesting later than September 20 usually causes more significant damage to the yield and grain quality than sowing before May 15.

Regardless of the soil and climatic zones, first of all are sown fields clean of weeds, seed plots. At the end of the optimal time, it is necessary to sow heavily weedy fields after thorough pre-sowing mechanical treatment or after applying a few days before sowing glyphosate-containing herbicides.

On leveled and moisture-provided fields, the optimum planting depth of wheat seeds is 4-6 cm, which determines the receipt of quick and friendly shoots. When the upper part of the arable layer is drained, the sowing depth can be increased to 7 cm, but with the expectation that there is 1.5-2 cm of moist soil above the seeds, and the seedbed is dense and moist.

The optimal seeding rates for spring wheat on ordinary chernozems are 2.8-3.5 million viable grains per hectare, on southern chernozems - 2.5-3 million, in the chestnut soils zone - 2.2-2.6 million. a higher value of the optimal rate is used in soil moistening and on weedy fields, with a low soil moisture and low weediness, a lesser value.

List of references

1. Azarov N.K. Scientific foundations of agrolandscape organization of land use and energy-saving methods of cultivation of grain crops in Northern Kazakhstan / N.K. Azarov // Author. Dr. s.-kh. sciences. - Almaty, 1986 .-- 42 p.
2. Karipov R.Kh. Weed plants and measures to control them. - Astana, 2008 .-- 21c.
3. Putman A.R. Allelopathic chemicals. Natures herbicides in action / Chem. Endin., Specnews. Rep., 1983, No. 4.-p. 34-45.
4. Worschman A.D. Crop Residues kill weeds. Allelopathy at work with wheat and rye. Crop and soils magazine, 1984, No. 2. - P. 18-19.
5. Sadykov B.S., Turganbaev T.A. Phytosanitary technologies for the cultivation of agricultural crops: textbook, publishing house of the Kazakh Agro Technical University named after S. Seifullina, 2015 .-- 260 p.

Supervisor: Candidate of Agricultural Sciences, senior teacher Bekenova Sh.Sh.

