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SPECIES COMPOSITION OF COMPANION WEEDS OF COTTON CULTURE OF TURKESTAN REGION AND PATTERNS OF THEIR DISTRIBUTION

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Abstract

The article provides effective ways to control weeds and their information about the species composition and degree of contamination of cotton. Agrophytocenosis analysis of weeds of the south of Kazakhstan was carried out, herbological monitoring was carried out.In the context of increasing cotton yields in light gray soil conditions in Turkestan, integration measures against weeds will be proposed.

Keywords: Herbicide, complex protection, pollution, field, agrophytocenosis

Damage to agricultural production from harmful organisms and weeds is important. Thus, in 2015, winter wheat crops in Central Asia were slowed down by harmful organisms and weeds, reducing its yield to 25%.According to long-term data of scientists of the Kazakhstan Scientific Research Institute of Plant Protection and Quarantine, at least 120 species of weeds have a harmful effect on agriculture of the republic [1,6 b]. In 2010-2015 in the southern region of the republic there was an extraordinary increase in the number, which caused a huge danger. During these years, up to 8.2 million hectares of chemicals were used to control weeds in hayfields and cultivated areas, up to 10 billion tenge was spent from the state budget [2.6 p.].According to a number of scientists, individual farms annually lose 20-25% of their production due to the clogging of cotton with weeds. In addition, the labor costs for weeding are 25 or more people per day per 1 hectare. Untimely and high-quality destruction of weeds is the reason for a decrease in cotton yield to 2-3 quintals per hectare. The expenditure of material and monetary resources for weed control in cotton growing, which makes up 40% of all production costs spent annually [3.6 p.].Favorable conditions for the spread of weeds are created not only by imperfect agricultural techniques and single crops, but also by their biological features, such as huge seed and vegetative germination, drought resistance, long-term preservation of germination seeds, adaptability to various soil and climatic conditions.As the data and experience of the production of research institutions show, immediate reduction of weed suppression by cotton fields cannot be achieved only with the help of agrotechnical measures. Therefore, the improvement of methods of chemical weed control is an urgent problem in the field of plant protection of agricultural science.

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In the conditions of light gray soil in the south of Kazakhstan, the transfer of agricultural land mainly to small peasant and farming farms has led to a sharp deterioration in sowing conditions, the land is degraded and gradually out of agricultural circulation. The state of the material and technical base of agriculture remains low. More than 30 specialized firms and partnerships are engaged in the production of plant protection products in Russia, in recent years they have also entered the Kazakh market [4-5, p. 6].

It seems that the period has come when the research institutes of the Ministry of Education and Science jointly conduct fundamental research on the production of real domestic herbicides. He needs a large material and technical base, large funds, qualified specialists.

The purpose of the study is to determine the species composition of weeds affecting cotton crops in light gray soils of southern Kazakhstan, and the use of herbicides against weeds in the context of increasing the yield of cotton crops.

Research objective: to establish the species composition of weeds in cotton agrophytocenosis and outside crops in light gray soil conditions; to determine ways to combat pests and diseases of cotton crops;

Theoretical foundations of the study: due to the fact that natural plants are resistant to abiotic and biotic environmental factors, ways to combat them are becoming increasingly difficult. This is due to the fact that dry and severe weather negatively affects the development of crops, increasing the activity of pests.

The object of research is argrotic work, measures against pests and diseases related to the biological specifics of cotton grown in the Turkestan region of South Kazakhstan region.

The purpose of the work: in the Turkestan region - the use of new herbicides against weeds to reduce the harmfulness of weeds affecting cotton in gray soil conditions and increase its yield.

Scientific novelty of the work: effective methods of application of new herbicides against annual and perennial weeds in light gray soils of southern Kazakhstan have been investigated. The effectiveness of herbicides was determined depending on the species composition of weeds in cotton fields and outside crops and the amount, timing and method of application against them.

The level of study of the topic: widespread weeds on irrigated lands cause the greatest damage to agricultural production, creating natural competition for crops. According to scientists, the annual consumption of cotton raw materials from weeds is 357 thousand tons in the USA, 13 in Europe, 249 in Asia and 119 thousand tons in Africa [9.6 p.].

Weeds cause various damages to cotton growing, plunging commodity producers into huge losses. They not only reduce the quality of products, but also reduce yields: complicate mechanized work; reduce the effectiveness of fertilizers, watering; especially require additional costs, such as maintaining fry, harvesting seeds; contribute to the spread of pests and diseases of cotton in the fields. As a result, the value of the land used is significantly reduced. Weeds increase labor costs and the cost of additional equipment. Increases the cost of agricultural products, the cost of clearing land from them on irrigation fields, roadsides, lawns and around agricultural structures [5,6 p.].

According to experts, it is the competition between weeds and cultivated plants in relation to the most important factors, such as water, light and nutrients, that causes the products to lose more. With a lack of these factors, others cannot be used by the plant in full, even if they are

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abundant. So, even if, due to competition from weeds, the crop will be fully provided with nutrients, using only half of the moisture, but in the presence of favorable thermal factors, the yield will still significantly decrease. Conversely, with full provision of moisture, the reason for a decrease in yield may be the abundant use of nutrients by weeds and their shading due to intensive crop growth. On irrigated lands, competition for nutrients is more pronounced than the availability of moisture [6,6 s].

The study of competitive relations between crops and weeds makes it possible to recognize the processes occurring in agrophytocenoses. In conditions of high agricultural technology, the competitiveness of crops increases. If cultivated plants grow at a high rate, occupying a suitable area, then weeds are displaced in the usual way. Conversely, if the crop is sparse or its growth is slow, weeds grow and reduce the yield of the crop [2,6 c].

Studies of compatriots have shown that with the presence of 5 annual and 2 perennial weeds on each square meter and their weight of 1.4 kg, the yield of cotton decreased. In addition, periodic studies of the weakening of weedy lamb, the joint growth of weedy lamb for 30 days with cotton lamb lead to a decrease in lamb yield by 74.5% [7.6 c].

Weeds appear in the field before the lamb germination or simultaneously with the harvest. At the beginning of growth, cotton lamb develops slowly, and weeds grow much faster, thanks to which they absorb a large amount of nutrients (nitrogen, phosphorus, potassium) and water. As the weeds grow, they shade the cotton field, begin to choke it, prevent normal growth, development and formation of the crop [8,6 p.].

The results of the study: especially favorable conditions for the development of weeds are formed in irrigation conditions. On the indigenous arable lands of the South Kazakhstan region, they are not a random aggregate, but a common legal form formed as a result of competition between the species growing here (including cultivated plants).

Studying the state of weed infestation of crops, some researchers note: a high degree of mechanization of various agrotechnical techniques and field work, contributes to a change in the species composition and number of weeds on cotton crops, and most importantly-the ratio of the number of perennial and annual species.

Effective approaches to weed control are possible on the basis of their species composition in each specific field and data on the degree of contamination by weeds of this field. Herbological monitoring was carried out in 2011-2012 to determine the species composition of weeds and the degree of contamination of cotton fields in the south of Kazakhstan.

Annual species polluting crops during the initial growing season of cotton, with delayed development-including flower beet, the degree of contamination of which reaches 2-4 points (upturned wheat-Amaranthus retroflexus L.), chicken millet (chicken millet-Echinochloa crus galli (L.)), black garden (Portulaceae oleracea L.), black necklace (black nightshade-Solanum nigrum L.), blue cat (blue bristle-Setaria glauca (L.)), common thistle (common nightshade-Xanthium strumarium L.) and three-row barberry (Hibiscus trionum-Hibiscus trionum L.) is. The danger of these weeds increases with rapid growth (1.5-2 times) compared to cotton, in addition, the danger of thistles increases with machine harvesting of cotton raw materials with contamination with rosehip seeds. Common reed (common reed-Phragmites Phragmites communis Trin.) it also pollutes cotton to a greater extent (up to 4 points).

Of the rhizomatous perennial weeds, the most common in cotton fields are sorghum (gum-Sorghum haleptnse (L.) Pers.), generic karachagyr (pig-fingered-Cynodon dactilon (I.) Pers.)

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and round (syt round-Cyperus rotundus L.). Contamination with these weeds reaches 4 points. On the other hand, in this case it will grow in large pockets, exposing cotton to thinning, compression and a decrease in its productivity.

Steppe ivy from perennial weeds with satin roots (field bindweed-Convolvulus arvensis L.), very common. She squeezes it by wrapping the cotton, and with her leaves she very much dirties the cotton, reducing the quality of my own skin. The prevalence of the zhantak camel (camel thorn - Alhagi pseudalhagi) reaches 3 points.

Among the stunted annual weeds that develop early, cotton is more polluted by Tatar Aspen, white perch. The degree of growth of these weeds is 2-3 points.

Geological observations have shown that the total pollution of the experimental areas in annual terms amounted to 64-84 pieces per square meter. At the same time, the number of stunted annual weeds was 45-55 pieces per square meter, perennial-19-29 pieces.

330-360 kg of fiber is obtained from 1 ton of raw cotton (3000 m of fabric is knitted from it), 100-110 kg of edible, technical oil, 30-40 kg of short fiber, 550-580 kg of seeds. Seeds contain 20-25% fat, therefore, 170 kg of cottonseed oil, 400-420 kg of cake, 300 kg of husk, cotton fluff, drying oil, glycerin and other valuable products are obtained from 1 ton of cotton seeds. Cotton is the main raw material for the textile industry. Various fabrics are made from long cotton fibers – Bates, satin, awning, from short ones-cellulose, plastic, photographic film, medicinal cotton, combustible elephant, artificial silk, thread, etc. Cottonseed oil is used in the food, canning, and perfumery industries, and ethyl, methyl alcohols, varnish, paper, organ are made from seed residues. acids, cellulose, etc. can be obtained both as fuel and as animal feed due to the protein contained in the sunstone.

Conclusion

When conducting herbological monitoring of cotton agrophytocenoses, the names of weeds are given according to the international classification. As a result of inspections on cotton fields, 27 priority weed species belonging to 13 botanical families were identified.Of these, 8 species belong to the brownish family, 5 species belong to the family of compound flowers. The remaining 11 genera were known by 1-2 species. Of the 27 types of weeds, 68% (17 pieces) are annual and 32% (8 pieces) are perennial weeds.

On average, the number of stunted annual weeds was 54 pieces per square meter. Of these, the share of single contributions accounted for 17 pieces and the share of dicotyledons-37 pieces per square meter. Single-fruited spring weeds are represented by 3 species: spatulate millet (Echinochloa crus galli (L.), blue cat (Setaria pumila (Poir.) Schult.), green cat (Setaria viridis (L.) Beauv). Wintering bivalves are represented by 2 species: round (Capsella bursa-pastoris (L.) Mediuc) and wild (Lactuca serriola (L.)). Dicotyledonous spring weeds have been described by 11 species, including: common smelly menduana (Datura stramonium L.), garden carp (Portulaceae oleracea L.), three-row barberry (Hibiscus trionum L.), red ribbon ram (Polygonum aviculare L.), Hemp theophrastia (Abutilon theophrasti Medic.), thyme (Cannabis ruderalis Jan), Tatar thyme (Atriplex tataricum L.), white alabota (Chenopodium album L.), black necklace (Solanum nigrum L.), flower beet (Amaranthus retroflexus L.) and common thistle (Xanthium strumarium (L.)).

The biological group of perennial weeds consisted of 16 monocotyledonous and 11 dicotyledonous species. Single-seeded plants are mainly represented by 5 types of rhizomes,

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including: cynodon dactilon (I.) Pers.), sorghum (Sorghum haleptnse (L.) Pers.), common reed (Phragmites communis Trin.), lying wheat (Elytrigia repens (L.)), round salem (Cyperus rotundus L.). Dicotyledonous form 3 types of rhizomes-these are: arable kaluen (Cirsium arvense (L. Scop), steppe kaluen (Sonchus arvensis L.) and camel jantak (Alhagi pseudalhagi (Bieb)). Taproot root weeds include one species – steppe ivy (Convolvulus arvensis L).

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