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EFFECT OF SOIL CULTIVATION METHODS ON CONTAMINATION WITH MAIZE CLINE WEED BEFORE SEEDS SOWING

Abstract. The article describes the effect of soil cultivation methods on clogging of maize crop with weeds in conditions of OTSh"Agrouniversity" of Almaty region before seeds sowing.
Keywords: corn crop, soil cultivation, weeds, productivity.

Introduction. One of the main tasks, set as of today - taking into account of soil and climatic characteristics of each region – is to increase productivity of each hectare of earth through introduction of intensive technologies of crops cultivation in agricultural production.

Maize crop currently represents 20-25% of grain products collected in the world. Flour, cereals are produced of the maize. Thereareover 250 kinds of products made of maize.

Deep ploughing-up and not dense soil is required for the roots of the plant. Therefore, the soil shall be cultivated in time in autumn before sowing the seeds; it is necessary to improve physical condition of the soil and ensure hoeing of weeds.

Aim of the research. Studying of the impact of clogging the crops of corn with weeds on productivity of soil cultivation methods before seeds sowing in a mountainside area of Almaty region.

Results of the research. Effect of soil cultivation methods on clogging with weeds of maize crops before sowing.

In general, 12 types of weeds belonging to botanical family are registered in Almaty region. Indicator of contamination with them has reached 2.85 - 20.0%. The most common istheasterfamily.

Methods of soil cultivation before sowing in a cline have direct effect on reduction of the level of cloggingof the crops with weeds, and it has been proven in our research work, the results of which are shown in Table 1.

Table 1 shows the dynamics of weed growth in all objects of the research.

Early in the spring, after 12-14 days of harrowing before sowing the seeds to a depth of 14-16 cm of the cline, it has been found that the total number of weeds on 1 m² of land after harrowing and disking to a depth of 6-8 cm has reached 26.5 items. That is since the first cultivation in the period 10-12 days, the total number of weeds has increased on 5.2 items / m², 3 items ofwhich are annual, 2.2 items - perennial. Suchregularity was notedin other research objects as well.

When comparing of research objects with the objects of observation good results can be achieved(23.7 items / m²) in case of works on harrowing before sowing the seeds in the cline of land and loosening of soil to a depth of 12-14 cm.

And, before sowing the seeds with herbicides sowing to the cline, the best results can be achieved when loosening and harrowing in the early spring to a depth of 12-14 cm in 12-14 days (10.4 items / m²), and we can say that when comparing with the object of observation on 1 m² of land, the total number of weeds has decreased on 16,1 items. In the course of determining of the dried and wet weeds'mass, it has been found that in the study sites, where the herbicide have beenused, weeds growth retardation hasbeen observed.

Table 1 – Effect of soil cultivation methods on soil clogging with weeds before seeds sowing in the cline of maize

№	The tern of tilling,depth		After the second inter –row loosening 1 м^2/ a piece			Full maturity, 1 м^2/ a piece			Compare with the super-vision
	Early in the spring, after 12-14 days of harrowing	Before sowing the seeds	All	including		All	including		
				one year	much year		one year	much year	
1	Turn over and tear to a depth of 14-16 cm +harrowing	Disking to a depth of 6-8 cm +harrowing	26,5	18,2	8,3	23,1	14,6	8,5	100
2	–	Cultivating to a depth of 8-10 cm + harrowing	25,1	17,0	8,1	22,6	14,1	8,5	98
3	–	Loosening to a depth of 12-14 cm + harrowing	23,7	15,8	7,9	20,1	11,9	8,2	87
4	Cultivating to a depth of 8-10 cm + harrowing	Sowing herbicide + disking to a depth of 6-8 cm + harrowing	11,3	7,1	4,2	9,8	4,8	5,0	42
5	Disking to a depth of 6-8 cm + harrowing	Sowing herbicide + disking to a depth of 6-8 cm + harrowing	13,2	8,5	4,7	10,4	5,0	5,4	45
6	looseningto a depth of 12-14 cm +harrowing	Sowing herbicide + disking to a depth of 6-8 cm +harrowing	10,4	6,5	3,9	7,8	3,1	4,7	34

Dynamics of crop clogging with weeds has been carried out in the period of full maturation of maize.

On the object of observations at 1m² of land there are23.1 items of weeds, 14.6 items of which are annual, 8.5 items - perennial. In comparison with the period of determining of the number of weeds in the future, their number has decreased on 3.4 items. It can beexplained by the end of growing weeds germinating in early spring. Such regularity is observed on all objects of the research.

Early in the spring, after harrowing works (12-14 days), before sowing of the seeds to a depth of 12-14 cm of the cline, it has been found that on the object of observation the total number of weeds on 1 m² of land after harrowing and disking to a depth of 6-8 cm, as well as herbicides sowing, the minimum number of weeds items (7,8-10,4 items / m2) per 1m² of land can be achieved.

However one of the main indicators of works is the level of productivityof the culture.

Effects of soil cultivation methods on maize productivity before sawing, considered in our research work, are shown in Table 2.

Table2 – Maize productivity due to cultivation methods before seeds sowing

№	The turn of tilling, depth		Productivity, centners/he	Supervision, +, –, centners/he
	Early in the spring,after 12-14 days of harrowing	Before sowing the seeds		
1	Turn over and tearing to a depth of 14-16 cm +harrowing	Disking to a depth of 6-8 cm +harrowing(observation)	54,4	
2	–	Cultivating to a depth of 8-10 cm +harrowing	55,3	+, 0,9
3	–	Loosening to a depth of 12-14 cm +harrowing	56,3	+1.9
4	Cultivating to a depth of 8-10 cm +harrowing	Sowing herbicide + disking to a depth of 6-8 cm + harrowing	59,1	+4,7
5	Disking to a depth of 6-8 cm +harrowing	Sowing herbicide + disking to a depth of 6-8 cm + harrowing	58,1	+3,7
6	loosening to a depth of 12-14 cm +harrowing	Sowing herbicide + disking to a depth of 6-8 cm + harrowing	60,2	+5,8

In many farms involved in maize growing, the works are carried out after 12-14 days of harrowing in early spring, plowing of a cline to a depth of 14-16, disking to a depth of 6-8 cm, in advance before sowing the seeds, and harrowing is performed immediately. Productivity of maize plants on the objects of observation, where soil cultivation was carried out usingthe described methods, was 54.4 centners / he.

According to the example of the study of the second object, after soil cultivation to a depth of 8-10 cm before seeds sowing, preparation with harrowing, productivity of maize - 55.3 centners / he, or in comparison with the object of study mentioned above - on 0.9 centners / he higher.

According to the example of the next object, loosening and horrowing to a depth of 12-14cm before sowing seeds the size of the harvested product 56.3 centners/he.Comparison with the object of study with the observation and cultivating to the depth of 8-10 cm mentioned above – on 1.9 and 1.0 centners/he.

When comparing of unused herbicides object with the object of used herbicides,productivity will be slightly higher.

In particuler, the works are carried out after 12-14 days of harrowing in early spring,cultivating and harrowing to a depth of 8-10cm ,sowing herbicide before sowing the seeds,using disk mix the soil to a depth of 6-8cm,the productivity mentioned 59.1 centners/he,or in comparison with the object of observation mentioned above –on 4.7 centners /he higher.

According to the example of the study of fifth object,the productivity mentioned 58.1 centners/he,or in comparison with the object of observation above 3.7 centners/he higher.According to our research work,the higher level of products,can be achieved when loosening(BDT-4.0) and harrowing in the early spring to a depth of 12-14cm in 12-14 days,sowing herbicides (Trophy super) before sowing seeds (size - 3 centners/he), disking (LDG-10) to a depth of 6-8cm and mixed with the soil harrowing in the case of sowing seeds of maize productivity mentioned 60.2centners/he ,or in comparision with the object of observation mentioned 5.8 centners/he, above – on 4.7-1.9 centners/he higher productivity than other object of study.

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ВЛИЯНИЕ МЕТОДОВ ОБРАБОТКИ ПОЧВЫ ДО ПОСЕВА НА ЗАСОРЕНИЕ ПОСЕВОВ КУКУРУЗЫ СОРНЯКАМИ

Аннотация. Описывается влияние методов обработки почвы до посева на засорение посевов кукурузы сорняками в условиях ОПХ «Агроуниверситет» Алматинской области.

Ключевые слова: кукуруза, культивация почвы, сорняки, продуктивность.

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Қазақ ұлттық аграрлық университеті, Алматы, Қазақстан

ЖҮГЕРІ ДАҚЫЛЫНЫҢ ТАНАБЫНЫҢ АРАМШӨПТЕРМЕН ЛАСТАНУЫНА ТҰҚЫМ СЕБЕР АЛДЫНДАҒЫ ТОПЫРАҚТЫ ӨҢДЕУ ӘДІСТЕРІНІҢ ӘСЕРІ

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