INFLUENCE OF COTTON YIELD OF INTERMEDIATE CROPS (veca, rapeseed)

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ABSTRACT.
Planting of intermediate crops is important in enriching the natural fertility of the soil. In this article, the impact on the growth and development of intercrops, the residues of roots and roots left in the soil, and nutrients (NPK) was analyzed, and the ground was created for the production of abundant and high-quality crops from the main crop, cotton.

Key words: Meadow gray soil, soil fertility, intermediate crops, rapeseed, vetch plant, stem and root residues.
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INTRODUCTION. Scientists of the world are conducting important theoretical and practical research on the development of cotton cultivation, improvement of existing agrotechnologies, introduction of innovative technologies based on science in production, problems of soil fertility. 91.6 mln. of leguminous grain crops as intermediate and repeated crops in order to maintain and increase soil fertility in the world. planted per hectare, the average grain yield is 12.0 tons/ha, the total yield is 206.4 mln. is a ton. Also, technologies that preserve and increase soil fertility are used on an area of more than 80 million hectares. Including 19.3 million hectares in the USA, 17.3 million in Brazil, 14.8 million in India, 12.3 million in China, 10 million in Mexico, 3.5 million in Australia and 3.7 million in Pakistan.

In the conditions of the irrigated lands of the Republic of Uzbekistan, after harvesting winter wheat, there are convenient and sufficient (100-120) days for the vegetation of plants, which requires the effective use of these days for the intensive development of current agriculture, especially animal husbandry. Taking into account that the vegetation period of each crop lasts until the end of October, depending on the average weather and climatic conditions, planting nutritious crops (veca, rapeseed) as an intermediate crop after the main crops creates a solid feed base for livestock and is invaluable in maintaining and increasing soil fertility.

II. CONDITIONS AND METHODS OF RESEARCH.

The field experiment was carried out at the farm "Yangi Zafar Maksad", Oltinkol District, Andijan Region. The soils of the experimental field are irrigated meadow gray, heavy loam with weak salinity. The surface of Sizot waters is 1.5-2 meters deep.

"Methods of conducting field experiments" - Tashkent-2007, "Methods of agrophysical research" for conducting agrophysical analyzes of soil, "Methods for

agrochemical analyzes of soils and plants" were used for agrochemical analysis of soil.

- when determining the volume mass of the soil, soil samples were taken using a cylinder (volume 500 cm^3) and determined by weighing in the N.A. Kachinsky method.

- the water permeability of the soil was determined at the beginning and at the end of the period using a square frame for 6 hours in each option separately by the method of S.I. Dolgov and S.N. Ryzhov.

- the change of soil moisture was determined by taking samples from every 10 cm layer of 0-100 cm depth before each irrigation using the thermostat scale method.

The experiment on the influence of intercrops on soil fertility and cotton yield consisted of 4 options, experiments were conducted in 4 returns. The total area of one option is 1440 m^2, of which the area to be considered is 720 m^2.

III. DISCUSSION OF RESEARCH RESULTS.

The main goal of our research is to plant intermediate crops after winter wheat and maintain soil fertility through their root and stem residues as much as possible. In recent years, the method of mixed planting of agricultural crops has been used on a large scale, as a result of leaving a lot of organic mass in the soil, the agrophysical, water-physical, agrochemical properties of the soil have improved, and the increase in nutrients has been tested many times in research.

N.G. Andreev et al. [1] not only yield increased, but also the amount of weeds decreased sharply when agricultural crops were planted in a mixed manner. In the field experiment conducted at the Scientific Research Institute of Forage Crops named after V.R.Williams, 228.3 t/ha of water grass was obtained when planted alone, and 308.6 t/ha when mixed with lupine. Also, ryegrass 180.8 t/ha when planted alone, 190.0 t/ha when planted with spring vetch, 230.7 t/ha when planted with autumn vetch, 254.8 t/ha when planted with Chinese, and lupine and when planted together, 302.7 ts/ha of blue mass was obtained.

In our research, special attention is paid to mixed crops in the grassland gray soils of Andijan region. In the first half of July, 50 kg/ha of vetch, 10 kg/ha of rapeseed and 1:1 mix of vetch and rapeseed were planted on the fields freed from winter wheat. Germination was monitored every three days from the day of sowing. In the process of observation, sprouted seedlings per 1 m^2 were counted.

In order to increase the organic mass in the soil, it is necessary to pay attention to the maintenance of repeated, siderate and intermediate crops planted after winter wheat, their growth and development. Because the better the plant grows and develops, the more blue mass will be added. Therefore, in the conducted studies, the growth and development of the plant is monitored. In our studies, due to timely applied agrotechnical measures, compared to options 2 and 3, where repeated crops were planted, the growth and development of mixed crops in option 4 accelerated and led to the provision of high blue mass at the end of the vegetation (Table 2).

Table 2

Growth, development and productivity of repeated crops

№	Repetitive crops		01.08 Height, cm	01.09 Height, cm	01.10 Height, cm	Blue mass yield, ts/ha
1	No repeat crop was planted		-	-	-	-
2	Repeat crop Rapeseed		28.8	91.4	136.2	119,1
3	The repeated crop Vika was planted		21.7	82.6	153.5	112,4
4	Repeat crop Rapeseed + vetch is planted	Rapeseed	27.2	89.3	132.4	224,3
		Vika	25.6	102.1	184.7	

28.8 in proportion to the options for August 1st of the phenological observations of plant growth in the experiment; It was 21.7 cm, while in the mixed planted version, the height of rape was 27.2 cm, and the height of vetch was 25.6 cm. In our next observations, that is,

for September 1, the highest indicator among the variants was observed in the variant planted with rapeseed and vetch, in which the height of rapeseed was 89.3 cm, and the height of vetch was 102.1 cm. It was observed that it was 2.1 cm higher in the separately planted version of rapeseed, and 19.5 cm less when planted separately.

The purpose of our experiment is to produce a high yield of green mass due to the better growth of plants and to create a nutritious feed base for livestock, as well as to leave more roots and root residues in the soil. The growth and development of plants in the options planted with rapeseed and vetch reached a standard level, 136.2 in proportion to the options; It was 153.5 cm. In our mixed planted version, the height of rape was 132.4 cm, and the height of vetiver was 184.7 cm. In the variant planted with rape and vetch, the growth and development of vetch is high, and the main reason for this is explained by the fact that vetch grows around rape and makes good use of external factors.

In the first half of July, in the fields freed from winter wheat, "Mirzachol" variety of vica 50 kg/ha, rapeseed "Nemerchisky" variety 10 kg/ha separately or both varieties vica 50 kg/ha + rapeseed 10 kg/ha mixed (two components) 60 kg of seeds are planted per hectare, when the crops are sown separately, the rate of fertilizers is 60-40-30 kg/ha, and when it is mixed, the rate is 100-70-50 kg/ha, watering 3 times during the growing season, 119.1 ts/ha from rapeseed , 112.4 t/ha of vetch and 224.3 t/ha of blue mass when the crops were planted in a mixed (two-component) manner.

According to the data obtained on the seed and root residues of repeated crops (Table 3), a total of 35.6 t/ha of seed and root residues were collected in the rapeseed option, and 31.8 t/ha in the vica planted option. was 58.6 t/ha in the mixed cropping option, proving once again that two-component planting of crops as a repeated crop, rather than mono-planting, is effective in accumulating a lot of organic mass in the soil.

Table 3

Head and root residues of winter wheat and repeated crops, ts/ha

Options	Annual norm of fertilizers, kg/ha			Angiz remains	Root remains		All the remnants of roots and roots
	N	P_2O_5	K_2O		0-30 cm	30-50 cm	
Autumn wheat							
1-6	200	140	100	18,4	15,4	1,6	35,4
7-10	200	140	100	19,2	14,8	1,2	35,2
11-14	200	140	100	21,7	16,2	2,0	39,9
15-18	200	140	100	20,2	15,4	1,6	37,2
Repetitive crop - Rapeseed							
7-10	60	40	30	14,3	19,9	1,4	35,6
Repetitive crop - Vika							
11-14	60	40	30	11,7	18,3	1,8	31,8
Repetitive crop - rapeseed+veca							
15-18	100	75	50	21,4	35,0	2,2	58,6

Based on research results and information from scientific sources, we can say that the more organic residues are left in the soil, the more humus and nutrients can be accumulated.

In the results of our research, the amount of humus compared to the initial humus amount (0.680) in the subsoil layer is 0.008 in proportion to the options; 0.010; 0.012; It was observed that it increased by 0.014%.

Based on the conclusion of the experiment, it can be said that after winter wheat, repeated and intermediate crops are planted in a two-component manner compared to single planting, and due to the large accumulation of root and shoot residues left by them in the soil, soil fertility increases

significantly, and the possibility of obtaining a high yield by growing cotton on fertile soils created in the next year is created.

The importance of intermediate and siderate crops in increasing the cotton yield of cotton is incomparable. In the research conducted by Yu.Kenjaev, R.Oripov [2], mash, barley, rye, rapeseed, sorghum, soybean crops were planted as siderates on empty grain lands in pure form and sorghum+rapeseed. sorghum+rapeseed+pea, barley+sorghum, barley+soybean crops were sown in a mixture, and in October and November, 11.6-36.2 tons of blue mass per hectare were plowed into the ground. Decomposition of this blue mass during the winter months until spring improved the agrophysical, chemical and biological properties of the soil and yielded a higher yield than the next follower crop, cotton.

According to the results of the experiment, the highest yield was observed in options 15, 16, 17, 18, where rapeseed + vetch was planted. That is, in the 90x12-1 planting system, with a seedling thickness of 80-90 thousand bushes/ha, the annual norm of mineral fertilizers, i.e. N-180, R2O5-126, K2O-90 kg/ha, yielded 42.9 tons/ha, the same planting system and with the increase of the annual rate of mineral fertilizers, i.e. N-220, R2O5-154, K2O-110 kg/ha, the yield was 0.07 t/ha less. In across the row 90(60x30)x12–1 planting system, 150–160 thousand bushes/ha seedling thickness, in both annual rates of mineral fertilizers, rapeseed, vetch, rapeseed + vetch were sown 9–10; 13–14; 40.2-40.4 in the 17-18 options in proportion to the options in each year; 40.2–40.0; A yield of 40.8–40.2 t/ha was obtained (Table 5).

Table 5

Effect of different planting systems and fertilizer rates on cotton yield, ts/ha.

№	Cotton variety	Planting system	The number of seedlings is thousand/ha	Annual rate of mineral fertilizers, kg/ha			Returns				Average
				N	P_2O_5	K_2O	1	2	3	4	
Options planted with cotton after winter wheat											
1	Sultan	90x12-1	80-90	200	140	100	33,4	34,2	35,1	34,6	**34,3**
2		90(60x30) x12-1	150-160	250	175	125	32,8	33,5	34,8	34,8	**33,9**
3	UzPITI -201	90x12-1	80-90	180	126	90	36,2	39,0	42,4	36,8	**38,6**
4				220	154	110	37,0	41,5	40,4	37,1	**39,0**
5		90(60x30) x12-1	150-160	180	126	90	32,4	40,5	39,0	33,2	**36,3**
6				220	154	110	36,0	39,4	40,4	35,6	**37,9**
Options where cotton is planted after repeated crop canola											
7	UzPITI -201	90x12-1	80-90	180	126	90	38,8	44,8	43,7	37,2	**41,1**
8				220	154	110	37,6	45,3	43,9	39,4	**41,6**
9		90(60x30) x12-1	150-160	180	126	90	36,4	43,2	44,7	36,6	**40,2**
10				220	154	110	37,2	42,8	42,8	38,7	**40,4**
Variants planted with cotton after repeated crop vica											
11	UzPITI -201	90x12-1	80-90	180	126	90	38,6	43,8	44,7	40,2	**41,8**
12				220	154	110	37,8	42,8	44,3	39,0	**41,0**
13		90(60x30)	150-160	180	126	90	36,6	42,4	44,3	37,4	**40,2**
14				220	154	110	36,9	43,3	43,0	36,8	**40,0**

		x12-1									
Options where cotton is planted after repeated crop canola+veca											
15	UzPITI -201	90x12-1	80-90	180	126	90	39,8	45,7	46,0	40,2	**42,9**
16				220	154	110	38,2	43,9	44,5	42,0	**42,2**
17		90(60x30) x12-1	150-160	180	126	90	37,6	42,7	42,1	40,7	**40,8**
18				220	154	110	36,4	42,2	43,3	39,0	**40,2**

Sx=	0,53 ц				Sx%=	1,31%
Sd=	0,74 ц	HCP05=	1,49	ц/га	HCP05%=	3,69%
Sd=	0,37 ц	HCP05(A)=	0,74	ц/га	HCP05%=	1,84%
Sd=	0,53 ц	HCP05(B)=	1,07	ц/га	HCP05%=	2,64%
Sd=	0,53 ц	HCP05(C)=	1,07	ц/га	HCP05%=	2,64%

CONCLUSION. So, after planting the UzPITI-201 cotton variety in the conditions of the meadow gray soils of Andijan region by mixing cotton varieties with rapeseed, in the 90x12-1 planting system, at a seedling thickness of 80-90 thousand plants/ha, the annual norm of mineral fertilizers is N-180, R2O5- 126, K2O-90 kg/ha was used to obtain a high quality cotton crop.

In the experiment, the use of vetch and rapeseed as an intermediate crop in the conditions of the meadow gray soils of the Andijan region was proven to be the most optimal method of obtaining a high-quality cotton crop as a result of growing high blue mass and providing livestock with blue mass, improving soil fertility, agrophysical and agrochemical properties.

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