



## EFFECT OF PREVIOUS CROPS ON SOIL FERTILITY AND WINTER WHEAT YIELD

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### Abstract:

The positive effect of previous crops on soil fertility and winter wheat yield was studied. The task of determining the water-physical properties of the soil, porosity, as well as the amount of NPK contained in root and shoot remains and their content was determined under the influence of suitable predecessor crops. As a result of the experiment, it was found that the yield of winter wheat increased due to the influence of intercrops of peas, mash, and rape in the areas where grain crops were harvested.

**Keywords:** Predecessor, water-physics, porosity, mash, peas, rapeseed, fertility, root and stem residue, winter wheat, productivity.

### Annotatsiya

O'tmishdosh ekinlar ta'sirida tuproq unumdorligi va kuzgi bug'doy hosildorligiga ijobiy ta'siri o'rganildi. Maqbul o'tmishdosh ekinlar ta'sirida tuproqning suv – fizik xususiyatlari, g'ovakligi, hamda ildiz va ang'iz qoldiqlari va ularni tarkibidagi NPK miqdorini aniqlash vazifasi belgilangan edi. O'tkazilgan tajriba natijasida boshqoli don ekinlari yig'ishtirib olingan maydonlarda oraliq ekinlardan no'xat, mosh, raps ekilnlari ta'sirida kuzgi bug'doy hosildorligi oshib borganligi aniqlandi.

**Абстрактный:** Изучено положительное влияние предшествующих культур на плодородие почвы и урожайность озимой пшеницы. Задача определения водно-физических свойств почвы, пористости, а также количества NPK, содержащихся в корневых и побеговых остатках, и их содержания определялась под влиянием подходящих культур-предшественников. В результате опыта установлено, что урожайность озимой пшеницы повысилась за счет влияния междурядий гороха, маша, рапса на участках уборки зерновых культур.





At the global level, special attention is being paid to maintaining and increasing soil fertility and effective use of other available opportunities to obtain a high and high-quality harvest from wheat. In the conditions of irrigated lands, it is possible to harvest 2-3 times a year, and the selection of suitable predecessor and repeated and intermediate crops is directly related to maintaining and increasing soil fertility in agriculture. Tasks such as selection of wheat varieties suitable for ecological conditions, optimization of cultivation technologies are being studied on a large scale and positive results are being achieved. Based on this, one of the urgent tasks today is the widespread use and implementation of leguminous grain crops and intermediate crops in short-row sowing of winter wheat [6; 125 P.]

In order to increase soil fertility in our republic, scientific basis is scientific rotation of agricultural crops, determination of the optimal place of predecessors in rotation, application of advanced methods of their cultivation technology, development and implementation of all agro-technological measures in harmony. It is widely used in the industry.

**Materials and methods.** Research field experiments were conducted in 2014-2017 in the conditions of the typical gray soils of the farm "Razzaq ota Meyliev" in the Yakkabog district of the Kashkadarya region. aimed at studying productivity, its agrophysical and agrochemical properties, winter wheat yield and quality [1; 145 b]. Field experiments were conducted in 6 variants with 4 replications. In the experiment, the length of each patch was 60 m, and the width was 7.2 m. The area of each patch was 432 m<sup>2</sup>, of which the calculated area was 288 m<sup>2</sup>. Experience options are systematically arranged in one tier.

**The obtained results and their analysis.** In researches, in the variant where cotton was planted as a predecessor crop, at the end of the growing season, the height of the main stem was 88.1 cm on average, the number of branches was 12.4, the number of pods was 9.2, the number of bolls was 10, 6 pieces, and the number of opened pods was 3.8 pieces, and the average yield was 31.5 s/ha.

When corn was planted for silage, before harvesting, it was determined that the average height of the plant was 215.3 cm, the number of leaves was 14.5, and the yield was 337.0 s/ha. [1; p. 25], it was proved that there were no sharp differences between the thickness of seedlings, the height of the corn, and the yield. When peas are planted for grain, the average plant height is 68.7 cm, the number of pods per plant is 43.7, the number of grains per plant is 59.3, and the mass of 1000 grains is 312.3 g, productivity was 17.5 s/ha. It was observed that the average height of mush when



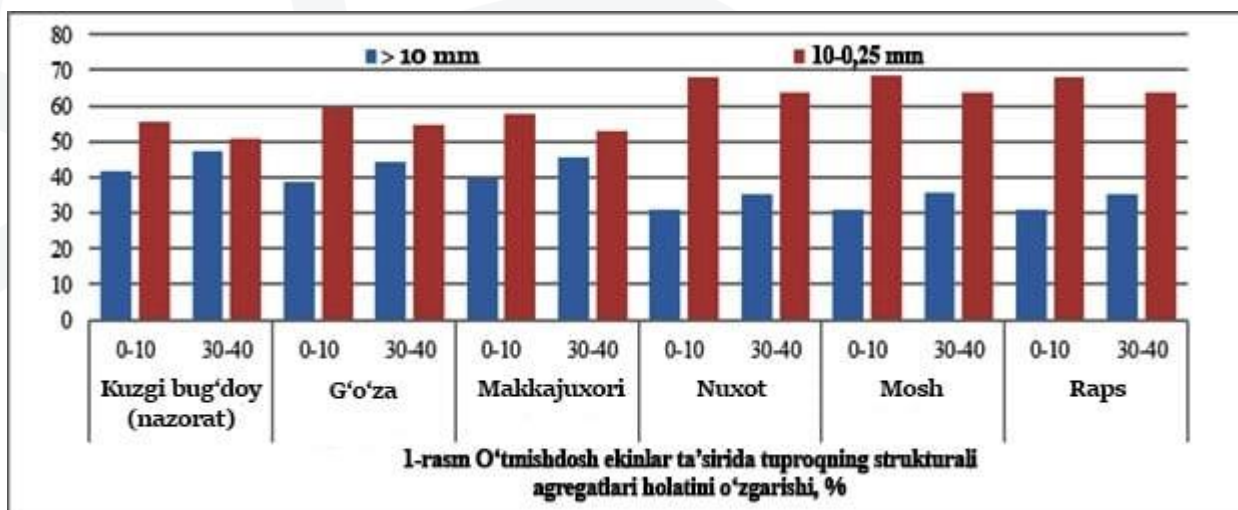


planted was 64.3 cm, the number of pods was 12.8, the number of grains in a pod was 12.0, the weight of 1000 grains was 42.3 g, and the yield was 15.3 s/ha. It was determined that the average height of the previous crop of rapeseed was 70.5 cm, the number of branches was 10.2 pieces, and the yield was 270 s/ha.

The volume mass of the tillage layer was 1.33-1.34 g/cm<sup>3</sup> at the beginning of the growing period of the previous crops, while at the beginning of the vegetation period of winter wheat, the volume mass was slightly increased due to the influence of the previous crops. changed, it was observed that it decreased by 0.01-0.04 g/cm<sup>3</sup> in the variants planted with peas, mash, rapeseed [3; 35 b].

It was observed that the growth, development, height of the cotton planted after intermediate crops, the height of the crop, and the productivity indicators were significantly higher compared to the control option [5; pp. 108-109]

At the beginning of the vegetation period of previous crops, when samples were taken from the 0-10, 10-20, 20-30, 30-40, 40-50 cm layers of the soil, solid structural aggregates 61.3-60.1-56.8-58.4- was 56.2%, in the control option it was 55.4-53.8-49.6-50.6-49.1% in the sampled layers, 5.9-7.1% compared to the beginning of the growing season, cotton, corn as the predecessor decreased from 2.1-3.5% to 3.7-5.6% at the end of the growing season, the optimal predecessor crops are peas 67.9-67.2-64.3-63.8-63.0%, mosh 68.3-67.5-64.7-63.5-62.5%, and after rapeseed 68, 1-67.3-64.6-63,762.9%, increased by 5.3-7.9% at the end of the growing season, 1.2 It was observed that it increased by -15.1%.



I-rasm O'tmishdosh ekinlar ta'sirida tuproqning strukturali agregatlari holatini o'zgarishi, %

According to the results of our research, the structural aggregates of the soil in the 0-10 cm layer in the control version are >10 mm and 10-0.25 mm size aggregates are 41.8-55.9 %, and in the 30-40 cm layer 47.2-50.6 % was , under the influence of suitable predecessor crops (peas, mash, rapeseed), aggregates >10 mm in the 0-10 cm



layer decreased to 11.1%, in 10-0.25 mm and it increased by 15.1 %, while in the 30-40 cm layer it decreased by 11.7 % and increased by 13.2 % (Fig. 1).

During the conducted field experiments (2014-2017), the grain yield of winter wheat after previous crops in the control option was 49.7 s/ha on average, while the highest yield indicators were It was observed that 60.0-65.1 s/ha was followed by leguminous-grain peas, mash and rape, and 10.3-15.4 s/ha of additional grain was obtained compared to the control. (Table 1).

In the experiment, in the control variant, the spike length is 8.6 cm, the number of spikes in one spike is 14.2, the number of grains in one spike is 36.8, the mass of one grain is 1.31 g, and the mass of 1000 grains is 35.6 g. was determined to be.

Due to the influence of the predecessors, compared to the control option, the spike length is 0.6-1.2 cm, the number of spikes in one spike is 0.9-1.5, the number of grains in one spike is 02-04, the mass of grain in one spike is 0.04- It was observed that the mass of 0.14 g, 1000 grains increased to 0.5-36 g.

**Table 1**

**Effect of previous crops on grain yield of winter wheat, s/ha**

№	Options	Years			Average
		2015	2016	2017	
1	Autumn wheat (control)	48,6	49,3	51,2	49,7
2	Cotton	56,1	55,2	54,6	55,3
3	Corn	53,6	51,7	54,0	53,1
4	Peas	58,7	59,8	61,5	60,0
5	Mosh	60,5	62,1	64,3	62,3
6	Rapeseed	60,2	63,7	71,4	65,1
	EKF <sub>05</sub> =	2,85	3,0	3,12	
	S <sub>x</sub> <sup>-</sup> (%)=	2,35	2,47	2,48	

In the case of control winter wheat planted, the nature of grain was 762 g/l, vitreousness 54.6%, protein 12.1%, gluten 26.3%, and the overall bread quality score was 3.2 points. 772-795 g/l under the influence of previous crops, vitreous 58.8-63.1%, protein content 13.9-14.2%, gluten 27.1-27.5%, total nonbop value 3.6 -3.8 points. The highest indicator was observed under the influence of previous crops, compared to the control, the nature of the grain was 10-33 g/l, vitreous 4.2-8.5%, protein content 0.6-2.1%, gluten 0.2 -1.2% increase [4; 1-10]

**Summary**

In the control version of the experiment, the yield was 49.7 s/ha, but under the influence of previous crops, it increased to 53.1-65.1 s/ha, and the additional yield was





3.4-15.4 was equal to s/ The length of the spike is 0.6-1.2 cm, the number of spikes in one spike is 0.9-1.1, the number of grains in one spike is 0.2-0.9, the mass of grains in one spike is 0.04-0.14 g. , the mass of 1000 pieces of grain is 0.5-3.6 g, and the technological parameters of the grain are 3-33 g/l, vitreousness 4.2-8.5%, protein 0.6-2.1%, gluten 0 Indicators such as 2-1.2% were ensured to be higher than the control option.

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