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THE ROLE OF SIDERATION IN SHORT-CROP ROTATION

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Abstract:

The need to use autumn sideration to increase soil fertility was felt. Accordingly, the task was set to study the increase of soil fertility and cotton yield by selecting intermediate crops and using them as sideration. As a result of the experiment, cereals were harvested from intermediate crops in the harvested areas peas, pea, mung bean, mustard, Perco, rapeseed and when their mixtures were planted and cedarized, it was found that the bulk mass of the soil decreased, water permeability increased, the mobile form of NPK in the soil increased, and crop yield increased, while the yield rate increased to 18.9–27.2%.

Keywords: Sideration, plowing, autumn, spring sideration, crop rotation, intercropping, peas, pea, mung bean, mustard, perko, raps, compounds, FAR.

INTRODUCTION.

Uzbekistan has developed its own agrarian policy in the short term and adopted a long-term program for the development of the agricultural sector. According to the program, taking into account the soil and climatic conditions in the system of arable lands, the share of cotton will be around 50-60%, with a sharp expansion of the grain area, to achieve grain independence, and these tasks are being successfully implemented.

Instead of the long-established 8,9,10-field alfalfa-cotton crop rotation system, the cotton-grain rotation system was introduced. While this system was primarily aimed at achieving grain independence, it was also aimed at solving many other problems of agriculture, eliminating the monopoly of crops.

Although the new system meets the requirements of a market economy, the task of maintaining and increasing soil fertility remains to be solved. In this regard, in order to solve this complex problem, it is necessary to study and introduce into production the results of large-scale agro-technological measures, including the widespread use of intermediate crops, increasing the amount of organic matter in the soil.

MATERIALS AND METHODS.

The research was carried out in Yakkabog district of Kashkadarya region in the conditions of typical gray soils of the farm "Razzoq ota Meyliev", which are irrigated from the foothills, with an average mechanical composition of sand and groundwater at a depth of 8-10 meters. In the experiment, the object of the experiment was the variety of winter wheat "Tanya".

Experience PSUEAITI ninig [1; 145-b.]. The methods of the Uzbek Institute of Botany were widely used. The experiments consisted of one tier, 4 reversible, 6 variants, each with an area of 432 m2.

THE RESULTS OBTAINED AND THEIR ANALYSIS.

In the past, in order to reduce the harmful effects of cotton monopoly, winter intercrops were planted in rows of cotton, and only in the spring the mass was buried in the ground before sowing the seeds as a green manure. On the plus side of this method, the land was left uncultivated in the fall and it was difficult to achieve quality spring plowing. The decay process of the green manure buried in the soil was also prolonged, and the positive effect was observed to be less in the first year. This process is called spring sideration. In the new system of agriculture, the potential for a positive impact on soil fertility through the use of green manure in the cotton-grain rotation has expanded. Rapeseed and mustard belong to the group of oilseeds in most regions. India ranks first in planting these crops. The total area of oilseeds, cauliflower, is 3.5 million hectares in India. hectare, which contains 32.7-42.5% of oil and 24.60-31.87% of protein in the seeds of these crops. The use of rapeseed as a green manure improves soil fertility and its phytosanitary condition [5. 125-pp.].

When the grain crop was harvested in June-July, the field was left uncultivated, and in some cases the field was left uncultivated. However, during this period, about 60% of the annual photosynthetic radiation (FAR) falls to the surface and is wasted. This can be maintained only with the help of intermediate crops and converted into useful energy (product unit). To do this, the fields emptied of grain are immediately treated, rye, barley, perco, mustard,

rapeseed, triticale, peas, mung bean, soybeans, beans, peas and their mixtures can be planted and used as a green manure in order to increase soil fertility. When these crops are grown as a secondary crop, they can accumulate up to 300-400 quintals of green mass per hectare until late autumn. If this mass is crushed and buried in the ground, the mass will rot until spring, ie before the main crop is planted, which will increase soil fertility. The chemical, physical and mechanical properties of the soil are improved. The event held during this period is called the autumn sideration. The advantage of this autumn sideration over the spring sideration is that the mass remains under the autumn plow, mineralizes rot until spring, and the plant uses it as food when it is planted. Such measures are widely used in many countries, even after the corn is harvested, the stalks, straw of grain crops, cotton stalks are crushed and buried in the ground, which is also considered a way to increase soil fertility.

Numerous experiments have shown that in order to maintain soil fertility and increase grain yield in agriculture, the country is experimenting with different soil and climatic conditions and achieving certain positive results.

In the Kashkadarya region, peas, peas, soybeans, rapeseed, barley and their mixtures were sown in June-July. significant effects on productivity have also been observed in our experiments. Biomass buried in the ground reduced soil microaggregates in the driving layer by 4% and increased macroaggregates by 7-8%, which is evidence of improved soil granularity and its fertility.

When sowing siderate crops, the yield of green mass is 291.6-381.3 ts/ha, emphasizing the role of siderate crops for cotton and winter wheat [3; 89-90-b.] ..

The volumetric mass of the soil decreased by 0.04-0.07 g/cm3, which in turn creates favorable conditions for the branching of the plant roots. The water permeability of the soil also increased slightly. Under the influence of siderates, the amount of humus in the soil increased by an average of 0.06%, gross nitrogen by 0.013%, gross phosphorus by 0.03% and gross potassium by 0.22% in 3 years, as well as the amount of N-NO3 in the soil was 2.8-9.7 mg/kg, the amount of P2O5 was found to increase by 4.5–15 mg/kg, and the amount of K2O by 20–60 mg/kg.

In the cotton-grain rotation field, the incidence of siderates was reduced by 8-19% compared to the control. In addition, the use of siderate crops has led to a reduction in weeds in the fields. All of the above positive results have a positive impact on the growth, development, and yield of winter wheat (Table 1).

Table 1
Influence of past crops on winter wheat grain yield

№	Options	2016	2017	2018	Average
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.	mung bean	60,5	62,1	64,3	62,3
6.	Raps	60,2	63,7	71,4	65,1
	EKF $_{05}$	2,85	3,0	3,12	
	Sx (%) =	2,35	2,47	2,48	

The table shows that the average yield of winter wheat in three years was 5.6-15.4 quintals more than the control variant compared to the control variant. The cost-effectiveness ratio is 18.9-27.2% in terms of profitability.

A. Omanovning [2; Pp. 1-10] emphasizes that the quality, vitality, or hardness of the grain is one of the hallmarks of wheat navigation. These symptoms may vary depending on the growing conditions of the wheat plant. The luster of the grain decreases in conditions of excess moisture, lack of nitrogen, which, if fed in a timely and adequate manner, has a positive effect not only on yield but also on grainquality.

Spike structure of winter wheat was observed in rapeseed variants, the length of spikes was 1.2 cm compared to the control variant, the number of spikes in one spike was 1.1, it was found that the number of grains per grain increased by 0.2, the mass of grain per grain increased by 0.14 g, and the mass of 1000 grains increased by 3.6.

In our experiments, the quality of grain has also changed under the influence of past crops. The average grain yield in the control variant planted with winter wheat was 762 g /l, while in the cotton and corn planted variants it was 770-765 g / l, respectively. These figures are 772-780-795 g / l in the planted varieties of peas, mung bean, rapeseed.

Among the factors influencing the quality of grain, the vitreous was 54.6%, protein was 12.1%, gluten was 26.3%, and the total non-grain value was 3.2 points. 5-60.4%, protein 13.4-12.1%, gluten 26.9-26.5%, nonbopiness score was 3.4-3.2 points. In the post-pea variants, these values 18.9 were 27.1% of the grain size and 3.6% of the non-grain value, respectively. The highest rates in this regard were found in the options planted with moss and rapeseed as a repeat crop.

CONCLUSION.

In order to increase soil fertility and winter wheat yield in the crop rotation field, peas, moss, rapeseed as a siderate crop or their mixtures and crushed green mass as green manure before autumn plowing and buried to a depth of 35-40 cm. by the formation of autumn siderate plowing, which is of agro-technological importance. This will provide an additional yield of 5.6-15.4 quintals per hectare of winter wheat and increase the yield to 18.9-27.2%.

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