

INFLUENCE OF ORGANIC FERTILIZERS ON SOIL AND YIELD OF WINTER WHEAT

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<https://doi.org/10.5281/zenodo.10893204>

Abstract. Addition of organic fertilizers to the soil will improve the structure and productivity of the soil and high and quality crop production can be achieved. In studies, 10 t/ha of waste residues N-154 P-112 K-35 kg/ha norms formed a high-quality harvest.

Keywords: production experience, irrigated brown grass and irrigated grassland soils, rates and timing of organic fertilizer application, grain yield and profitability.

Introduction. Fertilizers change the water-physical and agrochemical properties of the soil. Currently used fertilizers contain macro- or microelements. Especially organic fertilizers contain both macro- and microelements. A sufficient amount of nutrients in the topsoil has a positive effect on the growth and development of the crop. Currently, the amount of mobile nutrients in the soil is decreasing. One of the reasons for this is the recent lack of organic fertilizers in the soil. Currently, much practical work is being done all over the world to develop organic farming in order to enrich it with natural macro- and microelements, as well as organic lands. gradually expanding. Increasing organic matter in the soil is the main basis for maintaining and increasing the naturalness of the soil in the future. In recent years, the amount of natural, mobile nutrients in the soil has been decreasing. It is necessary to study the effect of organic fertilizers on soil and plants.

Research methods. Placement of field experiments, phenological observations, selection and chemical analysis of soils and plants, determination of productivity in the methodological manual "Methodology of field experiments" (B.A. Dospheov, 1985) [3, 248-255 b], chemical analysis of soil samples was carried out. studied on the basis of "Methods of agrochemical analyzes of soils and plants of Central Asia" [4, 12-18 b].

Research results and their analysis. In our republic, according to OJSC Kimyo Industry, to ensure the annual norm of fertilizers for crops, 95% of nitrogen fertilizers, 20% of phosphorus and 5% of potassium fertilizers are needed. It will apparently be possible to supplement by increasing the production of phosphorus and potassium fertilizers or by starting to prepare organic fertilizers (new types of composts) using waste and residues that replace the additive. In fact, research has shown that only natural fertilizers, such as composted organic fertilizers, can improve soil properties.

For these purposes, research was carried out on the Toshrobot massif in the Kyzyltepa district of the Navoi region [5; -175 p.]. Two years of field experiments and one year of field experiments were conducted (Table 1).

Table 1

Winter wheat feeding system in production experience, kg/ha

	before sowing	After sowing	During congestion	During tubing	During spike
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Fertilizers annually from landing the norm	Waste and stay sheer With, tons/ha	Mineral fertilizers, kg/ha			Waste and stay sheer With, tons/ha	Mineral fertilizers, kg/ha			Waste and stay sheer With, tons/ha	Mineral fertilizers, kg/ha			Waste and stay sheer With, tons/ha	Mineral fertilizers, kg/ha					
		N	P	K		N	P	K		N	P	K		N	P	K			
irrigated brown-meadow soils																			
10 tons/ha of waste and residues + N-154 P-112 K-35	10,0	-	67	21	-	31	22	7	-	38	17	5	-	54	62	-	31	-	-
irrigated meadow soils																			
10 tons/ha of waste and residues + N-154 P-112 K-35	10,0	-	67	21	-	31	22	7	-	38	17	5	-	54	62	-	31	-	-
Feed the year voltage value, %	100	-	60	60	-	20	20	20	-	25	15	14	-	35	56	-	20	-	-

In production experience, agrotechnical measures were carried out in accordance with the recommendations given to production. Sowing of winter wheat of the Vassa variety was carried out in the second ten days of October. Production experience Phenological observations of the phases of growth and development of winter wheat variety Vassa were carried out in conditions of widespread irrigated meadow and irrigated brown-meadow soils of the Kyzyltepa district of Navoi region (Table 2).

In conditions of irrigated brown-meadow soils (production experience 139.5 ha):

1. The production experience at the farm "Feruz Shukhrat Amirshokh" was transferred to 20.5 years, the farm fertilizer rate was 2 t/ha of manure + fertilizers N-220, P-160, K-50, grain yield was 57.25 t/ha . ha and the yield was 36.0%, the grain yield was 60.9 t/ha and the yield was 71.6% based on 10 t/ha of waste and residues +N-154, P-112, K-35 kg/ha of fertilizers.

2. The production experience in the Temir Kenyap Pakhtokori farm was transferred to 26.5, the farmer's fertilizer rate, 2 t/ha of manure + N-220, P-160, K-50, grain yield was 52.64 t/ha and yield amounted to 28.0%, grain yield 59.9 t/ha, yield 54.2% against the background of 10 t/ha of waste and residues +N-154, P-112, K-35 kg/ha of fertilizers.

3. In the farm "Uzilishkent Faiz Javohiri" I/C experiment was carried out on 29.1 hectares, the grain yield was 62.60 t/ha based on the farmer's fertilizer rate, 2 t/ha of manure + N-220, P-160, K-50 fertilizers. ha and the profitability was 52.3%, based on 10 t/ha of waste and residues + N-154, P-112, K-35 kg/ha of fertilizers, the grain yield was 67.61 tons. /ha, profitability was 78.4%

Table 2

Winter wheat yield in production experience (data for 2023)

No	Name of the farm where production experiments were carried out	Annual fertilizer rates, kg/ha	per 1 m ² number of stems	number of productive stems per 1 m ² , one piece	plant root mass in g (length 1 m ² .)	One stem With sheet Weight, g	One spike grain weight in g	One ear projectil e in weight, g	Grain harvest disease c/ha	traw is productive league c/ha
irrigated brown grass soils										
1	"Feruz Shukhrat Amirshah"	2 t/ha of fertilizers+N-220 P-160 K-50 10 t/ha ch+q +N-154 P-112 K-35	488,1 512,3	369,9 409,8	0,90 1,34	2,44 2,71	1,54 1,54	0,29 0,40	57,25 62,91	119,09 138,83
2	Fertilizers "Iron Wing"	2 t/ha of fertilizers +N-220 P-160 K-50 10 t/ha ch+q +N-154 P-112 K-35	482,0 509,3	356,7 399,8	0,88 1,35	2,41 2,68	1,47 1,50	0,28 0,32	52,64 59,97	116,16 136,49
3	"Uzilishkent Faiz"	2 t/ha of fertilizers +N-220 P-160 K-50 10 t/ha ch+q +N-154 P-112 K-35	497,1 530,8	388,3 449,1	0,93 1,38	2,66 2,83	1,61 1,53	0,30 0,32	62,60 68,61	132,20 150,22
4	"Normurod Rakhmanov"	2 t/ha of fertilizers +N-220 P-160 K-50 10 t/ha ch+q +N-154 P-112 K-35	490,5 528,2	379,6 446,4	0,93 1,36	2,63 2,83	1,64 1,56	0,30 0,32	62,56 69,50	129,00 149,48
5	"Hikmat Qasim's Dream"	2 t/ha of fertilizers +N-220 P-160 K-50 10 t/ha ch+q +N-154 P-112 K-35	485,2 526,0	371,1 436,6	0,90 1,36	2,60 2,80	1,65 1,52	0,29 0,31	61,56 66,36	126,15 147,28
6	"Jamshid-2021"	2 t/ha of fertilizers +N-220 P-160 K-50 10 t/ha ch+q +N-154 P-112 K-35	476,5 524,6	343,6 384,4	0,88 1,30	2,49 2,53	1,59 1,50	0,28 0,30	54,91 57,66	118,65 132,72
суғориладиган ўтлоқи гупроқлар										
1	"Orabot Star"	2 t/ha of fertilizers +N-220 P-160 K-50 10 t/ha ch+q +N-154 P-112 K-35	505,5 536,0	400,8 455,6	1,08 1,40	2,65 2,86	1,62 1,57	0,31 0,35	65,32 71,53	133,95 153,29
2	"Kalai Azizon Grover"	2 t/ha of fertilizers +N-220 P-160 K-50 10 t/ha ch+q +N-154 P-112 K-35	499,5 525,8	389,6 441,7	1,06 1,36	2,62 2,83	1,59 1,55	0,31 0,35	62,22 68,46	130,87 148,80
3	"Mavlano Andoki"	2 t/ha of fertilizers +N-220 P-160 K-50 10 t/ha ch+q +N-154 P-112 K-35	502,3 530,4	394,8 451,2	1,01 1,38	2,65 2,86	1,62 1,55	0,31 0,34	64,00 69,48	133,11 151,69
4	"Toshrobot Tong"	2 t/ha of fertilizers +N-220 P-160 K-50 10 t/ha ch+q +N-154 P-112 K-35	493,5 522,2	350,4 438,1	0,96 1,37	2,54 2,77	1,77 1,54	0,31 0,33	62,26 67,47	125,35 144,65
5	"Thriving living fiber"	2 t/ha of fertilizers +N-220 P-160 K-50 10 t/ha ch+q +N-154 P-112 K-35	490,7 521,2	347,9 431,5	0,93 1,36	2,53 2,71	1,73 1,53	0,29 0,33	60,53 66,02	124,15 141,25
6	"Kamronbek Mokhlarbegim"	2 t/ha of fertilizers +N-220 P-160 K-50 10 t/ha ch+q +N-154 P-112 K-35	485,3 519,9	354,9 403,7	0,92 1,32	2,49 2,63	1,62 1,52	0,29 0,32	57,60 61,36	120,84 136,73

4. The production experience at the Normurod Rakhmonov farm was transferred to 22.9 years, the grain yield was 62.56 t/ha based on farm fertilizer standards, 2 t/ha of manure + N-220, P-160, K-50 fertilizers and the yield was 52.1%, the grain yield was 67.50 t/ha and the yield was 78.4% against the background of 10 t/ha of waste and residues + N-154, P-112, K-35 kg/ha fertilizer.

5. The production experience in the farm "Dream of Hikmat Kasim" was transferred to 26.5, the farmer's fertilizer rate, 2 t/ha of manure + N-220, P-160, K-50, grain yield was 61.56 t/ha and productivity amounted to 52.1%, grain yield 66.36 t/ha, yield 78.4% per 10 t/ha of waste and residues +N-154, P-112, K-35 kg/ha of fertilizers.

6. The production experience in the farm "Jamshid-2001" was transferred to 14.0, the farmer's fertilizer rate, manure 2 t/ha + fertilizers N-220, P-160, K-50, grain yield was 54.91 t/ha. ha and the yield was 33.6%, against the background of 10 t/ha of waste and residues + N-154, P-112, K-35 kg/ha of fertilizers, the grain yield was 57.66 t/ha and the yield was 48.3% .

In conditions of irrigated meadow soils (108.2 ha of production experience):

1. The production experience in the farm "Orabot Yuldizi" was transferred to 11.0, farm fertilizer standards, 2 t/ha of manure + fertilizers N-220, P-160, K-50, grain yield was 65.32 t/ha. and the yield was 58.8%, based on 10 t/ha of waste and residues + N-154, P-112, K-35 kg/ha of fertilizers, the grain yield was 71.53 t/ha, the yield was 83.9% .

2. Production experience in the farm "Kalai Azizon Pashtakori" was carried out on 15.0 hectares, the grain yield was 62.22 t/ha based on the farmer's fertilizer standards, 2 t/ha of manure + N-220, P- Fertilizers 160, K- 50. ha and the yield was 53.7%, based on 10 t/ha of waste and residues + fertilizers N-154, P-112, K-35 kg/ha, the grain yield was 70.46 t/ha. hectares, and the yield was 76, amounted to 0%.

3. The production experience in the farm "Mavlano Andoki" was transferred to 25.4, the farmer's fertilizer rate was 2 t/ha of manure + N-220, P-160, K-50, grain yield was 64.00 t/ha. and the yield was 55.6%, based on 10 t/ha of waste and residues + N-154, P-112, K-35 kg/ha of fertilizers, the grain yield was 70.48 t/ha, the yield was 78.6% .

4. The production experience in the farm "Toshrabot Tongi" was transferred to 22.0, the farmer's fertilizer rate was 2 t/ha of manure + fertilizers N-220, P-160, K-50, grain yield was 62.26 t/ha. the yield was 51.4%, the grain yield was 67.47 t/ha and the yield was 73.4% based on 10 t/ha of waste and residues + N-154, P-112, K-35 kg/ha fertilizers.

5. The production experience in the farm "Obod Zazhitolas" was transferred to 18.3 years, the farmer's fertilizer rate, manure 2 t/ha + fertilizers N-220, P-160, K-50, grain yield 60.53 t/ha. ha and profitability of 47.5%, based on 10 t/ha of waste and residues + N-154, P-112, K-35 kg/ha of fertilizers, grain yield of 66.02 t/ha and profitability of 69.7%

6. The production experience at the Kamronbek Mokhlarbegim farm was transferred to 16.5 years, the grain yield was 57.60 t/ha based on the farmer's fertilizer standards, 2 t/ha of manure + N-220, P-160, K-50 fertilizers and yield 40.0%, grain yield 61.36 t/ha and yield 57.7% per 10 t/ha of waste and residues + N-154, P-112, K-35 c/ha. Fertilizers

During the research, the growth and development of winter wheat improved in farms that applied optimal (10 t/ha of waste and residues +N-154 P-112 K-35 kg/ha) fertilizer rates for production in both soil conditions studied. .

Optimal fertilizing (10 t/ha with waste residue N-154 P-112 K-35 kg/ha) and based on this 20% nitrogen after sowing, 25% during tillering, 35% during tuberization, 20% in spikelets. ; 60% phosphorus before sowing, 20% after sowing, 15% at tillering, 5% at tillering; The timing of potassium application had a positive effect: 60% before planting, 20% after planting, 15% during tillering and 5% during tuberization.

This had a positive effect on the water-physical, mechanical, agrochemical properties of the soil, leading to a reduction in the consumption of mineral fertilizers by 30%, i.e., saving fertilizers, increasing the efficiency of fertilization, increasing productivity and profitability.

Summary. The use of 10 t/ha of waste and residues + N-154 P-112 K-35 kg/ha has a positive effect on improving soil properties and obtaining a high and high-quality harvest of winter wheat. Due to the use of this agricultural technology, the amount of humus increased by 0.002%, nitrogen by 3%, phosphorus, potassium by 2%. On brown-meadow soils irrigated with winter wheat, the increase in grain was 6.2 t/ha higher on average by 64.7 t/ha (compared to the farmer's yield according to fertilizer standards), and on irrigated meadow soils the grain yield was 67 .3 t/ha. /ha (compared to farmer fertilizer rates) compared to yield) those who achieved an additional grain yield of 7.1 t/ha. The most important thing is that by improving the characteristics of the soil, it becomes environmentally friendly, crops grow well, high-quality crops are formed, and it is known that the efficiency of applied fertilizers increases.

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