Effect of using methods and norms phosphoruos fertilizer on leaf area of winter wheat

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Abstract. This article presents information on the location, methods and methods of research, the effect of phosphorus fertilizers on the formation of the leaf area of winter wheat. According to this, information was provided on that before planting winter wheat seeds, using ammophos fertilizer 90 kg/ha, potash fertilizer 60 kg/ha, nitrogen fertilizer 200 kg/ha during the growing season, and apply PS-agro pure under the plow at the end of the growing season and nitrophos (NKFU) fertilizers 90 kg/ha, potassium fertilizer 60 kg/ha, compared to the options that used nitrogen fertilizer at the rate of 200 kg/ha during the growing season, the leaf area was up to 2589,7–5341,2 m^2/ha, biological dry mass accumulation was up to 9,4–16,2 c/ha.

Keywords: winter wheat, cotton, leaf area, fertilizers, phosphorous

1 Introduction

The demand for mineral fertilizers in the world is This requires extensive scientific research work on the effective use of mineral fertilizers in world agriculture, improving methods and standards for phosphorus and potash fertilizers, and introducing new innovations in fertilizer application to achieve high efficiency.

According to R.Oripov, N.Khalilov, the yield of each genotype depends on the supply of required nutrients. Compared to other grain crops, winter wheat is more demanding of nutrients in the soil in an assimilable form Phosphorus is transformed from the soil solution into orthophosphate ions through plant roots and absorbed mainly as H_2PO_4 and to a lesser extent HPO_4^{2-}. The lack of phosphorus fertilizers leads to a violation of the plant metabolism and a decrease in the level of tolerance to external factors

Phosphorus (P) is an essential nutrient for plant growth, which is essential for root development, proper plant maturation, and seed development. Therefore, phosphorus is

important to maximize forage and grain production. There are many types of phosphorus fertilizers and their proper management is important to create a sustainable and environmentally friendly agricultural system and to minimize the impact on the environment (Malarie Barrett, 2011–06. P.) (И.А., 1999, С.) in the Northern Kulunda region of Western Siberia, where the amount of precipitation is high, spring soft wheat was stratified by layers when feeding it with phosphoric fertilizers, that is, 20% in the 8–12 cm layer, 40% in the 18–22 cm layer, and 28–32 cm layer 40% claims to be highly effective.

In the middle regions of the Samara province, it was recommended to use phosphorus 60, potassium 40 kg/ha under the plow and nitrogen 60 kg/ha during the growing season to produce a higher quality grain yield than winter wheat (Natalya P. Bakaeva, 17, 28 February 2020. P.)

Materials and Methods Placement of experimental field. Kashkadarya province is located in the south of the Republic of Uzbekistan, bordering Samarkand to the north, Bukhara to the northwest, Surkhandarya province to the southeast, the Republic of Tajikistan to the northeast, and the Republic of Turkmenistan to the southwest.

Most of the plains of the territory consist of the Kitab-Shakhrisabz plain in the northeast, the Guzor plain in the west of Kashkadarya, the Karshi desert in the northwest, the Nishan desert in the south, and Sandiqli sand desert in the southwest. The plain rises to the northeast and forms the Kitab-Shakhrisabz mountain between the mountains. From the northeast and southeast, the deserts are surrounded by the Zarafshan (Koratepa, Chakalikalon mountains) and the branches of the Hisar ridge (Osmontarosh, Shertog, Yakkabog, Eshakmaydon, Kukbulok, Chakchar, Karasirt, and Dehkanabad mountains).

The experimental site is located on the Central Experimental Farm of the Southern Agricultural Research Institute in S. Rahimov district, Karshi district, Kashkadarya province, at an altitude of 336 meters, 38 0 48`18.4, 065. 0 34`53.8 east longitude, on irrigated light sierrozem soil.

Methods and methodologies of the research carried out. Scientific research work was carried out in the field of the experimental field of the Southern Agricultural Scientific Research Institute in 2016-2019.

The experimental system consisted of 18 variants, arranged in three replicates in one plane. The experimental field was sown with winter wheat variety "Gozgon" with a ridge width of 60 cm and a ridge length of 100 m. The area of each piece was 480 square meters, of which the counted area was 240 square meters. The total area of the experiment was 2.6 hectares..

In the experiment, three types of phosphorus fertilizers (Ammofos, N–11–12% P_2O_5 – 46%), PS–agro (N 4–7%; P_2O_5 31–41%) and Nitrofos (NKFU) (N–6% P_2O_5 –16%) in three different rates of pure phosphorus (0–60–90 kg/ha) was studied in two different ways under the plow and on the surface of the soil. Nitrogenous and potash fertilizers were applied to the experimental variants at the same time, in pure form , at the rate of N–200 kg/ha and K_2O–60 kg/ha.

In this case, 3 exclusive norms of mineral fertilizers have been described withinside the backgrounds wherein 3 exclusive kinds of phosphorus fertilizers have been used, and withinside the first norm, further to nitrogen and potassium fertilizers, phosphorus fertilizers have been now no longer used. In the second one charge, further to nitrogen and potash fertilizers, natural phosphorus fertilizers have been implemented on the charge of 60 kg/ha. In the 0.33 norm, further to nitrogenous and potash fertilizers, phosphoric fertilizers have been implemented in natural shape on the charge of ninety kg/ha.

The phosphorus fertilizers presented in the experimental system were applied in two ways, under the plow before sowing seeds and on the surface of the field after sowing the seeds, and the effect of the application methods of phosphorus fertilizers on the growth, development and productivity of winter wheat plants and economic indicators was studied.

Table 1. Study results

No	Phosphorous fertilizers	Methods of application of phosphorus fertilizers		Norms of application of mineral fertilizers, (pure) kg/ha
1	Ammofos	To the open field	under plow	$N_{200}P_0K_{60}$
2			under plow	$N_{200}P_{60}K_{60}$
3			under plow	$N_{200}P_{90}K_{60}$
4	PS agro		under plow	$N_{200}P_0K_{60}$
5			under plow	$N_{200}P_{60}K_{60}$
6			under plow	$N_{200}P_{90}K_{60}$
7	Nitrophos (NKFU)		under plow	$N_{200}P_0K_{60}$
8			under plow	$N_{200}P_{60}K_{60}$
9			under plow	$N_{200}P_{90}K_{60}$
10	Ammofos	Between the furrows of cotton	on surface of furrow	$N_{200}P_0K_{60}$
11			on surface of furrow	$N_{200}P_{60}K_{60}$
12			on surface of furrow	$N_{200}P_{90}K_{60}$
13	PS agro		on surface of furrow	$N_{200}P_0K_{60}$
14			on surface of furrow	$N_{200}P_{60}K_{60}$
15			on surface of furrow	$N_{200}P_{90}K_{60}$
16	Nitrophos (NKFU)		on surface of furrow	$N_{200}P_0K_{60}$
17			on surface of furrow	$N_{200}P_{60}K_{60}$
18			on surface of furrow	$N_{200}P_{90}K_{60}$

Note: In the experiment, phosphoruos and potassium fertilizers were applied before seeding (under plow) and after seeding (on field surface).

(N–34.6% in natural form), potassium chloride salt from potash fertilizers (K2O-60% in natural form) become used for feeding wintry weather wheat. 100% of potassium fertilizers below autumn plowing, the once a year norm of nitrogen fertilizers is forty% (in basic terms eighty kg/ha) throughout the budding duration of wintry weather wheat, forty% throughout the tuber duration (in basic terms eighty kg/ha) and 20% (in basic terms forty kg /ha) become used withinside the amount.

The total and mobile amounts of NPK in the soil are based on the “Methods of agrochemical, agrophysical and microbiological research in irrigated cotton regions” method, quality indicators such as protein, gluten, vitreousness, nature, weight of 1000 grains in the grain are according to the "Soil Science and agrochemistry" and "Grain Physiology and Evaluation of Quality Indicators" laboratories.

Methodological manuals “Methodology of State Variety Testing of Agricultural Crops, "Methods of conducting field experiments" were used for carrying out phenological observation and calculations in winter wheat.

1. During the experiment, the following agrochemical analyzes of the soil were carried out at the beginning and at the end of the period of operation, when determining the agrochemical composition of the soil, samples are taken from the plow (0-30 cm.) and sub-plough (30-50 cm.) layers of the soil:
   a. Amount of humus (according to the method of I.V. Tyurin);

   b. Total amounts of nitrogen and phosphorus in the soil (by the method of L.P. Gritsenko, I.M. Maltseva);
   c. The mobile form of nitrate nitrogen in the calorimeter method; phosphorus B.P. Machigin, exchangeable potassium was determined by the method of P.V.Protasov;
2. The following agrophysical studies were conducted in the experimental field: soil density and porosity 0–30; 30–50 cm determined by the method of N.A.Kachinsky in the layer, at the beginning and at the end of the period of vegetation; The water permeability of the soil was determined at the beginning and at the end of the vegetation period by the method of N.A.Kachinsky; "Methodology of agrophysical research of soils" manual was used in all agrophysical studies.
3. Grain and straw yield of winter wheat was subjected to mathematical statistical processing using B.A. Dospekhov's method.
4. The manual "Basic provisions for determining the economic efficiency of using the results of research and development, new technology and inventions, and rationalization proposals in agriculture" was used to determine the costs, general and conditional net profit, profitability rate of growing winter wheat on one hectare of land.

In the experiment, the yield of winter wheat in all variants was determined by mowing from 1 m^2 area from 3 points of the plot. Grain moisture was determined according to GOST 13586–5–93 (14%) due to grain purity of 100%.

The grain quality indicators were determined according to GOST 10842-89, 1000 grain weight GOST 10842-89, grain nature GOST 10840-64, glassiness GOST 10987-76, protein content GOST 10846-91, gluten content, quality (IDK) indicators GOST 13586.1-68.

The economic efficiency of methods and norms of application of phosphorus fertilizers in the cultivation of winter wheat was calculated according to "Sample technological cards for agricultural crop care and crop production"

Measurement and counting of further agrotechnical measures in the experiment were carried out according to the methodical guide of UzPITI (Uzbekistan Cotton Science Scientific Research Institute) "Methods of conducting field experiments" as indicated in the program. In particular, soil samples were taken and analyzed for agrochemical analyzes of soil. The growth and development of the plant was calculated on the 1st-2nd day of every month.

Agrochemical analyzes carried out in the experimental field: total and mobile amounts of humus, nitrogen, phosphorus, and potassium from the tillage (0-30 cm.) and under-tillage (30-50 cm.) Winter wheat germination, seedling thickness before wintering, seedling thickness after wintering and actual seedling thickness during the period of operation were calculated from 3 points per 1 m2 in each option. layers of the soil were determined before planting and at the end of the operation period. Soil samples were taken from all variants of each replicate.

From the conducted agrophysical analysis, the volume weight, porosity and water permeability of the soil at the beginning and at the end of the period of operation are 0-30 of all variants of I and III repetitions; 30–50 cm. every 10 cm in depth was determined using a cylinder by the method of N.A.Kachinsky.

2 Result

In our studies, the above laws were reflected, and it was observed that the methods and standards of phosphorous fertilizers had a positive effect on the leaf surface of winter wheat.

According to the obtained results, before sowing of autumn wheat seeds, potassium fertilizer was applied at the rate of 60 kg/ha under the plow and nitrogen fertilizer at the rate of 200 kg/ha during the growing season. 13790.1 m2/ha in the tillering phase, 35288.0 m2/ha in the stem elongation, 46613.7 m2/ha in the ear formation phase, 40351.2 m2/ha in the grain filling period of the ripening phase, and 38274.3 m2/ha in the hard dough period m2/ha, before planting winter wheat seeds, amphos fertilizer was applied under the plow at the rate of 60–90 kg/ha, potash fertilizer at 60 kg/ha, and nitrogen fertilizer at the rate of 200 kg/ha during the growing season. 7962.9–9097.2 m2/ha in the emergence, 18620.0–21318.0 m2/ha in the rooting phase, 44700.0–48825.0 m2/ha in the stem elongation, 57664.0–62366,2 m2/ha in the earing phase, 50851.8–54948.9 m2/ha during the grain filling period of the ripening phase, and 47717.1–52037.7 m2/ha during the hard dough period. 9–2858.2 m2/ha, 4829.9–7527.9 m2/ha in the tillering phase, 9412.0–13537.0 m2/ha in the stem elongation, 11050.3–15752.5 m2/ha in the ear formation phase, ripening phase it was observed that it was 10500.6–14597.7 m2/ha during grain filling period, and 9442.8–13763.4 m2/ha during hard dough period.

Before planting winter wheat seeds, potassium fertilizer was applied to the plow at the rate of 60 kg/ha, and nitrogen fertilizer was applied at the rate of 200 kg/ha during the growing period. 13099.5 m2/ha, 35464.5 m2/ha in the stem elongation, 46417.4 m2/ha in the ear formation phase, 40147.2 m2/ha in the grain filling period of the ripening phase, and 38376.0 m2/ha in the hard dough period, respectively. PS-agro fertilizer 60–90 kg/ha, potash fertilizer 60 kg/ha, nitrogen fertilizer 200 kg/ha during the growing season were applied in the 5–6 variants. the leaf area of plants is 7807.1–8889.3 m2/ha in the emergence, 17075.1–19624.8 m2/ha in the tillering phase, 42506.1–46407.9 m2/ha in the stem elongation, 55044.2 in the ear formation phase -59,178.6 m2/ha, 47,981.8–51,920.4 m2/ha in the grain filling period of the ripening phase, and 45,616.5–49,448.0 m2/ha in the hard dough period, respectively, compared to the control option 4 leaf area is 1585.1–2667.3 m2/ha in the emergence, 3975.6–6525.3 m2/ha in the tillering phase, 7041.6–10943.4 m2/ha in the stem elongation, 8626.8–12761.2 in the ear formation phase m2/ha, it was noted that the ripening phase was 7834.6–11773.2 m2/ha during the grain filling period, and 7240.5–11072.0 m2/ha during the hard dough period.

Before planting winter wheat seeds, potassium fertilizer 60 kg/ha and nitrogen fertilizer 200 kg/ha during the growing season were used as control. m2/ha, 34869.1 m2/ha in the stem elongation, 46492.9 m2/ha in the ear formation phase, 40242.4 m2/ha in the grain filling period of the ripening phase, and 37875.2 m2/ha in the hard dough period before planting winter wheat seeds, nitrophos (NKFU) fertilizer was applied under the plow at the rate of 60–90 kg/ha, potassium fertilizer at the rate of 60 kg/ha, nitrogen fertilizer at the rate of 200 kg/ha during the growing season. 7698.8–8771.7 m2/ha, 15721.2–18144.7 m2/ha in the tillering phase, 41078.0–44436.0 m2/ha in the stem elongation, 53397.5–56579.8 m2/ha in the ear formation phase, 46,452.0–49,809.6 m2/ha in the grain filling period of the ripening phase, and 43,797.6–46,696.5 m2/ha in the hard dough period. 2285.4–4708.9 m2/ha in the tillering phase, 6208.9–9566.9 m2/ha in the stem elongation, 6904.6–10086.9 m2/ha in the ear formation phase, ripening phase it was observed that it was 6209.6–9567.2 m2/ha during the grain filling period, and 5922.4–8821.3 m2/ha during the hard dough period.

Analyzing the results obtained from the options, high leaf area was observed in 2-3 options where ammophos fertilizer was applied under the plow at the rate of 60-90 kg/ha, potassium fertilizer at the rate of 60 kg/ha, and nitrogen fertilizer at the rate of 200 kg/ha during the growing season. 138.8–190.3 leaf area in the tillering phase compared to the variants that used pure PS-agro and nitrophos (NKFU) fertilizers at the rate of 60–90 kg/ha, potassium fertilizer 60 kg/ha, and nitrogen fertilizer 200 kg/ha during the growing season; 247.1–308.5 m2/ha, 854.3–1002.6 in the accumulation phase; 2544.5–2819.0 m2/ha,

2370.4–2593.6 in the stem elongation; 3203.1–3970.1 m2/ha, 2423.5–2991.3 in the ear formation phase; 4145.7–5665.6 m2/ha, 2666.0–2824.5 during the grain filling period of the ripening phase; 4291.0–5030.5 m2/ha, 2202.3–2691.4 during hard dough; 3520.4–4942.1 m2/ha was found to be higher (Table 1).

After planting winter wheat seeds between cotton rows, potassium fertilizer was applied to the surface of the soil at the rate of 60 kg/ha, during the growing season nitrogen fertilizer was applied at the rate of 200 kg/ha. In the 10th option, taking into account the leaf area of winter wheat, 6222.0 m2/ha was applied in the tillering phase, 12812.0 m2/ha in the tillering phase, 35233.0 m2/ha in the stem elongation, 46523.1 m2/ha in the ear formation phase, 40242.4 m2/ha in the grain filling period of the ripening phase, and 38171 m2/ha in the hard dough period. was 1 m2/ha, after planting winter wheat seeds between cotton rows, amphos fertilizer 60–90 kg/ha, potash fertilizer 60 kg/ha, and nitrogen fertilizer 200 kg/ha during the growing season were applied to the surface of the soil at the rate of 11– In 12 variants, these indicators are 7744.4–8893.5 m2/ha in the tillering phase, 16606.0–18890.0 m2/ha in the tillering phase, 41876.0–45336.0 m2/ha in the stem elongation, 53653 in the ear formation phase, 6–57352.1 m2/ha, in the grain filling period of the ripening phase it is 46326.6–50097.6 m2/ha, and in the hard dough period it is 43989.8–47628.0 m2/ha, control compared to the 10th variant leaf area is 1522.4–2671.5 m2/ha in the emergence, 3794.0–6078.0 m2/ha in the tillering phase, 6643.0–10103.0 m2/ha in the stem elongation, 7130.5–10829.0 in the ear formation phase m2/ha, it was found that the ripening phase was 6084.2–9855.2 m2/ha during the grain filling period and 5818.7–9456.9 m2/ha during the hard dough period.

After planting winter wheat seeds between the rows of cotton, potassium fertilizer was applied to the surface of the field at the rate of 60 kg/ha, nitrogen fertilizer at the rate of 200 kg/ha during the growing season, the control used in the norm, when the leaf area of winter wheat was studied in the 13th option, in the tillering phase, it was 6230.5 m2/ha , 13456.8 m2/ha in the tillering phase, 34272.1 m2/ha in the stem elongation, 46553.3 m2/ha in the ear formation phase, 40296.8 m2/ha in the grain filling period of the ripening phase, and 40296.8 m2/ha in the hard dough period was 38,222.7 m2/ha, after planting winter wheat seeds between cotton rows, PS-agro fertilizer 60-90 kg/ha, potash fertilizer 60 kg/ha, nitrogen fertilizer 200 kg/ha during the growing season In options 14–15 used in the standards ha, the leaf area of plants is 7852.7–9011.1 m2/ha in the emergence, 17140.9–19431.0 m2/ha in the rooting phase, and 43034.6–46863.0 m2/ha in the stem elongation, 54,990.0–59,104.0 m2 in the ear formation phase, 47,642.0–51,866.5 m2/ha in the grain filling period of the ripening phase, 44,919.6–49,004.9 m2/ha in the hard dough period, and control 13– compared to the variant, the leaf area is 1622.2–2780.6 m2/ha in the emergence, 3684.1–5974.2 m2/ha in the tillering phase, 8762.5–12590.9 m2/ha in the stem elongation, 8436.7–12550,7 m2/ha in the ear formation phase, it was noted that the ripening phase was 7345.2–11569.7 m2/ha during the grain filling period, and 6696.9–10782.2 m2/ha during the hard dough period.

After planting the winter wheat seeds between the rows of cotton, potassium fertilizer was applied to the soil surface at the rate of 60 kg/ha, and during the growing period, nitrogen fertilizer was applied at the rate of 200 kg/ha. In the 16th option, taking into account the leaf area of winter wheat, it was 6213.5 m2/ha in the tillering phase. 13414.8 m2/ha in the tillering phase, 35134.0 m2/ha in the stem elongation, 46402.3 m2/ha in the ear formation phase, 40147.2 m2/ha in the grain filling period of the ripening phase, 38376 in the hard dough period. 0 m2/ha, after planting winter wheat seeds between cotton rows, nitrophos (NKFU) fertilizer is applied to the surface of the soil at the rate of 60–90 kg/ha, potassium fertilizer at the rate of 60 kg/ha, and nitrogen fertilizer at the rate of 200 kg/ha during the growing season. in the used variants 17–18, the leaf area of plants is 7527.8–8580.6 m2/ha in the emergence, 14616.0–16592.2 m2/ha in the tillering phase, 39335.3–

44005.4 m2/ha in the stem elongation, 51316.2–53971.0 m2/ha in the ear formation phase, 44209.9–47012.0 m2/ha in the ripening phase, and during hard dough it shows 42273.7–44661.4 m2/ha, compared to the control 16-option, the leaf area is 1314.3–2367.1 m2/ha in the emergence, 1201.2–3177.4 m2/ha in the tillering phase, 4201.3–8871.4 m2/ha in the stem elongation, 4913.9–7568.7 m2/ha in the ear formation phase, 4062.7–6864.8 m2/ha in the grain filling period of the ripening phase, 3897.7–6285,4 m2/ha was found to be higher in the hard dough period.

After planting winter wheat seeds between the rows of cotton, a high result was observed in 14-15 variants where pure PS-agro fertilizer was applied at the rate of 60-90 kg/ha, potash fertilizer at 60 kg/ha, and nitrogen fertilizer at the rate of 200 kg/ha during the growing season compared to the options that applied ammophos and nitrophos (NKFU) fertilizers 60–90 kg/ha, potassium fertilizer 60 kg/ha, and nitrogen fertilizer 200 kg/ha during the growing season, the leaf area in the tillering phase was 99.8–109.1; 307.9–413.5 m2/ha, 2119.5–2487.9 in the stem elongation; 4561.2–3719.5 m2/ha, 1306.2–1721.7 in the ear formation phase; 3522.8–4982.0 m2/ha, 1261.0–1714.5 during the grain filling period of the ripening phase; 3282.5–4704.9 m2/ha, 878.2–1325.3 during hard dough; it was noted that is high 2799.2–4496.8 m2/ha.

Table 2. Effects of Phosphorous Fertilizer Application Methods and Rates on Leaf area of Winter Wheat, 2016–2017

No	Phosphorous fertilizers	Methods of application of phosphorus fertilizers		**Mineral fertilizers rate, kg/ha**	**1 in the field leaf area , m ^{2}**					
					emergence	**Tillering**	**Stem elongation**	**Ear formation**	**Grain filling**	**Hard dough**
1	Ammofos	To the open field	under plow	$N_{200}P_0K_{60}$	6239,0	13790,1	35288,0	46613,7	40351,2	38274,3
2			under plow	$N_{200}P_{60}K_{60}$	7962,9	18620,0	44700,0	57664,0	50851,8	47717,1
3			under plow	$N_{200}P_{90}K_{60}$	9097,2	21318,0	48825,0	62366,2	54948,9	52037,7
4	PS agro		under plow	$N_{200}P_0K_{60}$	6222,0	13099,5	35464,5	46417,4	40147,2	38376,0
5			under plow	$N_{200}P_{60}K_{60}$	7807,1	17075,1	42506,1	55044,2	47981,8	45616,5
6			under plow	$N_{200}P_{90}K_{60}$	8889,3	19624,8	46407,9	59178,6	51920,4	49448,0
7	Nitrophos (NKFU)		under plow	$N_{200}P_0K_{60}$	6222,0	13435,8	34869,1	46492,9	40242,4	37875,2
8			under plow	$N_{200}P_{60}K_{60}$	7698,8	15721,2	41078,0	53397,5	46452,0	43797,6
9			under plow	$N_{200}P_{90}K_{60}$	8771,7	18144,7	44436,0	56579,8	49809,6	46696,5
10	Ammofos	Between the furrows of cotton	on surface of furrow	$N_{200}P_0K_{60}$	6222,0	12812,0	35233,0	46523,1	40242,4	38171,1
11			on surface of furrow	$N_{200}P_{60}K_{60}$	7744,4	16606,0	41876,0	53653,6	46326,6	43989,8
12			on surface of furrow	$N_{200}P_{90}K_{60}$	8893,5	18890,0	45336,0	57352,1	50097,6	47628,0
13	PS agro		on surface of furrow	$N_{200}P_0K_{60}$	6230,5	13456,8	34272,1	46553,3	40296,8	38222,7
14			on surface of furrow	$N_{200}P_{60}K_{60}$	7852,7	17140,9	43034,6	54990,0	47642,0	44919,6
15			on surface of furrow	$N_{200}P_{90}K_{60}$	9011,1	19431,0	46863,0	59104,0	51866,5	49004,9
16	Nitrophos (NKFU)		on surface of furrow	$N_{200}P_0K_{60}$	6213,5	13414,8	35134,0	46402,3	40147,2	38376,0
17			on surface of furrow	$N_{200}P_{60}K_{60}$	7527,8	14616,0	39335,3	51316,2	44209,9	42273,7
18			on surface of furrow	$N_{200}P_{90}K_{60}$	8580,6	16592,2	44005,4	53971,0	47012,0	44661,4

3 Discussion

According to Kh.N.Atabaeva, B.M.Azizov, the need for phosphorus fertilizers for winter wheat is 9% of the total absorbable phosphorus from the time of seed germination to the beginning of the tillering stage, and 91% of the absorbable phosphorus fertilizers are absorbed by the plant until maturity (Atabaeva H.N., . 2008.) M.V.Moslov established that for winter wheat the ratio of nitrogen, phosphorus and potassium should be 1.25:1.0:0.5, i.e. 1.25:1.0:0.5. h. The phosphorus content should be slightly lower than the nitrogen content (M.B., 1979. C)

According to R. Olipov, N. Khalilov, the amount of organic and inorganic fertilizers, the method of their application, conditions, species, soil fertility, plant species, biology depends on the planned harvest, they should be sown in such a period that they accumulate before the beginning of the harvest season. Permanent frost (Oripov R., 2006.).

In the scientific work of V.D. Pannikov (Панников В.Д., М., 1977.) found that phosphorus fertilizers have a positive effect on the formation of the root system of winter wheat and all physiological processes occurring in the plant. It has been observed that a sufficient supply of phosphorus to the plant leads to good wintering of seedlings and a sharp increase in resistance to diseases and pests (Крючков А.Г., 2013. - Но. 1. П.14–16). In the study of R. Ch. Ishmukhamedova, the period from seed germination to tillering was 13 days if winter wheat variety Chillaki was planted on October 15 and fertilized with mineral fertilizers in the recommended amount (P90–60 kg/ha.) and more than 14 days (P110–70 kg/ha). In November (1.XI) or (15.XI), an acceleration of up to 3–4 days compared to the time of planting could be observed. A similar positive situation was noted with regard to the depth of the planting joint and the degree of overcrowding. According to scientists, in many experiments it has been observed that the application of mineral and local fertilizers in areas with slow grass development accelerates plant growth.

Sh.Kh.Abdurakhimov, in irrigated areas, 90-140 kg of phosphorus fertilizers per hectare are used, and winter wheat varieties rapidly absorb phosphorus in the first 4-6 weeks of the growing season. Therefore, based on the soil and climatic conditions of each region, it is recommended to apply 80% of the specified annual amount of phosphorus fertilizer before plowing the land, and the rest at the same time as planting (Sh.Kh.., 2006.– #4. P. 17–18.) (Amanov A., 2003. P. 30).

3 Conclusion

Before sowing winter wheat seeds, 90 kg/ha of Anhos fertilizer, 60 kg/ha of potassium fertilizer and 200 kg/ha of nitrogen fertilizer are applied during the growing season. Compared to the standard used options, the application of NKFU fertilizer 90 kg/ha, potassium fertilizer 60 kg/ha and nitrogen fertilizer 200 kg/ha during the growing season results in a leaf area of up to 2589.7-5341.2 m2/ha, biological dry matter accumulation of 9.4-16.2 c/ha was achieved.

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