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INFLUENCE OF NITROGEN ON THE TRANSPIRATION INTENSITY AND PRODUCTIVITY OF THE BUCKWEAT IN THE ZARAFSHAN VALLEY

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***ABSTRACT** --This article provides information on the effects of nitrogen norms on the intensity and productivity of transplants during the development phases of bark varieties grown in Zarafshan Valley as a secondary crop. It shows that the transpiration rate in the bark varieties grown in the Samarkand region as a second crop is accelerated during the germination and flowering phases, and slightly decreases at the end of the growing season. It has been established that the optimal rate of fertilizer application will reduce the transpiration rate of the bark plant and produce a high yield of water. Yields of bark varieties are mineral fertilizers$N_{120-150}P_{90}K_{60}$Increase to the kg / ha variability has been observed, and excess of this norm does not have a positive effect on productivity. Mineral fertilizers of the Kazan variety of lentils grown as a secondary crop$N_{120}P_{90}K_{60}$The most effective yield (21.7 centner / ha) was obtained in the usual kg / ha. The highest yield (23.1 t / ha) in the larch “Krupinka” is a mineral fertilizer $N_{150}P_{90}K_{60}$kg / ha.*

***Keywords:** lentil, Kazan, Krupinka, intensity of transpiration, yield, repeated crop, nitrogen fertilizer*.

I. INTRODUCTION

Currently, the growing demand for buckwheat and its products worldwide contributes to the rapid growth of their production [11].

In the world's largest agricultural, lentil-growing countries, based on its morpho-biological and physiological properties, to create varieties adapted to different extreme conditions, to sow their seeds, to use saplings of germ and sprouts for effective use of physiologically active substances, by plant roots and leaves. development and implementation of agrotechnologies for high-quality crop production, nutrition, disease and pest management; Special attention is given.

In the context of Uzbekistan, it is economically important to grow imported grain as a secondary crop.

One of such products is buckwheat. Bark grains contain a lot of mineral salts, organic acids, vitamins, trace elements, in addition to easily digestible proteins, fats and carbohydrates. Bean protein is similar in quality to legumes. Its protein contains a lot of lysine and arginine, which are indispensable amino acids. According to the data,everyone should eat 7.5 kg of lentils per year [2].

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The ash content of lentils (up to 2%) contains phosphorus, iron, calcium, copper and organic acids from citric, apple, and acetic acid [5], which improves digestion [5]. From vitaminsB_1 (tiamin), B_2 (riboflavin), PP (nicotinic acid) and P (routine) is stored. In general, lentils contain about 100 different nutrients. Protein content is similar to lysine, methionine, tryptophan. In medicine, atherosclerosis, anti-inflammatory is applied when blood pressure increases with tincture of bark flowers and leaves. Routine in the grain increases the elasticity of blood vessels and improves heart activity. Honey extract from bark flower is used in lungs, liver, diabetes and diarrhea [1].

In Uzbekistan, this valuable grain product is purchased mainly for foreign currency. The study of the physiological and biological characteristics of buckwheat in our country, high-yield, high-quality wheat varieties and their scientifically proven breeding technologies and the development of appropriate recommendations are important issues that need to be addressed.

II. EXPERIENCES AND METHODS

The experimental object was the fast-growing varieties of beetroot "Kazan" and "Krupinka". The experiments were conducted in the Zarafshan Valley in the meadow soils of the Samarkand region in 2015-2017 as a second crop in the grain-free areas. All analyzes, phenological observations, and calculations were performed based on the generally accepted methods [4].

III. MAIN PART

When moisture is lacking in the balsamic plant, growth and development are slower, and nectar extraction from the flowers is reduced. As a result, the flowers are not pollinated, but dry and their productivity decreases sharply [1].

Given that agriculture in our country is largely irrigated agriculture, there is a strong dependence on crop production and crop capacity, in particular, on the availability of sufficient water for vegetation. Therefore, the study of the marine water regime is important for determining their ecological properties, physiological adaptation to various environmental factors, and increasing their productivity.

The study investigated the effect of nitrogen fertilizer rates on transpiration rate and yield of bark. At the same time, $P_{90}K_{60}$ kg / ha was given as a background. Potassium is given with 100% plowing, 50% phosphorus plowing and 50% planting. Nitrogen fertilizers are given in three phases of planting and in flowering and flowering phases.

Data on the transpiration rate of the bark are given in Tables 1 and 2.

From the data presented in the table, it is observed that in Zarafshan Valley, the highest intensity of transpiration of bark species is at 2 pm. According to him, the intensity of transpiration in the maple phase of the “Kazan” lentil variety 448,41 g/m^2hourfrom 490,45 g/m^2 / h. The slowest transpiration rate was observed in the early morning hours and ranged from 156.05 to 178.g / m^2h. The maximum transpiration rate of the “Kazan” lentil variety was the highest among the variants. The transpiration rate is highest in the calving phase509,55 g / m^2 / h and the lowest transpiration was observed at 6 pm and nitrogen was found to be 171.97 g / m^2 / h in the 120 kg / ha variant. Increased nitrogen levels also slightly increased transpiration rates. It has been established in our studies that the most transposing phase of bark is the flowering phase. At this time, it was found that the control variant at 14 h had the highest transpiration rate of 547.77 g / m^2 / h, while relatively low transpiration rates were observed in the nitrogen 120 and 150 kg / ha variants. 471,34 g/m^2hour equation. Even in the flowering phase, the lowest transpiration rates were observed in the variants used in the late nitrogen 120 kg / kg 184.71 g/m^2hours. The transpiration rate of the initial grains decreased slightly during the ripening phase, but even at 14 h, the transpiration rate was lower than in the control sample. (490,45 g / m^2 / h). Poor transpiration in this phase is in the early hours of the morning, with nitrogen 120 kg / day (152,87 g/m^2hour) it has become known. When analyzing the transpiration rate of the Cranberries' lettuce variety (Table 2), it was

Table 1: Influence of ore fertilizers on transpiration rate of kazanzhumak variety, g / m^2h.

Experience options	Determination time, hours						
	6^{00}	8^{00}	10^{00}	12^{00}	14^{00}	16^{00}	18^{00}
the maple phase							
control	178,34±2,03	235,67±3,25	331,21±3,21	420,38±4,21	490,45±5,21	343,95±4,21	191,08±2,85
background - $P_{90}K_{60}$	171,97±2,15	229,30±2,56	324,84±3,24	407,64±4,56	471,34±4,58	324,84±4,56	184,71±2,35
$N_{90}P_{90}K_{60}$	156,05±3,01	224,20±2,35	312,10±3,56	380,25±3,86	458,60±5,68	312,10±3,85	178,34±2,65
$N_{120}P_{90}K_{60}$	157,96±2,86	222,93±2,96	324,84±3,84	375,80±3,54	452,23±5,62	305,73±3,24	170,70±3,24
$N_{150}P_{90}K_{60}$	159,24±2,45	216,56±2,45	331,21±3,12	388,54±4,25	462,42±5,23	319,75±4,21	173,25±3,86
$N_{180}P_{90}K_{60}$	165,61±1,96	210,19±2,13	305,73±4,06	385,35±3,97	448,41±4,98	299,36±3,56	180,25±4,56
the phase of calcification							
Control	216,56±2,35	343,95±3,25	356,69±3,21	439,49±4,21	509,55±5,26	363,06±4,35	203,82±3,65
background- $P_{90}K_{60}$	203,82±2,14	324,84±3,56	350,32±3,54	433,12±4,23	490,45±5,37	343,95±3,98	184,71±3,45
$N_{90}P_{90}K_{60}$	191,08±2,56	312,10±3,87	337,58±3,26	414,01±4,56	484,08±5,86	331,21±4,75	178,34±3,97
$N_{120}P_{90}K_{60}$	178,34±3	292,99±2,	312,10±2,9	401,27±5,	464,97±6,2	318,47±4,0	171,97±4,

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	,05	96	8	21	4	5	30
$N_{150}P_{90}K_{60}$	184,71±3,07	299,36±3,45	324,84±3,68	401,27±4,28	464,97±7,45	324,84±3,72	178,34±4,56
$N_{180}P_{90}K_{60}$	197,45±3,86	318,47±4,12	343,95±4,25	426,75±4,57	477,71±6,54	337,58±3,74	191,08±4,95
flowering phase							
Control	242,04±2,56	369,43±2,85	394,90±4,14	477,71±4,87	547,77±5,64	388,54±4,23	216,56±2,96
background-$P_{90}K_{60}$	216,56±2,04	356,69±2,56	375,80±3,62	464,97±4,63	528,66±5,87	369,43±3,65	203,82±3,05
$N_{90}P_{90}K_{60}$	203,82±3,04	343,95±3,14	363,06±3,25	433,12±3,98	496,82±4,96	337,58±3,57	197,45±3,16
$N_{120}P_{90}K_{60}$	197,45±2,65	331,21±3,56	350,32±3,89	414,01±4,56	471,34±5,68	324,84±3,58	184,71±3,58
$N_{150}P_{90}K_{60}$	203,82±2,98	337,58±3,98	356,69±3,86	426,75±4,87	471,34±6,45	331,21±4,52	197,45±4,15
$N_{180}P_{90}K_{60}$	222,93±3,12	350,32±4,25	369,43±4,56	439,49±5,16	503,18±6,78	350,32±4,35	210,19±3,97
the initial grain ripening phase							
Control	184,71±1,86	305,73±2,45	350,32±3,54	407,64±5,12	490,45±5,65	356,69±3,65	191,08±2,13
background-$P_{90}K_{60}$	171,97±1,54	292,99±3,56	337,58±3,98	401,27±5,34	464,97±5,23	343,95±3,74	184,71±2,54
$N_{90}P_{90}K_{60}$	159,24±2,31	280,25±3,87	312,10±4,12	375,80±5,89	445,86±4,94	331,21±3,26	171,97±2,69
$N_{120}P_{90}K_{60}$	152,87±2,56	267,52±4,12	299,36±4,36	363,06±4,56	439,49±5,84	318,47±3,85	159,24±3,74
$N_{150}P_{90}K_{60}$	165,61±2,87	273,89±3,65	305,73±4,52	363,06±3,98	445,86±6,24	318,47±4,25	165,61±3,65
$N_{180}P_{90}K_{60}$	178,34±2,23	286,62±3,84	324,84±4,58	388,54±4,78	458,60±6,53	337,58±4,53	178,34±3,47

found that the transpiration rate in the maple phase ranges from 154.78 g / m^2 / h to 477.71 g / m^2 / h.

Table 2: Effect of mineral fertilizers on the transpiration rate of cranberries marjumak variety, g / m^2h.

Experience options	Determination time, hours

	6^{00}	8^{00}	10^{00}	12^{00}	14^{00}	16^{00}	18^{00}
the maple phase							
control	165,61±1,58	216,56±2,36	312,10±3,12	401,27±3,56	477,71±4,08	324,84±3,21	171,97±2,07
background-$P_{90}K_{60}$	159,24±1,45	210,19±2,14	299,36±3,08	388,54±4,23	452,23±4,56	312,10±3,02	159,24±1,86
$N_{90}P_{90}K_{60}$	157,96±1,23	199,36±1,87	280,89±3,19	365,61±2,36	429,94±4,88	292,99±3,52	159,87±1,24
$N_{120}P_{90}K_{60}$	154,78±2,04	200,64±2,87	284,71±2,56	368,15±3,74	431,85±5,06	291,08±3,08	162,42±2,36
$N_{150}P_{90}K_{60}$	155,41±1,98	202,55±2,41	282,80±2,74	366,88±3,21	433,12±5,24	289,81±2,98	161,15±2,75
$N_{180}P_{90}K_{60}$	156,69±2,14	198,09±2,03	286,62±3,16	369,43±2,96	428,03±4,45	288,54±3,28	163,69±2,44
the phase of calcification							
control	203,82±1,96	324,84±4,56	343,95±3,18	420,38±4,85	477,71±5,12	350,32±3,256	209,55±2,16
background-$P_{90}K_{60}$	187,26±1,54	305,73±3,87	324,84±3,65	401,27±4,32	452,23±4,32	331,21±3,41	165,61±1,86
$N_{90}P_{90}K_{60}$	178,34±1,23	292,99±3,69	305,73±2,99	388,54±4,15	433,12±4,06	312,10±2,93	159,24±1,54
$N_{120}P_{90}K_{60}$	171,97±2,08	280,25±3,45	292,99±2,66	375,80±3,91	420,38±4,18	299,36±2,85	146,50±1,39
$N_{150}P_{90}K_{60}$	171,97±1,68	280,25±3,21	299,36±3,12	382,17±3,74	426,75±3,85	307,01±3,07	152,87±1,84
$N_{180}P_{90}K_{60}$	184,71±1,54	299,36±3,71	312,10±4,08	394,90±4,78	445,86±4,51	324,84±3,22	171,97±1,78
flowering phase							
control	222,93±2,68	356,69±4,25	375,80±4,16	458,60±5,12	528,66±5,26	369,43±4,65	197,45±2,18
background-$P_{90}K_{60}$	210,19±2,54	337,58±3,89	356,69±4,52	439,49±4,50	515,92±5,57	350,32±3,58	171,97±2,54
$N_{90}P_{90}K_{60}$	191,72±2,65	324,84±3,56	337,58±3,79	414,01±4,97	477,71±5,31	324,84±3,21	159,24±2,87
$N_{120}P_{90}K_{60}$	184,71±1,45	305,73±3,45	331,21±3,63	402,55±5,07	455,41±4,89	308,92±3,06	146,50±2,51

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$N_{150}P_{90}K_{60}$	185,35±1,97	312,10±3,24	326,11±3,14	401,27±3,99	452,23±4,56	305,73±2,99	143,31±1,81
$N_{180}P_{90}K_{60}$	203,82±2,21	331,21±3,95	343,95±4,52	420,38±4,19	471,34±4,77	331,21±3,62	165,61±1,62
the initial grain ripening phase							
control	163,06±1,52	280,25±2,35	331,21±3,39	388,54±4,03	464,97±4,65	331,21±3,18	178,34±1,89
Background - $P_{90}K_{60}$	153,50±1,53	267,52±3,62	312,10±2,96	369,43±3,65	445,86±4,58	312,10±3,06	165,61±1,57
$N_{90}P_{90}K_{60}$	142,04±1,38	254,78±2,38	292,99±2,56	350,32±3,81	426,75±4,31	286,62±2,89	159,24±2,36
$N_{120}P_{90}K_{60}$	136,94±1,56	242,04±1,99	280,25±2,76	337,58±3,90	415,92±5,63	273,89±2,74	146,50±2,14
$N_{150}P_{90}K_{60}$	133,76±1,87	242,04±2,47	273,89±3,09	331,21±3,27	414,01±4,62	267,52±2,53	140,13±1,21
$N_{180}P_{90}K_{60}$	146,50±2,13	261,15±3,15	299,36±3,19	356,69±3,47	433,12±4,59	292,99±3,07	165,61±1,57

Since the variants in the phase were given the same amount of nitrogen fertilizer, there was no consistent consistency in the transpiration rate, meaning that the peak transpondence rate at all times of the day was in the control variant and then in the background. In the other variants, it was observed that the intensity of transpiration varied at different times of the day but was close to each other. It was found that the transpiration rate of the Krupinka variety is slightly lower than that of the Kazan variety. Even during the calcination phase, the transpiration rate was relatively low in the early and late hours of the day, with the highest temperature during the rise (between 12 and 14 pm). Even in the Krupinka variety, the highest transpiration rate was observed during the flowering phase. It was found to be 528.66 g / m^2 / hour at 2pm on the control variant. During this phase, it was also found that the transpiration rate decreased slightly in the late evening, and the transposition rate was observed in the nitrogen 150 kg / ha variant (143.31 g / m^2 / h). It was found that the transpiration rate of the initial grains in the ripening phase decreased slightly compared to the other phases.

Statistical analysis of the dependence of transpiration rate on mineral fertilizers in marjumak varieties was found to be linear, with regression equation $y = 583.4-51.7x + 5.35x^2$ and correlation coefficient $r = 0.96$, ie 120-150 kg of nitrogen. Statistically proven to be low transpiration rates, that is, water retention in tissues and cells (Figure 1).

Research has shown that transpiration rates of the Krupinka species are slightly lower than that of the Kazan variety in all phases and variants and throughout the day. It was found that the rate of transpiration of the “Kazan” variety was lower than that of mineral fertilizers, nitrogen was 120 kg / kg, and the intensity was slightly higher in the non-fertilizer control variant. Even in the “Krupinka”, the highest transpiration rate was observed in the non-

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fertilized control option in all phases. It was found that the lowest transpiration rate was 150 kg / ha, while the other variants were intermediate.

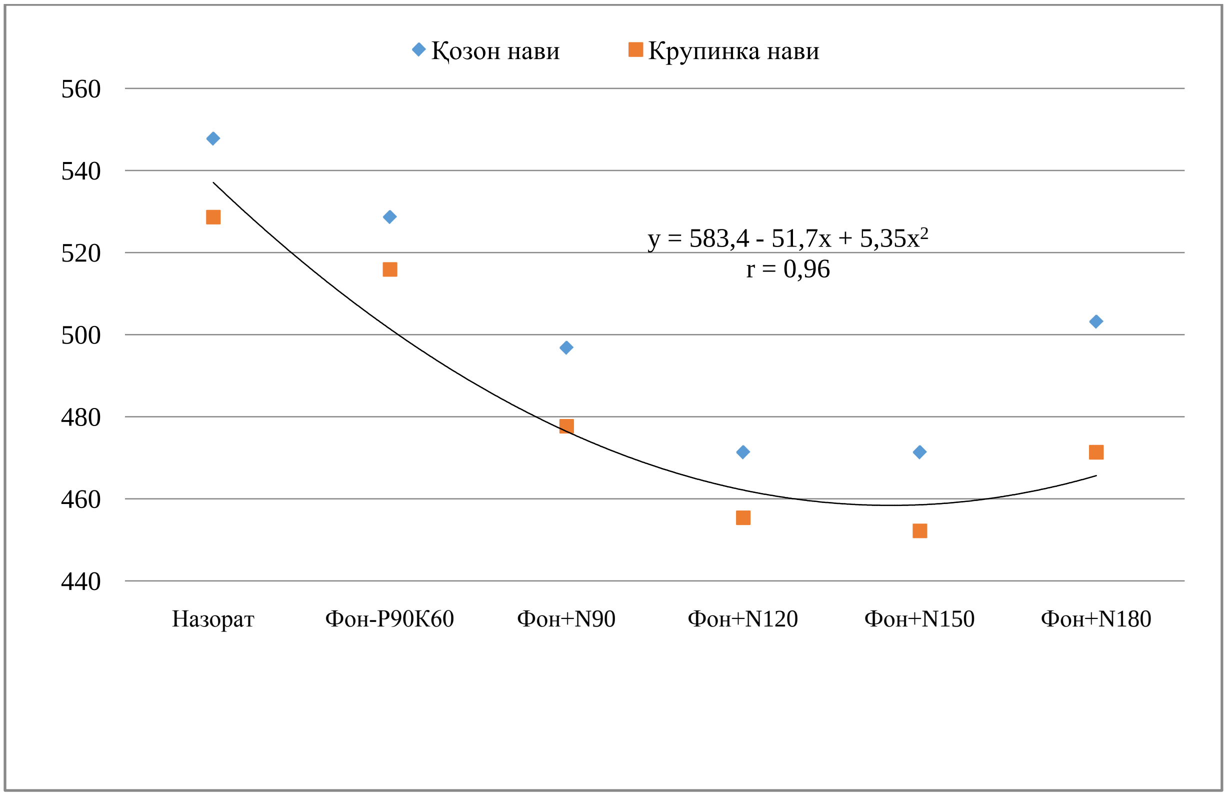

Figure 1: Dependence of transpiration rate on mineral fertilizer norms in marjumak varieties (14-00)

In Zarafshan Valley, the development of anthropogenic technology of lentils, effective use of irrigated land and a double harvest per year, the production of grains from abroad for grains in grain-free areas are of great importance.

The optimal time for feeding the berry with mineral fertilizers is the beginning of the shading and flowering phase. Fertilizers are recommended to be dug to a depth of 10-12 cm, as the moisture content in the upper layer is low [8; 10].

Buckwheat is very demanding for fertilizer and removes from the soil large quantities of minerals, especially potassium. It takes about 35-40 kg of nitrogen, 15-20 kg of phosphorus, 50-70 kg of potassium fertilizers to produce 1 ton of bark grain. Normally applied nitrogen fertilizers provide good growth and development of plants, thus increasing productivity and improving quality. When widely cultivated 50% of phosphorus fertilizers are fed at the first feeding, the plant grows well and is resistant to adverse external conditions and diseases and pests [7].

Buckwheat absorbs many nitrogen fertilizers from the soil at the beginning of the growing season, increases phosphorus levels in plant organs during the shale phase, and potassium increases during shading and flowering. The authors believe that once the nesting phase and the beginning of flowering it is necessary to feed once with nitrogen + phosphorus + potassium [3].

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Phosphorus fertilizer feeding in the Altai region has been found to be the same and increase productivity even in times of drought and humidity [9].

The use of cultured fertilizers in buckwheat technology is one of the major factors affecting the yield and quality of harvest [6].

Buckwheat is a new plant for the Republic. Therefore, it is necessary to select varieties suitable for the conditions of the Republic, to study their biological and physiological properties, to develop ways to increase their productivity.

In our study, we studied the effect of mineral fertilizer rates on the yield of early varieties of lentils as a second crop in the Zarafshan Valley. The results are presented in Table 3.

From the data presented in the table, it is found that the average three-year yield on the control bar of “Kazan” lentil variety is 12.2 c / ha, and in the background version is 13.6 c / d, with a 1.4 c / s higher yield.

Table 3: Influence of mineral fertilizers on the productivity of bark varieties(2015-2017)

Experience options	**Productivity t / ha**				**Extra crop**	
	2015	**2016**	**2017**	**ўртача**	**ц/га**	**%**
"Kozon"sort						
Control	10,8	12,8	13,0	12,2	-	100,00
background-$P_{90}K_{60}$	13,2	13,9	13,8	13,6	1,4	111,48
$N_{90}P_{90}K_{60}$	18,5	18,9	19,2	18,8	6,6	154,10
$N_{120}P_{90}K_{60}$	20,7	21,5	23,0	21,7	9,5	177,87
$N_{150}P_{90}K_{60}$	21,7	22,1	22,5	22,1	9,9	181,15
$N_{180}P_{90}K_{60}$	22,3	22,3	22,1	22,2	10,0	181,97
$S_{\bar{x}}$ %	4,64	5,11	3,77			
ЭКФ$_{05}$	2,49	2,86	2,15			
"Krupinka"sort						
Control	11,2	11,8	12,0	11,7	-	100,00
background-$P_{90}K_{60}$	13,1	13,5	14,7	13,7	2,0	117,09
$N_{90}P_{90}K_{60}$	19,6	20,1	20,4	20,0	8,3	170,94

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$N_{120}P_{90}K_{60}$	21,9	22,2	23,1	22,4	10,7	191,45
$N_{150}P_{90}K_{60}$	22,3	22,4	24,7	23,1	11,4	197,44
$N_{180}P_{90}K_{60}$	22,5	22,6	24,2	23,1	11,4	197,44
$S_{\bar{x}}$ %	3,58	3,61	3,35			
ЭКФ$_{05}$	1,99	2,04	2,00			

It was found that the variants used in the $N_{90}P_{90}K_{60}$ per hectare of mineral fertilizers yielded 18.8 centners per hectare and 54.2% more than the control variants of 5.2 c / ha. With nitrogen 120 kg / ha, the average yield was 21.7 c / ha and yielded 77.87% of the control, 8.1 c / ha of the background, and 2.9 t / ha of 90 kg of nitrogen. The productivity increased dramatically to 120 kg / ha. When the nitrogen dose was increased to 150 kg / ha (an additional 30 kg / ha), it increased by 0.4 c / ha and was 22.1 c / ha. It was found that it yields 8.5 t / ha of the background variant and 9.9 c / l of the control. When applying high nitrogen, the productivity was 22.2 c / d, with the use of an additional 30 kg / ha increased the yield by 0.1 c / ha.

In the control variant of the “Krupinka” lentil planted as a secondary crop, it was found to yield 11.7 c / ha and yields 0.5 c / ha less than the Kazan variety. 13.7 centners / ha were harvested in the background varnish and it was found that more than 17.09% of the control was obtained. With the fertilizer $N_{90}P_{90}K_{60}$ kg per hectare, the productivity was 20.0 centners / ha and 6.3 c / s higher than the background, and 8.3 c / c more, and 1.2 cc more than the same version of the “Kazan” variety. In the case where nitrogen was applied at 120 kg / ha, there was a yield of 22.4 c / ha and a yield of 8.7 c / ha from the background variant, and more than 10.7 c / c. Increase in nitrogen by 30 kg / ha increased productivity by 2.4 centners / ha. Increasing the nitrogen up to 150 kg / ha along with the background increased the yield to 23.1 c / ha. This is 11.4 percent higher than the previous version; 9.4; 3.1; It was found to increase by 0.7 c / ha and yields more than 1.0 t / ha compared to the normally fed variant of the Kazan variety. It was found that the nitrogen standard yield was 23.1 c / ha in the variants reaching 180 kg / ha, which resulted in the same yield as the 150 ng / kg variant.

In general, in the Zarafshan Valley, wheat bark was re-cultivated as a second crop, with mineral fertilizer variants found to be more fertile than Krupinka and less than in the non-fertilized variant of Kazan.

IV. CONCLUSION

In the conditions of the republic in order to use the irrigated lands in the grain-free areas, it is possible to use the available water resources and to grow high-yielding varieties of buckwheat as a second crop. When the optimum mineral fertilizer application was applied in the meadow soils of the Samarkand region, the transpiration rate of lentils was minimal and the crop was well watered and produced a high quality grain. It is scientifically proved that the optimal nitrogen content for the studied varieties is 120 and 150 kg / ha, with the yield of 21.7 to 22.1 c / ha in the "Kazan" variety and from 22.4 to 23.1 c / ha in the "Krupinka" variety.

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