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PHYSICAL AND TECHNOLOGICAL PARAMETERS DETERMINING GRAIN QUALITY

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Abstract:

Establishment of the optimal norms of mineral fertilizers against the background of the introduction of organic fertilizers (manure) for the Polovchanka wheat variety under the conditions of old irrigation of light gray soils and the rationale for their positive effect on growth, development, crop, damage.

The main goal of the research is to solve the influence of the quality of the regime on the technological indicators that show the quality of the Polovchanka grain, a variety of winter wheat, under conditions of light gray soil in the Kashkadarya region.

Keywords: wheat, grain, quality, nutrition, Polovchanka type of light soils, mineral fertilizers, manure, humus, mobile phosphorus, nitrate , potassium, protein, gluten.

Type of wheat, grain, quality, nutrition, mineral fertilizers, manure, humus, mobile phosphorus.

INTRODUCTION

Our country has achieved grain independence thanks to the intensive development of grain crops on irrigated lands. This victory plays an important role in fully meeting the food needs of our people in the context of the global financial crisis.

In recent years, breeders have grown high-yielding varieties of winter wheat. For the successful introduction of these varieties into agricultural production, it is necessary to test them in various soil and climatic conditions of the country and develop appropriate agrochemical measures for each variety.

Due to the difficult natural and climatic conditions of the republic, the soils developed in different regions differ sharply in their properties and characteristics, and therefore, in each individual state of each agricultural crop, including grain, appropriate agrotechnical and agrochemical measures are required.

Therefore, it is important to develop an agricultural technology for growing each variety of winter wheat in different regions, including a feeding system aimed at improving the technological parameters that determine grain quality.

The main reason for the low protein content of winter wheat grown on irrigated lands is the lack of nitrogen during the growth and development of plants and the violation of the ratio of nutrients in the process of mineral nutrition in general. As a result, the protein content in the grain is reduced, this problem can be solved by applying nitrogen fertilizers and adapting the nutrient medium of the soil to the needs of the plants . soils, especially in the Kashkadarya region.

The main task in this case is to determine the criteria and terms for applying nitrogen fertilizers in accordance with the requirements of the plant variety and specific soil conditions, as well as the correct application of mineral fertilizers with organic fertilizers. proportions.

- Kashkadarya region is irrigated with light gray background soil conditions with organic fertilizers (manure), fertilizers $N_{180} P_{90} K_{60}$ and $N_{210} P_{110} K_{70}$ standards, when applying agrochemical soil conditions, can satisfy the nutrient needs of winter wheat and improve the nutritional regime of the soil in period of growth and development of plants. As a result, the germination, growth and development of winter wheat of the Polovchanka variety is accelerated, and the growing season is reduced to 8 days, the sign of late ripening is reduced.

- Fertilizer rates $N_{180} P_{90} K_{60}$ + 30 t / g and $N_{210} P_{110} K_{70}$ + 30 t / g in the ratio of fertilizers of the genital organs of winter wheat variety Polovchanka to vegetative organs increases the technological parameters that determine the quality of grain: grain mass, natural weight, vitreousness, flour yield, increases the amount of protein and gluten in the grain and provides high economic efficiency by increasing the grain yield and improving the quality of autumn wheat Polovchanka.

When growing winter wheat on irrigated light gray soils of the Kashkadarya region against the background of 30 t / ha of manure, the norms of mineral fertilizers $N_{180} P_{90} K_{60}$ and $N_{210} P_{110} K_{70}$ should be applied together. improve the nutrient regime of the soil during the growth and development of plants, increase the absorption of essential nutrients by plants, ensure normal growth and development of plants, shorten the growing season to 8 days and reduce late maturation.

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Fertilizer N $_{180}$ P $_{90}$ K $_{60}$ +30 t / g and N $_{210}$ P $_{110}$ K $_{70}$ +30 t / g fertilizer with an increase in the yield of grain of winter wheat variety Polovchanka As a result of an increase in the amount to 1.1%, an increase in the amount of protein to 5 2 centners per hectare and gluten up to 11.6 centners per hectare.

Of course, the main part of the vegetable protein necessary for the human body must be provided by cereal grains. However, because wheat and other grains are much cheaper, easier, and more convenient to grow than legumes, more grains are grown, and the human body gets its protein primarily from wheat grains.

For this reason, one of the main problems that attracts the attention of scientists is to provide mankind with vegetable protein.

The weight of 1000 grains, natural weight, vitreousness, flour consumption and other indicators are important physical and technological quality indicators that determine the quality of grain and are associated with agroecological, agrotechnological and genetic characteristics of the grown grain.

The research results show that the winter wheat variety Polovchanka is grown without the use of fertilizers and mineral fertilizers at the rate of 38 g per 1000 grains mixed with 30 t/ha. When grown from ng weight 1000 grains. was 40 grams or an increase of 2 grams.

The recommended rate of mineral fertilizers for this wheat variety is N $_{180}$ P $_{90}$ K $_{60,}$ which is 41 grams per 1000 grains, otherwise manure and mineral fertilizers are not used. There was an average increase of 3 grams compared to the control . .

A further increase in the weight of 1000 grains was observed with the combined use of manure and mineral fertilizers, which was 43 grams or 5 grams more than in the control variant without fertilizers.

The high weight of 1000 grains led to an increase in the weight of grain grown both under the influence of manure and mineral fertilizers.

An increase in grain mass and natural weight was observed in proportion to the degree of grain glassiness and flour yield in proportion to the norms and forms of fertilizers used.

Grain viscosity was 73.5% in the control variant without fertilizers and 1.6% compared to the control when applying manure at the rate of 30 t/ha; with the introduction of the recommended norms of mineral fertilizers, it increases by 1.9%, with an increase in the recommended norms of mineral fertilizers by 2.5%, with the simultaneous use of both types of fertilizers with an increase of 3.1-3.4%. An increase in the vitreous luster of the grain was also observed. The yield of grain flour in the control variant without fertilizers was 73.3%, 0.9% compared to the control when mixed manure was applied with 30 t/ha of mineral fertilizers. 1.1% at the recommended, 1.5% at higher rates of mineral fertilizers. When combined with manure and mineral fertilizers, an increase in flour yield by 2.1–2.2% was observed, and in the feeding mode, an increase in grain quality was noted.

Another important indicator of grain quality is flour consumption, and if the grain is of good quality, flour consumption will increase. This is due to the fact that if the grain is dark and crumbly, the proportion of reserve substances will be higher than that of the husk. The same situation manifested itself in an increase in flour consumption as the feeding regimen for the winter wheat variety Polovchanka increased. This is due to the fact that the consumption of flour from grain grown in the control variant without fertilizers was 73.3%, and the consumption of flour from grain with the use of mixed manure of 30 t/ha was 74.2%. flour yield is 0.9% more than. At the same time, flour consumption at the recommended rate of mineral fertilizers was 74.4%, which is 1.1% compared to the control variant, when the recommended rate of mineral fertilizers was exceeded. The flour yield was 1.5% higher than in the control variant, which was 74.8%, 4-75.5%, which is 2.1-2.2% more than in the control variant.

Thus, the physical and technological parameters that determine the grain quality of the Polovchanka variety of winter wheat increase in proportion to the norms and types of fertilizers used per 1000 grains, the natural weight of the grain, the vitreous body and the flour yield. 5 grams per 1000 grains compared to unused control; natural weight up to 17 g/l; there is an increase in glass content up to 3.4% and flour consumption up to 2.2%.

Increasing the weight and quality of agricultural products is an urgent problem of our time, among which grain products occupy one of the leading positions. [1]

Due to the complex nature, due to the climatic conditions of different regions, its own soil composition has developed, and the features are different, therefore, each of the crops, including wheat, provides some special conditions favorable for agriculture and agrochemistry, requires taking measures .

grain growing is facing today is the further improvement of fertilizer systems adapted to the soil and climatic conditions of the regions and the genetic characteristics of the varieties.

That is why a variety of regional products for growing winter wheat in any conditions, including agricultural, forestry, aimed at improving the quality of

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technical indicators, make it possible to develop a feeding system for the current output of crops.

The results of work on increasing the yield of wheat and improving its quality in various soil and climatic conditions are widely covered in the scientific literature (Petinov)

Growing high-quality grain depends more on the genetic characteristics of varieties, soil fertility, soil and climatic conditions of the regions, as well as on irrigation and other agrotechnological processes, feeding regime (Libix)

When applying organic and mineral fertilizers in proportion to the cultivation of winter wheat on irrigated lands, it is scientifically justified to increase the yield and quality of the crop by increasing soil fertility (Lazarev, The main reason for the low protein content in winter wheat on irrigated lands). lands) nitrogen deficiency in general and violation of the ratio of nutrients in the process of mineral nutrition in general. As a result, the amount of protein in the grain decreases, this problem can be overcome by applying nitrogen fertilizers and adapting the soil nutrient. environment to the demand for plants (Mosolov)

The effectiveness of the feeding regime, aimed at improving the technological parameters that determine the protein and other quality of winter wheat grain, is also associated with the influence of external factors (Filzer

These issues are rarely studied under conditions of irrigated light gray soils, especially in the Kashkadarya region.

The main task in this case is to determine the optimal rates and timing of nitrogen fertilizer application, taking into account the requirements of plant species and specific soil conditions, as well as the application of mineral fertilizers in the correct proportions with organic fertilizers.

RESEARCH METHODOLOGY

Field experiments were carried out on light gray soils of the state farm "Khodzhi Khydyr " in the Karshi region in 2005-2007. Against the background of the introduction of organic fertilizers (manure) of winter wheat Polovchanka, navigable in various conditions of mineral fertilizers.

The mass of 1000 grains was determined according to GOST-10842-76 , vitreous GOST-10987-76, gluten GOST-13586-1-68, flour consumption was determined at the mill.

The results of the study are summarized in the table.

EXPERIMENTAL PART

Fertilizers help increase crop yields and yields by using heat, light, moisture, and other energy sources more efficiently. The effect of nitrogen on the process of photosynthesis is direct, activating the synthesis of amino acids. Phosphorus serves as an acceptor of gaseous CO_2 as an intermediate product of photosynthesis. Potassium indirectly affects the process of photosynthesis, changes the structure of the photosynthetic apparatus and increases the activity of enzymes.

The effect of fertilizers on the yield and productivity of winter wheat begins with seed germination and continues until the grain ripens.

Among the fertilizers applied before sowing the winter wheat variety Polovchanka, a positive effect of seeds on field germination was observed in the experimental variant with 30 t/ha of compost, which is 2.1% higher than in the control without fertilizers . . An increase in field germination of wheat seeds was observed by 3.5–4.0% when applying 30 t/ha of compost before sowing in combination with 90–110 kg/ha of phosphorus and 60–70 kg/ha of potash fertilizers.

The number of preserved plants on an area of 1 m^2 when applied in combination with mineral fertilizers $N_{180} P_{90} K_{60}$ and $N_{210} P_{110} K_{70}$ with the introduction of a manure mixture on 30 t / ha of winter wheat in the Polovchanka variety was 15.2 times. more than in the control variant without fertilizers: 17.0 pcs., the number of plants preserved until the end of the growing season will be 14.9-16.6 pcs. Experiments showed that up to 85% of plants survived compared to post-war field germination in manure and mineral fertilizers, and 60.8% survived until the end of the growing season, while the combined use of manure and mineral fertilizers increased plant survival. the foundation for growing abundant and quality crops.

According to the results of our experiments, the structure of the yield of Polovchanka winter wheat varied in accordance with the norms for applying fertilizers and mineral fertilizers, the length of the spike was up to 2 cm, the number of spikes was up to 5, the number of spikes was up to 2 cm. The grains were up to 0, the number of grains was 0. An increase in the mass of grains up to 5 grains and one grain up to 0.4 g was observed.

The yield of wheat was determined by the number of productive stalks in a given area, and this figure increased compared to the control variant, when fertilizers were not used, depending on the norms and forms of manure and mineral fertilizers.

In particular, when applying the norms of mixed mineral fertilizers $N_{180} P_{90} K_{60}$ and $N_{210} P_{110} K_{70}$ at the

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rate of 30 t / ha, the yield of stems per 1 m ^{2} of the area increased by 0.46-0.50 pieces. improvement of general and productive accumulation, increase in numbers up to 97.2-102.0.

yield increases depending on the wheat feeding regime . According to the results of our experiments, the grain yield relative to straw increased depending on the application rates of fertilizers, and in the unfertilized control variant, the degree of superiority of straw over grain was 1.7, and mineral fertilizers, together with manure, N $_{180.}$ P $_{90}$ K $_{60}$ and N $_{210}$ P $_{110}$ K $_{At}$ the joint application of norms $_{70}$ showed a decrease in the degree of superiority of straw to 1.4 in relation to grain grown in the winter wheat variety Polovchanka.

The grain yield of winter wheat variety Polovchanka was 30.7 t/ha when grown without fertilizers and increased from 19.7 t/ha to 39.6 t/ha with an increase in the rate of fertilizer application. At the same time, the yield increase was 19.7 c/ha compared to the control when only 30 t/ha of manure was applied. When applying mineral fertilizers at the rate of N $_{180}$ P $_{90}$ K $_{60}$ and N $_{210}$ P $_{110}$ K $_{70}$, the additional yield was 25.1 and 26.7 c/ha, respectively. The highest yield was achieved in the variants using 30 t/ha g right + H $_{180}$ R $_{90}$ K $_{60}$ and 30 t/ha g right + H $_{210}$ R $_{110}$ K $_{70}$ (table).

Improving the quality of grain can be achieved by increasing the yield by increasing the rate of feeding winter wheat varieties.

According to the results of our experiments, with the correct observance of the norm of feeding with the winter wheat variety Polovchanka, it is possible to improve the physical-technological and biochemical-technological quality of grain.

It was observed that the weight, natural weight, viscosity and consumption of flour per 1000 grains varied depending on the feeding rate. When cultivating the winter wheat variety Polovchanka, the nutrient content increases from 2 to 5 g per 1000 grains, the natural weight of grain from 7 g / l to 17 g / l, grain glassiness from 1.6% to 3.4%, and flour consumption increased from 0.9% to 2.2%. In particular, a significant increase in grain quality when using this variety of winter wheat in combination with manure and mineral fertilizers indicates the need to pay more attention to their diet when growing winter wheat on irrigated lands.

The main biochemical indicator that determines the quality of wheat grain is protein, the amount of which in the grain depends on the genetic characteristics of the variety, as well as on environmental and agrotechnological factors, as well as on the level of nutrition.

The results of our experiments show that the protein content of winter wheat in the grain of the Polovchanka variety increases with the introduction of nutrients, especially nitrogen fertilizers, and is more pronounced when combined with manure and mineral fertilizers. However, the amount of protein in the grain is up to 1.1% under the influence of nutrients, and the amount of white tuberculosis per hectare of land grown with manure and mineral fertilizers is 5.22 t/ha higher than the control variant without fertilizer. The amount of additional gluten obtained from similar fertilizers was 11.58 q/ha.

When growing winter wheat on irrigated lands, the quality of grain decreases due to a decrease in the concentration of soil solution under the influence of irrigation (Petinov, 1951, Mosolov, 1965).

According to the results of our research, as the feed norms of the Polovchanka winter wheat variety increased, grain quality improved as a result of an increase in the level of NPK intake in wheat. Thus, when studying the assimilation of NPK of winter wheat during the Polovchanskaya navigation period, an increase in the level of assimilation of NPK was revealed in proportion to the standards of fertilizers used.

Nitrogen uptake from 0.08% to 0.59% for Polovchanka grains, uptake from 0.08% to 0.28%, phosphorus uptake 0.11%, depending on the fertilizer standards used in determining the NPK uptake of wheat grain and straw . From 0.38%, straw uptake from 0.06-0.30%, potassium uptake from 0.03% to 0.22% per grain, straw uptake from 0.23% to 0.48%, no fertilizer control showed that it will be higher than in the variant.

The economic efficiency of winter wheat varieties Polovchanka in different feeding regimes - local fertilizer, net profit and profitability are high due to lack of funds, the high cost of purchasing, transporting and applying mineral fertilizers, wheat is only 30 t / ha. compost. Net profit from growing manure amounted to 229,336 UZS / ha, profitability - 85.0%, net profit from the application of mineral fertilizers N $_{180}$ P $_{90}$ K $_{60}$ - 154,116 UZS / ha, profitability was 38.7%. Principles of application of mineral fertilizers N $_{210}$ P $_{110}$ K $_{70}$, net profit N $_{180}$ P $_{90}$ K $_{60}$ doses of mineral fertilizers qo'llanilgandagiga net profit compared to 8347 rubles. / ha, the decline in profitability by 4.2%.

However, with the joint application of 30 t / ha of composted manure of mineral fertilizers N $_{180}$ P $_{90}$ K $_{60}$ and N $_{210}$ P $_{110}$ K $_{70}$, the net profit will be 239869 and 274017 soums / ha, respectively, and the profitability will be 60.2 and 64 soums , an increase by 8% were not observed. Or they showed that the application of mineral fertilizers in combination with manure doubles the efficiency.

Therefore, the use of mineral fertilizers in combination with manure in the cultivation of abundant,

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high-quality and cheap grain of winter wheat of the Polovchanka variety will be an economically profitable measure.

the nitrogen feeding regime (2005-2007, on average)

No.	Experiment Options	Pure nitrogen, kg/ha			Nitrogen in grains		Gluten grain	
		Jahmi nitrogen	Of which:		%	Nasorat vari-anti- ganis - batan difference +, -	%	Differences in the ratio of control options +, -
			Fertilizer ma - dan-li	Or-ga-nick nitrogen				
one	Control without fertilizer	-	-	-	11.2	-	24.8	-
2	30 t/ha manure ($N_{105} P_{60} K_{150}$)	105	-	105	11.4	+0.2	26.0	+1.2
3	Mineral fertilizers ($N_{180} P_{90} K_{60}$)	180	180	-	11.6	+0.4	26.5	+1.7
four	Mineral fertilizers ($N_{210} P_{110} K_{70}$)	210	210	-	11.8	+0.6	26.7	+1.9
5	Manure 30 t/ha ($N_{105} P_{60} K_{150}$) Mineral fertilizers ($N_{180} P_{90} K_{60}$)	285	180	105	12.3	+1.1	27.2	+2.4
6	Manure 30 t/ha ($N_{105} P_{60} K_{150}$) Mineral fertilizers ($N_{210} P_{110} K_{70}$)	315	210	105	12.3	+1.1	27, 3	+2.5

CONCLUSIONS.

Under the conditions of irrigated gray-meadow soils of the Kashkadarya region, when cultivating rich and high-quality grain of Polovchanka winter wheat, 30 tons of mixed manure, mineral fertilizers in combination with standards $N_{180,} P_{90,} K_{60}$ and $N_{210.} P_{110} K_{70}$ - a highly effective measure, will opportunities have been created for the further development of grain growing .

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