ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 08,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

WAYS TO INCREASE THE NUTRITION AND PRODUCTIVITY OF WINTER WHEAT

T.T.Usmonov
Senior Lecturer (PhD) of Bukhara State University

Annatation: In this article, mineral nutrition of winter wheat, the use of organic fertilizers, the rate of mineral fertilizers, the method and timing of application of mineral fertilizers are described in detail. When increasing the yield of winter wheat, it is necessary to take into account the amount and ratio of nutrients in the soil.

Key words: Irrigated soil, fertility, moisture capacity, soil moisture, varieties of winter wheat, earing, mineral fertilizers.

Аннотация: Ушбу мақолада кузги буғдойни минерал озиқлантириш, органик ўғитлардан фойдаланиш, минерал ўғитлар меъёри, минерал ўғитларини қўллаш усули ва муддатлари ҳақида батафсил баён қилинган. Кузги буғдой ҳосилдорлигини оширишда тупроқларда озиқ элементлар миқдори ва нисбатини ҳисобга олиш лозим бўлади.

Калит сўзлар: Суғориладиган тупроқ, серҳосил, нам сиғими, тупроқ намлиги, кузги буғдойнинг навлари, бошоқлаши, минерал ўғитлар.

Аннотация. В статье подробно рассмотрено минеральное питание озимой пшеницы, применение органических удобрений, нормы минеральных удобрений, способы и сроки внесения минеральных удобрений. При повышении урожайности озимой пшеницы необходимо учитывать количество и соотношение элементов питания в почве.

Ключевые слова. Орошаемая почва, плодородие, влагоемкость, влажность почвы, сорта озимой пшеницы, колошение, минеральные удобрения.

Today, a number of measures are being developed to fully satisfy the needs of our country's population in grain and grain products, achieve grain independence and ensure sustainability. The tasks set include creating winter wheat varieties that are suitable for local conditions, high-yielding, with high grain quality, and resistant to diseases and pests in the soil and climatic conditions of our republic, developing seed production, and developing and introducing into production agrotechnology for obtaining high and high-quality grain yields from winter wheat varieties in various soil and climatic conditions.

According to international statistical data, the total wheat production in the world today is 772 million tons. The top 10 wheat-producing countries include the following countries: China, India, Russia, the USA, France, Canada, Pakistan, Ukraine, Australia and Germany. In Uzbekistan, over the past five years, grain yields have exceeded 55 centners per hectare, and the total yield has reached 6.5-7.8 million tons. The most urgent tasks are the implementation of intensive agrotechnology in the cultivation of winter wheat varieties, the effective use of irrigated land, and the improvement of technological quality indicators of grain, along with

ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23

American Academic publishers, volume 05, issue 08,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

increasing grain yield. The placement of wheat varieties grown in the irrigated areas of our country, taking into account their biological characteristics, the preparation of land and seeds for sowing, the method, norms and timing of sowing, fertilizing with organic and mineral fertilizers, irrigation, the fight against weeds, diseases and pests, the introduction of innovative technologies that ensure the efficient use of water and land resources, as well as the correct selection of varieties and the planting of selected high-quality seeds are required to increase the grain yield of winter wheat. In irrigated conditions, each region has its own soil and climatic conditions, depending on its geographical location and regions. At the same time, a set of new agro-technological measures for new promising varieties, developed based on the natural conditions of the region and recommended to grain growers, will yield high results in the near future. Use of organic fertilizers. Along with mineral fertilizers, organic fertilizers are also of great importance in producing high grain yields from wheat. One of the most important means of increasing soil fertility is the effective use of manure and other organic fertilizers in crop rotation. Especially today, when agriculture is developing intensively, the demand for organic fertilizers is increasing. The effectiveness of organic fertilizers increases significantly when they are used together with mineral fertilizers. Organic (local) fertilizers, along with increasing soil fertility, also increase the effectiveness of mineral fertilizers. Regular use of organic fertilizers, along with enriching the topsoil with nutrients, improves all its properties. At least 40% of the nutrient balance should be accounted for by organic fertilizers. The main organic fertilizers used in grain growing include: manure, peat, various composts and green manures. Organic fertilizers are often applied as the main fertilizer before plowing.

The most widespread and significant of mineral fertilizers are nitrogen fertilizers. Nitrogen fertilizers play an important role in the production of high yields of wheat. Because nitrogen is the main component of plant protein and is part of almost all compounds. Winter wheat needs nitrogen at all stages of its development, from the initial stage of development. Nitrogen fertilizers have a positive effect on the process of plant growth and development, increase the immunity of the plant to the external environment, and improve the quality of the product. The need for nitrogen is especially high during the formation of crop elements in the plant. Because the amount of humus in gray soils is relatively low, nitrogen deficiency is observed in the soil. One of the important factors for increasing the efficiency of nitrogen fertilizers is the correct consideration of the amount of nitrogen in the fertilizers. Wheat production contains 34% pure nitrogen in the form of nitrate and ammonia. Urea contains 46% pure nitrogen in the form of ammonia. One of the important tasks in grain farming is the correct use of nitrogen fertilizers, the organization of proper nutrition during the growing season depending on the soil fertility and the needs of the plant. Information on the amount of mineral fertilizers and nutrients contained in them is presented in Table 1.

Table 1.

Mineral fertilizers and their nutrients

T/p	**Name of mineral fertilizers**	**Amount of nutrients, %**			**Coefficient of complete conversion of the norm of nutrients, %**
		N	P	K	
1.	Ammonium nitrate	34			2,94
2.	Ammonium sulfate	20,8			4,88
3.	Urea	46			2,17

ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 08,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

4.	Ammonia water	25			
5	Superphosphate (20%)		19-20		5
6	Superphosphate (15%)		15		6,67
7	Ammonium superphosphate	1,5-2,5	14-15		
8	Potassium chloride			62	1,66
9	Potassium salt			40	2,5
10	Potassium sulfate			45	
11	Nitrofos	23,5-24	14-17		
12	Nitrofoska	11	10	11	
13	Ammofos	9-12	42-50		2,17

Providing winter wheat with sufficient nitrogen in autumn, spring and during the earing period has a positive effect on the good accumulation of the plant, the optimal course of growth and development processes. With sufficient application of nitrogen fertilizers, wheat ears become large, the number of ears and grains increases, and the grains are complete. Also, the weight of 1000 grains, the luster of the grain increases, the quality of the grains becomes high, and high-quality flour is obtained from it. When the annual rate of nitrogen fertilizers in winter grain crops is set at 180-200 kg per hectare in net form, it is advisable to apply 75-80 kg/ha of nitrogen fertilizers during the accumulation period, 75-80 kg/ha at the beginning of the tillering period, and 30-40 kg/ha during the earing period. In this case, it is advisable to start the initial feeding work on light loamy soils with a mechanical structure, and then on the middle and mountainous regions. In this case, the amount of nitrogen (25 kg) in the composition of phosphorus fertilizers applied in the fall before or with sowing should be taken into account.
Mineral fertilizer rates. Good growth and development of winter wheat and high grain yields depend on the regular supply of nutrients to the plant during the growing season. The effectiveness of fertilizers is determined by the complete satisfaction of the plant's need for all nutrients, that is, the use of fertilizers together. The organization of feeding on a scientific basis is determined by soil fertility, varietal characteristics and the plant's need for nutrients. To obtain high grain yields from wheat, it is recommended to apply mineral fertilizers in the amount of N 180-210, P 125-150, K 90-105 kg. Method and timing of mineral fertilizer application. In winter wheat cultivation, it is necessary to ensure that the mineral fertilizer rate is correctly determined and applied at the appropriate time. It should be noted that the timing of fertilizer application has a significant impact on grain quality. Mineral fertilizers are applied under the plow, before sowing and during the growing season, during harrowing, threshing and earing. Phosphorus and potassium fertilizers with low mobility are applied as the main fertilizer before sowing, while nitrogen fertilizers are used for feeding during the growing season. In conclusion, it can be said that winter wheat feeding is carried out in 3 stages, paying attention to the number and timing of feeding. Early spring feeding accelerates the harrowing and forms more productive stems. To obtain a rich harvest of wheat, 450-600 ears should be formed per 1 sq. m. Timely and high-quality early spring feeding allows you to grow an additional 5-6 c of grain per hectare.

Literature used:

1. Collection of 100 books prepared at the Agrobank JSCB. Wheat cultivation, book 1. Agrobank JSCB 2021.

ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 08,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

2. B.A. Sulaymonov, B.S. Boltaev, R.Sh. Tillyaev, Sh.Kh. Abdualimov Fundamentals of winter wheat and cotton cultivation
3. Atabaeva H.N., Khudaykulov J.B. “Plant science”. “Science and technologies” publishing house, Tashkent: 2018.
4. Atabaeva H.N., Azizov B.M. “Wheat”. Monograph, T. TashDAU, 2008, 10.5 p.t.
5. Sulaymonov B.A., Khaitov A.A., Khudaikulov J.B., Anorboev A.R. et al. Innovative technologies and prospects for grain crops in Uzbekistan. Educational and methodological manual for farmers. Tashkent: 2019, “Munis design group”, 3.25 pp., 47 p.
6. Utkir Rakhmat, Shogulomov R. et al. Grain of an independent country. Tashkent “Uzbekistan” 2003. 5.66 pp. 136 p.