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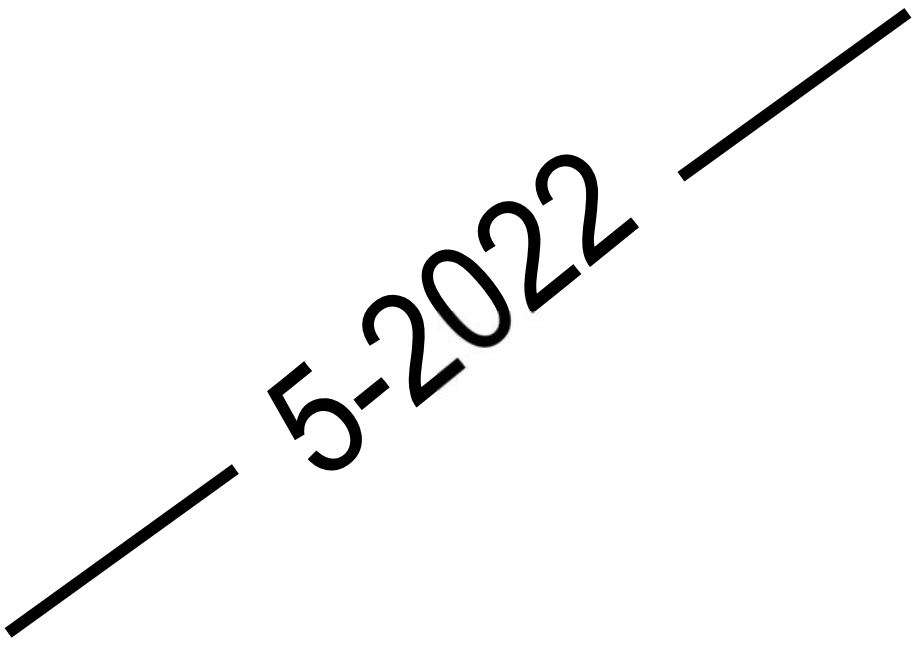

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TARKIBIDA FERROTSEN HOSILALARI SAQLOVCHI SUYUQ AZOTLI MINERAL O‘G‘ITLARNING O‘SIMLIKLARNING O‘SISHI VA RIVOJLANISHIGA TA’SIRI

ВЛИЯНИЕ ЖИДКОГО АЗОТНОГО МИНЕРАЛЬНОГО УДОБРЕНИЯ НА РОСТ И РАЗВИТИЕ РАСТЕНИЙ, СОХРАНЕНИЕ В ЕГО СОСТАВЕ ФЕРРОЦЕНОВЫХ ОБРАЗОВАНИЙ

EFFECT OF LIQUID NITROGEN MINERAL FERTILIZER ON PLANT GROWTH AND DEVELOPMENT, MAINTAINING FERROCENE FORMATIONS IN ITS COMPOSITION

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Annotatsiya

Maqolada respublikamizda qishloq xo’jaligi ehtiyojlari uchun zarur bo’lgan, raqobatbardosh mahsulotlar hajmini oshirish va ularning assortimentini kengaytirish, jumladan, azot, fosfor, kaliy va ayrim mikroelementlar tutgan o’g’itlar ishlab chiqish bo’yicha muayyan ilmiy va amaliy natijalar hamda, ferrotsen hosilalarining suvda eruvchan biologik faol birikmalarini sintez qilish va ular asosida tarkibida o’simliklarning o’sib rivojlanishida muhim o’rin tutuvchi mikroelementlar saqlovchi suyuq o’g’itlar olish bo’yicha ma’lumotlar keltirib o‘tilgan. Bundan tashqari KAS va ferrotsen hosilalarini suvda eruvchan tuzlari asosida olingan yangi suyuq azotli o’g’itlarining biostimulyatorlik xossalari dala amaliyotida g’o’za va bug’doy o’simliklarining o’sishi va rivojlanishida otkazilgan sinovlari hamda ushbu o’simliklar uchun yangi suyuq azotli o’g’itlarning qo’llashning maqbul me’yorlari aniqlandi. 2019-2021 yillardagi fenologik kuzatuv natijalariga ko’ra “Ferben-kaliy” suyuq o’g’iti bilan ishlov berilgan o’simlikdagi fiziologik jarayonlar bilan birga biokimyoviy jarayonlar ham maqbullashganligi, “Ferben-kaliy” suyuq o’g’iti tarkibidagi mikroelementlar va o’simlik bargida azot, fosfor va kaliy miqdorini ortishi tufayli hosildorlikni oshirishdan tashqari o’simlikni zararkunanda hasharotlarga chidamliligini ham kuchayganligi, suyuq azotli o‘g‘itlarning bug‘doy va g‘o‘za o‘simliklarining bargi orqali qo‘shimcha oziqlantirish orqali o‘tkazilgan dala sinovlari natijalari keltirib o‘tilgan.

Аннотация

В статье приведены конкретные научно-практические результаты по разработке удобрений, содержащих азот, фосфор, калий и некоторые микроэлементы, необходимые для нужд сельского хозяйства в республике, увеличения объема конкурентоспособной продукции и расширения их ассортимента, а также данные по синтезу водорастворимых биологически активных соединений производных ферроцена и их основы с получением жидких удобрений, содержащих микроэлементы. Кроме того, биостимулирующие свойства новых жидких азотных удобрений, полученных на основе водорастворимых солей КАС и производных ферроцена, были определены в полевой практике испытаниями, проведенными при росте и развитии растений зерновых и пшеницы, а также оптимальными нормами внесения новых жидких азотных удобрений для этих целей. растения. По результатам фенологического наблюдения в 2019-2021 годах о том, что наряду с физиологическими процессами в растении, обработанном жидким удобрением “Фербен-калий”, биохимические процессы также были оптимальными, свидетельствуют результаты полевых испытаний, проведенных путем дополнительной подкормки жидкими азотными удобрениями через лист пшеницы и конопли растения. Кроме того, повысилась устойчивость растения к вредным насекомым, приведены результаты полевых испытаний, проведенных путем дополнительной подкормки жидкими азотными удобрениями через листья растений пшеницы и хлопчатника.

Abstract

The article provides specific scientific and practical results for the development of fertilizers containing nitrogen, phosphorus, potassium, and certain trace elements necessary for agricultural needs in the Republic, increasing the volume of competitive products and expanding their range, as well as data on the synthesis of water-soluble biologically active compounds of ferrocene derivatives and their basis obtaining liquid fertilizers containing trace elements

In addition, biostimulant properties of new liquid nitrogen fertilizers obtained basis on water-soluble salts of CAS and ferrocene derivatives were determined in field practice in the tests carried out in the growth and development of grain and wheat plants, as well as the optimal standards for the application of new liquid nitrogen fertilizers for these plants. According to the results of the phenological observation in 2019-2021, the fact that along with the physiological processes in the plant treated with liquid fertilizer "Farben-potassium", biochemical processes were also optimal, the results of field tests carried out by additional feeding of liquid nitrogen fertilizers through the leaf of wheat and hemp plants. In addition, the resistance of the plant to harmful insects has increased, and the results of field tests conducted by additional feeding of liquid nitrogen fertilizers through the leaves of wheat and cotton plants have been cited.

Kalit so‘zlar. *Mineral o‘g‘itlar, suyuq azotli o‘g‘itlar, ferrotsen, tuplanish, naychalash, boshoqlash, shonalash, gullash fazalari.*

Ключевые слова. *Минеральные удобрения, жидкие азотные удобрения, ферроцен, пролив, подкормка, колос, хонингование, фазы цветения.*

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Key words. *Mineral fertilizers, liquid nitrogen fertilizers, ferrocene, spilling, fertilizing, spike, honing, flowering phases.*

INTRODUCTION. Until today professor, and doctor of chemical sciences, I.R. Askarov created a huge scientific school for the synthesis of highly active ferrocene products. Several biologically active compounds of a new type are synthesized and introduced into practice in the scientific laboratory "chemistry of goods", established at Andijan State University. In the composition of these biostimulants, ferrocenyl is a group of preservative biologically active substances. The new biostimulants that are being synthesized can accelerate the growth of the plant, in particular, grain, and wheat, while effectively affecting seed germination and its development. It has also been proven in practice that it has a positive effect on the increase in yield to 3-4 centner per hectare [1; 27-29-B, 2; 103-B, 3; 101-103-B, 4; 338-339-B].

A radically growing population and Zionism require a high level of land use. In meeting these needs, a person who initially used only natural organic fertilizers currently uses a large number of assortments of organo-mineral fertilizers [5;186-p]. Today, there is an increase in demand for mineral fertilizers in the nitrogen fertilizer market.

The international fertilizer manufacturers association estimates that the annual growth of nitrogen fertilizer production in the world is 1,8 %, and the growth of their use – is 1,2%.

Application of liquid nitrogen fertilizer from Mineral nitrogen fertilizers has high efficiency. In recent years, interest in liquid mineral fertilizers has increased in many countries and their application and production capacity have expanded [6; 106-p, 7; 24-p].

MATERIAL AND METHODS. To reduce the cost of the product by 30-35 %, to achieve an average yield of 37 ts/ha from cotton and 70 ts/ha from grain, the president has set before us tremendous tasks. Due to these tasks, Farben potassium, Farben sodium, and Ferfenol liquid fertilizers were developed, which were obtained based on simple, low-cost local raw materials of production technology and devices, increasing the yield of plants. This liquid fertilizer solution was tested in January, March, and May 2019-2021 in several farmer farms of the Andijan region in the fields of plantations.

In the experiment, liquid fertilizers "Farben-potassium", " Farben-sodium ", "Ferfenol", as well as control (water), ethanol for comparison, were treated with CAS and SAKU fertilizers in the development phases of wheat and porous plants. The growing development of gonorrhea and gonorrhea was regularly monitored.

From the periods of development of the plant, additional feeding was carried out through the leaves of plants in different norms in the phases of pickling, fertilization, and spike. Depending on the amount and quality of the harvest, the optimal period and norms were selected. Additional feeding through the leaves of the plant was carried out in the soil phase 18-January, on March 15 in the fertilization phase, and on April 22 in the spike phase.

The highest yield was obtained when" Ferben-potassium " liquid fertilizer was applied 1 time in the periods of harvesting (4,0 l/ha), fertilization (7,0 l/ha) and Spike (7,0 l/ha). Bug'd the yield was 64,6 ts/g compared to 9,6 ts/g compared to the additional control 5,1 ts / g compared to the benchmark. The results obtained are presented in Table 1:

Table 1

Effect of supplemental liquid mineral fertilizer feeding on yield (ts/ha) through leaves in the pickling, spraying and Spike phase

	Development periods of wheat			Average	Added
	Collection phase	Phase of spraying	Spike release		
	Control(with water)	Control(with water)	Control(with water)	55	-
	Ferben-potassium 4,0 l / ha	Ferben-potassium 7,0 l / ha	Ferben-potassium 7,0 l / ha	64,6	9,6
	Ferben-sodium 4.0 l / ha	Ferben-sodium 7,0 l / ha	Ferben-sodium 7,0 l / ha	60	5,0

	Ferfenol 4,0 l / ha	Ferfenol 7,0 l / ha	Ferfenol7,0 l / ha	58,4	3,4
	CAS 4.0 l/ha	CAS 7.0 l/ha	CAS 7.0 l/ha	58,2	3,2
	SAKU 4.0 l / ha	SAKU 7.0 l / ha	SAKU 7.0 l / ha	59,5	4,5

The growing development of the goose was followed regularly from March to November. From the periods of development of the goose 2-3 chin deciduous period, additional feeding through the leaves of plants of various norms in the flowering, flowering phases. Depending on the amount and quality of the harvest, the optimal period and norms were selected. The field experiment was conducted on the determination of timeframes and norms of application of a new liquid fertilizer prepared based on water-soluble salts of CAS and ferrocene dressing in the feeding of porous leaves on their cotton dressing. When the goose was treated with liquid fertilizer "Farben-potassium" (up to 4,0 l/ha) only 1 time during the 2-3 chin deciduous period, the cotton crop was 1,1 ts/ha compared to the additional control. The results obtained are presented in Table 2:

Table 2

The effect of liquid nitrogen fertilizers on cotton crop (ts/ha), which retain ferrocene formations in its composition.

	Variant of the procedure	Development periods of wheat			Average	Added
		2-3 true leaves	to honour oneself	to flourish		
	Control(with water)		Control(with water)	Control(with water)	35,0	-
	Ferben-potassium	4,0 l / ha	7,0 l / ha	10,0 l / ha	40,1	5,1
	Ferben-sodium	4,0 l / ha	7,0 l / ha	10,0 l / ha	38,8	3,8
	Ferfenol	4,0 l / ha	7,0 l / ha	10,0 l / ha	37,7	2,7
	CAS	4,0 l / ha	7,0 l / ha	10,0 l / ha	37,5	2,5
	SAKU	4,0 l / ha	7,0 l / ha	10,0 l / ha	38,1	3,1

The effect of additional feeding through the leaves during the growth period of the goose with liquid nitrogen fertilizers on the storage of harvest elements in the goose was presented in Table 3.

Table 3

The effect of the application of liquid nitrogen fertilizer during growth period on the preservation of harvest elements in the geese.

	Experience options	Number of maple leaves, pieces	The height of the goose, cm	Harvest king, pieces	Harvest elements pieces	Number of breasts, pieces
	Control (with water)	3,6	96,0	11,3	10,1	9,2
	Ferben-potassium	5,3	107,8	15,4	13,7	14,5
	Ferben-sodium	5,1	106,1	14,4	12,4	13,2
	Ferfenol	4,8	103,4	13,6	11,5	11,2
	CAS	4,7	102,7	13,3	11,6	11,4
	SAKU	5,1	106,0	14,4	12,4	13,3

During the 2-3 true leaves period of development of the goose, through the leaves of plants of various norms in the flowering phases, additional feeding was carried out with liquid nitrogen fertilizer "Farben-potassium", "Farben-sodium", "Ferfenol". In the experiment, the cotton yield was 40.0-41.0 ts/ha, in the control variant 34.7-35.7 ts/ha, and an average yield of 5.3 ts/ha from each hectare field was obtained.

CONCLUSION. In conclusion, it can be said that in the experiment, additional feeding from the leaves of coniferous and coniferous plants was achieved by increasing the yield and quality. This requires the development of new biologically active biostimulants and liquid fertilizers in obtaining high dressing from plants. The positive impact of microelements on the quality of yield and increased salinity has found it was proven in the experimental results.

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