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Article

Agrotechnical Rules for Applying Mineral Fertilizers to the Soil

Razzakov Bakhodirjon Abdurakhmanovich

1. Doctor of Philosophy (PhD) in Technical Sciences, Andijan agricultural and agrotechnology institute
Correspondance: brazzakov1970@gmail.com

Abstract: This in the article Uzbekistan village on the farm farming systems acceleration, soil fertility increase and from crops stable high harvest from mineral fertilizers reasonable use issues It is illuminated. It contains mineral fertilizers of application standards, deadlines and methods, in particular cotton nitrogen, phosphorus and potassium fertilizers with of providing scientific and practical basics statement Also, mechanized and resource-saving of technologies efficiency and ecological importance showing given.

Keywords: agriculture, farming system, soil fertility, mineral fertilizers, fertilization system, cotton, nitrogen, phosphorus, potassium, agricultural engineering, land reclamation, mechanization, resource-saving technology, etc.

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1. Introduction

Uzbekistan village farm development today's period, its new to the stage rise to the field innovative, resource-saving intensive technologies current to grow necessity question Because the village on the farm today's on the day take going agrarian politics, Uzbekistan internal market village farm and the most first of all food products with one at the time to provide, that with one at the time world to the market competitive product and especially their deep again worked goods products release in sight It is yours. in turn village on the farm new advanced, innovative resource-saving in technologies applicable fertilizers effective types, application standards, deadline and technique thorough mastery necessity demand is doing [1]. [2].

2. Methods.

Agriculture is understood as a complex of interrelated agrotechnical, reclamation and organizational measures that restore and increase soil fertility and ensure rational use of land. Depending on the level of intensity, agriculture is divided into **simple (backward), extensive** and **intense to systems** divided.

"Laggard" farming in the system A small part of the territory (25% or less) is plowed and cultivated. Soil fertility is formed by the participation of natural processes.

Extensive in farming To restore the fertility of arable land and eliminate weeds, fertilizers are applied, harrowed, and loosened with special equipment. Such fields **clean plough** is called, the soil is productivity natural factors and human under the influence shaped. Shaped, softened in the soil food substances, moisture heat, air, heat, air properties improves [3]. Soil fertility is restored and increased by applying fertilizer to the crops being planted, removing weeds, and cultivating the soil with various mechanisms and devices.

Intense in farming Most of the arable land is occupied by inter-row and broad-leaved crops. In the summer, due to the heat and long daylight hours, the yield from the fields is high. In order to increase soil fertility, it is important to carry out tillage, fertilization (mineral, organic), agrotechnical and agro-ameliorative measures at the appropriate time and in the right amount.

High and stable yields of agricultural crops are directly dependent on soil fertility. Nutrients in the soil are constantly absorbed by plants and decrease over time. Therefore, the use of mineral fertilizers use modern of farming inseparable to the part Mineral fertilizers to the ground right, in moderation and agrotechnician to the rules compliance did without to plant their efficiency increases and to the environment negative of influence prevent takes [4], [5].

Village farm in enterprises being cultivated to crops fertilizer standards in marking of plants biological features knowledge, of lands reclamation status fundamentally improve, replace planting system right current cultivation, agrochemical map from the data productive use to the goal according to.

3. Results

Fertilization system-soil fertility, rural farm crops productivity, gross harvest amount increase, yield quality improve and on the farm labor efficiency increase for the purpose from the teachings reasonable to use aimed at agronomic, agrochemical and organizational and economic events right organization to grow is a set.

Fertilizers type, shape, them application method and deadlines related accordingly different soil-climate under the circumstances every kind ratio and in combinations when used crops growing development and to productivity impact and next effect various will be [6].

Fertilizer application system main to the tasks the following is:

- crops productivity increase and harvest quality improve;
- soils fertility always increasing to go and them fertility according to one in a way to be to achieve;
- from fertilizers effective use, intensive farming to conduct and environment protection right on the road to put [7];
- fertilizers application on account of removable pure income amount increase

Cotton mineral fertilizer for plants to plant standards in practice (average fertile in soils) 1 hectare field for following standards Applied: Nitrogen (N) – 200-250 kg/ ha. Phosphorus (P_2O_5) – 140-160 kg/ ha. Potassium (K_2O) – 80-100 kg/ ha. Precise standard soil productivity and agrochemical analysis to the results looking at is determined [8], [9].

Mineral fertilizers to the composition according to mainly nitrogenous, phosphorous and potassium to fertilizers is divided into. Nitrogenous fertilizers of plants vegetative growth strengthens. Phosphorus fertilizers root system develops and of the harvest ripening accelerates. Potassium fertilizers of plants disease and inconvenient to the conditions endurance increases [10], [11].

These fertilizers in the soil food substances balance in storage important role plays .

Mineral fertilizer from planting before of the soil mechanic composition, moisture, salinity level and agrochemical status to be studied must. Every kind soil types fertilizers various For example, sand in soils food substances fast washed goes, heavy in soils and fertilizers slowly So, fertilization plan soil to the conditions suitable to be need.

4. Discussion

Fertilizer to plant deadline crop type and of fertilizer to the feature related. Phosphorus and potassium fertilizers mainly from planting before or autumn driving timely, nitrogenous fertilizers and vegetation during is given.

Fertilizers scattered, in a row or local in a way is inserted [12]. Local method the most effective of fertilizers plant by to be mastered increases.

Cotton mineral fertilizers for plants mainly row mixed (local) in a way is inserted. In this method fertilizers plant to the root close is placed, as a result food from the elements use efficiency increases.

Cotton mineral fertilizer for plants in the field designated depth and protection to the zone strict compliance to do high harvest to take important is a condition. If compliance if not done of roots burnt the remaining fertilizers directly to the plant damage delivery possible [13], [14].

Nitrogenous Apply fertilizers 10-12 cm deep, phosphorus and potassium fertilizers and 12-15 cm to the depth to plant and cotton 10-12 cm from the row protection zone storage through of the plant healthy development is provided. First in processing nitrogen many to give possible not - this of cotton too much outside to leafing out take This is an agricultural technician . events irrigation with if combined, the soil fertility storage and productivity to increase service does.

mineral fertilizers wrong use soil, water and of the air pollution reason to be possible. Therefore, fertilizer in the field ecological to the standards action to do and them other agrotechnician events with harmonization necessary [15].

Tractor aggregates using mineral fertilizers to plant following positive the results gives:

- from fertilizers use efficiency increases;
- labor expense and time saves;
- productivity stable growth is provided;
- fertilizers loss decreases;
- soil agrotechnician status will improve.

From this except for mechanized fertilization ecological also important is, is excessive fertilization prevent to take help gives.

5. Conclusion

Tractor aggregates using mineral fertilizers to the ground to plant technologies soil fertility in increasing important role plays. Mechanized methods from mineral fertilizers reasonable use, labor and resources saving and village farm from crops high harvest to take opportunity will give. In the future modern and energy economical tractor from aggregates wide use village farm working release efficiency further to increase service does .

Mineral fertilizer for the soil of the place agrotechnician to the rules strict compliance to do village farm from crops high and good quality harvest to take main from factors is one. Soil features into account to get, fertilizers in moderation and own on time to plant and effective from methods use through soil fertility increase and ecological stability provision possible.

REFERENCES

[1]. M. Ayatov, F. H. Ashimov, and N. P. Torshin, *Fertilizer Application System: Textbook*. Samarkand, Uzbekistan: SamDU Publishing

House, 2021.
[2]. O. Ramazonov and O. Yusupbekov, *Soil Science and Farming: Textbook*. Tashkent, Uzbekistan: "SHARK" Publishing House, 2003.
[3]. B. S. Musaev, *Agrochemistry: Textbook*. Tashkent, Uzbekistan: "SHARK" Publishing House, 2001.
[4]. B. A. Razzakov, "Development of the design of a flower picker-fertilizer and justification of its main parameters," Ph.D. dissertation, Dept. Tech. Sci., Andijan Agricultural and Agrotechnology Institute, Andijan, Uzbekistan, 2023.
[5]. F. M. Mamatov, *Agricultural Machinery*. Tashkent, Uzbekistan: Science, 2007.
[6]. I. Ernazarov, *Fundamentals of Fertilization*. Karshi, Uzbekistan: Nasaf, 1998.
[7]. M. Shoumarova and T. Abdullaev, *Agricultural Machinery*. Tashkent, Uzbekistan: Teacher, 2002.
[8]. J. K. Khudanov, A. T. Bodrov, and S. K. Avliyakulov, "Influence of mineral fertilizer application rates on the yield and fiber quality of upland cotton (*Gossypium hirsutum* L.) in typical serozem soils of Uzbekistan," *Uzbek Biol. J.*, vol. 58, no. 3, pp. 42–48, May 2019.
[9]. F. H. Hashimov and N. B. Babayev, "Agrotechnical evaluation of mechanized deep placement of phosphorus and potassium fertilizers in cotton cultivation," *Agron. Sci. Uzbekistan*, vol. 14, no. 2, pp. 112–119, Nov. 2020.
[10]. S. T. Sanayev and M. M. Ikramov, "Dynamics of nitrogen absorption and vegetative growth characteristics of cotton under split application methods," *J. Cotton Res. Dev.*, vol. 35, no. 1, pp. 15–22, Jan. 2021.
[11]. R. A. Karimov, "Resource-saving technologies and mechanization of fertilizer application in the agricultural sector of the Republic of Uzbekistan," *Int. J. Agric. Mech. Eng.*, vol. 12, no. 4, pp. 245–251, Aug. 2022.
[12]. K. M. Mirzajanov, *Erosion Control and Land Reclamation in the Irrigated Zones of Central Asia*. Tashkent, Uzbekistan: Fan, 2015.
[13]. M. P. Sultonov, "Optimizing the protection zone and placement depth of mineral nutrients during inter-row cultivation of cotton crops," *Bulletin of Khorezm Mamun Academy*, vol. 2024, no. 2, pp. 67–73, Feb. 2024.
[14]. G. A. Ibragimov, "The role of agrochemical mapping in the optimization of NPK application rates for farming systems in the Fergana Valley," *Soil Fertil. Crop Productivity*, vol. 9, no. 3, pp. 89–96, Sep. 2018.
[15]. A. S. Shirokova and V. I. Shirokov, "Ecological impacts of unmanaged mineral fertilization on soil salinity and groundwater quality in irrigated arid zones," *Arid Ecosystems*, vol. 27, no. 4, pp. 310–318, Dec. 2021.