

---

## SIGNIFICANCE OF SOIL FERTILITY IN FERGANA REGION.

<https://doi.org/10.5281/zenodo.7848079>

**Khalmatova Shakhstakhan Madaminovna**

*Associate Professor, Department of Ecology, Fergana State University,*

**Gaybullayeva Madina Furkatovna**

*Senior lecturer of the Department of Ecology of Fergana State University,*

**Akramov Adakhamjon**

*Teacher of the Department of Ecology of Fergana State University,*

*adhamjonakramov@gmail.com*

### **Abstract.**

*At the present time, when there is little humus in the soil, the most necessary product is grain and leguminous crops, which are the main source of food for humans and animals. It is possible to increase the amount of biological nitrogen in the soil and reduce the amount of spent fertilizers by expanding the areas where grain leguminous plants are grown.*

### **Key words.**

*soil-climate conditions, soil-forming bacteria, biological nitrogen, cereals, legumes, peas, agriculture.*

Today, the rapid growth of the population on earth, as well as the daily increase in the demand for food products, show that it is a necessary factor to maintain the fertility of pale gray soils.

Leguminous crops are among the plants that improve biohumus on light gray soils and increase its fertility and productivity, and are of particular importance in agriculture. In particular, in the world practice, in all irrigated fields, repeated crops are grown on the fields freed from grain crops. Planting areas of leguminous crops are increasing year by year. The creation of modern cultivation technologies for the soil and climate conditions of Uzbekistan leads to saving water consumption and increasing soil fertility.

Various measures are being used effectively to increase soil fertility. In this regard, crop rotation is of great importance, in which each crop changes the nutrients in the soil to a certain extent by releasing its root secretions into the soil, in addition, it replenishes the soil with root and stem residues. enriches organic matter.

It is known that the amount of humus in the gray soils of Fergana region is around 1-4. Taking this into account, it is necessary to enrich it with leguminous plants, which are full of bacteria. These crops also enrich livestock with rich protein for food, and enrich the soil with nodular bacteria, leaving a lot of pure nitrogen for the plants that will be planted after it, and this nitrogen does not need any secondary processing. is an important source of growth for

Based on this, it was necessary to choose optimal conditions for planting some leguminous plants on light gray soils in Fergana district, to give recommendations for the creation and production of specific technologies, and to determine which aspects should be paid attention to in care. . All these crops have a lot of proteins in their bodies, i.e., nodules and nitrogen content in their roots, the quality and quantity of proteins and fats in their seeds, and the presence of 3-4 times more amino acids than wheat. , differs in the richness of vitamins. They enrich the soil with free nitrogen with the help of bacteria in their root nodules. For example, alfalfa leaves 150-400 kg/ha, lupine 130-700 kg/ha, peas 150-200 kg/ha, soybeans 300 kg/ha.

The purest nitrate-free, heavy metal-free, pure for all crops, especially for vegetables, cruciferous vegetables, cabbage, red peas, onions, in the rotation of leguminous roots that absorb nitrogen from the air naturally and in the root mass left in the soil. ecological food is an important technology in obtaining food.

Leguminous plants have different requirements for environmental factors, and their requirements for light are divided into 3 groups. 1. Long-day - green peas, lentils, beans, lupins, legumes, the growing season shortens as the light increases. 2. Short-day plants - blue peas, soybeans and beans (mushroom), the growing season shortens as the light decreases. 3. Neutral plants: include many varieties of beans and peas, that is, the period of accumulation of phosphorus and potassium, sulfur, nitrogen depending on the demand for fertilizers.

It was determined the rate of photosynthesis and productivity of grain legumes according to fertilizers, soil conditions, water regime, number of seedlings, and increased yield by accelerating the formation of fruit and leaf organs. For example, if alfalfa is grown for up to 3 years, the composition of air in the soil becomes important; i.e., roots biotically absorb nitrogen from the air mainly in an aerobic state, 3 ml of O<sub>2</sub> are needed to produce 1 ml of nitrogen, the process is active if air penetrates the layers of 3-15 cm. If there is not enough oxygen for the roots, the amount of leghemoglobin decreases, and the assimilation of nitrogen

from the air slows down. Taking this into account, it is forbidden to flood the land during irrigation.

### **Suggestions**

Cultivation of grain leguminous plants in agriculture is of great importance in meeting the population's need for food and protein.

Extensive use of leguminous crops on the territory of the republic serves to enrich the soil with biological nitrogen.

For other crops, the best is from the past.

### **Conclusion**

If we can conclude from the above, the use of mineral fertilizers in the care of leguminous plants in light gray hilly soils gives a positive result, the reason for this is that there is very little humus and macro-micro substances in the soil. Also, it is advisable to expand the area of leguminous plants on these soils. Experiments in this direction are ongoing.

### **USED LITERATURE:**

1. Назаров М ва Гайбуллаева М, “Дуккакли экинлар ва тупрок унумдорлиги” мақоласи. Агро илим Ўзбекистон қишлоқ ва сув хўжалиги журналі № 4, 2017, 83-84 бетлар
2. Назаров М, Махсудова Р, Гайбуллаева М “Влияние зернобобовых культур на процесс гумусообразования и жизнедеятельность почвенных микроорганизмов” Agro ilm O'zbekiston qishloq xo'jaligi jurnali 2016 yil 6 - soni. 65-66 betlar
3. Назаров М ва Гайбуллаева М, “Dukkakli ekinlar va tuproq unumdorligi” Agro ilm O'zbekiston qishloq xo'jaligi jurnali 2017 yil 4 - soni 83-84 betlar
4. Гайбуллаева М “Адирли тупроқларда нўхатнинг тупроқ унумдорлиги ва азот тўшловчи бактерияларга таъсири” Ўзбекистон қишлоқ ва сув хўжалиги журналі № 4 2021, 32-33 бетлар
5. Gaybullaeva M, Maksudova G., Akramov A “Technology of grain - leguminous plant care in the hungry bush soils of Ferghana region” EPRA International journal of multidisciplinary research 2021, Pages: 616-617
6. Ahmedova, D., & Akramov, A. (2021, July). USE OF MODERN TECHNOLOGIES IN THE EDUCATION SYSTEM. In Конференции.
7. Madina, G., & Adakhamjon, A. (2021). Conservation of flora. Asian Journal of Multidimensional Research, 10(11), 195-198.

8. Халматова, Ш., Усманова, Т., & Акрамов, А. (2022). ЭКОЛОГИЧЕСКИЕ ПОСЛЕДСТВИЯ ВОЗДЕЙСТВИЯ ЧЕЛОВЕКА НА РАСТИТЕЛЬНЫЙ И ЖИВОТНЫЙ МИР. THEORY AND ANALYTICAL ASPECTS OF RECENT RESEARCH, 1(5), 547-554.

9. Abarjon o'g'li, A. A., & Barchinoy, M. (2022). YER USTI VA OSTI SUVLARINI IFLOSLANTIRUVCHI ASOSIY MANBALAR. IJODKOR O'QITUVCHI, 2(20), 216-219.

10. Abarjon o'g'li, A. A. (2022). SHO 'RLANGAN ERLARDA DUKKAKLI DON EKINLARINI EKISHNING AFZALLIGI. INNOVATION IN THE MODERN EDUCATION SYSTEM, 2(18), 351-354.

11. Xalmatova, S., Gaybullayeva, M., & Akramov, A. (2022). O 'SIMLIKLAR OLAMIGA INSON FAOLIYATINING SALBIY TA'SIRI, HAMDA UNI OLDINI OLISH CHORA TADBIRLARI. Oriental renaissance: Innovative, educational, natural and social sciences, 2(10-2), 947-953.

12. Xalmatova, S., & Akramov, A. (2022). KIMYOVIY O 'G 'ITLAR TARKIBIDAGI TURLI MODDALAR ORQALI TUPROQLAR QATLAMINI IFLOSLASHI VA UNING OLDINI OLISH CHORA TADBIRLARI. International scientific journal of Biruni, 1(2), 4-7.

13. Abarjon o'g'li, A. A. (2022). SHAHARLASHUV JARAYONINI ATROF-MUHITGA TA'SIRI. INNOVATIVE ACHIEVEMENTS IN SCIENCE 2022, 2(14), 70-73.

14. Akramov, A. (2022). USE OF DIDACTIC GAME TECHNOLOGIES IN TEACHING ECOLOGICAL SCIENCE. Galaxy International Interdisciplinary Research Journal, 10(12), 559-562

15. Mukimov, M. K. A., Mirzakhililov, M. M., & Nazarov, M. S. (2021). Assessment Of Hydrochemical Analysis And Phytoplankton Community Of Different Ponds Of A Fish Farm. The American Journal of Applied sciences, 3(05), 140-047.

16. Mirzahalilov, M. M., Muqimov MA, N. M. S., Kim, S. I., & Mustafaeva, Z. A. (2006). HYDROCHEMICAL INDEXES AND PHYTOPLANKTON COMPOSITION OF DIFFERENT TYPES OF WATER BODIES IN THE FERGANA VALLEY. O 'ZBEKISTON BIOLOGIYA JURNALI, 36.

17. Муқимов, М. К. А., Мирзахалилов, М. М. Ў., Назаров, М. Ш., & Шарипова, Б. С. (2022). СРАВНИТЕЛЬНАЯ ОЦЕНКА МОРФОБИОЛОГИЧЕСКИХ ПОКАЗАТЕЛЕЙ АМУРСКОГО ЧЕБАЧКА

(PSEUDORASBORA PARVA) КАК ИНВАЗИВНОГО ВИДА. Science and innovation, 1(D2), 50-54.

18. Mo, M. (2022). BALIQCHILIK HOVUZLARIDAGI BA'ZI TABIIY OZUQALARNING GIDROBIOLOGIK TAHLILI. IJODKOR O'QITUVCHI, 2(24), 332-337.

Xasanboyevna, R. D., & Salimovna, S. B. (2022). ТАБИАТ МУҲОФАЗАСИГА ЭКОЛОГИК ЁНДАШУВ. IJODKOR O'QITUVCHI, 2(24), 306-313.

19. Shamuradovna, M. M. F., Mirzakarim o'g'li, M. M., & Shokirovna, A. S. (2022). POLIZ QONGIZI-EPILYAXNA (EPILACHNA CHRYSOMELINA) NING RIVOJLANISH XUSUSIYATLARI. O'ZBEKISTONDA FANLARARO INNOVATSIYALAR VA ILMIY TADQIQOTLAR JURNALI, 2(13), 702-706.

20. Mirzakarim o'g'li, M. M., & Axmadali o'g'li, Y. A. (2022). BIOLOGIYA DARSLARIDA AXBOROT TEXNOLOGIYALARIDAN FOYDALANISH. O'ZBEKISTONDA FANLARARO INNOVATSIYALAR VA ILMIY TADQIQOTLAR JURNALI, 2(13), 692-696.

21. Mirabbos Mirzakarim o'g'li, M. ., & Abutolib Axmadali o'g'li, Y. . (2022). MATBUOT KONFERENSIYASI DARS MISOLIDA G'O'ZA GENETIKASI VA SELEKSIYASI MAVZUSI DOIRASIDA O'QUVCHILARNI BILIM VA KO'NIKMALARINI SHAKLLANTIRISH USLUBLARI. Новости образования: исследование в XXI веке, 1(4), 510-514. извлечено от <https://nauchniyimpuls.ru/index.php/noiv/article/view/1406>

22. Мирзакулов, А. М. (2022). ФИЗИКА ФАНИДАГИ КИНЕТИК ХОДИСАЛАРНИНГ РЕГЕССИОН ТАХЛИЛИ. IJODKOR O'QITUVCHI, 2(23), 432-438.

23. Muqimov, M. K. A. (2022, October). RESPUBLIKAMIZ BALIQCHILIGI RIVOJLANISHINI BUGUNGI HOLATI. In INTERNATIONAL CONFERENCES (Vol. 1, No. 6, pp. 16-20).