

UO‘T: 631.5/445.152/559

KARTOSHKKA YETISHTIRISHDA BIOGUMUSNING O‘RNI**Charshanbiyev Umurzoq Yuldashevich**

Toshkent davlat agrar universiteti, dotsenti

Odinayev O‘lmas

Toshkent davlat agrar universiteti, talabasi

Annotatsiya: Ushbu ilmiy maqolada kartoshka yetishtirishda tuproqqa biogumusni qo‘llashning ahamiyati, biogumusni tayyorlash texnologiyasi, biogumusni qo‘llash usullari, me‘yori va muddatlari, kartoshkaning o‘sib-rivojlanishiga biogumusning ta’siri kabi ma’lumotlar keltirilgan.

Kalit so‘zlar: biogumus, tuproq, qatlam, gumus, mikroelement, somon, gektar, Kaliforniya qizil chuvalchangi, kartoshka, vegetatsiya, davr, organik o‘g‘it.

Аннотация: В данной научной статье приведены сведения о важности внесения биогумуса при возделывании картофеля в почву, технологии приготовления биогумуса, способах, нормах и сроках внесения биогумуса, влиянии биогумуса на рост и развитие картофеля.

Ключевые слова: биогумус, почва, слой, гумус, микроэлемент, солома, гектар, калифорнийский красный червь, картофель, вегетация, период, органическое удобрение.

Annotation: This scientific article provides information on the importance of introducing vermicompost when cultivating potatoes in the soil, the technology for preparing vermicompost, methods, rates and terms of applying vermicompost, the effect of vermicompost on the growth and development of potatoes.

Key words: biohumus, soil, layer, humus, microelement, straw, hectare, Californian red worm, potato, vegetation, period, organic fertilizer.

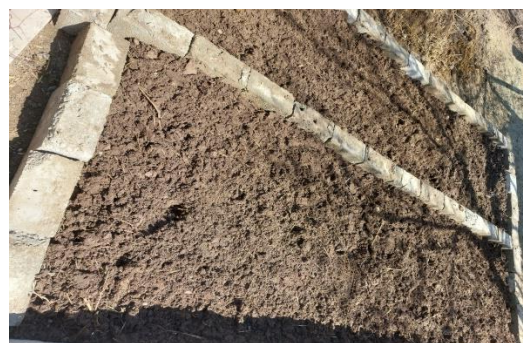
Kirish. Dunyo qishloq xo‘jaligida ekin maydonlarining tuproq unumdorligini saqlash, oshirish va qayta tiklash muhim masalalardan biri hisoblanadi. Unumdor tuproqlar ekinlar hosilining yuqori bo‘lishini ta’minlaydi. Biogumus ko‘p yillardan beri qo‘llanilib kelmoqda. Biogumus shaxsiy uyning o‘simliklari tizimida, golf maydonchalari hududida, meva ishlab chiqarish sistemasida, dala sabzavotlari,

issiqxona mahsulotlari, poliz ekinlari, substrat va o'simlik urug'lari uchun, shahar hududidagi yashil maydonlar va istirohat bog'lari tashkil qilingan dalalarning tuproq unumdorligini oshirada va tuproqning suv fizik, mexanik va kimyoviy tarkibini yaxshilashda katta ahamiyatga ega. U murakkab elementlardan tashkil topgan, qulay va samarali organik o'g'itdir [1,2,3,4,5,6,7,17,18,19].

Mineral o'g'it solish bu tuproqni aldashi bir yo'li. Biz tuproqqa eruvchan shakildagi ozuqa moddalarni solganimasak, tuproqning ozuqaviy qismini o'stirishga va hosil miqdorini ko'paytirishga harakat qilamiz. Lekin, muammo ozuqani belgilangan me'yorda taqsimlashdir. Azot mineralining samaradorlik darajasi o'rtacha 50% dan kamroq. Ba'zi ko'p miqdordagi o'g'itlar tuproq va yer usti suvlarini zararlamoqda va karbonat angidritdan ko'ra 300 marta zararliroq bo'lgan issiqxona gazlarini keltirib chiqarmoqda. Tuproq tarkibidagi mikroblar o'g'it tasirida zararlanadi va o'simlik ildizi bilan ozuqlanishni to'xtadi. Natijada tuproqda ortiqcha miqdorda azot hosil bo'ladi va o'simlik uni iste'mol qiladi va rivojlanadi. Tabiat bizga kuchli va sog'lom o'simlik uchun nima kerakligini ko'rsatadi: bu esa tabiiy mahsulot biogumusdir [8,9,10,11,12,13,14,15,16,].

Biogumus, bu hech qanday zararli kimyoviy vositalarsiz tabiiy sharoitda kechadigan jarayondir. Bunda chuvalchaglardan foydalaniladi. O'zbekiston sharoitida 3 xil turdagi chuvalchaglar boqiladi. Ular orasida eng samaralisi Kaliforniya qizil yomg'ir chuvalchaglari hisoblanadi. Kaliforniya qizil chuvalchangi bir kecha – kunduzda o'z og'irligiga teng miqdorda oziq iste'mol qiladi. Oziqni hazm qilish jarayonida chuvalchang maxsus modda - biogumus ajratib chiqaradi. Kaliforniya qizil chuvalchaglari juda serpusht bo'lib, har 7 kunda urchiydi. Chuvalchang maxsus ipak qobiqqa o'ralgan tuxum qo'yadi. 20 kun o'tgach tuxumdan 2 tadan 20 tagacha yosh chuvalchaglar chiqadi va ular 70-90 kunda voyaga yetadi. Optimal sharoitlarda bitta chuvalchang bir yilda 500 tadan 1000 tagacha nasl berishi mumkin [20,21,22,23,24,25].

Biogumus tayyorlash joy va xomashyo tayyorlash. Biogumus tayyorlash bo'yicha o'tkazgan tadqiqotlarimizda har xil variantlarda va usullar olib borildi. Tajribalar Navoiy viloyati Qiziltepa tumani Navqorin mfy.da o'tkazildi. Biogumus tayyorlash uchun kerakli xom-ashyolar (qora mol go'ngi, somon va boshqa organik mahsulotlar) tayyorlab olindi. Shundan keyin joy tayyorlandi. Joy toza, tekis yer maksimal 50 sm balandlikda beton to'siq bilan o'rab chiqiladi. Maydonning o'lchami minimal hisobda 12 m² (2×6) tashkil qildi.



1-rasm. Uy sharoitida biogumus tayyorlash jarayoni

Biogumus tayyorlash texnologiyasi. Tayyorlangan joyga birinchi qatlam tuproq, ikkinchi qatlam maydalangan tog‘ toshi (shebin) va uchinchi qatlam go‘ng joylashtirildi. Birinchi qatlamning ahamiyati ortiqcha suvni shimib olib, o‘tacha namlikni bir xilda saqlash hisoblanadi. Ikkinchi qatlamdagi toshlar chuvalchaglarni tuproqqa o‘tib ketmasligini ta‘minlaydi. Uchinchi qatlam ozuqa qatlami hisoblanadi. Chuvalchaglarga ozuqa sifatida chorva hayvonlar masalan, qoramol, ot, qo‘y va boshqalarning go‘ngidan foydalaniladi. Go‘ng chirimagan, 3-4 oy turgan va chiqindilardan (temir, tosh, selofan va hokazolar) holi bo‘lishi kerak. Go‘ng chuvalchaglarga berilishidan oldin tuproq bilan aralashmasligi uchun beton yerga qalinligi 25 sm qilib to‘shaladi va undan toza suv chiqquncha suv sepib yuviladi. Bunday yuvishdan maqsad go‘ng tarkibidagi siydik kislotasini yuvib chiqarish hisoblanadi. Yuvish bir marotaba amalga oshiriladi. Tayyor bo‘lgan go‘ng uchinchi qatlam sifatida 15 sm qalinlikda yotqiziladi. Ozuqa sifatida go‘ngga o‘simlik qoldiqlari, meva va sabzavot po‘stloqlari, tuxum fleykalarini qo‘shimcha qilish mumkin. Ular biogumus tarkibini yaxshilaydi. Go‘ngga somon ham aralashiriladi. Yilning salqin fasllarida chuvalchanglar unga tuxum qo‘yadi, issiq mavsumlarda u havo o‘tkazuvchi nay vazifasini bajaradi. Keyin go‘ngga 40 kg, ya‘ni 1 m² chuvalchang tashlanadi. Har ikki kunda yomg‘irlatib suv sepib turiladi. Suv ta‘sirida go‘ng zijlashadi, chuvalchanglar harakati sekinlashishi kuzatiladi. Shuning uchun har 7-10 kunda o‘tkir bo‘lmagan panshaxa bilan ag‘darib turiladi. Chuvalchanglar go‘ngni qayta ishlab chiqarib biogumusga aylantiradi. Biogumus qo‘lga olib ko‘rib tekshirib turiladi. Tayyor biogumus 1-3 mm.li qo‘ng‘ir-qora rangli granulalar ko‘rinishida bo‘ladi. Keyin biogumus ustidan yana maydalangan go‘ng 15 sm qalinlikda yotqiziladi. Bu jarayon o‘rtacha 6 oy davomida qaytariladi. Jarayon so‘ngida 40-50 sm qalinlikdagi toza biogumus hosil bo‘ladi. Biogumus maxsus elak-separator orqali elanadi va chuvalchanglar, ularning tuxumlari ajratib olinadi. Biogumus xaltalarga solib qadoqlanadi. Bunday havosiz sharoitda turgan biogumus o‘z sifatini 1-1,5

yilgacha yo‘qotmaydi. Tayyor biogumusdan issiqxona sharoitida va ochiq ekin maydonlarida gul, sabzavot hamda poliz mahsulotlarini yetishtirishda foydalanish mumkin. Mo‘l hosil olish uchun har bir nihol ostiga 700 grammdan 1 kg. gacha biogumus solish samaralidir.



2-rasm. Tayyor bo‘lgan biogumusni saralash va qoplash jarayoni

Tajriba olib borish sharoiti va uslubiyati.

Tajriba Navoiy viloyati Qiziltepa tumani och tusli bo‘z tuproqlar sharoitida olib borilmoqda. Dala tajribalari 5 ta variant 3 ta takrorlashda o‘tkazildi. Tajribani qo‘yish, kuzatishlar, hisob va tahlillarni qilishda B.A. Dospexovning «Metodika polevogo opita» va O‘ZPITda ishlab chiqilgan «Dala tajribalari uslubiyati», Metodika provedeniya polevix i vegetatsionnyx opitov v xlopkovodstve» nomli kitoblaridan foydalanildi.

Tajriba tizimi

No	Variantlar	Organik o‘g‘it me‘yori, t/ga
1.	Nazorat varianti (o‘g‘itsiz)	-
2.	Mahalliy o‘g‘it (chirutilgan go‘ng)	10
3.	Biogumus	2,0
4.	Biogumus	3,0
5.	Biogumus	5,0

Tajriba natijalari. Tajriba Navoiy viloyati Qiziltepa tumani och tusli bo‘z tuproqlar sharoitida olib borilmoqda. Tajriba dalasining tuprog‘i och tusli bo‘z tuproqlar sharoitida olib borilmoqda Tuproqning unumdorli kam, oziqa elementlari bilan kam ta‘minlangan. Shunday tuproq sharoitida kartoshka etishtirish uchun imkoniyatlarni o‘rganish uchun tajribalar olib borilmoqda. Bizning tajribamizda kartoshka etishtirish uchun mineral o‘g‘itlarsiz, faqat organik o‘g‘itlarni qo‘llash evaziga hosil olish va tuproq unumdorligini yaxshilash maqsad qilib olingan.

Tajribada olingan dastlabki ma'lumotlarga ko'ra, nazorat variantida kartoshkaning unib chiqish darajasiga nisbatan organik o'g'it solingan variantlarda 4-5 kun oldin boshlanganligi kuzatildi.

Biogumus solingan variantlarda tuproqning mexanik tarkibi, suv-fizik xossalari yaxshi holatga o'tib boshlaganli kuzatilmoqda.



3-rasm. Kartoshka ekilayotgan maydonga biogumus solish va o'sib – rivojlanish jarayoni.

Olib borilayotgan tajribada kartoshkaning o'sib-rivojlanishi me'yorida bo'layotganligini ko'rishimiz mumkin.

Xulosa. Tajriba natijalaridan shuni xulosa qilish mumkinki, nafaqat qishloq xo'jalik ekinlarining o'sib – rivojlanishiga yaxshi ta'sir qiladi, shu bilan bir qatorda tuproq unumdorligini, tuproqning mexanik tarkibini va tuproqning suv-fizik xossalari yaxshilanishiga katta yordam beradi. Demak unumdorligi kam erlarda kartoshka etishtirish uchun biogumusda foydalanish maqsadga muvofiq bo'ladi.

FOYDALANILGAN ADABIYOTLAR (REFERENCES)

- [1] Abdalova, G.N.; Eshonkulov, J.S.; Sulaymonov, S.O.; Abdullayeva, F.M. Improvement of Cotton Nutrition Procedure and Irrigation Technologies. *ACADEMICIA Int. Multidiscip. Res. J.* 2021, 11, 720–723. [[Google Scholar](#)] [[CrossRef](#)]
- [2] Allanov, K.; Sheraliev, K.; Ulugov, C.; Ahmurzayev, S.; Sottorov, O.; Khaitov, B.; Park, K.W. Integrated Effects of Mulching Treatment and Nitrogen Fertilization on Cotton Performance under Dryland Agriculture. *Commun. Soil Sci. Plant Anal.* 2019, 50, 1907–1918. [[Google Scholar](#)] [[CrossRef](#)]
- [3] Burievich, T.B., Olimovich, A. Eshankulov J.S., Turaevich, M.T 2021 Groundwater consumption and cotton productivity. *Web of Scientist: International Scientific Research Journal*, 2(09), 130-135. [[Google Scholar](#)]
- [4] Dusbayev I.R., Nasirov B.S., Ashirov Y.R., Eshonkulov J.S., Rashidov Q. 2021

Methods of planting fine fluid cotton and effects of Herbicides. 2nd International Conference on Science Technology and Educational Practices. Turkey 251-254 p. [Google Scholar](#)]

[5] Eshonkulov J., Kamilov B. Effect of irrigation regimes on the fertility of soybean and sunflower cultivars planted in repeated periods To cite this article: January 2023 IOP Conference Series Earth and Environmental Science DOI: 10.1088/1755-1315/1140/1/013006 [Google Scholar](#)]

[6] Eshonkulov Jamoliddin Saporboy ugli., Shamsiev Akmal Sadirdinovich. Vol.5 NO. 2020 Congress (2020) ChanGES in water-physical properties of soil in repeated crop sunflower care. International congress on modern education and integration congress – India – Volume 5. – P. 89-90. [Google Scholar](#)]

[7] Inagamova N., Rahmonov R.U., Charshanbiev U.Y., Nasirov B.S., Ruziev A.A. Washing the soil through irrigation erosion and measures to combat it. EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal. Volume: 6 | Issue: 12 |December 2020. 496-499.

[8] Izbasarov B.E., Norkulov U., Tukhtashev B., Hikmatov Sh. Influence of new types of horizontal ditches on the growth, development and yield of winter wheat in saline and groundwater surface soils. influence of new types of horizontal ditches on the growth, development and yield of winter wheat in saline and groundwater surface soils 2021 [Google Scholar](#)]

[9] Nasirov Bakhtiyor Salakhiddinovich Charshanbiyev Umuroq Yuldashevich, Eshankulov Jamoliddin Saporboy ugli. "Efficiency of application of herbicides which are samuray 33% ek, zellek super 10.4% ek and triflurex 48% ek against weeds in cotton fields" *Web of Scientist: International Scientific Research Journal* 2.09 (2021): 136-139.

[10] Nasirov B.S., Charshanbiyev U.Y., Eshankulov J.S., Oblokulova J.B. Efficiency of application of herbicides which are samuray 33% e.k., zellek super 10.4% e.k. and triflurex 48% e.k. against weeds in cotton fields. *Web of scientist: Internstional scientific research jurnal* ISSN: 2776-0979 (Volume 2, Issue 9, Sep., 2021. 136-139. [Google Scholar](#)]

[11] Norkulov U., Izbasarov B., Tukhtashev B., Eshonkulov J., Volume: 2 Issue: 2 2022 Effects of Sardoba Reservoir Flood on Irrigated Land, *International Journal of Innovative Analyses and Emerging Technology* e-ISSN: 2792-4025 40-42 p.

[12] Norqulov U., Axmurzayev Sh., Eshonqulov J., Raxmatullayev S. Toshkent viloyati sharoitidasoya dalasidagi zarpechakka qarshi zeta 100 g/l gerbitsidini qo'llashning samaradorligi 2022/12/31 *research and education* 503-507 [[Google Scholar](#)] [[CrossRef](#)]

[13] Norkulov U., Tukhtashev B., Eshonkulov J., Volume: 2 Issue: 2 2022 Change of mechanical composition of soils after flood of sardoba water reservoir, *international journal of innovative analyses and emerging technology* e-ISSN: 2792-4025 36-39 p. [Google Scholar](#)]

[14] Salakhiddinovich, Nasirov Bakhtiyor., Eshankulov Jamoliddin Saporboy ugli 2021 "Development of Irrigation Procedures for Shadow Varieties Planted After

Autumn Wheat." *International conference on multidisciplinary research and innovative technologies*. Vol. 1. 2021. [Google Scholar](#)]

[15] Shamsiyev Akmal Sadirdinovich, Eshonkulov Jamoliddin Saporboyugli, Sultanov Umbetali Tazabayevich 2020 Growth and development of soy and sunflower varieties. *ACADEMICIA An International Multidisciplinary Research Journal* 10(11):1289-1291

[16] Shamsiyev Akmal Sadirdinovich, Kamilov Bakhtiyor Sultanovich., Eshonkulov Jamoliddin Saporboyugli, Ashirov Y.R. Agrophysical and agrochemical properties of influence of recycled soya and soil of the field 2020 *ACADEMICIA An International Multidisciplinary Research Journal* August – India, 2020. – Vol. 10. – Issue 8. – P. 475-479

[17] Tukhtashev B., Norkulov U., Izbosarov B. Technology of proper use of saline soils in the conditions of Uzbekistan. *E3S Web of Conferences* 258, 03027 (2021) [Google Scholar](#)]

[18] To‘xtashev B.B. *Organik dehqonchilik. Darslik. “Fan ziyosi nashriyoti”* T. 2022.

[19] *Textbook on Organic Agriculture*. FAO fiat panes. Budapest 2017.

[20] Toshpulatov Ch., Tukhtashev B., Charshanbiev U., Mavlonov B. Effects of soil salt-leaching terms on growth, development and yield of corn in Uzbekistan. *IOP Conference Series: Earth and Environmental Science*. 2022 IOP Conf. Ser.: Earth Environ. Sci. 1140. 013005. 1-9.

[21] Ziyatov Musulman Panjiyevich, Shamsiyev Akmal Sadirdinovich, Kamilov Bakhtiyor Sultanovich, Abdalova Guliston Nuranovna, Abdurakhimov Shavkatjon Olimovich, Eshonkulov Jamoliddin Saporboy ugli. *PJAE*, 17(6) 2020 Effective agrotechnology of cotton feeding in different irrigation methods. *Palarch’s Journal of Archaeology of Egypt/Egyptology* 17(6). ISSN 1567-214x. 3415-3428 p.<http://www.palarch.nl/index.php/jae/article/view/1335> [Google Scholar](#)]

[22] Chorshanbiyev U.Y., Allanov Kh.K., Safaraliyev L.H., Berdiboev E.Y. The effect of organic fertilizer application in growing amarant (amaranthus) plant. *IOP Conference Series: Earth and Environmental Science*. 2022 IOP Conf. Ser.: Earth Environ. Sci. 1140. 011021. 1-8.

[23] Charshanbiev U., Shodmanov M., Sultanov U., Dusbaev I. Effects of continuous application of Samurai and Zellek Super herbicides on cotton fields against weeds in the conditions of Uzbekistan. *E3S Web of Conferences* 258, 04052 (2021). 1-11.

[24] Charshanbiev U.Y., Muminov K.M. Successive Application of Samuray 33% e.c. and Zellek Super 10,4% e.c. Herbicides Against of Weeds in the Fields or Cotton. *International Journal of Science and Research (IJSR)* ISSN (Online): 2319-7064. 1588-1591.

[25] Charshanbiyev Umurzok. Effect of organic fertilizers in growing alfalfa for seed and forage. *E3S Web of Conferences* 371, 01050 (2023) <https://doi.org/10.1051/e3sconf/202337101050>. AFE-2022