o‘rtacha me’yori gektariga 50- 100 kg. Belgilangan kaliyli o‘g‘it to‘laligicha tuproqni asosiy ishlash paytida kiritiladi. Sholiga har qanday shakldagi kaliyli o‘g‘itlarni qo‘llash mumkin, bu maqsadda ko‘proq kaliy xloridi va kaliy tuz ishlatiladi.

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XASHAKI LAVLAGI HOSILDORLIGIGA BIOSTIMULYATORLARNING TA’SIRI

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Annotatsiya: *Maqolada Bio Energy, Gumi mikc, Mister powyer, Ento gumin va Kaliy gumat biostimulyatorlarining xashaki lavlagining O‘zbekiston-83 va O‘zbekiston yarimqand navlari hosildorligiga ta’siri to‘g‘risidagi o‘simliklarning alohida variantlarda qo‘llaganda hosildorlik ma’lumotlari keltirilgan. Tadqiqotlarning ko‘rsatishicha, Biostimulyator qo‘llanilgan barcha variantlarda hosildorlik sezilarli oshgani qayd etildi. Barcha variantlarda O‘zbekiston-83 navidagi hosil O‘zbekiston yarimqand naviga nisbatan yuqori ekanligi kuzatildi. Tajribalarda eng yuqori hosildorlik har ikki navda ham Mister powyer biostimuliyatori qo‘llanilgan variantlardan olindi. Bu variantda O‘zbekiston-83 navida gektaridan o‘rtacha 108,8 t/ga va O‘zbekiston yarimqand navidan esa 103,5 t. hosil olindi. /ga) variantda kuzatildi.*

Kalit so‘zlar: Xashaki lavlagi, navlar, o‘sish, rivojlanish, hosildorlik, biostimulyatorlar va boshqalar.

Аннотация. *В статье приведены результаты исследований по изучению влияния биостимуляторов Bio Energy, Gumi mikc, Mister power, Ento gumin и Гумата калия на урожайность сортов свеклы сортов Узбекская-83 и Узбекская полусахарная. Исследованиями установлено, что применение всех биостимуляторов способствует повышения урожайности свеклы. У сорта Узбекская-83 получены больше урожая по сравнению сорта Узбекская полусахарная. Среди изученных биостимуляторов самым эффективным оказался Mister power. В этом варианте урожайность сорта Узбекская-83 составило 108,8т/га, а усорта Узбекская полусахарная получены в среднем 103,5т. урожая с каждого гектара.*

Ключевые слова: *свекла, сорта, рост, развитие, урожайность, биостимуляторы ит.д.*

Annotation. *The article presents the results of studies on the influence of biostimulants Bio Energy, Gumi mikc, Mister power, Ento gumin and Potassium Humate on the yield of beet varieties Uzbekskaya-83 and Uzbek semi-sugar. Research has established that the use of all biostimulants helps to increase beet yields. The Uzbekskaya-83 variety produced more yield compared to the Uzbek semi-sugar variety. Among the biostimulants studied, Mister power turned out to be the most effective. In this option, the yield of the Uzbekskaya-83 variety was 108.8 t/ha, and the average yield of the Uzbek semi-sugar variety was 103.5 t. harvest from every hectare.*

Key words: *beets, varieties, growth, development, productivity, biostimulants, etc.*

Kirish. Xashaki lavlagi 100 s. ildizmeva va shunga muvofiq barglar hosil qilishi uchun tuproqdan 25-30 kg azot, 9-10 kg fosfor, 45-50 kg kaliy o‘zlashtiradi. U ayniqsa azotli, kaliyli o‘g‘itlarga talabchan. Madanli o‘g‘itlarning yillik me’yori azot 150-200, fosfor 100-120, kaliy 80-100 kg/ga ni tashkil qiladi [1; 290-292-b].

Xashaki lavlagi 19 asrdan boshlab Yevropa mamlakatlarida keng ekila boshlandi. O‘zbekistonda xashaki lavlagi yiliga 14-15 ming gektar maydonga ekiladi. Ilg‘or xo‘jaliklar 800-900 s/ga ildizmeva hosil olmoqda [1; 290-292-b, 2; 273-275-b. 3; 128-129-b].

Tadqiqot natijalari. Samarqand viloyatining sug‘oriladigan o‘tloqli bo‘z tuproqlari sharoitida xashaki lavlagining O‘zbekiston-83 va O‘zbekiston yarimqand navlarini ekilib, o‘sish, rivojlanish davri davomida barcha variantlarga bir xil N 150 kg/ga, F 100 kg/ga va K 80 kg/ga me’yorida mineral o‘g‘itlar qo‘llanildi hamda qo‘shimcha ravishda Bio Energy, Gumi mikc, Mister power, Ento gumin va Kaliy gumat biostimulyatorlari o‘shish, rivojlanish davrida 3 marta, 4-5 juft barg hosil qilish, qatorda barglarning tegib qolishi va qator oralarini yopishi fazalarida qo‘llanilganda biostimulyatorsiz nazorat variantiga nisbatan navlarga va biostimulyatorlarga bog‘liq holda hosildorlik o‘zgarib borishi aniqlandi (1-2 jadvallar).

Xashaki lavlagining O‘zbekiston-83 navida barcha biostimulitor qo‘llanilgan variantlarda hosildorlik 8,6-28,6 t/ga gacha oshdi. Biostimulitorsiz variantda bir gektardan olingan hosil 80,2 t.

1-jadval.

Xashaki lavlagining O'zbekiston-83 navi hosildorligiga biostimuliyatorlarning ta'siri (2023 yil).

№	Biostimuliyator nomi	Qaytariqlar bo'yicha hosildorlik, t/ga				O'rtacha hosildorlik, t/ga	Qo'shimcha hosil, t/ga
		I	II	III	IV		
1	Biostimuliyatorsiz (st)	81,6	83,2	77,8	78,2	80,2	-
2	Bio Energy	103,4	105,4	98,6	99,1	101,6	21,4
3	Gumi mikc	92,6	94,4	88,3	88,7	91,0	10,8
4	Mister power	110,7	112,9	105,5	106,1	108,8	28,6
5	Ento gumin	97,7	99,6	93,1	93,6	96,0	15,8
6	Kaliy gumat	90,4	92,1	86,1	86,6	88,8	8,6

2-jadval.

Xashaki lavlagining O'zbekiston yarimqand navi hosildorligiga biostimuliyatorlarning ta'siri (2023 yil).

№	Biostimuliyator nomi	Qaytariqlar bo'yicha hosildorlik, t/ga				O'rtacha hosildorlik, t/ga	Qo'shimcha hosil, t/ga
		I	II	III	IV		
1	Biostimuliyatorsiz (st)	76,2	77,7	72,7	73,0	74,9	-
2	Bio Energy	95,2	97,1	90,8	91,3	93,6	18,7
3	Gumi mikc	83,8	85,5	79,9	80,3	82,4	7,5
4	Mister power	102,2	104,2	97,4	97,9	100,4	25,5
5	Ento gumin	90,7	92,4	86,4	86,9	89,1	14,2
6	Kaliy gumat	83,0	84,7	79,2	79,6	81,6	6,7

bo'lgan bo'lsa, Bio Energy qo'llanilgan variantda 101,6 t. ni tashkil etdi. Bu ko'rsatkich Gumi mikc, Mister power, Ento gumin va Kaliy gumat biostimulyatorlari qo'llanilgan variantlarda mos ravishda 91,0; 108,8; 96,0 va 88,8 t. qayd etilib, biostimulyatorsiz nazorat variantiga nisbatan mos ravishda, gektariga 21,4; 10,8; 28,6; 15,8 va 8,6 t. yuqori hosil olindi.

Biostimulyator qo'llanilgan variantlarda eng yuqori hosildorlik Mister power qo'llanilganda kuzatilib, Kaliy gumat qo'llanilgan eng kam ko'rsatkichga nisbatan gektariga 20,0 t. ko'p hosil olindi.

Xashaki lavlagining O'zbekiston yarimqand navida ham O'zbekiston 83 navidagi qonuniyat kuzatilib, ushbu navda barcha variantlarda hosildorlik O'zbekiston 83 naviga nisbatan kam bo'ldi.

O'zbekiston yarimqand navida bir gektardan olingan hosil biostimulyatorsiz nazorat variantida 74,9 t. ni tashkil etgan bo'lsa, biostimulyator qo'llanilgan variantlarda mos ravishda Bio Energy 93,6 t., Gumi mikc 82,4 t., Mister power 100,4 t., Ento gumin 89,1 t. va Kaliy gumat qo'llanilgan variantida 81,6 t.ni tashkil etdi. Bu esa O'zbekiston 83 navining nazorat va biostimulyator qo'llanilgan variantlariga nisbatan, mos ravishda gektariga 5,3; 8,0; 8,6; 8,4; 6,9 va 7,2 t. kam hosil olindi.

Ushbu navda Bio Energy, Gumi mikc, Mister power, Ento gumin va Kaliy gumat biostimulyatorlarini o'simlikning o'sish hamda rivojlanishi davri davomida qo'llash natijasida, mos ravishda, gektaridan 18,7; 7,5; 25,5; 14,2 va 6,7 t. qo'shimcha hosil olishga erishildi. Bu navda ham biostimulyator qo'llanilgan variantlarda eng yuqori ko'rsatkich Mister powerda kuzatilib, eng kam qo'shimcha hosil olingan Kaliy gumat qo'llanilganga nisbatan 12,0 t. ko'p hosil olinganligi qayd etildi.

Xulosa shuki, xashaki lavlagining O'zbekiston-83 hamda O'zbekiston yarimqand navlarini belgilangan agrotexnikani to'g'ri qo'llagan holda qo'shimcha ravishda Bio Energy, Gumi mikc, Mister power, Ento gumin va Kaliy gumat biostimulyatorlarini o'simlikning o'shish, rivojlanish davrida 3 marta qo'llash natijasida hosildorlikning sezilarli oshishi aniqlandi.

O'rganilgan barcha variantlarda O'zbekiston-83 navi hosildorligi O'zbekiston yarimqand naviga nisbatan yuqori bo'lib, eng yuqori hosil ikkala navda ham Mister power biostimlyatori qo'llanilgan variantida qayd etildi.

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SOS: SAVE OUR SOILS!

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Abstract. *In this article a bird eye's view is given about the Uzbek dairy section, the land allocation for the various crops and the challenges for dairy farmers, small, medium and large, to produce sufficient forage for economic milk production under conditions of shortage of land, crop placement and water shortages. It explains the principles of agro-ecology and regenerative agriculture and gives recommendations how and why the current cropping pattern should be changed for the benefit of all farmers but above all to avoid further degradation of Uzbek's irrigated crop land and make a start in regenerating these lands.*

Key words: *forage production, crop rotation, soil structure, soil biology, regenerative agriculture*

INTRODUCTION.

Uzbekistan's livestock sector contributes 49% to the agricultural GDP, but when it comes to land allocation it has access to less than 20% of the crop land. The most important forage crops were and still are Lucerne and silage maize. However, the largest part of the country's dairy animals are kept by what is usually called owners of household plots and dekhans, which in the rest of this article will be addressed as "small and medium-size farmers'. This group depends to feed its cattle on what could be called 'diffuse grazing' along roads, canals, some remaining usually degraded communal pastures and in winter mainly wheat straw, which is readily available and sold at a relatively high price in comparison to its feeding value (20-25.000 sum in autumn 2023 whereas, if available, Lucerne hay costed 40-45.000 sum with a much higher feeding value due to higher digestibility and crude protein contents). Table 1 and 2 give an overview of the distribution of cattle over small, medium and large farmers and their respective shares in overall milk production.

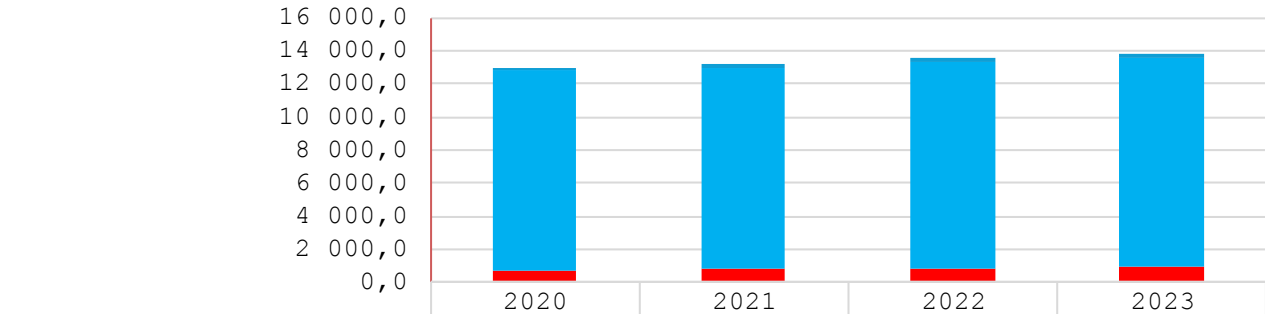
In 1975 the country had 1.8 million hectares of cotton and 0.6 million hectares of Lucerne; in 2022 the country had 1 million hectares of cotton, 1.3 million hectares of wheat and only 0.03 million hectares of Lucerne. Most cows in Uzbekistan utilize the 'diffuse' grazing along roads, canals and communal pastures during the summer; in winter straw is the main fodder. Our programme aims at bringing more forage production back into the cropping cycle, increase availability and connect larger-scale forage production with the small and medium-scale farmers to increase production of and access to high quality forages.

EFFECT OF CROP ROTATION ON SOIL HEALTH.

The current prominent 2-year crop rotation of cotton-winter wheat-maize involves frequent cultivation and almost complete removal of all organic material. Cotton stalks are used to heat rural houses and to fire up the tandir for bread baking. As many of the larger crop producers do not have livestock, no or little manure is returned to the soil, fertility is maintained with artificial fertilizers and organic matter content in the soil diminishes. The soil biology is upset further by frequent cultivation, turning the aerobic zone down and bringing the anaerobic zone up. Soil life of beneficial bacteria (Rhizobium, Azotobacter, Frankia) and fungi (Mycorrhiza) suffers. Barren land in winter deprives the

Table 1.

Number of cattle per category of dairy farmers as per 2023



	2020	2021	2022	2023
Organizations engaged in agricultural activities	169,7	200,6	224,3	246,3
Dehkan farms and householders	12 071,7	12 169,2	12 431,1	12 644,9
Farms	708,3	784,5	889,0	962,3