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Effect of sowing date and seedling thickness on main stem height, total leaf area, formation of side branches, green leaf yield of stevia

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Abstract: this article provides information on the dead of sowing a stevia plant in conditions of light gray soils and the influence of seedling thickness on the height of the main stem, the surface of the total leaf level, the formation of side branches, the effect on the green leaf yield.

Keywords: light bushy soils, stevia plant sowing times, seedling thickness, main stem balance, common leaf level Surface, side branches, green leaf yield.

Introduction

At the moment, the demand for the use of natural plant sources, which give the world a sweet taste, do not harm people's health, is huge. "In such developed countries of the world as the USA, England, France, Japan, China, Korea, Russia, the stevia plant is grown on an area of 32 thousand hectares. The largest growing state is the people's Republic of China, and the main producing state is Japan .. Due to the high content of useful elements in the composition of a solution of plant extract in water, it is widely used in food and medicine.

In our country, the problem of creating conditions that ensure the production of food, especially products enriched with important micronutrients, the satisfaction of the population's extrusions to healthy nutrition, providing food and other medicinal products based on local raw materials is increasingly growing. In solving these problems, non-traditional introductions, acclimatization of plants and their introduction into agriculture are important in our country.

E.E.Kurdyukov., S.M. Malyutenkova., S.M.Petrovs note that today, in solving the food problem, one of the crops that is environmentally friendly, hooligan for the human body, which has medicinal properties from the side of Medicine, is the stevia plant. The degree of sweetness of the plant is considered 25-30 times higher than that of sugar beets and sugar cane. Therefore, in recent years, many scientists around the world have been interested in the stevia plant (Kurdyukov., 2018. Malyutenkova., 2004., Petrov, 2015).

I.G. Akhmetov and others, today the world has grown a stevia plant on an area of 32 thousand hectares coming. About 75 percent of the area of this crop falls on the people's Republic of China (Akhmetov et al., 2017)

J.Y. Tursunav., I.V. Belolipov and others., C.Y. Tursunav., M.M.Rakhimov., B.I. In addition to scientific data from owls and others, studies carried out in different regions of the world have shown that the optimal seedling thickness of stevia was 110 thousand units per hectare. In this case, the yield of a dry leaf was equal to 34.2 ts / ha (Tursunav J.Y., Belalipav I.V. and other., 2002., Tursonav C.Y., Rakhimov M.M., Baykabilov B.I. and other ., 2000)

J.Wang., H.Zhao., Y.Wang and others, P.Samuel., K.T.Job., B.A.In experiments aimed at studying the influence of the sowing scheme on the growth and yield of stevia, in the opinion of Magnuson and others, a high yield of dry leaf and sweet glycosides was also obtained at a sufficiently high seedling thickness (more than 100 thousand bushes/ha). In general, many research scientists have come to the conclusion that sowing a stevia plant with a seedling thickness of 80-110 thousand bushes/ha is the most economically viable for all regions of cultivation of cultural species. (Wang J., Zhao H., Wang Y. and so on., 2020., Samuel P., Ayaab K.T., Magnuson B.A., 2018).

1. Research Methodology

The experiment was carried out in the Uychi District of Namangan region. Experimental field Uychi district consists of light gray soils, the mechanical composition is medium loam, watered for a long time, not

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salted. The haydov layer of soil 0-30 in some places there is a sandy layer to a depth of 60-70 CM. The amount of humus in the soil haydov layer is 1.1-1.3 percent, the volume mass is on average 1.30-1.54 g/cm3. Sizob waters are located at a depth of 7-12 meters from the surface of the Earth.

In the studies, the optimal norms of phosphorus fertilizers against the background of NK, based on stevia plant demand in the conditions of light gray soils for 2017-2019, were determined at the optimal seedling thickness. In the experiment, the options were carried out in four repetitions, the area of each delyanka was 4.8 x 40 m = 192 m2, of which the calculated area was 96 m2, and the protective area was 96 m2. Each option consisted of eight (60 cm) egats, of which four egats in the middle were calculated (96 m2) area, while two-in-four two-edge egats were considered protective egats. Field experiments "Methods of field experiments with cotton under irrigation conditions" (1981), “Methods of conducting field experiments " (2007) was carried out in the methods described in the sources. The experimental system is presented in Table 1.

1-Table

1-experience. Stevia plant sowing times, seedling thickness and sowing systems

Option layout	Sowing deadlines	Theoretical seedling thickness (thousand / ha)	Sowing systems
1	First half of April	83	60x20-1
2		111	60x15-1
3	Second half of April	83	60x20-1
4		111	60x15-1
5	First half of May	83	60x20-1
6		111	60x15-1

Note: experience mineral fertilizers N50, P175, K50 kg/ in norms; applied before sowing (P125, K25 kg/), during the grazing period (N25, K25 kg/) and when side branches are formed (N25, P50 kg/.

Research Results And Their Discussion

The stevia plant is one of the important medicinal crops, and the process of growth and development in this crop is slower than in other technical crops. The stems of this crop are relatively frail, grow very slowly in the early stages of development, and the stems are mainly in an upright position. The stevia plant grows and develops optimally on soils that are demanding on mineral nutrients, with high fertility.

The stevia plant is a herbaceous plant that is demanding on heat and light, according to its Morpho-biological characteristics. It is grown mainly in irrigated conditions. In order to grow a stable high and high-quality crop from this crop, favorable conditions must be created for the optimal course of growth and development processes. The process of growth and development of the plant, the physiological processes that take place in it, is manifested in the height of the main stem of the plant.

It is known that in every kandai Agricultural Experiment, the study of the height of the main stem of a plant is one of the main requirements. The height of the main stem of the plant depends on the area of its nutrition, the degree of supply of the plant with nutrients and moisture.

The more favorable conditions are created for the plant in the field, the more intensively the plant grows. As a result, the height of the main stem of the plant will also be higher. In the experiment, data on the height of the main stem of the stevia plant under study by options are presented in **Figure 1**.

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Option layout	Sowing period	Theoretical seedling thickness, thousand /	Stem height, cm									3 the average height of the annual STEM is CM
			2017 year			2018 year			2019 year			
			July	August	September	July	August	September	July	August	September	
1	1-15 april	83	71	92	112	73	97	115	68	94	113	114,0
2		111	58	84	106	69	91	109	65	89	108	107,7
3	15-30 april	83	64	89	108	66	96	111	66	90	110	109,7
4		111	60	86	104	60	92	107	62	87	105	105,3
5	1-15 may	83	61	83	105	63	90	109	64	88	107	107,0
6		111	56	78	102	59	81	105	58	83	103	103,3

Figure 1. Changes in the height of the main stem of the plant in terms of sowing times and seedling thickness, CM, 2017-2019.

Based on the results of research carried out in 2017-2019, it was found that different sowing times and seedling thickness affect the main stem height of the cared stevia plant, the surface of the total leaf level per hectare, the number of side branches and the green leaf yield.

In addition, in 2017-2019 (option 1), the stevia plant is planted in the first half of April in a 60x20-1 scheme, when the seedling thickness is 83.0 thousand/ha. in accordance with the years, the plant has a height of 112.0; 115.0; 113.0 CM on average in 3 years, the total leaf level surface is 23.2, respectively; 24.9; 23.9;; 63 and 62.3 units, while the green leaf yield is 32.6; 29.1; While the plant was 28.3 and 30.0 ts/ha, in Option 2 the stevia plant was grown in the first half of April with a seedling thickness of 111.0 thousand, in scheme 60x15-1, compared to Option 1, the plant height is 6.0; 6.0; 5.0 and 6.3 cm low, the total leaf level surface is 5.6; 5.3; 5.4 and it was found that there were 6.3 units less, and the green leaf yield was 4.6; 5.5; 5.2 and 5.1 TS/ha higher (tables 2-3-4).

2-Table

The effect of sowing time and seedling thicknesses on the surface of the total leaf level per hectare, per thousand m2 / ha

Option layout	Sowing deadlines	Theoretical seedling thicknesses, thousand	Total leaf level surface, thousand m2 /			Average leaf level surface, thousand m2 /
			2017 y	2018 y	2019 y	
1	1-15 April	83	23,2	24,9	23,9	24,0
2		111	28,8	30,2	29,3	29,4
3	16-30 april	83	22,2	23,6	22,9	22,9
4		111	26,8	28,3	27,7	27,6
5	1-15 may	83	20,9	21,9	21,2	21,3
6		111	24,8	26,2	25,3	25,4

3-Table

Effect of sowing time and seedling thickness on the number of side branches in the stevia plant, PCs

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Option layout	Sowing deadlines	Theoretical seedling thickness, thousand /	Number of side branches in 1 plant, PCs			Average number of branches, PCs
			2017 y	2018 y	2019 y	
1	1-15 april	83	60	64	63	62,3
2		111	55	57	56	56,0
3	16-30 april	83	56	60	58	58,0
4		111	52	55	54	53,7
5	1-15 may	83	54	57	55	55,3
6		111	47	49	48	48,0

In Option 3, the plant is planted in scheme 60x20-1 in the second half of April, when the seedling thickness is 83.0 thousand/. according to the research years, the height of the plant is 108; 111; 110 and an average of 109.7 CM, the total leaf level surface is 22.2, respectively; 23.6; 22.9 and 22.9 thousand m2/, the number of; 27.7; amounted to 26.9 and 28.2 TS/, or, if we compare in relation to option 1, the height of the head stem of the plant in accordance with the years of experience is 4.0; 4.0; 3.0 and 4.3 cm low, the surface of the total leaf level is 1.0; 1.3, respectively; 1.0 and 1.1 thousand M2/ less, the number of side branches in one plant is 4.0; 4.0; 5.0 and 4.3 units less, the green leaf crop is 2.6; 1.4; 1.4 and 1.8 ts/ less harvest was obtained.

4 - Table

Effects of sowing times and seedling thickness on stevia green leaf yield, ts /

Option layout	Sowing deadlines	Theoretical seedling thickness thousand /	years			Average yield in 3 years	Suffix
			2017 y	2018 y	2019 y		
1	1-15 april	83	32,6	29,1	28,3	30,0	-
2		111	37,2	34,6	33,5	35,1	5,1
3	16-30 april	83	30,0	27,7	26,9	28,2	- 2,8
4		111	32,9	32,2	32,6	32,9	2,9
5	1-15 may	83	26,9	26,3	24,8	26,0	- 4,0
6		111	22,0	21,4	20,9	21,3	- 8,7
HCP_{05} =			**1,16**	**0,98**	**1,21**	**ts /**	
Sx =			**3,84**	**3,45**	**4,36**	**%**	

In the years under study, it was found that the stevia plant was planted in the second half of April, in the first half of may, in variants 3-4-5 and 6, the relative height of the plant, the total leaf level surface, the number of side branches in 1 plant and the green leaf yield were low.

Conclusion

Наманган вилоятининг оч тусли бўз тупроқлари шароитида стевия доривор ўсимлигидани юқори барг ҳосилини олиш учун кўчатларни апрел ойининг биринчи (1-15) қисмида, 60х15-1 тизимда, кўчат қалинлигини 111 минг/га белгилаган ҳолда экиш, лекин объектив сабабларга кўра май ойида экиладиган бўлса, кўчат қалинлиги 83 минг/га атрофида бўлиши кераклиги аниқланган.

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