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DETERMINATION OF STEM GROWTH DYNAMICS IN "AVMU" MUNG BEAN VARIETIES

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Abstract: In this article, the dynamics of stem growth of 15 different varieties of “AVMU” and “Zilola” and “Marjona” varieties at different vegetation periods (three-leaf stage, budding, flowering, ripening) of various mung bean varieties were studied. As a result, it was found that the most positive result was observed in variant 16 and variant 11 among 15 different varieties of “AVMU” according to the experimental system.

Аннотация: В данной статье изучена динамика роста стеблей 15 сортов маша сорта «АВМУ», а также сортов «Зилола» и «Марджона» в разные периоды вегетации (фаза трёх листьев, бутонизация, цветение, созревание) различных сортов. В результате установлено, что среди 15 сортов маша сорта «АВМУ» по системе опыта наиболее положительный результат наблюдался в варианте 16 и варианте 11.

Annotatsiya: Ushbu maqolada turli xil mosh navlaridan “AVMU” ning 15 xil navi hamda “Zilola” va “Marjona” navlarining turli xil vegetatsiya davrlarida (uch bargchalik, g‘unchalash, gullash, pishish)da poyaning o‘sish dinamikasi o‘rganildi. Natijada, tajriba tizimiga muvofiq ravishda eng ijobiy natija16-variantda hamda “AVMU” ning 15 xil navlari orasidan 11-variantda kuzatilganligi aniqlandi.

Keywords: mung bean varieties "AVMU", "Zilola", "Marjona" varieties, stem growth dynamics

Today, providing the world's growing population with quality and affordable food is one of the global issues. In recent years, due to climate change and various

environmental problems, a decrease in productivity has been observed all over the world. According to statistical analyses, it is reported that in the next decade the demand for food products will exceed the level of production. Therefore, one of the urgent issues is to select and recommend early-ripening, high-yielding varieties among various agricultural crops. For this purpose, research was conducted among 17 different varieties of mung bean.

Mung beans are distinguished from other cereals by their high protein content, vitamin and mineral content, and rapid ripening [1]. Mung beans are also easily digestible, and pasta is made from their flour, and salads are made from their sprouted grains. The pods are used as a nutritious feed for livestock, and the stems are used for silage [2].

In order to determine the dynamics of stem growth of mung bean varieties in different phenophases in the crop field of Khayrikhush mahalla of Vobkent district, research was conducted in 2023-2024 and the varieties with the highest stem growth dynamics among different mung bean varieties were identified. According to the experimental system, 15 different mung bean varieties AVMU, Zilola and Marjona were planted in the field in the Bukhara meadow-alluvial soil climatic conditions. In this case, 17 different mung bean varieties were planted in three rotations, on plots, and phenological and morphological observation and analysis were carried out at the beginning of each month [3]. Observation and analysis were carried out on the fifth day of each month in all mung bean varieties, in different phenophases, i.e., three-leaf, budding, flowering and podding periods. As a result, according to the experimental system, it was found that the stem length of 17 different mung bean varieties showed different indicators at different phenophases (Table 1).

table 1

Stem growth dynamics in different mung bean varieties (2023-2024)

№	Mung bean varieties	Vegetative periods of mung bean in terms of stem length in cm			
		Three-leaf clover	Budding	Flowering	Beaning
1	AVMU 1676	6,1	16,7	49,0	64,7
2	AVMU 1677	7,0	17,6	50,4	56,3

3	AVMU 1678	6,6	17,8	51,5	57,7
4	AVMU 1679	5,2	17,0	41,0	52,3
5	AVMU 1680	7,2	17,9	60,9	70,5
6	AVMU 1681	7,8	18,3	62,9	71,2
7	AVMU 1682	7,1	16,9	49,2	67,4
8	AVMU 1683	3,9	14,2	40,9	48,2
9	AVMU 1684	7,2	17,7	57,8	68,3
10	AVMU 1685	6,3	16,6	50,9	56,1
11	AVMU 2001	11,2	26,5	65,5	72,0
12	AVMU 2002	6,9	17,5	59,3	69,0
13	AVMU 2003	6,8	18,3	57,4	67,5
14	AVMU 2004	7,2	23,2	59,9	67,7
15	AVMU 2005	10,0	24,6	60,0	68,4
16	Zilola	12,6	29,5	69,9	76,9
17	Marjona	3,5	12,8	34,5	44,5

According to the results of the two-year study, in the three-leaf stage of mung bean, according to the experimental system, the stem length from the first to the seventeenth variant was recorded in the range of 3.5 cm - 12.6 cm. Also, the stem length of the AVMU varieties was recorded in the following results according to the experimental system: 6.1; 7.0; 6.6; 5.2; 7.2; 7.8; 7.1; 3.9; 7.2; 6.3; 11.2; 6.9; 6.8; 7.2; 10.0 cm. It was determined that the highest result among the AVMU varieties in the phenoplast of this mung bean plant was observed in the 2001 variety, 11.2 cm, and the lowest result was observed in the 1683 variety, 3.9 cm. Also, when analyzing all these variants, it was determined that the highest result was observed in the Zilola variety, 12.6 cm, and the lowest result was observed in the Marjona variety, 3.5 cm.

When analyzing the results of a study on the dynamics of stem growth during the budding period of mung bean, the following results were recorded for the stem lengths of AVMU varieties 1676 to 2005, respectively: 16.7; 17.6; 17.8; 17.0; 17.9; 18.3; 16.9; 14.2; 17.7; 16.6; 26.5; 17.5; 18.3; 23.2; 24.6 cm, in accordance with the experimental system.

According to the results of the study conducted in the flowering phenophase, the most positive results were observed in variants 16; 11 and 6; 5, and the lowest results were observed in variants 8 and 17. Since in mung bean, like in a number of

other plants, the height of the stem leads to an increase in the number of fruit branches and fruit elements in it, in our experiment it was found that varieties with high stem growth dynamics have higher yield compared to the remaining variants [4].

When analyzing the mung bean plant at the end of the growing season, it was found that the Zilola variety had the highest indicator compared to the AVMU varieties, being 4.9 cm higher than the AVMU variety, which recorded the highest result. Also, the high growth dynamics in the mung bean stem leads to the formation of more crop layers, and as a result, an increase in the yield.

In conclusion, the mung bean plant belongs to the heliophyte plant group and grows well when the sun's rays fall directly on the ground. Therefore, in the soil and climatic conditions of the Bukhara region, high yields can be achieved from this plant by observing irrigation standards and ensuring soil fertility. When studying the dynamics of stem growth in different phenophases of mung bean plants of different varieties (3-4 leaflets, budding and flowering, and at the end of vegetation), it was found that the most positive results were in variants 16; 11; 6 and 5, and the lowest results were in variants 8 and 17, according to the experimental system.

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