EFFECT OF STIMULATORS ON THE HEIGHT OF THE LOWEST FIRST POD OF MUNGBEAN VARIETIES

S. Sh. Khayrullaev[1],
O. B. Choriev[2],
S. X. Zokirov[3]
[1]Postdoctoral student (DSc), PhD, Department of Plant Science and Oil Crops, Tashkent State Agrarian University
[2]Doctoral student (PhD), Department of Plant Science and Oil Crops, Tashkent State Agrarian University
[3]Master's student of Osh Technological University named after M.M.Adishev

Abstract
This article provides data on the effect of stimulants on the height of the lower first pod of mung bean varieties. According to it, the best indicators were found when the stimulators Fitovak and Hosildor were applied to the Barqaror and Durdona varieties at 1.05 and 1.15 l/ha, respectively, and the height of the lower first pod was higher.

Keywords: Mung bean, variety, biostimulant, Uzgumin, Fitovak, height of the lower first pod.

INTRODUCTION

Legumes are cultivated on 135 million hectares of land, of which 91.6 million hectares are cultivated as a secondary crop, with an average grain yield of 12.0 q/ha and a gross yield of 206.4 million tons. The world's yield of mung beans is 5.3 million tons, with India being the leading producer and consumer of mung beans. Extensive research is being conducted in the world on advanced resource-saving technologies for growing legumes, especially mung beans. Using the potential of mung beans, based on the scientific foundations of unique resource-saving cultivation technologies, environmentally friendly varieties suitable for soil and climatic conditions are being grown, rich in protein and vitamins. From this point of view, scientific research is being conducted to improve the agrotechnology of cultivation of high-yielding varieties of mung bean, namely, to correctly determine the planting dates and standards, optimize mineral fertilization, and correctly implement crop rotation, thereby restoring and increasing soil fertility, and providing livestock with nutritious feed.

This dissertation research will to a certain extent serve the implementation of the tasks set out in the decrees, resolutions, and other regulatory legal acts of the Republic of Uzbekistan "On approval of the Strategy for the Development of Agriculture of the Republic of Uzbekistan for 2020-2030" and "On measures for the effective use of land and water resources in agriculture" No. PD-5742 dated June 17, 2019 [1, 2].

According to the experimental results of Sh. Ernazarov, S. Negmatova, in the conditions of a typical gray soil region in the foothill plains of the Kashkadarya region, sowing mung beans in early July after winter wheat at the rate of 400 thousand seeds per hectare of land was economically effective [7; 27-28-p.].

M.I. Smirnova [8; 30-33-p.] noted that the protein content of legumes and grains varies depending on the type and variety, as well as the planting date and rate, therefore, it is necessary to create their high-protein varieties and develop agrotechnical care in accordance with soil and climatic conditions.

It was found that the planting scheme and the size of the bush affected the grain formation of mung beans, and the weight of 1000 ripened grains decreased as the size of the bush increased. It was found that the yield of mung bean variety Pobeda-104 was 60.3 grams when planted at 45x18 cm, and decreased to 52.7 grams when planted at 45x3; in these planting schemes, the yield of mung bean variety Radost decreased from 59.4 grams to 52.9 grams, in the Pobeda-104 variety from 61.6 to 55.6 grams, and in the Radost variety from 57.1 to 55.1 grams [4;13-p.].

According to the conclusions of the research conducted in the Namangan region by R. Tillayev, A. Mansurov, A. Mominov, an average grain yield of 14.7 q/ha was obtained from repeatedly planted mung bean. It was also found that an average of 4.4 tons of stalks and root residues remained per hectare in the areas planted with mung bean. They observed that the decomposition of these stubble and root residues enriched the soil with 53 kg of nitrogen, 19 kg of phosphorus and 13 kg of potassium per hectare [9; p. 50].

A. Mansurov's experiments conducted in the conditions of meadow-gray soils of the Andijan region showed that the improvement of soil water permeability depends not only on the cover crops planted after winter wheat, but also on the sowing rate. Because the root and stubble residues remaining from the repeated sowing of mung bean enrich the soil layers with organic matter and affect the physical properties of this soil, as well as the amount of nutrients in the soil [3; p. 119].

B. Kholikov, based on many ears of experience, emphasizes that repeated crop varieties can be planted from June 1-5 to July 10, depending on the soil and climatic conditions of our republic [10; p. 42]. In recent ears, I. Karabayev, A. Rozikov, S. S. Boriyev [6; p. 222-234], I. N. Khoshimov, M. M. Sarimsakov, T. Rajabov [5; p. 68-71].

MATERIALS AND METHODS

The scientific research work was conducted at the experimental scientific research and educational experimental farm of Tashkent State Agrarian University in 2023-2025. The experimental farm is located in the upper reaches of the Chirchik River, at an altitude of 481 m above sea level, at 410 11II north latitude and 380 31II east longitude in the Kibray district of Tashkent region.

The experiment studies the effect of stimulants on the “Durdona” and “Barqaror” varieties of mung bean. The following options are being studied in the experiment:

The experiments are being carried out in field and laboratory conditions. The research uses the methods of "Methods of conducting field experiments" (T. UzPITI 2007), "Methodology of field experiments" (B. Dospekkhov, 1985), "Methodology of State variety testing of agricultural crops" (1985, 1989), and "Methods of agrochemical and agrophysical research of Central Asian soils" (1988).

RESULTS AND DISCUSSION

In the experiments conducted in 2023, the height of the lower pod in the Barqaror variety was 12.1 cm in the control (water) and 13.5 cm in the Uzgumin (standard) variant. When using different rates of the Fitovak stimulator, it was 13.3-14.4 cm and when using different rates of the Hosildor stimulator, it was 13.7-14.8 cm. In 2024, the height of the lower pod in the Barqaror variety was 12.9 cm in the control (water) and 14.4 cm in the Uzgumin (standard) variant. When using different rates of the Fitovak stimulator, it was 14.2-15.4 cm and when using different rates of the Hosildor stimulator, it was 14.7-15.8 cm.

Table 1 Effect of stimulants on the height of the lower first pod in mung bean varieties, cm (2023-2024)

General norms of stimulants, l/ha	2023	2024
Barqaror		
Control (water)	12,1	12,9
Uzgumin (standard) – 1,9 l/ha	13,5	14,4
Fitovak – 0,9 l/ha	13,3	14,2
Fitovak – 1,05 l/ha	14,4	15,4
Fitovak – 1,2 l/ha	13,8	14,8
Hosildor – 0,9 l/ha	13,7	14,7
Hosildor – 1,15 l/ha	14,8	15,8
Hosildor – 1,4 l/ha	14,2	15,2
Durdona		
Control (water)	11,4	12,2
Uzgumin (standard) – 1,9 l/ha	12,7	13,6
Fitovak – 0,9 l/ha	12,5	13,4
Fitovak – 1,05 l/ha	13,5	14,5
Fitovak – 1,2 l/ha	13,0	13,9
Hosildor – 0,9 l/ha	12,9	13,8
Hosildor – 1,15 l/ha	13,9	14,9
Hosildor – 1,4 l/ha	13,3	14,3

In the Durdona variety, which has been studied for years, in the experiments conducted in 2023, the height of the lower pod was 11.4 cm in the control (water) and 12.7 cm in the Uzgumin (standard) variant. When using different rates of the Fitovak stimulator, it was 12.5-13.5 cm and when using different rates of the Hosildor stimulator. In 2024, the height of the lower pod was 12.2 cm in the control (water) and 13.6 cm in the Uzgumin (standard) variant. When using different rates of the Fitovak stimulator, it was 13.4-14.5 cm and when using different rates of the Hosildor stimulator.

CONCLUSION

In conclusion, it was found that the best indicators were the higher height of the lower first pod when the Fitovak and Hosildor stimulants were applied to the Barqaror and Durdona varieties at 1.05 and 1.15 l/ha, respectively.

REFERENCES

1. O‘zbekiston Respublikasi Prezidentining “Oziq-ovqat ekinlari ekiladigan maydonlarni optimallashtirish va ularni etishtirishni ko‘paytirish chora-tadbirlari to‘g‘risida”gi 2019-yil 20-oktabrdagi PF-4041 sonli farmoni – T.: “O‘zbekiston”, 2019. (In Uzbek language)

2. O‘zbekiston Respublikasi Prezidentining 2019-yil 17-iyundagi “O‘zbekiston Respublikasi qishloq xo‘jaligini rivojlantirishning 2020- 2030-yillarga mo‘ljallangan strategiyasini tasdiqlash to‘grisida”gi va PF- 5742-sonli qarori. Toshkent, “O‘zbekiston”, 2019-yil. (In Uzbek language)

3. Смирнова М.И Содержанийе белка у зерновых бобовых култур.// Вестник с/х култур.1962.-№7.-С.30-33. (In Russian language)

4. Roziqov.A, Bo‘riyev S.S Makkajo‘xori don hosildorligiga ma’dan o‘g‘itlarning ta’siri.// Xalqaro imiy-amaliy anjuman materiallari. Toshkent. 2012.B.222-234. (In Uzbek language)

5. Xoshimov.I.N,Sarimsoqov M.M., Rajabov T. Takroriy ekin –daromad manbai.//Xalqaro ilmiy-amaliy anjumani materiallari.Toshkent. 2012.B.68-71. (In Uzbek language)

6. Ernazarov Sh. Negmatova S Ang‘izda etishtirilgan moshning hosildorligi va samaradorligi.“Agro ilm”.O‘zbekiston qishloq xo‘jaligi jurnali ilmiy ilovasi, Toshkent, 2009. № 1(9). B.27-28. (In Uzbek language)

7. Ravshanova N. Zarafshon vodiysi sharoitida loviya va mosh etishtirishni amaliy asoslari //Qishloq xo‘jaligi fanlari bo‘yicha falsafa fanlari doktorlik dissertatsiya ishi. Toshkent.-2017. B. 119. (In Uzbek language)

8. Xaliqov B.M.O‘zbekistonning sug‘oriladigan xududlarida g‘o‘za va g‘o‘za majmuidagi ekinlarni qisqa rotatsiyada rotatsiyada almashlab ekishda tuproq unumdorligini saqlash va oshirishning ilmiy-amaliy asoslari:q.x.f.d avtoreferat. Toshkent -2007, B.42. (In Uzbek language)

9. Acosta-Diaz, E. et al. (2015), “Collection and characterization of wild species of Phaseolus (Fabaceae) in northeastern Mexico for

10. Delgado-Salinas A, Bonet A, Gepts P. The wild relative of Phaseolus vulgaris in Middle America. In: Gepts P, editor. Genetic Resources of Phaseolus Beans. Boston: Kluwer; 2008. P. 55–58.