

IMPACT OF DIFFERENT ORGANIC FERTILIZERS ON LAVENDER PRODUCTIVITY (*Lavandula officinalis* Chaix)

Andreja Komnenić, Zoran Jovović, Ana Velimirović¹

¹ University of Montenegro, Biotechnical Faculty, Podgorica, Montenegro

INTRODUCTION

Lavender (*Lavandula officinalis* Chaix.) is perennial bushy plant from *Lamiaceae* family. It is common in the Mediterranean area and it is known by numerous medicinal properties. Flower of the lavender (*Lavandulae flos*) has the greatest economic virtue, and contains essential oil (*Lavandulae aetheroleum*). Interests for this plant are in constant growth due to its value, by both individuals and large industrial branches and great efforts are invested in finding optimal production technology that will provide greater yields and better quality of raw medicinal material. As one of the most important roles in field growing of lavender is fertilisation, it is very important to examine influence of different kinds of organic fertilisers on main production traits, especially having in mind that lavender is mostly grown in organic systems of production.

MATERIALS AND METHODS

The impact of four organic fertilisers (Chap Liquid, Guano, Slavol and Vermikompost) on the productivity of lavender was carried out at the organic lavender plantation "Sunny Valley" in Danilovgrad during 2019. The experiment is conducted in random block system in 4 repetitions. Fertilising is conducted 2 times during vegetation. Non-fertilised control variant was included in the experiment. The efficiency of the nutrition systems applied is monitored through the most important productivity parameters of lavender: plant height, number of flower shoots and herb yield. Statistical data processing was done using the method of factor analysis of variance (ANOVA), and the evaluation of the difference between main values was performed using the LSD test



Fig. 1 First application of fertiliser



Fig. 2 Second application of fertiliser

CONCLUSION

All the tested fertilisers have shown great influence on increasing the height and number of flower shoots as well as higher yield of the fresh herb in comparison with the non-fertilised control. Since this kind of tests are new in Montenegro, further examinations should be conducted in order to get more concrete information about individual fertilisers, dosage and number of treatments in lavender production.



Fig. 3 Determination of flower shoots number



Fig. 4 Lavender plantation "Sunny valley"

RESULTS AND DISCUSSION

The highest average height of the lavender plant was measured on variants using Slavol (59.5 cm), Chap liquid (58.8 cm) and Vermikompost (58.0 cm), while the lowest plants were measured on the control variant (49.8 cm). All fertiliser variants applied had a significant effect on increasing the height of the lavender plant.

The largest number of flower shoots was measured in variants fertilised with Vermikompost - 444.5 and Slavol - 405.8, while the smallest number was determined on the control variant - 292. Differences in the number of flower shoots between all studied organic fertilisers and controls were statistically justified.

All fertiliser variants resulted in a significant increase in the herb yield of lavender. The highest yield of the herb was achieved by applying the organic fertiliser Slavol - 337.3 g. This variant showed a significant increase in herb weight compared to the control - 225.3 g, but also to the variant fertilised with Chap liquid - 284.8 g.

Parameter	Fertiliser				
	K	G	Ch	S	V
Plant height	49,8	56,8	58,8	59,5	58,0
Number of flower shoots	292,0	362,5	390,3	405,8	444,5
Herb yield (g)	225,3	313,5	284,8	337,3	314,0

	Lsd 0,05	Lsd 0,01
Plant height	2,105	2,910
Number of flower shoots	38,151	52,744
Herb yield (g)	41,038	56,735

Tab. 1 Examination results

Fertiliser	Organic compound content in dry matter (%)	Chemical content					pH
		N (%)	P ₂ O ₅ (%)	K ₂ O (%)	Ca (%)	Mg (%)	
Chap liquid (Ch)	70,5	3,62	0,95	4,67	0,75	0,40	7,5
Guano (G)	21-26	3-5	9-12	1-2	23-28	0,5-1	6,5-7,5
Slavol (S)	Liquid microbiological fertiliser, growth stimulator, certified for usage in organic and conventional production. It contains microorganisms that are producing auxins in process of fermentation as well as nitrogen – fixing and phosphorus – mineralisation bacteria.						
Vermikompost (V) (apple pulp 60% i cattle manure 40%)	Organic fertiliser made from manure, biological and municipal waste and compost, using Californian worms. It contains higher concentration of micro and macro bioelements in comparison with substrate. Content: organic matter 62,3%, P ₂ O ₅ 0,89%, K ₂ O 0,5%, Ca 4,40% and Mg 1,09%. pH reaction is neutral 6,8.						

Tab. 2 Main characteristics of tested fertilisers

