

The Influence of the Removal of Flower Floors on the Seeds of Sanza (*Gentianalutea L*)

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Abstract

Sanza (*Gentianalutea L*) is a little studied morphologically, biologically and culturally. Sanza (*Gentianalutea L*) is a slightly studied plant from a morphological, biological, and cultivation point of view. Seed studies have not been carried out, both in biological terms and in other physiological aspects, of factors influencing the physical indication of the seed; the weight of 1 000 seeds, the number of seeds for plants, seed production for plants, and germination power of seeds. The physical seed indicators are closely related to the physiological indicators of the seed, such as power and germinating energy as well as plant growth. The plant load of flowers and seeds affects the seed indicators and the physiological and agronomic qualities of the seed. Assessing the load of plants with flower and seeds, the study was undertaken to determine the extent of the impact of the removal of flower floors on the physical indicators of seed of sanza. An experiment of four variants with different floors of flower in the plant of sanza (plants of the fifth year of their life) was set up.

KEYWORDS: sanza, seed, physical indicators, agronomic, physiological, flower floor.

Introduction

Between aromatic and medicinal herbs, sanza occupies a considerable agricultural and medical place. Its roots find a diverse use in medicine (pharmaceuticals), the beverage industry (fernet, biter, etc.). The ever-increasing demand for the production of this plant has caused this plant to be cultivated in several places. In Albania it is being cultivated in areas where it grows naturally and mainly in the serpentine soils of Kukës, Dibër and Kolonjë. During cultivation, various technical problems arise in all cultivation links until the harvesting, drying, processing and packaging of its roots. The initial stage for each plant is the seed planting, which has its own physical, physiological and agronomic indicators. Often, there was concern about the low germinating power of seed, up to 38%, and the performance of plant growth in the seedbed and field. From visual appearance has been observed that low weight seeds have low germination and poor performance of plant development. In the Kukës conditions, it is carried out the study of the effect of removing flower floors on the physical seed indicators. Kukës lies at 1326 m above sea level, at coordinates 41° 59 'and 20 ° 36', namely the experiment was set up in 1280 m above the sea level. The climate is continental, dry and cool summer and cold winter with over thirty-two days with frost. In the fifth year of plant vegetation, the flower floors have been removed leaving three, four and five floors of flowers as well as

leaving plants without removing any flower floor, leaving the plants in their natural form, with all the floors that the plant forms. For each of the four variants, the weights and estimates for the physical seed indicators were made according to the methodology.

Scientific methods

In the fifth year of the plant were chosen four times by ten plants in four repetitions, to which it was intervened for the removal of flower floors, so the field experiment was set up in four repetitions and with the following variants:

V1-Without removing any flowers floor.

V2- Leaving three floors of flowers.

V3- Leaving four floors of flowers.

V4- Leaving five floors of flowers.

The removal of the floors is done by first removing the first floor which often does not form the seeds due to climate change, mainly temperature and precipitation that prevents pollination and fertilization and consequently the formation of seeds. Plants were cut into the seed ripening phase and the physical seed indicators were evaluated:

1. Weight of 1 000 seeds
2. Number of seeds / plant.
3. Production of seeds / plant (g / plant).
4. Germination power of seed.

We made the weights and counts for the ten plants of each variant and in each of the four repetitions and the average values for all physical seed indicators were derived. At the same time, four repetitions of one hundred seeds were taken, according to the variants defined in methods, and they were planted to determine the germinating power. The countingis made for each planting and the respective averages were taken. The data for the four indicators underwent processing to estimate the degree of variation between the variants.

Results and their discussion

Removing flower floors affects the weight of 1000 seeds produced by the plant. With the lowering of the flowers flooring for plants, the weight of 1000 seeds increases significantly.

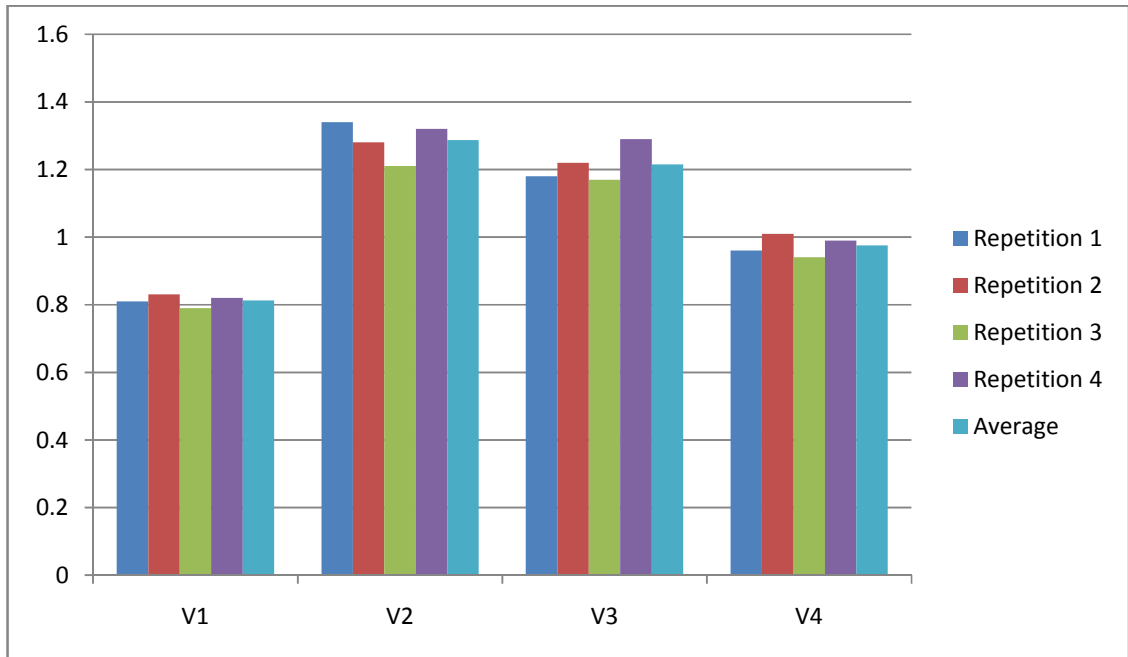


Figure 1 The influence of stalks removal on the weight of seed (weight of 1000 seeds) in g.

Analysis of the variance for the effect of removing of flower floors on seeds weight (weight of 1,000 seeds).

Tabela Nr.1

No.	Source of variance	SS	Df	MS	F	P-value	F-crit
1	Between G	0,57455	3	0,19152	101,916	8,4E-09	3,490295
2	Within Gro	0,02255	12	0,00188			
3	Total	0,5971	15				

The data underwent to the variance analysis and it results that there are verified variations among the variants. This is evident because F-calculated, 101.916 is greater than the F-critical, which is 3.490295.

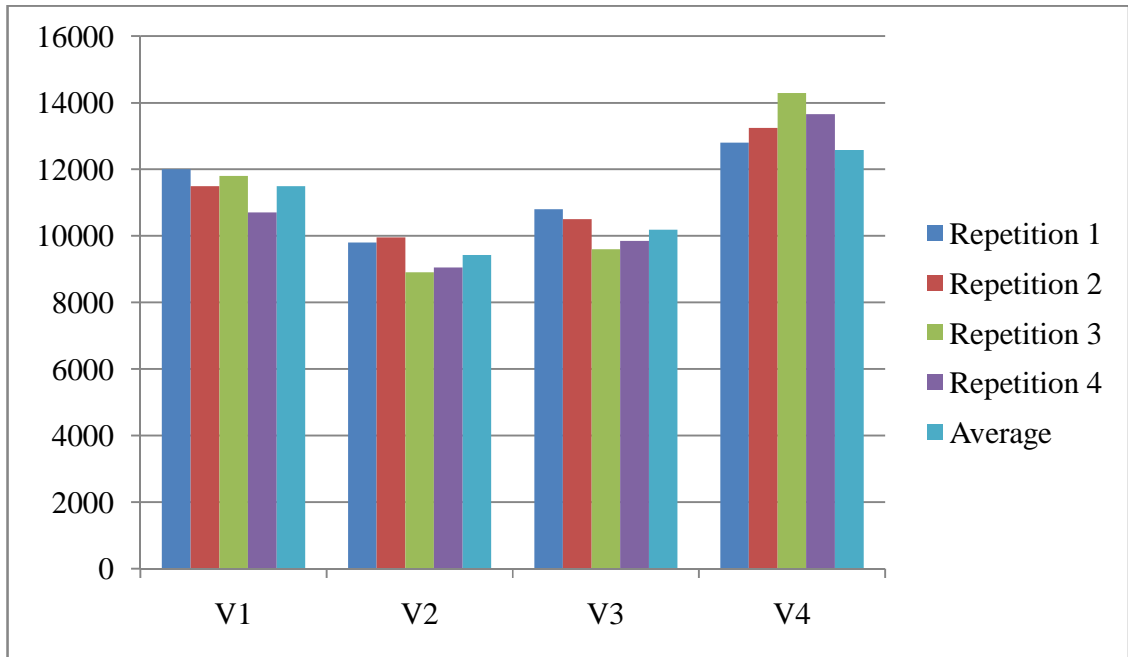


Figure 2. Impact of the removal of flower floors in the number of seeds / plants.

The removal of flowers floors affects the number of plant seeds. In variants with three and four floors, it is decreased the number of seeds for plants, but the seeds are larger and with higher germination power.

Analysis of the variance for the effect of removing flower floors in the number of seeds / plants.

Table 2

No.	Source of variation	SS	Df	MS	F	P-value	F-crit
1	Between G	38234925	3	12744975	38,59726	1,93E-06	4,480493
2	Within Gro	3962450	12	330204,2			
3	Total	42197375	15				

From the variance analysis it is clearly seen that the variants have verified variations. This is evident from the fact that the calculated F (38,59726) is greater than the critical F (4.480493).

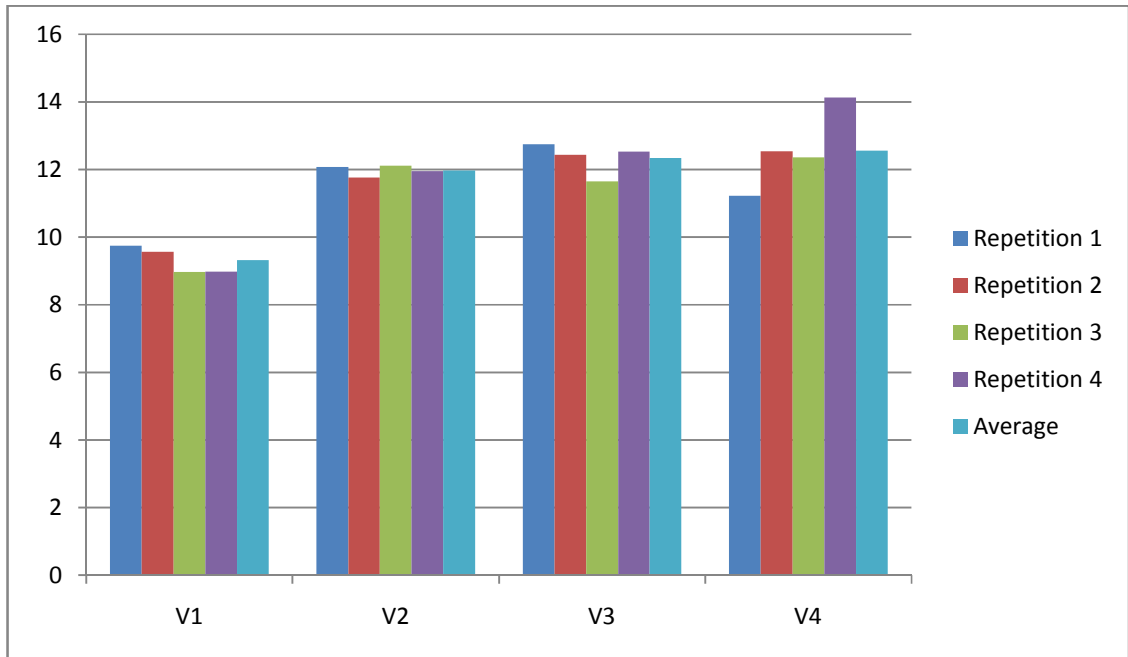


Figure 3. Impact of removal of flower floors on seed production/plant (g/plant).

Analysis of the variance for the effect of the removal of flower floors in production of seed for plant (g/plant).

Table 3

No.	Source of variation	SS	Df	MS	F	P-value	F-crit
1	Between G	27,3122	3	9,10406	19.8148	6,09E-05	3,510487
2	Within Gro	5,51348	12	0,45946			
3	Total	32,82568	15				

From variance analysis it results that variants have verified differences. This is determined by the value of the calculated F (19.8148) that is greater than the critical F.

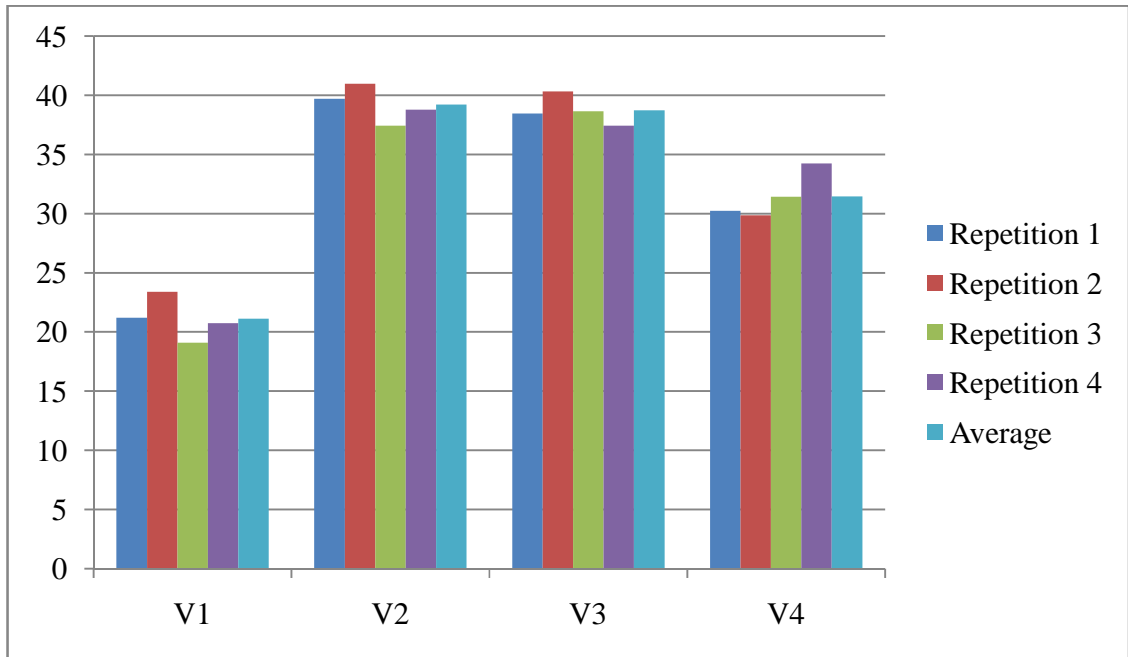


Figure 4. Impact of the removal of flower floors in seed germinating power.

The power indicator is most important in the agri-economic aspect. The influence of the removal of flower floors on germination power is high.

Variance analysis for the effect of the removal of flower floors in seed germinating power (%).

Table 4

No.	Source of variation	SS	Df	MS	F	P-value	F-crit
1	Between G	858,791	3	286,264	106,145	6,62E-09	6,435609
2	Within Gro	32,3628	12	2,696904			
3	Total	891,1538	15				

From the variance analysis for the indicators of the germination power results that among the variants there are statistically verified differences. The calculated F value (106.145) is much greater than the critical F value (6.435609).

Conclusions

From the experimental field study of the influence of the removal of the flowers floors and seeds different variables have been obtained, and from their processing through variance analysis, we can deduce the following conclusions:

1. The impact of the removal of flower floors and seeds is very high in the physical indicators of seed of sanza and concretely in the weight of 1000 seeds, the number of seeds capable of sprouting and the production of seed quantity for plants.
2. The impact of removing the floors of flowers and seeds in germination power is too high by increasing germination power of seed more than 45%.

Literature

1. Bardhi. N. Tirana, Albania, 2018. Aromatic and medicinal plants. (Lecture).
2. Çeku. K., Koni. H., Sahatçiu., Balla. K. 1985. Ether-oil plants technologies.
3. Franz. C., Fritz. D. 1977. Cultivation aspects of *Gentianalutea*L. in international Symposium on species and medicinal plants 73 (pp. 307 – 314).
4. Papadhopulli. G. 1987. The medicinal and aromatic plants of Albania.
5. Papakroni. H. 2 000. Programe përdorimi në kompjuter.
6. Perry. D. A.1981. The concepts of seedvigor and its relevance to seed production technics.
7. Salillari. A., Hoxha. S., Çeko. A., Rusinovci. I., Hodaj. B.2003. The seed.
8. Salillari. A. Hoxha. S., Demiri. H. 1998. Seed and its technology.
9. Thomson. J. R. 1979. A production to seed technology.
10. The Seed Program Starts: Initial Seed Multiplications. 1994. 63 – 143.
11. Xhuveli. L., Xhepa. S. 1983. Genetic improving of plants.
12. Xhuveli. L., Salillari. A. 1984. Fundamentals of scientific experiments.