The Impact of Basil Fertilization on Oil Yield

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Basil is a valuable plant with multiple uses, both in food, medicine and cosmetics.

Basil is a basic ingredient in many culinary preparations, especially in Mediterranean cuisine.

Its fresh or dried leaves are added to soups, salads, pasta, pizza, or meat and vegetable dishes, it is known for its antioxidant, anti-inflammatory and antibacterial properties.

It is used in traditional medicine to relieve stress, aid digestion, and strengthen the immune system.

Basil is also cultivated as a decorative plant due to its green leaves and small, white-purple flowers, which attract pollinators such as bees.

Sustainable and modern cultivation systems must involve organic fertilization and not just chemical fertilization even if yields are lower.

In the studied plants, the average plant height was 51.18 cm for organic fertilization and 52.96 cm for the chemical fertilization.

Results and discussions

Influence of cultivar and location type on the biometric characteristics

Treatment	Plants hight (mm)	Seedling leaves number	Leaf Area Index (LAI) (cm^2 per Plant)
Variety			
Italian	10.93±0.62b	5.11±0.14b	3.41±0.11b
Violet Serafim	9.12±0.45 ab	4.28±0.21ab	2.96±0.07a
Genovese	8.29±0.78 a	3.75± 0.07a	1.69±0.09a
Location			
Timișoara	9.31±0.45b	4.48±0.21a	2.46±0.07a
Cluj-Napoca	7.29±078a	4.12± 0.017a	2.69±0.09a

Within each column: n.s.—no statistically significant difference; values associated with the same lowercase letters are not statistically different at $p < 0.05$ according to Duncan's test.

Results and discussions

Influence of cultivar location and fertilization type on the biometric characteristics

Treatment	Plant Height (cm)	Ramifications (No. per Plant)	No. of Leaves per Plant	Leaf Area Index (LAI) (cm^2 per Plant)
Variety				
Italian	64.36±2.42b	19.29±0.14b	598.18±1.16b	3641±151b
Violet Serafim	53.28±1.68b	14.76±0.21ab	497.25±1.23a	3283±416a
Genovese	48.96±2.16c	13.5± 0.07a	442.18±1.41a	3412±282a
Location				
Timișoara	56.26±1.58ns	14.63±0.21ns	468±0.07ns	3351±226ns
Cluj-Napoca	54.38±2.51ns	14.27± 0.57ns	437±0.09ns	3286±283ns
Fertilization				
Chemical	53.87±2.65 b	15.84±1.83b	496±1.80ns	3469±189ns
Organic	52.91±2.49 a	14.67± 2.04a	452±1.63ns	3583±197ns

Within each column: n.s.—no statistically significant difference; values associated with the same lowercase letters are not statistically different at $p < 0.05$ according to Duncan's test.

Results and discussions

Influence of cultivar location and fertilization type on basil yield characteristics

Treatment	Leaves DM %	Flower DM %	Leaves oil yield %	Flower oil yield %
Variety				
Italian	5.82±0.14b	3.45±0.17b	0.68±1.42b	0.94±1.51b
Violet Serafim	5.36±0.23a	3.29±0.20ab	0.51±1.29ab	0.83±1.43ba
Genovese	5.48±0.19a	3.15±0.34a	0.49±1.27a	0.68±1.49a
Location				
Timișoara	5.66±1.14n	3.31±0.18ns	0.54±0.07ns	0.85±0.07ns
Cluj-Napoca	5.29±1.23ns	3.29±0.27ns	0.50±0.09ns	0.81±0.09ns
Fertilization				
Chemical	5.78±0.07b	3.43±1.03b	0.60±0.04b	0.92±0.11b
Organic	4.34±0.09a	2.76±1.06a	0.43±0.09a	0.71±0.12a

Within each column: n.s.—no statistically significant difference; values associated with the same lowercase letters are not statistically different at $p < 0.05$ according to Duncan's test.

Conclusions

- Regardless of the fertilization method, the three varieties studied recorded the most valuable characters in the Timișoara location.
- The highest oil yield, from leaves and inflorescences, was the Italian variety, regardless of the cultivation location.
- Chemical fertilization helps to achieve a higher oil yield.


Thank You!