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Cultivation practices and seasonal fresh biomass productivity of spearmint (Mentha spicata L.) in a small-scale field study

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ABSTRACT

This study evaluates small-scale cultivation and seasonal fresh biomass of spearmint (Mentha spicata L.) in Timiș County, Romania (2024). Stolon-propagated plants were cultivated with organic pigeon-manure fertilization, manual harvesting and supplementary summer irrigation. Three harvests yielded 0.8 kg/m² (May), 1.5 kg/m² (July) and 1.2 kg/m² (September), totaling 3.5 kg/m² of planted area. July accounted for 42.9% of annual production. Separated leaves were shade-dried under natural ventilation for up to 15 days in summer and up to 20 days in autumn. The findings demonstrate the potential for successive harvests and the importance of seasonally adapted post-harvest handling.

Keywords: spearmint; Mentha spicata L.; fresh biomass; successive harvests; cultivation technology; seasonal variability

INTRODUCTION

Spearmint is a perennial aromatic plant that regrows after cutting, enabling several harvests per season. The study documents cultivation practices, seasonal biomass dynamics and conditioning of leaves for herbal infusions.



Fig. 1. Spearmint crop during the 2024 growing season (Periam, Timiș County).

MATERIALS AND METHODS

STUDY PERIOD
May–October 2024

SITE / TOTAL PLOT
Periam / 30 m²

PLANTED AREA
21 m² (70% of plot)

SPACING
0.50 × 0.30 m

ORGANIC FERTILIZER
Pigeon manure, 1 kg/m²

MANAGEMENT
Manual harvest & irrigation



Fig. 2. Vegetative planting material (stolons).

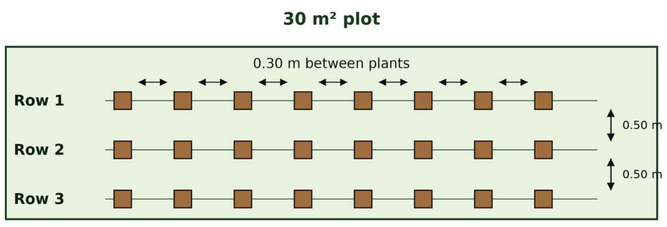


Fig. 3. Schematic planting layout (not to scale).

POST-HARVEST HANDLING

Leaves were separated manually from stems and shade-dried under natural ventilation. Drying required up to 15 days in summer and 20 days in autumn; a 5:1 fresh-to-dry leaf ratio was used only for an illustrative estimate.



Fig. 4. Dried leaves during inspection.



Fig. 5. Manual packaging of dried herbs.

RESULTS AND DISCUSSION

3.5
kg/m² planted area
Fresh biomass / 3 harvests

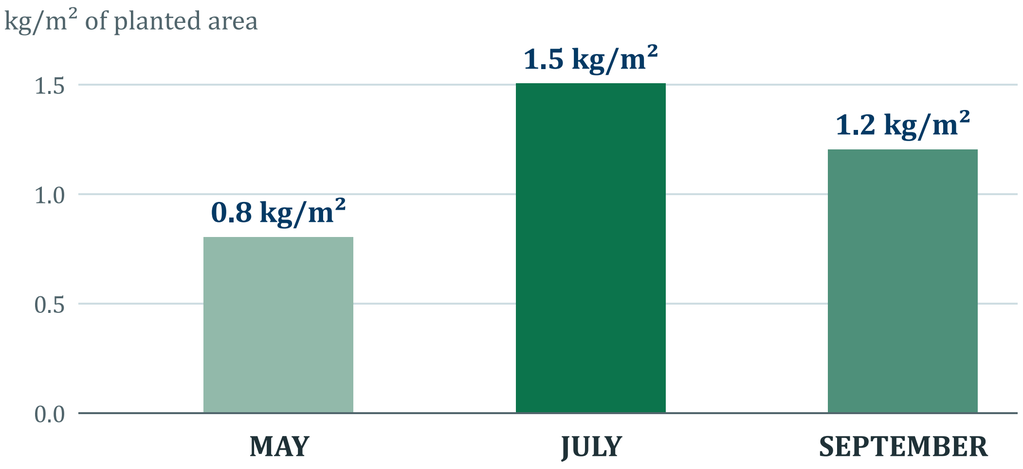
42.9%
of annual crop
July harvest share

24.50
t/ha/year*
Annual whole-plot equivalent

8.17
t/ha/harvest*
Mean per harvest (converted)

FRESH BIOMASS BY HARVEST • 2024

kg/m² of planted area



* Per-hectare values are conversions based on the total 30 m² plot, including 9 m² of paths.

SEASONAL PATTERN

July yield was 87.5% higher than May; September yield was 20.0% below July. These observations describe seasonal dynamics, not a measured causal effect of fertilization or irrigation.

CONCLUSIONS

1. Three successive harvests produced 3.5 kg/m² of fresh biomass; the highest yield occurred in July.
2. Natural drying was season-dependent, requiring additional time and monitoring in autumn.
3. Manual cultivation, leaf selection and shade drying provide a practical chain for herbal-infusion material.



Fig. 6. First author in the field.

Further research: replicate trials and measure final moisture, composition and processing costs.

Acknowledgement: Field observations originated from the first author’s Master’s dissertation (2024).

Selected references: Burguș (2024), Master’s dissertation; Yasak & Telci (2023), Turkish Journal of Field Crops 28(2); Marcelino et al. (2023), Sustainability 15, 14095.