Tillage system effects upon productivity of *Menta x piperita* L.

Frabboni L.*¹, de Simone G.¹, Russo V. ²

¹ Dipartimento di Scienze Agro-Ambientali, Chimica e Difesa Vegetale -Facoltà di Agraria- Università degli Studi di Foggia - via Napoli, 25- 71100 Foggia, phone 0881-589339; e-mail: l.frabboni@unifg.it
² Dipartimento di Scienze delle Produzioni, dell’Ingegneria, della Meccanica e dell’Economia -Facoltà di Agraria- Università degli Studi di Foggia - via Napoli, 25- 71100 Foggia

* Presenting Author

Tillage systems modify, at least temporarily, some of the physical properties of soil, such as soil porosity. Tillage also has an indirect effect on soil water content throughout the growth cycle, particularly in areas with a Mediterranean climate. Therefore, farmers need to manage crop residue and tillage to control soil erosion and effectively store and use the limited precipitation received for crop production. In several studies, minimum tillage has been reported to produce crop yields similar to or higher than conventional tillage.

The experiment evaluated the adoption of three cultivation techniques: one that required a tillage depth of 20 cm, another that required a tillage depth of 30 cm and another that required a tillage depth of 40 cm. The peppermint was sown in alveolated polystyrene containers in greenhouses. The seeds were planted on 15 February 2006 using a type of sowing machine which is also utilised for tomato and other horticultural plants.

The seeds were kept in a germination chamber for 8 hours at 24 °C and with a relative humidity of between 90 and 100%. It took 52 hours for the seedlings to emerge. The seedlings were manually replanted in rows 50 cm apart on 25/04/06. A distance of 20 cm was left between each seedling. All the seedlings were watered immediately after being replanted and other interventions were subsequently carried out when necessary. It was necessary to carry out two mechanical weeding operations using an engine-driven cultivator in order to destroy the weeds between the drills. In order to reach the same objective along the drills, manual weeding was carried out using hoes. On 28/05/06, the seedlings were fertilized with a mineral based fertilizer containing NPK.

Every ten days plants equal to one meter in length were taken from each test group and the following biometric parameters were determined from them: root length, stalk length, number of leaves, total fresh weight, fresh weight of the root, fresh weight of the stalk, fresh weight of the leaves, total dry weight. In order to calculate the dry weight, the product was kept in an oven at a temperature of 60°C. All the data collected from the experiments were subjected to variance analysis using ANOVA statistical analysis.

The results of this research indicate that minimum tillage can be a more productive peppermint farming practice than conventional tillage.