

**IMPACT OF FERTILIZER AND TREATMENT RECIPE  
ON MYCORRHIZAL FUNGI PROGRESS  
IN THE ROOT SYSTEM OF *Festuca rubra* PLANTS**

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**Abstract**

Mature ecosystems are characterized by a simultaneous evolution of plants and mycorrhizal type radicular symbionts, extraradicular hyphae produced by mycorrhizal fungi connecting higher plants through interradicular networks and thus balancing the transfer of nutrients across the ecosystem. Biodiversity of ecosystems is based on the balance created by mycorrhizal networks. Fertilization can cause a destabilization of the ecosystem, favoring the preferential allocation of nutritional resources to dominant plants in grass cover. Integrating fungicides in treatment recipe act to preserve nutritional balance, and zinc for increasing the amount of water absorption. The action of treatments superposed on fertilization recipes is enhanced by environmental conditions. The application of chemical fertilization with a nitrogen base reduces the intensity of the colonization, and superposing a treatment with fungicide stabilizes the frequency with which the *Festuca rubra* roots are colonized to less than 70%. Effect of fertilization and treatment recipes is amplified by environmental factors. Mycorrhizal colonization is enhanced by fertilization with manure and fungicide treatments, while zinc sulfate overlapped on the effect of manure acts to reduce colonization. Fungal symbionts response to experimental factors falls within the limits of four clusters. Overlapping chemical fertilization with nitrogen over fungicide treatment leads to reduced values of the colonization parameters in the second year of experimentation. A beneficial effect for the installation of symbionts in the root system of *Festuca rubra* plants is played by the chemical fertilizing, in the first experimental year conditions, over which is overlapped a treatment with zinc sulfate.

**Key words:** fertilization, mycorrhizal colonization, zinc sulphate, fungicide