

96. THE IMPORTANCE OF BOTTOM-UP PROCESSES IN THE REGULATION OF NEMATODE ABUNDANCE ON *AMMOPHILA ARENARIA*

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Marram grass (*Ammophila arenaria*) is the most important sand fixing grass in European coastal sand dunes. It succeeds to dominate the vegetation at sites where sand deposition occurs, because it withstands heavy sand burial and re-grows vigorously. Deposition of fresh sand allows new roots to develop in a pathogen free environment. In 'old' sand-layers, a pathogen complex develops, which consists of small soil fauna, such as mites and collembola, fungi, bacteria, and nematodes. As part of the EU-funded Ecotrain project, which aims to elucidate how populations of plant parasitic nematodes are regulated in natural ecosystems, this project focuses on plant responses and defences against endoparasitic nematodes, which may affect all nematode species feeding on Marram grass. As nematode population growth in greenhouse experiments does not depend on the initial nematode density across a wide range of initial densities (50-1200 nematodes per plant), some mechanisms controlling nematode numbers may exist. The question is to what extent the plant itself keeps nematode numbers low. The occurrence of induced defences in Marram grass will be investigated in different ways. As a first step, the presence of pathogenesis-related proteins (markers of induced defence) is measured in chemically induced Marram grass. Furthermore, the systemic induction of pathogenesis-related proteins will be studied in relation to nematode infestation. Also, the effect of initial inoculation with nematodes on the population development of nematodes added at a later stage will be determined. The latter experiments will be conducted in a split-root system to physically separate both inoculation steps.