

Master-/ Bachelorthesis: Utility of open root cages for protecting tree roots from vole damage in silvopastures

Agroforestry is recognized for its multiple potentials to contribute to more sustainable land use systems. However, lacking knowledge on good management practice including sufficient tree protection during the establishment phase hampers its wide adaptation in temperate Europe. Common voles (*Microtus arvalis*) are causing significant damage on cropping trees across large parts of Eurasia. This is especially relevant when establishing silvopastures as grasslands are the preferred habitat of common voles and many agroforestry tree species are prone to their damage. Under favourable conditions gradations can occur in common vole populations, this is when gnawing at the base and roots causes a serious threat to newly established trees. Thus, measures to prevent vole damage can be crucial for successful establishment of agroforestry systems. Galvanized root cages offer lasting protection to tree roots, however, when closed at the bottom they can interfere with root development. Open root cages are used as an alternative, they are thought to be sufficient due to the shallow den systems of voles (Brügger et al. 2010). However, their effectiveness to prevent vole damage has yet to be investigated. In this thesis project the vitality of sweet chestnut trees (*Castanea sativa* x *crenata*) in a newly established silvopasture will be compared between trees protected by open root cages and unprotected trees. In addition, the vole activity will be assessed using burrow renewal as an indicator (Liro 1974). **Fieldwork** will be carried out at Hof Sonnenwald (black forest) and ideally take place in Spring (April) and Summer (July/August) 2025. This topic has a high practical relevance as it contributes towards establishing a knowledge base for a critical aspect of agroforestry management. This topic is suited for B.Sc. or M.Sc. students.

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References

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