



EFFECT OF SAWMILL RESIDUE APPLICATION ON FOREST SOIL BIOLOGICAL QUALITY

Dalva Luiz de Queiroz Santana, Antônio Francisco Jurado Bellote, Guilherme de Castro Andrade, Fabiana Maia de Andrade, Charlotte Wink, Helton Damin da Silva.

Estrada da Ribeira, km 111, POBox 319, Colombo - Paraná, Code 83411 000, Brazil, dalva@cnpf.embrapa.br

Pinus wood production generates a large amount of residues that can be an alternative fertilizer in the production of forest tree seedlings or use in forest re-planting, allowing the return of some nutrients extracted in tree harvesting. This cycling is only possible through the activity of soil organisms, especially the mesofauna. As part of a project aiming to find solutions to the problems of forestry residues, soil mesofauna were evaluated in areas with application of different pine residues (sawmill waste). The work was carried out in Guarapuava, PR at the property of Manasa S/A Forestry, in partnership with Embrapa Forests. Treatments included the application of sawmill residues of Pinus in the raw, intermediately and well decomposed stages, at rates of 0, 20, 40 and 80 ton/ha, in plantations of Pinus taeda of 8, 20 and 56 months of age. Samples were taken from June 2004 to July 2005. The most abundant groups were oribatid mites, and collembolans. However, other groups such as Coleopterans, Diptera, Hymenoptera, Pauropodae, Chilopodae and Aracnids (spiders) were also widely present. Largest populations of Collembola occurred in the colder months; in hotter and rainier months their population decreased significantly. For mites (total) and oribatids this was not observed, but in plots with residue application their populations were significant. Fewest individuals of most groups were observed in the 8 months-old plantation without residue application (control). Highest populations of mites, oribatids, collembolans and other taxonomic groups were found in the treatment with raw residues at the dose of 80 ton/ha. Therefore, larger doses of residue application can significantly affect the abundance of soil mesofauna due to formation of a greater soil protection layer that reduces climatic variations such as temperature and humidity, providing a more favorable microhabitat for reproduction, survival and activity of these animals.

Key-words: forest sustainability; residue; soil fauna;