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environment. In this study, a set of WW samples have been characterized in order to investigate its heterogeneity. The samples have been collected during a sampling plan in a panel board industry located in northern Italy. All of the samples have been analyzed by means of near infrared spectroscopy directly at the company and later in the lab. The most important chemical and physical properties have also been assessed. Multivariate data analysis has been used to evaluate the variation in sample properties and investigate the optimal sampling and analysis procedures. In addition, Partial-Least Squares regression models have been developed and the results indicate that spectroscopy could be used as a tool for the rapid evaluation of WW parameters for energy applications. The project leading to this application has received funding from the EU's Horizon 2020 (GA 838560).

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Potential of slurry from intensive dairy cattle farms for paulownia and populus trees, as organic fertiliser: i. Effect on production

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Intensive dairy cattle breeding have a relevant social and economic impact in Portugal, particularly in the northern region. This activity generates a high flow of livestock effluents (slurry), rich in important nutrients for plant growth, which can be introduced into forest production systems. These effluents can provide a good alternative to mineral fertilizers, not only from an economic perspective, but also from the point of view of environmental protection. In the present study, the effect of increasing doses of slurry on tree growth, either with or without mycorrhizal arbuscular fungi and plant growth-promoting bacteria inoculation, was evaluated in clones of *Paulownia* CoT2 and *Populus* i214, as they are genotypes that have a high efficiency in the mobilization of soil nutrients (namely N) and in the capture of CO₂ from the atmosphere, as well as high biomass calorific value. For this purpose, a demonstration field trial was installed, occupying an area of 14 607 m², where the trees were planted with the compasses of: 2.5 x 1.5 m and 2.5 x 0.75 m, respectively for *Paulownia* and for *Populus*. Prior to transplantation to the field, some plants were inoculated with mycorrhizal arbuscular fungi and plant growth-promoting bacteria. In the field, the following treatments were performed: T0 - no fertilization, either mineral or organic, T1 - amount of slurry equivalent to 85 kg of N ha⁻¹, T2 - amount of slurry equivalent to 170 kg of N ha⁻¹, T3 - amount of slurry equivalent to 340 kg of N ha⁻¹, both with and without inoculation Results revealed a significant and positive effect of the slurry application, both in the diameter at breast height (DBH) and total stand height, showing its high fertilizing potential and, thus, providing an alternative to chemical fertilization and to uncontrolled disposal of highly polluting waste.