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A SOURCE OF INFORMATION FOR R&D ORGANIZATIONS

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Project Information

UNITED KINGDOM - Trials of Harvesting, Storing and Transporting Wood for Energy

The Department of Forestry at Aberdeen University are carrying out a three-year research project into equipment for harvesting, processing, storing and transporting wood for fuel from existing forests. The study is being undertaken by the University and funded by the Department of Energy and the EEC energy from biomass programmes.

The project stems from a need to provide reliable data on output rates and costs of production of harvesting fuelwood from conventional forestry for industrial markets. The aim being to develop efficient and economic harvesting and transporting systems for supplying wood energy in the form of chips or chunkwood. This will be acheived by:

-conducting a series of harvesting trials in conjunction with the UK forest industry to determine harvesting costs and optimum systems;

-conducting trials of appropriate whole-tree harvesting systems for early thinnings;

-investigations into transpirational drying of both whole trees and residues;

-determination of the storage properties of wood fuels in particular by large scale storage trials of chips and chunks;

-examination of the means and costs of transport of wood fuels;

-making recommendations for harvesting systems to recover wood for fuel at costs competitive with other sources of fuel.

The research team recognizes the importance of international collaboration with other researchers on similar projects.

Further information can be obtained from:

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UNITED STATES - Preliminary Evaluation of Conventional Round Baler for Biomass Recovery

The potential of producing round bales of woody biomass using conventional farm equipment was evaluated in a study by the Tennessee Valley Authority (TVA), US Forest Service and White's Inc. Baling of young, small diameter stems may be a solution to handling this type of material in specialised conditions such as rights of way; short rotation intensive culture (SRIC) plantations; and dense, stagnated stands. Improved in-woods forwarding by densification and reductions in power consumption and capital expenditures are possible advantages of a baling system.

Trees, either crushed or

uncrushed, were baled a conventional round baler using eighteen 29.8 cm steel rollers to encompass and produce large, high-density bales. A baler of this type was chosen over belt type balers which have not proved feasible in handling tree length material and are not as rugged as the roller design. The baler was equipped with a typical hay spring tine head with a feeder assist rake to help pack material into the baling chamber. It was also equipped with a Rolletex high-speed net wrapping system to replace the old twine-tying method of holding the bale together.

This machine was successfully used to bale small-diameter woody biomass. Crushed stems were hand fed to develop a bale core. Once the bale began spinning, the pickup and infeed system became aggressive enough for self-feeding of stems laid in a windrow.

Observations from the test were that small, crushed stems are better for developing a bale core. The conventional tine pickup system can successfully remove biomass in windrows if gathered from the top. However, for reliability and production use, additional modifications would have to be made. A more positive infeed system and aggressive rollers are needed for better baling and developing a bale core other than manual methods. A future possibility is to have an expanding baling chamber to increase the density of the core and the overall bale density.

Further information:

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