EFFIECIENT RAW MATERIAL HANDLING AT THE FOREST BIOMASS SORTING TERMINALS

This part of Forest Refine aims at mapping existing forest biomass terminals and investigating their current and future efficiency of raw material handling in the project area of Västerbotten, Sweden and Central Ostrobothnia, Finland. Since forest biomass in most of its forms has a bulky nature with low energy content per unit of volume, it is important to upgrade bulky biomass assortments to ones with higher energy content per unit of volume as close as possible to the source of raw material.

MAPPING EXISTING BIOMASS TERMINALS

About 21 % of the total woody biomass used for energy in Sweden was processed in terminals in 2008. This shows the importance of the forest biomass terminals in the biomass supply chain. There is a vast range of biomass assortments being handled at terminals and each of them requires different treatment. Today we do not know much about how these biomass terminals look and what operations are carried out and when they are performed.

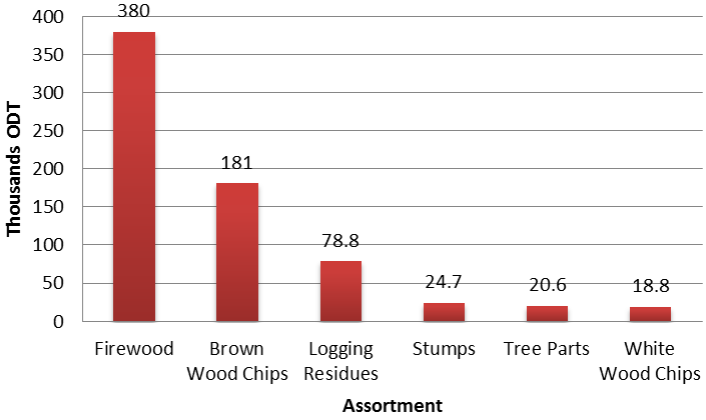

Figure 1. *Volumes of different assortments passing through terminals in Sweden, year 2010.*

This study will focus on state of art of the existing forest biomass terminals. In order to carry out analyses of production systems, the collection of basic terminal information will be performed. The most crucial questions are terminal area, annual volumes per assortment, number and size of machinery used etc. The number of assortments taken into a terminal directly affects the area of a terminal and production system used. For example, the average terminal in Sweden takes in two or three assortments and about 20 % of the terminals take in only one assortment which is firewood. In the cases with only one assortment delivered to the terminal, also chipped material of logging residues and bark is taken in since there will be only one end product delivered to the customer.

PRODUCTION SYSTEMS AT THE BIOMASS SORTING TERMINALS

Today there are only very few biomass terminals carrying out sorting according to the end users quality demand. This situation may change when activity of bio-refineries will increase. This will also mean that number of delivered assortments and customers per terminal will increase as well as terminal area and complexity of operations carried out. The possible integration of round wood and biomass terminals could come in sight as well. To ensure optimal production rates at these integrated biomass sorting terminals, the

analyses of production systems will be carried out both in existing and future terminals. The well-organized terminal should be able to deliver high quality material to the right customer at the lowest possible costs at the right time throughout the year.

Figure 2. *Storage of different biomass assortments at the Stockaryd terminal in Sweden Photo: Tomas Nordfjell.*

LITERATURE

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