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<i>Institution</i>	Forestfin, Florestas e Afins, Lda./ ANEFA. Portugal, North, Vila Nova de Gaia
<i>Position</i>	Agricultural engineer, Zaragoza
<i>Field of work</i>	Project Director/Chairman of ANEFA
<i>Experience</i>	20 years of experience with biomass from landscape conservation and maintenance work, coordinating different teams that produce this feedstock
<i>About the feedstock</i>	<p>Types of LCMW feedstock in their scope of activity were different, from fresh grass cut, to the rests of pruning activities, wood chips from harvesting residues, wood chips from forest bushes, etc. The amounts of feedstock depend on the season, but at least 80/120 t per month in average arise.</p> <p>Feedstock characteristics also depend on the material and the season; we can find material with 60 % of water content and others with 20 - 30 % of water.</p> <p>The feedstocks they work with are mainly produced by their teams and they worked normally within 60 km distance.</p>
<i>Processing chain</i>	<p>Usually the material to produce energy is delivered at the energy plants or pulp mills with own energy plants. There is another type of material that is used for production of compost in their own facilities and therefore that biomass remains at their center. They manage two different processes regarding the destination of the material.</p> <p>If the material is to be delivered to energy plants, which is usually the case of the residues of pruning or harvesting, they collect and chip them and transport to the energy plants. The machinery for harvesting and collection are harvesters and chainsaws. For collection a tractor with a trailer and a crane are used. The chipper used is powered by a tractor and the chips are piled in the ground. When there is enough material to be transported the truck is loaded with the front loader of the tractor. The total costs of the operation are 23-27 €/t where harvesting costs are not included since we are talking about harvesting residues, which means that the harvesting costs were included at the log production.</p> <p>If the material is used for compost then it is collected and spread in piles in the field where the compost is carried out. They have a pile for each kind of material and then they mix in the composting rows with the proportion desired of each kind.</p>
<i>Economics</i>	<p>The selling price of the wood chips is around 25-30 €/t if the costumer is an energy plant.</p> <p>The maximum distance taking into account the price mentioned above is 25 km. Currently there is a large demand of biomass due to the new energy plants and pellet factories but the prognosis is that this trend will decrease in</p>

the future.

The biomass must be processed with better quality, producing different types of feedstock for different kinds of markets but to do so the price must increase.

*Context*

They are part of ANEFA which is the National Association of Forest, Agriculture and Environmental Entrepreneurs. Cooperation that exists between the companies is exchange of services, especially when a bigger machine to produce chips is needed.

The environmental issues/threats connected to the treatment, processing or conversion are related to any problems of the machinery, which is the same like by harvesting other types of biomass.

There is what could be called as supply instability which means that since the energy plants and pellet industry are consuming logs instead of residual biomass, it is difficult to create a true production chain for it with quality patterns, because the business is not yet stabilized. To do it, it would be necessary to invest and in order to invest we have to have customers at a regular basis.

*Related formalities*

Certification of the wood chips or the shredded material is currently not demanded by the relevant legislation.

There are subsidies related to the machinery but that applies to all the harvesting machinery, it is not specific to biomass.

*Wider insight*

Their personal estimation of the potential of the feedstock from landscape conservation and maintenance amounts 1 400 000 t of biomass per year.

The future aim is to produce different kinds of biomass for different purposes – industrial consumption, domestic consumption, pellet industry, etc. But to do so, the prices of the biomass should be established according to the use and the quality required.

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