Notizie dalla Filiera

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InBioWood
increasing biodiversity through wood production

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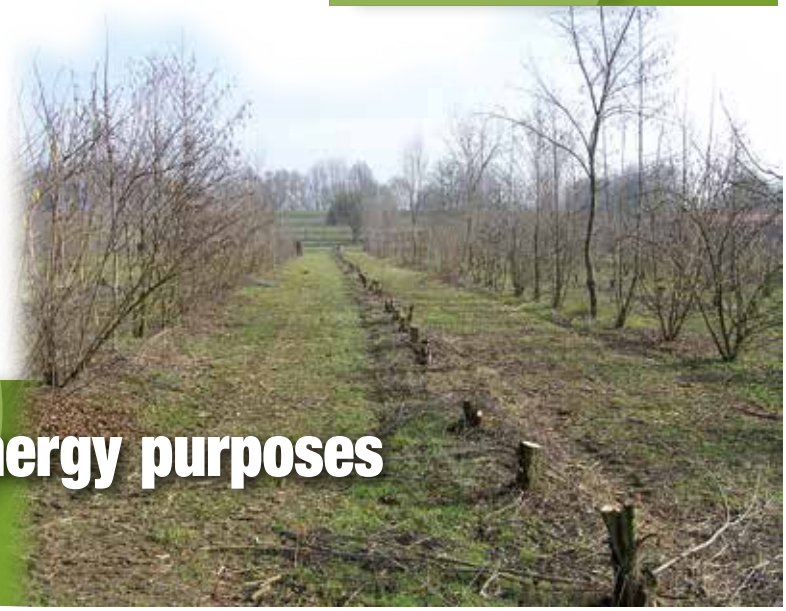

Wood biomasses for energy purposes from tree farming

A market survey in Verona province made within the LIFE + InBioWood Project

The results of the market survey carried out in Verona province were presented, in summary, in T&P n. 108 (December 2014), as part of Life + InBioWood Project (Increase Biodiversity Through Wood Production). The market survey concerned valuable timber request from tree farming. The following article, will present, once again in a synthetic form, the results produced by the same survey regarding the estimate of wood biomass consumption for energy uses, with particular regard to firewood. The wood biomass sector is growing quickly and it's going to become one of the flywheels for the local future economy. This aspect is very important because firewood appears to be one of the main assortments that can be obtained, in the short term, by naturalistic Permanent Polycyclic Tree farms (3P), which are the core of the InBioWood Project.

Targets and objectives

The area involved in this study is the territory of the Valli Grandi Veronesi. This area is located in the southern plain of Verona province, between Adige river on the north and Po river on the south. The analysis started from the study of the results obtained by the survey on the use of woody biomass for energy purposes in Veneto region. This survey was commissioned by ARPAV (Regional Agency for Environmental Prevention and Protection of Veneto) and it's referred to the year 2013. The survey purpose was to estimate the regional and provincial wood biomass consumption for domestic use and the percentage distribution of the biomass home heating systems.

Materials and methods

Data concerning Verona province were analysed, in more detail:

- the percentage of wood biomass users;
- the percentage of frequent users (with more than 4 uses for year);
- the percentage of users with respect to the population density;
- the wood biomass average annual consumption per frequent user family;
- the wood biomass average annual consumption per no frequent user family;
- the purchasing system (dealer, local producer, self-production) and wood biomass origin.

The above data have then been reported to Verona plain area, within a 20-30 km radius from 3P tree farms: therefore, for the municipalities located in Verona province and included in the sample, the following parameters (derived from ISTAT website and updated at the last population census) have been considered:

- municipal area;
- number of residents;
- population density;
- number of families.

With regards to wood biomass purchase price, in particular for firewood, it was made reference to the data provided by local traders and forest contractors in Verona province.

Consumers

As reported in Table 1, this survey shows that 32% of reference population (144,000 people grouped in about 56,000 families) is using wood biomasses (firewood, pellets, wood chips, etc.) for domestic heating. Out of these, only 24% is a frequent user. It means that, in the survey area, 18,400 families are using wood biomass, 4,400 as frequent users and 14,000 as occasional users.

Quantity and quality

Frequent consumers use about 112.000 q / year of wood biomass for energy purposes, considering 25 q/year as average consumption. On the other side, occasional users, with 2 q/year as average consumption, use about 28.000 q / year. Summing up the different contributions, in the study area, the average annual consumption of wood biomass for energy purposes is about 140.000 q: 83% is traditional firewood (116.000 q) , while the remaining 17% is pellets or wood chips (24.000 q).

Biomass supply and origin

With regard to biomass supply methods, 55% of the users buy from a store or a private retailer, 29% are biomass self-producers and 15% contact private individuals for purchase (mostly forest owners). Wood biomass for 54%

Municipality	Residents (number)	Families (number)	Families using biomass (number)	Frequent users (number)	Not frequent users (number)	Frequent total consumption (q)	Not frequent total consumption (q)
Legnago	24.900	10.237	2.150	516	1.634	13.105	3268
Cerea	16.309	6.537	2.549	612	1.938	15.541	3875
Bovolone	15.813	6.090	1.279	307	972	7.796	1944
Oppeano	9.613	3.711	1.447	347	1.100	8.823	2200
Nogara	8.644	3.456	1.348	323	1.024	8.216	2049
Ronco all'Adige	6.166	2.256	857	206	652	5.226	1303
Casaleone	5.933	2.293	871	209	662	5.312	1324
Villa Bartolomea	5.802	2.317	880	211	669	5.367	1338
Gazzo Veronese	5.431	2.159	734	176	558	4.475	1116
Albaredo d'Adige	5.301	1.986	775	186	589	4.722	1177
Minerbe	4.698	1.778	676	162	513	4.119	1027
Sanguinetto	4.108	1.664	349	84	266	2.130	531
Castagnaro	3.878	1.502	571	137	434	3.479	868
Salizzole	3.749	1.387	527	126	401	3.213	801
Isola Rizza	3.296	1.222	464	111	353	2.831	706
San Pietro di Morubio	3.045	1.141	434	104	330	2.643	659
Roverchiara	2.721	1.001	380	91	289	2.319	578
Pressana	2.555	947	360	86	273	2.194	547
Terrazzo	2.255	899	342	82	260	2.083	519
Angiari	2.204	887	337	81	256	2.055	512
Bonavigo	2.015	738	280	67	213	1.710	426
Bevilacqua	1.796	692	263	63	200	1.603	400
Roveredo di Guà	1.542	554	211	51	160	1.283	320
Boschi Sant'Anna	1.458	530	201	48	153	1.228	306
Concamarise	1.088	397	151	36	115	920	229
TOTAL	**144.320**	**56.381**	**18.437**	**4.425**	**14.012**	**112.391**	**28.024**

Table 1 - Wood biomass use for energy purposes in Verona province.

is locally sourced, for 11% is regional sourced, another 11% is national sourced, only 7% is from foreign sources (the origin of the remaining 17% is not known).

Price

The data analysis, provided by forest companies and some local traders, show how firewood prices greatly depend on pieces size, wood species and wood seasoning degree:

- minimum and maximum price of fresh firewood, stacked in pieces with 2 m length or more, at the landing: 3.5-6.5 €/q (variable according to wood species hardness);
- minimum and maximum price of dry, cross-cut and split firewood of 30 cm length, final user delivered: 12.5-16.5 €/q.

Considerations

The experience, gained so far in agroforestry, suggests how wood biomass production for energy purposes can easily derive as secondary or accessory production from mixed tree farms with timber value, such as 3P plantations. However, it is advisable to use many tree species with high suckering capacity and with a high-density wood in order to obtain an higher sales price. However, the local and national spread of wood biomass for energy purposes coming from tree farms is independent from their financial sustainability. It is necessary to move from a plantations support policy based on planting incentives to a policy based on service offering for biomass management and sales. The aim is to sell products and services as close as possible to the final user: wood chips or dried, cross cut firewood directly transported at final user's homes.

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