An Own Consumption Wood Energy Micro-Chain (Site visit)

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The micro-chain has been realized inside the firm of the research unit for agricultural engineering of Monterotondo (Rome). The action, financed by Italian Agriculture and Forestry Ministry has started in 2005. The purpose is to produce biomass to use for the Institute heating (total volume of 5.880 m^3) in substitution of the actual diesel system. The sanitary water is produced also. The installed thermal boiler, has a nominal power of 232 kW. The poplar short rotation coppice (SRC), established with the clones AF2, AF6 and Monviso (single and twin rows), feed the micro-chain. The total surface is 4 hectare. The rotation of plantation is two years, beginning from the third year. The average plantation production (t dm ha^{-1} year $^{-1}$) has been of 10.2, with a maximum value of 13.53 for the twin rows AF2 and minimum value of 8.00 for the single row Monviso. The annual economic advantage in comparison to the diesel has been of around 18,700 €. The energetic budget of plantation, compiled using the Gross Energy Requirements method, it has furnished output/input index (in comparison to different clones and planting typology) varying from a minimum of 9.6 to a maximum of 16.5. The lowest output/input index for the whole micro-chain it has been of 4.