FOREST4EU

ITHub 5 – Agroforestry Systems

FOREST4EU partner: CNPF

OG: TCR

OG's country: France

Type of Innovation: Technological

Are short rotation coppice a solution in future regional biorafineries?

Introduction

From 2008 to 2010, as part of the CULIEXA project, short rotation coppices (TCR) with different species and at different densities were installed on four experimental plots in the Occitanie region: in Alenya (eucalyptus, black locust and willow), in Alzone (eucalyptus and black locust), in Narbonne (eucalyptus, black locust, willow, poplar and polownia) and in Ferrals (eucalyptus and black locust). Intended to be monitored over the long term (9 to 10 years), these plots aimed in particular to assess the possibilities for developing these crops at the local level.

Methodology and results

The aim of the project was to compensate for the absence of an agronomic framework on the feasibility, yield and quality of short-rotation coppices in a Mediterranean climate as well as on abandoned land.

The partners wanted to answer two main questions: under what conditions (density, soil, etc.) are short-rotation coppices productive enough in Occitania? What is the economic profitability of TCR for a wood-energy outlet, but also in green chemistry?

At the same time, greenhouse growers also wanted to study the feasibility of using greenhouse effluent to produce wood for the wood chips used to heat their greenhouses.

The objectives of the project were to:

- Obtain knowledge on the productivity of certain rotations in short coppices which could be interesting in French Mediterranean conditions;
- Develop fact sheets on species: agronomy, yield, quality, economy;
- Create a network of tests covering the Occitanie region with varied climatic and soil conditions;
- Produce agronomic and economic references on the production potential of these species in the Mediterranean context;
- Study the feasibility of producing wafers in an ultra-short circuit for greenhouse growers.

Visits to TCR harvesting sites took place in November 2016 on the experimental sites. Videos and photos concretely illustrating the harvesting of whole trees with shears as well as the grinding on the plot of whole trees for the manufacture of forest chips were produced. Species sheets have been produced for black locust (Acacia) and eucalyptus. These sheets contain botanical and historical elements of the species treated. They also present the agronomic and economic interests, the usable plant material as well as elements of cultivation management, harvesting and economic assessment. Plot sheets present simplified test results on the project's various experimental sites: Alenya, Bram-Bonanza, Ferrals and Narbonne.

Lessons learned

The main lesson of the study is that in a Mediterranean environment and on shallow limestone soil, it is not profitable to produce energy wood with the species considered for densities greater than 2,500 stems/ha. Even with irrigation, production yields are very low and do not bring significant economic added value for the farmer.

Eucalyptus is the only candidate species identified as suitable for a TCR development program aimed at biomass production, but its implementation is limited by the increased fire risk inherent to it.

The results of the study are unequivocal: they can be considered as a reliable decision-making tool. The test network is original: Mediterranean and with - on certain plots - densities never tested before.

These data must be adapted to the new inflationary context, in particular the increase in the price of wood energy. It would also be interesting to continue research and trials to reduce the costs of producing plants, planting and harvesting.

The information presented in this factsheet was developed by the FOREST4EU partner, drawing on the innovations and knowledge generated by the indicated operational group with their explicit authorization.

Further information

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