

Incentives and barriers to the engagement in dendromass production on marginal lands in Western Slovakia

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About the project

Dendromass4Europe (2017 – 2022) aims at establishing sustainable, Short Rotation Coppice (SRC)-based, regional cropping systems for woody biomass (dendromass) production on marginal agricultural land. The dendromass produced in SRC (ligneous biomass, bark and wood) is supplied to dedicated bio-based value chains that create additional income and job opportunities in rural areas. The supply chains will be tailored for optimum efficiency of supply logistics and for reducing CO₂ emissions. Innovative bio-based materials will help to replace fossil-based materials.



Task and challenges

In recent years, the expansion of plantations for the production of dendromass in Europe has progressed rather slowly. Asking why, the literature shows several barriers preventing farmers from growing in SRC (see table 1). In addition, in Slovakia 90% of the agricultural land is leased from church, private persons, municipality or state and military. According to § 18a of Slovak Law 220/2004 about protection and use of agricultural land, the landowners' consent is required prior to planting of SRC (see figure 1). The aim of this study is to identify incentives and barriers influencing farmers' decision to engage in SRC on marginal lands in Western Slovakia. This task is important to the project sustainability because short rotation cropping systems, in contrary to annual crop production, may face drawbacks due to limited acceptance by farmers.



Figure 1: Ownership structure of agricultural land in Slovakia which requires the landowners consent before a farmer can grow SRC on leased land (own illustration)

Methods

Farmers, who were contacted, were situated within a radius of approximately 100 km from Malacky, mainly in the Zahorie region. Selection criteria were farming land of soil quality 5-9 (worse soil quality, since it is legally allowed to grow SRC only on these soils in Slovakia) with a maximum of four landowners. The latter was required due to multi-person land ownership from expropriation in 1945 and consolidation from 1991. Within the land acquisition activities of Dendromass4Europe, farmers fulfilling the above-mentioned criteria were contacted by IKEA Industry Malacky. Based on the farmers' responses to grow SRC they provided a list with 39 potential contacts. In total 19 farmers were willing to participate in the study of which 10 were already engaged in SRC activities whilst 9 were not engaged in SRC. The majority of the interviewed farmers managed mostly leased land, owned by the church, municipality, state and military, as well as private persons. Usually farmers manage 20% state owned land, which was aimed for to grow SRC. The farmers were interviewed face-to-face on their farms from January to March 2018.

Table1: Incentives and Barriers to the engagement in SRC derived from literature review with references

Incentives	Barriers
Employment opportunity (Lindegaard et al., 2016)	Financial risk (Lindegaard et al., 2016)
Low labour input (Buchholz et al., 2010)	Lack of skills and infrastructure (Volk, 2004)
Low site requirements (Tubby & Armstrong, 2002)	Low yields (DTI, 2004b)
Farm diversification (Lindegaard et al., 2016)	„food versus fuel“ (Berndes et al., 2011)
Phytoremediation (Dickinson & Pulford, 2005)	Degradation of soil (Rowe et al., 2009)
Flood prevention (Adams & Lindegaard, 2016)	Lack of societal will & interest (Alker et al., 2001)

First Results

Farmers reported economic benefits, environmental and societal benefits, and usefulness of SRC biomass as the main incentives. On the contrary, land fragmentation, landowner's consent, food versus fuel debate, long-term contracts, environmental costs and no present tradition of short rotation plantation were reported as the main barriers to engage in SRC (see table 2). Despite the significant role of economic benefits as a result of the use of low quality soils and low labour input, the study found several reasons overruling them. These reasons relate to the legal entity of farmers, rent paid to land owners, competition with other uses, and loss of independency.

The full report "D5.1 Incentives and barriers to the engagement in dendromass production" can be found in the download section of the Dendromass4Europe website.

Table2: Set of criteria to the engagement in SRC: incentives and barriers (source: own data)

Incentives	Barriers
Economic benefits	Land fragmentation
Low labour input	Landowner's consent
Use of low quality soils	Food versus Fuel debate
Societal benefits	Long-term contracts/ long-term commitment to the multi-annual crop
Environmental benefits	Environmental costs
Usefulness of SRC biomass	Non-usefulness of SRC biomass
	No tradition of SRC in Slovakia
	Non - suitable soils available
	Lack of clear policy



Plantation planting on marginal soils



One year old poplar plantation



Re-sprouting poplars after harvest

Conclusions and recommendations

- Economic aspects are an important and very relevant driver. However, they do not seem to be enough to persuade all farmers to engage in SRC. Therefore, to increase farmers' engagement, other motivators such as environmental and social benefits derived from SRC should be used for land acquisition.
- Therefore, crucial for land acquisition is to provide farmers with science-based facts about the possible impacts of SRC on soil and environment, since the study identified conflicting views on such aspects (e.g. nutrient deprivation, root system breakdown, difficult cultivation, gene transfer and habitat fragmentation were mentioned as risks). This aspect should be also acknowledged in communicating the project to the farmers, land owners, and the general public.
- As the study shows that agricultural cooperatives tend to be more open to SRC in comparison to agricultural business companies, they could be specifically targeted in WP1 to strengthen their identity as farmers (e.g. some agricultural activity instead of having fallow land was preferred).
- As there is a lack of policy and tradition regarding SRC, it is of value to communicate best practice results to the farmer community in form of testimonials (e.g. video of a farmer reports his/her experience with SRC) or at information desks at agricultural fairs. Furthermore, implementing a workshop with farmers to answer their questions and concerns and to promote SRC as well as media presence in a local newspaper are recommended.

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