



## FACTS AND FIGURES

Marius Aleinikovas

### Typology

<b>Simple coppice</b>	Small amount, only in private forests
<b>Coppice with standards</b>	Ash, birch, grey alder
<b>Pollarding</b>	Only on seedling plantation
<b>Short rotation coppice</b>	Willow, aspen, grey alder

### Image



## DESCRIPTION

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In Lithuania, coppice and coppice with standards are very rare and the national forest inventory authority of Lithuania (State Forest Service) does not even register these types of forest. Short rotation coppice system research in Lithuania was established 20 years ago.

The most common coppice is a willow (*Salix* sp.) short rotation coppice system, used to produce biomass for energy. In Lithuania, the short rotation woody crop area is 3,027 ha, with an additional willow plantation area of 2,477 ha (NMA, 2014). Compared with some other countries, in terms of the country's area, Lithuania has a relatively large area of woody energy plantations. However, as of 2015, 66% of willow plantation owners had not harvested their first rotation crop (Konstantinavičienė and Stakėnas, 2015).

The first commercial short rotation energy plantations (SREP) were planted in 2003 in Lithuania, however statistical data could be found only from 2007 (see Table 1), with later yearly increases of 13-60% (NMA, 2014).

A mathematical model for the determination of the dry above-ground biomass of energy willow plantations grown in Lithuania using a non-destructive method has been prepared (Konstantinavičienė et al., 2014).

Another coppice culture in Lithuania is hybrid aspen. Breeding and selection work on hybrid aspen started in 1965. It was reactivated in 1982 and again in 2007 (A. Pliūra, personal communication). Until 2007, approximately

Table 1. Statistics on short rotation energy plantations (SREP) and willow energy plantations (WEP)

Year	SREP total area (ha)	SREP increase (%)	WEP total area (ha)	WEP increase (%)
2007	260	–	–	–
2008	375	44	–	–
2009	492	31	–	–
2010	556	13	–	–
2011	891	60	109	–
2012	1106	24	252	131
2013	1768	60	1196	375
2014	2493	41	1823	52
2015	3027	21	2477	36

50 ha were cultivated both on forest and abandoned agricultural lands.

During the past decade, up to 400 ha of hybrid aspen short rotation plantations have been planted annually in Lithuania (Fig. 1) (Tullus et al., 2011; A. Pliūra, personal communication).

Breeding of hybrid poplars has also been started and the clones best adapted to Lithuanian climatic conditions will be used to establish short rotation plantations, a portion of which will also be managed as coppice forest without replanting after the first and second rotations (Pliūra et al., 2014).



Figure 1. Short rotation plantation of hybrid aspen in Dubrava Forest Enterprise, Lithuania; it will become coppice forest in one rotation (after a clear cut at 20 years of age) (Photo: V. Suchockas and A. Pliūra)

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## FORESTRY REGULATIONS

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Lithuanian forests are a natural element of the Lithuanian landscape. They offer biodiversity, productivity and sustainability, and provide timber, green energy, food products and opportunities for healthy recreation of the urban and rural people. According to data from the Lithuanian Statistical Yearbook of Forestry (2016), the total forest land area is 2,186,000 ha, which is 33.5 % of the country's territory. The total growing stock volume is 537 million m<sup>3</sup>, while the gross annual increment is 19.3 million m<sup>3</sup>. Deciduous trees account for 56% of stands; 44% are conifers. The most common tree species are Scots pine (*Pinus sylvestris*), silver and downy birch (*Betula*

*pendula* and *B. pubescens*), Norway spruce (*Picea abies*), black and grey alder (*Alnus glutinosa* and *A. incana*), aspen (*Populus tremula*) and oak (*Quercus* spp).

After the restoration of Independence in Lithuania, forest property rights were restored. The structure of **forest ownership** has changed due to an ongoing land reform process. All forestland was first transferred to the countrywide network of 43 state forest enterprises under the Ministry of Forestry. Currently, the private forest sector consists of 249,000 private forest owners, managing a total of 873,000 ha (LSYF, 2016), which is 39.9% of the total forest

area. Forests belonging to the state cover 49.8 % and forest areas reserved for restitution amount to 10.3%.

State forest managers and private forest owners are obliged to manage and use their forests according to the **Forest Law** describing regulations on the management and use of forests, as well as other legal acts related to forest management, e.g.:

- Regulations for Forest Regeneration and Establishment (2008)
- Rules for Forest Sanitary Protection (2007)
- Rules for Forest Felling (2015)
- Rules for Forest Improvement Cuttings (2002), etc.

Forest management, reforestation and use are regulated in more detail in legal acts approved by the Minister of Environment. The main legal act is the **Law on Forests**, adopted in 1994. It regulates reforestation, protection and use of forests and specifies the legal preconditions for managing all forest ownership types upon equal sustainable forestry principles. According to the Law on Forests, the state forestry policy trends are defined by **Seimas** (Parliament of the Republic of Lithuania) by adopting appropriate laws. The state forestry strategy and state forestry programmes are prepared by the Ministry of Environment.

Forest sector development targets are guided through the **National Forestry Sector Development Programme for 2012–2020**, which was approved by the government in 2012. The document describes development trends and targets for the forestry sector. The major ones are to preserve Lithuanian forests and increase their area and resources, as well as to preserve the efficiency and sustainability of forest ecosystems, taking account of their ecological and social role and the impact of climate change.

At the beginning of 2016, the distribution of forests by functional groups was as follows.

- Group I (strict nature reserves): 26,500 ha (1.2%);
- Group II (ecosystem protection and recreational): 266,500 ha (12.2%);
- Group III (having protection status with regard to geology, geomorphology, hydrological and cultural merit): 333,400 ha (15.2%);
- Group IV (commercial): 1,560,300 ha (71.4%).

The Group IV commercial forests are split into:

- a) commercial forests of normal cutting age, encompassing productive forest stands that continuously supply wood, following the requirements of environmental protection; and
- b) forest plantations, where the objective is to grow as much wood as possible in the shortest period of time.

The latter are forests that consist of stands of fast-growing tree species with a cutting age of at least 15 years. Only stands with the same age class can be attributed to forest plantations. It is prohibited to plant forest plantations in non-plantation forest cutting areas. Coppice management is rarely practiced, except in short-rotation plantations of willow or poplar.

According to the Forest Law, forest managers and owners are obliged to follow certain mandatory parts of a **forest management plan** (i.e. the amount of wood allowed to be cut over a period of 10 years and reforestation within prescribed environmental protection requirements). Internal forest management projects for private forest holdings of less than 10 ha may be prepared for 20 years. If, over 10 years, the private forest owner does not cut all the permitted quantity of wood, the validity of the project can be extended for a further 5 years.

The preparation of an internal forest management project is not obligatory in the following cases:

- 1) final felling of grey alder, aspen and other low value stands;
- 2) private forest holdings of less than 3 ha.

Lithuanian Law states the mandatory reforestation of clear-cuts and the expansion of the forest area through afforestation of abandoned lands. Clear-cut areas should be reforested within 3 years after cutting. Unsuccessful natural and artificial regeneration should be reforested within 2 years. During the past 10 years, natural forests have expanded rapidly, by about 65,000 ha of new forest, as a result of both natural growth and planting on abandoned agricultural land. Furthermore, since Lithuania joined the EU, afforestation of agricultural land has been introduced using support from EU rural development funds and national funds.

The rotation age at which clear cutting is permitted is established in the **Rules of Felling**. For group IV in state forests it is:

- 121 years: oak
- 101 years: pine, larch, ash, maple, beech, elm
- 71 years: spruce
- 61 years: birch, black alder, lime, hornbeam
- 41 years: aspen
- 31 years: grey alder, sallow and willow

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<http://www.europarc-nb.org/protected-areas/lithuania>

In private forests, for grey alder, aspen, willow and sallow the age of felling in group IV forests is not prescribed. Within forest groups II-IVa, at least 7 live trees/ha (of which at least 3 must be older or thicker than average trees in the forest) and at least 3 dead trees must be left, with a thickness of more than 20 cm in diameter at 1.3 m above ground, to ensure biological diversity.

**Certification Schemes** for forest products in State Forest Enterprises are certified under the rules of the Forest Stewardship Council (FSC) forest management and chain of custody. According to the United Nations Economic Commission for Europe (UNECE), State Forest Enterprises produce about 3.8 million m<sup>3</sup> of FSC certified round wood, 50 % of all the round wood volume produced in Lithuania. Lithuania has its very own system of protected areas, and long-standing traditions for the protection of natural and cultural heritage. Protected areas are established not only for the protection of natural and cultural values, but also for their adaptation to allow public use and access, be it for educational, recreational or other purposes. The Natura 2000 network covers about 13% of the total country territory.

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