Short Rotation Coppice factsheet

Short rotation coppice (SRC) are woody fast growing tree species that are cultivated with the aim to produce high biomass yields in a short period that can be used for energy purposes. Coppice is characterized by the ability of selected tree species to re-grow with new sprouts after the plant is cut down. The perennial woody species in Europe that are grown specifically for their energetic value are willow, poplar and to a lesser extend alder, eucalyptus and black locust. SRC are planted at a high density (12,000 – 15,000 trees per hectare) and are repeatedly harvested, usually in a three-year cycle over a period of 20 to 25 years. Willow and poplar can tolerate a range of climatic conditions. For the establishment of an SRC plantation, it is advisable to use plant material that has been tested under the local conditions in practice.

Willow chips

SRC pellets

Willow plantation

SRC are usually harvested with mechanized means cut and chip in one operation to provide **wood chips**. If desired, the produced wood chips can be further upgraded to **pellets**.

Feasible annual yields in Europe are in the range of **5-18 t (dry matter) per hectare**. The total amount of dry biomass per harvest is calculated by the annual yield and the years of cultivation.

For 2017, it was estimated that there are approximately **26 thousand ha of willow** and **13 thousand ha of poplar** cultivated in the European Union (EU-28). The countries in Europe that have currently the largest areas of SRC for energy are Sweden, the United Kingdom and Poland.

The final product of SRC is wood chips, which are mainly used for **combustion processes**. They may be also used in the **pulp and paper industry**, for **wood-based composites** like plywood or for **other bio-products**. Special aspects of willow utilization include weaved consumer products like **baskets or furniture** and **willow extract** that has cosmetic and pharmaceutical uses.

Indicative fuel composition

Property	Units	Willow & Poplar*
Moisture content	w-% a.r.	50 (fresh)
Ash content	w-% d.b.	2.0
Net Calorific Value	MJ/kg a.r.	8.0
Bulk density	kg/m³ a.r.	250 (chips)
Energy density	MWh/m³ a.r.	0.56 (chips)
N	w-% d.b.	0.5
S	w-% d.b.	0.04
Cl	w-% d.b.	0.02
Ca	mg/kg d.b.	5000
K	mg/kg d.b.	2500
Na	mg/kg d.b.	25
Si	mg/kg d.b.	500

a.r.: as received
d.b.: dry base

SRC pellets can be certified with the **ENplus®** quality scheme.

SRC wood chips can be certified with the **GoodChips®** quality scheme.

Willow integrated harvesting/ chipping

3 year old poplar plantation in spring

**Agrobiomass composition can vary significantly. The given values are only indicative of typical values for this type of agrobiomass. More information on the typical variation of willow and poplar can be found in Annex B of EN 17225-1.*

Image sources: willow plantation - www.heganbiomass.com, willow chips - GEA, SRC pellets/ 3 year old poplar plantation - Dimitriou, I., & Rutz, D. (2015). Sustainable Short Rotation Coppice. A Handbook., willow harvesting - CREFF. Technical guide-Short rotation coppice.

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Find out more about SRC heatinga and use cases, fuel suppliers etc. in AgroBioHeat's Agrobiomass Heating Observatory

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