

## SHORT ROTATION COPPICE IN THE NETHERLANDS EXCURSION, AUGUST 16<sup>TH</sup>, 2011

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### Characteristics Short Rotation Coppice (SRC)

- Coppice system with fast growing tree species, which re-sprout easily after cutting: willow (*Salix spp.*), poplar (*Populus spp.*), alder (*Alnus spp.*) or black locust (*Robinia pseudoacacia*)
- SRC plantations provide a high quality fuel (woodchips) for renewable energy production: homogenous product!
- SRC is considered to be more sustainable than many other biofuel sources: less competition with food production, minimal use of pesticides and fertilizer, relatively low CO<sub>2</sub>-input
- Short rotations (2 to 4 year harvest cycle): frequent biomass yields
- High planting density: approx 12.000 stools/ha (can vary between 6.000 and 22.000)
- SRC establishment, management and harvest fit into arable farming systems
- SRC can be applied in agroforestry systems, e.g. chicken farming
- SRC can be established on polluted soils: phytoremediation



Planting willow with a stepplanter (left) and harvest (right) (pictures: Leen Kuiper)

### History of SRC research in the Netherlands

1970s: first experiments with poplar SRC

1990s: several experimental plots of poplar and willow SRC

1999 – now: Flevo Energy Wood project

### Flevo Energy Wood Project

In 1999 and 2000 45 hectares of poplar (*Populus spp.*) and willow (*Salix spp.*) SRC were established on former agricultural clay soils in the Province of Flevoland, the Netherlands.

- 8 willow clones: Loden, Jorr, Tora, Van Aalsburg, Sven, Torhild, Belders & Het Goor
- 5 poplar clones: Hees, Ellert, Koster, Beaupré & Spijk

Goal: gain knowledge and experience with the establishment and exploitation of SRC on a semi-commercial scale. Recent years: monitoring of biomass production and biodiversity.





*Willow SRC after establishment (left) and after two growing seasons (right) (pictures: Leen Kuiper)*

Lessons and conclusions Flevo Energy Wood Project:

- In the first year timely and adequate site preparation (ploughing and harrowing) and weed control are the key factors for establishing a successful SRC-plantation.
- The survival and growth of poplar was far less than willow.
- A mixture of clones helps to reduce risks, e.g. yield loss to pests and diseases.
- SRC Willow has a relatively high biomass production: 10 ton dry matter/ha.
- Willow SRC plantations have a considerable (often surprisingly high) biodiversity, including several rare and threatened red list species.  
Many species are characteristic for shrubs and young forests.

*Results biodiversity monitoring in willow SRC 2006-2008*

Species	Number of species	
	2006 (all plantations)	2007-2008 (EC1)
Flora	101	<i>no results available</i>
Fungi	96	62
Breeding birds	22	18
Amphibians	4	<i>no results available</i>
Mice	6	<i>no results available</i>
Butterflies	13	<i>no results available</i>
Mosses and lichens	<i>no results available</i>	12
Beetles	<i>no results available</i>	54



*Species found in SRC-plantations:*

*Left: Broad-leaved Helleborine (Epipactis helleborine) (picture: Fred van Daalen)*

*Middle: Willow Warbler (Phylloscopus trochilus) (picture: Martin Parss)*

*Right: Conocybe vestita (picture: Yves Deneyer)*