

# Poplar and Willow for Bio-Energy

Intensive coppice culture of fast-growing hybrid poplars and willow:  
15 years in 4 rotations in Boom, Belgium

1996-2010

## Situated on company premises

Company Eta-Com B  
Industrial zone Krekelenberg  
BE-2850 Boom, Belgium  
Province of Antwerp  
51°05' N, 04°22' E; 5 m above sea level

## Plantation

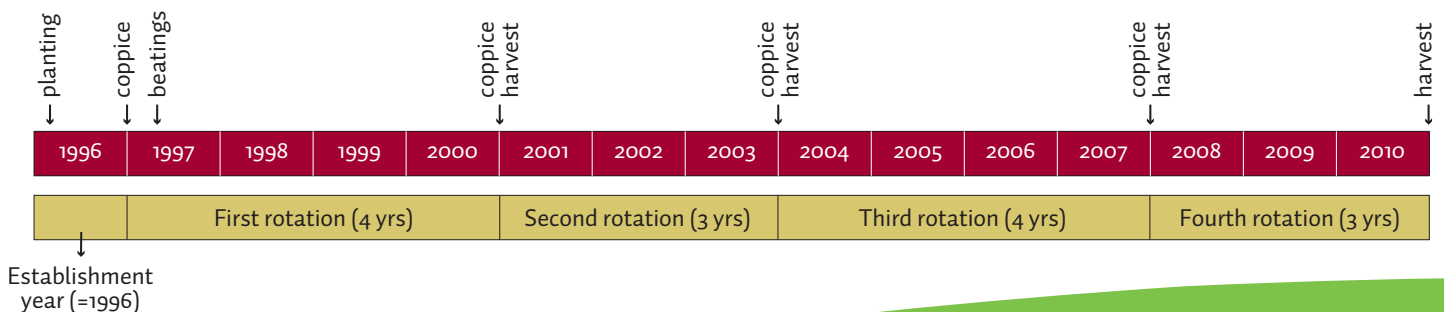
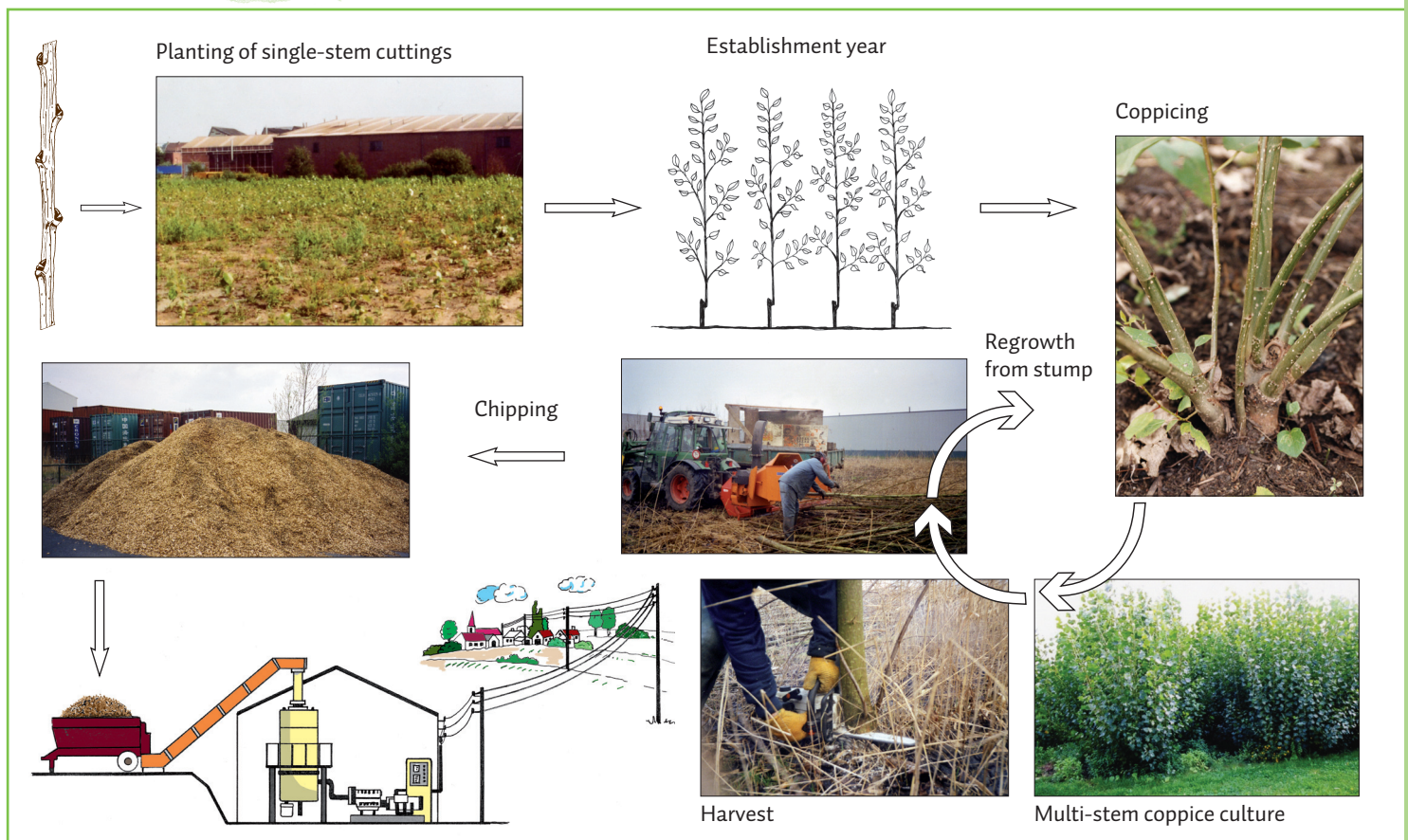
- Planting date: 16-17 April 1996
- Planting density: 10,000 plants per ha
- Total planted area: 0.56 ha
- First coppice after establishment year
- On formal waste disposal site and covered claypit

## Management

- Irrigation: none, except for 1 month after initial planting
- Fertilization: none
- Pesticides: none
- Herbicides: once glyphosate + oxadion after coppicing; otherwise mechanical weeding

## Plant material

- 17 selected poplar clones (*Populus* spp.)
- Hybrids from Europe and North America
- Randomised block design
- Double-row planting scheme
- 3 replicate plots (9 m x 11.5 m) per clone
- 2 selected willow clones (*Salix* spp.)



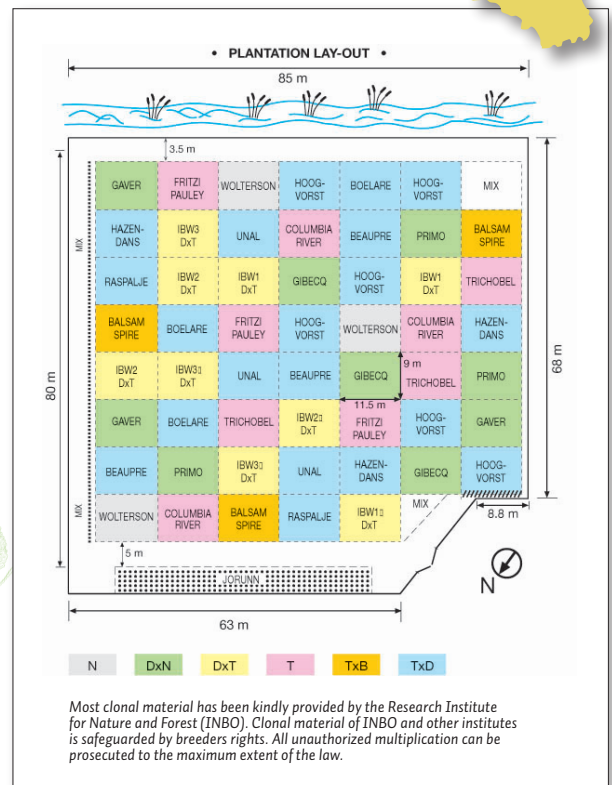
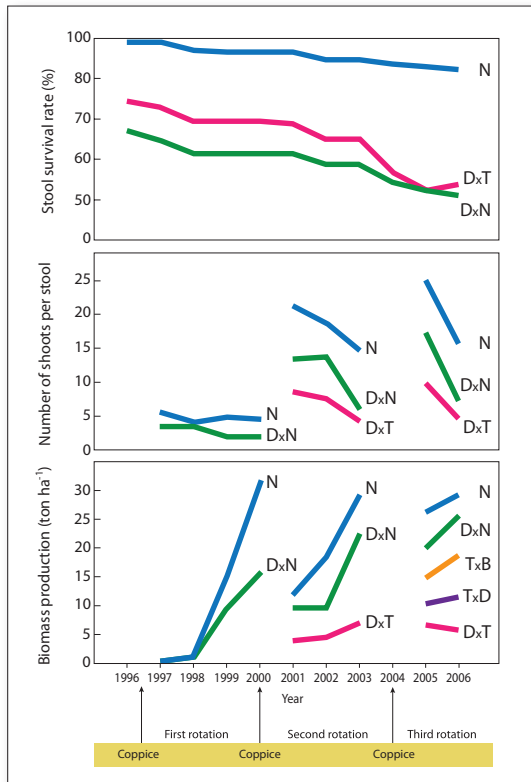
## Productivity and bio-energy yield (all values are per ha and per year)

	First rotation	Second rotation	Third rotation
Biomass production (dry ton)	6.8	5.5	8.0
Electricity yield (MWhe)	7.1	7.5	8.5
Number of households*	1.8	1.9	1.9
Conversion technique	Gasification	Co-combustion	Combustion (co-generation)
Converted at	UCL-TtCR-Gazel, Ophain	Electrabel, Ruien	ERDA n.v., Bertrix

\*Assuming an average electricity consumption of 4 MWhe and excluding heating

### Funding and collaboration

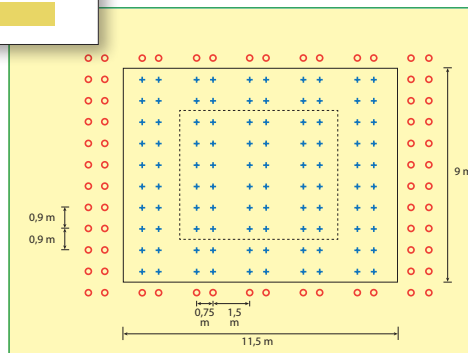
- Research Foundation Flanders (FWO/G.0108.97)
- European Commission (AL/95/121/SWE)
- Center of Excellence ECO (UA)
- Province of Antwerp
- City council of Boom
- INBO, Geraardsbergen
- Forestry Commission, Farnham, United Kingdom



Most clonal material has been kindly provided by the Research Institute for Nature and Forest (INBO). Clonal material of INBO and other institutes is safeguarded by breeders rights. All unauthorized multiplication can be prosecuted to the maximum extent of the law.

### Information and contact

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### Research output

- Ph.D. of Ilse Laureysens (2004), Clonal variation in productivity, population dynamics and phytoextraction potential of a poplar short rotation culture (213 pp)
- Ph.D. of Najwa Al Afas (2007), Comparative study of ecophysiological characteristics related to biomass production of different hybrid poplars in a short rotation coppice culture (137 pp)
- 20 A1 ISI publications
- 10 M.Sc. dissertations

