

Poplar Cultivar 'Muur'

Passport

Interspecific hybrid	<i>Populus.deltoides</i> x <i>Populus nigra</i>
Parents	<i>Populus deltoides</i> = <i>Populus deltoides</i> V.5 (Iowa) x <i>Populus deltoides</i> V.12 (Illinois) <i>Populus nigra</i> = <i>Populus nigra</i> S.132-4 = <i>Populus nigra</i> Casale 5 (Italy) x <i>Populus nigra</i> 'Italica' V.450
Creation	1978, by controlled crossing at INBO (Research Institute for Nature and Forest), Geraardsbergen, Belgium
Plant Variety Protection Certificate	EU 9263 – From 15/04/2002
Gender	Male
Cultivar number	78.017/164

Phenotype

Straightness of the stem	straight
Bark	rough; dark color
Crown	slim, egg-shaped
Tree form	fastigate
Forking	rarely
# branches	medium
Thickness of the branches	small

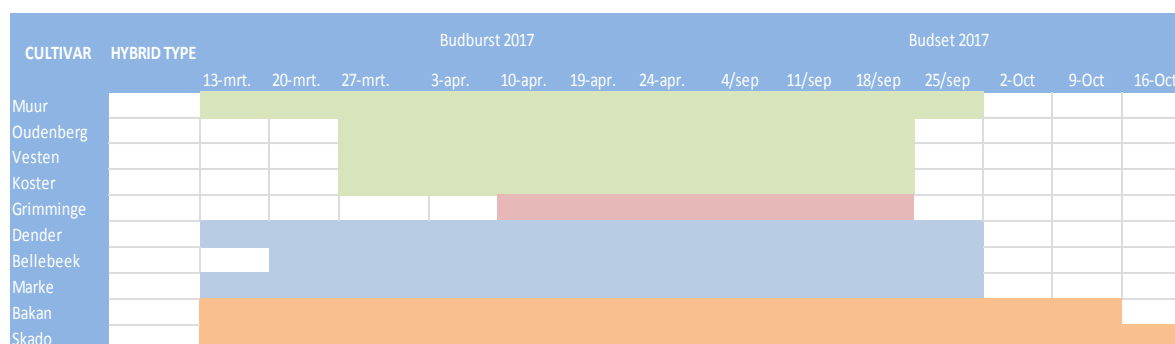


Cultivar "Muur", 2005 Lommel (Belgium)
MAI (circumference) = 8,3 cm

Phenology

At the INBO nursery in Geraardsbergen (50° 48' N, 3° 57' E) in 2017, the cultivar 'Muur' starts to flush in the third week of March and the timing of bud set in autumn is the last week of September (Fig 1). Timing of bud burst and bud set is the same as for the cultivars Dender and Marke.

Fig 1. Phenology of the cultivar Muur compared to other INBO cultivars and Koster observed in the INBO nursery at Geraardsbergen (Belgium, 2017)



Growth characteristics

Nursery test

Fig 2. Height and DBH (diameter at breast height) of **two-year-old trees** of the cultivar Muur in the INBO nursery at Geraardsbergen (2015) compared to the *P. euramericana* cultivars Vesten and Oudenberg

Cultivar	#trees	Height (cm)	% trees cat1 (Ø <25 mm)	% trees cat2 (Ø 25-30 mm)	% trees cat3 (Ø 30-40 mm)	% trees cat4 (Ø 40-50 mm)
Muur	50	381	44	48	8	0
Vesten	63	466	0	11	80	9
Oudenberg	62	423	0	16	80	4

Field test

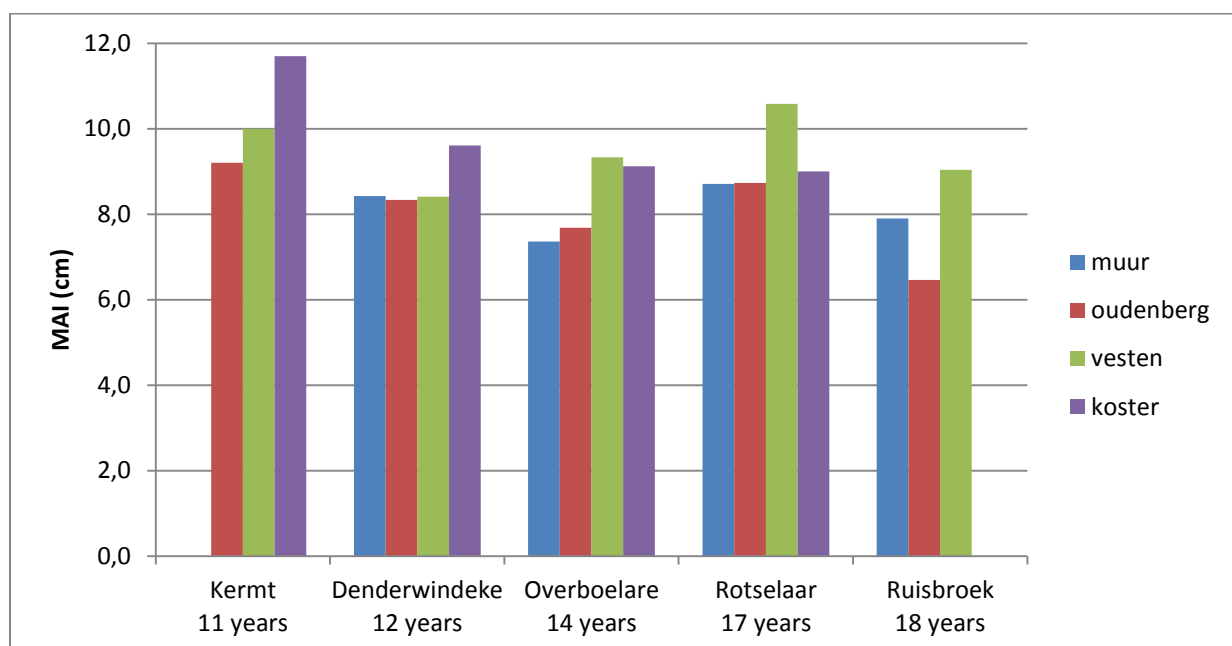
The *Mean Annual Increment (MAI)* – circumference- has been measured in five field trials installed in the north of Belgium on different soil types (Fig 3) and ranges between 7,4 cm and 8,7 cm. Muur gives good/very good results on good fertile soils with good water management. On less fertile soils the cultivar grows less well than the cultivars Vesten and Oudenberg.

Fig 3. Soil properties of the 5 field sites mentioned below

Test field	Overboelare	Ruisbroek	Rotselaar	Kermt	Denderwindeke
Soil texture	no profile	no profile	no profile	no profile	no profile
Soil profile	weak gleying sandy loam soil	very strong gleying sandy loam soil	very strong gleying clay soil	strong gleying loam soil	strong gleying loam soil

Test field	Overboelare
Soil texture	no profile
Soil profile	weak gleying sandy loam soil

Fig 4. MAI (Mean annual increment - circumference in cm) of the cultivar Muur in 5 field trials aging from 11 to 18 years and compared to the INBO cultivars Oudenberg and Vesten and cultivar Koster (planting distance - 8m x 8m)



Wood technology

Wood properties were obtained from the Laboratory for wood technology, University of Ghent, Belgium.

Physical properties	
Wood density (60%RV)	332 kg/m ³
Heartwood proportion (%)	31
Tension wood proportion (%)	17
Mechanical properties	
Modulus of elasticity (N/mm ²)	9670
Modulus of rupture (N/mm ²)	63
Industrial processes	
veneer A/B-grade (%)	82
C1-grade (%)	18
The wood is suitable for	
Veneer	good
Saw wood	The ratio of the wood density to the modulus of rupture makes the wood less favorable for use as saw timber

Disease resistance

The cultivar 'Muur' has been tested and selected for its good resistance/tolerance to the leaf rust *Melampsora larici-populina*, leaf spot disease caused by *Marssonina brunnea* and bacterial canker caused by *Xanthomonas populi*. According to laboratory tests carried out at the laboratory*, the clone Muur is field resistant to the woolly aphid, caused by *Phloemyzus passerinii*.

- Resistance to *Melampsora larici-populina* and *Marssonina brunnea* has been observed during several consecutive years at the INBO nursery in Geraardsbergen.
- Resistance to *Xanthomonas populi* has been tested by artificial infection on five 2-year-old trees

Fig 5. Resistance of the cultivar Muur to the most important poplar diseases in Europe

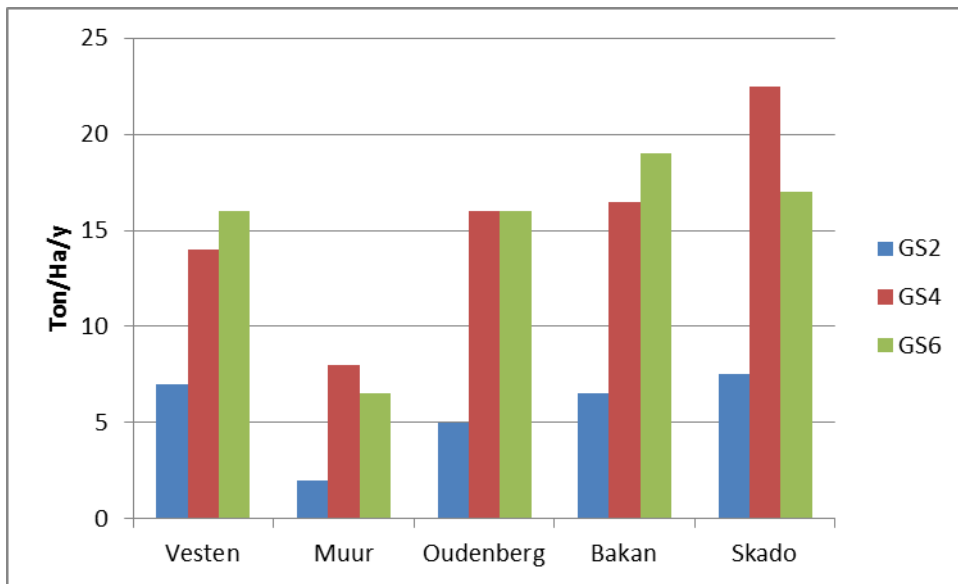
Cultivar	Leaf rust (<i>Melampsora larici-populina</i>)	Leaf spot disease (<i>Marssonina brunnea</i>)	Bacterial canker (<i>Xanthomonas populi</i>)	Woolly aphid (<i>Phloemyzus passerinii</i> (Sign.))
Vesten	tolerant	tolerant	tolerant	tolerant
Oudenberg	tolerant	tolerant	tolerant	tolerant
Muur	tolerant	tolerant	tolerant	tolerant

Biomass production under short rotation coppice

Realized dry weight (Ton /ha /y) for the cultivar Muur under short rotation coppice has been measured in an experimental site located in Lochristi, Flanders (Belgium, 51°06'44" N, 3°51'02" E) , planting density of 8.000 cuttings/Ha.

The plantation has been harvest after 2, 4 and 6 years. Fig 6. shows realized dry weight for each second growing season (GS2, GS4 and GS6) of each 2-year-rotation. Muur is producing 7 Ton /ha /y after the third harvest, which makes the clone not suitable for short rotation coppice.

Fig 6. Realized dry weight under short rotation coppice of the INBO poplar cultivar Oudenberg compared to the INBO cultivars Muur, Vesten, Bakan and Skado



Liesbeth Van Damme et al, 2017



Muur, 15 years, Lommel (Belgium)