

Poplar Cultivar 'VESTEN'

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.157-4 = <i>Populus nigra</i> Casale 4 (Italy) x <i>Populus nigra</i> 'Italica'
Creation	1978, by controlled crossing at INBO (Research Institute for Nature and Forest), Geraardsbergen, Belgium
Plant Variety Protection Certificate	EU 9265 – From 15/04/2002
Gender	Female
Cultivar number	78.018/204

Phenotype

Straightness of the stem	straight
Tree form	fastigate
Forking	rarely
# branches	medium
Thickness of the branches	small

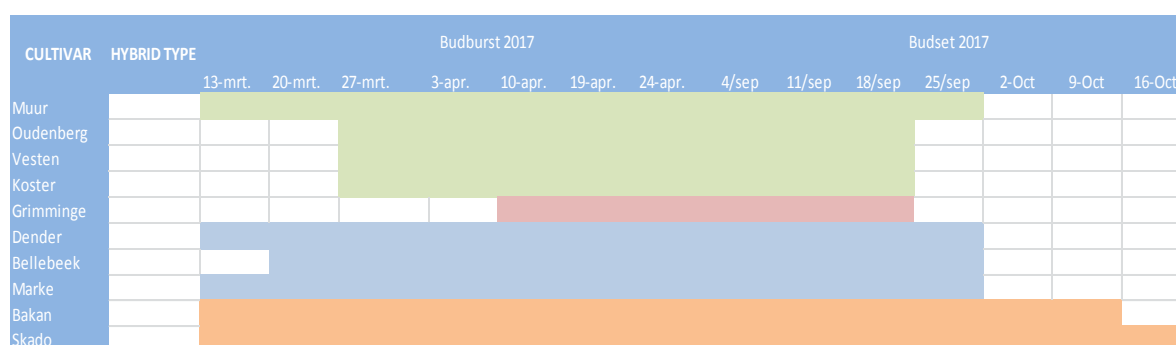


Cultivar Vesten, 15 y

Phenology

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

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



Growth characteristics

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

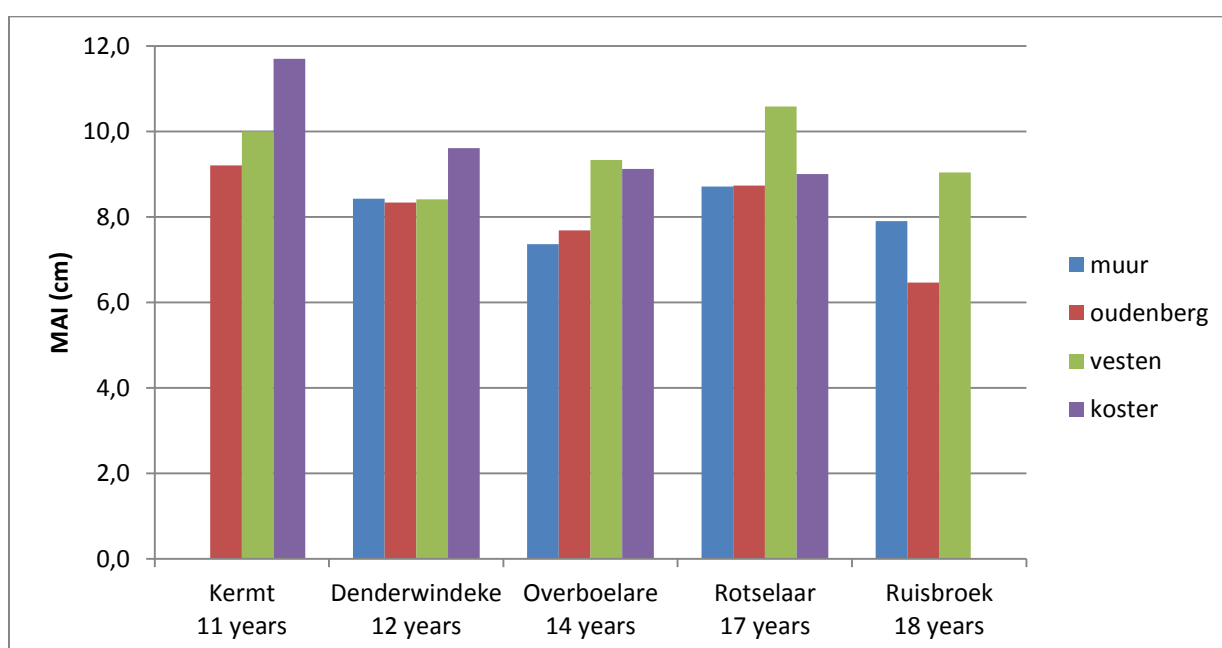
Cultivar	#trees	Height (cm)	% trees cat1 (Ø <25 mm)	% trees cat2 (Ø 25-30 mm)	% trees cat3 (Ø 30-40 mm)	% trees cat4 (Ø 40-50 mm)
Muur	50	381	44	48	8	0
Vesten	63	466	0	11	80	9
Oudenberg	62	423	0	16	80	4

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 8,2 cm and 10,5 cm. The clone Vesten belongs to the fastest growing *P. euramericana* cultivars in Europe.

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

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



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

Physical properties	
Wood density (60%RV)	451 kg/m ³
Heartwood proportion (%)	42
Tension wood proportion (%)	22
Mechanical properties	
Modulus of elasticity (N/mm ²)	9935
Modulus of rupture (N/mm ²)	72
Industrial processes	
veneer A/B-grade (%)	82
C1-grade (%)	18
The wood is suitable for	
Veneer	excellent (even for CE multiplex)
Saw wood	very good/excellent

Disease resistance

The cultivar 'Vesten' 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 Vesten 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 Vesten to the most important poplar diseases in Europe

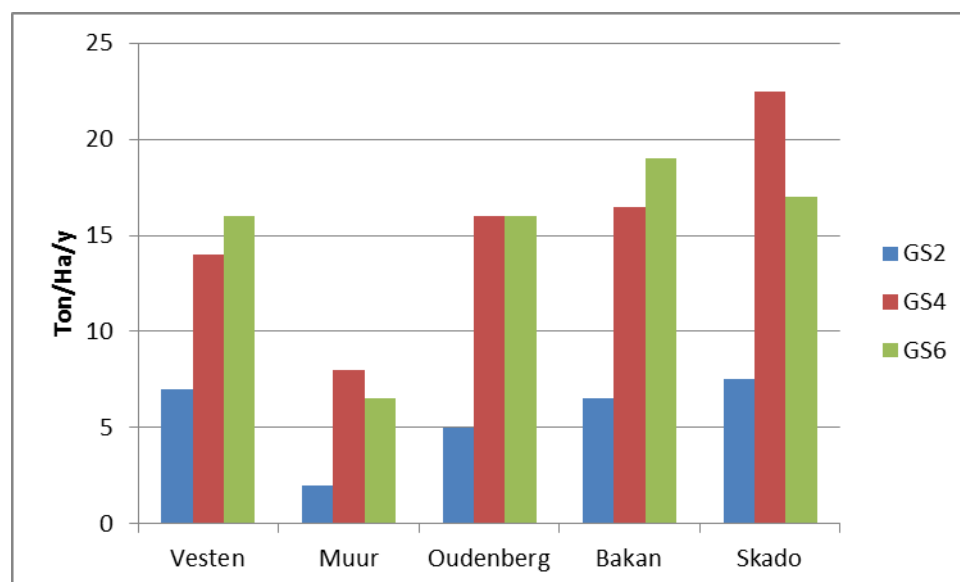
Cultivar	Leaf rust (<i>Melampsora larici-populina</i>)	Leaf spot disease (<i>Marssonina brunnea</i>)	Bacterial canker (<i>Xanthomonas populi</i>)	Woolly aphid (<i>Phloemyzus passerinii</i> (Sign.))
Vesten	tolerant	tolerant	tolerant	tolerant
Bakan	tolerant	tolerant	tolerant	tolerant
Skado	tolerant	tolerant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

Biomass production under short rotation coppice

Realized dry weight (Ton /ha /y) for the cultivar Vesten 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. Vesten is producing 16 Ton /ha /y after the third harvest.

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



Liesbeth Van Damme et al, 2017



Cultivar “Vesten”, 19 years old, Lommel (Belgium)