# Poplar Cultivar **'Oudenberg'**

## Passport

| | |
|---|---|
| Interspecific hybrid | *Populus.deltoides x Populus nigra* |
| Parents | *Populus deltoides* =<br>*Populus deltoides* S.513-60<br><br>*Populus nigra* =<br>*Populus nigra* S.157-3 =<br>*Populus nigra* V220 Casale 1 (Italy) x *Populus nigra* 'Italica' |
| Creation | 1978, by controlled crossing at **INBO** (Research Institute for Nature and Forest), Geraardsbergen, Belgium |
| Plant Variety Protection Certificate | EU 9264 – From 15/04/2002 |
| Gender | Female |
| Cultivar number | **78.017/164** |

## Phenotype

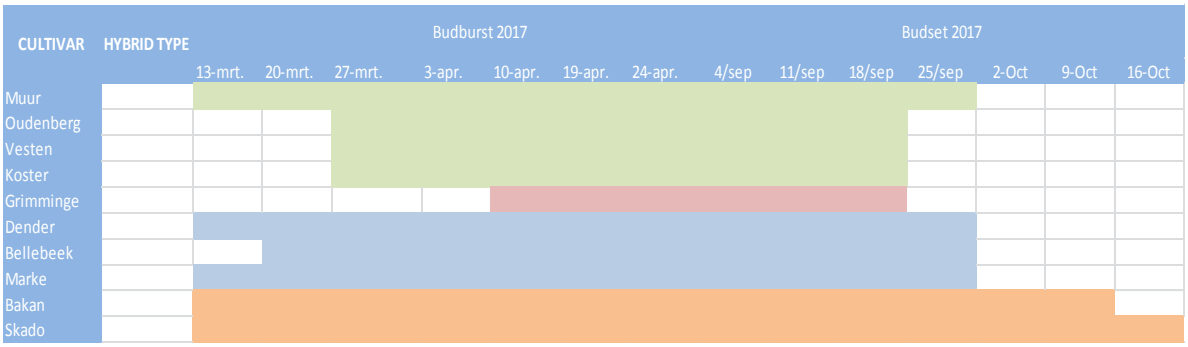
| | |
|---|---|
| Straightness of the stam | straight |
| Tree form | fastigiate |
| Forking | rarely |
| # branches | medium |
| Thickness of the branches | small |

Oudenberg, 15 years

## Phenology

At the INBO nursery in Geraardsbergen (50° 48′ N, 3° 57′ E) in 2017 , the cultivar 'Oudenberg' 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 Vesten.

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

### Nursery test

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

| 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 |

Two-year-old trees of Oudenberg (Picture: M. Steenackers)

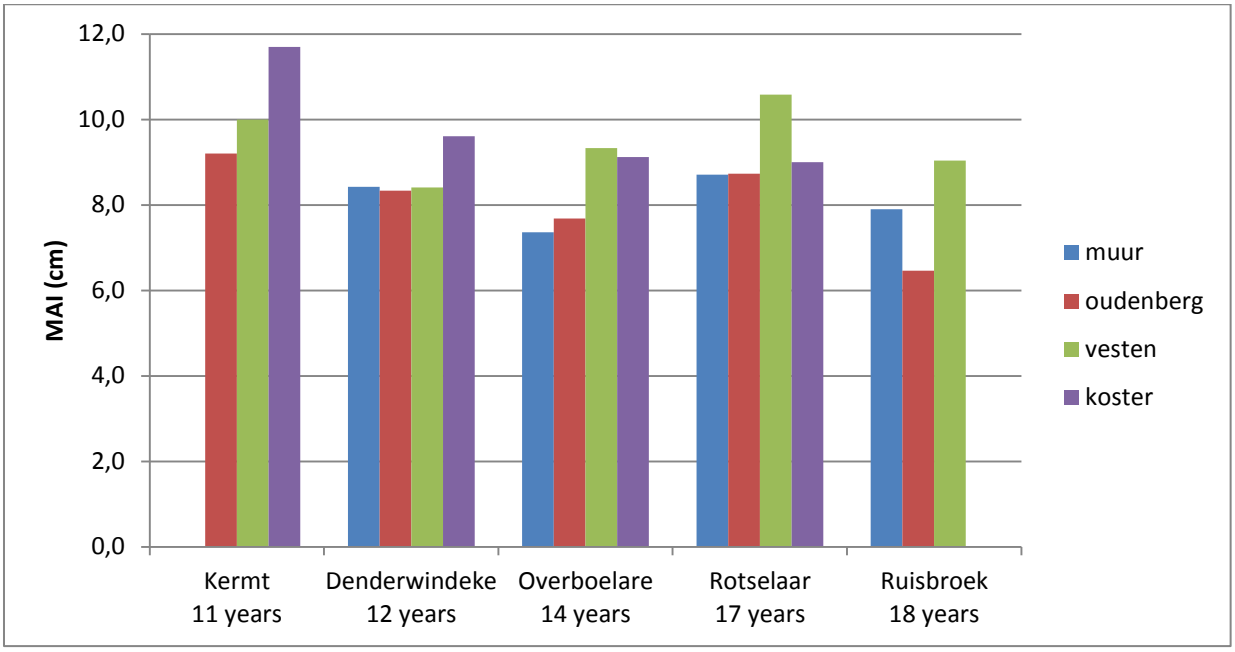
## Field test

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 6,5 cm and 9,2 cm.

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 Oudenberg in 5 field trials aging from 11 to 18 years and compared to the INBO cultivars Muur 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) | 363 kg/m³ |
| Heartwood proportion (%) | 40 |
| Tension wood proportion (%) | 7 |
| **Mechanical properties** | |
| Modulus of elasticity (N/mm²) | 7788 |
| Modulus of rupture (N/mm²) | 60 |

| **Industrial processes** | |
|---|---|
| veneer A/B-grade (%) | 82 |
| C1-grade (%) | 18 |
| **The wood is suitable for** | |
| Veneer | good |
| Saw wood | very good |

## Disease resistance

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

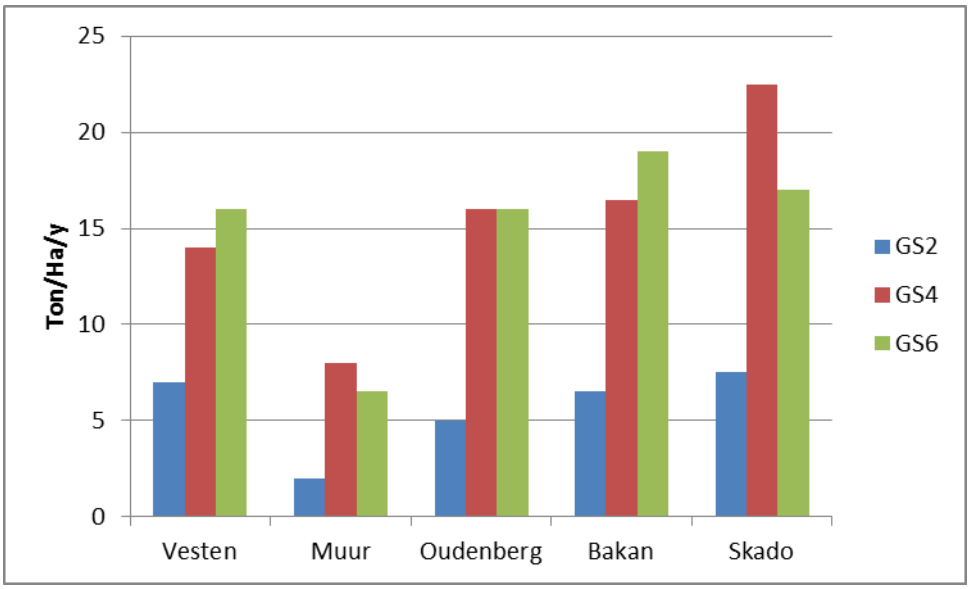
| Cultivar | Leaf rust *(Melampsora larici-populina)* | Leaf spot disease *(Marssonina brunnea)* | Bacterial canker *(Xanthomonas populi)* | Woolly aphid *(Phloemyzus passerinii (Sign.))* |
|---|---|---|---|---|
| Vesten | tolerant | tolerant | tolerant | tolerant |
| Oudenberg | tolerant | tolerant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

## Biomass production under short rotation coppice

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

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