

DEVELOPMENT AND REGISTRATION OF NEW LATVIAN SALIX DASYCLADOS AND POPULUS X WOOBSTI CLONES FOR MULTIFUNCTIONAL USE



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Salix species are fast growing trees or shrubs which readily hybridize, and are easily vegetatively propagated via root cuttings because of the high auxin content in willow bark, which makes these species suitable for rapid breeding processes. Poplars, like willows, can also be efficiently vegetatively propagated, which can be utilized in breeding programs. Many clones have been selected in breeding programs, but only some of them are actively used for biomass and timber production. Many of them are protected by plant variety rights, which increases their price and makes them less attractive to customers. Local germplasm is already adapted to the climatic and other growing conditions within a region or country, and therefore crosses between selected local and highly productive introduced clones could improve the productivity of local germplasm, while also retaining locally adapted traits. On the other hand, demand for raw material, harvesting and processing technologies are rapidly changing, and in recent years, the ecosystem services provided by tree plantations are increasingly valued, which is influencing the selection parameters used in breeding programs.

Researchers at the Latvian State Forest Research Institute Silava have identified local willow germplasm for multifunctional utilization, which would be advantageous for commercialization in the limited market in Latvia and the Baltic states. Two clones of *Salix burjatica* Nasarow – Visvaldis (male, registration no. 20133297) and Monika (female, registration no. 20130683) were selected from roadside ditches, pre-tested and registered in the Community Plant Variety Office (CPVO). Both clones have high rooting capacity, bright decorative shoots, very good regrowth after harvesting, their flowers are attractive to bees and other pollinators, and the twigs could be used for furniture making and other handicrafts. Both clones have medium yield and are suitable for mechanized harvesting with "Bioballer type" machines.

The hybrid poplar clone Auce (P0114) *Populus x woobstii* (R. I. Schröd. ex Regel) Dode (registration no. 20142267) was initially planted in Latvia at the end of the last century and had good growth results (4.2–9.8 t of dry matter per year in both forest and agricultural conditions), and was approved as forest reproductive material in Latvia and registered in the CPVO, and tested for homogeneity.

The willow and poplar clones have been genetically fingerprinted using simple sequence repeat (SSR) markers in the LSFRI Silava Genetic Resource Centre laboratory to enable rapid and unambiguous identification of these clones.



OP42

Auce (P0114)	
Breeding scheme	Mutation
Method of propagation of the variety	Cuttings
Leaf blade: color of upper side during bud burst	Green
Leaf blade: ratio length of midrib/maximum width of leaf	Large
Leaf blade: general shape of base	Wedge shaped-convex
Petiole: ratio length of petiole/length of midrib	Small
Terminal bud: time of appearance of green tips	Medium

Visvaldis	
Description	Selected by form of bush – straighter stems, intensive, attractive color of bark at spring and high total productivity. Suitable for biomass and decorative purposes
Method of propagation	Cuttings
Plant: sex	Dioecious male
Plant: spring foliation	Early
Other information	More suitable for heavy soil, on sandy soil non productive. Stems are shallow and decorative

Monika	
Description	Selected from natural stand in north-east part of Latvia. Selected by form of bush – straighter stems, intensive, attractive color of bark at spring and high total productivity.
Method of propagation	Cuttings
Plant: sex	Dioecious female
Plant: spring foliation	Early
Other information	Stems on sandy and loamy soils make different forms of bush – on sandy soil curves are larger

