



United States Department of Agriculture

# 'Spike' hybrid poplar

*Populus deltoides* Bartr. Ex  
Marsh x *Populus nigra* L.

A Conservation Plant Release by USDA NRCS Big Flats Plant Materials Center, Corning, New York



'Spike' hybrid poplar (*Populus deltoides* Bartr. Ex Marsh x *Populus nigra* L.) is a cultivar released in 1997 by the USDA Natural Resources Conservation Service (NRCS), Big Flats Plant Materials Center, in cooperation with the Institute for Forestry and Nature Research (IBN-DLO), Forest Gene Conservation Association, and the State University of New York College of Environmental Science and Forestry for its resistance to canker and sufficient resistance to Marssonina leaf spot and Melampsora rust.

### Description

Spike is a cross between *Populus deltoides*, from Belgium, and *Populus nigra*, from Rynsteeg, Netherlands. It is a very fast-growing deciduous tree reaching heights between 50'-80'. It has a long straight cylindrical trunk with a relatively narrow open crown of ascending slender branches. The bark is smooth and brownish-green when young, but dark and deeply fissured when mature. The twigs are hairless, brownish-green or gray, sharply angled with an abundance of prominent lenticels. The buds are brown, glabrous, and ½ inch long. The upper surface of the leaves is yellowish-green, and the lower surface is glaucous and green with serrated margins. The leaves remain on the branches late into the fall. It is a male clone, so 'Spike' hybrid poplar will not spread by seed.

### Source

Spike (PI-594370) is a hybrid of which one parent was *Populus deltoides* belonging to the Poplar Breeding Institute at Garmmont, Belgium (S4-231). This poplar was obtained from a U.S. provenance trial, origin unknown; and the other parent is an indigenous *Populus nigra* from Rynsteeg, Holland. The *Populus deltoides* parent was selected due to resistance to canker. The seedlings were inoculated with *Melampsora* rust and *Marssonina* their 1<sup>st</sup> year. The selected seedlings in the 2<sup>nd</sup> year were inoculated with bacterial canker in 2 places with a knife. The 3<sup>rd</sup> year it was evaluated for leaf disease and bacterial canker in replicated trials. It was found that the selected clone is resistant to *Marssonina*, resistant to certain strains of *Melampsora*, and intermediately resistant to bacterial canker.

Spike was evaluated with 42 other clones, which included experimental and commercial hybrids obtained from SUNY College of Forestry, the Ontario Ministry of Natural Resources, and commercial sources. It was found that Spike was superior to the other clones in this study.

Spike was originally selected by the Institute for Forestry and Nature Research, and given the name 'Spijk'. In addition to European evaluations, this clone has been tested in Ontario, Canada.

### Conservation Uses

Spike is used for biomass production or for fuel wood production due to its fast growth, dominant main stem maintaining its diameter high into the crown and canker resistance.

Spike can also be used as an effective screen and as a windbreak in conjunction with other species. It can also be used as a short rotational woody crop in agro-forestry systems.

### Area of Adaptation and Use

Spike grows well in clay loam, sandy loam and peat soils. It has been noted to do well on wetter sites than some other clones tested by the Ontario Ministry of Natural Resources.

Spike is hardy to zone 2a (-35° F to -50° F) with a range from New Hampshire to northern Florida, central Texas and west to Kansas. It is recommended for use in the Northeast US.

## **Establishment and Management for Conservation Plantings**

Spike can be established at sites that are prepared utilizing plowing and disking as well as weed control. In New York State, site preparation must begin a year prior to planting, because sites tend to be too wet to allow access with equipment early enough in the spring for successful establishment.

Mechanical preparation combined with weed control has proven to be more effective in the Northeast than mechanical preparation alone. Unrooted cuttings will produce a tree of 3-4 feet high within the first season if a weed free area is kept. To establish rooted plants, a hole, 9 inches wide and 15 inches is recommended. Trees will produce heights of up to 7 feet in the first year.

Small, 12-inch cuttings must be planted so that only 2 inches is showing above ground. In most situations, 18-inch long cuttings are the best option and will produce a tree, 3 – 5 feet high in the first growing season. When establishing longer cuttings, a dibble bar needs to be used to produce a hole larger enough to fit the cutting. Tamping the soil around the hole, will produce good plant to soil contact for best establishment.

### *Weed Control*

Controlling competing weed species is important. Weeds compete with hybrid poplars for light as well as nutrients. Pre-emergence herbicides or other forms of weed control such as mulches should be utilized. Trickle irrigation, if available, is recommended in the establishment year.

### **Ecological Considerations**

Spike poses no significant environmental hazards and has little insect or disease problems.

### **Seed and Plant Production**

Spike unrooted cuttings, 10-12 inches long, can be established for propagation in woody beds, spaced 2-3 inches apart. Rooted cuttings are planted as early in the spring as possible, when the ground has thawed. In

planting areas with high winds, Spike should be protected by other wind-proof species.

### **Availability**

*For conservation use:* Spike is commercially available but may be hard to locate as not all woody plant nurseries carry this release.

*For seed or plant increase:* Nursery owners may obtain propagated material from the USDA NRCS, Big Flats Plant Materials Center, Corning, New York, to start their commercial production.

*For more information, contact:*  
USDA NRCS Big Flats Plant Materials  
Center  
3266 State Route 352  
Corning, New York 14830  
607-358-6009 (phone)  
Or  
Shawanna.clark@usda.gov  
<http://plant-materials.nrcs.usda.gov/nypmc/>

### **Citation**

Release Brochure for ‘Spike’ hybrid poplar (*Populus deltoides* Bartr. Ex Marsh x *Populus nigra* L.) USDA-Natural Resources Conservation Service, Big Flats Plant Materials Center. Corning, New York 14830. Published [March 2015].

For additional information about this and other plants, please contact your local USDA Service Center, NRCS field office, or Conservation District <<http://www.nrcs.usda.gov/>>, and visit the PLANTS Web site <<http://plants.usda.gov/>> or the Plant Materials Program Web site <<http://www.plant-materials.nrcs.usda.gov/>>

*Helping People Help The Land*

USDA IS AN EQUAL OPPORTUNITY PROVIDER AND EMPLOYER