

City of Hudson – Community Trees Gravel Bed System

Project Summary

The City of Hudson constructed a gravel bed system for trees in the spring of 2014. The gravel bed system is used to hold bare root trees from spring until fall planting. This hold time is not intended to grow the tree's crown (branched and leaves); rather to enhance their root systems.

Gravel beds are not complex and have been used in the landscape nursery trade for decades. It is simply hydrated pea gravel, contained in a large wooden box (bed), in which bare root trees are temporarily held. The key to success is regular and adequate irrigation, which is fairly easy to achieve with automatic timers and soaker hoses.

The gravel bed trees need a minimum of 7 to 8 weeks to develop a fully enhanced system of fine ("feeder") roots. The trees can be planted in late summer and into fall of the same year, even when they are fully leafed out. Without the weight of the rooting soil, these enhanced, bare-root trees are very light and easily planted by volunteers, both young and a little older. Other unique benefits of this gravel bed system are listed below.

The benefits of gravel bed held trees are numerous:

Cost Savings – The bare root stock used in gravel beds is equal in stem diameter to potted or balled & burlap (B&B) – yet it is 50 – 75% less expensive!

Increased Survival – The profusion of fibrous roots greatly increases the trees capacity to absorb water and nutrients. When a typical tree is transplanted the majority of energy is expended to restore lost roots, leaving little to no energy for fighting off pests and pathogens. The enhanced root systems and consequent increase in water and nutrient absorption makes the tree much more resilient.

Better species availability – The variety of species available as bare root stock is far wider than the choices potted or B&B offer; and for a fraction of the price.

Planting Times – To take advantage of the cost savings that bare root stock offers limits planting time to spring. What follows is typically a bit of rain or flooding, then drought summer conditions that are very stressful for a newly transplanted tree. Fall planting allows establishment to occur in cooler, more favorable conditions.

Visible Root Structure – a very common problem in many landscape trees is a condition known as stem girdling roots. The best time to reverse a problem root is before it is planted – but difficult to do on potted or B&B. The accessibility to the root systems allows for easy quick correction with a simple pruning snip.

Community Involvement – Being bare root, trees are light and easy to handle – they are very conducive to volunteer planting. This creates opportunities for community residents to be part of the process which builds social capital, and a healthy sense of community pride and ownership.

The system was originally developed at the University of Missouri in the 1970s. The University of Minnesota has refined the system for use in communities. As of 2014, over 25 communities across Minnesota have built and use gravel beds, with great success. The City of Rothschild (south of Wausau) is the only other Wisconsin city known to be using one.

For details, find the community manual from the Univ. of Minnesota on the web at: <http://trees.umn.edu/products/>. For questions about Hudson's gravel bed or Urban Forestry Program, call the Public Works Department at (715) 386-4767.

