

# May 2011 American Agriculturist

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## Firing up willows!

### Key Points

- Rak's Double A Willow nursery is primed for a bioenergy fire-up.
- Willows can yield as many as 30 tons of wood chips per acre.
- The potential is greatest on marginal land north of the Mason-Dixon Line.

By KARA LYNN DUNN

**T**ODAY, close to 1,000 acres of fast-growing willow are in commercial production in New York, mostly for biomass energy. But the potential is there for many more — a renewable energy industry.

Nurseryman Dennis Rak and Cornell University biomass researcher Larry Smart have a big stake in this budding bioenergy industry. In 2008, Rak began developing the 150-acre Double A Willow nursery, Fredonia, N.Y., with more than 28 willow varieties.

It began with 10-inch willow cuttings developed and supplied by Smart from research at the State University of New York's College of Environmental Science and Forestry, and USDA's Plant Materials Center. The biomass variety and yield demonstration plot was funded by the New York Farm Viability Institute.

Rak's 1,000 acres in grapevine production gave him plenty of experience in hardwood cuttings. So he and Smart began by burying 8,736 cuttings almost to their tips on a single acre.

Willow cuttings quickly root and send shoots skyward in the first season. They're cut back to produce more stems, then harvested as chips at the third growing season's end, explains Smart.

### To what end?

"Our primary focus is on large-scale power generation — power plants interested in burning wood chips with or without coal," explains Rak. Schools and colleges are already beginning to burn chips as a renewable power source.

So far, variety trials have revealed a 40%



PHOTO BY TOM RIVERS

**ENERGY TO BURN:** Nurseryman Dennis Rak checks a crop of young willows at the Double A Willow nursery in Fredonia, N.Y.

yield gain. And Smart's breeding trials at Cornell show "we can add yet another 20% in yield," notes the biomass researcher.

In three years, willow yields typically are 30 tons per acre, Smart adds. Considering that the main cost is harvesting, a one-time harvest makes it much cheaper than, say, harvesting cornstalks every year. Also, willows don't have to be replanted.

Rak sees willow as a new industry. "We're selling commercial seed stock, trialing foundational breeding clones for disease and pest resistance, sorting out weed control, and constantly learning to harvest more efficiently. We have capacity to har-

vest and sell 30 million cuttings annually to plant 5,000 acres for biomass production."

The catch, so far, is developing end-user markets. It's absolutely essential to identify an end user first. "Then," he emphasizes, "develop a plan to supply a portion, or all, of the needed biomass material."

Although buffeted by energy and political policy currents, Rak and Smart foresee willow's emergence as an energy source with a fixed destiny. It has potential for profitability on marginal lands north of the Mason-Dixon Line, and for cutting carbon dioxide emissions and building renewable energy portfolios.

### Marketing network in place

Double A Willow is licensed to market willow worldwide. It has sublicensed sellers, one in Québec and one in British Columbia. Plus, a Willow Biomass Energy group has been formed to promote willow-energy potential in North America.

Rak's [www.doubleawillow.com](http://www.doubleawillow.com) website has videos and fact sheets on varieties, planting, harvesting and storing.

For more information, call Smart at 315-787-2490, email him at [lbs33@cornell.edu](mailto:lbs33@cornell.edu), or visit [willow.cals.cornell.edu](http://willow.cals.cornell.edu).

Dunn writes from her farm in Mannsville, N.Y.

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