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NEWS



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U of S team looks at feasibility of 'farming' poplar trees



Soil science research scientist Ken Van Rees, right, stands in a six-year-old hybrid poplar plantation with members of the team investigating the feasibility of the crop. With him are, from left: Summer student Kelly Wiens, M.Sc. student Rick Block, and technician Doug Jackson.

Photo courtesy of Rick Block

By Kristina Bergen
SPARK Writer

University of Saskatchewan soil scientists have been awarded almost \$1 million to test the feasibility of growing poplar trees as a new Saskatchewan crop - literally a field of trees.

The NSERC-funded research could lead to job creation and new management practices that enable farmers to diversify into tree plantations. This new 'crop', if feasible, could also assist Canada in achieving its commitment to the Kyoto protocol by helping to capture and store atmospheric carbon in trees.

Over five years, Ken Van Rees, Diane Knight and their team will investigate the best way to get high yield tree-fibre production from poplar plantations. Using miniature underground cameras (mini-rhizotrons), they will also study how carbon is stored below ground in roots.

"Poplar plantations combine the interests of forestry and agriculture," said Van Rees. "These plantations could be the solution to two problems - meeting the increased demand by pulp and paper companies for wood fibre and offering farmers a new diversification option."

The team's effort is a response to the Saskatchewan government's 1999 announced plan to more than double the provincial forest industry over the next 10 years, investing millions in forestry and creating thousands of new jobs. These developments will increase the demand for local timber, but may also deplete Saskatchewan forests.

The natural solution to the increased timber demand may be poplar plantations. Hybrid poplars grow quickly. In fewer than 25 years, a plantation can be ready for harvest. These trees are used in the production of oriented strandboard (OSB), an environmentally smart product that uses most of the harvested tree and is similar to plywood.

Mistik Management Ltd., a research partner on the project, hopes this potential new fibre source will supply its mills and the new Meadow Lake OSB plant currently under construction. Weyerhaeuser Canada has also recently built an OSB plant in Hudson Bay.

Poplar plantations could feed this new timber demand, but with repeated crop rotations scientists are concerned soil quality could be compromised.

Enter Van Rees and team.

With the support of PRT Nurseries and the Prairie Farm Rehabilitation Administration's Shelterbelt Centre, the team planted the first two poplar fields last June on farmland leased from landowners near Meadow Lake.

Like more traditional crops, the success of poplar plantations depends on soil quality, moisture, and drainage. So Van Rees' team must be aware of what is happening both above and below ground.

To monitor root development, the team inserts a miniature digital camera with a light at the end into a clear plastic tube that runs at an angle under the tree roots. Pictures are taken at the full depth of the tube and at other pre-marked depths as the camera is slowly withdrawn from the tube.

This procedure allows the team to capture images of the developing roots at different depths. The digital images are then run through the "RooTracker" program, which analyses the diameter and length of growing roots, telling the team how well the tree is growing.

Soil temperature and moisture are also measured hourly by three data boxes in each field. Information from the boxes helps Van Rees' team understand variations in seedling survival and establishment rates, such as the effect of last summer's drought on the newly planted trees.

While the U of S team is at work in the field, partners at the University of British Columbia are doing long-term predictions with models, determining the economic viability of poplar plantations and studying the rate at which the trees remove carbon from the atmosphere.

Although the poplars will only be five years old by the end of the study, projections from the UBC work will determine whether Saskatchewan can support large-scale commercial plantations.

"Our primary goal is to help meet the social and economic needs of the people of Saskatchewan," said Van Rees.

The SPARK (Students Promoting Awareness of Research Knowledge) Program is run out of Research Communications, Office of the Vice-President Research.

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