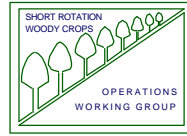


Short-Rotation Woody Crops Operations Working Group NEWSLETTER

Administrative Sponsors

Electric Power Research Institute
National Council of the Paper Industry
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Oak Ridge National Laboratory
USDA Forest Service



Sustaining Sponsors

American Cyanamid Company
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Number Three

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SECOND SRWC-OWG CONFERENCE HOSTED BY FORT JAMES CORPORATION

The second conference of the Working Group will be held August 25-27 (28) in Vancouver Washington (across the Columbia River from Portland, Oregon). The conference is being hosted by Fort James Corporation. Attendees can register Monday evening and Tuesday morning. The Conference will begin with a Technical Session on Tuesday at 1:00 PM. Technical Sessions will also take place on Wednesday from 8:00 to 12:00 and from 1:00 to 5:00. On the 27th, there will be an all-day field tour. This tour will include: genetic testing (Fort James), herbicide testing (American Cyanamid), and alternative site preparation techniques (Howard Maschinen Fabrik and CMI). There will also be an optional field tour on the 28th to Boise-Cascade's and Potlatch's SRWC operations in eastern Oregon and Washington.

Scheduled Papers

Farming Poplar in the Oregon Desert - Jake Eaton, Potlatch Corporation

An Integrated Approach to Rodent Management in an Intensively Managed Hybrid Poplar Plantation in Eastern Oregon - Brian Moser, Potlatch Corporation

Short-Rotation Woody Crops Collaborative Research Program - Marilyn Buford, USDA Forest Service

Poplar Council of the United States-Purposes and Goals - Randall J. Rousseau, Poplar Council, President

Product Registration and Labeling of Herbicides for Use in Short Rotation Woody Crops - Jeff Birk, American Cyanamid Company

Producing Short Rotation Willow Crops in the Northeastern United States - Tim Volk, State University of New York-Syracuse

Above-Ground Biomass Production of Sweetgum and Sycamore Harvested under Different Cutting Cycles during a 15-Year Period - Klaus Steinbeck, University of Georgia

Hybrid Poplar Efforts in the Pacific Northwest - Richard Moulton, Columbia-Pacific Resource and Development

Total Fiber Utilization Equipment System - Milan Robison, Morbark

Development of a Short Rotation Woody Crops Harvester Suitable for the Temperate Regions - Luigi Pari, Istituto Sperimentale per la Meccanizzazione Agricola

A Trial of Cut-To-Length Harvesting of Short Rotation Eucalyptus - Bruce Hartsough, University of California-Davis

Growth Response of Hybrid Poplars to Industrial and Municipal Waste - Jon Johnson, Washington State University

Fertigation in Short Rotation Woody Crops Production - Ilan Bar, Netafim-USA

Fiber Farm Management Southeastern Missouri - Dwight Rainwater, Westvaco Corporation

Lessons Learned from Growing Poplars with Waste Water - (Presenter Unknown), CH2M Hill

Short Rotation Forestry in South Africa-An Overview - Louis Treblance, Sappi Forests Ltd.

The Effect of Transplant Grade and Soil Deterioration on Survival and Root Development of Populus Patula Transplants - Louis Treblance, Sappi Forests Ltd.

Pre- and Post-Emergent Applications of Imazaquin for Herbaceous Weed Control in Eastern Cottonwood Plantations - Andrew Ezell, MSU

Synergy of SRWC for Fuel and Fiber - Bill Nicholson, Potlatch

Conference Schedule

- Mon. (24th) - Registration (6:00 - 8:00 PM)
- Tues. (25th) - Registration (8:00 - 11:00 AM)
 - Technical Sessions (1:30 - 5:30 PM)
 - Hosted Reception (7:00 - 9:00 PM)
- Weds. (26th) - Business Meeting (7:30 - 8:45 AM)
 - Technical Sessions (9:00 - 11:30 AM)
 - Lunch* (11:45 - 12:45)
 - Technical Sessions (1:30 - 4:30 PM)
 - Dinner* (6:30 - 9:00 PM)
- Thurs. (27th) - West Side SRWC Tour*
 Depart DoubleTree at 8:00 AM
 Return DoubleTree at ~5:00PM
- Fri. (28th) - East Side SRWC Tour**
 Depart DoubleTree at 8:00 AM
 Return DoubleTree at ~5:00PM

* Included in Registration Fee

** Optional Tour - \$20 Fee

Registration

The conference registration fee is \$125 if paid before July 31st and \$150 if paid after July 31st. This registration fee includes annual membership dues of \$20. For those who have already paid their membership, \$20 can be deducted from the conference fee.

For registration please contact:

Gail Simonds

Westvaco

P.O. Box 458

Wickliffe, KY 42087

Phone: (502) 335-3151; (Fax) 335-3150

gmsimon@westvaco.com

Hotel accommodations:

DoubleTree Hotel at the Quay

100 Columbia Street

Vancouver, WA

(360) 694-8341

(fax) 694-2034

This is a full service hotel located on Oregon/Washington border, surrounded by area businesses. Hotel features dining, lounge, riverdeck areas, outdoor pool, free parking, complimentary airport transportation, disabled facilities & non-smoking rooms. Room amenities include coffee/tea and laundry/valet service.

Vancouver Area

Vancouver, Washington sits on the north bank of the Columbia River directly across from Portland, Oregon. The Pacific Coast is less than 90 miles to the west. The Cascade Mountain Range rises on the east. Mount St. Helens National Volcanic Monument and Mt. Hood are less than two hours away. The spectacular Columbia River Gorge National Scenic Area lies 30 minutes to the east. Vancouver combines the excitement of a major metropolitan area with small-town charm and abundant recreational opportunities.

NEW *POPULUS* REPORT AVAILABLE

Increasing the Productivity of Short-Rotation Populus Plantations by D. S. DeBell, C. A. Harrington, G. W. Clendenen, M. A. Radwan, and J. C. Zasada. The worldwide web version of the report can be found at: <http://www.esd.ornl.gov/bfdp/reports/debell/contents.html>.

This report summarizes the culmination of eight years of biological research devoted to increasing the productivity of short rotation plantations of *Populus trichocarpa* and *Populus* hybrids in the Pacific Northwest. Specific chapters in the report include: Growing *Populus* Biomass: Comparison of Woodgrass Versus Wider-Spaced Short-Rotation Systems; Tree Growth and Stand Development in Short-Rotation *Populus* Plantings: 7-Year Results for Two Clones at Three Spacings; Tree Growth and Stand Development of Four *Populus* Clones in Large Monoclonal Plots; Productivity of *Populus* in Monoclonal and Polyclonal Blocks at Three Spacings; Above- and Below-Ground Characteristics Associated with Wind Toppling in a Young *Populus* Plantation; Leaf Characteristics Reflect Growth Rates in 2-Year-Old *Populus*; Use of Harmonized Equations to Estimate Above-Ground Woody Biomass for Two Hybrid Poplar Clones in the Pacific Northwest; and Summary and Conclusions.

The work was accomplished in three research plantations, all established cooperatively with the Washington State Department of Natural Resources (DNR) and located at the

DNR Tree Improvement Center near Olympia. The first plantation was established in Spring 1986 to evaluate the highly touted "woodgrass" concept and compare it with more conventional short-rotation management regimes, using two *Populus* hybrid clones planted at five spacings. Besides providing scientific data to resolve the politicized "woodgrass" dispute, this plantation has furnished excellent data on stand dynamics and woody biomass yield. A second plantation was established at the same time; groups of trees received two levels of irrigation and different amounts of four fertilizer amendments, resulting in microsites with diverse moisture and nutrient conditions. Individual tree and leaf characteristics were assessed over a wide range of growth performance to identify traits useful as predictors of growth potential over very different growing environments. The third plantation was established in Spring 1990 with four clones planted in pure and mixed blocks at three spacings; this plantation provided information on yields from alternate strategies of clonal deployment and on stand development patterns by clone and clonal mix. A storm with gale-force winds hit the study area in January 1993. The plantation sustained considerable damage and thus provided an opportunity to assess tree and stand characteristics associated with susceptibility to wind toppling of young *Populus*.

AVAILABILITY OF SHORT-ROTATION FORESTRY HANDBOOK

A new edition of the short rotation forestry production systems handbook, *Handbook on How to Grow Short Rotation Forests* (S. Ledin and A. Alriksson, 1992, Swedish University of Agricultural Sciences), was produced. The Worldwide Web version of the Handbook includes *Robinia pseudoacacia* and *Eucalyptus* sections and can be found at <http://www.abdn.ac.uk/wsrp/ieabioenergy/srfhb.htm>. A search function provides quick access to any part of the handbook and enables a user to find information by country or topic. An enhanced version of the handbook, complete with pictures and videos, is also available on a CD-ROM.

CLOSE-OUT REPORT ON INTERNATIONAL ENERGY AGENCY SRWC RESEARCH

An end of task report for 1995-97 on short-rotation forestry production systems was completed (<http://www.esd.ornl.gov/bfdp/reports/iea/iea-srf.html>). The end of task report identified the major non-technical barriers as policies, costs, and concerns about the environment.

Policy-related issues came out on top because environmental barriers could possibly be resolved through public education and cost could be dealt with if policies were stable. Canada and the United States were most affected by barriers created by the differential costs between fossil fuels and biomass fuels and the lack of energy policy equalizing these costs. Sweden, Denmark and United Kingdom were more affected by barriers related to technology transfer, incentives for getting long-term commitments from biomass fuel suppliers, financing mechanisms, and environmental issues. Comparisons of energy prices revealed that some countries have tax policies that partly level the playing field among competing energy technologies whereas others do not. The task participants concluded that government intervention will be required to facilitate the commercialization of biomass energy in most countries and that new policy tools may be needed.

In production systems studies, willows (*Salix*) were evaluated as a vegetation filter for treatment of sewage water, municipal sludge, and ash. It was found that the success of "willow filters" varies considerably with the development stage of the plantation and also with site conditions. Leaching of nitrate appears to be the largest factor limiting the size of the sewage water dose. Both sludge and ash additions resulted in *Salix* stem mass equal to that produced by commercial fertilizers. As a result of increased pH in the lime and ash treatments, manganese and cadmium mass in stems decreased. Net accumulation in the topsoil of Cu, Mn, and Ni occurred in all ash treatments; Zn and Cd accumulation depended on ash source and type.

In the area of coppice research, the IEA program evaluated (1) the role of carbohydrates during resprouting in coppice systems and (2) the effects of N availability on starch reserves in roots and shoots of *S. viminalis*. The effect of different harvesting equipment and techniques on coppicing was also studied. Harvesting damage effects remained observable throughout the 3-year period of investigation. Yield differences as a result of harvest damage were approximately 10 dry tonnes/ha/yr between the least and most damaged stools.

Several workshops were held to develop environmental guidelines for development of sustainable energy from biomass. One workshop focused on biomass harvesting and the development of guidelines to achieve sustainable forest management. During another meeting, best management practices and certification schemes for environmental sustainability of conventional forestry

production systems were reviewed. Example guidelines were presented and discussed from the perspectives of forest industries, individual countries, and international efforts such as the Montreal Process. A review of issues concerning the environmental sustainability of short-rotation forestry was also initiated and a template for sustainable forest bioenergy production systems was developed.

To characterize and improve planting stock and improve understanding of physiological, genetic and environmental influences on stock performance, IEA participants developed laboratory and field experiments and programs in which clonal and breeding stock was exchanged and evaluated. Molecular genetic techniques were used to characterize willow and poplar clones. In addition, several frost hardiness research experiments were undertaken.

In Sweden, two full-sib families of *Salix* were studied; one family was a cross between two *S. viminalis* parents, whereas the other was a backcross of *S. viminalis* to a hybrid between *S. viminalis* and *S. schwerinii*. Trees were exposed to growing conditions which consisted of gradually shortening days and gradually decreasing temperatures. These conditions induced frost hardiness in both crosses, although the backcross trees generally displayed greater resistance than did the crosses of pure *S. viminalis*. Clonal differences in frost damage within each cross were highly significant.

At the University of Minnesota, a three-generation pedigree of *Populus* hybrids was used to map quantitative trait loci (QTL) for bud set and frost hardiness. The F2 mapping population was derived from a cross between a northern clone of *P. trichocarpa* from Washington and a southern clone of *P. deltoides* from Texas. The timing of bud set was measured under three experimental conditions and the data from all experiments will be used in conjunction with molecular marker data to map QTL.

For the 1998-2000 period, the Short Rotation Crops Task has some very ambitious goals. They include reaching consensus by the year 2000 regarding the environmental benefits of short-rotation crops; the potential role of short-rotation crops in specific countries, in near- and long-term time frames; planting, management, and harvest; the best current technologies for chemical and mechanical weed control; the importance of clone mixtures versus monoclonal plantings; optimal cutting cycle lengths in relation to coppicing properties, sustainable production, and economy; quantification of plant/site interactions; optimal management regimes, including recycling of wastes;

acceptable landscape influence; and ways to handle pests and diseases.

Additional Information on IEA short-rotation activities can be found on their home page -- <http://www.iea.org/>. The Bioenergy Task page is at the following address: <http://www.fri.cri.nz/ieabioenergy/home.htm>.

BRYCE STOKES TAKES POSITION IN DC

Bryce Stokes, Project Leader for the Engineering Research Unit at Auburn Alabama and past chair of the SRWC Operations Working Group, was promoted to National Program Leader for Forest Operations Research with the USDA Forest Service. His new position is in the Washington Office of the Forest Service. His primary duties include coordinating and supporting forest operations and engineering research within the agency. He also serves as the agency's liaison with the American Forest and Paper Association and the American Pulpwood Association. Bob Rummer is the new project leader for the engineering unit at Auburn. Bryce's new address is: USDA Forest Service; P.O. Box 96090; Washington, DC 20090-6090; phone (202) 205-1147; fax (202) 205-2497; and email - bstokes/wo@fs.fed.us.

NEW SUSTAINING SPONSORS

The SRWC-OWG is pleased to announce that six companies have agreed to be sustaining sponsors. These companies are:

American Cyanamid Company
B. B. Hobbs Company
Boise Cascade Corporation
Drip-In Irrigation Company
Morbark Sales Corporation
NETAFIM Irrigation, Inc.

The financial contribution of these companies is most appreciated.

Additional industry sponsors are sought. Your company can become a sustaining sponsor of the Working Group with an annual contribution of \$500. These funds will be used to collect and distribute information, to enhance home-page activities, and to sponsor the biennial workshops and topical conferences. Each company that becomes a Sustaining Sponsor will be recognized on the

letterhead of the Working Group, and on all publications including workshop proceedings and newsletters. In addition, complimentary annual memberships will be provided to five individuals within the company. If your company would like to become a Sustaining Sponsor, please contact Bruce Hartsough, Biological & Agricultural Engineering, University of California, Davis, CA 95616. Phone: (530) 752-8331, Fax: (530) 752-2640, brhartsough@ucdavis.edu.

SRWC - OWG HOMEPAGE

For those of you who have not visited the SRWC-OWG homepage, we have attached a copy of the web page to this newsletter. The web page also has a number of useful links. The complete proceedings of the *First Conference of the Short-Rotation Woody Crops Operations Working Group*, held in Paducah, Kentucky, is now posted. The SRWC-OWG web-site can be reached at the following address:

<http://www.esd.ornl.gov/bfdp/srwcwgrp/menu.html>

If you have articles, publications, meeting announcements, useful links, and other information that would be of interest to members, please send to Bob Perlack (Fax: (423) 574-8884, perlackrd@ornl.gov) so they can be placed on the homepage.

STEERING COMMITTEE MEMBERS

The current Steering Committee is composed of the people listed below.

- Larry Abrahamson - State University of New York
- Randy Richter - Simpson Timber Company
- John Blake - USDA Forest Service Savannah River
- Jim Shepard - NCASI
- Gail Simonds - Westvaco-Timberlands
- Larry Burkholder - Morbark Sales
- Bruce Hartsough - Biological & Agricultural Engineering University of California
- Ron Stoffel - Minnesota Dept. of Natural Resources
- Bryce Stokes - USDA Forest Service
- Tom Houghtaling - Minnesota Power
- Evan Hughes - Electric Power Research Institute
- Bruce Upchurch - Union Camp Corporation
- Chuck Kaiser - Fort James Corporation
- Lynn Wright - Oak Ridge National Laboratory[†]

Bob Perlack - Oak Ridge National Laboratory[†]
† - Only one vote

Additional Members

Harvesting operators (2) - to be determined
Agricultural equipment - to be determined

Non-voting Affiliate Members

Chemical - Harry Quicke - American Cyanamid
Irrigation - Roy Merritt - NETAFIM Irrigation, Inc.
- Burt Aronoff - Drip-In Irrigation

If you have an interest in serving on or nominating someone for the Steering Committee please send names to Bruce Hartsough. We are still in need of two harvesting operators and an agricultural manufacturer to serve on the Steering Committee. Also, if you have an interest in serving as an affiliate member, please let Bruce know. Affiliate members will be invited to the next meeting.

REMINDER ON MEMBERSHIP DUES

Since the inception of the Working Group, administering sponsors have provided financial sponsorship of the Group. The current mailing list includes well over 300 recipients. To help defray costs, nominal membership dues are \$20 per year. Membership services will include a newsletter, access to the membership list, homepage, and development of conferences and workshops. Members will also receive the proceedings of the biennial conferences and reduced registration at these conferences.

MEMBERSHIP REQUEST FORM

Name _____

Position _____

Company/Organization _____

Address _____

Phone _____

Fax _____

e-mail _____

Areas of Responsibility _____

SRWC Interests _____

Will Will not allow this information to be published/placed on homepage.

Please complete and return to:

Jim Shepard
NCASI
P.O. Box 141020
Gainesville, FL 32614-1020

Please make your check payable to NCASI (memo: SRWC Working Group).

CONTACTS

For membership services, please contact Bob Perlack @ (423) 574-5186. For other information please contact Bruce Hartsough @ (530) 752-8331.

REGISTRATION FORM
SECOND CONFERENCE

of the
SHORT-ROTATION WOODY CROPS
OPERATIONS WORKING GROUP

Enclose \$125 if registering before July 31st. The registration fee will increase to \$150 on August 1st. Please deduct \$20 from the registration fee if you are already a paid member of the SRWC-OWG. Add \$20 if you plan to join the East Side Tour on Friday the 28th.

Name _____

Organization _____

Address _____

Phone _____ Fax _____

Email _____

East Side Tour (yes or no) _____

Mail to: _____

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