
Short-Rotation Woody Crops

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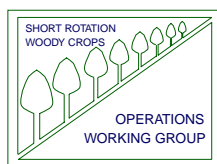
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Operations Working Group NEWSLETTER

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SRWCOWG Spotlight on Jim Shepard

Each of the forthcoming newsletters in 2005, the editor will turn a spotlight on one of the leaders involved with the Short-Rotation Woody Crops Operations Working Group.

Jim Shepard was honored at the SRWCOWG biennial meeting in November 2004 for his significant contributions to the group. Jim first became involved with the SRWCOWG when he and Virginia Tolbert co-authored a paper for the Paducah symposium in 1996. In 1998, he began keeping books as treasurer for the SRWCOWG on behalf of the NCASI organization. The working group relied heavily on Jim as the master maintainer of membership lists, steering committee members, and sustaining sponsors. He became a major source of support for planning meetings, kept us all straight with his records of minutes of meetings and generally made himself indispensable to the group. Jim performed these duties flawlessly and with alacrity. He is now passing this responsibility onto Vicki Tatum at NCASI (vtatum@src-ncasi.org) since he has moved onto new professional responsibilities. As of January 2005, has joined the faculty of Mississippi State University as Professor and Head of the Department of Forestry. As he grew up in Mississippi, he is returning home.

His new address is:

We expect Jim to continue to be a continuing participant in the SRWCOWG in his new role. Below, Jim Shepard (right) is setting Bryce Stokes straight while on the SRWCOWG 2004 field trip.



Jim worked at NCASI for about 15 years. He became interested in the issues that NCASI deals with as a result of his acid rain research in the Adirondacks while completing a post-doc at SUNY Syracuse. Once at NCASI, he started as a "Forest Environmental Scientist," then became "Forest Wetlands Program Manager," and finally "Sustainable Forestry Program Manager." In the latter role, he was responsible for overseeing projects on "Water and Silvicultural Chemicals," Forest Carbon Cycle and Productivity," and "Landscape Management and Forest Monitoring."

5th Biennial SRWCOWG Conference Report
November 7-10, 2004
Charleston, South Carolina, USA

This very successful meeting was jointly supported by the Short Rotation Woody Crops Operations Working Group, the International Energy Agency/Bioenergy Task 30 (Short Rotation Crops), and the International Union of Forestry Research Organizations (IUFRO) working unit 1.09.01 (Integrated Research in Temperate Short-Rotation Energy Plantations). Appropriately the meeting was attended by a wide range of international professionals. Represented sectors included academia (31%), forest industry (26%), government (22%), utilities (11%), private consultants (7%), and equipment manufacturers (2%). A total of 54 registered, representing eight nations with 22% from countries other than USA. A total of 38 attended the low-country tour of industrial pine forests and 33 managed their way onto the Savannah River Site to see the SRWC Co-op research project. The meeting was very well organized and hosted by Mark Coleman of the USDA Forest Service Southern Research Station. Many of the papers presented will be published in a forthcoming issue of Biomass and Bioenergy. Abstracts of many of the talks can be found at www.woodycrops.org/publications.

Introductory Overviews

Don Dickman very capably reviewed the history of short rotation woody crops from antiquity to now where poplars are on the cutting edge of science by being the first tree species to be transformed. The presentation was enhanced with wonderful art work depicting early uses of poplars and willows and great photos of present day applications. Don's presentation set the stage for the technical sessions on both genetics and physiology of poplars.

Lynn Wright provided a worldwide review of renewables and bioenergy showing that while use of renewables is increasing, the technology receiving most investment is wind. Biomass residue use for bioenergy is increasing in some situations but short-rotation crops has only been commercially adopted by some wood products companies. The failure of

several government funded trials and pilot projects using short-rotation woody crops to progress to commercial status has been disappointing. Gary Elliot followed with an explanation of why utilities may be constrained in the use of short-rotations crops. He explained that biomass energy development must consider 7 different areas and that they are all interdependent. This presentation set the stage for describing and discussing progress in eliminating both technical and non-technical barriers to the use of short-rotation crops for bioenergy.

Country and Regional Reports

Highlights by Lynn Wright

Reports were made by International Energy Agency/Bioenergy Task 30 participants. The following are not complete summaries but only a few highlights found to be of particular interest.

Brendan George of Australia told us that Bioenergy is growing in Australia and *Acacia retinodes* is being looked at as a possible bioenergy species. He noted that Australian regulations prohibit the use of residues from fiber crops (such as Eucalyptus) for bioenergy.

Laercio Couto summarized the large amount of bioenergy already being produced in Brazil. Interest in biodiesel is growing rapidly with possible vegetable oil sources including Caster Bean, Soybeans and Sunflowers. Eucalyptus continues to be a major source of bioenergy through its use in producing charcoal.

Naresh Thevathasan informed us that Canada is taking the Kyoto Agreement seriously. That will mean emitting 33% less carbon than business as usual predictions. Both forestry and agriculture is being looked at for bioenergy resources.

Ian Nicholas stated that New Zealand has targets to produce 41 PJ of consumer energy from biomass by 2020 (the current level is 30 PJ). Total energy use by New Zealand is 546 PJ. Eucalypts achieve yields of 20 to 30 dry tons/ha/year in New Zealand.

Nils-Erik Nordh reported that Swedish companies

continue the development of new clones of willow. The Enköping energy project that uses residues and wood from 200 ha of locally grown willow was highlighted. Information on it can be found at www.shortrotationcrops.com.

Keith Richards of the U.K. described the activities of TV Energy, a regional European Renewable Energy Agency. The agency's goal is to use new ways to get community based bioenergy projects on the ground. 1750 ha of willow coppice has been established to date but some of the projects that were original markets have gone bust. New projects are being developed. A recent UK Energy white paper suggested that UK strive for a 60% reduction in carbon emissions by 2050.

Jake Eaton, of Potlatch Corporation reported that a total of 19,000 ha of hybrid poplars have been planted in the Pacific Northwest region of the U.S. Current market drivers dictate production of saw logs and veneers, not pulp (except where plantations exist beside a pulp facility). There is a significant market for certified wood. The production of poplars for environmental clean-up is also likely to increase. Jake sees the bioenergy market as still needing federal subsidies as well as more technology development to be successful.

New York State is establishing an aggressive renewable goal of 25% according to Tim Volk of the State University of New York (SUNY) in Syracuse. With incentives available, willow biomass can be available at \$1.80 to \$1.62 per Mbtu. Willow production is likely to increase due to approvals to plant and harvest on Conservation Reserve Program lands. The regional research focus is on breeding and harvesting. SUNY is currently testing a Case New Holland FX40 harvester for its effectiveness on willow.

John Stanturf of the U.S. Forest Service informed us that the Southern U.S. produces more timber than any other country in the world. Most forests (89%) are privately owned and of that 79% are non-industrial forests. A new type of owner in the South is the Timber Investment Management Organization. Average plantation growth rate is 17 m³/ha/year and there are 15,000 ha of eastern cottonwoods being

grown on relatively short rotations. A recent revival in hardwood interest is focusing on sweetgums, but pines are getting more attention as a short-rotation crop. He explains that there has been low activity in growing wood for bioenergy because there has always been lots of low grade wood available at low cost and there are no incentives. For example, no southern states have adopted renewable portfolio standards. John does believe, however, that interest in bioenergy is building. He noted that more utilities are using forest residues and some groups have recently formed to promote biomass use such as the "Southern Alliance for Utilization of Biomass".

Bill Berguson, of the University of Minnesota's Natural Resource Research Institute, reported that the North Central U.S. has seen rapid increases in stumpage price (from \$5/cord in 1991 to \$40 or more in 2004). This has greatly stimulated the interest in hardwood plantations in the region. The Minnesota Hybrid Poplar Research Cooperative has established field trials at 11 sites, testing over 1200 clones. The best growers are pure *P. deltoides* clones but they don't root well in the cooler spring Temperatures in the Lake States. Some of the 1st generation clones being tested in Southern Minnesota (DN34 and NM6) are showing yields of 4.5 to 4.8 dry-tons/ac/year (10 to 11 dry-tons/ha/yr) at age 5 and could reach 7 dry-tons/ac/yr (~16 dry-tons/ha/yr) at optimum harvest age. Yields on new clones range from 25 to 100% higher but rooting is a problem with some. Hybrid poplar plantings in the area equal nearly 30,000 acres with about 2/3 being established by International Paper Company.

Technical Sessions

Since abstracts from most of the talks given in the technical sessions are available at: www.woodycrops.org/publications, the talks will not be summarized here. However a few noteworthy comments that could be food for further thought and discussion by the SRWCOWG.

For example, the presentation by Randy Rousseau, showed that the use of transgenics could make a significant impact on the cost of growing wood by greatly lowering the growing cost of poplars and willows. Commercial use, however, is inhibited due to

societal concerns. He noted that ArborGen has also shown that transgenic poplars have great promise but have concluded that the current market for transgenic poplars is extremely small.

Panel Discussion

Summarized by Mark Coleman

The meeting included a panel discussion of experts considering impediments to adopting biomass as a fuel for energy production. Since these presentations and discussions are not available in the meeting abstracts they are summarized here.

Gary Elliot, Biomass Project Developer, for International Applied Engineering described the need for biomass power facilities and demonstrated retrofitting existing coal power plants to co-fire biomass would be less expensive than building new dedicated biomass power facilities because it is faster to permit and install, provides additional emission benefits and does not require regulation changes. There are a number of misconceptions by power producers that limit adoption, including insufficient land capacity to support 10 percent co-firing, unproven NOx reduction benefit, and lack of tax benefits. But Gary described why these concerns are unfounded and listed numerous benefits of adopting biomass as a fuel source including: decreased fuel source, lower NOx and SOx emissions (with monetary value due to cap and trade restrictions), sources of funding for conversion, and the logic in directing capital expenditures away from traditional fuels toward biomass.

Jim Reaves, Staff Director for Vegetation Management and Protection Research, USDA Forest Service described why the Forest Service should be involved with use of short rotation crops in addition to current fiber and biofuel sources. The items he presented included questions of sustainable production, environmental benefits, distributing biofuel production across the landscape, and adapting through the use of science and technology. The barriers he listed included: (1) unfair cost comparisons due to lack of technology, high transport costs, and lack of subsidies and tax credits; (2) acceptance due to non-product values of forests, differences in landscape design and limited

partnerships with conservation and environmental organizations; and (3) limited promotional efforts, including proving the approach through case studies and support material.

Mark Downing, an economist with Oak Ridge National Laboratory listed different types of legislative and financial incentives that affect use of biomass for energy. He listed numerous congressional activities regarding biomass to energy legislation affecting rules, regulations, policy and financial incentives including: renewable energy legislation, federal restructuring legislation, and Farm Bill 2002 – FY05 Senate mark-ups.

Bill Garbett, with International Paper, provided the barriers faced by the forest products industry. While there is ample demand for hardwood and softwood fiber for paper, solid wood and energy products, he points out there is one major barrier to operational adaptation of short rotation crops, price. The forest products industry has developed intensive management technology to the point where production is maximized, yet cost for producing this material is still 3 to 4 times that of the value at the mill for bioenergy feedstock. A major cost breakthrough or increased price for fuel would have to occur before woody crop production of bioenergy feedstock was a viable option.

Gillian Alker, with TV Energy, provided an international perspective on technical and non-technical barriers to full-scale implementation of short rotation crops. The information presented is a deliverable resulting from identification of the matter as a “high priority area” for IEA Task 30. Detailed information on barriers was presented and will be available in the final report. She concluded that many technical barriers are being overcome, but non-technical barriers are more pervasive. Non-technical barriers identified included: R & D, policy, market, sector integration, public acceptance, fuel production, supply chain, and conversion technologies. Market enablement is an important first step toward implementation, but this must be sustainable, and all sectors involved must benefit. She suggested that quality demonstration projects are an important step toward breaking barriers to implementation of short rotation crops.

South Carolina Field Trip Report

prepared by Lynn Wright

First stop, on the crisp and sunny South Carolina November morning, was the Mead Westvaco Intensive loblolly clonal pine research blocks. With the Mead Westvaco trees in the background, Elizabeth Kress (below on right), a project manager at Santee Cooper Power, talked about the interest by her company in Green Energy and particularly in biomass energy.



Santee Cooper burned wood in the past when hurricane Hugo created a large low-cost waste wood resource in their region. Chipped wood was successfully co-fired with coal at a 10% level. The project was suspended when wood prices rose from \$6.30 per ton (wet) to \$12.99 per ton (wet). However, with financial incentives recently available for SO₂ reduction and potentially available for NO₂ and CO₂ emission reductions, Santee Cooper is taking another hard look at burning wood. They are focusing on the Francis Marian Forest where they would be collaborating with the Forest Service to help clean it up. The local support for the project is good because of the positive impacts on economic development in the area. Santee Cooper's decision to move ahead with the project will depend on positive economics .

Next stop was the Mead Westvaco clonal plantings. The growth of these trees can be summarized in one word, WOW! This planting was proof that loblolly pine production can be similar to the best cottonwood production – when using the best clones and best silviculture. Phil Dougherty, of Mead Westvaco (below), explained what his project on clonal pines has achieved.



Yields have been doubled over the past 20 years. This can be attributed partly to genetics (12 to 15% of gain) but mostly to changes in silviculture (better nutrient management and higher density). Only 5 years ago most loblolly planted was open pollinated material, now 100% of the pines planted by MeadWestvaco are controlled pollinated material. Rangelwide, yields of 5 dry tons/acre/yr (~11 dt/ha/yr) are achievable now and he expects to be able to demonstrate yields of 8 dry tons/acre/yr (~18 dt/ha/yr) in the next rotation using clonal pines on areas with a site index of 90 or greater. All of the lower coastal plains has a site index of 90 or better and, in the Piedmont, site indexes are generally 80 or 85. Thus the potential for increased fiber and biomass production using loblolly pines in the Southeast is very high.

Rodney Will, Forestry Researcher from the University of Georgia, discussed results of the Coastal Plain Intensive Culture-Density Study also located at the Mead Westvaco site. By the end of the 8th growing seasons, loblolly pine was producing a maximum volume of 29 m³/ha/yr, at the highest planting density (4440 trees), under intensive management. However, that productivity was nearly equaled by the trees planted at 2960 trees/ha with intensive management. With operational management, yields were significantly lower, but the trees planted at 2960 trees/ha achieved the highest total volume. Data from 4 year old density trials showed that growth efficiency increased with density up to 3700 trees per hectare. This was only partly accounted for by less branching in both loblolly and slash pines.

Summarized by Lynn Wright

After a tasty box lunch, the tour bus driver took us into the Savannah River Site where all guests had to prove their identity and be properly badged and screened for dangerous items (a la requirements of the U.S. Department of Energy!). After all that, we only got to see trees! But much credit is given to Mark Coleman, our local host, for managing to get us on the SRS (well most of us). The objective was a short-rotation woody crops trial with species, irrigation and fertilization as treatments. The trees, now at the end of their 4th growing season, had been stocked at 1333 trees/ha (2.5 x 3 m spacing) on a sandy site that had been cleared of 30 year old Long Leaf pine trees. The take home message was that loblolly pine seemed to be the species best suited for the site! Fertilization made a very significant difference in the growth of all tree species. Irrigation had no effect on the growth of the pine and relatively little effect on the cottonwoods, even though the first 2 years after planting were droughty. Both Sycamore and Sweetgum responded to both fertilization and irrigation though in different ways. Of the hardwoods, sycamore had shown the largest growth response by age 4 but the Sweetgum was close to catching up. The cottonwood results were very disappointing. Total aboveground yields of the best loblolly pine treatment after 4 years was about 30 dry Mg/ha (12 dry tons/ac) or only about 7.5 dry Mg/ha/year (3 dry tons/acre/yr). However, it should be noted that at the relatively wide spacing chosen, this is not the final rotation yield for any of the species.

Many types of experimental data, other than growth, have been collected from the SRS planting. For example Rodney Will, reported on how water and nutrient availability affected radiation use efficiency in Sweetgum and Sycamore. Other information provided in the tour handouts discussed sapflow differences, fine-root dynamics, soil carbon measurements, and ice storm damage to pine. This very well managed experimental site provides a wonderful opportunity for other research organizations in the region to obtain data on growing trees under short-rotation conditions on southeastern sandy soils.

**Short Rotation Woody Crops Working Group
Anniversary Presentation by Bryce Stokes**

A highlight of the meeting, besides seeing old friends and meeting new ones, was the historical review in words and pictures of the past 10 years of activity of the SRWCOWG put together by Bryce Stokes.

The presentation will be put in the publications section of the www.woodycrops.org website for all to enjoy. Bryce deserves much of the credit for getting this organization started and continues to be the backbone of the SRWCOWG. It was fitting that he would share his memories and comments on the key events of the past 10+ years. Photos were provided by Lynn Wright and other steering committee members.

Bryce reminded us that our mission was to “Promote collaborative efforts in developing needed operations for SRWC plantations that comply with principles of economic and ecological soundness”.

The timeline for the events leading up to the formation of the group really began when Bryce met with fiber company foresters on the West coast in 1988 and 1991 who were already planting short rotation woody crops for fiber. This led to Bryce organizing the first formal industry sponsored meeting on Short rotation woody crops in 1994, with a focus on harvesting technology. At that meeting attended by 69 people from 7 countries, a high level of interest was expressed by the participants to establish a formal group for sharing information about SRWC technologies. At that point Bryce Stokes and Tim McDonald of the US Forest Service and Lynn Wright and Bob Perlack, representing the Department of Energy’s program Short Rotation Woody Crops Program managed by Oak Ridge National Laboratory held an organizing meeting that was attended by several industry, university and utility participants. The Electric Power Utility Institution signed on to be an Administrative sponsor and many of the participants of that first meeting became Steering committee members.

All of this history and much more can be discovered through reading past newsletters found at www.woodycrops.org/publications.

Pictures of the previous four Biennial Meetings of the SRWCOWG added greatly to the enjoyment of this presentation. Bryce reminded us all to think BIG as we look to the future of SRWC technology development and to the possible accomplishments of the SRWCOWG.

Recognitions and Awards – Presented at the Breakfast Business meeting by our Chair, Jake Eaton

The SRWCOWG honored Jim Shepard for his many years of tireless service, Bryce Stokes for being the #1 cheerleader and champion for the OWG, and Mark Coleman for the excellent meeting organization. Jake Eaton presented each of them with a wine box made of poplar and engraved with their names and the Potlatch Resource Management Division logo. Jim Shepard and Mark Coleman also got a bottle of fine OR Pinot Noir and Bryce Stokes got a fine can of South Carolina sprite.

Steering Committee Meeting Minutes

Charleston, South Carolina
November 8, 2004.

Attendees

Larry Abrahamson	State University of New York
Jake Eaton	Potlatch
Tom Houghtaling	Minnesota Power
Steve Pottle	Boise
Jim Shepard	NCASI
Richard Shuren	Greenwood Resources
John Stanturf	USDA Forest Service
Bryce Stokes	USDA Forest Service
Tim Volk	State University of New York
Lynn Wright	Oak Ridge National Laboratory/private consultant

Minutes (compiled by Lynn Wright, edited by Jim Shepard, Jake Eaton, Bryce Stokes)

Nominations

Jake Eaton was asked and agreed to serve another 2 years as Steering Committee Chair.

Steve Pottle was nominated and unanimously approved as Vice Chair/Biennial Meeting Chair

Action Items

Who?	What?	When
Jake Eaton	Check with current Steering Committee members to determine their interest in continuing to serve	By Nov. 30, 2004
Bryce Stokes	Announce invitation to serve on Steering Committee	Nov. Business Meeting
Jim Shepard	Determine whether NCASI willing to continue role as Administrator for SRWCOWG	By mid-Nov.
Lynn Wright	Determine whether DOE is willing to support newsletter and website work in support of SRWCOWG	Jan 2005
Lynn Wright	Renew WoodyCrops.Org Website name	Jan 2005
Lynn Wright	Talk with Evan Hughes about EPRI role as administrative supporter	Jan 2005
Lynn Wright	Get Steering Committee invitation for website and in newsletter	Next newsletter

Steering Committee Membership

Discussion was initiated about revitalizing and expanding the Steering Committee. There continues to be a desire to get a broad representation from all industry and private sector groups that have an interest in Short Rotation Woody Crop Technology. It was suggested that the leadership should continue to try to recruit equipment manufacturers.

It was suggested and accepted by the group that we should allow anyone who is interested to be involved. Bryce Stokes proposed making an announcement at the Business Meeting inviting interested people to nominate themselves as members of this committee. Additional announcements should be put in the newsletter and on the web site where gaps in the current committee could be mentioned. Contact person should be Jake Eaton. Two new participants, John Stanturf of the USFS and

Rich Shuren of Greenwood Resources, were accepted as Steering Committee members. Greenwood Resources has offered to become a sustaining sponsor.

It was noted that Administrative or Sustaining Sponsors automatically have a position (or two) on the Steering Committee. These sponsors have recently included NCASI, USFS, ORNL and EPRI (Administrative) and Potlatch Corp., Boise LLC, Irrigation Mart Inc., Greenwood Resources and Peterson Corp. (Sustaining).

The interest of EPRI was questioned. Since EPRI no longer supports biomass research and Evan Hughes is now a private consultant, the assumption is that EPRI should be removed. Lynn will consult with Evan Hughes to see whether he thinks we should talk with anyone at EPRI and whether or how he would like to be involved. *(Update: Contact with Evan Hughes resulted in his requesting to continue serving on the Steering Committee at his own expense. He promised to ask EPRI if they wished to continue support of the group but no response has been obtained to date).*

Role of DOE/ORNL was also questioned. Unless DOE is willing to continue to allow staff and guests to continue supporting the SRWCOWG through maintaining the website and newsletter publication, then perhaps they should be dropped as Administrative sponsors also. Lynn will check on this. *(Update: ORNL will continue to provide server space and back-up support for the website, and is providing office space and equipment for Lynn Wright to work on the website).* Lynn Wright also will continue serving on the Steering Committee at her own expense.

Role of NCASI was discussed since the key NCASI person, Jim Shepard, will soon be leaving to join Mississippi State University. Jim felt that NCASI would be interested in continuing their administrative support role, but agreed to talk with Al Lucier and others at NCASI about this. *(Update: NCASI will continue this role with the contact person being Vicki Tatum, vtatum@src-ncasi.org)*

Treasurers Report

Jim Shepard passed out a treasurer's report. It was

accepted by the group. As of November 8, 2004, the SRWCOWG has \$25,571.23 in the bank. There will be expenses from the Charleston meeting not shown in this balance. The hotel catering bill is expected to be at least \$10,000 and there may be other expenses.

2006 Meeting

With three sustaining sponsors from the West Coast, the obvious choice for the 2006 meeting is the Washington/Oregon area. Jake Eaton, Steve Pottle and Rich Shuren offered to work together to organize the next meeting. The timing of late September was suggested as a possibility.

There was also discussion about the South (John Stanturf, USFS and Jim Shepard, MSU) working together to host the 2008 meeting. They were already deciding on best places to eat!

Web Site

The web site name "woodycrop.org" is up for renewal. Lynn Wright agreed to handle that herself and would request reimbursement from the organization. *(Update: The woodycrops.org website has been renewed.)*

Lynn also requested that the organization consider paying her directly for work on maintaining the website. The group agreed that this could be done, but requested that Lynn first talk with DOE to determine their interest in continuing to support the SRWCOWG by paying for web and newsletter work. Lynn agreed to do this and report back to Jake. *(Update: due to funding limitations the DOE/ Office of Biomass Program has declined the opportunity to provide direct monetary support to ORNL for time spent on the newsletter and web.)*

Newsletter

Lynn Wright agreed to put together the next newsletter using material from the Charleston meeting. It was suggested that each Steering Committee member should be requested to provide an article for future issues and the membership should be solicited to provide content.

Steering Committee Invitation

The working group would like to extend an invitation to all members the opportunity to participate on the Steering Committee. The minimum commitment is generally for two years. Being a member requires that you periodically provide input to the working group business issues and if possible attend the biennial meeting. Please let Jake Eaton know if you'd like to join this "elite" group. Your help would be greatly appreciated.

2005 Steering Committee as of March 2005

Larry Abrahamson	State University of New York, College of Environmental Science and Forestry
Marilyn Buford	USDA Forest Service
Mark Coleman	USDA Forest Service
Jake Eaton (Chair)	Potlatch Corporation
Evan Hughes	Electric Power Research Institute
Bob Perlack	Oak Ridge National Laboratory
Steve Pottle	Boise LLC
Jim Nantz	Peterson Corp.
Don Riemenschneider	USDA Forest Service
Jim Shepard	National Council for Air and Stream Improvement (NCASI)
Bryce Stokes	USDA Forest Service
Tim Volk	State University of New York, College of Environmental Science and Forestry
Lynn Wright	Oak Ridge National Laboratory/ Biomass Consultant
John Stanturf (new as of 11/8/2004)	USDA Forest Service
Rich Shuren (new as of 11/8/2004)	Greenwood Resources

**Tour of Short Rotation Woody Crops Research in Florida
November 3-5, 2004**

Arranged (and reported) by
D.L. Rockwood
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Gainesville, FL 32611-0410, 352 846-0897, dlr@ifas.ufl.edu

To increase forest productivity in Florida and similar areas for energywood, mulchwood, dendroremediation (i.e., phytoremediation using trees), and/or some traditional timber product applications, management options for short rotation woody crops (SRWC) include genetic improvement, intensive culture, and short rotations on agricultural, forest, and non-traditional sites such as reclaimed mined and contaminated lands. In the near term, the opportunities for SRWCs in Florida and similar climatic and edaphic areas include two *Eucalyptus* species, *Eucalyptus grandis* (**EG**) and *Eucalyptus amplifolia* (**EA**), and eastern cottonwood (*Populus deltoides*, **PD**), all of which regenerate by coppicing after harvest. SRWC rotations can be as short as one year, depending on genotypes, initial planting density, culture intensity, harvesting equipment, and local fiber markets.

This tour visited seven sites out of more than 100 that have contributed or are contributing to SRWC development in Florida. These seven stops illustrated site conditions, current and potential applications, and research activities in central and south Florida.

Stop	Topic	Florida Location	Host	Species
1	Dendroremediation	Orlando	TA Spriggs, CH2M Hill, 4350 W Cypress St Suite 600, Tampa, FL 33607-4155; 813 874-6522 x 4156; tspriggs@ch2m.com	PD
2	Energy Farm	Lakeland	SA Segrest, Common Purpose Institute, 724 Argyle Place, Temple Terrace, FL 33617; 813 987-9728; steve@treepower.org	EG, EA, PD
3	Leucaena	Mulberry	TV Cunilio, Center of Sustainable Agroforestry, Gainesville, FL 32606; 352 376-6265; t.cosaf@worldnet.att.net	LL
4	Mulchwood	Palmdale		EG
5	Energy Farm	Clewiston	Mike Lorenz, Florida Crystals Corporation, 21250 US Hwy 27, P.O. Box 86, South Bay, FL 33493; michael_lorenz@floridacrystals.com	EG, EA
6	Cogeneration	South Bay	Gus Cepero, Florida Crystals Corporation, 21250 US Hwy 27, P.O. Box 86, South Bay, FL 33493; 561-993-1604; gus_cepero@floridacrystals.com	
7	Euc Improvement	Southwest Ranches	Matt Tavtigian, 18310 Spring Road, Southwest Ranches, FL 33331-1028; 954 252-1454	EG

Photos from Tour of Short Rotation Woody Crops Research in Florida November 3-5, 2004

1.75-year-old *Eucalyptus grandis* Seedlings



3-year-old Cottonwood Clones



4.5-year-old *E. grandis* Clones



Tour of Willow Research and Demonstration Plantings, November 11-12, 2004
hosted by SUNY-ESF, Syracuse, NY
(report by Larry Abrahamson)

A tour of willow trials, research and demonstration plantings in and around Syracuse, New York was hosted on November 11-12, 2004 following the SRWCOWG meeting in Charleston, SC by **Larry Abrahamson** and **Tim Volk** of the SUNY College of Environmental Science and Forestry. Stops covered a wide range of trials and demonstrations using willow. Friday morning(11/11) was spent visiting willow genetic selection trials and long term willow research plots at our willow research station at Tully, NY. After lunch, living snowfence demonstrations, stream bank stabilization projects and riparian buffers with willow were visited just south of Tully, NY. Attendance at a University of Syracuse men's (last year's national champions) basketball game in the Carrier Dome was the highlight of Friday evening. Saturday (11/12) was spent at our research plots of alternative landfill cover and phytoremediation experiments on the Solvay waste beds near Syracuse, NY. The tour ended Saturday noon with participants being dropped off at the Syracuse airport for their trips back home.

We had three very interested participants on this willow tour:

Nils-Erik Nordh, Swedish University of Agricultural Sciences Department of Short Rotation Forestry, Uppsala, Sweden. Theo Verwijst, Swedish University of Agricultural Sciences Department of Short Rotation Forestry, Uppsala was scheduled to attend but could not due to medical problems.

Henrik Kofoed Nielsen, Associate Professor, Agder University College, Faculty of Engineering and Science, Dommemoen, Grimstad, Norway.

Ian Nicholas, Forest Research, Rotorua, New Zealand.