

Center for Advanced Forestry Systems (CAFS):
Evaluator's Report for 2009

(<http://www.nsf.gov/eng/iip/iucrc/directory/tger.jsp> & <http://cnr.ncsu.edu/fer/cafs/>)

North Carolina State University
Oregon State University
Purdue University
University of Florida
University of Georgia
University of Idaho (effective 2/2010)
University of Maine
University of Washington
Virginia Polytechnic Institute and State University

Attachment A: NSF/IUCRC Annual Surveys of Faculty & IAB Reps

Attachment B: Success Stories

Attachment C: CAFS Developmental Milestones

Submitted by Craig S. Scott
NSF Center Evaluator

January 24, 2010

In 2009 the Center for Advanced Forestry Systems completed its 2nd year of operation as an IUCRC with North Carolina State University as the lead institution. The center is a very successful interdisciplinary research center that addresses a variety of forestry issues through multifaceted approaches. It is a stable, fast growing collaborative research enterprise that is evolving to become a national resource because of strong center leadership based on a foundation of previous non-IUCRC industry/university collaborations at a number of the university sites.

CAFS is a multi-university center that is working to solve problems through multi-faceted approaches to questions on multiple scales, encompassing molecular, cellular, individual-tree, stand, and ecosystems research. The collaborative consortium involves scientists with expertise in biological sciences (biotechnology, genomics, ecology, physiology, and soils) and management and processing (silviculture, bioinformatics, modeling, remote sensing, and spatial analysis).

Center research themes combine traditional genetics, biotechnology and silviculture into integrated systems with quantitative models to support decision-making and value enhancement.

CENTER TRANSITIONS

In 2003-2004, Oregon State University's Tree Genetic Engineering Research Center (TGERC) merged into Purdue University's Center for Tree Genetics (CTGr) – aka the Center for Advanced Forestry (CAF). In 2007, CAF was subsumed into North Carolina State University's new IUCRC, the Center for Advanced Forestry Systems (CAFS).

MEMBERSHIP

The Center for Advanced Forestry Systems is an increasingly important national research entity. CAFS industrial membership includes leading forestry industry firms from throughout the Nation. A substantial number of the firms

have international operations. In 2009, the center's industrial base, primarily paper, pulp and lumber interests, continues to experience a particularly severe economic downturn. This exacerbates an already difficult economic situation within the industry.

The center continues to expand. In 2010, The University of Idaho will become the center's 9th research site.

COMPLIANCE WITH IUCRC MODEL

The Center remains faithful to the IUCRC Model.

Because of the nature of the technical field of tree genetic engineering, research proceeds at a somewhat slower and more deliberate pace than research in the typical IUCRC. For this reason, at the beginning of NSF support for the consortium the IUCRC Program granted it a meeting frequency waiver that enables the center to hold just one annual meeting and remain in good standing.

Annual meetings are used to review and discuss research, budgets and intellectual property and to plan for overall development of the center's research affiliations and programs.

The IUCRC Program's LIFE project evaluation approach is followed. LIFE Forms, are used to assess new proposals, as well as interest in maintaining ongoing projects and in the possibility of revising them. Subsequent IAB discussions then focus on general research thrust and their budgetary implications.

CENTER ADMINISTRATION

The center director and each site director are to be commended for operating such smooth functioning center that has been almost issue free. CAFS center management includes:

Center Director, Barry Goldfarb, NCSU, 919.515.4471, bgg@gw.fis.ncsu.edu
NCSU Site Director, Jose Stape: 919.513.4041, jstape@ncsu.edu
Program Coordinator, Lisa Schabenberger, 919.513.7368, lisa_schabenberger@ncsu.edu

Additional Center Sites:

Oregon State University, Glenn Howe, Site Director, 541-737-9001, glenn.howe@oregonstate.edu
Purdue University, Charles Michler, Site Director, 765.496.6106, michler@purdue.edu
Outreach Coordinator, Liz Jackson, (765) 583-3501, jackson@purdue.edu
University of Florida, Eric Jokela, Site Director, 352-846-0890, ejokela@ufl.edu
University of Georgia, Michael Kane, Site Director, 706.542.3009, mkane@warnell.uga.edu
University of Idaho (2/2010), Mark Coleman, Site Director. (208) 885-7604, mcoleman@uidaho.edu
University of Maine, Robert Wagner, Site Director, 207-581-2903, bob_wagner@umenfa.maine.edu
University of Washington, David Briggs, Site Director, 206 543-1581, dbriggs@u.washington.edu
Virginia Polytechnic Institute & State University, Thomas Fox, Site Director, 540.231.8862, trfox@vt.edu

The IAB Director remains to be selected by the newly elected IAB executive committee.

The center evaluator is Craig Scott, University of Washington: 425.466.6535, scottcs@u.washington.edu.

In August of 2008, four IAB members were nominated by the directors to serve on the CAFS Executive Committee (EC) based on their interest in CAFS and their knowledge of forestry research. At the February 2009 IAB more nominations were sought and the executive committee was formed. The role of the EC includes: Serving as a sounding board for the Director and Site Directors on research and administration issues, before

they are brought to the full membership; Serving as a conduit for the IAB to the Director and site directors on issues of concern and/or other suggestions; Providing timely input (outside of regularly scheduled annual meetings) to issues, including budget adjustments and related concerns, location and content of annual meetings; preliminary approaches to additional universities and prospective members, and; Responsibility for conduct of the IAB meeting portion of the annual meeting. Duties and activities of the EC will continue to evolve.

MISSION

CAFS's major goal is to increase the economic value and utility of plantation forests; thereby enabling foresters to more efficiently produce greater volumes of high-quality wood materials. It bridges top university-based forestry research programs with industry members to solve complex, industry-wide problems.

The mission of CAFS is to optimize genetic and cultural systems to produce high-quality raw forest materials for new and existing products by conducting collaborative research that transcends traditional species and disciplinary boundaries.

Issues facing the Center that have financial ramifications:

- A mechanism should be developed to help faculty and students receive support for travel to industrial sites and to the annual center meeting?
- An answer is needed for the question: How can the expanded center take best advantage of each site's strengths in order to better leverage industry dollars and technologies?
- Develop short- and long-term strategies for seeking large grants for applied research in tree genomic sciences.

Center strengths include:

- 1) Highly rated, industrially-relevant research focus that has considerable potential for substantial benefit to sponsors;
- 2) Solid and relatively stable base of industry with common interests, needs and expectations;
- 3) Insightful guidance of the NSF/IUCRC's program managers;
- 4) Talented, dedicated and innovative core of research and administrative faculty and graduate students, and;
- 5) Sound center operation made possible by professional collaborative efforts by the center director and by site directors and a quality support staff.

Bottom line: In 2009, ratings of CAFS by industry were above the national mean for the 43 National Science Foundation IUCRCs. In summary, the center is recognized as a quality organization that is meeting the needs of a vital and growing forestry industry. Industry interest in the center's research is widespread and strong.

Attachment A

NSF/IUCRC OUTCOME SURVEYS

In the fall of 2008, online outcome surveys were administered to IAB representatives and center research faculty as part of the NSF/IUCRC Program's Center Evaluation Program.

CAFS IAB Survey 2009
[Response Rate (15 of 78): 19%]

IAB REP VIEWS OF CENTER RESEARCH PROGRAM

Mean

CF/ORP:	4.1	Capabilities of faculty and quality of the research program (1=Not Satisfied; 2=Slightly Satisfied; 3=Somewhat Satisfied; 4=Quite Satisfied; 5=Very Satisfied)
BRT:	4.3	Breadth of the research topics covered (1=Not Satisfied; 2=Slightly Satisfied; 3=Somewhat Satisfied; 4=Quite Satisfied; 5=Very Satisfied)
FOR:	3.9	Focus of research (1=Not Satisfied; 2=Slightly Satisfied; 3=Somewhat Satisfied; 4=Quite Satisfied; 5=Very Satisfied)
RST:	3.7	Relevance of research to my organization's needs (1=Not Satisfied; 2=Slightly Satisfied; 3=Somewhat Satisfied; 4=Quite Satisfied; 5=Very Satisfied)

ITEM: How can the center improve its research program? What features of the research program would your organization definitely want to see continued?

Need research related to mixed species natural stands.

Satisfied at this time with the center processes.

Reduce number of studies; more focus on selected topics of interest.

Need more growth and yield research in the NW.

Need quantitative outputs that lead directly to growth & yield projections and financial analyses.

For our customers, the primary value is in practical deliverable decision tools and recommendations for improved silviculture; so our emphasis is on maintaining and enhancing the center's work in those areas.

Develop short information transfer bulletins for field forester use.

Need better linkage to contemporary issues like carbon sequestration, greenhouse gas emissions, water quality, and their relationship to forest productivity and forest nutrition.

Need outcome focused research that provides cause and effect information for operations forestry. The research needs to be relevant and applicable (not esoteric) such that operations staff understands what they need to do differently relative to conventional wisdom.

Need research in production forestry.

Need more coordination of projects across sites.

Research into local growth, yield and silvicultural options.

I have no real wants at this point, the interaction of researchers across the country is a real benefit for my company.

Integrating genetics into growth and yield for DF is still important. DF genome research is also of interest.

IAB VIEWS OF THE BENEFITS OF CENTER MEMBERSHIP

	<u>Mean</u>	
ER&D	2.7	Enhanced R&D via tech awareness (see scale below) (1=No Impact; 2=Slight Impact; 3=Moderate Impact; 4=High Impact; 5=Very High Impact)
ECom	2.4	Enhanced commercialization via new products, processes, services, sales (see scale below) (1=No Impact; 2=Slight Impact; 3=Moderate Impact; 4=High Impact; 5=Very High Impact)
EPNet	3.1	Enhanced professional networking (see scale below) (1=No Impact; 2=Slight Impact; 3=Moderate Impact; 4=High Impact; 5=Very High Impact)

ITEM: If your organization has benefited technically from its participation in the center, please describe how (e.g. brief description of research advance or product/process improved, etc.) and, where possible, try to quantify benefit (e.g. dollars saved, months saved, waste/scrap reduced, etc.). NOTE: This information is helpful for member recruitment and continuing government sponsorship.

Our participation is fairly recent, and the most relevant projects are still in their early stages, making answers to this question (and question 8) somewhat premature.

Due to the economy we have stopped fertilization so no gains there. We have used some of the wood quality research in our tree improvement programs, mainly by determining which tools work well for stiffness testing.

Enhanced information provided to VA forest landowners regarding planting density, thinning, and post-thinning treatments.

We are largely an agricultural science organization and we benefit professionally from interaction with forest management and forest nutrition scientists within the CAFS.

CAFS research saved us 12 months on growth of product.

CAFS research has helped persuade our top management about the value of silvicultural investment (PCT).

These projects often present possible new directions for my company to proceed, either with forest operations, or more likely to direct some of our internal research efforts. The communication between scientists enhances my investment that I make at the centers various schools.

Our benefit comes from the involvement of researchers in the regional university based cooperatives that we're involved with, such as NWTIC & the SMC. So even though we don't do our own research internally, a very real benefit comes to us through advancements in our cooperative's research.

IAB REP VIEWS OF CENTER ADMINISTRATION & OPERATIONS

	<u>Mean</u>	
CAOps	4.0	Center administrative operations (1=Not Satisfied; 2=Slightly Satisfied; 3=Somewhat Satisfied; 4=Quite Satisfied; 5=Very Satisfied)

IMPCOpps? How can the center improve its administration and operations program? Please put CHECKS next to any issues that can be improved:

	<u>% Checking Area</u>
Communication	47%
Planning & Development of research program	7%
Management of projects	0
Project selection	18%
Proposals and publications	7%

Technology transfer	53%
Intellectual property	0
Fundraising	0
<u>Other</u> (see below):	0

What to do? What can the center do to make your renewal more likely?

Continued research in production forestry. Do not wish to see research dollars being used for climate change or biomass studies.

Continue funding research relevant to the cooperatives & universities with which we're involved.

Nothing really; the issue is the current economy we all face.

Nothing required. (x2)

Mean

LMR 4.5 Likelihood of membership renewal
 (1= Definitely Not; 2=Probably Not; 3=Uncertain; 4=Probably Yes; 5=Definitely Yes)

CAFS Faculty & Research Scientist Survey: 2009
[Response Rate (20 of 40): 50%]

FACULTY SATISFACTION WITH CENTER

Mean

QCR	4.4	Quality of center research program (1=Not Satisfied; 2=Slightly Satisfied; 3=Somewhat Satisfied; 4=Quite Satisfied; 5=Very Satisfied)
RCR	4.6	Relevance of C1 research program to my professional goals. (1=Not Satisfied; 2=Slightly Satisfied; 3=Somewhat Satisfied; 4=Quite Satisfied; 5=Very Satisfied)
CAO	4.1	During the past year, how satisfied were you with center administrative operations (1=Not Satisfied; 2=Slightly Satisfied; 3=Somewhat Satisfied; 4=Quite Satisfied; 5=Very Satisfied)
BRI	3.9	Next year I will submit my best research idea in a center funded proposal. (1=Definitely Not; 2=Probably Not; 3=Uncertain; 4=Probably Yes; 5=Definitely Yes)

ITEM: How can the center improve its research program? What features of the center's research program do you definitely want to see continued into the future?

Identify a project that works across universities - a short rotation biomass initiative would be a good one.

I would like to see more opportunities to leverage private sector funding with additional federal grant dollars.

Need more collaboration; more funding for fine hardwood species, not poplar.

Need more regular meetings and discussions among sites.

Need more collaboration with VPI on crown architecture.

The research program of the center is good. Work in the silviculture and growth and yield modeling areas should definitely be continued in the future.

Funding level from NSF is too low to do significant new work.

Need discussions about how to integrate across the scales of research in the center projects.

All of the current program components are important and should continue.

Some of my best research ideas cannot be undertaken at this funding level; an increase in funding would be required.

IMPCOpps? How can the center improve its administration and operations program? Please put CHECKS next to any issues that can be improved:

	<u>% Checking Area</u>
Communication	15%
Planning & Development of research program	10%
Management of projects	10%
Project selection	10%
Proposals and publications	10%
Technology transfer	10%
Intellectual property	0
Fundraising	25%

Other:

Would be helpful to have more information on leveraging center resources with additional funds.

The CAFS Annual Meeting seems like it could be handled in one or perhaps 1.5 days.

Attachment B

CAFS Success Story No. 1 (2010)

<p>Prepared by: Glenn Howe Award Numbers: (list all involved in this highlight) 0956320</p>	<p>Contact phone: (541) 737-9001 Contact email: Glenn.Howe@oregonstate.edu</p>
<p>Project/Highlight Title: (choose an informative and engaging title, <i>not the title of your grant</i>) Genetically engineered trees that underexpress <i>phytochrome B</i> have significantly altered crown architecture (branching), growth, and dormancy induction (bud set).</p>	
<p>Project Description and Outcome: Provide a paragraph or two (about 300 words) that provides background on the project, results of the project, the scientific uniqueness; and the project's impact (societal or industrial). Write the Highlight for a "lay audience"; title and lead-in sentence should engage the reader.</p> <p>The goal of this project is to understand how genes that encode <i>phytochrome B</i> (<i>phyB</i>) affect crown form of trees, particularly branching. <i>phyB</i> genes, which encode protein photoreceptors called phytochromes, belong to one of two major classes of phytochrome gene families in poplar—the <i>PHYA</i> subfamily and the <i>PHYB</i> subfamily. The phytochromes play several roles in plant responses to light, including sensing light quality and photoperiod, as shown by studies in poplars and other plants. Although the phytochromes control the crown form of poplar trees in response to light quality, it is unclear which gene(s) are involved, and whether tree form can be modified using marker-based breeding or genetic engineering approaches. Therefore, we are studying whether tree form is affected by changes in <i>phyB</i> gene expression using transgenic poplar trees.</p> <p>We have shown that trees that have been genetically engineered to underexpress <i>phyB</i> have significantly altered crown architecture (branching), growth, and dormancy induction (bud set). Analyses of gene expression in the trees engineered with the <i>PHYB2</i> construct indicate that (1) the <i>phyB2</i> gene seems to be suppressed in a gene-specific manner and (2) observed phenotypic effects can be specifically tied to the <i>phyB2</i> gene. Analyses of gene expression in the trees engineered with the <i>PHYB1</i> construct indicate that (1) both the <i>phyB1</i> and <i>phyB2</i> genes seem to be suppressed and (2) observed phenotypic effects cannot be tied to any single gene.</p>	
<p>Does this Highlight Represent Potentially Transformative Research? If so, please provide explanation.</p> <p><i>Transformative Research definition: Research driven by ideas that have the potential to radically change our understanding of an important existing scientific or engineering concept or leading to the creation of a new paradigm or field of science or engineering. Such research also is characterized by its challenge to current understanding or its pathway to new frontiers.</i></p>	
<p>In a few sentences please summarize the Intellectual Merit (technical significance) of this project. Explain why this outcome notable is and/or important.</p> <p>If <i>phyB</i> genes have strong effects on branching, they may be useful for marker-based breeding or genetic engineering approaches to produce desirable tree ideotypes. For example, it may be possible to grow narrow-crowned trees more densely, thereby providing a higher harvest index and greater unit-area yield in bioenergy and pulp plantations.</p>	

What are the broader impacts of this activity? Please check all that apply.

- Does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc?)
- Will there be the benefits of the proposed activity to society?
- Does the activity advance discovery and understanding while promoting teaching, training, and learning?
- Will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships?
- Will the results be disseminated broadly to enhance scientific and technological understanding?

If any boxes were checked in the previous section then please summarize the broader impacts (e.g. SBIR commercial impacts) of the project in a few sentences. Explain why this outcome is notable and/or important.

1. We are training graduate students in forest tree genetics, physiology, and genetic engineering.
2. We have shown that genetic engineering can be used to alter tree architecture and physiology. These alternatives to traditional plant breeding should enable tree breeders to alter tree architecture and growth in desirable ways.
3. We have shown that important bioenergy traits (e.g., stand growth) can be altered via genetic engineering. The trees we are studying (hybrid poplars) have substantial potential as a bioenergy crop to reduce greenhouse gas emissions and enhance energy security.
4. This information will be shared electronically with the members of the Pacific Northwest Tree Improvement Research Cooperative (PNWTIRC), Northwest Tree Improvement Cooperative (NWTIC), Tree Biosafety and Genomics Research Cooperative (TBGRC), and in scientific publications.

Managing NSF Program Officer:

Rathindra (Babu) DasGupta

Award No (If grant is Phase II then identify as SBIR or STTR):

0956320

Did the Grant Receive Any American Recovery and Reinvestment Act of 2009 (ARRA) Funding:

Yes No

Principal Investigator(s): (Note: for STTR projects, please include the university researcher.)

Glenn T. Howe
Steven H. Strauss

Institution/Company Name/Center Name: (Note: for STTR projects, please include the name of the research institution, likewise SBIR projects should include sub-contractors)

Department of Forest Ecosystems & Society, College of Forestry, Oregon State University

Website (URL for project or company Website; if available)

- The Pacific Northwest Tree Improvement Research Cooperative (PNWTIRC) - <http://www.fsl.orst.edu/pnwtirc/>
- Tree Biosafety and Genomics Research Cooperative (TBGRC) - <http://www.cof.orst.edu/coops/tbgrc/>

Contact Information: (email address; telephone number of the PI)

Glenn.Howe@oregonstate.edu; (541) 737-9001

Image: Provide an image in JPEG format (send image in a separate file). Provide a caption and credits. *Sign and return the NSF Form 1515 version 9/09 at <http://www.nsf.gov/pubs/forms/nsf1515.pdf> via email or fax to 703-292-9057.*

Field trial of the *phyB* transgenic events and wild-type control trees taken in August 2007 shows several events with a significantly altered growth habit. This plantation was established in May 2004.

Photo taken by Elizabeth Etherington, Oregon State University

The form must be signed by the copyright holder. A digital signature (typing one's name in the signature field) is acceptable.

Lineage: To the best of your recollection, provide a description that conveys the origins and history of this effort. Please include any linkages, if any, to prior awards from NSF or other agencies.

This work began in the lab of Dr. Glenn Howe at the University of Minnesota, where he cloned and characterized phytochrome genes from black cottonwood (NSF funded). This work continued in collaboration with Drs. Toby Bradshaw (University of Washington) and Tony Chen (Oregon State University), funded by USDA-NRI. The development of the transgenic poplars was performed through a collaboration between Drs. Steven Strauss, Toby Bradshaw, and Gerald Tuskan (DOE), which was funded by DOE.

Example: The innovation is related to basic research in the lab of Prof TDH at U. ABC under grants from NSF, DARPA (grant/contract #s if available). The feasibility was originally demonstrated using SiGe. After a tepid reception from the market in '08, a switch to a LiNbO₃ was made. The LiNbO₃ waveguides are currently being integrated into the MCM for launch in Q3 09.

CAFS Success Story No. 2 (2010)

<p>Prepared by: Aaron Weiskittel Date: December 7, 2009</p>	<p>Contact phone: 207.581.2857 Contact email: aaron.weiskittel@umit.maine.edu</p>
<p>Award Numbers: (list all involved in this highlight) 0855370</p>	<p>Funding directorate/division: IIP Funding program: I/UCRC</p>
<p>Highlight title: Development of regional forest growth and yield database for the Northeastern United States</p>	
<p>Highlight text (limit 300 words): <p>Forest growth models are important tools used by foresters and policymakers as they are used to determine future conditions. A well-behaved growth model for the Northeastern region currently does not exist and makes regional planning efforts difficult. An extensive database of regional forest growth and yield data was constructed, which will serve as a foundation of future developments of a new growth model. The data includes nearly 3 million individual tree observations from Maine, New Hampshire, and several Canadian provinces. The database includes individual tree measurements like species, tree diameter, and height as well plot information like geographic location, site quality, and stand density. The data also covers a broad temporal resolution as it ranges from 1950s to present day, which will allow historical changes in regional growth to be better documented. Given the size of the data and the various sources it was obtained from, innovative methods on standardizing, compiling, and and summarizing data were utilized.</p> </p>	
<p>In terms of <i>intellectual merit</i>, why was this outcome notable and/or important? <p>This outcome was notable because it represents the first attempt to compile and synthesize permanent growth and yield data from the extensive Northeastern region. Most other efforts have been focused on individual states or provinces, but this project gathered data from 2 US states and 4 Canadian provinces. This is important because growth models are only good as the data used to parameterize them. The extensiveness of the data also allow geographical and temporal variation in growth to be better quantified.</p> </p>	
<p>In terms of <i>broader impacts</i>, why was this outcome notable and/or important? <p>Forests are important in the Northeastern United States and a better description of their structure, composition, and growth is needed. A growth model will synthesize this information and make it available to a variety of organizations. The development of a regional database allows questions to be asked across state and national borders, which gives a broader appreciation of the importance and extent of the Northeastern forest.</p> </p>	
<p>If applicable, tell us how this research is or may be transformational.</p>	
<p>If applicable, tell us how this research represents broadening participation. <p>Data requires the participation of several organizations including universities, state and federal agencies like the US Forest Service, private industry, and several provincial government departments.</p> </p>	
<p>If applicable, tell us how the research may have societal benefits, e.g. the economy.</p>	

This research has societal benefits because the role of forest management and its geographic variation will be better quantified. Also, the predictions of future forest growth and composition will be improved. Both of these will help improve forest management decisions.

Images are important. Please include one as a separate file with your highlight submission. Files must be GIFs or JPEGs. Maximum width and height are 240 pixels. Please submit the NSF Form 1515 with your image.

Attachment C

CAFS Developmental Milestones Subsequent to NSF Involvement

- 5/1998 TGE Center Technical Meeting, Portland, Oregon. Preparation for a planning grant: Alex Schwarzkopf and Craig Scott, the NSF Evaluator, presented a summary of the IUCRC Program.
- 11/1998 TGERC Annual meeting, University of Washington Urban Horticultural Center, Seattle, Washington. Introduction to NSF I/UCRC Centers & LIFE forms (Schwarzkopf, Scott); Operational requirements of NSF I/UCRC Centers (Schwarzkopf); Evaluator role in I/UCRC Center function (Scott); Discussion of changes in TGERC from "conversion" to NSF/I/UCRC (Strauss); Presentation of LIFE form results (Meilan).
- 5/1999 TGERC Proposal submitted to NSF
- 11/1999 TGERC Annual meeting (Technical & IAB Meeting), LaSells Stewart Center, Oregon State University, Corvallis Oregon:

Major issues at the IAB meeting were: 1) the amount and nature of public concern about genetically altered products and their potential impacts on the environment, and 2) a new 26% indirect cost rate on sponsors' fees to be applied by OSU to all OSU cooperative research centers that that would take effect when NSF support ceases.
- 1/1999 Letter to Wilson Hayes, OSU Vice Provost, from John Trobaugh TGERC IAB Chair (The Timber Company), on behalf of the IAB, protesting the possible imposition of overhead charges on TGERC sponsor dues.
- 1/2000 Steven Strauss announced a 50% reduction in the 26% indirect cost rate that was to have been imposed by OSU on sponsors' fees when NSF support ceases.
- 8/2000 Center Director and Center Evaluator meet to discuss Center-related issues
- 11/2000 TGERC Annual meeting (Technical & IAB Meeting), Seattle, Washington:

Meeting proceeded by short course entitled "Gene School II" chaired by Meilan and Bradshaw. Included within the Meeting was a report entitled "Flowering Control in Eucalypts" by Simon Southerton of Australia's Commonwealth Scientific and Industrial Research Organization (CSIRO).

Major issues at the IAB meeting were: 1) discussion of intellectual property, research conduct, confidentiality of results and publicity; .2) Review of membership projections, sponsor dues and implications for NSF support; 3) TGERC research directions, and; 4) summary/discussion of LIFE form numeric results and project-specific comments.

GMO Situation in the world
- 7/2001 Symposium on ecological and societal aspects of transgenic plantations (Skamania Lodge).
- 11/2001 TGERC Annual meeting (Technical & IAB Meeting), Corvallis, Oregon:

Meeting proceeded by short course entitled "Gene School II" chaired by Meilan and Bradshaw. Included within the Meeting was a report entitled "Flowering Control in Eucalypts" by Simon Southerton of Australia's Commonwealth Scientific and Industrial Research Organization (CSIRO).

Major issues addressed at the IAB meeting were: 1) funding problems amidst consolidations; 2) Review of membership projections, sponsor dues and implications for NSF support; 3) TGERC research directions; 4) the possibilities for affiliate memberships; 5) new funding or operations models; 6) the distractions of public

controversies and the need for and implications of public interactions, and; 7) summary/discussion of LIFE form numeric results and project-specific comments.

- 11/2002 TGERC Annual meeting (Technical & IAB Meeting), Corvallis, Oregon:
Major issues addressed at the IAB meeting were: 1) funding problems and center continuation as an NSF/IUCRC, and 2) Review of membership projections, sponsor dues and implications for NSF support.
- 3/22003 Purdue Planning Grant submitted to NSF.
- 11/2003 TGERC Annual meeting (Technical & IAB Meeting), West Lafayette, Indiana:
- 8/1/2004 Official start date of Purdue University's Center for Tree Genetic Research (CTGr) NSF/IUCRC.
- 10/2004 CTGr Annual meeting (Technical & IAB Meeting), Corvallis, Oregon.
Eight projects were presented at the technical meetings. The center essentially held two center meetings under an almost transparent umbrella of the Center for Tree Genetics (CTG). Topics at the CTGr IAB meeting included: possible collaborating relationships with Kasetsart University of Thailand; interest in mechanisms for funding seed proposals; center growth goals (the national center concept) and the possible addition of Virginia Polytechnic Institute and State University and North Carolina State University; activating/tagging direction, and; nomination of a new CTGr IAB chair (new chair to be from Purdue).
- 10/2005 CTGr Annual meeting (Technical & IAB Meeting), West Lafayette, Indiana.
- 1/2006 CTGr Directors' Planning Meeting of current Center administrators (Michler, Meilan & Scott) and NCSU's Tom Fox and Virginia Polytechnic Institute and State University's Barry Goldfarb, (Arlington, Virginia).
- 9/2006 CTGr Annual meeting (Technical & IAB Meeting) and CAFS Planning Meeting, Atlanta, Georgia): Schools represented – North Carolina State University, Purdue University, Virginia Tech and Oregon State University.
- 2/2008 CAFS Technical and IAB Meeting (Portland, Oregon). Topics addressed included: Center structure and function; IAB executive committee approved (selection of IAB chair to follow); voting process (proportional to dues); How to foster strong participation @ center meetings.
- 2/2009 University of Georgia received IUCRC funding as CAFS's fifth university site in FY 09. The University of Maine's proposal is being reviewed @ NSF. The University of Washington received an award letter just before the meeting and will participate fully next year. Both Florida and Idaho made brief presentations and are preparing to submit a proposal.
- 2/2009 CAFS Technical and IAB Meeting (Charleston, South Carolina). 68 total members, including: 21 large, 35 small, 12 governmental agencies & not-for-profit, 28 full and 40 associates. 8 new proposals presented; 6 continuation presentations. The new CASF sites (Georgia and Maine) made presentations about their research capabilities. Florida and Idaho made capability presentations as potential new sites. Topics addressed at the IAB meeting included: Executive committee (structure, function, nominations and appointment by acclamation); project voting (satisfaction with last year's funding allocations, ideas for obtaining greater voting participation); membership agreement – minor modification needed [to reflect new sites without naming them in the standard agreement - no re-signing should be needed]; open and closed discussion of potential new sites (Florida and Idaho). Both of the aforementioned schools received approval from the IAB to go forward with their proposals.
- 2/2010 University of Idaho becomes 9th CAFS site (Effective February 1, 2010).
- Next meeting: Indianapolis, Spring 2010.