AUBURN UNIVERSITY
SOUTHERN FOREST NURSERY MANAGEMENT COOPERATIVE

FY 2009 PROPOSED WORK PLAN

As presented to the Nursery Cooperative Advisory Committee
November 6-7, 2008

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GOAL A: RESEARCH

Objective 1. Identify, test, evaluate, and promote the registration of cost effective pesticides for use in forest tree nurseries.

Methyl Bromide Substitution Studies for MBr Alternatives are proposed.

Large scale alternative MBr trials utilizing large plots will be established at two new nurseries under the USDA Areawide project. Currently, these would include both a fall and spring fumigation located in Alabama. These are the Joshua Timberland nursery in Elberta, AL and the Weyerhaeuser nursery in Pine Hill, Alabama. Fumigants that will be considered are MBr, MBC 70/30, Pi Chlor 60, Chloropicrin, Pic+ and DMDS and will examine their effectiveness on targeting/controlling nutsedge and seedling quality after first and second growing seasons. In addition to two new fumigation trials, second growing season seedling data will be collected from the South Carolina Forestry Commission's nursery in Trenton, SC and the IP/Arborgen nursery in Blenheim, SC. These trials were part of the second year's USDA Areawide and were part of the nursery tour for the 2008 Contact Meeting. (Quicke/Starkey/Enebak)

Nematode Control over Pine Crops

A third year trial will be put in to examine compounds to control nematodes when applied over the top of pine on second year crops. In this trial, lower rates (used in FY 2008) of DMDS will be evaluated for both nematode control and seedling quality. (Starkey/South)

Herbicide Trials

Establish a study on prostrate spurge using pendimethalin at four nurseries. (South/ Hill)

Establish a multiple application study using dimethenamide at two nurseries (South/Hill)

Fusiform Rust Control

Further studies will be conducted to examine the efficacy of soybean rust inhibiting fungicides for the control of fusiform rust. The most promising compound to be tested is Proline® with a need to determine the time between applications of foliar treatments to control rust infection. This data will be used in an effort to obtain a label for the control of fusiform rust. These will be tried both in the greenhouse under the inoculation regimes of the USDA Rest Screening Laboratory and in nursery trials testing the interval between sprays at Trenton, SC. (Starkey/ Enebak)

Rhizoctonia Foliage Blight

Similar to that of Fusiform Rust Control, a companion study to examine the time interval between applications of Proline® for the control of *Rhizoctonia* foliage blight of loblolly pine will be installed at Pearl River Nursery. (Starkey/Enebak)

Objective 2. Identify and develop economically feasible nursery cultural practices that enhance seedling quality.

Biologicals and Seedling Quality

The 2nd phase of the trial initiated in FY 2008 will be conducted in FY 2009. Data collected during the 2008 growing season using SC-27, Inocuaid®, and Hydra Hume® will be further examined. Treatments will be tested in the greenhouse on both loblolly and longleaf under a standard fertilization regime. (Starkey/Enebak)

Gypsum Effect on Pine

The addition of gypsum to nursery beds is a common practice. However, there is an unknown relationship between chlorotic pine seedlings, drought and gypsum levels. This study will look at increasing rates of gypsum in the greenhouse on the development of roots of loblolly and longleaf pine. (Starkey/South)

Pitch canker (*Fusarium circinatum*) control on conifer seed

A series of laboratory rate studies using Proline® will be conducted to identify minimum activity level against the pitch canker fungus *Fusarium circinatum.* The greenhouse study of Proline® and pitch canker will be repeated again on longleaf. Field studies will be conducted at the Taylor State Nursery, South Carolina and International Forest Company in Georgia.

(Starkey/Enebak)

Gel Dips

A bareroot seedling stress test will be conducted evaluating several grades of polyacrylamide gels and a starch-based gel. Seedlings will be treated with one of the gels and then planted in the Seedling Stress Facility and evaluated over an extended period of time. (Starkey/South)

Objective 3. Develop methodologies to minimize the environmental impact of nursery cultural practices while maximizing their effectiveness including the development of integrated pest management programs.

Nothing is planned under this objective for the FY 2009 growing season.

Objective 4. Further define the "optimal seedling" so as to maximize the cost effectiveness of artificial regeneration forestry systems.

Tap Root Development in Container Longleaf and Loblolly Pine

The development of air-pruned container longleaf and loblolly tap root morphology with respect to age will be examined. This study was initiated in May 2008 but was vandalized and destroyed by football fans. We will initiate the study again in May 2009 and continued for 12 months to test the hypothesis that air-pruned tap roots of longleaf and loblolly pine will continue to grow normally. (Starkey/South)

Seedling Quality Studies

Measure and collect tree characteristics from 3 seedling quality studies established in Georgia Alabama and South Carolina. (South/Hill)

Seedling Counting/Measuring

Researchers at AU's Biosystem Engineering Department will continue to develop a system to count and measure seedlings while be lifted from the beds. Nursery Cooperative Funds will not

be used on this project. (McDonald/Hunt/Enebak)

Seedling Survival, Cold Storage and *Pythium spp.*

Trials that continue to determine the relationship between species, stock type, storage ability and seedling outplanting survival on southern pine species will continue. (Jackson/South/Enebak/)

Nutrient Status of Pines

Over 20 years ago, the Nursery Cooperative collected seedlings in December and January and analyzed the foliage, roots and shoots for various nutrients. This allowed members to understand the mean and range of foliar nutrition. We propose repeating this study but sampling in July, September and November. This information will be useful when attempting to diagnose nutrient deficiencies early in the season. (Starkey/South)

GOAL B: TECHNOLOGY TRANSFER

Objective 1. Serve as a clearinghouse of information related to nursery production and tree planting.

Methyl bromide

The Nursery Cooperative staff will continue to keep abreast of activities related to the Critical Use Exemption. We will inform the membership of any EPA initiatives and continue to work with the AF&PA, the Crop Protection Council and USDA to provide input and influence the CUE process if necessary.

The Nursery Cooperative staff will continue to work with the AF&PA, and USDA to inform and influence the EPA deliberations regarding pesticide regulation. We will provide information to the EPA when needed to strengthen the case of intrastate seedling shipment qualification for QPS fumigation.

We will work with both TN and VA to strengthen regulatory language supporting the use of methyl bromide for the production of healthy seedlings under the Quarantine and Phytosanitary exemption. In collaboration with MBr manufacturers and applicators, the Nursery Cooperative staff will continue to keep abreast of EPA actions and/or possible legislative initiatives that may affect the future availability of MBr. We will continue to inform the membership through the Advisory Committee to keep the membership knowledgeable of these activities.

(Starkey/Enebak)

Write Review Paper on the effect of genotype on seedling survival after outplanting (South/Beineke)

Continue with the "Crop Profile" for Southern Bareroot Pine & Hardwood Nurseries

Working with the US Forest Service we will continue the process of developing a hardwood production technique manual. This includes finalizing the survey data collected by Ken McNabb, selecting an editorial panel, and starting the process of identifying authors for their input. (Lowenstein/Enebak)

Re-registration of Nursery Pesticides

The Nursery Cooperative staff will continue to follow the re-registration process for pesticides used in seedling production and will provide information to the EPA when necessary. (Enebak/South/Starkey)

Maintain and Update Nursery Cooperative Web Site

The Nursery Cooperative staff will continue to update the Nursery Cooperative website for use by Nursery Cooperative Members. (Bowersock)

Objective 2. Efficiently and regularly transfer the results of cooperative research to the membership.

Contact Meeting

The Cooperative Contact meeting will be conducted as a 2-day program in 2009 to be held near the Mobile, AL / Pensacola, FL area in late June. The agenda will cover presentations by Nursery Cooperative staff on current activities and results and include a field trip to the Elberta Nursery run by Joshua Timberlands. (Enebak/Bowersock)

Research Reports (Staff)

We plan on producing Research Reports and Technical Notes in FY09.

Newsletters

Newsletter distribution will be planned for March and September. Members are encouraged to submit articles. (Staff)

Objective 3. Provide a limited consultancy function to the membership in the area of nursery seedling production and outplanting.

Individual and Organization Contacts

An on-going activity and is handled as individual situations and cases arise. (Staff)

Production Survey

The Coop staff will repeat the seedling production survey initiated in FY 03. The same questionnaire will be used to obtain production figures for the 2008 to 2009 planting season. Attempts will be made to increase the contacted nurseries for seedling production data. The survey will be sent out in late spring/early summer 2009. (Enebak/Bowersock)

Short Courses

The Nursery Cooperative will determine the need for either an advanced or introductory course in nursery management. If there is enough interest in either, a Short Course will be planned for August/September 2010. (Staff)

GOAL C: COOP DEVELOPMENT

Objective 1. Provide for the continual relevancy and efficiency of the Cooperative research and technology transfer programs.

Advisory Committee Meeting

The FY10 Advisory Committee Meeting will be held the first week in November 2009. A 2,

half-day meeting will be planned. If there are any meetings that conflict with this time frame, let us know and we can try and accommodate Advisory Members. (Enebak/Bowersock)

Nursery Cooperative Membership

The Nursery Cooperative staff should make an effort to recruit new members among those nurseries that will significantly benefit from the pesticide labeling activities of the Nursery Cooperative. (Staff)

Pesticide Label Restrictions

If possible, the Nursery Cooperative staff will continue to investigate the possibility of restricting new pesticide labels to Nursery Cooperative members. This might be done using the 24C process that restricts chemical use to specific counties within states. (Enebak/South/Starkey)

Update the Coop Membership and Nursery Directories

An on-going activity. (Bowersock)

Objective 2. Increase the visibility and effectiveness of the Cooperative as a source of information on issues related to seedling production and plantation establishment.

Presentations at Meetings

Nursery Cooperative staff will continue to be encouraged to participate as a speaker or attendee in regional and national meetings related to artificial regeneration. (Staff)

Publications

Nursery Cooperative staff is encouraged to publish research results in scientific journals. (Staff)