AUBURN UNIVERSITY
Southern Forest Nursery Management Cooperative
Newsletter
FALL 2004

DIRECTOR'S REPORT

and thank you for allowing me the opportunity to serve as the Director for the Auburn University Southern Management Nursery Cooperative.

When I first interviewed for the position of Forest Pathologist in November 1994, to replace the retired Walt Kelley, Emmett Thompson, the Dean, stressed the importance and value of the Nursery Coop to Auburn and to the industrial and private landowners throughout the southern United States. It is with great pleasure that I take on this role as Director to help guide, prod, and shape the reforestation programs of the southern United States through some difficult times. These include pressures to reduce and/or altogether eliminate important pest management tools from our tool box of seedling management. This includes the 2005 MBr CUE Allocation, a 2006 MBr CUE Application, and the re-registration of Thiram. The progress and updates of these items will be discussed later in the Newsletter.

While my tenure at Auburn has been only 9 years, my research in forest-tree nurseries began back in 1985 when I first re-examined the use of chloropicrin as an alternative to MBr fumigation in forest-tree nurseries in Michigan, Minnesota, and Wisconsin. Some of the research data from those studies was included in the 2005 CUE Application and presented at the Congressional Hearings in Washington in 2000. Little did I know that something that I tried as a Master's student in 1985 would be important 19 years later as we try to maintain the availability of MBr for the forest-tree seedling production in the southern United States.

As the transfer of the day-to-day duties continues, I will keep the Nursery Coop Advisory and Contact members up-to-date with the items that affect nursery production, via e-mail and letters. Also, while I have "visited" many nurseries through my research trials, there are a few that I have yet to see and will make an effort to visit more nurseries and meet with you in the field in the next year. If something comes up in the meantime, feel free to contact us, as we are here to answer questions and solve problems.

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A New Voice on the Telephone

Back in June 2004, Sandra McLain, the Nursery Coop Office Administrator, moved across campus for another position, leaving a big gap in the day-to-day activities of the Nursery Coop. A month-long search and review of 35+ applicants found Ms. Elizabeth Bowersock. Elizabeth, an Auburn University graduate, had a résumé chock-full of office and computer related items and started working for the Nursery Coop during the week of August 2, 2004. She has been most helpful as both her and I locate computer files and folders and prepare for the upcoming Advisory Meeting in November. She'll be in charge of meeting preparation, newsletters, budget summaries, and anything else that falls under the Nursery Coop umbrella.

With the transition of the Coop Director there came an office move, along with a phone number change. Thus, to reach Elizabeth, you'll have to try the new Nursery Coop number: 334.844.1012.

Advisory Meeting

The Advisory meeting is scheduled for Wednesday and Thursday, November 3 & 4, 2004 at the Auburn University Hotel and Dixon Conference Center. We are currently working on an agenda and putting together the 2004 Accomplishments, the 2005 WorkPlan, and the Budget Report. This will be following in a couple of weeks.

I understand that this week conflicts with the IUFRO and MBr alternative meetings, but the date for the Advisory Meeting has been set since the end of the last Advisory Meeting, in 2003. Reservations are needed far in advance to get rooms at the Conference Center and if you know of any conflicts for the 2005 Advisory Meeting, let me know and we'll take those into consideration.

Contact Meeting

The 2005 Contact meeting will be held in Chattanooga, TN. The date and time have yet to be determined, but we will let everyone know ASAP.

Chattanooga 2005

PESTICIDE NEWS

MBr Update

Scott Enebak

On August 25th the Environmental Protection Agency (EPA) published the proposed Critical Use Exemption (CUE) allocation rules for 2005. A lengthy, complicated, 74-page document outlined the CUE process and the proposed rules for allocating the 2005 MBr to critical users.

Bill Carey and I spent about two days reading over the document and highlighted the information relevant to seedling growers. This 10-page "highlighted" document was sent to all Advisory members in August, along with a 3-page "Readers Digest" summary of the proposed rules, via email.

The bottom line is that EPA proposes to create Critical Use Allowances (CUA) and Critical Stock Allowances (CSA) to MBr importers/producers and entitles the holder of a CUA to sell (CSA) 1 kilogram of MBr to a critical user. The CUA and CSA's will be distributed on a pro-rata basis based on their 1991 consumption levels.

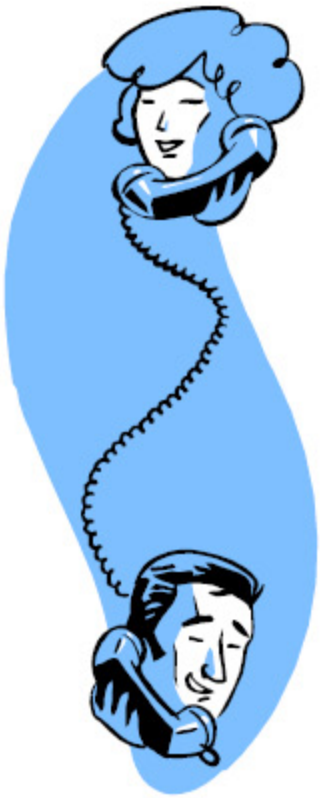
The EPA is also proposing 4 alternative methods of CUA/CSA distribution. A ***Sector-specific Allocation*** would result in 16 types of CUA's, one for each of the critical use categories identified (tomatoes, turf, forest tree seedlings, etc). Or a ***Lump Sum Allocation*** which would result in one pool of CUA and one pool of CSA which means that critical use MBr produced/imported could be used for any of the agreed critical use categories. A third category would be ***Applicant-specific Allocation*** which would result in 51 different types of CUA's and CSA's, one for each of the critical use applicants. Finally, a ***Hybrid Allocation*** would create Sector or Applicant CUA's but with Lump Sum CSA's. Distributors would be required to create, maintain, and keep an on-going log of MBr acquired and used during the year. A database would include critical uses and critical users, as well as amounts used, produced, and imported. Reservations would be made to "freeze" amounts of critical use MBr for a period of time after which would be confirmed as "used" or "released" back into the pool of available MBr for other critical users.

Critical users (turf, forest tree nurseries, etc.) must have a "limiting critical condition" for their circumstances. Critical users will acquire CUE MBr

through a system nearly identical to the existing procedures under the quarantine and pre-shipment exemptions (QPS). Critical users who contract to obtain CUE MBr will self-certify that they are approved critical users at the time of purchase. A form will be created by EPA that the critical user will complete with basic information about the user (name, location of fumigation, consortium, etc.), the number of kilograms to be purchased, the area to be treated, the agreed critical use category (tomatoes, forest nurseries), and a check list of the applicable limiting critical conditions approved by EPA.

Within the forest-tree industry, the following are approved critical users: a) Members of the Southern Forest Nursery Management Cooperative; b) International Paper and its subsidiaries c) Weyerhaeuser Company and its subsidiaries; d) Public seedling nurseries in the states of CA, ID, IL, KY, MD, MO, NE, NJ, OH, OR, PA, UT, WA, WV, and WI; e) Members of the Nursery Technology Cooperative; and f) Michigan seedling nurseries. Also, approved critical users must prove that such users are subject to the specified limiting critical condition that include moderate to severe fungal pathogen infestation, moderate to severe yellow or purple nut sedge infestation, and/or moderate to severe disease infestation.

Since the publication, Bill Carey responded to EPA about the process of allocation and a conference call was held with AF&PA and other Methyl Bromide users to discuss the proposed rules and how to best ensure that critical users (nursery managers) get access to MBr during the 2005 fumigation season. From this conference call, four items were outlined as needing clarification: 1) new Critical Users entrants into the market, 2) sector-specific allocation, 3) no hold-back of MBr CUA's during the year, 4) missing 36,000 k of MBr approved by TEAP.



EPA's proposed rules of new entrants into the market did not clarify whether new acreage, a new nursery, or a new company could be eligible for Critical Use Stocks of MBr. With a limited amount of CUE MBr available, who gets what may become important, and many of the participants felt that this needed clarification. With the second item, while no one knows what type of allocation system would be best for nursery managers, all believed that the sector-specific appeared to have the most flexibility to ensure adequate supplies. The Nursery Coop will therefore take the position of supporting this method of MBr Allocation in our comments to EPA. One item proposed within EPA's rules was a 50% hold-back of MBr CUA which would then be "released" in the middle of 2005 for critical users to obtain. This type of rationing of CSA's for critical users could only confound and interfere with fumigation plans. Thus, it was believed that all CSA's be available for critical users beginning January 2005. The last item with some concern was the "missing" 36,000 k of MBr, and Mitch Dubensky of AF&PA contacted EPA concerning the difference and got the following response:

"The discrepancy you note is the difference between new production and amounts to be made available from stocks. If you read VI.A there is an extensive discussion on the new production vs. amounts from stocks. Table II refers only to new production. As you can see, we are proposing that the amounts that come from stocks (currently around 6%) will be "universal" amounts available to all critical users. In contrast, we are not pointing to a preferred option for the new production (the bulk of CUE methyl bromide)- it could be either "universal" or "sector specific."

In English, what this means is that the 156,000 k (in Table II) is new MBr production. The remaining 36,000 kilograms will be made up from existing MBr stocks that are available to all MBr users that qualify for the CUE. So, essentially, forest seedling nurseries would need to compete for the extra (the "missing") 36,000 kilograms of MBr under a universal system.

To that end, a letter will be composed addressing the four issues identified in the Proposed Rules by EPA and the allocation of 2005 CUE MBr, and will be forwarded to EPA to address the concerns of users of MBr within the Nursery Coop. Deadline for comments is October 12, 2004 and I encourage you to go over the summary documents and respond to EPA.

Thiram Re-registration Update

Scott Enebak

The comment period for re-registration of Thiram as a seed treatment in forest-tree nurseries ended on August 31, 2004. Two letters were sent to address EPA's concerns, one directly to the EPA office in Washington, DC, and the other to John Taylor of Forest Health Protection of the Southern Region USDA, Forest Service who was compiling data from nurseries and would submit a document as well. The EPA will go over the responses and issue their ruling with respect to Thiram re-registration and as soon as we hear anything concerning the continued use of Thiram we will pass it on to Coop Members.

Keep This To Yourself

Bill Carey

A noticeable change in the information I deal with for the Nursery Coop (and I started working for the Coop in the last century) is that more of that information is now secret. The "secret" information hasn't changed much - a nematode here, a survival problem there - its just that now it's secret. It's not just the Nursery Coop; in academics more research funding by industry demands exclusive information. Especially at state universities, where most of the budget still comes from the citizens, it's hard not to see a conflict of interest (but I digress). When developing new equipment that could be patented, I understand the secrecy. When there is root rot in Compartment 32, I don't see why that information is secret. Everyone gets the same root rots sometime and unlike a venereal disease, the root rot (nematode, bug, weed, etc.) says absolutely nothing about the character of the nursery manager. Actually, almost none of "The New Secrecy" comes from any personal concerns of nursery managers. It seems to come from somewhere mysterious further up the chain of command, undoubtedly among people I have not, nor never will, meet. I've been told this by many lower on the chain of command, and I believe it, but like any good secret it can't be confirmed.

Perhaps "The New Secrecy" starts something like this: If those that buy seedlings learn of the root rot in Compartment 32, or that seedlings from Nursery "X" suffer during droughts, they will purchase seedlings from nurseries without root rot (a nursery with better secret keepers) or producers of drought resistant seedlings (which I don't know about). Having met some seedling buyers (who always blame the nursery, regardless of cause), it is difficult to imagine they are able to employ these information gathering analyses. The government used to track Soviet grain crops from satellites to anticipate international trade. This sort of information affects commodity prices, such as hog and grain futures. Perhaps seedling mortality in Compartment 32 could affect the stock of timber companies. However, such information seems of little use until competitors have the technology, or superior seedlings, to substantially and significantly reduce mortality from the effects of drought, freeze, rust, insects, etc. Since such technology would add more value to a corporation if known than if secret, I assume we are still all in the same boat, on average, with disease in the nursery and with outplanting losses.

Even assuming everyone I didn't hear from this past year had a good year, I concluded there were a lot of survival problems in 2004. Unfortunately, most of the information I got came with "keep this to yourself." I saw enough seedlings and enough data to get a pretty good idea of some important factors across the region in 2004 and will discuss some of this (very discretely) in another article. Surely, if all the secret keepers put their data together, we would know and could more precisely evaluate the cost:benefits of several alternatives used to establish plantations. This information would be of much more value to everyone, than the sum of the secrets it represents would be to any of the individual keepers of the secrets. I think that was the idea behind such institutions as the Nursery Coop. There are enough results to confirm their effectiveness.

The Army once sent the FBI out to determine if I could be trusted with secrets. Everyone the FBI asked must have either forgotten me entirely or considered me trustworthy because I got security clearances. I wouldn't like that to change and in fact don't mind keeping secrets until it's clearly counterproductive. Stalin had the Moscow telephone book kept secret. Think about it. Where are we going?

Intrastate QPS: A Chance We Should Not Neglect — Information On Section 419 of The Plant Protection Act —

Bill Carey & Scott Enebak

Methyl Bromide (MBr) used for Quarantine and Pre-Shipment (QPS) is exempted, under the Montreal Protocol (MP), from the phase-out which will eliminate other uses by 2005 except where Critical Use Exemptions (CUE's) have been obtained. Although forest tree nurseries have filed CUE's to insure MBr availability in the short term, this use will phase out too, but just a little slower. Therefore, if MBr fumigation is important to forest tree nurseries, its acceptance as a legitimate QPS use is the best way to go.

The EPA has apparently accepted the QPS use of MBr for forest tree seedlings that are shipped interstate (across state boundaries). In 2003, we sent sections of agricultural regulations from states with member nurseries to the EPA to support QPS for intrastate fumigation. In a letter dated July 2004, they responded that those regulations did not meet the necessary requirements for QPS allocation .

The regulations we sent the EPA, for the most part, were ones that required nursery inspections for plant health before shipment. EPA responded that what would be required was language that "specifically prohibits movement between local jurisdictions unless the commodities are free of pests." However, since their ruling in July 2004, there seems to be a new factor in the determination of QPS eligibility. This is the Plant Protection Act's (PPA) section 419 which specifically pertains to MBr. The amendment requires the Secretary of Agriculture, "upon request of state, local, or tribal authorities, to determine whether a MBr treatment or application required by those authorities to prevent the introduction, establishment or spread of plant pests or noxious weeds should be authorized as an official control or official requirement." The administrator of the Animal and Plant Health Inspection Service (APHIS) acting for the Secretary will determine if MBr will be considered as an official quarantine treatment within 90 days of a request by state, local, or tribal authority. Further, if the determination is unfavorable the administrator will in provide the reasons in writing. This sounds good for those that want to use MBr.

Some promising language in Appendix C of the proposed rule for implementing section 419 of the PPA seems to apply directly to forest tree nurseries. On page C-2 it says "States regulate movement of commodities to prevent the introduction of undesirable pests from another State or from a locality within the State into another locality within that State. Examples of localities may include a county, a township, a region occupied by a nursery which provides the source plant material for production crops · · · · **The regulation may specifically require fumigation** or the regulation **may be performance-based, requiring phytosanitary certification** that a certain commodity is free, or 'apparently free' of regulated pest prior to geographic movement ·· · · " On page C-5 it gets more specific: "An example of a potential situation in which legislation may be beneficial for agricultural commodities is the need for methyl bromide to fumigate soil **for propagative material such as forest tree seedlings**, prior to transport and planting · · · · Alternatively, it is possible under such legislation that methyl bromide **use would be allowed for establishing material as pest-free** even under a broad performance standard."

We, all members of the Nursery Coop, need to make sure our States' departments of agriculture know how important it is to get qualifying legislation to APHIS for at least an opinion of its suitability for having MBr listed as a QPS treatment based on phytosanitary certification. Just think what it would mean if you could not use MBr but your competitor across the border, whose agriculture department took action, could use MBr on seedlings shipped intrastate. Where would you buy seedlings to plant your own land? The Nursery Coop scientists are willing to consult, but it appears that applications to APHIS to request Intrastate QPS status for MBr will have to come from official State agencies.

Information on Rule 419 can be obtained at http://www.aphis.usda.gov/ppd/rad/cominst.html. Dr. Paul Gadh can be contacted for additional information at Phytosanitary Issues Management, PPQ, APHIS, 4700 River Road Unit 140, Riverdale, MD 20737; (301) 743-6799.

PRODUCTION TECHNOLOGY

The 2004 Drought: Seedling survival affected by soil drainage and planting technique or Problems or Perceptions ?

Bill Carey

Judging from the amount of scuttlebutt (antique naval lingo for water cooler), 2004 was a bad year for newly established plantations. Calls to the Nursery Coop started in March (confidential, of course) and there were a few photographs of some declining seedlings (for diagnostic opinions). I didn't get into the field until May and by then there is basically one symptom of distress, and that's seedling death. A dead seedling has advantages and disadvantages as data. It's hard to misinterpret in the field, but only in mass numbers do dead seedlings "say" anything about the process leading up to death. The sites I visited had poor survival (about 50%), but at only a couple hundred acres, they represent a tiny sample of all plantations and give a tremendously biased view.

Eventually I was provided data for several hundred sites from the Gulf states (except Florida) and was surprised to find survival overall averaged about 80%. At many sites, survival was reported to be precisely 90% and I assume that means it looked "OK" from the road. However, even with the possible inflation associated with some (the 90%) reports, there were enough sites that the analyses should be representative. From north to south, reports were fairly uniform except for the southernmost region (less than 100 miles of the Gulf), where survival was just less than 70%. However, less than 10% of the reports came from the coastal region, which is therefore under-represented in these data.

Overall, the data indicated that 2004 survival was average. Louisiana maintains a website, http://www.ldaf.state.la.us/divisions/forestry/reports/pineplantationsurvival/default.asp, with survival data for all plantations established between 1997 and 2002. Average survival there has been about 80% for hand planting and 90% for machine planting, and this is almost exactly the averages in the 2004 data I analyzed. Perhaps the only problem with seedling survival in 2004 was in the perception? Seedling survival did look bad at the sites I visited, but then I only saw the bad sites.

By May, a fairly severe drought had settled across much of the Gulf states. Records for Jackson, MS and Auburn, AL show normal rainfall through February with rainfall stopping after about March 1st. By May there was a six inch deficit and that's more than enough to effect seedling survival. Better survival among seedlings planted before the end of February (10% better than March), and for seedlings planted on more poorly drained soils (6% better all planting), whether by hand (7% better on wet site) or by machine (6% better wet sites), to me indicate a role for environmental factors (probably soil moisture deficits) occurring after February. I first thought the mean survival increase for machine planting, which is normally deeper, also indicated the effect of drought but similar differences are consistent from year to year in the Louisiana state data. The distribution of survival percentages by month of lifting, by month of planting, or across latitude did not suggest other factors.

If the data I analyzed (for Gulf states) are typical of the South, what caused all the early concerns about survival? I believe it was associated with secrecy and its influence on rumor. An analogy may be that of a naval ship at sea without anyone (perhaps the captain) knowing where they are headed. Soon, scuttlebutt comes up with one or more sure destinations and reasons for the trip. If you were confidentially asked if you had heard of survival problems in an area by someone who was just curious, what would you think? Given confidential data, for an opinion on the cause of mortality, what would you think? Given more than average inquiries for diagnostics, combined with fewer than average requests for detailed evaluation, what would you think? The bottom line is that I would have liked to ask more people for survival data for other regions but don't want my sources to have to ask permission up their chain-of-command to get the information necessary to better understand if the mortality secretly being discussed was a problem or just a perception.

No Need for a Terminal Bud

David South

Over 50 years ago, Phillip Wakeley said the presence of a "winter bud" was a poor indicator of seedling quality. Even so, many today still believe the presence of a terminal bud is a good indicator of

seedling quality. One web page states that a terminal bud should be "present" at time of planting slash pine, loblolly pine, and longleaf pine. In contrast, when comparing seedlings of equal size, I say the null hypothesis has not been rejected (presence of a terminal bud has no effect on either initial survival or long-term growth of either bareroot or container-grown stock). I argued against including the terminal bud as part of the interim guidelines for seedling quality for longleaf pine. My recommendation was not adopted. As a result, the interim guidelines state:

Preferred: 90 percent of the seedlings with terminal buds.
Preferred color: green to brown.
Unacceptable: Yellow or chlorotic buds (Note: a white terminal bud qualifies as chlorotic!).

The terminal bud claims should be dropped from these guidelines. I know of no data to support these claims. In the absence of data, I wonder why these claims continue to get repeated? Is it because once they are printed, few are willing to say it is wrong? When container-grown, longleaf pine seedlings were outplanted in four seedling quality trials in Alabama, only a few had well-formed terminal buds (certainly not 90%). In fact, I have never seen a crop of container-grown longleaf pine seedlings with 90% terminal buds (in either October or January).

I will pay $20 to the first person who can provide me with outplanting data to show that the presence of a terminal bud positively affects either survival or growth of container stock of equal size (i.e. RCD). [Studies where terminal has been mechanically removed do not qualify.] I will pay $30 for the first person to provide data to show that bareroot stock with white terminal buds do not perform as well as stock (of equal size) with green buds. I would not be surprised at all to learn that the presence of a well-formed terminal bud is negatively related to survival of container stock (especially if RCD is positively related to the presence of a well formed terminal bud). This is because we now know that when grown in hard-wall containers, large-diameter seedlings can become pot-bound and do not survive as well as seedlings with smaller diameters.

In the past, when researchers have published papers on seedling quality attributes of longleaf pine seedling grown in containers, terminal buds have not been reported. I expect this is because they believe that other factors (such as "floppies" and "doubles" and "hybrids") are much more important for survival and growth. I propose that scientists not make statements about the need for a terminal bud (or the color of a the terminal bud) if they have no data to support their claims.

Stem Sinuosity After Planting

David South

For pines, sinuosity of the stem (also known as speed-wobble) is related to genetics and growth rate. Slow growing provenances of loblolly pine have less sinuosity than fast growing provenances. The heritability for bole sinuosity can range from 0.2 to 0.35 for loblolly pine and 0.2 to 0.55 for *Pinus radiata*. If the bole is sinuous, the branches will also be sinuous (genetic correlation = 0.93 or greater). In Australia, sinuosity occurs on soils with high fertility.

Crooked stems can result from toppling. Some pines that have a 50 degree lean at age 2 will recover and only have a 5 degree lean at age 6 years. As seedlings gradually recover, compression wood forms on the underside of the lean. Although this enables the seedlings to recover, some of the seedlings develop a crook in the stem.

Murphy and Harrington (2004) found that family affects sinuosity of loblolly pine during the first year after planting in Georgia. The fast growing family had more sinuosity than the two slower growing families. In addition, trees planted at a 45 degree angle exhibited more sinuosity (i.e. number of curves in the main stem) than seedlings planted straight (i.e. I-root). There was no significant difference in sinuosity between seedling planted with a J-root and seedlings planted with an I-root. This paper is on the web at www.srs.fs.usda.gov/pubs/gtr/gtr_srs071/gtr_srs071-murphy001.pdf and photos of the seedlings can be viewed at www.lgmedia.org/account/guestviewcollection.cfm?collectioncode=26 .

Longleaf Seed Efficiency Varies By Orchard For a Single Half-Sib Family

Bill Carey, Scott Enebak and Thais Dreza

The seed efficiency of longleaf is rarely as good as that of loblolly or slash pines and for some seedlots it has been very bad indeed. Problems are sometimes linked to seed infestation by *Fusarium*

circinatum and poor container production has been correlated with differences in infestation of seed and related to differences in vegetative symptoms among seedorchard clones. In several recent trials, we evaluated seed efficiency by longleaf clone and seed treatment but in this study we collected a single clone from two orchards that were several miles apart and differed in what we could call the background level of pitch canker infection. We found that seed from the more healthy orchard had significantly better seed efficience than that from the orchard with a higher incidence of severely diseased trees.

Details of cone collection for this and other clones and seed treatments are provided in Research Report 04-5. For longleaf clone 135, cones were collected at two orchards within Bladen Lakes State Forest on October 7-8, 2003, and seed from these were collected in Auburn, AL.

Seed were treated on March 22 and sown the next day by five sowers who each placed all seed flat on the surface of 80 container cells containing peat/pearlite media. After sowing, all containers were covered with a thin layer of sand and then randomly distributed on two greenhouse tables

Numbers for live seedlings were assessed by seed orchard, seed treatment and sower, and for the interaction of treatment and orchard. Numbers of seedlings differed for the two orchard sources of clone 135 (Table 1) and by seed treatment within that clone between the two orchard sources.

Table 1. Longleaf seedling per rack (40 single-sown-cells) at 28 and 100 days after sowing by orchard source for half-sib seed from a single clone.

Seed Source	fill at 28 days	
Old Orchard (more pitch canker in other clones	17.8 c	17.6 c
New Orchard (less pitch canker in other clones	23.6 a	23.4 a
lsd (a 0.05)	1.2	1.2

Differences in seed efficiency between seed from clone 135 collected at two orchards differing in the mean level of pitch canker between orchards indicates part of the difference is due to distance between where the cones develop and those of spore production. This indicates that removing severely infected trees from an orchard could improve seed efficiency more than just not collecting cones from those trees.

OTHER NEWS

Check It Out!

Elizabeth Bowersock

As you may remember, the old website was full of useful information, but was sometimes a bit tedious to scroll through. Therefore, it was decided that the Coop webpage would get a complete "facelift," including new colors, fonts, and interactive buttons. It is now definitely a lot more streamline, and hopefully it will be easier to find your favorite links, as they have all been divided and placed into appropriate categories for easier navigation.

The "Members Only" page has also gone through some changes, comparable to the homepage, so be sure to check that out as well. If you have forgotten the username and/or password for this page, just send me an e-mail at bowerep@auburn.edu, and I will provide it to you. Suggestions for the webpage and changes to the Member Directory are also welcome anytime. Thanks!

Another Introduction

Scott Enebak

Patricia Lima, a Brazilian forestry student from Sao Paulo University, joined the Nursery Coop staff in July 2004 as a Research Technician. She'll be with us for one year to help out with the various ongoing research projects for Bill, David, Ken, and myself. She attended the Contact Meeting in Charleston, SC, so some of you may have already met her.

In Brazil, she worked and studied production and quality of gum resin from pine, mainly Pine elliotti var. elliotti, and with genetics improvement. To date, she has worked on oak regeneration with Ken and a couple of longleaf seed treatment experiments in the greenhouse.