

FHP SPECIAL TECHNOLOGY DEVELOPMENT PROGRESS REPORT

Project Status: Continuing funds are being requested for FY 1999 to continue the project.

Project Number: R2-1998-01

Project Title: Alternatives to Fumigation-II

Subject: Nursery Diseases

Project Objective: Enhance integrated pest management by developing new or fine-tuning alternative cultural and chemical regimes for production of high quality bare-root conifer seedlings at USDA-Forest Service and State nurseries, with minimal fumigation, especially without methyl bromide.

Brief description of Project: Building on the information learned from the previous nursery TDP (Alternatives to Fumigation, R6-93-01) and other work, nurseries in every Region (except 3 and 10) will participate in field comparisons of a variety of chemical and cultural treatments customized for each nursery. Treatments include use of bare fallowing, beneficial microorganisms, seed treatments, organic amendments, mulches, cover crops, tilling, solar heating, fumigants, herbicides, and changes in irrigation, fertilization, and sowing.

FHP Person Leading the Project: Jeri Lyn Harris, R2

Cooperators: R1, Robert James, Coeur d'Alene Nursery
R2, Jeri Lyn Harris, Bessey Nursery
R4, Robert James, Lucky Peak Nursery
R5, Susan Frankel, Placerville Nursery
R6, Diane Hildebrand, J. Herbert Stone Nursery
R8, Michelle Cram
R9, Toumey Nursery
NE Area, Joe O'Brien, Jill Pokorny
USDA FS, NC Station, Jenny Juzwik
ARS St. Paul, Raymond Allmaras
University of Minnesota, Neil Anderson, Cynthia Buschena
Minnesota, Badoura State Nursery
Wisconsin, Griffith State Nursery
Oregon State University, Jeff Stone
Alabama Forestry Commission, Edward A. Hauss Nursery
Georgia Forestry Commission, Flint River Nursery
Hendrix and Dale, Inc., Clarence Lemons
Southern Station, Stephan Fraedrich, David Dwinell
Auburn University, Scott Enebak

Brief Description of Accomplishments and Results:

Western Nurseries: Pretreatment samples have been collected and processed and a wide variety of treatments have been completed at Coeur d'Alene Nursery (R1), Bessey Nursery (R2), Lucky Peak Nursery (R4), Placerville Nursery (R5), and J. Herbert Stone Nursery (R6). Treatments include bare fallowing, solar heating, tilling with water shading, various fumigants and soil amendments including bio-control agents.

Pre-sow samples have also been taken at Bessey Nursery and J. Herbert Stone Nursery. All project treatments were applied at J. Herbert Stone Nursery and two conifer crops have completed one year of growth. Morphology of 1-0 seedlings will be evaluated this fall at J. Herbert Stone Nursery.

Southern Nurseries: Field evaluations of chloropicrin, eptam, and Paenibacillus macerans (PGPR) seed treatment were initiated on loblolly pine in April 1998 at Flint River Nursery (GA) and E. A. Hauss Nursery (AL). Seedling counts at both nurseries show no significant differences among the soil treatments. A significant difference was found in seed treatments for E. A. Hauss Nursery. At Flint River Nursery the average seedling counts were slightly less with the P. macerans seed treatment, though differences were not always significant. At this time there are no major diseases correlated to any one treatment.

Northeastern Area Nurseries: Alternative soil management regimes were devised for fields designated for 1-0 black walnut and 3-0 white pine seedling production in the participating nurseries. Controls consist of each nursery's current soil management practices. The treatments were implemented between early July and mid-October 1998. When possible, evaluation of specific changes made to existing regimes were conducted. For example, pre-trial assessment of levels of selected fungi in the vertical profile of the top 30cm of soil were made in alternative and control treatment fields. Prior to sub-soiling in the alternative treatment fields, soil resistance to penetration in the top 45 cm of soil was also determined using a cone penetrometer. Depths of sub-soiling treatments in the alternative treatment fields were based on cone indices curves developed with this data. In addition, in situ soil cores were removed prior to sub-soiling in all study fields to determine saturated soil hydraulic conductivity and the soil water retention characteristic. Additional penetrometer readings and in situ soil cores were also taken in all study fields in October to determine the effect of sub-soiling (modified in Minnesota; new in Wisconsin) on soils in the recently prepared seedbeds.

Documentation: not yet available

First Year Funded: FY 1998

Year Scheduled to End: FY 2000.

Actual Year to End: Year products will be delivered, FY 2001

Products and Due Dates Identified in the Original Proposal: Participating nurseries will have summary records/reports of the comparisons of the experimental treatments in FY 2001. We will also compile a joint report for all the western nurseries after data analyses are completed by Oregon State University.

Status of Products: in progress

Does the Region/Area consider progress on this project to be acceptable, and if not, what corrective measures are planned? Progress is acceptable in each Area.

FUNDS OBLIGATED FROM BEGINNING OF PROJECT THROUGH END OF FY 1998:

Please make a reasonable effort to provide information about funds and contributions from other sources by indicating the source(s) and amount or value of contributions. This information is helpful in order to communicate the effectiveness of this program in leveraging opportunities and fostering collaboration and ultimately to encourage continued availability of future funding for the program.

| Fiscal Year | STDP funding | Contributions | Source organization |
|-------------------|--------------|----------------|-----------------------------------|
| 1998 | \$44,600 | West \$50,000. | |
| Federal nurseries | | \$ 8,700. | OSU |
| funds | | \$29,400 | South \$11,500. local FHP program |
| | | \$13,000 | |
| Auburn Coop | | \$45,000 | |
| FIDR | | \$21,000 | NEArea \$10,800. UMN |
| | | \$14,000. | FHP, FIDR |
| Total FY 98 | \$95,000 | \$153,000 | |

FUNDS CARRIED OVER FROM FY 1998 to FY 1999:

West: \$10,000 (R2 - \$4000; R6 - \$6000) South: \$15,000
 All Carryover funds are needed for FY1999 to continue project work at the nurseries.

Post-Project Technology Support: The products from this project will not require continued support. Cooperating nurseries will implement their desired, best treatments.

Enclosure 4

REQUEST FOR CONTINUED FHP-STDP FUNDING FOR PROJECT
Use to request FY 1999 funding for projects active in FY 1998.

Complete the following for each multi-year project active in FY 1998, that you wish to continue and have funded with STDP funds in FY 1999.

PROJECT STATUS: Funds are being requested for FY 1999 to continue the project.

ESTIMATED COMPLETION DATE: Products will be delivered in 2001.

PROJECT NUMBER: R2-98-01

PROJECT TITLE: Alternatives to Fumigation II

ADDITIONS:

no additions to original proposal

CHANGES:

Funding for this project in FY1998 was reduced by \$5,000 from the requested \$100,000. The South absorbed as much of this loss as possible. For FY 1999, the South has increased their budget request by \$3,400 from their estimated request in the original proposal.

Some of the nurseries needed to make adjustments to their original plan for treatments according to available equipment and supplies.

FY 1999 BUDGET: Do not include costs covered by other FHP funding which will occur regardless of this project. Show estimated FHP STDP funding need for FY 1999. Show separately the funding to be requested/provided from other sources in FY 1999.

ITEMIZE as follows:

| Item | Requested FHP STDP Funding | Other Sources amount | Organization Name |
|-----------------|-------------------------------|-------------------------|-----------------------|
| Administrative: | | | |
| Salary | \$69,600 | \$ 94,800 | Univ, FIDR, Nurseries |
| Overhead | 3,300 | 8,700 | Univ |
| Travel | 29,000 | 11,500 | FHP |
| Procurements: | | | |
| Contracting | 6,800 | | |
| Equipment | 3,000 | | |
| Supplies | 12,600 | 33,500 | Nurseries, Univ |
| Other | | | |

TOTAL FY 1999 Budget \$124,300 \$148,500

New FHP STDP funding needed in FY 1999 after any FY 1998 carryover is applied:

West: \$43,000
 South: \$38,300
 Northeast Area: \$43,000
 TOTAL \$124,300

Estimated additional future funding needed beyond FY 1999, by fiscal year:
 Show estimated FHP STDP funding needed by fiscal year. Show separately the funding to be requested/provided from other sources.

| Fiscal | Year | STDP funding | Contributions | Source organization |
|--------|------|--------------|---------------|---------------------------|
| | 2000 | \$103,400 | \$147,900 | Nurseries and Cooperators |

FY 1999 Budget: Budget Details for each Region:

West

| | R1 | R2 | R4 | R5 | R6 |
|----------------|--------|-----------|--------|--------|--------|
| OSU Total | | | | | |
| Salary/Wages | 26,600 | 26,600 | | | |
| Overhead | 3,300 | 3,300 | | | |
| | | Materials | | 600 | 2000 |
| | | 2,600 | | | |
| Supplies | 2,500 | 2,500 | | | |
| Travel | 1000 | 2000 | 1000 | 1000 | 2000 |
| | 1,000 | 8,000 | | | |
| Total | 1000 | 2600 | 1000 | 3000 | 2000 |
| | 33,400 | 43,000 | | | |
| Contributed by | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 |
| | 8,700 | 58,700 | | | |

other Sources (Nurseries and OSU)

South:

| | FHP | Auburn | FIDR | Total |
|-------------------|---------|---------|---------|----------|
| Travel | \$3,000 | \$6,500 | \$6,500 | \$16,000 |
| Lab Supplies | 1,500 | 2,500 | 1,500 | 5,500 |
| Technical Support | | 6,000 | 6,000 | 12,000 |
| Chemical | 3,000 | | | 3,000 |
| Soil Testing | | 600 | 600 | 1,200 |

| | | | | |
|---------------------------------|---------|----------|----------|----------------|
| Foliage Testing | 600 | | | 600 |
| requested by South | \$8,100 | \$15,600 | \$14,600 | \$38,300 Total |
| Contributed by Other Sources | 11,500 | 13,000 | 40,500 | 65,000 |

Northeastern Area:

| | Item | Requested FHP STDP Funding | Contributed by Other Sources |
|-----------------|-------------|-------------------------------|---------------------------------|
| Administrative: | Salary | \$31,000 | 24,800 |
| | Travel | \$ 5,000 | |
| Procurements: | Contracting | \$ 2,000 | |
| | Equipment | \$ 3,000 | |
| | Supplies | \$ 2,000 | |
| | Other | | |

Total FY 1999 Budget requested by Northeastern Area: \$43,000