Period covered by this report: December 31, 2002 to June 30, 2003

Issued to: Tennessee Technological University

Address: School of Agriculture, P.O. Box 5034, Cookeville, TN 38505

Project Name: 00-DG- I 1083150-350
                Electronic Media Tutorial Programs to Improve Urban Tree Establishment and
                Maintenance

Congressional District Number: 6

Contact Person/Principal Investigator:
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Date of Award: July 1, 2000 (contract initiated 15 August 2000)

Grant Modifications: An extension to August 15, 2003 was approved in March 2003.
Date of Expiration: June 30, 2002 (originally; an extension to 15 August 2003 has been granted)

Funding: Federal Share: $78,754 plus **Grantee** Share: $78,754 = **Total Project:** $157,508

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Abstract:
This project will develop, produce, and distribute nationally, tutorial electronic media programs with
information and training examples about basic urban tree establishment and maintenance techniques.
Internet formats with national links, videos suitable for television and/or cable programming, and diskettes
for computer-assisted learning will be prepared especially for training purposes. The message will be that
trees are valuable assets in the urban landscape, but that specific *selection, planting and maintenance
techniques* are needed to ensure successful establishment. Although most of these techniques are simple,
they are not well known, nor practiced, in the tree service industry because they are relatively new.
Unfortunately, this means those currently used but earlier references, especially texts and printed brochures,
and recommendations are now out of date.

Tutorial programs will address two specific priorities of NUCFAC:

   1. Information, communication, and the dissemination of technological knowledge to strengthen urban forestry programs and empower communities to improve their urban forests;

   2. Educating people to empower them to develop and preserve healthy urban landscape trees by demonstrating selection, planting and maintenance procedures to ensure successful establishment of young trees, and by demonstrating proper pruning of mature trees.

Project Objectives:

1. World Wide Web site development, registration and maintenance.
2. 3/4 inch video segments (3-5 minute) for distribution to national PBS television affiliates (no guarantee of presentation);
3. Similar VHS video segments, full length and 3-5 minute segments, for training events;
4. Similar Digital Video Disks (DVD) for training events and some public distribution;
5. Zip Disks and Compact Disks (CD) in Power Point, for training and public presentations;
6. Floppy Disks in Macintosh and Microsoft format, for text presentation.

Status of Objectives to-date:

1. Completed: The website URL www.tlcfortrees.info and a mirror site www.tlc fortrees.com have been purchased for ten years. The site is up and available for public review! We have more than 1000 hits to date. A summary of comments we have received is submitted at Attachment 1.
   It is still being modified and edited to include the few remaining video vignettes.
2. Partial completion: The programming supervisor of our local WCTE-TV PBS television station has suggested that instead of ¾ *inch tapes of 3 to 5 minute segments* as listed in the proposal, the website video segments be revised and edited to create *30-, 60- and 90-second `interstituals'* (free fillers) for *distribution* to the National Educational Television Association affiliated stations (there are 350 PBS stations in the US). Further review and editing will be required to finalize these programs.
   WCTE-TV sponsored a live call-in program on Managing Landscape Trees that highlighted and advertised the website and its information. The Cookeville Tree Board cooperated with this presentation. The staff hours and production facilities are incorporated into matching funds for the project. This is **in** addition to the hours the station has agreed to donate for new video productions, if needed.
3. Near completion: The original 13 segments of the television program have been reviewed and edited to include the seven topics of the proposal: selecting, transplanting, basic pruning, specialty pruning, topping hurts, protecting trees during construction, selecting live Christmas trees. These have been copied into digital format and submitted to Institutional Technology Services for producing a master file to be duplicated as VHS tapes.
   In addition, we have reviewed and edited into digital format the two programs on Pruning Municipal Trees: Tulip Poplar and Sugar Maple. Due to the commercial nature of these segments, and the need to be able to select specific individual sections of the segments, these programs will be produced as CDs and presented as *additional project deliverables.*

4. The TTU Business Media Center has been contracted to produce the CD and DVD deliverables. It is the opinion of these experts that the VHS tapes will be best duplicated into DVD format to provide the highest quality presentation. However, the Pruning Municipal Trees programs will be duplicated into CD format. The content of these disks will be designed to be user-friendly and more interactive with simple icon selections to view the separate video segments.
5. Completed. However, not in Power Point. Production in Power Point format would have severely limited the applications of these products. Our formats may be incorporated into multiple presentation formats, including Power Point, Microsoft Word and Macintosh, etc.

The text and graphics portions of the website information (without video presentations) have been transferred onto Zip Disks in three formats: the HTML format includes the website information in interactive (links between sections) presentation, but it does not print well; the MS Word format presents the information as printable files, but not with interactive links; the Rich Text format allows any user (Macintosh included) to view and print the text and graphic presentations. With this flexibility, any viewer may cut and paste into most other presentation formats.

The video segments of the website will be recorded onto a CD and presented in interactive format to allow viewers to select specific separate topics of the information.

6. Because the use of floppy disks has become almost obsolete since the project was first proposed, the floppy disks will not be prepared as a deliverable. The Zip Disks, CDs and DVDs are the appropriate format for current use.

Objectives not yet met:

All objectives are at least partially completed.

How will project increase knowledge about UF? How will public benefit?

Successful establishment of trees in urban landscapes is decreased by continued use of references and instruction materials that have out-dated information about tree planting and maintenance techniques. Over the past decade, research has developed new information about tree growth and development, especially as it affects landscape trees in the urban forest.

These findings have caused the development of new recommendations to improve the health and survival of trees in the urban environment. However, most of these new techniques have not yet been revised in most reference manuals and, therefore, are not known by the majority of tree service practitioners, extension agents and homeowners. Nor are they understood by municipalities and industries that are requesting large-scale tree services, resulting in requests for bids that specify techniques that not only are out of date, but also are destructive to the trees that are being treated.

The public benefit of the project will be to improve the successful establishment and the initial maintenance of newly planted trees, thereby improving the quantity and quality of urban landscape trees.

What specific quantifiable results will be produced?

The quantifiable results will be the deliverable end products in electronic media formats:

The web site and its information;

The `interstituals', 30-, 60- and 90-second video segments for PBS television broadcast (although we cannot guarantee the stations will actually broadcast the segments).

The seven segments of edited full-length television program *TLC for Trees* produced for Upper Cumberland Camera by WCTE-TV will be duplicated onto VHS video tapes and onto DVDs.

The text and graphics of the web site will be duplicated onto Zip Disk. The video vignettes of the web site will be duplicated onto CDs.

The separate program on *Pruning Municipal Trees — Tulip Poplar and Sugar Maple* will be duplicated onto CDs.

How will results be disseminated to public?

The project will send 250 copies (5 per state) of the different electronic media formats (VHS tapes, Zip Disks, CDs, DVD's) to the state staff urban foresters.

Announcements about the web site and products will be sent to Federal and State Urban Forestry offices, and to related Green Industry trade magazines and the web site links;

Distribution of web site and products announcements to state Master Gardener coordinators;

Distribution of 30-, 60-, and 90-second `interstituals' to PBS affiliates nationwide; and

Announcements in trade periodicals and catalogues, and in publications of affiliated professionals;

If a no-cost time extension has been requested, why is it needed?

A funded extension until 15 August 2003 was accepted in March 2003.

The project was anticipated to start in mid-summer 2000, but was not signed and received by the PI until August, at which time the school semester was well underway. A teaching overload for the PI and for the project assistant has created many delays in the proposed time-line of the project. The total extension time for the project with this continuance will still not exceed three years.

List the active partners involved in the project to-date:

Dr. Douglas Airhart, Professor of Horticulture and Certified Arborist, is the Principle Investigator.
Dr. Jeff Plant, Assistant Professor of Housing & Design, is the Project Assistant.
Mr. Guy Zimmerman III, Area Forester for the Tennessee Forestry Division and Certified Arborist.
Ms. Lori Judd, accountant for the School of Agriculture, has served as the project accountant.
Mr. Peter Cline, Student Assistant in the School of Agriculture.
Dr. Bob Clougherty, Director of Information Technology Services office of the TTU Computer Center.
Ms. Lauren Neal, Information Technology Services office of the TTU Computer Center.
Mr. Billy Tindall, Information Technology Services office of the TTU Computer Center.
Mr. Wayne Douglas, Student Assistant in the ITS office of the TTU Computer Center.
Ms. Becky Magura, Program Specialist for WCTE-TV, Public Television Station.
Ms. Jenny Carter, Specialist for TTU Business Media Center. ($5000 contract & $5000 matching funds).
Mr. Gary Bradford, Technician for TTU Library Media Center.
Dr. Cathy Cunningham, Professor of Human Ecology .

Comments considered important but not covered above:

The website has over 1000 hits. The PI has advertised the website with business cards distributed to colleagues at professional meetings, and with announcements in the Newsletters of the Tennessee Urban Forestry Council and the College of Agriculture and Human Ecology of TTU, and the website was described and advertised in Tars 'Visions' Magazine in Spring '03.

We have received the following Website Communiqués about tree care:

Beth Marshall Borisuk (Indiana) — thank you for making current information available.
Rex Grey (Texas) — planning parking lot, to protect trees.
Yukie Groves (Kentucky) — Madisonville Tree Board — use of website for local TV advertisement.
Prasitha Prasad (India) — root type and damage of bottlebrush tree.
Jason Gerner (Massachusetts) — tree root damage.
Carl Absher (Tennessee) — truly professional job.
Kathy Kimes Daugherty (Tennessee) — wealth of information.
Rory Reese (Tennessee) — I was really impressed. I especially liked the little quizzes.
Michael Wooden (California) — mounding soil over root zone of sycamore.
Doug & Dee Holzman - blue spruce construction protection. Thanks for the valuable information.
Mario Vaden (Oregon) — Trees & Landscapes — your site is my kind of reading.
Jeff Bulger (Illinois) — very informative. Grass around cherry tree trunks.

This report was prepared by:
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E-mail: dairhart@t tech.edu **Date:**   27 June 2003

Outline of Website

Index = Cover Page
Home = Grant Sponsors
Purpose
       Trees save energy
       Good planning creates good trees
Right Tree / Right Place
Selecting Landscape Trees
       Introduction
       The root system
       The trunk
       The branches
Transplanting Landscape Trees
       Introduction
           Name 10 reasons to plant trees
           Root zone moisture and watering
       Planting Depth
           Good planting techniques
       Time of Year
           B&B, containerized, bare root
       Preparing Root Mass
           B&B, containerized, bare root
           Fostering healthy root growth
       Final Transplant Inspection Checklist
Mulching & Staking Trees
       Mulching Introduction
           Mulching is beneficial because
           Mulch volcanoes
           Mulching recommendations
       Staking Introduction
           Guying errors
Summary Diagrams
       Good Planting Techniques
       Bad Planting Techniques
       What's Wrong With This Diagram?
Pruning Trees
       Introduction, Rules & Tools
           Rules
           Pruning "rule of thumb"
           Basic pruning tools
                Clippers, anvil pruners, bypass pruners, loppers, saws, pole pruners
       Natural Target Pruning
       Basic Pruning Techniques
           The five D's
       Pruning Young Trees
           Training for structure and form
       Pruning of Mature Trees
       Specialty Tree Pruning & Maintenance
           Kousa dogwood
           Crabapple
       Pruning Specifications