Louisiana Forest Products Development Center

# NEWSLETTER

Spring 2003

## We Have a New Name

Recently, the Louisiana Forest Products Laboratory, part of the School of Renewable Natural Resources in the LSU AgCenter, changed its name to the Louisiana Forest Products Development Center. The name change was made to better reflect the breadth of activities that are conducted by the Center, spanning the spectrum from laboratory-based experiments and product development to economic development. The Center attempts not only to develop new technology and products that will add value to forest products, but assure that they are adopted, put into the marketplace and ultimately made available to consumers. Improving quality of life for consumers and improving the state's economy are more fully reflected in the new name.

The LSU AgCenter established the Louisiana Forest Products Laboratory (LFPL) in 1992 to provide technical assistance and help in development of value-added processing. To address the needs of Louisiana, the scope was broadened in 1994 to include the whole value chain from the forest to the consumer. Overall, the goal is to aid the state's economy and well-being of its people through forest sector development.

Some examples of how we support development in Louisiana are:

- Analyze a new product to help dimensionally stabilize oriented strand board (OSB) to greatly reduce thickness swell.
- Help companies with information on kiln drying and kiln troubleshooting.
- Help industry leaders understand accidents and improve safety programs.

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## Extension Expands Reach of Louisiana Forest Products Development Center

Recently the Louisiana Forest Products Development Center (LFPDC) (previously the Louisiana Forest Products Laboratory) celebrated its 10th year of quality service to forest products industries statewide. The center's research scientists have conducted outstanding research that has added significant value to our forest industry. Adoption of these value-enhancing research findings is the primary goal of the LFPDC and the LSU AgCenter. Extension-led education and outreach are critical to achieving this goal.

*Drs. Richard Vlosky, interim director, Louisiana Forest Products Development Center, and Paul Coreil, AgCenter vice chancellor and director of Extension, discuss the Outreach Action Plan.*

In the next two years, the LSU AgCenter will develop and implement an extensive Outreach Action Plan using critical input from forest products businesses statewide. Community Economic Development faculty will team up with Natural Resources area agents to plan and conduct four regional forums targeting existing or potential forest product businesses. After stakeholder input is obtained, the Outreach Action Plan will be implemented statewide to assure that there is an excellent opportunity for application of valuable forest products research findings from the lab. The LSU AgCenter is committed to both discovery and delivery of value-enhancing forest products research findings. It is our hope that a well-implemented Outreach Action Plan will help increase both awareness and adoption of generated research, and that it will lead to enhanced economic activity. ■ **Dr. Paul Coreil**, Vice Chancellor and Director, Louisiana Cooperative Extension Service

## Chancellor Holds Industry Roundtable on Louisiana Forest Sector Development

In November 2002, LSU AgCenter Chancellor William B. Richardson hosted a roundtable discussion with Louisiana forest sector industry leaders as part of a broader AgCenter programmatic review process to examine productivity and tax dollar/resource allocation. Specifically, the objective was to reflect on accomplishments of the Louisiana Forest Products Laboratory (now the Louisiana Forest Products Development Center), identify gaps between what the Center provides and what Louisiana stakeholders desire, and to explore strategies for narrowing these gaps.

A major take-home message: Although the research we do is world-class, the Center needs to do a better job in outreach and disseminating our accomplishments to stakeholders. This

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# Lumber Quality and Lumber Yields at Small Lumber Processing Operations

Louisiana has a number of small lumber operations. In general, they provide low cost and low volume local lumber needs and process logs that are not in demand by the larger, commodity wood products industry. They fill a niche and provide income that not only enhances rural economic development, but use of resources.

These lumber-processing operations, usually one- or two-person ventures, are owned and operated by farmers and other individuals. The lumber produced is used for farm use and for "owner-built" homes or cottage industry furniture production. Often the monetary exchange is reduced to a barter economy or paid for step by step; that is timber harvest, rough sawing, drying and planer operations are all done by different owner-operators.

Although many of these businesses operate to fulfill the owner's need for lumber, some operators are more production oriented and are interested in marketing their product to secondary manufacturers. For the first group, prevailing lumber trade standards like log grades, lumber grades, production costs and lumber yields are not governing factors; however, for the second group these standards are important. Both types of ownerships use Louisiana's timber resources and contribute to the economy.

At Louisiana Tech University, the Louisiana Forest Products Development Center operates two small sawmills. One provides hands-on instruction for foresters, timber buyers and mill operators and demonstrates hardwood log and final lumber yields and dollar values. This operation, and our associated Hardwood Log, Lumber and Tree Grading Workshop, is its 48th year and attracts participants from throughout the eastern and southern states that have major hardwood resources. The other sawmill is a one-man horizontal band saw, similar to those used by most small lumber producers. We use this mill in the same manner as the rest of the state's small sawmill operators: to cut timber for our own use and research project needs. However, we also measure log volumes and lumber yields and quality to provide some technical data and a cost accounting.

*An increasing number of small, portable sawmills are operating in Louisiana. Here George Grozdits (center) from the LFPDC at Louisiana Tech assists W.E. Barron (right) and son Charles (left) with their mill.*

In recent years we have processed most of the northern Louisiana hardwood species with our small one-man band mill. Following sawing, the lumber is stacked for air drying. The final kiln drying and surfacing are done in local small kilns and planer mills to demonstrate the quality and value of our local hardwoods and enhance small business. We hope that, through this work, small wood lot owners and area shop owners will gain an interest in using local hardwoods.

For further information, contact Dr Mark Gibson (318-257-4985; mgibson@LaTech.edu) or Dr. George Grozdits (318-257-4898: grozdits@LaTech.edu) at the Louisiana Forest Products Development Center at Louisiana Tech University, Ruston, La. ■ **Mark Gibson and George Grozdits**, Louisiana Forest Products Development Center, Louisiana Tech University, School of Forestry

## Industry Roundtable

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effort can be facilitated by developing a closer relationship with the Louisiana Cooperative Extension Service (LCES). Dr. Paul Coreil, vice chancellor and director of the Louisiana Cooperative Extension Service, committed the LCES to work with the Center, pledging to take the lead in this effort.

Industry participants believe the Center needs to create awareness in the state as well as do a better job of communicating the capabilities and vast knowledge/information base that exists in the Center.

## New Name

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- Develop composite panels that use agricultural residues and lessen the demand for woody fiber.
- Conduct industry efficiency studies on logging production and wood procurement activities.
- Conduct economic development studies that help identify industry growth potential in rural Louisiana.

This year we celebrated the 10th anniversary of providing quality service to forest products industry stakeholders statewide. Our research scientists have conducted outstanding research that has significantly added value to the state's forest industry. Adoption of these value-enhancing research findings is the primary goal of the LFPDC and the LSU AgCenter. For more information about the Louisiana Forest Products Development Center, please visit our Web site: http://www.rnr.lsu.edu/lfpdc. ■ **Richard Vlosky**, Interim Director, Louisiana Forest Products Development Center, School of Renewable Natural Resources

# Wood-based Composites Research at the LFPDC

The availability, size and quality of trees used for manufacturing wood products have declined significantly. This change has resulted in a substantial increase in the use of wood composite materials such as oriented strand board (OSB), particleboard, fiberboard and veneer board products. The trends were recognized early by scientists at the Louisiana Forest Products Development Center (LFPDC), and a series of research projects has addressed the major issues of composite wood products. This research has resulted in:

1. Establishment of a wood-based composite laboratory
2. New understanding of stability and durability properties of OSB
3. Development of chemically modified OSB for structural uses
4. Use of under-utilized wood species and other fiber sources in composite products

## Research Facility Development

The effort for wood-based composite research has been recognized and supported by the Louisiana Board of Regents, the LFPDC and the School of Renewable Natural Resources at the LSU AgCenter. A project establishing a wood composite manufacturing facility at the LFPDC was funded in 1998. Initial funds from the Board of Regents were used to purchase and install several pieces of production equipment for manufacturing wood-based materials. Two more grants were received from the Board in 2000 and 2002 to purchase additional analytical equipment for composite research.

The equipment allows us to manufacture and test all major wood-based composites.

## Research on Structural Wood Composites

Stability and long-term durability have been primary concerns in the use of structural wood composites such as OSB. To address this issue, several projects, supported by USDA CSREES National Research Initiative Competitive Grants Programs (1998, 2000), Louisiana Board of Regents (1998) and National Science Foundation (2000) have been conducted. The projects have led to new understanding of the swelling and strength deterioration process of the composites. The mathematical models developed allow theoretical quantification of

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# LFPDC Celebrates 10th Anniversary

In 1992, the forest community was successful in convincing the legislature that the state needed a forest products lab to develop value-added industry. Louisiana was not meeting its potential, and a concerted effort was needed to boost forestry's economic contributions to the state. Forestry is Louisiana's #1 crop, but we could do better at increasing its value before it reaches the consumer.

The Louisiana Forest Products Development Center (formerly the Forest Products Laboratory) is housed at the School of Renewable Natural Resources on the LSU campus and is part of the LSU Agricultural Center. It has close ties with the School of Forestry at Louisiana Tech University, where collaboration and cooperation enhance the value of its research. There are five researchers at LSU and two at Louisiana Tech. Office administration is handled through LSU.

Five major project areas are addressed by the Center. Environmental Assessment and Improvement is directed by Dr. Niels deHoop. This unit has been successful in monitoring water quality around log storage yards. More noticeably, Dr. deHoop has assisted in Master Logger training courses and compiled reports on logging accidents. The results of these efforts have contributed to lower logging accidents and national recognition by OSHA.

Business and Industrial Development is led by Dr. Rich Vlosky. This unit is involved in many areas including assessing public attitude toward treated lumber and forest landowners' perspectives on certified forest products. He has compiled a directory of primary and secondary forest product manufacturers that is frequently referenced by buyers and sellers across the country.

Dr. Qinglin Wu heads the Industrial Process and Improvement unit. It has been engaged in processes for treating oriented strand board with borates to protect against Formosan termites. His unit has recently received a federal grant to study using plastic residues with wood in making building materials while reducing waste.

Dr. Todd Shupe is project leader for New Product Development. His activities cover treated wood recycling, wood plastic composites and natural wood preservatives. He conducts seminars and outreach activities to inform the forest community of the Center's research.

*Buck C.A. Vandersteen, Executive Director, Louisiana Forestry Association*

Dr. Ramsay Smith is also project leader for the Durability of Wood-Based Building Products unit. His work involves treated wood's resistance to Formosan termites, effects of water storage on quality of lumber and veneer, and international standards that affect wood exports.

At Louisiana Tech, Dr. Mark Gibson heads the project unit, along with Dr. George Grozdits, that deals with effects of intensive forest management on wood properties and quality.

Reponses from users of the Center have been complimentary and encouraging. One manufacturer said the Center saved him thousands of dollars by shortening the time from order to delivery through computerization.

Louisiana forest manufacturers can, and will, do better in adding value to our forest products. We have been traditionally behind most southern states in this category but the Louisiana Forest Products Development Center offers hope and opportunity for improvement. It needs your input and inquiries to gain the full value of this excellent facility. The professionals engaged in the effort are some of Louisiana's best.

The Center has had a good first 10 years. Let's take advantage of what it has to offer in furthering the value of forest products in Louisiana. It has been a good investment of our tax dollars. ■ **Buck Vandersteen**, Executive Director, Louisiana Forestry Association

# Formosan Subterranean Termite Product Testing

The spread of the Formosan subterranean termite (*Coptotermes formosanus* Shiraki) throughout southern Louisiana, as well as coastal and port areas throughout the United States, has been a cause for great concern. In addition, with the restrictive use of CCA-treated wood products beginning in January 2004, these termites have become the subject of extensive testing aimed at adding termite resistance (thus durability) to engineered wood products at the Louisiana Forest Products Development Center. This program has been developed in a number of areas which include termite collection, laboratory tests to screen potential new treatments and product combinations, and a field testing site to analyze long-term exposure effects on treatments. Through this combination of steps, a new treatment or product can be developed and fully tested for use in termite-infested areas. Data also can be used as a scientifically unbiased source to help gain approval in regulatory agencies and associations.

A standard laboratory termite resistance test (AWPA standard E1-97) calls for a minimum of five replications for each treatment, using 400 termites per replication. A common test can include comparison of 10 to 30+ treatments. For only 20 treatments plus a control, more than 40,000 termites will be required. Since collection of these insects can be difficult, a bait crate method was developed by the LSU AgCenter Department of Entomology. The method has been refined and is used extensively to collect Formosan subterranean termites. It is a consistent, convenient and reliable technique. The bait crate consists of a plastic milk crate that houses a wood lattice structure. Once an area of land has been identified as infested with these termites, the crates are buried in the area with the approval of the landowners or managers. After three to six weeks, the crates are retrieved and replaced by new crates. Collected termites are taken to a Formosan subterranean termite lab where they are collected from the crates.

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## Wood-based Composites Research

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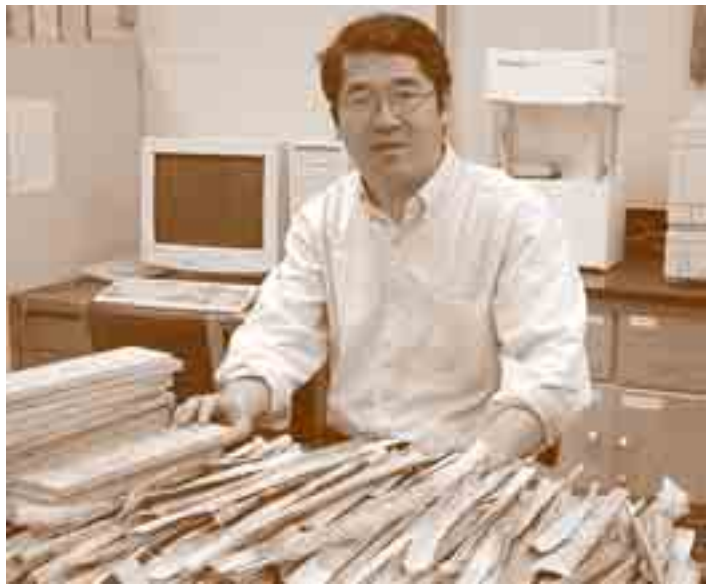
the effect of internal mat structure on its performance properties.

The degree of damage to homes and forests caused by Formosan termites has risen significantly because of the rapid increase of the termite colonies and the absolute population. The cost of Formosan termite treatments and repairs is estimated at $2 billion a year nationwide, with $100 million or more of that in New Orleans. The project on the development of borate-modified OSB supported by NSF's Partnership of Advanced Technology in Housing (PATH) has led the establishment of processing variables for manufacturing the modified OSB and its long structural performance properties. The information is valuable to OSB industry for manufacturing chemically modified OSB.

### Use of Under-used Wood Species and Other Fiber Sources for Composites

Trees around the world, including those in Louisiana, are grown and used more quickly for faster return on investment. The more rapid use increases the amount of wood fiber from that usually produced on an acre. The smaller stem wood, especially numerous kinds of hardwoods, must be cut and used for paper manufacture or glued-wood composites. The increasing use of small-diameter softwoods and hardwoods in structural wood composites has potentially positive implications for forest management. Much of the material consumed by OSB mills can be small in diameter and low in quality. In addition, tops and other "non-log" components of trees and harvesting residuals can be flaked to make OSB. Research projects supported by LFPDC have been conducted to establish basic properties of small stem tress for various wood species and to assess the flake quality and its effect on panel properties. This research will help forest owners in Louisiana recover greater value from their timber resources.

A cooperative project of the School of Human Ecology, School of Renewable Natural Resources and Department of Entomology at LSU AgCenter on developing high strength biocomposite has been funded by the Louisiana Governor's Biotechnology Initiative. In this five-year project, a new line of biofiber (wood, bagasse and other agricultural fibers) and polymer composites will be developed through a non-woven process.



*Dr. Qinglin Wu examines raw materials for production of experimental oriented strand board (OSB).*

### Education and Information Transfer

The wood composite program has trained two master's degree students, four Ph.D. students, one postdoctoral scientist and three visiting scientists in the past few years. The program has also produced more than 30 refereed publications and more than 50 technical reports and conference papers to detail the research findings. Scores of invited presentations have been made on these subjects at conferences and seminars. All publications were written in standard international metric as well as English units of measure to help address the increasing importance of the international market.

### A Billion Dollar Market

Woodlands cover more than 50 percent of Louisiana. Our timber and value-added wood products comprise a multi-billion dollar market. As trees are harvested in a faster rotation, the importance of wood composites and their attendant adhesive binders increase. The LFPDC is continuing its research in wood composites to sustain the state's forests and to provide continuing quality of life for its citizens. ■ **Qinglin Wu**, Associate Professor, Louisiana Forest Products Development Center, School of Renewable Natural Resources

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Field collection sites have produced more than 400,000 termites for use in testing.

Products and treatment formulations under investigation are then tested using most commonly a "no choice" procedure described in the AWPA standard. This laboratory test is used as a screening method for the most promising formulations. These formulations can then be tested in a field site for two to five or more years. The LFPDC termite laboratory testing program on campus has established its reputation by testing more than 100 wood-based treatments since 2001. This is in addition to those tested by the LSU AgCenter Department of Entomology.

The field test site at the LSU Agricultural Center Citrus Research Station, Port Sulfur, La., was developed though efforts by LSU AgCenter and Mississippi State University research scientists. This site can be used to conduct cooperative research on C. formosanus and other wood-related durability topics. Twelve sites have been established and tests are under way. A minimum of 32 termite colonies will be established on this site. Testing will include evaluation of the effects of testing methodologies and procedures using both within- and between-colony replications, in-ground tests to evaluate preservatives (stake tests) or termite baits, test structure resistance, above-ground preservative comparative tests and/or building component durability tests, and basic termite biology / behavior / movement studies. In addition, demonstration projects will be developed. In short, this site will be one-of-a-kind on the United States mainland. Fees generated by those using the site will be expended to assure continued viability of this facility.

LSU AgCenter research scientists working on bait collection techniques, campus testing laboratory and the LSU AgCenter Citrus Research Station termite testing facility include Dr. Ramsay Smith with the Louisiana Forest Products Development Center, School of Renewable Natural Resources; Dr. Gregg Henderson with the Department of Entomology; and Dr. Dennis Ring with the Louisiana Cooperative Extension Service. Dr. Terry Amburgey with the Forest Products Laboratory, Forest & Wildlife Research Center at Mississippi State University is cooperating with the group.

For information about how this program can help you, please contact W. Ramsay Smith, LFPDC (225) 578-4155 or by e-mail: wsmith@lsu.edu. ■

**W. Ramsay Smith**, Professor, Louisiana Forest Products Development Center, School of Renewable Natural Resources

*Bait Crate collection of Formosan subterranean termites.*

# Monitoring Air Drying with Affordable Sensors

If you have ever sawn logs into lumber with a sawmill and stacked it to air dry, you have probably asked yourself, "How long does wood have to dry before I can use it"? Well, depending on your intended use for the lumber, whether that be for corral fencing or fine furniture, the answer will be, "It depends." The drier you need it (the lower the moisture content of the wood needs to be), the longer the drying time. Though it is true that attaining lower moisture contents requires more drying time, the question remains, "How much longer?" Should I dry for one month, three months, six months or more?

Drying time will depend on temperature and relative humidity conditions around the lumber stack you are trying to dry. Air circulation around the lumber and whether it is covered to prevent rain from wetting the stack are also important factors. Fortunately, the availability of affordable sensors that measure both relative humidity and temperature can help determine the drying rate.

Placing inexpensive (less than $100) data loggers in air-drying lumber stacks to monitor in-stack and ambient environmental conditions (record temperature and humidity data) helps determine actual internal lumber stack conditions. The data can be retrieved from the data logger by removing the data logger from the stack, connecting the data logger to a computer and downloading the data to the computer. The data, along with actual board weights measured during drying, were used to develop a simple (MS-Excel-based) model that predicts lumber moisture contents during air drying. The accuracy of the model depends on how accurately the air's drying potentials are recorded and correlated with the actual, "real-time" lumber moisture contents during drying.

Accurate prediction of MCs of air-drying lumber can reduce currently practiced air-drying times from four to six months to one to two months. Shorter drying times will reduce lumber production time and possible air-drying degrades.

For further information on the prediction model developed and data logger suppliers, contact Dr. Mark Gibson (318-257-4985; mgibson@LaTech.edu) or Dr. George Grozdits (318-257-4898; grozdits@LaTech.edu) at the Louisiana Forest Products Development Center at Louisiana Tech University, School of Forestry, Ruston, La. ■

**Mark Gibson and George Grozdits**, Louisiana Forest Products Development Center, Louisiana Tech University, School of Forestry

## We've Been Busy!

**Ramsay Smith**

- Dr. Ramsay Smith received a "Diplome D'Honneur" from the Ecole Nationale Superieure des Technologies et Industries du Bois, Henri Poincare University of Nancy, France, for his work there during his sabbatical.
- Dr. Smith has been nominated for vice-president of the Forest Products Society.

**Qinglin Wu**

*Grants*

- High performance biocomposites.; LA BOR Governor's Bio-Initiative Program; Chen, Y. Qinglin Wu and G. Henderson; $554,600
- Enhancing analytical capability for wood and polymer chemistry research at the Louisiana Forest Products Laboratory; Louisiana Education Quality Support Fund - Equipment Enhancement; Qinglin Wu; $40,000

*News*

- Dr. Sunyoung Lee completed his Ph.D. degree in wood composites under Dr Qinglin Wu in December 2002 and now works as a research scientist at the Chungnam National University, Korea.
- Dr. Xinfang Duan, associate professor, Chinese Academy of Forestry, Beijing, China, joined Dr. Wu's research program in January 2003 as a visiting scientist. Dr. Duan is working on developing new chemicals for protecting wood composites.
- Dr. Xinwu Xu, research scientist, Nanjing Forestry University, Nanjing, China, is scheduled to return to China in early March. He joined Dr. Wu's research program in February 2002 as a visiting scientist and has worked on projects in the field of wood composites at the LFPDC.

*Recent Publications*

- Lu, J.Z., and Q. Wu. 2002. The influence of maleation on wood surface wettability and interfacial bonding strength in wood-PVC laminates. Wood and Fiber Science 34(3):434-459.
- Wu, Q., and J.N. Lee. 2002. Thickness swelling of oriented strandboard under long-term cyclic humidity exposure conditions. Wood and Fiber Science 34(1):125-139.
- Lee, J.N., and Q. Wu. 2002. In-plane dimensional stability of three-layer oriented strandboard. Wood and Fiber Science 34(1):77-95.
- Wu, Q., S. Lee, and J.N. Lee. 2002. Mechanical, physical, and biological properties of borate-modified oriented strandboard. Pages 137-144 in Proc. International Conference on Advances in Building Technology. Hong Kong, China. December 4-6, 2002. ISBN: 0-08-044100-9.
- Wu, Q., and J.N. Lee. 2002. Long-term creep response of borate-modified oriented strandboard. Pages 129-136 In Proc. International Conference on Advances in Building Technology. Hong Kong, China. December 4-6, 2002. ISBN: 0-08-044100-9.
- Wu, Q., and J.N. Lee. 2002. Predicting engineering constants of oriented strandboard: a continuum model. Page 372-380 In Proc. The 6th Pacific Rim Bio-composite Conference. Portland, OR. November 10-13, 2002.

**Todd Shupe**

*Grants*

- Hse, C.Y., L. Lin, T.F. Shupe and D. Arnold. 2002. Development of a closed-loop recycling system for spent CCA treated wood. USDA. Status: accepted. $56,000.
- Shupe, T.F. and R.P. Vlosky. 2002. Wood products industry issues – Gaining the competitive advantage. Capitol Resources Conservation and Development Council. Status: approved. $1,500.

## Industry, Researchers Work Together to Benefit Landowners

During the spring of 1997, a comprehensive, analytical examination of a Ponsse cut-to-length timber harvesting system was conducted in northern Louisiana. A cut-to-length harvesting system consists of only two machines: a harvester that reaches up to 30 feet for a tree, severs the tree, delimbs it and bucks the stem into logs; and a forwarder that picks up the logs, carries them to a truck and loads the truck. Martin Timber Company approached Drs. Niels de Hoop (LSU AgCenter), Clyde Vidrine (La. Tech) and Bob Lanford (Auburn), and a concerted, collaborated analysis began. The purpose was to determine the productivity and cost of the new system when thinning in a 12-year-old pine plantation. The trees averaged only 6 inches in diameter. Also, soil disturbance and residual stand damage were analyzed. Compared to a conventional shear/skidder logging operation, both the soil compaction and disturbance to the residual stand were less. The result was that Travis Taylor, a logging contractor from Goldonna, La., decided to purchase the system for $600,000. The machines worked out so well that Mr. Taylor purchased two additional systems within a year. Martin Timber and other Louisiana landowners are benefiting by having their timber cut at competitive rates while enjoying better environmental impacts. ■ **Sam Soulé**, District Forestry Manager, Martin Timber Co., Inc., Campti, La.

*Finnish equipment manufacturer Ponsse, Oy, supplied two operators to demonstrate the capabilities of their cut-to-length timber harvesting machines in Louisiana pine plantations. Here they perform preventive maintenance at the end of the day.*

Wood preservation research- $10,000- Industry Support

*News*

- Dr. Todd Shupe, associate professor, is chair-elect of the Mid-South Section Forest Products Society. The MidSouth Section includes Louisiana, Arkansas, Texas, Oklahoma, Tennessee, Mississippi and Mexico.
- Cheng Piao successfully defended his Ph.D. dissertation, "Wood Laminated Composite Poles," under the direction of Dr. Todd Shupe. Cheng will begin a postdoctoral program under Dr. Shupe's guidance in April 2003 and will be stationed at the USDA Forest Service laboratory in Pineville, La.
- Mr. Sang Yeob Lee joined the LFPDC as a research associate January 1. Mr. Lee received an M.S. degree in wood science from the University of Idaho. He will work on a 6-month practical training program on wood composites research under the direction of Dr. Todd Shupe.

*Publications*

- Dunn, M.A., T.F. Shupe, and R.P. Vlosky. 2003. Consumer attitudes and preferences for building materials with an emphasis on southern yellow pine lumber. Forest Products Journal. 52. (in press).
- Catallo, W.J. and T.F. Shupe. 2003. Hydrothermal treatment of creosote-impregnated wood. Wood and Fiber Science (in press).
- Li, W., T.F. Shupe, and C.Y. Hse. 2003. Leaching of flakeboard produced from recycled CCA-treated wood. Forest Products Journal. (in press).
- Pugel, A.D., E.W. Price, C.Y. Hse, and T.F. Shupe. 2003. Composites from southern pine juvenile wood part 3: Juvenile and mature wood furnish mixtures. Submitted to: Forest Products Journal (in press).

**Niels deHoop**

*News*

"Niels" de Hoop was appointed Coordinator of the Ergonomics in Forest Operations, Health & Safety research group, which is Section 3.07.03 of the International Union of Forestry Research Organizations (IUFRO). Through this group, Dr. de Hoop is sharing research results and ideas with researchers around the world about accidents and safety in the forest products industry. There are few researchers in this area, and they are scattered in places like Auburn, Virginia Tech, Oregon State, Japan, Sweden, the Netherlands, Poland and Brazil. As a part of this group, he attended a forest engineering conference in Japan in October 2002. He presented two papers at this conference on logging accidents and learned of some interesting research projects in Japan about various aspects of forest engineering, including worker safety, biomass energy, small wood use and cable logging.

*Recent Publications*

- de Hoop, C.F. 2003. Do You Know How to Exit your Equipment? The Louisiana Logger 8(1):14+. Louisiana Logging Council, Alexandria, La.
- deHoop, C.F., A.F. Egan, W.D. Greene and J.H. Mayo. 2002. Profiles of Loggers and Logging Companies in Maine and the Southern States. Proceedings, Annual Meeting, Council on Forest Engineering, Corvallis, Ore.
- Chumbler, J.C., J.H. Mayo, W.D. Greene, M.L. Clutter, C.F. deHoop, and A.F. Egan. 2002. Benchmarking the productivity of logging crews using stochastic frontier analysis. Proceedings, Annual Meeting, Council on Forest Engineering, Corvallis, Ore.
- Mayo, J.H, W.D. Greene, M.L. Clutter, N. deHoop and A.F. Egan. 2002. Causes and Costs of Unused Logging Production Capacity. Proceedings, Annual Meeting, Council on Forest Engineering, Corvallis, Ore.
- Ulmer, J.R., J.H. Mayo, W.D. Greene, M.L. Clutter, C.F. deHoop, and A.F. Egan. 2002. A "Misery Index" to assess the impact of variations in mill demand on logging crew production and cost. Proceedings, Annual Meeting, Council on Forest Engineering, Corvallis, Ore.

**Richard Vlosky**

*Grants*

- "Home Builder, New-Home Home Owner and Realtor Perceptions and Attitudes about Mold"; Industry Support, $10,000; With Todd Shupe
- "Phytosanitary Requirements for Pallet Exporters"; Limestone Bluffs RC&D, Inc., $5,000; With Ramsay Smith
- "U.S. Home Builder Perceptions About Treated Wood"; Industry Support, $10,000; With Todd Shupe
- "Forest and Wood Products Certification: Perceptions of U.S. Value-Added Manufacturers and Influencers"; Purdue University, $3,000

*News*

- Recently lectured at the Swedish Agricultural University in Uppsala. Dr. Vlosky presented seminars to graduate students in the forest products program headed by Dr. Anders Roos as well as to industry representatives.
- Recently represented the United States as a delegate to the United Nations/ Economic Commission for Europe, Team of Forest Sector Marketing Specialists. The meeting was held at the United Nations in Geneva, Switzerland.
- Named as the Division 5 (Forest Products) representative of the International Union of Forest Research Organizations (IUFRO) to participate in the All-Division Information Technology Forest Sector Task Force.
- Has been named to serve on the Governing Board of the International Cultural Center at LSU. Dr. Vlosky is also faculty advisor to the International Student Association.
- Awarded the 2002 Gamma Sigma Delta, Louisiana State University Chapter Research Award of Merit.

*Recent Publications*

- Vlosky, Richard P. and Todd Shupe. 2002. "Homeowner Attitudes and Preferences for Building Materials with an Emphasis on Treated Wood Products." Forest Products Journal. 52(7/8):90-95.
- Vlosky, Richard, Thomas Westbrook and Kofi Poku. 2002. "Internet Adoption by Primary Wood Products Manufacturers in the Western United States." Forest Products Journal. 52(6):35-42.
- Vlosky, Richard P. and Thomas Westbrook. 2002. "eBusiness Exchange Between Home Center Retailers and Forest Product Suppliers." Forest Products Journal. 52(1):38-43.
- Vlosky, Richard P. and Yeo-Chang Youn. 2002. "A Cross-National Study of Internet Adoption in the Forest Products Industry in the United States and South Korea." Korean Journal of Forest Science. 91(2):182-192.
- Vlosky, Richard P. and James Granskog. 2002. "Certification: A Comparison of Perceptions of Industrial and Non-Industrial Private Forestland Owners in Louisiana." In: Forest Policy for Private Forestry: Global and Regional Challenges. Edited by L. Teeter, B. Cashore and D. Zhang. CABI Publishing. United Kingdom.
- Poku, Kofi and Richard P. Vlosky. 2002. "A Model of the Impact of Corporate Culture on Information Technology Adoption." Working Paper #57. Louisiana Forest Products Laboratory. LSU Agricultural Center. Baton Rouge, La. November 22.
- DeHoop, Niels, Michael Dunn, Todd Shupe, Ramsay Smith, Richard Vlosky and Qinglin Wu. 2002. "Value-Added Forest Products in Louisiana: Current Status and Opportunities for Growth." Louisiana Agriculture. 45(4):24-25
- Vlosky, R. and T. Shupe. 2002. "Home owner perceptions about treated wood." Forests & People 52(3):17, 23. ■

# JoAnn Doucet Retires

JoAnn Doucet, research associate with the Louisiana Forest Products Development Center retired January 1. During the past 27 years of dedicated service, JoAnn Doucet made a significant contribution to the School of Renewable Natural Resources second to none. The faculty members with whom she worked could not achieve such high levels of accomplishment without her assistance. Here are some of the highlights of her accomplishments.

Early in her career JoAnn worked in the field and in laboratories for Dr. Elvin Choong. She harvested and hauled trees from the forest; cut samples in the lab; and did physical, chemical and mechanical properties testing. JoAnn supported many faculty members in a diversity of research projects.

More recently, JoAnn was a collaborator and advisor in the research activities of Dr. Richard Vlosky. She helped to administer dozens of major marketing research projects requiring the labeling and mailing of an estimated half million pieces of mail. She also contributed to planning and organizing research, outreach and other activities.

JoAnn also co-authored refereed journal articles, trade journal articles and sponsor reports as well as being a major contributor and co-author of the Louisiana Forest Products Directory of Forest Products Manufacturers.

Finally, JoAnn was the cheerleader, motivator, confidant and "shoulder-to-cry-on" for decades in the School for faculty, students and classified staff, and even administrators. She is greatly missed. ■

Louisiana Forest Products Development Center

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