

Louisiana Forest Products Development Center

Advisory Board Meeting April 16, 2008

School of Renewable Natural Resources, LSU AgCenter
School of Forestry, Louisiana Tech University

Through an act of the Louisiana State Legislature, the LSU AgCenter established the Louisiana Forest Products Laboratory in 1992 (renamed the Louisiana Forest Products Development Center in 2003) to:

1. Provide technical assistance & information
2. Promote primary & value-added wood processing industries
3. Aid the state's economy and well-being of its people through forest sector development

LFPDC Faculty Members

 Todd Shupe	 Niels de Hoop	 Mark Gibson
 Charles Clément		
 Qinglin Wu	 Richard Vlosky	 George Grozdits

LFPDC Administrative Coordinator

Linda Jeansonne

Who Are Our Clients?

- Primary & secondary wood products manufacturers
- Large & small companies
- Rural & urban companies
- Hobbyists & professionals
- Homeowners & consumers
- Policymakers & decision makers

Key Areas-Research & Extension

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    graph TD
      ME[Manufacturing Efficiency] --> TW[Treated Wood]
      ME --> WQ[Wood Quality]
      TW --> VAP[Value-Added Products]
      TW --> BE[Business & Economic Development]
      WQ --> BE
      WQ --> C[Composites]
      VAP --> N[Nanotechnology]
      BE --> C
      BE --> B[Biomass/Biofuels]
      N --> S[Safety]
      C --> WDU[Wood Durability]
      B --> WDU
      S --> WDU
  
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The Year in Review-2007

- 70 popular articles
- 29 peer-reviewed articles
- \$1,445,207 in outside grants and contracts
- 20 presentations in Louisiana
- 29 presentations in other states
- 30 presentations in other countries

Breaking News!

Wood Utilization Research Center Grant Louisiana Wood Durability Center

Source of Support: CSREES

Award Amount: \$67,707 for Year 1

Allen Rutherford (PI), co-PIs: Shupe, Wu, de Hoop

LFPDC Wood Durability Laboratory is International Accreditation Service (IAS) Certified!

The LFPDC at the LSU AgCenter



Richard Vlosky

Grants & Contracts-2007



- Spatial Mapping and Analysis of Louisiana Primary Forest Products Manufacturers.* Louisiana Department of Agriculture & Forestry. \$12,000. With Dr. Shupe
- Spatial Mapping and Analysis of Louisiana Secondary Forest Products Manufacturers.* \$6,000. Louisiana Economic Development. With Dr. Shupe.
- Market Demand for Treated Structural Panels in New Home Construction in the U.S. South.* \$14,000. Industry Support. With Dr. Wu.

Research Areas

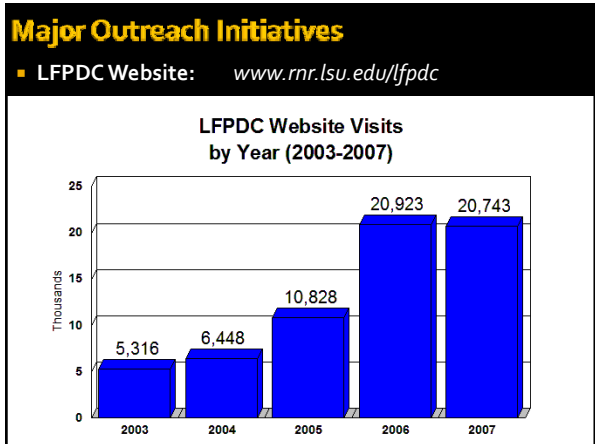


- Louisiana Forest Sector Supply Chain Mapping
- Non-Industrial Private Landowners & Certification
- Cypress Mulch-Home Centers & Landscapers/Nurseries- (with Dr. Clement & Dr. Dunn)
- Statistical Overview of the US Wood Preserving Industry: 2007
- Certification and the Furniture Industry (with Purdue University)

Major Outreach Initiatives



- AgMagic –World of Wonder (9,000+ visitors)
- LFPDC Newsletter (2,200 recipients 2x/year)
- Collateral Materials (fact-sheets, brochures, etc.)
- LFPDC Website
- Louisiana Forest Products Community Website
- Louisiana Forest Industries Website
- United Nations – ECE/FAO Current Marketing Issues Website



Major Outreach Initiatives

Louisiana Forest Products Community Website

www.laforestproducts.org

26,000 visits in 2007
3,000 downloads/week

Visits:

- 93%-North America
- 3%- Europe
- 3%-Asia
- 1%-Oceania



Louisiana Forest Industries Website

www.lsuagcenter.com/forest_industries



Welcome to Louisiana's Forest Products Industries Web Site

Thank you for your interest in Louisiana's forest products industry. This website was developed by the Louisiana Forest Products Development Center, Louisiana State University Agricultural Center with funding from the Louisiana Department of Agriculture and Forestry and the Louisiana Department of Economic Development.

The website will help you identify and locate forest products companies in Louisiana. The companies have been categorized by product sector.

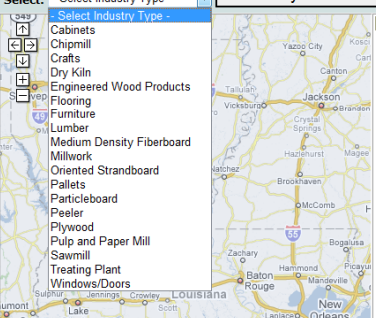
Louisiana's Forest Products Industries

Plant Map
To search for Louisiana Forest Products Industries, choose a search criteria below, and enter your criteria. Results will display on the map and to the right. Click a result in the right column to zoom in on that location

By Industry Type | By Plant Name | By Zip Code | By Parish

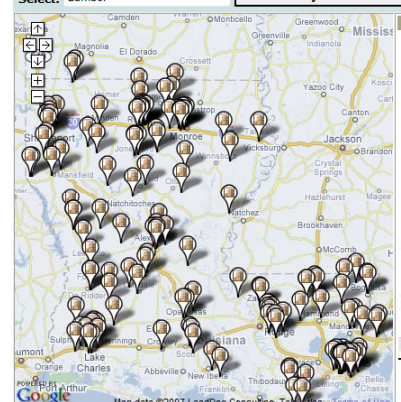
Select: - Select Industry Type -

- Cabinets
- Chipmill
- Crafts
- Dry Kiln
- Engineered Wood Products
- Flooring
- Furniture
- Lumber
- Medium Density Fiberboard
- Millwork
- Oriented Strandboard
- Pallets
- Particleboard
- Peeler
- Plywood
- Pulp and Paper Mill
- Sawmill
- Treating Plant
- Windows/Doors



Industry Search

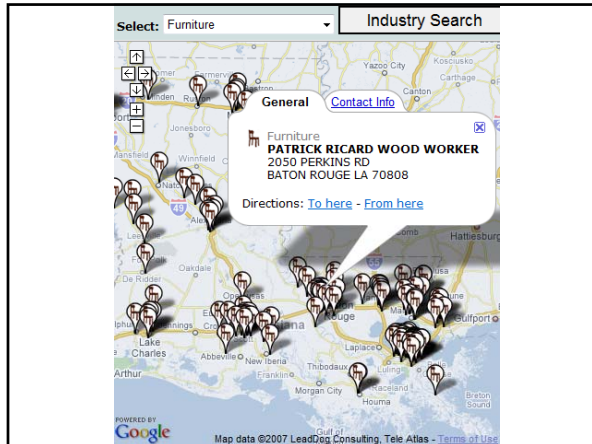
Select: Lumber



144 results

- GRAY AND CO METAISIE LA 70003
- HACK BUSHING LUMBER MILL 230 DAWSON ST. RT. 2 BOX 230 HOMER LA 71140
- GRILLOT TIMBER 125 ANCELA DR SPRINGHILL LA 71073
- GREEN LUMBER CO. SPRINGHILL LA 71073
- T J MILLER INC 1042 HIGHWAY 143 MARION LA

zoom reset print results



Major Outreach Initiatives

- United Nations: Economic Commission for Europe/Food and Agriculture Organization (UNECE/FAO)

Forest Products Marketing Team "Current Issues Website"

- www.rnr.lsu.edu/lfpdc/unece/; 5,300 visits since launch in 2004

HOME | BIOFUELS | SUPPLY CHAINS | GLOBAL MARKET ENHANCEMENT | RESPONSIBLE TRADE | CERTIFICATION & ENVIRONMENT | ABOUT US

Welcome to the
Current Issues Forum
from the
UNECE / FAO
FOREST PRODUCTS MARKETS AND MARKETING
:: TEAM OF SPECIALISTS ::

Major Outreach Initiatives

- United Nations: Economic Commission for Europe/Food and Agriculture Organization (UNECE/FAO)

Forest Products Marketing Team "Current Issues Website"



2008-2009 Goals



- Certification research
- Re-visit Louisiana forest sector training needs
- Host a visiting Fulbright Scholar from India
- Expand collaboration with Dr. Clément in value-added marketing/business development
- Co-edit a book on current issues in forest products marketing
- Expand web-based information /content delivery



OSHA Strategic Partnership

- La. Logging Council - LFA
- Logging companies
- OSHA
- La. Dept. of Labor, Workplace Safety
- LSU AgCenter
- Accident Data since 2000

Biomass Energy Booklet

Louisiana Biomass Resources Database



- Document Biomass Supplies in Louisiana
- Sponsor: La. Dept. of Natural Resources
- \$93,290 for 1 Year
- Co-Principal Investigators:
 - Cornelis de Hoop
 - Gary Breitenbeck (Agronomy)
 - S. Joseph Chang (School of RNR)
 - Rodney Hendrick (LCES-Calligari Center)
 - Fred Piazza (AgCenter-Info. Technology)
 - Chandra Theegala (Bio & Ag Engineering)





Todd Shupe

Research Areas

- Closed Loop Recycling of Treated Wood
- Metal-Free Wood Preservatives
- Leach-Resistant Borate Preservatives
- Biotransformation of Organic Wood Preservatives
- Wood Durability Testing (with Dr. Wu)



Grants & Contracts-2007



- *Formosan Subterranean Termite Wood Durability Research.* LSU AgCenter Special Grant. \$21,350. With Dr. Wu
- *Wood Quality Assessment Using Near Infrared Scanning.* USDA Forest Service. \$89,700.
- *Educating Wildland-Urban Interface Property Owners in the Florida Parishes about Wildfire Fuels Management.* Louisiana Department of Agriculture and Forestry. \$126,000. With Dr. de Hoop.
- *Louisiana Natural Resources Symposium.* \$26,100. USDA FS, USDA FWS, private industry.

Grants & Contracts-2007

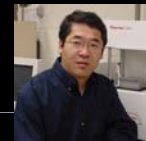


- *Enhancement of advanced materials processing facilities at the Louisiana Forest Products Development Center.* Louisiana Board of Regents. \$14,000. With Dr. Lee.
- Miscellaneous projects-\$44,684

2008-2009 Goals



- Scale up treated wood recycling efforts
- Assist Calhoun faculty
- Efficacy of recycled CCA
- Field testing of composite poles
- Expand IAS certified lab testing – LUMCON, Coastal Research Station, etc.



Qinglin Wu

On-Going Research Areas




- **Wood/Natural Fiber Plastic Composites**
 - US market \$3.1 Billion by 2008
 - Developing industry in Louisiana
- **Nano Copper Compound as New Wood Preservatives**
 - Multi-billion dollar market for treated wood
 - Need for new preservative systems
- **Wood-based composites**
 - Composite durability
 - Processing improvement

Research Funding



- **Thermoplastics Composites Reinforced with Natural Fibers and Inorganic Nano-Particles**
 - LA BOR ITRS (\$150,000 with industry match)
 - LA BOR Enhancement (\$170,000)
 - DOE/USDA Biomass (\$791,568)
- **Nano Copper Carbon Compound as New Generation Wood Preservatives: Industrial Application Development**
 - LA BOR-ITRS (\$110,000 with industry match)
- **Industry funding**


2008-2009 Goals 

- Development of Pilot-Scale Extrusion Line for Manufacturing Wood/Natural Fiber Plastic Composites at LSU AGC
 - Equipment being installed/Fully functional by end of May
 - Process optimization
- Development of Facilities for Manufacturing Nano Cellulose Crystals and for Using in Composite and Other Materials
 - High-pressure (up to 30,000 PSI) milling/dispersing equipment on order/Fully functional by September
 - Process optimization







Charles Clément

Objectives 


- Add value to Louisiana forest products
 - Assist existing companies:
 - Improve processing
 - Improve quality of workplace
 - Education
 - Raise awareness of forestry/forest products as an industry
 - Outreach through PLT/4H/Vo-Tech schools/community colleges.

Activities-2007 

- Presentations/Newsletters/Articles introduced new extension services for value-added wood products.
- Industry assistance: lumber drying; cypress mulch marketing; furniture marketing; developing new business in equipment manufacture.

2008-2009 Goals 

- Organize value-added wood products focus groups to develop wood products community integrating landowners, portable sawmills, lumber drying facility, and secondary manufacturers (vertical integration).
- Develop quality of workplace documents/ workshops/conference to help reduce employee turnover.

2008-2009 Goals 

- Educational Outreach:
 - Participation in PLT Teacher's Tour.
 - Participation in 4H Summer Camp programs.
 - Present Extension programming materials at Forest Products Society International Conference.

The LFPDC at Louisiana Tech



Major Research Thrusts 2007-2008



- Manufacturing Improved and New Products through Nanotechnology (70%)
- Wood and Fiber Quality (15%)
- Adhesion and Surface Treatment (10%)
- Implementation of Simple a Technology to Successfully Monitor the Progress of Air-drying Lumber (5%)

Grants/Contracts 2007-08



- Louisiana Forest Products Development Center Contract. Funded annually by LSU AgCenter, \$55,000.
- Nanotechnology for paper Industry: Layer-by-Layer Nanocoating for Pulp and Paper. PI Y.M. Lvov. Cooperator G. Grozdits, Forestry and Engineering Paper Processing Laboratory. Year 2005, 2006 & 2007. Board of Regents Support Fund \$178,480 plus Institutional Matching and Private In-Kind Support.
- Nanoassembly on Pulp Fibers for Stronger Paper with Better Recycling, Phase I SBIR Grant with Nano Pulp and Paper, LLC, \$80,000, Year 2007, 2008.

2007-2008 Proposals



To Nine Sigma: Polyelectrolyte Multilayers Shells of Variable Surface Charge, requester \$98,160, *In cooperation* with Institute for Micromanufacturing and Nano Pulp and Paper, LLC.

To DOE-SBIR: Layer by Layer Nano Coating of Cellulosic Fibers for Better Paper Production. *Submitted by* Steve Saucier Associates in Cooperation with Louisiana Tech University and Madison Forest Products Laboratory, \$250,000.

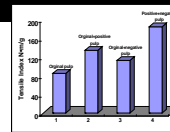
2007-2008 Proposals



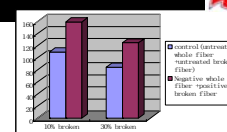
To Nine Sigma: Nano-Coating of Cellulose Fibers to Reduce Loss-of-Strength in High Humidity Environments, requested \$100,000, *In Cooperation* with Institute of Micromanufacturing and Nano Pulp and Paper, LLC

To Nine Sigma: Manufacturing High Stiffness Paper and Board through Layer by Layer Nano-coating of Fibers, \$99,092, *In cooperation* with Madison FPL, Institute of Micromanufacturing.

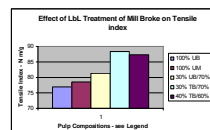
Progress in Layer-By-Layer Nanocoating of Cellulosic Fibers From Clean Lab Conditions to Washless Mill-Trials



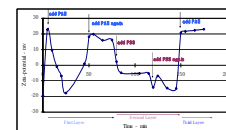
In Clean Lab Conditions 100 % increase in Paper tensile index.



50 % increase in tensile index allows increased fiber recycling



Nanocoating of unwashed pulps in mill process waters "dirty water" increased tensile index by 15 %



Zeta-potential changes with polyelectrolyte additions. Five steps of PAHPSS deposition shown surface potential changes on the outermost fiber surface.

The Louisiana Tech Nano Pulp and Paper Initiative

Louisiana Tech/LFPDC Outreach



- ✓ Participated in the Oklahoma Red Cedar Associations Annual Meeting –from pencil to thin-veneer
- ✓ Developed unique-simple pulp fiber (length and characterization) software.
- ✓ Continue implementation of unique simple lumber-air-drying monitoring system.
- ✓ Forestry on the Grow Conference & Exposition : Exploring Opportunities & New Technologies for Natural Resources Management and the Wood Products Industry – 2002, 2003, 2004 & 2005 and 2008 in Wagoner, OK



Goals for 2008-2009



Research (~70%)

- > Wood Growth Analyses
- > Cooperate with Institute for Micromanufacturing
- > Adapt the 21st century technologies (*sustainable-green, bioscience, and nanotechnologies*) into current woody raw material processing.

Extension/Outreach (~20%)

- > ArkLaTex new recycled paper industry

Business/Economic Development (~10%)

- > Small hardwood mills

-The Louisiana Tech Nano Pulp and Paper Initiative- Advertisement from Louisiana Economic Development

02.08 THE STATE OF LOUISIANA: Naturally Resourceful. JELD-WEN, the world's largest manufacturer of windows and doors, is building a plant in Winfield that is expected to generate \$86.6 million in private investment. Louisiana offers "Fast Track" environmental permitting to quickly get you up and running. The Weyerhaeuser Company recently converted its entire plywood operation in Dodson to veneer manufacturing to help meet growing residential product needs. With over 14 million acres of timber, forestry is Louisiana's largest agricultural enterprise, contributing nearly \$4.6 billion to the state's economy in 2006. Louisiana Tech University is applying a new nanotechnology method of layer-by-layer nanoassembly for coating pulp and paper, a technique indicative of the state's cutting-edge development. Louisiana maintains a multimodal logistics and transportation infrastructure. The Roy O. Martin Company recently opened North America's largest Oriented Strand Board facility and also took advantage of the state's \$8 million bond allocation to finance air pollution control Equipment. Approximately \$10 billion in cash incentives are available through Gulf Opportunity Zone and Renewal Community programs. To learn more or to find out about valuable Gulf Opportunity Zone Incentives, call Kelsey Short at 225.342.5892 or visit us at LouisianaForward.com/Wood © 2008 Louisiana Economic Development

Where Are We Going?



1. Expansion of outreach / Extension programs.
2. Examine funding opportunities for research that meets Louisiana stakeholder needs.
3. Increase laboratory testing and new product development capabilities.

Discussion and Next Steps

