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Workshop held to prevent spread of Emerald Ash Borer

Representatives from both regulatory field staff and firewood producers from eight states convened to learn new developments on implementing heat treatment processes and to address how to safely treat firewood used for interstate commerce. The workshop concluded with an on-site heat treatment demonstration located at Green Thumb Farm in Prairie du Sac, WI. Funding for the project is provided by the U.S. Forest Service Wood Education and Resource Center.

MADISON, Wis.— Several state firewood producers and agencies met last week at Madison's Forest Products Laboratory (FPL) to learn more about what insects currently fall under state and Federal quarantine regulations, how to become a certified producer, treatment techniques, including heat treatment (HT) of firewood to eliminate pests, and the latest research developments.

JoAnn Cruse, State Plant Health Director from USDA APHIS (Animal and Plant Health Inspection Service), began the presentation and said that in addition to the emerald ash borer (EAB) found in eight states (MI, IN, OH, MA, PA, IL, WV, and WI) with WI currently the most infested, several beetles, wasps, and the gypsy moth can also travel with firewood, increasing the need for pest quarantines and wood industry regulation.

Cruse says that after May 1, if a firewood consumer does not burn the wood where it is purchased, transit of logs, timber, and firewood will be permitted only if the transportation meets regulation requirements in each restricted area. Moving firewood outside the 50-mile radius increases the likelihood of EAB infestation, as many pests hatch during the adult flight season of April through September.

To slow the movement of EAB, Robert Dahl, Section Chief at the Wisconsin Department of Agriculture, says that to heat-treat firewood at 160°F at the core for 75 minutes still might be the best way to combat pests. Other methods include debarking the wood plus one-half inch, seasoning for two or more years (a regulation only in Wisconsin), or fumigation. "To be a 'firewood dealer' means a person who regularly sells or distributes firewood in the state," Dahl says. The annual certification fee in Wisconsin is \$50.

Scott Myers, an entomologist with APHIS, says the ideal heat treatment measures include both time and temperature. While it may be easier and cheaper to simply heat-treat longer rather than increasing temperature, his research has proven that 160°F is the temperature required to kill EAB in particular. Using a process called thermal mapping to track the temperature, Myers inserts probes about four inches deep in the center along the length of a piece of firewood. "These temperature data loggers produce thermal mapping read-outs, which can help us determine if a

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kiln is operating at its proper eradicating ideal,” Myers says. Cold spots in the kiln due to faulty fans, restricted air flow, or faulty sensors could cause failed certifications.

Heat treatment was first used on pallet lumber for overseas transportation and to prevent the spread of foreign invasives, says Rick Bergman, FPL Research Scientist. Treatment of firewood has the same objectives: using heat to kill any living organism as a quarantine treatment for insects.

Xiping Wang, Senior Research Associate from the FPL and the Natural Resources Research Institute (NRRI) at the University of Minnesota-Duluth, concluded the workshop with his presentation about HT options, temperature monitoring, and how thermal verification works. While the EAB heat treatment standard remains at 160°F, some kilns using hot water might not meet all requirements for successful eradication of the pest. Factors affecting HT include type of energy used, heating temperature and relative humidity factor, and air circulation. Since kiln drying might not raise the internal temperature of wood adequately to kill pests, Wang’s lab experiments have included a mixture of HT methods that include moisture reduction as well. Dry heat compared to wet heat and green compared to seasoned firewood have affected the research that Wang and Bergman have already completed. Temperature monitors using thermocouples, data loggers that download into a computer, and paperless temperature humidity recorders can be effective ways of ensuring heat treatment is accomplished and properly recorded.

Terry Mace from the Division of Forestry, Wisconsin Department of Natural Resources, moderated. The workshop concluded with a drive to Green Thumb Farm 30 minutes north of Madison to see HT in action. (note: photos available)

“The interaction between firewood companies and dealers was excellent,” Mace said. “The finer points of both the rules and the frustrations were getting answered by APHIS. All the major firewood players were present, and the mechanics of heat treatment, as it was demonstrated, really drove home that research needs to come up with lower temperature standards combined with a longer time to help make the EAB heat treatment process more cost efficient.”

A field demonstration will be held at Tomah, WI, sometime in the spring. A similar web-based workshop is being planned for later this year, and Wang also said new industry cooperators from Illinois and Indiana are being lined up for some of out-of-state demonstrations. “While using the kiln as the standard for drying firewood is not new, making kiln-drying an effective process for meeting the heat treatment requirement to combat pests is,” Wang said.

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The U.S. Forest Service Forest Products Laboratory was established in 1910 in Madison, Wis., with the mission to conserve and extend the country’s wood resources. Today, FPL’s research scientists work with academic and industrial researchers and other government agencies in exploring ways to promote healthy forests and clean water and improve papermaking and recycling processes. Through FPL’s Advanced Housing Research Center, researchers also work to improve homebuilding technologies and materials. Information is available at FPL’s Web site: www.fpl.fs.fed.us.

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