

Research Progress and Impact

Advancing Technologies  
to Better Utilize Eastern Hardwoods

Summary of Research Accomplishments

- Developed a formaldehyde-free binding system for wood composites.
- Developed environmentally safe treatments to sanitize logs infested by the emerald ash borer.

Geoff Koch/MSU



MAES scientists have developed a non-toxic way to manufacture wood composites from low-value trees. These composites contain no formaldehyde-based adhesives but perform exceptionally well in mechanical tests.

Doug Landis/MSU



MAES researchers have found that microwaving and steam conditioning EAB-infested ash logs kills EAB adults and larvae. Once the insects are dead, the logs can be safely transported to sawmills to be made into value-added products such as flooring and molding.

Research for your future.

For questions about this or other MAES publications, contact Val Osowski (osowskiv@msu.edu; 517-355-0123).

109 Agriculture Hall  
Michigan State University  
East Lansing, MI 48824-1039

All USDA project reports are peer-reviewed.

## Advancing Technologies to Better Utilize Eastern Hardwoods

Michigan Agricultural Experiment Station (MAES) researchers help staff the MSU Center for Eastern Hardwood Utilization. It's one of eight national centers of wood utilization research established by Congress to generate new knowledge and technologies needed to maintain a vigorous, competitive domestic forest products industry.

### SUMMARY OF RESEARCH ACCOMPLISHMENTS

**Developed a formaldehyde-free binding system for wood composites.** As more stringent regulations aimed at eliminating formaldehyde emissions into the environment are enacted, replacements for formaldehyde-based adhesives used by the forest products industry must be developed to keep the industry competitive. MAES scientists have developed a new, non-toxic method to manufacture wood composites from low-value wood species. These composites contain no formaldehyde-based adhesives but perform exceptionally well in mechanical tests, sometimes exceeding the current requirements for medium-density particleboard made with formaldehyde-based adhesives.

Kurt Stepnitz/MSU



Ash wood can be treated with environmentally friendly preservatives developed by MAES scientists and used in outdoor products such as troughs, fence posts and signposts, highway guardrails and picnic tables. Developing higher value uses for the hundreds of millions of infested ash trees will boost the economies and create jobs in communities where EAB is prevalent.

**Developed environmentally safe treatments to sanitize logs infested by the emerald ash borer (EAB).** EAB-damaged trees now are cut down, reduced to wood chips and then burned to generate energy. MAES researchers have found that microwaving and steam conditioning EAB-infested ash logs kills EAB adults and larvae. Once the insects are dead, the logs can be safely transported to sawmills to be made into value-added products such as flooring, molding and architectural products. The ash wood also can be treated with environmentally friendly preservatives developed by MAES scientists and used in outdoor products such as bridges,

fence posts and signposts, highway guardrails, picnic tables and other products used where exposure to weather and damaging insects causes decay. Developing higher value uses for the hundreds of millions of infested ash trees will boost the economies and create jobs in communities where EAB is prevalent.

*Research for your future.*

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