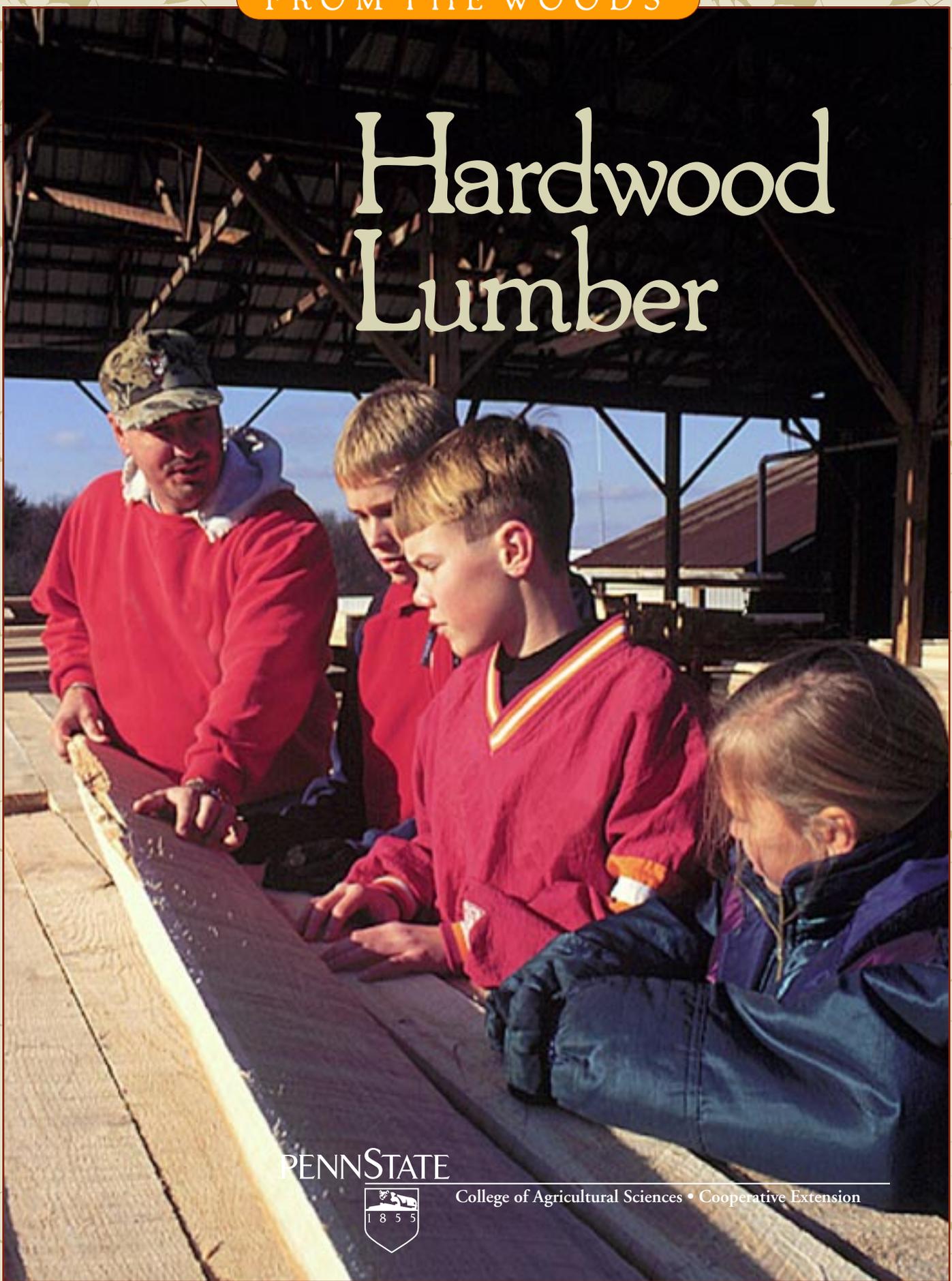


FROM THE WOODS

Hardwood Lumber



PENNSYLVANIA STATE UNIVERSITY
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College of Agricultural Sciences • Cooperative Extension

AN EDUCATIONAL SERIES ABOUT FORESTRY FOR YOUTH

Pennsylvania is known for its beautiful and productive forests. More than 108 different kinds of trees (each one called a “species”) grow naturally here.

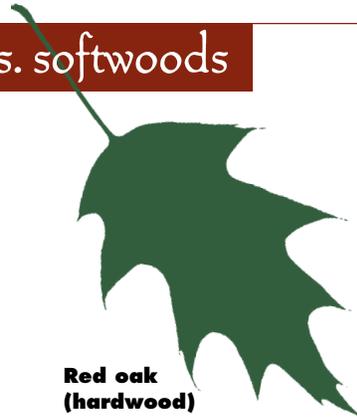
Forests provide many benefits and materials that we need. Forests are places to camp, hike, fish, and watch wildlife. Forests also provide us with the wood we use to make many different products.

Forests that are well cared for can continuously provide the many benefits and materials

Hardwoods vs. softwoods

Hardwood trees have leaves that are broad, flat, and green in the summer (left). Softwood trees have leaves that are narrow, called needles, and most species stay green all year round (right).

Red oak (hardwood)



Hemlock (softwood)



we need. This is why forests are “renewable.”

For some of our needs, we remove trees from the forest. These trees go through many processes to produce paper,

chemicals, building products, and lumber. Lumber is simply logs (sections of tree trunks) cut into pieces, called boards.

HARDWOODS AND SOFTWOODS

The tree species of Pennsylvania can be placed into two categories.

Hardwood trees are easy to recognize because in the summer their leaves are broad, flat, and green, and in the fall the leaves change color and drop off. Over 85 percent of Pennsylvania’s trees are hardwoods, and many are valuable for making hardwood lumber.

Softwood trees have leaves that are narrow, called needles, and most species stay green all year round. Pennsylvania’s state tree, the eastern hemlock, is a softwood.

FROM THE FOREST

Trucks transport the logs harvested from the forest to the log yard at a sawmill. In the log yard, people and machines sort and stack logs by species, length, and quality.

Log preparation. Before it is sawn, a log is usually run through a debarker, which removes the bark. Debarking prevents wear and damage to the saw blade from soil or stones that might be stuck in or on the bark.

The sawmill also may use a metal detector to find old

By-products

Nothing is wasted in the lumber industry. Bark becomes landscaping mulch, and sawdust is used as animal bedding or for particleboard production.



Sawdust

Bark



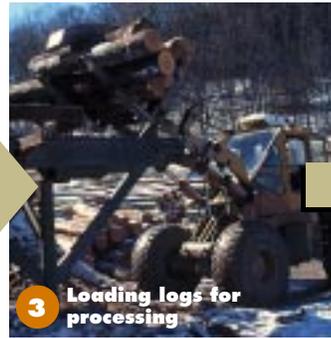
From forest to lumber ...



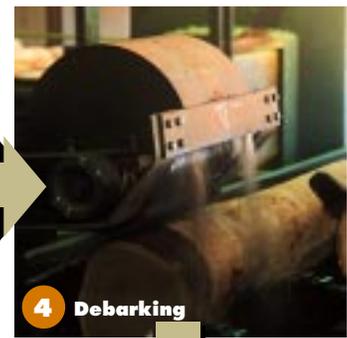
1 Transporting logs



2 Sawmill



3 Loading logs for processing



4 Debarking



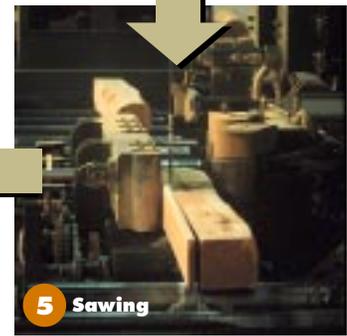
8 Kiln-drying lumber



7 Air-drying lumber



6 Grading



5 Sawing

nails, fencing, or other metal objects that were attached to the tree's trunk sometime during its growth. Undetected objects could seriously damage the saw blade or injure a sawmill worker during sawing.

Sawing. In the sawmill, a large saw cuts the curved sides, or "slabs," off the bare log to make four flat surfaces. Aided by lasers, computers, or just their eyes, the saw operators (called "sawyers") evaluate each log for the lumber desired. The sawyers vary the spacing of the cut in the log to create individual boards. Other saws square off edges and cut boards to length. Lumber is cut into standard thicknesses and different widths and lengths.

Where do Pennsylvania's harvested trees go?



"By-products." The bark and other by-products, such as sawdust, slabs, or wood chips, were once considered "wood waste." Today, they are no longer waste. Bark becomes landscaping mulch. Sawdust is used as animal bedding or for particleboard (boards made from a mixture of sawdust and glues pressed together). Slabs and chips produce

paper, and any excess wood can become fuelwood.

Grading. Hardwood lumber is inspected and sorted for its appearance and beauty. This is called grading. Imperfections or "defects" like knots, splits, and decay may greatly reduce the value of hardwood lumber. The sawing process removes or cuts away some defects, but not all.



Drying lumber. After grading, lumber is often air-dried and/or dried in a lumber dry kiln. A lumber dry kiln is a large, low-temperature oven that dries the hardwood lumber over a period of several weeks. Kiln-dried wood is less likely to crack and twist out of shape.

HARDWOOD LUMBER PRODUCTS

Many different products, including kitchen cabinets, flooring, household furniture, doors, window frames, decorative molding, pallets, and factory-made wooden buildings come from Pennsylvania's hardwood lumber. Many of these products are manufactured right here in Pennsylvania.

Pennsylvania also exports some logs and lumber to other states or countries for further manufacturing. Pennsylvania's hardwood lumber is among the finest in the world. It has beautiful



From furniture to flooring, there are thousands of hardwood lumber products.

texture and color. Hardwood lumber is just one of the many products we receive from renewable forests.

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THE BAT CONNECTION



Major league baseball bats are made from white ash lumber. This wood is shock-resistant, strong, and relatively light—perfect for slugging a homer.