Hickory – Problems or Opportunities

David W. Patterson
Research Professor
Forest Products Utilization
University of Arkansas - Monticello
Oak-Hickory Forest

- 114 million acres of oak-hickory timberland
- 112.4 billion cubic feet of oak
- 18.5 billion cubic feet of hickory
Growing Hickory

• There seems to be problems with artificial regeneration
• Natural regenerated seems to grow quite well
• There appears to be more growing stock than demand for it
Processing

- Debarking
- Sawing
- Drying
- Machining
- Finishing
- Bending
Debarking

- Koch reported 3 classes of debarking:
  easy
  intermediate
  difficult
- The only species under difficult were hickory species
• In the summer time, hickory bark come off in 6-8 foot sheets.

• This clogs the conveying system and makes handling difficult

• Slitters in front of ring debarkers alleviate this problem
Slitter
Sawing

• Debark first to save saw blades.

• Wood is hard; therefore, sawing is hard.

• Wavy surface possible.

• High growth stresses.
Sawing Solutions

• Sharp teeth
• Use hook of 10 degrees or less preferably 4 degrees
• Slow feed rate, especially at knots
• Lots of lubricant (water)
• Highest MC possible
• Bi-metal blades
• Turn to new face after 1 to 2 cuts
Insects and Fungi

- Powder post beetles and others like to attack hickory in the open air.
- Sapwood tends to blue stain
- Dip treat with fungicide/insecticide solution
- Borates
Drying

- Hard to dry
- Sticker Stain
- High shrinkage – 5-7% R and 9-11% T
- Tends to warp especially twist
- End Checking
- Turn pink
Drying Solutions

• Sticker stain – use dry stickers – pine and cottonwood have been recommended. Also, flash dry surface if possible.
• Pinking can avoided by keeping temperature below 115°F.
• Warping can be reduced somewhat with mild conditions and heavy top weight.
• End coat to reduce end checks
Machining, etc.

• Power tools – good sawing, planing, turning and boring but must keep tools sharp.

• Nails and screws – very good but must pre-drill to prevent splitting
• Gluing – difficult – needs close control

• Carving – not recommended

• Sanding – good but tend to get fuzzy or hairy and requires extra work to polish surface for finishing.
Finishing

• Rated good for finishing -- takes a full range of medium to dark finishes and bleaching treatments.

• Rated good as a painting surface.
Bending

After steaming, hickory has excellent bending properties.
Current Products

- Striking Tool Handles
Flooring

Second in hardness only to mesquite
Cabinets
Industrial Uses

- Boxes
- Crates
- Pallets
- Cross Ties
Conclusions

• Hickory is abundant and under utilized

• May be hard to work with

• Makes beautiful and valuable products
Questions