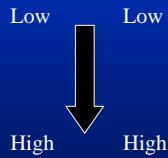


Production of High-Quality Timber Products

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Hardwood Timber Products

Value _____ Mgmt



Chip Wood
Pallet Wood
Low Grade Lumber
High Grade Lumber
Veneer

Producing High-Value Hardwoods

- Characteristics of High Value Hardwoods
- How to Grow Trees with These Characteristics

Characteristics of a High-Value Hardwood

- Straight
- Free of Defects and Knots
- Solid
- Large
- Proper Species

How Do We Grow Trees With These Characteristics?

- | | |
|-------------------|--|
| • Straight | Dense Young Forest |
| • Free of Defects | Dense Young Forest |
| • Solid | Reduce Injuries |
| • Large | Rapid Growth -
Control Forest Density |
| • Proper Species | Control Light at Forest
Floor |

Question:

How Do We Grow High Value Hardwoods?

Answer:

By Controlling Density and Light

Density Controls

- Stem Quality
- Straightness
- Cleanness
- Diameter

Light Controls

- Species Composition

High Density

- Creates Straight Clean Stems, But
- Leads to Small Tops which Reduces Diameter Growth

****Density must be regulated or reduced after initial stem development to provide for good growth****

High Valued Hardwood Stems Develop Best When:

- Young trees are grown at high densities
- Trees are thinned after butt log development to obtain good consistent diameter growth

Controlling Light

Each Species of Tree has Specific Requirements for Light

- Shade Tolerant: species which can live in canopy shade
- Shade Intolerant: species needing considerable sunlight

Examples of Shade Tolerance

- Tolerants

beech, maple,
dogwood,
hornbeam,
hickories, some
elms

- Intolerants

most oaks, cherry,
walnut, ash,
sweetgum, pines,
yellow-poplar,
locust, cottonwood

Canopies

- Intact Canopies
Low Levels of Light, if perpetuated will yield an increase in shade tolerant species
- Open Canopies
High Levels of Light, if canopies are opened will increase shade intolerant species

To Produce High Value Hardwoods

- We Must Insure
 1. Adequate Regeneration Densities
 2. Regulate Density
 3. Provide Adequate Light

Stems per Acre

6 inches	200-340 trees
8 inches	140-240 trees
10 inches	90-150 trees
12 inches	70-115 trees
14 inches	50-90 trees
18 inches	35-60 trees
20 inches	30 to 50 trees

Natural Regeneration Mechanisms

- Seed in Place
- Sprouts (seedling and stump)
- Advance Regeneration (Seedling in Place)

Artificial Regeneration (Planting)

- Light Requirements
- Spacing (Growth Rate and Form)
- Predicted Future Products (Markets)

Competition Control

- Adequacy of Site Preparation
- Herbicides
- Mechanical
- Prescribed Fire

Look Ahead

- Silvicultural Cycle (3 phases)

Forest Establishment
Intermediate Operations
Harvest

Summary

- What Species??? Natural or Planting
- Light Requirements
- Density and Spacing
- Competition Control

Some Take Home Thoughts

1. Low-quality trees take just as long to grow as high-quality trees.
2. Stand density must be controlled at proper time to set bole merchantability, build larger crowns, and to increase diameter growth.

Some Take Home Thoughts

3. Management of sunlight is needed to regenerate desirable species. Most of our valuable species do not tolerate shade.
4. Must think about regenerating the stand before the final harvest to secure more valuable species.

Some Take Home Thoughts

5. Management of young trees is crucial so that they will develop into quality trees. The opposite is not necessarily true. Most large trees will increase in diameter, but not in quality.
6. Many missed opportunities when tree are not managed both in growth and value (rate of return).
