Growing Christmas Trees in Michigan
• Long association with Christianity
• Martin Luther in 1500
• Christmas trees are long-standing symbol of Christmas in northern Europe
• Origin uncertain, probably Christian adaptation of Pagan symbol
• Several versions of introduction to US
Past to Present...
Annual Christmas Tree Production

• Europe ~ 50 million trees
  – Denmark & Germany are largest producers
  – Production may shift to Eastern Europe

• U.S. ~ 35 million trees
Major Christmas tree producing areas in the US
Leading Christmas tree producing states

Ranked by Number of Trees Harvested in 2002

<table>
<thead>
<tr>
<th>State</th>
<th>Number of Trees Harvested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oregon</td>
<td>6,466,551</td>
</tr>
<tr>
<td>North Carolina</td>
<td>2,915,507</td>
</tr>
<tr>
<td>Michigan</td>
<td>2,380,173</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>1,724,419</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>1,605,981</td>
</tr>
<tr>
<td>Washington</td>
<td>1,164,139</td>
</tr>
</tbody>
</table>
About Michigan’s Industry

- Ship about 3 million trees
- 42,000 acres
- 800 farms
- Most go out of state
Michigan known for diversity

- Scotch Pine
- Fraser fir
- Douglas-fir
- Colorado Blue Spruce
- Balsam Fir
- Black Hills Spruce
- White Pine
- Concolor fir

Acres
Key to common Christmas tree species

1a Needles round and in groups of 2 or 5 (2a)
1b Needles flat and arranged singly along stem (3a)

2a Needles in 2’s (Scots pine)
2b Needles in 5’s (Eastern white pine)
3a Needles bluish, stiff, and sharply pointed (Spruces)

3b. Needles dark green, soft with waxy light color on their bottom side (Fir species: Fraser fir, concolor fir, Douglas fir etc… )
Christmas tree production cycle

- Species selection
- Site selection
- Site preparation
- Regeneration
- Harvest and post-harvest
- Marketing
- Pruning and shearing
- Pest management
- Nutrition management
- Vegetation management
Chose land to fit species or choose species to fit land?
Site selection

• Site factors
  – Climate (general climate & micro-climate)
  – Soil
    • Drainage
    • pH
• Market factors
Species selection

- Adaptability
- Growth rate
- Color
- Form
- Branch structure
- Scent
- Needle retention
Major Christmas Tree Species

- Fir (*Abies spp.*)
- Pines (*Pinus spp.*)
- Spruces (*Picea spp.*)
- Douglas-fir (*Pseudotsuga*)
Site Preparation

• More intensive the standard forest management
• Need clean site for planting and other operations
• Most site prep is mechanical
Two sites where seedlings were planted next to stumps or in areas where the stumps had been removed.
Planting stock

Most Christmas tree growers use transplants:

- $2 + 2$
- $2 + 3$
- plug + 2

- Trend is toward larger transplants
- (-) Greater initial cost
- ( +) Increased survival
- ( +) Shorten rotation length
Nursery Stock

Common Bareroot Stock Types

1+1: 1 year in seedbed, 1 year in transplant bed
20-25 cents each
30-35 cents each

2+0: 2 years in seedbed

Common Bareroot Stock Types

1+1: 1 year in seedbed, 1 year in transplant bed
2+1: 2 years in seedbed, 1 year in transplant bed
Figure 6.—Examples of poor and good shoot-to-root ratios.
Planting
Weed control

• Maintaining good weed control is essential
  – Seedling survival
  – Tree quality
• Weed control is usually done by a combination of chemical (herbicide) and mechanical (cultivation, mowing) control
Weed Control
Nutrition management

- Growth rate
- Color and quality

- Macronutrient
  - N, P, K

- Micronutrients
  - Manganese, Magnesium, Iron
  - Problems often related to soil pH
Pest management

- Insects
- Diseases
- Mammals
Pests
• Shoot boring insects
• Pales weevil
• Gall-forming insects
• Cooley’s gall adelgid
• Spruce spider mites
• Pine tip moth
Phytophthora Root Rot—Fraser Fir
Integrated pest management is essential

- Scouting
- Minimize pesticide use
- Use biocontrols
- Identify economic injury thresholds
Shaping Quality Trees
Taper = width divided by height

\[
\text{Taper} = \frac{\text{Width}}{\text{height}}
\]
• Machine shearing
Harvest and post-harvest

Harvesting methods vary with type of production

– Choose and cut
  • Need to provide customer with easy method to harvest trees

– Wholesale
  • Growers try to minimize number of times tree is handled
Harvest
Harvest
Wreaths, Roping etc
Benefits

• Real Trees are a renewable, recyclable resource
Benefits

- Real Trees are a renewable, recyclable resource
- Each acre provides the daily oxygen requirements of 18 people
Benefits

- Real Trees are a renewable, recyclable resource
- Each acre provides the daily oxygen requirements of 18 people
- Environmentally friendly (provide habitat for wildlife, recyclable)
Benefits

• Real Trees are a renewable, recyclable resource
• Each acre provides the daily oxygen requirements of 18 people
• Environmentally friendly (provide habitat for wildlife, recyclable)
• For each tree harvested two new trees are planted.