Southern Reforestation Trends in the Evolving Landscape of Forest Land Ownership

AL Lyons

The Evolving Landscape of Forest Land Ownership

- **N. C. State TI Co-op Forest Industry Membership**
  - **1985 - 24 Companies**
  - **2007 - 2 Companies**
- **Timberland Real Estate Investment Trust**
  - **1985 - 0 REITs**
  - **2007 - 3 REITs**
- **Timberland Investment Management Organizations**
  - **2007 – 23 TIMOs**

1985 – N.C. State Tree Improvement Co-op Members

Industry		States	Nursery
American Can	Great Southern Paper	AL	IFCo
Brunswick Pulp Land	Hammermill	NC	
Bowater	International Paper Co.	SC	
Boise Cascade	Kimberly-Clark	VA	
Buckeye Cellulose	Leaf River		
Champion Intl.	Packaging Corp.		
Chesapeake	MacMillan Bloedel		
Container Corp.	Rayonier		
KMI Land Resources	Scott Paper		
Federal Paper Board	Union Camp		
Georgia Kraft	Westvaco		
Georgia-Pacific	Weyerhaeuser		

2007 – N.C. State Tree Improvement Co-op Members

Industry	States	Nursery	Land-owner	REIT	TIMO	Biotech
Westervelt	GA	Smurfit	Joshua	Plum Creek	Hancock	ArborGen
Weyerhaeuser	NC			Rayonier		CellFor
	TN					
	VA					

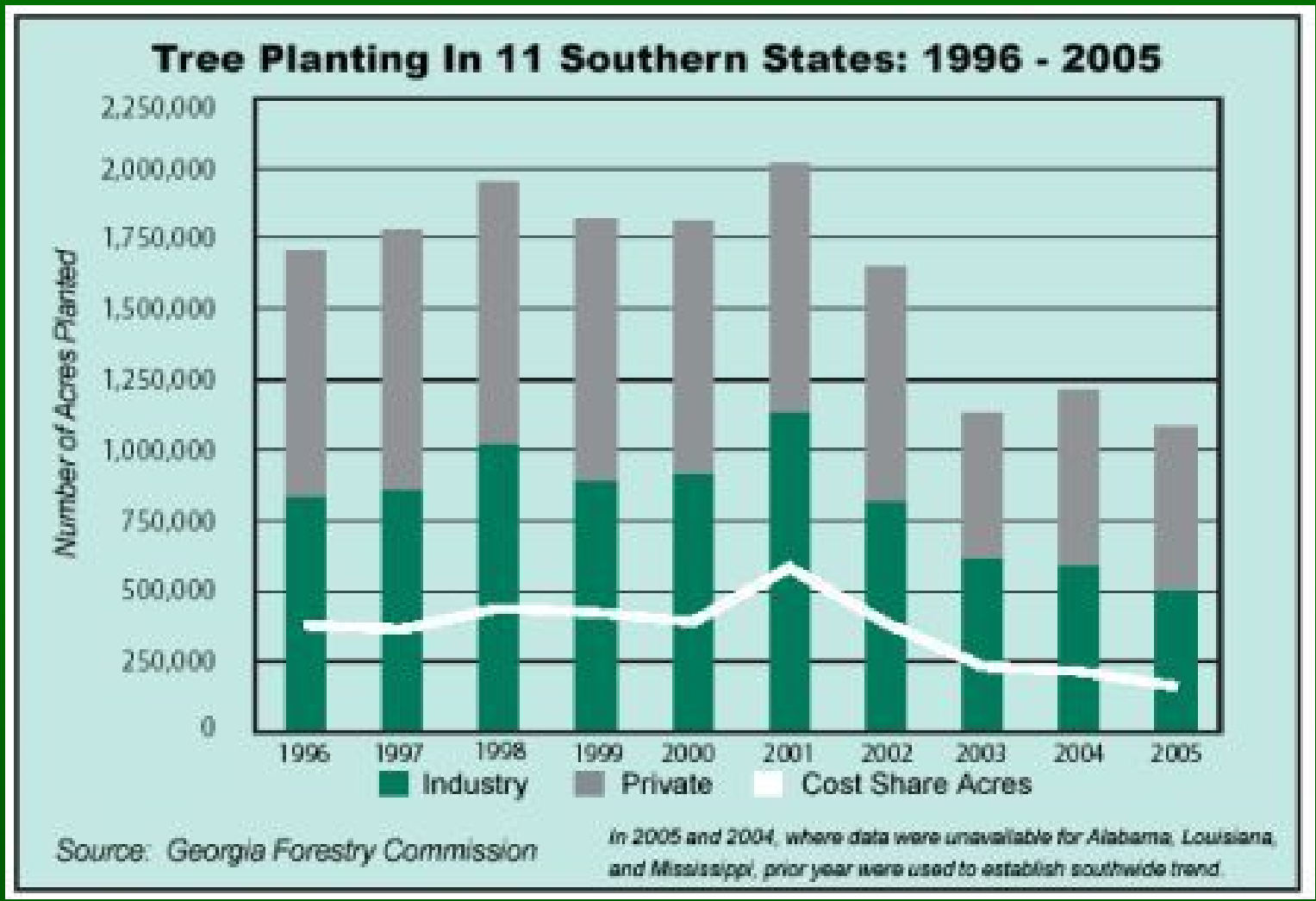
The Evolving Landscape of Forest Land Ownership

- **While the Landscape has Changed - Forest Industry, REITs and TIMOs all share three common interest:**
  - **Reforestation**
  - **Forest Productivity**
  - **Wood Utilization**

Economic Justification For Industrial Forest Land Divestitures

- To Pay Down debt
- To Provide Shareholder Returns
- Timberland - Subsidizing Mills
- Raise Capital to Fund Mill Improvements
- Unfavorable Tax Structure
  - C-corps double taxed
  - No Current Use Tax Law in many States
- Higher & Better Use Values

Reforestation Trends



Landownership Changes – Are They Impacting Reforestation?

- **Reforestation Down In All Categories**
  - **Industry**
  - **Private**
  - **Cost Share**
  - **No Discernable Trend Indicating Landowner Changes Reducing Reforestation of Harvested Plantations**
- **Reforestation Critical to Forest Investments**
  - **Harvest Sustainability**
  - **Timberland Appraisals**
  - **Future REIT Dividends**

Rapid Assessment of Market Change in the South

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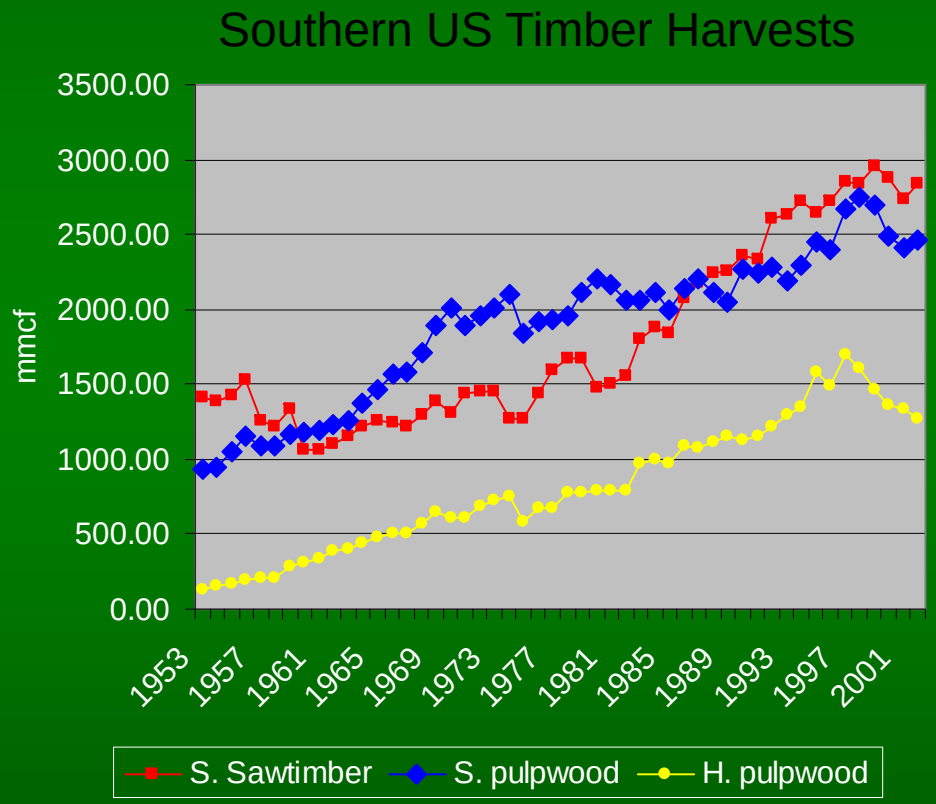
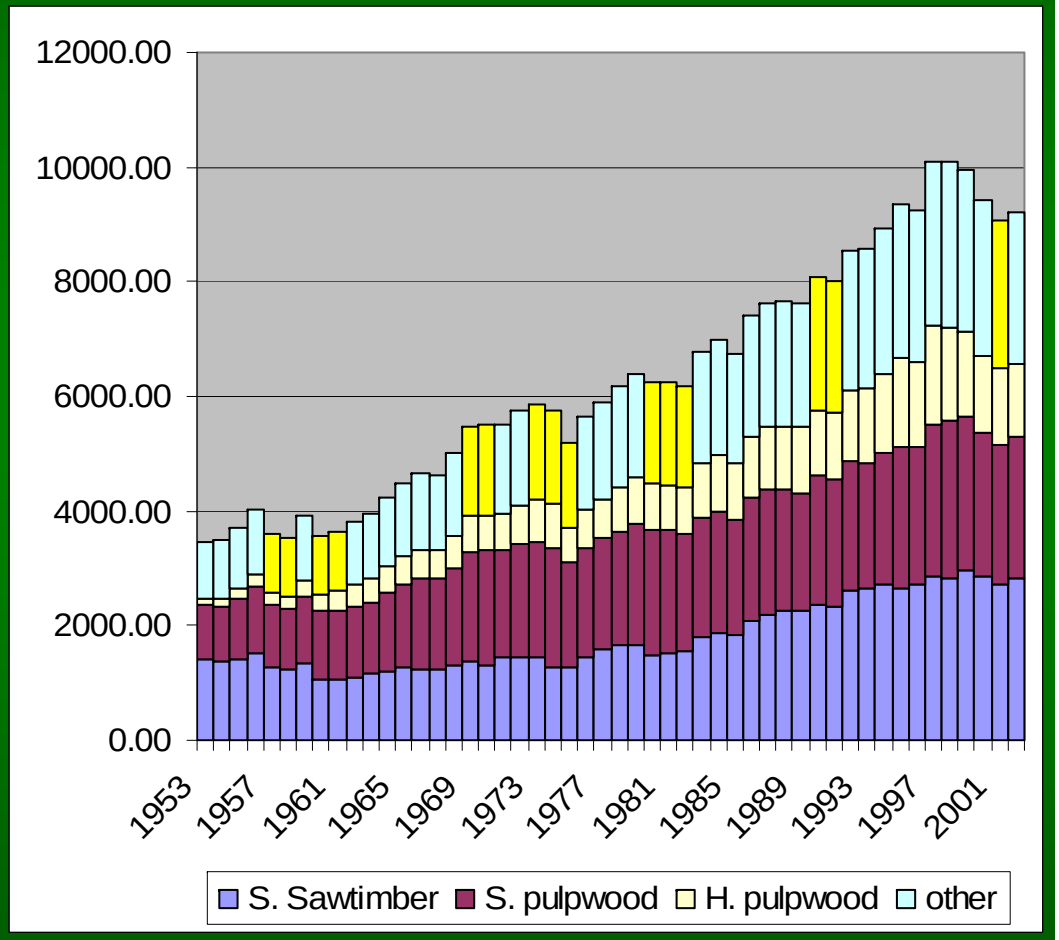
What Has Happened? --Harvests--

- Steady growth ’62-’98
- Declining harvests ’98-’01
- Softwood and hardwood pulpwood harvests declined 11% and 21% from ’98-’01
- Softwood sawtimber harvests were more stable



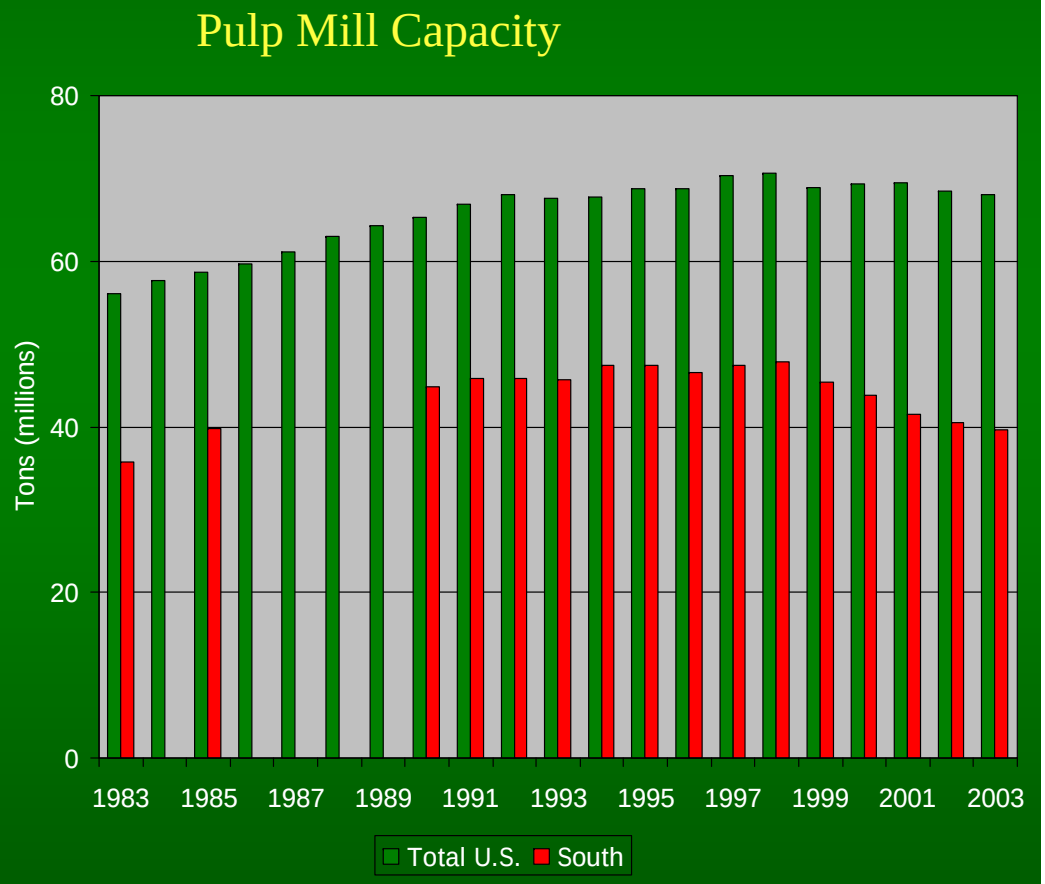
Harvests (continued)

- Yellow bars indicate recession years
- This is the first decline in production not associated with a recession
- Structural changes are indicated

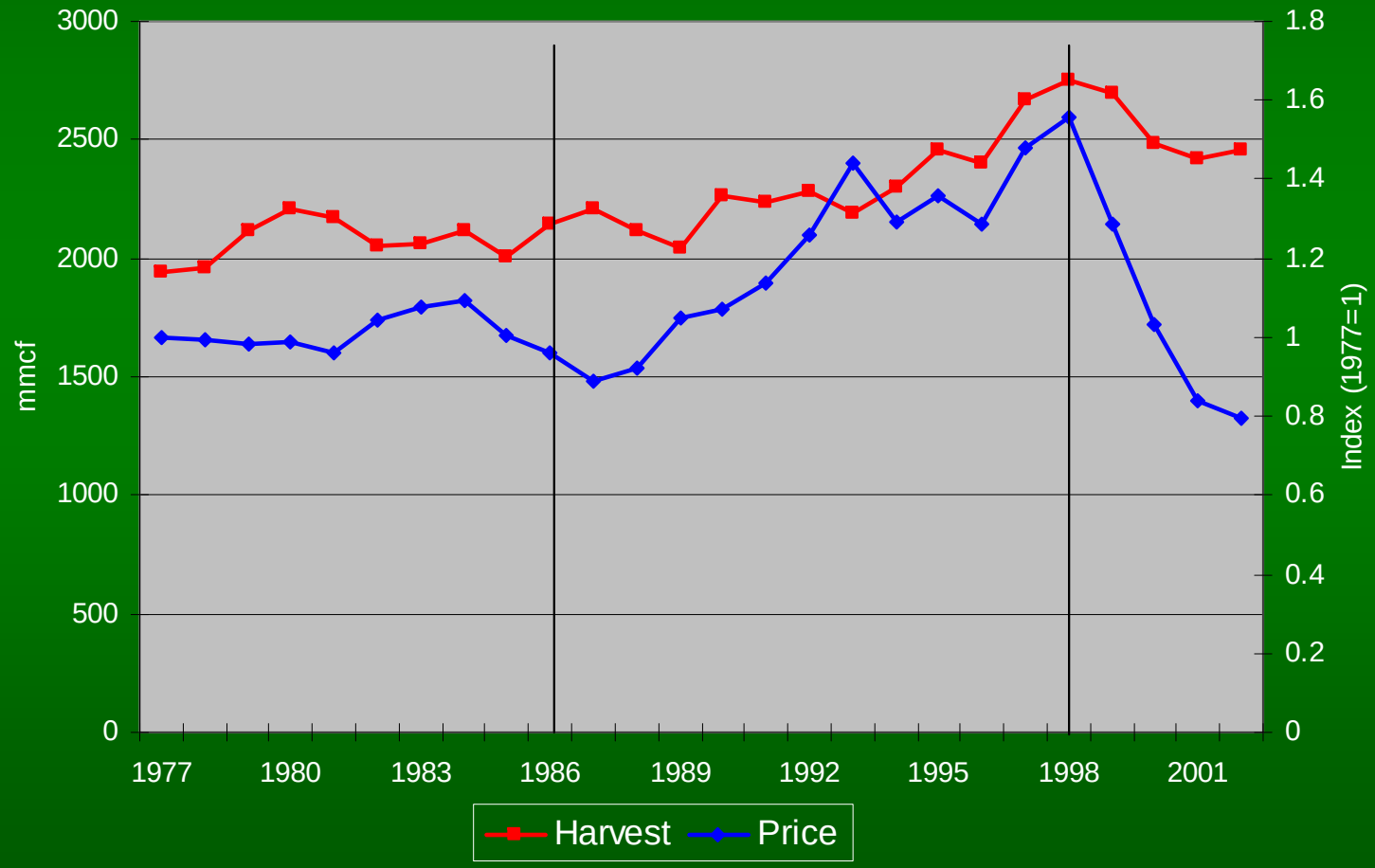


Domestic Demand– Pulpwood

- Southern pulping capacity down 16% since 1998 and down relative to US production
- No indications of increasing domestic demand
  - Per capita use of paper products declines
- Capacity expanding in other countries
  - e.g., Chile, Brazil, Finland

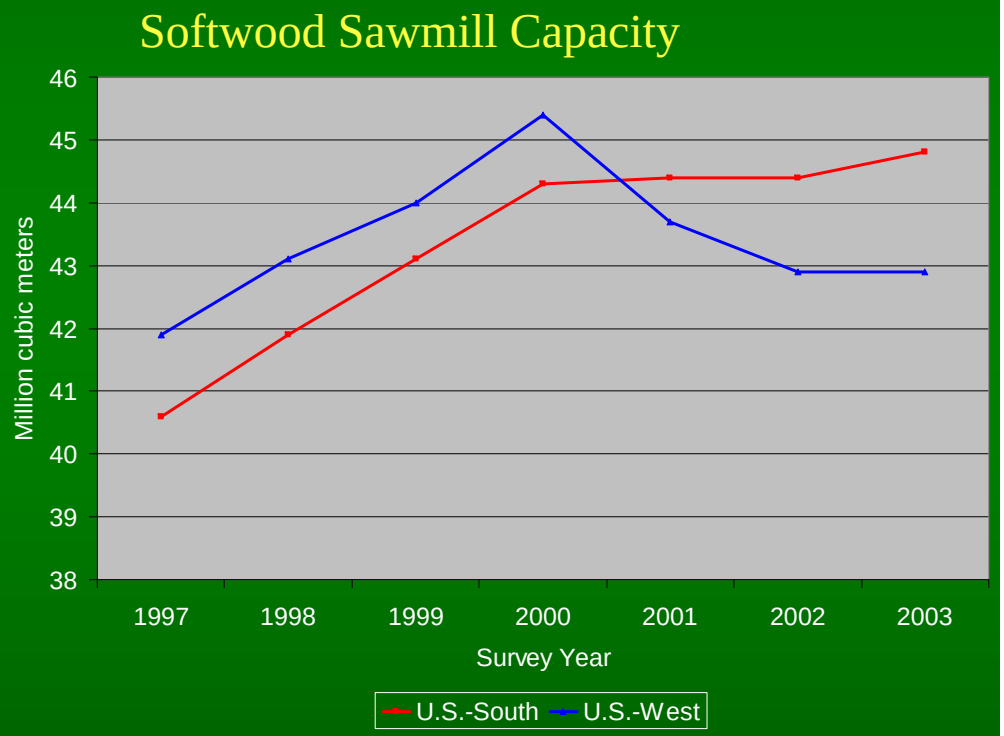


Softwood Pulpwood Markets Most Impacted



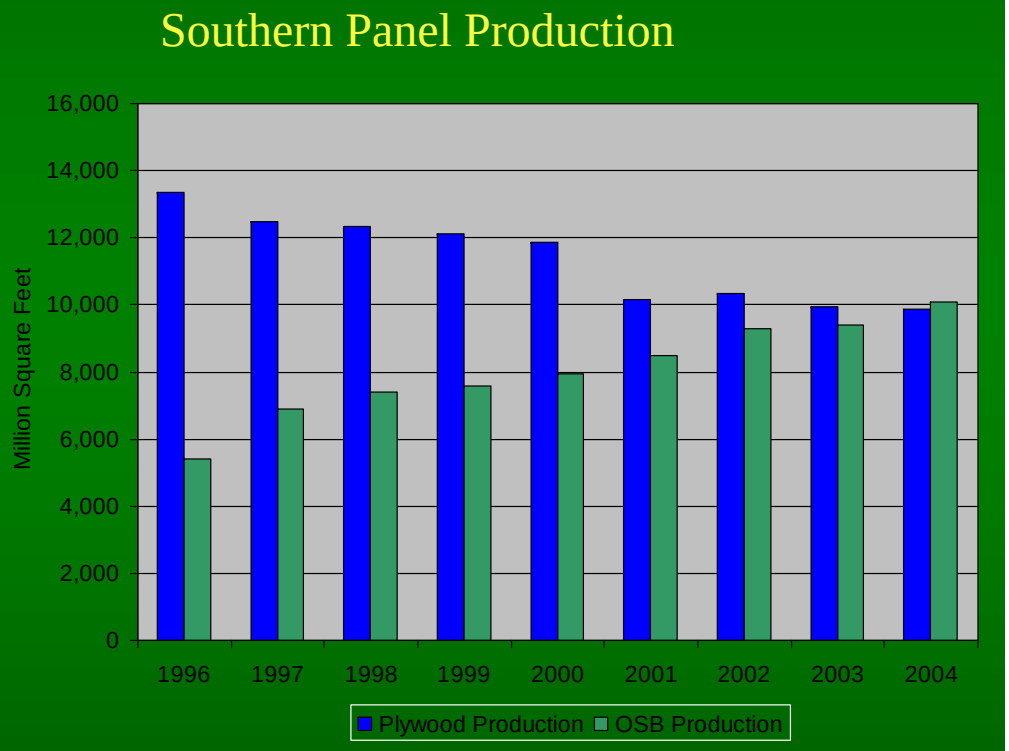
Domestic Demand--Lumber

- Southern softwood lumber capacity increasing 1997-2003
- No indication of decreasing demand overall
  - Even given increases in engineered wood products



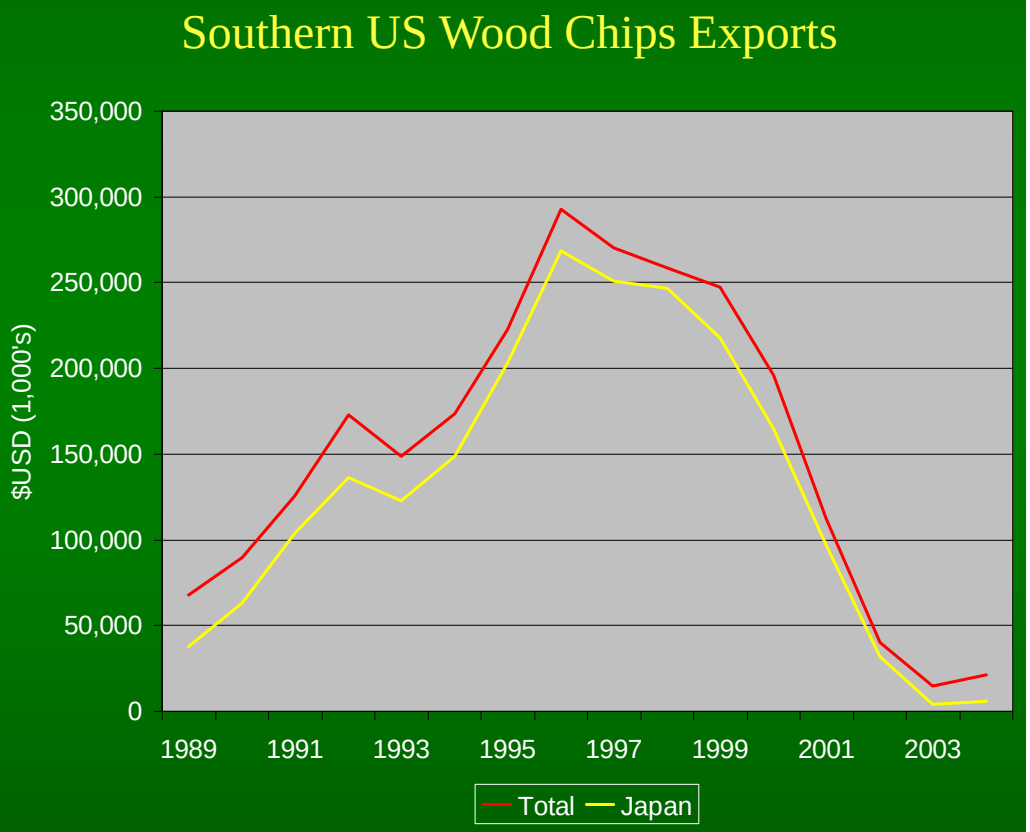
Domestic Demand--Panels

- No indication of decreasing demand
- Total southern panel production stable
- OSB production grew 8.1% per year from ‘96 to ‘04



Trade--Wood Chips--Exports

- Near complete loss of exports to Japan
- Would account for ~9% of southern chip production in 1996
- Significant reduction in domestic demand



Influences on Reforestation Trends

- Planting Trends Generally Follow Wood Demand Trends
- Wood Product Prices Significantly Influence Trends:
  - Overall Lower Prices = Removal of Timber from the Market
  - Low PPW Price = Shift to CNS Production
  - Low CNS Price = Shift to PST Production
- Silvicultural Systems have Shifted from PPW to Solid Wood Production
- Landowner Changes Have Limited, If Any, Impacts

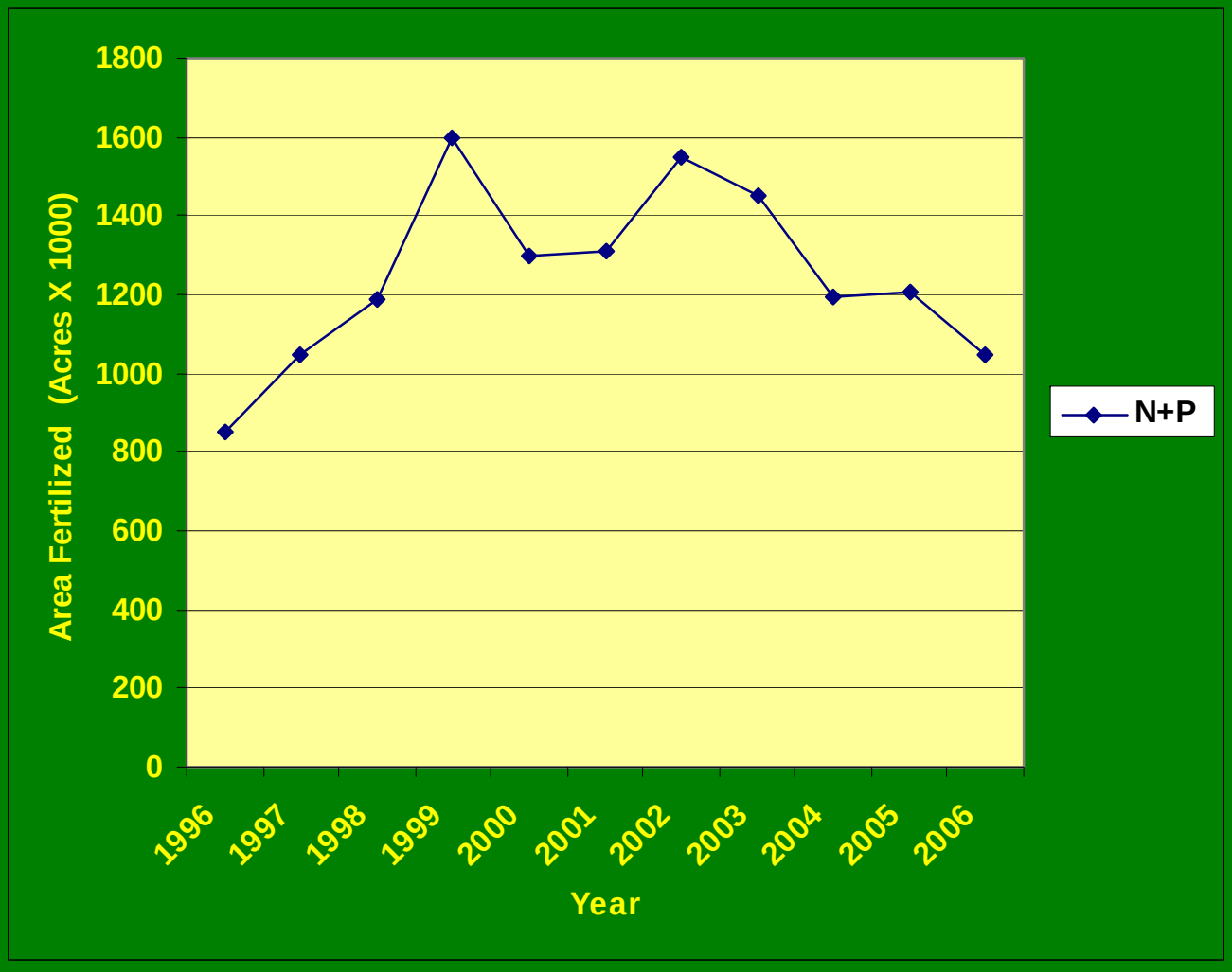
Silvicultural Influences on Reforestation Trends

- **Product Production Shifts Impact Reforestation By:**
  - **Increasing Rotation Age - Reduces Clear-Cut Harvest**
    - **Increase 25 Yr. Rotation Age by 1 Yr. = 4% CC Reduction**
    - **1,100,000 acre 2005 Harvest * 4% = 44,000 acre CC Reduction**
    - **44,000 acre Reduction @ 550 TPA = 24.2 mm Nursery**
  - **Increasing Thinning Harvest - Reduces Clear-Cut Harvest**
    - **Thin 300,000 acres = 100,000 acres CC Reduction**
    - **100,000 acre @ 550 TPA = 55 mm Nursery**
    - **Second Thinning Acres are Increasing as Rotation Age Extended**

Silvicultural Influences on Reforestation Trends

- **Product Production Shifts Impact Reforestation by:**
  - **Reducing Stocking Levels**
    - **PPW Stocking (726 TPA) VS CNS/PST (400-550 TPA)**
    - **Reduce Stocking 50 TPA on 1,100,000 acres (2005 Harvest) = 55 mm Nursery**
  - **Plantation Productivity Impacts Clear-Cut Harvest**
    - **Genetic Improvement**
    - **Forest Fertilization**

Annual Fertilization on Established Plantations



Silvicultural Influences on Reforestation Trends

- **Fertilization – Reduces Clear-Cut Harvest**
  - **1999 Fertilization of Established Plantation**
    - **1.6 Million Acres**
    - **Fertilization Adds 2 Ton Per Acre for 6 years = 12 Tons**
    - **12 Tons Per Acre X 1.6 Million Acres = 19.2 Million Tons**
    - **19,200,000 Tons / 120 Tons / Acre = 160,000 Acres**

Future Reforestation Trends

- **Reforestation Levels Likely to Remain Flat**
  - **Between 1 to 1.3 Million Acres**
- **Potential Influences to Increase Planting:**
  - **Carbon Sequestration**
    - **Federal Legislation Needed to Provide Consistent Criteria**
  - **Biofuel Production – Lignocellulose Ethanol, Pellet Fuel, Hog Fuel**
    - **U.S. Has the Potential to Produce 1.3 Million Tons of Biomass on a Sustainable Basis – Enough to Equal Domestic Oil Production**
    - **Conversion of Agricultural Land to Perennial Crops has the Potential to Produce 377 Million of those Tons**


Questions