

# **Carbon Sequestration -- A Natural Resource Management and Research & Development Agency Point of View**



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# Forests and carbon management

- **The USDA Forest Service is a research and resource management agency**
- **Carbon is the foundation of forest productivity and sustainability**
- **Carbon sequestration is an additional outcome of good forest management and utilization**

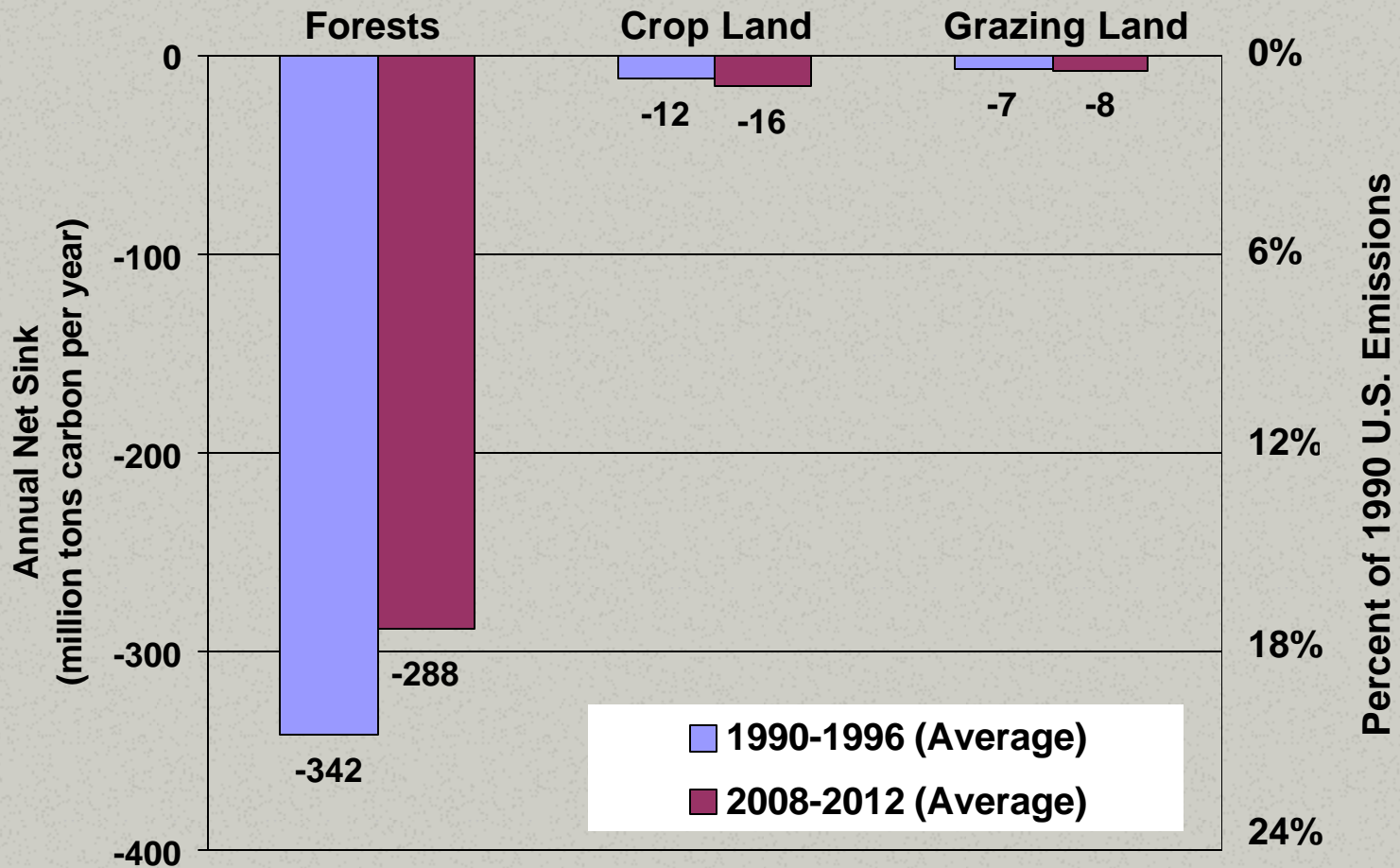


# Forests and carbon sequestration

- **Forests and forest products are important CO<sub>2</sub> sinks**
- **Carbon sinks offer a potentially significant low-cost opportunity to address carbon sequestration**
- **Feedstocks for bioenergy production provide both clean energy and fossil fuel offsets**

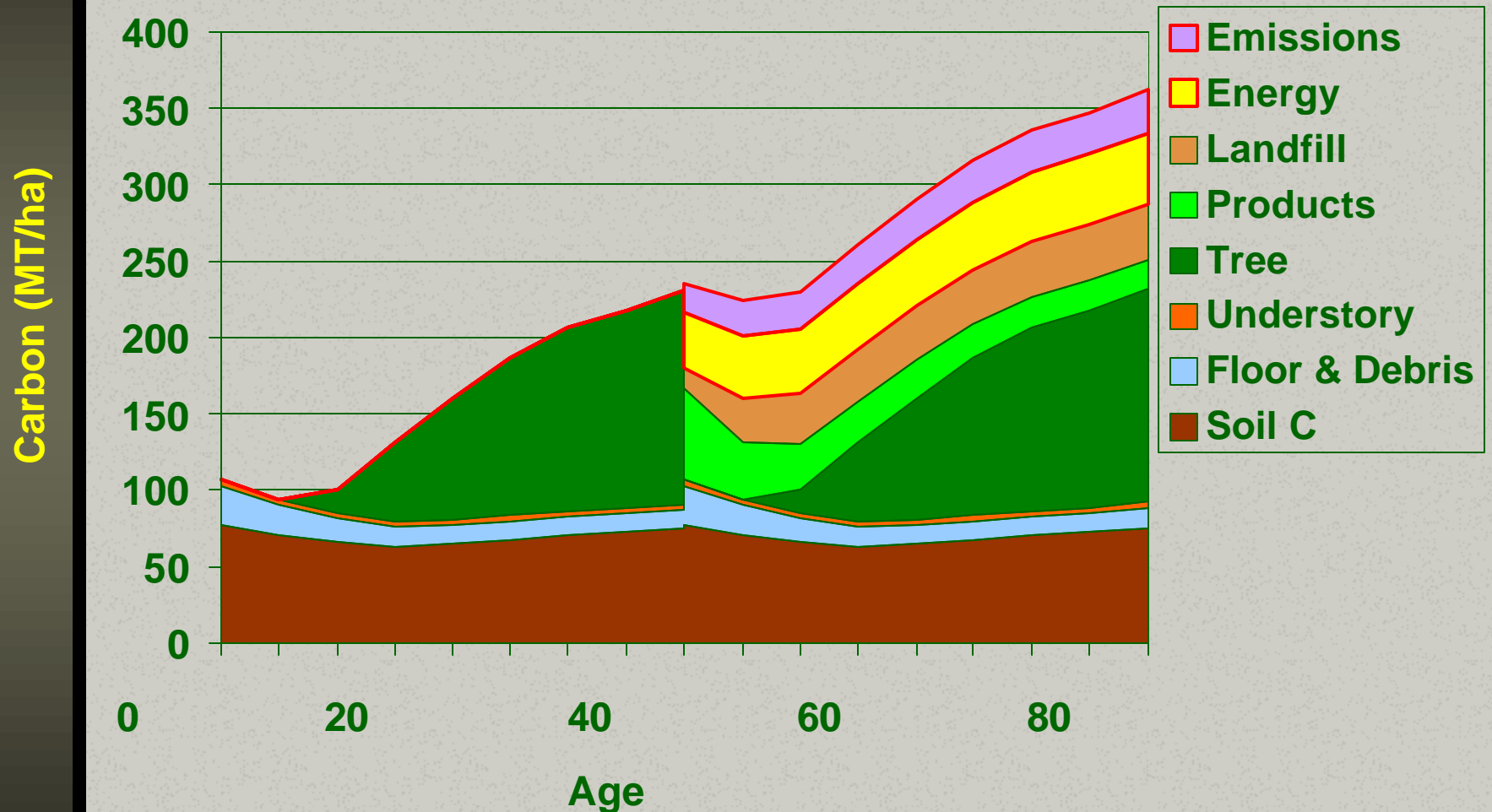


# Trends in forest and agriculture carbon sequestration





## Example: Two rotations of pine on a high site in SE Forest C and disposition of C in harvested wood



NOTE: Energy and emissions are releases of C to the atmosphere (Birdsey and Heath 2000)



# Options for Enhancing Carbon Sequestration

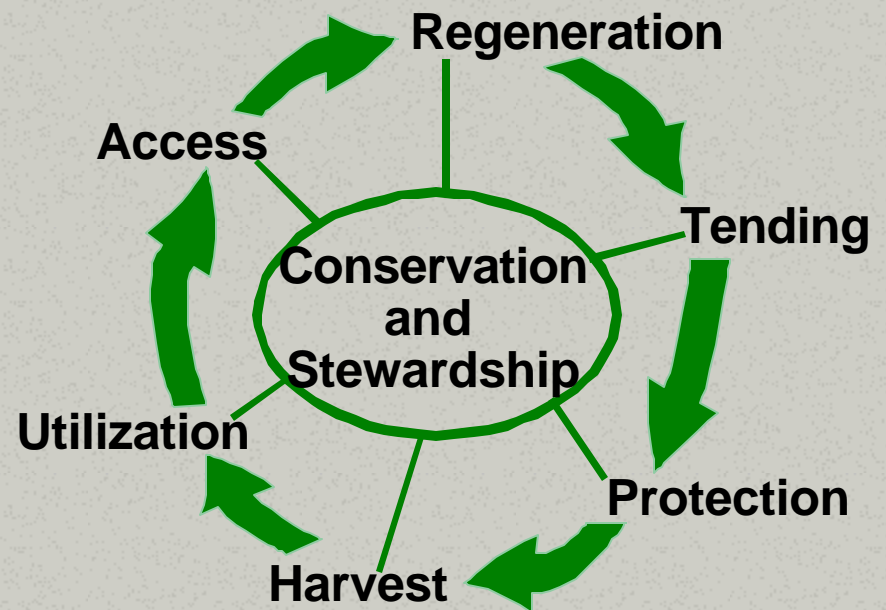
- **Afforestation**
- **Active Management and Increased Productivity**
- **Wood Products**
- **Reduce forest conversion to agricultural and urban use**
- **Increase agroforestry on suitable cropland or pasture**
- **Short rotation woody crops**

*Growth of many forest stands is below potential*

## Forestry Practices to Increase Productivity

- Regeneration
- Weed control
- Fertilization
- Genetic improvement
- Site management
- Stocking control
- Low-impact harvesting
- Utilization of logging debris
- Soil improvement

## Active Management



after Sampson and Hair 1996



# Science Focus Areas

- **Forest Productivity Research**
- **Forest Management Research**
- **Global Change Research**
- **Forest Inventory and Monitoring**
- **Utilization and Forest Products Research**
- **Forest Economics and Human Dimensions Research**
- **Biobased Products and Bioenergy Research**





# Priorities

- **Active R&D program in forest productivity, global change, and carbon cycle science**
  - **Processes**
  - **Management systems**
  - **Stock dynamics estimation & projections**
  - **Wood Products**
  - **Human Dimensions and Economics**
- **Partnerships with other Agencies, Industry, Universities, and NGOs**



# Some Final Thoughts

- **Build on strong foundation of research and resource management**
- **Continue strong partnerships**
- **Contribute to integrated energy strategy**
  - **Forest carbon management and sequestration science, technologies, and strategies**
  - **Feedstock production science and technology**
- **Enhance science and scientist exchange and shared research opportunities**
- **Partnerships in demonstration and implementation**