

HISTORY  
HARDWOOD RESEARCH  
SOUTHEASTERN U. S.

BOB KELLISON



FOR SALE  
COMPLETE SET OF  
ENCYCLOPEDIA BRITANICA,  
NO LONGER NEEDED, WIFE  
KNOWS EVERYTHING.

# USDA FOREST SERVICE Experiment Stations - 1921

## SOUTHERN – NEW ORLEANS

Included Georgia & South Carolina

Concentration – Pines

Stoneville – Mississippi Delta

John Putnam

Sid McKnight

Bob Johnson

Steve Meadows

# USDA FOREST SERVICE EXPERIMENT STATION - 1921

Appalachian

Broadleaf  
species

Southeastern  
- 1945

Expanded to  
include Georgia  
and Florida

United into  
Southeastern

2008

Asheville

## SOUTHEASTERN STATION

- Hardwood Concentration
  - Appalachian Mountains
  - Cumberland Mountains
- Pine Concentration
  - Resin production
    - Olustee, Florida – Slash pine
    - Genetic improvement – Loblolly pine

### TREE IMPROVEMENT COOPERATIVE

- Tree Improvement Cooperative – 1956 - Zobel
  - Genetic improvement of pines
    - Loblolly, slash, longleaf, shortleaf
  - Expanded to include hardwoods
    - Ken Trowbridge – Weyerhaeuser Co.
      - Red maple, yellow-poplar, sycamore
      - Hard hardwoods added to list
- Overload of staff: Zobel - McElwee

## HARDWOOD RESEARCH COOPERATIVE

- Formed 1963
  - Bob McElwee – Director
    - Ed Jones – Assistant
      - Bill Johnson – Ph D
  - Kellison - Assistant
    - Tree Improvement Program

## HARDWOOD RESEARCH COOPERATIVE

### Natural regeneration

- Roanoke River – Red River Bottom
- Guidance by John Putman, Waldi Maki
- Treatments
  - Sweetgum thinning, green ash regeneration, old tupelo thinning and regeneration, young tupelo thinning

### Results

- Good regeneration of green ash
- Deer exclosure for tupelo
- Procurement forester



## THINNED GREEN ASH- 12 YEARS OLD

## ALGAMATION

- Tree Improvement & Hardwood Research United – 1967
  - Bruce Zobel - Director
    - Associate Director
      - Bob McElwee – Administration
      - Bob Kellison – Genetics/Silviculture

## SITE TYPE SELECTION

- Federal Paper Board – Marty Fox
  - Bolton, NC
  - Heavy user of hardwoods
- Three semi-operational trials of hardwoods
  - Question: Coastal Plain site type on which to concentrate

## GROWTH & YIELD STUDY

- Initiated – 1969
  - Age classes: 10, 20, 30, 40, 50, 60 years
  - Coastal Plain
  - Plots established by members – Hardwood Cooperative

## PLOT ESTABLISHMENT

- Area sampled
  - Maryland to Florida; west to Arkansas
    - Even-aged stands
    - Fifth-acre plots
    - Two-inch size class
  - Later expanded to Piedmont and Mountains
- Remeasured every five years

## **Coastal Plain**

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**Uplands**

**Red River Bottoms**

**Black River Bottoms**

**Branch Bottoms**

**Wet Flats**

**Peat Swamps**

**Muck Swamps**

## ANALYSIS OF DATA

- Based on Growth Rate Combined into three Categories
  - Muck Swamp- 1.3 cds/ac/yr
  - Black River Bottoms – 1.2 cds/ac/yr
  - Red River Bottoms – 1.25 cds/ac/yr
- Growth rates highly correlated to stand density





## USE OF DATA

- Site Selection for Managing Hardwoods
- Modeling for Growth & Yield
  - Financial maturity
- Cooperators made use of data
  - Rayonier
- Led to Harvesting Practices

## OTHER HARDWOOD RESEARCH

- Virginia Tech
  - John Hosner
  - Dave Smith
  - Mike Aust
- Clemson University
  - Dave Van LeaR





# SEED-TREE HARVEST



# LEAVE-TREE HARVEST





