

Using the EAB Cost Calculator

Cliff Sadof
Department of Entomology
Purdue University
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Management Options

- 3 Ways to Kill EAB
 - Remove
 - Replace
 - Treat trees with pesticides
- Management approaches to integrating options
 - SLAM type approach for outlying populations
 - Politically driven plans
 - Pet /historical trees
- Use EAB Calculator to see what you can afford

Lessons from EAB Calculator

- You'll have to pay for something
 - Remove trees killed by EAB
- Each strategy has distinct effect on forest size
 - Removing all trees leaves smallest forest
 - Replacing all trees *temporarily* depletes forest
 - Pesticides application if successful saves the most forest
- Mixing strategies splits the difference
 - Protecting large trees saves more of the forest but costs more
 - Protecting small trees saves less of forest but costs less

Key findings about controlling costs

- Strategies dependent on pesticides are most sensitive to factors influencing pesticide costs.
- Strategies dependent on removal and replacement are most sensitive to tree processing costs.
- Mixed strategies split the difference.

How forest size influences costs

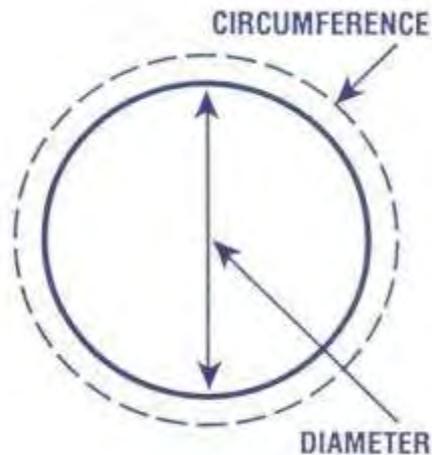
- Big trees are more expensive to remove than small trees
- More insecticide and time is needed to effectively protect larger trees from EAB

How is forest size measured?

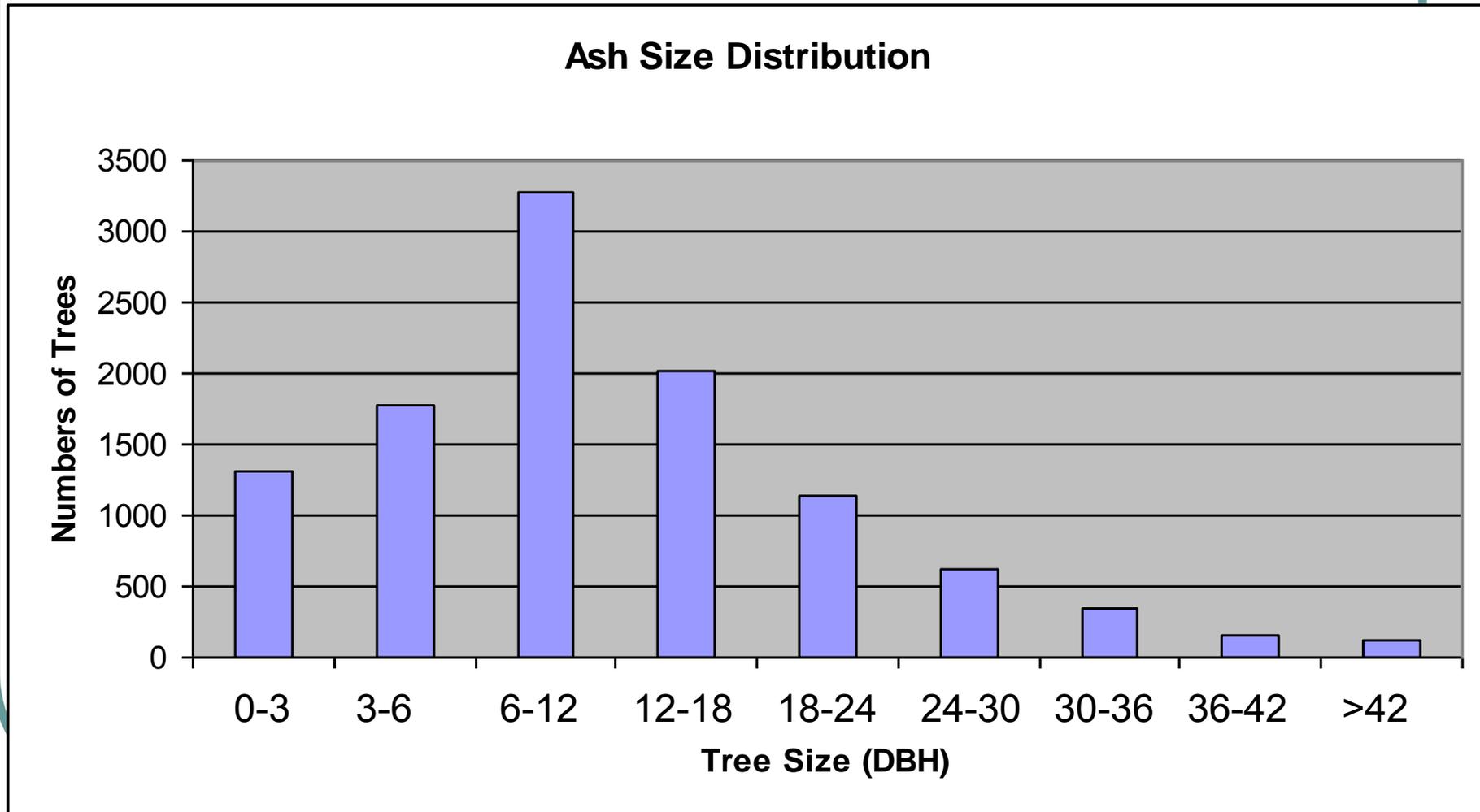
- **Size of trees**
 - Diameter at breast height (Dbh)
- **Number of trees in each size category**
 - Number of trees within a Dbh range
- **Cumulative Dbh**
 - Sum of the Dbh of remaining trees in the forest

Measuring DBH

- Measure tree circumference 4 feet above the soil line in inches
- Divide circumference by π (pi) , or 3.14



Composition of Indianapolis Ash Trees



White Ash 3.5" DBH



Asmth3.5W 1

White Ash 3.5" Tree



Green Ash 8.5" DBH



Green Ash 8.5" Tree



White Ash 12" Trunk



White Ash 12" Tree



White Ash 22" DBH



White Ash 22” Tree



White Ash 30" DBH



White Ash 30" Tree



White Ash 38" DBH



White Ash 44" DBH



White Ash 44" tree



White Ash 44" Tree



White Ash 3.5-5" DBH



White Ash 6-9" DBH



Green Ash 6 to 11" DBH



Green Ash 12.5 to 13.5" DBH



A12.5-13.5

White Ash 13 to 18.5" DBH



White Ash 26 to 36" DBH



Welcome to the Emerald Ash Borer Cost Calculator

Forest managers have 3 options available for managing emerald ash borer:

- Treat ash trees with insecticides
- Remove ash trees
- Remove ash trees and replace them with resistant trees

The particular combination of these options that is best for any forest depends on the number and size of your ash trees as well as the size of your management budget.

Use this calculator to:

- Compare the annual and cumulative costs over a 25 year period for ANY management strategy that includes a mixture of tree removal, replacement, and insecticide treatment.
- Generate printed reports of projected costs of up to 3 management strategies at a time.

To run the calculator you will need:

- An inventory of the number and size of ash trees
- An estimate of costs for removing and treating trees based on the size of each tree.
- An estimate of costs for replacing each ash tree that is removed.

User Name:

Password:

Instructions

The first time you use this calculator we will ask you to register by providing a username and password. With each user name you can enter tree inventory data, and the various management costs for up to 15 separate forests. There is no limit on the number of user names you can have.

Please review our [tutorial](#) for more information on how to use the calculator.

EAB Cost Calculator to:

- Estimate costs for a management strategy for 25 years.
- Estimate size of the remaining forest over time
 - Size of forest = Sum of DBH

Cumulative DBH= Sum of all trees

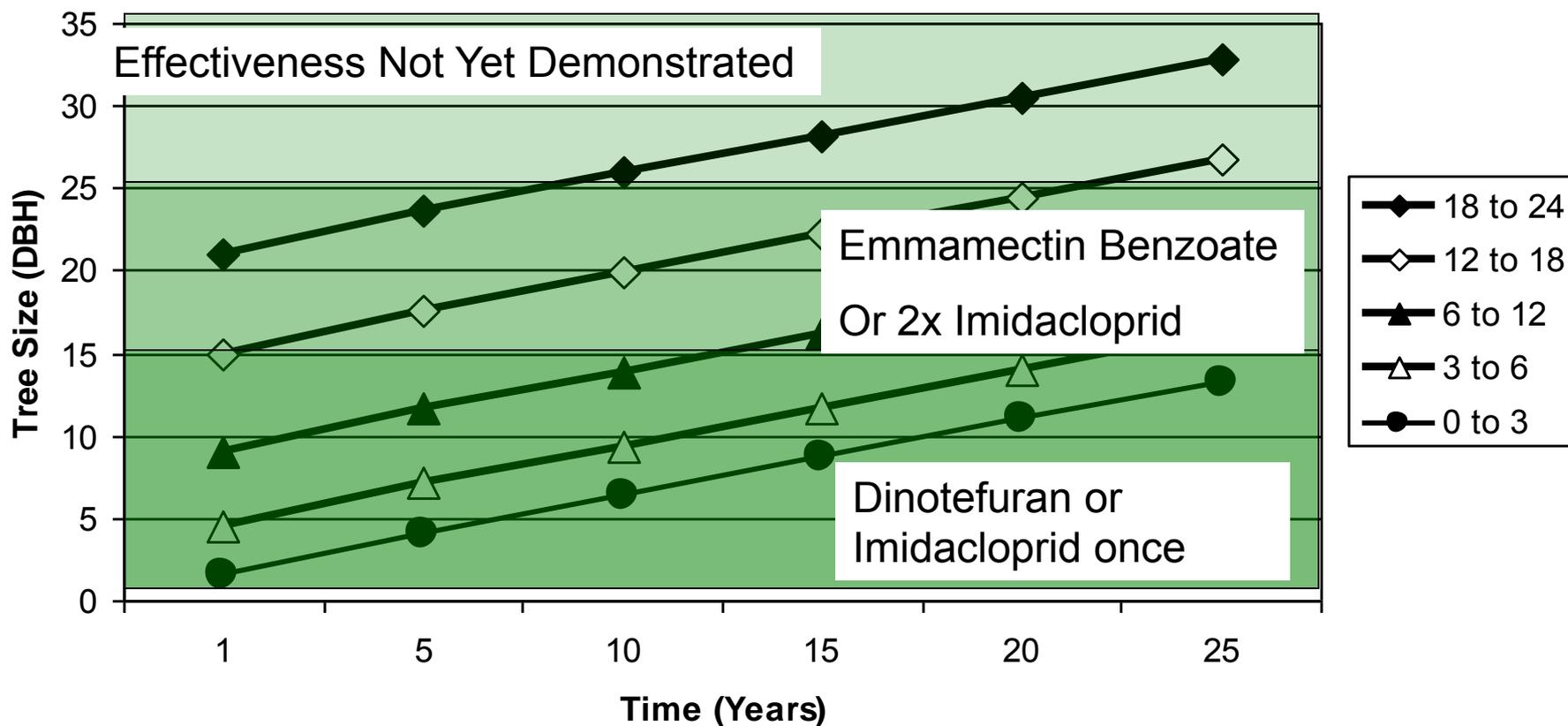


EAB Calculator Default Options

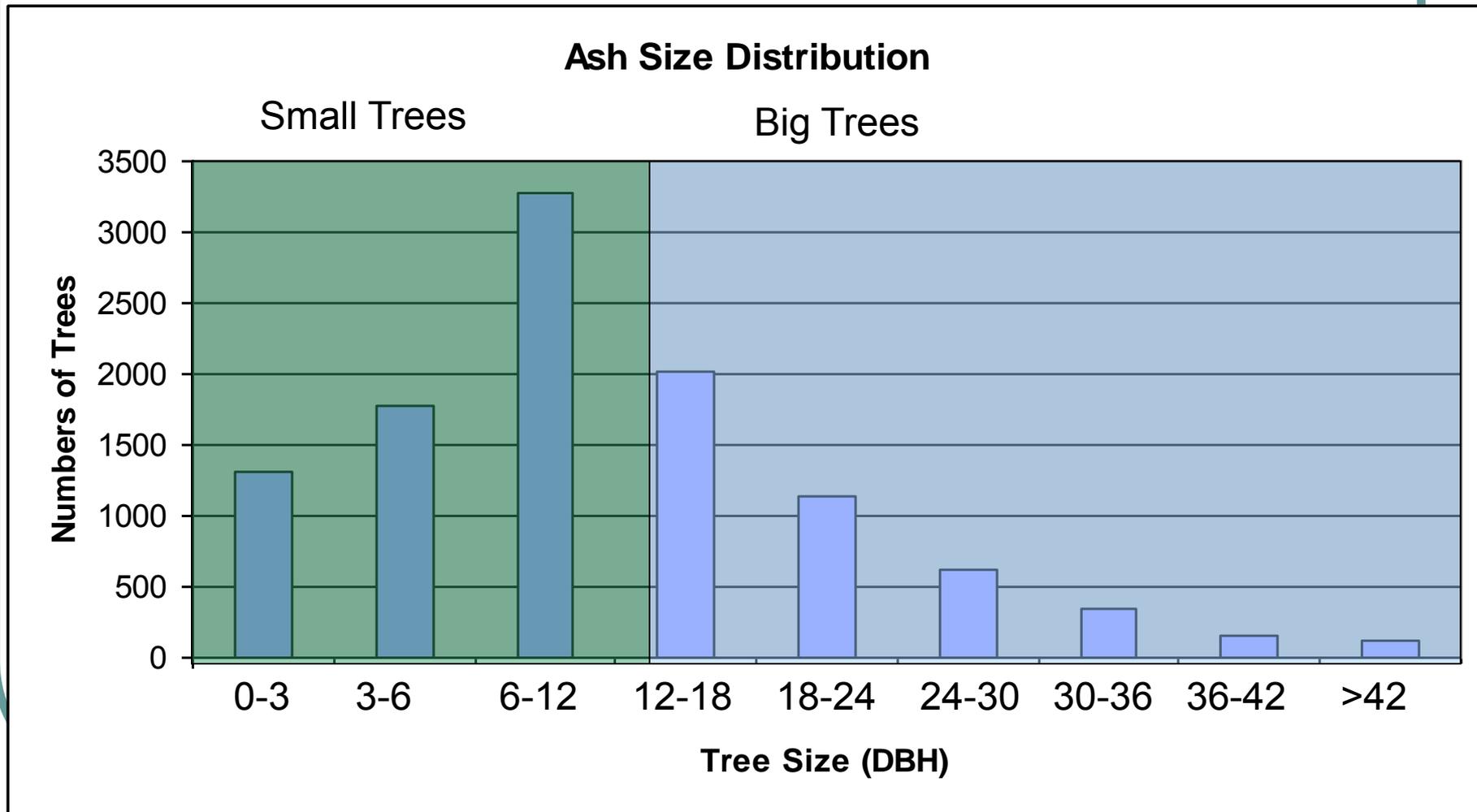
- Simple Strategies
 - Remove All
 - Replace All
 - Treat All
- Protect Small Trees
 - Remove >12" DBH
 - Replace > 12" DBH
 - Replace < 6 and >12" DBH
- Protect Large Trees
 - Replace < 12" DBH

Longevity of EAB Annual Chemical Control Strategy Based on Field Studies and Indianapolis Tree Growth Model

Tree Growth By Size Class



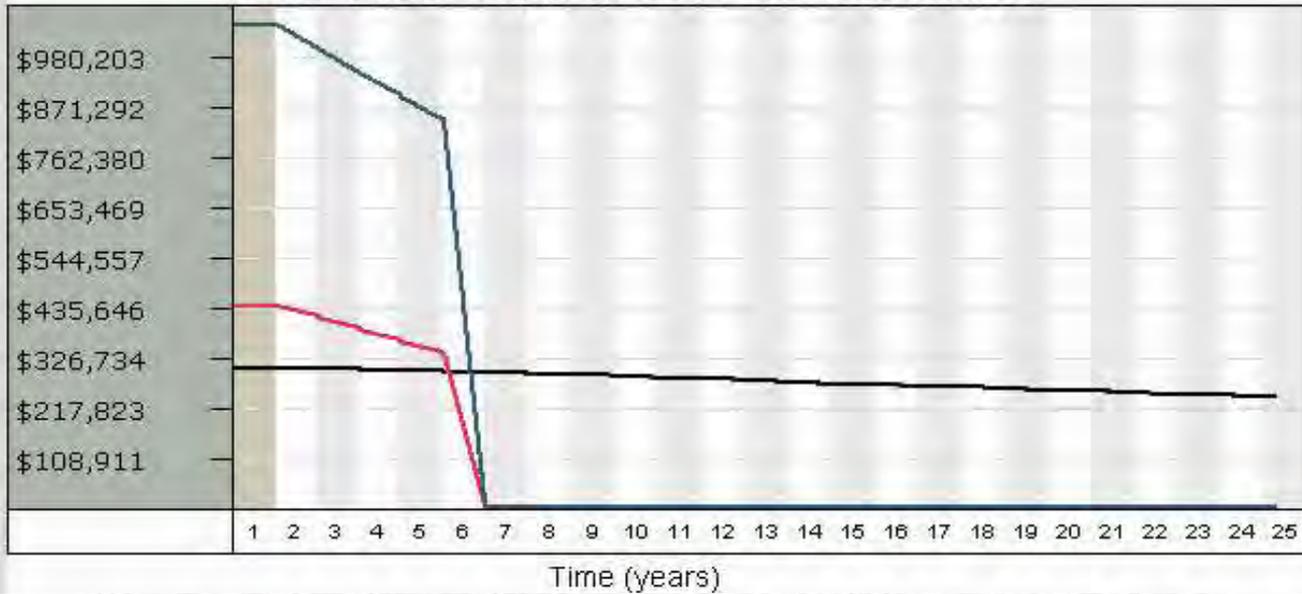
Small and Big Trees in Indianapolis



Assumptions for Indianapolis Analysis

- Inventory is accurate
- Pesticide costs
 - \$4, 6, 8, 10/DBH for up to 12,24,36, and >36" DBH
- Treat every 3 years
- 2% Ash and 1% Replacement Tree Mortality
 - Replacement tree species grows at same rate as ash
- 3% Discount Rate
- 5 years to remove or replace trees

Annual Cost Comparison in Today's Dollars
Over Time With a 3% Discount Rate



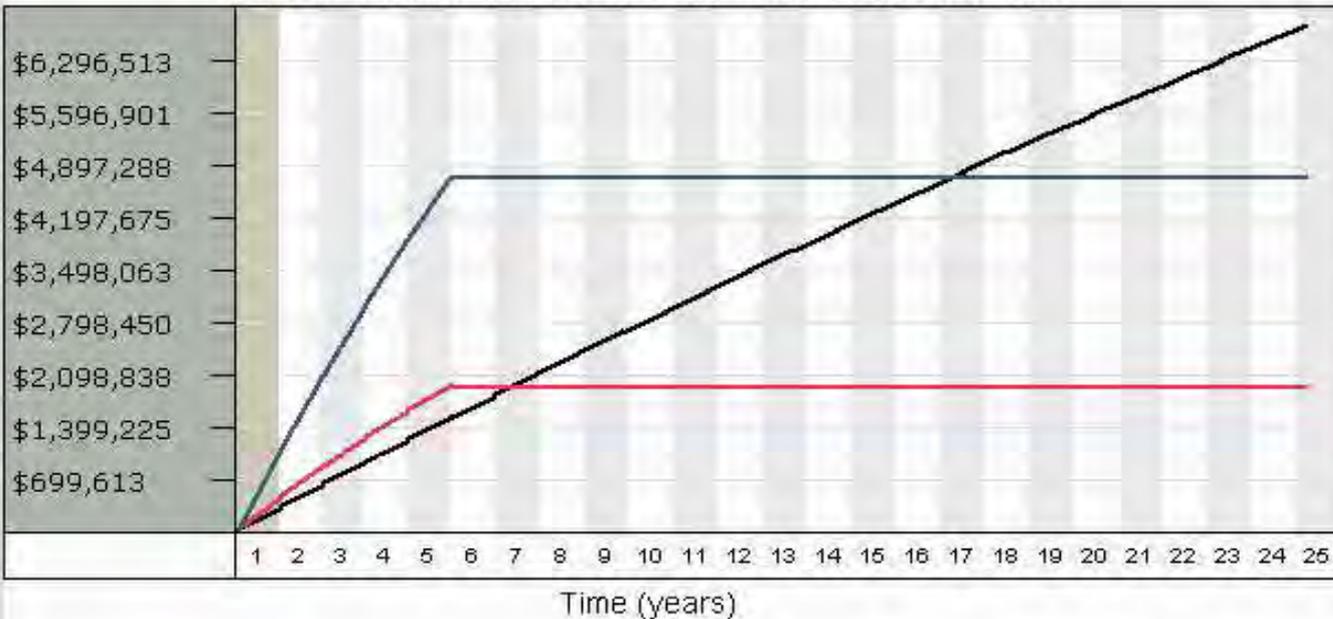
Simple
Strategies

Treat all

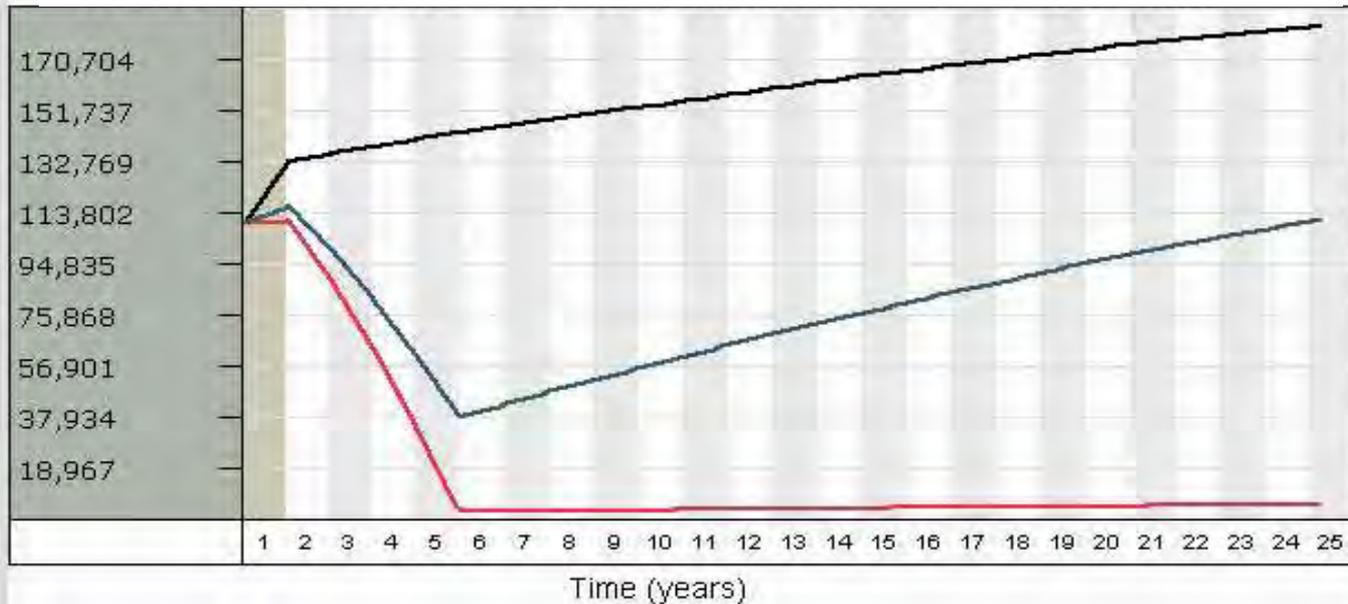
Replace all

Remove All

Cumulative Cost Comparison in Today's Dollars
Over Time With a 3% Discount Rate



Effects of Simple Strategy on Forest Size



Treat all

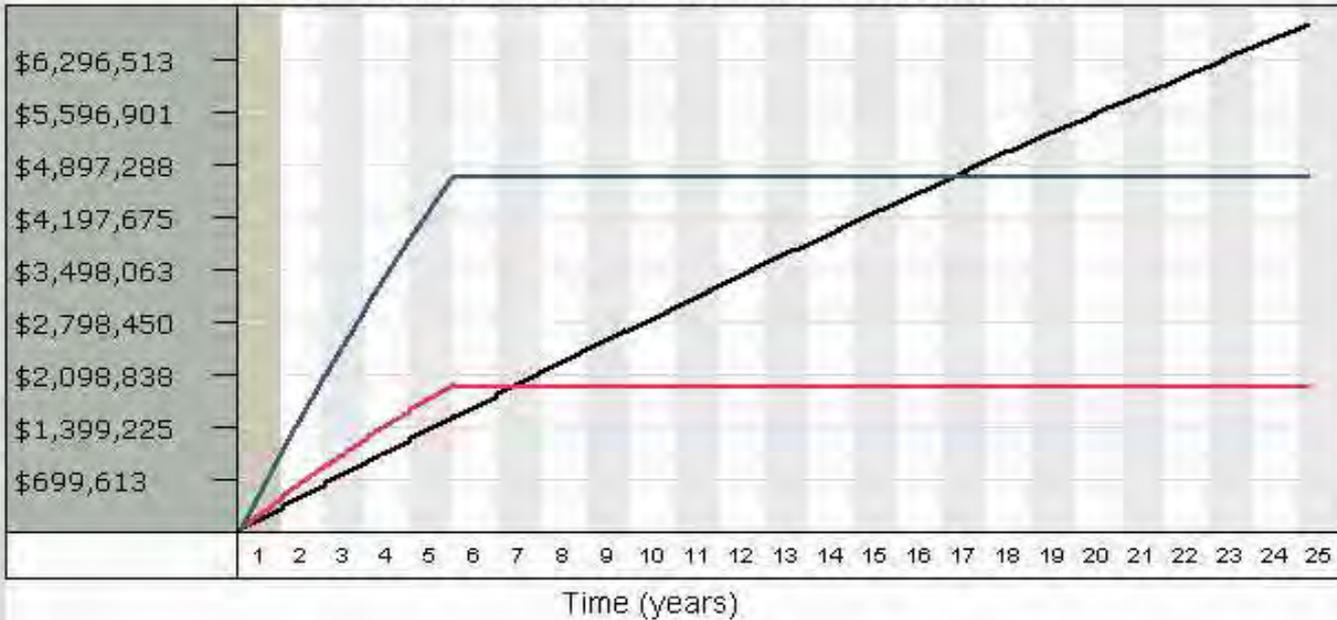
Replace all

Remove All

Lessons from EAB Calculator

- Each strategy has distinct cost
 - Removing all trees least expensive
 - Replacing all trees more expensive
 - Pesticide application less expensive in short run, but more expensive in long run

Cumulative Cost Comparison in Today's Dollars Over Time With a 3% Discount Rate



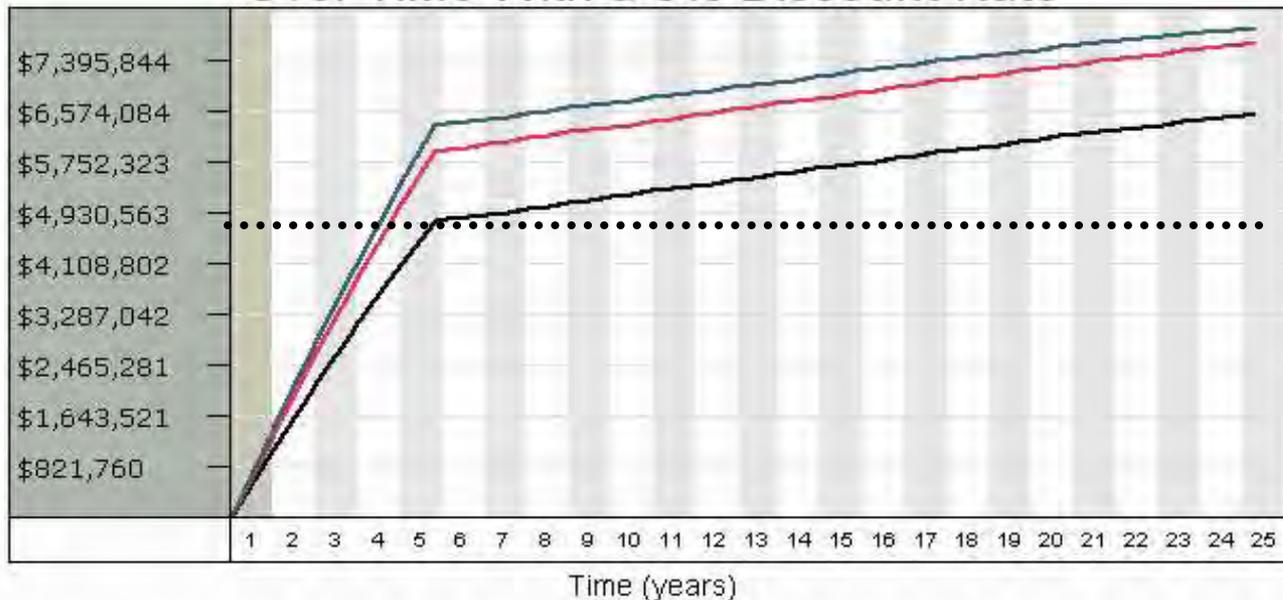
Costs:
Simple vs
Save Small

Treat all

Replace all

Remove All

Cumulative Cost Comparison in Today's Dollars Over Time With a 3% Discount Rate

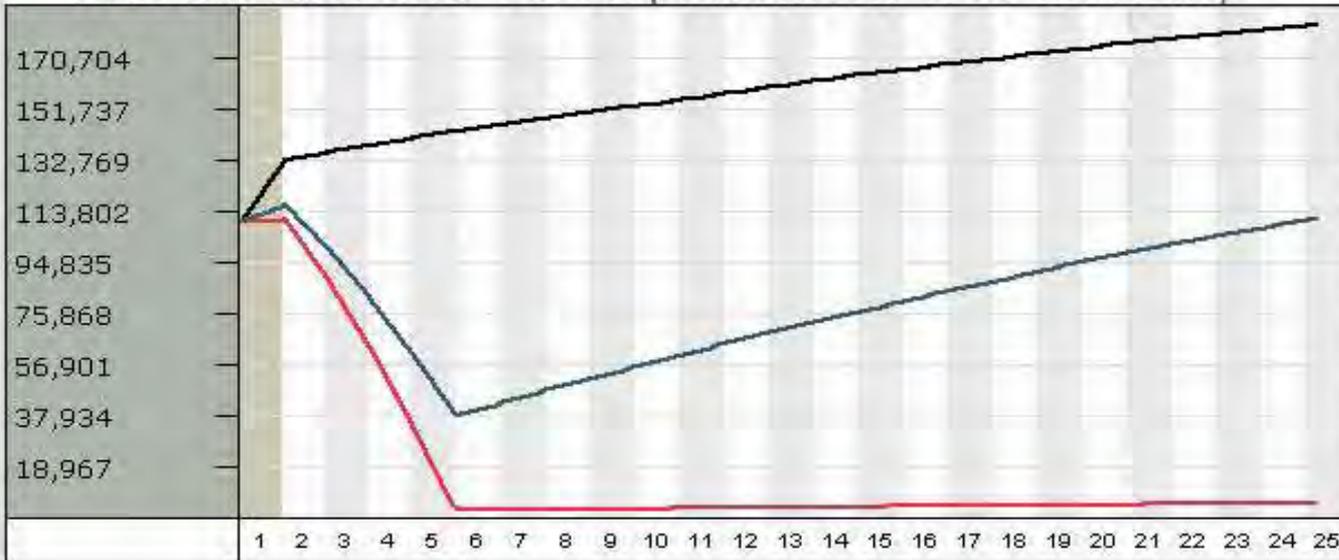


6 < Replace > 12

Replace > 12

Remove > 12

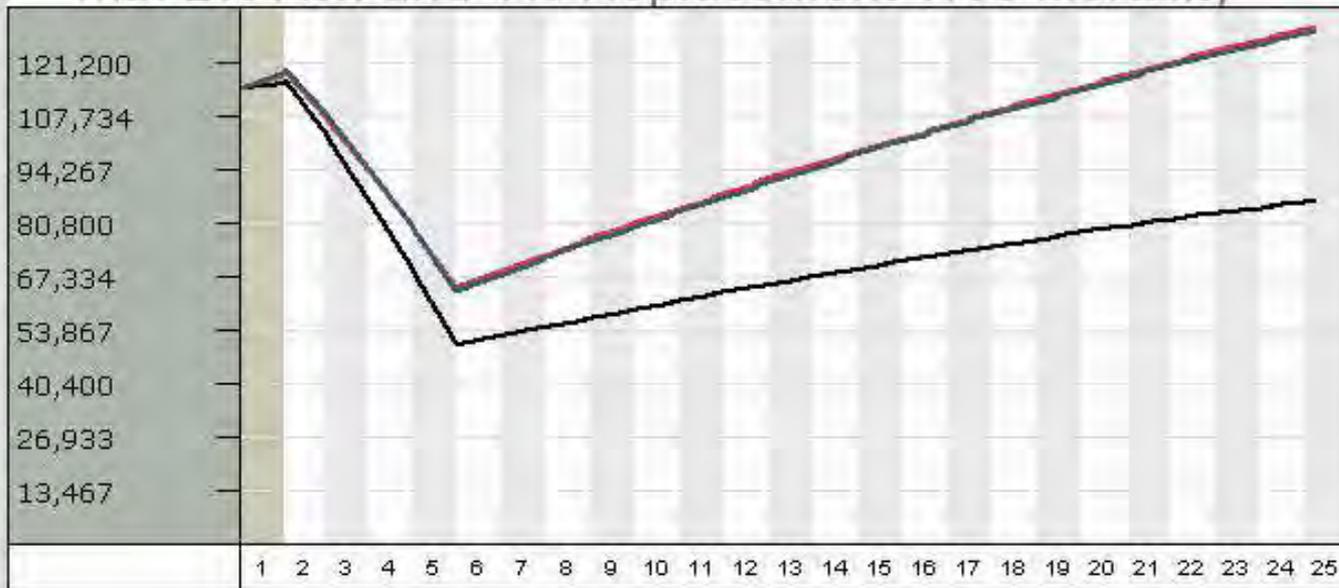
Total DBH Over Time
with 2% Ash and 1% Replacement Tree Mortality



Size:
Simple vs
Save Small

- Treat all
- Replace all
- Remove All

Total DBH Over Time
with 2% Ash and 1% Replacement Tree Mortality

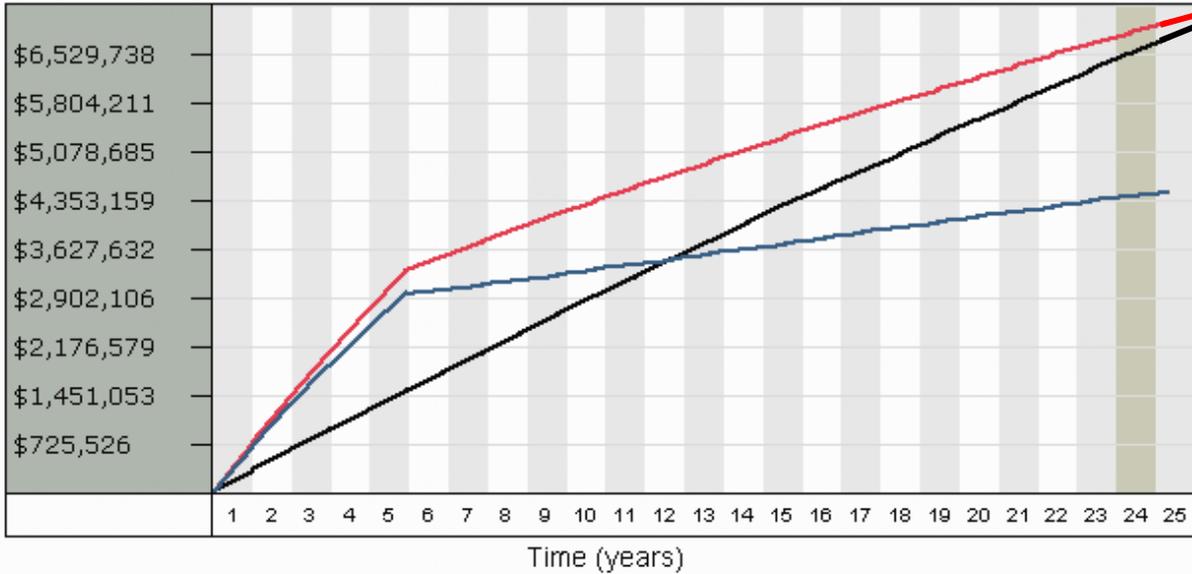


- 6 < Replace > 12
- Replace > 12
- Remove > 12

Time (years)

Cumulative Cost Comparison in Today's Dollars Over Time With a 3% Discount Rate

Save **Large** vs
Save **Small**



Replace < 12

Treat All

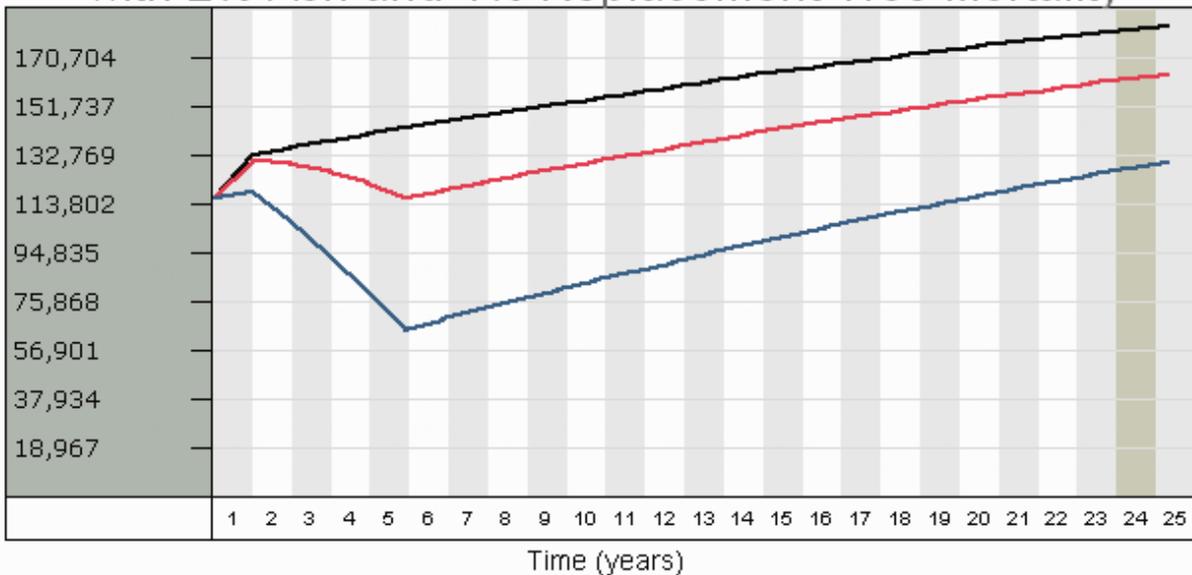
Replace > 12

Total DBH Over Time with 2% Ash and 1% Replacement Tree Mortality

Treat All

Replace < 12

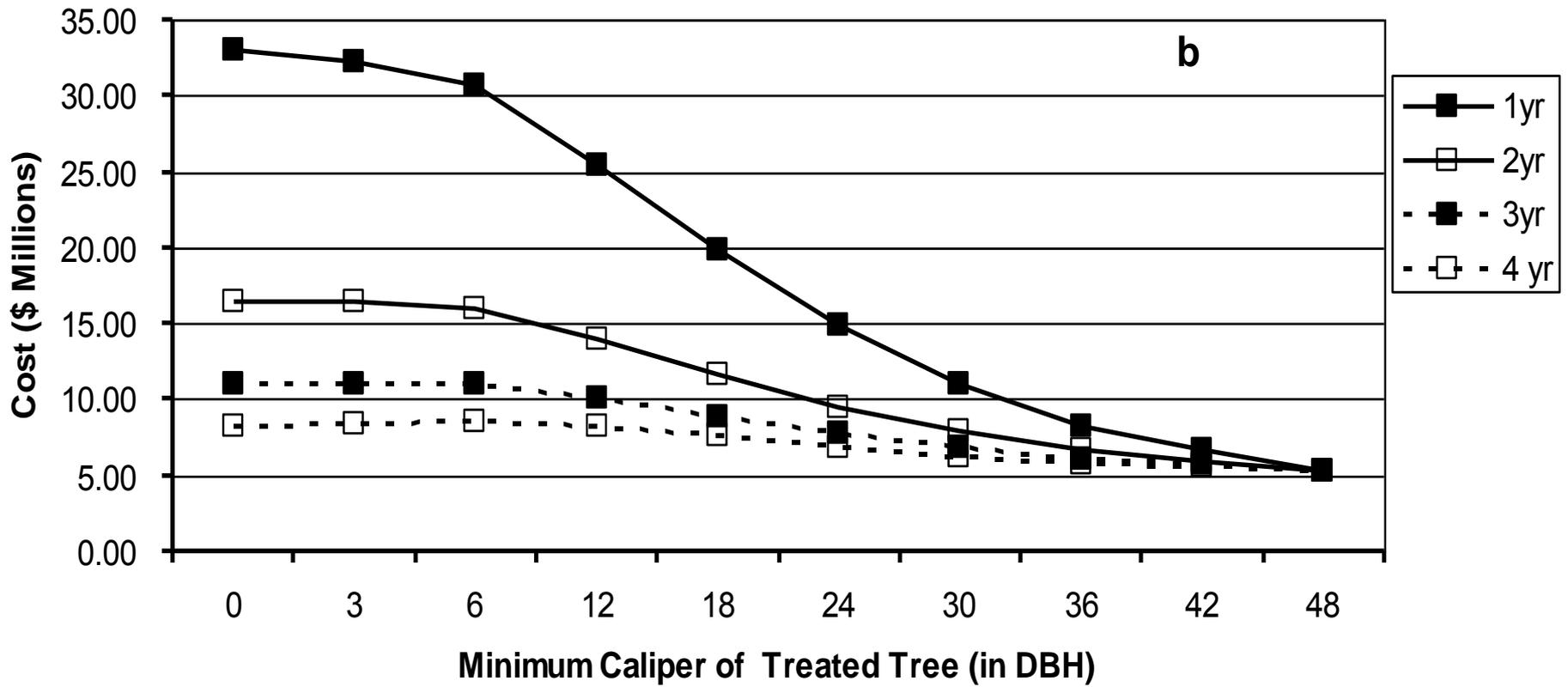
Replace > 12



How size of smallest trees treated affects 25 year costs

Treat and Save All Ash
Replace None

Replace All Ash
Treat None



How size of smallest saved trees affects 25 year forest size

