



# Germplasm Conservation of *Persea borbonia* (L.) Spreng.

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Laurel Wilt Conference, Savannah, GA 27-Feb-09



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# Lauraceae Seed Characteristics

- High lipid content.
- Seed considered recalcitrant, can not be dried below 35% moisture content.
- Recalcitrant seed can usually be stored at 1°-2° C. for short periods of time.
- Metabolic activity slowed during storage.
- Seed viability will decrease over time.

# Red Bay seed at the NSL

- Two Primary Objectives
  - Investigate seed storage behavior.
  - Preserve seed.
  
- Collections Received
  - 35 2006/2007
  - 35 2007/2008
  - 61 2008/2009

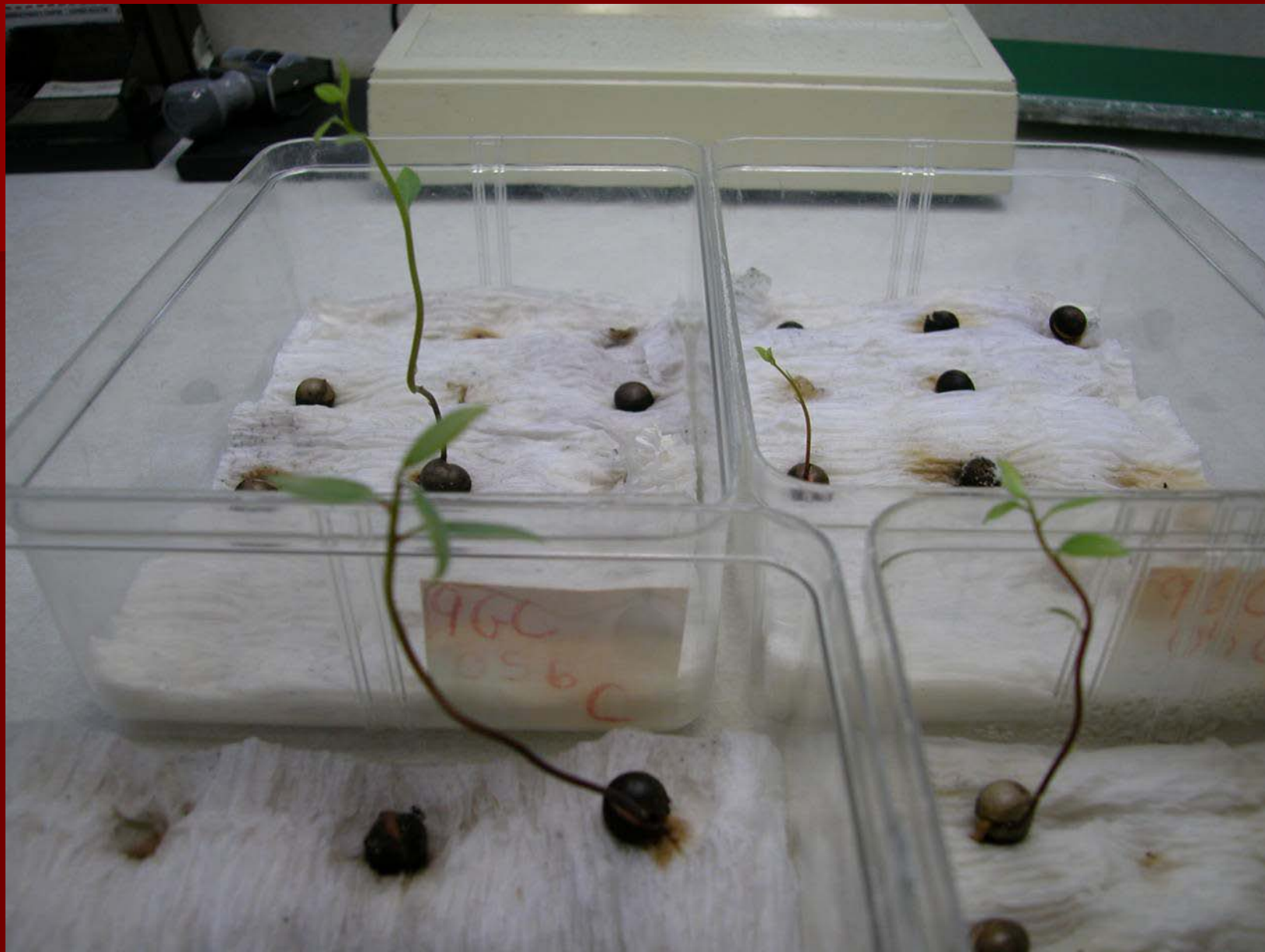


# Red Bay seed collections

- Most collections received are small, less than 100 seed.
- Many collections had few viable seed.
- Only a few collections contained enough seed to be tested at more than one or two storage conditions.

- Standard Operating Procedure
  - Clean, remove berry if necessary.
  - Count seed.
  - X-ray to determine full seed.
  - Germination test.
  - Store seed under different storage conditions.
  - Follow-up germination tests.





# Red Bay seed storage

## ■ Storage Conditions

- With berry and without.
- Moisture content below 35% and at normal moisture content 40%-50%.
- Open plastic bags and heavy mesh.
- Over time.
  
- Temperature. 1<sup>o</sup>-2<sup>o</sup> C. and above.
  
- Only a few collections tested with each set of conditions.

# Red Bay seed storage

- General Observations of Storage Behavior
  - Clean seed, w/o berry germinate better.
  - Seed dried below 35% lost viability.
  - Plastic bags generally better.
  - Seed will germinate across a range of temperatures.
  - Viability of seed decreased over time.
    - After 24 months seed very few viable seed remain.

# Germplasm Conservation Options

- Long term seed storage not an option.
- Short term seed storage (up to 24 months) is an option with viability declining over time.
- Explore embryo cryopreservation and somatic embryogenesis options.
- Protect individual trees within the natural range.
- Produce seedlings and plant in a suitable habitat outside of the range of the beetle and fungus.
  
- Who? How? Where? and perhaps Why?

