

High School Modules For Butternut

Two Activities

Genotype controls

- Extract DNA, electrophorese restricted amplicons from the controls (pure butternut and pure heartnut potted plants)
- Determine the chloroplast type of the controls
- Primary purpose
 - Establish the importance of the positive control
 - Learn about the usefulness of chlorotyping, including the mode of inheritance

Genotype trees near the school

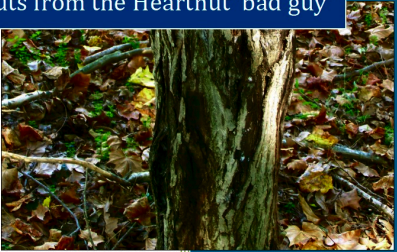
- Extract DNA, electrophorese restricted amplicons from local trees
- Determine the chloroplast type of the trees
- Learn how the nuclear genome is genotyped with the same DNA
- Primary purpose
 - Distinguish between the chloroplast and nuclear genome genotyping
 - Learn that there are different degrees of hybrids
 - Encourage thinking about the meaning of “pure” species



High School Modules For Butternut Collaborative Integration

**High School
Biology
Module**

Crime Scene Investigation: Saving
Butternuts from the Heartnut 'bad guy'



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High School Biology Module

In School activity

- Smoosh* leaves into the tubes with buffer
- Electrophorese restricted amplicons and stain gels
- Score gels

JRS lab support

- Finish DNA extraction
- Do PCR-RFLP and ship back restricted amplicons
- Genotype the unrestricted DNA for 11 nuclear markers

JRS video to school

- Show how the rest of the DNA extraction is done
- Show the genomics core and the ABI3730xl box
- Show animation of how the 3730xl works
- Explain how the peak heights are turned into fingerprints
- Explain how degrees of hybrid are determined.

*technical term



**Comparative Genomics of
Hardwood Tree Species**

<http://www.hardwoodgenomics.org>