



Cornell University  
Department of Plant Breeding and Genetics

# Legumes in the Northeast USA



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# Welcome to Ithaca, NY



# College of Agriculture and Life Sciences



# Dairy #1 Agricultural Enterprise



# NY Forage Production-2010

(USDA, National Agric. Statistics Service)

<u>Commodity</u>	<u>Acres Planted</u>	<u>Acres Harvested</u>	<u>Yield (T/A)</u>
All Forage		1,950,000	2.4
Alfalfa (Hay + Haylage)		740,000	3.2
Alfalfa & Alfalfa Mixtures	100,000		

# Legumes Most Used

Alfalfa

Red Clover

Birdsfoot Trefoil

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# Forage Yield

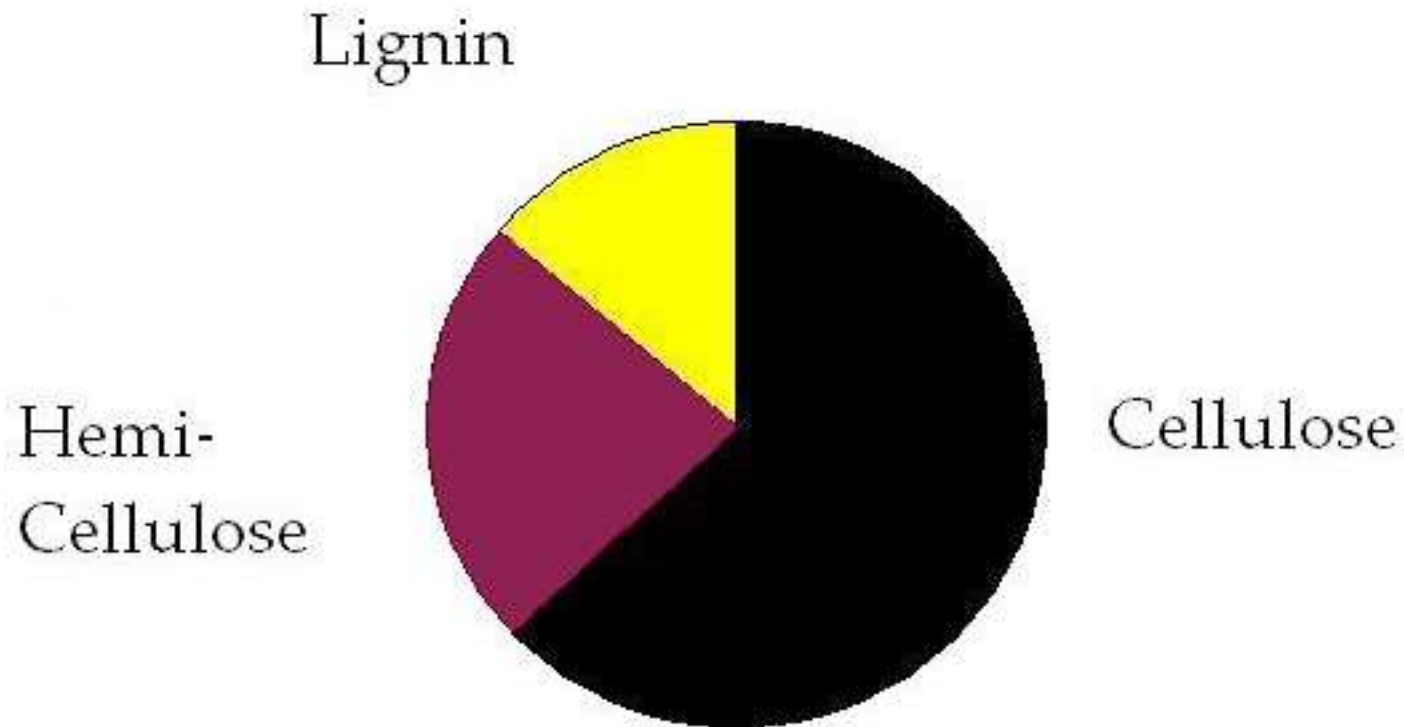
**Replicated Clonal  
Evaluation: NE1010**



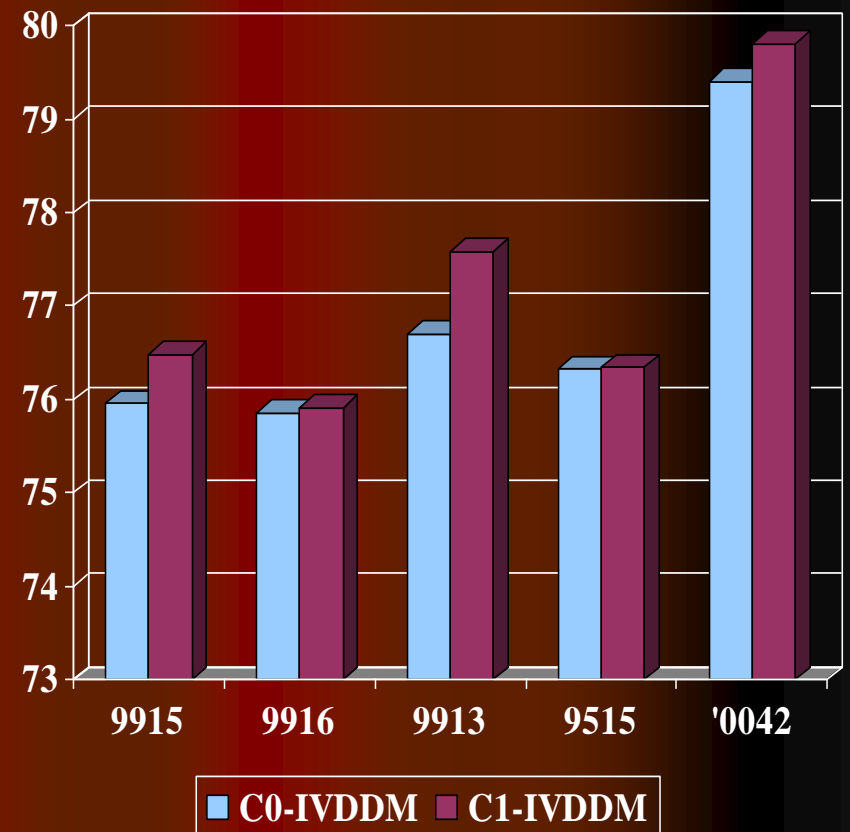
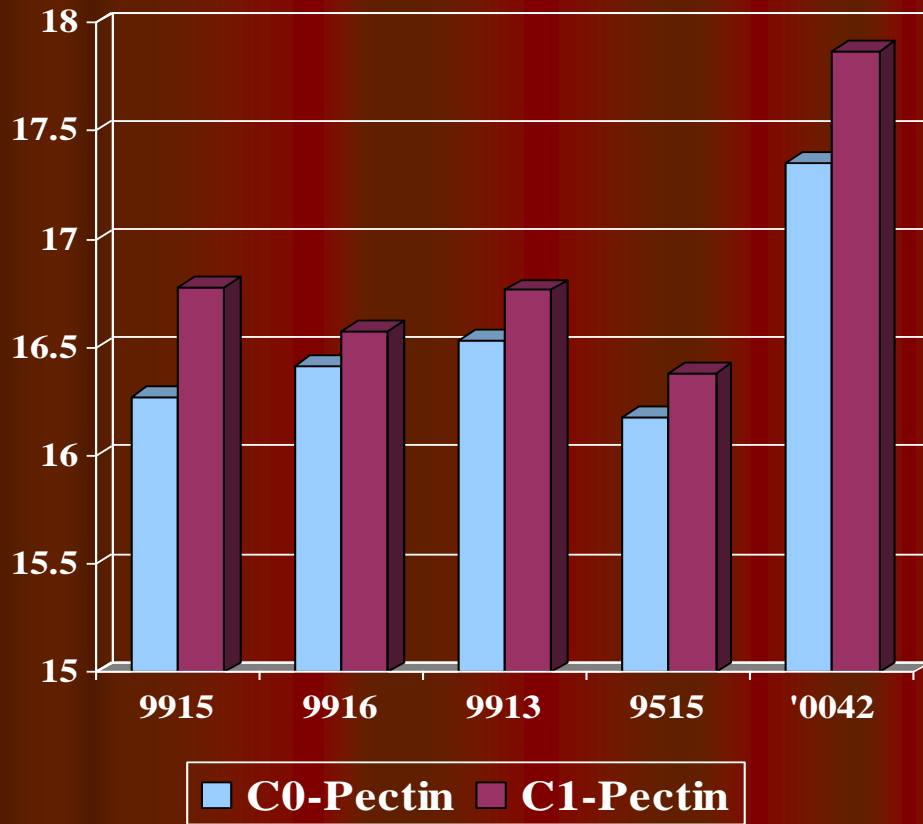


# Forage Quality

## Fiber Fractions



# Selection for Increased Pectin Concentration in Alfalfa and Impact on Digestibility



# Alfalfa Nursery



# Alfalfa Diseases

## The Big 5

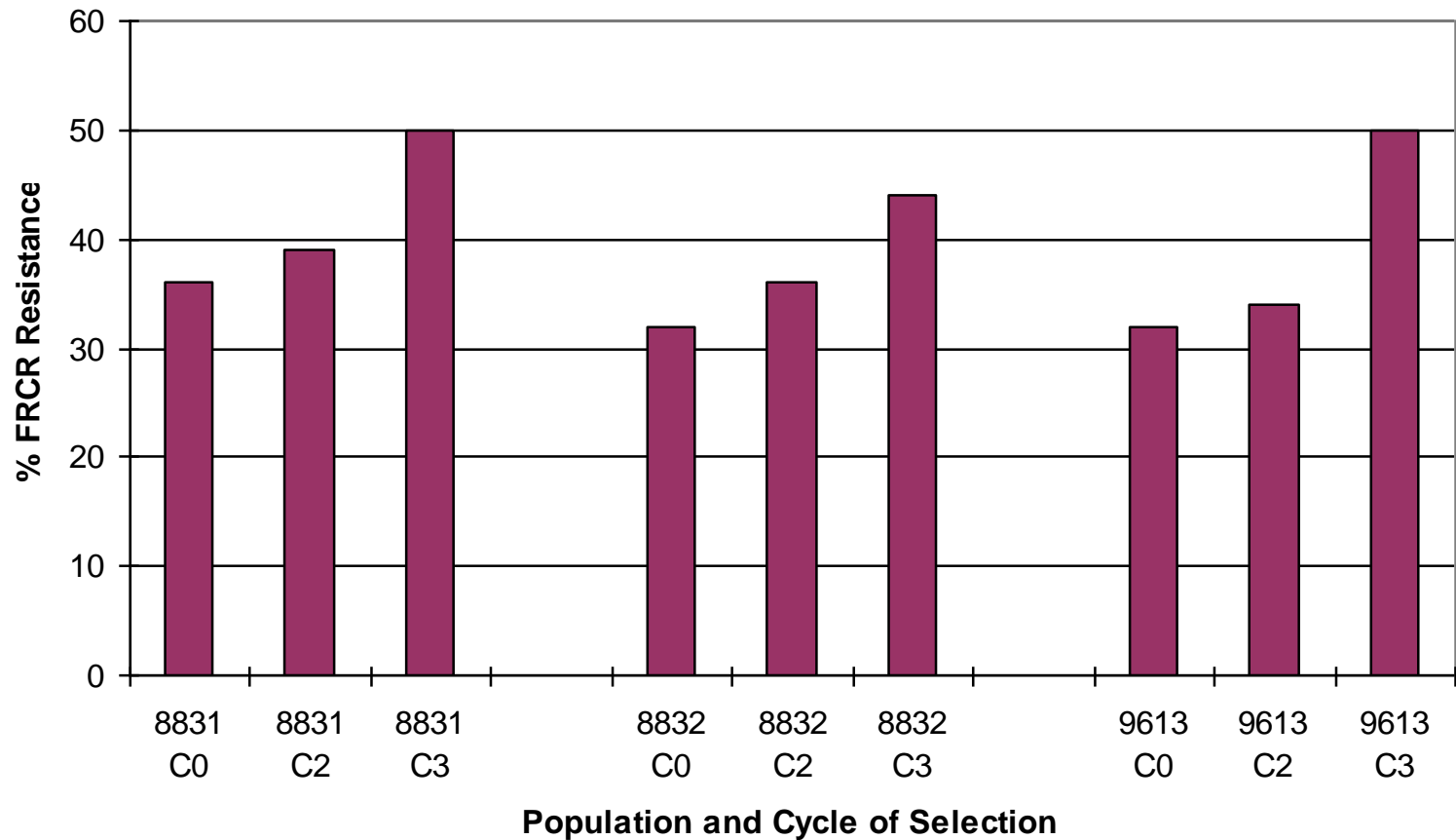
- Bacterial wilt
- Verticillium wilt
- Fusarium wilt
- Phytophthora root rot
- Anthracnose



# Alfalfa Crown Rot



# Crown Rot Selection Progress



# Potato Leafhopper on Alfalfa



# Glandular Trichomes

**Standard Cultivar**



**PLH Resistant**





# Resistant vs. Susceptible



# Alfalfa Snout Beetle



# Screening Method developed by Elson Shields' Group Department of Entomology, Cornell University

Infestation of can with ASB eggs







Average Severity  
(1=best, 5=worst)

	C0	C1	C2	C3
Average Severity (1=best, 5=worst)	3.46	3.35	3.23	3.09

# Clover Root Curculio

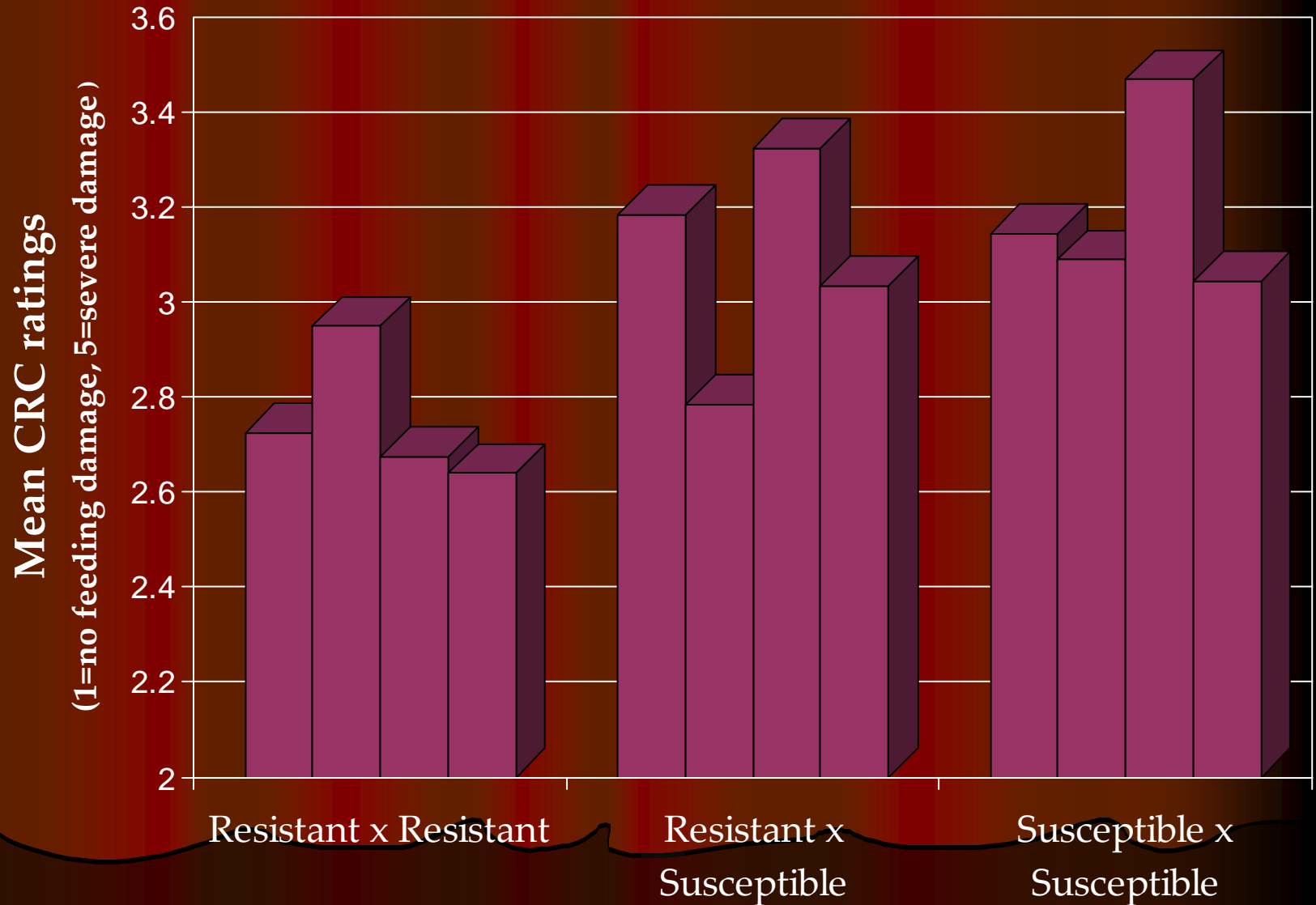


ipm

CRC feeding  
damage



# CRC ratings of full-sib progeny grouped by parental resistance category





# Root Regeneration



# Root Regeneration



# Acid Tolerance NE1010



# Red Clover

**First Production Year**



**Second Production Year**



# Birdsfoot Trefoil



# % Resistance to Fusarium Wilt in Greenhouse Evaluation

Variety	% R
Pardee	50
Norcen	1
Viking	1
Trevig	5
Witt	0
AC Langille	4

# Birdsfoot Trefoil: Inoculated



# Birdsfoot Trefoil Rhizomes





# Challenges



# Character Trait of an Excellent Forage Scientist

Perseverance

Optimism

Story of two frogs



# R.P. Murphy



# Creeping Rooted Alfalfa for NE Pastures





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# Forage Breeding Project

- Donald R. Viands – Project Leader
- Julie L. Hansen – Sr. Research Associate
- Jamie Crawford – Research Support Specialist
- Hilary Mayton – Research Associate
- R. Deubler, J. Schiller, Ryan Crawford – Technicians
- Students

# Questions?

