

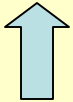
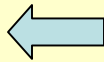
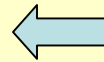
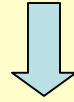
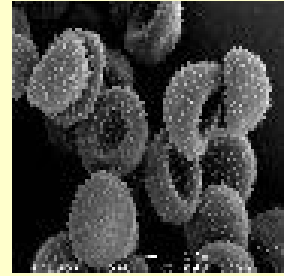
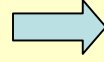
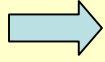
# **Smut and Yellow Leaf Disease**

**Mike Grisham  
Jeff Hoy  
Ryan Viator  
Rich Johnson  
Gillian Eggleston**



# Disease Traits of Commercial Varieties

	CP 70-321	LCP 85-384	HoCP 91-555	HoCP 96-540	Ho 95-988	L 97-128	L 99-226	L 99-233	HoCP 00-950
	Year Released								
	1978	1993	1999	2003	2004	2004	2006	2006	2007
<b>Smut</b>	R	R	R	R	M	S	M	M	R
<b>Mosaic</b>	M	R	R	R	R	R	MR	MR	R
<b>RSD</b>	P	M	M	T	T	T	P	P	P
<b>Leaf scald</b>	M	R	HR	R	R	R	MR	MR	R
<b>Rust</b>	M	S	M	M-S	S	M	M	M	M
<b>Yellow leaf</b>	S	S	?	S	S	S	S	S	S



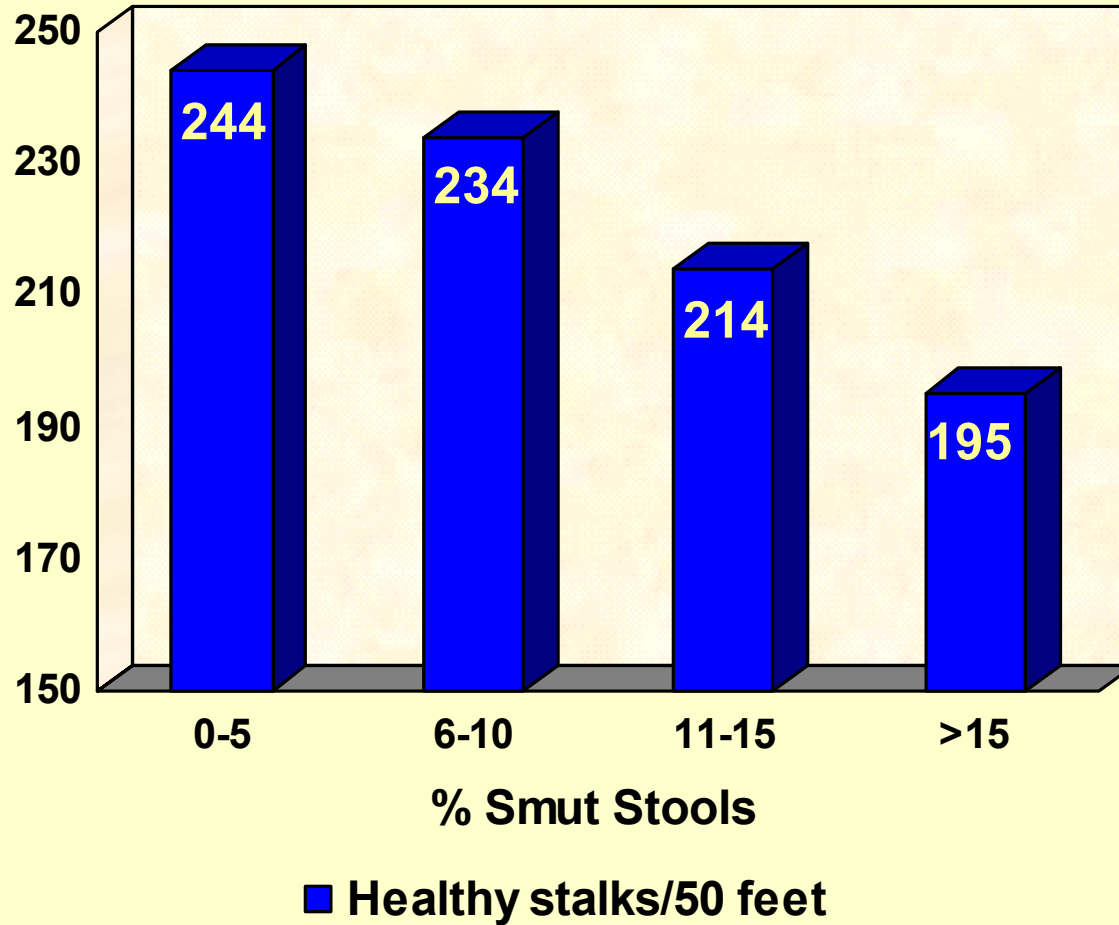
## Smut Disease Cycle

# Smut Effect on L 97-128

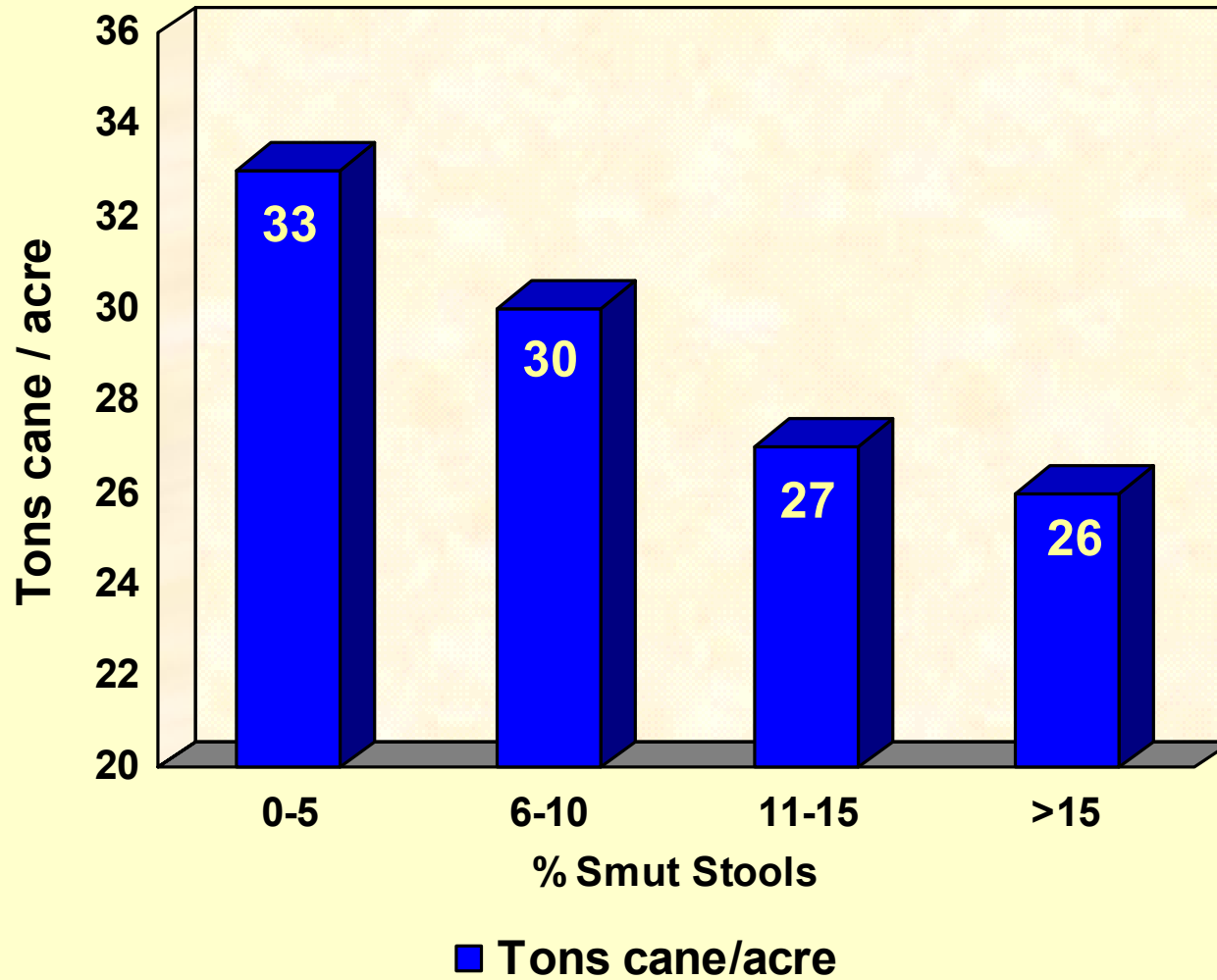
- Yield loss tests conducted in 2006 and 2007 in commercial fields of L99-128
- Plots were established and % smut recorded
- First and second ratoon crops were harvested with chopper harvester and yields monitored with a weigh wagon



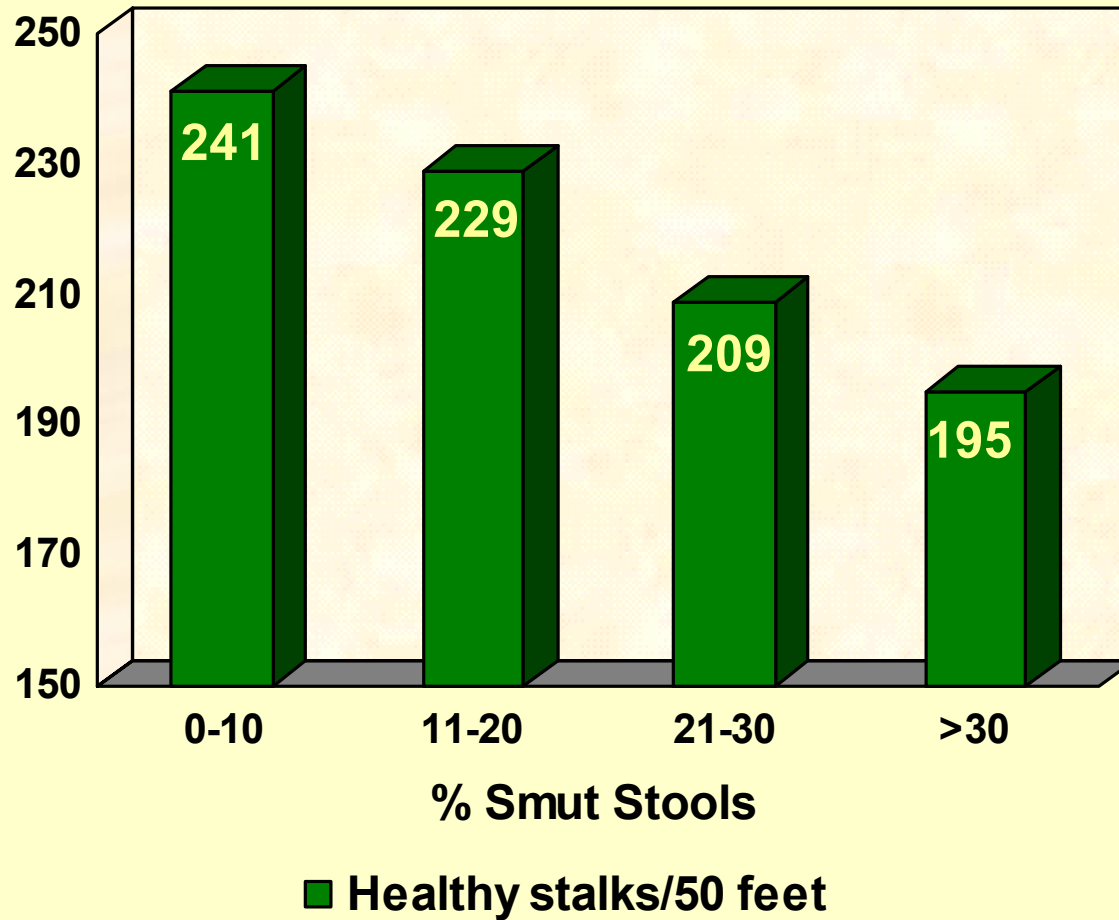
# Healthy Stalk Population - First Ratoon



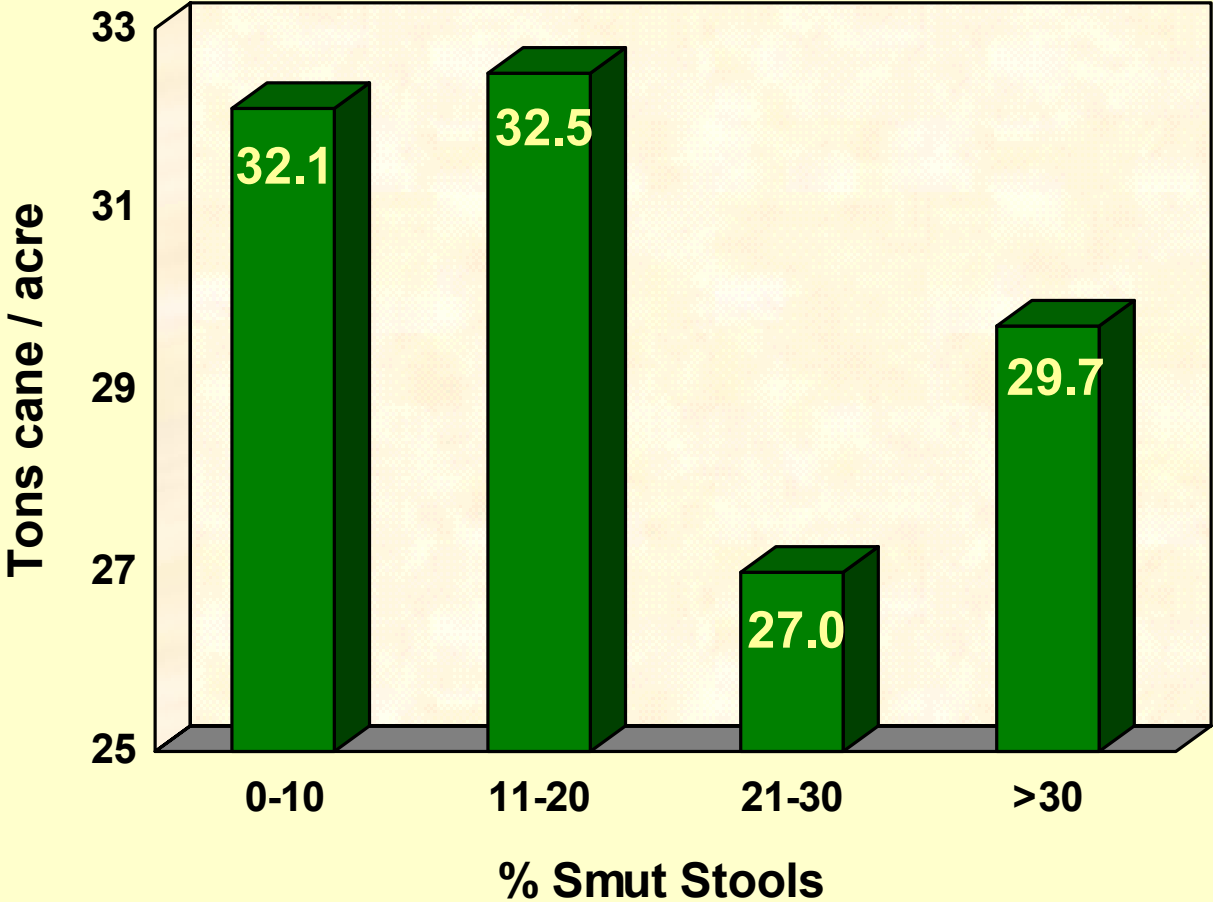
# Cane yield - First Ratoon



## Healthy Stalk Population - Second Ratoon



# Cane Yield - Second Ratoon



■ Tons cane /acre



# Control

- **Resistant variety**
- **Clean seed cane (<2%)**
  - Hot-water treatment @ 52°C for 30-45 min
  - Micropropagated seed cane
- **Varies with crop**
  - Example: L 97-128
    - PC= 12%
    - 1<sup>st</sup> ratoon = 35%
    - 2<sup>nd</sup> ratoon = 67%
- **Rouging (?)**

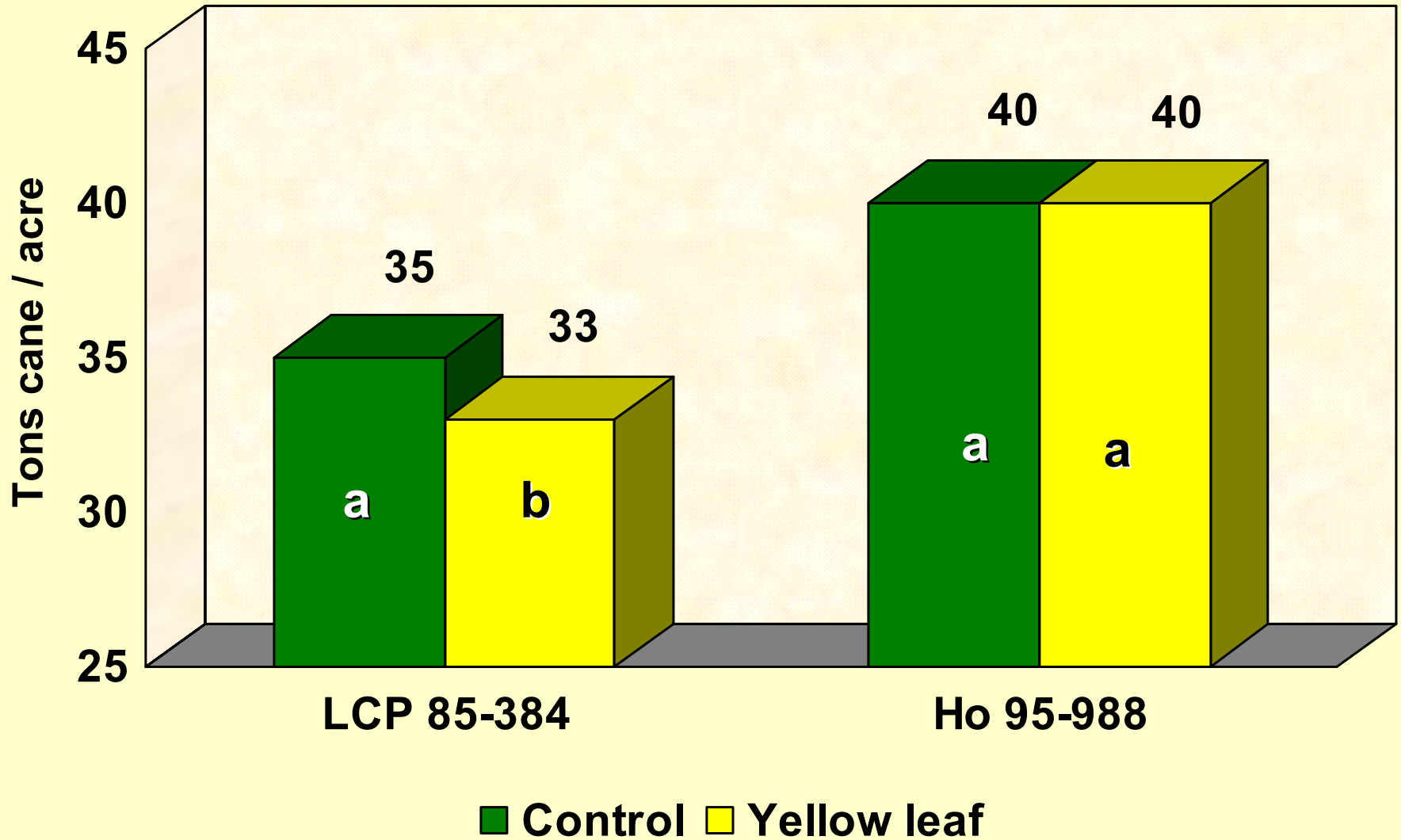


**Is the sugarcane yellow leaf virus affecting Louisiana sugarcane?**

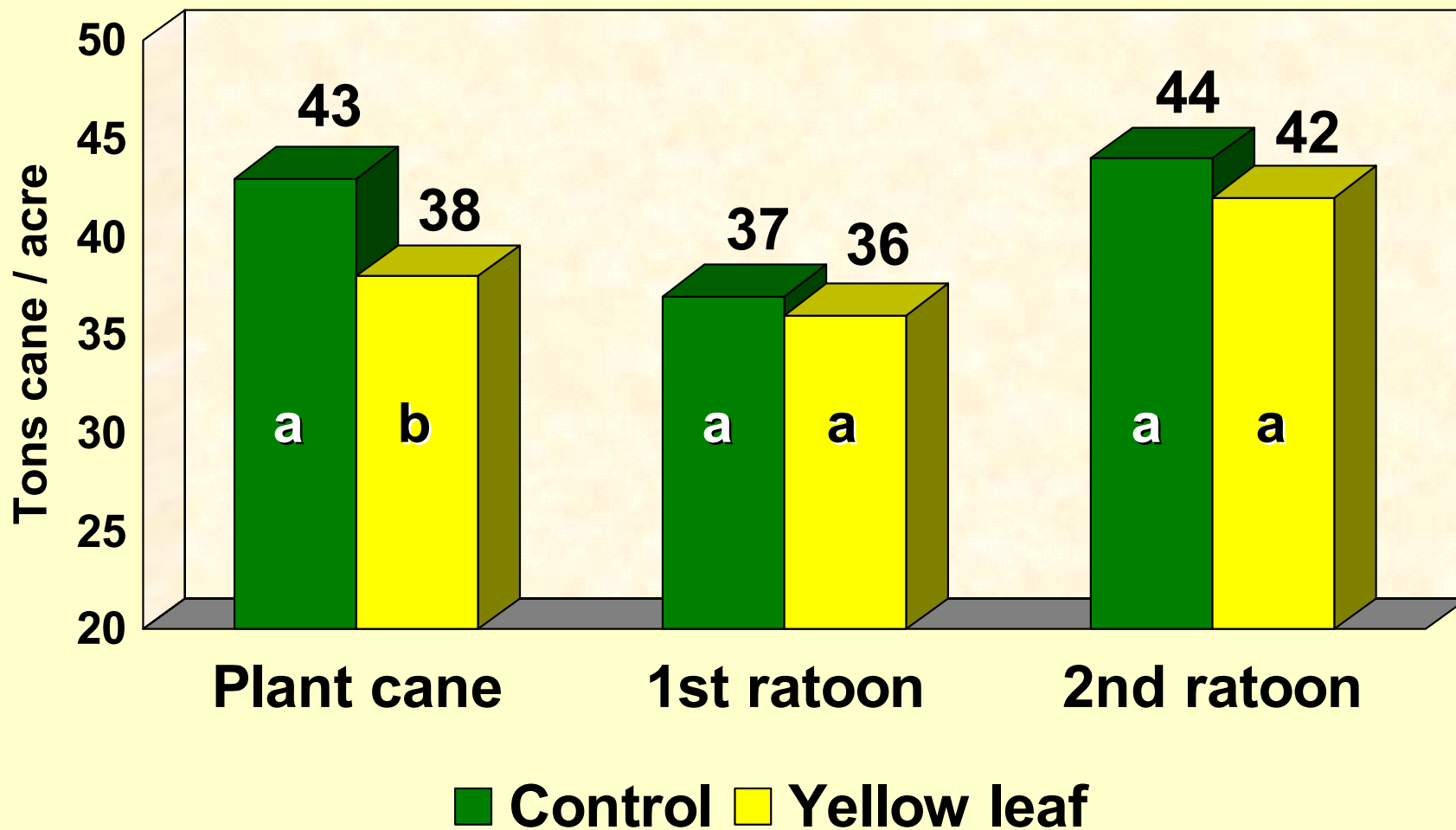
# Observations Concerning Sugarcane Yellow Leaf Virus in Louisiana

- First detected in Louisiana-grown sugarcane in 1996
- SCYL is transmitted by the sugarcane aphid (*Melanaphis sacchari*), first observed in LA in 1999
- Symptoms rarely observed in LA commercial sugarcane
- SCYLV infections observed in all of our currently recommended varieties
- SCYLV is widespread, but incidence is low

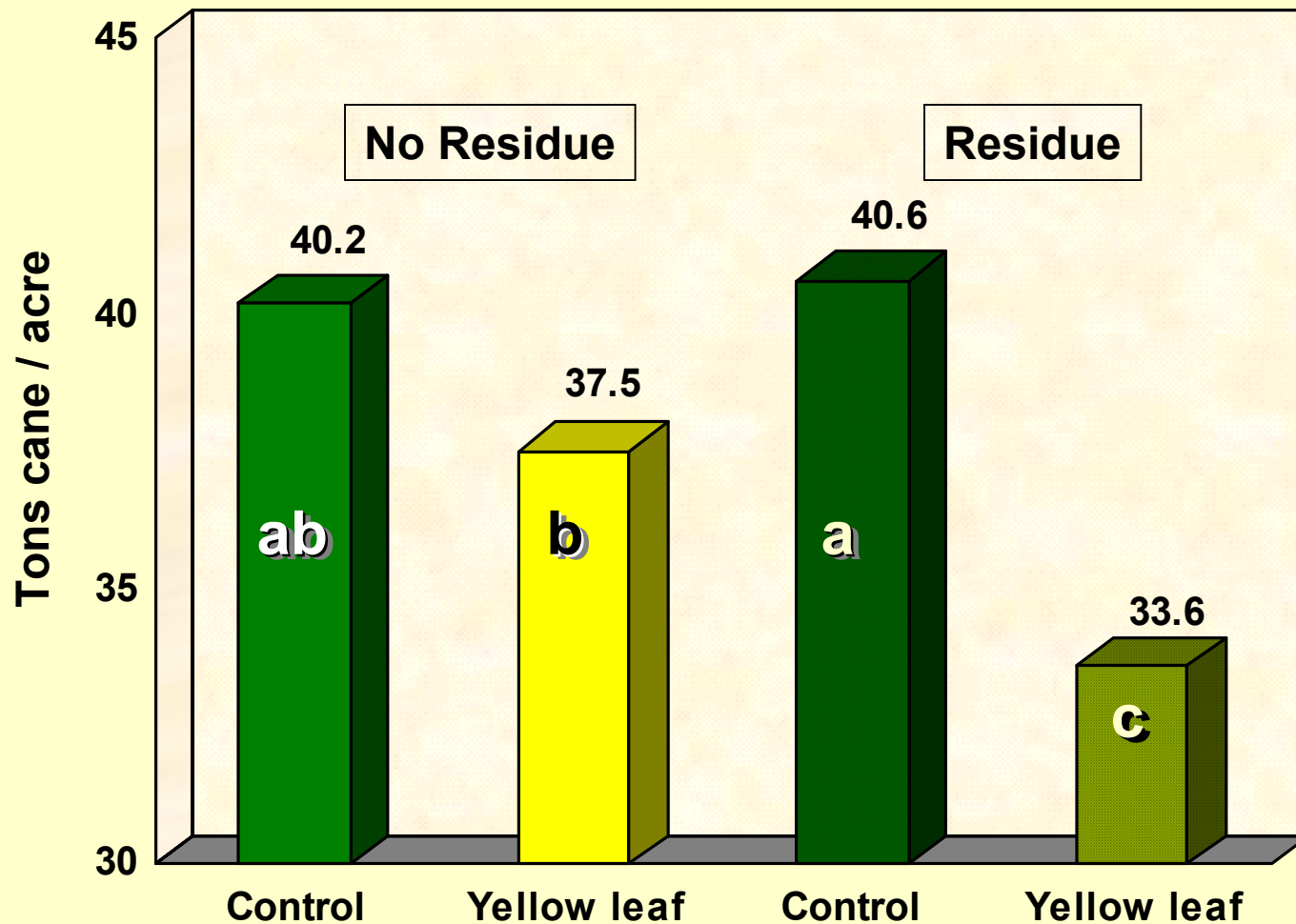
## Effect of Yellow leaf on LCP 85-384 and Ho 95-988



# Yellow leaf effects on HoCP 96-540

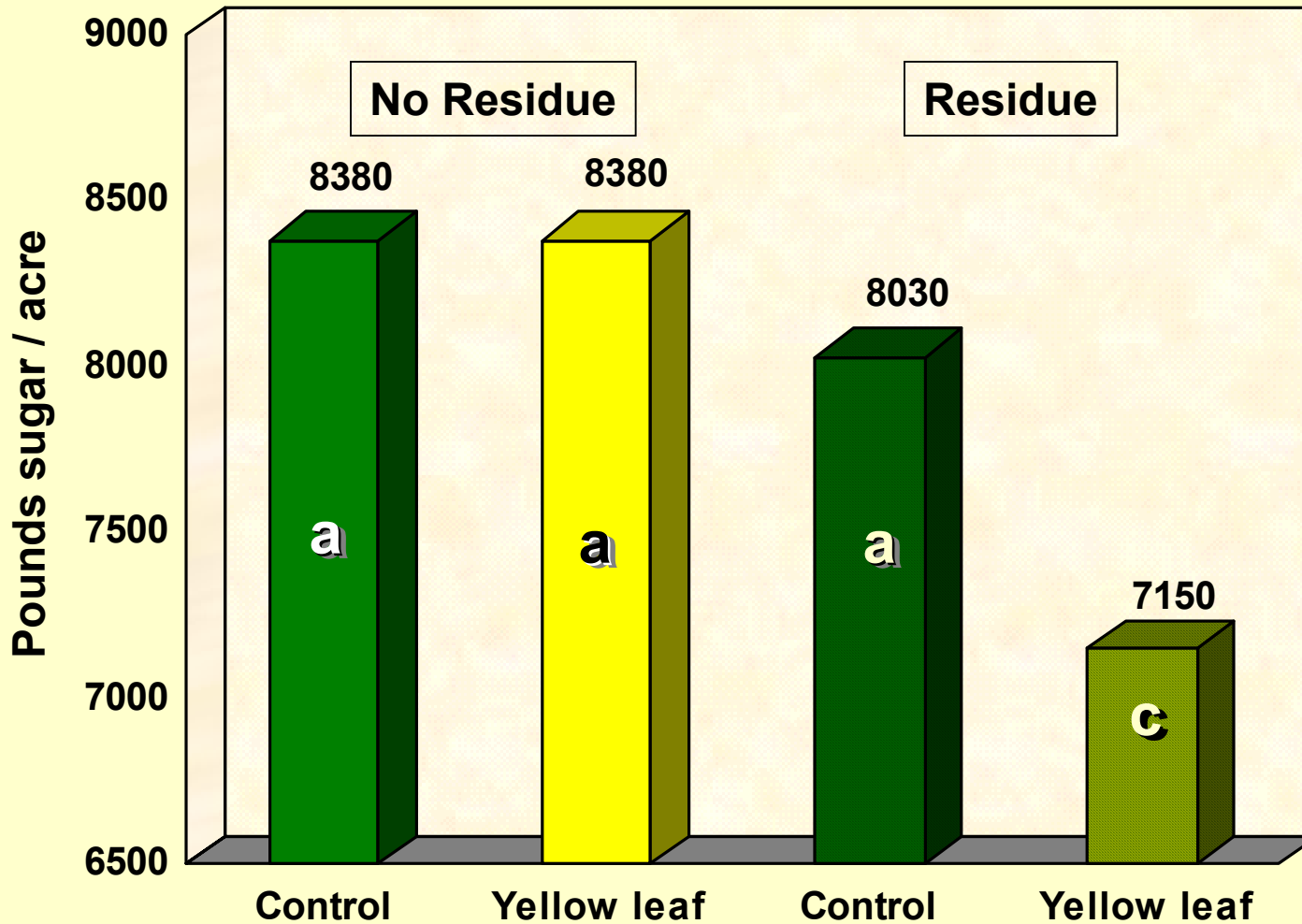


# Cane Yield



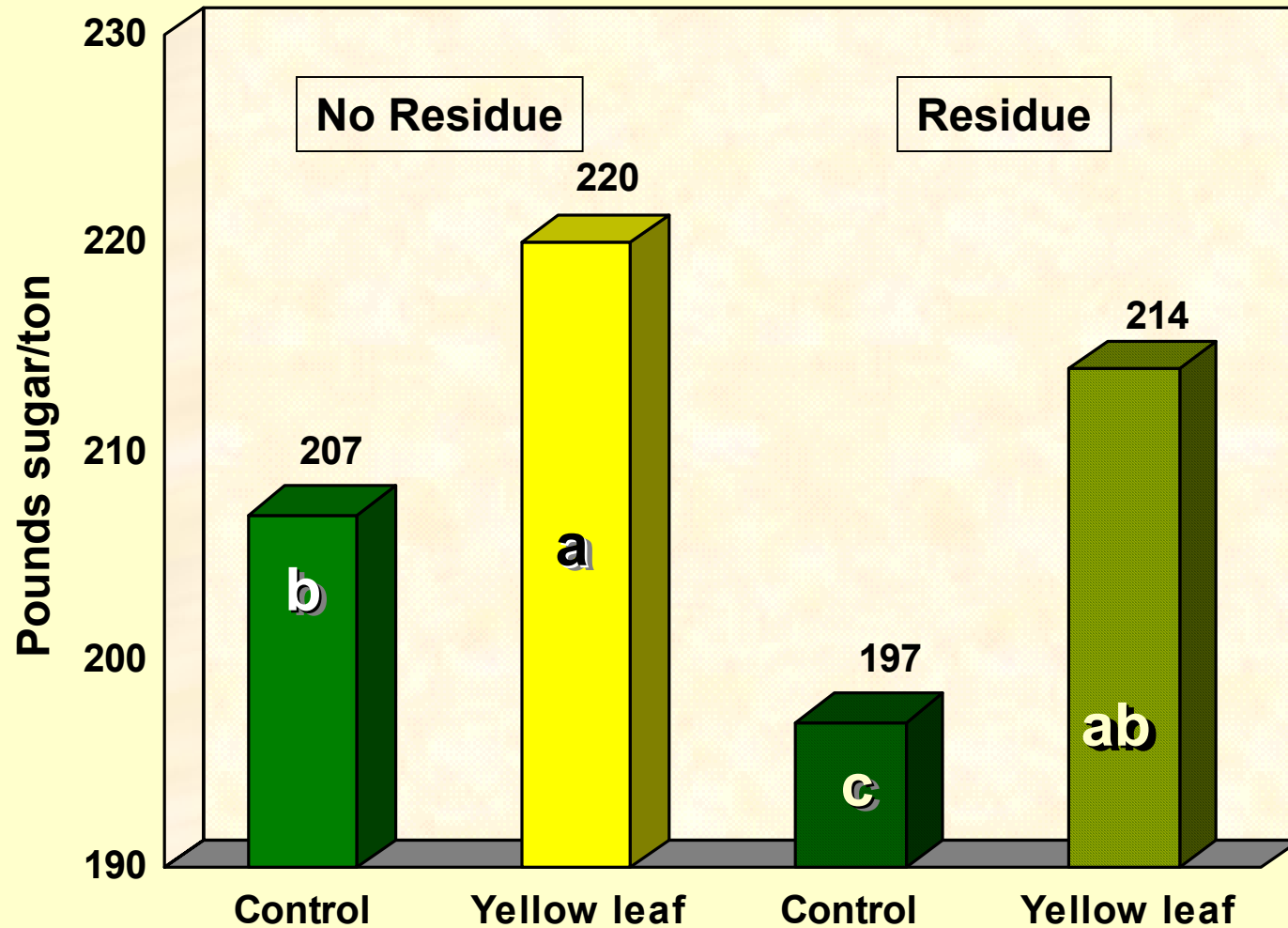
Average of three crops  
LCP 85-384

# Sugar Yield



Average of three crops  
LCP 85-384

# TRS

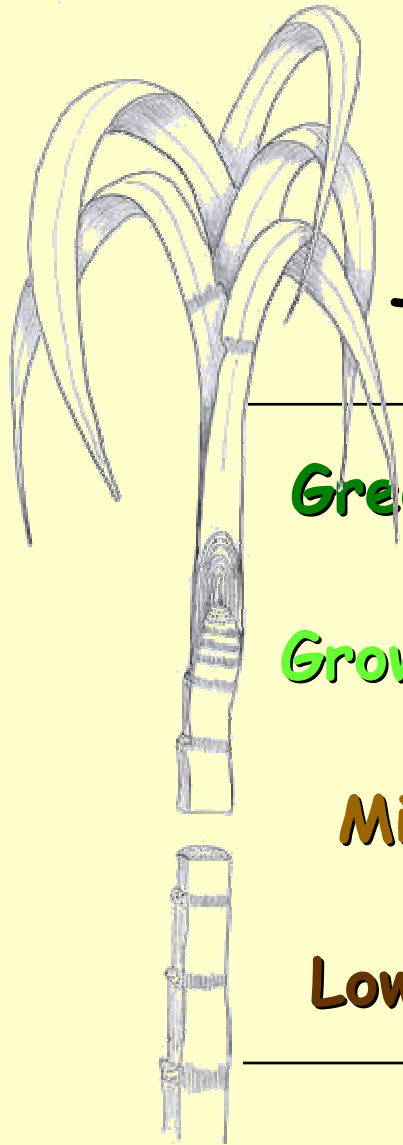


Average of three crops  
LCP 85-384



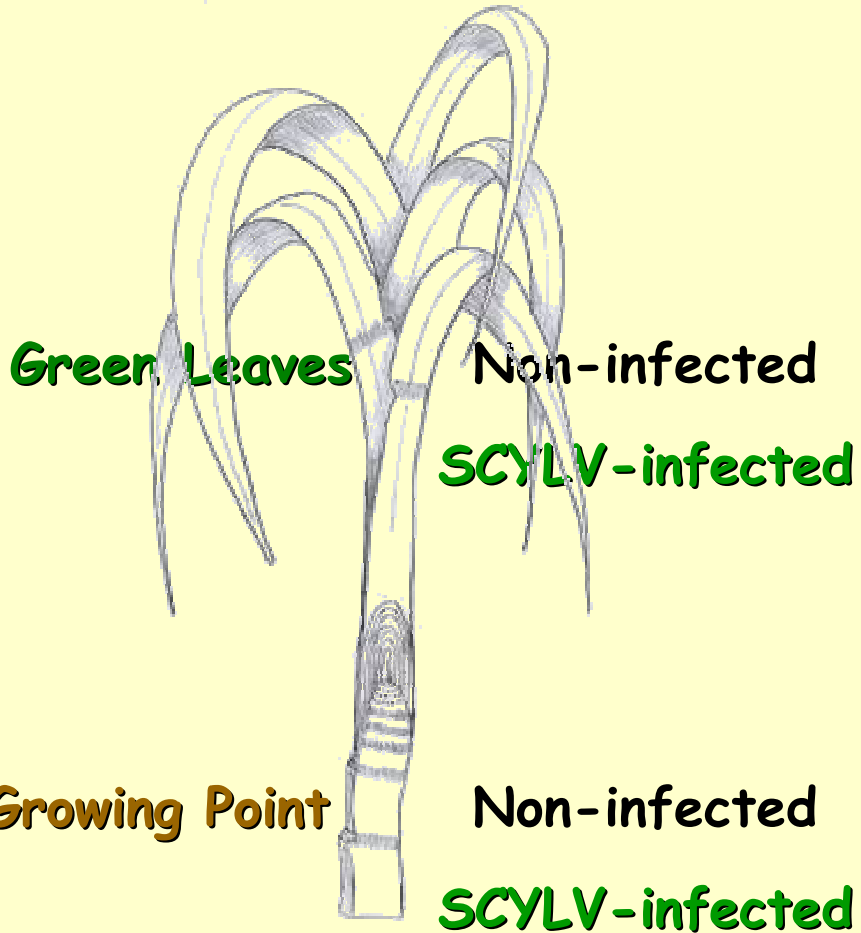
# Analysis of Juice Quality in Different Tissues of the Stalk





Range of starch conc. (ppm)

Tissue	LCP 85-384	Ho 95-988
Green leaves	2130-5360	490-2250
Growing point	870-1450	940-2070
Mid-stalk	520-600	660-880
Lower stalk	200-320	400-575



Starch (ppm)	
<b>LCP 85-384</b>	<b>Ho 95-988</b>
2700	940
4050	1490
<b>50%</b>	<b>40%</b>
940	1100
1160	1540
<b>23%</b>	<b>57%</b>

# Effects of SCYLV on Sugarcane Yield and Juice Quality

- Significant loss of sugar and tonnage was observed in SCYLV-infected plants of LCP 85-384, HoCP 96-540, and L 97-128, but not in Ho 95-988
- Yield loss caused by yellow leaf was increased when residue was not removed
- An increase in starch accumulation was observed in green leaves and the growing point region of SCYLV-infected plants
- These results support the need to plant clean seed and an additional justification for residue removal

# Acknowledgments

- **American Sugar Cane League**
- **Jessie Breaux**
- **A host of technicians including**
  - **Kathy Warnke**
  - **Jeri Maggio**
  - **Carolyn Savario**
  - **Dave Jones**
  - **Halley Burleson**
  - **Brenda Campbell**

