



Brief Red Stripe Update

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Two forms of the disease

Leaf Stripes

Top Rot



■ **Bacterium: *Acidovorax avenae* subsp. *avenae***





Transmission

Primarily wind-driven rain





Why some years and not others?

Genetics verses Environment

- Ho 05-950 is highly susceptible
- Disease favored by
 - High rainfall
 - High temperature
(following dry spring)
 - Soils with lower water-holding capacity

Summary

- When top rot symptoms are present, TRS and sugar yield were negatively correlated with red stripe incidence in our yield trials at two locations
- Positive correlations were observed between red stripe incidence and a number of soil properties including soil phosphorus, potassium, zinc, and calcium
- Red stripe incidence increased with increasing N rate, the effects were greater in heavy soils
- Planting with seed infected with red stripe may decrease shoot and stalk counts and possible subsequent cane and sugar yields
- However, planting stalks with severe symptoms does not appear to result in increase in disease



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Effect of Mosaic on Sugarcane in Louisiana

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Sugarcane Mosaic



Caused by

*Sugarcane Mosaic
Virus (SCMV)*

or

*Sorghum Mosaic
Virus (SrMV)*

Sugarcane mosaic viruses vectored by aphids





Introduction

- Early 1900s -- mosaic caused near-destruction of Louisiana sugarcane industry
- 1920s -- importation of tolerant hybrid P.O.J. varieties from Java
- 1920s -- breeding program established to develop mosaic-resistant varieties adapted to Louisiana and Florida
- Mid-1950s -- incidence of mosaic rare
- 1960s & 1970s -- new strains appeared (later identified as a new virus – *Sorghum mosaic virus*)
- 1980s to mid-1990s -- mosaic responsible for yield losses
- Era of LCP 85-384 – low levels of mosaic
- 2010s – increasing incidence of mosaic

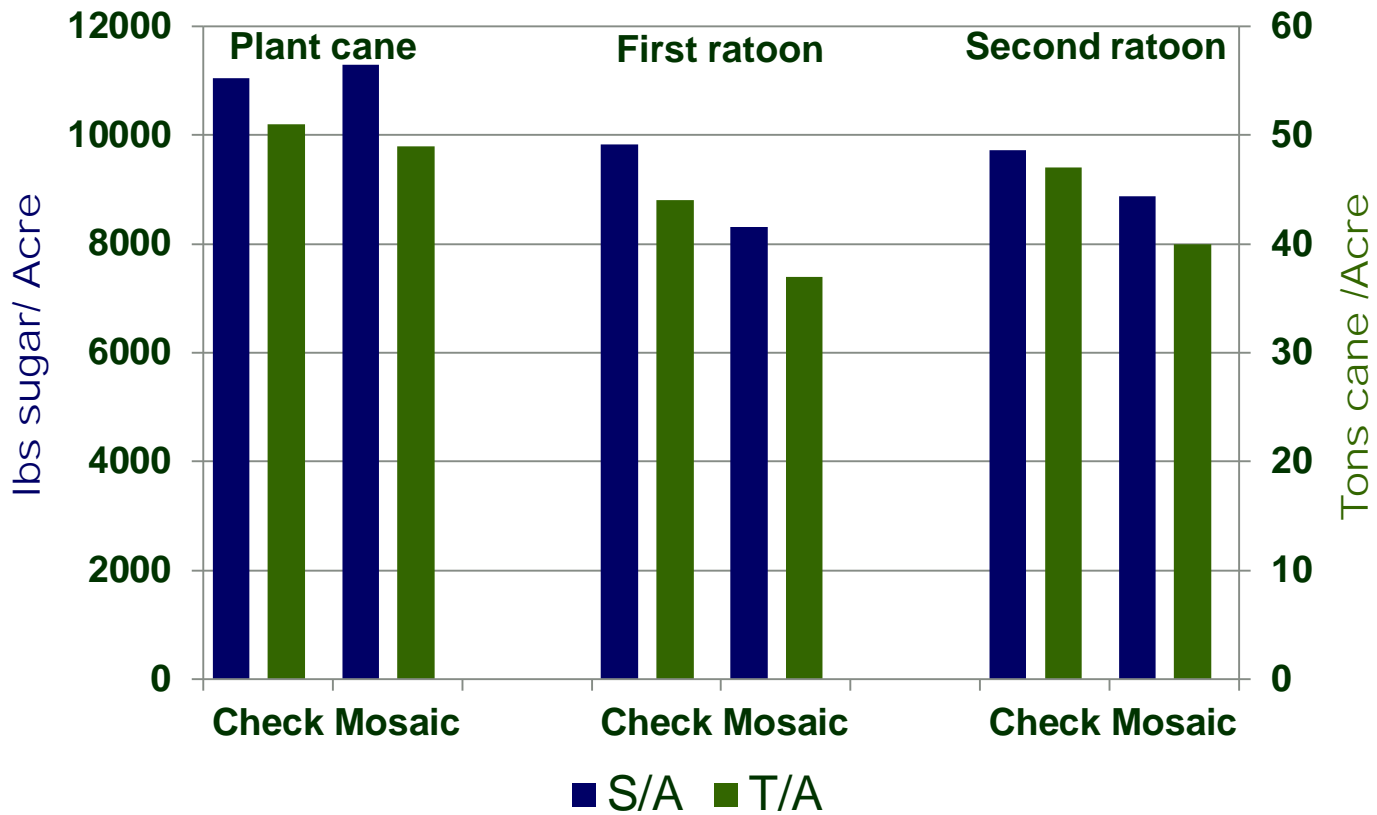
Virus identification	2003-2007 survey results (%)	1990-95 survey results (%)
SrMV strain H	12	>90
SrMV strain I	66	<10
SrMV strain M	6	<2
SrMV Unknown	7	0
SCMV	<1	0
Unknown virus	10	0



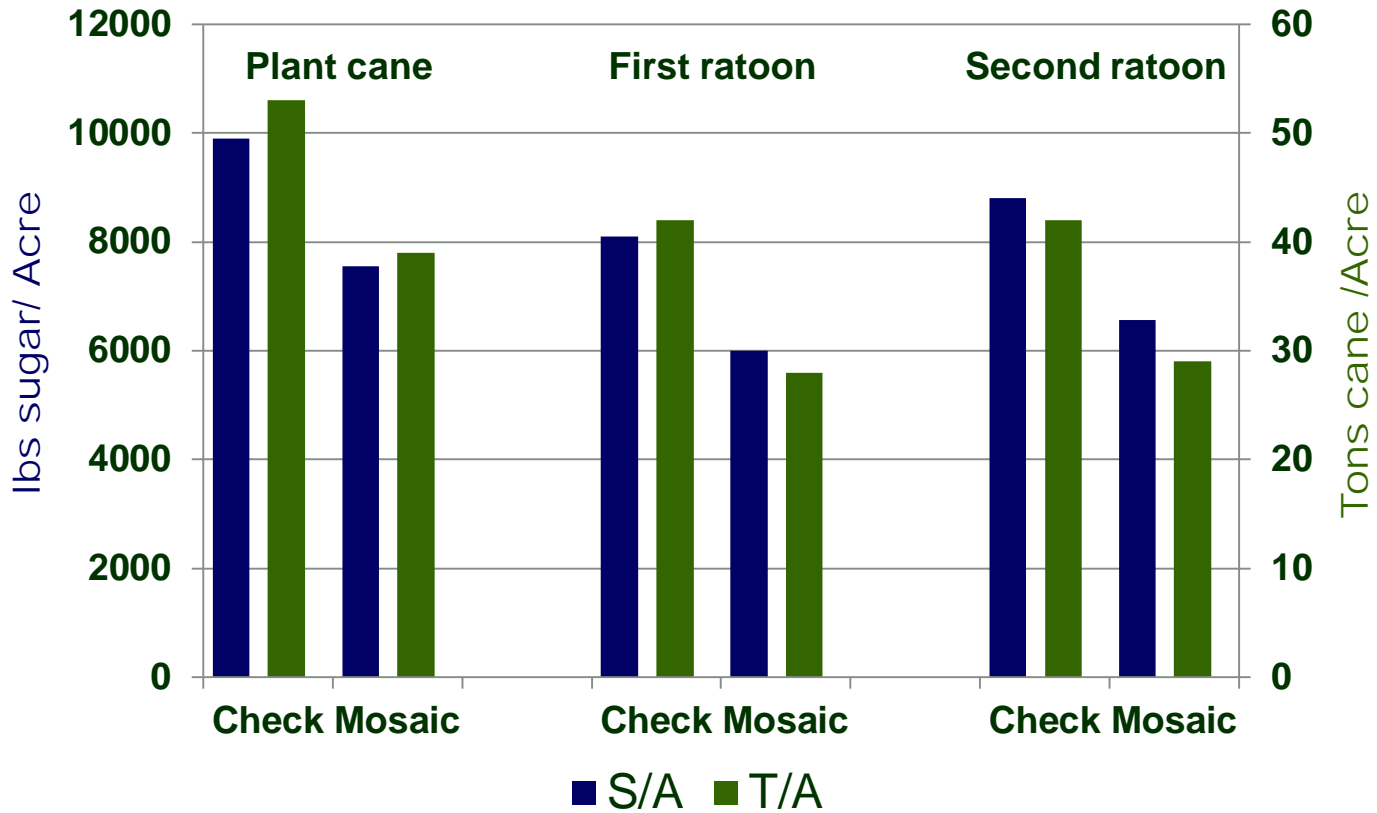
Yield Loss Study

- Five released or near-release varieties
 - Ho 05-961
 - L 08-88
 - L 09-117
 - HoCP 09-804
 - HoCP 09-832
- Treatments
 - Seed cane without mosaic symptoms
 - Seed cane with mosaic symptoms
- Four (4) Replications

HoCP 09-804



L 08-88



	Yield losses	No yield loss
2013 Plant cane	Ho 05-961	Ho 09-804
	Ho 09-832	L 09-117
	L 08-88	
2014 1 st ratoon	HoCP 09-804	Ho 05-961
	L 08-88	Ho 09-832
		L 09-117
2015 2 nd ratoon	HoCP 09-804	Ho 05-961
	L 08-88	L 09-117
	Ho 09-832	



Summary

- Moderately susceptible variety, HoCP 09-804
 - Stalk height was significantly shorter in the mosaic treatment in plant cane
 - T/A and S/A in the mosaic treatment of the first ratoon crop were numerically less than the control and approached significant levels
 - Symptoms varied from mild to strong
- Highly susceptible variety, L 08-88
 - T/A and S/A were significantly less in the mosaic treatment than the control in the plant cane and first ratoon crops
 - Stalk number was significantly less in the mosaic treatment of the first ratoon crop resulting in gaps in the stand
 - Symptoms were strong on most plants



Response

- Continue industry-wide mosaic survey
- Identify unknown virus
- Determine the effects of the unknown viruses on different varieties
- A mixture of strains may be needed to screen for mosaic resistance

Thank You

