

SUGARCANE RESEARCH  
ANNUAL PROGRESS REPORT

2003

No part of this report may be reproduced in any form without giving the complete source of information.

This report is from 2003 only and should be regarded as preliminary. Complete research is reported in appropriate Louisiana Agricultural Experiment Station and Louisiana Cooperative Extension Service publications and/or other professional publications.

LOUISIANA STATE UNIVERSITY AGRICULTURAL CENTER  
WILLIAM B. RICHARDSON  
CHANCELLOR AND CHALKLEY FAMILY ENDOWED CHAIR

LOUISIANA AGRICULTURAL EXPERIMENT STATION  
DAVID J. BOETHEL  
VICE CHANCELLOR AND DIRECTOR

LOUISIANA COOPERATIVE EXTENSION SERVICE  
PAUL D. COREIL, VICE CHANCELLOR AND DIRECTOR

The LSU Agricultural Center provides equal opportunities in programs and employment.

## FOREWORD

Research on sugarcane in the Louisiana Agricultural Experiment Station is an integral part of the LSU Agricultural Center's research-extension effort to provide the knowledge and technology base for efficient production and processing of sugarcane. Sugarcane research projects are led by scientists in the Sugar Research Station, Audubon Sugar Institute and the departments of Agricultural Economics and Agribusiness, Agronomy, Biological and Agricultural Engineering, Entomology, and Plant Pathology and Crop Physiology.

Members of the Louisiana Agricultural Experiment Station maintain close working relations with colleagues in respective departments of the College of Agriculture and other colleges of the LSU Baton Rouge campus, the Louisiana Cooperative Extension Service, the Agricultural Research Service and Natural Resources Conservation Service of the USDA, the American Sugar Cane League, and the Louisiana Department of Agriculture and Forestry.

A major portion of the resources for production research is linked to the St. Gabriel Research Station and the Sugar Research Station located at St. Gabriel, La. Processing research is linked to the Audubon Sugar Institute located on the LSU campus at Baton Rouge, La. The Iberia Research Station helped to accomplish specific sugarcane research objectives in 2003.

Important parts of the 2003 research effort were conducted on cooperating farms and in cooperating factories. These activities are important and must be continued. The cooperation of individual farms and sugarcane factories in conducting research projects and financial support from the American Sugar Cane League are gratefully acknowledged.

## Table of Contents

	<u>Page #</u>
<u>FOREWORD</u> .....	i
<u>VARIETIES</u>	
An Overview of 2003 Activities in the LSU AgCenter "L" Sugarcane Variety Development Program.....	1
2003 Photoperiod and Crossing in the LSU AgCenter Sugarcane Variety Development Program.....	5
Selections, Advancements, and Assignments of the LSU AgCenter's Sugarcane Variety Development Program for 2003.....	15
2003 Louisiana Sugarcane Variety Development Program Nursery and Infield Variety Trials .....	40
2003 Louisiana AHoCP @Nursery and Infield Variety Trials .....	54
2003 Louisiana Sugarcane Variety Development Program Outfield Variety Trials .....	62
Sucrose Laboratory at St. Gabriel .....	76
LAES Sugarcane Tissue Culture Laboratory.....	77
The 2003 Louisiana Sugarcane Variety Survey .....	78
Performance of CP 89-2143 in Louisiana .....	89
Genetic Diversity and Relationships Among Parents in the LSU AgCenter Sugarcane Crossing Program.....	91
<u>ENTOMOLOGY</u>	
Monitoring the Movement of the Mexican Rice Borer Toward Sugarcane and Rice in the Upper Texas Rice Belt and Western Louisiana .....	95
Effects of Drought Stress and Sugarcane Variety on Resistance to the Mexican Rice Borer.....	97
Comparison of Different Strains of Sugarcane Borer for Resistance to Tebufenozide (CONFIRM®).....	100
Assessment of Varietal Resistance to the Sugarcane Borer .....	103
Small Plot Assessment of Insecticides Against the Sugarcane Borer.....	105
Sugarcane Yellow Leaf and the Sugarcane Aphid in Louisiana.....	107
<u>PLANT PATHOLOGY</u>	

Pathology Research.....110

## WEED CONTROL

Weed Control Research With Labeled and New Herbicides .....	116
Evaluation of Reduced Tillage in Plant and Stubble Sugarcane .....	118
Alternative Weed Control Programs Using Reduced Tillage Practices in Fallowed Sugarcane Fields.....	119

## CULTURAL PRACTICES

Billet Planting Research .....	120
Cultural Practices Research in Sugarcane in 2003 .....	124
Long-term Evaluation of the Effects of Combine Trash Blanket on Sugarcane Yields.....	130

## SOIL FERTILITY

Soil Fertility Research in Sugarcane in 2003.....	132
Effect of Calcitic Lime and Calcium Silicate Slag Rates and Placement on LCP 85-384 Plant Cane, First-Stubble and Second-Stubble Yield Parameters on a Light-textured Soil.....	140
Effect of Zinc Fertilization on Sugarcane (LCP 85-384) Yields.....	143
Impact of Paper Mill Sludge on Sugarcane Production and Yields .....	146

## ENVIRONMENTAL

Effects of Residue Management on Sugarcane Yield .....	154
Atrazine and Metribuzin Retention by Sugarcane Residue: Effect of Age of Residue .....	158

## ECONOMICS

Economic Research in Sugarcane in 2003.....	165
---	-----

## PLANT GROWTH REGULATORS

Efficacy of Different Glyphosate Formulations and Alternative Ripeners in Enhancing Sugar Yield In Louisiana Sugarcane During The 2003 Crop.....	168
---	-----

<u>PUBLICATIONS AND PRESENTATIONS FOR 2003</u> .....	178
--	-----