

**Proceedings  
1987 SHORT COURSE  
for  
SEEDSMEN**



Volume 29

April 13-15, 1987

SEED TECHNOLOGY LABORATORY

MISSISSIPPI STATE

MISSISSIPPI

Sponsored By The Mississippi Seedmen's Association

PROCEEDINGS (VOLUME 29)  
THIRTY-FIFTH SHORT COURSE FOR SEEDSMEN  
APRIL 13-15, 1987

SEED TECHNOLOGY LABORATORY  
MISSISSIPPI STATE UNIVERSITY  
MISSISSIPPI STATE, MISSISSIPPI

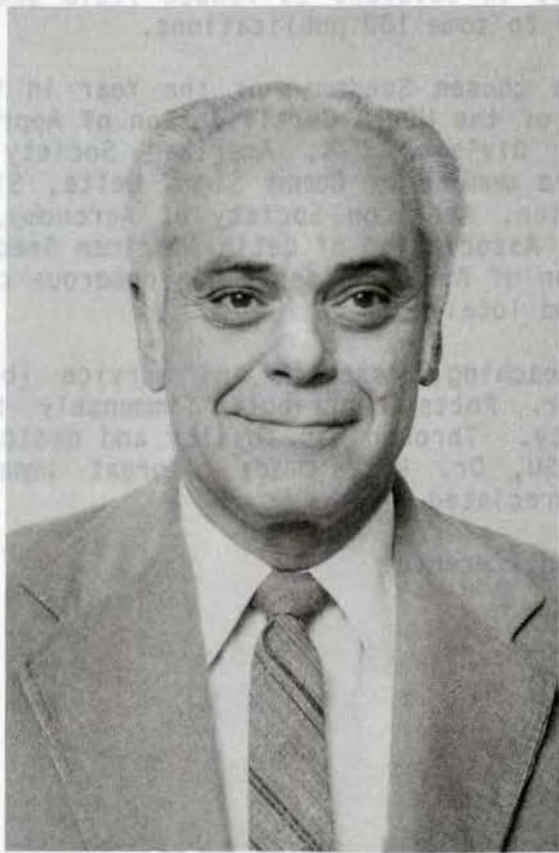
Howard was employed by the Seed Technology Laboratory in 1988. Until 1988, he was assistant campus coordinator for the MSU Seed Program Development Center. From 1988 to 1970, he served as Chief of Party for MSU's technical assistance program in Brazil.

## DEDICATION TO

At MSU, Howard taught Plant Breeding. His research involved improving seed quality through plant genetics. He did pioneer work with hardiness in soybeans to reduce field weathering. He was an author/contributor to seed technology.

Howard was chosen as the recipient of the year in Virginia in 1972. He was the recipient of the Award of Appreciation in 1974. He was Chairman, Director, Society of Agronomy in 1975-76. He was a member of the American Society of Agronomy, Southern Seedmen's Association, American Seed Specifiers, and Mississippi Section of the American Seed Specifiers Association. He served on numerous committees at the national, state and local level.

Through teaching and research, Dr. Potts has made a significant contribution to the welfare of humanity. His dedication to students and faculty at MSU, Dr. Potts has made a lasting impact that will be remembered and appreciated.



## HOWARD CALVIN POTTS

10/18/1928 - 2/1/1987

The Proceedings of the Thirty-fifth Short Course for Seedsmen are dedicated to the memory of Dr. Howard C. Potts, Agronomist and Professor of Agronomy (Seed Technology) from 1970 to 1987.

Howard was employed by the Seed Technology Laboratory in 1966. Until 1968, he was assistant campus coordinator for the MSU/AID Seed Program Development contract in Brazil. From 1968 to 1970, he served as Chief-of-Party for MSU/USAID technical assistance program in Brazil.

At MSU, Howard taught Plant Breeding. His research involved improving seed quality through plant genetics. He did pioneer work with hardseededness in soybeans to reduce field weathering. He was author/contributor to some 100 publications.

Howard was chosen Seedsman of the Year in Virginia in 1963; was the recipient of the USAID Certification of Appreciation in 1974. He was Chairman, Division C-4, American Society of Agronomy in 1975-76. He was a member of Gamma Sigma Delta, Sigma Xi, American Genetics Association, American Society of Agronomy, Southern Seedsmen's Association, Association of Latin American Seed Specialists, and Mississippi Section of ASA. He served on numerous committees at the national, state and local level.

Through teaching, research and service (both national and international), Dr. Potts contributed immensely to improving the welfare of humanity. Through his loyalty and dedication to students and faculty at MSU, Dr. Potts made a great impact that will be remembered and appreciated.

He made a difference!

HOWARD CALVIN POTTS

1917-1987

The University of Mississippi Library System  
The University of Mississippi Library System  
The University of Mississippi Library System

## TABLE OF CONTENTS

	<u>Page</u>
SEED TECHNOLOGY - Staff and Students .....	vii
CONTRIBUTORS AND SPONSORS .....	ix
TALKS AND REFERENCE ARTICLES .....	1
A Challenge to Step Ahead .....	1
C. Hunter Andrews, STL, MSU	
Seed Maturity Influences Quality .....	7
Charles C. Baskin, STL, MSU	
Current Status and Future Prospects of Artificial Seeds ....	13
Jo Ann Fujii, Plant Genetics, Inc., Davis, CA	
The Conditioning of Tree Seed in Agricultural Seed Plants ..	25
Robert P. Karrfalt, National Tree Seed Lab., Dry Branch, GA	
Management Alternatives for Seed Conditioners .....	31
Bobby Horton, Big River Seed Company, Cleveland, MS	
Successful Quality Assurance .....	37
Quentin Shultz, Jacques Seed Co., Prescott, WI	
The Mortal Seed .....	47
James C. Delouche, STL, MSU	
Problems Related to Bin-Type Dryers .....	57
G. Burns Welch, STL, MSU	
COTTONSEED MINI-COURSE .....	73
Cottonseed Quality Control Assurance .....	75
Charles C. Baskin, STL, MSU	
Cottonseed Vigor and Performance .....	89
N. W. Hopper, Texas Tech, Lubbock, TX	
Delinting Cottonseed with the Dilute Sulfuric Acid Method ..	99
E. R. Cabrera and A. H. Boyd, STL, MSU	

Effect of Acid Residue on Germination and Vigor of Acid De- linter Cottonseeds .....	111
A. H. Boyd, E. R. Cabrera and P. Stonsavapak, STL, MSU	
Effects of Acid on the Germination of Cottonseeds De- linter at Various Levels of Moisture Content and Pro- cess Temperature .....	121
F.B.F. de Souza, A. H. Boyd & G. B. Welch, STL, MSU	
<b>REGISTRATION LIST .....</b>	<b>137</b>
TALKS AND REFERENCE ARTICLES .....	
1 A Challenge to Step Ahead .....	
C. Hunter Andrews, STL, MSU	
7 Seed Quality Influences Quality .....	
Charles C. Baskin, STL, MSU	
13 Current Status and Future Prospects of Artificial Seeds .....	
Jo Ann Fujitt, Plant Genetics, Inc., Davis, CA	
25 The Conditioning of Tree Seed in Agricultural Seed Plants .....	
Robert P. Kestral, National Tree Seed Lab., Dry Branch, GA	
31 Management Alternatives for Seed Conditioners .....	
Bobby Horton, Big River Seed Company, Cleveland, MS	
37 Successful Quality Assurance .....	
Quentin Shultz, Jacques Seed Co., Prescott, MI	
43 The World's Seed .....	
James C. Delouches, STL, MSU	
51 Problems Related to Bin-Type Dryers .....	
E. Burns Welch, STL, MSU	
73 COTTONSEED MINI-COURSE .....	
75 Cottonseed Quality Control Assurance .....	
Charles C. Baskin, STL, MSU	
89 Cottonseed Vigor and Performance .....	
M. W. Hopper, Texas Tech, Lubbock, TX	
99 Balancing Cottonseed with the Dilute Sulfuric Acid Method .....	
E. R. Cabrera and A. H. Boyd, STL, MSU	

## THE STAFF

### (Seed Technology Laboratory)

James C. Delouche, In-Charge

C. Hunter Andrews	Charles C. Baskin
Edgar Cabrera	Joseph Cortes
Warren Couvillion	G. Burns Welch
Charles E. Vaughan	Shirley C. Carter
Sue Reed	Curtis Reed
Cahterine Thompson	Tina Henderson

### (Foundation Seed)

Bennie C. Keith	Randy Vaughan
Rita Chriswell	Johnny Gassaway
Jerry Nail	David Hall

## AND STUDENTS (Graduate)

Bashir Ahmad	Abdulla Baeshen	Jan Barlain
Petrus Bulan	Cristiano Casini	Varanee Chindavipard
Jose Diaz	Arnulfo Diaz-Delgado	Edmundo Garcia
Susana Goggi	Aphiya Hathayatham	Herath Lansakara
Waruna Madawanarachcki	Juan Narvaez	Udin Nugraha
Sarvesh Paliwal	Norberto Pitty	Edilberto Possamai
Yupa Ratanavipulya	Sunil Ratnayake	Roduel Rodriguez
Aunchalee Sennewong	M. Hasanah Tatang	Brent Turnipseed
Sirichai Unsrisonng	Randy Vaughan	Ladda Viriyangkura

### (Undergraduate)

Kenneth Cauthen	David Cobianchi	Sam Garris
Joseph Namasiker	Petso M. Olemogile	Maidoubou Ousmane
Aboubacar Sidi	Kimberly Stults	

## MISSISSIPPI STATE UNIVERSITY ADMINISTRATION

Donald W. Zacharias, President, Mississippi State University  
R. Rodney Foil, Vice President, Agriculture, Forestry & Vet. Medicine  
Verner Hurt, Director, Miss. Agriculture & Forestry Expt. Station  
Charles Lindley, Dean, College of Agriculture  
Ronald A. Brown, Director, International Programs in Agr. & Forestry  
Jamie Carpenter, Director, Miss. Agricultural Extension Service  
Roy G. Creech, Head, Department of Agronomy  
William Fox, Head, Department of Agricultural & Biological Engineering  
James H. Simpson, Acting Head, Department of Agricultural Economics

## CONTRIBUTORS

We gratefully acknowledge the contributions from the following organizations which added greatly to the success and enjoyment of this Short Course.

### Bar-B-Que

Miss. Seed Improvement Association  
R. C. Milner, Exec. Secretary  
P. O. Drawer MS  
Miss. State, MS 39762

Miss. Seedsman's Assoc.  
Ted Cheshire, Secretary  
P. O. Box 12408  
Jackson, MS 39205

### Refreshments

Mr. T. Gilliam Austin  
Dir. of Sales  
GUSTAFSON, INC.  
P. O. Box 220065  
Dallas, TX 75222

Mr. Stephen L. Cashman  
Sales Manager  
CEA Carter-Day Co.  
500-73rd Ave., N.E.  
Minneapolis, MN 55432

Mr. Elmo Collum  
MFC Services  
P. O. Box 500  
Madison, MS 39110

Mr. Robert Frevert, Pres.  
Crippen Mfg. Co.  
P. O. Box 350  
Alma, MI 48801

Mr. Thomas Klein  
Mercator Crop  
101 N. 5th Street, Berkshire Towers  
P. O. Box 142  
Reading, PA 19603

Mr. Ben Manring  
Manring Corporation  
P. O. Box 1865  
Bellevue, WA 98009

Mr. Jack Snader, Vice President  
Seedburo Equipment Co.  
1022 West Jackson Boulevard  
Chicago, IL 60607

Mr. Z. A. Stanfield  
322 Unity Building  
Bloomington, IL 61701

Mr. Murland Taylor, President  
Taylor Products Co.  
5300 Main  
Parsons, KS 67357

Mr. Herschel Stults  
Stults Scient. Eng. Co.  
3133 S. 66 Freeway  
Springfield, IL 62703



x

Mr. Larry Tripp, Pres.  
Industrial Products Group  
Blount/Ferrell-Ross  
Box 256  
Bluffton, IN 46714

Mr. Bill Wallace  
L.M.C. Mfg.  
P. O. Box 428  
Donaldsonville, GA 31745

Door Prizes

Mr. Alden Bell  
B & S Seed Co.  
Route 1, Box 83A  
Duncan, MS 38740

Mr. T. Burchfield, Pres.  
Mississippi Supply Co.  
Box 900  
Yazoo City, MS 39194

Mr. Joe Butler  
Custom Seed Processors, Inc.  
Box 366  
Wesson, MS 39191

Mr. Hamp Cooley  
DeKalb-Pfizer Genetics  
Rt. 2, Box 131H  
Purvis, MS 39475

Mr. Boyd Eifling  
Eifling Farms Seed Co.  
Route 1, Box 285  
Hollandale, MS 38748

Mr. Dick Flowers  
Miss. Seed, Inc.  
P. O. Box 686  
Tunica, MS 38676

Mr. Bobby Fulgham  
Brayton Chemicals, Inc.  
Box 1416  
Tupelo, MS 38801

Mr. Dave Grimm  
Asgrow Seed Co.  
5680 Gaywinds Ave.  
Memphis, TN 38115

Mr. Bobby Horton  
Big River Seed Co.  
P. O. Box 867  
Cleveland, MS 38732

Dr. James Maxwell  
Hollandale Seed & Delint.  
P. O. Box 397  
Hollandale, MS 38748-0397

Mr. Wm. W. Moore, II  
Magnolia Grain Co., Inc.  
P. O. Box 336  
Cary, MS 39054

Mr. Jimmy Sanders  
Sanders Seed Co.  
P. O. Box 1169  
Cleveland, MS 38783

Mr. Lester A. Shipley, Jr.  
Shipley Grain Co.  
P. O. Box 476  
Greenwood, MS 38930

Dr. T. Lane Smith  
Nor-Am Agricultural  
Products, Inc.  
Box 16868  
Jackson, MS 39236

Mr. Richard Taylor  
Farmer's Feed & Supply Co.  
608 N. Main  
Leland, MS 38756

Mr. James E. Thompson,  
General Manager  
American Dry. Sys., Inc.  
1135 N.W. 159th Drive  
Miami, FL 33169

Mr. Richard Wax  
The Wax Co.  
P. O. Box 60  
Amory, MS 38821-0060

Publicity

Grain & Feed Journal  
327 S. LaSalle St.  
Chicago, IL 60604

Progressive Farmer  
Suite 1630  
White Station Tower  
Memphis, TN 38157

Seed Trade News  
7535 Office Ridge Circle  
Eden Prairie, MN 55344

Seedsman's Digest  
10714 Manchester Rd.  
Suite 202  
St. Louis, MO 63122

Seed World Publications  
380 Northwest Highway  
Des Plains, IL 60016