
**SOUTHERN JOURNAL
OF
AGRICULTURAL
ECONOMICS**



Volume 8, Number 2

December, 1976

Published by

Southern Agricultural Economics Association

**SOUTHERN JOURNAL OF
AGRICULTURAL ECONOMICS**

Volume 8, Number 2
December, 1976

Copyright © 1976 by the Southern Agricultural Economics Association

1976-77 EDITORIAL COUNCIL

JOHN W. NIXON, University of Georgia, Editor
FLOYD W. WILLIAMS, University of Georgia, Associate Editor
LARRY L. BAUER, Clemson University
ROBERT L. BECK, University of Kentucky
HOWARD A. CLONTS, Auburn University
JOSEPH HAVLICEK, Virginia Polytechnic Institute & State University
SIDNEY ISHEE, University of Maryland
JOHN P. KUEHN, West Virginia University
RONALD D. LACEWELL, Texas A & M University
GENE A. MATHIA, North Carolina State University
DAVID W. PARVIN, JR., Mississippi State University
LESTER H. MYERS, University of Florida
MARTIN REDFERN, University of Arkansas
RUDIE W. SLAUGHTER, USDA, University of Missouri

1976-77 EXECUTIVE COMMITTEE

PRESIDENT Richard A. King, North Carolina State University
PRESIDENT-ELECT Donald E. Farris, Texas A & M University
FIRST VICE-PRESIDENT Garnett L. Bradford, University of Kentucky
SECOND VICE-PRESIDENT Thomas G. Brown, University of Missouri
SECRETARY-TREASURER James H. Simpson, Mississippi State University

Southern Journal of Agricultural Economics is published in July and December by the Southern Agricultural Economics Association.

Membership in the SAEA, consisting of persons and organizations having a professional interest in agricultural economics, includes subscription to the journal. Regular membership dues are \$6.00. Junior membership dues are \$3.00.

The annual subscription rate for libraries and other institutions is \$15.00. Single copies of current issues are available to individuals at a price of \$5.00.

Please address all subscription, membership and changes of address to James H. Simpson, Secretary-Treasurer of SAEA, Department of Agricultural Economics, Mississippi State University, State College, Mississippi 39762.

**SOUTHERN JOURNAL
OF
AGRICULTURAL
ECONOMICS**



Volume 8, Number 2

December, 1976

Published by

Southern Agricultural Economics Association



CONTENTS

Effects of Forage Quality Restrictions on Optimal Production Systems Determined by Linear Programming Robert E. Whitson Don L. Parks Dennis B. Herd	1
A Technique to Estimate Input Productivity from Farm Data John R. Allison David W. Parvin, Jr.	5
Determining Optimal Replacement Age of Beef Cows in the Presence of Stochastic Elements Ernest Bentley James R. Waters C. Richard Shumway	13
Use of Probabilistic Cash Flows in Analyzing Investments Under Conditions of Risk and Uncertainty James W. Richardson Harry P. Mapp, Jr.	19
Alternative Methods of Accounting for Livestock Capital Formation: An Application to Southern U.S. Agriculture Thomas L. Browning David R. Dyer	25
Estimating Education Production Functions in Rural and Urban Areas David L. Debertin	31
Establishing Priorities Among Multiple Management Goals Donnie Smith Daniel F. Capstick	37
Vertical Integration for Risk Management: An Application to a Cattle Ranch Robert E. Whitson Peter J. Barry Ronald D. Lacewell	45
An Improved Economic Land Classification System for Spatial Linear Programming Models Ronald J. Williams Daryll E. Ray	51
Water Allocation Under Administrative Regulation: Some Economic Considerations Clyde Kiker Gary D. Lynne	57

Income Effects of Reducing Agricultural Pollution	
James C. Wade	
Kenneth J. Nicol	
Earl O. Heady	65
Measuring Economic Growth in Rural Communities: The Shift-Share Approach	
John Gordon	
David Darling	73
The Rural Town as a Producing Unit: An Empirical Analysis and Implications for Rural Development Policy	
Harry W. Ayer	
Joe Weidman	79
The Effect of Ethnic and Socio-Economic Factors on Expenditures for Community Services	
Dilip Pendse	89
An Analysis of Producer's Year-to-Year Changes in Slaughter-Hog Marketings	
Ronald Raikes	
Michael Trampel	95
Economies of Size in Processing Manufactured Dairy Products and Implications for the Southern Dairy Industry	
M. C. Conner	
W. T. Boehm	
T. A. Pardue	103
Application of the Transshipment Model to Development of the Seed Industry in Northeast Brazil	
Fred H. Tyner	
Roberto G. Campos	109
Market Area Sensitivity as a Measure of Railroad-Barge Competition in the Oklahoma-Kansas Wheat Transportation Market	
Marc A. Johnson	
Gary M. Mennem	115
Optimum Locations for a Rural Fire System: A Study of Major County, Oklahoma	
Gerald A. Doeksen	
Robert L. Oehrtman	121
Pricing Soybeans on the Basis of Oil and Protein Content	
Nelson J. Updaw	
J. Bruce Bullock	
T. E. Nichols, Jr.	129
Price-Margin Movements in the Fluid Milk Industry	
Robert L. Beck	
Loys L. Mather	133
University Outlook Programs: A Review and Some Suggestions	
H. M. Harris, Jr.	139
Combining Regression and Factor Analysis for Use in Agricultural Economics Research	
John T. Scott, Jr.	145
Cost-Size Relationships and Traditional Farmers' Economic Behavior	
G. R. Soltani	151