

CKS

Annual Report of the
*Tennessee Agricultural
Experiment Station 1987*

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The University of Tennessee
Knoxville

**One Hundredth
Annual Report
1987**

**University of Tennessee
Agricultural Experiment Station**

Edward J. Boling President of the University
D.M. Gossett Vice President for Agriculture
J.I. Sewell Acting Dean
T.H. Klindt Assistant Dean

**The University of Tennessee
Knoxville**

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LETTER OF TRANSMITTAL

Knoxville, Tennessee

January 2, 1988

To His Excellency, Ned McWherter
Governor of Tennessee:

SIR: I have the honor transmitting herewith, on behalf of the Board of Trustees of the University of Tennessee, a report of the work and expenditures of the Agricultural Experiment Station for the year 1987.

This report is submitted in accordance with the law requiring that such a report be submitted annually by the administrators of the Experiment Station to the Governor of the State.

Respectfully submitted,
Edward J. Boling, President

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One Hundredth Annual Report of the Tennessee Agricultural Experiment Station 1987

FOREWORD

Included in this report are listings by departments of the following information:

- 1) Research projects active as of December 31, 1987;
- 2) Research projects terminated during the calendar year, 1987.
- 3) Bulletins, articles, and reports prepared by Experiment Station staff members and published during the calendar year 1987.

In addition, the report contains the financial statement for the Agricultural Experiment Station covering the period July 1, 1986 to June 30, 1987. Also included is a list of the Experiment Station personnel for the calendar year 1987.

Active Projects

As of December 31, 1987, there were 156 Hatch (TN) projects and six state (S) projects. Hatch projects are supported in part with Federal-Grant funds made available by Congress to the Agricultural Experiment Stations of the country under the Hatch Act Amended. State projects are supported entirely by University funds. There were ten McIntire-Stennis (forestry) projects.

The headquarters of the Tennessee Agricultural Experiment Station is located on the agricultural campus of the University of Tennessee at Knoxville. In addition, there are other research centers which represent soil and climate conditions in the major regions of Tennessee. These other research centers are listed in this report, and their locations are shown on the map on page 5.

Projects Terminated

During 1987, 38 projects were terminated. Reports on these projects have either been published or are being prepared for publication.

Publications

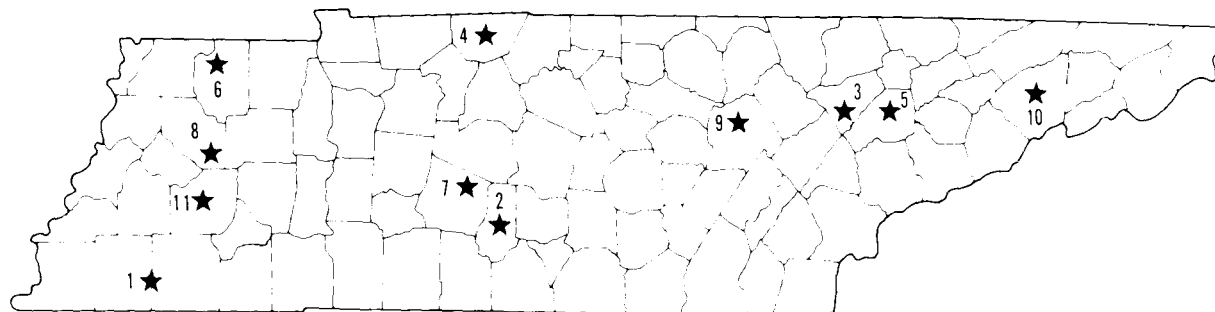
Published reports on research of the University of Tennessee Agricultural Experiment Station appear in the Station Bulletins, in Research Reports, in *Tennessee Farm and Home Science*, in professional, technical periodicals and various popular publications. Ten Station Bulletins and 19 Research Reports were published during the year. These publications and other technical, semi-technical, and special reports prepared and published during 1987 are listed in this annual report.

FINANCIAL STATEMENT
July 1, 1986 - June 30, 1987
The University of Tennessee Agricultural Experiment Station

	<u>HATCH</u>	<u>Reg. Resource</u>	<u>McIntire Stennis</u>	<u>Animal Health & Disease</u>	<u>Federal Grants</u>	<u>Other Funds</u>	<u>Total</u>
Balance 6-30-86						\$ 906,097	\$ 906,097
Revenues	\$3,048,743	\$694,505	\$303,051	\$84,052	\$447,742	16,704,930	21,283,023
Funds Available	\$3,048,743	\$694,505	\$303,051	\$84,052	\$447,742	\$17,611,027	\$22,189,120
Expenditures:							
Personal Services	\$3,078,385	\$692,872	\$260,294	\$27,527	\$254,527	\$ 8,007,118	\$12,320,755
Staff Benefits					36,683	2,804,979	2,841,662
Travel	14,593	6,011	384	2,333	33,556	386,793	443,670
Equipment	2,384	299		12,229	28,544	849,828	893,284
Land & Structures						486,494	486,494
Other Operating	20,187	4,445	1,957	14,358	94,430	3,786,160	3,921,537
Total Expenditures	\$3,115,549	\$703,627	\$262,635	\$56,477	\$447,742	\$16,321,372	\$20,907,402
Balance 6-30-87*	(66,806)	(9,122)	40,416	27,575		1,289,655	1,281,718

*Includes Encumbered Obligations

Agricultural Experiment Station Research Centers



- | | |
|--|--|
| <p>1 Ames Plantation
Fayette and Hardeman Counties, Grand Junction</p> <p>2 Dairy Experiment Station
Marshall County, Lewisburg</p> <p>3 Forestry Experiment Station
Anderson County, Oak Ridge</p> <p>4 Highland Rim Experiment Station
Robertson County, Springfield</p> <p>5 Knoxville Experiment Station
Poultry, Ornamental Horticulture, and Dairy Units,
Knox County, Knoxville</p> <p>6 Martin Experiment Station
Weakley County, Martin</p> | <p>7 Middle Tennessee Experiment Station
Maury County, Spring Hill</p> <p>8 Milan Experiment Station
Gibson County, Milan</p> <p>9 Plateau Experiment Station
Cumberland County, Crossville</p> <p>10 Tobacco Experiment Station
Greene County, Greeneville</p> <p>11 West Tennessee Experiment Station
Madison County, Jackson</p> |
|--|--|

AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY

Proj. No.

Research Project Titles

TN 677	Use of No-Tillage and Other Agricultural Practices by Tennessee Farm Operators
TN 683	The Economics of Improving Productivity in Livestock-Meat Systems in the South (contributing to Regional Project S-172)
TN 685	Marketing Systems for Grains and Soybeans (contributing to Regional Project S-176)
TN 713	Economic Evaluation of Technological and Institutional Changes on Farmers in Tennessee
TN 736	Barriers and Incentives to Affordable Housing (contributing to Regional Project S-194)
TN 751	Retail Demand for Tennessee Fresh Fruits and Vegetables
TN 769	Tennessee Agriculture's Response to Alternative Socioeconomic Environments
TN 783	Economics of the Production of Tobacco and Alternative Enterprises in Tennessee
TN 790	Demographic Trends of the Tennessee Rural and Farm Population
TN 796	Economic Problems of Beginning Farmers
TN 825	Economic Analysis of Machinery Inputs on Tennessee Farms
TN 826	Potential for Limiting Liability Associated With the Use of Agricultural Chemicals
TN 839	Analysis of Structural and Organizational Change in Rural Counties in the South (contributing to Regional Project S-209)
TN 841	The Economic and Environmental Consequences of Alternative Farming Systems
TN 850	Changing Patterns of Food Demand and Consumption Behavior
TN 866	Economics of Winegrape Production and the Wine Industry in Tennessee
TN 870	Economic and Technical Forces Shaping the Southern Dairy Industry (contributing to Regional Project S-217)
TN 871	Technical and Economic Efficiencies of Producing and Marketing Landscape Plants (contributing to Regional Project S-103)
TN 873	Competition and Change in the Fruit and Vegetable Production and Marketing Systems (contributing to Regional Project S-222)

Projects Concluded in 1987

- TN 648 The Impact of Changing Costs, Institutions and Technology on the Southern Dairy Industry (contributing to Regional Project S-166)
- TN 658 Health Care Services in Rural Tennessee
- TN 671 Strategies for Improving the Effectiveness of Soil Erosion Control and Rural Water Quality
- TN 681 Regional Advantages in Producing and Marketing Woody Ornamentals (contributing to Regional Project S-103)
- TN 694 Structural and Operational Efficiency of the Fruit and Vegetable Production-Marketing System (contributing to Regional Project S-178)
- TN 699 Business Organization Strategies for Management Growth and Intergenerational Transfer—Farm/Business
- TN 725 Disturbances to Price Discovery—Risk Management by Marketing Firms in Southern Agriculture (contributing to Regional Project S-190)
- TN 739 Factors Affecting Metropolitan and Nonmetropolitan Bank Performances in Tennessee
- TN 814 Analysis of Economic Impacts: GM's Saturn Plant Location in Rural Tennessee
- TN 837 The Potential for Community Economic Development and Its Impact on Rural Residents (contributing to Regional Project NE-162)

1987***Tennessee Agricultural Experiment Station
Bulletins and Reports***

- Brooker, J. R., and M. D. Gray. *Temperature Analysis as Related to Vegetable Production in Tennessee*, Bulletin No. 653, May.
- Brooker, J. R., C. L. Stout, D. B. Eastwood, and R. H. Orr. *Analysis of In-Store Experiments Regarding Sales of Locally Grown Tomatoes*, Bulletin No. 654, May.
- Brooker, John R., Carol L. Stout, David B. Eastwood and Robert H. Orr. *Marketing Locally Grown Tomatoes at Retail Supermarkets*, Bulletin No. 654, May.
- Davis, C. S., J. R. Brooker and C. M. Farmer. *Cotton Marketing Strategies and Optimal Hedging Ratios*, Bulletin No. 658.
- Eastwood, David B., John R. Brooker and Robert H. Orr. *Consumer Preferences for Selected Fresh Produce: A Case Study*, Bulletin No. 650, January.
- Gockowski, James J., and Luther H. Keller. *An Economic Analysis of Catfish Industry in Tennessee*, Research Report No. 87-04, February.
- McBride, William D., and S. Darrell Mundy. *Farrow-to-Finish Swine Production in Ten Counties of West Tennessee*, Research Report No. 87-06, February.
- McLemore, D. L., E. A. McClain and E. L. Rawls. *An Economic Analysis of the Optimum Number, Sizes and Locations of Livestock Auction Markets in Tennessee*, Research Report No. 87-16, December.

Morgan, Russell P., and Luther H. Keller. *Economic Comparisons of Alternative Waste Management Systems on Tennessee Dairy Farms*, Bulletin No. 656, October.

Todd, Ronald W., and Bennett L. Cox. *Liability of Agricultural Chemical Users—Selected Guidelines for Minimizing Risk*, Research Report No. 87-03.

Tennessee Farm and Home Science Articles

Eastwood, David B., John R. Brooker, Robert H. Orr and Carol L. Stout. "Selling Produce at Farmers' Markets and Roadside Stands," No. 144, Fall, pp. 37-39.

Leuthold, Frank O., and Cynthia Hart. "Use of No-Till Planting by West Tennessee Farmers," No. 144, Fall.

Journal Articles

Brooker, J. R. "Risk Aversion Strategies for Cotton Producers," *Midsouth Journal of Economics and Finance*, Midsouth Academy of Economics and Finance, Memphis State University and Mississippi State University.

Brooker, J. R., David B. Eastwood and Robert H. Orr. "Consumers' Perceptions of Locally Grown Produce at Retail Outlets," *Journal of Food Distribution Research*, February, pp. 99-107.

Eastwood, David B., John R. Brooker and Robert H. Orr. "Consumer Preferences for Local Versus Out-of-State Grown Selected Fresh Produce: The Case of Knoxville, Tennessee," *Southern Journal of Agricultural Economics*, December.

Johnson, L. A., and R. P. Jenkins. "Specialty Agricultural Enterprises—Boom or Boondoggle," *American Journal of Farm Managers and Rural Appraisers*, October.

McClain, E. A., and D. L. McLemore. "Optional Organization of a Statewide Livestock Auction Market System," *Southern Journal of Agricultural Economics*, Vol. 19, No. 2, December [forthcoming].

McManus, Benny R. Book review: *Money Shock: Ten Ways the Financial Marketplace is Transforming Our Lives*, by James Jorgensen in *The Journal of Consumer Affairs*, Vol. 21, No. 1, Summer.

Park, William M., and David G. Sawyer. "Cost Effectiveness of Alternative Subsidy Strategies for Soil Erosion Control," *Southern Journal of Agricultural Economics*, Vol. 19, No. 2, December.

Pompelli, Greg K., and Dale Heien. "Stress, Ethnic, and Distribution Factors in a Dichotomous Response Model of Alcohol Abuse," *Journal of Studies on Alcohol*, Vol. 48, No. 5, pp. 450-455, September.

Roberts, Roland K., and Peter V. Garrod. "Demand for Plant Nutrients in Tennessee Disaggregated by Mixed Fertilizers and Direct Application Materials," *Southern Journal of Agricultural Economics*, Vol. 18, No. 2, December [forthcoming].

VanTassell, Larry W., R. K. Heitschmidt and J. R. Conner. "Modeling Variation in Range Calf Growth Under Conditions of Environmental Uncertainty," *Journal of Range Management*, Vol. 40, No. 4, July, pp. 310-314.

M. S. Theses

Banker, Kevin D. "An Evaluation of Selective and Nonselective Pricing Strategies for Finished Hog Producers in Tennessee," under Dan L. McLemore, December.

Dodd, Andrew J. "Econometric and Time Series Models for Predicting the Futures Market Basis for Tennessee Feeder Cattle," under Dan L. McLemore, August.

Downing, Mark E. "Nonmarket Valuation of the University of Tennessee Arboretum," under Robert K. Roberts, August.

Green, Steve C. "An Analysis of the Effect of Bank Management, Market Structure and Economic Conditions on Nonmetropolitan Bank Lending Performance in Tennessee: Pre- and Postderegulation," under Deborah M. Markley, August.

Stout, Carol L. "Consumer Response to Locally Grown Tomatoes in Retail Outlets," under John R. Brooker, June.

Ph.D. Dissertations

Thompson, Leland C. "Estimating Firm Technical Efficiency Using Alternative Frontier Function Approaches: An Application to Farrow-to-Finish Production Units," under Luther H. Keller, March.

Other Writings

Bulletins/Publications

Eastwood, David B., and Theresa Y. Sun. "Complete Demand Systems and Policy Analysis," *Problems, Issues and Empirical Evidence on Food Demand and Consumption in the United States*, R. Raunika and C. Huang (eds.), Ames, Iowa: Iowa State University Press, pp. 154-167.

English, Burton C. "Land-Saving Action: A Written Symposium by 29 Experts on Private Land Conservation in the 1980's," *The Environmental Professional*, Vol. 9, pp. 84-85.

English, Burton C. *Selected Tennessee Agricultural Time Series Variables: A Data Book*, University of Tennessee, Staff Paper 87-1.

English, Burton C., and David R. Krog, "Determining the Economic Viability of Terracing in Iowa," *Agricultural Soil Loss Processes, Policies, and Prospects*, edited by Harlin and Berardi, Boulder, Colorado, Westview Press, pp. 243-277.

English, Burton C., and Thyrele Robertson. *Agriculture in the Year 2000 and Beyond*, University of Tennessee, Staff Paper 87-2.

Leuthold, Frank O. "Who is the Farmer of the Future and Who Will Serve Him," *American Cooperation*, American Institute of Cooperation, Washington, D.C., pp. 30-38.

McManus, B. R. *Directory of Housing Related Agencies in Eight Southern States*, Southern Cooperative Series Bulletin No. 330, June, published by Tennessee Valley Authority.

Pompelli, Greg K., and Dale Heien. "The Impact of State Liquor Control Laws on Wine Demand," *Wines and Vines*, July, p. 68.

Rosenberry, Paul, Burton C. English, Stanley R. Johnson, Mark L. Siemers and Vance H. Temeyer. *Offsite Costs of Erosion Damage in Iowa—Executive Summary*, The Center for Agricultural and Rural Development, Iowa State University, July.

Rosenberry, Paul, Burton C. English, Stanley R. Johnson, Mark L. Siemers and Vance H. Temeyer. *Offsite Costs of Erosion Damage in Iowa*, The Center for Agricultural and Rural Development, Iowa State University, July.

Papers Presented and/or Proposed

Cleland, Charles L. "Professional Isolation and Regional Rural Sociological Research in the South," presented at the meeting of the Southern Rural Sociology Association, Opryland Hotel, Nashville, Tennessee, February 2.

Cleland, Charles L. "The Church and Rural Tennessee," presented at the meeting of the Rural Sociological Society, Madison, Wisconsin, August 13.

Eastwood, David B. "Food Prices and Household Characteristics," presented at the 33rd Annual Conference of the American Council on Consumer Interests, April 3.

English, Burton C. "The Production Module of the Agricultural Decision Component," Ames, Iowa, January.

English, Burton C., Gary Cole, Paul Rosenberry and Phil Kamp. "Evaluation of the Data Needs in Plant Growth Simulators: Experience with the Erosion Productivity Impact Calculator," International Symposium, Applied Identification, Modelling and Simulation, New Orleans, Louisiana, November 11.

English, Burton C., and Thyrele Robertson. "Agriculture in the Year 2000 and Beyond," presented at the Western Agricultural Economics Association Annual Meeting, Manhattan, Kansas, July.

Haden, Kimberly L., and John R. Franzmann. "A Further Examination of the Combination of Forecast with an Application to Forecasting Beef Cattle Prices," presented at the Western Agricultural Economics Association Meetings, Manhattan, Kansas [also printed as a departmental staff paper].

Huffaker, Ray G. "Rancher Stewardship on Public Lands: A Recent Court Decision," selected paper for the Western Agricultural Economics Association Annual Meeting, Summer.

Huffaker, Ray G. "Stability of Non-Convex Bioeconomic Grazing Systems," selected paper for the American Agricultural Economics Association/Association of Environmental and Resource Economists Annual Meeting, Summer.

Johnson, L. A., and K. L. Haden. "An Analysis of Contributors to Financial Performance of Selected Dairy Operations," presented at the Southern Agricultural Economics Association Annual Meetings (1988).

- Keller, Luther H. "Systems Approach in Farm Management," presented at the Regional Agricultural Development Conference, Memphis, Tennessee, November.
- Leuthold, Frank O. "Principles of Technological Change in American Agriculture with Implications for Chinese Agriculture," presented to faculty of the Southwest Agriculture University, Peoples Republic of China.
- Leuthold, Frank O., and Cindy Hart. "Use of No-Till Planting by West Tennessee Farmers," presented at the Rural Sociological Society Annual Meeting, August 13.
- McLemore, D. L., W. T. Butts, Jr., and K. W. Ferguson. "An Economic Analysis of Effects of Feeder Calf Characteristics on Feedlot and Carcass Traits," presented to the Southern Section of the American Society of Animal Science, Nashville, Tennessee, February 4.
- Mundy, S. Darrell, W. Robert Goodman and Steve Isaacs. "Alternative Farming Opportunities: Myth or Reality? The Case of Burley Tobacco," presented at the meeting of the Southern Agricultural Management Research Information Exchange Group, Port Aransas, Texas, June 12.
- Park, William M., and Robert J. Menard. "An Evaluation of a Conservation Reserve Bid Approach for Retiring Highly Eroding Cropland in West Tennessee," presented at the Southern Agricultural Economics Association Annual Meeting, Nashville, Tennessee, February 1-4.
- Park, William M., and Steven E. Montheith. "Cost Effectiveness of the Variable Cost-Share Level Option in the Agricultural Conservation Program," presented at the American Agricultural Economics Association Annual Meeting, East Lansing, Michigan, August 4.
- Pompelli, Greg K., and Dale Heien. "Demographic Factors in Household Wine Demand," selected paper for the American Agricultural Economics Association Meetings, East Lansing, Michigan, August 4.
- Robertson, Thyrele, and Burton C. English. "The Impact of Technology on Land Use," presented at the Atlantic Economic Society's Annual Meeting, New York, New York, September 3-5.
- Robertson, Thyrele, Dave Post and Burton C. English. "Impacts on Land Use at the National Level," presented at the Soil Conservation Society of America's Annual Meeting, Billings, Montana, August 3-5.
- VanTassell, Larry W., and David A. Bessler. "Dynamic Economic Relationships Between Commercial and Purebred Cattle Markets," selected paper at the Southern Agricultural Economics Association Meetings, Nashville, Tennessee, February 1-4. (Abstract: *Southern Journal of Agricultural Economics*, Vol. 17, p. 124.)
- VanTassell, Larry W., J. R. Conner and J. W. Richardson. "Accounting for Environmental Uncertainty in Range Improvement Analysis," selected paper at the Western Agricultural Economics Association Meeting, Manhattan, Kansas (Abstract: *Western Journal of Agricultural Economics*, Vol. 12, p. 238.)

VanTassell, Larry W., J. W. Richardson and J. R. Conner. "Incorporating Environmental Uncertainties in a Ranch Simulation," selected paper at the American Agricultural Economics Association Meetings, East Lansing, Michigan, August 2-5.

Reports/Proceedings

Brooker, John R. "Cooperative Activity in Tennessee," *American Cooperation*. 1987, American Institute of Cooperation, Washington, D.C.

Eastwood, David B., Danny E. Terry and John R. Brooker. "Food Prices and Household Characteristics," *Proceedings of the 33rd Annual Conference of the American Council on Consumer Interests*, Vol. 33, pp. 168-174.

AGRICULTURAL ENGINEERING

Proj. No.

Research Project Titles

TN 680	Effects, Mechanisms, and Control of Erosion and Sediment from Agricultural and Forest Land (contributing to Regional Project S-174)
TN 709	On-Site Wastewater Renovation
TN 740	Catalysts for Environmental Quality Control in Animal Confinement Facilities
TN 741	Labor Reduction in Harvesting, Handling, and Curing Air Cured Tobacco
TN 748	A Synergistic Energy System for Farm Structures Using an Earth Tube Coupled with a Heat Pump
TN 753	Engineering and Management System for Cotton Production, Harvesting, and Processing (contributing to Regional Project S-195)
TN 755	Processing and Storage of Southern Agricultural Commodities (contributing to Regional Project S-196)
TN 759	Mechanized Production of Selected Vegetable Crops in Tennessee
TN 765	Utilization of Animal Waste as Energy and Nutrient Sources in Warm, Humid Climates (contributing to Regional Project S-202)
TN 766	Optimize Production Efficiency of Animal Housing Systems in the Southern Region (contributing to Regional Project S-197)
TN 786	Drying Grain Sorghum and Minor Crops in Tennessee
TN 816	Application of Artificial Intelligence to Agricultural Research and Production
TN 827	Undertree (non-ice encapsulation) Frost Protection
TN 838	Automatic Control of Field Machinery Functions (contributing to Regional Project S-210)
TN 872	Control, Prediction, Economics, and Environmental Effects of Soil Erosion (contributing to Regional Project S-218)

Projects Concluded in 1987

- TN 680 Effects, Mechanisms, and Control of Erosion and Sediment from Agricultural and Forest Land (contributing to Regional Project S-174)

Bulletins, Articles, and Reports—1987

- Boyd, W. H., C. R. Mote, and G. L. Springston. Dairy Waste Storage and Handling Facilities. *Southeastern Forage and Grassland - Expo '87 Proceedings*, Tennessee Agricultural Extension Service, Knoxville, TN, pp. 1-2.
- Boyd, W. H., C. R. Mote, and G. L. Springston. Dairy Waste Storage and Handling Facilities. *Tennessee Farmer*. September. p. 12.
- Freeland, R. S., A. R. Womac, and R. D. von Bernuth. Fiber Optic Networking of Intelligent Meteorological Sensors. ASAE Paper No. 87-3505. American Society of Agricultural Engineers Winter Meeting, Chicago, IL. December.
- Freeland, R. S., F. D. Tompkins, and L. R. Wilhelm. Keeping Test Errors Within Acceptable Limits. *Agricultural Engineering*, American Society of Agricultural Engineering, March/April. pp. 13-15.
- Freeland, R. S., F. D. Tompkins, and L. R. Wilhelm. Instrumentation for In-Field Measurements of Power Inputs to PTO-Driven Agricultural Implements. *Tennessee Farm and Home Science* No. 143. pp. 6-10.
- Gilley, J. R. and R. D. von Bernuty. Application of Infiltration Models to Center-Pivot Design. *Proceedings of the International Conference on Infiltration and Development and Application*, Water Resources Center, Honolulu, HI.
- Mote, C. R., C. L. Griffis, J. W. Pote, M. D. Harper, E. M. Rutledge, and D. K. Shoemaker. Serially Loaded Seepage Trench Performance on a Captina Soil. Agricultural Experiment Station, University of Arkansas, Report Series 303.
- Reed, S., F. D. Tompkins, and J. B. Wilkerson. Computer-controlled Microtopography Meter. ASAE Paper No. 87-1522. American Society of Agricultural Engineers Winter Meeting, Chicago, Illinois. December.
- Shelton, C. H. and J. F. Bradley. Controlling Erosion and Sustaining Production with No-till Systems. *Tennessee Farm and Home Science* No. 141. pp. 18-23.
- Sui, Ruixiu, J. B. Wilkerson, L. R. Wilhelm and F. D. Tompkins. A Field Plant Morphology Integrator. ASAE Paper 87-3067. American Society of Agricultural Engineers Summer Meeting, Baltimore, MD. June.
- Tompkins, F. D., W. E. Hart, R. S. Freeland, J. B. Wilkerson, and L. R. Wilhelm. Measuring the True Ground Speed of Agricultural Tractors. *Tennessee Farm and Home Science* No. 144. pp. 14-18.
- Tompkins, F. D., R. S. Freeland, J. B. Wilkerson, W. E. Hart, and L. R. Wilhelm. Microcomputer-based Instrumentation for Monitoring Tractor Operational Parameters and Energy Inputs to Implements. *Proceedings of the International Symposium on Agricultural Mechanization and International Cooperation in High Technology*. Japanese Society of Agricultural Machinery. pp. 158-170.
- Tompkins, F. D. and J. B. Wills, Jr. No-tillage Drills. *Proceedings of the Southeastern Forage and Grassland Expo '87*. Tennessee Forage and Grassland Council. pp. 23-24.

- von Bernuth, R. D. and Del Baird. Pressure Regulator Characteristics. ASAE Paper No. 87-2590. American Society of Agricultural Engineers Winter Meeting, Chicago, IL. December.
- von Bernuth, R. D. Linear and Logarithmic Data Plotting. ASAE Paper No. 87-3530. American Society of Agricultural Engineers Winter Meeting, Chicago, IL. December.
- von Bernuth, R. D. Measuring Particle Sizes with a Laser Spectrometer Tennessee Farm and Home Science No. 144. pp. 7-9.
- Wilhelm, L. R. Principles of Open-pan Evaporation of Sorghum Syrup from Pans Heated by Wood, LP Gas, or Steam. *Proceedings of Second Annual Meeting of National Sweet Sorghum Producers and Processors Association*, Nashville, TN. March 13-14. pp. 6-7.
- Wilhelm, L. R. and S. N. Aso. The Effect of Heat on Sweet Sorghum Juice Clarification. Tennessee Farm and Home Science No. 142. pp. 12-15.
- Wilhelm, L. R. and J. B. Wilkerson. Thermoelectric Cooling of Electronics Assemblies. ASAE Paper No. 87-3004. American Society of Agricultural Engineers Summer Meeting, Baltimore, MD. June.
- Womac, A. R., F. D. Tompkins, R. S. Freeland, and J. B. Wilkerson. Response of In-situ Soil to Dynamic Penetration. Tennessee Farm and Home Science No. 143. pp. 10-13.
- Womac, A. R., F. D. Tompkins, R. S. Freeland, and J. B. Wilkerson. Dynamic Response of In-situ Soil Impacted by a Punch. *Proceedings of the Beltwide Cotton Conferences*, National Cotton Council of America, Memphis, TN. pp. 138-141.
- Womac, A. R., F. D. Tompkins, and E. C. Drumm. Resonant Column Testing of Agricultural Soils. ASAE Paper No. 87-1553. American Society of Agricultural Engineers Winter Meeting, Chicago, IL. December.
- Womac, A. R., F. D. Tompkins, and E. C. Drumm. Measuring Dynamic Response of Soil Subjected to Impact Loading. ASAE Paper No. 87-1010. American Society of Agricultural Engineers Summer Meeting, Baltimore, MD. June.

ANIMAL SCIENCE

Proj. No.

Research Project Titles

- | | |
|--------|---|
| TN 529 | Flexibility of Beef Production from Forage in Tennessee |
| TN 627 | Genetic Variation in Nutrient Intake and Utilization of Grazing Beef Females as Related to Genotype x Environment Interaction |
| TN 704 | Improvement of Production Efficiency in Slaughtered Beef Herds Through Heifer Selection |
| TN 707 | Management and Productivity of Fungus-Free and Fungus-Infected Fescue Pastures |
| TN 723 | Genetic-Physiology Mechanisms Associated with Nutrient Utilization and Poultry (contributing to Regional Project S-133) |
| TN 731 | Nutrition and Management of Swine for Increased Reproductive Efficiency (contributing to Regional Project S-145) |
| TN 732 | Light Stress and Cardiovascular Abnormalities in Broilers |

TN 733	The Maintenance of Pregnancy in the Cow: Fetal Maternal Interactions
TN 756	Resistance to Bovine Mastitis During the Dry Period
TN 761	Competitive Exclusion of Environmental Mastitis Pathogens by <i>Corynebacterium Bovis</i> (contributing to Animal Health and Disease project)
TN 763	Metabolic Effects of <i>Acremonium Cornophialum</i> Infected Fescue Ingested by Ruminants (contributing to Animal Health and Disease project)
TN 767	Selection of Beef Cattle for Optimum Use of Resources
TN 773	Nutritional, Health and Behavioral Management of Purchased Feeder Pigs
TN 774	Genetic and Economic Aspects of Foot Care and Soundness in Dairy Cattle
TN 800	Ontogeny of Corticosteroid Binding Globulin in Swine
TN 802	Improving the Acceptability of Southeastern Feeder Calves
TN 804	Hypothalamic and Ovarian Function in the Postpartum Beef Cow
TN 805	Excretion of Carnitine, Sulphobromophthalein and Cortisol in the Bull Ejaculate
TN 806	Treatment of Retained Placenta with Proteolytic Enzymes and Uterokinetic Drugs
TN 809	Social and Environmental Influence of Reproductive Performance in Swine
TN 811	Postweaning Nutritional Management of Pigs During the Nursery Phase
TN 818	Preshipment Management and Transportation Effects on Subsequent Feeder Pig Performance
TN 819	Alternate Systems of Female Rearing and Reproductive Management in Swine
TN 820	Genetic Methods of Improving Dairy Cattle for the South (contributing to Regional Project S-49)
TN 844	Effect of Manipulation of Fermentation Dynamics on Silage Production and Animal Performance
TN 845	Resistance to Mastitis in Dairy Cattle (contributing to Regional Project NE-112)
TN 848	Comparison of Feed Delivery Systems for Lactating Dairy Cows
TN 859	Prepartum Nutrition and Postpartum Health and Performance of Dairy Cows
TN 874	Production Responses of Byproducts and Whole Oilseeds in Dairy Rations
S 90	Use of Highly Prolific Breed x Mutton Breed Crosses to Improve Lamb Production in Tennessee

Projects Concluded in 1987

TN 639	Breeding Methods for Beef Cattle in the Southern Region (contributing to Regional Project S-10)
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- TN 670 The Effect of Different Kinds of Pasture and Grain Feeding Periods on Beef Carcass Quantitative and Qualitative Traits and Palatability Characteristics (in cooperation with Food Technology and Science Department)
- TN 728 Predictive Criteria for Reproductive Capacity in the Beef Heifer
- TN 754 Resistance to Mastitis in Dairy Cattle

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CHILD AND FAMILY STUDIES

Proj. No.

Projects Concluded in 1987

- TN 628 Dynamics of Life Plans and Attainment of Low-Income Youth: A Longitudinal Analysis (contributing to Regional Project S-171)

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ENTOMOLOGY AND PLANT PATHOLOGY

Proj. No.	Research Project Titles
TN 700	Integrated Anthropod Management for Livestock and poultry in the Southern Region (contributing to Regional Project S-181)
TN 714	Economic Thresholds, Toxicology, and Management of the Fall Armyworm and European Corn Borer in Field Corn
TN 717	Insect Pest Management for Vegetable Crops
TN 719	Distribution and Ecology of Phytoparasitic Nematodes in Tennessee
TN 726	Management of Soil Microorganisms Affecting the Health and Vigor of Plants (contributing to Regional Project S-186)
TN 730	Biological Control of Selected Anthropod Pests and Weeds Through Introduction of Natural Enemies (contributing to Regional Project S-192)
TN 742	Detection, Identification and Occurrence of Plant Viruses in Tennessee
TN 749	Biology and Control of Fungus Diseases Causing Economic Losses in Cotton, Wheat, and Grain Sorghum
TN 752	Etiology and Epidemiology of <i>Diaporthe</i> SP. and <i>Phomopsis</i> SP. Causing Soybean Steam Canker
TN 795	Etiology and Epidemiology of Dogwood Canker Host Plant Resistance and Chemical Control for Burley Tobacco Insects
TN 801	Biosystematics of Pitscales in Tennessee
TN 812	Etiology, Ecology, and Control of Soybean Diseases
TN 815	Etiology and Control of Fungus Pathogens of Beans
TN 822	Life Table Studies of Root-Knot and Cyst Nematodes
TN 829	Management and Bionomics of Cotton Insects Management Strategies for Control of Vegetable Diseases in Tennessee
TN 836	Population Dynamics of <i>Heliothis</i> Species on Wild and Cultivated Plants in Tennessee
TN 842	Biology of Genetically Changing Root-Knot and Cyst Nematodes of Soybeans (contributing to Regional Project S-212)
TN 856	Effects of Endophyte Infection on Resistance of Tall Fescue
TN 857	Aspects of the Population Ecology of Face Flies that Influence the Spread of <i>Moraxella Bovis</i> (contributing to Regional Project S-216)
TN 867	Biological Control Strategies for Management of Plant Diseases in Woody Ornamental Nurseries
TN 869	Arthropod Induced Stress on Soybean: Evaluation and Management (contributing to Regional Project S-219)

Projects Concluded in 1987

- TN 92 Pesticide Impact Assessment Research and Data Analysis
- TN 624 Tactics for Management of Soybean Pest Complexes (contributing to Regional Project S-157)
- TN 693 Pasture and Forage Insect Pest Ecology and Control
- TN 715 The Ecological and Physiological Aspects of the spread of *Moraxella bovis* by *autumnalis*
- TN 722 Viruses of Small Grains

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ENVIRONMENTAL PRACTICE***Proj. No.******Research Project Title***

TN 762	Biochemical Mechanisms of Fescue and Endotoxin Induced Agalactia (contributing to Animal Health and Disease project)
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FOOD TECHNOLOGY AND SCIENCE***Proj. No.******Research Project Titles***

TN 721	Characteristics of Antimicrobials in Foods
TN 729	Evaluation of Tennessee Fresh and Processed Vegetables
TN 758	Food Lipids: Analysis and Effects on Quality
TN 760	Effect of Animal Composition and Processing Methods on Meat Quality
TN 768	Analysis, Assay and Control of Mycotoxins in Agricultural Products
TN 807	Effect of Processing Technologies on Acceptance and Shelf Life of Manufactured Meat Products
TN 831	Sensory Evaluation of Foods: Methodological Studies
TN 832	Enzymes in Dairy Products: Characteristics, Effects and Control
TN 834	Determination of Calcium in Dairy Products and the Concentration as Influenced by Processing
TN 835	Evaluation of the Quality & Nutritional Value of Fresh and Processed Fruit
TN 843	Engineering Studies on Dehydrocooling of Vegetables
TN 847	Product Development for Increased Utilization of the Sweet Potato (contributing to Regional Project S-214)
TN 854	Cereal Food Products: Effects of Variations in Formulation and Processing on Quality
TN 864	Production and Processing Systems to Produce Lean Beef for the Modern Consumer
TN 865	Development of Baked, Breaded Vegetable Products with Defined Nutrient Levels and Fried Character
S 89	Processing Methods for Dairy Products: Efficiency and Relationship to Product Quality
S 95	Pesticide Residues and Their Degradation Products in Raw and Processed Foods

Projects Concluded in 1987

TN 647	Maximizing the Use, Nutritive Quality, and Consumer Acceptance of Sweet Potatoes
TN 670	Marketability and Acceptability of Beef Produced Under Forage and Forage-grain Management Systems

TN 690 Microwave Heating: Effects on Physical, Chemical and Sensory Properties of Selected Foods

TN 727 Microbiological Quality and Safety of Processed Foods

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Collins, J. L., C. Ebah, I. E. McCarty and J. R. Mount. Clarification of sorghum juice for syrup using bentonite and heat. *Tennessee Farm and Home Science* 142:16-20.

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Amin, Mohammad (Ph.D.). Growth Characteristics of *Yersinia enterocolitica* in selected Food Products. December.

Archer, Ola Marie (M.S.). A Comparison of Cooked Beef Rolls made from Flaked Pre-Rigor and Post-Rigor Beef. August.

Bacon, Craig (M.S.). Influence of Feeder Pig Body Type on Performance and Fat Deposition. June.

Bakir, Hussain (Ph.D.). Sensory Characteristics and Lipid Composition of White Amur (*Ctenopharyngodon Idella*) fed different diets. December.

Bolton, James Craig (M.S.). Sensory and Chemical Evaluation of Flavor in Ground Beef from Grass- and Grain-Fed Steers. June.

Bozorgmehr, Koorosh (M.S.). Effect of Storage, Cultivar, Atmosphere, and Processing on the Quality Characteristics of Sweet Potato Chips.

Chappell, Margaret (M.S.). Development of a Technique for the Isolation of Plasmids from food-related *Pseudomonas Fluorescens*. August.

Ebah, Catherine Bomoh (M.S.). Development of Yogurt with Sweet Potato as an Ingredient. August.

Hoskins, Clyde (M.S.). Recovery of *Clostridium perfringens* in the presence of an Oxygen-Reducing Membrane Fraction.

Mancuso, Peter (M.S.). Characteristics of a Snack Food with Added Soy Protein. December.

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Amin, K. and F. A. Draughon. Growth characteristics of *Yersinia enterocolitica* in egg yolk, egg white and whole eggs. Presented at the annual meeting of the SAAS, February 1-4, 1987, Nashville, Tennessee.

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- Davidson, P. M. Pathogens in raw and pasteurized milk. 35th Annual Dairy Institute, Knoxville, Tennessee.
- Draughon, F. A. and D. C. Mobley. Effects of temperature, initial moisture content and level of inoculum on concurrent aflatoxin and ochratoxin production in corn. 1987 meeting of the 7th World Congress, Singapore.
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- Melton, S. L. "Lipid Analysis-Rapid Methods for separating and measuring triglycerides and non-triglycerides components." Presented at Southwest Agriculture University in Beibei, Peoples Republic of China, Oct. 13, 1987.
- Melton, S. L. "A rapid fractionation procedure for isolation of non-triglyceride components in vegetable oils." Presented at 78th annual meeting of American Oil Chemists Society in New Orleans, LA, May 17-21, 1987.
- Prince, M. J. (with F. A. Draughon). Growth and survival of *Campylabacter jejuni* in turkey roll under modified atmosphere storage. Undergraduate Research Paper Competition 1st Place, Institute of Food Technologists, Las Vegas, NV.
- Ren, T. J., G. L. Christen and J. F. Frank. Characterization of lipase of *Pseudomonas fluorescens* 27 based on fatty acid profiles. J. Dairy Sci. 70, Supplement 1:244.
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FORESTRY, WILDLIFE, AND FISHERIES

Proj. No.	Research Project Titles
TN 660	Games Fish Management in Tennessee Waters
TN 776	The Relationship Between Stress and Reduced Fitness in Food Fish
TN 853	Initiation of Somatic Cell Genetic Research in Forest Trees
TN 862	Biological Improvement of Chestnut (<i>Castanea sp.</i>)
TN 868	Culture and Management of Economically Important Fish Species in Tennessee Waters
MS 36	Effects of Air Pollution on Radial Growth and Wood Density of Trees
MS 38	Biometrical Procedures for Tennessee Forest Management
MS 39	The Impact of Habitat Changes on Wildlife Populations in Southeastern Forests
MS 40	Marketing of Tennessee's Timber Products
MS 41	Genetic Improvement of Selected Hardwood and Coniferous Trees
MS 43	Visual Impacts of Vegetation Management on Forest Recreation

MS 44	Cytogenetic Studies of Hardwood and Coniferous Forest Trees
MS 45	Genetic and Cultural Manipulations of Christmas Tree Species in Tennessee
MS 46	Stand Regeneration Using Containerized Seedlings
S 30	Arboretum

Projects Concluded in 1987

TN 660	Game Fish Management in Tennessee Waters
MS 36	Effects of Air Pollution on Radial Growth and Wood Density of Trees

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- Hammit, W. E. 1987. Visual recognition capacity during outdoor recreation experiences. *Environment & Behavior* 19(6):651-672.

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MICROBIOLOGY

Proj. No.	Research Project Titles
TN 784	Development of Potential Enteric Coronavirus Vaccine Sources Using Recombinant DNA
S 95	Production and Use of Monoclonal Antibodies Against Specific Surface Antigens of <i>Bordetella Bronchiseptica</i>

Projects Concluded in 1987

TN 744	An Infected Cell Membrane Protein as a Cross Protective Vaccine for Alpha-viruses
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- Lapps, W., B. G. Hogue and D. A. Brian. Sequence Analysis of the Bovine Coronavirus Nucleocapsid and Matrix Protein Genes. Virol 157:47-57.
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NUTRITION AND FOOD SCIENCES

Proj. No.	Research Project Titles
TN 735	Effect of Diet on the Metabolism of Mercury
TN 745	Carnitine Nutriture in Chronic Alcoholism
TN 750	Changing Dietary Behavior via Nutrition Education
TN 828	Physical and Sensory Properties of Nutritionally-Enhanced Baked Products
TN 855	Effect of Dietary Sulfur Upon Fatty Acid Metabolism
TN 858	Soluble/Insoluble Dietary Fiber Levels as Effected by Processing Methods and Wheat Cultivars

- TN 860 Factors Influencing the Nutritional Health of Adolescents During and Post Pregnancy

Projects Concluded in 1987

- TN 689 Effect of Feed Restriction, Exercise and Age on Fat Synthesis, Body Composition and Survival of Rats
- TN 734 Effect of Dietary Sulfur on Analgesia
- TN 746 Human Erythrocyte Nak-Atpase, Hypertension and Diet

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Abstracts

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Journals

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ORNAMENTAL HORTICULTURE AND LANDSCAPE DESIGN

<i>Proj. No.</i>	<i>Research Project Titles</i>
TN 703	Propagation of Ornamental Plants
TN 706	Bedding Plant Productive Systems and Varietal Evaluations
TN 708	Chemical Control of Plant Growth in Florists' Crops
TN 711	Field Nursery Production Systems
TN 712	Nursery Container Plant Production Systems
TN 716	Post Harvest Handling of Nursery Stock
TN 771	Cultivars, Cultural, and Mechanical Practices Evaluations in Turfgrass
TN 722	Turfgrass Pesticides
TN 833	Postpropagation Management of Tissue Cultured Liners
TN 863	Development of Tissue Culture Propagation Systems for the Asteraceae

Projects Concluded in 1987

TN 747	Histochemistry and Ultrastructure of Idioblasts in the Outer Integument of Cotton Ovule (<i>Gossypium hirsutum</i>)
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- Callahan, Lloyd M. History and Importance of Turfgrasses. Southern Turf Conference. Memphis, TN Nov. 15-17, 1987.
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- TN 782 Cloning and Hybridization Probes in Pathogenesis Studies
- TN 821 Bovine Respiratory Diseases: Risk Factors, Pathogens, Diagnosis & Management (contributing to Regional Project NC-107)
- S 94 *In Vitro* Investigation of Bovine Pasteurellosis Pathogenic Mechanisms

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PLANT AND SOIL SCIENCE

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- TN 678 Mycotoxins of Corn and Other Feed Grains (contributing to Regional Project S-175)
- TN 684 Agricultural Meteorology and Climatology for Production in the Southern Region (contributing to Regional Project S-173)
- TN 692 Weed Control in Field and Horticultural Crops
- TN 695 Cellular and Molecular Genetics for Crop Improvement (contributing to Regional Project S-179)
- TN 696 Biology, Epidemiology, and Control of Viruses and Micoplasma-like Organisms Causing Diseases in Corn & Sorghum (contributing to Regional Project S-70)

TN 697	Plant Germplasm—Its Introduction, Maintenance and Evaluation (contributing to Regional Project S-9)
TN 705	Life History, Population Dynamics, and Interference: A Basis for Understanding Weed Biology (contributing to Regional Project S-183)
TN 710	Quantifying Past Erosion and Evaluating Erosion & Cover Crop Effects on Yield
TN 718	Burley Tobacco Genetics, Breeding and Cultural Practices
TN 757	Role of Legume Cover Crops in Conservation Tillage Production Systems (contributing to Regional Project S-201)
TN 775	Corn Improvement
TN 777	Environmental and Biological Stresses of Rootshocks on Peach Tree Longevity (contributing to Regional Project S-97)
TN 778	Cotton Production Methodology
TN 779	Variation in Soil Solution Composition in Field Environments
TN 780	Fruit Crop Investigations
TN 781	Environmental Adaptation and Cultural Management of Vegetable Crops
TN 785	Ecology of Crops in Forage Management Systems
TN 787	Low Temperature Photosynthesis, Stem Development and Forage Quality of Tall Fescue
TN 788	Effect of Soil, Soil Fertility Level, Added Nutrients, and Season on Crop Yields
TN 789	Field Crop Variety Evaluation
TN 791	Improvement of Small Grain Through Breeding
TN 792	Soil Survey and Its Utilization in Tennessee
TN 793	Alteration of Soil Chemical Properties Due to Continuous No-till practices
TN 794	Soil pH and its Effects on Crop Growth & Nutrient Availability
TN 810	Vegetable Crop Production
TN 813	Dark Tobacco Breeding and Cultural Practices
TN 817	Mineralogy of Selected Soils in the Southern Region
TN 823	Germplasm Development in Forage Grasses
TN 824	Field Crop Responses to Plant Nutrient Applications on Soils
TN 849	Behavior and Fate of Selected Sulfonyl Area and Imidazolinone Herbicides in the Southern Environment (contributing to Regional Project S-215)
TN 851	Soybean Breeding

- TN 852 Rootstock and Interstem Effects on Pome and Stone Fruit Trees (contributing to Regional Project NC-140)

Projects Concluded in 1987

- TN 476 Soybean Breeding
- TN 652 Influence of Crop Herbicide Management of Weed Population Dynamics and Subsequent Crop Physiology (contributing to Regional Project S-159)
- TN 679 Rootstock and Interstem Effects on Pome & Stone (contributing to Regional Project NC-140)
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TEXTILES, MERCHANDISING, AND DESIGN

Proj. No.

Research Project Titles

- | | |
|--------|---|
| TN 770 | Development of Economic Alternatives for the U.S. Textile Complex |
| TN 840 | Textile Fiber Systems for Performance, Protection, and Comfort (contributing to Regional Project S-208) |

Bulletins, Articles and Reports—1987

- Dyer, C. L. A Partial Equilibrium Analysis of the Initial Output and Employment Impacts of Textile Imports into the United States. *National Textile Consultants*, Vol. 1, No. 2.
- Dyer, C. L. Price Elasticities and Elasticities of Substitution in the Yarn Spinning Sector. *National Textile Consultant*, Vol. 1, No. 1.
- Dyer, C. L. and H. Moreno. The United States' Carpet Industry in Retrospect: An Econometric View. *The Journal of Economic History*.
- Potnis, P. S. and L. C. Wadsworth. A Comparison of Low Wet Pickup Techniques in the Repellent Finishings of Spunlaced Nonwovens. *Textile Chemists and Colorist*. 18, No. 11:17-23.

STATION PERSONNEL
The University of Tennessee
Agricultural Experiment Station
Knoxville, Tennessee 37901

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D.A. Rugh, Graduate Research Assistant
C.B. Sappington, Professor
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M.A. Willhite, Graduate Research Assistant
D.A. Yates, Graduate Research Assistant

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 W.R. Backus, Associate Professor
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 Kaung-Huei Liu, Graduate Research Assistant
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L.F. Johnson, Professor	V.K. Smalley, Graduate Research Assistant
B.S. Kennedy, Graduate Research Assistant	J.K. Watson, Teaching Assistant
C.A. Kimmons, Graduate Research Assistant	M.T. Windham, Assistant Professor
	L.D. Young ¹ , Associate Professor

¹In cooperation with U.S. Dept. of Agriculture.

ENVIRONMENTAL PRACTICE

Jimmy B. Jones, Professor and Head of Department	Clint D. Lothrop, Assistant Professor
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FOOD TECHNOLOGY AND SCIENCE

H.O. Jaynes, Professor and Head of Department	M.J. Huskey, Graduate Research Assistant
W.G. Barron, Graduate Research Assistant	S.S. Jafar, Graduate Research Assistant
R.N. Biswal, Assistant Professor	H.D. Loveday, Associate Professor
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 R.J. Strange, Professor
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 P.M. Winistorfer, Assistant Professor
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 Colleen A. Woodward, Graduate Research Assistant
 T.M. Young, Research Assistant

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 David A. Bemis, Associate Professor

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 J.M. Bogert, Graduate Research Assistant
 L.M. Callahan, Professor
 J.W. Day, Associate Professor
 H.L. Dickerson, Research Associate
 J.T. Dietrich, Graduate Research Assistant
 E.T. Graham, Professor
 R.A. May, Graduate Research Assistant
 T.P. McCracken, Graduate Research Assistant

G.L. McDaniel, Professor
 J.G. Rice, Graduate Research Assistant
 D.P. Shepard, Research Associate
 K.K. Stein, Graduate Research Assistant
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 H. van de Werken, Professor
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 S.L. Wilson, Research Associate
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 Marcela Heim-Edelman, Graduate Research Assistant
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 Sondra J. Olds, Graduate Research Assistant
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 Jean D. Skinner, Associate Professor
 John T. Smith, Professor
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 Adrienne A. White, Graduate Research Assistant

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L.N.D. Potgieter, Professor
Michael A. Breider, Assistant Professor

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D.L. Coffey, Professor
B.V. Conger, Professor
G.S. Crnko, Graduate Research Assistant
D.E. Deyton, Associate Professor
B.N. Duck, Professor, Martin
H.A. Fribourg, Professor
J.G. Graveel, Assistant Professor
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J.A. Hale, Graduate Research Assistant
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D. Hardin, Graduate Research Assistant
M. Harrison, Graduate Research Assistant
G.W. Haun, Graduate Research Assistant
R.M. Hayes, Associate Professor, Jackson
P.E. Hoskinson, Associate Professor, Jackson
D.D. Howard, Associate Professor, Jackson
J.R. Jones, Graduate Research Assistant
M.A. Krstich, Graduate Research Assistant
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D. Landau, Graduate Research Assistant
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R.J. Lewis, Associate Professor
A.M. Lujan, Graduate Research Assistant
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R.D. Miller, Associate Professor, Greeneville

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J.L. Oakes, Graduate Research Assistant
T. Oliver, Graduate Research Assistant
W.L. Parks, Professor
B. Pennell, Graduate Research Assistant
D. Phillips, Graduate Research Assistant
V.H. Reich, Graduate Research Assistant
J.H. Reynolds, Professor
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M. Sellman, Graduate Research Assistant
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P. Shelby, Graduate Research Assistant
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R.W. Thompson, Graduate Research Assistant
D.D. Tyler, Associate Professor, Jackson
A. Wenck, Graduate Research Assistant
D.R. West, Associate Professor
W. F. Whitehead, Graduate Research Assistant
J.D. Holt, Associate Professor
J.E. Wyatt, Associate Professor, Jackson
D.A. Wysocki, Assistant Professor

TEXTILES, MERCHANDISING, AND DESIGN

J.O. DeJonge, Professor and Head of
Department
C.L. Dyer, Associate Professor

Yiqun Lin, Graduate Research Assistant
Cheng Luo, Graduate Research Assistant
Larry C. Wadsworth, Professor

PERSONNEL CHANGES

Appointments

Robert R. Alexander, Graduate Research Assistant in Agricultural Economics, Aug. 10, 1987
R. M. Auge', Assistant Professor in Ornamental Horticultural and Landscape Design, Sept. 1, 1987
J. P. Avery, Pesticide Impact Coordinator in Entomology and Plant Pathology, April 20, 1987
Robert M. Ball, Graduate Research Assistant in Agricultural Economics, Sept. 14, 1987

James Bailey, Assistant Professor in Nutrition and Food Sciences, Aug. 15, 1987
D. R. Baird, Research Associate in Agricultural Engineering Feb. 16, 1987
R. M. Beaty, Research Associate in Ornamental Horticulture and Landscape Design, May 1, 1987
John K. Bernard, Assistant Professor in Animal Science, Jan. 1, 1987
R. N. Biswal, Assistant Professor in Food Technology and Science, Jan. 1, 1987

- Ruth A. Boyd, Graduate Research Assistant in Forestry, Wildlife, and Fisheries, Feb. 16, 1987.
- Blake A. Brown, Graduate Research Assistant in Plant and Soil Science, June 8, 1987
- D. L. Bryan, Graduate Research Assistant in Entomology and Plant Pathology, Sept. 11, 1987
- Janet C. Burgess, Graduate Research Assistant in Plant and Soil Science, July 1, 1987
- Richard R. Burnette, Graduate Research Assistant in Plant and Soil Science, June 1, 1987
- Jaime A. Castaneda, Graduate Research Assistant in Agricultural Economics, Oct. 14, 1987.
- Shawn Frey Charles, Graduate Research Assistant in Animal Science, April 1, 1987
- Allan B. Chestnut, Assistant Professor in Animal Science, April 1, 1987.
- Gary V. Cole, Graduate Research Assistant in Agricultural Economics, Aug. 5, 1987
- Cristanna M. Cook, Graduate Research Assistant in Agricultural Economics, Sept. 21, 1987
- John B. Creech, Graduate Research Assistant in Plant and Soil Science, Septm 25, 1987
- B. A. Crutchfield, Graduate Research Assistant in Entomology and Plant Pathology, Sept. 14, 1987
- R. D. Davis, Sr., Graduate Research Assistant in Forestry, Wildlife, and Fisheries, Sept. 1, 1987.
- Rodney C. DeLost, Graduate Research Assistant in Animal Science, Sept. 22, 1987
- Margaret V. Douglas, Graduate Research Assistant in Agricultural Economics, Sept. 14, 1987
- Susan E. Duncan, Graduate Research Assistant in Food Technology and Science, Sept. 1, 1987
- Fowler, Lowell F., Graduate Research Assistant in Plant and Soil Science, July 1, 1987
- P. T. Giltneane, Research Associate in Agricultural Engineering, Nov. 5, 1987
- Dena Goldberg, Graduate Research Assistant in Nutrition and Food Sciences, Sept. 1, 1987
- K. D. Gwinn, Assistant Professor in Entomology and Plant Pathology, March 1, 1987
- Jeffery E. Herrmann, Graduate Research Assistant in Plant and Soil Science, Aug. 17, 1987
- K. P. Hoyt, Graduate Research Assistant in Forestry, Wildlife, and Fisheries, Feb. 16, 1987
- Ray G. Huffaker, Assistant Professor in Agricultural Economics, Jan. 1, 1987
- D. D. Hughes, Graduate Research Assistant in Forestry, Wildlife, and Fisheries, Sept. 1, 1987
- C. A. Kimmons, Graduate Research Assistant in Entomology and Plant Pathology, June 18, 1987
- T. D. Klingbyll, Graduate Research Assistant in Entomology and Plant Pathology, Aug. 1, 1987
- Carol A. Krantz, Graduate Research Assistant in Forestry, Wildlife, and Fisheries, Sept. 16, 1987
- Bruce Lambert, Graduate Research Assistant in Agricultural Economics, Sept. 21, 1987
- Mary Elizabeth Langdon, Graduate Research Assistant in Animal Science, July 1, 1987
- Julie A. E. Laufman, Graduate Research Assistant in Plant and Soil Science, July 15, 1987
- Kaung-Huei Liu, Graduate Research Assistant in Animal Science, Sept. 1, 1987
- Glenn A. Lowman, Graduate Research Assistant in Plant and Soil Science, Sept. 1, 1987
- A. M. Lujan, Research Associate in Entomology and Plant Pathology, March 1, 1987
- Sara F. Main, Graduate Research Assistant in Forestry, Wildlife, and Fisheries, Sept. 16, 1987
- William Thomas McDonald, Graduate Research Assistant in Animal Science, Aug. 10, 1987
- Pamela McKenzie, Graduate Research Assistant in Animal Science, Sept. 1, 1987
- J. T. Miller, Graduate Research Assistant in Agricultural Engineering, Nov. 9, 1987
- William Morris, Associate Professor in Nutrition and Food Sciences, June 15, 1987
- Sylvia Nicklas-Bray, Graduate Research Assistant in Animal Science, April 1, 1987
- James D. Odell, Graduate Research Assistant in Plant and Soil Science, Sept. 1, 1987

- Kimberly D. Payne, Graduate Research Assistant in Food Technology Science, Sept. 16, 1987
- Randal K. Phebus, Graduate Research Assistant in Food Technology Science, Nov. 1, 1987
- Gregory K. Pompelli, Assistant Professor in Agricultural Economics, Jan. 26, 1987
- Pamela Jean Sargent, Graduate Research Assistant in Animal Science, March 26, 1987
- J. R. Sarten, Graduate Research Assistant in Agricultural Engineering, Jan. 1, 1987
- B. J. Savary, Research Associate in Entomology and Plant Pathology, May 18, 1987
- Lowell K. Shaw, Graduate Research Assistant in Agricultural Economics, Jan. 1, 1987
- D. J. Smith, Graduate Research Assistant in Agricultural Engineering, Jan. 1, 1987
- Scott E. Smith, Graduate Research Assistant in Animal Science, Jan. 1, 1987
- K. K. Stein, Graduate Research Assistant in Ornamental Horticulture and Landscape Design, Jan. 1, 1987
- A. J. Stodola, Research Associate in Ornamental Horticulture and Landscape Design, Sept. 1, 1987
- Regonald Sylvain, Graduate Research Assistant in Animal Science, Sept. 10, 1987
- R. N. Trigiano, Assistant Professor in Ornamental Horticulture and Landscape Design, March 1, 1987
- Susan G. Varner, Graduate Research Assistant in Food Technology and Science, Sept. 16, 1987
- Martha W. Walline, Graduate Research Assistant in Food Technology and Science, Sept. 16, 1987
- Atchara Wongsangchan, Graduate Research Assistant in Forestry, Wildlife, and Fisheries, Sept. 16, 1987
- Douglas A. Wysocki, Assistant Professor in Plant and Soil Science, Sept. 1, 1987
- David A. Yates, Graduate Research Assistant in Agricultural Economics, Sept. 21, 1987
- G. Y. Yeow, Graduate Research Assistant in Ornamental Horticulture and Landscape Design, Sept. 1, 1987

Changes in Title

- J. P. Avery to Pesticide Impact Coordinator in Entomology and Plant Pathology, April 20, 1987
- Gregory A. Kiess to Research Associate in Animal Science, Sept. 1, 1987
- Linda C. Miller to Research Associate in Animal Science, March 1, 1987
- Monty J. Montgomery to Professor in Animal Science, Nov. 1, 1987
- Stephen P. Oliver to Associate Professor in Animal Science, July 1, 1987
- R. J. Strange to Professor in Forestry, Wildlife, and Fisheries, July 1, 1987

Deaths

- Irving Dubov, Professor in Agricultural Economics, Aug. 5, 1987

Retirements

- J. R. Owen, Superintendent, Dairy Experiment Station, Dec. 30, 1987

Terminations

- T. E. Adcock, Graduate Research Assistant in Plant and Soil Science, Dec. 31, 1987
- Ola M. Archer, Graduate Research Assistant in Food Technology and Science, Sept. 15, 1987
- Timothy L. Ashley, Graduate Research Assistant in Animal Science, Jan. 31, 1987
- J. P. Avery, Graduate Research Assistant in Entomology and Plant Pathology, April 19, 1987
- Robert Berger, Graduate Research Assistant in Nutrition and Food Sciences, Aug. 31, 1987
- James C. Bolton, Graduate Research Assistant in Food Technology and Science, March 25, 1987
- Beverly D. Buckner, Graduate Research Assistant in Food Technology and Science, Nov. 13, 1987
- Margaret C. Chappell, Graduate Research Assistant in Food Technology and Science, Sept. 11, 1987

- Mark L. Cook, Graduate Research Assistant in Agricultural Economics, Dec. 31, 1987
- G. S. Crnko, Graduate Research Assistant in Plant and Soil Science, April 30, 1987
- R. R. David, Graduate Research Assistant in Forestry, Wildlife, and Fisheries, June 1, 1987
- Robert B. DeGregory, Graduate Research Assistant in Child and Family Studies, August 31, 1987
- James E. Dempsey, Graduate Research Assistant in Animal Science, June 30, 1987
- Andrew J. Dodd, Graduate Research Assistant in Agricultural Economics, Aug. 11, 1987
- Wanda Dodson, Research Associate in Nutrition and Food Sciences, Aug. 15, 1987
- Mark E. Downing, Graduate Research Assistant in Agricultural Economics, Aug. 13, 1987
- Susan F. Duncan, Graduate Research Assistant in Food Technology and Science, June 30, 1987
- Roger D. Edens, Graduate Research Assistant in Food Technology and Science, March 25, 1987
- Paula Gaynor, Research Associate in Animal Science, Aug. 12, 1987
- Steven C. Green, Graduate Research Assistant in Agricultural Economics, July 31, 1987
- Jane M. Griess, Graduate Research Assistant in Forestry, Wildlife, and Fisheries, Jan. 15, 1987
- J. W. Habera, Graduate Research Assistant in Forestry, Wildlife, and Fisheries, May 31, 1987
- J. A. Hale, Graduate Research Assistant in Plant and Soil Science, May 8, 1987
- G. W. Haun, Graduate Research Assistant in Plant and Soil Science, June 30, 1987
- Marcela Heim-Edleman, Graduate Research Assistant in Nutrition and Food Sciences, Aug. 31, 1987
- L. O. Hillon, Research Assistant in Agricultural Engineering, Dec. 31, 1987
- J. B. Horton, Graduate Research Assistant in Entomology and Plant Pathology, March 31, 1987
- Petr Hradecky, Research Associate in Animal Science, Aug. 31, 1987
- P. L. Jennings, Graduate Research Assistant in Entomology and Plant Pathology, March 31, 1987
- Diana Kuklinski, Graduate Research Assistant in Nutrition and Food Sciences, March 31, 1987
- Laure L. Larkin, Graduate Research Assistant in Food Technology and Science, Sept. 15, 1987
- Eric J. Line, Graduate Research Assistant in Food Technology and Science, Oct. 31, 1987
- A. M. Lujan, Graduate Research Assistant in Plant and Soil Science, Feb. 28, 1987
- Peter Mancuso, Graduate Research Assistant in Food Technology and Science, Oct. 15, 1987
- Nina Marable, Associate Professor in Nutrition and Food Sciences, March 31, 1987
- Deborah M. Markley, Assistant Professor in Agricultural Economics, June 26, 1987
- T. P. McCracken, Graduate Research Assistant in Ornamental Horticulture and Landscape Design, Aug. 31, 1987
- Stephen C. Morse, Graduate Research Assistant in Agricultural Economics, Aug. 31, 1987
- R. W. Mulach, Research Associate in Forestry, Wildlife, and Fisheries, Aug. 7, 1987
- Athanas A. Ndomba, Graduate Research Assistant in Food Technology and Science, June 30, 1987
- Sondra J. Olds, Graduate Research Assistant in Nutrition and Food Sciences, Aug. 31, 1987
- Peter Osei, Graduate Research Assistant in Animal Science, Dec. 31, 1987
- Gary W. Peterson, Associate Professor in Child and Family Studies, August 7, 1987
- Fred W. Pohlman, Graduate Research Assistant in Food Technology and Science, Sept. 21, 1987
- S. Reed, III, Graduate Research Assistant in Agricultural Engineering, Dec. 31, 1987
- D.S. Root, Graduate Research Assistant in Entomology and Plant Pathology, July 31, 1987
- B. Santhuff, Graduate Research Assistant in Plant and Soil Science, Aug. 31, 1987

- B. Santhuff, Graduate Research Assistant in Plant and Soil Science, Aug. 31, 1987
- Scott Sensenig, Graduate Research Assistant in Animal Science, Aug. 31, 1987
- Kathy L. Sharpe, Graduate Research Assistant in Animal Science, Aug. 31, 1987
- Lowell K. Shaw, Graduate Research Assistant in Agricultural Economics, Dec. 31, 1987
- Ruth M. Smith, Graduate Research Assistant in Food Technology and Science, Aug. 31, 1987
- Sarah K. Snyder, Graduate Research Assistant in Agricultural Economics, Sept. 30, 1987
- G. K. Stearman, Graduate Research Assistant in Plant and Soil Science, Dec. 31, 1987
- Carol L. Stout, Graduate Research Assistant in Agricultural Economics, June 30, 1987
- R. Sui, Graduate Research Assistant in Agricultural Engineering, Dec. 18, 1987
- Danielle Sykes, Graduate Research Assistant in Food Technology and Science, June 30, 1987
- Regonald Sylvain, Graduate Research Assistant in Animal Science, Sept. 30, 1987
- E. D. Vories, Graduate Research Assistant in Agricultural Engineering, Sept. 18, 1987
- Janeen Ward, Graduate Research Assistant in Animal Science, March 31, 1987
- Linda A. Weaver, Graduate Research Assistant in Forestry, Wildlife, and Fisheries, Sept. 15, 1987
- Patricia Whaley, Graduate Research Assistant in Animal Science, June 30, 1987
- A. G. Woodward, Graduate Research Assistant in Forestry, Wildlife, and Fisheries, June 30, 1987
- G. Y. Yeow, Graduate Research Assistant in Ornamental Horticulture and Landscape Design, Dec. 31, 1987