

Seventy-Ninth
Annual Report
of the
Tennessee Agricultural
Experiment Station
1966

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UNIV. OF TENN.

The University of Tennessee
Knoxville

THE UNIVERSITY OF TENNESSEE AGRICULTURAL EXPERIMENT STATION



- 1 Main Station**
- 2 University of Tennessee at Martin**

- 3 U-T/AEC Agricultural Research Laboratory**

Branch Stations

- 4 Dairy Experiment Station**
- 5 Highland Rim Experiment Station**
- 6 Middle Tennessee Experiment Station**
- 7 Plateau Experiment Station**
- 8 Tobacco Experiment Station**
- 9 West Tennessee Experiment Station**

Field Stations

- 10 Ames Plantation**
- 11 Cumberland Forestry Field Station**
- 12 Friendship Forestry Field Station**
- 13 Highland Rim Forestry Field Station**
- 14 Milan Field Station**
- 15 Oak Ridge Forest and Arboretum**

Seventy-Ninth Annual Report 1966

Tennessee Agricultural Experiment Station

Andrew D. Holt	President of the University
Webster Pendergrass	Dean of Agriculture
E. J. Chapman	Assistant Dean
John A. Ewing	Director
Eric Winters	Associate Director

**The University of Tennessee
Knoxville**

LETTER OF TRANSMITTAL

Knoxville, Tennessee
January 2, 1967

To His Excellency, Buford Ellington
Governor of Tennessee

SIR: I have the honor of 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 1966.

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,
Andrew D. Holt, President

CONTENTS

Foreword	5
Active Projects	5
Financial Statement	6
Projects Terminated	7
Publications	7
Agricultural Biology	7
Agricultural Economics and Rural Sociology	11
Agricultural Engineering	15
Agronomy	18
Animal Husbandry-Veterinary Science	25
Child Development and Family Relationships	28
Dairying	28
Food Science and Institution Management	32
Food Technology	33
Forestry	34
Home Management, Equipment, and Family Economics	36
Horticulture	36
University of Tennessee at Martin—Agriculture Department	37
Nutrition	39
Physics	40
Poultry	41
Textiles and Clothing	43
U-T/AEC Agricultural Research Laboratory	44
Station Personnel	50
Personnel Changes	56

The Seventy-Ninth Annual Report of the Tennessee Agricultural Experiment Station 1966

Foreword

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

- 1) Research projects active as of December 31, 1966;
- 2) Research projects terminated during the calendar year 1966;
- 3) Bulletins, articles, and reports prepared by Experiment Station staff members and published during the calendar year 1966.

In addition, this report contains the financial statement for the Agricultural Experiment Station covering the period July 1, 1965, to June 30, 1966. Also included is a list of the Experiment Station personnel for the calendar year.

Active Projects

As of December 31, 1966, there were 130 active Hatch projects and 33 active State 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.

In addition, there were 5 McIntire-Stennis and 18 University of Tennessee-Atomic Energy Commission projects.

The headquarters of the Tennessee Agricultural Experiment Station is located on the agricultural campus of the University of Tennessee at Knoxville. The U-T/AEC Agricultural Research Laboratory is located some 20 miles distant at Oak Ridge, Tennessee. In addition, there are other research centers which represent soil and climatic conditions in the major regions of Tennessee.

FINANCIAL STATEMENT

July 1, 1965 - June 30, 1966

The University of Tennessee Agricultural Experiment Station

Activity	Federal			
	Hatch Act, Amended			Non-Federal
	Regular	Regional Research	Co-Op Forestry Res. Act	
Receipts	\$1,119,959.00	\$210,154.00	\$58,852.00	\$2,258,448.45
Expenditures				
Personal Services	\$1,032,456.25	\$187,676.75	\$51,049.19	\$ 851,701.94
Travel	5,942.96	1,849.82	157.36	42,496.95
Equipment	30,500.51	14,278.41	1,035.00	104,830.63
Lands and Structures				88,053.82
Personnel Benefits				202,556.08
Supplies and Materials	16,743.02	2,978.25	532.35	512,465.68
All Other	34,316.26	3,370.77	1,542.73	456,343.35
Unobligated			4,535.37	
Total	\$1,119,959.00	\$210,154.00	\$58,852.00	\$2,258,448.45

These other research centers are listed at the end of this report, and the locations are shown on the inside front cover.

Many of the projects involving studies of soils, crops, and livestock may include experimental work at one or more of the outlying stations as well as at the Main Station at Knoxville.

Projects Terminated

During 1966, 14 projects were terminated. Reports on these projects have either been published or are being prepared for publication.

Publications

Published reports on research of the Tennessee Agricultural Experiment Station appear in Station Bulletins, in Tennessee Farm and Home Science, as well as in professional and technical periodicals and in various popular publications. There were 17 Station Bulletins published during the year. The number of technical, semi-technical, and popular articles prepared by staff members and published during 1966 was 163. In addition, staff members published 4 regional bulletins, and 5 extension-type publications, as well as three special reports on use of computers.

Copies of bulletins may be obtained by writing to the Editor, Agricultural Experiment Station, Knoxville, Tennessee 37916. Copies of articles published in various journals and periodicals may sometimes be obtained by writing directly to the author.

AGRICULTURAL BIOLOGY

Proj. No.	Research Project Titles
Hatch 49	Determination of Residues from Certain Pesticides When Applied for Normal and Experimental Control of Insects and Diseases of Fruit and Forage Crops in Tennessee; cooperative with the Agronomy Department (contributing to Regional Proj. S-58).
Hatch 96	Insects Affecting Alfalfa (contributing to Regional Proj. S-55).



Figure 1. Above the arrow is Madole tobacco that is severely damaged by blackshank. At the right is an experimental variety of dark tobacco developed at the Highland Rim Experiment Station that is highly resistant to blackshank, and which will be considered for release to growers in early 1967.

Hatch 98	Life History, Ecology, and Control of Major Cotton Insects.
Hatch 132	Breeding Disease-Resistant Tobacco.
Hatch 135	Control of Cotton Verticillium Wilt; cooperative with the Agronomy Department and the U. S. Department of Agriculture Cotton Section.
Hatch 138	Biology and Control of Plant Parasitic Nematodes; cooperative with the U. S. Department of Agriculture.
Hatch 139	Associations Among Soil Microorganisms as Related to the Incidence and Severity of Plant Diseases (contributing to Regional Proj. S-26).
Hatch 140	Evaluating New Fungicides.
Hatch 167	Breeding Tomatoes for Tennessee Markets with Emphasis on Earliness and Disease Resistance; cooperative with the Horticulture Department.
Hatch 174	Breeding Strawberries for Tennessee Markets with

- Emphasis on Climatic Adaptability and Disease Resistance; cooperative with the Horticulture Department.
- Hatch 203 Control of Insects Attacking Nursery Plants.
- Hatch 208 Breeding for Improvement in Small Grains (Wheat, Oats, Barley, and Rye); cooperative with the Agronomy Department.
- Hatch 213 Biology, Distribution, and Control of Corn Insects.
- Hatch 239 Factors Influencing Survival and Pathogenicity of Plant Parasitic Nematodes (contributing to Regional Proj. S-19).
- Hatch 241 The Disposition of Pesticides in the Soil (contributing to Regional Proj. S-62).
- Hatch 251 Diseases of Small Grains.
- Hatch 253 Investigation of an Unidentified Corn Virus Disease Occurring in Tennessee; cooperative with the Agronomy Department and the U. S. Department of Agriculture.
- Hatch 260 Diseases of Ornamentals and Associated Nursery Crops.
- State 21 Evaluation of New Insecticides.

Projects Concluded in 1966

- State 28 Life History of the White Fringed Beetle.

Bulletins, Articles, and Reports—1966

Bennett, S. E.

Diagnosing Insect and Disease Problems. Proceedings, Southwide Diagnostic Workshop, co-sponsored by the University of Tennessee and the American Potash Institute, 1966.

Bennett, Stelmon E. and Houston Luttrell

Alfalfa Weevil Control by Winter Flaming. Proceedings, Third Annual Symposium on Thermal Agriculture, January 18, 1966, pp. 38-40.

Bennett, S. E. and James A. Mullins

Using Ultra Low Volume Insecticides to Control the Cotton Boll Weevil. Tennessee Farm and Home Science Progress Report 56, 1966.

- Bennett, S. E., C. A. Henderson, and H. F. McQueen
Known Distribution of the Southwestern Corn Borer in the United States.
Journal of Economic Entomology 59(2):360-363, 1966.
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Sterilization of the Male Alfalfa Weevil (*Hypera postica*: Curculionidae)
by X-radiation. Journal of Economic Entomology 59(2):268-270, April
1966.
- Chambers, A. Y.
Leaf Spot and Gray Mold of Strawberry. Fungicide-Nematocide Tests, Re-
sults of 1965, American Phytopathology Society 21:51, 1966.
- Chambers, A. Y. and J. M. Epps
Nature of Resistance in Soybean Varieties and Breeding Lines Resistant
to *Heterodera glycines*. Phytopathology 56:873, 1966.
- Epps, J. M. and A. Y. Chambers
Comparative Rates of Reproduction of *Heterodera glycines* on 12 Host
Plants. Plant Disease Reporter, 50:608-610, 1966.
- Hadden, C. H. and A. Y. Chambers
Cotton Seedling Disease Control. Tennessee Agricultural Extension Serv-
ice Information Sheet, 1966, 5 pp.
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Known Distribution of the Southwestern Corn Borer in the United States.
Journal of Economic Entomology 59(2):360-363, April, 1966.
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Electrophoretic Comparisons of Soybean Leaf Proteins from Varieties Re-
sistant and Susceptible to *Phytophthora megasperma* var. *sojae*. Phyto-
pathology 56:287-291, 1966.
- Hilty, J. W. and L. M. Josephson
The New Corn Virus Disease in Tennessee. Tennessee Farm and Home
Science Progress Report 57, 1966.
- Hilty, J. W. and L. M. Josephson
Maize Dwarf Mosaic in Tennessee. Plant Disease Reporter 50:427-428,
1966.
- Johnson, L. F.
Rose Black Spot, *Diplocarpon rosae*. Fungicide-Nematocide Tests for 1965,
American Phytopathology Society, p. 100, 1966.
- Johnson, L. F.
Control of Rose Blackspot with Fungicides. Tennessee Farm and Home
Science Progress Report 57, 1966.
- Johnson, L. F. and C. H. Hadden
Rose Diseases. Plant Diseases in Tennessee No. 1. University of Ten-
nessee Agricultural Extension Service, 1966.
- Josephson, L. M., S. E. Bennett, and E. E. Burgess
Methods of Artificially Infesting Corn with the Corn Earworm and Factors
Influencing Resistance. Journal of Economic Entomology 59(6):1322-1324,
December 1966.

Mullins, J. A. and S. E. Bennett

Ground Equipment for Spraying Ultra-Low Volumes of Insecticides. Tennessee Farm and Home Science Progress Report 58, 1966.

Reed, H. E.

Arborvitea Blight and Its Control with Chemicals. Results of Fungicide-Nematocide Tests for 1965, American Phytopathology Society 21:97, 1966.

Reed, H. E.

Timing of Spray Applications for Effective Control of Arborvitea Blight in the Nursery. Results of Fungicide-Nematocide Tests for 1965, American Phytopathology Society 21:98, 1966.

Southards, C. J. and C. H. Hadden

Control of Nematodes in the Home Garden. University of Tennessee Agricultural Extension Service Circular 201, 1966.

Southards, C. J. and C. J. Nusbaum

Standardized Procedures for Indexing Flue-Cured Tobacco Varieties and Lines for Their Response to Certain Lesion Nematodes. Nematologica 12(1):99, 1966.

Williams, H. E. and W. G. Russell

Insects and Related Pests of Roses. University of Tennessee Agricultural Extension Service Circular 666, 1966.

AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY

Proj. No.	Research Project Titles
Hatch 16	Marketing and Utilizing Low-Quality Hardwoods.
Hatch 179	An Economic Appraisal of Farming Adjustment Opportunities in Selected Areas of Tennessee to Meet Changing Conditions; cooperative with TVA and the U. S. Department of Agriculture (contributing to Regional Proj. S-42).
Hatch 205	An Economic Appraisal of Agricultural Credit Used by Tennessee Farmers.
Hatch 206	Cost-Return Ratios in Farming in Tennessee.
Hatch 210	Organization and Structure of the Marketing System for Tennessee Broilers (contributing to Regional Proj. SM-26).
Hatch 212	Increasing Efficiency in the Tennessee Vegetable Industry (contributing to Regional Proj. SM-30).



A **B**
 Figure 2. The sharp decrease in the supply of farm labor makes it desirable wherever feasible to substitute machines or other forms of capital for labor. For example, the Agricultural Economics and Rural Sociology Department has studied operations of food processing firms to determine the comparative costs for stretching wire and topping string for pole beans: A) manually and B) mechanically.

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| Hatch 223 | The Impact of Changing Market Structure Upon the Competitive Position of the Dairy Industry in the South (contributing to Regional Proj. SM-28). |
| Hatch 225 | The Demand for Outdoor Recreation in Tennessee. |
| Hatch 226 | Income Potentials from Alternative Farm Organizations in Various Types of Farming Areas. |
| Hatch 227 | Optimum Location of Livestock and Meat Marketing Facilities in the South (contributing to Regional Proj. SM-27). |
| Hatch 229 | Factors Affecting the Utilization of Cotton and Competing Fibers (contributing to Regional Proj. SM-31). |
| Hatch 231 | Optimal Adjustments of Southern Grain Marketing Facilities to Present and Future Conditions (contributing to Regional Proj. SM-29). |

Hatch 236	The Marketing and Utilization of Pesticides in Tennessee.
Hatch 249	Human Resource Development and Mobility in the Rural South (contributing to Regional Proj. S-61).
Hatch 252	Demand for Food (contributing to Regional Proj. SM-34).
Hatch 259	Egg Marketing Systems for the South (contributing to Regional Proj. SM-37).
State 15	Impact of Mechanization on Costs and Returns in Cotton Production; cooperative with the Agricultural Biology, Agricultural Engineering, and Agronomy Departments.
State 34	Sales Value of Cotton Allotments in Tennessee.
State 37	Human and Natural Resource Development in the Appalachian Region (U. S. Department of Agriculture, CSRS Grant 508-15-6- Appal.).
State 38	Reducing the Cost of Producing Cotton Through the Management and Application of Technology (U. S. Department of Agriculture, CSRS Grant 616-15-23).
State 43	Impact of Agriculture on the Agri-Business Complex of Metropolitan Trade Areas in Tennessee.
State 44	The Woody Ornamental Nursery Industry in Tennessee; cooperative with the U. S. Department of Agriculture.

Projects Concluded in 1966

Hatch 195	Changing Patterns of Milk and Milk Product Consumption in Tennessee.
Hatch 232	Impact of the Interstate Highway System on Movement of Farm Products Important to Tennessee Agriculture.
State 35	Changes in Agricultural Production and Resource Use in Selected Counties of the Central Basin from 1860 to 1964 (A Study in Economic History).

Bulletins, Articles, and Reports—1966

Badenhop, M. B.

Adjustment, Characteristics, and Change in Tennessee Agriculture. Tennessee Farm and Home Science Progress Report 60, 1966.

Badenhop, M. B.

Quality of Housing in the Upper Cumberland Area of Tennessee. Tennessee Farm and Home Science Progress Report 57, 1966.

Goble, William E. and William C. Erwin

Costs of Hand vs. Machine Harvesting of Snap Beans. Tennessee Agricultural Experiment Station Bulletin 404, May 1966.

Hudson, E. H. and R. M. Ray

Farm Planning Manual. Extension Circular 622 (Revised), University of Tennessee Agricultural Extension Service, 1966.

Humberd, David R. and Stanton P. Parry

Sales in Relation to Costs of Serving Milk, Coffee, and Iced Tea in Selected Nashville, Tennessee Restaurants. Tennessee Agricultural Experiment Station Bulletin 397, January 1966.

Keller, L. H. et al, (S-42 Technical Committee)

Cotton: Supply, Demand, and Farm Resource Use. Southern Cooperative Series Bulletin 110, November 1966.

Leuthold, Frank O.

Population Changes in Tennessee Since 1930. Tennessee Agricultural Experiment Station Bulletin 403, May 1966.

Martin, Joe A. and Joe W. McLeary

Rural Land Ownership and Use in Tennessee. Tennessee Agricultural Experiment Station Bulletin 412, October 1966.

McManus, B. R.

Farm Credit Use in West and Middle Tennessee. Tennessee Agricultural Experiment Station Bulletin 411, September 1966.

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Do You Have An Insurance Plan? Tennessee Farm and Home Science Progress Report 60, 1966.

Parry, S. P. and Robert A. Childress

Attitudinal Changes Toward Milk by Students at Different Grade Levels, Hamilton County Schools, 1964. Tennessee Farm and Home Science Progress Report 58, 1966.

Ranney, W. P.

Livestock Numbers and Practices on Farms in the Elk River Watershed Area of Tennessee, 1964. Tennessee Agricultural Experiment Station Bulletin 406, July 1966.

Raskopf, B. D., et al

Labor Efficiency in Broiler Processing Plants in the South. Southern Cooperative Series Bulletin 112, January 1966.

Raskopf, B. D.

Cotton Variety Trends—Improvements in Tennessee. The Tennessee Farmer, March 1966.

Raskopf, B. D.

Factors That Influence Broiler Consumption. Poultry Meat, Watt Publishing Company, Mount Morris, Illinois, April 1966.

Raskopf, B. D.

Factors Influencing Consumer Acceptance of Broilers. Proceedings, Dixie Poultry Exposition, Asheville, North Carolina, September 14, 1966.

Raskopf, B. D.

New Study Sets Guidelines for Plant Size, Workers. Broiler Industry, Garden State Publishing Company, Sea Isle City, New Jersey, September 1966.

Raskopf, B. D.

Micronaire Tests for Cotton and Cotton Quality Relationships. Tennessee Agricultural Experiment Station Bulletin 410, September 1966.

Ray, R. M. and E. H. Hudson

The Rapid Adjustment Program—A Progress Report. Tennessee Farm and Home Science Progress Report 57, 1966.

Strawn, Harry B. and S. P. Parry

The Effects of the Interstate Highway System on Sales of Tennessee-Produced Eggs. Tennessee Agricultural Experiment Station Bulletin 405, July 1966.

AGRICULTURAL ENGINEERING

Proj. No.	Research Project Titles
Hatch 32	Chemical Weed Control; cooperative with the Agronomy and Horticulture Departments.
Hatch 96	Insects Affecting Alfalfa; cooperative with the Agricultural Biology Department (contributing to Regional Proj. S-55).
Hatch 202	Electrical Properties of Cotton Fiber; cooperative with the Physics Department.
Hatch 204	Factors Affecting Water Yields from Small Water-sheds in Tennessee; cooperative with the UT-AEC Agricultural Research Laboratory, TVA, Soil Conservation Service, and the University of Tennessee Water Resources Research Center (contributing to Regional Proj. S-53).

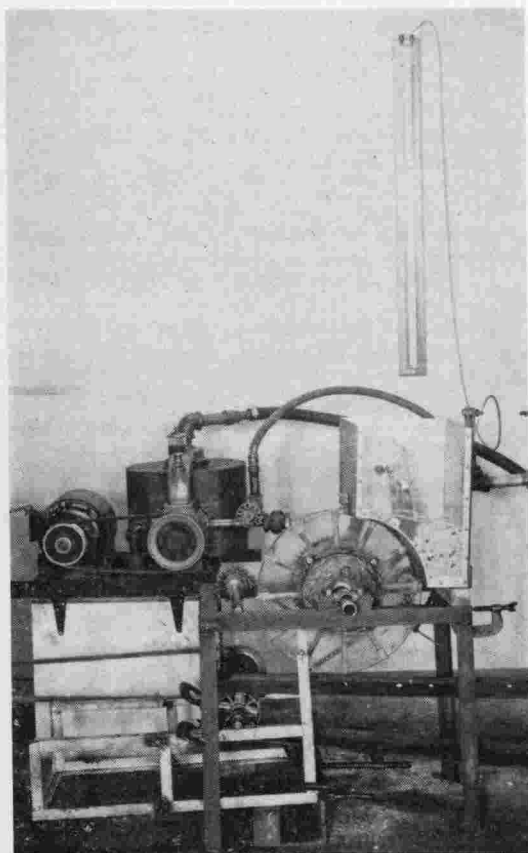


Figure 3. A vacuum-operated seed metering device offers a potential improvement toward the development of precision planters. The device shown is a laboratory model tested by the University of Tennessee Experiment Station agricultural engineers. Results showed the method was effective for uniform placement with little seed damage.

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| Hatch 209 | Development of an Okra Trimmer. |
| Hatch 214 | Behavioral Responses of Chickens to Environmental Factors; cooperative with the Poultry Department. |
| Hatch 219 | Pond Sealing; cooperative with the University of Tennessee Water Resources Research Center. |
| Hatch 228 | Snap Bean Production Mechanization; cooperative with the Horticulture, Agricultural Biology, Agricultural Economics, and Food Technology Departments. |
| Hatch 240 | Cotton Production Mechanization. |

- Hatch 246 Application of Ultra Low Volumes of Insecticides with Ground Spraying Equipment; cooperative with the Agricultural Biology Department.
- State 7 Electric Treatment of Plant Materials; cooperative with the Agronomy and Food Technology Departments, and the U. S. Department of Agriculture.
- State 22 Effect of Structural Characteristics of Vertical Silos and Silo Equipment and Maintenance Costs, Silage Quality, and Milk Production; cooperative with the Dairy Department and the National Silo Association.
- State 25 Land Forming for Drainage and Furrow Irrigation; cooperative with the West Tennessee Experiment Station and the Soil Conservation Service.

Bulletins, Articles, and Reports—1966

Bennett, S. E. and D. H. Luttrell

Alfalfa Weevil Control by Flaming. Proceedings, Third Annual Symposium on Thermal Agriculture, January 13, 1966.

Bennett, Stelmon E. and James A. Mullins

Ultra Low Volume Insecticides for Bollworms. Tennessee Farm and Home Science Progress Report 57, 1966.

Bennett, Stelmon E. and James A. Mullins

Using Ultra Low-Volume Insecticides to Control the Cotton Boll Weevil. Tennessee Farm and Home Science Progress Report 56, 1965.

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Effects of Fiber Orientation on Electrical Conductivity of A Mass on Cotton. Transactions of the American Society of Agricultural Engineers 9:386-389, 1966.

Mullins, James A.

Application of Defoliant to Cotton with Ultra Low-Volume Ground Equipment. Tennessee Farm and Home Science Progress Report 57, 1966.

Mullins, J. A. and S. E. Bennett

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Drainage and Land Grading on A Bottom Land Field Area in West Tennessee. Tennessee Agricultural Experiment Station Bulletin 408, August 1966.

- Sewell, John I., Ben P. Hazlewood, and Thomas C. McCutchen
Sedimentation and Erosion in Two West Tennessee Ditches. Tennessee Farm and Home Science Progress Report 59, 1966.
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Chemicals for Sealing Leaky Ponds. Tennessee Farmer 13(4):16, April 1966.
- Shelton, C. H., J. I. Sewell, and A. L. Kennedy
Water Yield from Agricultural Watersheds. Tennessee Farm and Home Science Progress Report 60, 1966.
- Worley, S., R. S. Krowicki, and Z. A. Henry
Effect of Variety and Location on Stress Strain Components of Cotton Fiber Bundles. Part I: True Gage Length, Tenacity and Elongation at One-Eighth-Inch (0.3175 cm) Nominal Gage Length. Textile Research Journal 36:893-899, 1966.
- Webb, J. C., R. B. Stone, and J. J. McDow
Response of Cottonseed to Audio Frequency Gas-Plasma. Transactions of the American Society of Agricultural Engineers 9(6):872-874, 1966.

AGRONOMY

Proj. No.	Research Project Titles
Hatch 28	Moisture Sorption Characteristics of the Major Soils of Tennessee and the Relation of Moisture Tensions to Plant Growth and Fertilizer Utilization; cooperative with TVA and the U. S. Department of Agriculture.
Hatch 32	Chemical Weed Control; cooperative with the Agricultural Engineering and Horticulture Departments.
Hatch 33	Evaluation of the Performance of Varieties of Field Crops.
Hatch 34	Corn Improvement; cooperative with the Agricultural Biology Department and the U. S. Department of Agriculture.
Hatch 38	The Comparative Value and Relative Efficiency of Various Phosphate Fertilizers under Different Soil and Cropping Conditions.
Hatch 42	Potassium Fertilization of Farm Crops on Different Soil Series in Tennessee.

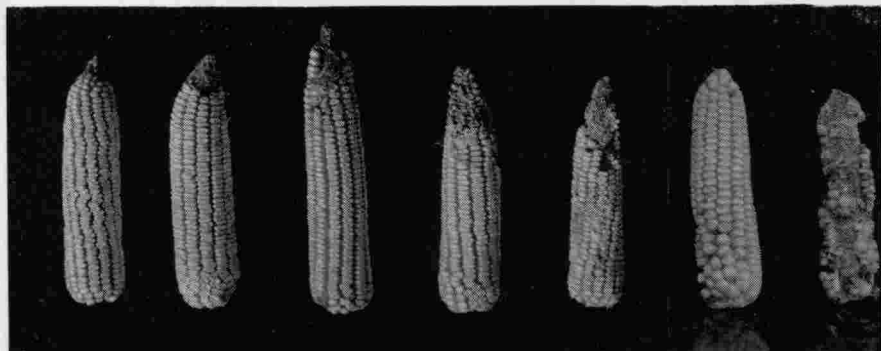


Figure 4. Corn types vary in the amount of damage caused by corn earworm. Progress is being made in incorporating resistance into usable hybrids. This research is a part of the efforts of the departments of Agronomy and Agricultural Biology and the U. S. Department of Agriculture to reduce losses of the state's \$50 million corn crop.



Figure 5. In cotton climate studies conducted at the West Tennessee Experiment Station in cooperation with the U. S. Weather Bureau, cotton receiving extra light from aluminized reflectors has averaged 5 bales per acre the last 3 years. The reflectors provide up to 50% more sunlight, increase the air temperature around the cotton leaves 4 to 8 degrees F., and increase the soil temperature at 2 inches depth from 2 to 6 degrees F. These studies indicate that the greatest advantages from skip-row cotton are increased light intensity and better air circulation—providing ample CO_2 for plant use.



Figure 6. In a corn, wheat, red clover rotation at the Plateau Experiment Station, the 60-80-50 treatment (left) yielded 30 bushels per acre more corn than the 60-80-0 treatment (right) over a 9-year period. During the last 3 years, the yield difference was 54 bushels per acre with the 60-80-50 treatment averaging 116 bushels of corn per acre.



Figure 7. In double-cropping experiments at Milan Field Station, soybeans following wheat yielded 30 bushels per acre. Straw from a 40 bushel-per-acre wheat yield was incorporated into the surface soil to improve moisture relations and soil aeration.

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| Hatch | 45 | Movement and Persistence of Herbicides in the Soil (contributing to Regional Project S-18). |
| Hatch | 47 | Establishment and Maintenance of Turf. |
| Hatch | 48 | Soil Survey of Tennessee to Help Determine Crop Adaptation and Management Requirements; cooperative with the U. S. Department of Agriculture. |
| Hatch | 49 | Determination of Residues from Certain Pesticides when applied for the Normal and Experimental Control of Insects and Diseases of Fruits and Forage Crops in Tennessee; cooperative with the Agricultural Biology Department (contributing to Regional Proj. S-58). |
| Hatch | 56 | Trace Elements in Tennessee Agricultural Crops; cooperative with TVA. |
| Hatch | 78 | Use of Ionizing Radiations in Crop Improvement; cooperative with the U-T/AEC Agricultural Research Laboratory. |
| Hatch | 79 | Production and Improvement of Cotton Varieties Suitable to Tennessee Conditions; cooperative with the U. S. Department of Agriculture. |
| Hatch | 163 | Culture of Dark Tobacco. |
| Hatch | 164 | Nitrogen Fertilization of Farm Crops. |
| Hatch | 183 | Crop Response to Liming. |
| Hatch | 184 | Effects of Environmental Factors on Ladino Clover and Orchardgrass Persistence (contributing to Regional Project S-47). |
| Hatch | 186 | Forage Crops Management: Establishment, Persistence, and Productivity. |
| Hatch | 208 | Breeding for Improvement in Small Grains (wheat, oats, barley, and rye); cooperative with the Agricultural Biology Department and the U. S. Department of Agriculture. |
| Hatch | 211 | Breeding and Genetics of Forage Crops. |
| Hatch | 224 | Physiological Responses of Forage Crops to Management and Environment. |

- Hatch 237 The Disposition of Pesticides in the Soil (contributing to Regional Project S-62).
- Hatch 238 Controlling Southwestern Corn Borer by Cultural Practices and Resistant Hybrids; cooperative with the Agricultural Biology Department and the U. S. Department of Agriculture.
- Hatch 245 Effects of Pesticides on Turf Pests and Turf-grasses.
- Hatch 250 Influence of Mineralogy of Southern Soils on Certain Chemical and Physical Reactions (contributing to Regional Project S-60).
- Hatch 255 Fertilization, Soil and Crop Management Systems, Cultural Practices, and Plant Bed Management Systems for Burley Tobacco; cooperative with the U. S. Department of Agriculture.
- Hatch 256 Burley Tobacco Breeding; cooperative with the Agricultural Biology Department and the U. S. Department of Agriculture.

Projects Concluded in 1966

- Hatch 37 Production of Burley Tobacco; cooperative with the U. S. Department of Agriculture.
- Hatch 215 Breeding Methodology and Irradiation Investigations in Cotton; cooperative with the U. S. Department of Agriculture.

Bulletins, Articles, and Reports—1966

Andrews, Henry

Plow Skipped in Corn Production. Tennessee Cooperator, February 1966.

Andrews, Henry and T. A. Bryant

Growing Corn on Chemically-Killed Sod. Proceedings, Southern Weed Conference 19:155-160, 1966.

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Performance of Summer Annual Grasses for Grazing and Green-Chopping. Tennessee Agricultural Experiment Station Bulletin 396, December 1965.

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Response of Annual Lespedeza to Phosphorus and Potassium Fertilization. Tennessee Farm and Home Science Progress Report 60, 1966.
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Duncan's Multiple Range Test for Mean Separation—An I.B.M. 1401 Computer Program in AUTOCODER Language. University of Tennessee Computing Center Technical Report No. 3, 1966.
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Data Plotter—An I.B.M. 1401 Computer Program in AUTOCODER Language. University of Tennessee Computing Center Technical Report No. 2, 1966.
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Performance of Six Corn Hybrids at Four Plant Populations. Tennessee Farm and Home Science Progress Report 57, 1966.
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ANIMAL HUSBANDRY-VETERINARY SCIENCE

Proj. No.	Research Project Titles
Hatch 52	The Evaluation of Different Pasture Species in Various Combinations and at Varying Rates of Nitrogen Fertilization as Reflected in Beef Cattle Gains and Forage Yields.
Hatch 61	The Improvement of the Producing Ability of Beef Cattle; cooperative with the U. S. Department of Agriculture (contributing to Regional Proj. S-10), the U-T/AEC Agricultural Research Laboratory, and Ames Plantation.
Hatch 63	Mineral Metabolism in Animals: I. Absorption, Distribution, and Physiological Behavior of Calcium and Phosphorus in Farm Animals; cooperative with the U-T/AEC Agricultural Research Laboratory.
Hatch 65	The Detection of Animals Heterozygous for Recessive Bovine Dwarfism; cooperative with the U. S. Department of Agriculture and Ames Plan- tation.

Hatch	66	The Effects of Radiation on Reproductive Physiology in Farm Animals; cooperative with the U-T/AEC Agricultural Research Laboratory.
Hatch	67	Ripening of Beef from Cattle Produced Under Different Feeding Methods as Related to B-Vitamin Content; cooperative with the Food Science and Institution Management Department.
Hatch	68	Carcass Value Investigations with Beef; cooperative with the Food Science and Institution Management Department.
Hatch	70	Evaluation of the Adaptability of Existing Breeds and Commercial Types of Sheep for the Production of Early Milk Fat Lambs (contributing to Regional Project S-29).
Hatch	71	Factors Affecting Feed Utilization by Ruminants.
Hatch	72	Evaluation of Roughages for Beef Cattle.
Hatch	73	The Improvement of the Producing Ability of Swine Through Performance Testing and Breeding Methods.
Hatch	176	Performance of Growing-Finishing Swine on Concrete and Pasture.
Hatch	218	Performance of Beef Cows as Affected by Initial Winter Condition and Level of Winter Feeding.
Hatch	222	Pasture Management Systems for Beef Cow Herds.
Hatch	244	Effect of Cooking Temperature on Yield, Palatability, and Microbiology of Meat; cooperative with the Food Science and Institution Management and Food Technology Departments.
Hatch	254	Ante Mortem Treatment Effects on Pork Carcass Characteristics.
Hatch	257	Effects of Levels of Fatness and Other Carcass Characteristics on Beef Grades and Quality Attributes.
State	2	Swine Testing.

State	3	Effects of Fluorine Levels of Soil and Water on Grazing Cattle Under Different Systems of Management.
State	20	Evaluation of Methods of Producing Beef.
State	39	The Effects of Feedlot Design on the Performance of Cattle Being Finished for Market.
State	40	The Effects of Reduced Frequency of Winter Feeding on the Performance of Beef Cows.
State	41	Improvement of the Producing Ability of Beef Cattle.
State	42	Beef Cattle Improvement.

Projects Concluded in 1966

Proj. No.	Research Project Titles
Hatch 12	Type and Breed as Factors Influencing Beef Carcass Characteristics and Consumer Acceptance; cooperative with the Agricultural Economics and Rural Sociology Department and the U. S. Department of Agriculture.
Hatch 69	Expanded Study and Evaluation of Diagnostic Measures in <i>Vibrio</i> Fetus Infection of Cattle and Sheep (contributing to Regional Proj. S-30).

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CHILD DEVELOPMENT AND FAMILY RELATIONSHIPS

Proj. No. Research Project Titles

Hatch 158	Educational and Vocational Goals of Rural Youth in Tennessee (contributing to Regional Proj. S-48).
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Educational and Vocational Goals of Rural Youth and Their Parents in Tennessee. Tennessee Agricultural Experiment Station Bulletin 399, March 1966.

DAIRYING

Proj. No. Research Project Titles

Hatch 89	The Effects of Processing and Handling Upon the Livability and Fertility of Bull Spermatozoa.
Hatch 92	Development of Strains of Purebred Jerseys Especially Adapted for High Milk Production Under

Maximum Grazing and Forage Conditions ; cooperative with the U. S. Department of Agriculture (contributing to Regional Proj. S-49).

- Hatch 93 Effect of Variations in Growth Rates and Feeding Practices During Growth of Dairy Heifers on Their Lactation Performance.
- Hatch 150 Raising Dairy Calves.
- Hatch 161 Evaluation of Forages for Dairy Cattle.
- Hatch 165 Quality and Shelf Life of Dairy Products in the Marketing Channels.



Figure 8. The use of the gas chromatograph has increased the sensitivity of detection of various pesticide residues. Samples of feed, excreta, and milk are extracted and analyzed. A research technician is shown injecting a sample extract in the gas chromatograph for residue analysis.

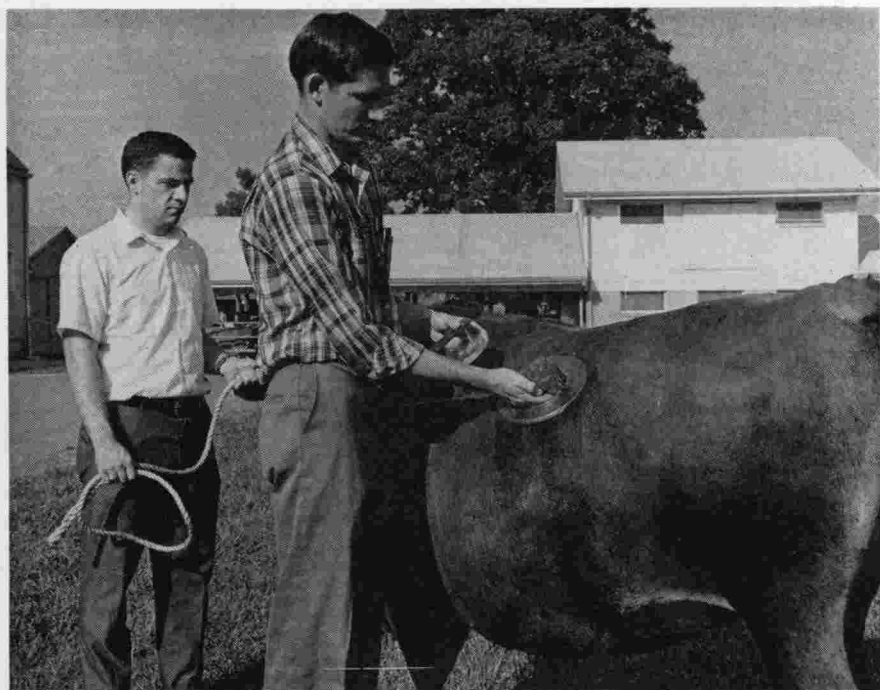


Figure 9. The rumen fistulated cow has proved to be an excellent research animal for forage evaluation studies. Forage samples from the branch stations throughout the state are sent to Knoxville for both chemical analyses and IN VITRO studies. Dairy research technicians are shown obtaining rumen samples for use as a source of microorganisms for the IN VITRO fermentation procedure.

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| Hatch 199 | Absorption of Minerals in Relation to Gastrointestinal Tissue and Ingesta Characteristics in the Dairy Cow; cooperative with the U-T/AEC Agricultural Research Laboratory. |
| Hatch 200 | Effect of Processing Methods on Dairy Product Quality. |
| Hatch 220 | Microbiological Aspects of Mastitis. |
| Hatch 221 | Effect of Whole-Body Gamma Irradiation on Milk Cows and Milk Production; cooperative with the U-T/AEC Agricultural Research Laboratory. |
| Hatch 235 | Chemical Residues in Milk. |

- Hatch 242 Reduction or Elimination in Commercial Channels of Adverse Effects of Pesticide Residues on Food and Feed Products (contributing to Regional Proj. SM-32).
- Hatch 247 Factors Affecting Voluntary Feed Intake by Ruminants.
- Hatch 248 Factors Related to the Freezing Point of Milk.
- State 24 Feeding Levels During Lactation.
- State 36 Effects of Oxytocin Administered in the Dry Period on Subsequent Lactation in Cows.

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FOOD SCIENCE AND INSTITUTION MANAGEMENT

Proj. No.	Research Project Titles
Hatch 67	Ripening of Beef from Cattle Produced Under Different Feeding Methods as Related to B-Vitamin Content; cooperative with the Animal Husbandry-Veterinary Science Department.
Hatch 201	Effect of Preparation Procedure on Fatty Acids in Foods.
Hatch 244	Effect of Cooking Temperature on Yield, Palatability, and Microbiology on Meat; cooperative with the Animal Husbandry-Veterinary Science and Food Technology Departments.

Bulletins, Articles, and Reports—1966

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FOOD TECHNOLOGY

Proj. No.	Research Project Titles
Hatch 173	Group D. and Other Streptococci in Frozen Foods.
Hatch 177	Flavonoid Pigments and Their Degradation in Processed Fruit and Vegetable Products.
Hatch 193	Improving Firmness of Frozen Vegetables.
State 7	Electric Treatment of Plant Materials; cooperative with the Agricultural Engineering Department.

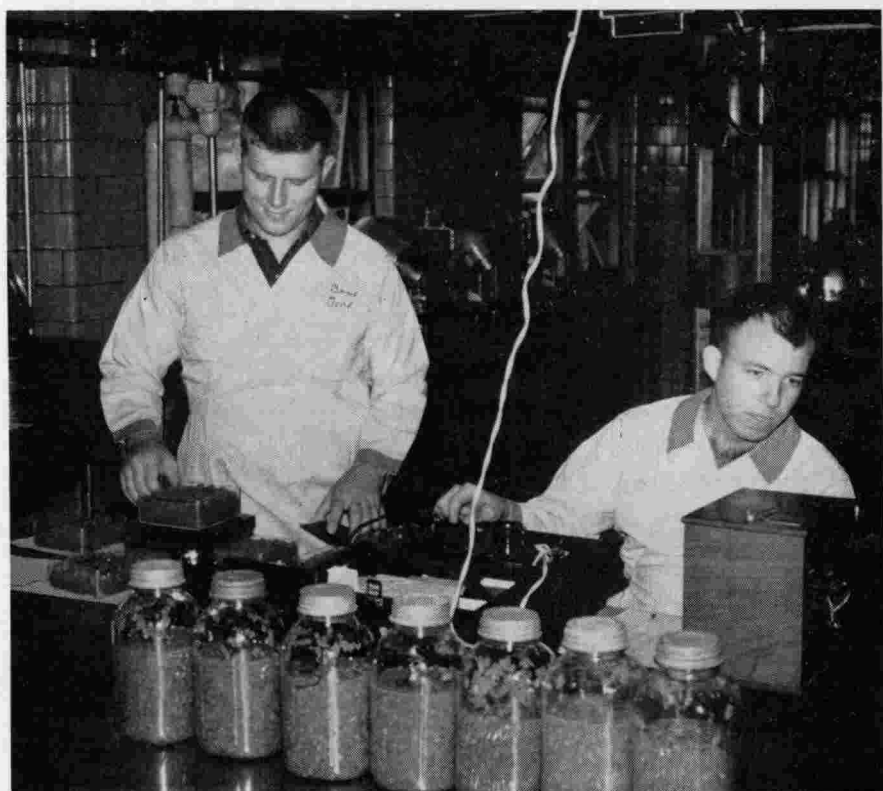


Figure 10. This Food Technology research team is checking the color of brined red peppers.

- State 83 Evaluation for Freezing of Fruit and Vegetable Varieties Adapted to Production in Tennessee.

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FORESTRY

Proj. No.	Research Project Titles
Hatch 102	Forest Management.
Hatch 103	A Study of Tree Species Adapted to the Different Forest Regions of Tennessee.
Hatch 106	Forest Tree Breeding.
Hatch 107	Relationship of Soil and Other Site Factors to Forest Composition and Productivity.
Hatch 185	Forest Tree Genetics (contributing to Regional Proj. S-23).
Hatch 207	Forest Tree Fertilization.
MS 1	Growth of Mixed Species Plantations.
MS 2	Effects of Fertilization and Irrigation on Tree Growth.
MS 3	Quail Management on Forest and Associated Lands in West Tennessee.
MS 4	Determinants of Forest-Management Intensity of Private, Nonindustrial Owners in the Tennessee Valley Counties of Tennessee.

MS	5	The Recreation Resources of Large Private Forest Ownerships in Tennessee.
State	8	Wood Preservation.
State	12	Fertilization of Shade Trees on Lawns ; cooperative with the Horticulture Department.
State	30	The University of Tennessee Arboretum.

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HOME MANAGEMENT, EQUIPMENT, AND FAMILY ECONOMICS

Proj. No.	Research Project Titles
Hatch 217	Economic Provisions for Old Age Made by Rural Families (contributing to Regional Proj. S-56).

HORTICULTURE

Proj. No.	Research Project Titles
Hatch 32	Chemical Weed Control; cooperative with the Agronomy and Agricultural Engineering Departments.
Hatch 123	Mineral Nutrition of Vegetable Crops.
Hatch 125	Mineral Nutrition of Fruit Crops.
Hatch 126	Vegetable Variety Investigations.
Hatch 127	Fruit Variety Investigations.
Hatch 128	Propagation of Fruit and Ornamental Plants.
Hatch 154	Kind and Variety Investigations of Ornamentals.
Hatch 157	Management and Evaluation of Plants for Hedges, Screens, and Windbreaks.
Hatch 167	Breeding Tomatoes for Tennessee Markets with Emphasis on Earliness and Disease Resistance.
Hatch 174	Breeding Strawberries for Tennessee Markets with Emphasis on Climatic Adaptability and Disease Resistance; cooperative with the Agricultural Biology Department.
Hatch 187	Storage and Handling of Evergreen Nursery Stock.
Hatch 230	Response of Horticultural Plants to Acute Gamma Radiation; cooperative with the U-T/AEC Agricultural Research Laboratory.
State 12	Fertilization of Shade Trees on Lawns; cooperative with the Forestry Department.
State 16	Lima Beans.

- State 27 Crop Ecology; cooperative with the United States Weather Bureau.
- State 57 New Plants (contributing to Regional Proj. S-9).

Projects Concluded in 1966

- Hatch 117 Screening Pear Seedlings for Fireblight Resistance.
- Hatch 119 Breeding and Selection of Blackberries, including Dewberries.

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UNIVERSITY OF TENNESSEE AT MARTIN

Proj. No.

Research Project Titles

- Hatch 33 Evaluation of the Performance of Varieties of Field Crops; cooperative with the Agronomy Department.

- Hatch 38 The Comparative Value and Relative Efficiency of Various Phosphate Fertilizers Under Different Soil and Cropping Conditions ; cooperative with the Agronomy Department.
- Hatch 47 Establishment and Maintenance of Turf ; cooperative with the Agronomy Department.
- Hatch 71 Factors Affecting Feed Utilization by Ruminants ; cooperative with the Animal Husbandry-Veterinary Science Department.
- Hatch 72 Evaluation of Roughages for Beef Cattle ; cooperative with the Animal Husbandry-Veterinary Science Department.

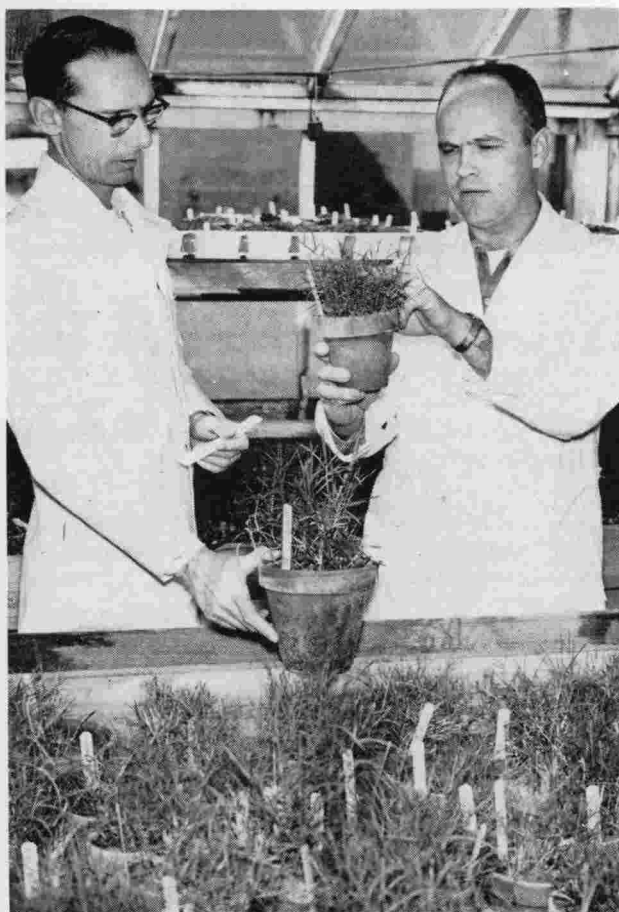


Figure 11. A major objective of the research at Martin is the development and evaluation of forages. Pictured above is a part of more than 400 introductions of Bermudagrass (CYNODON sp.) obtained from many countries that are being evaluated for agonomic adaptation and nutritive value. Superior strains will be included in a breeding program to develop improved forage varieties for the West Tennessee area.

Hatch 92	Development of Strains of Purebred Jerseys Especially Adapted for High Milk Production Under Maximum Grazing and Forage Conditions; cooperative with the Dairying Department and the U. S. Department of Agriculture (contributing to Regional Proj. S-49).
Hatch 126	Vegetable Variety Investigations; cooperative with the Horticulture Department.
Hatch 161	Evaluation of Forages for Dairy Cattle; cooperative with the Dairying Department.
Hatch 183	Crop Response to Liming; cooperative with the Agronomy Department.
Hatch 211	Breeding and Genetics of Forage Crops; cooperative with the Agronomy Department.
Hatch 93	Effect of Variations in Growth Rates and Feeding Practices During Growth of Dairy Heifers on Their Lactation Performance, cooperative with the Dairying Department.

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NUTRITION

Proj. No.	Research Project Titles
Hatch 108	Measurement and Interpretation of Bone Density.
Hatch 110	Metabolism of Calcium, Phosphorus, and Mag-

nesium in Preadolescent Children Fed Diets of Plant Origin (contributing to Regional Proj. S-28).

Hatch 234	Effect of Organo-Phosphorus Insecticides on the Fixation of Sulfate by Mucopolysaccharides.
State 18	Mucopolysaccharides and Cellular Lipoproteins in Vitamin E Deficiency.

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PHYSICS

Proj. No.	Research Project Titles
Hatch 131	Evaluation of Cotton Fiber Properties for the Plant Breeder (contributing to Regional Proj. S-1).



Figure 12. An automated fiber test line at the U. S. Department of Agriculture, Agricultural Research Spinning Laboratory on the agricultural campus. Samples are fed by conveyor belt to two operators who make determinations of color and reflectance on the colorimeter, trash content by inspection, fineness with the speedar, and length with the digital fibrograph. The data from the instruments are fed to a punch for data processing cards.

Hatch	188	Measurement of Standard Cotton Fiber Properties.
Hatch	202	Electrical Properties of Cotton Fiber; cooperative with the Agricultural Engineering Department.
State	31	Elastic Properties of Cotton (cooperating with the U. S. Department of Agriculture).
State	32	Cotton Fiber Strength (cooperating with the U. S. Department of Agriculture).

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POULTRY

Proj. No.	Research Project Titles
Hatch 144	Influence of Environment on Performance of Hens.
Hatch 155	Photoperiodism and Physiological Functions of Chickens.
Hatch 160	Improving Diets for Broilers and Roasters.
Hatch 214	Behavioral Responses of Chickens to Environmental Factors; cooperative with the Agricultural Engineering Department.
Hatch 216	Xanthophyll in Poultry Pigmentation.

Hatch 233	The Nutrition of Egg-Production-Type Chickens.
Hatch 258	The Pathogenicity of Selected Salmonellas for Chickens.
Hatch 261	The Effects of Gumboro on Chickens.
State 1	Random Sample Testing of Chickens Available to Tennessee Poultrymen.

Projects Concluded in 1966

Hatch 152	Radiation Effects on Growth of Broilers; cooperative with the U-T/AEC Agricultural Research Laboratory (contributing to Regional Proj. S-41).
Hatch 182	Evaluation of Poultry Disease Medicants.
Hatch 194	Secondary Infections from Intestinal Bacterial Microflora.

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TEXTILES AND CLOTHING

Proj. No.	Research Project Titles
Hatch 113	The Relation of Fiber Properties to End-Product Performance (contributing to Regional Proj. SM-18).



Figure 13. The Celanese Wrinkle Tester. This apparatus is used in evaluating wrinkle recovery of 100% cotton sheeting treated with a permanent press finish. Wrinkles are formed by vacuum action and rated after a standard relaxation time period. This test is one of a series involved in a textile co-operative research project, southern region.

Bulletins, Articles, and Reports—1966

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**UNIVERSITY OF TENNESSEE-ATOMIC ENERGY COMMISSION
AGRICULTURAL RESEARCH LABORATORY**

Proj. No.	Research Project Titles
U-T/AEC 1	The Interaction of Irradiation and Nutrition.
U-T/AEC 2	Postnatal Development and Physiology of Swine.
U-T/AEC 3	The Transfer of Materials Across the Maternal-Fetal Membranes.
U-T/AEC 4	Radiation and the Reproductive System.
U-T/AEC 5	Radiation and Lifetime Reproduction.
U-T/AEC 6	Whole Body Gamma Irradiation and the Work Performance and Related Physiology of Shetland Ponies.
U-T/AEC 7	Whole Body Gamma and Mixed Neutron-Gamma Irradiation on Large Animals.
U-T/AEC 8	Internal and External Irradiation on Dairy Animals.
U-T/AEC 9	The Effect of Single and Fractionated Doses in Swine.
U-T/AEC 10	Kidney Transplantation in Cattle.
U-T/AEC 11	Transmission of Equine Lymphoid and Myeloid Leukemias.
U-T/AEC 12	Biological Complexes Influenced by Ionizing Radiation.
U-T/AEC 13	Biological Half-lives of Radionuclides in Poultry.
U-T/AEC 14	Radioiodine Studies in Large Animals.
U-T/AEC 15	Trace Mineral Studies in Domestic Animals.
U-T/AEC 16	Fixation Reactions in Soils.
U-T/AEC 17	The Physical Chemistry of the Diffusion of Ions in Clay Complexes.
U-T/AEC 18	Radiosensitivity of Plants and its Modification.

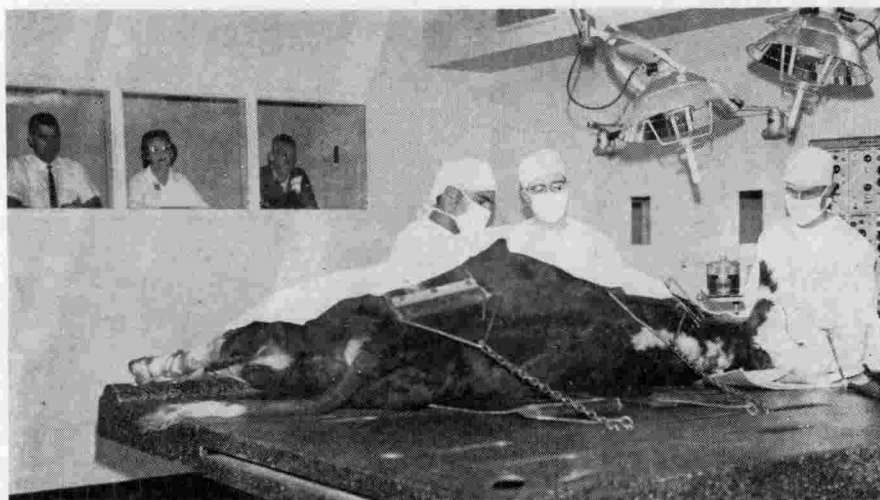


Figure 14. Interior view of the Large Animal Operating Room, showing a veterinary surgeon and two assistants operating on an animal. Three staff members are viewing the operation. Such operations are conducted in connection with the UT/AEC Agricultural Research Laboratory large animal program on the effects of radiation.



Figure 15. Interior of the pony working building showing five teams hitched to their working trucks. One original member of each team has been irradiated, and UT/AEC Agricultural Research Laboratory research workers are studying the change in the work capabilities of animals that have been irradiated. The trucks are so constructed that they cause the teams to do a specific amount of work as they go about the circuit.

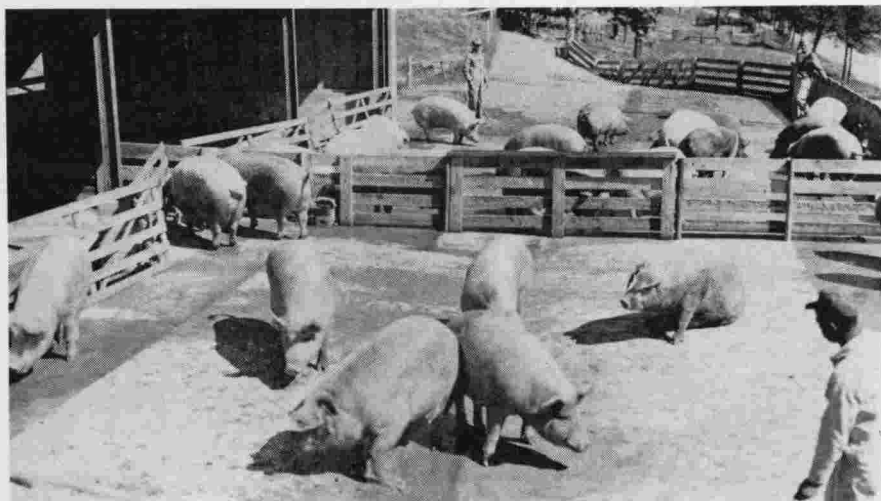


Figure 16. A view of part of the swine herd that is involved in lifetime studies. Some of these animals were exposed to an atomic bomb in 1957, and UT/AEC Agricultural Research Laboratory animal scientists are studying their lifetime performance. This view shows the controls mixed with the irradiated animals. At this viewing, these swine were about 9½ years of age. Probably this is the oldest herd of swine on which a detailed history is known.

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Alvin A. Bedel, Assistant in Agricultural Economics, September 16, 1966

Bennie E. Beeson, Jr., Assistant in Agricultural Economics, September 1, 1966

James F. Brown, Assistant Professor of Horticulture, West Tennessee Experiment Station, October 17, 1966

William H. Brown, Instructor of Agricultural Economics, USDA, October 1, 1966¹

James M. Bryan, Manager, Ames Plantation, January 1, 1966

George J. Buntley, Associate Professor of Agronomy, September 1, 1966

Charles A. Cobb, Assistant in Agricultural Economics, September 16, 1966

Harold A. Core, Professor of Forestry, August 15, 1966

Guillermo Diaz, Assistant in Agricultural Engineering, January 1, 1966

Ralph W. Dimmick, Assistant Professor of Forestry, July 1, 1966

B. N. Duck, Assistant Professor of Agronomy, Martin Branch, July 1, 1966

Ned C. Edwards, Jr., Assistant in Agronomy, July 16, 1966

Thomas R. Eubanks, Assistant in Forestry, July 14, 1966

Hugh C. Goan, Assistant in Poultry, July 1, 1966

John L. Goodenough, Instructor of Agricultural Engineering, January 1, 1966¹

Vernon E. Gordon, Assistant in Agricultural Engineering, March 21, 1966

Wanda F. Graham, Assistant in Food Technology, July 1, 1966

Louis E. Hawkins, Director at Large, Southern Region, August 1, 1966

Charles W. Johnson, Assistant in Horticulture, January 1, 1966

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Rosetta M. Johnson, Research Technician, U-T/AEC, November 1, 1966

Robert M. Jones, Assistant in Agricultural Economics, January 1, 1966

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- Graham S. Smith, Jr., Assistant in Agronomy, January 1, 1966
- Hugh L. Spangler, Assistant in Agricultural Economics, September 16, 1966
- GoPalsamy Srinivasan, Assistant in Animal Husbandry, October 1, 1966
- Robert G. Thress, Assistant in Horticulture, July 1, 1966
- Billy J. Trevena, Assistant in Agricultural Economics, March 21, 1966
- Beverly L. Williams, Assistant in Agricultural Economics, September 16, 1966
- Marilyn S. Williams, Assistant in Food Science and Institution Management, September 1, 1966
- Ronald Wolfe, Assistant in Agronomy, September 12, 1966
- Robert D. Wright, Assistant in Horticulture, U-T/AEC, October 1, 1966

Terminations

- Jerry M. Arnold, Assistant in Agronomy, September 20, 1966
- Elmer Ashburn, Assistant in Agronomy, September 20, 1966
- Phyllis N. Atkins, Senior Laboratory Technician, U-T/AEC, August 15, 1966
- Jerry A. Burnett, Assistant in Agronomy, August 15, 1966
- Sloan D. Caldwell, Assistant in Agricultural Biology, December 31, 1966
- George M. Campbell, Assistant Professor of Horticulture, July 31, 1966
- John Chien-Chung Cheng, Assistant in Physics, July 31, 1966
- Guillermo Diaz, Assistant in Agricultural Engineering, August 18, 1966
- H. L. Early, Assistant in Agronomy, June 15, 1966
- Frederick B. Emerson, Jr., Assistant Professor of Forestry, August 31, 1966
- C. E. Freeman, Assistant in Agronomy, July 20, 1966
- Julie A. Glover, Assistant in Agronomy, May 31, 1966
- Patricia B. Harper, Assistant in Textiles and Clothing, August 31, 1966
- Bobby R. Hathcock, Assistant in Agronomy, August 31, 1966
- Foster G. Hembry, Senior Laboratory Technician, U-T/AEC, August 31, 1966
- Alonzo J. Hester, Assistant in Agronomy, June 18, 1966
- Thomas W. High, Jr., Assistant in Animal Husbandry, January 21, 1966
- L. J. Hoffbeck, Assistant Professor of Agronomy, Greeneville, April 15, 1966¹
- W. J. Holmesley, Assistant in Agronomy, August 15, 1966
- Robert R. Lane, Assistant in Agricultural Economics, June 30, 1966
- Ralph E. LaPenna, Assistant in Information, December 31, 1966
- Joe W. McLeary, Assistant in Agricultural Economics, December 31, 1965

¹In cooperation with the U. S. Department of Agriculture.

Gerald G. Martin, Assistant in
Dairying, August 31, 1966
Richard H. Mullenax, Senior
Laboratory Technician, U-T/AEC,
April 6, 1966
Mary A. Mysinger, Assistant
Professor of Food Science and
Institution Management, August
31, 1966
J. C. Pekas, Assistant Professor, July
8, 1966
Lloyd Potter, Assistant in Agronomy,
August 31, 1966
Charles R. Rusk, Assistant in
Forestry, August 31, 1966

F. A. Rymer, Jr., Assistant in
Poultry, September 10, 1966
John H. Schaffer, Senior Laboratory
Technician, U-T/AEC, August 19,
1966
James D. Slean, Assistant in
Dairying, August 31, 1966
Robert L. Sliger, Assistant in Animal
Husbandry, December 31, 1965
David J. Sullivan, Associate Professor,
U-T/AEC, February 18, 1966
Robert D. Wright, Senior Laboratory
Technician, October 1, 1966

Change of Title

Amos L. Bates, to Instructor of
Forestry, June 6, 1966
Amos L. Bates, to Assistant in
Forestry, August 15, 1966
Will T. Butts, Jr., to Assistant
Professor, U-T/AEC, October 1,
1966
James A. Corrick, Jr., to Assistant in
Animal Husbandry, July 1, 1966

Nabil B. Shamiyeh, to Laboratory
Technician in Agricultural
Biology, October 1, 1966
James G. Staley, to Assistant in
Horticulture, September 1, 1966
Robert D. Wright, to Senior
Laboratory Technician, U-T/AEC,
October 1, 1966

On Leave

Stanton P. Parry, Associate Professor
of Agricultural Economics,
September 16, 1966
Maxwell E. Springer, Associate
Professor of Agronomy, October
7, 1966

Returned from Leave

Kermit E. Duckett, Assistant
Professor of Physics, July 18, 1966

Resigned to Accept National Defense Educational Act Fellowship

James M. Anderson, Assistant
Professor of Animal Husbandry,
October 10, 1966
Elmer L. Ashburn, Assistant in
Agronomy, August 31, 1966
Jerry M. Arnold, Assistant in
Agronomy, August 31, 1966
Billy J. Trevena, Assistant in
Agricultural Economics, September
15, 1966

Promotions

Russell J. Lewis, to Associate
Professor of Agronomy, July 1,
1966
Don O. Richardson, to Associate
Professor of Dairying, July 1, 1966

Retirement

R. H. Scott, Manager of Ames
Plantation, January 1, 1966