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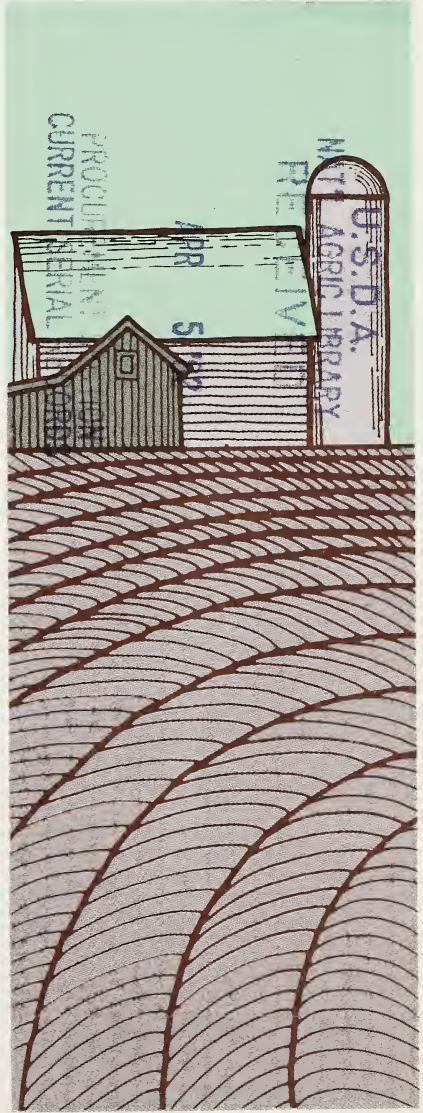
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Science and
Education
Administration

Agriculture
Information
Bulletin
Number 288

The States' Role in
**the Cooperative
State-Federal
Research System**
for Agriculture and Forestry



Preface

U.S. agriculture is the envy the world around. As our Nation's biggest industry, the most efficient agriculture in the world, it is the mainstay of this country and of much of the world as a source of abundant fiber and nutritious food. A principal reason for this blessing is the Nation's agricultural and forestry research system. When Congress established the U.S. Department of Agriculture (USDA) and the land-grant colleges in 1862, it created a partnership in science and education that was meant to serve all the people. This cooperative system has done just that.

Today, the Nation has a network of agricultural experiment stations, land-grant colleges of 1890, schools of forestry, colleges of veterinary medicine, and USDA research agencies to serve the people of every State and region. Close cooperation in planning, coordinating, and evaluating this research assures the public of the highest return for each dollar invested.

This publication describes the organization, objectives, and coordination of this research. It also tells you how to get further information about this cooperative State-Federal research system and the work it is doing. Its emphasis is on the State organizations involved in research. There is no attempt here to represent the extensive, highly regarded Federal side of the research system, other than to show in broad terms how it meshes with State efforts.

This publication is produced by the Cooperative Research (CR) staff of the Science and Education Administration (SEA), the USDA unit responsible for working with the State agricultural experiment stations (SAES), the land-grant colleges of 1890, and forestry and veterinary schools to help foster such research cooperation and coordination. CR's role as catalyst, coordinator, and overseer for research also is outlined in this bulletin.

Contents

- 2 Preface**
- 5 Introduction**
- 6 Organization For Research**
 - 6 State Agricultural Experiment Stations
 - 6 Forestry Schools
 - 7 Land-Grant Colleges of 1890
 - 7 Colleges of Veterinary Medicine
 - 7 Federal Research Agencies
 - 7 Regional Research
- 8 Rural Development**
- 8 Objectives of Research**
- 10 Research Programs**
- 12 Research Coordination**
 - 12 CR's Role
 - 13 National-Level Research Planning
- 14 How to Get Information**
- 15 SEA-Cooperative Research Administrators**
- 15 Regional Directors-At-Large for the State Agricultural Experiment Stations**
- 16 State Agricultural Experiment Stations Established under the Hatch Act of 1887**
- 18 Land-Grant Institutions Established under the Second Morrill Act of 1890**
- 18 Non-Land-Grant State Institutions Participating in the Cooperative Forestry Research (McIntire-Stennis) Program**
- 19 Schools and Colleges of Veterinary Medicine Accredited by the American Veterinary Medicine Association and Eligible for Federal Formula Research Funds under Public Law 95-113, Section 1433**



The States' Role in the Cooperative State-Federal Research System for Agriculture and Forestry

Introduction

The U.S. cooperative State-Federal research system for agriculture and forestry has been copied many places around the world. The system involves six USDA agencies, 56 State agricultural experiment stations, 61 schools of forestry, 16 land-grant colleges of 1890, Tuskegee Institute, and 28 colleges of veterinary medicine.

Public support of this system has been vital to the success of U.S. agriculture. About 50 percent of the program is supported from Federal sources, and the rest from State appropriations and industry and foundation grants. In fiscal year 1978, public support of agricultural research and development amounted to about \$1.1 billion.

Here are some characteristics of this system that have contributed to its success in this country:

1. *The effort is dispersed among all the States.* The original intent was for the system to concentrate on local problems. Later the importance of this local focus was evident as it became clear that economic and social development of the Nation was to be based on that same wide distribution of expertise and educational opportunity.

2. *It is supported by State, Federal, and private sources.* This has meant local responsibility was stimulated and maintained for developing and conducting research. This has helped keep it from being a "top-down" system taking its direction from only one level of government.

3. *Research administration in the States and USDA is decentralized.* Top decisions are made principally on

program guidance for broad problem or discipline areas. Specific research proposals originate primarily with the individual scientist. Coordination and program development involve both administrators and scientists. This is particularly important, since a director of State research usually must consider his/her responsibilities to the parent university, the needs of the State, and other sources of support as well as USDA. At the same time, USDA personnel must consider their obligations as members of the Federal Government, as well as of the broad agricultural scientific community.

4. *It is publicly supported.* This means a wide base of support—Federal and State governments as well as foundations, private organizations and individuals, and other governmental units. It also means that the research will be broadly based in fundamental science. Too, there is a real commitment to meeting current and future public needs for research to assure continued productivity and development of our agriculture and forestry.

5. *It is highly mission-oriented and aimed largely at problem-solving.* So it has been quite clear on what it was to do, which problems it should try to solve. This has made it possible to concentrate resources to get a specific research job done. It has also meant a relatively high rate of "payoff" for research information users and for consumers.

6. *It is tied to an effective information diffusion and technology transfer system—the State Extension Services.* Thus, there has been an organization whose specific mission is to let people know about the latest in research findings, and to help them apply the findings to their own particular set of circumstances.

Organization for Research

Congress has provided a solid continuing financial base for this cooperative research system through a series of laws:

1. The Hatch Experiment Station Act, as amended, 1955 (Public Law 84-352);

2. The McIntire-Stennis Cooperative Forestry Research Act (Public Law 87-788);

3. Several provisions under Public Law 95-113:

a. Sec. 1414. (Amends Public Law 89-106.) Competitive research grants for selected areas of basic research;

b. Sec. 1433. Continuing funding for Animal Health and Disease Research programs;

c. Sec. 1434. Animal Health and Disease Research on national and regional problems;

d. Sec. 1445. Continuing funding for the land-grant universities of 1890 and Tuskegee Institute;

4. A Special Research Grants program to support research important to the Nation (Public Law 89-106 as amended by Public Law 95-113);

5. The Experiment Station Facilities Act (Public Law 88-74); and

6. The Rural Development Act of 1972, Title V (Public Law 92-419).

Funds appropriated under these acts are administered by the Cooperative Research staff of USDA's Science and Education Administration.

State Agricultural Experiment Stations

Every State, the District of Columbia, Guam, the Virgin Islands, and Puerto Rico all have at least one agricultural experiment station. Connecticut and New York have two each.

Station activities in most States center on the State university or land-grant college campus. Usually each station has a number of branch stations and outlying experimental farms so its scientists can work with special agricultural problems in distinctive ecological areas.

A director heads each station—usually under a board of trustees or regents of a particular university or college. In a few States, the director serves an experiment station board directly responsible to the governor.

Research scientists often teach or perform extension work at their university, in addition to their research. There are over 12,000 experiment station scientists devoting full-time or part-time to research.

The directors and scientists are State employees. Their research programs are cooperative with nonexperiment station departments of their institutions, with other State experiment stations, with other State and Federal agencies, and with industry and foundations.

Forestry Schools

Sixty-one institutions participate in the McIntire-Stennis Cooperative Forestry Research Program. Many of these are the same institutions having State agricultural experiment stations (SAES). At each institution, one individual is designated as Administrative-Technical Representative (A-TR). The A-TR decides what research at that

institution is to be supported under this Act. A Forestry Representative at each institution works with the A-TR on the technical and professional aspects of the program.

Over 500 scientists conduct McIntire-Stennis-funded forestry research. The number of forestry graduate students has increased dramatically because of this program. In fact, several hundred scientists who are now university teachers and researchers began their careers as graduate assistants in research funded under this Act.

Land-Grant Colleges of 1890

Research directors oversee agricultural research in the land-grant universities of 1890 and at Tuskegee Institute. CR works directly with these institutions in their agricultural, nutritional, and rural development research programs. Over 100 scientists conduct agricultural research at these universities.

Colleges of Veterinary Medicine

The Food and Agriculture Act of 1977 (Public Law 95-113) authorized eligible schools and colleges of veterinary medicine to be provided with continuing support from the Federal Government for their research programs in animal health and disease. Those located at land-grant universities work jointly with the experiment stations on animal and health disease problems.

Federal Research Agencies

At the Federal level, there are a number of USDA research agencies. Each is headed by a career administrator in Washington. Most have field installations around the country—often at the local land-grant universities or colleges.

USDA laboratory directors and scientists in these field installations are Federal employees. Some work under joint arrangements with SAES and share State facilities with SAES staff. Some are members of university faculties and train graduate students and conduct seminars.

USDA agencies—particularly the Agriculture Research (AR) staff of SEA and the Forest Service (FS)—also support a substantial amount of research on special problems through contracts and grants to and cooperative agreements with the SAES, other public institutions, and private research organizations.

Regional Research

Research of interest to two or more States can be supported under Regional Research Funds (RRF). This money is made available under the Hatch Experiment Station Act (Public Law 84-352) to the SAES.

Each project under this funding is planned and conducted through a concerted team effort. Participating scientists are each responsible for accomplishing the objectives, working within a regional research committee. Some regional problems can be studied at one location. Others require the research effort to be spread over a number of locations in different States. Regional projects receive special guidance for organization and conduct of research: one of the SAES directors is designated the Administrative Adviser. Each regional committee has a CR staff representative assigned to it. There are about 200 regional and interregional research committees.

Preface

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Research Programs

Early agricultural research, like rural life then, was relatively simple and limited. It centered on the immediate problems of the farm—crop and livestock production, farm management, and rural life. Basic scientific disciplines, such as chemistry, biology, and geology, were concerned with agriculture because of the importance of agriculture at that time.

In time, specialized fields of science arose out of this pioneering work: agronomy, animal husbandry, agricultural economics, agricultural engineering, genetics, entomology, horticulture, phytopathology, microbiology, rural sociology, soil science, veterinary medicine, and so on. As knowledge expanded, so did the need to specialize as each discipline became more complex.

Today, most scientific disciplines are relevant to agricultural research in some way. And the findings of agricultural research touch on a wide range of disciplines outside agriculture.

Each State agricultural experiment station, land-grant college of 1890, Tuskegee Institute, school of veterinary medicine and forestry, or USDA agency maintains the competence needed to carry out priority research objectives, shifting emphases as new research needs arise.

Not all agricultural research is applied directly to day-to-day problems. Basic research is essential, too, to generate new knowledge that can then be applied to the solution of applied problems.

Research in agriculture and forestry tries to—

1. *Ensure a stable, productive agriculture through wise natural resource use.* Areas being researched

include such topics as appraisal of soil, forest, range, and water resources; soil, animal, plant, water, and nutrient relationships; alternative uses of land; conservation and efficient use of water; watershed protection and management; economic and legal problems in management of water and watersheds; adaptation to weather and weather modification; wildlife management; forest and range management; remote sensing; and energy conservation.

2. *Protect forests, crops, and livestock from insects, diseases, and other hazards.* Examples of areas of research here include controlling insects, diseases, weeds, nematodes, and the like affecting crops, forests, range, livestock, and poultry; protecting plants, animals, and humans from toxic chemicals, poisonous plants, and pollution effects; and developing integrated pest management systems.

3. *Ensure enough agricultural and forest products at decreasing real production costs.* Research area examples include genetics and breeding of crops, forest trees, and livestock and poultry; production management systems for crops, livestock, poultry, and forests; mechanization; production economics and farm business management; bees and other pollinating insects; biological technology and biometry not tied to commodities; and lowering energy needs for production.

4. *Expand agricultural and forest product demand by developing new and improved products, processes, and product quality.* Broad areas being researched here include, for example: new and improved farm and forest products; crop and animal products more acceptable to consumers and processors; ways of keeping food and fiber quality in storage and while being marketed; new sources of protein; and greater use of byproducts.

5. *Improve marketing efficiency.* Areas being studied here include grades and standards improvements for crop, timber, and animal products; development of new markets; improvement of market efficiency; supply, demand, and price analysis; competitive interrelationships; group action and market power; and improvement in agricultural statistics and forecasting services.

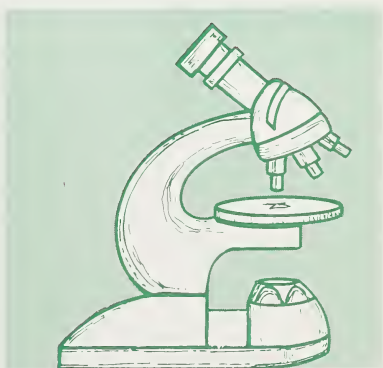
6. *Help America find solutions to the energy crisis.* Agricultural research here includes studies on the use of solar energy, biomass for energy production, alcohol for gasohol, and energy-efficient farming operations.

7. *Protect consumer health and improve the nutrition and well-being of the American people.* Research examples include keeping food and feed supplies free of toxic residues from agricultural sources and from harmful micro-organisms, and naturally occurring toxins; improving food choices, habits, and commercial food service; selecting and maintaining clothing and household textiles; controlling insect pests of people and their belongings; preventing the transmission of animal diseases and parasites to humans; reducing other hazards to health and safety; and improving human nutrition.

8. *Assist rural Americans to improve their level of living.* Research covers such areas as these examples: housing; individual and family decision making and resource use; family functioning; causes of poverty among rural people; community development; improvement of economic potential of rural people; communication and education processes; individual and family adjustment to change; structural changes in agriculture; and government programs to balance farm input and market demand.

9. *Promote community development including development of beauty, recreation, environment, economic opportunity, and public services.* Examples of research areas include alleviation of soil, water, and air pollution and disposal of wastes; outdoor recreation; multiple use potential of forest land and evaluation of forestry programs; fish and other marine life; furbearing animals and other wildlife; trees to enhance rural and urban environments; culture and protection of ornamentals and turf; improved income opportunities in rural communities; and the improvement of rural community institutions and services.

10. *Conduct fundamental research needed to help solve important problems in the nine areas listed above.* Knowledge from fundamental research is essential for a viable applied research program. It provides the building blocks of new knowledge needed for a solidly grounded mission-oriented research program. That storehouse of knowledge must constantly be updated and replenished. Only by being strong in both fundamental and applied research areas can the cooperative State-Federal research system continue to contribute so dramatically to the national goals of the American people.



**Schools and Colleges of
Veterinary Medicine Accredited
by the American Veterinary
Medical Association and Eligible
for Federal Formula Research
Funds under Public Law
95-113, Section 1433**

ALABAMA, Auburn 36830
Auburn University

ALABAMA, Tuskegee Institute 36088
Tuskegee Institute

CALIFORNIA, Davis 95616
University of California

COLORADO, Fort Collins 80523
Colorado State University

FLORIDA, Gainesville 32611
University of Florida

GEORGIA, Athens 30602
University of Georgia

IDAHO, Moscow 83843
University of Idaho

ILLINOIS, Urbana 61801
University of Illinois

INDIANA, West Lafayette 47907
Purdue University

IOWA, Ames 50011
Iowa State University

KANSAS, Manhattan 66506
Kansas State University

LOUISIANA, Baton Rouge 70803
Louisiana State University

MASSACHUSETTS, Boston 02111
Tufts University

MICHIGAN, East Lansing 48824
Michigan State University

MINNESOTA, St. Paul 55108
University of Minnesota

MISSISSIPPI, Mississippi State 39762
Mississippi State University

MISSOURI, Columbia 65201
University of Missouri

NEW YORK, Ithaca 14853
Cornell University

NORTH CAROLINA, Raleigh 27650
North Carolina State University

OHIO, Columbus 43210
Ohio State University

OKLAHOMA, Stillwater 74074
Oklahoma State University

OREGON, Corvallis 97331
Oregon State University

PENNSYLVANIA, Philadelphia 19104
University of Pennsylvania

TENNESSEE, Knoxville 37901
University of Tennessee

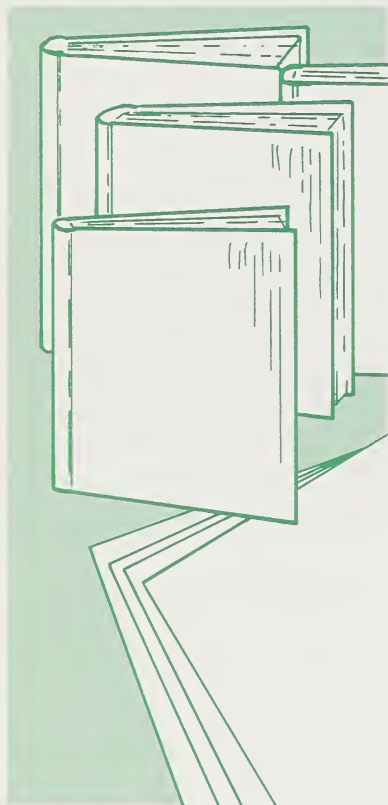
TEXAS, College Station 77843
Texas A&M University System

WASHINGTON, Pullman 99163
Washington State University

WISCONSIN, Madison 53706
University of Wisconsin

VIRGINIA, Blacksburg 24061
Virginia Polytechnic Institute and
State University

How to Get Information



State institutions and USDA research agencies have publications summarizing completed research. If you are interested in a particular topic or locality, write the director of the experiment station of your State.

For further information on cooperative State-Federal agricultural and forestry research, contact:

Administrator,
Cooperative Research,
Science and Education
Administration,
U.S. Department of Agriculture,
Washington, D.C. 20250.

For more general information on agricultural research programs, write:

Information Staff,
Science and Education
Administration,
U.S. Department of Agriculture,
Washington, D.C. 20250.

The National Agricultural Library, Beltsville, Md.; university libraries; and State and local Cooperative Extension Service offices also provide advice and assistance on how to get information on State and Federal research in agriculture and forestry.

For information about or from CRIS (Current Research Information System), contact:

Director,
Current Research Information
System,
Technical Information Systems,
Science and Education
Administration,
U.S. Department of Agriculture,
Washington, D.C. 20250.

SEA-Cooperative Research Administrators

W. I. Thomas
Administrator

E. C. Miller
Associate Administrator

C. I. Harris
Deputy Administrator, Plant Sciences

J. D. Sullivan
Deputy Administrator, Natural Resources

(Vacant)
Deputy Administrator, Animal Sciences

(Vacant)
Deputy Administrator, Human Nutrition, Food, and Social Sciences

Regional Directors-at-Large for the State Agricultural Experiment Stations

K. A. Huston
North Central Region, Ohio Agricultural Research and Development Center, Wooster, Ohio 44691

T. S. Ronningen
Northeastern Region, University of Maryland, College Park, Md. 20742

J. C. Halpin
Southern Region, Clemson University, Clemson, S.C. 29631

M. T. Buchanan
Western Region, 1750 K Street NW, Suite 270, Washington, D.C. 20006

USDA Director of Science and Education

Anson A. Bertrand
Director, Science and Education, U.S. Department of Agriculture, Washington, D.C. 20250

State Agricultural Experiment Stations Established under the Hatch Act of 1887

State agricultural experiment stations at these locations are the recipients of Hatch Act, Regional Research, Title V, and Research Facilities funds, and participate in the Special and Competitive Grants Programs on a competitive basis. At most of these locations, the State agricultural experiment station was also certified for participation in the McIntire-Stennis program. NOTE: New Haven, Connecticut (SAES), is not affiliated with a land-grant university.

ALABAMA, Auburn University, 36849
Auburn University

ALASKA, College 99701
University of Alaska

ARIZONA, Tucson 85721
University of Arizona

ARKANSAS, Fayetteville 72701
University of Arkansas

CALIFORNIA, Berkeley 94720
University of California

COLORADO, Fort Collins 80523
Colorado State University

CONNECTICUT, New Haven 06504

CONNECTICUT, Storrs 06268
University of Connecticut

DELAWARE, Newark 19711
University of Delaware

FLORIDA, Gainesville 32611
University of Florida

GEORGIA, Athens 30602
University of Georgia

GUAM, Agana 96910
University of Guam

HAWAII, Honolulu 96822
University of Hawaii

IDAHO, Moscow 83843
University of Idaho

ILLINOIS, Urbana 61801
University of Illinois

INDIANA, Lafayette 47907
Purdue University

IOWA, Ames 50011
Iowa State University of Science and Technology

KANSAS, Manhattan 66506
Kansas State University

KENTUCKY, Lexington 40506
University of Kentucky

LOUISIANA, Baton Rouge 70803
Louisiana State University

MAINE, Orono 04473
University of Maine

MARYLAND, College Park 20742
University of Maryland

MASSACHUSETTS, Amherst 01002
University of Massachusetts

MICHIGAN, East Lansing 48824
Michigan State University

MINNESOTA, St. Paul 55101
University of Minnesota

MISSISSIPPI, Mississippi State 39762
Mississippi State University

MISSOURI, Columbia 65201
University of Missouri

MONTANA, Bozeman 59715
Montana State University

NEBRASKA, Lincoln 68503
University of Nebraska

NEVADA, Reno 89557
University of Nevada

NEW HAMPSHIRE, Durham 03824
University of New Hampshire

NEW JERSEY, New Brunswick 08903
Rutgers—The State University

NEW MEXICO, Las Cruces 88003
New Mexico State University

NEW YORK, Geneva 14456
Cornell University

NEW YORK, Ithaca 14853
Cornell University

NORTH CAROLINA, Raleigh 27607
North Carolina State University

NORTH DAKOTA, Fargo 58102
North Dakota State University

OHIO, Columbus 43210
Ohio State University—Columbus

OHIO, Wooster 44691
Ohio Agricultural Research and
Development Center

OKLAHOMA, Stillwater 74074
Oklahoma State University

OREGON, Corvallis 97331
Oregon State University

PENNSYLVANIA, University Park 16802
Pennsylvania State University

PUERTO RICO, Rio Piedras 00928
University of Puerto Rico

RHODE ISLAND, Kingston 02881
University of Rhode Island

SOUTH CAROLINA, Clemson 29631
Clemson University

SOUTH DAKOTA, Brookings 57006
South Dakota State University

TENNESSEE, Knoxville 37901
University of Tennessee

TEXAS, College Station 77843
Texas A&M University

UTAH, Logan 84322
Utah State University

VERMONT, Burlington 05401
University of Vermont

VIRGINIA, Blacksburg 24061
Virginia Polytechnic Institute and
State University

VIRGIN ISLANDS, St. Croix 00850
College of the Virgin Islands

WASHINGTON, District of Columbia
20008
University of the District of Columbia

WASHINGTON, Pullman 99163
Washington State University

WEST VIRGINIA, Morgantown 26506
West Virginia University

WISCONSIN, Madison 53706
University of Wisconsin

WYOMING, Laramie 82071
University of Wyoming

**Land-Grant Institutions
Established under the Second
Morrill Act of 1890**

ALABAMA, Normal 35762
Alabama A&M University

ALABAMA, Tuskegee Institute
36088
(a non-land-grant participant)

ARKANSAS, Pine Bluff 71601
University of Arkansas—Pine Bluff

DELAWARE, Dover 19901
Delaware State College

FLORIDA, Tallahassee 32307
Florida A&M University

GEORGIA, Fort Valley 31030
Fort Valley State College

KENTUCKY, Frankfort 40601
Kentucky State University

LOUISIANA, Baton Rouge 70813
Southern University and A&M
College

MARYLAND, Princess Anne 21853
University of Maryland—Eastern
Shore

MISSISSIPPI, Lorman 39096
Alcorn State University

MISSOURI, Jefferson City 65101
Lincoln University

NORTH CAROLINA, Greensboro 27411
North Carolina A&T State University

OKLAHOMA, Langston 73050
Langston University

SOUTH CAROLINA, Orangeburg 29115
South Carolina State College

TENNESSEE, Nashville 37203
Tennessee State University

TEXAS, Prairie View 77445
Prairie View A&M State University

VIRGINIA, Petersburg 23803
Virginia State College

**Non-Land-Grant Institutions
Participating in the Cooperative
Forestry Research (McIntire-
Stennis) Program**

ARIZONA, Flagstaff 86001
Northern Arizona University

CALIFORNIA, Arcata 95521
Humboldt State College

ILLINOIS, Carbondale 62901
Southern Illinois University

LOUISIANA, Ruston 71270
Department of Forestry,
Louisiana Tech University

MICHIGAN, Ann Arbor 48104
University of Michigan

MICHIGAN, Houghton 49931
Michigan Technological University

MONTANA, Missoula 59801
Forest and Conservation Experiment
Station, School of Forestry, University
of Montana

NEW YORK, Syracuse 13210
State University College of Forestry at
Syracuse University

TEXAS, Nacogdoches 75961
Stephen F. Austin State University

WASHINGTON, Seattle 98195
University of Washington

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Colorado State University

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Oklahoma State University

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Oregon State University

PENNSYLVANIA, Philadelphia 19104
University of Pennsylvania

TENNESSEE, Knoxville 37901
University of Tennessee

TEXAS, College Station 77843
Texas A&M University System

WASHINGTON, Pullman 99163
Washington State University

WISCONSIN, Madison 53706
University of Wisconsin

VIRGINIA, Blacksburg 24061
Virginia Polytechnic Institute and
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