

Testimony of Dr. Mark Latimore, Jr.
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Before the House Committee on Agriculture

Mr. Chairman and members of the committee, I am Mark Latimore, Jr., Interim Dean of the College of Agriculture, Family Sciences and Technology at Fort Valley State University, Fort Valley, Georgia. Thank you for the opportunity to testify at today's hearing to offer **our** views on the U.S. Department of Agriculture's Research, Education, and Extension Programs, especially those that benefit the 1890 Land-Grant Universities.

Fort Valley State University was established in 1895 and was designated a land-grant university pursuant to the Second Morrill Act (1890). Presently, Fort Valley State University has more than 3,500 students in over 50 disciplines. Our particular college offers undergraduate programs in 11 areas and graduate programs in Animal Nutrition, Reproductive Biology, and Animal Products Technology, Plant Biotechnology, Animal Biotechnology and Applied Biotechnology.

While I am testifying today on behalf of Fort Valley State University, I should also point out that we are a member of the Association of Public and Land-grant Universities (APLU) where we work closely with our colleagues at other 1890s and 1862s land-grant universities to support the periodic reauthorization of the agricultural research, extension, and teaching programs at the National Institute of Food and Agriculture (NIFA) and the annual appropriations for these programs.

Let me say at the outset that we appreciate your committee's willingness to consider and eventually embrace most of the recommendations offered by the land-grant system during the development of the Research Title of the 2008 Farm Bill. We hope to have similar collaboration with this panel during development of the 2012 Farm Bill.

Creation of the National Institute of Food and Agriculture was clearly the key element of Title VII of the 2008 bill. This structural change in the research organization at USDA will foster better coordination between the department's extramural capacity building programs for 1890 Institutions (Evans-Allen and 1890 Extension) and their sister programs for research and extension at 1862 Institutions (Hatch and Smith-Lever, respectively). The new structure will also ensure better coordination and integration of USDA's intramural research, conducted by the Agricultural Research Service (ARS) and U.S. Forest Service.

As you know, the 2008 Farm Bill included many provisions specifically intended to benefit 1890 Institutions including Fort Valley State University:

- The 1890 Capacity Building Grants Program was expanded to include extension activities in addition to research and education.
- The Expanded Food and Nutrition Education Program (EFNEP) was amended to provide at least \$100,000 per year for 1890 Institutions and the formula for distribution of future funds was changed.

- The 1890 Universities were authorized to participate in the Animal Health and Disease Research Program.
- Authorization for the 1890's Cooperative Extension Program was changed to index it to the Smith-Lever Program at a higher level.
- The Smith-Lever Act was revised to allow the 1890 Universities to participate in the Children, Youth and Families Research Program.
- And, the 1890 Universities were made eligible to participate in the McIntire-Stennis Cooperative Forestry Program.

Working through APLU, the land-grant system has begun a comprehensive process to develop recommendations for the next Farm Bill and we expect to have our suggestions fully developed well in advance of any committee action. However, in the absence of specific recommendations for new programs or amendments to existing programs, I can assure you that the greatest need in agricultural research remains funding – regardless of whether such research is conducted at an 1890 Institution, a state agricultural experiment station, or an ARS laboratory. Many of the opportunities for 1890 Universities provided by the 2008 Farm Bill are only beneficial to us if Congress actually increases funding for these programs.

For example, funds provided for the McIntire-Stennis Cooperative Forestry Program are allocated to governors – who then divide those dollars among institutions of higher learning within their state. Adding 1890 Institutions to the list of eligible schools without also increasing funding for the program is just a reallocation of already-too-scarce resources.

The 1890s have never forgotten the expectation that as Historically Black Land-Grant Institutions, they must be relevant to the multitude of smaller, limited resource producers and entrepreneurs. When these clientele are assisted, as is the 1890 mission, these individuals have great potential of 1) bringing a much widened range of skills and ideas for agriculture and natural resource practices, 2) improving the quality of life of rural Americans through computer literacy training via the Mobile Technology Laboratory, 3) of bringing economic activity to rural communities, and 4) of supplying a variety of specialized market niches. Without this segment of the food and natural resource system, the nation would be lacking in the richness of its agricultural and renewable natural resource based businesses. Service to the country's low-income or limited resource families and communities is no less (and may be even more) a land-grant mandate today as in earlier days of the National Land-Grant System. The 1890s, and of course Fort Valley State University, are integrally involved in creating a society where all people have opportunities for wholesome living and learning through responsible pursuits of their goals and aspirations. We are able and anxious to be stronger partners in establishing a region and a world with a safe and plentiful supply of food, fiber, fuel and water for all, where natural resources and businesses are managed in ways that are sustainable and serve the common good. Increased funding allows more inclusiveness of universities like ours to help solve the complexities of our times. That means increasing the size of the funding amounts, not simply including us as eligible to compete in a funding pool that has not increased in size.

The 1890 Land-Grant Universities have a unique mission of serving the limited-resource and hard to reach clientele. The public outreach effort of these universities is known as Cooperative Extension.

These universities have been enormously successful in addressing issues and challenges confronting the limited resource clients, but the unmet needs have become more demanding. These clients are confronted with severe difficulties during normal conditions, but the economic recession has escalated their needs for assistance from the 1890 Universities.

These Universities depends primarily on federal funds allocated through Cooperative State Research, Education, and Extension Service to meet the needs of their clients. These funds are matched by the state, but state funding remains stagnant if the federal funds are not increased. It is evident that these universities are faced with increasing needs from their clientele, but the level of funding has not kept pace.

Additional funding is needed to develop programs that are critical to the clients served by the 1890 Universities. An increase in funding will enable Extension to focus on the following:

1. Agricultural diversification and marketing strategies to reverse the decline of small minority owned farms.
2. Increasing viability and competitiveness of farms through sustainable practices.
3. Improving nutrition, diet and health of limited-resource families with emphasis on reducing obesity, utilizing the Mobile Technology Laboratory as planned through Fort Valley State University Cooperative Extension Program Family and Consumer Sciences Program.
4. Improving the economic viability of rural families, including reducing energy consumption.
5. After school enrichment programs to enhance 4-H and youth skills in science, technology and math.
6. Protecting the environment and natural resource management.
7. Improving technology proficiency for farmers, senior citizens, youths and other rural Americans through our Mobile Information Technology Center.
8. Landowner Initiative for Forestry Education (LIFE) Program designed to provide education opportunities for landowners in sustaining and/or increasing their land productivity.
9. Financial Literacy and Consumer Economics
10. Providing educational outreach to the community regarding affordable housing.

Without additional funding, the 1890 Extension will be unable to address the needs that are core to its mission, but will also fail to respond to the clients that need their assistance. 1890 Extension funding is authorized at 20% of Smith-Lever, but is currently funded at 14.3%. In the 2012 Farm Bill, we would like to see an increase in the authorization level for 1890 Extension. This will enable the 1890 universities to continue to receive Extension funding at a level to respond to the needs of its clientele.

Research (Evans-Allen and 1890 Capacity Building Funding)-Successes

Small Ruminant Research

The Georgia Small Ruminant Research and Extension Center (GSRREC) at Fort Valley State University (FVSU) is the largest facility of its kind east of the Mississippi River and is recognized as a national leader in goat research. Small ruminant scientists, producers, and individuals interested in goat production from all over the world visit GSRREC to learn more about our research programs. Current programs include increasing muscle mass in native goats by modifying the genome (particularly the myostatin gene), embryo transfer technology in goats, developing basic roughages and dietary supplements for dairy and meat goats, developing a year-round grazing system, genetic-marker assisted selection for internal parasite control in sheep, invasive vegetation management with sheep and goats, breed characterization and genotype x environment interaction studies with meat goats and sheep, improving meat goat management methods, improving meat quality in small ruminants using pre- and post-slaughter methodologies, developing value-added goat meat and dairy products, and food safety.

The resources and project activities of the 1890 Capacity Building grant helped us achieve successful simulation of goat milk to human milk with respect to milk fat and protein compositions. The resources and project activities of Evans-Allen formula project provided us with the opportunity to develop and evaluate the reduced-fat goat milk cheeses. Studies on food and nutritional qualities of reduced fat goat milk cheeses are almost non-existent. Consumer demand for reduced-fat cheeses has been continuously increasing due to the relationship between dietary fat consumption and coronary heart diseases, stroke, and diabetes. **The production and marketing of reduced-fat dairy goat products is expected to have great impacts not only on health of consumers but also on the economic viability of limited resource dairy goat farmers and the industry. Although the reduction of fat in goat milk cheeses have some challenges in consumer acceptability of the products due to defects in texture, flavor and sensory qualities with reference to the full-fat counterparts, the results of the project confirmed that reduced-fat goat cheeses can be successfully produced. Through these project activities and resource allocations, we have been able to produce a Ph.D. student at the Department of Food Science & Technology, University of Georgia, Athens, GA, who finished her degree in 2007 by undertaking part of this research project as her Ph. D. dissertation research and experimentations. In addition, we have been able to produce an MS student in Animal Science program at Fort Valley State University, who has performed parts of this research project as his Master's thesis research. These projects greatly helped us in training and producing minority food scientists at FVSU.**

Development of value added products using goat meat (chevon) and quality studies conducted at FVSU, and dissemination of information through our outreach activities have increased awareness among consumers on the benefits of chevon. Food companies have approached FVSU regarding releasing chevon products to national and international

markets. So far, six graduate students have been trained in chevon product technology and food safety.

FVSU is the lead institution for the Southern Consortium for Small Ruminant Parasite Control (SCSRPC), an international research group dedicated to finding non-chemical methods of controlling gastrointestinal nematodes in sheep and goats. Small ruminant parasitology research was initiated at FVSU 14 years ago, and the University is now the lead institution for an international consortium of Scientists, Extension Educators, Veterinarians, and producers developing and testing novel, non-chemical methods of controlling gastrointestinal nematodes (GIN) in goats and sheep. The Southern Consortium for Small Ruminant Parasite Control (SCSRPC) includes 20 institutions from 10 states in the southern USA, and from Puerto Rico, the US Virgin Islands, and South Africa. These institutions include Land-Grant 1890 Universities (Delaware State, Langston, Kentucky State, North Carolina A & T State, Virginia State), 1862 Land-Grant institutions (Auburn, Louisiana State University, North Carolina State University, Texas A & M University, The University of Georgia, Virginia Tech) and USDA Research Stations (Booneville, AR; Brooksville, FL) in the US, as well as overseas institutions, including The University of Puerto Rico, University of the Virgin Islands, and Pretoria University (South Africa).

All of the research of our Consortium to date has included a strong extension component, with emphasis on information dissemination to producers and the general public through extension publications, a consortium web site (SCSRPC.org), and producer workshops. Including producers in our SCSRPC research and outreach planning meetings has allowed our work to remain relevant to producer needs. These meetings are held twice per year (at least once at FVSU) to foster unity and creativity in developing new initiatives and overcoming challenges. Following this principle, FVSU and our Consortium members have been very successful at attracting funding to support this program, published numerous scientific and producer-oriented manuscripts, and positively impacted sustainability of small ruminant industries in the US and overseas. **Parasite research at GSRREC and other institutions of the SCSRPC have greatly impacted small ruminant producers in the US and overseas by reducing dependence on expensive, ineffective anthelmintic drugs. Specific impacts of the Consortium are listed below:**

- 1. Over 16000 FAMACHA cards sold for on-farm use at over 300 FAMACHA workshops held throughout the United States, Puerto Rico, and the US Virgin Islands.**
- 2. Average farmer can save 70-80 % of his drug treatment costs for controlling internal parasites using this system (Savings of \$200-\$400/year for every 100 breeding ewes or does)**
- 3. Research with sericea lespedeza (low-input, warm-season legume high in condensed tannins) to control sheep and goat parasites has created a tremendous surge in interest with US farmers in planting this forage for grazing, or making hay or pellets, particularly for use in organic livestock production systems.**

- 4. Changed perception of US farmers from the exclusive use of chemical dewormers (anthelmintics) to try to eliminate internal parasites in grazing animals, which has led to a world-wide epidemic in anthelmintic resistance, to using integrated systems, including grazing management and other non-chemical control strategies, to keep parasitic infection rates below an economic threshold (Increasing profits by managing parasite levels rather than trying to eradicate parasites).**

Specialty Plant Biotechnology

The recent socio-demographic changes have created enormous opportunities for the American farmers to grow high value specialty crop plants. Research activities on specialty plants biotechnology to benefit wholesome healthcare and balanced nutrition are geared to identify medicinal plants through phytochemical screening, application of biotechnology to regenerate plants and enhance their value-added characters, and investigations on the biomedical evaluation. We also plan to emphasize conservation of these plants for their sustainable uses. The introduction of nutraceutical plants for health benefits and developing them as premium crops for local growers has been a major spotlight. Our fundamental goal is aimed at improving wholesome healthcare and balanced nutrition through specialty plants biotechnology research.

In collaboration with Wayne State University, we have been able to establish that oral administration of *Scutellaria* (medicinal plant) extract could significantly delay the in vivo growth of gliomas in both intracranial and subcutaneous tumor models.

The *in vitro* studies also showed significant dose-dependent inhibition of F98 (rat malignant glioma cell line) cell proliferation by specific inhibitors of PI3K as well as NF- κ B, confirming important roles for these signaling molecules in glioma survival and proliferation.

Bio-energy

Biofuel Research for lowering dependence on foreign oil is also timely. Plants are a rich source of non-edible oil (for biodiesel) and selected carbohydrates (for fermenting into ethanol). This research aims at screening plants for rapid biomass production, oil yield and ways to convert the high sugar reserve trapped as cellulose into ethanol. Biofuel Research may lower dependence on foreign oil. Selected specialty plants, those with medicinal, nutraceutical and biofuel/bioenergy values, are being studied for their in vitro plant regeneration, genetic enhancement for value-added traits including quality and quantity of phytomedicines, healthy nutrients, and biofuels. The goals of our bio-fuel research are to produce biodiesel and ethanol for lowering dependence on foreign oil utilizing sweet sorghum and native grasses and Paulownia.

Paulownia elongata is being studied as a fast growing tree to meet biomass feedstock requirement for South-Eastern USA. Preliminary analysis is encouraging as compositional analysis revealed 50% cellulose, 13% hemicelluloses and 21% lignin.

Power generation companies have visited our experimental research farm to see the potential uses of Paulownia in moving toward biomass-based power generation.

Sustainable Agriculture

The highlights of our sustainable agriculture research findings are as follows:

Due to the hard pan below the plow layer in the coarse textured soils of the southeast, the best option for conservation tillage in this region was strip-till rather than no-till.

Winter cover crop can substitute up to half the nitrogen fertilizer needs of a number of crops.

Napiergrass is among the highest biomass yielding energy feedstock in the southern United States yielding more than switch grass and energy cane.

An organic garden/classroom demonstration (approximately 12 acres) is being developed.

Teaching

Classroom/Laboratory to Enhance Teaching and Training

Forestry. Area 3 FFA Forestry Career Development Events have been conducted annually since 2008 at the Outdoor Forestry Classroom/Laboratory site. One hundred and fifty high school students from nine high schools have participated in this activity each year. At least twenty high school teachers have attended. Foresters employed with USDA, the Georgia Forestry Commission and Weyerhaeuser assisted with the Forestry Career Development Event activities. Foresters from these agencies interacted with the high school students discussing career opportunities with the forestry industry.

Two Summer Forestry Camps have been conducted that were attended by 80 students and 10 teachers.

Biotechnology. Fort Valley State University (FVSU) received three NIFA grants to establish and support an undergraduate degree program in Plant Sciences with a major in Biotechnology in 2001 through 2010. Since its inception, scholarships have been awarded to more than 50 deserving students. Four new courses in Biotechnology/Genetic Engineering have been introduced into the curriculum.

Environmental Soil Sciences. An 1890 Capacity Building Grant afforded this Program GPS/GIS equipment to include an ATV mounted soil probe for sampling.

Extension (1890 Extension Funding Formula)-Successes

Successes in Extension at FVSU range from:

- Collaborative production of sweet sorghum with local industry in the production of ethanol.
- Utilizing the Mobile Technology Transfer Center (Mobile Laboratory with 25 computer stations) to train small farmers, migrant workers, seniors for medicare programs for seniors, youths and seniors on successful test taking skills, etc.
- One –on-one county extension agents training from proper fertilization of crops to nutritional food consumption.
- Seeking enterprises for farmers to diversify or replace existing enterprises that are no longer profitable.

USDA 1890 Facilities Grant

Badly needed facilities for 1890 Universities have been constructed or projects under construction. Projects funded through USDA Facilities funding for Fort Valley State University include but not limited to:

- Agricultural Technology Conference Center (a Cooperative Extension training facility)
- Agricultural Arena and Pavilion
- Stallworth Agricultural Research Station

From USDA/NIFA Website (for the period 2003-2005)

Results and Impacts for 1890 Land-Grant Institutions Programs

- [1890 Institution Teaching and Research Capacity Building Grants Program](#)
- [Evans-Allen 1890 Research Formula](#)
- [1890 Extension Formula](#)
- [1890 Facilities Grant Program](#)

1890 Institution Teaching and Research Capacity Building Grants Program

The following represents results and impacts for the 1890 Institution Teaching and Research Capacity Building Grants Program from activities that occurred between June 2003 and June 2005.

Alabama A&M University

The NIFA funding has enabled Alabama A&M University to incorporate advanced technology into the department's degree programs in Environmental Science, Soil Science, Forestry, and Plant Science. It established a minor (18 course credits) in Remote Sensing, GIS, and GPS technology for each degree program in the School of Agricultural and Environmental Sciences. The laboratory can accommodate 20 students for individual instruction or a maximum of 40 students (2 per computer) for introductory courses. The GIS laboratory is shared with faculty in the Department of Community Planning and Urban Studies to enhance courses and degree programs in Urban Planning.

Delaware State University

A NIFA teaching grant at Delaware State University (DSU) provides service-based field experience in resource management at Trap Pond State Park (TPSP) in Delaware. The project has linked DSU with the Department of Natural Resources and Environmental Control (DNREC) headquarters in Dover, DE. In three short years, the research program at TPSP has become a major field program in the Department of Agriculture and Natural Resources, providing an ongoing research area in which student projects and masters' theses can be developed and carried out. The equipment and field training provided by this project enabled DSU undergraduate and graduate students to participate in real-time research projects of present-day interest to resource managers in the state. This project played a central role in the rewriting of the undergraduate curriculum in Environmental Science and the masters' curriculum in Natural Resources. All students in the Environmental Science and Natural Resource education programs (30 majors as of 2003-2004) have been exposed to the equipment and newly modified curricula and courses. The project is providing valuable man-hours for park research and data sets that would otherwise not be obtained. Data from the project have been made available to the state for use in park management both at TPSP and at other parks in Delaware, and the data are being made available to the public on an outreach Web site.

Fort Valley State University

Fort Valley State University (FVSU) received two NIFA grants to establish an undergraduate degree program in Plant Science with a major in Biotechnology in 2001. Since its inception, FVSU has awarded scholarships (\$2000/year) to 32 deserving students. Four new courses in Biotechnology/Genetic Engineering have been introduced. Twenty-eight students participated in the Research Experience for Undergraduate Program in Biotechnology during the academic year,

working in the developed infrastructure facilities to perform cutting-edge research in Molecular biology/ biotechnology at Fort Valley State University. In addition to receiving hands-on experience in the laboratory, these students also participated in enrichment activities such as GRE workshops and interacted with distinguished speakers. The invited speakers represent regional diversities, federal labs and industry. FVSU has successfully established a partnership with major research institutions to provide summer research experiences for undergraduate students. Twenty-five (25) students travel to different destinations throughout the nation each summer. These students conduct independent research work and have made more than 45 scientific award-winning presentations at national meetings. Four students graduating with biotech training joined the graduate/professional schools for higher education in Biotechnology. In addition, these programs allowed FVSU to provide resources for more than 15 high school students to participate in the Summer Research Apprenticeship Program (SRAP). The funding helped the foundation to bring additional funding from other federal agencies such as NSF and EPA totaling over \$3 million to strengthen technology, teaching, and research programs in Biotechnology under the Plant Science Department in the College of Agriculture, Economics, and Allied Programs.

North Carolina A&T State University

With funding from NIFA, North Carolina A&T established a centralized research facility integrating the use of state-of-the-art survey methodologies with computer and communication technologies. This Applied Survey Research Laboratory has the capacity to conduct and analyze mail, telephone, Web-based, self-administered, and face-to-face surveys, focus groups, and other survey research methodologies. In addition, North Carolina A&T's agricultural programs have infused instructional technologies throughout the curricula, and distance learning has become an alternative, yet very important, mode of instruction. Hands-on learning is greatly facilitated by access to "smart classrooms" (interactive whiteboards, multimedia cabinets, and software that facilitate teaching and research) and state-of-the-art laboratories. Finally, the program has allowed North Carolina A&T to establish a graduate program (M.S.) in International Trade.

Southern University and A&M College

Southern University and A&M College received a NIFA grant to enhance teaching and recruitment in Food and Fiber Sciences through computer technology. This project has had far-reaching impact in improving teaching and equipping students with the necessary skills they need for employment. The project provided funds to establish a modernized computer aided design laboratory in the Division of Family and Consumer Sciences. Computer hardware and software was purchased to integrate Computer-Aided-Design and Manufacturing for textiles (CAM/CAM), Computer-Aided Diet Analysis and menu planning, and use of the Internet in the curriculum. Textile students gained hands-on experience using high tech textile equipment. The University has recognized this project as one of the most innovative on campus. This project has also helped bring the University to national prominence. A second NIFA grant to conduct

textiles research was won by Southern University as a direct result of this project. The capacity-building research project merges computer-aided-design and textile testing. Another very significant impact was a \$1.8 million software donation from Lectra Systems, Inc. This donation places the Apparel Merchandising program at Southern University among a few select institutions worldwide that are using industry standard software. In addition, Dr. Grace Namwamba (PI) received the NASULGC Excellence in College Teaching for the Southern Region in 2003.

Tennessee State University

The NIFA funding has provided Tennessee State University with the ability to respond to stakeholder concerns in the southeast U.S. nursery industry. By establishing a program on integrated disease management for powdery mildew, improved flowering dogwood selections have been developed that will reduce homeowner dependence on chemical pesticides while improving the profitability of the regional nursery industry. The capacity-building grant program has facilitated the establishment of state-of-the-art equipment and collaborative linkages for research in nursery crop disease management.

University of Arkansas - Pine Bluff

NIFA funding has enhanced research and teaching needs in three areas at UAPB: agriculture, fisheries, and human sciences. Support of programs for student recruitment and retention, curriculum development, faculty and student development, and academic enrichment have greatly strengthened and increased enrollment. Capacity-building funds were instrumental in curriculum design, resource and equipment acquisition, and faculty development for 1) implementing the M.S. degree program in aquaculture/fisheries that enrolls 23 students, 2) creating the nutrition intervention and research program for the study of nutritional needs and food security of families in the Mississippi Delta, and 3) developing the only regulatory science degree program in the nation. The regulatory science program enrolls 27 students in three options: Agriculture, Industrial Health, and Safety and Environmental Biology.

University of Maryland - Eastern Shore

Capacity-building funds have allowed the University of Maryland Eastern Shore (UMES) to establish an impressive, collaborative, multi-state research nutrient management program focused on reducing phosphorus loading levels to the Chesapeake Bay and Maryland Coastal Bays. This work provides protection for the economic viability of watermen and the tourism industry on the Delmarva Peninsula. Another NIFA grant is being used by the Department of Human Ecology at the University of Maryland Eastern Shore to establish an interactive video teleconferencing classroom of courses. The department is partnering with Chesapeake Community and the Eastern Shore Community College in Virginia to offer courses leading to a bachelor's degree for students residing in remote areas on the Eastern Shore who are pursuing a career in child development.

Evans-Allen 1890 Research Formula

The following represents results and impacts for the Evans-Allen 1890 Research Formula from activities that occurred between June 2003 and June 2005.

Alabama A&M University

Alabama A&M University is conducting research to study the various forms of phosphorus over time in poultry manure, or litter, amended soil, using cutting-edge technology to enhance management of animal waste applied to land. Discoveries will aid in the development of remediation strategies to reduce phosphorus mobility in soils. Fractionation studies are identifying differences in phosphorus levels at various soil depths using different treatment methods and advanced instrumentation testing.

Alcorn State University

The profitability of American agriculture is extremely important to the nation's vitality, yet rising input costs and low market prices for agricultural commodities increasingly jeopardize the industry's profitability. Since American producers have little ability to affect market prices, it is critical that they have and understand how to use new technologies that can optimize their input costs with respect to profits. Alcorn State University recently completed a project to monitor the growth of sweet potatoes to optimize production using remote sensing methods. This research shows that remote sensing, GPS/GIS, and ground truthing should help identify the most suitable areas in the field for high sweet potato yield and areas that are problematic. Results from the study will be helpful to small limited-resource producers, will assist extension in the application of the research findings, and will provide researchers with necessary tools for additional study.

Delaware State University

The Claude E. Phillips Herbarium is a resource center for researchers at Delaware State University. Researchers have included in the herbarium native and cultivated plants from across the globe. Those research specimens have been pressed, dried, and mounted on archival paper, then housed in a state-of-the-art, climate-controlled environment. The holdings are available to researchers, students, and the general public.

Florida A&M University

Development of environmentally sound sustainable practices is paramount to the successful growing of hot peppers, an alternative niche enterprise identified for small farmers. Florida A&M University researchers evaluated the effects of bio-solid waste material on plant growth and fruit yield of Scott Bonnett and Caribbean Red hot pepper varieties and on quality characteristics of the soil on which the crop is grown. Results showed that poultry manure, mushroom compost, and earthworm castings produced fruit yield that were numerically, but not statistically, different compared to fruit yield from inorganic fertilizer treatment, but significantly

higher compared to fruit yield from control treatment. Fruit yield from cow manure was significantly lower than all other treatments except the control.

Fort Valley State University

Sweet potato potential for human nutrition and future energy needs can be realized through the application of biotechnology, but a reliable in vitro regeneration would be required for the application of recombinant DNA technology. Fort Valley State University completed a research project to develop an efficient tissue regeneration system via organogenesis and embryogenesis for sweet potato and to transfer genes of desirable traits into sweet potato using recombinant DNA technology. Establishment of reliable and efficient plant regeneration protocol and gene delivery protocol for sweet potato will ensure introduction of the designed “value added” genes into this crop through genetic engineering.

Kentucky State University

Kentucky State University researchers developed a program to grow freshwater shrimp in farm ponds to further reduce the state's dependence on tobacco. Economic analyses indicate net incomes of between \$2,500 and \$4,500 per acre for freshwater shrimp. So far, 18 farmers have adopted the practice, bringing the total additional income derived from shrimp to about \$185,250 annually.

Langston University

Langston University continues its research on goat production. A recent study showed that the number of Boer crossbred meat goats has been increasing rapidly, although how their growth and harvest traits compare with those of Spanish goats and influences of maternal genotype has not been thoroughly evaluated. This information would be useful to achieve optimal meat goat production systems and yield of goat products desired by consumers. Langston University's scientists studied post-weaning growth and harvest traits of Boer x Spanish, Spanish, and Boer x Angora wethers consuming a concentrate-based diet. Research shows that live weight gain was greater for Boer crossbreds than for Spanish wether goats, with little or no difference between Boer x Spanish and Boer x Angora goats. Because of more rapid growth of Boer crossbreds than Spanish goats, weights of the carcass and primal cuts were greater or tended to be greater for Boer crossbreds.

Lincoln University

Lincoln University is investigating an indoor water recirculating aquaculture system for the production of bluegill sunfish. There is a high demand for 5- to 6-inch bluegill for pond stocking. Producing suitable sized bluegill for pond stocking, however, requires an inordinate amount of time and increased labor costs because variable growth requires continual sorting and grading to obtain fish of a desirable size. The research is aimed at raising bluegill fingerlings over winter in

controlled temperature systems that will produce 5- to 6-inch fingerlings by spring to meet current market demands.

North Carolina A&T State University

Greensboro waters drain into the Jordan Lake, an essential drinking water supply in the Chapel Hill-Raleigh-Durham area. The lake is a “nutrient sensitive water,” since it has a nutrient over-enrichment problem. North Carolina A&T State University is in its second year of a study to determine sources of nutrients coming into the Jordan Lake so best management practices can be implemented to remove nutrients draining into the lake. Soil and Water Assessment Tool (SWAT) model inputs were collected for the farm. A nearly complete set of SWAT peer-reviewed literature has been listed on the project's Web site, providing SWAT users a centralized source for information.

Prairie View A&M University

Goats are an important livestock species in many parts of the world and their prevalence in the U.S. is rapidly increasing. Nonetheless, knowledge of goat nutrient requirements lags behind that of cattle and sheep. To help with this, a database of treatment means observations from goat feeding/nutrition studies was constructed and used to develop and describe nutrient requirements of goats by scientists at Prairie View A&M University. Research will yield more knowledge about accurate estimates of nutrient requirements of goats, including composition of tissue being accreted or mobilized, changes in maintenance energy requirements with advancing maturity and differences among nutritional planes, energy costs of activity, and conditions influencing the supply of ruminally under grade protein. A clearer understanding of these factors is being revealed and will improve feeding programs as well increase accuracy of predicting performance by goats.

South Carolina State University

South Carolina State University purchased a mobile technology learning center with NIFA funds. The customized Winnebago, which travels across the state, is equipped with a 12-station Internet-ready computer lab, a child development classroom, dual generators, a satellite, and an instructor workstation. By design, the mobile technology center delivers the services that 1890 Extension provides such as 4-H and youth development, family life and nutrition, adult leadership and community development, small farm assistance, and computer literacy classes to citizens. The mobile center also provides 1890 Extension with the opportunity to take programs to the people and enhances efforts to address the digital divide.

Southern University

Southern University is furthering research into the effects on animal performance of grazing cattle and goats together and separately. The goal of this project is to assist small and limited-

resource producers in increasing their production and economic base by efficiently using the available natural and farm resources. Results of this project are determining the most efficient method of resource use by two or more species.

Tennessee State University

Production efficiency of the doe herd is a major determinant of annual income in a commercial meat goat enterprise; however, doe performance has received little attention when assessing new meat goat breeds in the United States. Most pastures in the Southeast have endophyte-infected tall fescue, posing a risk of endophyte-induced reductions in animal performance. Tennessee State University has undertaken a project to evaluate doe-kid performance for economically important reproductive and growth traits as influenced by breed and forage type. The study recognizes that understanding genetic diversity among breeds for economically important traits and endophyte effects on goat performance can aid in enhancing meat goat herd productivity. Further results of this study should provide producers with information useful for genetic management and breed selection within seedstock and commercial meat goat operations.

Tuskegee University

Land loss phenomena and efforts to recoup it continue to be a challenge for African American farmers and other minority communities in Alabama and the rural South. Rural communities and the underserved families in the Black Belt region have problems accessing government programs. Access of programs and policies affecting the underserved in the Black Belt region of Alabama are being assessed by Tuskegee University. The approach involves multidisciplinary teams within the social sciences, as well as among the social sciences, Cooperative Extension, and continuing education. Target areas are being assessed in terms of economic growth, equity, and quality of life as they apply to sustainable rural development. As a result of the study, specific policies, strategic directions, and programs will be proposed to enhance the potential for sustainable rural development, and a database including a "State of Black Belt" report will be generated on each of the target areas.

University of Arkansas - Pine Bluff

Insect damage to alternative crops produced by small and limited-resource farmers has a significant effect on production. University of Arkansas - Pine Bluff scientists have conducted studies to evaluate Bt sweet corn insect suppression and initiate Bt gene field corn trials, work on bionomic and integrated pest management (IPM) methods for cowpeas in Arkansas, and evaluate insects on new lines of hot peppers. They have also evaluated insect infestation on promising pigeon pea lines, designed an IPM system for control, conducted verification trials on hot peppers and pigeonpeas, and constructed an economic model of production costs. This research has developed a sufficient data base needed to develop insect management and control strategy for multicrop production by limited-resource farmers.

University of Maryland Eastern Shore

The University of Maryland Eastern Shore has established a private/public partnership with Bell Nursery to help the university and its constituents enhance economic development opportunities for surrounding rural communities. The 2.5-acre hydroponic greenhouse was funded at \$3.2 million through NIFA, state, county, university and private industry funds to engage in floral production that links the University of Maryland Eastern Shore with a commercial business. The hydroponic greenhouse project sponsored by the University's Rural Development Center and Small Farm Institute is demonstrating that, through formal alliances, economic development strategies can bring needed resources to the Delmarva Peninsula of Maryland.

Virginia State University

In the United States, the need for healthful food is a driving force in the search for nutritious alternative crops. Among the alternative vegetable crops, soybean has the distinction of being low in saturated fat and active in reducing blood cholesterol level. Direct consumption of vegetable soybean is very popular in the Orient; however, the cultivars used in Asia are not adapted to U.S. production systems. Virginia State University recently completed a study to determine the physiological and/or chemical basis of vegetable soybean that could serve as reliable indicators in predicting the proper stage of harvest; to develop vegetable soybean with large seed size, high seed yield, and with desirable agronomic traits and nutritional values; and to identify vegetable soybean cultivar ideotypes that fit into mechanical harvesting.

West Virginia State University

Societies worldwide produce large quantities of waste organic matter. This material arises from human population growth, industrial byproducts, and agricultural sources, such as animal farms. The overall goal of the environmental microbiology program at West Virginia State University is to understand the fundamental microbial processes that produce anaerobic digestion and to apply this knowledge to improve the control and performance of anaerobic digesters. The scientists found that the organic waste bioconversion process can also transform agricultural industrial organic wastes into a valuable agricultural commodity (fertilizer) and renewable energy (methane).

1890 Extension Formula

The following represents results and impacts for the 1890 Extension Formula from activities that occurred between June 2003 through June 2005.

Delaware State University

The Delaware State University 's Cooperative Extension staff annually participates in Coast Day at the University of Delaware Marine Sciences Lab in Lewes , DE. Information is provided to several thousand people who attend. Media presentations and demonstrations provide

information on feeding, diseases, and management for aquacultural species, including oysters, crayfish, and smallmouth bass.

Kentucky State University

Kentucky State University aquaculture researchers and extension specialists assist catfish farmers in western Kentucky who have more than 400 acres stocked with catfish. A local Aquaculture Cooperative operates a processing plant with an average of 30,000 to 40,000 pounds of catfish processed each week. These farmers are expected to supply more than a million pounds of catfish in one year.

North Carolina A&T State University

North Carolina A&T State University provides educational resources to improve farm business management skills so that limited-resource, small and part-time farmers can increase their incomes from direct marketing. The program is designed so that program participants learn through practices, discussions, role play, planning, and implementation. It monitors and reports results and uses evaluation for constant program improvement.

South Carolina State University

The Extension Beef Cattle Improvement Project (BCIP) at South Carolina State University has provided assistance to 111 small beef cattle producers in production, improving bloodline, marketing, decision making, and risk and enterprise management. One hundred eighteen heifers and 18 bulls have been placed on limited-resource farms to date. Ninety-two farmers are enrolled in this initiative. Fifty-eight families have been assisted through the animal Pass-on-Project, with 62 heifers and 3 bulls being passed on to these families. The BCIP participants can effectively compete on the beef cattle market. The top 10% of these participants receive premium prices for their products. The most important accomplishment is that participants have increased their knowledge of quality production (breed selection to improve their bloodline) and, as a result, have increased their farm income by 40 percent to 50 percent.

1890 Facilities Grant Program

The following represents results and impacts for the 1890 Facilities Grant Program from activities that occurred between June 2003 and June 2005.

Delaware State University

The Claude E. Phillips Herbarium is a 3,672 square foot building completed in 1999. The Herbarium is the largest at a historically black college or university. With approximately 106,000 specimens, it ranks 87th out of 525 herbaria in the United States and is an active center for

education and research. It includes native and cultivated plants that are pressed, dried, and mounted on archival paper as well as some pickled plant specimens. The facility encloses special holding cases in a climate-controlled environment. Scientists, gardeners, educators, students, physicians, and lawyers regularly consult these holdings for identification and education.

North Carolina A&T University

The Cooperative Extension Program at North Carolina A&T State University faced many new challenges as it moved into the new millennium. The extension program, as well as the academic and research programs, needed to address such challenges as sustainable agriculture and its effect on the environment, biotechnology and its applications to the food chain, burgeoning information technologies, economic revitalization of rural communities, and increased accessibility to international markets. Facilities needs had to be addressed to plan for meeting these challenges. Coltrane Hall, headquarters for the Cooperative Extension program, was constructed in 1951. With funds from NIFA, the university developed and executed plans for construction and renovation of Coltrane Hall. The first floor was renovated, and a second floor added on top of the original first floor, using an open space design. Footage for the second floor equaled that of the first floor - 11,521 square feet. The second level features a building face of smoked glass.

Prairie View A&M University

Before receiving the facilities funds, agricultural research at Prairie View A&M University was conducted in facilities built in the early 1940s and 1950s that were designed primarily for teaching. The E.B. Evans Animal Industries building, a 28,000 square foot facility built in the early 1950s, served as the primary Agriculture Teaching and Research facility. This facility did not have the size nor proper design for research, and an inadequate electrical system, poor ventilation, and outdated plumbing could not accommodate state-of-the-art research equipment. Therefore, faculty/research scientists were hampered in their efforts to carry out effective research projects. The funds received were used to construct a new state-of-the-art research laboratory, along with several auxiliary buildings. The Jesse H. and Mary Gibbs Jones Building, completed in 1988, serves as the primary research laboratory for research in the food and agricultural sciences, as well as headquarters for the Cooperative Agricultural Research Center. Auxiliary buildings built with these funds include a poultry complex, a swine complex, a feed mill, greenhouse/headhouse complex, and state-of-the-art laboratory equipment and furnishings.

Southern University

Southern University has completed two facilities. The Ashford O. Williams Hall is a two-story, 55,160 square foot building consisting of more than 45 offices and cubicles to house the research and extension faculty, staff, and administrators; telecommunication equipment with graphics, television, and distance learning components; and more than 20 research labs. The Maurice A. Edmond Livestock Arena has more than 58,943 square feet consisting of a regulation horse ring

and swine, sheep, and beef cattle stables. These facilities greatly enhance the capability to conduct research and extend extension programs.

Tennessee State University

Facilities funds at Tennessee State University have been used to renovate an old dairy barn into a contemporary agricultural research and extension complex of 46,220 square feet. The complex provides a multi-purpose meeting room, Docu Tech printing area, storage rooms, first and second floor conference rooms, and offices. This modern facility has enhanced the planning, implementing, and evaluating of educational programs, increased technology for extension program delivery, and increased programming and program visibility among decision makers, stakeholders, and clientele groups. The university's educational programs in agriculture and natural resources, community resource development, 4-H and youth development, and family and consumer sciences have been made more visible, allowing the university to serve a larger clientele base.

University of Maryland - Eastern Shore

The swine facility at the University of Maryland Eastern Shore was constructed with NIFA facilities funds. Research conducted there involves growth, reproduction, and meat quality. The facility includes a 60-sow, total confinement farrow-to-finish unit that includes a metabolism room with crates adaptable for swine, sheep, and goats and other rooms that can accommodate the individual housing and feeding of swine, sheep, or goats as necessary for many experiments. All sows are bred using artificial insemination. Pregnant sows are group-housed in a large pen serviced by a computerized sow feeding apparatus. The facility includes a surgery suite used for hormonal studies to improve reproduction efficiency. The facility has had a positive impact on the Maryland eastern shore farming community. Research results have been generated and disseminated through field days, conferences, workshops, extension bulletins, and scientific journals. The construction of this facility and its equipment provided the necessary infrastructure to engage not only in cutting-edge research, but it provided the resources to enhance undergraduate and graduate courses in biotechnology and molecular biology. The facility also was an attraction for the support from the swine industry and allowed the university to partner with that industry and other agricultural constituents in research, teaching, and outreach activities.

Contributions from the 1890 Land-Grant Universities to solving challenges faced by farmers, landowners, youths, and the American public continues to improve quality of life.

Mr. Chairman, from 1970 to 2005 the population of the world increased by 2.75 billion people, a 74% increase. In 1950, only eight countries had a population of 50 million people. By 2030, the United Nations estimates that 33 countries will have populations in excess of 50 million.

According to a Farm Foundation Issue Report entitled, “Agriculture Research and Productivity for the Future,” commodity yields in the United States are increasing at a much lower rate in the period after 1990 than when compared to the period between 1950 and 1989. At the same time the farm productivity orientation of public research and development in the United States dropped from 68% in 1985 to 57% in 2006/2007.

Agriculture represents only 1.8% of the nation’s Gross Domestic Product, but it accounted for more than 12% of total productivity growth in the United States’ economy between 1970 and 2004. Our competitors are not sitting idly by. Between 1981 and 2000, China’s share of the world publicly funded agricultural research grew from 4% to 9%. In the same time period, the United States’ share grew from 18% to 19%.

Today, the National Institutes of Health spends \$120 on competitive research for every dollar spent by USDA.

While NIH funding is greatly needed, we believe that funding agricultural research, education and extension is as important if not more so. After all, we only feed fuel and clothe the world. Isn’t an investment in research that solves the causes of problems – obesity, malnutrition, air and water quality, and carbon emissions to name a few – a better investment than research aimed at the addressing the result of those problems?

We appreciate the long support that this committee has shown for agricultural research, extension and higher education at land-grant universities and especially the 1890 Institutions. We appreciate the opportunity to testify before you today and look forward to working with the committee in the development of the next Farm Bill.

**Committee on Agriculture
U.S. House of Representatives
Required Witness Disclosure Form**

House Rules* require nongovernmental witnesses to disclose the amount and source of Federal grants received since October 1, 2007.

Name: Dr. Mark Latimore, Jr.

Address: 1005 State University Drive – Fort Valley, GA 31030

Telephone: (478) 825-6327

Organization you represent (if any): College of Agriculture, Family Sciences and
Technology - Fort Valley State University

- 1. Please list any federal grants or contracts (including subgrants and subcontracts) you have received since October 1, 2007, as well as the source and the amount of each grant or contract. House Rules do **NOT** require disclosure of federal payments to individuals, such as Social Security or Medicare benefits, farm program payments, or assistance to agricultural producers:**

Source: _____ **Amount:** _____

Source: _____ **Amount:** _____

- 2. If you are appearing on behalf of an organization, please list any federal grants or contracts (including subgrants and subcontracts) the organization has received since October 1, 2007, as well as the source and the amount of each grant or contract:**

Source: U.S. Department of Agriculture **Amount:** \$19,493,837.00

Source: _____ **Amount:** _____

Please check here if this form is NOT applicable to you: _____

Signature: 

** Rule XI, clause 2(g)(4) of the U.S. House of Representatives provides: Each committee shall, to the greatest extent practicable, require witnesses who appear before it to submit in advance written statements of proposed testimony and to limit their initial presentations to the committee to brief summaries thereof. In the case of a witness appearing in a nongovernmental capacity, a written statement of proposed testimony shall include a curriculum vitae and a disclosure of the amount and source (by agency and program) of each Federal grant (or subgrant thereof) or contract (or subcontract thereof) received during the current fiscal year or either of the two previous fiscal years by the witness or by any entity represented by the witness.*

PLEASE ATTACH DISCLOSURE FORM TO EACH COPY OF TESTIMONY.