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Testimony of Jessica M. Bailey

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for

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Testimony on the request to the Task Force for \$37 MILLION EACH YEAR FOR FIVE YEARS IN THE AREAS OF MOTIVATING AND EDUCATING STUDENTS FOR ACHIEVEMENT; INNOVATIVE AND SUSTAINABLE SMALL FARMERS, RANCHERS AND LANDOWNERS; AND INTERNATIONAL ENGAGEMENT AND DEVELOPMENT before the U. S. House of Representatives for the Committee on Agriculture July 13, 2015.

Chairman Conaway, Ranking Member Peterson and members of the House Committee on Agriculture. My name is Jessica Bailey and I serve as the Interim President of Fort Valley State University.

It is indeed an honor to be here along with my fellow colleagues to testify on the impact of United States Department of Agriculture (USDA) funding on 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 of 1890. The school's College of Agriculture, Family Sciences and Technology offers undergraduate programs in 8 areas and graduate programs in Animal Nutrition, Reproductive Biology, and Animal Products Technology, Plant Biotechnology, Animal Biotechnology and Applied Biotechnology.

Thank you for the opportunity to share our work and offer insights into how USDA funding received via EvansAllen Program, 1890 Institutions Extension, 1890 Capacity Building Grants, McIntire-Stennis Cooperative Forestry, Cooperative Extension, Teaching Grants, and other research grants has been impactful and how, if enhanced, we could be even more effective.

With regards to **USDA Strategic Goal 1, assisting rural communities to create prosperity so they are self-sustaining, re-populating, and economically thriving**, FVSU has

supported development, production and consumption of renewable energy and bio-based products. The National Institute of Food and Agriculture (NIFA) states the importance of sustainable bioenergy describing it as “valuable to the nation’s ability to create new jobs and promote rural prosperity”. USDA Federal funding has helped FVSU address the challenges in the production of sustainable bioenergy.

Additionally, FVSU researchers have been working on developing a sustainable bioenergy system using *Paulownia elongata* trees as an alternative fuel. Our current research indicates that there is immense potential for Paulownia as a bioenergy crop for farmers and growers in the southeastern United States. Our preliminary studies indicate that Paulownia can be harvested as a short rotation tree crop after 18-20 months for the production of ethanol or bio-gasoline and for timber in a 7-8 year rotation.

FVSU and Oklahoma State University are also evaluating sweet sorghum as a potential renewable energy crop for ethanol production. This high carbohydrate producer crop can be cultivated on marginal lands, has low input requirements and is adapted to nearly all temperate climates.

Several power generation companies have visited our experimental research farm to see the potential application of our bioenergy research in moving toward biomass-based power generation. We have introduced biodiesel processing basics to over 500 4-H and FFA students in Georgia with one high school student winning a county-wide science fair and competing in an international science fair.

Fort Valley State University has been able to educate over forty low to moderate income families on Energy Audits and to distribute energy related publications to over 240 Georgians through its Project GREEN, which stands for Georgia Residential Energy Efficiency Network.

Through the GREEN Project, residents received 12 free energy audits providing for an additional savings of \$4,800.00, 14 free energy kits that provided an energy efficiency saving of \$20,007.68, and 484 CFL's were distributed to Georgia residential homes resulting in a \$32,525.00 energy efficient equipment cost savings. FVSU also partnered with the Middle Georgia Community Action Agency to perform weatherization upgrades valued at more than \$10,000 for eligible senior citizens.

Additionally, FVSU has initiated an investigation on the use of forestry woods and energy crops (switchgrass) as renewable energy sources for power generation through combustion for greenhouse heat. In fulfilling Objective 1.1 of enhancing rural prosperity, including leveraging capital markets to increase government investment in rural America, FVSU has provided Stronger Economies Together training to Georgia's designated SET teams. As a result of the SET training both teams received approximately 40 hours of technical assistance to aid them in the development of their high quality plans to address an aspect of their region's community and economic development deficiencies. The teams' coverage area encompassed 24-counties, of which approximately 96% are designated as StrikeForce counties.

Another objective of USDA Strategic Goal 1 is to protect the foundation of the Agricultural System. In order for this to happen, the nation must recruit and train a new generation of agricultural scientists and also increase the number and diversity of students entering the agricultural and food sciences fields. Fort Valley State University is involved in this effort in many ways.

Through one grant, FVSU has increased awareness of career opportunities in food and agriculture among high school students in Georgia and increased the number of minorities in the agricultural economics professional workforce by providing undergraduate agricultural

economics students the opportunities for professional development which translates into higher retention rates and higher graduation rates. Results of this program included one FVSU agricultural economics major being on the second place team at the Southern Agricultural Economics Association quiz bowl. Additionally two FVSU students won second and third places at the Biennial Research Symposium of the Association of 1890 Research Directors student paper competition.

Under another grant, FVSU is enhancing the number and quality of underrepresented populations in agricultural economics to satisfy the demand for highly qualified personnel in the workforce and in graduate education. Results during the first year included an enhanced appreciation for the scope of agriculture and participation in the MANRRS National Conference to further develop communication and professional skills and an enhanced understanding of the scope of agriculture.

A separate grant had as its objective to enhance the quality of animal science undergraduate and graduate degree programs by incorporating hands-on experience in molecular technologies in instruction. An additional goal is to expose K-12 students to agricultural biotechnology through mini-projects and workshops. Such students with practical experience in molecular technology will be better prepared to a) make career decisions, b) pursue graduate studies and, c) seeking employment in industry, academia and government agencies. As a result of this program, an 8th grader from Fagan Mill Middle School in Houston County conducted a research project entitled, "Plasmid DNA transformation in E. Coli: effect of microwave on transformation efficiency". The student received first prize for his project in a regional science fair and was selected for the Georgia State Science Fair at the University of Georgia where he

also received two prizes. Workshops have been conducted at local high schools to inspire students to major in Ag biotechnology.

A grant whose goal is to empower youth by assisting them in developing leadership, career and interpersonal skills will include a summer weeklong tour of agribusiness firms, government agencies, and 1862 research institutions. After completion of the 8 month program students will be expected to apply for summer research internships with 1862 and 1890 institutions, governmental agencies or industry.

Another of FVSU's projects aims to increase recruitment and retention of minorities in veterinary medicine at all levels. FVSU offers the only accredited Bachelor of Science degree in veterinary technology in the University System of Georgia, and the only accredited Veterinary Technology Program at a Historically Black College and University.

In an additional future grant, FVSU aims to enroll and graduate at least 15 students in agricultural biotechnology at FVSU through systematic and proven outreach to local high schools focusing on underrepresented students. The project will advance the institution's and NIFA's missions to recruit, retain and graduate higher numbers of professionals in plant biotechnology.

FVSU has submitted and been permitted to develop a proposal for a Food Science BS program. While we are awaiting final approval, the establishment of this new Food Science program was recommended by the project evaluation committee at the beginning of this funded teaching project.

Our US-Honduras partnership has the goal of strengthening global competence of students and faculty in food and agricultural sciences, expanding their global awareness in a

Central American culture, and introducing them to a new global vision through collaborative partnerships with Honduran institutions.

As a result of all of these grants FVSU has been ranked #11 in producing agricultural undergraduate degrees; #28 in producing electronic engineering technology undergraduate degrees; and #47 in producing family and consumer science undergraduate degrees for persons of African-American descent. FVSU is also ranked #34 in producing agricultural undergraduate degrees for all minority races. In graduate programs, FVSU is ranked #25 in producing graduate degrees for persons of African-American descent, in the biological and biomedical sciences programs, which would include our graduate programs in public health, animal science and biotechnology.

With regards to **USDA Strategic Goal 2**, to ensure our national forest and private working lands are conserved, restored, and made more resilient to climate change, while enhancing our water resources, one of the objectives that helps accomplish this goal is through the improvement of the health of the nation's forests, grasslands and working lands by managing natural resources. Of Georgia's 24.7 million acres in forestland, nearly 18 million acres are owned by private non-industrial landowners. Timber is the highest valued vegetative crop in Georgia. Georgia's forest resource creates a 12.7 billion dollar direct economic impact in the state.

FVSU's Cooperative Extension Program is collaborating with the University of Georgia Cooperative Extension Service, USDA Rural Development, USDA Forest Service and other agencies to address the issues of minority forest landowners not receiving any technical assistance and/or information that will assist them in their operation of maintaining and managing their forestlands to maximize their operation's income. The impact of this program is

an increase in the overall knowledge of 350 landowners in the following topic areas: wills and estate planning, timber management and marketing, USDA cost-sharing programs, wildlife management, and land management including surveying. Additionally, factsheets on the Tree Assistance Program have been developed and distributed throughout the FVSU Extension 30-county area.

Landowner Initiative for Forestry Education or (LIFE) Program resulted in twenty workshops being conducted for more than 1,300 landowners. FVSU hosted 10 estate planning clinics, which resulted in 45 estate plans saving Georgians over a quarter of a million dollars and succession plans involving \$33 million in homes and assets.

In relation to **USDA Strategic Goal 4**, which is to ensure that all of America's children have access to safe, nutritious, and balanced meals, FVSU has promoted healthy diets, physical activity, and the improvement of access to nutritious food. A key priority of NIFA is addressing the causes of obesity and finding effective interventions. We believe that if we can address the obesity problem in children, then we will have healthier adults. FVSU, as part of the Expanded Food and Nutrition Extension Program (EFNEP), is helping parents feed their children healthier meals and snacks, save money on food and reduce the risk of food-borne illnesses. Nutrition education is also provided to youth ages 4 through 18. **USDA Evans-Allen Funding** has helped FVSU develop economically viable nutritional strategies that result in healthier goat products and sustainability of small goat farms. The impact of this work is that dairy goat farmers can replace a large amount of corn with smaller amounts of soybean oil in goat diets to produce milk with a healthier fatty-acid composition.

The FVSU 4-H program has engaged 3,000 youth in healthy living activities resulting in improvement of dietary choices, improvement of attitudes toward and understanding of healthful

foods, increased willingness to try new nutritional foods, increased understanding of the elements of sound nutrition and daily caloric need versus physical exercise, and increased participation by the family in eating together. In 2014, the FVSU 4-H program also engaged 12,543 youths in experiential learning opportunities in an effort to increase their knowledge, skills, competencies, and experiences. The impact of the Program resulted in raising enough money to contribute to rebuilding a fire damaged local library and gaining national recognition. Also, FVSU is in the process of creating a Mobile Food and Nutrition Unit that will expand our food safety, nutrition and health education outreach programs. This is in addition to our on campus facility that supports teaching, research and extension programs.

Fort Valley State University works with farmers in order to reduce infection by gastrointestinal nematodes that threaten the economic viability of the farmer and the health of the sheep or goat. Because of the work of Fort Valley State University and a consortium of others, farmers have greatly improved the sustainability of their sheep and goat production systems through the use of *sericea lespedeza* and other condensed tannin-containing plants. This has helped farmers reduce synthetic drug usage by up to 90 percent which saves approximately \$150-\$200 per 100 animals per year and identify and retain parasite-resistant breeding stock. Anemia detection has also been made easier for sheep and goat producers because of work of the consortium.

Fort Valley State University researchers have demonstrated the use of non-thermal technology for the destruction of *E. coli* on goat carcasses and continue to evaluate cost-effective pathogen reduction strategies and food safety training for small and very small meat processors in Georgia. The impact of this project to Georgia's agriculture is the enhanced safety and marketability of meat products through the improvement of processing intervention treatments or

a combination of treatments applicable to small and very small processors and an increased knowledge of food safety practices.

Fort Valley State University is researching the sustainability of the dairy goat industry and limited resource dairy goat farmers through the development of goat milk infant formula, reduced fat and reduced cholesterol goat cheeses and yogurts, iron fortified and CLA enhanced goat cheeses. Additional federal funding is allowing the development of nutritionally enhanced small ruminant meat and dairy products with high levels of antioxidants and longer shelf stability.

FVSU Agricultural Research on winter cover crops based dry land and irrigated farming systems for the production of field and vegetable crops has contributed to increased use of winter cover crops in the cultivation of important cash crops, such as cotton and corn in Georgia. More than 35 years of FVSU research on peach tree short life and rootstock has accomplished a wider understanding of biotic and abiotic stress factors responsible for reducing tree survival, orchard longevity, and fruit production. FVSU's biotechnological investigations, involving development of in vitro plant regeneration protocols amenable to genetic enhancement, indicates that peach is a highly recalcitrant species.

To provide support to beginning farmers and ranchers in agriculture and to improve outreach and communication to military veterans about farming and ranching opportunities, FVSU has conducted three quarterly workshops impacting Georgia's Strikeforce counties that have engaged 245 participants on USDA programs, GAP/GHP certification, organic and sustainable food production, conservation and assistance available from USDA and local farm support agencies. FVSU has several agreements with USDA agencies to assist beginning

farmers and small and limited resource farmers. FVSU also provides technical assistance to underserved farmers in the development of farm conservation plans.

Additionally, the 2014 Farm Bill provides support for conservation practices. FVSU research has demonstrated that cover crops improve soil quality by increasing soil organic nitrogen and carbon composition, and can also enhance spring soil microbial activity essential for release of nutrients for a subsequent summer cash crop. County extension agents serving 34 counties (primarily Strikeforce Counties) assist small and limited resource farmers, as well as veterans and ranchers in a variety of ways. Family and Consumer Science Agents afford homeowners opportunities relating to safety, food preparation, and nutritional planning.

FVSU has an 18 acre organic farming system where farmers are exposed to organic tree, shrub and vine fruit growing, organic barrel gardening, organic small plot gardening, organic hoop house gardening, and organic animal production. We have year-round breeding of goats, genetic manipulation in goats that can lead to production of goats with larger muscle mass, year-round marketing of dairy goat products and recognition from the American Dairy Science Association. Sheep breed evaluation resulted in the establishment of additional flocks of sheep in the Southeast. Meat/goat/buck performance testing by our researchers in studying growth and muscle development, internal parasite tolerance, behavior, and reproductive capacity of bucks of different breeds has created an awareness of the importance of using scientific data, in addition to physical appearance of animals, in selection programs. FVSU work has helped producers understand the extent of genetic differences within a herd and its relationship to performance.

The Georgia Small Ruminant Research and Extension Center (GSRREC) at Fort Valley State University (FVSU) is the largest such facility 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 visit the facility from all over the world.

Our Mobile Information Technology Center educates communities on recordkeeping and accessing USDA information on the web. It is also used to assist in providing services to veterans and others who need to utilize technology to access government services via the web. Additionally, working with the State Health Insurance Assistance Program and the Senior Medicare Patrol, we have saved Georgians more than five and a half million dollars.

Life on the Farm (LOTF) is a live animal mobile exhibition providing firsthand knowledge of farm life and how it affects each person on a daily basis. The Life on the Farm educational program is presented throughout the state at locations such as schools, daycare centers, public libraries, churches, town festivals, fairgrounds and other public meeting places. Life on the Farm completed 50 visits to sites in 18 different cities. Across Georgia, 6474 youth and 1154 adults participated in the Life on the Farm experience.

We appreciate the long-running support that this committee has shown for agricultural research, extension, and higher education at Fort Valley State University. A continuation of funding for Fort Valley State University will allow the university to (1) contribute significantly to the United States being a world leader in the production of bioenergy and at the same time provide a source of revenue for small and limited resource farmers and ranchers (2) improve the economic viability of rural families through reducing energy consumption and an diversification of agricultural products, (3) increase the number of students of color into the agricultural industry while also offering these students the global knowledge and skills necessary to operate in today's global economy, (4) increase the nutrition, diet and health of limited-resources families with an emphasis on reducing obesity, (5) enhance 4-H and youth skills in science,

technology and math, (6) improve technology proficiency for farmers, senior citizens, youth and other rural Americans, and (7) provide education opportunities for landowners in sustaining and/or increasing their land productivity. These are things we have done and will continue to do.

But our service to the state of Georgia and to this nation can expand with your increased assistance. It will enable Fort Valley State University to become a unique showplace as a demonstration farm for small farmers and ranchers who are resource constrained. Small and limited resource farmers make up a majority of the farms in the United States. In the southeast, many of these farmers are former tobacco producers, interested in growing other high-value crops for better long-term economic stability. Many farmers, both organic or conventional, are concerned about energy costs, fertilizer costs, soil management, water use and quality, invasive species management, alternative pest control methods, climate change, and the production of crops on their farms. Developing integrated agriculture production systems (plant and animal) which address these factors for small-scale producers and entrepreneurs would greatly benefit farmers in rural and economically depressed regions of the United States. FVSU's goal is to develop an integrated plant and animal agriculture production system as a model for small-scale producers and entrepreneurs to improve sustainability in these regions.

With increasing fertilizer costs and environmental consequences of nutrient runoff, developing low cost sustainable nutrient management systems is important for limited resource farmers not only for cost savings, but for environmental stewardship. In order to create a dynamic nutrient cycling system for sustainable/organic small farm production integrating plant and animal systems, FVSU could establish a 50-acre demonstration farm to 1) identify agricultural waste for compost and feeding for soil nutrient management and animal production, 2) develop safe and sustainable effluent and aquaponic systems with vegetable crops and an

aquaculture species, 3) develop a sustainable forage-based small ruminant management practice, and 4) assess the economic sustainability of the proposed integrated system of production. By combining plant and animal systems, agro-diversity and profitability will be optimized by creating year-round income for small producers, dynamic food webs, and nutrient systems with high-value crops in economically depressed regions. Additionally, food produced on this model farm will be served at our campus dining establishments, which will contribute to developing a campus culture that promotes sustainable foods and environmental stewardship. Last, FVSU will be making a contribution to helping the US incrementally fortify its status as the world leader in agricultural innovation.