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Friends and Colleagues:

I am proud to present to you the second annual edition of the FVSU Research Report. This outstanding, award-winning publication highlights the brightest contributions of our leading scholars, researchers who are engaging in cutting-edge research and creative expression within the humanities or else extending the boundaries of scientific knowledge through world-class experimentation.

This fine report already is receiving acclaim. Recently, the Association for Communication Excellence, an international collective of writers, educators and information technologists, awarded the inaugural issue of the FVSU Research Report two silver awards: one for graphic design, and another for technical publishing. It certainly is fitting that I recognize the FVSU Research Report editorial and design team-including Publications Editor Ayanna McPhail and Agricultural Communications Interim Director Marquinta Gonzalez-for their hard work in conceiving and executing this most-helpful project. Suffice it to say, I congratulate them for their well-deserved recognition.

Inside this report, you will learn about the life-changing scholarship currently being conducted at The Fort Valley State University. Readers will learn about an FVSU farm where agricultural researchers are discovering holistic, organic methods for the commercial production of fruits and vegetables. This new edition also features an FVSU entomologist and Fulbright Specialist who is exploring environmentally friendly ways to control pests that attack peanut crops, aiming to find solutions other than harmful pesticides that can damage our fragile ecosystem and negatively impact human health. Other stories spotlight our dynamic researchers developing cost-efficient bio-ethanol and energy methods that, in the future, can lower high fuel prices and save commuters money.

I take personal pride that the editors have included a peek at my latest work, “Rebels and Runaways: Slave Resistance in Florida.” It provides an in-depth, historical overview of the ways large and small that enslaved men, women, and children living in the “Sunshine State” resisted the “peculiar institution” that shackled their lives and bodies but not their souls.

In conclusion, we hope that you take the time to explore the fantastic achievements of FVSU’s researchers as they are revealed within the pages of this report. We believe in our standout, bold and amazingly prepared faculty as its members continue to reach for knowledge that will impact positively in Georgia, our nation and, hopefully, all of humanity.

Sincerely,

Larry E. Rivers, D.A., Ph.D.
This issue of the FVSU Research Report from the College of Agriculture, Family Sciences and Technology at Fort Valley State University highlights some important initiatives designed to further the research agenda of the university. Topics in this issue include a grant to support research relative to bioenergy, a medicinal plant that can potentially eradicate illness, a professional writing workshop to assist FVSU students in developing their writing skills, and a pest that is threatening peanut production, a crop that has been, and continues to be, a significant contributor to the state’s economy.

We hope that you are both informed and entertained by this issue of Research Report.

Sincerely,

Govind Kannan, Ph.D.

From the Dean

The Agricultural Research Station at FVSU continues to address issues faced by small-scale farmers and the citizens of Georgia through applied research. Despite funding challenges, our researchers strive to best accomplish our mission with available resources.

We are excited about the approaching tenth anniversary of the American Consortium for Small Ruminant Parasite Control. As the lead institution of this consortium, we are very proud of the contribution made by this group to sustainable small ruminant production around the world.

With Georgia being the “Peach State,” it is disheartening to see peach production in the southeastern U.S. drastically decline over the years as the industry faces several production-related problems. The most challenging setback appears to be the Peach Tree Short Life Syndrome. We have placed more emphasis on our peach research now to tackle this challenge and assist producers with reviving peach production in the region.

Support from the Georgia Department of Agriculture has also enabled us to initiate research on stevia, a plant used to produce a sugar substitute that does not elevate blood sugar levels. The objectives of this research are to: 1) determine the cost-effectiveness of direct seeding versus transplanting methods and intercropping stevia with fruit and tree nut species, and 2) monitor and increase the concentrations of sweetness-attributing components in stevia leaves.

Greater things can be expected from our institution with the continuing support of our stakeholders. I hope you enjoy reading this issue of the FVSU Research Report.

Sincerely,

Julius E. Scipio, Ed.D.
USDA Grant Being Used for Bioenergy Research

Energy Cane
Fort Valley State University received a million-dollar grant to study whether tall perennial grasses can help reduce greenhouse gasses, while earning additional money for farmers who may sell biofuel feedstock.

With research funding of approximately $1 million for five years by the U.S. Department of Agriculture’s National Institute of Food and Agriculture agency, under the Agriculture and Food Research Initiative Bioenergy Program, Fort Valley State researchers are leading a collaborative research program. They are working with USDA-Agricultural Research Service representatives in Tifton, Ga., and Sidney, Mont. Fort Valley State is also teaming up with the University of Georgia at Athens to see how high biomass-producing perennial grasses, elephant grass and energy cane fit into the national priorities of energy independence and greenhouse gas reduction.

Two identical experiments with elephant grass and energy cane have been established at Fort Valley State and Tifton, and the emission of carbon dioxide and nitrous oxide from the soil is monitored throughout the year by taking air samples once a week from the chambers installed in the field and then analyzing their concentration in a gas chromatograph. The soil carbon content, up to 3 feet depth, is collected in increments during the fall, which is at the time of grass harvest. It’s also collected in the spring during the initiation of growth and when its nitrogen content is determined by a carbon-nitrogen analyzer. Grass biomass is estimated by weighing the dry matter at harvest and carbon content is measured by the carbon-nitrogen analyzer. The net balance carbon dioxide equivalence, output of carbon dioxide and nitrous oxide from soil and input of carbon dioxide into the soil and in biomass by the two grasses is derived from these numbers.

Nitrogen fertilizer is the largest one item expenditure of growing perennial grasses. In this research the possibility of partially or fully substituting nitrogen fertilizer with the organic nitrogen fixed by winter legume cover is being tested. Crimson clover, hairy vetch and lupine are the legumes that have proven through earlier research to grow best in the Southeast and thus are being evaluated by planting them between the rows of elephant grass and energy cane.

In this research, the analysis of life-cycle economics will be undertaken to help growers decide whether to incorporate biofuel feedstocks into their farm plan. In addition, a life-cycle analysis of carbon dioxide is part of the study to quantify sequestration by the cropping system which is a requisite for carbon trading.

Fort Valley State researchers are not new to growing perennial biofuel grasses. They have obtained reliable yield estimates for elephant grass, energy cane and giant reed from multi-year trials. They have also studied the dual use of elephant grass for animal feed and biofuel feedstock. These studies have concluded that energy cane is the highest yielder in the Georgia climate followed by elephant grass and giant reed, respectively. Once-a-year harvest of elephant grass produces the highest feedstock yield but can be combined with early harvest for livestock feed in an integrated operation.

Basing its decisions on the findings of the collaborative team and research done in Louisiana, Vercipia Biofuels, a subsidiary of BP Oil Company, is constructing a cellulosic ethanol plant in Florida scheduled for completion in 2013. It will rely on elephant grass and energy cane for feedstock.

Dr. Bharat P. Singh at Fort Valley State is directing this research project. Drs. Hari P. Singh, Wayne F. Whitehead and Ajit K. Mahapatra are other faculty members on the research team. Outside collaborators are Drs. William F. Anderson, Richard R. Lowrance and Robert K. Hubbard from the USDA-ARS in Tifton, Ga. In addition, Dr. Upendra M. Sainju from USDA-ARS, Sidney, Mont., and Dr. Sudhagar Mani from the University of Georgia are part of the team effort.

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Agricultural crops grown to produce biofuels are known as “feedstocks” and there is no better feedstock crop for biofuel production than sweet sorghum. Sweet sorghum is appealing on several fronts explains Dr. Mark Latimore Jr., professor of soil science at Fort Valley State University, “It doesn’t require additional irrigation so you can save money on irrigation. It doesn’t need as much nitrogen as corn; 40 to 60 pounds (18 to 27 kilograms) of nitrogen per acre will provide a full crop of sweet sorghum.” He also noted that one pound of nitrogen is necessary for each bushel of corn produced. Sweet sorghum matures within 100 to 120 days, while it takes an initial sugarcane crop one year to mature.

Sweet sorghum grows 10 to 15 feet (3 to 4.6 meters) tall during a growing season. The taller the plant the thicker the stalk, which means it will yield more juice. The stalks of sweet sorghum plants have sugar-rich juice in them. The stalks contain up to 75 percent juice with between 12 and 23 percent sugar. They can be crushed and the crop’s stem juice can be fermented into ethanol. There’s enough juice
in an acre of sweet sorghum to make 400 to 800 gallons (1,500 to 3,000 liters) of ethanol. The crushed stalks after the extraction of juice can also be used as animal feed or as organic soil amendment. “We plan to evaluate the potential of sweet sorghum as an ethanol-producing crop for Georgia,” Latimore said.

Research at FVSU will involve evaluation of in-field production of ethanol from sweet sorghum. “Due to seasonal production of the feedstock, it may be more cost effective to carry out ethanol fermentation in-field rather than transport the entire biomass to a central processing facility,” said Dr. Ajit K. Mahapatra, assistant professor of food and biosystems engineering at FVSU. Field trials will be conducted at the FVSU farm to maximize production capabilities of sweet sorghum in Georgia, and the various factors that affect the efficiency of fermentation of sweet sorghum juice will be investigated. This research is made possible through a U.S. Department of Agriculture/National Institute of Food and Agriculture Capacity Building Grant awarded to FVSU and a sub-contract to Oklahoma State University.

“Producing ethanol from sweet sorghum is relatively easy,” said Dr. Danielle D. Bellmer, associate professor of biosystems engineering at Oklahoma State University in Stillwater, Okla. To transform sweet sorghum into biofuel, stalks are harvested and crushed to extract the juice. The juice is then fermented to ethanol and the resulting liquid is distilled into pure ethanol. The ease of ethanol production from sweet sorghum could lend itself to on-farm biofuel production.

Mahapatra spoke to attendees at the 2011 American Society of Agricultural and Biological Engineers (ASABE) Annual International Meeting in Louisville, Ky. He discussed the unique properties of sweet sorghum, different approaches to converting stem juice into ethanol, fermentation techniques and technical challenges of using sweet sorghum for biofuels.

Sweet sorghum typically yields 14 tons of biomass per acre and requires half the water that sugarcane requires. Sweet sorghum also wouldn’t interfere with food production because it can be grown on marginal land. It’s also drought and high temperature stress tolerant. “Growers of sweet sorghum will economically benefit from producing, as well as processing, the harvested crop to the finished product (ethanol) right on the farm,” said Dr. Bharat P. Singh, professor of agronomy at FVSU.

The key issue deals with the processing of sweet sorghum juice into ethanol, Mahapatra said, explaining that the directly fermentable sugars in the sweet sorghum stalk offer a challenge in that they are not as stable as compared with starch. After harvest, sweet sorghum sugars start breaking down within about 24 hours, forcing a rapid processing timeframe. “You need your ethanol production plant as close to the fields as possible,” Latimore said.

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Napiergrass: A Newly Emerging Sustainable Bioenergy Feedstock Crop for the Southeastern U.S.
Napiergrass (*Pennisetum purpureum* Schumacher) is a perennial grass originated from Africa. It became the most important grass species due to its high biomass yield, ease of propagation and management, high crude protein content and drought tolerance. Napiergrass is known to be used for fodder, soil regeneration and mulching. Also, another common use is for the manufacturing of paper pulp. More recently it has received considerable attention because of its ability to produce high amounts of biomass. This is significant because the current emphasis in the country is to select and develop production technologies for crops with cellulosic biofuel feedstock potential.

Small farmers in the U.S. typically practice mixed field crop production and animal husbandry. Fodder for feeding animals during fall and winter months is limited; thus, identifying plant species that can fill this deficiency is a research priority. A plant like napiergrass had not been considered previously for this purpose because most of its biomass is produced during the summer months. To keep the vegetative material young and high in nutrient value, grazing or repeated cutting is essential, slowing later growth. Napiergrass planted for energy feedstock is permitted to grow to maturity uninterrupted. Under Georgia climatic conditions, napiergrass for feedstock matures approximately six weeks before the frost date. The research team headed by Dr. Bharat Singh, an agronomist at Fort Valley State University, is investigating the feasibility of producing another crop suitable for fodder in the remainder of the growing season. Such a plausible arrangement will create a new source of farm revenue, as well as add supply of fodder, to benefit small farmers.

Dr. Hari Singh, an assistant professor at FVSU, is studying the research component related to genetics of napiergrass. The research team sees a great opportunity in using the highly diverse nature of napiergrass genotypes for its genetic enhancement and breeding programs. Also, there is limited information available about pedigree and collection of napiergrass accessions, which necessitates the need to study genetic diversity and relationships among species. A genetic map is available for crops like rice and sorghum but there is no genetic map available for napiergrass, which has become an obstacle in developing genetic tools to strengthen breeding programs for napiergrass.

Dr. Hari Singh and the team are also researching the potential use of genetic information from a closely related plant species that already has a genetic map made aware to the scientific community. FVSU researchers are determining the cross-species transferability of molecular markers developed from pearl millet and their utilization to screen napiergrass genotypes to assess the genetic variability. The research involves first comprehensive study involving more than 400 pearl millet molecular markers tested on napiergrass. Studies are underway to establish a working protocol for successful screening to reveal the genetic diversity among napiergrass accessions.

Preliminary results from the multicomponent analysis concluded that the climate in the southern U.S. is well suited for the production of napiergrass intended for biofuel feedstock. Also, findings suggest the genetic potential of napiergrass can be achieved through molecular breeding approaches. It appears that it would be possible to obtain a substantial herbage yield from the regrowth, and farmers engaged in mixed farming could benefit from this new fodder source during the period of autumn feed deficiency. However, the results need to be further validated before definitive conclusions can be drawn. In particular, additional data is needed to see how napiergrass harvested only once a year for feedstock would compare to the crop harvested twice a year for feedstock and fodder in terms of feedstock yield and longevity of planting.

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Taking a holistic approach to organic farming may be a more suitable way to produce fruits, vegetables and animals. Various practices are being used at Fort Valley State University, where faculty is using a diverse multiple-farming system. Organic techniques mentioned below are expected to create profitable marketing opportunities for the grower.

**Organic Tree, Shrub and Vine Fruit Growing** – Farmers who are interested in growing edible tree fruit and berries organically, without the use of toxic pesticides, can do so by selecting plant cultivars or varieties which are resistant to insects and diseases. Their selections should also be able to make use of nutrients (food) generated from organic matter placed around their roots.

**Organic Mini-Barrel Gardening** – A miniature organic barrel garden system is designed to produce small fruits and vegetables in 20 to 30-gallon size barrels. These mini-mobile size garden barrels are ideal for use in nursing homes as therapy for the elderly and disabled persons who are physically unable to work outdoors in a garden.

**Organic Small plot Gardening** – A small organic garden that’s 50 by 50 feet is the ideal size for a family of five or six people. Dr. James E. Brown, professor of horticulture at FVSU, says this size garden can produce a number of fruits and vegetables by utilizing certain table scraps. Also, animal and plant manures can produce a healthy crop of fresh edible foods.

**Organic Hoop House Gardening** – Growers who want to extend the growing season of their organic crops might be interested in producing crops in a hoop house. A hoop house is designed to extend the growing season, which can create more profits. This system focuses on the timeliness of planting and harvesting these crops, their benefits and their potential increase in profits compared to growing these same crops without the use of a hoop house.

**Organic Animal Production** – This system can be used to produce range-fed animals (cows, sheep and goats) that are raised without the intake of synthetic growth hormones, food proteins and other growth-promoting substances capable of producing food contamination and rapid and excessive growth. This system demonstrates the value of using different range-fed animal diets to produce animals without owners having to be afraid of food poisoning or contamination.

**Growing Vegetables on Plastic Mulch** – This type of system is used to produce vegetables by using different colors of plastic mulches and organic matter to promote fruit and vegetable growth, conserve fertilizer and soil moisture and control weeds.

Right: This organic farm at Fort Valley State University has many components used for research and training purposes.
Medicinal plants play a considerable role, not only as traditional medicines used across many cultures, but also as trade commodities, which meet the demand of often distant markets. *Scutellaria ocmulgee* is endemic to Georgia and *Scutellaria montana* is federally endangered. While the national germplasm conservation facility at Fort Collins, Colo., is a public facility, institutions and states need to compliment such facilities to ensure long-term conservation. Bianca L. Richardson, the first graduate from Fort Valley State University's Master of Science Biotechnology Program, conducted her thesis research on the conservation of *S. ocmulgee*.

Researchers at the university are using light and scanning electron microscopy to correctly identify closely related *Scutellaria* species, land races and ecotypes to help avoid the problem of adulteration in botanicals. The ex situ conservation research on *S. ocmulgee* and *S. montana* started with three potted plants of each species. Now there are more than 1,000 plants for each species in the greenhouse and tissue culture. This is quite an applied use of technology.

Researchers are maintaining 19 species of *Scutellaria* germplasm at Fort Valley State. On the basis of the findings, researchers have also shown significant inhibition of tumor growth by leaf extracts of four *Scutellaria* species via induction of apoptosis and cell cycle arrest in various cancer cell lines and in an animal model (rat). Cancer biology research is being conducted in collaboration with Wayne State University, which is a National Cancer Institute approved facility. In these studies *S. ocmulgee*, that is restricted to Georgia only, fared as the best *Scutellaria* species on the basis of induction of necrosis and apoptosis in the cancer cells.
Conserved and multiplied *S. ocmulgee* in full bloom at the Fort Valley State University greenhouse.
Scientists Take Biotechnological Approaches to Enhance Goat Meat Production

The United Nations (UN) predicts the world population will exceed 9 billion by the year 2050 and, therefore, has called for 100 percent increase in food production by this time. Furthermore, this food must come from the same land area as today. This increase in demand for food is unlikely to be met by traditional technologies including conventional animal breeding, which takes many years to transfer the desired traits. The UN Food and Agriculture Organization (FAO) estimates that 70 percent of this additional food should come from use of new technologies. Recent progress in reproductive technologies, including cell and molecular biology, has enabled scientists to introduce desired genomic modifications at single cell level. These modifications can subsequently be transferred in livestock through somatic cell nuclear transfer technology. It has a great potential to enhance meat and milk production as well as to improve biopharming (producing human therapeutic proteins in animal milk).

In recent years goat meat, milk and their products have received significant attention due to their better quality of protein and reduced-fat content. Goat meat is the only source of protein in many parts of the world. Goat meat consumption has increased in the United States, especially among immigrants. The indigenous production of goats is limited to small farms, especially in southern states. Much of the goat meat is still imported in the United States from New Zealand and Australia. To meet the global future need of animal proteins for food, it is imperative to look beyond the traditional breeding approaches.
Georgia Small Ruminant Research and Extension scientists at Fort Valley State University, in collaboration with Drs. Steve Stice of University of Georgia, David Donovan of U.S. Department of Agriculture Maryland, Anil Sharma of Mayo Clinic and Younis Abdelmoneim of Mercer University, are developing biotechnological approaches to enhance muscular mass (meat) to meet the future needs of the expanding goat meat industry. Their approach is to modify the myostatin (MSTN) gene in the goat genome. MSTN gene product, also known as growth differentiation factor (GDF8), is a member of the TGF-beta family of secreted proteins. It is shown to be involved in regulating muscle development in most animal species.

Mutations in the MSTN gene are known to be associated with double-muscling in cattle. Attempts to knockout or block the expression of the MSTN gene have resulted in enhanced muscular mass without any noticeable adverse effects in mice. The ultimate goal of these scientists is to test the possibility of enhancing muscular mass (meat) in goats by genetic manipulation of the MSTN gene. Earlier they identified previously unknown flanking DNA sequences of goat myostatin gene locus, enabling them to design a gene-targeting vector to introduce MSTN gene mutations in goat genome.

In continuation with those studies, in 2011 they established three fibroblast cell lines (GSF289, GSF737 and GSF2010) from ear skin explants of normal healthy goats of Kiko and Saanen breeds. Liquid nitrogen stocks of these frozen cells had a viability rate of 96.2 percent in in vitro cultures. These cells were morphologically indistinguishable from the cell stocks prior to freezing. Analysis of the growth of a fifth passage culture revealed an ‘S’ shaped growth curve with a population doubling time of 25 hours. The cell lines were found negative for microbial, fungal and mycoplasma contamination. The GSF289 cell line, which originated from the Saanen breed of goats, was further characterized for genetic transformation and cytogenetic stability. It was successfully transfected with pcDNA3.1/NT-GFP plasmid vector containing the green fluorescent protein (GFP) gene under human cytomegalovirus (CMV) promoter.

The efficiency of transfection, as measured by flow cytometry, was 14.5 percent after four days of culture. The cytogenetic analysis performed on 29 G-banded metaphase cells revealed that the cell line has a normal male goat karyotype consisting of 58 autosomes and two XY sex chromosomes, which is consistent with earlier reports in goats. These results suggest that GSF289 cell line with a normal karyotype, having a high rate of proliferation and an ability to be easily transfected with plasmid DNA vectors, is an important tool to study genetic manipulation of goats. These studies are continuing to modify the myostatin gene in goat genome to test the possibility of enhancing meat production in goats, and possibly in other livestock.
A new research project on goat milk yogurt development and quality evaluation has been launched at Fort Valley State University’s Georgia Small Ruminant Research and Extension Center. This study has been initiated and conducted by Dr. Young Park, professor of food science at FVSU, and his dairy technology research group. It was developed from Park’s ongoing Agricultural Research Station project at FVSU, in collaboration with Dr. Salam Ibrahim and his research group at the Food Microbiology and Biotechnology Laboratory in the Department of Family and Consumer Sciences at North Carolina A&T State University in Greensboro, NC.

Over the recent years, probiotics products have become increasingly popular for U.S. and other countries’ consumers because of their health benefits. In order to achieve the claimed health benefits, high viability of the probiotics is required at the time of consumption. The viability of probiotics has shown to decrease during storage time. Very limited studies have been reported on the use of gums to support probiotics viability in goat milk yogurt. The study was collaboratively conducted by Park and Ibrahim to investigate the impact of supplementation of different types of gums on the viability of probiotics in caprine milk yogurt during refrigerated storage.
The experimental caprine yogurts were manufactured using fresh goat milk produced from the milking heard of the Georgia Small Ruminant Research and Extension Center. The researchers added 0.2 percent of seven different kinds of gums to pasteurized goat milk (w/v). The types of gums supplemented were: (1) xanthum; (2) modified food starch with agar pectin; (3) carrageenan; (4) locust bean; (5) carrageenan, maltodextrin and dextrose; (6) guar; and, (7) modified food starch with gums 3, 4 and 5. Bacterial culture containing yogurt starter culture and Bifidobacterium spp. was used to manufacture the experimental goat milk yogurts. For each individual gum supplementation, 1L of pasteurized goat milk was mixed with 5g gum and 25ml activated bacterial culture. The yogurt samples were incubated at 43˚C for four hours, stored at 4°C for 28 days, and the bacterial populations were enumerated during the four-week storage periods. Results showed that the addition of gums improved Bifidobacterium viability by 0.6 – 1.25 and 0.5 – 1.00 log CFU/ml, respectively, after 14 and 28 days refrigerated storage, compared to the control. The addition of gums also improved yogurt textural integrity, especially for the xanthum (1) and locust bean (4) added yogurts. It was concluded that the use of gums in goat milk yogurt could maintain the probiotics viability, which will enhance the health benefits of the caprine yogurts as well as lead to higher consumer acceptability.

Texture plays a significant role in sensory quality and consumer acceptability of fermented dairy foods, such as yogurt and cheese. Casein gels are responsible for various rheological and textural properties of coagulated and fermented dairy products. Another study was conducted to evaluate the differences in textural properties of caprine milk yogurts fortified with the seven different kinds of gums during four weeks of refrigerated storage. The experimental caprine yogurts were manufactured using the same goat milk produced at the Georgia Small Ruminant Research and Extension Center, with a 0.2 percent addition of the same seven different gums to pasteurized goat milk (w/v) as used in the probiotics study. The manufactured experimental goat yogurts were stored for zero, two and four weeks at 4°C in the same conditions as the probiotics study.

Textural characteristics of all goat milk yogurts were determined using a texture analyzer (Model TA.XT2i, Texture Technology Corp., Scarsdale, NY). Viscosity of the yogurts was measured by firmness (g force) and consistency, and adhesiveness or stickiness was measured by cohesiveness (g force) and index of viscosity. Firmness of the control, and one to seven different gums added yogurts for the 0 and four weeks storage, were: 19.1, 23.0; 41.8, 63.7; 20.6, 22.2; 19.7, 20.9; 50.2, 64.7; 18.9, 19.7; 20.0, 20.8; 19.3, 21.1, respectively, indicating that xanthum and locust-bean fortified yogurts showed significantly higher firmness values than the control and the other types of gum supplemented groups. Locust bean showed the highest textural integrity among all tested gums. Viscosity, cohesiveness and adhesiveness of xanthum and locust bean gums added yogurts were also significantly higher than the other goat milk yogurts. It was concluded that locust bean and xanthum were the choice of gums for developing the best textural quality of yogurt made of caprine milk.

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For the past eight years, Dr. Thomas Terrill, an assistant professor of animal science at the Fort Valley State University (FVSU) Agricultural Research Station, has been leading a consortium of research institutions from across the southern United States and overseas. The American Consortium for Small Ruminant Parasite Control (ACSRPC) has been documenting the health benefits of including sun-dried sericea lespedeza (*Lespedeza cuneata*) in the diet of ruminant animals. Whether fed as long hay, ground leaf meal or as a pelleted ration, this plant acts as a natural anthelmintic, reducing effects of gastrointestinal nematodes (worms) in the stomachs and intestines of goats, sheep, cattle, llamas and a number of exotic animals, including giraffe, antelope and blackbuck.

This remarkable plant is historically known as “poor man’s alfalfa” because it can produce high-quality forage on acidic, infertile land, where little else grows. It contains a high level of condensed tannins that can bind to plant proteins, reducing protein solubility in an animal’s rumen and improving its availability for absorption as amino acids in the small intestines. Sandeep Kommuru, a graduate student in the FVSU Animal Science Master’s Program working with Terrill, thinks these tannins also bind to proteins on the surface of adult parasites in the animal’s stomach, eventually killing them. By using a scanning electron microscope, Kommuru showed that goat worms affected by the tannins in sericea lespedeza had a shriveled, disheveled appearance, while worms from goats fed a control diet without tannins had a smooth surface. This confirmed several previous studies showing a big reduction in fecal egg count and adult worm numbers in the stomach and intestines of goats and sheep fed dried sericea lespedeza in confinement or as a supplement on pasture.

The impact of this work has been far-reaching, with a huge surge in demand by U.S. farmers for sericea lespedeza seeds, hay and pellets. Tom Sims, a farmer from Union Springs, Ala., whose family has marketed sericea seeds since the 1950s (Sims Brothers Seed Company) said he used to have silos full of these seeds, but after word got out to the farming community about the worm-killing properties of this plant, he can no longer keep up with demand. He said he’s got a waiting list of producers wanting “AUGrazer” sericea lespedeza seeds, a new grazing-tolerant cultivar released by Auburn University in Alabama. Also, he has a waiting list of customers wanting to buy sericea leaf meal pellets to feed their animals. This includes San Diego Wildlife Park that would like to use the
pellets to reduce the effects of parasites in all its grazing animals.

Terrill sees this as a great opportunity for farmers in the Southeast to generate income by contracting with Sims Brother Seed Company to grow sericea lespedeza. This company has exclusive rights to market dried lespedeza products as an anthelmintic forage in the United States. As the institution that first documented the anti-parasitic effects of dried sericea, FVSU shares the patent rights for this technology with three other institutions that were also involved with the pioneering phase of this research - Auburn University, Louisiana State University and the U.S. Department of Agriculture Dale Bumpers Small Farms Research Center in Booneville, Ark.

Since livestock parasites have developed some level of resistance to all commercially-available chemical dewormers in the U.S., farmers have been requesting a natural alternative to these drugs to help control worms, particularly for grass-fed or organic animal production systems. “Sericea lespedeza leaf meal pellets can supply this critical need and help farmers keep their animals healthy,” Terrill said. Also, because of the patent rights, sales of these pellets can potentially generate revenue to sustain parasite control research programs at FVSU and other institutions in the FVSU-led consortium.

However, Terrill believes the greatest impact of this work may eventually be global, as there are many parts of the world where this plant is adapted, including Africa, South America, China and India. “With its ability to produce good quality forage on marginal land, while making animals healthier so they can gain weight faster or produce more milk, sericea lespedeza has the potential to improve the lives of millions of limited-resource farmers throughout the world,” Terrill said. And, through its agricultural research and outreach programs, FVSU will be leading the effort to realize the potential of this valuable forage.

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About 1.08 million metric tons of peanuts are produced annually in the United States, out of which the state of Georgia produces more than 42 percent. As the largest producer of peanuts, Georgia is being threatened by a Hemipteran pest, *Pangaeus bilineatus*. *P. bilineatus* is a burrowing bug distributed throughout the peanut-producing region of the United States. The pest is capable of extensive feeding on peanut pods (Chapin and Thomas 2003; Chapin et al. 2006). The bug carries out a considerable portion of its life cycle in the soil, while feeding on fully mature peanut kernels. Populations of this pest, which were below economic injury level in previous years, resurged during the 2010 crop season.

Infestation of peanuts by this pest can result in the downgrading of peanut quality to segregation, which results in the discounting of the price of peanuts to $132 per ton (GA Peanut Commission). Additionally, infestation of peanuts by this pest could result in reduced oxidative stability and rises in peroxide levels (Chapin et al. 2006). Losses arising from the infestation of peanuts by this pest warrant a search for pest management tools that will keep populations of this pest below economically damaging levels.

Since this pest burrows in the soil and spends most of its life cycle feeding on mature peanut pods in the soil, it is a likely candidate for control using pest management tools that include entomopathogenic nematodes or fungi. However, these are rather
expensive to be used alone. Thus, researchers at Fort Valley State University investigated a combination of these microbials with tested insecticides in the control of *P. bilineatus*.

Entomopathogenic nematodes are obligate parasites that kill insects with the aid of mutualistic bacteria. These nematodes, which are harmful to insects but innocuous to mammals, are important biological control agents in the management of several crop insect pests (Kaya and Gaugler, 1993; Shapiro-Ilan et al., 2002; Grewal et al., 2005). Several strains of entomopathogenic nematodes have demonstrated pathogenic characters toward Hemipteran pests. Stuart et al. (1997) found that heterorhabditid nematodes caused mortality in the mealy bug, *Dysmicoccus vaccinii*, a related species to *P. bilineatus*. Entomopathogenic fungi (e.g., Hypocreales) are soil borne micro-organisms and control a variety of soil inhabiting insects (Zimmermann, 1992). *Metarhizium anisopliae* (Metsch.) Sorokin and *Beauveria bassiana* (Balsamo) Vuillemin are two of the most promising fungi for biological control of subterranean insect pests in diverse climatic conditions (Jaramillo et al., 2005; Shapiro-Ilan et al. 2011).

Other studies have shown a synergy between entomopathogenic nematodes and entomopathogenic fungi, or between the entomopathogens and chemical pesticides (Shapiro-Ilan et al. 2011). For example, synergy was observed between fungi and organophosphates (OPs) (Jaramillo et al., 2005) in the control of insect pests. Synergy has been observed when the nematode *Steinernema carpocapsae* was combined with the OPs, cypermethrin or carbaryl, e.g., against larvae of the pecan weevil, *Curculio caryae*; the fungus *B. bassiana* was also synergistic with carbaryl (Koppenhöfer and Grewal, 2005; Shapiro-Ilan et al. 2011). The researchers hypothesize that microbials will be synergistic with selected chemical insecticides for suppression of *P. bilineatus*.

The study described here integrated entomopathogenic nematodes or fungi with Chlorpyrifos in the control of *P. bilineatus*. Specimens of *P. bilineatus* were collected by pulling out mature peanut plants from the soil. The pods, as well as surrounding soil, were examined for the insect. Up to 20 burrower bugs were collected around pods of a single peanut plant. In addition, pitfall traps were used in collecting some bugs. The collected insects were used in bioassays to determine the efficacy of an insecticide (Chlorpyrifos at half field rate); a nematode, *Heterorhabditis bacteriophora* (Oswego strain); an entomopathogenic fungus, *Beauveria bassiana* (GHA strain), and their combinations, *H. bacteriophora* Oswego + Chlorpyrifos (1000 IJs + ½ field rate), *B. bassiana* GHA + Chlorpyrifos (1 million conidia + ½ rate Clorpyrifos), Chlorpyrifos at a lower rate, i.e., ¼ field rate in generating mortality of the pod borer bug. All treatments were applied in 2.4 ml to 30 ml (1 oz) cups with one insect each and 15 g sterile dry soil.

A combination of the entomopathogenic nematode and the insecticide, chlorpyrifos, was found to be more effective in significantly causing mortality of the burrower bug compared with the nematode or insecticide alone. The entomopathogenic fungus and its combination with the insecticide did not significantly increase the mortality of the bug compared to the control. The nematode, *H. bacteriophora*, and the insecticide, chlorpyrifos, have been tried out in peanut plots during the 2012 peanut cropping season and results will be available later this year. Acknowledgement: The authors acknowledge financial support for the reported study by the Georgia Peanut Commission.

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*Pangaeus bilineatus*, a burrowing insect threatening Georgia’s peanut crop.

Source: © 2011 Charley Eiseman (charleyeiseman.com)
FVSU Provides LIFE Lessons for Underserved Communities

Timber is the highest valued vegetative crop in Georgia. Georgia’s forest resource creates a $12.7 billion direct economic impact in the state (Economic Development Institute – Georgia Institute of Technology). There are millions of dollars available in cost-share programs funded by the U.S. Department of Agriculture (USDA) to assist private forest landowners in sustaining their natural resource operations. In many cases, small-enterprise or minority landowners have not received any cost-share and/or technical assistance nor do they possess a clear title to the land. To assist with these concerns, the Fort Valley State University (FVSU) Cooperative Extension Program, in collaboration with federal and state agencies, developed the Landowner Initiative for Forestry Education (LIFE) Program. This program focuses on the overall goal of increasing outreach, promoting awareness and offering technical assistance to minority and limited-resource farmers and landowners in the areas of sustainable natural resource practices and effective estate planning.

The LIFE Program has created an educational network between organizations that provides direct outreach and assistance to limited-resource, underserved farmers and landowners. These organizations include:

- Georgia Forestry Commission
- USDA Natural Resources Conservation Service
- USDA Farm Service Agency
- USDA Forest Service
- University of Georgia Cooperative Extension Service
- Georgia Legal Services
- The National Wildlife Federation
- Shady Grove Baptist Church (Talbotton, Ga.)
- Friendship Missionary Baptist Church (Americus, Ga.)
- Hickory Grove Baptist Church (Sparta, Ga.)

LIFE representatives also identified local landowners and community leaders to assist with programmatic activities. Ten LIFE workshops have been planned
and sponsored in Dougherty, Talbot, Sumter, Peach, Hancock, Macon, Laurens and Early counties. Four publications, including two fact sheets, were developed and distributed to the target audience of minority and limited-resource landowners. An educational outreach exhibit was developed for utilization in non-traditional informational centers such as churches and community centers. To date, the LIFE exhibit has been displayed in ten locations: Dougherty, Talbot, Sumter, Peach, Hancock, Macon, Marion, Bibb, Worth and Early counties. Lastly, a geographic information system has been created for minority and limited-resource landowners.

Approximately 640 minority landowners increased their knowledge of forestry management and estate planning by attending LIFE workshops. The workshops included the following sessions: Wills and Estates Planning & Trusts, Timber Management & Marketing, Cost Share Programs, Land Surveying and Financing Small Farms. Currently, the educational outreach exhibit has reached over 1,300 landowners. Additionally, over 2,200 minority and limited-resource landowners have increased their awareness of forestry management and estate planning through four publications entitled “The Landowner Initiative for Forestry Education Workshop Resource Manual,” “Small Landowners’ Estate Planning Guide,” “Managing Your Land for Profit” and “County Update Vol. 1.”

In the subject area of wills and estate planning, participants’ knowledge before the workshops was 16.97 percent and knowledge after increased to 83.65 percent; timber management and marketing knowledge before was 23.17 percent and 69.23 percent after; land surveying knowledge before was 18.28 percent before and 78.26 percent after; cost share knowledge was 21.13 percent before and 64.75 percent after; financing small farms knowledge was 22.58 percent before and 82.14 percent after; and hunting leases knowledge was 28.13 percent before and 96.43 percent after. Overall, 119.72 percent of participants were very satisfied, 42.26 percent were satisfied and 4.2 percent remained neutral.

Seventy-eight-year-old Lumpkin, Ga., native Charles Beall inherited 80 acres of land from his mother. For the past two years Beall has rented the land for deer hunting, but wants to reforest it for selling timber. “I’m retired and live on a fixed income. Prices have sky rocketed for this process,” Beall said. “Today I connected to an agency that should be able to tell me about programs available to assist me. I know what questions to ask and what I’m looking for.” Talbot County Commissioner Franklin Holmes, who attended a workshop in Talbotton, Ga., stated, “We thank Fort Valley for offering this workshop. It is important to our community that we maintain and build wealth.”

Some examples of the program benefits include the following:

- Five landowners adopted new practices, which resulted in an annual $4,100 tax savings
- One landowner adopted new forestry practices, which resulted in over $10,000 in additional income
- Eighty-six wills, 37 power of attorneys and 51 advance directives for healthcare have been completed for underserved landowners valued at over $2.5 million in assets
- Ten forest stewardship management plans have been developed
- One landowner reduced his expenses by $3,000 annually

The LIFE Program is sponsored by a three-year USDA National Institute of Food and Agriculture grant.

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At the New Pilgrim Baptist Church in Macon, Betty Walton of Fort Valley receives assistance from attorney John Donsbach at a clinic where free assistance was offered to develop wills.
Fort Valley State University President Larry E. Rivers, already considered one of the nation’s leading experts on the subject of American slavery, has released, through the University of Illinois Press, another groundbreaking study. Entitled “Rebels and Runaways: Slave Resistance in Florida,” the book traces the complex story of slave resistance from Florida’s 1821 purchase by the United States until final emancipation at the Civil War’s end.

“This really grew out of the work for my earlier book ‘Slavery in Florida: Territorial Days to Emancipation’ (University Press of Florida, 2000),” Rivers said. “I just didn’t have enough space there to explore the subject of slave resistance in depth. So, I used the opportunity of my doctoral thesis at Goldsmith’s College, University of London, to revisit the whole area. I tried to snatch time over the next decade to extend the research and expand the coverage.” He added, “I’ve been very pleased at the reaction so far, and I hope that I’ve been able to make a serious contribution to understanding the heroic efforts of black men, women and children to resist slavery’s shackles.”

The research was conducted by Rivers over more than 30 years. “I crawled through more dusty courthouse basements and library backrooms than I really want to remember,” he reflected. “Mostly it was just me in those days.” He continued, “That doesn’t mean I haven’t benefitted from the help of others; I surely have.” The award-winning scholar’s acknowledgments list a variety of top-name scholars along with a host of lesser-known contributors.

Leading the list is Fort Valley State’s executive vice president and chief legal officer Dr. Canter Brown Jr., who also holds rank as tenured professor of history. Fort Valley State artist Rickey Calloway’s work also is featured, including on the dust jacket. Rivers commissioned Calloway to provide a variety of creative images given the rarity of photographs and other illustrations pertinent to his subject.

The research eventually paid off. “Rebels and Runaways” offers the most complete and in-depth study of American slave resistance ever made available. A litany of nationally recognized scholars attest to that fact in statements printed on the dust jacket.

When asked where he particularly provides new insights, Rivers cites three points he considers to be of major significance.

First, he says, is his argument that the Underground Railroad ran south as well as north. “Few people,”
Presently, Rivers - when he can find a precious moment to devote to research - is pursuing a biography of Florida Baptist clergyman and Reconstruction-era political leader James Page and a second one (with Brown) on the life and career of Southern Victorian-Era writer Mary Edwards Bryan.

In closing, Rivers declared, “I’m proud of what I’ve accomplished, but there is so much more I’d like to do.”

Rivers explains, “have ever heard of generations of runaway slaves who made their way to havens in Florida. They came from all over the slave South but especially from South Carolina and Georgia.”

Second, Rivers points out the importance of water travel to slave resistance. “Florida’s streams and rivers, not to mention the Gulf of Mexico and the Atlantic Ocean, provided highways of flight to individuals and groups,” he said. “Plus, in Florida’s wide-open port towns, and along its endless coast, runaways often could find assistance and protection. That made a big difference in making a successful getaway.”

The third point, Rivers argues, may be the most important: Florida served as host to repeated racially based and violent conflicts, including the nation’s largest slave rebellion.

“They called it the Second Seminole War, but, like a leading general acknowledged, it really was a ‘race war,’” the author observed. “It ran from 1835 to 1842 and produced individuals - Abraham, John Horse and John Caesar immediately come to my mind - who ought to stand out to everybody as national heroes. Some people try to downplay the racial side of the war, but, to me, the facts speak for themselves.”

Rivers’ achievement attests to the importance of discipline and determination in pursuing academic research. He rarely has received outside financial support nor even release time. “Research just is in my blood,” he said. “My need is to be productive, be creative and in order to accomplish that you need to work at it and work at it hard.”

Certainly, this researcher’s résumé underscores that claim. He has authored, co-authored or co-edited half a dozen volumes published by scholarly presses. They include, in addition to his slavery studies, histories of the Florida AME and AME Zion churches; a republication of the poetry of John Willis Menard, the first African American elected to the United States Congress; and a collection of essays on southern women. These have earned local, state, regional and national awards.

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Accreditation difficulties present challenges for many Historically Black Colleges and Universities (HBCUs). Since most HBCUs are located in the South, and in the border states of Pennsylvania, Delaware, West Virginia and Ohio, most HBCUs belong to the Southern Association of College and Schools; the Middle States Commission of Higher Education; or the Higher Education Commission of the North Central Association on Accreditation and School Improvement. Each of these associations has a myriad of rules and regulations that evaluate the quality of faculty (i.e. the number of instructors teaching in a specific field holding terminal degrees), administrative competency, governance, institutional effectiveness, student performance, financial stability and quality of library resources.

Drs. Komanduri Murty and Julius Scipio have examined the historical developments and increasing role of accreditation since the 19th century, and the pressures and challenges associated with its compliance standards. They noted that in 1917 there were 625 private Black institutions (academies or trade schools), in which 1,588 students were doing some college level work, but none of them were accredited by a regional or national association. In 1957, three years after the Brown case, the Southern Association of Colleges and Schools (SACS) required 59 Black institutions, whose eligibility to apply for full membership with the Commission was already determined, to undergo a re-evaluation; only 18 institutions were approved for membership. Today, 75 of the 103 HBCUs are under SACS jurisdiction because of their location in the southern region and bordering states. Between 1996 and 2005, nearly 25 percent of all SACS sanctions were against Black institutions, although they constitute only 13 percent of the member institutions. Moreover, since 1989, nearly one-half of the 20 institutions that lost SACS accreditation were historically black.

Most HBCUs are likely to face reprimands and revocations of accreditation due to inefficient financial resources, institutional effectiveness and faculty qualifications. However, there are other compliance issues HBCUs share with other institutions for which they can receive warnings, probations and recommendations including, but not limited to, qualified administrators, acceptable quality enhancement plans, campus infrastructure and resources, student enrollments, and even library holdings. Recent examples of these problems include Barber Scotia College (Concord, N.C.); Bennett College (Greensboro, N.C.); Edward Waters College...
(Jacksonville, Fla.); Grambling State University (Grambling, La.); Knoxville College (Knoxville, Tenn.); LeMoyne Owen College (Memphis, Tenn.); Lewis College of Business (Detroit, Mich.); Mary Holmes College (West Point, Miss.); Morris Brown College (Atlanta, Ga.); Selma University (Selma, Ala.); Talladega College (Talladega, Ala.); Paul Quinn College (Dallas, Texas); St. Paul’s College (Lawrenceville, Va.); Stillman College (Tuscaloosa, Ala.); Concordia College (Selma, Ala.); Tennessee State University (Nashville, Tenn.); Cheyney State University (Cheyney, Pa.); and Fisk University (Nashville, Tenn.).

However, HBCUs are not alone in facing the crisis of accreditation. Over the last decade, scores of Traditional White Institutions (TWIs) have lost regional accreditation or faced accreditation problems. For these institutions, mainly small, private or church-related schools, conditions are identical to the ones facing black colleges: limited resources, problems with institutional effectiveness and high administrative turnover leading to continuing problems with accreditors. Representative of this problem is Sue Bennett College, a smaller institution, located in London, Ky. Other TWIs that have lost accreditation over the last 20 years include: Upsala (1995), Southern Virginia (1996), East Coast (1999), Bradford (2000), Wood (2003), Hiwassee (2007), St. Andrew’s (2008) and Dana Colleges (2010), as well as Lambuth University (2010).

The consequences of non-accreditation are very serious and chief of them are: (1) drastic decline in student enrollment; and, (2) ineligibility to receive federal financial student aid. These challenges could very well make it impossible for an institution to operate, compete and recover financially or programmatically; and as a result of these challenges, the unthinkable could occur - the permanent closing of a school’s doors.

Therefore, it is important HBCUs understand and take the necessary steps to meet compliance requirements; otherwise, they might attempt arbitrary methods to gain the acceptance of less credible accreditation agencies. This type of effort tends to be a waste of time and money. For example, an experienced accreditation specialist for various HBCUs, in his role as a consultant, made the following observation regarding a four-year private black college. Several years ago, this institution faced scrutiny from SACS, and instead of hiring the proper administrators and staff who understood compliance, the college boldly published an article in the local newspaper saying it was implementing a dress code for students. It was the hope of many at the school that the revised dress code would impress SACS. However, none of the requirements for SACS state anything regarding student dress codes.

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Dr. Julius E. Scipio, vice president for academic affairs at Fort Valley State University.
Fort Valley State University (FVSU), and many other Historically Black Colleges and Universities, are dealing with the issue of low scores on standardized writing exams. “The Commission on Colleges expects institutions to dedicate themselves to enhancing the quality of their programs and services within the context of their missions, resources and capacities, and to create an environment in which teaching, public service, research and learning occur,” states the Southern Association of Colleges and Schools (SACS) Handbook for Reaffirmation of Accreditation. Although SACS requires universities to address the issue as part of the colleges’ Quality Enhancement Plan (QEP), each institution has chosen different approaches to reach the same goal.

To work toward the goal of improving writing skills, FVSU’s QEP Committee developed the “Doing the Write Thing: Writing to Evidence Critical Thinking” initiative in 2008. The QEP chair, Dr. Josephine Davis, said the goal of the QEP Committee was in part to engage the FVSU community in improving the academic environment for the development of “proficient and professional writers.” Since then, curricular changes have been made particularly in core courses such as English, math and biology because the majority of students can be reached through these required courses.

The Behavioral Science Department also recognizes the need to contribute toward the improvement of student critical thinking and writing skills. Last spring, behavioral science professors Drs. Sonja Shavers and Diane Byrd coordinated an American Psychological Association (APA)/Professional Writing Workshop to assist behavioral science students, and all students, interested in improving writing skills. Dr. Roeinia Deloach, Savannah State University’s social work department chair, and Dr. Irma Gibson, an assistant professor, led a two-part workshop that was housed at the Pettigrew Center on FVSU’s campus. The presentation (also made available for online student participation) held the attention of a fully engaged audience that consisted primarily of behavioral science majors.

The goal was to provide students with concrete information and tips on writing, to provide instruction on APA style writing (particularly for those students interested in graduate school) and to begin a friendly dialogue on the writing process. The students were visibly intrigued with the presenters who offered the information in a manner they could receive. This was accomplished by establishing a rapport and by continuing to meet the students where they were, with the freedom to ask any questions without judgment. The presentation ended with students literally asking for more.

Although the satisfaction with the presentation was apparent, students were given an opportunity to complete an evaluation form that allowed them to rate the presentation’s value, along with a comment section. Of the 44 participants, 18 (43 percent) completed the evaluation. Consistent with the observations, the feedback from the evaluations was very positive. In response to “The contents of this workshop will be helpful in my academic pursuits,” 100 percent surveyed rated this statement...
as “strongly agree or agree.” Furthermore, students’ responses to the statement “The information presented enhanced my understanding of APA writing style and professional writing” was rated 83 percent with the option “strongly agree or agree.” Sixty-two percent indicated they were interested in additional education on this subject. Finally, in response to how the workshop could have been improved, the following comments were offered: 1) More interaction and participation from students; 2) Presentation was good to me, no improvements are needed in my opinion; 3) By doing them more often; 4) APA workshop was a great success only improvement could have been more time; 5) Don’t do online viewers; 6) It was a great opportunity to be able to participate; and, 7) A link should be made available to online participants for access to handouts distributed in the face-to-face presentations.

Consequently, a research group was initiated with behavioral science students who learned research, writing and presentation skills. Those skill were used by Franklin Campbell, Eric Cobbs and Ashley Maynard, who presented a paper at the annual Banks-Pierro-Rutland-Bellamy Social Sciences Colloquium on April 13. This effort for skill development was made to create “proficient and professional writers.” The goal was to prepare students not only for their undergraduate courses, but to make them research-ready for graduate school.

For more information about this initiative, visit: http://bit.ly/NxsUTN or scan the code on the right with your mobile device.

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Educator Creates Project to Engage Students in Reading

National Young Readers Week is an annual event co-founded in 1989 by Pizza Hut® and the Center for the Book in the Library of Congress. Schools across the nation recently shared in making this a celebrated event, and among them were Fort Valley State University. The FVSU Wildcats football team worked with students at Hunt Elementary School and participated in their story time. The initiative, “Project READ - Reaching Every Adolescent Differently - With a Wildcat,” was created and founded by Sherry Crocker, assistant professor in the College of Education at Fort Valley State. She enlisted the assistance of Glen Holmes, student services professional for the Wildcats football team.

What makes this project different from most is its makeup and the project’s mission. First, all of the players are undergraduate students in the College of Education. The program received national recognition from the National Council for Accreditation of Teacher Education (NCATE). The players aspire to become proficient educators whose majors range from elementary education, middle grades education, health and physical education, family and consumer sciences and agricultural education. By having this “special team” engaged with the elementary school students, Crocker believed more students would be reached in three dynamic ways.
First, there was the overarching task of instilling a love for reading (Reading). Second, students would come away knowing teachers are just as important as athletes (Teacher Recruitment), and finally if African-American male students see themselves in a positive role, they can become positive influences in life (Mentoring). The players’ short-term goals in what little time they had involved helping the students realize that taking an interest in something they enjoyed could help them succeed. It also helped the younger students realize how they were readers, teachers and winners.

During a visit as the morning got started, students were finishing up their Daily Oral Language lesson. Most of their morning work was completed as several members of the FVSU Wildcat football team quietly entered the school. The players were cheerfully greeted by assistant principal LaNessia Miller, who was also deemed the tour guide. As members of the team signed the check-in sheet, which was placed on the front counter, Miller gave each of the players their classroom assignments. Once they got the layout of the hallways and classrooms, off they went to surprise some 350 elementary school students. The word quickly spread throughout the school that there were giants walking through the hallways and all over the school. It was suspected that this news was delivered by a couple of first-grade boys who had scoped things out as they supposedly sat in the hallway outside of a classroom reading.

In all of the excitement several teachers witnessed the surprised look on students’ faces, followed by the rippled sound effects of, “Look!” and “Wow!” as players entered the classrooms. Some of the players carried with them their favorite childhood books to read. Their choices included “The First of October,” “Horton Hears a Who,” “The Powder Puff Puzzle” and “Harry’s Mealtime Mess.” These favorites rekindled the spirit of reading for many of the young readers in a school that houses some 760 pre-kindergarten through fifth-grade students.

The school is a Title 1 school located in rural Middle Georgia. Title 1 is the nation’s oldest and largest federally-funded program, according to the U.S. Department of Education. Annually, it provides more than $14 billion to school systems across the country for students at risk of failure and living at, or near, poverty level. With the implementation of No Child Left Behind, schools must make adequate yearly progress on state testing and focus on best teaching practices in order to continue receiving funds.

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Fort Valley State University (FVSU) has long recognized that institutions of higher education cannot survive in isolation. FVSU President Larry E. Rivers frequently utilizes the phrase “communiversity” in encouraging faculty, staff and students to participate in some way with the greater community, not just the Fort Valley State family.

Spring of 2009 presented such an opportunity for outside collaboration with the awarding of a partnership between FVSU and the nearby Peach County schools. The partnership, supported by a grant from the Georgia Department of Education, was designed to take place over a two-year period. In Peach County, mathematics and science students in grades 6-12 were performing below proficiency standards for their grade levels. Extensive surveys and interviews revealed that many of the mathematics, science and special education teachers did not feel their own content knowledge and instructional practices were adequate to help their students. A statewide transition from skills-based core curriculum to performance-based standards-driven curriculum was placing a tremendous amount of stress on teachers to keep up with the changes and increased rigor associated with the transition.

Teachers across the state were having difficulty switching into a facilitator role from the direct instruction mode with which they had previously been comfortable. It became necessary for intensive professional development to bridge the gap between their teaching skills and content knowledge, especially in the areas of mathematics and science. Based on this information, as well as the teachers’ perceptions indicated in survey results, the task force concluded there was a critical need to provide additional time and resources to enhance teaching and learning in these areas. Three goals were established for this project:

1. Increase student achievement in middle and secondary (6-12) mathematics and science as evidenced by scores of the total student population and specific sub-groups on standardized tests.

2. Enhance teacher core content knowledge measured by standardized, as well as locally developed, assessments.

3. Develop and sustain a partnership between the University and Peach County schools.

With this background, a three-way partnership was established for the additional training of math and science teachers. The partnership included Peach County and FVSU’s College of Education and College of Arts and Sciences. Beginning in the summer of 2009, a two week content-intensive summer institute was offered with follow-up sessions during the school year. This format was repeated during the summer of 2010, with follow-up sessions during 2011.

The program’s success of goals one and two was measured through observation, participant surveys, focus groups and standardized teacher content knowledge pretests/posttests. However, the focus here is on goal three: developing and sustaining a partnership between Peach County schools and FVSU.

The hope was, and is, that a number of benefits, short and long-term, will be realized through collaboration among Peach County schools and FVSU’s College of Education and College of Arts.
and Sciences. The university will benefit by having access to elementary and secondary students for clinical and field experiences, and by having interaction with potential graduate students currently employed by the K-12 school system. In addition, by working with in-service teachers, faculty will be able to identify these teachers’ needs when designing their own course content, which they can make more relevant to the greater community’s needs.

Also, this program prepares high school students for the academic rigors of college and may prevent them from needing remedial assistance. The local school system is benefitting from the expertise, collaboration and content knowledge of the university faculty members participating in the partnership. The schools benefit as well from the use of the laboratory and meeting facilities at the university.

Throughout the two-year partnership period, personnel from both FVSU and Peach County schools joined in activities related to the project. Five joint conference presentations were made on a national and state level, resulting in national recognition of the FVSU/Peach County partnership. In addition, during both years of the project, middle and high school teachers reported that they now feel comfortable calling or e-mailing FVSU faculty members to ask questions or invite them to their classrooms. FVSU College of Arts and Sciences faculty members reported that they have a better understanding of Peach County schools and feel more comfortable working with the individual schools.

This immediate relationship provides yet another opportunity to continue and pursue joint relationships. The three-pronged partnership is indeed reaping benefits for all parties involved.

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