



MARTIN

**Center of Excellence for
Experimental Learning in
Agricultural Science**

**FY 2023
Annual Report**

Department of Agriculture, Geosciences, and Natural Resources

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Center of Excellence for Experimental Learning in Agricultural Science Mission Statement

The mission of the Center of Excellence (COE) for Experimental Learning in Agricultural Science is to provide an innovative infrastructure through which existing and new experiential inter-disciplinary studies in production agriculture, the environment, and conservation techniques can take place. The COE in Agricultural Science is designed to create a model for quality teaching across various disciplines, while facilitating and increasing external grant and contract activities, increasing public/ private partnerships, and increasing outreach efforts. Other goals of the COE in Agricultural Science involve collaboration with secondary institutions, expanding livestock, crops, equipment, natural resource areas and other facilities to enhance experiential learning and yielding a major impact on the economy of the State of Tennessee.

Executive Summary

In accordance with the Center of Excellence (COE) for Experimental Learning in Agricultural Science mission statement, since January 2002, attention has been devoted to establishing a model field laboratory with facilities and resources to support experiential activities and research for students. This model field laboratory is used to promote and meet all goals of the COE mission statement. A major component of the COE is operation of a teaching and demonstration farm to complement ongoing academic programs in the Department of Agriculture, Geosciences, and Natural Resources (AGN) at the University of Tennessee at Martin (UTM). This endeavor was expanded effective January 1, 2006, when the Department of Agriculture, Geosciences, and Natural Resources assumed operational control of the entire 640 acres and associated buildings formerly operated by the Martin Experiment Station (University of Tennessee Institute of Agriculture). A major objective of this effort is to provide resources dedicated to the establishment of a quality experiential learning and applied research environment for the UTM campus and the citizens of Tennessee. This in turn meets the goals and objectives of the COE for Experimental Learning in Agricultural Science mission statement.

Presently, there are approximately 250 acres of COE property in field crop production with another 250 acres devoted to forage production and pasture for teaching herds/flocks of beef cattle, swine, horses, meat goats, and sheep. In addition, there are six outdoor research ponds (0.1 acre each) and ten indoor research tanks used for fisheries management. The COE also includes an alternative fuels (biofuels) laboratory, a wildlife biology field laboratory, a Tyson poultry facility, a companion animal laboratory, and two Veterinary Health Technology teaching laboratories. As a major thrust of the COE, the UTM Teaching and Demonstration Farm provides resources and facilities for public service activities and research to support public and private stakeholders involved in agricultural and natural resource sciences. Animals and facilities associated with the COE provide resources for training competitive teams for local, regional, and national competitions, as well as involvement in assisting collegiate and high school FFA and 4-H teams preparing for and competing in their respective interscholastic events across the state. This subsequently increases collaboration with secondary institutions and outreach efforts in accordance with the mission statement.

The University of Tennessee at Martin is an ideal location for the COE due to the existence of agricultural entities already in operation. The West Tennessee Agricultural Pavilion (Ned R. McWherter Agricultural Complex) serves as a hub of activity for clients in a variety of ways, ranging from livestock shows to the annual Santa's Village. The Santa's Village event has been in operation for the last 38 years and is a cooperation between the city of Martin and university faculty, staff, and students. The event provides great community outreach and community service through the collection of more than 18,000 canned goods and toy donations for the under-provided in our county. (Figure 1) The COE enables current and future faculty to not only serve the academic needs of current campus-based and online students, but also to expand opportunities for a statewide mixture of students in secondary schools as well as adult stakeholders through continuing-education offerings and events. The COE features applied research and external grant supported projects that complement the undergraduate and graduate teaching missions of the University of Tennessee at Martin.



Figure 1. Santa's Village Display at the Ned R. McWherter Agricultural Complex

Soil, Animal, Food, and Economic (SAFE) Research, Education, and Outreach

Middle Tennessee State University (MTSU), in collaboration with the University of Tennessee at Martin (UTM) and Tennessee Technological University (TTU), seeks funding to investigate the impact of soil management practices on crop, animal and food production and economics, update coursework, and communicate results to agricultural audiences through field day activities, virtual demonstrations, training and professional development opportunities. (Figure 2 and 3)

Due to the rapidly increasing human population, sustainable agricultural management practices are difficult to achieve and encourage. This has led to concerns about providing food, feed, and fiber sustainably for the projected 9 billion people by 2050 (Vorosmarty et. al., 2000; Foley, 2014). One way to address this problem is through conservation agriculture and improved soil quality by focusing on soil health and the related effects on animal production, food quality, and economic viability of vertically integrated farming systems. This integrated collaborative project, **Soil, Animal, Food, and Economic (SAFE) Research, Education, and Outreach**, will utilize a systems approach to explore how changes to soil management practices alter food production outcomes, with an emphasis on equipping current producers with resources to better inform on farm decision making practices and providing future producers with access to information through increased utilization of technology and hands on learning in high school agricultural education programs. To accomplish this, over a three-year period various soil plots will be established, and a livestock feed crop (MTSU), vegetable crop (UTM), and forage crop (TTU) will be grown in each plot because of the soil quality. The feed crop will then be used for silage to feed livestock, in this case, dairy cattle. Milk from the dairy cows will be used to produce dairy food products. At each step of the food systems, soil, crops, milk, and milk food products will be analyzed for various characteristics. Those characteristics will then be analyzed to determine the economic relationships between soil quality for feed and food production to milk quality and dairy food product quality. As research is executed, new course development and existing course enhancement will occur, and outreach efforts will target farmers and high school agricultural education teachers through field day activities, seminars, webinars, publications, and professional development activities. This approach will allow us to simultaneously support in practice farmers and educate the next generation of agriculturists so that we can increasing the number of students entering food and agriculture-related science, technology, engineering, and mathematics (Ag-STEM) disciplines.

The following objectives will guide this work:

Objective 1 - Utilize soil management practices to improve crop and pasture production for enhanced productivity and food quality across different food systems.

Objective 2 - Establish a food system training center to provide support in the areas production, processing, preservation, safety, and food science education.



Figure 2. Undergraduate experiential learning



Figure 3. Overview of SAFE plot on UTM Teaching and Demonstration Farm

April 2021, The University of Tennessee, on behalf of its Martin campus, had a grand opening to elaborate the acquisition and future use of the Coon Creek Science Center. (Figure 4)



Figure 4. Coon Creek Science Center facilities

The property was obtained from the Pink Palace of Museums for institutional use as a field laboratory for teaching, outreach, and research activities in Geosciences, Natural Resources Management, Astronomy, and Agriculture. The Coon Creek Science Center is one of a dozen most significant fossil sites in North America. The site has yielded over 600 different species of marine creatures, preserved as unaltered fossils. The Pink Palace museum's Coon Creek Science Center collection – includes skull and skeletal remains of a 25ft. Mosasaur – dating from the late Cretaceous, 75 million years ago, (a.k.a. -- the end of the Age of Dinosaurs) (Figure 5). The University will utilize the property to offer enhanced undergraduate and graduate courses; public summer programming; Eco- and Paleo- tourism; and research. STEM teacher training is also performed and will continue at the site.



Figure 5. Coon Creek Science Center Fossil Dig

Funding provided by the Tennessee Department of Agriculture and the Tennessee Agriculture Enhancement Program funded the establishment and operation of a West Tennessee Animal Disease Diagnostic Laboratory (Figure 6 a, b, c, & d) that opened on July 1, 2008. This laboratory serves as a satellite of the C.E. Kord Laboratory at the Ellington Agriculture Center in Nashville, Tennessee. Necropsies performed on animals used for food or fiber are performed at no charge to producers and public partners and all other lab services are performed on a fee schedule. The lab increases public and corporate partnerships with outreach efforts, in addition to being a valuable teaching tool. The lab is also used for instruction and demonstration for students and visiting groups that come to campus.



Figure 6 a, b, c, & d. West Tennessee Animal Disease Diagnostic Laboratory.

The Veterinary Health Technology Option in Animal Science provides students an opportunity to earn a 4-year degree with a major in Agriculture, while meeting all the qualifications established by the American Veterinary Medical Association to sit for the National Licensing Exam for Veterinary Technicians. The Veterinary Health Technology Option received initial accreditation in May 2014 from the American Veterinary Medical Association and the Committee on Veterinary Technician Education and Activities (CVTEA). We had our CVTEA site accreditation visit in February 2019 and received full accreditation through 2024.

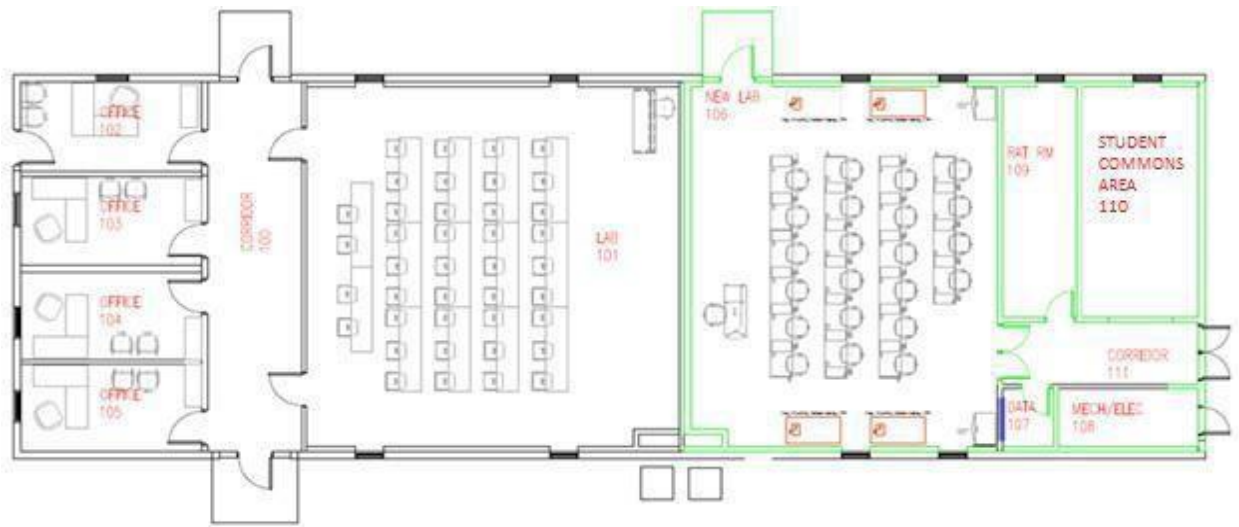


Figure 7. Vet Health Tech Facility Floor Plan

During spring 2015, a free stall barn adjacent to the Veterinary Technology Lab was partially renovated using Title III grant funds, as well as funds secured from a USDA RBEG grant. The Title III grant is providing over \$300,000 over five years and includes a four-phase renovation (Figure 7) to the free stall barn. The barn was eventually renamed the Veterinary Health Technology Facility. Phase I work totaled approximately \$140,000 and the partial renovation created a new state of the art smart classroom equipped with Clear Touch Panel computing technology. Phase II and III renovations began in 2016 and were completed in the summer of 2018 to provide four office spaces (Figure 8) and a state-of-the-art laboratory for Veterinary Technology students.

Most recently, Title III grant funds were used for phase IV renovations on the rear section of the Veterinary Health Technology Facility to create a new teaching laboratory (Figure 9) for laboratory animals and a new student commons area for the growing Veterinary Health Technology Program. This project was started during the 2017-2018 academic year and was completed during the 2018-2019 academic year. During the 2019-2020 academic year, this facility growth of the Veterinary Health Technology option increased available instruction and research capacity for all Animal Science faculty.

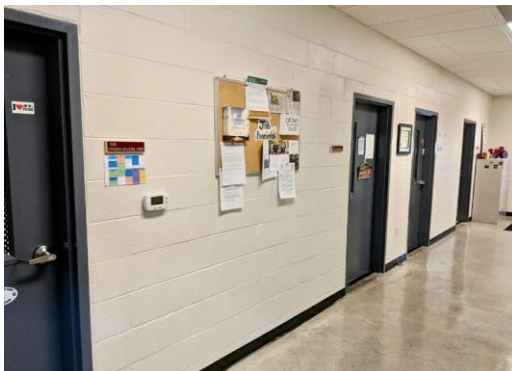


Figure 8. Offices at Vet Health Tech Facility



Figure 9. New Laboratory at Vet Health Tech Facility

Another important experiential learning project that has been funded through the UTM Provost's Office, is the design and construction of a new Beef Evaluation Center. The center has been renamed the Cattle Education and Reproduction Laboratory (CERL). CERL will provide experiential learning opportunities for animal science students utilizing and growing the current cow-calf herd. CERL will include a 1,245 ft² laboratory and a 250 ft² student commons area, (Figure 10) and a large, covered livestock working facility. This laboratory will also increase available interdisciplinary research capacity for all Animal Science faculty. This project was expected to begin in Fall 2018; however, it was delayed due to increased steel prices that carried the project total over budget. Fundraising is underway by Chancellor Freeman and University Advancement and construction is TBD. Fencing was added Spring 2020 for farm production, research, and pasture in preparation for construction (Figure 11a and 11b).

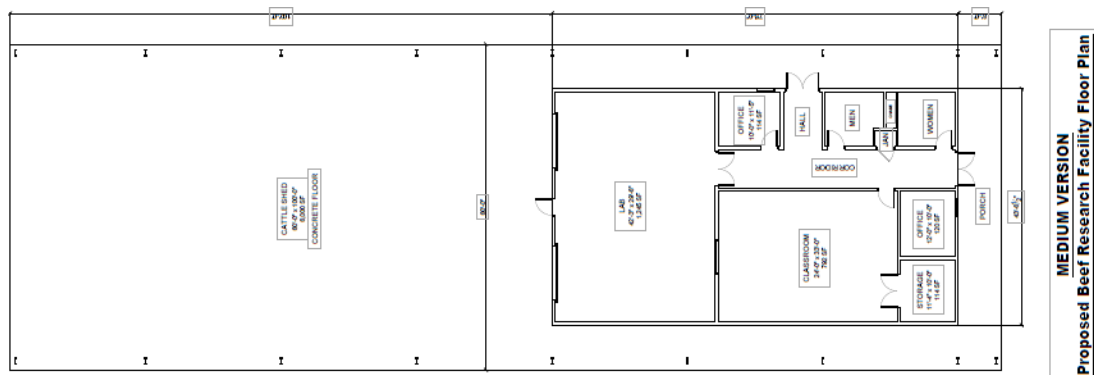


Figure 10. CERL Floor Plan.



Figure 11a & b. New fencing around future CERL location.

In August 2023, planning and programming for this facility resumed with UTM and UTK Office of Capital Projects. Our current schedule is as follows:

Meetings

- August 18th
- September 15th
- September 29th
- October 4th or 11th
- October 20th
- November 3rd

Tasks

- NTP / Kickoff Meeting
- Stakeholder Meetings / Space Plan Questionnaires
- Review Space Plan and Standards
- Design Team Site Visit to Martin
- Review the Deliverable Package for Feedback
- Deadline: Final Deliverable Submission

In 2012, alumni faculty member Dr. Bob Hathcock, with the support of current faculty member Dr. Joseph Mehlhorn and the Northwest Tennessee Beekeepers Association, installed a small 11-hive apiary on the north end of the UTM Teaching and Demonstration Farm. The purpose of this apiary was to provide a vehicle for instruction/outreach regarding best management practices in beekeeping for West Tennessee beekeepers. In 2016, Dr. Hathcock and the Association turned the apiary over to the Department of AGN for future use and upkeep. In 2017, the apiary was upgraded to 25 hives and the Department of AGN began to involve Teaching and Demonstration Farm student workers to complete apiary maintenance (Figure 12a and 12b). This provides a unique hands-on learning experience for these students. The apiary also allowed for cross-collaboration between the Department of AGN and other departments on campus such as faculty and students from the Department of Chemistry.

Beginning September 2017, honey and lip balm from the apiary is being sold in the UTM Bookstore, at UTM football games, and at other public events on the UTM campus. This project continued to be successful and continued to grow through 2020. COVID-19 years, 2021-2022, resulted in an overall reduction in our number of hives and a subsequent reduction in our production.



Figure 12a and b. Student workers completing apiary maintenance.

Currently, we have 14 active hives in 2023 and have developed a honey extraction facility within one of the old swine facilities on the UTM Teaching and Demonstration Farm. We have one full-time Teaching and Demonstration Farm employee along with 3-4 student workers providing leadership over and carrying out the day-to-day activities at the UTM Apiary.

The Center of Excellence has hosted the Tennessee Governor’s School for the Agricultural Sciences (TGSAS) since 2004. TGSAS provides exceptional agricultural experiential learning opportunity for Tennessee high school rising juniors and seniors. (Figure 13 a & b) The academic program is a 4-week residential program that covers a variety of agriculture and natural resource topics. Students’ complete college courses as well as learn research techniques through group study research projects. A copy of the 2023 TGSAS Annual Report can be found on the Center of Excellence web site: <http://www.utm.edu/departments/agnr/coe.php>

With the tremendous success of the Tennessee Governor’s School for the Agricultural Sciences from a student recruitment standpoint, there was an excellent opportunity to develop an “honors” program specifically for AGN students. With this vision and the help of a dedicated group of AGN faculty, the Agriculture, Geosciences, and Natural Resources Fellows Research Program (AGN-FRP) was born. The program includes an additional 3 hours of course work tailored AGN-FRP to enhance students’ investigative skills and promote undergraduate research. The AGN-FRP provides an opportunity for outstanding AGN students to gain organized experiences in research and scholarship through a mentored relationship with an AGN faculty member. The primary goal of the AGN-FRP is to foster and enhance undergraduate research in a manner that is mutually beneficial for the student and the faculty mentor. The additional training from the FRP program has positioned the students to be successful in advanced academic fields.



Figure 13. a) 2023 TGSAS Counselors



b.) Class of 2023 with staff and counselors

UT Martin continues partnership with Tyson Foods Inc.

The University of Tennessee at Martin has continued to partner with Tyson Foods Inc. to add chicken to the list of animals UT Martin students work with during agricultural production courses during FY2021-2022. Tyson provides the birds, which will be housed in a renovated barn facility on the UT Martin Teaching Farm. The facility officially opened March 1. This facility is currently used for teaching, research, and career training for students desiring to enter into the poultry workforce. (Figure 14a, b, & c)



Figure 14a, b, & c - New Tyson facility. Below is the ribbon cutting of the new Tyson facility at UTM and a picture of the Tyson facility on campus.



UT Martin receives Wildwood Farm gift

The University of Tennessee at Martin received the largest single gift in its history when Melanie Smith Taylor and her family announced that Wildwood Farm in Germantown, TN, will be transferred to the university upon her death. The gift will allow UT Martin to increase educational program offerings in veterinary technology and other agricultural disciplines soon. The gift will provide opportunities for UT Martin to collaborate with the University Tennessee Institute of Agriculture. (Figure 15a & b)

The farm includes 350-acres of mixed pasture and mature oak woodlots surrounded by dense residential development. The Big Barn was completed in 1935 and became the hub of equestrian history in the Mid-South. Originally built as one of the top American Saddlebred show stables in the country, Wildwood transformed into setting for many equestrian events.

The gift will make possible educational opportunities in veterinary technology, horsemanship, plant and soil science, environmental management, and natural resources management. Early programming will focus on adding cohort for veterinary technology to complete the core of 200-400 level veterinary technology courses.



Figure 15a. Ms. Melanie Taylor Smith (third from left) Wildwood Farm gift signing



Figure 15b. Aerial view of Wildwood Farm in the heart at Germantown, TN

Capacity Building Grants for Non-Land-Grant Colleges of Agriculture Program (NLGCA). Establishing a forage nutrition laboratory to strengthen forage-animal science curriculum and expanding outreach in livestock communities.

PI(s): **Lepcha, I.**, Naumann, H.D., Darroch, C., and Ary, C. 2021-2024. (\$300,000)

The productivity and nutritive value of cool-season forage species such as tall fescue decreases during hot and dry summer months, which is referred to as the “summer slump”. This typically occurs in the mid-south region including the state of Tennessee. Warm-season annual grass species can provide a useful option for supplemental summer forage in the region. They can be a good option either for grazing or to harvest as baleage for use in winter. Summer annuals are also higher in forage quality and can be more productive than warm-season perennials in a short period time, which qualifies for use as emergency forages during the drought periods. Our research at the University of Tennessee at Martin is currently investigating the use of drought-tolerant, warm season annual forage species such as: Teff (*Eragrostis tef*); sorghum-sudangrass [*S. bicolor* (L.) x *Sorghum sudanese* (Piper) Stapf; SxSU] and Pearl millet [*Pennisetum glaucum* (L); *PM*], as a potential solution for ‘summer slump’ providing summer forage for livestock producers in the region. (Figure 16a & b) The funding for this study was provided by the Capacity Building Grants for Non-Land Grant Colleges of Agriculture Program (NLGCA), United States Department of Agriculture, National Institute of Food and Agriculture (Project No: R054105183).

This study can potentially be a useful initiative to provide guidelines for the production and management of alternative warm-season forages in the region. This research will acquaint livestock producers with potential alternative summer forage species, their management, utilization, and nutritive values in the west Tennessee region. Besides, this will also provide an initial foundation for generating greater opportunities for UG students’ involvement in forage-livestock systems research and, initiating and strengthening much needed collaborations and/or affiliations with NGOs (Tennessee Cattlemen’s Association), extensions, companies, public universities, etc. for research, extensions, and student internships.



Figure 16a: UG research students participating in forage sampling at 35 days after planting



Figure 16b: Forage growth at 85 days after planting

Faculty and Staff of Center of Excellence for Experimental Learning in Agricultural Science

Center of Excellence Faculty

Name	Title	Area of Expertise
Ary, Clint	Associate Professor	Veterinary Science
Bird, Will	Associate Professor	Agricultural Education
Buttrey, Emalee	Associate Professor	Animal Science
Chesnut, Matt	Lab Instructor Assistant	Veterinary Science
Cole, John	Professor	Agricultural Engineering
Darroch, Barbara	Associate Professor	Plant and Soil Science
Garner, Kelly	Lab Instructor	Veterinary Science
Lepcha, Isaac	Lecturer	Plant and Soil Science
Mehlhorn, Joey	Director/Professor	TGSAS
Mehlhorn, Sandy	Associate Professor	Agricultural Engineering
Moore, Amber	Assistant Professor	Veterinary Science
Morphis, Zach	Lab Instructor	Veterinary Science
Pelren, Eric	Professor	Wildlife Biology
Roberts, Jason	Professor	Veterinary Science
Smartt, Philip	Professor	Natural Resources Management
Tewari, Rachna	Associate Professor	Agricultural Economics
Totten, Wes*	*Director/Professor	Plant and Soil Science
Waldon, Amanda	Lab Instructor	Veterinary Science
Walker, Danny	Associate Professor	Veterinary Science
Watson, Diana	Assistant Professor	Animal Science
Wolters, Bethany	Assistant Professor	Plant & Soil Science

Center of Excellence Staff

Arant, Carrie	Business Manager	Budgets and Accounting/TGSAS
Smithson, Callie	Business Manager	Budgets and Accounting/TGSAS
Bradford, Nathan	Teaching Farm Supervisor	Crop Management
Crockett, Jamie	Senior Farm Equipment Operator	Equipment Operation & Mgt
Bell, Kiersten	Administrative Associate	Student Support & Contracts
Jones, BeLynda	Administrative Associate	Veterinary Science/TGSAS
Leiter, Kim	Equestrian Coach Farm	Horsemanship
Woods, Tara	Research Associate	Animal Care and Support

Student Information

The Center of Excellence for Experimental Learning in Agricultural Science works closely with the Department of Agriculture, Geosciences, and Natural Resources to meet all student needs and the COE mission statement. The department has a current enrollment of approximately 1,270 students with areas of interest in Agricultural Business, Agricultural Science, Animal Science, Plant and Soil Science, Agricultural Engineering Technology, Geosciences, Wildlife Biology, Park Administration, Environmental Management, and Soil and Water Conservation. To see specific student awards and internships see Objective 8 on page 24.

Planned Program Activity in FY2021-2022

Activities of the Center for each general objective will include, but are not limited to:

Objective 1: Submit external grants seeking to support the Center of Excellence and its activities consistent with the mission and objectives of the Center of Excellence.

Target: Efforts will be directed at adding \$100,000 in new grants and contracts during FY 2022-23 and maintaining or continuing existing grants and contracts.

Response: During the 19th year of operation, faculty members of the Center of Excellence were successful in acquiring a total of \$1,626,059 in active grants (Appendix A). The continued success in acquiring external funding is due primarily to faculty appointments in the Department of Agriculture, Geosciences, and Natural Resources. The faculty identified potential funding sources and subsequently prepared grants and contracts from seven different funding agencies in FY2023. Along with this funding the faculty continued research from grants and contracts established with five different funding agencies in prior fiscal years. A full report of all grants funded can be found on the Center of Excellence web site. <https://www.utm.edu/offices-and-services/center-of-excellence/>

Objective 2: Continue with the planning and design phase of a \$2.5 million Beef Evaluation Center construction project.

Target: Renewed planning and fundraising for a new Beef Evaluation Center to support academics, cow-calf operation, and research and scholarly activity is underway for FY 2022-23. This facility will be comprised of a 40-seat state of the art classroom and student commons area. This laboratory will aid in student instruction but will also provide needed research space for undergraduate, graduate, and faculty research projects in all areas of animal science. The beginning of this project remains TBD.

Response: Activity with this objective has increased significantly beginning Fall 2021 to present. We are currently working with Mrs. Jenna Curtis-Swofford, Associate Vice Chancellor for Development and Planned Giving on this objective. A Beef Cattle Facility Board meeting was held on Friday, November 12, 2021, and just recently on Thursday, August 26, 2022, on the UT Martin campus to continue fundraising discussion and activities.

Objective 3: Partner with agronomic companies desiring demonstration areas for seed and chemical applications on a cost-sharing basis.

Target: Continue field operations for the 200-acres of crops currently in production emphasizing variety trials and demonstration plots for alternative crops. Complete a systematic review of all agricultural production areas of the COE and amend where necessary to ensure optimum productivity (pH, fertilization, organic matter, etc.). Identify new partnerships for field trials and alternative crops to enhance area agricultural enterprises. Continue to offer producer-oriented field day programs in cooperation with area equipment dealers, chemical companies, and/or seed companies.

Response:

Agrigold	Tyson Poultry Barn
Bayer CropScience	Syngenta
Beck's Hybrids	Nutrien Ag
Helena Chemical	Winfield Solutions
Weakley County Farmers Co-Op	Southern FS
Corteva Agrisciences	Greenpoint Ag

Objective 4: Generate timely, state-of-the-art information on key topics related to food, agriculture, and the environment with special attention to emerging issues that may have long-term implications for production of agricultural commodities while protecting natural resources in Tennessee.

Target: Seek to sponsor at least 30 speakers/programs that will be directed at enhancing knowledge of emerging issues in the agricultural sciences to include natural resources.

Response:

1. Michael Singer, Soil Scientist Natural Resource Conservation Service, Homer Alaska (virtual)
2. Ryan Winchester, District Conservationist Dresden Field Office, Natural Resource Conservation Service
3. Jeff Woodward, Resource Soil Scientist, Natural Resource Conservation Service
4. Lesley Schumacher, Research Plant Pathologist-Nematologist, USDA Agricultural Research Service, Jackson, TN
5. Brad Thompson, City Manager of Martin
6. Vaughn Cassidy, Office of Sustainable Practices, Tennessee Department of Environmental Conservation, Jackson Field Office
7. Stephen Maupin, Director of Tennessee Soybean Board
8. Lillian Bruner, Appalachia CARES Americorp Member, NRCS Dresden
9. Jason Maxedon, Director, TWRA
10. Mike Butler, Director, TN Wildlife Federation
11. Darren Miller, Past-President, The Wildlife Society
12. Barron Crawford, Manager TN National Wildlife Refuge Complex, US Fish and Wildlife Service
13. Pandy English, Owner, Tennessee Healthy Habitats LLC
14. Scotty Mason, Fire Prevention and Training Officer, US Forest Service, LBL
15. Alex Tamboli, Biologist, Quail Forever
16. Colin Stanley, Biologist, Quail Forever
17. Damon Hollis, Forester, TWRA
18. Ben Kuhn, Forester, TWRA
19. Rob Lewis, Biologist, TWRA
20. Brad Buttrey, Livestock Producer
21. Isaac Mecklin, USDA APHIS Wildlife Services
22. Tiffany Penland, Fisheries Biologist, TWRA
23. Rick Eastridge, Biologist, US Fish and Wildlife Service
24. Nancy Kiernan, KY Department of Fish and Wildlife Resources
25. Dr. Heather Kelly, Extension/Research Plant Pathologist and IPM Coordinator, UT Extension/UTIA (as part of the Soybean Disease Field Day and as a speaker in the classroom)
26. Dr. Tyson Raper, Extension/Research cotton agronomist, UT Extension/UTIA, and others (as part of Cotton Tour).
27. Don Carter, Tobacco farmer
28. Dr. Joey Williams, Bayer Crop Science
29. Dr. Mark Gadlage, Corteva
30. Dr. Heather Kelly, Extension/Research Plant Pathologist and IPM Coordinator, UT Extension/UTIA (as part of the Soybean Disease Field Day and as a speaker in the classroom)
31. Dr. Tyson Raper, Extension/Research cotton agronomist, UT Extension/UTIA, and others (as part of Cotton Tour).

32. Don Carter, Tobacco farmer
33. Dr. Joey Williams, Bayer Crop Science
34. Dr. Mark Gadlage, Corteva
35. Nate Rottero and Nicole Glenn - Beck's Seed
36. Garrett Montgomery-Technology Development Rep-Bayer
37. Jacob Taylor-Field Service Tech-Quail Unlimited
38. Jody Watson-not sure of his title-ACI Distributors
39. Jeni Simmons, Breeder-Tech Tyson
40. Rachel Stegall, Tosh Farms (not sure her title)
41. Leslie Wereszczak, MS, LVMT, VTS(ECC), In person Recovery lecture and simulation, University of Tennessee Veterinary School, Knoxville, TN
42. Lillie Bruner, NRCS, Paris, TN, April 2023
43. Tori Giffin, UT Extension, March 2023
44. Himani Pathak, Deputy Commissioner of Agriculture, State of Uttarakhand, India April 2023 (Virtual)
45. Josh Justice (fall and spring semester) VET 320, Nathan Bedford Forrest State Park
46. Denver Melton, Tyson, VET 320

Objective 5: Communicate the objectives of the COE and related action programs to raise public awareness of the importance of the agricultural sciences and natural resources to the economic wellbeing of Tennessee and the surrounding areas.

Target: Continue to utilize technology to enhance education for on-campus and off-campus students. Endeavor to offer at least one new program promoting agriculture and natural resources in Tennessee. Maintain and enhance course offerings for dual enrollment programs with high school students in Tennessee. Offer at least ten department courses for online delivery.

Response: The following courses were taught for high school dual enrollment credit in the 2022-23 academic year and below is the current flier that was distributed to the high schools.

AGEC 110	Introduction to Agricultural Business
AGEC 250	Introduction Agricultural Sales
ANSC 110	Introduction Animal Science
ANSC 210	Introduction Horse Science
ANSC 230	Exotic & Companion Animal Management
ANSC 260	Behavior Farm & Companion Animal
ANSC 270	Animal Welfare and Ethics
GEOL 110	Introduction Physical Geology
GEOL 120	Environmental Geology
PLSC 110	Introduction Plant & Soil Science

In addition to the dual credit courses, many courses were offered for online delivery as well. All Agriculture Business courses are now offered online, in addition to numerous courses in all programs in agriculture and natural resources within the AGN department. New courses are being developed and added online yearly by COE faculty.

AGRICULTURE PATHWAY FOR DUAL ENROLLMENT STUDENTS

Dual enrollment students are encouraged to satisfy general education requirements prior to taking agriculture-specific concentration courses.
Students can earn up to 30 hours which could allow them to graduate college in three years.

GENERAL EDUCATION

English (9 hrs): ENGL 111, 210* COMM 230*	Mathematics (6 hrs): MATH 140* MATH 230*	Social Science (6 hrs): POSC 210, 220 PSYC 101 SOC 201, 202
Fine Arts (3 hrs): ART 110 ARTH 211 MUS 111, 112 THEA 110, 111	Physical Systems (8 hrs): GEOS 110/101 GEOS 120/120L*	Humanities (9 hrs): HIST 121, 122 HIST 201, 202 PHIL 110, 120

CONCENTRATION-SPECIFIC

Agribusiness or Farm & Ranch Mgt. (6 hrs): PLSC 110 ANSC 110 AGEC 110 AGEC 250 AGEC 271	Animal & Vet Science (6 hrs): AGEC 110 ANSC 110 ANSC 210 ANSC 250 ANSC 260	Plant Science (6 hrs): PLSC 210 MATH 140* NRM 101 MATH 140* ESTC 101 SOC 201, 202
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Courses in **ITALICS** can also be used for multiple concentrations. (Example: AGEC 110 can be used in the Animal & Vet Science, Agribusiness, and Farm & Ranch Management concentration.)

FOR MORE INFORMATION, CONTACT:

Dr. Wes Totten (731)881-7262 | wtotten@utm.edu Erica Bell (731)881-7089 | ebell@utm.edu

COURSE TITLES

Courses from the front page are listed below with their full class title.

GENERAL EDUCATION

ART 110- Understanding Visual Art	MATH 210*- Elementary Statistics and Probability
ARTH 211- The History of Art	MUS 113- Masterpieces of Music
COMM 230*- Public Speaking	MUS 110- Music in Our Time
ENGL 111- English Composition	PHIL 110- Adventure of Ideas: Historical
ENGL 112*- English Composition	PHIL 120- Adventure of Ideas: Contemporary
GEOS 110/101*- Geoscience in Everyday Life	POSC 210- American Government and Politics
GEOS 130/130L*- Global Change and Earth History	POSC 220- American Political Institutions and Policy
HIST 121- Development of World Civilization I	PSYC 101- Introduction to Psychology
HIST 122- Development of World Civilization II	SOC 201- General Sociology
HIST 201- History of the United States I	SOC 202- Social Problems
HIST 202- History of the United States II	THEA 110- Understanding Theatre
MATH 140*- College Algebra and Elementary Functions	THEA 111- Understanding Theatre

CONCENTRATION

AGEC 110- Introduction to Agricultural Business	ANSC 270- Animal Welfare and Ethics
AGEC 250- Introduction to Agricultural Sales	MATH 140*- College Algebra and Elementary Functions
AGEC 271- Farm Management	NRM 101- Wildlife, Conservation and Environmental Issues
ANSC 110- Introduction to Animal Science	PLSC 110- Introductory Plant and Soil Science
ANSC 210- Introduction to Horse Science	PSYC 101- Introduction to Psychology
ANSC 230- Exotic and Companion Animal Management	SOC 201- General Sociology
ANSC 260- Behavior of Farm and Companion Animals	SOC 202- Social Problems

*Prerequisites:
ENGL 112 - C or higher in ENGL 111.
COMM 230 - C or higher in ENGL 111.
GEOS 120/120L - GEOS 110/101 or any 2 semesters of university-level lab science.
MATH 140 - Two units of high school algebra and a 20 ACT Math score.
MATH 210 - MATH 100-110, or 140, or 170, or 185, or 251 or a 24 ACT Math score.

UT MARTIN

Objective 6: Provide a forum for dialogue, debate, information sharing, and consensus building among policymakers, researchers, and leaders in non-governmental organizations, the private sector, and media through seminars, workshops, conferences, service learning, and publications.

Target: Plan and present at least 8 seminars/workshops on current topics of interest to animal and crop producers, as well as programs in natural resource management.

Response:

Conferences/Workshops

1. Pick Tennessee Conference—attendees **Bethany Wolters** and Gracie Carmon.
2. Experiential Learning Leadership Institute Conference—attendees **Bethany Wolters**.
3. Soil Science Association of Tennessee annual meeting—attendee **Bethany Wolters**.
4. Summer Celebration Field Day—attendees **Bethany Wolters**, Gracie Carmon, Carrington Harrison, Allison Zelensky.
5. Minorities in Agriculture, Natural Resources and Related Sciences—attendees **Bethany Wolters** (advisor), Annie Jones (advisor), **Wes Totten**, Jennifer Harrell, Qualon Swift-Goff, James McClanahan, Rebecca Rangel, Lamyia Hatton.
6. Southeastern Association of Fish and Wildlife Agencies Annual Conference, Fall 2022. **Eric Pelren** and 14 students.
7. TN Chapter of The Wildlife Society Annual Conference, Spring 2023. **Eric Pelren** and 3 students
8. Soybean Disease Field Day, Milan Research and Education Center, Milan, TN. Fall 2022 Attended by **Barb Darroch** and students in PLSC 322.
9. Cotton Tour, West Tennessee Ag Research and Education Center, Jackson, TN. Fall 2022 Attended by **Bethany Wolters** and students in PLSC 433.
10. The 2022 International Annual Meetings of ASA, CSSA, and SSSA. Baltimore, MD. Fall 2022, Attended by **Barb Darroch, Bethany Wolters, Isaac Lepcha, Rachna Tewari**, and 4 students.
11. Tennessee Academy of Science Annual Meeting. Nashville, TN. Fall 2022, Attended by **Barb Darroch, Craig Darroch**, and several students (and other faculty members as well).
12. Tennessee Soybean Promotion Board Annual Meeting, Nashville, TN. Spring 2023 Attended by **Barb Darroch and Craig Darroch**.
13. Tennessee Academy of Science annual meeting attended by **Sandy Mehlhorn** and students.
14. Tennessee Association of Professional Surveyors annual meeting, Attended by **Sandy Mehlhorn** and students.

15. Music City Veterinary Conference , Murfreesboro, TN Spring 2023 Attended by **Jason Roberts, Amber Moore, Danny Walker, Diana Watson, Clint Ary, BeLynda Jones, Amanda Waldon, Matt Chesnut, Kelly Kennedy** and 20 students attended. **Amanda Waldon** planned the tech track for this conference. **Danny Walker** was a speaker.
16. Tennessee Academy of Science Annual meeting Tennessee State **Clint Ary, Amber Moore, Diana Watson.**
17. VMX Jan 2023, Orlando, FL Attended by **Amanda Waldon.**

Presentations:

1. Braden, I. S., V.S. Green, B.A. **Darroch, R. Tewari**, H. Giles, B. Rougeau, and K. Costello. 2022. Enhancing the undergraduate student experience: chronicles from an agroecosystems field course. Presented at 2022 International Annual Meetings of ASA, CSSA, and SSSA. Baltimore, MD. November 2022.
2. Carmon*, Gracie. **B. Darroch, B. Wolters, and C. S. Darroch.** 2022. Is soybean nodulation and nutrient availability affected by poultry litter application? Presented at 2022 International Annual Meetings of ASA, CSSA, and SSSA. Baltimore, MD. November 2022.
3. Carmon*, Gracie, **C.S. Darroch, B. Wolters, and B.A. Darroch.** 2022. Weed emergence in soybean straw residue and poultry litter. Presented at 2022 Tennessee Academy of Science Meeting, Nashville, TN. November 2022.
4. Saunders*, Gorman. 2022. Best Job I Ever Had: My Introduction to Plant Pathology and Agricultural Research. Presented at 2022 International Annual Meetings of ASA, CSSA, and SSSA. Baltimore, MD. November 2022.
5. Experiencing anatomy at a deeper level: Reconstruction of a goat
Lilly Mahaney*, Grant Funderburk, Montana Wright, **Diana Watson**, Jack Grubaugh, Ray Witmer.
6. Learning Through Leadership: Planning a National Convention
Alissa Carter, Laura Myhan, **Diana Watson, Sandy Mehlhorn and Ross Pruitt.**
7. Experiences that Engage and Enable Students to Pursue Post Graduate Studies
Emily Nave*, **Diana Watson and James Smart.**
8. UTM Agronomy club student Madelyn Holbrook presented her poster titled ‘Dry Matter Yields of warm-season annual forages’ at the ASA, CSSA, SSSA conference in Baltimore, MD, in November 2022.
9. Madelyn also presented her research titled ‘Effects of Harvest Intervals on Dry Matter Yields of Common Warm-season Annual Forages in West Tennessee’ At the Southern Association of Agricultural Scientists (SAAS) Meetings in Oklahoma City, Oklahoma, February 2023. **Dr. Isaac Lepcha** mentors Madelyn Holbrook.
10. At the Southern Agricultural Economics Association meetings in OK in February 2023, Rachel Davis, an agribusiness major, presented a poster on ‘A preliminary study exploring the use of crop growth models to simulate management scenarios for corn in Tennessee,’ and Katie Witbeck, also an agribusiness major presented a poster on ‘Willingness to pay for community-based climate change mitigation efforts: perception of attendees from an agriculture-focused conference.’ The students were mentored by **Drs. Tewari, Delmond, Lepcha, and Mehlhorn.**
11. Through the eyes of a horse, experimental identification of blind spots and education via virtual reality. Maggie Malone, Anna Green, **Jason Roberts**, Saman Sargolzaei. Selected as a poster presentation for Tennessee Academy of Science annual meeting November 18, 2022 Tennessee State University.

Publications

1. **Wolters, B.,** Angel, H., & **Lepcha, I.** (2023). Student perception and performance with self-guided learning in soil science laboratory courses. *Natural Sciences Education*, 52, e20120. <https://doi.org/10.1002/nse2.20120>.
2. Bittel, A., L. Hopmann, K. Witbeck, **R. Tewari**, and **J. Mehlhorn.** Willingness to pay for community-based climate change mitigation efforts: perception of attendees from an agriculture-focused conference. Southern Agricultural Economics Association. Oklahoma City, OK. February 2023.
3. Davis, R., **A. Delmond**, R. Tewari, **I. Lepcha, and J. Mehlhorn.** A preliminary study exploring the use of crop growth models to simulate management scenarios for corn in Tennessee. Southern Agricultural Economics Association. Oklahoma City, OK. February 2023.
4. Tewari, R., C. Letot, and **J. Mehlhorn.** Enhancing climate literacy through CLASS: augmenting the teaching-learning process in rural secondary and postsecondary institutions. Oxford Education Research Symposium. Oxford, UK. December 2022.
5. Davis, R., R. Tewari, **A. Delmond, I. Lepcha and J. Mehlhorn.** Using the DSSAT (Decision Support System for Agrotechnology Transfer) crop growth model to simulate corn yields in Tennessee. American Society of Agronomy Meetings, Baltimore, MD, November 2022.
6. Braden, I., S. Green, **B. Darroch, *R. Tewari**, H. Giles, B. Rougeau, and K. Costello. Enhancing the Undergraduate Student Experience: Chronicles from an Agroecosystems Field Course. Soils Science Society of America Education Section. Baltimore, MD, November 2022.

7. R. Brown, **Tewari, R. J. Clark**. Report and updated proposal from TLC curriculum innovation/accreditation award working group. Presented at the Teaching, Learning and Communication Business Meeting, The Agricultural & Applied Economics Association's 2022 Annual Meeting, Anaheim, CA, July 2022.
8. **Dr. Isaac Lepcha**, co-authored a paper titled '*Previous legume crop influences winter barley yield, N fertilizer response, and malting quality in Missouri*' in Legume Science journal. Other authors were Dr. Michael Maw (lead author), Abraham Baldwin Agricultural College, GA, and Dr. Harley Naumann (co-author), University of Missouri, Columbia. The paper can be accessed on: <https://onlinelibrary.wiley.com/doi/10.1002/leg3.182>

Objective 7: Provide enhanced laboratory facilities and resources to support experiential learning.

Target: Expand experiential learning experience for students with at least one international travel course and offer at least 40 opportunities for internship participation. Identify opportunities for international study or internships.

Response:

1. Graci Ellis, Tennessee Department of Environmental Conservation regional office in Jackson, TN
2. Ree Daniels, University of Georgia Extension, Tifton Experiment Station
3. Piper Huggins, USFW, Cross Creeks NWR, TN
4. Austin Morphis, TWRA, Camden Fisheries Unit, TN
5. Ryan Baker, TWRA, Camden Fisheries Unit, TN
6. Holton Hamilton, FWS, Tennessee NWR
7. Courtney Hutchison, FWS, Tennessee NWR
8. Amber Ingleburger, FWS, Tennessee NWR
9. Raelynn Weber, FWS, Tennessee NWR, TN
10. Mikey Rushing, TWRA wildlife intern, upper Obion County WMA complex, TN
11. Carson Morrow, Tn State Parks, Reelfoot Lake State Park, TN
12. Jake Morrison, American Bear Association, Vince Shute Wildlife Sanctuary, MN
13. Brian Caldwell, USFWS, Lower Hatchie/Chickasaw National Wildlife Refuge, TN
14. Emilia Harris, FWS, Hatchie NWR TN
15. Noah Widick, TWRA, Wolf River WMA TN
16. Kate Pilcher, FWS, Reelfoot NWR., TN
17. Audrey Grimes, Kentucky Department of Fish and Wildlife Resources, Camp John Currie, Benton, KY
18. Gabi Coombs, Out of the Woods Wildlife Rescue and Rehab, Millington, TN
19. Clay Dixon, USDA National Sedimentation Laboratory, Water Quality and Ecology Research Unit, Oxford, MS
20. Craig Anderson, TWRA, Meeman-Shelby
21. Drake Hodge, Camp Bob Cooper, Summerton, SC. Wildlife Instructor
22. Clara Lindsey, USFWS, Cross Creeks NWR
23. Rachel Ashley, Mayfield Animal Clinic, Mayfield, KY
24. Madeline Bagsby, Nashville Veterinary Specialist, Nashville, TN
25. Chloe Cook, Auburn University, Auburn, AL
26. LaQueena Cox, McGehee Animal, Memphis, TN
27. Faith Gable, Nashville Veterinary Specialist, Nashville, TN
28. Amanda Hudgins, Your Pet Dentist of Nashville, Nashville, TN
29. Emily Ison, Auburn University, Auburn, AL
30. Justin Nelson, Memphis Veterinary Specialist/ St. Jude, Memphis, TN
31. Erica Peevyhouse, Nashville Veterinary Specialist, Nashville, TN
32. Kelsey Peoples, Auburn University, Auburn, AL
33. Lauren Ricigliano, Auburn University, Auburn, AL
34. Kyla Segebart, Nashville Veterinary Specialist, Nashville, TN
35. Naomi Sherman, Nashville Veterinary Specialist, Nashville, TN
36. Taylor Simmons, Memphis Veterinary Specialist, Memphis, TN
37. Anna Woodall, Auburn University, Auburn, AL

38. Gracie Aric, Nashville Veterinary Specialist, Nashville, TN
39. Robyn Armatys, Northwest TN Veterinary Services, Dresden, TN
40. Marcie Bass, TN Equine Hospital, West Thompson's Station, TN
41. Rachael Benjamin, Nashville Veterinary Specialist, Nashville, TN
42. Kelsey Brozyna, Auburn University, Auburn, AL
43. Jessica Bruketta, Bells Animal Clinic, Bells, TN
44. Cassie Carter, Auburn University, Auburn, AL
45. Ashley Diehl, Animal Care Hospital, Dyersburg, TN
46. Madeline Einerson, Nashville Veterinary Specialist, Nashville, TN
47. Adrienne Huestis, Auburn University, Auburn, AL
48. Roxie Jacobs, Nashville Veterinary Specialist, Nashville, TN
49. Mary Jones, Hooks Clinic, Martin, TN
50. Haley Kane, Rood and Riddle Equine Hospital, Lexington, KY
51. Alissa Layland, UTCVM, Knoxville, TN
52. Abigail Meck, Memphis Veterinary Specialist, Memphis, TN
53. Kilah Mincy, Nashville Veterinary Specialist, Nashville, TN
54. Autumn Murphy, Mineral Wells Animal Clinic, Paris, TN
55. William Ren, Nashville Veterinary Specialist, Nashville, TN
56. Heather Rhodes, New England Medical and Surgical Center, Dover, NH
57. Alexandra Smith, Nashville Veterinary Specialist, Nashville, TN
58. Karley Warner, UTCVM, Knoxville, TN
59. Gracie Carmon, Plant and Soil Science, University of Tennessee at Martin
60. Alesha Dodd, University of Tennessee Extension
61. Emma Dudley, West Tennessee Ag Research and Education Center, University of Tennessee
62. Carrington Harris, Plant and Soil Science, University of Tennessee at Martin
63. Madeline Kail, West Tennessee Ag Research and Education Center, University of Tennessee
64. Dalton Luna, University of Tennessee at Martin Teaching and Demonstration Farm
65. James McClanahan, Blackberry Pond Farms, Martin, TN
66. Matthew Nanney, Nanney Farms
67. Grant Roberts, Volunteer Ag Services/Verell Farms
68. Gorman Saunders, West Tennessee Ag Research and Education Center, University of Tennessee
69. Ally Sisco, West Tennessee Ag Research and Education Center, University of Tennessee
70. Tanner Smith, Corteva Agriscience
71. Drew Ubehhor, AgCentric
72. Walker Weir, Zordi
73. Elizabeth Worley, Natural Resources Conservation Service, USDA

Objective 8: Support local, regional, and national competitions.

Target: Continue to host or participate in a minimum of 10 local, regional, and/or national competitions by UT Martin students and faculty.

Response:

1. Southeastern Wildlife Student Conclave, Spring 2023, Pelren and 19 students (numerous competitions, including quiz bowl)
2. Two undergraduate students (Gracie Carmon and Amanda Blazek) participated in the SASES Research Poster competition at the 2022 International Annual Meetings of ASA, CSSA, and SSSA. Baltimore, MD. November 2022.
3. Another undergraduate student, Gorman Saunders, participated in the SASES Internship Poster competition at the 2022 International Annual Meetings of ASA, CSSA, and SSSA. Baltimore, MD. November 2022.
4. Gracie Carmon participated in the student research poster contest at the Tennessee Academy of Science Annual Meeting. Nashville, TN. November 2022.
5. Four students, Ally Sisco, Elizabeth Worley, Dalton Luna and Tyler Ward, participated in the Crops Judging Contest at the NACTA (North American Colleges and Teachers of Agriculture) Judging Conference in Modesto, CA. April 2023.

6. Sandy Mehlhorn hosted the national convention for Delta Tau Alpha Agricultural Honor Society (March 30-April 1), included is the national Ag Quiz Bowl competition.
7. Tennessee Academy of Science Annual meeting Tennessee State
8. FFA Vet Science CDE State level, 180+ high school students from across TN April 2023
9. Rachna Tewari, Southern Ag. Econ Association) Quiz bowl, Oklahoma City, Feb 2023.
10. Rachna Tewari, Agricultural & Applied Economics Association Academic Quiz Bowl, 2022 Annual Meeting, Anaheim, CA, July 2022

Objective 9: Provide enhanced resources to assist in the operation of the Tennessee Governor's School for the Agricultural Sciences.

Target: Continue to seek new experiential learning opportunities for the Tennessee Governor's School for the Agricultural Sciences.

Response:

The Department of Agriculture, Geosciences, and Natural Resources hosted the 2023 Tennessee Governor's School for the Agricultural Sciences (TGSAS) on campus from May 27 – June 23, 2023. The program consisted of 35 scholars from across the state of Tennessee. Scholars completed three hours of college coursework. Courses taught included AGEC 110: Introduction to Agricultural Business or NRM 100: Introduction to Natural Resource Management. Scholars also participated in research activities through Group Study Projects (GSP). The GSP's covered precision agriculture and veterinary medicine. All GSP's covered the scientific method and focused on experimental research activities.

The TGSAS leadership team starting meeting early in the spring 2023 semester to start planning for the upcoming year. Our TGSAS counselors did an outstanding job with our scholars again this year.

These included field trips to the following:

- Tyson Tour, Union City, TN
- Yeargin Farm Tour, Greenfield, TN
- Tosh Farm Tour, Dresden, TN
- Green Plains Tour (Ethanol Plant), Obion Co, TN
- UTK Veterinary School Tour, Knoxville, TN
- UTK Neyland Stadium Tour, Knoxville, TN
- Tennessee State Capitol Tour, Nashville, TN
- Middle TN AgResearch and Education Center- Fishing, Nashville, TN
- TN Farm Bureau Headquarters, Columbia, TN
- TN Dept of Ag Tour (Diagnostic Lab) Memphis, TN
- Reelfoot Lake Tour, Lake Co, TN
- Greenwater Fish Farm, Milan, TN
- Wilson Farm and Soap, Dresden, TN

Objective 10: Provide local and regional experiential learning opportunities at the Coon Creek Science Center.

Target: Seek to sponsor at least 30 speakers/programs that will be directed at enhancing knowledge of emerging issues in the agricultural sciences to include natural resources.

Response: Due to lingering COVID-19 cases, speakers and programming at Coon Creek Science Center did not occur at expected/usual capacity for FY 2021-2022. Large gatherings were limited at CCSS during FY 2021-2022. Small groups of 4 or less, led by Dr. Michael Gibson as apart of UTM Geology classes, continued to be the majority of activity during this time at CCSS. Activity increased significantly in August 2022 of the 2022-2023 FY. Several large groups are slated for research and educational visits during the month, which is very positive.

Planned Program Activity in FY2023-2024

Activities of the Center of Excellence for each general objective will include, but are not limited to:

Objective 1: Submit external grants seeking to support the Center of Excellence and its activities consistent with the mission and objectives of the Center of Excellence.

Target: Efforts will be directed at adding \$100,000 in new grants and contracts during FY 2023-24 and maintaining or continuing existing grants and contracts.

Objective 2: Continue with the planning and design phase of a \$2.5 million Cattle Education and Reproduction Laboratory (CERL) construction project.

Target: Renewed planning and fundraising for CERL to support academics, cow-calf operation, and research and scholarly activity is underway for FY 2023-24. This facility will be comprised of a 50-seat state of the art classroom and student commons area. This laboratory will aid in student instruction but will also provide needed research space for undergraduate, graduate, and faculty research projects in all areas of animal science. The beginning of this project remains TBD.

Objective 3: Partner with agronomic companies desiring demonstration areas for seed and chemical applications on a cost-sharing basis.

Target: Continue field operations for the 200-acres of crops currently in production emphasizing variety trials and demonstration plots for alternative crops. Complete a systematic review of all agricultural production areas of the COE and amend where necessary to ensure optimum productivity (pH, fertilization, organic matter, etc.). Identify new partnerships for field trials and alternative crops to enhance area agricultural enterprises. Continue to offer producer-oriented field day programs in cooperation with area equipment dealers, chemical companies, and/or seed companies.

Objective 4: Generate timely, state-of-the-art information on key topics related to food, agriculture, and the environment with special attention to emerging issues that may have long-term implications for production of agricultural commodities while protecting natural resources in Tennessee.

Target: Seek to sponsor at least 25 speakers/programs that will be directed at enhancing knowledge of emerging issues in the agricultural sciences to include natural resources.

Objective 5: Communicate the objectives of the COE and related action programs to raise public awareness of the importance of the agricultural sciences and natural resources to the economic well-being of Tennessee and the surrounding areas.

Target: Continue to utilize technology to enhance education for on-campus and off-campus students. Endeavor to offer at least one new program promoting agriculture and natural resources in Tennessee. Maintain and enhance course offerings for dual enrollment programs with high school students in Tennessee. Offer at least ten department courses for online delivery.

Objective 6: Provide a forum for dialogue, debate, information sharing, and consensus building among policymakers, researchers, and leaders in non-governmental organizations, the private sector, and media through seminars, workshops, conferences, service learning, and publications.

Target: Plan and present at least 8 seminars/workshops on current topics of interest to animal and crop producers, as well as programs in natural resource management.

Objective 7: Provide enhanced laboratory facilities and resources to support experiential learning.

Target: Expand experiential learning experience for students with at least one international travel course and offer at least 40 opportunities for internship participation. Identify opportunities for international study or internships.

Objective 8: Support local, regional, and national competitions.

Target: Continue to host or participate in a minimum of 8 local, regional, and/or national competitions by UT Martin students and faculty.

Objective 9: Provide enhanced resources to assist in the operation of the Tennessee Governor's School for the Agricultural Sciences.

Target: Continue to seek new experiential learning opportunities for the Tennessee Governor's School for the Agricultural Sciences.

Objective 10: Provide local and regional experiential learning opportunities at the Coon Creek Science Center.

Target: Seek to sponsor at least 10 speakers/programs that will be directed at enhancing knowledge of emerging issues in the agricultural sciences to include natural resources.

Schedule 7

CENTERS OF EXCELLENCE ACTUAL, PROPOSED, AND REQUESTED BUDGET

Institution:	University of Tennessee, Martin						Center:	Experimental Learning in Agricultural Science		
	FY 2022-23 Actual			FY 2023-24 Proposed				FY 2024-25 Requested		
	Matching	Appopr.	Total	Matching	Appopr.	Total		Matching	Appopr.	Total
Expenditures										
Salaries										
Faculty	\$49,542	\$47,000	\$96,542	0	\$49,000	\$49,000	0	\$51,000	\$51,000	
Other Professional	\$39,222	\$58,000	\$97,222	0	\$60,000	\$60,000	0	\$62,000	\$62,000	
Clerical/ Supporting	\$52,430	\$30,000	\$82,430	\$13,000	\$32,000	\$45,000	\$14,000	\$34,000	\$48,000	
Assistantships	\$125,577	\$14,000	\$139,577	\$62,000	\$15,000	\$77,000	\$63,000	\$16,000	\$79,000	
Total Salaries (exclude Longevity)	\$266,771	\$149,000	\$415,771	\$75,000	\$156,000	\$231,000	\$77,000	\$163,000	\$240,000	
Longevity (Excluded from Salaries)	\$4,111	0	\$4,111	\$5,000	0	\$5,000	\$5,000	0	\$5,000	
Fringe Benefits	\$33,066	\$84,000	\$117,066	\$10,500	0	\$10,500	\$11,000	0	\$11,000	
Total Personnel	\$303,948	\$233,000	\$536,948	\$90,500	\$156,000	\$246,500	\$93,000	\$163,000	\$256,000	
Non-Personnel										
Travel	\$25,952	\$10,000	\$35,952	\$6,000	\$11,000	\$17,000	\$6,500	\$12,000	\$18,500	
Software			\$0			\$0			\$0	
Books & Journals			\$0			\$0			\$0	
Other Supplies	\$343,417	\$73,991	\$417,408	\$92,899	\$159,482	\$252,381	\$97,779	\$157,252	\$255,031	
Equipment	\$29,217		\$29,217	\$17,500		\$17,500	\$20,000		\$20,000	
Maintenance			\$0	\$11,000		\$11,000	\$12,000		\$12,000	
Scholarships			\$0	\$5,000		\$5,000	\$6,000		\$6,000	
Consultants			\$0	\$32,000		\$32,000	\$34,000		\$34,000	
Other (Specify):										
Printing, Duplicating, Binding			\$0			\$0			\$0	
Postage, Freight, & Telephone			\$0			\$0			\$0	
Professional Serv & Memberships			\$0			\$0			\$0	
Computer Services			\$0			\$0			\$0	
Rentals			\$0	\$13,000		\$13,000	\$14,000		\$14,000	
Grants & Subsidies			\$0			\$0			\$0	
Contractual & Special Services			\$0			\$0			\$0	
Other Expenditures	\$18,968	\$10,000	\$28,968	\$11,000	\$12,000	\$23,000	\$12,000	\$13,000	\$25,000	
Entertainment, Food & Housing			\$0			\$0			\$0	
Facilities & Admin	\$74,233		\$74,233			\$0			\$0	
Direct Cost Sharing			\$0			\$0			\$0	
Total Non-Personnel	\$491,787	\$93,991	\$585,778	\$188,399	\$182,482	\$370,881	\$202,279	\$182,252	\$384,531	
GRAND TOTAL	\$795,735	\$326,991	\$1,122,726	\$278,899	\$338,482	\$617,381	\$295,279	\$345,252	\$640,531	
Revenue										
New State Appropriation		\$326,991	\$326,991		\$338,482	\$338,482		\$345,252	\$345,252	
Carryover State Appropriation			\$0			\$0			\$0	
New Matching Funds	\$795,735		\$795,735	\$278,899		\$278,899	\$295,279		\$295,279	
Carryover from Previous Matching Funds			\$0			\$0			\$0	
Total Revenue	\$795,735	\$326,991	\$1,122,726	\$278,899	\$338,482	\$617,381	\$295,279	\$345,252	\$640,531	

Staffing of the Center of Excellence for Experimental Learning in Agricultural Science

The staffing strategy for the COE focuses on bringing a diversity of talent to the Center of Excellence to better meet the goals and objectives of the Center of Excellence. This is accomplished by offering staffing appointments ranging from 25 percent to 50 percent to faculty and staff of the Department of Agriculture, Geosciences, and Natural Resources. Staffing includes a Director (25 percent appointment) and Business Manager (25 percent appointment) and faculty who are selected through a proposal process (25 percent appointments and one cooperating faculty member with no formal assigned appointment) and the Director of the Tennessee Governor's School for the Agricultural Sciences. Three support staff members are also assigned to the COE. Staffing assignments (with COE appointment percent) include:

Administration:

Dr. Wes Totten	Director (25%)
Mrs. Carrie Arant	Business Manager (25%)
Mrs. Callie Smithson	Business Manager (25%)

2022-23 RFP Faculty:

Dr. Clint Ary	Animal Diagnostic Lab (25%)
Dr. Philip Smartt	Park and Recreation and Forestry (25%)

Staff:

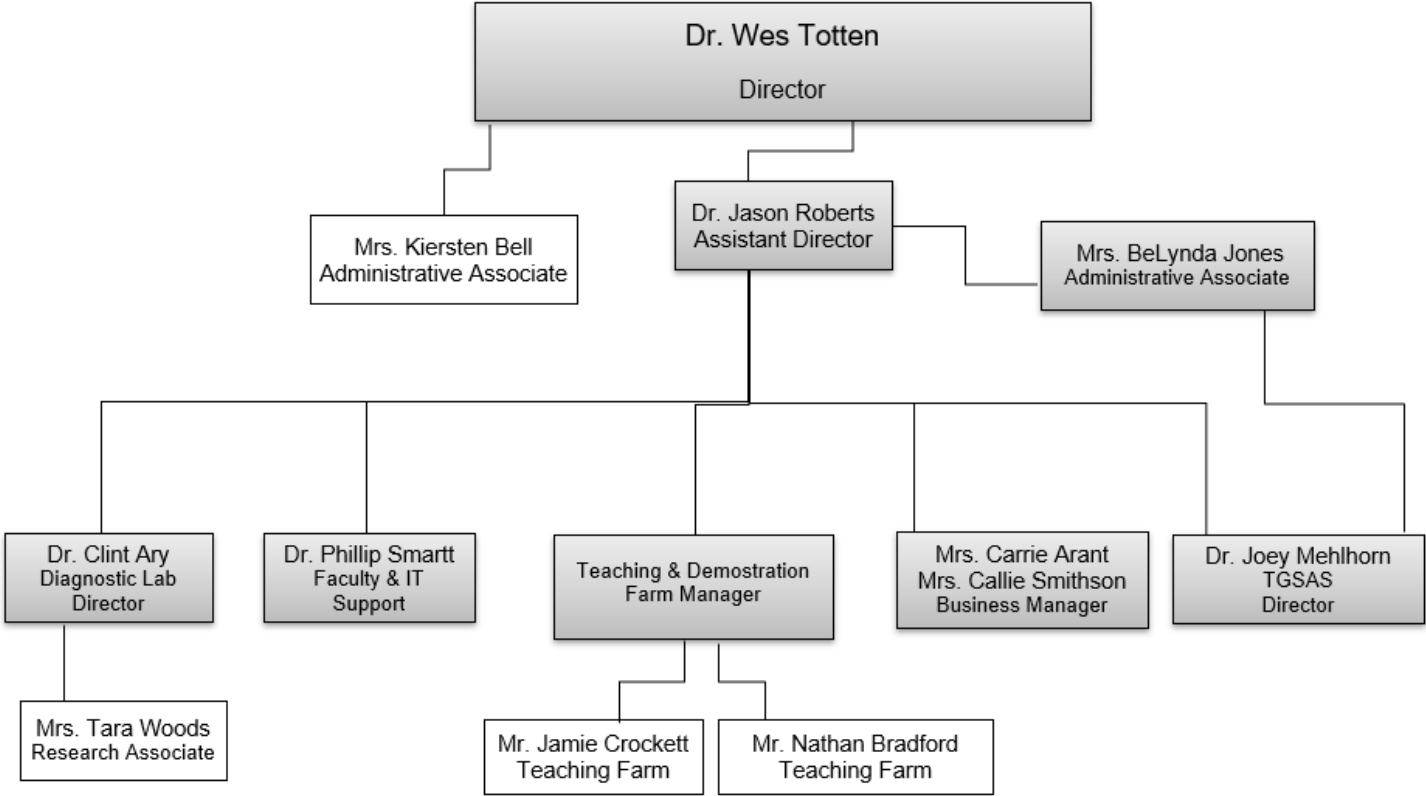
Mr. Nathan Bradford	Teaching and Demonstration Farm/Ag Pavilion (100%)
Mr. Jamie Crockett	Teaching and Demonstration Farm/Ag Pavilion (100%)
Mrs. Tara Woods	Research Associate/Diagnostic Laboratory (100%)

A complete Faculty/Staff listing is on page 10.

An organizational staffing chart is included.

Center of Excellence for Experimental Learning in Agricultural Science

Organizational Staffing



Contact Information



Dr. Wes Totten
Department Chair – Director of COE
Professor, Plant and Soil Science
(731) 881-7262
257 Brehm Hall
ftotten@utm.edu



Dr. Jason Roberts
Asst. Director of COE
DVM, Professor, Animal Science
Director of Veterinary Technology
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216 Football Press Box
jrober29@utm.edu



Mrs. Carrie Arant
Business Manager
(731) 881-7221
253 Brehm Hall
carant@utm.edu
(July – November 2022)



Mrs. BeLynda Jones
Administrative Associate II
(731) 881-1011
208 Football Press Box
bjone124@utm.edu



Mrs. Callie Smithson
Business Manager
(731) 881-7221
256 Brehm Hall
csmiths3@utm.edu
(January 2023 – present)



Ms. Kiersten Bell
Administrative Associate
(731) 881-7260
256 Brehm Hall
kbell52@utm.edu

Appendix A

Summary of Contract, Grant and Unrestricted Gift Activity

Ary, Clint. Funding for operation of West Tennessee Animal Disease Diagnostic Laboratory. State of Tennessee, Department of Agriculture \$105,000 (Funded)

Bird, William and Bethany Wolters. “Soil, Animal, Food, and Economic (SAFE) Research, Education and Outreach.” United States Department of Agriculture, National Institute of Food and Agriculture. \$160,048 (Funded)

Darroch, Barbara. “Effect of poultry litter on soybean nodulation and yield - 2023.” Tennessee Soybean Promotion Board \$15,960 (Funded)

Darroch, Barbara. “Effect of poultry litter on soybean nodulation and yield - 2022.” Tennessee Soybean Promotion Board \$16,020 (Funded)

Darroch, Barbara. “Capacity Building for Enhanced Research and Experiential Education: Resilient Cropping Systems for the Upper Mid-South.” United States Department of Agriculture, National Institute of Food and Agriculture \$148,589 (Funded)

Darroch, Craig. “Use of soybean residue as an alternative litter material in broiler houses - 2021.” Tennessee Soybean Promotion Board \$5,000 (Funded)

Darroch, Craig. “Use of soybean residue as an alternative litter material in broiler houses - 2022.” Tennessee Soybean Promotion Board \$9,075 (Funded)

Grubaugh, Jack and Barb Darroch. “TN FY22 PD Survey UT Martin.” United States Department of Agriculture, Animal and Plant Health Inspection Service, Plant Protection and Quarantine \$22,000 (Funded)

Grubaugh, Jack and Barb Darroch. “TN FY23 PD Survey UT Martin.” United States Department of Agriculture, Animal and Plant Health Inspection Service, Plant Protection and Quarantine \$22,000 (Funded)

Grubaugh, Jack. “TN FY22 Asian Defoliator Survey 1S.1286.” United States Department of Agriculture, Animal and Plant Health Inspection Service, Plant Protection and Quarantine \$15,000 (Funded)

Grubaugh, Jack and Isaac Lepcha. “TN FY23 Asian Defoliator Survey 1S.1286.” United States Department of Agriculture, Animal and Plant Health Inspection Service, Plant Protection and Quarantine \$20,000 (Funded)

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