Center of Excellence for Experimental Learning in Agricultural Science

FY 2018 Annual Report

Department of Agriculture, Geosciences, and Natural Resources
Table of Contents

Mission Statement..................................................................................................................3
Executive Summary................................................................................................................4
Faculty/Staff ..........................................................................................................................9
Students .................................................................................................................................10

Planned Program Activity FY2018 and Response
  Objective 1 .....................................................................................................................11
  Objective 2 .....................................................................................................................11
  Objective 3 .....................................................................................................................11
  Objective 4 .....................................................................................................................12
  Objective 5 .....................................................................................................................12
  Objective 6 .....................................................................................................................14
  Objective 7 .....................................................................................................................15
  Objective 8 .....................................................................................................................22
  Objective 9 .....................................................................................................................24
  Objective 10 ...................................................................................................................26

Planned Program Activity FY2019 ....................................................................................27

Budget ...............................................................................................................................29

Staffing of the Center of Excellence ..................................................................................30

Organizational Chart .........................................................................................................31

Contact Information ..........................................................................................................32

Appendix A ..........................................................................................................................33
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 the 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 the 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 2001, attention has been devoted to establishing a model field laboratory facility 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 the operation of a teaching and demonstration farm to complement the 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 which meets the goals and objectives of the COE for Experimental Learning in Agricultural Science mission statement.

Presently, there are approximately 200 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 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 the 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 which 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 running for the last 33 years and is a cooperation between the city of Martin and university faculty, staff, and students which provides great community outreach and community service through the collection of more than 18,000 canned goods and toy donations for underprovided 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.
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 2) 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.

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 of 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 accreditation in May 2014 from the American Veterinary Medical Association and the Committee on Veterinary Technician Education and Activities (CVTEA).
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 for a four phase renovation (Figure 3) to the free stall barn. The barn was 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 ClearTouch 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 4) and a state of the art laboratory for Veterinary Technology students.

Title III grant funds are currently being used for phase IV renovations on the rear section of the Veterinary Health Technology Facility to create a new teaching laboratory (Figure 5) 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 will be completed before January 2019. This phase will help meet the growth of the Veterinary Health Technology option and will increase available research capacity for all Animal Science faculty.

Another important experiential learning project that has been funded through the UTM Provost’s Office, and construction will begin October 2018, is the design and construction of a new Beef
Evaluation Center. This center will provide experiential learning opportunities for animal science students utilizing and growing the current cow-calf herd. The Beef Evaluation Center will include a 1,245 ft$^2$ laboratory and a 250 ft$^2$ student commons area, (Figure 6 and 7) and a large covered livestock working facility. This laboratory will also increase available interdisciplinary research capacity for all Animal Science faculty.

Figure 6. Future Beef Evaluation Center location on Teaching and Demonstration Farm.

![Figure 6](image1.jpg)

Figure 7. Beef Evaluation Center Floor Plan.

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 (see Figure 8). This provides a unique hands-on learning experience for these students. The apiary has 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.
The Center of Excellence has hosted the Tennessee Governor’s School for the Agricultural Sciences (TGSAS) since 2004. (Figure 9) TGSAS provides exceptional agricultural experiential learning opportunity for Tennessee high school sophomores and juniors. 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 2018 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 Research Fellows Program (AGN-FRP) was born. The program includes an additional 12 hours of course work tailored to enhance students’ investigative skills and 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.
### Center of Excellence Faculty

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Area of Expertise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ary, Clint</td>
<td>Assistant Professor</td>
<td>Veterinary Science</td>
</tr>
<tr>
<td>Bird, Will</td>
<td>Assistant Professor</td>
<td>Agricultural Education</td>
</tr>
<tr>
<td>Buttrey, Emalee</td>
<td>Assistant Professor</td>
<td>Animal Science</td>
</tr>
<tr>
<td>Carroll, Erica</td>
<td>Lab Instructor</td>
<td>Veterinary Science</td>
</tr>
<tr>
<td>Cole, John T.</td>
<td>Lecturer</td>
<td>Agricultural Engineering</td>
</tr>
<tr>
<td>Darroch, Barbara</td>
<td>Assistant Professor</td>
<td>Plant and Soil Science</td>
</tr>
<tr>
<td>Gale, Paula</td>
<td>Professor</td>
<td>Soil Science</td>
</tr>
<tr>
<td>Mehlhorn, Joey</td>
<td>Director</td>
<td>TGSAS</td>
</tr>
<tr>
<td>Mehlhorn, Sandy</td>
<td>Associate Professor</td>
<td>Agricultural Engineering</td>
</tr>
<tr>
<td>Pelren, Eric</td>
<td>Professor</td>
<td>Wildlife Biology</td>
</tr>
<tr>
<td>Roberts, Jason</td>
<td>Associate Professor</td>
<td>Veterinary Science</td>
</tr>
<tr>
<td>Segar, Chrissie</td>
<td>Assistant Professor</td>
<td>Plant &amp; Soil Science</td>
</tr>
<tr>
<td>Simpson, R. Mark</td>
<td>Professor</td>
<td>Geosciences-GIS/Meteorology</td>
</tr>
<tr>
<td>Smartt, Philip</td>
<td>Professor</td>
<td>Natural Resources Management</td>
</tr>
<tr>
<td>Stubblefield, Renee</td>
<td>Lab Instructor</td>
<td>Veterinary Science</td>
</tr>
<tr>
<td>Tewari, Rachna</td>
<td>Associate Professor</td>
<td>Agricultural Economics</td>
</tr>
<tr>
<td>Totten, F. Wesley*</td>
<td>*Director/Professor</td>
<td>Plant Science</td>
</tr>
<tr>
<td>Waldon, Amanda</td>
<td>Lab Instructor</td>
<td>Veterinary Science</td>
</tr>
<tr>
<td>Walker, Danny</td>
<td>Associate Professor</td>
<td>Veterinary Science</td>
</tr>
<tr>
<td>Watson, Diana</td>
<td>Lecturer</td>
<td>Animal Science</td>
</tr>
</tbody>
</table>

### Center of Excellence Staff

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Area of Expertise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arant, Carrie</td>
<td>Business Manager</td>
<td>Budgets and Accounting</td>
</tr>
<tr>
<td>Bradford, Nathan</td>
<td>Teaching Farm Supervisor</td>
<td>Crop Management</td>
</tr>
<tr>
<td>Crockett, Jamie</td>
<td>Senior Farm Equipment Operator</td>
<td>Equipment Operation and Management</td>
</tr>
<tr>
<td>Cunningham-Corvin, Meghan</td>
<td>Equestrian Coach</td>
<td>Horsemanship</td>
</tr>
<tr>
<td>Jackson, Kim</td>
<td>Administrative Specialist</td>
<td>Student Support and Contracts</td>
</tr>
<tr>
<td>Jones, BeLynda</td>
<td>Administrative Specialist</td>
<td>Veterinary Health Technology</td>
</tr>
<tr>
<td>Leiter, Kim</td>
<td>Assistant Equestrian Coach</td>
<td>Horsemanship</td>
</tr>
<tr>
<td>Pierce, Mike</td>
<td>Farm Manager</td>
<td>Crop and Animal Management</td>
</tr>
<tr>
<td>Speight, Suezane</td>
<td>Administrative Specialist</td>
<td>TGSAS</td>
</tr>
<tr>
<td>Woods, Tara</td>
<td>Research Associate</td>
<td>Animal Care and Support</td>
</tr>
</tbody>
</table>
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 1,075 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 21.
Planned Program Activity in FY2018

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

Objective 1: Continue construction on the Veterinary Health Technology Facility.

Target: A 1,700 sq. ft. laboratory space and student commons area is currently under construction in FY 2017-2018. 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. This project should be completed by end of summer 2018.

Response: Title III grant funds are being used to further renovations of phase IV on the rear section/half of the Veterinary Health Technology Facility. These renovations will create a new teaching laboratory (Figure 5) for laboratory animals and a new student commons area for the growing Veterinary Health Technology Program. This project began during the 2016-2017 academic year and will be completed by December 2018. This phase will help meet the growth of the Veterinary Health Technology option and will increase available research capacity for all Animal Science faculty.

Objective 2: Submit external grants seeking to support the Center and its activities consistent with the mission and objectives of the Center.

Target: Efforts will be directed at adding $100,000 in new grants and contracts during FY 2017-18 and maintaining or continuing existing grants and contracts.

Response: During the 14th year of operation, faculty members of the Center of Excellence were successful in acquiring a total of $661,550 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 six different funding agencies in 2017-2018. 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.

http://www.utm.edu/departments/agnr/coe.php

Objective 3: Continue with the planning and design phase of a $1.5 million Beef Evaluation Center construction project.

Target: A new Beef Evaluation Center to support academics, cow-calf operation, and research and scholarly activity is underway for FY 2017-18. This facility will be comprised of a 40-seat state of the art classroom, a student commons area, and a large cattle working facility. 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. This project should be completed by end of summer 2020.
Response:
The architects have completed the plans and they have been sent out for bid. Construction is scheduled to begin in October 2018.

Objective 4: 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: Field operations continued for approximately 200-acres of field crops, including corn, soybeans, and wheat as principal cash crops (60-acres converted to hay production). Research plots for corn and soybean trials were established under the direction of Drs. Barbara Darroch and Paula Gale of the teaching faculty. Financial assistance from the Tennessee Soybean Promotion Council assists with soybean field trial research, and variety trial information is collected in cooperation with personnel from the University of Tennessee Institute of Agriculture Extension Service. Syngenta Corporate once again, played a major role in the research operations of the UT Martin farm this past year with several research trials that concluded in a field day for producers and other agricultural company personnel.

The Center of Excellence faculty and staff continue their relationships with H&R AgriPower and Tennessee Tractor, LLC for hosting equipment demonstrations and field day events on the Teaching Farm property. Companies providing seed and other planting materials to establish trials plots include:

- Bayer CropSciences
- Beck's Hybrids
- Helena Chemical
- Security Seed
- Syngenta
- Warren Seed
- Weakley County Farmers Co-op
- Winfield Solutions

Objective 5: Generate timely, state-of-the-art information on key topics related to food, agriculture, and the environment with special attention to emerging issues that might 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. Josh Justice, Nathan Bedford Forrest State Park- VET 320 (spring and fall)
2. Dr. Taintor DACVIM, DACVSMR, Auburn University, VET 340/VET 400
3. Erin Robbins LVT, Auburn University, VET 340/VET 400
4. Bob Tater, NCEMA, VET 320 (fall)
6. Dr. Heather Kelly, Extension/Research Plant Pathologist and IPM Coordinator, UT Extension/UTIA
7. Dr. Larry Steckel, Professor, Row Crop Weed Management, UT Extension/UTIA
8. Dr. Alan Windham, Professor of Plant Pathology, UT Extension/UTIA
9. Dr. Avat Shekoofa, Assistant Professor, Crop Physiologist, UTIA
10. Darrin Holder, Agronomy Manager, Winfield Solutions, Land O’Lakes
11. Shawn Butler, Research Associate II, UTIA
12. Jay Yeargin, Farmer, Yeargin Farms
13. Nick Hurdle, Graduate Student, University of Georgia – Tifton
14. Bethany Wolters, Graduate Student, Virginia Tech
15. Mike Saxton, NK Sales Representative, Syngenta
16. David Haggard, West Tennessee Regional Interpretive Specialist, Tennessee State Parks
17. Dr. Ray Jordan, Professor of Herpetology, Tennessee Technological University
18. Mr. Robert Brewer, Biology Associate Professor, Cleveland State Community College
19. Mr. Shawn Hughes, Park Ranger, Standing Stone State Park
20. Mr. Chris Cole, Park Manager, Standing Stone State Park
21. Mr. Steve Ward, Park Manager, Radnor Lake State Park
22. Ms. Sarah Geeslin, Park Ranger, Radnor Lake State Park
23. Andy Wright, Assistant Manager, Fall Creek Falls State Park
24. Bob Tarter, Natural History Educational Company of the Midsouth
25. Bob Holliday, Park Manager, Johnsonville State Historic Park
26. Dr. Heather Kelly, Disease Focus for IPM, UT Extension
27. Dr. Scott Stewart, Bt IPM, UT Extension
28. Dr. Larry Steckel, Weed IPM, UT Extension
29. Dr. Eric Walker, IPM in Tobacco and Specialty Crops, UT Extension
30. Mr. Joshua Jones, IPM in Corn, Soybeans and Cotton, Bayer CropSciences
31. Dr. Jack Grubaugh, Mosquito IPM, UTM Dept. of Biology
32. Mr. Gilbert of the Centerville, TN municipal golf course
33. Mr. Perkins of the NRCS office in Dresden, TN
34. Mr. Doss of Inco Ag Irrigation
35. Mr. Mike Pierce, Manager UTM Teaching Farm
36. Mr. Shane Joyner, Live Production Manager Tyson
37. Dr. Seth Krantz, Veterinarian Tosh Farms.
38. Ms. Deb Kidwell, Owner/operator Lake Nowhere Mule and Donkey Farm
39. Blake Brown – Superintendent, Milan Research and Education Center
40. Jeff Fore – Researcher, The Nature Conservancy
41. Steve DePew – Soil Survey Leader, MLRA 134, NRCS Tupelo, MS
42. Craig Harris – Soil Survey Staff Milan Field Office
Objective 6: 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 distance 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 Tennessee high schools. Offer at least five department courses for online delivery.

Response: The following courses were taught for dual enrollment credit in the 2017-18 academic year.

AGEC 110  Introduction to Agricultural Business
AGEC 250  Introduction Agricultural Sales
AGRI 240  History of American Agriculture
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.

**Objective 7**: 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:**

**Presentations**


**Sandy Mehlhorn**. June 2017. Does Homework Help in Assessment Preparation at the College Level? Annual Meeting North American College Teacher in Agriculture. West Lafayette, IN.


Sarah Miller. **Paula Gale and Barbara Darroch.** 2017. The Effect of Cover Crop Seeding Rate on Subsequent Soybean Yield in West Tennessee. UTM-MSU Joint Sigma Xi Symposium and Scholarfest. UT Martin.

**Paula M. Gale.** 2017. Cover Crops: What we know and what we would like to know. Annual Meeting Tennessee Agricultural Producers Association. Pigeon Forge, TN.


Syngenta conducted a field day for Helena, July 2017. UTM Champions Club and field plots on the farm at UT Martin. **Nathan Bradford.**

Syngenta conducted a field day for CPS, July 2017. UTM Champions Club and field plots on the farm at UT Martin. **Nathan Bradford.**

Beck’s. September, 2017 & March, 2018 Company Meeting. UTM Champions Club and field plots on the farm at UT Martin. **Nathan Bradford.**

**Mike Pierce.** 2017. Bee Presentation. 21st Century Club, Weldon Library, Martin, TN.


**Mike Pierce.** 2018. Bee Presentation. Traveling Farm Exhibit, Paul Meek Library, UT Martin, Martin, TN.

**Mike Pierce.** 2018. Bee Presentation. Martin Elementary School – Kiwanis Club, Martin, TN.

**Mike Pierce.** 2018. Bee Presentation. Town and Gown Breakfast, UT Martin, Martin, TN.

Northwest Tennessee Beekeepers Association holds it monthly meeting in the UT Martin Ag Pavilion. **Mike Pierce.**
Sandy Mehlhorn and Jeff Lannom. 2017. West Tennessee Ag Agents Association and Specialist Annual Meeting. UTM Champions Club Room, UT Martin, Martin, TN.

**Scholarly Activity**


Luitel, Kishor, Rachna Tewari, Joey Mehlhorn, Bonnie Daniel. “Classroom assessments to examine students’ awareness of their attitudes, values and reaction to learners to instruction.” Southern Agricultural Economics Association Meetings, Conference Paper. February 4, 2018.


**Professional Presentations**


Bird, Will and **Joey Mehlhorn**. “A longitudinal analysis of recruitment trends following university summer programs in agriculture for high school scholars.” Accepted for Poster Presentation 2018 NACTA Conference June 12-15, 2018, Ames, IA.


Singer, William, Will Bird, and **Joey Mehlhorn**. “Does it matter where you come from? A Qualitative comparison of effects on Tennessee Governor’s School for the Agricultural Sciences participants of varying demographic backgrounds.” Accepted for Poster Presentation 2018 NACTA Conference June 12-15, 2018, Ames, IA.

**Mehlhorn, Joey**. “Gale force winds in agriculture: Weathering the storm or riding the wave?” Credit Conference, Tennessee Bankers Association February 22-23, 2018.


Brown, Andrew, **Sandy Mehlhorn**, and **Joey Mehlhorn**. “Creating Synergy in Travel Study Experiences Across the Curriculum.” 70th CIEE Conference, Austin, TX November 8, 2017.


Baker, Carrie and **Sandy Mehlhorn**. “A Comparison of Accuracy and Precision of Recreational Grade GPS Units.” Oral presentation, Tennessee Geographic Information Council annual meeting, April 25-26, 2018, Burns, Tennessee.

Sullivan, Tina and **Sandy Mehlhorn**. “An In-Depth Look into Tennessee Agriculture: Who are Making the Most of Their Resources.” Student oral presentation, Tennessee Geographic Information Council annual meeting, April 25-26, 2018, Burns, Tennessee.


Abstracts


**Presentations without Published Abstracts**

Paula M. Gale. 2017. “Cover Crops: What we know and what we would like to know.” Annual meeting Tennessee Ag. Producers Assn. Pigeon Forge, TN.


Objective 8: 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: Student Internships/Experiential Learning Experiences and their respective Hosts:

1. Kenneth Abel - St. Jude
2. Chris Barkley - Nashville Veterinary Specialists
3. Chelsea Bear - Nashville Veterinary Specialists
4. Maigan Boyd - North Madison Animal Clinic
5. Savannah Brown - Trigg County Veterinary Clinic
6. Shelby Carter - Memphis Veterinary Specialists
7. Kirstie Childress - Northside Animal Clinic
8. Carly Dorval - Memphis Veterinary Specialists
9. Karlie Doyle - Parkway Animal Clinic
10. Makayla Harrison - Tennessee Equine Center
11. John Lawson Keeton - Henderson County Animal Clinic
12. Brittany McClanahan - Huntingdon Animal Clinic
13. Joanna Vise - Auburn University Veterinary School
14. Jaymie Chism - Munford Animal Clinic
15. Teri "Brooke" Allred - The Pet Hospitals
16. Kaitlyn Asmar - Blue Pearl
17. Blair Barber - Collierville Animal Clinic
18. Shannon Boggess - C.E. Kord
19. Trisha Crutcher - Veterinary Specialists
20. Bailey Forrester - Auburn Vet School
22. Kaylin Hedge - St. Louis Veterinary Specialty Services
23. Payton Hendershott - Animal Care Hospital
24. Miracle Jones - UTCVM
25. Laura Kimble - Shelby Center Hospital for Animals
26. Kayla Laub - Dyer County Animal Hospital
27. Leigh Malanga - UTCVM
28. Ashlyn Mitchell - Auburn Vet School
29. Madeline Moore - Nashville Veterinary Specialists
30. Lillian Peebles - Alpharetta Animal Hospital
31. McKenzie Potts - Nashville Veterinary Specialists
32. Stasha Prince - Murfreesboro Animal Clinic
33. Stephanie Taylor - Pet Emergency Clinic
34. Maryann Upchurch - Blue Pearl
35. Clint Beel - US Fish & Wildlife Service
36. Ben Chrestman - US Fish & Wildlife Service
37. Colton Barber - TN Wildlife Resources Agency
38. Thomas Dowdy - TN Stream Mitigation Program
39. Jerod Grooms - TN Wildlife Resources Agency
40. James Moore - US Fish & Wildlife Service
41. Shelby Blanton - TN Wildlife Resources Agency
42. Andre Delcalzo - US Forest Service
43. Chandler Prince - TN Dept. of Transportation
44. Katelyn Templeton - Knoxville Zoo
45. Brandon Weber - US Fish & Wildlife Service
46. Quanah Allen - US Fish & Wildlife Service
47. Michael Singer – NRCS
48. Vivica Miller – TN State Parks
49. Autumn McLaughlin – Monsanto Hawaii
50. James Davis - CPS
51. Matthew Smith - AgriGold
52. Thomas Bomar – Ellis Heating
53. Christopher Stanley - Monsanto
54. Jackson Baxter – Valley Irrigation
55. Grady Hood – ARP & American Farms
56. James Beesinger - Farm Credit Mid- America
57. Tristen Avent - Liberty Hill Farms
58. Victoria Dean – DuPont Pioneer
59. Elizabeth Hurt – UT Extension, Hardin County
60. Addison Davidson – USDA/NRCS
61. Sarah Dodd – UT Institute of Agriculture (UTIA)
62. Jess Bearse – UT Martin (with Paula Gale)
63. Will Singer – UT Martin (with Paula Gale)
64. Jacob Kennedy – Randy Todd Farms
65. Zach McNeill – BASF
66. Kristy Piper – Color Burst Landscapes
67. Kayley Tyner – UT Institute of Agriculture
68. Clint Beel - US Fish & Wildlife Service
69. Ben Chrestman - US Fish & Wildlife Service
70. Colton Barber - TN Wildlife Resources Agency
71. Thomas Dowdy - TN Stream Mitigation Program
72. Jerod Grooms - TN Wildlife Resources Agency
73. James Moore - US Fish & Wildlife Service
74. Shelby Blanton - TN Wildlife Resources Agency
75. Andre Delcalzo - US Forest Service
76. Chandler Prince - TN Dept. of Transportation
77. Katelyn Templeton - Knoxville Zoo
78. Brandon Weber - US Fish & Wildlife Service
79. Quanah Allen - US Fish & Wildlife Service
80. Jacob Barber - Louisville Bats
81. Zach Weatherford - Windyke Golf Club
82. Zach Williamson - Louisville Bats
83. Aaron Wolters - Maury Co. CO-OP
84. Austin Brewer - Valhalla Golf Club
85. Eric Gilbert - Vanderbilt Legends Club
86. Sharon Rayder - Chickasaw State Park
87. Timothy C. Robertson - New Johnsonville State Park
88. Bailey M. Barber - Mousetail Landing State Park
89. John M. Campbell - Self-Employed Consultant
90. Courtney L. White - Nathan Bedford Forrest State Park
91. Conner Simpson - Chester and Fowler farms
92. Matt Poteete – Monsanto
93. Travis Prather - UTM Farm

**Objective 9**: 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:**

**Competitions**

1. Tennessee Academy of Science – November 2017
2. American Society of Agricultural and Biological Engineers -¼ Scale Student Design Competition (1 staff and 5 students) June 2017
3. Tennessee Geographic Information Council annual meeting student competition winner was Tina Sullivan in April 2018
4. Southeastern Association of Fish and Wildlife Agencies Annual Conference, Louisville, KY – 25 students - October 2017
5. TN Chapter of The Wildlife Society Annual Meeting, Fall Creek Falls State Park, TN – 6 students - March 2018
6. Southeastern Wildlife Student Conclave, Louisiana State University, LA – 19 students - March 2018
7. North American College Teacher in Agriculture annual meeting
9. 2018 Southeastern Wildlife Student Conclave
10. Hosted Sustainable Agriculture Field School on UTM campus. Last week in July 2017. 20 students participated from Arkansas State University, Southeast Missouri State University and UT Martin.

11. Hosted Southeast Regional Collegiate Soils Contest. There were 98 participants representing 12 schools throughout the Southeast. October 2017, Moscow TN.

12. Hosted the National Collegiate Soils Contest. There were 226 participants representing 24 schools from Rhode Island to California. March 2018, Martin, TN.


14. Four Students participated in the SASES Crops Judging Showcase competition at the 2017


16. Took a team of six students to participate in the Crops Contest at the NACTA Judging Conference in Norfolk, NE, April 2018

17. SAEA (Southern Agricultural Economics Association) meetings held in Jacksonville, FL in February 2018 with about 8 students.

**Student Awards**

1. Sarah Anderson - Student Agriculture Section – 3rd place
2. Sarah Miller - John E. McMahan Horticulture Award
3. Kevin Robertson - Outstanding Agricultural Business Students
4. Aeron Smith - Outstanding Agricultural Business Students
5. Rebecca Arwood - Outstanding Online Agricultural Business Students
6. Will Nichols - Outstanding Online Agricultural Business Students
7. Erin Owenby - Outstanding Online Agricultural Business Students
8. Kelsey Lumpkin - Outstanding Agricultural Education Students
9. Coty Vannoy - Outstanding Agricultural Education Students
10. Janie Peery - Outstanding Agricultural Communications Student
11. Will Singer - Outstanding Agricultural Science Production Student
12. Tina Sullivan - Outstanding Agricultural Engineering Technology Student
13. Ben Kendall - Future Surveyor Award
14. Jessica Bearse - Outstanding Crop and Soil Management Student
15. Margaret Nagai – Outstanding Animal Science Student
16. Trisha Crutcher - Outstanding Veterinary Health Technology Students
17. Stephanie Taylor - Outstanding Veterinary Health Technology Students
18. Loren Campbell - Outstanding Veterinary Science Student
19. Shelby Blanton - UTM AGN Outstanding Wildlife Student Award
20. Robert Tamboli - UTM AGN Outstanding Wildlife Student Award
21. Quanah Allen - UTM AGN Byford Conservation Award
23. Jessica Bearse – 2nd place poster presentation undergraduate students - American Society of Agronomy
24. Nick Hurdle – Frank Heim Scholarship - American Society of Agronomy
25. Will Singer - UTM Outstanding Senior in Agronomy, American Society of Agronomy
26. Shelby Blanton - UTM AGN Outstanding Wildlife Student Award
27. Robert Tamboli - UTM AGN Outstanding Wildlife Student Award
28. Quanah Allen - UTM AGN Byford Conservation Award
Objective 10: 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 2018 Tennessee Governor’s School for the Agricultural Sciences (TGSAS) on campus from June 2 – June 30, 2018. The program consisted of 34 scholars from across the state of Tennessee. Scholars completed three hours of college coursework. Courses taught included AGEC 110: Introduction to Agribusiness 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.

Several educational study tours were incorporated throughout the 4-week program. These included field trips to the following:

1. Yeargin Farms Tour, Greenfield, TN
2. Woolfolk Farms, Medina, TN
3. AgriCenter International, Memphis, TN
4. Ducks Unlimited, Memphis, TN
5. Tosh Farms, Henry, TN
6. Batey Farms, Murfreesboro, TN
Planned Program Activity in FY2019

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

**Objective 1:** Complete construction on the Veterinary Health Technology Facility.

**Target:** Complete Phase IV of the facility renovation which includes a student commons area, an animal laboratory, improved parking area, and external renovations to improve the appearance of the building.

**Objective 2:** 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 2018-19 and maintaining or continuing existing grants and contracts.

**Objective 3:** Continue with the planning and design phase of a $1.5 million Beef Evaluation Center construction project.

**Target:** A new Beef Evaluation Center to support academics, cow-calf operation, and research and scholarly activity is underway for FY 2018-19. 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. This project should be completed by end of summer 2020.

**Objective 4:** 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 5:** 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.
**Objective 6:** 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.

**Objective 7:** 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 8:** 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 9:** 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.

**Objective 10:** 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.
### Schedule 7

**CENTERS OF EXCELLENCE ACTUAL, PROPOSED, AND REQUESTED BUDGET**

**Institution:** University of Tennessee at Martin  
**Center:** Experimental Learning in Agricultural Science

<table>
<thead>
<tr>
<th>Expenditures</th>
<th>FY 2017-18 Actual</th>
<th>FY 2018-19 Proposed</th>
<th>FY 2019-20 Requested</th>
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<tbody>
<tr>
<td><strong>Salaries</strong></td>
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<tr>
<td>Faculty</td>
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<td>Other Professional</td>
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<td><strong>Total Salaries</strong></td>
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<td>Longevity</td>
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<td>Fringe Benefits</td>
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<td><strong>Total Personnel</strong></td>
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<td>Non-Personnel</td>
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<tr>
<td>Travel</td>
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<td>Software</td>
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<tr>
<td>Books &amp; Journals</td>
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<td>$0</td>
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<tr>
<td>Other Supplies</td>
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<td>Equipment</td>
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<td>Maintenance</td>
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<td>Scholarships</td>
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<td>Consultants</td>
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<td>Other (Specify):</td>
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<td>$0</td>
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<td><strong>Rental and Ins</strong></td>
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<td><strong>Total Non-Personnel</strong></td>
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<td>$481,476</td>
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<td><strong>Revenue</strong></td>
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**GRAND TOTAL**  
- New State Appropriation: $294,588  
- Carryover State Appropriation: $0  
- New Matching Funds: $692,555  
- Carryover from Previous Matching Funds: $0  
- Total Revenue: $692,555

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**Total Salaries:** $251,400  
**Total Personnel:** $297,455  
**Total Non-Personnel:** $391,888  
**Total Revenue:** $689,343
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:

<table>
<thead>
<tr>
<th>Administration:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Wes Totten</td>
<td>Director (25%)</td>
</tr>
<tr>
<td>Mrs. Carrie Arant</td>
<td>Business Manager (25%)</td>
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</table>

<table>
<thead>
<tr>
<th>2018-19 RFP Faculty:</th>
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</thead>
<tbody>
<tr>
<td>Dr. Clint Ary</td>
<td>Animal Diagnostic Lab (25%)</td>
</tr>
<tr>
<td>Dr. Philip Smartt</td>
<td>Park and Recreation and Forestry (25%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Staff:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Michael Pierce</td>
<td>Teaching and Demonstration Farm/Ag Pavilion (100%)</td>
</tr>
<tr>
<td>Mr. Nathan Bradford</td>
<td>Teaching and Demonstration Farm/Ag Pavilion (100%)</td>
</tr>
<tr>
<td>Mr. Jamie Crockett</td>
<td>Teaching and Demonstration Farm/Ag Pavilion (100%)</td>
</tr>
<tr>
<td>Mrs. Tara Woods</td>
<td>Research Associate/Diagnostic Laboratory (100%)</td>
</tr>
</tbody>
</table>

A complete Faculty/Staff listing is on page 9. An organizational staffing chart is included.
Center of Excellence for Experimental Learning in the Agricultural Science

Organizational Staffing

Dr. Wes Totten
Director

Dr. Jason Roberts
Assistant Director

Dr. Clint Ary
Diagnostic Laboratory

Philip Smartt
Faculty & IT Support

Mike Pierce
Teaching and Demonstration Farm, Manager

Carrie Arant
Business Manager

Tara Woods
Research Associate

Nathan Bradford
Teaching Center Staff

Jamie Crockett
Teaching Center Staff

BeLynda Jones
Administration

Kim Jackson
Administration

Suezane Speight
Administration

Dr. Joey Mehlhorn
TGSAS, Director
Contact Information

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

Carrie Arant
Business Manager
(731) 881-7221
143 Brehm Hall
carant@utm.edu

Dr. Jason Roberts
Asst. Director of COE
DVM, Professor, Animal Science
Director of Veterinary Technology
(731) 881-1071
216 Football Press Box
jroberts@utm.edu

BeLynda Jones
Administrative Assistant II
(731) 881-1071
208 Football Press Box
bjone124@utm.edu
Summary of Contract, Grant and Unrestricted Gift Activity

Darroch, Barbara. “Effect of Planting Date and Maturity Group on Plant Development and Yield of Soybean.” Tennessee Soybean Promotion Board $13,345 (Funded)

Darroch, Barbara. “Effect of Planting Date and Maturity Group on Plant Development and Yield of Soybean.” Tennessee Soybean Promotion Board $13,340 (Funded)

Gale, Paula. “Capacity Building Across Upper Mid-South Institutions: Enhancing Teaching and Research (ETR) Through Cover Crop Management.” United States Department of Agriculture, National Institute of Food and Agriculture $40,367 (Funded)


Gale, Paula. “An Ecosystem Approach to Classification of Impacted Low Gradient Floodplains in MLRA 134: Connecting Soils, Landforms and Vegetation.” United States Department of Agriculture, Natural Resources Conservation Service $80,136 (Funded)

Gale, Paula. “Investigating Benchmark Soil Landscape in the South: Linking soils, landscapes, vegetation and hydrology.” United States Department of Agriculture, Natural Resources Conservation Service $60,958 (Funded)

Gale, Paula. “Nutrient Dynamics in Soils Along the Forked Deer River, North Jackson Restoration Site.” State of Tennessee, West Tennessee River Basin Authority $32,000 (Funded)

Mehlhorn, Joseph. “Tennessee Governor’s School for Agricultural Sciences” State of Tennessee, Department of Education $156,000 (Funded)

Mehlhorn, Sandy. “Development of Unmanned Aerial Systems in Precision Agriculture.” Tennessee Soybean Promotion Board $6,000 (Funded)

Mehlhorn, Sandy and Philip Smartt. “RTOT: Enhancing Unmanned Aerial System-based Precision Agriculture Education by Integrating Research, Teaching and Outreach in Tennessee” Subawardee with Middle Tennessee State University, United States Department of Agriculture, National Institute of Food and Agriculture $13,635 (Funded)


Roberts, Jason. Funding for operation of West Tennessee Animal Disease Diagnostic Laboratory. State of Tennessee, Department of Agriculture $125,000 (Funded)