Minutes
ASABE EOPD 210, NCAC16, and SAC5 Meeting

Meeting was held on February 10, 2020 in Phoenix, AZ.

Attendees:

1. Peter Livingston
2. John March
3. Juming Tang
4. Scott Shearer
5. Nate Moser
6. Paul Heinneman
7. Oladiran Fasina
8. Steve Mickelson
9. Steve Searcy
10. David Jones
11. Dwayne Edwards
12. Joe Harner
13. Kitt Farrell-Poe
14. Bruce Miller
15. John Veenstra
16. Gary Sands
17. Slava Adamchuk
18. Mike Montross
19. Kati Migliaccio
20. Julie Carrier
21. Garey Fox

Minutes of the 2019 meeting were approved.

University/Department Updates

Cal Poly

Peter Livingston
AgE, (35) Ag systems management (35)
Considering a name change of ASM
Pursuing ABET accreditation for ASM
Considering Ecological Engineering
Strong job.
Some down trend in applications

Cornell

John March
2 open positions
Smart Ag
FEWS interface
Student interest in Ag/Food is increasing
Students from Ag and Engineering.
13 faculty (would like to be to 20).

Washington State
- Yuming Tang
- 19 graduate students
- Faculty are winning grants from NSF and DOE
- Focusing on agri technology

Ohio State
- Scott Shearer
- 22 TT Faculty
- 22 non-TT
- Moved to common first year engineering experience
- CSM
  - Good job prospects
- ASM
  - 100 students
  - Digital ag
- 5 new faculty this year
- 2/3 of teaching load delivered by non-TT.
- ½ engineering students are biological engineering

Arizona
- Kitt Farrell-Poe
- New program 'Biosystems Analytics & Technology'
- Career track for PoP

Utah State
- Bruce Miller
- Technology programs only
- Enrollment is up
- Full UAS minor
- AST – 5 faculty
- Tech Systems – 8 faculty

Oklahoma State
- John Veenstra
- Ag Systems Management program to start in Fall 2020
  - Focus on precision ag
  - Working with plant and soil science
- Students are being routing through common 1st year.
- 16 faculyt
- 115 UG, 40 grads

U of Kentucky
- Mike Montross
- 17 faculty
- 3 open positions
- Slightly down in student numbers
- COE is pushing for an engineering technology program
  - ABET accredited

McGill

Slava Adamchuk
12 faculty + 2 lecturers
Record number of grad students
Non-research masters
Enrollment is up
2 new positions are open

Minnesota
Gary Sands
Bioproducts and bio-engineering (engineering) 200 students
Sustainable systems management (ag college) 100 students
Enrollment is flat but will rise in SSM.

Penn State
Paul Heineman
Department Head search
22 TT faculty + 7 nonTT
60 senior undergaduates
48 junior undergraduates
Biorenewable Systems BS
Business and science
2 years in new building

Purdue
Nate Moser
38 faculty
Data science space is growing
120 ASM
Engineering degrees
AgEng 120 students
Bioengineering 165
Accredited separately
Professional masters program partnering with pharm manufacturing
185 students
Merck
Bill and Melinda Gates Foundation
New building starting Jan 1 2021
Digital ag certificate program will be delivered through Purdue Global

Auburn
12 TT Faculty
Staff positions are growing
Technology program started in fall 2019
Biological and Agricultural Technology Management (BATMan)
Attempting to fill new positions
30-35 grad students

Iowa State
Steve Mickelson
Admin staff support moved to upper administration
Addressing diversity and inclusion
Survey of students
2 faculty retreats each year

- Agenda item for external advisory committee
- 750 UG
  - 300 engineers
  - 450 management
    - 300 Industrial Technology
    - 250 AST
- 85 grad students (50-50 MS-PhD)
- 42 faculty (34 TT + 8 non-TT)
- 3 open positions
  - Precision ag
  - Animal precision ag
  - Manufacturing

TAMU

- Steve Searcy
- 150-160 (Soph-Senior) Engineers
- COE has started an Environmental Engineering degree
- ASM – 140 students
- 21 TT with TAMU
- 11 TT with Extension
- Beginning to offer non-thesis MS in engineering
- Career connection event.
  - Promoted by external advisory council
  - Friday before football game
- Distance delivered MS in Food Engineering (and Food Technology)
  - Numbers are low
  - Students pay full freight
  - Targeted for working professionals

U of Florida

- Kati Migliaccio
- 5 new faculty
- 40 TT faculty
- 3 non-TT
- Certificate programs
  - Smart ag
  - Packaging
  - Modeling
  - All will go online
  - Mix of UG and Grad courses
  - In- lieu of minors
- Recruiting
  - Heavy communication with accepted students
  - Facebook live
  - Including job/career prospects
  - High Schooler visits to department (Cohorts)
  - Engineering REU
- First- and second-year programs routing through engineering education department
- Push for diversity
  - New diversity officer
  - Departmental diversity committee
  - New hire advocate

U of Tennessee
- Julie Carrier
- 27 faculty
- Xx engineering
- Yy in msym
- Zz in construction
- 38 grad students
- 4 faculty retirements
- Institute is starting Post-Tenure Review
- RCM

NCSU
- Garey Foxx
- 10 faculty in the previous 3 years
- 29 faculty (26 TT faculty)
- New chaired position in digital ag (proposed)
- 200 UG engineers
- 45-50 seniors
- Biological and Agricultural Engineering Technology program is growing.
  - 36 freshmen
  - Name change
- Successful with communication person

KSU
- Joe Harner
- State legislature dictates that there will be no carry-over.
- Environmental Engineering program will start in Fall 2020
  - Housed in BSE
- Be wise about common name for technology program name.
- 12 faculty
- 120 engineering students
- Becoming named department
  - No cash, but land gift
  - $50-75K per year
- 30 Grad students

Virginia Tech
- Dwayne Edwards
- 2 open faculty positions
- 21 faculty
- 1 nonTT
- Performance based budgeting
- 200 UG students (Soph-Senior)
  - Expected to increase (270 or so)
- 40 grads (50/50 ms/phd)
- Smart Farm Innovation initiative
- Centennial Celebration upcoming

UNL
- David Jones
- 36 TT
- 6 Affiliated
- 6 admin types

6 non-TT
70 AGEN (17)
200 BSEN (49)
85 MSYM
75 Grads
RCM

ABET Discussion

Purdue and Minnesota went through a visit.

Ecological Engineering

Share documents related to ecological engineering via EOPD-210 forums
Course syllabi
Curricula
NRES-28 Ecological Engineering (ASABE Committee)

NCAC16 2020 project reviews
Review Assignments - New/Renewal Proposals:

John March, Mike Montross
NC1023 (NC_temp1023), Engineering for food safety and quality,
https://www.nimss.org/projects/18685

Comments
The project renews an existing project that has been a highly successful multistate effort. The project is likely to continue to have success. The objectives of the project are appropriate and are: 1. Characterize physical, chemical, and biological properties of raw and processed foods, by-products, and packaging materials. 2. Develop advanced and sustainable processing and packaging technologies to transform raw materials into safe, high quality, health-promoting, and value-added foods. 3. Develop mechanistic and data-driven mathematical models to enhance understanding and optimization of processes and products that will ensure sustainable and agile food manufacturing for safe, high quality, and health-promoting foods. 4. Adapt pedagogical strategies involving novel educational approaches to enhance and assess student learning of food engineering. The project participants are involved in a meaningful way in the objectives. The project is both multistate and multidisciplinary but given nature of the project is dominated by various engineering disciplines and food scientists. Participants throughout the country are involved in the project. The project has been reviewed. The project has specific outcomes and impacts that it plans to attain with specific outcomes for various years identified in the proposal. The identification of the outcomes were identified from a range of inputs. The project that precedes this one was successful in leveraging resources from a range of sources to accomplish the objectives. The project is well aligned with NIFA goals.

The committee approved the recommendation.

Scott Shearer
NC_temp1210, Frontiers in On-Farm Experimentation, https://www.nimss.org/projects/18712
(New project for NC)

General Comments

- Agronomic researchers recognize value and capabilities of on-farm investigations using GNSS-controlled field machinery to implement more complex investigations (25 years after the introduction of this equipment).
- Authors recognize value in extending structured N field investigations to multiple geographic regions and crops.
- Recognize need to collect data to describe y=f(x, c, z) where x is a vectors containing "managed input variables," c is a vector containing "unmanaged field characteristics," and z is a vector of "unmanaged and temporally stochastic variables – primarily weather."
- Follows from an existing NIFA funded project led by David Bullock – Data-Intensive Farm Management (DIFM).
- Coined new term - On-Farm Precision Experimentation (OFPE).
- Some overlap with NCERA 180, SERA 17, SERA 46, NC 1195, S 1069 and W 3009; although more focused on the methodology for conducting on-farm research and analyzing data. I do not see a conflict.
- Proposal strong on developing process. Many elements are long-term. However, authors do define success at the conclusion of the 5-year proposal period.

Concerns/Suggestions

- Proposal is strong on use of web-based technologies and data analytics for designing, collecting, cleaning, and analyzing data. Partnership with private sector is referenced – laudable. How will project engage computer science expertise?
- Proposal implies data quality/integrity but focuses more on cleaning/pre-processing than solving problems up front via calibration.
- Proposal does not address limitations of equipment used to conduct field investigations.
- Project would benefit from integrations of more computer science and engineering participants.
- Long-term potential is significant given opportunities for industry engagement and re-envisioning of the role of Cooperative Extension.
- Recommend approval with minor modifications.
- Research Data Alliance – international
- Interest Group on Agricultural Data (FAO)

The committee approved the recommendation.

Paul Heinemann
NCERA197 (NCERA_temp197), Agricultural Safety and Health Research and Extension,
https://www.nimss.org/projects/18703

Comments
This is a small but very important community. Considering that safety and health in agricultural production and other related industries continues to be hazardous, and the fact that there are so few organizations and individuals addressing this, this project will continue to be a key in helping to coordinate activities between institutions. The proposal captures the essence of the group's intentions for the next five years. Right now, it seems that there should be more people involved; The project it is replacing has 25 individuals listed, so I assume that more participants will be added as the project gets confirmed. The narrative states that 1862, 1890, and 1994 land grant institutions will be

encouraged to participate, so the key people in the committee should reach out to ensure that all of these are represented, if possible.

The committee approved the recommendation.

Review Assignments - Midterm Reviews:
Steve Mickelson
NC170, Personal Protective Technologies for Current and Emerging Occupational and Environmental Hazards, https://www.nimss.org/projects/18359

The committee has been successful in holding annual meetings, either face-to-face or through teleconferencing. Participation in the annual meetings was strong. They are actively pursuing projects at each university to address the project objectives and have been successful in creating strong collaborations with industry and other organizations. They are in the early stages of their research and product development related to PPE. Overall, progress has been made in each objective area.

The committee member has each made progress in their own areas of study. Collaboration with firefighter agencies and technology industries was reported. Although the technical committee is sharing their individual study findings, there is little evidence of collaborative research and working together on projects. Nine member universities developed and piloted methods for a national 3D anthropometric survey of firefighters. There is also no evidence of working with other multistate programs. Efforts should be made to begin delivering accomplishments to peer groups and stakeholders moving forward.

There is little to no evidence of external funding from federal or state agencies. Most of the support is coming from local agencies. There seems to be interest by the technical members in using early data to pursue national research funding, but no documentation was provided. It appears that from the current impacts that the members are positioned to obtain external funding moving forward.

The committee has been very successful in publishing peer-reviewed journal papers and scientific/outreach presentations. More efforts should be placed on delivering results of their research to industry, organization, and other stakeholders. More collaboration between institutions would strengthen the plans and accomplishments.

The committee approved the recommendation.