5th Annual ARD Faculty Meeting
Thursday, August 16, 2018
<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:30 AM</td>
<td>Coffee/Registration</td>
</tr>
<tr>
<td>10:00 AM</td>
<td>ARD Updates</td>
</tr>
<tr>
<td>10:45 AM</td>
<td>New Faculty Introductions</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>Poster Sharing Session*</td>
</tr>
<tr>
<td>11:45 AM</td>
<td>Report Out – New Knowledge and Connections Gained from Poster Session</td>
</tr>
<tr>
<td>Noon</td>
<td>Lunch</td>
</tr>
<tr>
<td>1:00 PM</td>
<td>Communicating IANR Research Success</td>
</tr>
<tr>
<td>1:30 PM</td>
<td>Innovation in ARD Team Science</td>
</tr>
<tr>
<td>2:30 PM</td>
<td>Break</td>
</tr>
<tr>
<td>2:45 PM</td>
<td>The Role of Centers/Institutes/Initiatives in ARD Team Science</td>
</tr>
<tr>
<td>3:15 PM</td>
<td>Break</td>
</tr>
<tr>
<td>4:15 PM</td>
<td>Report Out – Suggestions for Next Events</td>
</tr>
<tr>
<td>4:30 PM</td>
<td>Social at The Mill (NIC location)</td>
</tr>
</tbody>
</table>

- Connections
- Collaboration
- Community
- Introductions
- Engagement
- Feedback
ARD Strategic Framework -
‘Supporting the Science to Ensure Resilient Food Systems and a Healthy Global Future’

Strategic Operational Priorities -
1. Support transition of ARD-affiliated Teams and Centers to sustained funding streams as recognized National/International leaders in Innovation and Impact.


1. Communicate Clearly our Mission and our Successes.
ARD
Team-Building

DOMINANCE
Priorities: getting immediate results, taking action, challenging self and others
Motivated by: power and authority, competition, winning, success
Fears: loss of control, being taken advantage of, vulnerability
You will notice: assertiveness, directness, tenacity, risk-taking
Limitations: lack of concern for others, impatience, impulsivity

INFLUENCE
Priorities: expressing enthusiasm, taking action, encouraging collaboration
Motivated by: social recognition, group activities, friendly relationships
Fears: social rejection, disapproval, loss of influence, being ignored
You will notice: charm, enthusiasm, sociability, optimism, talked about
Limitations: overreliance, disorganization, lack of follow through

DOMINTANCE
Active
Passive
Assume
Dynamic
Rigid

INFLUENCE
Accepting
People-oriented
Supportive
Receptive
Agreeable

CONSCIENTIOUSNESS
Priorities: accuracy, responsibility, challenging, integrity
Motivated by: opportunities to use expertise, set goals, learn, grow
Fears: critical, standards, being wrong, being wrong
You will notice: precision, planning, organization, quiet
Limitations: overly critical, tendency to over-analyze, indecisive

STEADINESS
Thoughtful
Moderate-paced
Calm
Methodical
Gentle
## ARD Investment Summaries

### ARD Program Investments

*As of August 1

<table>
<thead>
<tr>
<th>Funding Category</th>
<th>FY17</th>
<th>FY18</th>
<th>FY19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridge/Revision</td>
<td>$278,097</td>
<td>$10,000</td>
<td>$696,468</td>
</tr>
<tr>
<td>Foundation Programs</td>
<td>$593,305</td>
<td>$632,007</td>
<td>$2,465,589</td>
</tr>
<tr>
<td>Hatch Multistate/Animal Health/McIntire-Stennis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIFA Capacity Funding</td>
<td>$2,661,627</td>
<td>$2,451,631</td>
<td>$2,461,469</td>
</tr>
<tr>
<td>Hatch Multistate/Animal Health/McIntire-Stennis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Collaborations</td>
<td>$250,000</td>
<td>$493,427</td>
<td>$461,469</td>
</tr>
<tr>
<td>USMARC &amp; Global Engagement SPRINT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seed Grants</td>
<td>$213,399</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phenotyping</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Startup</td>
<td>$2,623,494</td>
<td>$2,766,044</td>
<td>$1,629,657</td>
</tr>
<tr>
<td>Strategic/Misc Funding</td>
<td>$2,118,999</td>
<td>$3,913,138</td>
<td>$660,685</td>
</tr>
<tr>
<td>Travel Awards</td>
<td>$24,200</td>
<td>$39,985</td>
<td>$11,000</td>
</tr>
<tr>
<td>Totals</td>
<td>$8,763,121</td>
<td>$10,306,231</td>
<td>$5,924,867</td>
</tr>
</tbody>
</table>

### ROI Example –

**ARD Bridge/Revision Funding in Calendar Years 2014/15**

- 10 applications received in 2014
- 4 applications received in 2015
- Overall success rate: 8 awards/14 applications = 57% success

- Total amount requested: $891,192
- Total amount awarded: $488,947
- Average award size: $61,118
- Number of PD/PI with external funding from Bridge/Revision Grant: 5
  - 5/8 = 63% of awardees received external funding after the IANR Bridge/Revision grant
- Amount of External Funding Leveraged: $3,720,580

> 7.6 fold return on investment.
ARD Investment Summaries -

FY17 Program Investments:
- Strategic/Misc Funding: 24.2%
- NIFA Capacity Funding: 30.4%
- Startup: 29.9%
- Seed Grants: 2.4%
- Research Collaborations: 2.9%
- Bridge/Revision: 3.2%
- Foundation Programs: 6.8%
- Travel: 0.3%

FY18 Program Investments:
- Foundation Programs: 6.1%
- NIFA Capacity Funding: 23.8%
- Research Collaborations: 4.8%
- Startup: 26.8%
- Strategic/Misc Funding: 38.0%
- Bridge/Revision: 0.1%
- Travel: 0.4%
**ARD Investment Summaries -**

### ARD Student Investments

<table>
<thead>
<tr>
<th>Funding Category</th>
<th>FY16</th>
<th>FY17</th>
<th>FY18</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Graduate Fellowships</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># of Awardees</td>
<td>15</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td>Amounts</td>
<td>$48,000</td>
<td>$45,500</td>
<td>$37,000</td>
</tr>
<tr>
<td><strong>Graduate Travel Awards</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># of Awardees</td>
<td>36</td>
<td>63</td>
<td>37</td>
</tr>
<tr>
<td>Amounts</td>
<td>$18,000</td>
<td>$21,050</td>
<td>$8,000</td>
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</table>

### ARD Startup Investments

<table>
<thead>
<tr>
<th></th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
<th>FY16</th>
<th>FY17</th>
<th>FY18</th>
<th>FY19</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Planned Annual Amounts</strong></td>
<td>$120,500</td>
<td>$1,826,544</td>
<td>$1,314,795</td>
<td>$2,086,320</td>
<td>$2,623,494</td>
<td>$2,766,044</td>
<td>$1,629,657</td>
<td>$12,367,354</td>
</tr>
<tr>
<td><strong>Last 6 Fiscal Years + Current</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ARD Startup Packages (FY13-FY23)</strong></td>
<td>$13,654,254</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% to Total Package Values</td>
<td>33%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Innovation in Graduation Education
Enhancing Potential Career Paths Outside Academia

• Build on existing and potential company partnerships in trans-disciplinary science
• Leverage Partnerships at Nebraska Innovation Campus
  – Provide participation in collaborative projects with companies
  – Provide opportunities for professional development training
    o Research Leaders
    o High Performance Teams
    o Project Management
    o Research Entrepreneurship

Developing Multi-Institutional proposal to the Foundation for Food and Agriculture Research (FFAR)
Husker entomology student receives FFAR fellow award

CONGRATULATIONS!!

Annie Kruoger
August 8, 2018
The 2018 FFAR Fellows

The Foundation for Food and Agriculture Research is pleased to announce the 2018 FFAR Fellows!

Scroll down to find out more about this year’s awardees.

The FFAR Fellows Program was established to provide professional development and career guidance to the next generation of food and agriculture scientists across FFAR’s seven Challenge Areas and strategic initiatives. By providing early career support to graduate students, the objective of this program is to cultivate supportive relationships between graduate students and industry peers to equip students with the skills needed to facilitate their transition to the workforce.

In addition to a $2.7 million commitment from FFAR, funding for the program will be matched by a consortium of industry leaders to fund 48 graduate students over three years in both research and professional development areas. By equipping students with the skills needed to excel in today’s challenging and fast-paced work environment, the FFAR Fellows Program intends to plant the seeds for the next generation of leaders in the food and agriculture industry.
Graduate Education Strategic Framework

Develop the vision for the IANR graduate education and align a framework that positions the Institute to:

- Push the boundaries of a traditional academic education to prepare graduates for diverse career pathways
- Provide students with an educational experience that prepares graduates whose leadership, discovery and innovation shape society

ARD INITIAL COMMITMENT - $400K
Introductions
Submit your successes

Recognizing faculty successes is an important part of the UNL Research Fair. We would like your help in gathering information for the Major Sponsored Programs & Faculty Awards booklet that is printed for the annual fall Research Fair. We seek information from the last fiscal year (July 1, 2017 – June 30, 2018). We are able to publish the recognitions only once because of space limitations. Please submit your successes by September 13, 2018 for inclusion in the awards booklet.
Doug Zalesky named ENREC director
U of Nebraska/USDA Collaborative Initiative

US Meat Animal Research Center

- 34,000 acres
- 50+ Scientists
- Beef, Swine, Sheep populations
- Farming Operations
- Long history of UNL collaborations

IANR/USMARC Collaborative Research Commitment (began in FY2014):

- Matching Investments - $250K each ($500K total) for each of 5 years
- Current Investment ~$2.5M
U of Nebraska/USDA Collaborative Initiative

Example Projects:

- Role of genotype x microbiome in feed efficiency of cattle
- Integration of genomic information in genetic selection of livestock
- Genetic susceptibility of cattle to bovine viral diarrhea
- Mitigating Salmonella risk in ground beef
- Strategies to improve heifer reproductive longevity
- Development and evaluation of tracking system for animal management
- Understanding porcine embryo elongation using an In Vitro culture system

- Sustainable Integrated Beef/Cropping Production Systems
- Mitigate Antibiotic Resistance in Beef Cattle Manure through Composting
- Understanding Attitudes towards Antimicrobial Risk-reducing Practices
"A big deal": #Nebraska U. is partnering with @IowaStateU, @unmc and @uiowa on a new national institute addressing antimicrobial resistance. bit.ly/2JYfYWq #UNL
Adding Cattle to Crop Fields Shows Potential to Increase Profits and Conserve Resources
Dr. John Pollak
Research Professor
Coordination Lead
Nebraska Integrated Beef Systems Initiative

WELCOME!!
Friday, November 9
Nebraska Innovation Campus

Overview
The Collaboration Initiative is designed to help University of Nebraska researchers become more competitive for extramural funding. It helps foster meaningful collaborations that leverage the full intellectual capacity of faculty across the campuses.
### 2018 IANR Director Leadership Council

<table>
<thead>
<tr>
<th>Center/Institute/Initiative</th>
<th>Director</th>
</tr>
</thead>
<tbody>
<tr>
<td>Redox Biology Center</td>
<td>Don Becker</td>
</tr>
<tr>
<td>Nebraska Virology Center</td>
<td>Charles Wood</td>
</tr>
<tr>
<td>Nebraska Food for Health Center</td>
<td>Andy Benson</td>
</tr>
<tr>
<td>Quantitative Life Sciences Initiative</td>
<td>Jennifer Clarke</td>
</tr>
<tr>
<td>National Drought Mitigation Center</td>
<td>Mark Svoboda</td>
</tr>
<tr>
<td>High Plains Regional Climate Center</td>
<td>Rezaul Mahmood</td>
</tr>
<tr>
<td>Center for Advanced Land Management Information Technologies</td>
<td>Brian Wardlow</td>
</tr>
<tr>
<td>Center for Grassland Studies</td>
<td>Steve Waller</td>
</tr>
<tr>
<td>Center for Biotechnology</td>
<td>Daneil Schachtman</td>
</tr>
<tr>
<td>Center for Plant Science Innovation</td>
<td>Ed Cahoon</td>
</tr>
<tr>
<td>Daugherty Water for Food Global Institute</td>
<td>Peter McCormick</td>
</tr>
<tr>
<td>Nebraska Center for the Prevention of Obesity Diseases</td>
<td>Janos Zempleni</td>
</tr>
<tr>
<td>Industrial Agricultural Products Center</td>
<td>Mark Wilkins</td>
</tr>
<tr>
<td>Nebraska Cooperative Fish &amp; Wildlife Research Unit</td>
<td>Craig Allen</td>
</tr>
<tr>
<td>The Food Processing Center</td>
<td>Terry Howell</td>
</tr>
</tbody>
</table>
Some of the goals of the IANR Director LC -

- Facilitate new interactions of Center Directors, and exploration of new Center Connections/New Initiatives

- Facilitate interactions with Academic Unit Heads (IANR LC Chaired by Ron Yoder)

- Share ‘Best Practices’
  • Strategic Frameworks/Plans
  • Sustainable Business Plans
  • Team-Building
  • Shared Faculty Evaluation

- Strengthen Mentoring and Support for Director Development
  • Annual Evaluation
  • Support for Director Professional Development Plans
Communicating IANR Research

Haley Apel – IANR Media Specialist
Communicating IANR Research

1. Why is it important to communicate my research?
2. What's the process for communicating my research?
3. How have IANR research projects successfully been shared historically?
Why is it important to communicate my research?

- Reinforce land-grant mission
- Translate research into sound public policy, grant funding and opportunities for collaboration
- Helps the public make science-informed decisions
What is the process for communicating my research?
What is the process for communicating my research?

1. Confirm sharing permissions, embargo date
2. Identify public value of potential story
3. Contact communicator to discuss story and timeline options
4. Schedule interview with communicator
What is the process for communicating my research?

5. Review story from your neighbor’s perspective

“Communication is headed for success when we pay more attention to what the other person is understanding rather than focusing solely on what we want to say.”

6. Share across all available platforms
How have IANR research projects successfully been shared historically?
How have IANR research projects successfully been shared historically?
How have IANR research projects successfully been shared historically?

External examples
UNL-led team to research irrigation’s role in precipitation

By Shanna Richter-Ryerson, UNL Natural Resources

UNL, UNMC to team up with Iowa State and U of I to fight medicine-resistant bacteria, ‘superbugs’

By Max Eighmy, Omaha World-Herald
Nebraska's high tech greenhouse puts plants on the right track: BTN LiveBIG

Fast-spreading trees a headache in Iowa, Dakotas, Nebraska

Associated Press

What's Killing the West Coast's Young Great White Sharks?

National Geographic
Questions?

Haley Apel
IANR Media Specialist
402-472-4266
haleyapel@unl.edu
ARD faculty members continue their engagement in Team Science to address complex and wicked problems that leverage their disciplinary strengths and expertise.

This session will have three 20-minute roundtable breakouts to address:

- **Break-out # 1** (12 min roundtable discussion and 8 min reporting)
  
  **Examples of emerging teams at ARD/UNL**

- **Break-out # 2**
  
  **What important topics/opportunities are we missing?**

- **Break-out # 3**
  
  **What can ARD do to effectively support team science?**

Please select a person from your table to take notes, and share the notes via email with Tala Awada tawada@unl.edu – Thank you!!!
Our mission is to prevent diseases and improve health by crop and food production that focuses on feeding you and your microbes

Andrew K. Benson
Allen Food for Health Presidential Chair
Director, Nebraska Food for Health Center
Professor, Department of Food Science and Technology

https://foodforhealth.unl.edu/
What NFHC is:
• A multi-disciplinary center that unites agricultural and biomedical research across the NU system for the purpose of developing crops and foods that promote wellness.

What NFHC does:
• NFHC provides the structure to engage facilities, infrastructure, and expertise across the NU system to discover molecules/components of crop plants that affect the human gut microbiome and have the capacity to promote health.

• The NFHC pipeline includes:
  1. *in vitro* phenotyping of grains from plant populations (genotypes) for a health-oriented—the ability to affect the human gut microbiome
  2. validation of candidate plant genotypes (grains/components) in animal model systems
  3. validation of candidate plant genotypes (grains/components) in human clinical trials
NFHC Programs

**Discovery** (Dr. Andrew Benson, Dr. James Schnable)
- High-throughput phenotyping of “Microbiome Active Components (MACs)” traits in plants
- Genetic and biochemical identification of MACs

**Animal Models** (Dr. Amanda Ramer-Tait, Dr. Jeff French)
- Gnotobiotic Mouse Model (opportunities for collaboration on projects of shared interest)
- Common Marmoset (UNO, opportunities for collaboration on projects of shared interest)

**Human Clinical** (Dr. Jacques Izard)
- NFHC Clinical Facility (NIC, limited opportunities for collaboration with approved IRB)

**Supercomputing** (Dr. David Swanson)
- Holland Computing Center (HCC)

**Graduate Fellowship Program**
- Complex Biosystems Graduate Program
High Plains Regional Climate Center

**MISSION:** Increase use and availability of climate data and information

We accomplish this mission by:

- **Providing climate services**
  - Free expert consultation services for your climate data needs

- **Developing climate data and information products**
  - Sector-specific tools
  - Climate monitoring information
  - Maps, graphs, charts, etc.

- **Engaging our stakeholders**
  - Workshops
  - Hands-on training sessions

- **Conduct Applied Research**

Turning Data into *Usable* Information
High Plains Regional Climate Center

Meeting stakeholder needs by supporting and participating in applied research

Research Areas Served

- Agriculture, 23%
- Ecology, 10%
- Engineering, 10%
- Earth Science, 5%
- Remote Sensing, 5%
- Hydrology, 8%
- Weather and Climate, 10%
- Plant Science, 3%
- Entomology, 3%
- Interdisciplinary, 7%
- Other, 15%

Our Team

From left to right: Shellie Hanneman, Bill Sorensen, Natalie Umphlett, Crystal Stiles, Jamie Lahowetz, and Warren Pettee
Behind the Scenes

Effective partnerships strengthen HPRCC program areas

- Daily Delivery of SPI Data for VegDRI
  Sioux Falls, SD

- Daily Delivery of Climate Data for the Office of the Chief Economist
  Washington, D.C.

- Daily Delivery of Orange Wheat Blossom
  Midge Growing Degree Days
  Bozeman, MT

Providing timely climate data and information to the public for cost effective decision making since 1987
Team Project Examples

Transforming Climate Variability and Change Information for Cereal Crop Producers
• Interaction with agricultural stakeholders
• Development of climate information tools

Increasing the Capacity for Municipal Climate Adaptation Planning in the Missouri River Basin
• Working with sustainability leaders
• Development of tailored climate information reports and web-based tools
The Food Processing Center

The FPC exists to support the food industry of NE, the region, the US, and the world

- Over 16 Professional Staff Members
- 534 Projects Completed*
- 284 Workshop Attendees*

University of Nebraska–Lincoln
FPC Services and Scope

Applied research and engineering - making discoveries relevant to industry
Labeling and regulatory compliance
Analytical testing - chemical and microbiological
Sensory evaluation and testing
Product development
Extensive pilot plants
Professional Development Opportunities

The Center provides companies with a variety of unique educational and training opportunities so your company can continue to be successful. Each program is designed specifically for the food manufacturing industry. Information is presented by industry and academic faculty experts.

Services:
- Better Process Control School
- Food Microbiology Workshop
- Extrusion Workshop
- FSPCA Preventive Controls for Human Food Course
- Food Processing Management – Online Certificate
- High Pressure Processing Workshop
- Recipe to Reality Seminar
- Sanitation Workshop
- UNL Craft Brewer’s Workshop
Allied Research and Service Centers

Alliance for Advanced Sanitation
Food Allergy Research and Resource Program
National Food Entrepreneur Program
Nebraska Food for Health Center
Daugherty Water for Food Global Institute
Industrial Agricultural Products Center