



## North Central Regional Association of State Agricultural Experiment Station Directors

217<sup>th</sup> Meeting

Via Zoom: <https://zoom.us/j/2726499338>

8 am to 10 am, CDT

Tuesday, March 31, 2020

Meeting AGENDA ([Click here for MINUTES](#))

Date/Time	Agenda Item	Topic	Presenter(s)	Action Requested
8:00 am	1.0	Call to Order and Roll Call	Greg Cuomo, NCRA Chair 2020	
	2.0	Approval of Fall 2019 Minutes: ( <a href="https://www.ncra-saes.org/agendas-minutes">https://www.ncra-saes.org/agendas-minutes</a> )		Approval
	3.0	Adoption of the Agenda	Greg Cuomo	Approval
8:05 am	4.0	APLU Update	Doug Steele	For information
8:30 am	5.0	Interim Actions of the Chair <a href="#">5.1</a> NCRA Nominations for ESS Leadership Award <a href="#">5.2</a> NCRA FY2021 Office Budget	Greg Cuomo	5.1 Approval of Marc Linit as NC winner 5.2 Approval of budget
	<a href="#">6.0</a>	ESCOPE Finance Task Force Report	Jeff Jacobsen	For information
8:40 am	<a href="#">7.0</a>	MRC Report and Recommendations Approval Votes <ul style="list-style-type: none"> <li>• New/renewal multistate proposals</li> <li>• Midterm reviews</li> <li>• NC1100 FY21-26 Budget</li> <li>• NC Multistate Research Award Winner</li> </ul>	George Smith, Chris Hamilton	Approval of MRC recommendations as stated.
8:50 am	<a href="#">8.0</a>	NRSP-RC Report	Doug Buhler, Jeff Jacobsen	For information/discussion

9:05 am	9.0	NIFA Response to COVID-19	Tim Conner, NIFA	For information/discussion
9:30 am	10.0	Future Meeting Discussion <ul style="list-style-type: none"> <li>• Mini LGU at UNL Update</li> <li>• Summer 2020 and Spring 2021 NCRA Meetings</li> </ul>	Archie Clutter, Hector Santiago, Greg Cuomo, Chris Hamilton	For information/discussion
9:40 am	11.0	Cornerstone Update	Hunt Shipman, CGA	For information
9:50 am	12.0	Executive Session (Jeff, Chris, and other non-NCRA members log off)	NCRA Directors Only	Discussion session
10:00 am	<i>Adjourn</i>			

#### Future Meetings:

- Joint COPs Meeting, Kansas City, MO, July 21-23.
- NC Mini LGU Meeting, Embassy Suites, Lincoln, NE, July 26-28
- Fall ESS Meeting, Baltimore Waterfront Marriott, Baltimore, MD, September 28-30

#### Written Reports

- [NCRA Office Activities](#)
- [ARS Update](#)
- [NCRCRD Update](#)
- [March 2 ESCOP Meeting Agenda and Committee Briefs \(external link\)](#)
- [NC Re-imaging NIFA Responses](#)

## Meeting MINUTES

**Participants:** Bernie Engel (Purdue), Bill Barker (UW-Madison), Marshall Martin (Purdue), Greg Cuomo (UMN), Hector Santiago (UNL), Deb Hamernik (UNL), Anne Dorrance (OSU), Joe Colletti (IA State), Shibu Jose (MU), Doug Buhler (MSU), Bill Gibbons (SDSU), Archie Clutter (UNL), Frank Casey (NDSU), Tim Conner (NIFA), Marty Draper (KSU), Doug Steele (APLU), Gary Pierzynski (OSU), Dana Infante (MSU), George Smith (MSU), Shawn Donkin (Purdue), German Bollero (Univ of IL), Hunt Shipman (CGA), Jeff Jacobsen (NCRA), Chris Hamilton (NCRA, recorder).

Agenda Item	Notes	Action Taken
1.0	Greg Cuomo led introductions around the virtual Zoom room.	Zoom participants introduced themselves. See list above for attendees.
2.0	Approval of Fall 2019 Minutes: ( <a href="https://www.ncra-saes.org/agendas-minutes">https://www.ncra-saes.org/agendas-minutes</a> )	Fall 2019 NCRA minutes approved as presented.
3.0	Adoption of the Agenda	Today's agenda approved as presented.
4.0	<p>APLU Update given by Doug Steele:</p> <ul style="list-style-type: none"> <li>• APLU offices went remote on 3/12. One of the APLU staff who was working registration at CARET/AHS became ill (with symptoms atypical to COVID-19), and self-quarantined. The individual is doing fine now.</li> <li>• MD and DC stay-at-home policies are now in place, so DC is essentially shut down.</li> <li>• Regarding COVID-19 supplemental funding, Supplemental COVID-3 was approved by the House and the President last Friday, 3/27. Supplemental COVID-4 is still under discussion. Within the next few days we expect to see more guidance on both of these.</li> <li>• Doug is in discussion with ESCOP leadership about potential LGU funding opportunities from the COVID-19 response and recovery bills, but we do need to be cautious. Opportunities for deferred maintenance/infrastructure are being considered by ESCOP leadership. ESCOP is working with APLU to quickly update the Sightlines infrastructure survey to include the LGU institutions missing from the original one and updated information from others. If this request cannot be included with Supplemental COVID-4, then hopefully would be a part of Supplemental COVID-5.</li> <li>• Extension is working on a proposal (\$40M) for Supplemental COVID-4, which addresses how Extension can fill the COVID-19 gap in rural areas through education and outreach, focusing on</li> </ul>	For information.

prevention and recovery. They propose to use a combination of eXtension and leverage the new high-speed rural broadband system.

- A 15% increase has been requested by APLU president, Peter McPherson, from several federal agencies, which fits nicely with our current thoughts and efforts. These funds could provide salary for grad students, post-docs, and others who might not be able to work nor receive funding from other sources at this time.
- There may be several long-term opportunities available within research, deferred maintenance, and recovery efforts, so we need everyone's expertise and input. Please share your thoughts with Doug/Jeff.
- Many potential things are happening with NIFA funding and there's more to come on this. NIFA plans to share more guidance later this week. We've asked for clear and definitive guidelines and perhaps a webinar when they have more information to share.
- It's critical at this time that we must continue to showcase the value of Capacity funds and how its helping to keep critical research going and people employed.
- Supplemental COVID-3 does supply \$18B to institutes of higher educations, but that amount won't go very far. Distribution method has not been identified yet, either.
- FY22 and beyond: We need a multiyear funding strategy and need to state where we need AFRI and indicate that deferred maintenance is a priority. Showcasing the value of Capacity needs to be communicated in the long-term, as well. Rural America infrastructure and shovel-ready opportunities need to be included, as well.
- Immediate next steps: 1) Define a working group for deferred maintenance and will need volunteers, 2) Keep thinking about FY23 Farm Bill and what opportunities that might hold. The CLP will begin working this fall-spring, 3) Regarding NIFA external stakeholder input, Dr. Angle has agreed to have a formal external NIFA advisory committee. Primary and secondary points of contact request will go out soon to section chairs, 4) The Communications and Marketing group has sent out an RFP and we've received four proposals. This is an opportune time to make sure we have a strong strategic plan and messaging.

	<ul style="list-style-type: none"> <li>We don't want to be left out of recovery efforts, but also need to be flexible and careful with our needs. There's a real push in DC for more competitive funding, but we need to help increase understanding of the huge value of Capacity. We can't afford to not be included in these discussions.</li> <li>Tim Conner indicated that there should be more guidance from NIFA on updated funding information by the end of this week.</li> </ul>	
5.0	<p><a href="#">5.1</a>: Approval needed for Marc Linit as our regional winner of the ESS Leadership Award.</p> <p>5.2: See brief at <a href="#">5.2</a> for specific NCRA FY21 Budget details.</p> <ul style="list-style-type: none"> <li>No assessment increase for FY21; state invoices will be the same as FY20.</li> <li>Jeff asks that no salary increase be provided for him at MSU for FY21.</li> <li>Chris' salary is dictated by UW-Madison and as of right now, they are planning another 2% increase effective 1/1/2021. Not sure how COVID-19 will affect this.</li> <li>We're using some of our carryover (from budgeted MSU fees that were not charged) to increase the reserve at UW from \$25,000 to \$35,000 to more accurately reflect the initial policy of having Chris' 3-month expenses.</li> <li>Should invoices be sent now or later in the summer? The group consensus was to send them now, as usual, since many states will pay from FY20 funds.</li> </ul>	<p>5.1: Marc Linit was unanimously approved as our NC winner of the Leadership Award.</p> <p>5.2: NCRA Office FY21 budget was approved as presented. Chris will invoice the NCRA within the next few weeks via email invoice.</p>
<a href="#">6.0</a>	<p>The ESCOP Finance Task Force has put forward a financial policy guidelines document and a recommendation to accept TD Wealth as our investment adviser. A formal vote (likely electronic) for support of this 'expenditure' of our funding into an investment account will go out to the Section members at some point soon in the future. Investment won't occur until the market stabilizes. Investing this way will be more profitable than letting the funds stay in the current account.</p>	For information.
7.0	<p><a href="#">Link to MRC Zoom Meeting Notes and Recommendations</a>. Archie suggested that we continue to discuss ways to better link multistate projects, identify multistate impacts and collaborations, and raise expectations. Bill Barker asked if other regions are taking on similar elevations</p>	MRC recommendations for new/renewal projects and midterm reviews, NC1100's new budget, and selection of NC1193 as our regional multistate award winner were

	<p>of reporting and project expectations. Jeff indicated that yes, these conversations are occurring, but we haven't yet started rewriting the multistate guidelines. Right now, we are just re-doing the NRSP ones. Marshall Martin reminded the group that the burden of quality reporting falls on the AA to better work with project leadership and we should actively continue to encourage and do this. George reminded the group that the MRC also needs to be firmer on terminating and not renewing projects that do not live up to our expectations.</p>	<p>approved as presented in the MRC notes from 3/30/2020.</p>
<p><a href="#">8.0</a></p>	<p>Agenda brief lists NRSP8 as one of the renewals, but it should be NRSP9. Chris has fixed the typo in the included brief below.</p> <p>NRSP1 midterm: Recommend continuation as-is.</p> <p>NRSP_temp4: No major issues with the renewal. Some revisions requested.</p> <p>NRSP_temp6: Directors understand the high importance and functionality of the potato genebank, but long-term issues over the current business model continue to exist, despite multiple conversations with the technical lead and ARS. The program is too important to lose, but the business model needs to change and the NRSP-RC is working on alternative options. Stay tuned.</p> <p>NRSP_temp9: This would be its third cycle. Dave Benfield was our NC AA and we are looking for someone to replace him. Chris will send a request out to the NCRA.</p> <p>Doug Buhler reminded the group that the formal vote to approve renewals and budgets will occur at the Fall ESS meeting in September.</p>	<p>For information.</p> <p>Please send your feedback on NRSP renewals to Jeff to share with the NRSP-RC as soon as possible. The NRSP-RC plans to meet at the end of May to work on formal recommendations for the ESS vote.</p> <p>Please consider volunteering to be the new NC AA on NRSP9. Contact Chris about this.</p>
<p>9.0</p>	<ul style="list-style-type: none"> <li>• Tim Conner thanked everyone for their continued patience throughout the NIFA transition to Kansas City.</li> <li>• OMD M-20-17 clarification will be coming out soon. Tim is working from a draft document right now, with the final version out by the end of the week.</li> <li>• NIFA is working to abbreviate and clarify as much as possible.</li> <li>• Adjusted AFRI application deadlines are posted at <a href="https://nifa.usda.gov/program/agriculture-and-">https://nifa.usda.gov/program/agriculture-and-</a></li> </ul>	<p>For information and discussion.</p> <p>Jeff will share the NCRA letter sent to Scott Angle regarding the suggestion to use surplus NIFA funds for graduate student salaries with Tim. (Done 3/31)</p>

	<p><a href="#">food-research-initiative-afri</a> other deadlines can be found by searching</p> <ul style="list-style-type: none"> <li>• Flexible deadlines are being made for certain programs looking to address the effects of COVID-19. Hoping to be able to list 5-6 projects with a shorter timeline (end of May or so) to get them out and funded.</li> <li>• SAMS (system administration) registration extensions will either be automatic or would require only a short email. All guidance will be posted in an easy to share location for your staff.</li> <li>• Existing award issues, such as no-cost extensions, project completion, scope adjustment, supplemental funding - NIFA will work to streamline these as much as possible. Supplemental funding will likely be on a case-by-case basis. Something broader will require additional relief funding.</li> <li>• Conference grants: Cancellation costs can be charged on award, but planners may not be able to fund a re-scheduled. Again, solutions will probably be on a case-by-case basis and NIFA will reach out on ways to solve these issues.</li> <li>• Regarding continued payment of more vulnerable employees (grad students, field workers, etc.) who cannot work, payment guidelines for these have been deferred to recipient institutions. We are hoping for more guidance on this soon.</li> <li>• Overall, NIFA is working to automate and streamline functions such as no-cost extensions, reporting, etc., as much as possible.</li> <li>• NIFA is continuing to staff up, remote onboarding and training is occurring now. We are trying not to slow down on these efforts, nor the reimaging NIFA work in place.</li> <li>• As always, please contact Tim with questions or concerns.</li> </ul>	
10.0	<p>Archie: The Mini LGU meeting at UNL had originally been scheduled for July 26-28, 2020 in Lincoln, NE, until we learned that the NC Extension directors had decided not to engage in the Mini LGU this year. As of the March CARET/AHS meeting, NC CARET very still wants to have the meeting, so UNL decided to re-start the planning process and re-convene the planning committee with help from Chuck Hibberd and Robin Shepard. Archie would like feedback from the NCRA group on proceeding with the summer NC</p>	<p>For information. Please send any feedback regarding the summer NCR Mini LGU meeting to Archie and Hector.</p>

	<p>Mini LGU meeting. Jeff indicated that he's been in contact with Robin on this topic and there's more information to come. A lot is up in the air with this summer meeting, especially with COVID-19. Shawn suggested that a pause on the meeting this year might still be a good idea. Archie indicated that he suggested the pause during the March CARET/AHS meeting and CARET showed very strong support of the meeting at that time, but much has happened since then with COVID-19, so UNL will discuss further with the NE CARET rep and the current NC CARET chair. More to come on this effort.</p> <p>Spring and Summer NCRA Meeting Updates:</p> <ul style="list-style-type: none"> <li>• The Scottsdale Marriott is not charging us any cancelation fees for this year's meeting. They've offered us an opportunity to re-book next year at the same room rate, but due to COVID-19 closures, UW-Madison is not currently signing anymore 2020 or 2021 contracts, so this is on hold.</li> <li>• We will hold onto your 2020 registration payments for next year's meeting unless we hear otherwise. Please be aware that all checks and refunds will be delayed due to COVID-19 closures at UW and we'd prefer to not add to the work for UW's business offices.</li> <li>• If the summer Mini LGU meeting is held, then we'll have our summer NCRA business meeting then. Otherwise, we'll consider other options, as necessary.</li> </ul>	
11.0	<p>Cornerstone Government Affairs (CGA) Report:</p> <p>Congressional actions taken:</p> <ul style="list-style-type: none"> <li>• The third COVID-19 response bill was enacted by the House and signed by the President last week. Provisions on this bill are already being implemented, such as small business paycheck protection and small business loans. Guidance in funding for higher education has not been issued yet. CGA will continue to provide updates. on further implementation.</li> <li>• Future actions will likely focus on response and recovery. ESCOP leadership is considering preparing a request for deferred maintenance funding/infrastructure as part of a recovery piece.</li> <li>• Requests must have a direct COVID-19 connection. It's good to be prepared for</li> </ul>	For information.



	<p>opportunities, for our efforts. It's good to be prepared with a request, but we should be cautious. Anything funded so far has had a direct COVID-19 disease impact. Opportunities do exist for LGUs though, such as with a vaccine development process. CGA is watching this closely.</p> <ul style="list-style-type: none"><li>• For FY21: The House continues to indicate that they are on track, but Congress is out of session until at least 4/20 unless there's an emergency vote needed. The Senate 4/6 deadline for Ag appropriations requests still stands. If you haven't done so already, please reach out to your stakeholders and CARET reps, etc.</li><li>• Guidance from CARET/AHS for a flat funding year, at best, still stands. Discretionary spending could be even more difficult with the crisis response funding that's gone out.</li></ul>	
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**Meeting adjourned after NCRA Executive session.**

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**Item 5.1: NC Nomination for the 2020 ESS Excellence in Leadership Award**

**Presenter: Greg Cuomo**

**Action Requested: Vote to approve this nomination**

**Nomination of Dr. Marc Linit for the**  
**2020 ESS Excellence in Research Leadership Award**

Marc Linit, Ph.D., former Senior Associate Dean for Research, Director of the Missouri Agricultural Experiment Station, in the College of Agriculture, Food and Natural Resources (CAFNR) of the University of Missouri, retired in 2018 after completing many years of outstanding research, teaching, and administrative service.

Dr. Linit had a long and distinguished career at the University of Missouri beginning in 1980. He led an active research program on forest insect ecology, focusing on pinewood nematode and its insect vectors, while also teaching undergraduate classes in forest entomology and insect ecology and authoring more than 60 peer reviewed scientific publications. Dr. Linit was also a founding member of the Center for Agroforestry at the University of Missouri with research interest involving the effect of landscape diversification on arthropod communities through the addition of trees to agricultural landscapes.

Dr. Linit began his administrative career in 1999 when he was appointed Director of the Division of Plant Sciences and had fiscal responsibility for a \$5.5 million budget, academic responsibilities for the Plant Sciences undergraduate degree program and four graduate programs, and the Plant Sciences Extension program.

Dr. Linit served with distinction as the Senior Associate Dean of Research and Extension in the College of Agriculture, Food, and Natural Resources, while also overseeing the operations of the Missouri Agricultural Experiment Station system of Agricultural Research Centers from 2006 until his retirement in 2018. Dr. Linit represented the University of Missouri on several national/international organizations including; the North Central Regional Association, the University-Industry Consortium, the North American Agricultural Biotechnology Consortium, and served on the advisory board for the USAID Soybean Innovation Lab Project.

Dr. Linit was an outstanding colleague, participated actively and provided excellent leadership to the NCRA starting in 2006 by serving as MRC Chair in 2010, NCRA Chair-elect in 2011, and NCRA Chair in 2012, as well as Administrative Advisor to NCAC4 and NC1173,

In additional to his professional service Marc was an engaging, intelligent, quick-witted, innovative, approachable, and focused colleague who was always ready to step up for the common good. He was a great mentor to new members of NCRA and always conducted himself as an outstanding person and leader.

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**Item 5.2: NCRA Office Budget**

**Presenter: Greg Cuomo**

**Budget Main Points:**

- No assessment increase for FY21; state invoices will be the same as FY20.
- Jeff asks that no salary increase be provided for him at MSU for FY21.
- Chris' salary is dictated by UW-Madison and as of right now, they are planning another 2% increase effective 1/1/2021. Not sure how COVID-19 will affect this.
- We're using some of our carryover (from budgeted MSU fees that were not charged) to increase the reserve at UW from \$25,000 to \$35,000 to more accurately reflect Chris' 3-month expenses.

<b>OVERALL CHANGE FY2021</b>	
<b>Salary increases (UW 2%)</b>	<b>\$ 325</b>
<b>Fringe increases</b>	<b>\$ 133</b>
<b>UW fee increases</b>	<b>\$ 55</b>
<b>Potential Total Increases</b>	<b>\$ 514</b>

## NCRA FY2021 Draft Budget (with working FY2020)

<b>INCOME</b>				
	<u>FY2019</u>	<u>FY2020</u>		<u>FY2021</u>
Description	Final	Budget	YTD***	Budget <sup>#</sup>
State Assessments	425,763	483,849	483,849	483,849
Account Carryover (MSU Actual)	42,910	47,431	47,431	tbd
<b>TOTAL INCOME</b>	<b>468,673</b>	<b>531,280</b>	<b>531,280</b>	<b>483,849</b>
<b>EXPENSE</b>				
	<u>FY2019</u>	<u>FY2020</u>		<u>FY2021</u>
Description	Final	Budget	YTD	Budget
<b>NCRA</b>				
Regional Initiatives	-	-		
	-			
<b>NCRA Subtotal</b>	<b>-</b>	<b>-</b>	<b>-</b>	
<b>MICHIGAN STATE</b>				
Executive Director Salary	213,200	217,464	217,464	217,464
Fringe*	67,914	56,878	56,878	56,878
Office Operating	3,358	3,000	1,667	3,000
Travel	33,388	35,000	16,994	35,000
Training	-	-	-	-
MSU Admin/Service Fees (\$5/month as of FY20)	6,128	6,236	35	60
<b>MSU Subtotal</b>	<b>323,988</b>	<b>318,577</b>	<b>293,038</b>	<b>312,402</b>
<b>U of WISCONSIN</b>				
Assistant Director Salary****	81,881	84,312	82,978	84,638
Fringe**	32,435	34,568	34,021	34,701
Office Operating	434	3,000	3,000	3,000
Travel	7,549	12,000	5,000	12,000
Training	300	500	174	500
Meeting Support	(23)	2,000	500	2,000
UW Admin/Service Fees (now 5% CALS, 7% UW)	9,439	16,366	14,601	16,421
<b>UW Subtotal</b>	<b>132,014</b>	<b>152,746</b>	<b>140,274</b>	<b>153,260</b>
<b>TOTAL EXPENSE</b>	<b>456,002</b>	<b>471,323</b>	<b>433,311</b>	<b>465,661</b>
<b>BALANCE</b>	<b>12,671</b>	<b>59,957</b>	<b>97,969</b>	<b>18,188</b>

\*MSU FY20 fringe 26.155%.

\*\*UW FY20 estimated fringe: ~ 41% (includes \$16 monthly term leave fee).

\*\*\*Full FY expenditures for salary + fringe + MSU admin fees, YTD actuals, for other categories.

\*\*\*\*UW 2% salary increases did not go into effect until 1/1/2020, so actual pay rate is less than budgeted.

#No assessment increase needed for FY2021 with FY2020 Estimated Ending Balance Actuals/Carryover (now includes MSU fees) enough to cover potential salary, fringe, and fee increases.

## NCRA Accounts at MSU and UW

Account at MSU	FY19	FY20	FY21
MSU Starting Balance	42,910	47,431	70,703
MSU Income	425,763	483,849	483,849
MSU Budgeted Expenses	323,988	318,577	312,402
MSU Budgeted Expenses + UW invoice	461,607	460,577	465,661
Estimated MSU Ending Balance/Carryover	7,066	70,703	88,890
Actual MSU Ending Balance/Carryover*	47,431	tbd	tbd
Account at UW	FY19	FY20	FY21
UW Starting Balance	3,512	9,117	1,726
UW Income	-	-	-
UW Expenses	132,014	140,274	153,260
Actual UW Ending Balance/Carryover	9,117	-	-
<i>UW Operating Reserve (3 mo)</i>	<i>25,000</i>	<i>35,000</i>	<i>35,000</i>
<i>Estimated UW Invoice to MSU**</i>	<i>139,920</i>	<i>142,000</i>	<i>153,260</i>
<i>Actual UW Invoice to MSU</i>	<i>137,619</i>	<i>tbd</i>	<i>tbd</i>

*\*We have now included in the FY2019 MSU carryover the budgeted \$17,561 in MSU fees that were never charged in 2017-2019, thus increasing FY19 carryover to \$47,431 from \$29,870.*

*\*\*UW will invoice MSU mid-quarter for actual expenses (\$38,314 in August 2019; \$38,314 in November 2019; \$38,314 in February 2020, and \$27,058 in May 2020 to cover final 2020 expenses and to boost UW reserve up to \$35,000 to reflect current 3-month expenses).*

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**Agenda Item 6.0** Finance Task Force Report (from CARET/AHS)

**Presenter:** Deb Hamernik and Jeff Jacobsen

**Action:** Discussion and Action

A Finance Task Force was formed at the ESCOP Executive Committee meeting in San Diego, CA with the charge to invest ESS reserves. The Task Force completed their charge to: create a proposal for an investment policy for ESS, propose committee membership and ESCOP organizational relationships, outline management practices and articulate any other policy concepts. This was to be completed for discussion and action at the ESCOP meeting during CARET/AHS. Task Force membership was Deb Hamernik (Chair, Past ESCOP Chair), Ernie Minton (ESCOP BLC Chair), Moses Kairo (Incoming ESCOP Chair) and Gary Thompson (at large) with support from Jeff Jacobsen (ESCOP BLC Vice-Chair), Eric Young (ESCOP Executive Vice-Chair) and Alton Thompson (Incoming Executive Vice-Chair). Work was conducted via email and several Zoom meetings. Throughout the process the Finance Task Force kept APLU informed via Doug Steele (VP FANR), Emily Van Loon (past CFO) and Scott Powell (new CFO). In addition, we worked with TD Wealth via their TD Private Client Group, since APLU has all their accounts with TD Private Client Group, with Suzanne Moran (VP Institutional Relationship Manager) and Matt Kappa (VP Investment Advisor).

The Task Force modified the Board on Human Sciences recently completed Investment Policy to reflect ESS goals, structure and future needs. Prior to engaging with any investment advisors, a formal Investment Policy for ESS must be created to engage investment advisors. The ESS Investment Policy (part of this Agenda Brief), is recommended by the Finance Task Force for approval by ESCOP (**ACTION 1**).

Based upon this Investment Policy, TD Private Client Group provided a proposal for consideration by the Finance Task Force reflecting our Investment Policy and their recommendations. This presentation can be found at: [http://escop.info/wp-content/uploads/2020/02/ESCOP\\_Finance\\_TDWeathPresentation\\_20200114.pdf](http://escop.info/wp-content/uploads/2020/02/ESCOP_Finance_TDWeathPresentation_20200114.pdf). Note that the first 13 pages of 77 pages are the core facets of the proposal. The remaining pages provide more in-depth performance and policy information. Following the presentation, general discussion and Task Force (only) discussion, the Finance Task Force recommended approval of TD Private Client Group as our investment firm (**ACTION 2**).

With these approvals and per our ESCOP Rules of Operation, an electronic vote by ESS/ARD must approve this 'expenditure of funds' by direct vote and simple majority (**ACTION 3**). If approved, APLU will then begin the process to establish this ESS account and provide instructions for fund transfers to TD Private Client Group.

**ACTION 1:** ESCOP approval of the Investment Policies of the Experiment Station Section document.

**ACTION 2:** ESCOP approval of TD Private Client Group, part of TD Wealth, to be our investment firm and assist in investing ESS reserves.

**ACTION 3:** ESCOP Chair will conduct a national vote to approve this 'expenditure' by investing ESS reserves.

## **Investment Policies of the Experiment Station Section**

### **Purpose**

The purpose of this Investment Policy is to provide a clear statement of the Experiment Station Section (ESS) investment objective, to define the responsibilities of the ESS leadership group (ESCOP, Experiment Station Committee on Organization and Policy) and the ESS Finance Committee involved in managing ESS investments, and to identify or provide target asset allocation, permissible investments, and diversification requirements. The ESS Finance Committee will be a subcommittee of the ESS Budget and Legislative Committee (BLC). In doing so, the policy:

- clarifies the delegation of duties and responsibilities concerning the management of ESS funds;
- identifies the criteria against which the investment performance of ESS funds will be measured;
- communicates the objectives to ESS, investment managers, brokers, donors, and funding sources that may have involvement;
- confirms policies and procedures relative to the expenditure of ESS funds; and,
- serves as a review document to guide the ongoing oversight of the management of ESS investments.

### **Investment Objective**

The overall investment objective of ESS is to maximize the return on invested assets, while minimizing risk and expenses. This is accomplished through prudent investing and planning, as well as through the maintenance of a diversified portfolio. Investment of these ESS reserves will create financial resources for future programmatic opportunities.

### **Delegation of Responsibilities**

ESCOP has a direct oversight role regarding all decisions that impact ESS institutional funds. ESCOP has delegated supervisory responsibility for the management of ESS funds to the Finance Committee per ESS Rules of Operation. The Finance Committee membership and purpose is:

### Membership:

The Past ESCOP Chair serves as chair of the Finance Committee. Committee members include the BLC Chair, Incoming ESCOP Chair and one at-large member of the BLC, supported by the BLC Executive Vice-chair (regional Executive Director).

Purpose:

The Finance Committee, with the BLC Executive Vice-chair, shall draft and present a budget to the BLC, then ESCOP, for review, vote, and approval prior to submitting it to ESS for adoption; act in an advisory capacity and give counsel regarding financial matters affecting the organization; conduct an orientation for ESCOP on income and expenses; and, review the investment plan annually. Specific responsibilities of the various bodies and individuals responsible for the management of ESS funds are set forth below:

**Responsibilities of ESCOP**

ESCOP shall ensure that its fiduciary responsibilities concerning the proper management of ESS funds are fulfilled through appropriate investment structure, internal, and external management and portfolio performance consistent with all policies and procedures. Based on the advice and recommendations of the Finance Committee, ESCOP shall:

- select, appoint, and remove members of the Committee;
- approve investment policies and objectives that reflect the long-term investment-risk orientation of ESS funds; and,
- meet yearly with members of the Finance Committee to relay ESCOP expectations for ESS funds based on upcoming needs for special projects and operating expenses in order to determine investment allocations for the coming year.

**Responsibilities of the Finance Committee**

Members of the Finance Committee are not held accountable for less than desirable outcomes, rather for adherence to procedural prudence, or the process by which decisions are made in respect to endowment assets. In consideration of the foregoing, the Finance Committee is responsible for the development, recommendation, implementation and maintenance of all policies relative to ESS funds and shall:

- develop and/or propose policy recommendations to ESCOP with regard to the management of all ESS funds;
- recommend short-term and long-term investment policies and objectives for ESS funds, including the study and selection of asset classes, determining asset allocation



ranges and setting performance objectives;

- determine that ESS funds are prudently and effectively managed with the assistance of management (i.e., the BLC Executive Vice-chair and Chief Financial Officer of APLU) and any necessary investment consultants and/or other outside professionals, if any;
- monitor and evaluate the performance of all those responsible for the management ESS funds;
- recommend the retention and/or dismissal of investment consultants and/or other outside professionals;
- receive and review reports from management, investment consultants, and/or other outside professionals, if any;
- periodically meet with management, investment consultants and/or other outside professionals' management, investment consultants and/or other outside professionals;
- report (as desired) at ESCOP, ESCOP Executive Committee and ESS regular meetings; and,
- convene regularly to evaluate whether this policy, investment activities, risk management controls, and processes continue to be consistent with meeting the goals and objectives set for the management of ESS funds.

### **Responsibilities of Management**

Management (i.e., the BLC Executive Vice-chair and Chief Financial Officer of APLU) shall be responsible for the day-to-day administration and implementation of policies established by ESCOP and/or the Finance Committee concerning the management of ESS funds. Management shall also be the primary liaison between any investment consultants and/or other outside professionals that may be retained to assist in the management of such funds. Specifically, management shall:

- oversee the day-to-day operational investment activities of all institutional funds subject to policies established by ESS, ESCOP and/or the Finance Committee;
- contract with any necessary outside service providers, such as: investment consultants, investment managers, banks, and/or trust companies and/or any other necessary outside professionals;

- ensure that the service providers adhere to the terms and conditions of their contracts; have no material conflicts of interests with the interests of ESS; and, performance monitoring systems are sufficient to provide the Finance Committee with timely, accurate and useful information;
- regularly meet with any outside service providers to evaluate and assess compliance with investment guidelines, performance, outlook, and investment strategies; monitor asset allocation and rebalance assets, as directed by the Finance Committee and in accordance with approved asset allocation policies, among asset classes and investment styles; and, tend to all other matters deemed to be consistent with due diligence and prudent management of ESS funds; and,
- comply with official accounting and auditing guidelines regarding due diligence and ongoing monitoring of investments, especially alternative investments. Prepare and issue periodic status reports to ESS, ESCOP and the Finance Committee.

### **Responsibilities of Investment Advisors**

Any and all investment advisors, managers and/or custodians of ESS funds are expected to manage the ESS portfolio consistent with this Investment Policy Statement and in accordance with State and Federal law and the Uniform Prudent Management of Institutional Funds Act (UPMIFA). Investment advisors shall:

- design, recommend and implement, under the direction of the Finance Committee, an appropriate asset allocation plan consistent with the investment objectives, time horizon, risk profile, guidelines and constraints outlined in this statement; and,
- advise about the selection of and the allocation of asset categories; identify specific assets and mutual funds within each asset category; monitor performance of all selected assets; recommend changes to any of the above; periodically review the suitability of the investments for ESS; and, prepare and present appropriate reports.

### **General Investment Considerations**

- The Association of Public and Land-grant Universities (APLU), of which the ESS is a constituent member, is a tax-exempt organization as described in section 501(c)(3) of the Internal Revenue Code. This tax-exempt status should be taken into consideration when making ESS investments.
- A copy of this ESS Investment Policy Statement shall be provided to all investment managers.
- All individuals responsible for managing and investing ESS institutional funds must

do so in accordance with the Uniform Prudent Management of Institutional Funds Act (UPMIFA).

- All individuals responsible for managing and investing ESS funds shall immediately inform ESS of any actual or potential conflict of interest – business, professional, personal, or other interest, including, but not limited to, the representation of other clients – that would conflict in any manner or degree with the performance or obligations under this Investment Policy Statement.
- ESS is expected to operate in perpetuity; therefore, a 10-year investment horizon shall be employed. Interim fluctuations should be viewed with appropriate perspective.
- A cash account shall be maintained with a zero to very low risk tolerance to keep cash available for any anticipated expenses.
- Transactions shall be executed at reasonable cost, taking into consideration prevailing market conditions and services and research provided by the executing broker.
- Permitted investments include: money market funds, marketable securities including equities, and fixed income securities.

#### Money Market Funds:

A quality money market fund will be utilized for the liquidity needs of the portfolio whose objective is to seek as high a current income as is consistent with liquidity and stability of principal. The fund will invest in “money market” instruments with remaining maturates of one year or less, that have been rated by at least one nationally recognized rating agency in the highest category for short-term debt securities. If non-rated, the securities must be of comparable quality.

#### Equities:

The equity component of the portfolio will consist of high-quality equity securities traded on the New York, NASDAQ or American Stock exchanges. Securities must be screened for above average financial characteristics such as price-to-earnings, return-on-equity, debt-to-capital ratios, etc.

*Prohibited* equity investments include: initial public offerings, restricted securities, private placements, derivatives, options, futures and margined transactions. Exceptions to the prohibited investment policy may be made only when assets are invested in a Mutual Fund(s) that periodically utilizes prohibited strategies to mitigate risk and enhance return.

#### Fixed Income:

Bond investments will consist solely of taxable, fixed income securities that have an investment-grade rating (BBB or higher by Standard & Poor’s and Baa or higher by Moody’s) that possess a

liquid secondary market. If the average credit quality rating disagrees among the two rating agencies, then use the lower of the two as a guideline.

The following transactions are *prohibited*: Purchase of non-negotiable securities, derivatives, high risk or junk bonds, private placements, precious metals, commodities, short sales, any margin transactions, straddles, warrants, options, life insurance contracts, leverage or letter stock. Exceptions to the prohibited investment policy may be made only when assets are invested in a Mutual Fund(s) that periodically utilizes prohibited strategies to mitigate risk and enhance return.

<b>Asset Allocation</b>	<b>Range</b>
Cash and Equivalents	0-10%
Fixed Income	60-70%
Equities: Domestic Large Cap	30-40%
Equities: Domestic Small/Mid	
Equities: International	

### **Performance Measurements Standards**

The benchmarks to be used in evaluating the performance of the two main asset classes will be:

- Equities: S&P 500 Index - Goal: exceed the average annual return of the index over a full market cycle (3-5 years); and,
- Fixed Income: Government/Corporate Index - Goal: exceed the average annual return of the index over a full market cycle (3-5 years).

It will be the responsibility of the Finance Committee to regularly review the performance of the investment account and investment policy guidelines, and report to ESCOP at least annually with updates and recommendations as needed.

### **Expenditure Considerations**

ESCOP and the Finance Committee are responsible for the establishment of a balanced reserve fund spending policy to: (a) ensure that over the medium-to-long term, sufficient investment return shall be retained to preserve and grow its economic value as a first priority; and, (b) to provide funds for the annual operating budget in an amount which is not subject to large fluctuations from year-to-year to the extent possible.

## **Expenditure of ESS Funds**

All decisions relative to the expenditure of ESS funds must assess the uses, benefits, purposes and duration for which the ESS fund was established, and, if relevant, consider the factors:

- the duration and preservation of the ESS fund;
- purposes of ESS and the fund;
- general economic conditions;
- possible effect of inflation or deflation;
- expected total return from income and appreciation of investments;
- other organizational resources;
- all applicable investment policies; and,
- where appropriate, alternatives to spending from the ESS fund and the possible effects of those alternatives.

For each decision to appropriate ESS funds for expenditure, an appropriate contemporaneous record should be kept and maintained describing the nature and extent of the consideration that the appropriate body gave to each of the stipulated factors. This document has been reviewed and approved by ESCOP and is subject to annual review by ESCOP to ensure it continues to reflect the goals, objectives and risk profile of ESS.

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## Item 7.0: MRC Report

Presenter: George Smith, MRC Chair 2020

### Spring 2020 MRC Meeting NOTES

March 30, 2020 2-4 CDT pm via Zoom: <https://zoom.us/j/2726499338>

Presenter: George Smith, MRC Chair 2020

**Participants:** George Smith (Chair), Hector Santiago (In-coming Chair), Bill Barker, German Bollero, Bernie Engel, Jeff Jacobsen, Chris Hamilton

### Agenda/Notes:

1. [New/Renewal Project Recommendations \(Action items in \*\*YELLOW HIGHLIGHT\*\*\)](#)
  - a. [Smith:](#)
    - i. MRC Members all concur with George's recommendations as listed below.
  - b. [Santiago](#)
    - i. NC\_temp1210 should consider including a database management member. German indicated that some of the members already have this expertise.
    - ii. MRC members concur with Hector's recommendations below.
  - c. [Barker](#)
    - i. Bill thanked Jeff for cleaning up NC\_temp1187, Jeff's review will be sent to the committee so they can complete the revisions requested.
    - ii. MRC members concur with Bill's recommendations below.
  - d. [Bollero](#)
    - i. NC\_temp1183
      1. Needs EXT members since EXT is mentioned in the proposal.
      2. Should recruit more members in general.
    - ii. MRC members concur with Germán's recommendations below.
  - e. [Engel](#)
    - i. NCERA\_temp197 needs to recruit more members.
    - ii. MRC members concur with Bernie's recommendations below.
  - f. [Jacobsen](#)
    - i. NC\_temp1186 needs minor editing of title and to recruit more members.
    - ii. MRC members concur with Jeff's recommendations below.
2. [Midterm Reviews](#)
  - a. NC1205 will have more information in mid-April regarding committee activities
  - b. Chris will make sure members know that there may be faculty receiving MRF from the project, so remaining an active committee might be necessary. If this is the case, the group needs to start authorizing meetings and submitting reports in NIMSS.
3. [NC1100's New Budget \(2020-2025\)](#)
  - a. Jeff noted that approval of NC OTT budget for regional trusts (like NC1100 and NC7) is for the duration of the project.
  - b. MRC recommends approval of the below NC1100 budget with the caveat that the budget may change if the NCRCD moves out of MI because of the recent RFP.
4. [NC Multistate Award Nominations](#)
  - a. All members had the same rankings for the nominations, making NC1193 our unanimous NC winner to put forward to the national award.

- b. Please send any comments on nominations to Chris/Jeff so we can send on to the submitted projects for improvements. Nominations can submit in future years, so this feedback to them is very useful.
  - c. Jeff will work with NC1193 to polish prior to submitting for the national award and will also contact the nominations, on behalf of George Smith (MRC Chair) not selected to thank them and share any feedback for improvement for future years.
5. [NRSP Discussion](#)
- a. Three NRSPs up for renewal this year (NRSP4, 6, 9)
  - b. Jeff described to the MRC how the NRSP-RC works and what its membership looks like right now.
  - c. Each region puts forward recommendations for each project, then NRSP-RC makes a final recommendation that will be voted upon at the Fall ESS meeting.
  - d. NRSP\_temp6:
    - i. Members of the NRSP-RC and Bill Barker have been trying very hard to engage ARS to further discuss this project, specifically regarding relocating the potato gene bank to Madison in the Crop Innovation Center with the seed certification group, who can supply resources and tissue culture service. The seed certification group uses a fee for service model. With the UW-Madison COVID-19 impacts unknown at this time, future UW Madison budget cuts may impact their infrastructure.
    - ii. Shelley Jansky in place now to communicate with NRSP-RC, replacing John Bamberg's role. John remains the technical lead, though. Shelley will be retiring in one-two months.
    - iii. NRSP-RC has been working with NRSP6 and ARS to come up with a different funding model for several years now, with very little traction.
    - iv. Bill thanked Jeff for all his time and effort on NRSP6.
  - e. NRSP\_temp9:
    - i. May need to re-evaluate the budget, given current concerns with potential COVID-19 related cuts.
  - f. General NRSP discussion
    - i. Should we have a firm, finite time allowed, say 3 cycles max?
    - ii. NRSP-RC is currently discussing changing the guidelines to accommodate reducing allowed number of cycles, but the re-write of Guidelines doesn't yet specifically say this. We might offer options for "capacity" and "competitive" NRSPs, but all of this is still under discussion.
6. Other business, as needed – none.

**Call adjourned at 4:04 pm.**

**New/Renewal Project Recommendations**

MRC Lead Reviewer	Project/Proposal #	Title	Lead's Review and Recommendation
Smith (MRC Chair)	NC1184 (NC_temp1184)	Molecular Mechanisms Regulating Skeletal Muscle Growth and Differentiation	<p><b>Recommendation (major revision):</b> The overall goal of this project is to increase the efficiency and sustainability of meat production in the US and across the globe. Projections suggest a 50% increase in meat production is necessary by 2050 to meet world demand. Meat animal production and allied industries contribute ~ \$900 billion to the US economy annually. This project will utilize molecular and cellular tools to examine mechanisms controlling growth and function of skeletal muscle, information foundational to increasing efficiency of meat production. <b>Objectives of the current proposal are to 1)</b> Characterize the molecular mechanisms controlling skeletal muscle tissue growth, development and composition, 2) Characterize the signal transduction pathways that regulate skeletal muscle metabolism and 3) characterize mechanisms of protein synthesis and degradation in skeletal muscle. Relationship of this project to other existing multistate research projects focused on muscle is clear and contribution of specific stations to accomplishment of future aims under each objective are explained. Expected outcomes, impacts and milestones outlined are general, but appropriate given the fundamental nature of the research to be undertaken. A symposium in 2022 is planned which will provide a venue to highlight the project and for communication of key results to the broader community.</p> <p>While this is a long-standing project with a significant base of participation in terms of individual investigators and stations, justification for the renewal is poorly developed. Collaborative research and accompanying discoveries involving multiple stations foundational to the previous project(s) and necessary to justify continuation of current project are not clear in the proposal. The related, current and previous work section of proposal reads as a brief snapshot of independent topic areas from a literature review designed to illustrate specific research questions. Integration of</p>



			<p>topics is lacking, as is discussion of fundamental progress made under previous projects needed to justify next five years of the project. Given this is not a new project and objectives proposed are very similar to those that have been foundational since 2010, such information is critical to justify continuation.</p>
Smith	NC1100 (NC_temp1100)	Improving Innovation Systems in Rural and Agricultural Regions	<p><u>Recommendation (major revision)</u>: The overall goal of this project is to improve regional innovation systems via exploring different aspects in rural and agricultural contexts and how aspects are interconnected to inform recommended improvements. Objectives are : 1) Determine stakeholder barriers and incentives as well as experiences and preferences regarding next generation agricultural innovations, such as artificial intelligence and automation, 2) Identify new strategies that increase broader stakeholder engagement in the technology transfer of land-grant developed agricultural and other technologies, 3) Assess the effectiveness of public and private R&amp;D funding opportunities and identify policy changes that improve related stakeholder experiences, 4) Explore entrepreneurship-coaching and innovation dissemination models designed to improve regional innovation ecosystems and 5) Identify institutional, state, and federal policy changes that improve the success of commercializing innovations. This is a unique project with well articulated outputs, impacts and milestones linked to rural and agricultural R&amp;D, technology transfer, innovation and economic development in rural and agricultural communities. While the project is justified and linked to a well established regional center, the proposal as written doesn't demonstrate proposed research is in fact multistate given is only one participant from a single university included. While other participating stations may be recruited later, the methods section at a minimum should at least demonstrate the future multi state nature of the work to be conducted. CH sent a second participation invite out to the AES list and also contacted the project leads. They are working on making sure others join.</p>
Smith	NC_temp1209 (new to NC)	North American interdisciplinary chronic	<p><u>Recommendation (minor revision)</u>: CWD is a debilitating and deadly prion disease of cervids now endemic in 27 states with complex</p>

		wasting disease research consortium	<p>ecological, social and economic implications for the natural resources sector and potential implications for human health and agriculture which are not fully understood. State agencies are in desperate need of additional tools and information to control the disease and prevent devastating effects on deer populations, hunting and in many instances local communities. Objectives of this proposed multistate research project are 1) Establish a national CWD tissue database and repository with improved access for transmission and pathogenesis research and validation of CWD prion detection assays, 2) Develop large-scale research facilities for controlled CWD research using depopulated cervid facilities where CWD has been detected, 3) Advance diagnostic testing for CWD with a focus on facilitating adoption of the RT-QuIC assay and improved sourcing for the recombinant prion protein substrate, 4) Develop a multistate adaptive management approach for CWD to evaluate surveillance and management strategies and how deer harvest regulatory options impact deer disease dynamics and 5) Evaluate heterogeneous social values, motivations, attitudes, and effective communication to inform disease management decision-making at local, state, and regional level. This is a new multistate project with strong rationale provided that exemplifies many of the intended principles of multistate research. There is a strong cadre of participants enrolled from land grant universities, federal and state agencies and the medical community. Objectives are highly relevant to the problem and timely and collaborations resulting from this project hold the potential to more efficiently address the problem and integrate efforts across state lines. However, inclusion of information regarding contribution of specific stations within each objective is required and critical to appreciate the multistate nature of the effort and potential to tackle identified objectives from a truly multidisciplinary perspective.</p>
Santiago	NC_temp214 (was NCERA214)	Increased Efficiency of Sheep Production	<p>The overarching goal of this multistate research project is to develop integrated nutrition management and animal health strategies to support efficient, competitive and sustainable sheep production systems for meat, wool and milk in the United States. In 2017, there were approximately 100,000 sheep farms, 4.1 million heads with a</p>

			<p>farm gate value of around \$712,000,000. Lamb consumption per capita in the United States is low compared to other species but is growing in niche markets. In 2018, lamb and mutton imports (273 million pounds) surpass exports (6 million pounds) highlighting the tremendous potential for growth of this industry in the US. The objectives of the current proposal are: 1) develop and evaluate methods to improve reproductive efficiency; 2) develop strategies to increase efficiency of lean lamb growth and meat quality; 3) evaluate genetic resources, nutrient requirements and production systems for lamb, wool and milk production; and 4) develop production systems that address grazing strategies for animal and ecosystem health, biological control of invasive plants and wildlife mitigation. Proponents of this multistate research project provide an excellent review of current multistate projects and clearly discuss how the proposed project differentiates and/or compliment other multistate projects. The project delineates specific research activities (projects) to be conducted to address each of the four (4) main objectives as well the institutions that will be responsible for conducting such projects. Integration, collaboration and complementation of research activities is evident taking advantage of the research capacity of each of the participating institutions. <b>The measurement of progress and results section of the proposal needs improvement. Despite outcomes and outputs are clearly described they could benefit from a more detail description on how they will be achieved.</b> Overall, the proposal has a solid scientific approach, strong collaboration among institutions that should result in providing the needed information to have productive and resilient sheep production systems.</p> <p><b>Recommendation: Approve with minor revisions.</b></p>
Santiago	NC_temp1210 (New to NC)	Frontiers in On-Farm Experimentation	<p>The overarching goal of this multistate research project is to develop the research infrastructure and to encourage the development of a commercial infrastructure to generate the data needed to address the systemic inefficient application of agricultural inputs with emphasis on the mismanagement of nitrogen fertilizer. The chronic inefficient use of nitrogen fertilizer has resulted in tremendous amount of unused</p>

			<p>nitrogen reaching the Gulf of Mexico causing eutrophication and groundwater contamination. The management of the nitrogen cycle has been declared a Grand Challenge by the National Academy of Engineers due to the environmental damage to water bodies. The objectives of this proposed project are: 1) to lay the research groundwork needed to support an on-farm precision experimentation (OFPE) infrastructure and 2) to lay the research groundwork necessary to begin the co-revolutionization of the U.S. land grant university extension system and the private crop consulting industry. The proposed research builds upon and expands on the research activities of other multistate projects focusing on the methodology needed to conduct on farm research, analyzing the data and the platform to provide management information to growers. The OFPE approach uses existing precision agriculture and web-based technologies to design, gather, clean, and analyze data from large scale agronomic trials conducted in growers fields. A critical component of the proposed research is to establish a network of farmers, commercial crop consultants and Extension personnel to work collaboratively to accomplish the main objectives of the proposal. The project can benefit from expertise in computer engineering and data management science to design the data pipeline and acquire the infrastructure needed to handle the immense amounts of data that the project will generate. In summary, the project has a robust plan for execution and clearly defined outcomes, outputs and milestones.</p> <p><b>Recommendation: Approve.</b></p>
Barker	NC1187 (NC_temp1187)	Particulate Reactivity and Cycling in a Changing Environment: Implications for Agriculture and Human Health.	<p><b>Recommendation: Approve with minor revision</b></p> <p>This project, from its early beginnings as a synchrotron-focused group of soil scientists, now encompasses a “cradle to grave” perspective on the role of particulates in nutrients and contaminants (toxins, metals, pathogens) transport in soil, air, and water. At first, the project seems hugely diverse and unfocused, but perusal of the current participants allayed concerns as to the capabilities of the group. In fact, this interdisciplinarity leverages the best aspects of a multistate project.</p>

			<p>This very strong multidisciplinary team aims to gain this holistic perspective from the perspective of agricultural systems by performing “fundamental research on biological, physical, and chemical processes occurring in natural and managed ecosystems”.</p> <p>The focus on further building the team, developing new sample preparation techniques, increasing expertise and expanding access national lab synchrotron capabilities access represents a sound strategy to address such a diffuse and complicated set of scientific questions. Nonetheless, I agree with AA that the heavy dependence of funding for synchrotron research is a significant risk to the project, and alternative strategies should be considered in the proposal.</p> <p>Given the primacy of the extracellular environment in this area, I commend the strong focus on developing new sample preparation techniques to obviate artifacts. In particular, inclusion of cryo-TEM and an array of in vivo light microscopies would be very helpful in this area. Standard electron microscopy is mentioned, but almost as a throwaway. This is understandable, given the emphasis on eliminating artifacts.</p> <p>As helpfully illustrated by the AA, the proposal, in particular the citations, needs a thorough tidying. I also agree with the other reviewer that Objective 3: Characterize the physical, chemical, biological and morphological properties of particulate matter and their agricultural, environmental, human health and economic impacts over a wide range of spatial and temporal scales, including their potential effects on ecological sustainability, food and energy production, climate change, air and water quality, soil health, and human health.</p> <p>is the main objective and Objectives 1 and 2 serve as implementing goals subordinate to 3. This reviewer recommended a Major Revision, and the AA recommended a Minor Revision. I recommend attending to all the reviewer comments, and characterize this required level of effort as minor.</p>
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Barker	NCCC134 (NCCC_temp134)	Applied Commodity Price Analysis, Forecasting, and Market Risk Management	<p><b>Recommendation: Approve</b></p> <p>This long running group offers a forum for agricultural economists from academia, industry, and government who are focused on risk management, forecasting, and price analysis of commodity prices to collaborate. Access of academics to high frequency industry data sets, the strong participation and tradition of welcoming graduate students, and the opportunity to preview papers for critique prior to publication all mark this group as important, dynamic, and worthy of our support for continuance. The inclusive governance committee blends academic and industry members, as well as an appropriate geographic spread. It is a little surprising that so few LGUs are represented, but this might reflect my ignorance of the disciplinary focus of ag econ departments more than a flaw of the coordinating committee itself. CH sent a second participation invite out to the AES list and others have since been added.</p>
Barker	NCCC52 (NCCC_temp52)	Family Economics Coordinating Committee	<p><b>Recommendation: Approve</b></p> <p>This long running coordinating committee offers a convening function for family economists and according the AA, performs admirably. This proposal makes a compelling case for the increasing risk and complexity faced by individuals as technology offers more choices and society actively shifts the responsibility to individuals for economic decisions via rapidly changing options. The overall plan for five years of activities looks solid, and the governance structure is appropriate. I applaud the plan to inventory family economists doing research and extension work at all 11862 and 1890 LGUs, as this could lead to much synergy.</p> <p>I do find it interesting that the committee exclusively uses video conferencing for its meetings, which does raise a question in my mind as to the overall need for a formal coordinating committee.</p>
Bollero	NC1183 (NC_temp1183)	Mycotoxins: Biosecurity, Food Safety and Biofuels Byproducts	<p><b>Recommendation (approve with revision):</b></p> <p>This proposal outlines the need for comprehensive multidisciplinary research on mycotoxins from the field to animals and humans. The</p>

			<p>proposal makes the case that mycotoxin events are episodic and will vary annually based on environmental factors and the cropping/storage, etc. practices within the various regions in the US. For some sub-objectives, the outline demonstrates the at least two stations are working collaboratively to address the specified objective (or method). The project, however, could be strengthened by better incorporating the individual disciplinary expertise represented by NC1183's national membership to address the geographically episodic mycotoxin events when they occur and to strategically address basic science topics throughout the life of the project. For example, if one institution/station is particularly strong in analytical methodologies, couldn't that institution be a consistent partner across the US to help others either develop testing protocols when events occur (or to actually perform the analysis on a short-term basis)? As another example, if a station is strong in genetic engineering/basic plant sciences, would there be opportunities to expand to crops used in other regions and/or to provide technical support as states develop their own relevant expertise? While some of these efforts might be planned (or alluded to in the proposal), details specifying meaningfully multistate expertise should be strengthened. Other observations: 1) Extension is mentioned as one dissemination pathway. Currently, there seems to be no Extension FTE dedicated to the project. 2) While committee membership has been rejuvenated, the group should continue to recruit additional members.</p>
Bollero	NC246 (NC_temp246)	Ecology and Management of Arthropods in Corn	<p><b>Recommendation (approve):</b></p> <p>This is a long-standing committee which has functioned effectively since being established in 1953. It has a long record of accomplishments in research as well as outreach. The committee started co-meeting with NCCC-46 primarily to engage with the industry. NC-246 has large multi-state research and outreach activities and has members from approximately 25 Land Grant institutions which speaks highly of the value of the committee's research and outreach activities. The proposed project is very strong. It has a strong group of collaborators from across the nation, and they are</p>

			<p>addressing a suite of critical issues in a highly synthetic and holistic manner. The only small concern is that the proposal does not include many time-bound milestones within objectives, but does express sequential processes for the work without specific timelines. This is a very minor concern given the track record of the project's participants and the diversity of the questions being addressed.</p>
Engel	NC1023 (NC_temp1023)	Engineering for food safety and quality	<p>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:</p> <ol style="list-style-type: none"> <li>1. Characterize physical, chemical, and biological properties of raw and processed foods, by-products, and packaging materials.</li> <li>2. Develop advanced and sustainable processing and packaging technologies to transform raw materials into safe, high quality, health-promoting, and value-added foods.</li> <li>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.</li> <li>4. Adapt pedagogical strategies involving novel educational approaches to enhance and assess student learning of food engineering.</li> </ol> <p>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.</p> <p>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.</p> <p><b>Recommendation: Approve.</b></p>



Engel	NCERA197 (NCERA_temp197)	Agricultural Safety and Health Research and Extension	<p>This proposal represents the renewal of a project that has been successful for many years. The project objectives are appropriate and of importance nationally. The project objectives are:</p> <ul style="list-style-type: none"> <li>• Continue to promote the National Agenda for Action document (NCERA 197 Committee, 2003) that was last reviewed in 2017, to provide guidance to land grant researchers and educators for prioritizing agricultural safety and health issues.</li> <li>• Develop a white paper that addresses a priority safety or health topic affecting agriculture.</li> <li>• Enhance 1862, 1890, and 1994 land grant institutions' participation in the National Agenda for Action while collaborating with strategic partners to intensify regional, national, and international impact on agricultural safety and health issues.</li> <li>• Encourage research, teaching, and outreach of agricultural best management practices in partnership with land grant universities to address global safety and health issues associated with agricultural injuries.</li> <li>• Encourage development of new and improved standards, as well as adoption of current standards, to reduce hazard and risk exposures within agriculture.</li> <li>• Work to ensure sustainability of agricultural safety and health efforts, capacities, and impact by: ensuring a pipeline of dedicated safety and health professionals who are educated in the science and evidence based practices; leverage existing partnerships, capacities, organizations, and resources; build awareness of needs among policy makers, agricultural organizations, university and government administrators, and others.</li> </ul> <p>Currently, the project includes a small number of participants with all participants working across all objectives. In past projects, additional states were involved. Efforts are needed to increase participation. It appears that prior participants have not all signed onto the project, so efforts to get them engaged in this project should be taken.</p> <p>The project is multistate and multidisciplinary but as noted above represents a small number of states and participants at this time. Efforts to engage other states and participants are needed. CH sent a</p>
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			<p>second participation invite out to the AES list and others have since been added.</p> <p>The project has been peer reviewed.</p> <p>The project has a focus on specific outcomes that are to be accomplished and desired impacts. These build on past successes of the project that was in place prior to this project. The project participants have incorporated feedback from a range of stakeholders in developing the outcomes and impacts that are proposed.</p> <p>The project participants have been successful in leveraging the multistate project through a range of other sources. The participants are positioned to continue to leverage the multistate effort with other funding sources.</p> <p>The project is aligned with NIFA goals.</p> <p><b>Recommendation: Approve</b></p>
Jacobsen	NC1186 (NC_temp1186)	Water Management and Quality for Specialty Crop Production and Health	<p>[HOUSEKEEPING – See very minor edits to the existing proposal]</p> <p>NC1186 has been an excellent project with collaborative efforts resulting in successful grants followed by a multitude of quantifiable impacts and accomplishments. The current proposal will build upon these successful efforts by continuing their focus and with additional work in greenhouses and rooftops in urban areas. Water quantity and quality, environmental impacts, urban stormwater management and biotic and abiotic contaminants will be the comprehensive focus.</p> <p>Consequently, reviewers suggested some descriptive change in the project title would be more reflective of the project’s activities such as including ‘...for Container-grown Specialty Crops’; ‘...Production and Health of Specialty Crops Grown in Soilless Media’; or ‘...Production and Health of Container Grown Specialty Crops’.</p> <p>In addition, the addition of narrative to address: 1) the non-duplicative nature of the work (e.g. was a CRIS search conducted), 2) examples of integrated, multifunctional participant assignment descriptions, and 3) some description of methods proposed to be used within selected objectives. These do not have to be all encompassing, yet some depth in expertise needs to be demonstrated</p> <p>The AA and NCAC1 provided positive, substantive review comments and were mostly in agreement on the standard evaluation questions.</p>

			<p>While it was mentioned that new members and graduate students are integrated into meetings and the project, the current participant list has national representation, yet about half of the number of states and less than half of overall membership. In the prior project USDA ARS was a member as well. <b>We encourage more participation in the renewed project by encouragement nationally and with prior members.</b></p> <p><b>Revision: Approve with minor revision as identified above.</b></p>
Jacobsen	NCCC211 (NCCC_temp211)	Cover crops to improve agricultural sustainability and environmental quality in the upper Midwest	<p>Cover crops continue to be an important component of Midwest cropping systems for improved crop production, soil health and water quality. Prior projects and this proposal will integrate the research and Extension efforts across the Midwest in conjunction with the Midwest Cover Crop Council, Natural Resources Conservation Service, NGOs and other stakeholders. Eight North Central states are participants with project objectives: 1) evaluating cover crop impacts across cropping systems, 2) quantifying cover crop impact on soil health, water quality and ecosystem service and 3) develop new and updated materials and programs. <b>The addition of western member states could provide another dimension of numerous products (MCCC decision tool, pocket guide, recipes) and is to be encouraged.</b> The AA provided a positive evaluation of this proposal.</p> <p><b>Revision: None needed. Approve.</b></p>
Jacobsen	NCCC31 (NCCC_temp31)	Ecophysiological Aspects of Forage Management	<p>NCCC31 has been a productive coordinating committee over several cycles. The likelihood of continued success with information exchange and networking is strong. Goals and Objectives are threefold: 1) discuss and critique current research while fostering cooperative efforts, 2) identify high priority challenges and develop collaborative research projects and 3) cooperate on educational and outreach materials and activities. Participant numbers and geographies (all regions represented) reflect the collaborative, synergistic and interdependent activities, both past and proposed. Outputs from research projects lead to Extension publications and educational programs. Attendance has been consistently good over time. Favorable reviews were provided by the AA and NCAC1.</p>

			<b>Revision: Provide a statement on the non-duplicative nature of this project, possibly after doing a NIMSS search on keywords.</b>
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## Midterm Reviews

Lead MRC Reviewer	Project #	Title	Recommendations
Chris (for all)	NC1206	Antimicrobial Resistance	Meeting annually and all reports submitted. Suggest committee to present more collaborative accomplishments over lists of state reports. More impacts and extramural funding in report also. Good AA review. Fair NCAC2 review that reflects the above comments. Recommend continuation, keeping in mind reviewer comments going forward.
	NC1205	Monarch Butterfly Conservation	Only one meeting held since 2017 and no reports available. NCAC15 reviews says unacceptable. Chris contacted the AA, who said she has retired, but got Chris in touch with project leads. They will be back in touch with more info in mid-April. They've been meeting, but not through NIMSS. Perhaps multistate model is not for them after all? Will make recommendation for continuation after response received (project will send in April).
	NC1202	Enteric Diseases of Swine and Cattle: Prevention, Control and Food Safety (NC-1007)	Meeting annually and all reports submitted. Suggest committee to present more collaborative accomplishments over lists of state reports. Excellent NCAC2 and NCAC6 reviews. Recommend continuation, keeping in mind reviewer comments going forward.
	NC1201	Methods to Increase Reproductive Efficiency in Cattle (NC1006)	Meeting annually and all reports submitted. Suggest committee to present more collaborative accomplishments over lists of state reports. Would benefit from viewing our new NC Impact Reporting presentation: <a href="https://www.ncra-saes.org/slideshows-for-aas">https://www.ncra-saes.org/slideshows-for-aas</a> . Excellent AA review. Excellent NCAC6 review. Recommend continuation, keeping in mind reviewer comments going forward.
	NC1200	Regulation of Photosynthetic Processes	Meeting annually and all reports submitted. Suggest committee to present more collaborative accomplishments over lists of state reports. 2017 report was exactly what we're looking for, but 2018 was more state lists. Would benefit from viewing our new NC Impact Reporting presentation: <a href="https://www.ncra-saes.org/slideshows-for-aas">https://www.ncra-saes.org/slideshows-for-aas</a> . Excellent AA and NCAC1 reviews. Recommend continuation, keeping in mind reviewer comments going forward.

	NC1198	Renewing an Agriculture of the Middle: Value Chain Design, Policy Approaches, Environmental and Social Impacts	Meeting annually and all reports submitted. All look good. Keep up with good work. Perhaps review our new NC Impact Reporting presentation: <a href="https://www.ncra-saes.org/slideshows-for-aas">https://www.ncra-saes.org/slideshows-for-aas</a> Good AA review with ideas for improvement listed in NIMSS. Recommend continuation, keeping in mind reviewer comments going forward.
	NC170	Personal Protective Technologies for Current and Emerging Occupational Hazards	Meeting annually and all reports submitted. Excellent reporting. Keep up the good work. NCAC16 review was good, suggested stronger focus on impacts. Recommend continuation, keeping in mind reviewer comments going forward.
	NC140	Improving Economic and Environmental Sustainability in Tree-fruit Production Through Changes in Rootstock Use	Excellent AA review. Good reporting, keep up the good work. Recommend continuation.
	NC7	Conservation, Management, Enhancement and Utilization of Plant Genetic Resources	Good reporting and impacts, keep up the good work. Good NCAC reviews with some suggestions for improving reports with more linkages/external funding listed. Excellent AA review. Recommend continuation, keeping in mind reviewer comments going forward.
	NCCC215	Potato Breeding and Genetics Technical Committee	Meeting annually and all reports submitted as needed. Good AA review. Keep up the good work. Recommend continuation.
	NCERA225	Implementation and Strategies for National Beef Cattle Genetic Evaluation	Meeting annually and submitting good reports. Good NCAC6 review. Keep up the good work. Recommend continuation.
	NCERA224	NCR-193: IPM Strategies for Arthropod Pests and Diseases in Nurseries and Landscapes	Meeting annually and submitting good reports. Keep up the good work. Excellent AA, NCAC14, and NCAC15 reviews. Recommend continuation.
	NCERA218	Health, well-being, and economic opportunity for LGBT persons in rural communities	Meeting annually and submitting good reports. Keep up the good work! This is a very active and self-motivated group. Recommend continuation.

	NCERA184	Management of Small Grains	Meeting annually and submitting good reports. Keep up the good work! Great AA and NCAC1 reviews. Recommend continuation.
	NCERA103	Specialized Soil Amendments and Products, Growth Stimulants and Soil Fertility Management Programs	Meeting annually and submitting good reports. Keep up the good work! NCAC4 review was excellent. Good NCAC1 review. Recommend continuation, keeping in mind reviewer comments from going forward.

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**1. NC1100 5-year Multistate Research Fund (MRF) Off-the-Top Budget.**

FUNDING REQUESTED										
Description	Proposed FY 21-22		Proposed FY 22-23		Proposed FY 23-24		Proposed FY 24-25		Proposed FY 24-25	
	Dollars	FTE	Dollars	FTE	Dollars	FTE	Dollars	FTE	Dollars	FTE
J. Mann Salary	25,000	0.27	25,000	0.26	25,000	0.25	25,000	0.24	25,000	0.23
Fringe Benefits	0		0		0		0		0	
<b>Total</b>	<b>25,000</b>		<b>25,000</b>		<b>25,000</b>		<b>25,000</b>		<b>25,000</b>	

Michigan State University Match										
Description	Proposed FY 21-22		Proposed FY 22-23		Proposed FY 23-24		Proposed FY 24-25		Proposed FY 24-25	
	Dollars	FTE	Dollars	FTE	Dollars	FTE	Dollars	FTE	Dollars	FTE
Salaries	0		0		0		0		0	
J. Mann Fringe Benefits	7,295		7,310		7,324		7,339		7,354	
<b>Total</b>	<b>7,295</b>		<b>7,310</b>		<b>7,324</b>		<b>7,339</b>		<b>7,354</b>	

Grants/Contracts (USDA NCRCD Budget) Match										
Description	Proposed FY 21-22		Proposed FY 22-23		Proposed FY 23-24		Proposed FY 24-25		Proposed FY 24-25	
	Dollars	FTE	Dollars	FTE	Dollars	FTE	Dollars	FTE	Dollars	FTE
Comm. Staff Salary	4,200	0.1	4,284	0.1	4,369	0.1	4,457	0.1	4,546	
Communication Benefits	1,919		1,957		1,997		2,036		2,077	
Travel	3,000		3,000		3,000		3,000		3,000	
<b>Total</b>	<b>9,119</b>		<b>9,241</b>		<b>9,366</b>		<b>9,493</b>		<b>9,623</b>	



## **2. NC Multistate Award Nominees**

1. [NCERA101](#): Committee on Controlled Environment Technology and Use
2. [NC1193](#): Using Behavioral and Environmental Tools to Identify Weight-Related Factors Associated with Health in Communities of Young Adults
3. [NC1170](#): Advanced Technologies for the Genetic Improvement of Poultry
4. [NC170](#): Personal Protective Technologies for Current and Emerging Occupational and Environmental Hazards

**MRC Rankings:** MRC members provided their rankings for each nomination and chose NC1193 as our regional winner.

**Nominating Region:** North Central Region

**Nominators:** Carole Saravitz  
A.J. Both

E-mail: carole@ncsu.edu  
E-mail: both@sebs.rutgers.edu

**Project or Committee Number and Title:** NCERA-101 Committee on Controlled Environment Technology and Use (website: <https://www.controlledenvironments.org/>)

**Technical Committee Chair:** Neil Yorio

E-mail: nyorio@bioslighting.com

**Administrative Advisor:** Ramesh Kanwar

E-mail: rskanwar@iastate.edu

**Project Summary:** This project was established in 1975 to bring together researchers, industry, and government agencies involved in the design and operation of growth chambers for plant research. Committee members represent a sizeable number of Land Grant Universities, Canadian and Mexican Universities, Phytotrons, as well as a variety of commercial companies that manufacture growth chambers, operate growth chambers or provide equipment and controls to operate such chambers. Since the start of the Committee, members have been very active publishing a variety of papers, books, and conference proceedings including the *International lighting in controlled environment workshop* (Tibbitts, ed., 1995), *Plant Growth Chamber Handbook* (Langhans and Tibbitts, eds., 1997), and *Guidelines for Measuring and Reporting Environmental Parameters for Plant Experiments in Growth Chambers* (ANSI/ASABE standard EP 411.4, 2002). The Committee maintains a comprehensive instrument package that can be used by its members to calibrate research grade instruments at their home institutions. Starting in 1998, the Committee established ties with sister organizations in the UK (CEUG) and Australasia (ACEWG) and (instead of the regular annual meetings) has organized international meetings approximately every 4 years (2001: Norwich, UK; 2004: Brisbane, Australia; 2008: Coco Beach, FL; 2012: Cambridge, UK; 2016: Canberra, Australia). The next international meeting is scheduled for 2020 in Tucson, AZ. These international connections have resulted in three more published guidelines (for plant research in growth chambers, tissue culture facilities, and greenhouses) that have been distributed widely among many research locations around the world that use controlled environment facilities for plant research. The strong connections among Committee members have resulted over the years in several multi-institutional projects funded by large grants from NASA and the USDA. The Committee has a strong commitment to encouraging graduate student participation in the annual meetings and for the last several years has provided financial support through a poster/presentation competition. The Committee has also been successful in securing a total of \$100K in USDA travel funding for its members to attend our international meetings.

**Issue, problem or situation addressed:**

- A. Installing and operating controlled environment research facilities is expensive. In order to carefully maintain targets for environmental parameters during experiments, substantial amounts of energy are needed for heating, cooling and lighting. In addition, a sophisticated control system is needed to ensure heating and cooling are delivered at the right time. The expense and complexity require that facilities are carefully managed and operators understand how best to use the available equipment to provide the various environments desired by researchers. The NCERA-101 Committee has been instrumental in educating the user community and in providing a critical platform for information exchange among researchers, facility managers, and industry representatives.

B. Repeatability of research findings. Ever since the establishment of this Committee, it was clear that despite best efforts, it was not always feasible to duplicate results from published plant growth experiments in controlled environments. This tenet of the scientific method is particularly important for controlled environment studies since the name implies that the environmental parameters maintained during experimentation are carefully controlled. Therefore, the committee has long pushed for standardized protocols, including properly calibrated instruments and specific reporting guidelines.

**Objectives:** Objectives of the current project (2016-2021) are:

1. Technology Advancement: Advance the technology of controlled environments and greenhouses for agricultural research and production.
2. Technology Transfer: Disseminate novel technologies to users including controlled environment manufacturers, managers, and commercial operators. Teach historical, recent and emerging controlled environment technologies to students.
3. Quality Control and Standards: Develop quality assurance procedures for environmental control and monitoring in research and production facilities to improve reproducibility of biological results.
4. Guidelines: Continue to develop and update guidelines for measuring and reporting environmental parameters for studies in controlled environments.
5. Communication: Publish research, exchange information, prepare educational materials, organize national and international symposia and conferences, and provide consultation and expertise to scientists, commercial users and industry stakeholders of controlled environment facilities both domestically and abroad. The Committee maintains a website ([www.controlledenvironments.org](http://www.controlledenvironments.org)) to help facilitate outreach activities.
6. Instrument Calibration: Maintain a calibrated set of environmental measurement instruments that are available for use by researchers and commercial members.
7. Environment: To promote the sustainable development and energy efficient operation of controlled environment facilities.

**Accomplishments:** The Committee has been successful in creating a vibrant community that promotes the sharing of ideas and discussions about challenges despite the fact that many of our industry members are direct competitors. The Committee membership has substantially expanded beyond the typical membership of university faculty and institutional researchers, and now includes a sizeable number of industrial, government and international members. The Committee has long supported the participation of graduate students to the point where many former students are now full members and active contributors through their institutions of employment.

Many Committee members have developed professional collaborations as a result of their interactions during Committee meetings and activities. Several of these collaborations have resulted in successful grant proposals, scientific journal articles, conference proceedings articles, trade journal articles and several books. Many Committee members have contributed and continue to contribute to the development of industry-wide standards and guidelines (e.g., ANSI/ASABE EP411.4, S640, S642 and X644; the latter still under development).

*Selected Output:*

1. Langhans, R.W. and T.W. Tibbitts (eds.). 1997. *Plant Growth Chamber Handbook*.

2. International Committee for Controlled Environment Guidelines. *Minimum Guidelines for Measuring and Reporting Environmental Parameters for Experiments on Plants in Growth Rooms and Chambers* (2004); *Guidelines for Measuring and Reporting Environmental Parameters for Experiments in Plant Tissue Culture Facilities* (2008); *Guidelines for Measuring and Reporting Environmental Parameters for Experiments in Greenhouses Facilities* (2016).

*Selected Outcomes/Impacts:*

1. Members of our Committee played a major role in the NASA-supported development of guidelines for life support during long-duration space missions, including what plant species to use and the research needed for successfully growing these plants in space.
2. The Committee established strong connections with sister organizations around the world. These connections have resulted in increased awareness among the international research community of the challenges of conducting research in controlled environments.

**Added-value and synergistic advantages from interdependencies:** One of the great strengths of the Committee is the active participation of its industry members. The Committee recognized early on that the participation of industry members was vital for the development and implementation of new technologies and control strategies. The industry in turn recognized the value of communicating with researchers and several of our industry members have for many years financially supported the organization of our annual meetings. The average attendance at our annual meetings over the last 11 years was 112 people (st. dev. = 40).

The availability of our instrument package has provided important support to the Committee's goal of developing measurement standards. Many of our member institutions have used the package to calibrate a variety of sensors critical to their research projects. The package was maintained for many years by Ted Tibbitts at the University of Wisconsin. More recently, the package is maintained by Bruce Bugbee at Utah State University. After each use, the calibration instruments are returned to Utah for checking and re-calibration. The Committee discusses the status of the instrument package during the annual meetings and occasionally decides to upgrade or purchase new sensors.

**Evidence of multi-institutional and leveraged funding:** Collaborative relationships of Committee members were instrumental in the development and funding of several projects. These funded projects were multi-institutional and cross-disciplinary and frequently included industry participation:

NASA Specialized Centers of Research and Training (\$1-2M per year for 5 years)

1. Purdue University (1990-1995) Biogenerative Life Support Systems
2. Rutgers University (1996-2001) Biogenerative Life Support Systems
3. Purdue University (2002-2007) Biogenerative Life Support Systems

USDA Specialty Crop Research Initiative grants (\$1M per year for 4-5 years)

1. University of Maryland (2009-2014) Sensor networks for crop irrigation
2. Purdue University (2011-2016) LEDs for controlled environment crop production
3. University of Georgia (2018-2022) LEDs for controlled environment crop production

USDA Higher Education Challenge Grant (\$1M over 3 years)

Ohio State University (2011-2014) On-line horticultural engineering course modules

New York State Energy Research and Development Authority (\$5M over 7 years)  
Cornell University (2017-2024) Greenhouse Lighting and Systems Engineering (GLASE)

### **Participating personnel and their institutions:**

Since the first meeting of the Committee in 1976, membership has steadily increased from 12 to 171. Current members associated with Land Grant Universities and other institutions in the US, Mexico and Canada include:

1. Bora, Ganesh - Mississippi State University
2. Both, A.J. - Rutgers University
3. Berhage, Robert - Penn State University
4. Bubenheim, David - NASA Ames Research Center
5. Bugbee, Bruce - Utah State University
6. Choi, Christopher - University of Wisconsin
7. Ciolkosz, Dan - Penn State University
8. Cuello, Joel - University of Arizona
9. Currey, Christopher - Iowa State University
10. Davidson, Paul - University of Illinois
11. Dixon, Michael - Guelph University
12. Erwin, John - University of Minnesota
13. Faulkner, Shaun - University of Maryland
14. Faust, Jim - Clemson University
15. Fleisher, David - USDA-ARS, Beltsville
16. Frank, Thomas - University of Wisconsin
17. Gardner, Gary - University of Minnesota
18. Giacomelli, Gene - University of Arizona
19. Goins, Gregory - NC A&T State University
20. Gomez, Celina - University of Florida
21. Grodzinski, Bernie - University of Guelph
22. Hernandez, Ricardo - North Carolina State University
23. Hill, Norman - Duke University
24. Kacira, Murat - University of Arizona
25. Karlsson, Meriam - University of Alaska Fairbanks
26. Kristensen, Dale - Queen's University
27. Kubota, Chieri - Ohio State University
28. Lea-Cox, John - University of Maryland
29. Lefsrud, Mark - McGill University
30. Ling, Peter - Ohio State University
31. Lopez, Roberto - Michigan State University
32. Massa, Gioia - NASA, Kennedy Space Center
33. Mattson, Neil - Cornell University
34. McAvoy, Richard - University of Connecticut
35. Mitchell, Cary - Purdue University
36. Niu, Genhua - Texas A&M University
37. Palta, Jiwan - University of Wisconsin
38. Romer, Mark - McGill University
39. Runkle, Erik - Michigan State University
40. Sams, Carl - University of Tennessee
41. Saravitz, Carole - North Carolina State Univ.
42. Stewart, Ryan - Brigham Young University
43. Tishchenko, Viktor - University of Georgia
44. Van Iersel, Marc - University of Georgia
45. Villarreal, Frederico - University of Chihuahua
46. Waterland, Nicole - West Virginia University
47. Wheeler, Ray - NASA, Kennedy Space Center
48. Williams, Kimberly - Kansas State University
49. Witherell, Andy - University of Wisconsin
50. Yildiz, Ilhami - Dalhousie University
51. Zheng, Youbin - University of Guelph

A detailed list of all members (including members representing commercial companies and international members) can be found at: <https://www.controlledenvironments.org/members/>

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## EXPERIMENT STATION SECTION EXCELLENCE IN MULTISTATE RESEARCH AWARD – 2020

**Nominating Region:** North Central Regional Association

**Nominator:** William Gibbons

**E-Mail:** [William.gibbons@sdstate.edu](mailto:William.gibbons@sdstate.edu)

**Project or Committee Number and Title:** NC1193: Using Behavioral and Environmental Tools to Identify Weight-Related Factors Associated with Health in Communities of Young Adults

**Technical Committee Chair:** Kendra Kattelman, PhD, RDN

**E-Mail:** [kendra.kattelman@sdstate.edu](mailto:kendra.kattelman@sdstate.edu)

**Administrative Advisor:** Dennis Savaiano, PhD

**E-Mail:** [savaiano@cfs.purdue.edu](mailto:savaiano@cfs.purdue.edu)

**Issue:** Young adults, especially college students, have a high risk of weight gain because of rapidly changing social situations that influence their eating and activity behaviors. Excessive weight gain puts young adults at increased risk of developing serious diseases, including heart disease, hypertension, and type 2 diabetes. Obesity currently affects 93.3 million adults in the United States (US), with an estimated cost of \$315.8 billion. Improving young adults' eating behaviors has the potential to protect their health and quality of life for years to come. Many obesity prevention programs have focused on changing individual behaviors with limited attention focused on the environment. Environments with limited access to healthy foods, such as fruits and vegetables, or opportunities for physical activity make it difficult for individuals to engage in healthy behaviors. Also, when perception (subjectivity) differs from the actual (objective) environment, individuals may be unable to recognize opportunities that could support healthful behaviors.

Consideration of the perceived and actual environment in obesity prevention programs has been hindered by a lack of efficient, reliable, and valid tools. To overcome this, NC1193 identified individual and environmental factors that predispose, enable, and reinforce healthy eating and activity behaviors among young adults and developed valid, reliable, efficient tools to assess the food, physical activity, and policy environments of college campuses. These tools are being used by researchers and Extension professionals around the US to benchmark and track environmental conditions and perceptions and create obesity prevention programs for young adults. They are also helping administrators identify needs and target efforts to develop healthier environments.

Cumulatively, NC1193 interventions have improved young adults' food, physical activity, and stress management behaviors. NC1193 surveys have elucidated environmental (food and physical activity) conditions that make the healthy choice the easy choice for young adults at colleges and universities across the nation, which leads to decreased risk for chronic disease and health-care costs. Each new five-year project has built on the work of the previous, resulting in a positive trajectory and sustained level of productivity. Our integration of teaching, research, and Extension is a great example of how multi-state efforts leverage the expertise of members in many states that is difficult to do in one location (*see Added Value and Evidence of Multi-institutional sections*).

**Objectives (10/1/2016-9/30/21):**

1. Implement a new dissemination model (Evidence-Based for Capture, Assemble, Sustainability, and Timelessness - eB4CAST) to benchmark community programming efforts for effectiveness in change and sustainability.
2. Continue environment and behavioral instrument development, refinement and validation of the Healthy Campus Environmental Audit and Behavior Environment Perceptions Survey for college campuses.
3. Adapt and test the environment and behavior instruments in low-income communities.
4. Develop and pilot the novel and comprehensive Healthy Community Index on college campuses and adapt for use in low-income communities.
5. Continue exploration of mechanisms of interaction between lifestyle behaviors and environmental factors in influencing healthy behaviors and health status of young adults using existing datasets from this group's previous and ongoing work.

### **Accomplishments**

**OUTPUTS:** NC1193 has developed, published, and disseminated a suite of valid, reliable, and efficient tools. To help college and university campuses use these tools and create targeted interventions, NC1193 obtained a \$4.9 million USDA/NIFA/AFRI grant to create and test an obesity prevention social marketing campaign called Get FRUVED (FRUit and Vegetable EDucation: <http://frurved.com/who/>). The project involved student-led activities to promote healthy eating, physical activity, and stress management. As a result of this project, a Get FRUVED toolkit was developed and disseminated to over 85 college and university campuses (<http://frurved.com/college-toolkit/>) and high schools (<http://frurved.com/high-school-toolkit-program-components/>). The toolkit provides guidance for using the following assessments and tools, which help identify campus needs and create a locally targeted campaign to promote healthy behaviors, environments, and policies.

- Behavior Environment Perception Survey (BEPS) assesses environmental perceptions of physical activity, healthful eating, mental health, and peer influences.
- Healthy Campus Environmental Audit (HCEA) assesses the food (i.e., food access and availability in vending machines, convenience stores, dining halls, restaurants), physical activity (i.e., walkability, bikeability, recreation), and health-related policy environment.
- The Get FRUVED project identified, developed, and/or validated additional tools to assess student gardening, cooking, meal planning, food choice, food safety, sustainable transportation, and sustainable eating behaviors.
- A novel, evidence-based method for collecting public and intervention specific data (eB4CAST) provided each participating campus with a personalized narrative describing needs and intervention impacts. This easy to use tool provides communities a means to disseminate their impact story.

During the Get FRUVED project alone, 19 instruments were developed/validated, 96 presentations were conducted, over 40 manuscripts were published, and health promotion toolkits were created for colleges and high schools. Further evidence of team productivity since 2011 includes:

- Over 300 peer-reviewed journal articles and presentations at local, national, and international professional meetings.
- More than 200 students (undergraduate, graduate, and post-doctoral) were supported, mentored, and gained research experience.
- Team members have received awards at the college, university, state, and national level.



**OUTCOMES & IMPACTS:** The main research focus for NC1193 during the current and previous five-year period was the Get FRUVED project. Key outcomes and impacts were:

- Collaborations with more than 40 PhD researchers and 1,000 students occurred.
- Students from universities and high schools across the US were trained in research, leadership, mentoring, and health promotion. These transferable skills helped strengthen student resumes and applications for graduate school and jobs.
- More than 16,000 college students and 5,000 high school students were assessed for health behaviors using the tools created by NC1193 in addition to other surveys.
- The Get FRUVED project was an effective approach to promote healthy behaviors and supportive environments that reduced unwanted weight gain (treatment participants had a significantly lower body mass index than control post-intervention,  $p < 0.001$ ).

In 2016, chronic diseases driven by the risk factor of obesity and overweight accounted for \$480.7 billion in direct health care costs in the US, with an additional \$1.24 trillion in indirect costs due to lost economic productivity. Improving campuses through individual behavior and healthy environmental supports with the ultimate goal of improving policies, systems, and environments will lead to improved economic vitality, lower costs, more sustainable practices, and increased productivity.

**Added value and synergistic activities across mission areas:** USDA NIFA values integrated projects that involve all three missions of the land-grant university. NC1193 has made it a priority to include a component from each mission in every project. Get FRUVED was an integrated project that included activities in all three areas. Examples include:

- *TEACHING:* students were trained to conduct research by enrolling in a course taught across participating institutions. Students learned to assess the environment and participated in creating the Get FRUVED intervention.
- *RESEARCH:* NC1193 participated in data collection, analysis, and dissemination on their own campuses and at national and international meetings
- *EXTENSION:* Collegiate 4H was part of the intervention on participating campuses. Members helped implement social marketing campaign activities and interact with students.

As the 5-year Get FRUVED project comes to completion, NC1193 has begun to expand its focus to include young adults from low-income communities. Tools such as these are needed to most accurately conduct a needs assessments for federal nutrition education programs such as SNAP-Education (SNAP-Ed) and the Expanded Food and Nutrition Education Program (EFNEP).

**Evidence of multi-institutional and additional leveraged funding:** The collective power of multiple states collaborating throughout the entire participatory process has significantly contributed to the understanding of how to best meet the needs of the priority population. We continue to work side-by-side as partners with young adults in diverse populations to understand, develop, create, and tailor interventions. NC1193 researchers function at the highest level of team science and the benefit of this approach is reflected in the number and reach of outputs, i.e., high-quality, effective interventions, psychometrically valid surveys, rate of dissemination of findings in peer-reviewed venues, and grant funding. From 2011-present, NC1193 team members have leveraged their expertise and Agricultural Experiment Station funding to successfully compete for over \$17 million in grant funding, with the majority being extramural.

**Summary of participating universities and principal investigators:**

Auburn University	Onikia N. Brown
Kansas State University	Tanda Kidd
Kansas State University	Wei-Wen Hsu
Mississippi State University	Terezie Tolar-Peterson
Rutgers University	Carol Byrd-Bredbenner
South Dakota State University	Kendra Kattelmann
Syracuse University	Tanya Horacek
University of Florida	Karla P. Shelnut
University of Maine	Jade McNamara
University of Nebraska	Lisa Franzen-Castle
University of New Hampshire	Jesse Morrell
University of Rhode Island	Geoff Greene
University of Rhode Island	Kathleen Melanson
University of Tennessee	Sarah E. Colby
West Virginia University	Melissa D. Olfert

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**Nominating Region:** North Central

**Nominator:** Gale M. Strasburg, PhD

**E-mail:** stragale@msu.edu

**Project Number and Title:** NC1170: Advanced Technologies for the Genetic Improvement of Poultry

**Technical Committee Chair:** Gale M. Strasburg, PhD

**E-mail:** stragale@msu.edu

**Administrative Advisor:** Susan J. Lamont, PhD

**E-mail:** sjlamont@iastate.edu

## Nomination Summary:

### **Issue, problem or situation addressed**

The poultry industry in the United States underpins the global food system by providing an efficient, economical and nutritious source of animal-based protein (meat and eggs). The industry foundation consists of breeding companies and growers/producers distributed throughout the nation, and the world, with a heavy concentration in states from which the members of Multistate Research Project NC1170 are drawn (e.g., Arkansas, California, Delaware, Georgia, Iowa, Minnesota, North Carolina, Virginia). The USDA Economic Research Service reports that the U.S. poultry industry is the world's largest producer and second-largest exporter of poultry meat and a major egg producer. The USDA National Agricultural Statistics Service reported that the combined value of production from broilers, eggs, and turkeys in the U.S. in 2018 was \$46.3 billion. Many allied industries support and are impacted by the poultry industry, e.g., from grain producers and distributors to housing/cage manufacturers. Thus, the economic impact of the poultry industry to the financial health of the U.S. is enormous.

The modern poultry industry faces intensifying challenges resulting from climate change with concomitant extremes of heat and cold stress affecting growth, development, and nutrient utilization by poultry; pathogens such as Marek's Disease, Newcastle Disease Virus, and bacterial species such as Salmonella; and myopathies such as Wooden Breast and White Striping that have accompanied genetic selection for rapid growth and leanness, resulting in reduced value of the birds. Accordingly, elucidating the genetic mechanisms underlying these threats is critical to the success of the U.S. poultry industry.

## Objectives

The NC1170 members identified and developed the following research objectives for the project years 2018-2023 that build on the highly successful work of previous project cycles:

1. Create and share data and technology to enhance the development and application of genomics, epigenomics, and systems biology in poultry
2. Facilitate the creation and sharing of poultry research populations and the collection and analysis of relevant new phenotypes including those produced by gene editing
3. Elucidate genetic mechanisms that underlie economically important traits, including genetic variants and functional regulatory elements within the genomes of poultry

species, and develop new methods to apply that knowledge to poultry breeding practices

## Accomplishments

During the 2013-2017 cycle of this project, members from the participating institutions published 300 articles in peer reviewed journals, 17 books or book chapters and generated 17 MS theses or PhD dissertations. Remarkably, in 2018 alone, the group published 107 peer-reviewed publications and 8 MS theses or PhD dissertations.

Various public databases were established, maintained, and utilized by NC1170 members, as well as scientists throughout the world. The Arizona and Mississippi stations have been led development and support the following: AgBase (<https://agbase.arizona.edu>) which provides resources to facilitate modeling of functional genomics data and structural and functional annotation of agriculturally important genomes. The Chickspress resource (<http://geneatlas.arl.arizona.edu>) provides a detailed “atlas” of chicken gene expression, collating experimental data from Red Jungle Fowl and chicken gene expression studies. The Host- Pathogen Interaction Database (<https://hpidb.igbb.msstate.edu/>) provides predicted and curated host-pathogen protein-protein interaction data to support animal health/disease studies for development of novel intervention strategies.

This group has also engaged effectively in the coordination, creation, maintenance and sharing of multiple poultry breeding lines (randombred populations, specific pathogen free, MHC-congenic, highly inbred, closed populations and specific trait divergent lines) that are invaluable resources for interdisciplinary and collaborative research. For example, ADOL maintains 35 chicken lines with special genetic characteristics for tumor or viral susceptibility that also differ remarkably for immunological and physiological traits. All but 3 were developed at the ADOL over the last 67 years. Iowa State University maintains 13 unique chicken research lines [including highly inbred, MHC-congenic, closed populations; and advanced intercross lines (AIL)] to serve as resources for identifying genes, genetic elements and genomic regions of economic importance; as well as defining unique aspects of chicken genomic architecture. The Iowa State genetic lines formed a discovery platform for research on the genomics of heat resistance in a USDA-AFRI project with Delaware and a USAID project on genomics of resistance to Newcastle disease virus and heat led by UC-Davis) because of defined, distinct responses among lines. Genetic material (chicks, fertile eggs, blood, tissues, DNA or RNA) was shared with many cooperating investigators to expand studies on the chicken genome. Active collaborations utilizing ISU chicken genetic lines or biological materials include UC-Davis [Newcastle Disease Virus (NDV) and heat-stress response]; Delaware (heat stress and allele-specific expression); Virginia Tech (Eimeria response), and Penn State (NDV-embryo assays)].

The work of the NC1170 group explores fundamental biological mechanisms using the most advanced research tools and technologies available that contribute new knowledge for the application of improving genetics, breeding, and production for the poultry industry. These tools and our continued emphasis on their development and application are essential for improving efficiency of the birds directly (genotype selection) or indirectly (the management system, e.g., nutrition). Most important is improvement in the sustainability of poultry production, which is challenged by a rapidly growing world population coupled with the multidimensional threat of climate change to poultry production systems. We operate in a world wherein it is imperative that researchers and stakeholders together consider the role and impact of our industries on the animal systems and the environment. Thus, there is an essential need for continued creation of novel opportunities made possible by new

technologies and knowledge to assist the industry in its continued positive evolution. It can be easily argued that significant advancements will not

occur or at least at the same rate without the engine of research and development at both the fundamental and applied levels. Members of the project are often involved in the development stages of the technologies (e.g., genomics tools) and engage the community of project members in employment of the technologies. Other important facets of the NC1170 project are the educational opportunities provided for the next generation of researchers at the undergraduate and graduate levels, and the interactions with visiting scholars from numerous international locations and including commercial industry collaborators.

The current and future impact of this multi-state project is to provide the knowledge base, collaborative platforms, and the genomic tools needed for the U.S. poultry industry to continue to thrive and to address the critical needs of global food security.

## Added-value and synergistic activities across mission areas

The vitality of this multistate project is reflected in number of participating stations and total number of members as well as its output. With the current cycle that began in 2018, there are 36 members representing 24 stations, including representatives from Canada and the UK. The annual meeting of this group, held in conjunction with the Plant and Animal Genome Meeting, typically attracts an additional 30-60 non-member national and international participants. This meeting platform has been leveraged to include mini-symposia addressing topics such as the role of the microbiome in poultry health, and use of gene editing tools for poultry genetic studies.

A few examples illustrate the group's synergy. Michigan State and Minnesota have collaborated on studies to define the genomic response to embryonic thermal manipulation as a strategy to enhance thermotolerance in turkeys. These studies parallel similar work by the Maryland station using broiler chicks. Arkansas in collaboration with the University of Missouri has completed studies investigating the function of a newly discovered structure in the broiler brain that is involved in stress. UC-Davis, Iowa State, Delaware, and collaborating universities in Africa are studying the effects of biotic and abiotic stressors on genetically distinct inbred chicken lines.

They are collecting data on macroscopic physiological responses of the birds as well as transcriptome differences within various tissues as a function of stress. Arkansas and Delaware are investigating gene expression and micro-RNA differences to define the molecular basis for Wooden Breast Syndrome.

## Evidence of multi-institutional and leveraged funding with examples of sources

Many NC1170 members have leveraged USDA-AFRI or other federal grants and also have substantive collaborations among member stations and with poultry breeders and producers. In 2018, active research grants exceeded \$25,000,000, and as with publications, collaboration among members is a hallmark of the success of this group. For example, USDA-AFRI grants were awarded to Delaware, Iowa State, Virginia Tech, and North Carolina State Universities for Adapting Chicken Production To Climate Change Through Breeding (\$4.7M), to Michigan State and Minnesota for Influence of Thermal Challenge on Turkey Muscle Development and Meat Quality (\$975K), to the USDA-Avian Disease and Oncology Lab (ADOL), UC-Davis, and Indiana stations (Purdue) for Genome Biology of Marek's Disease: Viral Integration and Genome Alterations in Genetically Resistant and Susceptible Stocks (\$500K), to Florida and Arizona for Enabling Network Analysis of Host-pathogen Interactions (\$488K), and to UC-Davis, Iowa State, and others for the Feed the Future Innovation Lab for Genomics to Improve Poultry (\$6M). These are just a few of the more than 50 active grants reported in 2018.

## Participating institutions and units

Arizona - University of Arizona

Arkansas - University of Arkansas

California - California State University, Fresno California -

City of Hope Beckman Research Institute California -

University of California, Davis California - Western

University of Health Sciences Delaware - University of

Delaware

Florida - University of Florida

Georgia - University of Georgia Iowa

- Iowa State University Maryland -

University of Maryland

Michigan - Michigan State University

Minnesota - University of Minnesota

Mississippi - Mississippi State University

New York - Cornell University

North Carolina - North Carolina State University

Oregon - Oregon State University

Pennsylvania - Pennsylvania State Royal

Veterinary College, London, U.K.

Tennessee - University of Tennessee Texas

- Texas AgriLife Research

USDA-ARS-Avian Disease & Oncology Laboratory Virginia -

Virginia Polytechnic Institute and State University Wisconsin -

University of Wisconsin

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Nominating Region: North Central

Nominator: Elizabeth Bye E-mail: ebye@umn.edu

Project or Committee Number and Title: NC-170 Personal Protective Technologies for Current and Emerging Occupational and Environmental Hazards

Technical Committee Chair: Kristin Morris E-mail: kristen.morris@colostate.edu

Administrative Advisor: Elizabeth Bye E-mail: ebye@umn.edu

**Project Summary:** Though protective gear is a required part of the uniform for firefighters, police officers, military personnel, healthcare professionals, pesticide handlers, and many others who work in hazardous environments, it is often inadequate at regulating temperature, is heavy and bulky, and is tough to get on and off, all which impede safety and performance. Keeping workers at top performance requires protective gear with advanced function and safety to keep them and the people they serve, safe.

The NC170 research group consists of 20 researchers from the academic fields of anthropometrics, product design, and textile engineering. The group's focus, since 1982, has been on the development of better performing PPE, and members are nationally and internationally recognized for their leadership and contributions to the field. The NC-170 partners are working together to improve protective gear. Over the last five years, they have established the use of body scan and motion capture technology to evaluate gear issues for firefighters, mountain rescue workers, and pesticide handlers. Colorado State University used these tools to identify apparel and footwear needs for physically disabled and overweight people. Other researchers developed state-of-the-art textiles and sensors for innovative protective gear. The group's work has led to new international standards and size and fit guidelines for enhanced safety, comfort, and performance. Through collaboration, researchers can draw on each other's expertise, make the most of limited resources like cutting-edge tools, gather and compare data from more populations, and make significant advances.

***Outcomes and impacts under objectives 1. Investigate factors that impact selection, use, care, and maintenance of PPE products and protective clothing, including hand, foot, and headwear and 2. Assess and improve protection and human factor performance of PPE and protective clothing (including hand, foot, and headwear) through research and product development are advancing function and safety.*** The firefighting workforce is more diversified than ever, and this project aimed to be inclusive while collecting a database of 3D firefighter anthropometric data from all regions of the US, user-centered feedback of current turnout gear inefficiencies, and a national survey of firefighters. NC170 faculty, graduate students and undergraduate students from nine NC170 schools have collaborated for the past three years to develop methods, create protocols, and collect firefighter data. This innovative research incorporates multiple firefighter perspectives with anthropometric and ergonomic data to develop product systems that perform better and keep the firefighter safe and healthy.

Procedures and validity measures for SizeFF were developed with input from NC170 researchers. Data collection included qualitative interviews, a survey, and 3D scans of the body, hands, and feet. The NC170 team has standardized the methods and protocols by creating a 150 page Standard Operating Procedure document, 'best practice' videos to teach other sites how



and where to place landmarks, how to scan the hand, foot, and body, and videos for trouble shooting common scanner issues.

NC170 researchers collected data at the Women in Fire national conference in 2018 and at fire departments throughout the US. Over 200 firefighters from more than 100 fire departments have been scanned, creating the only comprehensive 3D database of firefighters hands, feet, and body. Since 2017, nearly 30 academic journal articles, conference proceeding papers, and presentations have been disseminated on this collaborative research. This research has resulted in synergistic partnerships with Globe (a manufacturer of firefighter turnout gear), national firefighter organizations such as Women in Fire and the National Fire Protection Association, as well as over 100 fire departments throughout the US. The dataset is the first publicly available that includes 3D scans. Data sharing is imperative in this field. As technology and research progress, the 3D scans will offer future researchers, government organizations, fire service organizations, and manufacturers unlimited opportunity to explore the human form using innovative research methods. Members of NC170 have been actively building the body of knowledge related to anthropometrics, ergonomics, sizing, and fit of personal protective equipment

Cornell University performed statistical analysis of Size USA data (including 3,647 males) and NIOSH's firefighters' anthropometry study (including 863 male firefighters), to understand the impact of fixed size of SCBA harness, and height of fire boot regulated by NFPA1971. This SCBA cylinder is longer than firefighters' torso, which significantly limits firefighters' mobility of the upper body and impacts safety. Fit adjustable design features in pants, boots and harness have been developed specifically for female firefighters including design of woven garments for active body positions. HI and Buffalo collaborated on a project improve technology to monitor firefighters' health in fire situations and pinpoint the location of a firefighter in distress for quick rescue.

***Outcomes and impacts from objective 3. Develop/revise and implement research-based performance guidelines and standards for items and systems of personal protective equipment and protective clothing***, include the publication of ISO 18889, performance standard for gloves used for protection against pesticides. The testing of glove materials using the commercial pesticide chemical and surrogate was completed in September 2019 and the draft submitted to ISO for final ballot. An amendment to ISO 27065:2017 for the replacement of the commercial pesticide with a dye test surrogate was approved as EN/ISO Draft International standard. Revision of ISO 17491-4, Protective clothing: Test methods for clothing providing protection against chemicals: Part 4. UMES is coordinating the interlaboratory study to compare three options to obtain a more uniform spray pattern for whole garment testing. Seven laboratories are participating in the interlaboratory study.

Decontamination of cotton/polyester garments worn by pesticide operators was conducted by UMES in partnership with collaborators from Brazil and France. A three-step methodology was developed to extract and analyze the active ingredient in the pesticide formulation from unwashed and washed fabric specimens. UMES is collaborating with pesticide safety educators at Washington State University to conduct field studies in the US. The new protocol will allow comparison with laboratory data.

**Under objective 4, Develop novel functionality and applications of materials for PPE and health/safety solutions**, CA has developed colorimetric fumigant sensors of methyl bromide, 1,3-dichloropropene, methyl isothiocyanate (MITC) and chloropicrin for protection of farm workers. They revealed the nonaffinity between behaviors of the system and its constituents. Properties of a single fabric swatch tested ex situ differ from the corresponding properties of a cloth which suggests the primary factor impacting cloth thermal comfort is the structure (or the porosity) of the cloth, rather than the fiber type. WA has developed a method to spin conductive fibers that can be used as sensors for continuous human vital sign measurement.

Many of our members are from universities that are not Land-Grants, and do not receive funding to participate, however, the benefits of collaboration with NC170 are highly valued. Funds for research were leveraged from a variety of sources to support purchase of scanning equipment, research supplies, and travel costs. International Center for PPE for Pesticide Operators and Re-entry Workers was an outcome of the expertise developed from NC170. For standards, ISO 27065 and ISO 18889, the basis was NC170 research with external collaborators.

#### **Multi-institutional and leveraged funding**

**UCD** Goncu Berk, G. & Pan, T. *Design of Smart Compression Clothing with Textile Based Pneumatic Actuators*. Academic Senate Interdisciplinary Research Grant, \$24,372; Goncu Berk, G., Ozden Yenigun, E. & Toomey, A. (Textiles Department, Royal College of Art, UK) *Smart Clothing & Textiles for Healthcare and Wellbeing: A Research and Learning Network*. Seed Grant for International Activities, \$30,000

**MO** *A collaborative anthropometric study of personal protective apparel, gloves, and boots for female fire fighters*. PI. University of Missouri Research Council, \$8,609 (Period: 5/18 -6/19); *Anthropometric study of male and female firefighters for the improved fit of firegear*. Program for Undergraduate Research Experience (PURE) College of Human Environmental Sciences Office of Research and Graduate Studies, UMO, \$2,000

**UMN** *3D Anthropometric Hand Assessment and Glove Design for Occupational Workers*. AES, Direct Cost (2017-20) Supplementary Travel Funding: \$3625; *National 3D Anthropometric Survey of Firefighters*. College of Design, MN AES. \$17,772. (PI) 10/17-09/20

**UO**: *University of Oregon faculty grant*, \$5000; *Start-up and retention funds*, *Size North American grant*, and *U of Oregon Faculty Research 2018 grant*.

**FSU**: *Undergraduate Research Opportunity Program*, Materials Grant, FSU; *Small Grants Program*, Council on Research and Creativity (CRC), FSU

**KSU**: *Start-up funds*

**Cornell**: *Anthropometric and Biomechanical Study for Improved Size and Fit of Protective Gear for Farmers and Firefighters*, National Institute of Food and Agriculture, \$87,090, 10/17 – 9/20; Gore, WL (Lion Apparel), Stull, J. & Park, H. *Non-Encapsulating NFPA 1994 Class 1 Protective Ensemble, from Combating Terrorism Technical Support Office*, \$116,245; Stull, J. (Kappler, Inc.) & Park, H. *Low Cost, Lightweight, Multi-Functional First Responder Biological Protective Ensemble*, Department of Defense, \$84,210; Stull, J. & Park, H. *New Clothing System for Improved Heat Stress Relief, Full Body, Liquid Integrity, and Ease of Donning*, US Agency for International Development, \$650,000 (Sub-award: \$55,289)

**Unfunded:** Griffin, L. (UMN), Park, H. (CU), Sokolowski, S. (UO) (2018). *User-Centered Systems of Ergonomic Performance and Compatibility for Firefighter Turnout Gear*, Assistance to Firefighter Grant (AFG) Program, Federal Emergency Management Agency. \$1,499,577

#### Summary of Participating Institutions

Baylor College  
Brenau University  
Colorado State University  
Cornell University  
Florida State University  
Iowa State University  
Kansas State University  
Mississippi State University  
Oklahoma State University  
Washington State University  
Washington University in St. Louis  
University of California-Davis  
University of Hawaii  
University of Maryland-Eastern Shore  
University of Minnesota  
University of Missouri  
University of Oregon

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## **5. NRSP Comments and Discussion**

- NRSP1: Multistate Research Information Management and Impact Communications Program (midterm)
- NRSP\_temp4: Facilitating Registration of Pest Management Technology for Specialty Crops and Specialty Uses (4 reviews and responses to temp and their accomplishment report)
- NRSP\_temp6: The US Potato Genebank: Acquisition, Classification, Preservation, Evaluation and Distribution of Potato (Solanum) Germplasm
- NRSP\_temp9: National Animal Nutrition Program (4 reviews and response)

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**Item 8.0: NRSP-RC Report**

**Presenter: Doug Buhler, NRSP-RC Chair, and Jeff Jacobsen**

NRSP-RC Committee Members:

Chair: Doug Buhler (NCRA)	Delegates:
Past Chair: Fred Servello (NERA)	Shirley Hymon-Parker (ARD)
	Mark McGuire (WAAESD)
	Keith Owens (SAAESD)
Executive Vice-Chair:	Don Latham (CARET, Stakeholder)
Jeff Jacobsen (NCRA ED)	Tom Bewick (NIFA)
Assistant Director, Ex-officio:	Ron Brown (ECOP)
Chris Hamilton (NCRA AD, Recorder)	Bret Hess (WAAESD ED)

Website: <http://escop.info/committee/nrsp-rc/>

NRSP renewals for this review cycle will include: NRSP4, *Facilitating Registration of Pest Management Technology for Specialty Crops and Specialty Uses*; NRSP6, *The US Potato Genebank: Acquisition, Classification, Preservation, Evaluation and Distribution of Potato (Solanum) Germplasm*; and NRSP9 *National Animal Nutrition Program*. NRSP1 *Multistate Research Information Management and Impact Communications Program* will undergo its midterm review. External reviews, AAs and regional association reviews will comprise the remainder of the comprehensive review process. Recent communications from the NRSP6 technical lead has led to extensive conversations with USDA ARS regional and national leadership on short- and long-term activities. This has included conversations with the National Plant Germplasm Coordinating Committee USDA ARS lead and a key stakeholder group, the National Potato Council. The NRSP RC face-to-face will be on May 27, 2020 in Madison, WI.

As a prelude to continued work on the NRSP Guidelines, the NRSP RC will conduct a Zoom meeting on February 25, 2020 to discuss the goals and purposes of investing Hatch Multistate into the NRSP mechanism and Guideline revisions. Discussion on this call will center around an evaluation of the desirable and undesirable characteristics of NRSPs, which will then advance the conversation and direction of the NRSP Guideline revisions going forward.

The NRSP guidelines (2015 version) were reviewed and edited by several members of the NRSP RC over the past year, focusing on simplification, consistency and clarity of purpose. This work has been continued by the current and former NRSP Executive Vice-chairs. The final draft will be thoroughly reviewed and vetted by the Executive Directors. Depending upon the direction of modifications, timing, integration of NRSP RC perspectives and priorities, and allied issues, we will discuss the 2020 revisions to the NRSP Guidelines (2015) during the May 27 NRSP RC meeting, followed by input from the regional associations, ESCOP and the SAES directors during the 2020 ESS/ARD annual meeting.

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## NCRA Office Activities 2019/2020

Presenters: Jeff Jacobsen and Chris Hamilton

### 2019-2020 Summary of Activities and Accomplishments

#### Jeff Jacobsen, NCRA Executive Director

##### 1. NCRA ACTIVITIES (Chris, too)

- Participate in monthly Executive Committee calls. Frequent calls, Zoom meetings and emails with Chris. Monthly reports by the MSU financial staff enable the AD and ED to reconcile the budget across the NCRA accounts. Develop three NCRA meeting agendas and the NCRA FY2020 budget all vetted through the Executive Committee. Implemented policy to increase assessment (if warranted) with any increase in salary/fringe. For FY2021 will increase the UW Madison reserve to \$35,000 reflecting 3-months per established policy.
- Integrated elements of the NCRA Plan in regular meetings and future activities.
- Participated with the MRC, NCRA multistate research award and NCRA Leadership award processes. Provided NCRA feedback through the MRC Chair to successful regional nominations and created a NCRA Certificate Award for our top regional multistate project. Work with a state-level communications expert to refine the NC multistate research award nomination to be more competitive nationally.
- Multistate Committees -- NCAC1 Crop and Soil Research, NERA222 Integrated Pest Management, NC1187 The Chemical and Physical Nature of Particulate Matter Affecting, Air Water and Soil Quality, National Multistate Coordinating Committee (NMCC) member and NCRA MRC. NC AES position on the NC Regional Aquaculture Center (NCRAC).
- NRSP1 as NCRA representative and lead AA. Chris Hamilton is the NIMSS lead. Defacto Executive Committee (now) with Steve Loring and Rick Rhodes for Sara Delheimer and Faith Peppers (consultant). Evolved the former program director position from the former director leadership from Sarah Lupis.
- Maintain regular contact with the North Central Water Network and NCCEA.
- Worked on the NC Boot Camp Planning Committee and subgroups for the 2019 to 2020 trainings. This is a joint AES/CES program. AES participants include: George Smith, Marty Draper, Jeff Jacobsen and Chris Hamilton. Planning initiated for 2020 session.
- Created and vetted two PowerPoint presentations: 1) Impact Reporting and 2) Multistate Committee Updates. An additional slide deck is under review: 3) Details of Federal USDA NIFA Support for Land-grant Universities. Future slide deck (4) might be an annual one on BAA and ESS budget and program priorities that could be updated annually for use by NCRA multistate committees.
- Participate with MSU Extension Tribal Extension Grant and others – MILES (Michigan Integrated Land-Grant Extension System).
- Successfully pitched the concept of LGU professionals from selected 1862 and 1890 NC Institutions engaging with NIFA in Kansas City, MO when unit staffing reaches a critical mass. These new NIFA employees likely have not engaged with LGUs, nor understand the implications of what they do at NIFA and how it impacts operations at LGUs. Over the course of several days, across formal and informal sessions, NC professionals and the NC EDs will engage with NIFA. The first programmatic connector will be the Office of Financial and Grant Management. This has been coined **LGU2U** and is to be conducted in conjunction with Robin Shepard. As capacity grows at NIFA, this effort will likely lead to reciprocal visits by NIFA staff to NC LGUs.
- Support the North Central director (Deb Hamernik) as ESS Chair, 2018-2019 (mainly 2019) with Chris Hamilton in all aspects.

- Co-initiated the recruitment and review processes for the NC Regional Center for Rural Development with Robin Shepard, joint Executive Committees, NCRA and NCCEA directors, search committee and technical committee.

## 2. NATIONAL ACTIVITIES (Chris, too)

- Tribal College Research Grant Program and Tribal College Extension – Special Emphasis, NIFA Panel Manager (x2).
- National Research Support Program (NRSP) Review Committee and NRSP Guidelines rewrite and review (*major* undertaking). Invested significant amount of time understanding and navigating the National Plant Germplasm system network with a particular focus on NRSP6.
- Significantly rewrote the ESCOP Rules of Operation to conform with present day best practices and overall structure and function. Approved by ESS/ARD at the Annual Meeting.
- Worked with the ESS Finance Committee Task Force to create an ESS Financial Investment Policy for ESS. This would potentially invest via moderately conservation approaches in conjunction with APLU, TD Wealth Management and a permanent committee associated with the BLC to manage ESS financial resources (\$600,000) on behalf of the system. Pending national ratification vote before implementation.
- On-going exploration and identification of collaboration, partnership and coordination with NRCS at national, regional and state levels across research and Extension. Implementation (across themes of Common Goal Setting; Sharing of Technical and Scientific Information; Training and Professional Development; Multistate, Regional and National Coordination; and Resource Issues/Initiatives) will be the focus in 2019-2020. All of this is with Robin Shepard.
- Served on the ESCOP S&T Committee (STC) as Executive Vice-chair (with the AD's support and engagement) and provide administrative leadership and assistance. Identify and review materials and actions on behalf of ESS and provide narrative for committee recommendations to ESCOP. Facilitate the review and recommendation on the multistate research nomination process. Discussions occur during the monthly calls. Work with APLU on behalf of ESS to ensure quality representation in the annual APLU Program recognizing excellence across facets of the research portfolio. Created a comprehensive documentation and calendar for Bret Hess to use as he takes over support for the STC, NIPMCC and the SSSC. Significant progress was accomplished over the last five years of our (NCRA) support and leadership.
- With the retirement of Mike Harrington as WAAESD ED (June 2019), we (Chris and Jeff) assumed the roles of active participants and support to the Budget and Legislative Committee (BLC). With this position, Jeff in turn, supports the ESCOP representative on the PBD Budget and Advocacy (BAC), the ESCOP representative to the Committee on Legislation and Policy (CLP) and episodic work with committees (e.g. Strategic Realignment). There was overlap and transition activities over April-June 2019.
- Moved from ED support to regular participation with the Diversity Catalyst Committee (DCC).
- Resurrecting discussions from 2018 into recent conversations (potentially) leading to a NIFA Conference grant focused on a national convening with 'College of Agriculture' diversity, equity and inclusion professionals for training and, most importantly, developing a multi-year roadmap for diversity professionals. This would also engage all interested professionals and faculties.
- ESCOP website monitoring and nudging to keep current across regional offices and committee assignments.

- For ESCOP with Deb Hamernik as the 2019 Chair, the NCRA office activities increased through fall 2019 with meetings and communications such as the monthly Chairs Advisory Committee (CAC) calls, coordination with the ECOP chair and system-wide communications. This also included ESCOP and ECOP Chair visits to Washington, DC and associated follow up actions.
- Create and edit materials as needed. For example, ESCOP agenda briefs; feedback and monitoring on NIFA with the Time and Effort reporting; Advocacy efforts with the Single Ask; and the group ED edits on the one-pagers managed by Cornerstone Government Affairs and used by CARET/AHS during their Hill visits.
- Serve as a member of the SAAESD Executive Director Search Committee with the near future retirement of Eric Young.
- Regularly work with the research and Extension EDs throughout the year.

### 3. PROFESSIONAL DEVELOPMENT AND HONORS

- USDA Special Government Employee (SGE) Ethics Certificate.
- 2020 Information Security Awareness and Acknowledgement of Rules of Behavior Certificate.
- Received the 2019 Diversity Catalyst Committee National Award.
- NIFA and Others – IDI and ICS debrief, NC Bootcamp, Webinars on Strategic Realignment, Time and Effort, NERAOC, FALCON, and others tbd.
- Conferences, readings and self-study activities as appropriate.
- Nominated for a 2019 NIFA Partnership Award for all DCC efforts.

### 4. TRAVEL

- LGU2U, Kansas City, MO *tbd*
- NC Bootcamp, Kansas City, MO *tbd*
- North Central Mini Land-grant, July 26-28, Lincoln, NE [NCRA *tbd*]
- Joint COPs, July 21-23, Kansas City, MO [National, NCRA]
- Tribal College Research Grant Program and Tribal College Extension – Special Emphasis Panels, July 6-10, Kansas City, MO [National, NCRA]
- National Plant Germplasm Coordinating Committee, June 18, Beltsville, MD [National, NCRA]
- ASTA Policy and Leadership Development Conference, June 15-17, Indianapolis, IN [National, NCRA]
- NRSP Review Committee, May 26-27, Madison, WI [National, NCRA]
- NERAOC Conference, April 19-22, St. Louis, MO [National, NCRA]
- SAAESD Southern ED Search Committee, April 14-16, Atlanta, GA [National, NCRA]
- NMCC Meeting, April 7-9, Washington, DC [All EDs]
- NCRA Spring Meeting, March 30-April 1, Scottsdale, AZ [NCRA]
- CARET/AHS Annual Meeting, March 1-3, Washington, DC [National, ESCOP]
- NCRAC and The OSU visits, February 28-31, Columbus, OH [NCRA]
- NCAC1, Jan 6-9, 2020 Ponce, Puerto Rico [NCRA]
- New Dean/Director Orientation, Dec 10-12, Washington, DC [National, NCRA]
- APLU Annual Meeting, Nov 8-12, San Diego, CA [National, ESCOP, NCRA]
- FALCON, Oct 25-28, Denver, CO [NCRA]
- ESS and CES Annual Meeting, Sept 23-26, Nashville, TN [National, ESCOP, NCRA]



- ESCOP and ECOP Chair Visits, *Numerous* throughout 2019, Washington, DC [National, ESCOP]

## 2019-2020 Summary of Activities and Accomplishments

Chris Hamilton, NCRA Assistant Director

### 1. NCRA ACTIVITIES (Jeff, too)

- Manage all aspects of the NCRA office (meetings, financials, website maintenance, etc.), working closely and effectively with UW's CALS business services and MSU (NCRA and ED budget).
- Worked with NCRA ED and Executive Committee on the FY2021 NCRA budget with new implementation options.
- Participate in monthly NCRA Executive Committee calls.
- Partner with Robin Shepard of NCCEA to maintain strong communications between NCRA and NCCEA. I maintain NCCEA.org and the NCCEA Twitter account (@NCCEA) and can coordinate social media activities to maximize our joint regional research and Extension social media impact.
- Create reports and spreadsheets useful to the NC region, as needed and upon request (salary data, AES allocations, facilities inventories, etc.).
- Maintain NCRA and NCCEA Twitter accounts (@NCRegionalAssoc; @NCCEA), posting relevant stories about AES research, news, etc. and leveraging stories to national attention. Twitter account now has 193 followers (up from 162 in 2016, for reference), including several association colleges and universities, national organizations, government partners, industry, and others.
- Continue to host and maintain the [www.nc-climate.org](http://www.nc-climate.org) website, showcasing NCR climate research, collaborations, and providing a central site for climate researchers contact information.
- Participate on the NC Admin Boot Camp planning committee with AES and EXT directors and our regional EDs. Planning for the 2020 session will begin soon.
- Participate on the NC Mini Land Grant meeting planning team and arrange planning calls. (TBD whether meeting will be held in 2020).
- Solicit regional nominations and coordinate the selection of the NCRA Leadership and Multistate Research awards. Helped create the NCRA Certificate Award for our top multistate project.
- Provide project assignments and guidance to NCAC AAs for NCRA multistate project reviews. Updated and streamlined the NCAC review process and communications with NCAC AAs.
- Provide high-level technical services to the NCRA and other regions, upon request, and maintain friendly and close working relationships with NC AES staff on NIMSS and other multistate issues. They often contact me first with questions and I either have the answer or direct them to someone who does.
  - Maintain NCRA website ([www.ncra-saes.org](http://www.ncra-saes.org)).
  - Zoom video conferencing and screen shares for conference calls, NIMSS help, and other training as needed.
  - Regular cloud back-ups of all NCRA office files at UW-Madison using local CALS servers and Box.com accounts.
  - File and data sharing through Google Drive and Box.com.
  - Online Qualtrics Survey creation.
  - Manage all NC email lists and NCRA Directories.

- Continued serving as a member of the UW College of Ag Committee on Academic Staff Issues (CALC CASI). We meet monthly to provide guidance and act on a variety of issues affecting CALS academic staff. I am the chair of the nominations and mentoring subcommittee and led the planning of a new academic staff welcome event. I also seek out new members of CASI to take over when other leave or rotate off.
- Provided support to past ESCOP Chair, Deb Hamernik, including regular system communications, ESCOP and ESS meeting agenda preparation, meeting minutes, and other activities, as requested, up through 9/2019.

### **North Central Region Multistate Research Portfolio**

- **Regular Support:** Regularly provide support and technical assistance to users navigating NIMSS and interpretation of national and regional multistate guidelines.
- **FY2021 New/Renewing NC Projects:** Facilitated the renewal of 12 NC multistate projects expiring in 2020, 3 new project requests, and 15 midterm review evaluations, reminding and assisting AAs and committees with submitting on-time, quality, collaborative reports to NIMSS. Coordinated project assignments and review activities of the NC AAs, NC ACs, and the MRC. See the March 2020 MRC report for details.
- As time allows, I attend and provide NCRA updates to multistate committees that meet in Madison. This year included meetings with NRSP3, NCERA180, and NC246.

## **2. NATIONAL ACTIVITIES (Jeff, too)**

- Provide administrative leadership and assistance to NRSP1. Schedule calls, take minutes, coordinate committee activities, etc. Also, I serve as the NIMSS lead Regional System Administrator.
  - NIMSS is the Experiment Station's national workflow database for managing all multistate project activities.
  - I continue to communicate regularly through emails and monthly calls with the Clemson NIMSS development team to solve issues, improve efficiency, and enhance the user experience within the NIMSS database. These efforts enable us to solve NIMSS issues quickly and efficiently and avoid the need for tedious software versioning issues, since changes are made in real time.
  - This is our fifth year managing NIMSS and the system is running smoothly and effectively, with rapid response to any issues or suggested improvements.
  - At the April 2020 NERAOC meeting, I will be leading a NIMSS Q&A session with David Leibovitz from NERA. I will be joining the session remotely.
- Provided administrative leadership and assistance to the ESCOP Science and Technology (STC) Committee through June 2019. Scheduled calls, took meeting minutes, participated on calls, coordinated committee activities, coordinated review and ranking of national multistate research award nominations, etc.
- Provide administrative leadership and assistance to the ESCOP Budget and Legislative Committee (BLC) effective June 2019. Schedule calls, take meeting minutes, participated on calls, coordinate committee activities, such as the in-person joint ESCOP/ECOP BLC meeting in Nashville, TN.
- Participate as member with the ESCOP Diversity Catalyst Committee (DCC). We join quarterly calls, participate in training sessions, seek out speakers for calls, etc.
- Assist Dave Leibovitz (NERA AD) with updates to the ESCOP website ([www.escop.info](http://www.escop.info)) and ESCOP email list serves. I also create back-up Wisclit email lists for ESCOP, as needed.
- Provide general NIMSS support to NRSP6 and NRSP3 AAs (Bill Barker and Doug Buhler, respectively) by authorizing annual meetings, uploading reports.

- Provide administrative assistance to the ESCOP NRSP-RC, of which Doug Buhler is the current chair. This year, I provided policy and technical support to NRSP4, NRSP6, and NRSP9 as they submitted their renewal proposals to the NRSP-RC and NIMSS. Helped coordinate NRSP-RC calls and the spring face-to-face meeting. This year, we are also revising the NRSP Guidelines, with which I have assisted.
- Creator and owner of the online NIMSS manual, a living document outlining all functions, tips, and tricks to make using NIMSS easy. The NIMSS manual is located at <https://www.ncra-saes.org/nimss-manual>, and I update it regularly.
- Partner with the NIFA multistate research office to coordinate NIMSS project/participant approvals, occasionally serve as the NIMSS liaison for NIMSS/REEport issues, and other regional-USDA administrative tasks, as needed.
- Volunteered to serve as a spring grant review panelist again this year for NIFA Tribal Program.
- Through 9/2019 provided assistance to last year's ESCOP Chair, Deb Hamernik, including regular system communications and votes as needed, prepared agendas and minutes for monthly CAC calls, as well as face-to-face ESCOP Committee, ESCOP Executive Committee, and ESS meetings. Assisted with other duties, as requested by the chair.

### 3. PROFESSIONAL DEVELOPMENT

- In 2019 and 2020, I attended the following conferences and workshops:
  - Completed UW's "Plain Language" certificate series, based on the federally mandated effort described at: [www.plainlanguage.gov](http://www.plainlanguage.gov).
  - 2019 UW Madison Diversity Forum.
  - 2018 UW-Madison's Leadership and Management Development Conference.
  - 2018 UW-Madison Women & Leadership Symposium.
  - UW-Madison CALS Monthly Diversity and Inclusion Lunch & Learns.
  - UW's Fully Prepared to Lead, Modes of Conflict Management.
  - UW's Continuing Education: Leading at a Distance: Managing Virtual Staff and Teams.
  - UW's Working Better Together: Everything DiSC Workplace.
  - Perspectives: Building LGBTQ+ Inclusion in the Workplace.
  - UW Tax Compliance and Reporting Training.
  - UW's Emotional Intelligence: Putting Your EQ to Work.
  - UW's Hostile and Intimidating Behavior Policies & Processes.
- I plan to serve for my third year in a row this April as a presentation session observer for the World Food Prize – WI Youth Institute at UW Madison. We review all the high school applicant papers and presentations and decide which will be nominated to go forward for the national prize.
- As time allows, I utilize UW's Lynda.com self-paced software training application to stay up-to-date on software applications applicable to my role in the NCRA.
- Attend all required UW Madison and CALS staff trainings (travel, p-card, purchasing, etc.).
- Going forward in 2020, I have already or will attend the following professional development opportunities:
  - Bystander Intervention: Stepping In with Care and Confidence.
  - Fully Prepared to Lead: Effective Emails - Fundamentals in Business Writing.
  - UW-Madison CALS Monthly Diversity and Inclusion Lunch & Learns (on-going).
  - 2020 Diversity Forum.
  - 2020 UW-Madison's Leadership and Management Development Conference.
  - 2020 UW-Madison Women & Leadership Symposium.

### 4. TRAVEL

- NCRA Spring Meeting, March 25-27, 2019, Scottsdale, AZ [NCRA]
- NRSP Review Committee, May 26-27, Madison, WI [National, NCRA]
- NC Mini Land-grant, Manhattan, KS, July 28-30, 2019 [NC, NCRA]
- Joint COPs Meeting, Park City, UT July 21-23, 2019 [ESCOP, National]
- ESS/ARD and CES Annual Meeting, Sept 23-26, Nashville, TN [ESCOP, National, NCRA]
- NCRA Spring Meeting, March 30 to April 1, 2020, Scottsdale, AZ [NCRA]
- NC Bootcamp, Kansas City, MO [NCRA, *tbd*]
- Joint COPs Meeting, Kansas City, MO, July 21-23, 2020 [ESCOP, National]
- NC Mini LGU Meeting, Lincoln, NE, July 26-28, 2020 [NCRA, *tbd*]
- Fall ESS/AES/ARD Meeting and Workshop, Baltimore, MD, September 28-30, 2020 [ESCOP, National, NCRA]

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**ARS Report**  
**Presenter: Joseph Rich**

USDA Agricultural Research Service (ARS)  
Report to NCRA State Agriculture Experiment Station Directors  
March 2020

**Area Leadership**

**Midwest Area**

Area Director: Alberto Pantoja (Acting)

Associate Area Directors: Chi-hua Huang (Acting); Sean Liu (Acting)

**Illinois, Indiana, Iowa, Kentucky, Michigan, Minnesota, Missouri, Ohio, Wisconsin**

**Plains Area**

Area Director: Larry Chandler

Associate Area Directors: Bryan Kaphammer; Joseph Rich

**Colorado, Kansas, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, Wyoming**

**Budget Information**

**FY 2020 Enacted Budget for ARS**

- Salaries and Expenses:
  - \$1,414,366,000
  - Increase of \$111 million from the FY 2019 appropriation
  - Increases
    - Program Increases (53 total) 111,000,000
  - Decreases
    - Proposed Location/Laboratory/Worksite Closures 0
    - Proposed Project Terminations
- Buildings and Facilities. 192,700,000
  - Locations Co-located at Universities 166,900,000
    - Lexington, KY (MWA) 65,900,000
    - Columbia, MO (MWA) 24,800,000
    - Davis, CA (Pacific West Area) 76,200,000

**FY 2021 Proposed Budget for ARS**

- Salaries and Expenses:
  - \$1,367,970,000
  - Decrease of \$46.4 million from the FY 2020 appropriation
  - Increases 75,700,000
    - National Bio- and Agro-Defense Facility
      - Operations and Maintenance 15,000,000
      - Research Program Enhancements 5,000,000
      - Partnership and Innovation 3,000,000

▪ Precision Agriculture	20,000,000
▪ Long-Term Agroecosystems Research	5,000,000
▪ AI Innovations for Agricultural Production	5,000,000
▪ Managing Excess Water and Controlling Erosion	5,000,000
▪ Inflationary Costs	17,704,000
○ Decreases	(122,100,000)
▪ Elimination of NBAF Transition Costs	(13,100,000)
▪ Proposed Location/Laboratory/Worksite Closures	(0)
▪ Proposed Redirections of Ongoing Research <sup>1</sup>	(35,000,000)
▪ Proposed Project Terminations <sup>2</sup>	(74,000,000)
○ Transfer of OPMP to OCE	(2,868,000)
● Buildings and Facilities.	50,000,000
○ Design Plant Genetics Lab (Griffin, GA)	2,000,000
○ Design Crop Sciences Lab (Mississippi State, MS)	6,000,000
○ Design CMAVE <sup>3</sup> (Gainesville, FL)	7,500,000
○ Design US Meat Animal Research Center (Clay Center, NE)	10,000,000
○ Construction BARC Building 002 (Beltsville, MD)	24,500,000

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<sup>1</sup> See Table 1. FY2021 President's Budget Proposed Redirections

<sup>2</sup> See Table 2. FY2021 President's Budget Proposed Terminations

<sup>3</sup> Center for Medical, Agricultural and Veterinary Entomology

Table 1. FY2021 President’s Budget Proposed Redirections

<b>Initiative</b>	<b>Area</b>	<b>State</b>	<b>City</b>	<b>Project Title</b>	<b>Gross, \$</b>
LTAR	MWA	OH	Columbus	Agricultural Water Management in Poorly Drained Midwestern Agroecosystems	1,500,000
	PA	CO	Fort Collins	Management Practices for Long Term Productivity of Great Plains Agriculture	1,000,000
Managing Excess Water	MWA	IN	W. Lafayette	Conservations Practice Impacts on Water Quality at Field and Watershed Scales	1,200,000
				Managing Agricultural Systems to improve Agronomic Productivity, Soil, and Water Quality	800,000
	IA	Ames	Agroecosystem Benefits from the Development and Application of new Management Technologies in Agricultural Watersheds	500,000	
	PA	NM	Las Cruces	Science and Technologies for the Sustainable Management of Western Rangeland Systems	500,000
Precision Ag – Labor Saving Automation	MWA	MI	E. Lansing	Nondestructive Quality Assessment and Grading of Fruits and Vegetables	500,000
		OH	Wooster	Improved Pest Control Application Technologies for Sustainable Crop Protection	500,000
		WI	Madison	Forage Characteristics and Utilization that Improve Efficiency of Growth, Performance, Nutrient Use, and Environmental Impacts of Dairy Production	500,000
	PA	MT	Miles City	Alleviating Rate Limiting Factors that Compromise Beef Production Efficiency	400,00



	NE	Clay Center	Improve Nutrient Management and Efficiency of Beef Cattle and Swine	500,000
	OK	El Reno	Use of Animal Genetics and Diversified Forage Systems to Improve Efficiency and Sustainability of Livestock Production Systems in the Southern Great Plains	400,000
	TX	Bushland	Improved Practices to Conserve Air Quality, Maintain Animal Productivity, and Enhance Use of Manure and Soil Nutrients of Cattle Production Systems for the Southern Great Plains	300,000
		College Station	Aerial Application Technology for Sustainable Crop Production	500,000
		Lubbock	Enhancing the Profitability and Sustainability of Upland Cotton, Cottonseed, and Agricultural Byproducts through Improvements in Pre- and Post-Harvest Processing	500,000

<b>Initiative</b>	<b>Area</b>	<b>State</b>	<b>City</b>	<b>Project Title</b>	<b>Gross, \$</b>
Precision Ag – Data Management and Tool Development	MWA	OH	Columbus	Agricultural Water Management in Poorly Drained Midwestern Agroecosystems	500,000
	PA	MT	Miles City	Alleviating Rate Limiting Factors that Compromise Beef Production Efficiency	334,000
		NE	Clay Center	Developing a Systems Biology Approach to Enhance Efficiency and Sustainability of Beef and Lamb Production	500,000
		NM	Las Cruces	Science and Technologies for the Sustainable Management of Western Rangeland Systems	500,000
		OK	El Reno	Use of Animal Genetics and Diversified Forage Systems to Improve Efficiency and Sustainability of Livestock Production Systems in the Southern Great Plains	333,000
			Stillwater	Development of Engineering Tools for the Design and Rehabilitation of Safe, Efficient Embankment Protection Alternatives, Hydraulic Structures, and Channels	500,000
		TX	Kerrville	Cattle Fever Tick Control and Eradication	500,000
		WY	Cheyenne	Adaptive Grazing Management and Decision Support to Enhance Ecosystem Services in the Western Great Plains	333,000

Table 2. FY2021 President's Budget Proposed Terminations

Area	State	City	Project Title	Gross, \$
MWA	IL	Peoria	Develop Technologies for Production of Platform Chemicals and Advanced Biofuels from Lignocellulosic Feedstocks	1,424,000
	IN	W. Lafayette	Oat Virus	65,000
	IA	Ames	Bioinformatics Institute for Model Plants	917,000
			Michael Fields Agricultural Institute	170,000
	KY	Bowling Green	Waste Management	538,000
		Lexington	Improved Forage Livestock Production	899,000
	MO	Columbia	Mid-West/Mid-South Irrigation	172,000
			Soybean Seed Quality Improvement through Translations Genomics	313,000
	OH	Wooster	Greenhouse and Hydroponics	215,000
	WI	Madison	Great Lakes Aquaculture Research	480,000
Pollinators and Gene Flow			460,000	
PA	ND	Fargo	Improving Potato Nutritional and Market Quality by Identifying and Manipulating Physiological and Molecular Processes Controlling Tuber Wound-Healing and Sprout Growth	640,000
	TX	Bushland	Ogallala Aquifer – KS State Univ	270,000
			Ogallala Aquifer – TX A&M Univ	443,000
			Ogallala Aquifer – TX Tech Univ	237,000
			Ogallala Aquifer – West TX A&M Univ	174,000
College Station	Identification of Resistance in Sorghum to Fungal Pathogens and Characterization of Pathogen Population Structure	241,000		

## New Leadership and Vacancies

### Midwest Area

- Illinois
  - Peoria, National Center for Agricultural Utilization Research
    - Center Director – Todd Ward, CD
    - Bioenergy Research – vacant; Bruce Dien, Acting RL
    - Bio-oils Research – vacant; Steve Cermak, Acting RL
    - Crop Bioprotection Research – vacant; Robert Behle, Acting RL
    - Renewable Product Technology – vacant; Dave Compton, Acting RL
  
  - Urbana
    - Global Change and Photosynthesis Research – Lisa Ainsworth, RL
    - Soybean/Maize Germplasm and Pathogen Genetics Research – vacant - Glen Hartman Acting RL
  
- Iowa
  - Ames
    - Corn Insects and Crop Genetics Research – vacant; Michelle Graham, Acting RL
    - National Laboratory for Agriculture and the Environment, Center Director, vacant; Tom Sauer Acting
  
- Kentucky
  - Forage Animal Production Research, Lexington – Michael Flythe, RL
  
- Minnesota
  - Morris
    - Soil Management Research – vacant; Jane Johnson, Acting RL
  
- Missouri
  - Columbia
    - Plant Genetics Research – vacant; Bruce Hibbard, Acting RL
    - Cropping Systems & Water Quality – vacant; Kenneth Sudduth, Acting RL
  
- Ohio
  - Wooster
    - Applications Technology Research – James Altland, RL
    - Corn, Soybean, and Wheat Quality Research – Byung-Kee Baik, RL
  
- Wisconsin
  - Madison
    - US Dairy Forage Research Laboratory, Dennis Hancock, Center Director
    - Cell Wall Biology & Utilization Research Unit – vacant; Geoffrey Zanton,

Acting RL

- Dairy Forage Research Unit – vacant; John Grabber, Acting RL

## **New Leadership and Vacancies**

### ***Plains Area***

- Kansas
  - Manhattan, Center for Grain and Animal Health Research
    - Arthropod-Borne Animal Diseases Research Unit – vacant; Dana Nayduch, Acting RL
    - Grain Quality and Structure Research – vacant; Frank Arthur, Acting RL
  - Manhattan, National Bio- and Agro-defense Facility
    - Center Director – Alfonso Clavijo; CD
- Nebraska
  - Clay Center, US Meat Animal Research Center
    - Genetics, Breeding and Animal Health Research Unit – Larry Kuehn, RL
    - Reproduction Research Unit – vacant; Gary Rohrer, Acting RL
  - Lincoln
    - Wheat, Sorghum and Forage Research – Rob Mitchell, RL
- North Dakota
  - Fargo, Edward T. Shafer Agricultural Research Center
    - Cereal Crops Research – vacant; Timothy Friesen, Acting RL
    - Insect Genetics and Biochemistry Research Unit, – vacant; Joseph Rinehart, Acting RL
    - Sugar Beet and Potato Research Unit, – vacant; Melvin Bolton, Acting RL
    - Sunflower and Plant Biology Research Unit, – vacant; James Anderson Acting RL
  - Grand Forks, Grand Forks Human Nutrition Research Center
    - Healthy Body Weight Research Unit – vacant; Kate Larson, Acting RL

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## **NCRCRD (NC Regional Center for Rural Development) Update**

**Presenter: Mark Skidmore**

### **NCRCRD Update for the NCRA- Spring 2020**

This year I will complete my fifth of a five-year appointment as NCRCRD Director. I've decided that this will be my last year. While I have always had a deep respect for my colleagues in the Land Grant system, my appreciation has only expanded these past several years. I am impressed with their dedication and hard work in achieving the research and extension missions of the Land Grant system. It is clear to me that the end results of these efforts have been to serve people and improve quality of life. I have also learned to appreciate the central role those of us in the Land Grant system have in developing partnerships and networks, and leading state, regional, and national collaborations. This is difficult but rewarding work that yields dividends over the long-run.

I want to express my appreciation of the NCRCRD Board of Directors and Brent Elrod for their thoughtful guidance. Their fingerprints are on all the accomplishments attributable to the Center. I also express my appreciation for the Directors of the other three rural development centers (Northeast, Southern, and Western) for their comradery; we've partnered together to deliver several nationwide programs, and of course their advice has been very much appreciated.

I will continue to serve in the Director role over the next year, until leadership transitions fully to the next Director. As for my next steps, I will return fully to my faculty role at Michigan State University in the capacity of Morris Chair in State and Local Government Finance and Policy. I will also take a sabbatical; plans are still forming but I have agreed to edit the "Handbook of the Economics of Natural Disasters", which will become of a part of Elgar's Handbook of Economics series.

Below, I offer updates regarding Center activities over the past year.

#### **New Board Members**

NCRCRD Board Member Chris Caldwell completed his term. We thank Chris for all his contributions these past several years and wish him well as he continues to serve as Director of the Sustainable Development Institute at the College of Menominee Nation. We also wish him the best as he pursues a Ph.D. in Environmental Studies at the University of Wisconsin.

We also welcome Ms. Amber Marlow to the Board. Amber is the Dean of Continuing Education and Customized Training at Lac Courte Oreilles Ojibwe College in Hayward Wisconsin (LCOOC). In her current role at the college, Amber oversees the Extension department and the 1994 land grant programs. Amber also oversees community education programs that serve over 1,500 participants annually on topics such as food sovereignty and gardening workshops, pre-college programs, regalia making, employability skills, entry level road construction careers, exercising treaty rights, and natural resource management. Amber is a 1994 land grant representative on the North Central Region Water Network, the North Central Region Sustainable Agriculture Research Education (SARE) Administrative Council member, and the Vice-President of the First American Land Grant Consortium (FALCON).

#### **New NCRCRD Administrative Assistant**

After a productive multi-decade career at Michigan State University, including 10 years serving as NCRCRD administrative assistant, Ms. Rosa Soliz-McKelvey retired in November 2019. We miss her

great work as well as her smile and caring personality. Rosa is busy spending time with family (especially her grandchildren), travelling, and getting caught up on home improvement projects.

Ms. Krystal Witt has stepped into the role without missing a beat, but she realizes she has big shoes to fill! She is very capable and is taking a variety of courses to learn the MSU systems required to manage the diverse set of Center activities.

### **National Behavioral Health Extension Network (NBH E-Net) Established**

Opioid misuse, addiction, and overdose affect millions of Americans each year, causing immeasurable disruption and suffering in the lives of individuals, families and entire communities and draining billions of dollars from our economy. Overdoses are now the leading cause of death of Americans under the age of 50, the impacts of which are being felt in every region of the country, affecting both rural and urban places. The impetus of the crisis emerged in the mid-1990s, in part, because of false information about the degree to which opioid painkillers are addictive, which led to wide scale use of opioid painkillers across the nation. Currently, about one in three American adults take prescription opioids during the course of a given year. (Han, *et al.*, 2017). Prescription painkiller misuse has now evolved into a growing illicit drug use problem nationwide. Vulnerability to addiction has multiple causes and includes genetic, epigenetic, psychological, developmental and contextual factors. Thus, effectively addressing the opioid crisis will require multiple types of solutions and interventions at multiple levels, across social contexts.

At the request of the Extension Committee on Organization and Policy (ECOP), in 2017 the [Extension Opioid Crisis Response Workgroup](#) (EOCRW) was formed to develop a strategic framework to guide Extension activities related to addressing the crisis nationwide. The charge of the workgroup was to:

- Identify existing activities and competency frameworks in the land-grant system and develop an [Opioid Response](#) website that could be used to make opioid-related resources available;
- Identify potential needs/opportunities/funding sources across the nation where the land-grant system could help to address the crisis;
- Develop a strategic framework that could be used to coordinate a system-wide effort;

Mark Skidmore served as Coordinator for the EOCRW, and workgroup members included knowledgeable extension and outreach specialists as well as researchers from the land-grant system. One of the recommendations in the [final report](#) was that a National Behavioral Health Extension Network (NBH E-Net) be established. With funding and support the Regional Rural Development Centers, ECOP, and eXtension, NBH E-Net has been established help [build capacity among Land Grant University Extension and collaborator systems to support training, technical assistance and workforce development \(T/TA/WD\) for dissemination of science-based behavioral health resources](#). NBH E-Net is housed within the Partnerships in Prevention Science Institute ([PPSI](#)) at Iowa State University under the leadership of Dr. Richard Spoth who serves as Institute Director and Wendall Miller Senior Prevention Scientist. The NCRCD is pleased to provide support and to have helped lead this initiative. We look forward to the ongoing capacity-building work of NBH Net!

### **Over 10 years, NCRCD Leveraged \$3.5 Million in Core Funds to Generate \$12.3 million in External Grants**

For the past 10 years, the NCRCD has offered a range of sub-grants and small grants. This past year, a survey was administered to recipients of NCRCD subgrants and small grants to learn more about the longer-term outcomes of the work they completed. In addition to the excellent outreach programming,

training, research paper/articles, and cross-state collaborations, 19 of the recipients were successful in obtaining subsequent funding from entities such as the USDA, EDA, NSF, SAMHSA, state governments, and foundations to continue their work. For every dollar of grant funding the NCRCRD administered, an additional \$2.40 in grant dollars was subsequently generated for a total of \$4.79 million.

Over the last 10 years, the NCRCRD received a total of \$3.46 million in USDA core funding, which generated an additional \$7.53 million in direct grant funding from federal government sources. For every \$1 of core funding, the NCRCRD generated an additional \$2 in supplemental grant dollars to engage in a range of activities in the rural development and health arenas.

In total, the \$3.46 million in core USDA funding helped to generate an additional \$12.32 million, which was used to support a diverse set of rural development activities in the North Central region and beyond. Every \$1 of core NCRCRD funds leveraged an additional \$3.56 in subsequent support.

### **NCRCR Partners with Michigan State University Extension to Provide Farm Stress Training**

Low commodity prices, rising land costs, international trade disruptions, high debt loads, and natural disasters have contributed to increasing financial distress among American farmers. Farm families may experience challenges in managing the stress and frustration associated with these difficult circumstances. In late 2018, the NCRCRD partnered with Michigan State University Extension on a \$500,000 USDA grant to develop and deliver training to help Farm Service Agency (FSA) personnel more effectively identify and assist farmers experiencing distress. The curriculum was adapted from Michigan State University Extension's "Communicating with Farmers Under Stress", wherein we developed and administered web-based learning sessions coupled with in-person training. As that training was being completed in September 2019, the Farm Credit Council (FCC), American Farm Bureau Federation (FB), and the National Farmers Union (NFU) approached the NCRCRD/MSU Extension team to request that we develop and deliver a similar web-based training. The partnerships with FSA, FCC, FB, and NFU have resulted in hundreds of people being trained such that they have increased knowledge, skills, and techniques they can now use to more effectively work with and assist distressed farmers. Program evaluations show significant improvements in knowledge, confidence, and effectiveness in working with and serving distressed farmers. See below for representative comments from participants about the training:

Thank you for all the hard work you put into the distressed farmer training. I thought it was very helpful and I feel more prepared to handle some of these difficult situations.

All of the training was useful, especially the active listening as well as the coping strategy.

This was great!

The projects are also an excellent example of collaboration across Land Grant universities in the NC region—partners assisting with the training included farm stress experts from Kansas State University, Michigan State University, NCRCRD, Ohio State University, South Dakota State University, University of Illinois, and the University of Wisconsin.

### **North Central Region Water Network and the NCRCRD Partner to Fund Flood Resilience Project**

In the aftermath of the severe flooding in the spring of 2019 that hit the North Central region especially hard, Land Grant universities throughout the region partnered with federal and state authorities to



assist affected communities. To provide a sense of the scope of the flood challenges, 74 cities and 65 counties in Nebraska declared a State of Emergency. Most of the efforts were devoted to emergency response and recovery, and rightly so. However, North Central Region Water Network (NCRWN) Director Rebecca Power and Mark Skidmore believed that a focus on long-term planning, preparedness, and resilience was also appropriate—what steps might be taken to reduce the impacts flooding in the future? The NCRWN and the NCRCRD decided to collaborate in offering a joint funded project to:

- Document current extension responses to long-term flood planning and preparedness across the North Central Region,
- Assess long-term flood planning and preparedness needs for agriculture and communities that extension is best suited to address,
- Document gaps in extension programs and the research foundations of extension programs, related to long-term flood planning and preparedness.
- Develop recommendations for strengthening extension support for long-term flood planning and preparedness and reducing flood vulnerability in the North Central Region.

The two organizations committed \$50,000 to the project (\$15,000 for planning and \$25,000 for implementation), which funded the initiative “Assessment North Central Region Extension Capacity in Long-Term Flood Preparedness.” The project team is led by Laura Edwards of South Dakota State University Extension State Climatologist and includes Dan Downing (University of Missouri), Josh Gunn (Michigan State University), Joel Larson (University of Minnesota), Miranda Meehan (North Dakota State University), Lisa Merrifield (University of Illinois), Amanda Mosiman (Purdue University), Hans Schmitz (Purdue University), Charles V. Schwab (Iowa State University), and Peter Tomlinson (Kansas State University).

The team notes that there has been a long-term trend of increasing precipitation in the North Central region, which has led to repeated or chronic flooding. The project will explore the role of Extension in the region and how Extension can help provide resources, support, and guidance to address long-term regional flooding. The team’s first step is to conduct an overall assessment, and then based on the initial findings use supplemental funding to begin filling the gaps in extension programs and the research foundations of extension programs, related to long-term flood planning and preparedness.

### **NCRCRD Post-doc Quan Sun Assesses Flood Impacts and Recovery in the North Central Region**

Dr. Quan Sun is currently serving as a Postdoctoral Research Associate at the North Central Regional Center for Rural Development, where he is focusing his efforts on helping to address impacts and resilience to flooding in Nebraska and the surrounding flood-impacted areas in the North Central region. A primary goal is to enhance resilience of communities for the future severe flood events. Currently, Dr. Sun is conducting research to assess the scope of economic and social impacts of flooding in the affected areas, which includes the analysis of long-term impacts on local economies, local government revenues/expenditures, and the efficiency of different recovery efforts/policies. This quantitative analysis is coupled with qualitative work in specific flood-affected communities. He and the broader team of Extension specialists and researcher are working to identify appropriate policy prescriptions to improve flood response and the resiliency of local economies to future flooding events. Dr. Sun is located at the University of Nebraska where he is working with a flood response team.

### **New NCRCRD Report on Trade Shocks and Youth Jobs**

As the United States and China squared off in a trade dispute, it became clear that it would take time to renegotiate the trade agreements, and that the dispute could affect American farmers and workers. In light of these issues, Professor Michael Olabisi of Michigan State University conducted an analysis for the NCRCRD to examine historical changes in trade agreements to learn about how American workers might be affected by this round of trade renegotiations. The end result is a new report, which is available at [https://www.canr.msu.edu/ncrcrd/publications/Olabisi+Working+Paper\\_updated.pdf](https://www.canr.msu.edu/ncrcrd/publications/Olabisi+Working+Paper_updated.pdf). The paper examines how international trade affects American employment and particularly youth employment, which is probably the category of employment that is most sensitive to shocks.

The link between trade and youth employment is key for understanding the country's future prospects, just as we learn lessons from the decline of manufacturing jobs in the past decades. As exports and imports command a greater share of the U.S. economy, there is much to learn about how trade will affect jobs in the coming years, and whether the jobs affected by trade are more likely to be the ones that have long-term impacts for youth.

The analysis shows that increasing imports over the past decades affected employment across age-groups in non-uniform fashion. Increased imports are more closely associated with job losses for young workers. For each percentage increase in US import exposure between 2000 and 2007, before the Great Recession, the estimated percentage change in employment is about 0.005% for the 35-44 and 45-54 age groups, while it is roughly 0.009% for youths below the age of 25, almost double the effect for the older age group.

The estimates also suggest that increasing exports create more job opportunities for youth, relative to the rest of the US population. These findings are particularly relevant to the economy of the US Midwest, which has a relatively larger share of US manufacturing, and which is connected through buyer-supplier linkages to some of the largest employers in the US economy. The region's agricultural sector is linked to some of the largest food manufacturers, just as the region's metals and materials production serves many of the largest manufacturing operations in the country. Wholesale trade and other supply chain operations also account for a notable share of the region's output, which effectively links its employment to the jobs and imports of other sectors around the United States.

### **Cloud Seeding Program Reduces Hail Crop Damage in North Dakota**

NCRCRD graduate assistant Scott Knowles is examining the impacts of a long-standing cloud seeding program designed to reduce hail damage in North Dakota. The North Dakota Cloud Modification Project (NDCMP) was established in 1951 to reduce severe hail damage and increase precipitation in specific counties in North Dakota. Annually, every June through August, participating counties receive cloud seeding treatment. Although some atmospheric studies have examined the efficacy of the treatment, few studies have used robust procedures to determine how the program has affected crop yields and crop losses. Using the panel nature of historical cloud seeding participation and crop data, I use a two-way fixed effects regression framework with county-specific time trends to estimate the effect of cloud seeding on wheat, barley, and oats yields. In addition, federal crop insurance data is used to estimate the effect of cloud seeding on losses for those same crops. The evaluation indicates that the cloud seeding program had significant positive effects on crop yields and decreased indemnity payments made to insured farmers. A draft of his theses is available upon request.

## **NC1100 Innovations in Agriculture Project Generates \$1 Million in SBIR Awards**

The “Innovations in Agriculture and Rural Development” project reached a new milestone in 2019. Dr. John Mann’s newly developed pilot program providing Small Business Innovation Research (SBIR) coaching guided a disabled-veteran-owned agri-business through the phase II proposal process winning \$650,000 in 2019 for the establishment, *StartUp Food Biz*. The SBIR coaching program was designed to help innovative rural and agricultural small businesses develop SBIR proposals under USDA topics, and was borne out of the SBIR extension and outreach effort led by the Western Rural Development Center in 2017 and 2018. The new establishment, *StartUp Food Biz*, agreed to pilot the coaching program and, in total, received nearly \$1 million (combined phase I and II grants and state matching program dollars). Two other highlights included featured innovations from the University of Missouri and South Dakota State University. Dr. Chung-Ho Lin’s (University of Missouri) innovation uses novel carbon-based technology to remove contaminants, such as atrazine, from drinking water sources including wells, groundwater aquifers and surface water. The technology also has important applications for restoring watersheds as well as in use by municipal water treatment plants. Dr. Qiquan Qiao’s (South Dakota State University) technology advances precision agriculture in soybean production. The innovation uses a combination of novel sensors and networks to map in real time the improvements in porosity, water flow, potential nutrient stresses, and yield potential throughout the soybean plant’s development. Working closely with Dr. Mann, Dr. Qiao’s developed a new SBIR phase I proposal targeting USDA’s Small and Mid-sized Farms topic area. Award notifications from USDA will occur in late spring 2020.

New research related to rural innovations and the SBIR program is also being developed by Dr. Mann and colleagues. Matching SBIR data to USDA’s Rural Establishment Innovation and the National Extension Time Series (NETS) data, two new research articles are in preparation for the American Journal of Agricultural Economics and Economic Development Quarterly. The first article shows evidence that the SBIR program can lead to innovation creation for firms operating in rural regions. The second compares the job growth of rural and urban firms after receiving SBIR awards. Combined, the implications are that the SBIR program can inspire innovation creation, leading to job growth in rural regions and in a range of industries. The research team is also developing several other research concepts regarding rural innovation and the SBIR program, most notably a method to evaluate the economic impacts of funded USDA topics with those from other agencies.

## **Tribal College/1862 Land Grant Institution Matching Program Results in \$500,000 Award**

Working closely with Dr. John Phillips, of the American Indian Higher Education Consortium and Executive Director of the First Americans Land-Grant Consortium (FALCON), Dr. Mann continued the effort to facilitate new collaborations between researchers at 1994 and 1862 Land Grant institutions. One result of this effort was a new collaboration with faculty at the College of the Menomonee Nation and Michigan State University. The collaboration includes research, extension and outreach related to broadband use and business development in rural and tribal areas. The team made two presentations at

the 2019 Annual Southern Regional Science Association Conference and an invited presentation at Upjohn Institute in Kalamazoo, MI. The collaboration also included a new \$500,000 NIFA grant application developed during the summer of 2019, which the team just received notification of winning the award.

## **Publications**

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Aryal, G., Mann, J., Loveridge, S., and Joshi, S. 2020. Drivers of Difference in Inventiveness across Urban and Rural Regions, *Journal of Urban Affairs*, DOI: [10.1080/07352166.2020.1712151](https://doi.org/10.1080/07352166.2020.1712151)

Bourdreaux, C., Escaleras, M., and Skidmore, M. 2019. Natural Disasters and Entrepreneurship Activity, *Economics Letters*, 182: 82-85.

Carpenter, C., and Loveridge, S. 2019. Factors Associated with Latino-Owned Business Survival in the United States. *Review of Regional Studies*. 49(1):73-97.

Dobis, E., Stephens, H., Skidmore, M., and Goetz, S. 2019. Explaining the Spatial Variation in American Life Expectancy, *Social Science and Medicine*, 246: doi.org/10.1016/j.socscimed.2019.112759, 2020.

Inwood, S., Becot, F., Bjornestad, A., Henning-Smith, C., and Alberth A. 2019. Farmer Mental Health Programs in the Extension North Central Region. *Journal of Extension*, 57 (6): 6rb1.

Gemmell, N., Grimes, A., and Skidmore, M. 2019. Do Local Property Taxes Affect New Building Development? Results from a Quasi-Natural Experiment in New Zealand, *Journal of Real Estate Finance and Economics*, 58 (2): 310-333.

Green, B., Jones, K., Lyerla, R., Dyar, W., and Skidmore, M. 2020. Stigma and Behavioral Health Literacy among Individuals with Proximity to Mental Health or Substance Use Conditions, *Journal of Mental Health*, DOI: [10.1080/09638237.2020.1713998](https://doi.org/10.1080/09638237.2020.1713998)

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## NCRA Responses to Re-Imagining NIFA Feedback Request

**Q1: How can NIFA improve its delivery of capacity programs for supporting research and extension?  
(Please respond below and include your name and affiliation, if you wish)**

### Chris Hamilton, NCRA:

- Do away with NPL review of NIMSS multistate research projects, other than basic administrative review, since projects have already been extensively peer reviewed by directors and disciplinary experts prior to submission to NIFA. The separate review of individual state-level projects (based on the multistate project) could still occur (as that is where the Hatch funding is), but NIFA review of the NIMSS, full committee multistate project proposal, other than purely administrative, is redundant and isn't necessary. This would save approval time.

### UW-Madison:

- 90 day pre-spending
- Have a capacity contact for each region. NIFA contact only hears and sees high-level activity and doesn't understand what is happening at the institutions (ex. changes in REEport or the Plan of Work system and what that means for institutions).

### Michigan State University:

- **SF-425's:** A more streamlined process is needed for uploading Final SF-425 reports to ezFedGrants if one is desired before the year in which a Final report is required. Numerous awards have had both Final and Annual reports uploaded. This creates confusion and much time and effort have been spent sorting out the situation, which remains unresolved.
- **Carryover/FIFO:** Funds from multiple fiscal years should be allowed in a single financial account as long as they are spent in accordance with the accounting standard of "first in first out (FIFO)" policy. This should be codified, so auditors do not interpret that new accounts are required each year for capacity grant funds. If we are no longer able to use FIFO, it would place an extreme administrative burden on Land Grant Universities (LGU), as we would need to assign hundreds of new accounts and thus process additional hundreds of appointment changes each year at multiple levels (e.g. director and department offices) in every LGU. This undue burden would generate no improvement in accounting quality and ignores accepted standard accounting practices.
- **Cost Share/Matching:** It should be clarified that separate accounts are not needed each year to satisfy the cost share/matching requirements for capacity grants (the accounts on which the matching expenditures are accumulated are separate from the accounts holding federal funds however). Similar to having separate accounts for each award, this would result in an extreme administrative burden with no improvement in accounting quality.
- **Animal Health & Disease Research Program:** The timeline for the release of the Animal Health and Disease Research Program Capacity RFA should be aligned with other capacity programs. With its current release only months before the end of the federal fiscal year, it hinders planning and causes unnecessary confusion.

- **Capacity Grant Budgets:** If budgets will be required for capacity grants, as planned for federal fiscal year 2021 (or later), the process should be similar to the pilot program, requiring a high level budget at the program level. Additionally, it is unclear how a budget justification/narrative for capacity funds is providing any value to NIFA. It is easy to understand how the budget numbers can be compiled and used to convey how funds are being spent. It is not clear how the narratives could be used in describing programs at an aggregated level.
- **Equipment Prior Approvals:** Allowing equipment prior approval to be accomplished through inclusion in the capacity grant budget does reduce administrative burden, however, requiring the specific item name at such an early time is often not feasible. Allowing a more general equipment request in the capacity grant budget to satisfy the equipment prior approval requirement would allow the flexibility to respond to the ever changing procurement and research environments.
- **REEport Financial:** The REEport Financial is an enormous and burdensome accumulation of data. While it is important to be able to share how NIFA funding is being spent, it is unclear how the data currently compiled could paint an accurate and clear story to stakeholders. Is the administrative burden on grantees worth the value of the data to NIFA?

#### **Iowa State University (AES and Extension):**

- Protect capacity funds within the NIFA portfolio to maintain an effective balance between capacity, competitive and integrated funds.
- Recognize they play an important role in program planning and position faculty to go after competitive funds.
- REEport Capacity Review Tracking (new project review assignments) should be updated to include all Universities in the tracking report. Currently if a project initiation has been submitted and hasn't been reviewed after 60 days, only 20 institutions can look at the report to see which National Program Leader (NPL) was assigned as a reviewer. ISU is among those Experiment Stations never included in the tracking report which makes it time consuming to track down who is the NPL assigned to review new projects.
- Reduce non-value added administrative burden related USDA capacity funds and Projects. Remove recent requirement that internal account numbers have to change for each new capacity award (i.e., FAIN), as it is not a requirement in federal law. This new requirement is adding a significant administrative burden at the institutional level.
- In the past Capacity Funds were carried over and spent on a first in, first out basis. With this new audit requirement, it is cumbersome to set up new awards to track funds for the same purpose in multiple years. It is very difficult to ensure one year is not overspent prior to spending the next year and it requires multiple departments to perform work to set up and close awards as well as move payroll and expenses from award to another. If the account is overspent then even though the expenses are for the same work they are no longer eligible to be used. The same expenses are still being used for the same projects; the use of separate awards simply adds administrative costs.
- AD419 provides financial information – should not need to add effort reporting (FTEs) in REEport. It is duplicative to require the FTEs in the AD419 and Annual Report of accomplishments. Can they be integrated?
- **Effort reporting:** We acknowledge the importance of accountability of salaries assigned to grants and capacity funds. However, the recommendations communicated from USDA are particularly burdensome and are essentially requiring salaried faculty and staff to track hours. Can they be simplified/ efficiency be improved? Currently need to check with PI on a quarterly basis and make adjustments as needed; also notify method of tracking effort. Effort estimates require faculty to

know where they are paid from. REEport will not allow GAOs to reassign reports or awards to staff completing the work. Can this be changed so we do not need to contact NIFA or the Help Desk?

#### **The Ohio State University:**

- It would be helpful to have the ability to spend on the project retroactively to a particular date. Currently if a project is held up in reviews, and the prior project has expired, we lose the ability to spend the capacity funds for that particular faculty member.
- **SF425:** The current ezfederal grants system creates the report shells for the SF425. An “Annual Report” is created, but it would be helpful to be able to change this to a final report if all the spending has occurred, even if it is earlier than the award end date.
- We support other comments that Animal Health is on a different cycle than the other capacity funds and is typically released only a few months before the federal year is set to end.
- The retirement benefit cap was removed for some capacity funds starting in 2020 (i.e. EFNEP), but it would be helpful to have this cap removed for all capacity funds.
- The REEport financial report seems to be a lot of effort without a clear understanding of how the data is used. There is not much guidance released from USDA which causes the data to vary widely among institutions. Given this situation, it is difficult to understand how the data can be used by USDA effectively.
- We support others comments that not allowing the FIFO method with a single account in the financial system, causes a significant amount of busy work to move salaries to a new account each year, even though the project may be active for 5 years.
- Although these are capacity funds, USDA has been treating these more like competitive grants in terms of administrative requirements. A good example of this is effort reporting and the manner in which USDA is interpreting how this needs to be done. States should have some flexibility in how the funds are used.

#### **Purdue University (supports Ohio State University comments):**

- Being able to mark the SF-425 reports as final would be helpful and less burdensome on everyone in the end. We often have the money spent years before the award end date
- 90 day pre-spending at the individual project level, especially for project renewals, would help alleviate the administrative burden of having to adjust spending for the period of time between faculty project periods.
- In addition to the comments above about Animal Health funds, the AHDR Sec 1433 Research Capacity report takes a lot of time to complete for the amount of funding that is received. There is no easy way to identify Animal Health-related activities in all of our other funding sources, so it becomes a very manual process to pull them out.
- There needs to be clarification on how accounts need managed in terms of separate accounts per fiscal year or if matching funds need separated from all other funds. Is this for just revenue accounts or also expense accounts? This process is treating capacity funds just like competitive funding and could result in a restructure of how accounts are being managed at many Universities and a huge number of new accounts annually.

#### **University of Nebraska-Lincoln:**

- All capacity SF-425 reports are created as drafts in ezFedGrants. It would be extremely helpful if users had the functionality to update the reports from ‘Annual’ to ‘Final’ when projects are completed prior to the award’s end date.

- Clarification on the revised interpretation of the retirement benefit gap would be appreciated. The law has provided constant confusion for institutions. An understanding on whether retirement costs can be used as match on the capacity programs where the cap applies is needed.
- NIFA's interpretation of 2 CFR 200.302(b)(1) states that the federal award identification number must be included within our financial management system. Can you please provide a crosswalk to distinguish why this information cannot instead be housed in our supporting documentation? The demand for multiple accounts creates a significant change in our accounting system, significantly increases the administrative burden and increases the likelihood for payroll errors.
- An Animal Health Research Capacity report is due annually to identify all Animal Health related activities at our institution. While this does take time to complete, we feel that it helps in validating our need for Animal Health capacity funding. In order to maintain funding levels, a similar report would be helpful for McIntire-Stennis recipients to help validate the need for forestry funding.

**University of Missouri:**

- Interactions with NIFA employees have rarely been positive or even helpful. Feels like they have rules and information that they don't share with us. Sharing information and instructions would go a long way to fixing a lot of their problems with customer service and communication. Of course, the first step for that would be them actually telling us who does what and who to contact for what problems under each program.
- REEport was clearly not designed for end-users. I think it would be nice if in lieu of added functionality (because I understand NIFA's need to protect the integrity of the data in the site), site administrators had a source above the Help Desk to go to with issues, like a liaison for "heavy users" of REEport. Sometimes, our issues are more complex and specific than a Help Desk request would serve. For example, I would like to be able to work with someone to clean up our portal data, because as we learned the system, we have made better choices in how we use the system and the kind of data we input. I would like to be able to edit the data to make it more consistent and I don't think that this is a Help Desk kind of situation. I would see this functioning similarly to the way Chris Hamilton is for the NC region on NIMSS.
- We support the management of the capacity funds more in-line with the way NIFA manages the competitive programs.
- We think that added accountability expected from NIFA program officers would enhance this. For example, currently there is one program where the program officer will reach out to our faculty directly if they have not submitted progress reports. That additional nudge from NIFA telling our faculty that they are watching them and care about these projects is usually all that a faculty member needs when they have ignored my repeated messages. I think this could be automated from REEport.
- Now might be the time for capacity funds to be more in-line with Uniform Guidance and provide more specific funding guidance for capacity funds. For example, a policy dictating exactly how funds should be spent on costs that may otherwise be unallowable because they are considered a part of our indirect cost rate. It would be very helpful to have explicit instructions on if/how these costs may be allowable on capacity funds, which do not allow indirect cost rates to be charged to them.

**Q2: What changes will improve NIFA's implementation of its competitive programs? (Please respond below and include your name and affiliation, if you wish)**



### **UW-Madison:**

- Standardize proposal due dates-similar to what NSF and NIH do.
- Review process could have a standing study section which would be similar to NIH. This shows PIs the group of reviewers for each program and have the reviewers hold positions longer than one year.
- Reduce the amount of acronyms.
- Remove embargo policy as this policy states that when a PI is notified of an award, they are not allowed to announce it until an official award is issued which can be several months after the start date.

### **Michigan State University:**

- Allow 1862 land grant institutions to be exempt from matching, especially for Specialty Crop Research Initiative (SCRI) grants. SCRI grants - allow institutional F&A to be used as match if the above point isn't an option. SCRI grants - allow 30% TFFA (42.857%) to be used by each institution on a proposal (lead and subawards).
- **Organizational Workflow and Life Cycle of Proposals:** Work to develop a more efficient, streamlined processes from submission to award. Suggest internal analysis for goal setting with aims of determining where bottlenecks occur and what NIFA and LGUs can do to collaboratively work together in streamlining processes. Set (and announce) anticipated timeframes for review panels, award notification, etc. Look at NIH and NSF for their published cycles and timelines. Include projected start dates in the RFP, RFA, Solicitation, etc. if you do not have a specific award cycle already determined (like NIH). Be consistent in issuing awards (by year, every 2 years, etc.).
- Have a repository for pre- and post-award information (proposal templates, guides, etc.) and use consistently across all USDA programs. Suggest building a more robust website that includes these items, as well as additional pre- and post-award information, to reduce administrative burden on common items requested and/or asked of program managers and staff.
- **Current and Pending Support (CPS) form:** Clarification from NIFA is needed on what is expected to be included on a CPS form if faculty salary is being supported with capacity grant funding.

### **Iowa State University (AES and Extension):**

- Provide a monthly/bimonthly report to college/EXT administration of new/upcoming awards.
- Ensure award information for competitive awards is correct and complete when entered in CREEMS/REEdport. Grant project initiations set up by NIFA staff in CREEMS/REEdport often are missing information (e.g., don't include all Co-PIs) or may have the wrong start date, leading to erroneous start dates set up in our college's financial system and extra work to have corrections made. Often the correct date is entered by NIFA at a much later date, but NIFA does not notify us that a correction has been made. We might not find out that the start date was changed until the PD goes into REEdport to enter the annual report—one year later. Initially, this can lead to confusion when spending can or cannot occur. It also leads to incorrect start dates being entered into our college's financial/project reporting system. When co-PIs are missing on the initiation, it requires additional work in contacting NIFA to request corrections and sends a negative message to all grant project participants. It also causes rework of projects to make corrections causing it to route through the system and assignees multiple times.

- Consider emphasizing institutional support rather than cost share. Provide nuance around institutional support given to a project before award starts. Cost-share is limiting and cumbersome to track. Cost share affects university IDC rate by effectively reducing it.
- Increase lead time or predictability of RFPs; go to a two or three year system for other RFPs besides the Foundational program.
- Consider a change in the indirect cost policy (when capped at 30%) to allow 30% of modified total direct costs (MTDC), and allow prime recipients to charge 30% indirect toward the first \$25,000 of each subcontract. Currently, each University implements the 30% of total costs differently for each subcontract.

**Purdue University:**

- Guidance from NIFA to provide consistent implementation of this policy across all prime recipients would be helpful. Each prime institution is choosing individually how to comply with the restriction and how they will administer their subawards. In addition, some Universities have had to configure their financial systems differently for NIFA grants in order to cap the indirect recovery. This is yet another reason where NIFA differs from other federal agencies that are subject to Uniform Guidance.

**The Ohio State University:**

- Capacity grants are not all on the same communication cycle. It would be helpful if there was some consistency across the various programs even though they are managed by different groups within NIFA. An example of this is the RFA process. Notices that RFA's have been posted and available are not always sent out to all the valid contacts for each program.
- Allow Universities to recoup their fully negotiated F&A rate, similar to the other federal agencies (NSF, NIH, DOE, etc.). If we continue to use the lesser rate, provide standardized budget templates for LGU's.
- Consistency of posting of RFA's, establishing an annual schedule of funding opportunities and due dates, like NSF and NIH.
- Increase responsiveness (timeliness) of emails for research administration purposes (notice of awards, no-cost extension requests).
- Simplify the RFA's and not include excessive outside links to gather information needed for the proposal.

**Purdue University:**

- For competitive projects that reach their five-year statutory limit in August and September, final ASAP drawdowns must be completed prior to the project expiration date. This varies from the standard 90 day close out period for universities to reconcile all expenses in their financial systems in order to draw the correct amount. This also impacts the flow down to subawards that also are reduced on the amount of time they have to submit final invoices to the lead institution. Is it possible for NIFA to adjust project period award dates, so that the complete award closeout period can be completed prior to the appropriations expiring?

**University of Nebraska-Lincoln:**

- When NIFA partners with other federal agencies (e.g., NSF) on a joint solicitation, it would be helpful if the proposal could be submitted in the format of the agency the submitter anticipates is most likely to fund the proposal. Currently, when a joint solicitation with NSF is posted, we must submit through NSF's system using NSF rules. If USDA ultimately expresses interest in funding, a whole new proposal is required under NIFA submission rules, including entirely revamping the budget. This significantly increases the administrative burden for these proposals.
- Standardize proposal due dates similar to other federal agencies. Also, standardize deadline time to 5 p.m. submitter time. This creates more equity across time zones.
- Would like to see the allowance of grantee's use of their full, federally-negotiated indirect cost rates on proposals, but realize much of this is set by statute.
- After passage of the latest Farm Bill that created confusing and incredibly difficult to implement indirect cost language, it would be very helpful for NIFA to work with Congress to fix the mess. Barring that, NIFA could establish standard expectations and budget tools helping institutions implement these changes when collaborating with subawardees.

**University of Missouri:**

- Minimum of 90 days between announcement and deadline of funding announcements.
- Change template for Current and Pending Support so the font is larger and there are separate rows for each entry.
- Remove Cost Share requirements from all programs.

**Q3: How can NIFA increase transparency and effectiveness of its organizational structure? (Please respond below and include your name and affiliation, if you wish)**

**UW-Madison:**

- If a new policy is being enforced, make sure the effective date is a future date.

**Michigan State University:**

- NIFA representation/presentations at National Research Administration conferences (SRA International and NCURA) would enhance upper administrations understanding and engagement with NIFA competitive grants and allied programs.

**Purdue University:**

- We agree with MSU and feel that NIFA reps should make a best effort at the national conferences, like NERAOC. It is understandable that those attending may be limited due to the move, but there should be an effort made to make sure someone from NIFA attends.
- Representatives visiting LGU's and acquiring a better understanding of how the capacity funding is utilized and the difference between how Extension versus research funds are managed would be extremely helpful. With NIFA hiring so many new staff due to the move reps visiting the LGU's

they will be responsible for is more important than ever and will help with establishing better relationships and communication between the LGU's and NIFA.

**Iowa State University (AES and Extension):**

- We appreciate the invitation for administration and staff from LGUs to visit NIFA once you are settled in your new offices in Kansas City. We strongly encourage your staff to visit the LGUs. Learn not only about the important research and Extension work happening, but also about the logistics of preparing and submitting proposals, receiving and allocating funds and completing required reports. ISU is three hours from the NIFA headquarters in KC and we are happy to help indoctrinate new NIFA professionals as they come on board. Also, we strongly encourage you to have the point of contact assigned to a university visit there annually. We invite you to get acquainted with AES and Extension leadership, faculty and staff, and build and maintain relationships that will improve efficiency, transparency and effectiveness of NIFA and LGUs.
- Ensure that when a NPL and/or Awards Management personnel in charge of one or more grants leaves NIFA, a new NPL and/or grants manager is assigned and the change communicated with the university reporting staff and the project director. We have experienced that when NIFA staff leave who have been assigned several grants, no one at our university was notified, and grant management was never picked up by other NPLs or NIFA grant managers/specialists to respond to emails from the university and deal with other grant issues.
- Improve resolving cases when researchers are approved for a no-cost extension, but the REEport system is not updated and does not reflect the new end date.

**Example Case:** A researcher was awarded project extension during government shutdown (indeed this was an issue with several faculty whose extensions were not recorded in the CREEMS/REEport system) and REEport still shows the project has expired even though a one-year extension was granted. We contacted NIFA staff in July, September, and October. Three staff each assured her, at different times, they would take care of it, but REEport has still not been updated with the correct end date, causing issues with reporting and spending of funds.

- Continue national and regional meetings that have existed between Land-grants and NIFA, as well as active, constructive dialogue and good relationships. Concerns were expressed at NERAOC and regional meetings that NIFA is not speaking at any regional meetings this year or the national meeting due to the move to Kansas City. While it is understandable that USDA cannot participate this year, these meetings are seen as extremely valuable and there is concern that if NIFA does not participate in subsequent years this valuable interaction may get lost and attendance suffer as a result. It is very important to continue to come speak and give updates at those meetings
- Provide detailed NIFA Organization Chart that lists all NPLs, who they are assigned to, what states, who is in their reporting queue, etc.
- As early as possible each fiscal year, get messages out to LGUs regarding capacity funds, and estimated dates and expected funding levels.
- Currently, Animal Health funding comes significantly later than other funds; typically, capacity funds applications posted in the fall and by April/May NIFA has final numbers; however, Animal Health funding comes in July. In past Animal Health funding has not changed much, but faculty are cautious in budgeting for spending when they don't know what is coming until so late in the fiscal year and programmatic period.

- We encourage NIFA to communicate with NSF and NIH around public access to research products and data. It is important that there be a common set of rules rather than conflicting ones. In addition, where appropriate, work to protect agricultural research products and data from rules that significantly limit innovation or overly burden researchers.
- Be transparent about methods for identifying emerging issues and research opportunities that are outside the stated priorities and comfort zone for NPLs. Also, if you are accepting RFPs for emerging issues and innovation, follow through with funding. Requesting proposals of emerging issues, but continuing to fund previous priorities limits innovation and discourages our dynamic researchers from applying to NIFA.

**University of Missouri:**

- Clear, consistent, and accessible regulatory guidance including detailed information regarding indirect cost calculations and matching requirements for budgets.
- Easy access to and understanding of who to speak to regarding both programmatic questions and administrative questions for grant submissions. Currently, we only have clear access to program officers, and rarely to anyone on the administrative side of NIFA. As these functions are separated at NIFA, it would be nice to have one designee available to answer programmatic questions and administrative questions for each program. Some program officers can answer both types of questions, but not all.

**Q4: What steps should NIFA take to enhance its customer experience? (Please respond below and include your name and affiliation, if you wish)**

**Michigan State University:**

- USDA NIFA needs to improve communicating with and obtaining input from actual users of the REEport system when developing new features or making significant changes to the system. Too often, those who understand the system most are left out of the process, creating unintended (and possibly nightmarish) consequences. For example, at the 2018 NERAOC Conference in the POW workshop sessions, Plan of Work and REEport Integration was discussed. One particular part of the discussion centered on the relation of CRIS Code Knowledge Areas (KA) to the new Critical Issues. One possibility proposed by NIFA was to have PI's create new and identical projects for each KA for their project. Projects are allowed to have up to 10 KA's, so having ten identical projects in REEport is sheer insanity. The NIFA personnel leading the workshop agreed to take the feedback back to NIFA, but the insanity of that proposal shows how little understanding NIFA has of how things actually work at a LGU.
- USDA NIFA seems to rely on the NERAOC Conferences as the primary means for presenting new and pertinent information. While NERAOC is an important vehicle for communicating vital information, USDA NIFA should not rely on it alone. Not every LGU is in attendance each year, so gaps will exist throughout this national LGU system. USDA NIFA absolutely needs to improve timely communication of information to those who cannot attend NERAOC or for NERAOC attendees who need information from sessions that are held simultaneously. As another point of contact, NIFA should try to fully engage in the regional business officer meetings to help ensure better national coverage of issues and respond to existing challenges.

### **Iowa State University (AES and Extension):**

- Establish dialogue via conference calls or reciprocal visits between LGU liaison and LGUs. As the Plan of Work lists the LGU Liaison, ISU has invited past NIFA Liaison to visit ISU and learn more about various Plans of Work in various areas.
- Release a statement and/or notify institutions when updates or changes have been made to the NIFA Federal Assistance Policy Guide. LGUs were given the opportunity to provide feedback back in June 2018, but there was never a release when the policy guide was “final.” If changes are made, highlight what those changes are. NSF does a really good job of this.
- Continue webinars for ezFedGrants, REEport, POW, etc. It helps to have the names of those who can assist, and have dialogue between institutions.

### **The Ohio State University:**

- It would be helpful to have one page on the NIFA website that listed all the primary contacts for each program. The data is there, but often we have to click through various program screens to get to the right contact information.
- It is important for USDA NIFA to engage with the regions and have representatives available during regional meetings. We understand why this could not be done this year, but encourage future participation.
- Have NPLs available in D.C. for group faculty visits.

### **Purdue University:**

- Update the REEport system to allow for better reporting of Co-PI's on capacity funded projects. Right now it is a manual process to track Co-PI's on capacity research projects because they do not pull into the reports that can be exported. We track this manually on a spreadsheet that we update with each new project.
- Creating a standardized way for a PI to enter their project information. We have some departments in the system with four or five different names and PI's with their names two or three different ways. For example: J Smith and John Smith, Forestry and Natural Resources/Forestry & Natural Resources/Forestry & Natural Res. If they are already in there, is there a way for them to search for themselves and pull up previously entered information like name, department, college and University?

**Q5: Anything else you would like to add? (Please respond below and include your name and affiliation, if you wish)**

### **Michigan State University:**

- **REEport:** The speed of the review process for approving newly submitted REEport research projects needs to improve. Ideally, all new projects are supposed to be approved within four weeks. While many projects are approved within the four-week timeframe, too many project approvals are taking six to eight weeks or longer. While the 2019 move of USDA NIFA to Kansas City has affected the approval process, lengthy approval times has been an on-going issue, since REEport was instituted in 2013.

- **REEport:** The “REEport Capacity Review Tracking” link needs to be kept current and up-to-date. Site administrators rely on the information this link provides to track reviewer information for the projects whose approvals are being delayed. For example, as of November 27, 2019 the latest “Tracking” information is April 11, 2019.
- **Plan of Work:** It would be helpful to have the ability to pull reports from REEport for use in preparing the annual report. Information is already in the system based on PI annual Progress Reports. Add ability to pull reports based on critical issues, planned programs and state defined outcomes. Add ability to include fields such as outcomes, publications, FTE’s and patent information.
- Institutional ability to access and pull information already available would save significant administrative time. Current process is to pull each progress report manually, analyze and organize information.

#### **Iowa State University (AES and Extension):**

- Establish a visiting scholar program to encourage short-term sabbaticals for faculty from LGUs to support NPLs, learn from NIFA staff and strengthen long-term relationships.

#### **The Ohio State University:**

- There is currently not an export function in REEport. There is a good query tool that allows you to see a subset of projects based on several criteria, but once you have that list, there is no export function in REEport. We are forced to go to the CRIS site to export data.
- This may not be a USDA NIFA issue, but currently ezfederal grants does not allow one user to have a role in two different organizations. This creates a problem when our Extension and research efforts are under two different organizations at the LGU.

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