

**S1071 Multi-state Research Project: A Framework for Secondary Schools Agriscience Education  
Programs that Emphasizes the STEM Content in Agriculture**

May 25, 2021

**Attendees:** DiBenedetto (Clemson, SC), McKim (Michigan), Curry (Penn State, PA), Stofer (UFL), White, Hasselquist (South Dakota), Oliver (Kentucky), Roberts (LSU), Blythe (WVU), Myers (UFL), Letot (Penn State, PA), Edwards (OSU), McCubbins (Mississippi State), Wang (Purdue), Smith (UofIdaho), Sorensen (Utah), Ulmer (Kansas), LaRose (Purdue).

**Update from Lesley Oliver**

- Need to be thinking about a replacement proposal within the next year.
- Administration changes at USDA.
- Renewed emphasis on climate change at USDA.
- An emphasis on building resilience coming out of the pandemic at USDA (includes food security and rural economy).

Question response: (documenting impacts) It is okay to report items on this project that are funded by other USDA projects if they contribute to the project goals and objectives.

Question response: (benefits of participation in multi-state projects) this project is designed to support research collaborations that cross state lines. Institutions also provide financial support for participation in projects like this – e.g., support staff funding, graduate student support, salary. Most institutions will also support your travel to attend the annual collaboration (i.e., AAAE Conference). (Dr. Myers) Also translates our work to college administrators in a way that resonates; could lead to additional support and opportunities. this group can be a great place to find possible partners for other projects. We all have similar interests. It is always better when we build strong teams.

Link to - Dropbox folder of files and documents S1057 and S1071

<https://www.dropbox.com/sh/vuwn8flkkjcvwo4/AAA5ONzKVeV0eTKxolHNpDVma?dl=0>

Thought about a repository that's not tied to an institution is something such as Open Science Framework (Stofer)

**Objective Updates**

**Objective 1:** Identify practices, cross-cutting concepts, and disciplinary core ideas to be included in a secondary school agriscience program

(Myers) The papers have been published and disseminated; thus, the objective is deemed to be complete at this time. We are seeking a more permanent location for the reports and additional ways to disseminate in coordination with outputs from other objectives.

- One published paper: <http://dx.doi.org/10.5328/cter43.1.41>

- S1057 product - the framework where the AFNR career pathways, NGSS, and the disciplinary core ideas are aligned. Katie Stofer added the document to UF's institutional repository where it should live on hopefully long past any iteration of other websites at UF. The link is: <https://ufdc.ufl.edu//IR00011432/00001>  
Also linked in the comments of the CTER article listing on Research Gate

**Objective 2:** Identify teaching methods, resources (facilities, equipment, materials, etc.), and techniques currently utilized by exemplary teachers

(Smith) In 2019-2020 we created an instrument related to this objective. The instrument was designed to examine the perceptions of the IC matrix. We have piloted the instrument and do have an open IRB associated with this instrument. IRB exists at U of Idaho (K.Smith).

- Link to instrument: [https://wvu.qualtrics.com/jfe/form/SV\\_8BS4Uvq8bp6gdxz](https://wvu.qualtrics.com/jfe/form/SV_8BS4Uvq8bp6gdxz)
- Items on the survey came from the Innovation Configuration matrix (objective three)
- A pilot test was conducted in West Virginia and Kansas. The research population was to include recommendations from state leaders regarding who are effective STEM emphasize within their state.
- The pilot test illuminated that question number 15 was not reliable based on statistical analysis.

**Objective 3:** Develop an innovation configuration for implementing an agriscience program.

(Myers) An Innovation Configuration (IC) map is an instrument used to define and quantify implementation of a new program or practice (Hall and Hord, 2001). It identifies and describes the major components and a continuum of implementation levels.

(Curry) We have a complete innovation configuration (IC) map. Kevin cleaned up the document and prepared it as a final edit form. The form has been submitted to six reviewers, four of whom have responded. Once the review has been completed, it will be submitted to Meg (UF) before finalizing. The aim of the map is to provide a tool for educators/administrators to strive for a quality program which emphasize STEM concepts.

(Myers) The next part of the project is to offer professional development for the IC map (for educators/administrators).

## Member Updates

Member	Institution	Update
Ulmer	Kansas St	Agricultural mechanics focus as well as a focus on accessibility.
DiBenedetto	Clemson	"STEM it up" project focused on enhancing STEM education through floriculture.
McKim	MSU	Created a curriculum resource for teachers in Michigan. Also shared an opportunity relating to Food-Energy-Water Education.

Curry	PSU	Encouraging ag literacy among postsecondary students.
Stofer	UF	USDA project on invasive species as a context to redo lessons.
Hasselquist	SDSU	Hoping to launch research around interactive notebooks soon.
Roberts	LSU	NIFA-funded grant to develop curriculum for student credentials.
Blythe	WVU	Graduate students interested in STEM in meat labs.
Myers	UF	Owl pellets for disseminating research. Additional STEM grants.
Smith	Idaho	Supporting teachers from industry to get credentials.
Sorensen	Utah St	Working with state staff on training ag teachers to use the new UT Science standards with deeper STEM integration.

## Project CALM Update

We had a proposal that was favorably reviewed. Selected laboratory boxes disseminated to agricultural educators and students. Seeking additional outlets for funding for Project CALM

## Replacement Proposal Ideas

- Goal 1: Focus on the dissemination of the project innovation map.
  - (Smith) Thought for next objective: Describe the impact of training within the IC matrix on agricultural educator integration of science concepts (think perhaps a pre/post IC evaluation).
  - Could compare to NAAE Outstanding Secondary Programs (LaRose)
- Goal 2: Reword, continue to refine this objective. The challenge is finding not just effective SBAE teachers, but ones that highlight the STEM of agriculture well.
- Goal 3: Opportunity for funding to work on dissemination of the IC map.
- Additional Goal Opportunity: What does effective STEM learning look like at the nexus of the three-circle model?
  - What are curriculum, pedagogical strategies, etc. that illuminate STEM learning that address each of the three components of the model?
    - One example opportunity is the Agri-Science fair.
    - Possible comparative study between those who use an integrated approach as opposed to only one or two of the activities and consider them separately

## Funding Opportunities

- EWD – PDAL focused on dissemination of the IC Map.

## Feedback from Dr. Edwards (OSU)

- Has the word "contexts" been considered instead of "settings"?
- Is the word "currently" necessary?
- Could increase the emphasis on SAE and FFA within our approach.
- Thank you all for your interest in and passion work this work -- IT IS VERY IMPORTANT!!!

### **Timeline for Moving Forward & Next Steps**

- Suggestion to meet quarterly.
- Dr. Myers coordinating those interested on working on a EWD grant to submit in 2022.
- In the next month (ASAP- by end of June at latest), we need a draft statement of issues and justification for the replacement proposal.
- Disseminate, evaluate, revise
- Full draft proposal: Submitted by October.
- Lesley will send us a template.
- Identify a proposal writing team (Microsoft Teams): Ulmer, DiBenedetto, LaRose, & Blythe. Additional call will be sent via email soon.
- Distribute materials for draft of replacement project and put out a call for subgroups to meet.
- Deadline for – complete project proposal = Sept- Oct 2021 = Replacement Proposal submission