

## AUTHORIZATION REQUEST FOR FY 21

CBB Budget Category: **Consumer Information**

Name of Contractor: **American Farm Bureau Foundation for Agriculture**

Name of Organization Subcontracting:

Start Date: **10/1/2020**

End Date: **9/30/2021**

### **AR OVERVIEW**

#### **AR Description:**

This authorization request builds upon the previous investment in high-quality, open-source STEM (science, technology, engineering and math) education materials that utilize concepts and phenomena in beef cattle production. The focus of this request is on building and supporting the community of science education influencers using experiences and resources highlighting beef production practices to meet core science standards, especially those in urban areas.

In fall 2021, about 58.6 million students will attend elementary and secondary schools which is nearly 20% of Americans. Sixteen and a half million of them will legally become adults and begin a new phase of life as consumers and voters in the next four years<sup>1</sup>. K-12 education provides the basis for America's science literacy. Our collective, national understanding and appreciation for science, technology and innovation is established through the science instruction provided in elementary, middle and high school.

Reaching nearly 60 million students is a huge endeavor. However, we have an opportunity to impact this population through a critical gateway of key influencers — their science teachers and the leaders/influencers of those educators.

The American Farm Bureau Foundation for Agriculture (AFBFA), a 501(c)(3) organization, specializes in reaching these influencers and has identified opportunities to grow consumer trust in the beef industry through strategically engaging education leaders. AFBFA has been a contractor to the Checkoff since 2014 and has documented significant change in perception and intent to eat more beef after participation in AFBFA-led professional development events for science teachers and leaders in science education (e.g., state science curriculum directors, department heads, district science curriculum specialists, teacher preparation instructors, etc.)<sup>2</sup>. This is based on

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<sup>1</sup> [https://nces.ed.gov/programs/projections/projections2021/tables/table\\_01.asp](https://nces.ed.gov/programs/projections/projections2021/tables/table_01.asp)

<sup>2</sup> <https://www.beefboard.org/wp-content/uploads/2020/02/CBB-EVALUATION-REPORT.pdf>, Page 19

pre and post-test data collected from the in-person On The Farm events and reported to the Beef Checkoff.

A primary effort of our current (FY20) authorization request is promoting the curriculum materials (created in FY19) that utilize concepts and phenomena found in beef cattle production to be able to directly reach middle school and high school students with accurate and scientifically based information that promotes critical thinking.

The beef industry relies on a scientifically literate society for the following reasons:

- 1) To provide a qualified workforce for research, production, and processing
- 2) To ensure freedom to operate by understanding the scientific principles behind production decisions related to breeding, genetics, animal nutrition, environmental stewardship, and animal behavior
- 3) To understand the value of beef as part of healthy and sustainable lifestyle

Science education is changing at an unprecedented pace. Every state has been working since 2012 to create and implement a new approach to science education based on “A Framework for K-12 Science Education” (Framework) which gives guidance for curriculum development and standards, instructional practice, professional development, and assessment. The Next Generation Science Standards (NGSS) were developed out of the movement to implement the Framework and provide national standards to offer guidance for states. This national movement has challenged state and district science administrators to seek high-quality professional development and science education resources for their teachers as science classroom education is being uprooted from traditional teaching approaches.

The past two years AFBFA has positioned the beef-science units of instruction and professional development as a solution to the need science education influencers are seeking for their science teachers. We have recorded great success with our professional development and have created a large amount of curiosity among teachers who seek to implement the beef-science units of instruction. However, we cannot just put curriculum into the science education world and assume teachers will use it with so much change currently being requested in the classroom - we must support educational influencers and teachers as they implement the curriculum.

This authorization request seeks to support and further build the community of educational influencers and teachers using the beef-science curriculum materials — especially those teachers in densely populated communities where exposure to beef cattle production is limited. Additionally, components to further extend reach and measure the ROI and efficacy of the resources and professional development will be formalized for long term data collection and analysis.

Our single tactic to support and grow the community of science educators engaging with beef-science includes the following components:

Grow the Community

- Engage science education influencers in key urban areas through high-value in-person professional development
  - Build capacity of science educators to use and/or promote to other educators in their local communities

Cultivate the Community

- Build and manage an online community for year-round engagement with science educational influencers, key opinion leaders, and educators
  - Build capacity of educators who can create beef-science resources
  - Build capacity of educators who can promote beef-science resources
  - Support efforts of educators using curriculum resources in classrooms
  - Build and maintain relationships between beef industry and education - connecting educators to cattle farmers and ranchers, other beef organizations, and researchers and scientists

Evaluate Investment Efforts

- Begin evaluation efforts to determine level of impact for different experiences and resources
  - Measure impact of programs on teachers and educational influencers
  - Measure impact of resources used with students

| Funding                          | Direct Costs | Implementation | Total       |
|----------------------------------|--------------|----------------|-------------|
| <b>CBB/BPOC Funding Request:</b> | \$1,450,168  | \$217,525      | \$1,667,693 |

| Other Potential Funding                          | Direct Costs | Implementation | Total    |
|--|--------------|----------------|----------|
| Federation of SBCs Pledges: (Informational Only) | \$0          | \$0            | \$0      |
| Other Funding: (Informational Only)              | \$15,000     | \$5,000        | \$20,000 |

**Long Range Plan Core Strategies Addressed by this AR** *(Check all that apply)*

| Grow Beef Exports        | Consumer Trust                      | Protect & Enhance        | Beef's Value Proposition            |
|--------------------------|-------------------------------------|--------------------------|-------------------------------------|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

**PROGRAM INFORMATION FOR THIS AR****Tactic A**

**Tactic Name:** Build and support the community of science education influencers

**Tactic Description:****Background:**

AFBFA has pioneered a national program to bring together influencers in Science and STEM education for hands-on experience in the beef industry. Most recently pioneering virtual professional development linking beef experts directly with science education influencers. Over the past six years, AFBFA has engaged with a community of over 1,200 education key influencers including educators from the top 10 urban school districts in the nation. Many of these education key influencers engaged with AFBFA for beef industry experience because they:

- a) Came from states that did not offer immersive experiences targeting Science or STEM education professionals.
- b) Did not have an initial interest in the beef industry and were reached through national education channels; or
- c) Were drawn to the opportunity for high-quality professional development for science education using agriculture (beef) as the application of science principles.
- d) Recognize the beef-science resources and professional development are deemed high-quality by vetted educational institutions and organizations.

Based on the feedback from the key influencers participating in On the Farm programs, AFBFA recognized the opportunity to extend reach directly into the science classroom by developing high-quality instructional materials that were designed to meet the rigorous expectations of the recently adopted Framework for K-12 Science Education and Next Generation Science Standards (NGSS). Currently 20 states have adopted NGSS, and 24 states have developed state standards based on the same framework as NGSS. Approximately 71% of all students live in these 44 states<sup>3</sup>.

As part of the approved authorization request in FY19, AFBFA began development of three NGSS units of instruction to help the beef industry provide high-quality, freely available instructional material designed to support the rigor of new science standards in order to develop students that are prepared for college, career and life as an informed consumer as well as change perceptions about the beef industry by delivering accurate information through relevant science instruction. Last year, AFBFA brought forth an authorization request to promote the units of instruction nationwide to formal and informal science educators and key opinion leaders, specifically in urban settings. Through these promotional efforts, we have built a community of educators that have knowledge of the Checkoff funded resources and remain curious about how to apply

<sup>3</sup> <https://ngss.nsta.org/about.aspx>

beef production practices into their curriculum. These efforts have reached leadership in State Departments of Education and local districts large and small. We've directly engaged with practicing science educators and educational influencers in all the top 10 largest school districts in the nation, including New York City, Los Angeles Unified, Chicago Public Schools, and Clark County (Las Vegas). A community of over 1,300 educators and educational influencers are actively engaging with the beef-science resources as a way to teach high-quality, relevant, engaging science education.

A key indicator for the demand of high-quality professional development tied to high-quality science resources was found as we were forced to pivot our FY20 plans into virtual experiences. Originally, we had aimed to engage 300 educators, but virtual plans opened the door to endless enrollment in the professional development around the beef-science units. We had over 1000 teachers and educational influencers engage with the livestream events in late July. Post-survey data found 99.3% of attendees would attend an event like this again!

### **The Need:**

The need to provide support and resources to educators that promote scientifically accurate, unbiased messaging about the science of beef production is at an all-time high. Teachers and students are receiving information from educationally trusted sources that are not representing an unbiased approach to agriculture, and beef production might be at the forefront of the misinformation. For example, on May 11, 2020 Junior Scholastic ©, with a target audience of middle and high school age students, put out an article titled "This burger could help save the planet!" with sub titles "Producing beef takes a serious toll on the environment. Could growing meat in a lab be part of the solution?", and "Cars and factories get most of the blame for polluting the environment. But another major offender could be the beef on your plate". The call to action at the end of the article asks the reader to "Create a video, a poster or a podcast that encourages your friends and family to eat less beef." This single article, with estimated circulation to 250,000 classrooms, has huge potential to influence how 12 to 18 year-old citizens perceive beef production.

The single focus of the proposed tactic is to engage the gatekeepers of science content, the science teachers and science teacher influencers in both formal and informal science instruction. The tactic is a multi-dimensional approach for further integration and perpetual application of the beef-science resources. The main goal is to build capacity of influencers within the education community to support their peers in applying information from a context, beef production, many are unfamiliar with.

The National Science Teachers Association (NSTA) estimates that the United States has more than 160,000 middle school and high school science teachers. The units of instruction developed by AFBFA focus on life science standards, therefore our appeal is roughly 75,000 of 90,000 teachers that teach Biology, General Science, and Integrated

Science in states that use NGSS. While requirements for science vary from state to state and district by district, nearly all middle and high school students are required to take at least one biology/life science course. These teachers, whom we categorize as formal educators, are the primary audience to use the resources and directly educate youth. To best support these teachers, we also include in our target audience those that influence formal and informal educators. This includes those people that are: state, regional and local curriculum coordinators, collegiate and technical school teacher-prep personnel, extension (and other organizations) that work closely with science educators, to name a few. Targeting both formal and informal educators who work with youth and the people who support them, provides the beef industry with the best opportunity to positively impact the next generation of American consumers.

AFBFA maintains close relationship with over 1000 key influencers that have participated in On the Farm professional development experiences and will leverage those relationships to promote the beef science units of instruction, but leveraging those relationships alone would fall far short of driving more widespread use and adoption among the 75,000 to 90,000 formal educators in our target audience, and the many more informal educators and influencers.

### **The Proposed Solution:**

The proposed tactic is working under the assumption school will return as usual in the Fall. However, we've considered each item carefully to make sure they can be executed alternatively if in-person experiences are not an option and school takes an alternative format during the FY21 AR timeframe.

AFBFA proposes the following activities to continue building and supporting a community of science education influencers:

#### **Grow the Community**

1. **Urban school district engagement** through professional development (In-Person if possible) as teacher training in three urban districts to promote and support the implementation of the beef-science units in their curriculum.

#### **Cultivate the Community**

2. **Build capacity of educators who can create** beef-science resources
  - Two Immersive Educator On the Farm STEM resource developer trainings to link science educators and influencers directly to beef farmers and ranchers as they are simultaneously training in creating NGSS aligned Units of Instruction and Assessment Transfer Tasks. These two trainings will build capacity of teachers who understand beef production and can develop resources for the On the Farm STEM Open Education Resource (OER) platform.

- Outputs of the trainings will include additional beef-science resources, including:
  1. Iterative improvement of current units of instruction based on user feedback to make them better as a larger scope of students and teachers engage with the beef-science units of instruction. Keeping the units current and improving will ensure better implementation.
  2. Engage elementary education key opinion leaders to create an Elementary beef-science unit and pursue NGSS Design Badge. Currently few Elementary units are available. Due to scarcity an Elementary unit has high potential for implementation.
  3. K-12 Assessment Transfer Tasks through the context of beef production.
- 3. **Build capacity of educators who can promote** beef-science resources
  - Host an On The Farm STEM Fellows Institute as a facilitator training with educators who are familiar with or have used the beef-science units of instruction to build capacity of trained educators that can lead professional development for other science teachers and educational influencers. Nominations for applicants would be sought through State Beef Councils and state Farm Bureau networks, along with open applications. Nominating entities would have direct access to facilitators to plan and host state and local experiences.
- 4. **Support efforts of educators using curriculum resources** in classrooms
  - On the Farm STEM virtual learning community offering year-round engagement with science education influencers. This online learning community will support, manage and maintain the dialogue among the beef-science unit users. The platform will:
    - Offer professional development opportunities through livestream events and learning modules.
    - Track usage and perception data of the cattle industry in general and the units of instruction.
- 5. **Build and maintain relationships between beef industry and education**
  - Directly connect educators to beef experts like cattle farmers and ranchers, other beef organizations, and researchers and scientists through livestream events and grassroots networks.
  - Strategic partnerships and promotion within the educational community to target educational influencers and key opinion leaders to broaden the network of people engaging with the beef-science units and professional development opportunities. This will be completed by engaging with the National Science Teaching Association (NSTA) and the Association for Supervision and Curriculum Development (ASCD) along with direct engagement with district and state curriculum administrators.

- Mobilize and equip volunteers (Farm Bureau and other organization) to use beef resources in classroom visits and school engagements. As part of a broader effort to engage local volunteers passionate about ag literacy, AFBFA is committed to equipping volunteers with strategies and tools to use the developed beef resources in classroom visits and administrative meetings and as part of the overall community support movement with educators using beef-science in their curriculum.

### Evaluate Investment Efforts

6. **Research and report the impact of different educational experiences** and resources. Using an ROI Institute model, <https://roiinstitute.net/>, measurements on usage, efficacy, knowledge acquisition and learning, behavior and perception change, and other measures, of both students and teachers will begin. Analyzed results will be provided to CBB and Beef producers to gauge the ROI on the beef-science programs.
  - Student data collection with a population of 12,000 students that engage with the resources. This is a Tier 6: Audience Impact study of the Performance Efficiency Measure for the instructional materials. We will also collect and report data on Tier 2: Reach and Engagement, which we anticipate being ten-times the data collection population, or more than 120,000 students.
  - Teacher data collection with a population of 1,000 teachers/educational influencers that engage with the resources and professional development. This is a Tier 6: Audience Impact study of the Performance Efficiency Measure for the instructional materials and professional development. A combination of survey methods will be used to get purposeful and frequent data points. We will also collect and report data on Tier 2: Reach and Engagement.

### Measurable Objectives *(List relevant outcome-based objectives for this tactic):*

1. Twelve thousand (12,000) students will gain knowledge about beef production by engaging with units of instruction and supporting resources.
2. Perceptions of cattle production and the beef industry will be positively shifted in sixty percent (60%) of students engaging with the units and supporting resources.
3. After engaging with units of instruction and corresponding trainings seventy-five percent (75%) of teachers and influencers will believe the positives of beef outweigh the negative.

### Performance Efficiency Measures

**Consumer Reach Goal:** 716,590

**Consumer Engagement Goal:** 24,200

**KOL Reach Goal:** 581,497

**KOL Engagement Goal:** 58,303

**LRP Strategic Initiatives Addressed by this Tactic** *(Check all that apply)*

| Drive Export Growth   | Grow Consumer Trust   | Protect & Enhance Business Climate   | Beef's Value Proposition   |
|---|---|--|--|
| <input type="checkbox"/> Adopt animal I.D. traceability systems<br><input type="checkbox"/> Increase market access<br><input type="checkbox"/> Promote unique attributes of U.S. beef | <input type="checkbox"/> Ensure antibiotic stewardship<br><input type="checkbox"/> Certify & verify production practices<br><input type="checkbox"/> Ensure beef safety<br><input checked="" type="checkbox"/> Protect beef's image<br><input type="checkbox"/> Engage beef advocates | <input type="checkbox"/> Research & innovate new production technologies<br><input type="checkbox"/> Ensure beef's inclusion in dietary recommendations<br><input type="checkbox"/> Motivate producers & stakeholders to engage in issues<br><input type="checkbox"/> Develop crises management plans<br><input type="checkbox"/> Defend beef's product identity | <input type="checkbox"/> Revolutionize beef marketing & merchandising<br><input type="checkbox"/> Measure & improve our sustainability<br><input type="checkbox"/> Research & communicate beef's nutritional benefits<br><input checked="" type="checkbox"/> Connect & communicate directly with consumers<br><input type="checkbox"/> Improve our product |

**Committee(s) to Score this Tactic** *(Check all that apply)*

| Consumer Trust                      | Export Growth            | Innovation               | Nutrition & Health       | Safety                   | Investor Relations       | Mkt. Research            |
|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**SUPPLEMENTAL INFORMATION FOR THIS AR**

**1. Please explain changes from FY 2020 approved AR:**

Due to the unknowns of the COVID-19 pandemic, we have crafted an AR that can be executed either in-person or virtually. Our FY20 AR was entirely focused on promotion of the beef-science units of instruction. Now that we have engaged a large number of formal and information educators and educational influencers, we aim to grow and cultivate that community and relationship with the influencers who share scientific information and understanding that effects future perceptions of the beef industry. This AR builds on previous ARs by and is different from FY20 in the following ways:

1. Providing professional development to key urban populations to build confidence while using materials (In-Person if possible)

2. Building capacity for KOLs to create additional beef-science resources through developer training, including developing resources for elementary science classrooms.
3. Build capacity of KOLs who can promote existing beef-science resources through facilitator training
4. Create and manage a platform to support teachers and educational influencers using the beef-science resources
5. Create more pathways for educators to connect with local beef producers and organizations that promote beef
6. Conduct research on the effectiveness of the KOL professional development and students' knowledge acquisition and perceptions of beef production based on exposure to units.

**2. List any proposed vendors/agencies that will be used to complete the work in this AR.**

Instructional Design and Project Management: Vivayic, Inc. (Lincoln, NE)  
<http://www.vivayic.com>

**3. Will all work with vendors be competitively bid?**

*No*

***If not, why not?***

This program will leverage an ongoing relationship between AFBFA and Vivayic, Inc. Vivayic's agricultural education experts fulfill the responsibilities of The Foundation Education Director.

**4. Please list any relationships between this AR and projects previously funded by the Operating Committee:**

This AR extends the reach and impact established through AR 1708-CI, AR 1606-CI, AR 1509-CI, AR 1921-CI and AR 2021-CI.

**DETAILED BUDGET SUMMARY:**

**AR #: 2121-CI**

**CBB/BPOC Funding Request:**

| Committee Name   | Tactic | Tactic Name  | Funding Source | Direct       | Implementation | Total        |
|------------------|--------|--|----------------|--------------|----------------|--------------|
| Consumer Trust   | A      | Building and supporting the community of science education influencers | BPOC           | \$ 1,450,168 | \$ 217,525     | \$ 1,667,693 |
| <b>AR Totals</b> |        |  |                | \$ 1,450,168 | \$ 217,525     | \$ 1,667,693 |

**Federation of SBCs Pledges/Other Funding Source(s): (Informational Only)**

| Committee        | Tactic | Tactic Name  | Funding Source | Direct    | Implementation | Total     |
|------------------|--------|--|----------------|-----------|----------------|-----------|
| Consumer Trust   | A      | Building and supporting the community of science education influencers | AFBFA          | \$ 15,000 | \$ 5,000       | \$ 20,000 |
| <b>AR Totals</b> |        |  |                | \$ 15,000 | \$ 5,000       | \$ 20,000 |

**Summary of Prior Year AR Budgets and Expenses:**

| Summary of Prior Year Budget: | FY 2020 Approved Budget |       |                 |            |             |           |            |
|-------------------------------|-------------------------|-------|-----------------|------------|-------------|-----------|------------|
|                               | CBB/BPOC                | FSBCs | Other Source(s) | Total      | Direct Cost | Impl.     | Total      |
| AR Totals                     | \$ 698,300              | \$ -  | \$ 50,000       | \$ 748,300 | \$ 652,230  | \$ 96,070 | \$ 748,300 |

| FY 2020 Actual Expenses<br>(through June 30, 2020) | FY 2020 Actual Expenses |       |                 |           |             |           |            |
|--|-------------------------|-------|-----------------|-----------|-------------|-----------|------------|
|  | CBB/BPOC                | FSBCs | Other Source(s) | Total     | Direct Cost | Impl.     | Total      |
| AR Totals  | \$ 62,512               | \$ -  | \$ 12,450       | \$ 74,962 | \$ 597,215  | \$ 91,082 | \$ 688,297 |

**Historical Summary of Budgets and Expenses: (includes all funding sources listed in original AR)**

|           | Total Approved Budgets |            |            | Total Actual Expenses |            |            |
|-----------|------------------------|------------|------------|-----------------------|------------|------------|
|           | FY 2019                | FY 2018    | FY 2017    | FY 2019               | FY 2018    | FY 2017    |
| AR Totals | \$ 700,000             | \$ 494,809 | \$ 419,623 | \$ 610,193            | \$ 425,470 | \$ 331,041 |