

## AUTHORIZATION REQUEST FOR FY 2020

CBB Budget Category: **Consumer Information**

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

Name of Organization Subcontracting:

Start Date: **10/1/2019**

End Date: **9/30/2020**

### 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 promoting these materials to science educators, especially those in urban areas.

In fall 2019, about 56.6 million students will attend elementary and secondary schools which is roughly 20% of Americans. 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.

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

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

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., department heads, district science curriculum specialists, teacher preparation instructors, etc.).

A primary effort of our current (FY19) authorization request is developing high-quality curriculum materials 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.

This authorization request seeks to promote the use of the curriculum materials being developed — especially to those teachers in densely populated communities where exposure to beef cattle production is limited.

*Data Source: National Center for Education Statistics*

Funding	Direct Costs	Implementation	Total
<b>CBB/BPOC Funding Request:</b>	\$607,203	\$91,070	\$698,300

Other Potential Funding	Direct Costs	Implementation	Total
Federation of SBCs Pledges: (Informational Only)	\$0	\$0	\$0
Other Funding: (Informational Only)	\$45,000	\$5,000	\$50,000

**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"/>

**Digital Properties and Target Audience(s) Addressed by This AR:**

On the Farm Home: <http://www.agfoundation.org/on-the-farm>

This site, owned by the American Farm Bureau Foundation for Agriculture, serves as a platform for facilitating national On the Farm beef educator events. Meet past participants <http://www.agfoundation.org/on-the-farm/meet-the-participants> to see the level of influencers engaged in these professional development events.

Learn About Beef: <http://www.agfoundation.org/on-the-farm/learn-about-beef>

This site, owned by the American Farm Bureau Foundation for Agriculture, features resources developed through Beef Checkoff funding and serves as a hub for beef education material.

Food and Agriculture Center for Science Education: <http://TBD>

This site, owned by the American Farm Bureau Foundation for Agriculture, when launched, will feature NGSS-designed curriculum resources developed through Beef Checkoff funding and other sources and will serve as a hub for STEM educators seeking open-source curriculum resources. The URL is yet to be determined as we are working with our marketing team to maximize reach by selecting a purposeful URL.

### **PROGRAM INFORMATION FOR THIS AR**

## **Tactic A**

**Tactic Name:** Promotion of Beef-based Curriculum Resources to Science Educators and Education Leaders

**Tactic Description:**

#### **Background:**

AFBFA has pioneered a national program to bring together influencers in STEM and health education for hands-on experience in the beef industry. Over the past four years, AFBFA has engaged nearly 300 education key influencers including educators from the top 10 urban school districts in the nation. Many of these education key influencers applied for this beef industry experience because they:

- a) Came from states that did not offer immersive experiences targeting STEM or Health 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 national professional development.

These national events have proven to move the needle with regard to beef perception and intent to consume while offering increased exposure to state programming. Pre- and post-assessments administered to On the Farm participants indicate the following *changes in perception* after attending the event:

- **51%** increase in response that the “positives strongly outweigh the negatives of how cattle are raised.”
- **43%** decrease in those concerned with antibiotic use in beef production.
- **41%** increase in those that agree/strongly agree that the “beef industry openly shares information.”
- **27%** increase in those who plan to eat more beef than they currently do after attending an event.

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 Next Generation Science Standards (NGSS). Currently 20 states have adopted NGSS, and 22 states have developed state standards based on the same framework as NGSS. Approximately 84% of all students live in these 42 states.

The development of NGSS has converged at the same time as the movement within states and districts to move away from textbooks and adopt open-source education resources available in online repositories. States and districts are now rushing to develop processes to vet available instructional resources and make them available to teachers. Science is an area where there is a critical shortage of materials.

Last year, AFBFA brought forth an authorization request 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.

AFBFA recruited eight science education key influencers and classroom teachers from across the country to work as curriculum writers under the direction of Dr. Sara Cooper, a state science specialist in Nebraska. The writers received training from Achieve, the organization that maintains the NGSS and reviews science instructional materials; from Northwestern University on an instruction approach (i.e., Storylines) that is being widely adopted for science education; and Dr. Aneesha Badrinayarin, a nationally recognized expert in science assessment. The writers also spent time with beef and grassland ecosystem researchers from the University of Nebraska and the Agriculture Research Service as part of their preparation for this writing assignment.

Three units of science instruction (each approximately four weeks of lesson) are being developed and will be submitted to Achieve for initial consideration for a NGSS Design Badge before the end of the contract year. Earning the NGSS Design Badge will provide “instant” credibility and validity of these materials and allow for easy acceptance among science teachers. More information about the NGSS Design Badge can be found at [www.nextgenerationsscience.org/badge](http://www.nextgenerationsscience.org/badge).

Once completed, the units of instruction will be housed as part of a newly established “Food and Agriculture Center for Science Education” (FACSE) to be maintained by AFBFA. This center will be positioned to appeal directly to science teachers.

Other materials developed by AFBFA as part of previous Beef Checkoff investments will continue to be hosted on the Learn About Beef website:

<https://www.agfoundation.org/on-the-farm/learn-about-beef>. AFBFA will continue to invest its own resources in the maintenance and promotion of these materials to

volunteers and our database of educators from past On the Farm experiences, especially local Farm Bureau members, to use in elementary classroom presentations.

**The Need:**

The completion of the FACSE units marks a shift from development to promotion.

The National Science Teachers Association (NSTA) estimates that the United States has more than 160,000 middle school and high school science teachers. Of these, the following breakdown lists the subject taught by these teachers:

- Biology - 52,697
- Chemistry - 27,947
- Physics - 16,301
- Earth Science - 15,611
- General Science - 13,813
- Physical Science - 25,499
- Integrated Science - 5,720

The three FACSE units of instruction developed by AFBFA focus on life science standards, therefore our appeal will be to the 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 take at least one biology/life science course. This provides the beef industry with the best opportunity to positively impact the next generation of Americans.

The purpose of this tactic is to drive awareness and use of the developed FACSE units of instruction among middle school and high school life science/biology teachers – especially those in metropolitan school districts where students have little direct experience with beef cattle production.

AFBFA maintains relationship with the nearly 300 key influencers that have participated in On the Farm and will leverage those relationships to promote the FACSE units of instruction, but leveraging those relationships alone would fall far short of driving more widespread use and adoption among the 75,000 teachers in our target audience.

AFBFA also continues to focus on efforts to promote the previously developed beef resources, those found on the Learn About Beef site, to elementary teachers through the use of volunteers. There are roughly 1.6 million elementary classrooms in the United States. Reaching a meaningful percentage of them requires a coordinated and sustained effort to mobilize and equip volunteers.

**The Proposed Solution:**

AFBFA proposes the following purposeful sequence of activities to promote the FACSE units of instruction and previously developed beef resources.

1. Conduct a Fall Institute for 10 test pilot teachers of the FACSE units of instruction and use collected student responses to improve units and submit for NGSS Badge consideration
  - We've learned that all of the units that have earned a NGSS Design Badge include examples of actual student responses and work products. We need to run a test pilot where the 10 teachers agree to collect these examples for use in the FACSE units.
  - The 10 teachers we recruit to be test pilot teachers will be chosen based on their location and their ability to influence other science teachers in their district/state.
  - The test pilot will be an opportunity for AFBFA to rehearse a four-day professional development program that trains teachers in the instructional approach (called Storylines) and introduce the concepts and phenomena from beef cattle production used in the units.
2. Promote FACSE units of instruction to the target audience and to state/district science leaders and state/district science curriculum directors through the National Science Teachers Association (NSTA).
  - To create awareness of the FACSE units with the 160,000 7th-12th grade science teachers generally and the 75,000 teachers in our target audience, we will advertise in NSTA publications and engage in direct mail to science teachers if deemed feasible. The objective is to create awareness and interest in the FACSE units of instruction.
  - The national conference for NSTA will be held in Boston April 2-5, 2020. It is the best opportunity to introduce the FACSE units to key opinion leaders in science education. We plan to host both a pre-conference and exhibitor workshop to engage state/district leaders and teachers in a brief demonstration of the lessons. The objective of exhibiting will be to gain commitment from district and state science education leaders to engage AFBFA to conduct professional development workshops for teachers in the summer and early fall of 2020.
3. Offer professional development to metropolitan districts and states that promote the instructional approach used in FACSE units and models how to use those units in their classroom.
  - AFBFA will develop a four-day professional development workshop designed for middle and high school teachers. This workshop will be offered for free to 10 school districts and/or states that agree to promote the event, recruit teachers to attend, and host the event in their district; these will be targeted to districts and states that reach students in metropolitan/urban communities with limited direct experience with beef cattle production.
    - If state Beef Councils want to provide additional workshops in states/districts, these can be provided on a cost-recovery basis.

- AFBFA will also encourage the writers and test pilot teachers to submit requests to present at district/state science teacher events. AFBFA plans to offer small stipends to offset travel and supply costs for teachers that promote the FACSE units to their professional colleagues.
4. Upgrade the On the Farm (OTF) experience for key influencers to include professional development on the FACSE units of instruction.
    - AFBFA continues to have very strong interest from science education leaders in the OTF experience and had great partnerships with state Beef Councils to collaboratively plan and host the events. Further, the event continues to build the network of key opinion leaders in science education.
    - In 2020, we plan to offer one event and do so in collaboration with a State Beef Council. We plan to modify the program to include time to introduce the participants to the FACSE units of instruction.
  5. Make the units available on a FACSE website and promote through social media.
    - AFBFA will develop a FACSE website to host the units of instruction. They will be available in an open-source format meaning users can access and modify the files for use in their classrooms. This is the standard among NGSS designed science units. AFBFA will configure the site to request information from users on location, number of students and intent for use of the units.
    - AFBFA will establish social media presence for FACSE to engage in the science education community and promote the units of instruction.
  6. Submit the FACSE units for inclusion in open education resource (OER) platforms hosted by state and district education agencies.
    - As schools move away from textbooks and to open resources, they are requiring that those resources go through some level of vetting and be made available through a platform that the state/district manages. There currently more than 100 of these “groups” established at OER Commons, the most widely used platform ([www.oercommons.org](http://www.oercommons.org) > Groups > Science). AFBFA will go through the effort to submit the FACSE units for inclusion into all applicable groups so that they will be available to the teacher users in each.
  7. Mobilize and equip Farm Bureau volunteers and educator network to use beef resources in elementary classroom visits
    - 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 as part of education field trips.

**Measurable Objectives** (*List at least three outcome-based objectives for this tactic.*):

- AFBFA will facilitate the following events for science education leaders and science teachers:
  - one (1) test pilot training for 10 science teachers

- one (1) pre-conference workshop at NSTA National Conference for 50 science leaders and teachers
- One (1) exhibitor workshop at NSTA National Conference for 35 science leaders and teachers
- one (1) On the Farm experience for 30 science teachers and leaders
- AFBFA will engage 10 district or state science education leaders through a commitment to host or facilitate a professional development workshop in metropolitan/urban settings utilizing the FACSE units of instruction with at least 30 science teachers in attendance at each workshop.
- AFBFA will have 3,000 unique visitors to the FACSE website to learn about the units of instruction between March 1-Sept. 20, 2020.
- AFBFA will have the FACSE units of instruction included in at least 20 state managed OER platforms.

**Performance Efficiency Measures**

**Consumer Reach Goal:** 10,390

**Consumer Engagement Goal:** 14,430

**Voice/KOL Reach Goal:** 645,902

**Voice/KOL Engagement Goal:** 15,428

**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 <input type="checkbox"/> Increase market access <input type="checkbox"/> Promote unique attributes of U.S. beef	<input type="checkbox"/> Ensure antibiotic stewardship <input type="checkbox"/> Certify & verify production practices <input type="checkbox"/> Ensure beef safety <input checked="" type="checkbox"/> Protect beef's image <input type="checkbox"/> Engage beef advocates	<input type="checkbox"/> Research & innovate new production technologies <input type="checkbox"/> Ensure beef's inclusion in dietary recommendations <input type="checkbox"/> Motivate producers & stakeholders to engage in issues <input type="checkbox"/> Develop crises management plans <input type="checkbox"/> Defend beef's product identity	<input type="checkbox"/> Revolutionize beef marketing & merchandising <input type="checkbox"/> Measure & improve sustainability <input type="checkbox"/> Research & communicate beef's nutritional benefits <input checked="" type="checkbox"/> Connect & communicate directly with consumers <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"/>					

**SUPPLEMENTAL INFORMATION FOR THIS AR****1. Will all work detailed in this AR be completed by the end of the fiscal year?**

Yes

*If not, please provide an explanation.***2. Please explain changes from FY 2019 approved AR:**

In the FY19 approved AR, we planned to develop two (2) units of instruction. AFBFA leveraged resources and developed three (3) units.

Additionally, we assumed we would be able to submit the units for NGSS Badge consideration before Sept. 20, 2019. In the development process, we learned that all of the currently “badged” units include examples of student responses and examples of student performance. That is the reason for including the test pilot in the FY 20 AR request — to collect those pieces and then be able to submit for NGSS Badge consideration.

**3. List any proposed subcontractor/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>

**4. Will all work with subcontractors 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.

**5. 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 and AR 1921-CI.

**CBB/BPOC Funding Request:**

Committee Name	Tactic	Tactic Name	Funding Source	Direct	Implementation	Total
Consumer Trust	A	Promotion of FACSE units of instruction and other beef resources	BPOC	\$ 607,230	\$ 91,070	\$ 698,300
<b>AR Totals</b>				\$ 607,230	\$ 91,070	\$ 698,300

**DETAILED BUDGET SUMMARY:**

**AR #: 2021-CI**

Source of Funding	Direct Costs	Implementation	Total
<b>CBB/BPOC Funding Request:</b>	\$607,230	\$91,070	\$698,300

Other Potential Funding	Direct Costs	Implementation	Total
Federation of SBCs Pledges: (Informational Only)	\$0	\$0	\$0
Other Funding: (Informational Only)	\$45,000	\$5,000	\$50,000

**CBB/BPOC Funding Request:**

Committee Name	Tactic	Tactic Name	Funding Source	Direct	Implementation	Total
<i>Consumer Trust</i>	A	Promotion of FACSE units of instruction and other beef resources	BPOC	\$ 607,230	\$ 91,070	\$ 698,300
<b>AR Totals</b>				\$ 607,230	\$ 91,070	\$ 698,300

**Other Funding: (Informational Only)**

Committee	Tactic	Tactic Name	Funding Source	Direct	Implementation	Total
<i>Consumer Trust</i>	A	Promotion of FACSE units of instruction and other beef resources		\$ 45,000	\$ 5,000	\$ 50,000
<b>AR Totals</b>				\$ 45,000	\$ 5,000	\$ 50,000

**Total Cost Summary for All Funding Sources: (Informational only)**

Committee	Tactic	Tactic Name	Funding Source	Direct	Implementation	Total
<i>Consumer Trust</i>	A	Promotion of FACSE units of instruction and other beef resources	All	\$ 652,230	\$ 96,070	\$ 748,300
<b>AR Totals</b>				\$ 652,230	\$ 96,070	\$ 748,300

Summary of Prior Year Budget:	FY 2019 Approved Budget						
	CBB/BPOC	FSBCs	Other Source(s)	Total	Direct Cost	Impl.	Total
AR Totals	\$ 700,000			\$ 700,000	\$ 608,887	\$ 91,113	\$ 700,000

FY 2019 Actual Expenses (through June 30, 2019)	FY 2019 Actual Expenses						
	CBB/BPOC	FSBCs	Other Source(s)	Total	Direct Cost	Impl.	Total
AR Totals	\$ 650,414			\$ 650,414	\$ 582,164	\$ 68,250	\$ 650,414

Historical Summary of Budgets and Expense:	Total Approved Budgets			Total Actual Expenses		
	FY 2018	FY 2017	FY 2016	FY 2018	FY 2017	FY 2016
AR Totals	\$ 494,809	\$ 419,623	\$ 440,700	\$ 425,470	\$ 331,041	\$ 388,721