SCBGP PROJECT PROFILE TEMPLATE

AWARD YEARS 2022 FORWARD

The State Plan should include a series of project profiles that detail the necessary information to fulfill the goals and objectives of each project. The acceptable font size for the narrative is 11 or 12 pitch with all margins at 1 inch. The following information must be included in each project profile.

PROJECT TITLE

Provide a descriptive project title in 15 words or less in the space below.

Education and Outreach Activities to Improve Food Safety for Small Farms

DURATION OF PROJECT

Start Date: October 1, 2023 **End Date**: September 30, 2025

PROJECT PARTNER AND SUMMARY

Include a project summary of 250 words or less suitable for dissemination to the public. A Project Summary provides a very brief (one sentence, if possible) description of your project. A Project Summary includes:

1. *The name of the applicant organization that if awarded a grant will establish an agreement or contractual relationship with the State Department of Agriculture to lead and execute the project,*
2. *The project's purpose, deliverables, and expected outcomes and*
3. *A description of the general tasks/activities to be completed during the project period to fulfill this goal.*

FOR EXAMPLE:
The ABC University will mitigate the spread of citrus greening (Huanglongbing) by developing scientifically-based practical measures to implement in a quarantine area and disseminating results to stakeholders through grower meetings and field days.

Purdue University Extension will develop and deliver produce food safety programming for small fruit and vegetable growers in Indiana. In addition to current educational offerings that assist specialty crop growers in achieving compliance with the Food Safety Modernization Act Produce Safety Rule (21 CFR 112), educators will develop practical, research-based trainings that may be offered at the Purdue Student Farm, the Purdue Extension Food Safety Training Hub, and across the state. These two locations will allow for hands-on training to use equipment that will improve food safety practices for small growers. Course materials will be developed and outreach will be conducted based on stakeholder input that will address real time needs.

PROVIDE A PROJECT TIMELINE BY QUARTER AND YEAR BELOW.

Quarter 1: Development of an electronic record keeping course materials, development of new cleaning and sanitation course for post harvest activities, purchase equipment for the Purdue Student Farm.

Quarter 2: Delivery of the electronic records keeping course at the Purdue Extension Food Safety Training Hub (PEFSTH) and the Purdue Student Farm. Continued development of the cleaning and sanitation course with a focus on hands-on learning.

Quarter 3: Delivery of the cleaning and sanitation training course at PEFSTH and Purdue Student Farm. Determine locations and set training schedule to offer the electronic records and cleaning and sanitizing training in other areas (Extension offices) in Indiana.

Quarter 4: Offer both electronic records and cleaning and sanitizing trainings at five locations across Indiana (Central, SW, NW, NE, and SE regions).

Quarter 5: Development of a food safety plan writing workshop and trainings to prepare growers for third party audits, purchase materials to make on-farm hand washing kits.

Quarter 6: Delivery of cleaning and sanitizing training and preparing for a third party audits training in Indiana (Central, SW, NW, NE, and SE regions).

Quarter 7: Delivery of cleaning and sanitizing training and preparing for a third party audits training in Indiana (Central, SW, NW, NE, and SE regions).

Quarter 8: Prepare and publish Extension publications through the Purdue Education Store

DESCRIBE HOW YOUR ORGANIZATION WILL INTERACT WITH ANY PARTNERS ON YOUR PROJECT.

Purdue Food Science and Purdue Extension has an established relationship with Specialty Crop growers across Indiana. They have worked with and trained over 300 Indiana growers in Good Agricultural Practices and best food safety practices. Members of the Indiana specialty crop industry have a keen understanding of the importance of food safety at all levels of production, distribution, and sales. In addition, this work will target small farms as well as larger farms to ensure that all needs are met in the state. New markets to sell fresh produce are constantly emerging and growers who have third-party GAP certification will be well positioned to enter these new markets.

The Purdue Student Farm is a small, sustainable farm located near the Kampen Golf Course and Daniel Turf Center off Cherry Lane in West Lafayette, IN. They grow fruits, vegetables and herbs using the principles that naturally govern balanced ecosystems. The Purdue Student Farm also emphasize the education of Purdue undergraduate students through sustainable farming methods. Their educational work is all about food:

- How food can be grown effectively on a small scale
- How food can and should be marketed for profit
- How food utilization can affect the farmer and community
- How food intersects with the economy and the environment

PROJECT PURPOSE

PROVIDE THE SPECIFIC ISSUE, PROBLEM OR NEED THAT THE PROJECT WILL ADDRESS

The health benefit of consuming fresh fruits and vegetables has been well documented. However, fresh produce has been implicated in many foodborne illness outbreaks. It is estimated that the percentage of foodborne illness outbreaks attributable to fresh produce may approach 46% (Painter et al, 2013).

Good agricultural practices (GAPs) are practices used by specialty crop growers to reduce the risk of crop contamination and subsequent outbreaks of foodborne illness. Since 2009, Purdue Extension has provided food safety (i.e. GAPs) training to specialty crop growers. During that time, many growers have come under regulation by the Food Safety Modernization Act Produce Safety Rule (21 CFR 112; PSR). Regulatory requirements, increases in buyer-driven food safety requirements, the need understand and implement best practices in production, and the uniqueness of individual farms have continued to necessitate the development and delivery of a variety of educational programs to Indiana specialty crop growers.

Purdue Extension has developed and delivered a variety of educational programs and services to fruit and vegetable growers in Indiana, both individually and in collaboration with the Indiana State Department of Agriculture (ISDA) and the Indiana Department of Health (IDOH). Purdue Extension has also undertaken applied research in order to determine and inform growers of on-farm food safety best practice. Efforts to address these needs also include development of the Purdue Extension Food Safety Training Hub (PEFSTH), a 7,100 ft.2 facility opened in November 2019 with the goal of becoming a regional focal point for food safety and GAPs training.

A continued need for food safety education among growers, and the sheer number of production types found among Indiana specialty crop farms, have created additional demand for outreach to support Indiana growers. Concurrently, demand for buyer-driven 3rd party audits and GAPs certifications have increased. GAPs certifications are an industry construct and are separate from any regulatory requirements to which growers may be held. Audits, and subsequent certifications, are seen by produce buyers as a method of 3rd party verification of food safety practices on individual farms. Increasingly, successful passage of a 3rd party audit is a requirement that must be met in order for specialty crop growers to gain access to wholesale markets.

The purpose of this project is to undertake various related activities that, in the aggregate, will meet the needs of Indiana specialty crop growers with regard to issues of produce food safety. The activities undertaken in this project will include providing hands-on demonstration of best food safety practices, development of courses and other educational offerings, assistance with preparation for 3rd party audits, and outreach to assist specialty crop growers in achieving regulatory compliance.

Understanding food safety issues at the farm consists of a fundamental theoretical background in the various disciplines that encompass growing, harvesting, and packing fresh fruits and vegetables, as well as mastering the use of specialized equipment that help with each task, especially for postharvest activities. Exposing growers to various forms of processing equipment allows them to have a better understanding of how fresh fruits and vegetables are properly harvested, washed, and stored. Hands-on learning is a form of experiential learning where growers are allowed to use or develop the equipment needed to perform a particular outcome. It has been well documented that hands-on learning promotes a better understanding of the material or task presented, increases a person's interest in a particular subject, and contributes to an increased sense of accomplishment when people are able to accomplish a task or master the use of a particular piece of equipment (Heise, 2006, Ma et. al., 2017, Cook et. al., 2018). Giving growers who take food safety training a greater access to educational postharvest equipment will improve their understanding of food safety, as well as help the Indiana specialty crop industry to provide safe food to consumers.

While regulatory compliance is of utmost importance and will continue to be a major focal point of food safety programming, the need for food safety education frequently extends beyond enabling specialty crop growers to meet minimal regulatory standards. This will be addressed by the development of new or novel educational offerings for specialty crop growers. These programs will address specific components of produce food safety and will provide information and education beyond training required by the PSR. The Purdue College of Agriculture, along with Vincennes University, ISDA, and IDOH, have made significant investments to develop the PEFSTH. The uniqueness of the facility, which contains a cooler, laboratory, classroom, and large postharvest area with research-scale washing/packing equipment, lends itself to development and delivery of myriad educational offerings. In addition, the College of Agriculture at Purdue made a significant investment to establish the Purdue Student Farm near campus

in West Lafayette, IN. The Purdue Student farm is a small-scale farm that has a postharvest washing and packing room where growers can learn how to use different pieces of equipment to improve food safety at a small farm. Both of these locations are excellent opportunities to provide hands-on learning opportunities for growers to enhance the educational experiences that Purdue offers.

References:

Painter, JA, Hoekstra, RM, Ayers, T., Tauxe, RV, Braden, CR, Angulo, FJ, Griffin, PM. 2013. Attribution of foodborne illnesses, hospitalizations, and deaths to food commodities by using outbreak data, United States, 1988-2008. Emerg Infect Dis [Internet]. https://www.cdc.gov/foodborneburden/attribution-image.html#foodborne-illnesses.

Cook, T. V., Lyle, J. A., Kerestes, R. J. 2018. Board 73 : Work in Progress: Reinforcement of Engineering Education with Hands-on Learning of Technical Skills Paper presented at 2018 ASEE Annual Conference & Exposition , Salt Lake City, Utah. https://peer.asee.org/30097

Heise, D. 2006. Asserting the inherent benefits of hands-on laboratory projects vs. computer simulations. Journal of Computing Sciences in Colleges, 21(4), 104-110.

Ma, J., Tucker, C. S., Okudan Kremer, G. E., & Jackson, K. L. 2017. Exposure to Digital and Hands-on Delivery Modes in Engineering Design Education and Their Impact on Task Completion Efficiency. Journal of Integrated Design & Process Science, 21(2), 61–78. https://doi-org.ezproxy.lib.purdue.edu/10.3233/jid-2016-0021

U.S. Department of Agriculture. 2015. State Agricultural Overview. National Ag Stats Serv. Available from http://www.nass.usda.gov/Quick_Stats/Ag_Overview/stateOverview.php?state=INDIANA [Accessed 03/25/21).

U.S. Department of Agriculture. 2012. Annual Statistical Bulletin. National Ag Stats Serv. Available from https://www.nass.usda.gov/Statistics_by_State/Indiana/Publications/Annual_Statistical_Bulletin/1112/pg33.pdf [Accessed 03/25/21].

U.S. Department of Agriculture. 2020. State Agriculture Overview. National Ag Stats Serv. Available from https://www.nass.usda.gov/Quick_Stats/Ag_Overview/stateOverview.php?state=INDIANA [Accessed 03/25/2021].

PROVIDE A LISTING OF THE OBJECTIVES THAT THIS PROJECT HOPES TO ACHIEVE

Add more objectives by copying and pasting the existing listing or delete objectives that aren't necessary.

Objective 1	Objective 1 – Development of new or novel educational programs that may be offered to Indiana specialty crop growers that will aid in achieving regulatory compliance with the Produce Safety Rule.
Objective 2	Objective 3 – Disseminate scale-appropriate handwashing stations that can be constructed by growers for on-farm use.
Objective 3	Objective 2 – Assist growers in successfully passing third-party audits and subsequently obtaining GAPs certifications.

PROJECT BENEFICIARIES

Estimate the number of project beneficiaries: 500

Does this project directly benefit socially disadvantaged farmers and/or underserved communities as defined in the RFA? **Yes** ☐ **No** ☑

If you selected yes, please describe how the project directly benefits socially disadvantaged farmers and/or underserved communities.

Does this project directly benefit beginning farmers as defined in the RFA? **Yes** ☑ **No** ☐

If you selected yes, please describe how the project directly benefits beginning farmers.

This project directly benefit beginning farmers as we propose development of three specific educational offerings that will benefit Indiana specialty crop growers in general, but also focus on smaller farms.. In Year 1, a recordkeeping course would be developed and offered to specialty crop growers on a statewide basis. Recordkeeping has been identified by growers as an area of challenge. This course would provide best-practice information that would facilitate better, more convenient, and more complete keeping of required records for on-farm food safety. We will also discuss keeping electronic records and introduce some free electronic record keeping systems that have been development by Dr. Dennis Buckmaster in the department of Agricultural and Biological Engineering (https://ag.purdue.edu/news/2022/02/digital-records-for-fsma.html). Also in Year 1, we propose the development of a cleaning and sanitation course. This course would take advantage of facilities and equipment at the PEFSTH as well as the Purdue Student Farm. We propose purchasing a small-scale washing system for the Purdue Student Farm so participants can learn how to wash and sanitize fresh produce and harvest tools and bins. Participants would be able to participate in both a classroom component and a practical, hands-on component, working with research scale wash/pack equipment found at each facility. In Year 2, a third-party audit class would be offered. This would involve training growers in one of many possible food safety audit protocols against which a third-party audit could be conducted. Depending on buyer requirements, specialty crop growers may be required to be audited using any number of protocols. Initially, we plan to offer training in the Harmonized GAPs and PrimusGFS protocols, as these are most commonly required by produce buyers.

Developed classes will be delivered at the PEFSTH and the Purdue Student Farm. Additionally, classes will be developed such that they may be offered on a statewide basis. Based on grower demand, we anticipate offering each developed class at five locations across Indiana (Central, SW, NW, NE, and SE regions). Classes will also be developed such that they may be customized to benefit growers of specific specialty crops. As examples, recordkeeping forms and templates could be customized for growers of tomatoes, watermelon, cantaloupe, or lettuce. Cleaning and sanitation courses could address general sanitation or be customized for growers of melons, apples, peaches, tomatoes, potatoes, etc.

This project will also address the need of Indiana specialty crop growers to pass third-party audits and subsequently obtain their GAPs certification. Third-party audits are being required of growers of all sizes as an industry-driven condition of access to markets. Current efforts focus on direct one-on-one interaction with specialty crop growers through consultations, assistance with written food safety plan preparation, and mock auditing services (as a means of preparing growers for the real audit). Due to expense, audits may be cost-prohibitive for growers. Anecdotal data from growers indicate a minimum expense of $1,500 for a third-party audit using a lower-level audit such as the Harmonized GAPs or USDA GAP/GHP protocol. Expense for more audits using more in-depth protocols, such as PrimusGFS, may easily be several thousand dollars. If a grower fails the audit then they lose the money and have to schedule another audit at the same price. Therefore, it is imperative that growers do pass the audit on the first attempt and the proposed training will help to provide the resources to do so.

Produce growers from small and mid-size farms frequently struggle with "scaling down" of equipment to meet the needs of their particular farm. As a means of increasing awareness and availability of scale-specific equipment for risk reduction, materials will be purchased and scale-appropriate handwashing and produce wash stations will be constructed for demonstration and distribution at in-person trainings. These stations will be based on designs developed (and supported by FSOP funding) at the University of Minnesota. Designs may be viewed at https://extension.umn.edu/growing-safe-food/handwashing-station and https://blog-fruit-vegetable-ipm.extension.umn.edu/2022/07/low-cost-portable-fruit-and-vegetable.html. Construction materials will be purchased and converted into kits at the PEFSTH and then will then be distributed, along with instructions, to growers.

Does this project directly benefit veteran farmers as defined in the RFA? **Yes** ☐ **No** ☑

If you selected yes, please describe how the project directly benefits veteran farmers.

STATEMENT OF ENHANCING SPECIALTY CROPS

By checking the box to the right, I confirm that this project enhances the competitiveness of specialty crops in accordance with and defined by the Farm Bill. Further information regarding the definition of a specialty crop can be found at www.ams.usda.gov/services/grants/scbgp. ☑

List of Specialty Crops: Specialty crops include, but not limited to, cantaloupe, watermelon, apples, and leafy greens.

CONTINUATION PROJECT INFORMATION

Does this project continue the efforts of a previously funded SCBGP project? **Yes** ☐ **No** ☐

If you have selected "yes", please address the following:

DESCRIBE HOW THIS PROJECT WILL DIFFER FROM AND BUILD ON THE PREVIOUS EFFORTS

Previous projects were initiated in 2011, 2014, and 2017. These projects addressed food safety for specialty crops and were focused on both training and determination of best practice for management of inputs. Previous efforts enabled the development of training materials and facilitated the introduction of GAPs to specialty crop growers, as well as enabled third-party GAPs audits at reduced cost. Since that time, the PSR has come into existence, necessitating specific training for growers that are covered by the rule. Concurrently, the need for GAPs certifications as a means of accessing markets has increased. Awareness of food safety issues generated by previous projects has increased growers' desire for best practice information.

This project will differ significantly from previous projects. Significant time and resources were expended in previous projects to inform specialty crop growers of the need for GAPs and for produce food safety. This has created widespread awareness of food safety issues among Indiana specialty crop growers. Our project will focus on development and delivery of food safety programming, without expending resources to introduce topics or concepts. Our proposed project will build on previous efforts by expanding the food safety programming for specialty crop growers to meet the demand generated by regulation, industry, and previous projects. Former endeavors have provided an excellent infrastructure upon which to build additional food safety programming for specialty crop growers. The proposed work will also provide hands-on learning opportunity for growers as well as providing scale-appropriate equipment in the form of on-farm handwashing stations.

PROVIDE A SUMMARY (3 TO 5 SENTENCES) OF THE OUTCOMES OF THE PREVIOUS EFFORTS

Previous efforts have been successful in generating an awareness of food safety issues among Indiana specialty crop growers. Additionally, previous efforts have provided a programming infrastructure that this project will enhance and have provided valuable insights into best practice for input management. Infrastructure development culminated in the opening of the Purdue Extension Food Safety Training Hub (PEFSTH), located near Vincennes, IN, in 2019 and the new Purdue Student Farm in 2017. The PEFSTH and the Purdue Student Farm provide a base from which food safety programming may be extended to specialty crop growers across the state.

PROVIDE LESSONS LEARNED ON POTENTIAL PROJECT IMPROVEMENTS

What was previously learned from implementing this project, including potential improvements?

Previous projects addressed outreach, best practice, and the difficulty growers faced in obtaining third-party audits. These projects led to a better understanding of grower needs. Also, these projects allowed greater understanding of how best to work with specialty crop growers in the organization and presentation of educational offerings. Perceived barriers to obtaining GAPs certifications were better understood as a result of these projects. A better understanding of input management and a clearer understanding of best practice were also gained from previous projects.

How are the lessons learned and improvements being incorporated into the project to make the ongoing project more effective and successful at meeting goals and outcomes?

Previous lessons will be incorporated into the current project. The programming infrastructure and awareness generated by previous projects will allow more efficient dissemination of information. Awareness of food safety among growers, developed by previous outreach, will allow us to more easily develop and deliver educational offerings that go beyond the level of basic information and into a more hands-on approach. Laboratory and training facilities will allow us to increase the pace at which best practice is determined and information is given to Indiana specialty crop growers. Understanding of growers' perceived barriers to obtaining GAPs certifications will allow us to develop services, programs, and assistance that overcomes these barriers allowing for more use of time and resources.

DESCRIBE THE LIKELIHOOD OF THE PROJECT BECOMING SELF-SUSTAINING AND NOT INDEFINITELY DEPENDENT ON GRANT FUNDS

This project has a high probability of becoming self-sustaining. Outreach was funded by this program in 2011 and 2014 and has been largely self-sustaining in the interim period. In 2015, Purdue Extension created two positions focused on produce food safety. Continued support from Extension and other sources, along with investment in personnel, facilities, and grower support, have all increased the sustainability of our endeavors. Our proposed project will allow us to expand current food safety activities for Indiana specialty crop growers, building on a program that has already shown sustainability since initial funding from this program was obtained in 2011. Given the unique location of the FEFSTH, we anticipate that following development and delivery of educational offerings to Indiana specialty crop growers, as well in surrounding states, likely in a fee-based format in the future. This too will increase the likelihood that this project will be self-sustaining.

OTHER SUPPORT FROM FEDERAL OR STATE GRANT PROGRAMS

The SCBGP will not fund duplicative projects. Did you submit this project to a Federal or State grant program other than the SCBGP for funding and/or is a Federal or State grant program other than the SCBGP funding the project currently?

Yes ☐ **No** ☐

IF YOUR PROJECT IS RECEIVING OR WILL POTENTIALLY RECEIVE FUNDS FROM ANOTHER FEDERAL OR STATE GRANT PROGRAM

Identify the Federal or State grant program(s).

Describe how the SCBGP project differs from or supplements the other grant program(s) efforts.

EXTERNAL PROJECT SUPPORT

Describe the specialty crop stakeholders who support this project and why (other than the applicant and organizations involved in the project).

The Indiana Specialty Crop industry is very supportive of the work that has been done in regards to food safety efforts for fresh fruits and vegetables. There will be Extension publications that can be distributed to all Stakeholders that will that can help the industry maintain best food safety practices.
Food safety has become an important issues for all Specialty Crop growers. Growers continue to support food safety trainings and resources in order to protect the industry to reduce the potential that recalls or outbreaks could be realigned to fresh produce grown in Indiana.

EXPECTED MEASURABLE OUTCOMES

SELECT THE APPROPRIATE OUTCOME(S) AND INDICATOR(S)/SUB-INDICATOR(S)

You must choose at least one of the eight outcomes listed in the SCBGP Performance Measures, which were approved by the Office of Management and Budget (OMB) to evaluate the performance of the SCBGP on a national level.

OUTCOME MEASURE(S)

Select the outcome measure(s) that are applicable for this project from the listing below.

- ☐ **Outcome 1:** Increasing Consumption and Consumer Purchasing of Specialty Crops
- ☐ **Outcome 2**: Increasing Access to Specialty Crops and Expanding Specialty Crop Production and Distribution
- ☑ **Outcome 3**: Increase Food Safety Knowledge and Processes
- ☐ **Outcome 4**: Improve Pest and Disease Control Processes
- ☐ **Outcome 5**: Develop New Seed Varieties and Specialty Crops
- ☐ **Outcome 6**: Expand Specialty Crop Research and Development
- ☐ **Outcome 7**: Improve Environmental Sustainability of Specialty Crops

OUTCOME INDICATOR(S)

Provide at least one indicator listed in the SCBGP Performance Measures and the related quantifiable result. If you have multiple outcomes and/or indicators, repeat this for each outcome/indicator.

FOR EXAMPLE:
Outcome 1, Indicator 1.1a
Total number of consumers who gained knowledge about specialty crops, Adults 132.

Outcome 3, Indicator 1
Number of stakeholders that gained knowledge about prevention, detection, control, and/or intervention food safety practices, including relevant regulations (to improve their ability to comply with the Food Safety Modernization Act (FSMA) and/or meet the standards for aligned third party food safety audits such as Harmonized GAP/GHP) [250].

Outcome 3, Indicator 2
Number of stakeholders that: a. Established a food safety plan [25]. b. Revised or updated their food safety plan [50].

Outcome 3, Indicator 3
Number of specialty crop stakeholders who implemented new/improved prevention, detection, control, and intervention practices, tools, or technologies to mitigate food safety risks (to improve their ability to comply with the Food Safety Modernization Act (FSMA) and/or meet the standards for aligned third party food safety audits such as Harmonized GAP/GHP) [100].

MISCELLANEOUS OUTCOME MEASURE

In the unlikely event that the outcomes and indicators above the selected outcomes are not relevant to your project, you must develop a project-specific outcome(s) and indicator(s) which will be subject to approval by AMS.

DATA COLLECTION TO REPORT ON OUTCOMES AND INDICATORS

Explain how you will collect the required data to report on the outcome and indicator in the space below.

The number of participants who attend developed classes and educational offerings will be tracked and reported. Participants will be given a short test prior to the beginning of events, as well as immediately following events, to estimate short-term knowledge gain. Self-reported demographic information will also be obtained. Participants in developed educational offerings will be asked to complete a voluntary survey at least 6 months following participation. The surveys will estimate long-term changes in behavior. Number of projects and educational offerings that deal with understanding of preharvest and postharvest process impacts on microbial and chemical threats will be recorded and reported.

BUDGET NARRATIVE

All expenses described in this Budget Narrative must be associated with expenses that will be covered by the SCBGP. If any matching funds will be used and a description of their use is required by the State department of agriculture, the expenses to be covered with matching funds must be described separately. Applicants should review the Request for Applications section 4.7 Funding Restrictions prior to developing their budget narrative.

BUDGET SUMMARY

Expense Category	Funds Requested
Personnel	$86,649.00
Fringe Benefits	$13,957.00
Travel	$6,500.00

Expense Category	Funds Requested
Equipment	$12,000.00
Supplies	$14,500.00
Contractual	$0.00
Other	$22,360.00
Direct Costs Sub-Total	$155,966.00
Total Budget	$155,966.00

PERSONNEL

List the organization's employees whose time and effort can be specifically identified and easily and accurately traced to project activities that enhance the competitiveness of specialty crops. See the Request for Applications section 4.7.2 Allowable and Unallowable Costs and Activities, Salaries and Wages, and Presenting Direct and Indirect Costs Consistently under section 4.7.1 for further guidance.

#	Name/Title	Level of Effort (# of hours OR % FTE)	Funds Requested
1	**Amanda Deering, Associate Professor**	0.05 %	$11,691.00
2	**James Scott Monroe, Food Safety Extension Educator**	0.05 %	$8,247.00
3	**Petrus Langenhoven, Horticulture Crop Specialist**	0.04 %	$6,960.00
4	**Tari Gary, Extension Administrator**	0.05 %	$5,916.00
5	**TBD Graduate Student, M.S. Graduate Student**	0.50 %	$53,835.00

Personnel Subtotal: $86,649.00

PERSONNEL JUSTIFICATION

For each individual listed in the above table, describe the activities to be completed by name/title including approximately when activities will occur. Add more personnel by copying and pasting the existing listing or deleting personnel that aren't necessary.

Personnel 1:	Dr. Deering will be project PI, as funding that will support a graduate student to be trained on food safety and outreach for the specialty crop industry is more productive.
Personnel 2:	Scott will be involved in development and delivery of food safety training materials to growers. He will also be involved in doing the mock audits and assisting with farm food safety plans with growers.
Personnel 3:	Two weeks of summer salary is requested so Dr. Langenhoven can assist with implementation and oversight of food safety practices at the Purdue Student Farm, as well as input on best practices for small farms.
Personnel 4:	Tari is the Extension Administrator for Food Science and organizes all of the Extension trainings as well as will be involved in reporting efforts.
Personnel 5:	Graduate student who will be co-advised with Drs. Deering and Langenhoven. The student will be involved in development and delivery of food safety training materials to growers and will also be involved in assisting with Farm Food Safety Plans.

FRINGE BENEFITS

Provide the fringe benefit rates for each of the project's salaried employees described in the Personnel section that will be paid with SCBGP funds.

#	Name/Title	Fringe Benefit Rate	Funds Requested
1	Amanda Deering, Associate Professor	0.27 %	$3,153.00
2	James Scott Monroe, Food Safety Extension Educator	0.32 %	$2,661.00
3	Petrus Langenhoven, Horticulture Crop Specialist	0.32 %	$2,245.00
4	Tari Gary, Extension Educator	0.32 %	$1,909.00
5	TBD, Graduate Student	0.07 %	$3,989.00

Fringe Subtotal: $13,957.00

TRAVEL

Explain the purpose for each Trip Request. Please note that travel costs are limited to those allowed by formal organizational policy; in the case of air travel, project participants must use the lowest reasonable commercial airfares. For recipient organizations that have no formal travel policy and for-profit recipients, allowable travel costs may not exceed those established by the Federal Travel Regulation, issued by GSA, including the maximum per diem and subsistence rates prescribed in those regulations. This information is available at http://www.gsa.gov. See the Request for Applications section 4.7.2 Allowable and Unallowable Costs and Activities, Travel, and Foreign Travel for further guidance.

#	Trip Destination	Type of Expense (airfare, car rental, hotel, meals, mileage, etc.)	Unit of Measure (days, nights, miles)	# of Units	Cost per Unit	# of Travelers Claiming the Expense	Funds Requested
1	Mileage Year 1 for all trainings	Mileage 1	miles	4,081.0	$0.49	4	$2,000.00
2	Hotels Year 1	Hotels	Night	6.0	$150.00	3	$1,000.00
3	Mileage Year 2 for all trainings.	Mileage	miles	5,102.0	$0.49	4	$2,500.00
4	Hotels Year 2	Hotel	nights	6.0	$150.00	3	$1,000.00

Travel Subtotal: $6,500.00

TRAVEL JUSTIFICATION

For each trip listed in the above table describe the purpose of this trip and how it will achieve the objectives and outcomes of the project. Be sure to include approximately when the trip will occur. Add more trips by copying and pasting the existing listing or delete trips that aren't necessary.

Trip 1 (Approximate Date of Travel November 6, 2023):	Travel to deliver the trainings in year 1 to deliver training (PEFSTH, Purdue Student Farm, Central, SW, NW, NE, and SE regions).
Trip 2 (Approximate Date of Travel March 11, 2024):	For trainings locations that are over 2-3 hours travel for a trainer they can go the night before the training.
Trip 3 (Approximate Date of Travel January 20, 2025):	Travel to deliver the trainings in year 1 to deliver training (PEFSTH, Purdue Student Farm, Central, SW, NW, NE, and SE regions).
Trip 4 (Approximate Date of Travel February 17, 2025):	Trainers can request a hotel for the night before the training if the training location is a 2-3 hour drive.

CONFORMING WITH YOUR TRAVEL POLICY

By checking the box to the right, I confirm that my organization's established travel policies will be adhered to when completing the above-mentioned trips in accordance with 2 CFR 200.474 or 48 CFR subpart 31.2 as applicable. ☑

EQUIPMENT

Describe any special purpose equipment to be purchased or rented under the grant. "Special purpose equipment" is tangible, nonexpendable, personal property having a useful life of more than one year and an acquisition cost that equals or exceeds $5,000 per unit and is used only for research, medical, scientific, or other technical activities. See the Request for Applications section 4.7.2 Allowable and Unallowable Costs and Activities, Equipment - Special Purpose for further guidance

Rental of "general purpose equipment" must also be described in this section. Purchase of general purpose equipment is not allowable under this grant. See Request for Applications section 4.7.2 Allowable and Unallowable Costs and Activities, Equipment - General Purpose for definition, and Rental or Lease Costs of Buildings, Vehicles, Land and Equipment.

#	Item Description	Rental or Purchase	Acquire When?	Funds Requested
1	Small-scale fruit and vegetable washer	Purchase	October 2, 2023	$12,000.00

Equipment Subtotal: $12,000.00

EQUIPMENT JUSTIFICATION

For each Equipment item listed in the above table describe how this equipment will be used to achieve the objectives and outcomes of the project. Add more equipment by copying and pasting the existing listing or delete equipment that isn't necessary.

Equipment 1:	Requested to demonstrate best practices with growers for postharvest washing of fruits and vegetables, as well as harvest bins at the Purdue Student Farm.

SUPPLIES

List the materials, supplies, and fabricated parts costing less than $5,000 per unit and describe how they will support the purpose and goal of the proposal and enhance the competitiveness of specialty crops. See Request for Applications section 4.7.2 Allowable and Unallowable Costs and Activities, Supplies and Materials, Including Costs of Computing Devices for further information.

Item Description	Per-Unit Cost	# of Units/Pieces Purchased	Acquire When?	Funds Requested
Continued training supplies consumables	$2,000.00	1.0	January 1, 2024	$2,000.00
Course Development	$3,000.00	1.0	October 31, 2023	$3,000.00
Dosatron	$1,500.00	1.0	October 1, 2023	$1,500.00
Small- Scale Hand Washing Stations (50X$100 each)	$100.00	50.0	December 1, 2023	$5,000.00
Third-Party Audit Trainings	$3,000.00	1.0	November 30, 2023	$3,000.00

Supplies Subtotal: $14,500.00

SUPPLIES JUSTIFICATION

Describe the purpose of each supply listed in the table above purchased and how it is necessary for the completion of the project's objective(s) and outcome(s).

Continued training supplies consumables: Funds are being requested to support the purchase of additional training supplies to deliver the trainings such as copies, folders, pens, bags, etc.
Course Development: Supplies are being requested to teach the both the record keeping and third party audit trainings that will include: notebooks, folders, copies, sanitizers, test strips, pH meters, detergents, brushes, bins, gloves, harvest tools, and floor mats.
Dosatron: Requested to demonstrate the proper use of postharvest sanitizers at the Purdue Student Farm
Small- Scale Hand Washing Stations (50X$100 each): Hand washing kits will be distributed to growers so they can assemble small-scale hand washing stations for use at their operations. Instructions will be included on how to assemble the units.
Third-Party Audit Trainings: Supplies are being requested to make training notebooks for the third-party audit training that will include copies of the third party audit, check lists, contact information, record keeping templates, and clipboards.

CONTRACTUAL/CONSULTANT

Contractual/consultant costs are the expenses associated with purchasing goods and/or procuring services performed by an individual or organization other than the applicant in the form of a procurement relationship. If there is more than one contractor or consultant, each must be described separately. (Repeat this section for each contract/consultant.)

ITEMIZED CONTRACTOR(S)/CONSULTANT(S)

Provide a list of contractors/consultants, detailing out the name, hourly/flat rate, and overall cost of the services performed. Please note that any statutory limitations on indirect costs also apply to contractors and consultants.

#	Name/Organization	Hourly Rate/Flat Rate	Funds Requested
1			

Contractual/Consultant Subtotal: $0.00

CONTRACTUAL JUSTIFICATION

Provide for each of your real or anticipated contractors listed above a description of the project activities each will accomplish to meet the objectives and outcomes of the project. Each section should also include a justification for why contractual/consultant services are to be used to meet the anticipated outcomes and objectives. Include timelines for each activity. If contractor employee and consultant hourly rates of pay exceed the salary of a GS-15 step 10 Federal employee in your area, provide a justification for the expenses. This limit does not include fringe benefits, travel, indirect costs, or other expenses. See Request for Applications section 4.7.2 Allowable and Unallowable Costs and Activities, Contractual and Consultant Costs for acceptable justifications.

Contractor/Consultant 1:	

CONFORMING WITH YOUR PROCUREMENT STANDARDS

By checking the box to the right, I confirm that my organization followed the same policies and procedures used for procurements from non-federal sources, which reflect applicable State and local laws and regulations and conform to the Federal laws and standards identified in 2 CFR Part 200.317 through.326, as applicable. If the contractor(s)/consultant(s) are not already selected, my organization will follow the same requirements. ☑

OTHER

Include any expenses not covered in any of the previous budget categories. Be sure to break down costs into cost/unit. Expenses in this section include, but are not limited to, meetings and conferences, communications, rental expenses, advertisements, publication costs, and data collection.

If you budget meal costs for reasons other than meals associated with travel per diem, provide an adequate justification to support that these costs are not entertainment costs. See Request for Applications section 4.7.2 Allowable and Unallowable Costs and Activities, Meals for further guidance.

Item Description	Per-Unit Cost	Number of Units	Acquire When?	Funds Requested
Graduate Fee Remissions	$11,180.00	2.0	October 1, 2023	$22,360.00

Other Subtotal: $22,360.00

OTHER JUSTIFICATION

Describe the purpose of each item listed in the table above purchased and how it is necessary for the completion of the project's objective(s) and outcome(s).

Graduate Fee Remissions: Graduate Fee Remissions are included at standard University rate for the graduate students supported on this project.

PROGRAM INCOME

Program income is gross income—earned by a recipient or subrecipient under a grant—directly generated by the grant-supported activity or earned only because of the grant agreement during the grant period of performance. Program income includes, but is not limited to, income from fees for services performed; the sale of commodities or items fabricated under an award (this includes items sold at cost if the cost of producing the item was funded in whole or partially with grant funds); registration fees for conferences, etc.

Source/Nature of Program Income	Description of how you will reinvest the program income into the project to enhance the competitiveness of specialty crops	Estimated Income

Program Income Total: $0.00

Project Timeline: October 1, 2023 – September 30, 2025

YEAR 1:
Quarter 1: Development of an electronic record keeping course materials, development of new cleaning and sanitation course for post harvest activities, purchase equipment for the Purdue Student Farm.
Quarter 2: Delivery of the electronic records keeping course at the Purdue Extension Food Safety Training Hub (PEFSTH) and the Purdue Student Farm. Continued development of the cleaning and sanitation course with a focus on hands-on learning.
Quarter 3: Delivery of the cleaning and sanitation training course at PEFSTH and Purdue Student Farm. Determine locations and set training schedule to offer the electronic records and cleaning and sanitizing training in other areas (Extension offices) in Indiana.
Quarter 4: Offer both electronic records and cleaning and sanitizing trainings at five locations across Indiana (Central, SW, NW, NE, and SE regions).

YEAR 2:
Quarter 5: Development of a food safety plan writing workshop and trainings to prepare growers for third party audits, purchase materials to make on-farm hand washing kits.
Quarter 6: Delivery of cleaning and sanitizing training and preparing for a third party audits training in Indiana (Central, SW, NW, NE, and SE regions).
Quarter 7: Delivery of cleaning and sanitizing training and preparing for a third party audits training in Indiana (Central, SW, NW, NE, and SE regions).
Quarter 8: Prepare and publish Extension publications through the Purdue Education Store

Equipment Budget Justification:

A total of $12,000 is being requested to purchase a small-scale fruit and vegetable washer to have at the Purdue Student Farm. This piece of equipment is needed to demonstrate best practices with growers for postharvest washing of fruits and vegetables, as well as harvest bins at the Purdue Student Farm. The washer will also be fitted with a Dosatron that will allow for the demonstration of the proper use of postharvest sanitizers for washing fruits and vegetables that are important to help reduce contamination issues. This equipment is not available at the Student Farm and can be used for both demonstration with many growers, as well as for students who work at the student farm and aspire to start their own small farming operations in Indiana.

Example small scale fruit and vegetable washer:

Cost estimated from: https://www.marketfarm.com/cfms/wash_line.cfm

	16" Width	24" Width	32" Width	40" Width
Four Piece Wash Line	$5,245.00	$8,040.00	$8,075.00	$8,300.00
In-Feed Belt	$680.00	$1,130.00	$780.00	$900.00
Washer	$2,115.00	$3,450.00	$3,635.00	$3,900.00
Absorber	$1,300.00	$1,800.00	$2,460.00	$2,225.00
Round Table	$1,140.00	$1,660.00	$1,425.00	$1,235.00
Sizer, each	$890.00	$920.00	$1,115.00	$1,285.00
Side Packing Table	$190.00	$190.00	$190.00	$190.00
Side Conveyer, 10" x 48"	$0.00	$0.00	$0.00	$0.00
Inspection Conveyer, 5'	$1,010.00	$1,075.00	$1,150.00	$1,220.00
Bin Dumper	$6,700.00	$6,700.00	$6,700.00	$6,700.00

PURDUE
UNIVERSITY

DEPARTMENT OF HORTICULTURE
AND LANDSCAPE ARCHITECTURE

Dr. Amanda Deering
Department of Food Science
Purdue University

March 6, 2023

Dear Dr. Deering,

I am fully supportive of your application for funding to conduct research on food safety at the Purdue Student Farm. Your research is exactly the kind of work the student farm was created to support. One of our key goals is to bring together undergraduate students and researchers on a real, working farm, and one of the most important things our students must master is food safety.

As you know, the Purdue Student Farm is managed and operated primarily by students, and its operating budget comes from vegetable sales. The students, alongside farm manager Chris Adair, run a 100-person CSA over 22 weeks of the season. The students receive hands-on learning and our local communities receive fresh, healthy vegetables—we also make significant food donations to local food pantries. Impeccable food safety systems are an essential part of our educational programs.

The Purdue Student Farm serves as a site from which we launch not only educational programs, but also research and Extension programs. In order to perform effective Extension to local growers we need to be ahead of the curve. We need to show growers scale-appropriate equipment that they can adopt to their own operations. Funding from this grant will enhance our capacity in that regard and is therefore extremely valuable to the Purdue Student Farm.

I am very grateful for your research in food safety for specialty growers in Indiana, and I am delighted to be able to assist in your efforts,

Best,

Steve Hallett
Co-director, Purdue Student Farm

Horticulture Building • 625 Agriculture Mall Drive • West Lafayette, IN 47907-2010 • http://www.hort.purdue.edu
(765) 494-1300 • Fax: (765) 494-0391 • Steve Hallett: halletts@purdue.edu • (765) 494-7649