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**Title:** Creative Strategies for Expanding Extension Tree Fruit Education Statewide

**Submitted to:** Patti Keller

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**Proposed Project**                      **04/01/2020 - 04/30/2021**                      **Total Project Request: \$2,523**

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**Please reference PSU Ref. Number in all correspondence.**

**Grant Proposal Submitted to SHAP Extension Committee  
January 24, 2020**

**Title:** Creative Strategies for Expanding Extension Tree Fruit Education Statewide

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**Duration of Project:** This project will take place over one year.

**Justification:**

Science-based outreach and education are Cooperative Extension's end-goal, and Penn State Extension is working year after year to meet that goal at a high standard. Many of the discussions within Extension relate to how Educators and Specialists are ensuring that their programming and research efforts are reaching all members of their communities. Much of this discussion is focused on digital media and outreach, such as improvements to the Penn State Extension website or a social media presence. However, Pennsylvania has several communities that may not have easy access to, or choose not to use, the Internet and social media. How does one reach those communities effectively? AM Radio and specialized Master Gardener outreach are two unique opportunities to meet the needs of these audiences.

AM Radio Transmitters for Promoting Extension Research

Pennsylvania has over 300 AM radio stations registered with the Federal Communications Commission (FCC). According to the Radio Advertising Bureau (RAB), 90.9% of Americans over the age of 12 listen to the radio each week. As of 2017, that equates to roughly 249,609,000 listeners within the United States. While other forms of media consumption have suffered in the last decade, radio is consistently performing well. While it is impossible to make a blanket statement about Amish, Mennonite, and Brethren church groups, there are several of those communities that allow for the use of radio. Furthermore, communities that may not have ready access to a personal computer are likely to have access to some form of radio, based on the RAB data shown above.

To reach these audiences, low-power radio transmitters placed at research sites within Pennsylvania would be a relatively low-cost option to broadcast information about Penn State Extension's research collaborations with SHAP. These broadcasts would work like a self-guided audio tour, with signage posted at each site to let visitors know which station to they should tune into to learn more about the tree fruit research activities there.

In order to broadcast a message without going through the FCC for licensing (or running an accidental pirate radio station), a low-power radio transmitter (either AM or FM) can have a range no greater than 200 ft (61 m). Therefore, a Talking House AM Radio Transmitter or similar device

should be purchased. This grant would provide the funds necessary for the purchase of these devices, the signage, and a monetary incentive for each on-farm research site which would cover the costs of the electricity to run a transmitter for one year. Finally, these funds would also cover the printing costs of surveys to help gauge the effectiveness of this outreach method.

This project was originally conceived while working at the University of Delaware with former Extension Agent Bill Cissel.

### Penn State Master Gardener Tree Fruit Outreach

The Penn State Extension Master Gardeners have consistently reached over 55,000 youth contacts across the state each year for the past several years and hope to further expand their youth outreach in the upcoming year. For the 2020 Farm Show, Penn State Extension Master Gardeners tested a new series of educational children's activities for the Ag Learning Station at the Pennsylvania Apple Growers Booth. Designed by Master Gardeners in Allegheny County, activities included:

- An apple trivia game
- 2 different matching/memory games featuring apple varieties
- "Drones in Apple Orchards" maze
- Apple vocabulary word search
- "I Spy"-style apple variety picture search
- "Parts of an apple" assembly and labeling game
- "Pick-n-Count" apple game for Pre-K children
- Bookmarks with apple facts and recipes, as prizes for games

Each activity was designed to be age-appropriate and match developmental and learning milestones for grade levels from Pre-K through high school. In just the first four days of Farm Show, these activities drew in over 1,200 children.

The Master Gardeners would like to replicate these activities statewide in the form of education kits that could be sent out to county Master Gardener programs for use at fairs, farmers' markets, and other local events. Each kit would contain a set of the activities offered at Farm Show as well as a pull-up banner. These kits would promote SHAP and the Pennsylvania apple industry while providing resources for Master Gardeners to deliver high-quality education to youth and their families. Our budget includes funds for five kits, one for each Master Gardener region in the state that would be shared between counties as needed.

**Procedure(s):** To begin work on this grant, the personnel on the grant will reach out to several growers who may be willing to host these transmitters at their farm stores. Potential cooperators for this grant are: Hollabaugh Bros., Inc. (Biglerville, PA), Cherry Hill Orchards (Lancaster, PA) and Keim Orchards (Boyertown, PA). A more complete list of potential cooperators could be received from SHAP once research projects for 2020 have been funded, but this initial proposal should be

considered a preliminary study for a larger outreach effort in the coming years. After establishing their willingness to participate, AM transmitters will be purchased. The average price for a radio transmitter is roughly \$100. Once in hand, a short message about SHAP sponsored research will be recorded onto the transmitters, unique to each location.

At the end of each message, which will loop continuously, a request that listeners fill out a survey will be made. Surveys will be available inside each cooperator’s store to keep them out of the elements. Trips will be made to each operation to allow for collection of data and to resupply the surveys.

For the Master Gardener activities, the five Penn State Extension Area Master Gardener Coordinators will oversee the production of the activity kits that were used at the 2020 Farm Show Learning Station for the apple booth. These kits will be housed with each Area Coordinator and be available for use by Master Gardener county programs within their region.

**Budget:** Indicate projected costs with estimated annual costs. For multi-year projects, indicate estimated annual costs for subsequent years.

To help calculate electricity costs, some equations follow. Each transmitter uses approximately 250 ma (milliamperes) at 120 volts. This equates to 30 Wh (Watt hours) per hour of use. One estimate for electricity costs from PECO is 9.00 cents per kWh (kilowatt hour). This was the highest cost per kWh found. A Wh is 1/1000 of a kWh. Therefore, it costs 0.009 cents per hour to run one transmitter. To run one of these transmitters for 12 months straight would cost roughly \$78.62 (24 hours a day for 7 days a week for 52 weeks (8736 hours) times 0.009 cents per hour equals \$78.624).

Salaries _____	Supplies _____	\$1783
Hourly wages _____	Travel _____	\$500
Fringe Benefits _____	Miscellaneous _____	\$240
Total _____		\$2523

**Budget Justification:**

Supplies: Replication of the Ag Learning Station activities which included: apple bookmarks, apple quiz boards, drone maze game cards, apple search game cards, apple memory games, apple parts felt boards, pull up banners, dry erase markers and erasers. 4 AM radio transmitters and yard signs to highlight the AM radio station for each transmitter.

Travel: Cover travel to and from the cooperator research sites to set up the transmitters

Miscellaneous: Cooperator incentives to cover electricity costs of the AM transmitters

F&A – Off Campus Instruction/Continuing Education

F&A rates are negotiated and approved by the Office of Naval Research, Penn State’s cognizant federal agency. Penn State’s current provisional off-campus rate for instruction and continuing education is 26.00% of MTDC from July 1, 2019, through June 30, 2020. New awards and new competitive segments with an effective date of July 1, 2020, or later shall be subject to adjustment when superseding Government approved rates are established. Per 2 CFR 200 (Appendix III, Section C.7), the actual F&A rates used will be fixed at the time of the initial award for the duration of the competitive segment. *Sponsor restricts indirect costs*