Rec 10/9/15

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MTSU Clean Energy Initiative Project Funding Request

There are five (5) sections of the request to complete before submitting. See http://www.mtsu.edu/sga/cleanenergy.shtml for funding guidelines. Save completed form and email to cee@mtsu.edu or mail to MTSU Box 57.

1. General Information	
Name of Person Submitting Request W. Anderson, N. Phillips, F. Bailey, S. Cui and M. Wade	
Department/Office ABAS/Biology	Phone # (Office) 615-898-2523
MTSU Box # Campus Box 5	Phone # (Cell) 615-809-4432
E-mail warren.anderson@mtsu.edu	Submittal Date

2. Project Categories (Select One)			
Select the category that best describes the project.			
	Energy Conservation/Efficiency	X	Sustainable Design
	Alternative Fuels		Other
	Renewable Energy		

3. Project Information	
a. Please provide a brief descriptive title for the project. **b.** The project cost estimate is the expected cost of the project to be considered by the committee for approval, which may differ from the total project cost in the case of matching funding opportunities. **Any funding request is a 'not-to-exceed' amount. Any proposed expenditure above the requested amount will require a resubmission.** c. List the source of project cost estimates. d. Provide a brief explanation in response to question regarding previous funding.	
3a. Project Title	Bee Keeping and Colony collapse
3b. Project Cost Estimate	$10,000.00
3c. Source of Estimate	MTSU Clean Energy Initiative

3d. If previous funding from this source was awarded, explain how this request differs? N/A

4. Project Description

(Completed in as much detail as possible.)

a. The scope of the work to be accomplished is a detailed description of project activities.
b. The benefit statement describes the advantages of the project as relates to the selected project category.
c. The location of the project includes the name of the building, department, and/or specific location of where the project will be conducted on campus.
d. List any departments you anticipate to be involved. Were any departments consulted in preparation of this request? Who? A listing may be attached to this form when submitted.
e. Provide specific information on anticipated student involvement or benefit.
f. Provide information for anticipated future operating and/or maintenance requirements occurring as a result of the proposed project.
g. Provide any additional comments or information that may be pertinent to approval of the project funding request.

4a. Scope: Work to be accomplished

The MTSU Farm Laboratories are founded in Experiential Learning. Our apiary (place where bees are kept) is no exception. Since the 1970's, apiculture (beekeeping) has been, in one form or another, a part of our outreach program. Since 2009, nearly 100 new Beekeepers have received their start through Educational Outreach in Beginning Beekeeping through the MTSU-ABAS Farm Laboratories faculty, staff, and departmental clubs. In support of this continuing outreach program, MTSU-ABAS Farm Laboratories maintains 14 to 18 hives on the MTSU Experiential Learning and Research Center grounds. These colonies are not only vital to properly pollinating our Horticulture/Gardening and forage operations, they also provide hands-on learning opportunities for MTSU students and the community through these outreach programs. One example of this is current research by Biology Department graduate students and faculty into the causes of "colony collapse disorder", a syndrome that is currently devastating honey bees throughout the world. The results of this research will be disseminated to the beekeeping community.

MTSU-ABAS's role is education, research and public outreach. ABAS provides opportunities to undergraduate students and members of the community for education in horticulture and apiculture. Over the past two years, the MTSU-Farm has averaged 90 to 122 pounds of honey per hive. The ABAS faculty and staff goal is to upgrade honey production and processing education. "Bee-keeping" or Apiculture will be integrated into the educational goals of the MTSU farm.

4b. Scope: Benefit Statement

The MTSU-ABAS Farm Laboratories offer Fundamental (Beginner) Beekeeping Classes each spring. This is an 8 to 10 week outreach course. Participants learn Basic Bee Biology, Bee Health and Diseases, flora and wildflowers which best serve the bees in nectar collection, and hive location and care. These participants will also have the opportunity to build a hive including the assembly of supers and frames and how to insert a new foundation comb into new frames. They will learn the proper assembly of a hive. They also participate and learn how to properly introduce a package of bees and queen into a newly constructed hive as well as learn how to feed and care for new hives.

Pollinators, such as honey bees play a vital role in the sustainability of agricultural production in Tennessee and around the world. One possible factor that is playing a role in loss of pollinators and colony collapse disorder is loss of floral diversity in agricultural areas (i.e., not enough different types of pollen and nectar for food). In an effort to add sustainability to the Bee Program, the MTSU Farm Laboratories will be introducing wildflower and native grasses into areas currently not in regular production to offer another environmental habitat factor for our outreach participants and researchers to study how bee populations utilize these areas. The Biology Department benefits from our apiculture goals through research on beekeeping and its impact on bee health, honey production and colony collapse disorder.

The ABAS faculty and staff's goal is to upgrade honey production and processing as well as increase the number of hives at the MTSU farm apiary from ~15 to ~30. Beginning Beekeeping and Apiculture will continue to be integrated into the educational goals of the MTSU Experiential Learning and Research Center which continues to demonstrate a sustainable philosophy to future leaders in food production and processing.

4. Project Description (continued)

4c. Location of Project (Building, etc.)

3211 Guy James Rd, Lascassas TN

4d. Participants and Roles

In an effort to add sustainability to the Bee Program, the MTSU Farm Laboratories will be introducing wildflower and native grasses into areas currently not in regular production to offer another environmental habitat factor for our outreach participants and researchers to study how bee populations utilize these areas. The Biology Department benefits from our apiculture goals through research on beekeeping and its impact on bee health, honey production and colony collapse disorder.

4e. Student participation and/or student benefit

Students assemble frames, hive body and supers. The School of ABAS has been able to maintain 14 to 18 hives at the MTSU farm laboratory. The School of ABAS faculty, staff and students have harvested honey producing less than 150 pounds per year in a refurbished old milk parlor (Honey House) on the MTSU Experiential Learning and Research Center grounds. The farm laboratory goal is to increase hive number to average 30. Funding this request will allow ABAS Education Outreach to continue offering the Beginning Beekeeping Class, increase our apiary size to meet our goals and help with our goal of offering a secondary course on honey harvesting and bottling practices.

Agriculture and Biology undergraduate students will have the opportunity to get hands on experience and witness how "Science" and "Business" interact.

4f. Future Operating and/or Maintenance Requirements

Continue working with the Rutherford Co Bee Keeper Association and state association. Students and association will be surveyed on Bee problems and Honey production which ABAS and Biology will report. Success will also be evaluated by the increase in numbers of hives and honey production and the increase in numbers of people from the community being reached by beekeeping courses and outreach activities.

4g. Additional Comments or Information Pertinent to the Proposed Project

5. Project Performance Information

Provide information if applicable.

a. Provide information on estimated annual energy savings stated in units such as kW, kWh, Btu, gallons, etc.
b. Provide information on estimated annual energy cost savings in monetary terms.
c. Provide information on any annual operating or other cost savings in monetary terms. Be specific.
d. Provide information about any matching or supplementary funding opportunities that are available. Identify all sources and explain.

5a. Estimated Annual Energy Savings (Estimated in kW, kWh, Btu, etc.)

N/A

5b. Annual Energy COST Savings ($)

N/A

5c. Annual Operating or Other Cost Savings. Specify. ($)

N/A

5d.Matching or Supplementary Funding (Identify and Explain)

Similar request has been submitted to the Public Service Grant Committee 10-2-15.

Honey - clean energy - W. Anderson

Equipment requests
All items: MaNN Lake LTD Catalog 2015

page	cat #	description	cost/item	quantity	total $
16	WW-605	hive body	$ 12.50	30	$ 375.00
27	HD-210	200/lb nails-2.95/lb 7D	$ 2.95	1	$ 2.95
21	FR-832	100 unassembled frames-$/85	$ 85.00	3	$ 255.00
27	HD-220	1150/lb nails-4.95/lb 11/4"	$ 4.95	1	$ 4.95
27	HD-250	3900/lb nails-6.95/lb 5/8"	$ 6.95	1	$ 6.95
27	HD-245	2600/lb nails-6.95/lb 3/4"	$ 6.95	1	$ 6.95
26	HD-130	frame wire 700 ft	$ 4.50	1	$ 4.50
26	HD-145	spur embedder	$ 9.95	10	$ 99.50
26	HD-185	1,000 eyelets	$ 6.75	1	$ 6.75
26	HD-190	100 eyelets	$ 1.95	2	$ 3.90
28	HD-120	Queen excluder	$ 6.95	15	$ 104.25
29	WW-300	top cover	$ 22.95	15	$ 344.25
30	WW-246	inner cover	$ 10.25	15	$ 153.75
32	WW-310	hive bottom	$ 15.00	15	$ 225.00
32	WW-355	entrance reducer	$ 1.60	15	$ 24.00
33	WW-305	hive stand	$ 12.95	15	$ 194.25
33	WW-690	assembled varroa trap & drawer	$ 27.95	15	$ 419.25
38	HD-200	heavy duty production grade box air nailer	$ 495.00	1	$ 495.00
38	HD-205	ring nail-9000/coil	$ 89.95	1	$ 89.95
47	SG-105	sugar 4- 50 lb, steel barrel + lid est cost $200			$ 200.00
66	HD-570	hive tool	$ 6.95	20	$ 139.00
67	HD-466	stainless steel uncapping	$ 34.95	4	$ 139.80
69	HD-591	mouse guard	$ 4.95	30	$ 148.50
69	HD-650	frame perch	$ 16.95	5	$ 84.75
72	HD-556	stainless steel smoker	$ 41.95	8	$ 335.60
76	DC-799	Apivar varroa mite @ $35.95	$ 35.95	1	$ 35.95
80	DC-810	checkmite @ 10 pack/$35.95	$ 35.95	1	$ 35.95
81	DC-835	permethrim smll hive beetle @ $28.95	$ 28.95	1	$ 28.95

85	CH-210	5 gallon pail	$	13.95	10	$ 139.50
85	HH-440	stainless steel sieve	$	42.95	1	$ 42.95
85	HH-442	400 micron @$6.50 per	$	6.50	3	$ 19.50
85	HD-626	pail perch	$	18.95	1	$ 18.95
99	HH-670	metal refractometer	$	75.95	1	$ 75.95
99	HH-675	calibration fluid	$	115.95	1	$ 115.95
101	HD-410	uncapping knife	$	99.95	1	$ 99.95
100	HD-420	Plain Uncapping Knife	$	18.95	5	$ 94.75
120	MH-101	4 Wheel Barrel Truck	$	525.95	1	$ 525.95
126	CV-411	veil + jacket, medium	$	68.00	2	$ 136.00
126	CV-416	veil + jacket, large	$	68.00	3	$ 204.00
130	CL-205	medium gloves	$	13.00	3	$ 39.00
130	CL-610	Large gloves	$	13.00	3	$ 39.00
127	CL-250	velcro leg straps	$	2.95	2	$ 5.90
132	WW-170	OBS HIVE	$	156.00	1	$ 156.00
132	bm 335	LIFE CYCLE	$	12.00	1	$ 12.00
132	bm 340	BEE YR POSTER	$	12.00	1	$ 12.00
133	BM 265	5 BEE POSTERS	$	30.00	1	$ 30.00
		petri dishes (100x15mm) [1 case 500]	$	74.49	1	$ 74.49
		lactobacilli MRS agar (500 g)	$	101.56	1	$ 101.56
		typticase soy agar with 5% sleep blood (100 plates)	$	44.13	2	$ 88.26
		gasPak[tm] EZ Anaerobe container system [pack of 20]	$	62.35	2	$ 124.70
	Jason Dodson Farms	Honey containers and lids				$ 480.00
	NRCS	cost per acre of establishing native flowers in existing pastures	$	300.00	10	$ 3,000.00
						$ 9,601.01