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**New Hampshire**  
 Department of Agriculture,  
 Markets & Food

Shawn N. Jasper, Commissioner

April 27, 2020

His Excellency, Governor Christopher T. Sununu  
 and the Honorable Council  
 State House  
 Concord, New Hampshire 03301

**REQUESTED ACTION**

Authorize the New Hampshire Department of Agriculture, Markets & Food, Division of Pesticide Control to grant funds and enter into a Cooperative Project Agreement, in the amount of \$29,988, with the University of New Hampshire Office of Sponsored Research, vendor #177867, for the advancement of agricultural research and to assist in the promotion of Integrated Pest Management practices in New Hampshire, for the period from Governor and Council approval through January 31, 2021. 100% Other Funds.

Funding is available in account, Integrated Pest Management, as follows:

**02-18-18-183010-21820000 INTEGRATED PEST MANAGEMENT**

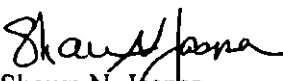
**OBJECT**

<u>CLASS</u>	<u>ACCOUNT</u>	<u>FY 2021</u>	<u>Total</u>
075-500590	Grants and Subsidies	\$29,988	\$29,988

**EXPLANATION**

The New Hampshire Department of Agriculture, Markets and Food (NHDAMF), Division of Pesticide Control in fulfilling its responsibilities under the Integrated Pest Management (IPM) Program, RSA 430:50; to promote the principles of IPM and assist New Hampshire citizens to advance the practice of such principles, has reviewed the project, "2020 IPM Program for Brown Marmorated Stink Bug On-Farm Monitoring", and finds it exemplifies good practices associated with Integrated Pest Management. The research and educational aspects associated with this project and the efforts of the University of New Hampshire Cooperative Extension identify and establish the presence and treatment methods for an insect pest that is of economic significance relative to fruits, vegetables and shade trees to control. The experience and results of this project serve the benefit of all citizens of New Hampshire. The attachment includes a summary of the project and the dollar amount associated with each component.

Respectfully submitted,

  
 Shawn N. Jasper  
 Commissioner

COOPERATIVE PROJECT AGREEMENT

between the

STATE OF NEW HAMPSHIRE, Department of Agriculture, Markets & Food  
and the

University of New Hampshire of the UNIVERSITY SYSTEM OF NEW HAMPSHIRE

- A. This Cooperative Project Agreement (hereinafter "Project Agreement") is entered into by the State of New Hampshire, Department of Agriculture, Markets & Food, (hereinafter "State"), and the University System of New Hampshire, acting through University of New Hampshire, (hereinafter "Campus"), for the purpose of undertaking a project of mutual interest. This Cooperative Project shall be carried out under the terms and conditions of the Master Agreement for Cooperative Projects between the State of New Hampshire and the University System of New Hampshire dated November 13, 2002, except as may be modified herein.
- B. This Project Agreement and all obligations of the parties hereunder shall become effective on the date the Governor and Executive Council of the State of New Hampshire approve this Project Agreement ("Effective date") and shall end on 1/31/21. If the provision of services by Campus precedes the Effective date, all services performed by Campus shall be performed at the sole risk of Campus and in the event that this Project Agreement does not become effective, State shall be under no obligation to pay Campus for costs incurred or services performed; however, if this Project Agreement becomes effective, all costs incurred prior to the Effective date that would otherwise be allowable shall be paid under the terms of this Project Agreement.
- C. The work to be performed under the terms of this Project Agreement is described in the proposal identified below and attached to this document as Exhibit A, the content of which is incorporated herein as a part of this Project Agreement.

Project Title: 2020 IPM Program for Brown Marmorated Stink Bug On-Farm Monitoring

- D. The Following Individuals are designated as Project Administrators. These Project Administrators shall be responsible for the business aspects of this Project Agreement and all invoices, payments, project amendments and related correspondence shall be directed to the individuals so designated.

State Project Administrator

Name: David J. Rousseau  
 Address: State House Annex  
 25 Capitol Street  
 P.O. Box 2042  
 Concord, NH 03301  
 Phone: 603 271-3640

Campus Project Administrator

Name: Cheryl Moore  
 Address: University of New Hampshire  
 Sponsored Programs Administration  
 51 College Road  
 Durham, NH 03824  
 Phone: 603 862-1992

- E. The Following Individuals are designated as Project Directors. These Project Directors shall be responsible for the technical leadership and conduct of the project. All progress reports, completion reports and related correspondence shall be directed to the individuals so designated.

State Project Director

Name: David J. Rousseau  
 Address: State House Annex  
 25 Capitol Street  
 P.O. Box 2042  
 Concord, NH 03301  
 Phone: 603 271-3640

Campus Project Director

Name: George Hamilton  
 Address: UNH Cooperative Extension  
 Hillsborough Country  
 329 Mast Road, Room 101  
 Goffstown, NH 03045  
 Phone: 603 641-6060

F. Total State funds in the amount of \$29,988 have been allotted and are available for payment of allowable costs incurred under this Project Agreement. State will not reimburse Campus for costs exceeding the amount specified in this paragraph.

Check if applicable

Campus will cost-share % of total costs during the term of this Project Agreement.

Federal funds paid to Campus under this Project Agreement are from Grant/Contract/Cooperative Agreement No. \_\_\_\_\_ from \_\_\_\_\_ under CFDA# \_\_\_\_\_. Federal regulations required to be passed through to Campus as part of this Project Agreement, and in accordance with the Master Agreement for Cooperative Projects between the State of New Hampshire and the University System of New Hampshire dated November 13, 2002, are attached to this document as Exhibit B, the content of which is incorporated herein as a part of this Project Agreement.

G. Check if applicable

Article(s) \_\_\_\_\_ of the Master Agreement for Cooperative Projects between the State of New Hampshire and the University System of New Hampshire dated November 13, 2002 is/are hereby amended to read:

H.  State has chosen **not to take** possession of equipment purchased under this Project Agreement.

State has chosen **to take** possession of equipment purchased under this Project Agreement and will issue instructions for the disposition of such equipment within 90 days of the Project Agreement's end-date. Any expenses incurred by Campus in carrying out State's requested disposition will be fully reimbursed by State.

This Project Agreement and the Master Agreement constitute the entire agreement between State and Campus regarding this Cooperative Project, and supersede and replace any previously existing arrangements, oral or written; all changes herein must be made by written amendment and executed for the parties by their authorized officials.

IN WITNESS WHEREOF, the University System of New Hampshire, acting through the University of New Hampshire and the State of New Hampshire, Department of Agriculture, Markets & Food have executed this Project Agreement.

By An Authorized Official of:  
University of New Hampshire

Name: Louise Griffin  
Title: Sr. Director Research, SPA & Director EOS  
BSC

Signature and Date:  
*Louise Griffin / Cm 3/11/2020*

By An Authorized Official of: the New  
Hampshire Office of the Attorney General

Name: Erik Bal  
Title: Assistant Attorney General

Signature and Date: *Erik Bal 5/22/2020*

By An Authorized Official of:  
Department of Agriculture, Markets &  
Food

Name: Shawn N. Jasper  
Title: Commissioner

Signature and Date:  
*Shawn N. Jasper 5/7/2020*

By An Authorized Official of: the New  
Hampshire Governor & Executive Council

Name:  
Title:

Signature and Date:

**EXHIBIT A**

- A. **Project Title:** 2020 IPM Program for Brown Marmorated Stink Bug On-Farm Monitoring
- B. **Project Period:** April 1, 2020 through January 31, 2021
- C. **Objectives:** The objectives of the University of New Hampshire are to assist the Department of Agriculture, Markets & Food in the promotion and advancement of Integrated Pest Management in New Hampshire
- D. **Scope of Work:** A detailed scope of work is on file with the Department of Agriculture, Markets & Food and described in Item G ("Other") of EXHIBIT A of this agreement.
- E. **Deliverables Schedule:** A detailed description with schedule is on file with the Department of Agriculture, Markets & Food

**Major Project Components:**

**On Farm Monitoring: 2020 Growing Season**

**Insect:** Brown Marmorated Stink Bug scouting with fifteen participating fruit and vegetable growers; setting traps, checking traps, collecting and recording data

**Final Report:** January 31, 2020

- F. **Budget and Invoicing Instructions:** Campus will submit an invoice on regular Campus invoice form for \$29,988 at the time of Governor and Council approval. State will pay Campus within 30 days of receipt of the invoice. Any unused funds must be returned to the State after the project end date.

Budget Items	State Funding	Cost Sharing (if required)	Total
1. Salaries & Wages	\$13,225	0	\$13,225
2. Employee Fringe Benefits	4,175	0	4,175
3. Travel	2,900	0	2,900
4. Supplies and Services	3,500	0	3,500
5. Facilities & Admin. Costs	6,188	0	6,188
Subtotals		0	\$29,988
In Kind Contribution		0	0
Total Project Costs			\$29,988

G. Other

A representative of the Department of Agriculture, Markets & Food reserves the right to attend seminars and audit any work performed by the grant recipient.

Attachment A: Project Proposal - "2020 IPM Program for Brown Marmorated Stink Bug On-Farm Monitoring"

I. Itemized Budget

Expense Account

Professional Time: George Hamilton, Extension Field Specialist

Fiscal Year 2020/2021 \$8,425

Additional Labor: 30 days @ 8 hours /day  
@ \$20.00/hr. \$4,800

Benefits \$4,175

Mileage: 100 miles/day @ 50 days @ \$0.58 /mile \$2,900

Supplies \$3,500

Subtotal \$23,800

Indirect costs at 26% \$6,188

Total \$29,988

Personnel: \$13,225

George Hamilton, University of New Hampshire Cooperative Extension (UNH CE) - Field Specialist, is the primary person conducting the project and will be managing the finances of the grant. All recommendations that are given to the farmers will be approved through the primary person conducting the project and may be delivered through the IPM scouts hired for the project. The primary person conducting the project will make follow-up farm visits when problems occur with the IPM scouting during the growing season.

Additional Labor:

IPM Scout for Insect Monitoring and Scouting

One IPM scout will be hired for insect monitoring and scouting from April through November for various insect pests; 30 days for the IPM scout. The IPM scout, with participating growers/farmers/orchardists, will set-up traps, check the traps and monitor the crop weekly to record and collect data throughout the growing season. The scout will collect the traps at the end of the season, clean and inventory the good traps and dispose of traps that are no longer usable. The scout will collect the end of season grower/farmer/orchardist surveys.

Benefits Rate(s): \$4,175

The University's fringe benefit rates are charged according to our federally negotiated rate agreement. The current applicable rates are 45% for full fringe benefits, and 8% for partial fringe benefits. The "partial fringe" rate applies to non-student hourly wages, faculty summer salaries and other exceptions to contract pay, and FICA-eligible graduate student pay (i.e. summer stipends). The "full fringe" rate applies to all other benefits-eligible wages. (College work study wages and graduate student academic year stipends are not benefits-eligible.)

Travel: \$2,900

Over the previous two years, the extension specialist averaged approximately 100 miles per day conducting the weekly farm visits for checking traps and monitoring crops. The total mileage is based on the 30 days additional labor (IPM Scout) and 20 days for George Hamilton, UNH CE Extension Field Specialist.

Mileage and per diem expenses will be reimbursed at the current federal rates. Travel expenses will include in-state travel to farms participating in the IPM program and attending planning sessions and events/meetings/workshops dealing with this IPM program.

**Supplies & Services: \$3,500**

The application is requesting \$3,500 for the purchase of project supplies/services directly related to the support of this project. Funds will be used for purchasing traps (projected at \$1,200), trap supplies, attractants/lures (projected at \$1,800) and additional supplies, and printing for forms used by the IPM scout and the PI (projected at \$500).

**Facilities and Administrative Costs Rate: \$6,188**

Facilities and Administrative (indirect) costs are calculated according to UNH's current negotiated rate agreement. The applicable rate, as shown on our Federal agreement is 26%. The US Department of Health and Human Services is UNH's cognizant federal agency

**II. Project Description**

Brown Marmorated Stink Bug (BMSB) will be trapped and monitored on a minimum of fifteen (15) vegetable, small fruit and tree fruit farms weekly through the summer of 2020.

**III. Project Objectives**

- Monitor for BMSB using 4-foot tall pyramid trap with an attractant lure and/or sticky trap with an attractant lure on fruit and vegetable farms.
- Determine if BMSB is feeding on fruits and vegetables in New Hampshire.
- BMSB population data will yield information on seasonal activity and relative abundance of the insect, which is necessary for development of an IPM strategy.

**IV. Economic and Environmental Impact**

The brown marmorated stink bug (BMSB), *Halyomorpha halys*, is an invasive stinkbug native to Japan, Korea, China, and Taiwan, which is now well established throughout the mid-Atlantic region of the United States.

BMSB is a polyphagous species, meaning it can feed on a wide range of hosts; therefore BMSB is a pest of many crops where it is established. Host crops include tree fruit, vegetables, shade trees, and leguminous crops. In 2010, populations of this invasive species increased dramatically, causing widespread injury to many crops throughout the mid-Atlantic region. Tree fruit, in particular, was hit hard with some growers losing entire crops of stone fruit. Among apple growers, losses were totaled in excess of \$37 million in the region. In several Mid-Atlantic States, BMSB is now the most costly pest for peach and apple growers to manage.

Within the United States, native stink bugs generally have been classified as secondary pests of tree fruit and have been successfully managed with broad-spectrum insecticide applications typically directed at other key pests. When BMSB populations increased dramatically, this led to devastating levels of fruit injury and BMSB quickly replaced pests such as codling moth and oriental fruit moth as the key pest driving management decisions in the mid-Atlantic region of the United States. Because BMSB is a newly established invasive species, management programs for this pest are still being developed.

From 2014 through 2018, damage was documented on fruit and vegetable farms in New York, Massachusetts and/or Connecticut. BMSB is not known to have caused any damage on fruit and

vegetable farms in New Hampshire until the end of the 2018 growing season. Only in one situation, on a commercial orchard, a pesticide application was recommended for late maturing apple varieties to reduce the potential for fruit damage. In 2019, from August through September, BMSB trap capture exploded in numbers. Damage from stink bugs was detected on apple fruit in September. Due to this increase, a more rigorous BMSB monitor protocol will be in place for the 2020 growing season.

Maintaining a network of pheromone-baited traps is the most efficient means of monitoring this insect, which spends a lot of time in the canopy of forest and shade trees. The traps also tell us where BMSB population buildup is occurring, before agricultural damage begins. We anticipate more damage will take place in New Hampshire in 2020.

By monitoring for it now, UNH CE will be able to inform farmers when it begins to arrive in their regions, and hopefully help them prepare to manage the pest using the least amount of pesticide. Work is currently being done by researchers at Mid-Atlantic States and New York to help farmers learn which pesticides are most effective, along with determining if there are any cultural or biological options effective for controlling this pest.

V. How will your goals be accomplished?

- One IPM scout will be hired with NHDAM&F – IPM Grant funds to conduct on-farm monitoring and scouting for BMSB using the 4-foot tall pyramid trap with an attractant lure and/or sticky trap with an attractant lure will be used. The lures are changed according to recommendations (10-week lure) from the manufacturer.
- Work with the UNH CE IPM Coordinator and Extension Entomologist Specialist, to determine if any special news releases need to be made on the status of any insect outbreaks.
- If there are major insect outbreaks, we will consider disseminating alerts through additional means, including Weekly Market Bulletin.
- At the end of the season, growers/farmers in the program will complete a survey dealing with the project.

VI. Sampling Methods:

- On-farm monitoring for insect pests will be conducted during the 2020 growing season on a minimum of fifteen operations in New Hampshire with UNH CE personnel assisting.
- Weekly trap counts will be reported to the growers/farmers and we hope growers/farmers will participate in the monitoring.
- Any pheromone lures or baits used in the trap will be changed according to manufacturer recommendations.
- Working with the growers/farmers, some traps will be moved according to crop conditions and maturity.

Depending on how the traps are used in the field, material breakdown of the traps during growing season and storage of the traps; traps may have a life of two or more years and will need to be replaced.

VII. How will your data be evaluated?

Based on the monitoring counts collected during the season, UNH CE can decide if additional educational programming needs to be developed for vegetable growers/farmers in the state.

VIII. Explain how the results of your project will be shared/publicized.

All published literature (papers, presentations, publications, advertisements, etc.) must contain a statement attributing funding to the New Hampshire Department of Agriculture, Markets and Food IPM Grant Program. Publications must be submitted with the final report.

A weekly visit to each grower will be made to monitor trap counts where the grower will be provided the information on need, frequency and timing for insecticide control applications.

Updates on insect pest situations will be given at scheduled grower twilight meetings throughout the growing season.

Pending agreement by participating growers, trap catches will be posted on UNHCE's website, for anyone to access whenever he/she wishes. This will support decision-making by growers beyond those directly involved, and by other agricultural workers.

If there are any major insect outbreaks, we will consider disseminating alerts through additional means, including the Weekly Market Bulletin.

A presentation on the results of this project will be developed and presented to vegetable growers/farmers upon request.

IX. Detail how other groups may adopt some of the information you learn or develop:

The UNH CE specialists will be available to present the information described above.