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New Hampshire

Department of Agriculture,
Markets & Food

Lorraine S. Merrill, Commissioner

March 3, 2016

Her Excellency, Governor Margaret Wood Hassan
and the Honorable Council
State House
Concord, New Hampshire 03301

Dear Governor Hassan and Honorable Council:

REQUESTED ACTION

Authorize the New Hampshire Department of Agriculture, Markets and Food, Division of Pesticide Control to grant funds and enter into a Cooperative Project Agreement, in the amount of \$48,970, 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 April 1, 2017. 100% Other Funds - Integrated Pest Management Fund.

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 2016</u>	<u>Total</u>
075-500590	Integrated Pest Mgmt	\$48,970	\$48,970

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, "2016 IPM Program for Spotted Wing Drosophila in New Hampshire", 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 berries and certain fruit to control. 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.

Prior to this request the actual cumulative total of funds provided to UNH is \$39,976.

Respectfully submitted,



Lorraine S. Merrill
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 **4/1/17**. 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: **2016 IPM Program for Spotted Wing Drosophila in New Hampshire**

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

Campus Project Administrator

Name: Dianne Hall
 Address: University of New Hampshire
Sponsored Programs Administration
51 College Road
Durham, NH 03824
 Phone: 603 862-1942

- 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

Campus Authorized Official [Signature]
 Date 2/19/16

6/16

F. Total State funds in the amount of \$48,970 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:

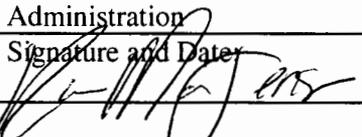
H. State has chosen **not to take** possession of equipment purchased under this Project Agreement.
 State has chosen **to take** possession of equipment purchased under this Project Agreement and will issue instructions for the disposition of such equipment within 90 days of the Project Agreement's 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.

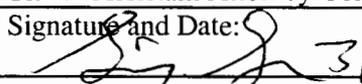
**By An Authorized Official of:
University of New Hampshire**

Name: Karen M. Jensen
Title: Manager, Sponsored Programs
Administration

Signature and Date:  2/18/16

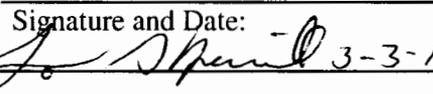
**By An Authorized Official of: the New
Hampshire Office of the Attorney General**

Name: Brian W. Buonamano
Title: Assistant Attorney General

Signature and Date:  3/18/16

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

Name: Lorraine Merrill
Title: Commissioner

Signature and Date:  3-3-16

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

Name:
Title:

Signature and Date:

EXHIBIT A

- A. Project Title:** 2016 IPM Program for Spotted Wing Drosophila in New Hampshire
- B. Project Period:** Upon Governor and Council Approval through April 2017
- 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 Attachment A of this agreement.
- E. Deliverables Schedule:**
Major Project Components:
On Farm Monitoring: 2016 Growing Season
Insect/Crop: Spotted Wing Drosophila/small fruit and tree fruit
- The Campus shall submit a final report no more than 30 (thirty) days after the end of the project including:
- a. a detailed itemized expense summary
 - b. an evaluation of the effectiveness of the project
 - c. the participating farms
- F. Budget and Invoicing Instructions:** Campus will submit an invoice on regular Campus invoice form for \$48,970 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	\$21,614	0	\$21,614
2. Employee Fringe Benefits	4,133	0	4,133
3. Travel	10,368	0	10,368
4. Supplies and Services	2,750	0	2,750
5. Facilities & Admin. Costs	10,105	0	10,105
Subtotals		0	\$48,970
In Kind Contribution		0	0
Total Project Costs			\$48,970

G. Other

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

seminars and audit any work performed by the grant recipient.

Attachment A: Project Proposal - "2016 IPM Program for Spotted Wing Drosophila in New Hampshire"

I. Itemized Budget

Funding can only be used for items detailed in your budget. Requests for the purchase of nonconsumable equipment that may serve a broader purpose than the IPM project will be rejected. Itemized budget must be specific.

Expense Account	Total
Personnel	
George Hamilton, Extension Field Specialist	\$4,813
Michael Toepfer, Local Area Network Manager (PAT)	\$3,201
Additional Labor: 100 days @ 8 hours /day @ \$17.00/hr.	\$13,600
Benefits	\$4,133
Mileage: 120 miles/day @ 160 days @ \$0.54/mile	\$10,368
Supplies	\$2,750
Subtotal	\$38,865
Indirect costs at 26%	\$10,105
Total	\$48,970

Personnel: \$21,614

George Hamilton, UNH CE - Extension Field Specialist, (.066 FTE) 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 maybe 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. This application is requesting \$2,371 in FY2016 and \$2,442 in FY2017.

Michael Toepfer, Local Area Network Manager is responsible for maintaining the web page and providing supportive programming and development of a web-based in-field data entry application. The IPM scouts will use the application to enter insect trap data and monitoring counts where a weekly IPM report will be emailed automatically to the grower/farmer/orchardist. This application is requesting \$1,577 in FY2016 and \$1,624 in FY2017.

Additional Labor:

This application is requesting \$3,400 in FY2016 and \$10,200 in FY2017.

IPM Scouts for Insect Monitoring and Scouting

Two IPM Scouts will be hired for insect monitoring and scouting from April through November for Spotted Wing Drosophila, a fruit insect pest; 50 days for one IPM scout and 45 days for the second IPM scout. The IPM scouts, 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 scouts will collect the traps at the end of the season, clean and inventory the good traps and dispose of the traps that are no longer usable. The scouts will collect the end of season grower/farmer/orchardist surveys.

IPM Scout for Sprayer Calibration

5 days for an IPM Scout hired for the sprayer calibration portion of the project. The IPM Scout will help conduct sprayer calibrations with a specialist from April through October 2016.

Benefits Rate(s): \$4,133

The Employee Benefit Rates are based on UNH's most current Rate Agreement with the U. S. Department of Health and Human Services, as required under OMB Circular A-21. A copy of the Rate Agreement is provided annually to the NH Department of Administrative Services. The full Employee Benefits rate applies to salaries and wages, except for hourly and college work study wages, graduate student salaries, and faculty summer salaries. The partial rate applies to non-student hourly wages, FICA-eligible graduate student pay, faculty summer salaries, and other exceptions to faculty and staff contract pay. We are requesting \$1,759 in FY2016 and \$2,374 in FY2017.

Travel: \$10,368

Over the previous two years, the IPM scouts averaged approximately 120 miles per day conducting the weekly farm visits for checking traps and monitoring crops. The total mileage is based on the 100 days additional labor (IPM Scouts); 20 days for George Hamilton, UNH CE Extension Field Specialist; 20 days of travel for Dr. Alan Eaton, UNH CE Extension Specialist; and 20 days of travel for Heather Bryant, UNH CE Extension Field Specialist (who assists in supervising one of the IPM scouts based in Northwestern NH).

We are requesting \$2,760 in FY2016 and \$7,608 in FY2017 to support staff travel for the project. Mileage and per diem expenses will be reimbursed at the current federal rates. Travel expenses will include instate travel to farms participating the IPM program and attending planning sessions and events/meetings/workshops dealing with this IPM program.

Supplies & Services: \$2,750

This application is requesting \$2,500 for the purchase of project supplies/services directly related to the support of this project. Funds will be used for purchasing traps (projected at \$580), trap supplies (i.e., wires, fasteners, etc.), attractants/lures (projected at \$1,480) and paper, ink, ink cartridges, and printing for forms used by the IPM scouts. This application is requesting \$2,250 in FY2016 and \$500 in FY2017 for the purchase of project supplies/services directly related to the support of this project.

Facilities and Administrative Costs Rate: \$10,105

The Facilities and Administrative Cost Rate is based on UNH's most current Rate Agreement with the U. S. Department of Health and Human Services, as required under OMB Circular A-21, unless capped by the State of New Hampshire or Federal Sponsor. A copy of the Rate Agreement is provided to the NH Department of Administrative Services when rates change.

II. Project Description (3 lines or less, to be used for publicity purposes):

Spotted Wing Drosophila will be trapped and monitored on a minimum of twenty small and tree

III. Project Objectives (be sure to include how this project serves the concepts of IPM):

IPM COMPONENT

Small fruits and tree fruits

- Monitor for Spotted Wing Drosophila activity on a weekly basis throughout the growing season on small fruit and tree fruit farms.
- The data will yield information on seasonal activity and relative abundance of Spotted Wing Drosophila, which is needed to determine an IPM control strategy if Spotted Wing Drosophila numbers are over the action threshold of one male fly and becomes a threat to New Hampshire small fruit and tree fruit farms.

SPRAYER CALIBRATION COMPONENT

Sprayer calibration

- Conduct sprayer calibration on farms in State of New Hampshire to ensure proper application of pesticides.

IV. Economic and Environmental Impact

IPM COMPONENT

The Spotted Wing Drosophila situation is brand new to not only New Hampshire (2011) but also the United States (2008). Results of grower surveys conducted from 2012-2014 showed losses were greatest in later-maturing crops and/or varieties and no damage to earlier maturing crops and/or varieties. In 2015, we saw a similar pattern with the on-farm trapping conducted by the IPM scouts throughout the season. Many growers reported that they made fewer pesticide applications in 2015 than they did in 2012, especially in the southern part of the state.

Based on grower reports of crop losses combined with crop price and acreage production data from the National Agricultural Statistics Service, our team calculated the total 2012 NH crop loss due to SWD was \$1,516,000. In 2013 the calculated losses decreased to \$529,000 and in 2014 the losses dropped to \$214,000. The late appearance and slower buildup of SWD may have contributed to the drop in 2014. However, as SWD trapping began in 2012, we believe trapping has provided growers with a tool they have been able to use to help minimize crop losses. The evaluation of crop losses from 2015 is in progress.

Without trapping data, growers might have choice to spray according to the calendar in order to prevent infestation and crop losses like they saw in 2012. This could lead to higher pesticide use than necessary. We aim to continue to prevent infestation and reduce the Spotted Wing Drosophila losses compared to the 2012 high without excessive use of pesticides by using trapping data to help growers decide if and when to spray to control the insect.

In addition to minimizing crop and therefore profit losses, reducing the chances of significant Spotted Wing Drosophila infestation in fruit helps prevent customer panic. We saw this in

August 1994, when a front page article in a major New Hampshire newspaper reported maggots in the New Hampshire blueberry crop. The reporter apparently did not know that the vast majority of growers that year did not have a maggot problem. In fact, it was probably only one grower with a serious problem. The publicity spread to other media, and customer demand for blueberries went down sharply that year. All growers suffered.

Beyond dollar savings, reduced insecticide spraying can help protect populations of beneficial insects: predators, parasitoids, and pollinators. Fewer sprays also reduces farm worker exposure to pesticides, in particular those involved with spraying, pesticide mixing & loading. Reduced spraying also reduces the opportunity for drift and the risk of environmental contamination. It can help keep farms in business growing locally produced food to meet the rising demand for fresh, local products.

SPRAYER CALIBRATION COMPONENT

Advances in agricultural chemicals have made precise application of pesticides more important, not only because of the cost of the chemicals but also because of the danger of off-target spray drift. The economic impact of spray drift comes not only from the loss of chemicals that should have been applied to the crop, but also from the potential damage the chemicals may cause to adjacent crops, the contamination of surface and ground water supplies, and the health risks to animals and people. Legal liability costs have also been rising recently, justifying added attention to properly calibrated and operated spraying equipment.

Reasons for calibrating pesticide sprayers:

- Chemicals should be applied at the proper rate to be effective and safe without causing pollution. The calibration test indicates the actual application rate with selected nozzles, pressure, sprayer design, and travel speed.
- The operator must know the actual application rate is in order to determine the proper amount of chemical(s) to add to the sprayer tank. Once the actual application rate is known, it is easy to use the label to determine the acreage covered by a tankful or part of a tank.
- Applying a pesticide at an incorrect rate is disadvantageous. Using more than the desired amount of chemical is wasteful, may violate label rates, and may pollute the environment. An application rate that is too low probably will not be effective, and money will have been wasted on the material and its application or another application may be needed.

V. How will your goals be accomplished? (i.e., experimental design)

IPM COMPONENT

- Two IPM scouts will be hired through use of the NHDAM&F – IPM Grant funds to conduct on-farm monitoring and scouting.
- We will work with up to twenty growers/farmers/orchardists in New Hampshire on monitoring for Spotted Wing Drosophila insect pests, on a weekly basis, checking traps to determine need, frequency and timing for insecticide control applications for insects we are trapping.

- o Spotted Wing Drosophila uses the cup traps where the baiting and trapping protocol is evolving and will be updated based on 2015 results prior to the 2016 growing season.
- o Based on experience of Spotted Wing Drosophila trapping and monitoring in 2012 through 2015, SWD trapping requires more time and effort to check the traps than the other insects we regularly scout.

- We will check traps throughout the 2016 growing season. Since Spotted Wing Drosophila is new to New Hampshire, growers/farmers/orchardists do not know precisely when the insects arrive until damage appears. This could lead the growers/farmers/orchardists to apply unnecessary sprays for prevention.
- We will work with Dr. Alan Eaton, the UNH CE IPM Coordinator and Extension Entomology Specialist, to determine if any special news releases need to be made on the status of any SWD outbreaks.
- If there are major outbreaks, we will consider disseminating alerts through additional means, including Weekly Market Bulletin
- At the end of the season, growers/farmers/orchardists in the program will complete a survey evaluating the project.

SPRAYER CALIBRATION COMPONENT

- One scout will be hired with NHDAM&F – IPM Grant funds to help conduct sprayer calibrations.
- The participating growers/farmers who complete sprayer calibration with the UNH Cooperative Extension specialists and the IPM scout will be eligible to receive one private recertification credit if they participate in the calibration of the sprayer and have a NH private restricted use license. Each participant will be given fact sheets describing proper sprayer calibration. If needed, adjustments will be made to the sprayer until it is properly calibrated. The calibration information will be recorded for the farmers to keep in their records.

VI. Sampling Methods (if applicable):

IPM COMPONENT

- On-farm monitoring for SWD will be conducted during the 2016 growing season on a minimum of twenty farms or orchards in New Hampshire with UNH CE personnel assisting.
- Weekly trap counts will be reported to the growers/farmers/orchardists and we hope growers/farmers/orchardists will participate in the monitoring.
- The baits used in the trap will be changed according protocol recommendations and according manufacturer recommendations.
- Working with the growers/farmers/orchardists, some traps will be moved according to crop conditions and crop maturity.

SPRAYER CALIBRATION COMPONENT

- Does not apply

VII. How will your data be evaluated?

IPM COMPONENT

- At the end of the season, growers/farmers/orchardists in the program will complete a program evaluation survey to be reviewed by the UNH CE IPM Coordinator and/or other UNH CE personnel.
- Based on the trap counts collected during the season, UNH CE can decide if additional educational programming needs to be developed for fruit growers/farmers/orchardists in the state.

SPRAYER CALIBRATION COMPONENT

- Does not apply

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.

IPM COMPONENT

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

SPRAYER CALIBRATION COMPONENT

- From the information gathered during the on-farm calibration, sprayer calibration fact sheets will be revised. A presentation will be developed on how to calibrate a sprayer which includes the results of the farm calibrations and will be presented to different grower groups.

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

- The UNH CE Extension specialists will be available to present the information described

Provide a complete list of all persons involved in the proposed project; include the names, addresses and phone numbers of the individuals.

George Hamilton, Extension Field Specialist

Mailing Address:

UNH Cooperative Extension – Hillsborough County

329 Mast Road – Room 101

City: Goffstown State: NH Zip: 03045

Telephone: day: (603)641-6060

Fax: (603)645-5252

email: george.hamilton@unh.edu

Dr. Alan Eaton, Extension Entomology Specialist

Mailing Address:

UNH Spaulding Hall

38 Academic Way

City: Durham State: NH Zip: 03824

Telephone: day: (603)862-1734

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Heather Bryant, Extension Field Specialist

Mailing Address:

UNH Cooperative Extension – Grafton County

3855 Dartmouth College Highway, Box 5

City: North Haverhill State: NH Zip 03774-4909

Telephone: day: (603)787-6944

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email: heather.bryant@unh.edu