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New Hampshire
Department of Agriculture,
Markets & Food

Lorraine S. Merrill, Commissioner

February 26, 2014

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 enter into a Cooperative Project Agreement, in the amount of $43,677, 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, 2015. 100% Other Funds - Integrated Pest Management Fund.

Funding is available in account, Integrated Pest Management, as follows with the authority to adjust encumbrances in each of the State fiscal years through the Budget Office if needed and justified.

Funding is available in account, Integrated Pest Management, as follows:
**02-18-18-183010-21820000 INTEGRATED PEST MANAGEMENT**

| OBJECT CLASS | ACCOUNT | FY 2014 | FY2015 | Total |
|---|---|---|---|---|
| 075-500590 | Integrated Pest Mgmt | $25,831 | $17,846 | $43,677 |

**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, "*2014 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. 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,

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 **4/1/15**. 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: **2014 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** | **Campus Project Administrator** |
|---|---|
| Name: David J. Rouuseau | Name: Dianne Hall |
| Address: State House Annex<br>25 Capitol Street<br>P.O. Box 2042<br>Concord, NH 03301 | Address: University of New Hampshire<br>Sponsored Programs Administration<br>51 College Road<br>Durham, NH 03824 |
| Phone: 603 271-3640 | 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** | **Campus Project Director** |
|---|---|
| Name: David J. Rousseau | Name: George Hamilton |
| Address: State House Annex<br>25 Capitol Street<br>P.O. Box 2042<br>Concord, NH 03301 | Address: UNH Cooperative Extension<br>Hillsborough Country<br>329 Mast Road, Room 101<br>Goffstown, NH 03045 |
| Phone: 603 271-3640 | Phone: 603 641- 6060 |



**Campus Authorized Official** KJ
**Date** 2/24/14

F. Total State funds in the amount of **$43,677** 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: 2/24/14

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

Name: Lorraine Merrill
Title: Commissioner
Signature and Date: 2-26-14

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

Name: Rosemary Wiant
Title: Assistant Attorney General
Signature and Date: 3-6-14

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

Name:
Title:
Signature and Date:



**Campus Authorized Official** KS
**Date** 2/24/14

## EXHIBIT A

**A. Project Title:** 2014 IPM Program for Spotted Wing Drosophila in New Hampshire

**B. Project Period:** Upon Governor and Council Approval through April 2015

**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: 2014 Growing Season
Insect/Crop: Spotted Wing Drosophila/small fruit and tree fruit

Sparyer Calibration: April 2014 through April 2015

Final Report: May 30, 2015

**F. Budget and Invoicing Instructions:** Campus will submit invoices on regular Campus invoice forms. Initial invoice for $25,831 at the time of Governor and Council approval, balance of grant to be billed no sooner than one month following initial invoice. 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 | $17,800 | 0 | $17,800 |
| 2. Employee Fringe Benefits | 3,939 | 0 | 3,939 |
| 3. Travel | 9,040 | 0 | 9,040 |
| 4. Supplies and Services | 2,500 | 0 | 2,500 |
| 5. Technical Support | 1,385 | 0 | 1,385 |
| 6. Facilities & Admin. Costs | 9,013 | 0 | 9,013 |
| Subtotals | | 0 | $43,677 |
| In Kind Contribution | | 0 | 0 |
| Total Project Costs | | | $43,677 |

G. Other



**Campus Authorized Official** KS
**Date** 2/24/1

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

Attachment A: Project Proposal - "2014 IPM Program for Spotted Wing Drosophila in New Hampshire"

I. Itemized Budget

| | |
|---|---|
| Expense Account | |
| Professional Time: George Hamilton, Extension Field Specialist | |
| Fiscal Year 2014-2015 | $5,000 |
| Benefits | $2,270 |
| Professional Time: Computer technical support | $1,385 |
| Benefits | $ 623 |
| Additional Labor: 100 days @ 8 hours /day @ $16.00/hr. | $12,800 |
| Associated fringe benefit | $1,046 |
| Mileage:100 miles/day@ 160 days @ $0.555 /mile | $9,040 |
| Supplies | $2,500 |
| Subtotal | $34,664 |
| Indirect costs at 26% | $9,013 |
| Total | $43,677 |

Professional Time:

George Hamilton, UNH CE Field Specialist is the primary person conducting the project and will be managing the finances of the grant. All recommendations 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 necessary during the IPM scouting season.

Benefits Rate(s): 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. The post-doctoral research rate applies to all postdoctoral staff.

Computer Technical Support: These funds will be used to cover the cost of updating and maintaining UNH Cooperative Extension's IPM webpage and for the development of a web-based in-field data entry application. IPM Scouts will use the app to collect insect trap data in the field. A weekly IPM report will be emailed automatically to the grower/farmer/orchardist.

Additional Labor:

IPM Scouts for Insect Monitoring and Scouting:

Two IPM Scouts will be hired for insect monitoring and scouting from April through November, 2014. One Scout will work 50 days and the second Scout will work 45 days. The IPM scouts will work with farmers to set-up traps, check traps, monitor the crop on a weekly basis, and collect and record data throughout the growing season. Scouts will remove the traps from participating farms at the end of the season, clean and inventory good traps, and dispose of traps that are no longer usable. Scouts will collect end of season grower/farmer/orchardist surveys.



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**Date** 2/24/14

IPM Scout for Sprayer Calibration:
An IPM Scout will be hired for five days to complete the sprayer calibration portion of the project. The IPM Scout will help conduct sprayer calibration demonstrations with an Extension Field Specialist from April through September, 2014.

Mileage:
Over the previous six years, the IPM scouts averaged approximately 100 miles per day conducting the weekly farm visits for checking traps and monitoring crops. Total mileage is based on the 100 days additional labor (IPM Scouts); 20 days for George Hamilton, UNH CE Field Specialist; 20 days of travel for Dr. Alan Eaton, UNH CE State Specialist; and 20 days of travel for Heather Bryant, UNH CE Field Specialist.

Supplies:
Funds will be used to purchase insect traps, trap supplies (i.e. cups, tops, wires, and fasteners), insect attractants, and printing expenses for forms used by the IPM scouts.

Indirect costs:
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, RFP or Federal Sponsor. A copy of the Rate Agreement is provided to the NH Department of Administrative Services when rates change.

II. Project Description

Develop an IPM program by monitoring and trapping for Spotted Wing Drosophila (SWD) on small and tree fruit farms/orchards on a weekly basis throughout the summer of 2014 on a minimum of twenty farms. Conduct sprayer calibration on New Hampshire farms to ensure proper application of pesticides applied by air blast sprayers and boom sprayers.

III. Project Objectives:

IPM COMPONENT:

Small fruit and tree fruit

- 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 population exceeds an economical threshold of one male fly, it becomes a threat to New Hampshire small fruit and fruit tree crops.

SPRAYER CALIBRATION COMPONENT:

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

IV. Economic and Environmental Impact

1. IPM COMPONENT:



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Spotted Wing Drosophila is a non-native insect pest which arrived in New Hampshire in 2011. An October, 2012 survey of commercial fruit growers showed that losses due to Spotted Wing Drosophila were most substantial in the later-maturing varieties of small fruit. With average blueberry production at 6,000 pounds per acre and value at $2.00 per pound, we anticipate that the 2012 Spotted Wing Drosophila losses in New Hampshire's 260 acres of high bush blueberries may have exceeded $500,000. Forty six percent (46%) of blueberry growers who responded to our survey reported losing over 50% of their crops. Raspberry losses were similar: Forty one percent (41%) of responding growers lost over 50% of their raspberry crop due to Spotted Wing Drosophila. The value of raspberry and other bramble crops per pound is much higher, but acreage is much smaller, compared to blueberries. Raspberry losses to Spotted Wing Drosophila may have been $250,000 in 2012. Growers also reported losses in grapes, peaches, plums and fall strawberries, but we cannot easily quantify those reports.

We aim to reduce crop losses caused by Spotted Wing Drosophila, but it is too early to project the impact of our efforts. 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 New Hampshire blueberries. The reporter apparently did not know that the vast majority of crops did not have a maggot infestation. (In fact, only one crop in NH was known to have a serious infestation of maggots.) The publicity spread to other newspapers, and customer demand for blueberries decreased sharply that year.

In addition to monetary savings, reduced insecticide application can help protect populations of beneficial insects including predators, parasitoids, and pollinators, reduce farm worker exposure to toxins, in particular those involved in mixing and loading materials. Making fewer applications of pesticides to crops also reduces the opportunity for drift, thereby avoiding contamination of soil and water.

SPRAYER CALIBRATION COMPONENT:

Advances in agricultural chemicals have made precise application of pesticides much more crutial than ever because of the high cost of chemicals and the danger of off-target spray drift. The economic impact of spray drift comes not only from the loss of off-target chemicals, but also from the potential damage the chemicals may cause to adjacent crops, the environment, animals, and people. Legal liability costs have been rising recently, justifying added attention to properly calibrated and operation of spraying equipment.

Primay reasons for calibrating:

- Chemicals should be applied at the proper rate to be effective and to prevent contamination of soil and water. The calibration test indicates actual application rate with selected nozzles, pressure, sprayer design, and travel speed.

- The operator must know the application rate (on the chemical label) 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 determine the acreage that a tankful or part of a tank will cover. Once this is established, the proper amount of chemical to add to the tank can accurately be determined.

- Applying a chemical at the wrong rate is detrimental. Using more than the desired amount of chemical is wasteful, may violate label rates, and may pollute the environment. Lower than recommended application rates may not effectively control the target pest.



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- Actual application rates in the field may vary from nozzle catalog values, because of pressure gauge error, wheel slip, speedometer error, and friction loss in the plumbing. A catalog is satisfactory for selecting the correct nozzles, but the sprayer must be checked under actual operating conditions to adjust the pressure for the exact application rate required.

V. How will your goals be accomplished?

IPM COMPONENT:

- Two IPM Scouts will be hired with funds from New Hampshire Department of Agriculture, Markets & Food - IPM Grant to conduct on-farm monitoring and scouting.

- Field Specialists will work with up to twenty growers/farmers/orchardists in New Hampshire to monitor Spotted Wing Drosophila on a weekly basis. Traps will be checked to determine frequency and timing for insecticide control applications.

  Cup traps are used to collect Spotted Wing Drosophila. The baiting and trapping protocol is evolving and will be updated based on 2013 results prior to the 2014 growing season.

  Based on our limited experience trapping Spotted Wing Drosophila in 2012 and 2013, the procedure requires more time and effort to check the traps than in the vegetable IPM project.

- Since Spotted Wing Drosophila is new to New Hampshire, growers/farmers/orchardists do not know precisely when the insects arrive until damage occurs, or the growers/farmers/orchardists apply unnecessary sprays as a precautionary measure.

- 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 insect outbreaks.

- If there are major insect outbreaks, alerts will be published in the Weekly Market Bulletin and other news outlets.

- At the end of the season, participating growers will complete a survey.

SPRAYER CALIBRATION COMPONENT:

- One IPM scout will be hired with funds from New Hampshire Department of Agriculture, Markets & Food - IPM Grant to assist Field Specialists with sprayer calibrations.

- Participating growers who complete a sprayer calibration exercise with UNH Cooperative Extension Specialists and the IPM Scout will be eligible to receive one private recertification credit if they a NH private applicator, restricted use license. Each participant will be given fact sheets describing the sprayer calibration. If needed, adjustments will be made to the sprayer until it is properly calibrated. The calibration information will be recorded for the participants to keep in their records.

VI. Sampling Methods :

IPM COMPONENT:



**Campus Authorized Official** KJ
**Date** 2/24/14

- On-farm monitoring for insect pests will be conducted during the 2014 growing season on a minimum of twenty New Hampshire farms.

- Weekly trap counts will be reported to growers.

- The baits used in the trap will be changed according to protocol recommendations.

- Insect traps may need to be moved to new locations in fields depending on crop conditions and maturity.

SPRAYER CALIBRATION COMPONENT:

- Does not apply

VII. How will your data be evaluated?

IPM COMPONENT:

- At the end of the season, participating growers will complete a survey which will 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 will decide if additional educational programming needs to be developed for fruit growers/farmers/orchardists.

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.

- 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 upon request.

SPRAYER CALIBRATION COMPONENT:



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**Date** 2/24/14

- From the information gathered during the on-farm calibration, sprayer calibration fact sheets will be revised. A presentation on sprayer calibration will be developed. It will include the results of the farm calibrations.

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

UNH CE Specialists are available to give presentations on the information generated by this IPM project at workshops, conferences, and informal work sessions.



**Campus Authorized Official** KS
**Date** 2/24/11