New Hampshire
Department of Agriculture, Markets & Food

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Lorraine S. Merrill, Commissioner

March 16, 2015

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 $49,474, 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, 2016. 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 CLASS	ACCOUNT	FY 2015	Total
075-500590	Integrated Pest Mgmt	$49,474	$49,474

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, "*2015 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,

for 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 **4/1/16**. 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: **2015 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. Rouuseau
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 Rd. Rm 116
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. Rouuseau
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 KS
Date 3/10/15

F. Total State funds in the amount of $**49,474** 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: 3/10/15

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

Name: Lorraine Merrill
Title: Commissioner
Signature and Date: 3-16-15

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

Name: ~~Rosemary Wiant~~ Brian Buonamano
Title: Assistant Attorney General
Signature and Date:

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

Name:
Title:
Signature and Date:

Campus Authorized Official KJ
Date 3/10/15

EXHIBIT A

A. Project Title: 2015 IPM Program for Spotted Wing Drosophila in New Hampshire

B. Project Period: Upon Governor and Council Approval through April 1, 2016

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: 2015 Growing Season
Insect/Crop: Spotted Wing Drosophila/small fruit and tree fruit

Sparyer Calibration: April 2015 through April 2016

Final Report: May 30, 2016

F. Budget and Invoicing Instructions: Campus will submit an invoice on regular Campus invoice form for $49,474 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	23,100	0	23,100
2. Employee Fringe Benefits	4,705	0	4,705
3. Travel	8,960	0	8,960
4. Supplies and Services	2,500	0	2,500
5. Equipment	0	0	0
6. Facilities & Admin Costs	10,209	0	10,209
Subtotals	49,474	0	49,474
Total Project Costs:			49,474

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.

Attachment A: Project Proposal - "2015 IPM Program for Spotted Wing Drosophila in New Hampshire"

I. Itemized Budget

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Date 3/10/15

Expense Account
Professional Time: George Hamilton, Extension Field Specialist

Fiscal Year 2015-2016	$7,000
Benefits	$2,695
Professional Time: Computer technical support	$2,500
Benefits	$ 963
Additional Labor: 100 days @ 8 hours /day @ $17.00/hr.	$13,600
Associated fringe benefit	$1,047
Mileage:100 miles/day@ 160 days @ $0.56 /mile	$8,960
Supplies	$2,500
Subtotal	$39,265
Indirect costs at 26%	$10,209
Total	$49,474

Professional Time:

George Hamilton, University of New Hampshire (UNH CE) Extension 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.

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 are for the cost of maintaining the web page and supportive programming and development of a web-based in-field data entry application for the IPM scouts to enter insect trap data and monitoring counts where 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 (one for 45 days and one for 55 days) for insect monitoring and scouting from April through November for Spotted Wing Drosophila, a destructive insect pest of fruit. The IPM scouts, with participating fruit growers, will set-up traps, check the traps and monitor the crop weekly to record and collect data througout the growing season. The scouts 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 scouts will collect the end of season grower surveys.

IPM Scout for Sprayer Calibration:
An IPM Scout will be hired (5 days) for the sprayer calibration portion of the project. The IPM scout will help conduct sprayer calibrations with a specialist from April through September, 2015.

Mileage:

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Over the previous seven 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 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.

Supplies:

Funds will be used for purchasing traps, trap supplies (i.e. cups, tops, wires, fasteners, etc.), attractants, and paper, ink, ink cartridges, printing for forms used by the IPM scouts.

Indirect costs:

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 regulation, 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

Spotted Wing Drosophila (SWD) will be monitored and trapped in a minimum of twenty small and tree fruit plantings weekly througout the summer of 2015. Sprayer calibrations will be conducted to ensure proper pesticide application by air blast sprayers and boom sprayers.

III. Project Objectives:

IPM COMPONENT:

Small fruit and tree fruit

- Monitor SWD activity weekly throughout the growing season on small fruit and tree fruit farms.
- The data will yield information on seasonal activity and relative abundance of SWD, which is needed to determine an IPM control strategy if SWD population exceeds an action threshold of one male fly, becoming a threat to New Hampshire small fruit and tree fruit farms.

SPRAYER CALIBRATION COMPONENT:

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

IV. Economic and Environmental Impact

1. IPM COMPONENT:

SWD is a relatively new pest of fruit crops in New Hampshire, as well as the rest of the country. We have not fully analyzed the SWD survey resopnses from fruit growers conducted in October of 2014, however, initial results show losses were greatest in the later-maturing varieties of fruit. With average blueberry production at 6,000 pounds per acre and value at $2.00 per pound, we anticipate that the 2012 crop losses by SWD in high bush blueberries likely exceed $500,000 on NH's 260 acres. 46% of blueberry growers who responded to our survey reported loses of over 50%. Crop losses in raspberry seem to be similar; 41% of responding raspberry growers reported losing over 50% of their crop due to SWD. The value of the bramble crop per pound is much higher, but acreage is much smaller, compared to blueberries. Raspberry losses to SWD may have been $250,000.

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Growers also reported losses in grapes, peaches, plums and fall strawberries, but we cannot easily quantify those reports. In 2012 the projected losses were over $1,000,000; projected losses in 2013 decreased to approximately $520,000 and we are hoping losses in 2014 will be well below the $500,000 value due to the late appearance of SWD. We aim to reduce SWD losses in fruit through IPM.

In addition to savings through reduced crop loss, reduced insecticide application can help protect populations of beneficial insects including predators, parasitoids, and pollinators. Fewer applications also reduce farm worker exposure to pesticides, in particular those involved with pesticide mixing and loading. Reduced spraying also reduces the opportunity for drift and the risk of environmental contamination. IPM is a crop production strategy that helps small farms meet the rising demand for fresh fruits and vegetables.

SPRAYER CALIBRATION COMPONENT:

Advances in agricultural chemicals have made precise application of pesticides much more important, not only because of the cost of 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 health risks to animals and people. Legal liability costs have been rising recently, justifying added attention to properly calibrated and operated spraying equipment.

Reasons for calibrating:

- Pesticides applied at the correct rate are effective against crop pests. Crops grown with registered pesticides applied correctly and at the recommended rate are safe for consumption. By properly calibrating sprayers, environmental contamination by pesticides is reduced. The calibration test indicates accuracy of the application rate with selected nozzles, pressure, sprayer design, and travel speed.

- The operator must know the application rate (from 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 will be covered by the tank. Once this is done, the proper amount of chemical to add to the tank can accurately be determined.

- Applying a chemical at the wrong rate is disadvantageous. Using more than the desired amount of chemical is wasteful, may violate label rates, and may pollute the environment. Too low of an application rate probably will not be effective against pests, and money will have been wasted on the material and its application.

- 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:

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- Two IPM Scouts will be hired with NHDAM& F - IPM Grant funds to conduct on-farm monitoring and scouting.

- IPM Scouts will work with up to twenty fruit growers in New Hampshire to monitor SWD on a weekly basis, checking traps to determine need, frequency and timing of insecticide applications.

  Cup traps are most effective for monitoring SWD. The baiting and trapping protocol is evolving and will be updated based on 2014 results prior to the growing season.

  Based on experience trapping and monitoring SWD in 2012, 2013, and 2014, SWD trapping requires more time and effort to check the traps than the other insects we have scouted for in the past.

- The IPM scouts will check traps throughout the 2015 growing season. Since SWD is new to New Hampshire, fruit growers do not know precisely when the insects arrive until damage occurs, or the growers apply unnecessary sprays whether the insect is present or not.

- Dr. Alan Eaton, the UNH CE IPM Coordinator and Extension Entomology Specialist, will determine the need for special news releases, including the Weekly Market Bulletin, on serious insect outbreaks.

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

SPRAYER CALIBRATION COMPONENT:

- One IPM scout will be hired through use of the NHDAM& F - IPM Grant funds to help conduct sprayer calibrations.

- Participating growers who complete sprayer calibration with assistance from a UNH Cooperative Extension specialist and IPM scout would be eligible to receive one private recertification credit if they have a NH private applicator use license. Each farm 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:

- On-farm monitoring for insect pests will be conducted during the 2015 growing season with a minimum of twenty growers in New Hampshire with UNH CE personnel assisting.

- Weekly trap counts will be reported to participating growers. Growers will be encouraged to learn to trap insects on their own.

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

- Traps will be moved according to crop conditions and crop maturity.

SPRAYER CALIBRATION COMPONENT:

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- Does not apply

VII. How will your data be evaluated?

IPM COMPONENT:

- At the end of the season, participating growers will complete a program evaluation 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 specialists will decide if additional educational programming for fruit growers is necessary.

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. The grower will be provided the information on need, frequency and timing for insecticide control applications.

- Updates on insect pest populations will be presented at twilight meetings throughout the growing season.

- If there are any major insect outbreaks, alerts will go to various media sources, including the Weekly Market Bulletin.

- A presentation on the results of this project will be developed and presented to fruit growers at a variety of educational workshops and conferences.

SPRAYER CALIBRATION COMPONENT:

- Communication with growers during recent on-farm sprayer calibrations made it clear there is a need for revision of fact sheets on sprayer calibration. A presentation on sprayer calibration will be developed as well.

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

All outreach materials (presentations, fact sheets, and alerts sent to media) will be made available upon request.

UNH CE Extension Specialists will give presentations on this topic to groups who request it.

Campus Authorized Official KJ
Date 3/10/15

EXHIBIT B

This Project Agreement is funded under a Grant/Contract/Cooperative Agreement to State from the Federal sponsor specified in Project Agreement article F. All applicable requirements, regulations, provisions, terms and conditions of this Federal Grant/Contract/Cooperative Agreement are hereby adopted in full force and effect to the relationship between State and Campus, except that wherever such requirements, regulations, provisions and terms and conditions differ for INSTITUTIONS OF HIGHER EDUCATION, the appropriate requirements should be substituted (e.g., OMB Circulars A-21 and A-110, rather than OMB Circulars A-87 and A-102). References to Contractor or Recipient in the Federal language will be taken to mean Campus; references to the Government or Federal Awarding Agency will be taken to mean Government/Federal Awarding Agency or State or both, as appropriate.

Special Federal provisions are listed here: ☐ None or .

Campus Authorized Official KS
Date 3/10/15