



PAUL R. LEPAGE
GOVERNOR

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
DIVISION OF ANIMAL AND PLANT HEALTH
28 STATE HOUSE STATION
AUGUSTA, MAINE 04333

WALTER E. WHITCOMB
COMMISSIONER

MAINE REPORT TO THE EASTERN PLANT BOARD
APRIL 2016 – ST MICHAELS, MARYLAND
SUMMARY OF 2015 ACTIVITIES

INTRODUCTION

The Division of Animal and Plant Health within the Department of Agriculture, Conservation and Forestry (ACF) includes Maine's plant regulatory programs, responsible for protecting the state's plant resources from the introduction and spread of regulated insects and diseases. The Division provides technical information and support to agricultural producers and issues a number of licenses and permits for individuals to conduct certain business. The Division carries out its mission through the work of various programs including: nursery program, integrated pest management program, apiary program, arborist program, cooperative agricultural pest survey (CAPS), seed potato certification and the Board of Pesticides Control. The Division also works closely with the Maine Forest Service, Division of Forest Health and Monitoring which is charged with protecting Maine's forest, shade and ornamental tree resources from significant insect and disease damage.

NURSERY PROGRAM

LICENSING AND INSPECTION

All businesses or individuals selling nursery stock in Maine must have a license. Nursery stock is defined as: woody plants, including ornamental and fruiting trees, shrubs, vines and all viable parts of these plants; herbaceous plants, including florist stock plants, annuals, perennials, vegetable seedlings, herbs, potted plants and all viable parts of these plants; and any other plant or plant part designated by the commissioner. 1332 nursery stock licenses were issued in 2015. A list of businesses with Maine nursery stock licenses can be found at: www.maine.gov/hort Inspectors performed 1055 inspections at nurseries, greenhouses and plant dealers. A variety of pests were observed during inspections, but most were minor or common pests.

PHYTOSANITARY INSPECTION AND SHIPPING CERTIFICATION

472 lots of plant materials were inspected and certified for shipment using phytosanitary certificate forms. 6 federal certificates and 6 state certificates were for nursery/forest materials and 460 federal certificates were for potatoes, feed barley and wheat. 25 businesses operated under

E. ANN GIBBS, DIRECTOR
DIVISION OF ANIMAL AND PLANT HEALTH
90 BLOSSOM LANE, DEERING BUILDING



PHONE: (207) 287-3891
FAX: (207) 287-7548
WWW.MAINE.GOV/DACF

compliance agreements and were approved to ship nursery stock to other states. 1 business had firewood kilns certified to produce heat-treated firewood for shipment out-of-state.

BIOCONTROLS ADDED TO UNRESTRICTED SPECIES LIST

Releases of all wildlife in Maine, including insects, require a permit from the Maine Department of Inland Fisheries and Wildlife (IFW), unless the species is on the unrestricted species list. As more and more growers turn to biocontrol, it is important that species that pose little risk to the environment and are commonly used in pest control be added to the unrestricted species list. This spring Nursery Program staff worked with IFW to add 9 species commonly used in biocontrol programs to the unrestricted species list. These species no longer require a permit to be released in Maine: *Aphidius colemani*, *A. ervi*, *A. matricariae*, *Eretmocerus eremicus*, *E. mundus*, *Encarsia formosa*, *Galerucella calmeriensis*, *G. pusilla* and *Stratiolaelaps miles*.

PHYTOPHTHORA RAMORUM

Due to a confirmed positive *P. ramorum* sample from a survey in 2014, a retail nursery that received *P. ramorum* positive plants in a shipment of rhododendrons in 2012 was surveyed for *P. ramorum* in 2015. 7 samples were submitted for *P. ramorum* testing; no *P. ramorum* was detected in any of the samples. Staff will continue to monitor this nursery for *P. ramorum* in 2016.

CHRYSANTHEMUM WHITE RUST

In September of 2015 a retail nursery in southern Maine was found positive for chrysanthemum white rust (CWR). Due to the narrow time frame available to sell mums for the season, the nursery decided to double bag and burry all of the approximately 3000 host plants on site. After sanitation and further inspection the nursery was able to buy in finished mums and sell them from another area on the site that was physically separated from the infested area. Inspectors surveyed mums at other businesses in the region and throughout the state, and found no other symptoms of CWR.

INDUSTRIAL HEMP

In June 2015 LD 4, An Act to Promote Industrial Hemp, became law. This law instructed the Department to establish rules to license and monitor industrial hemp growers. The Department is currently in the process of adopting these rules. More information on Maine's industrial hemp program can be found on our website www.maine.gov/dacf/php/hemp

GINSENG PROGRAM

Maine's ginseng certification program facilitates the export of American ginseng while meeting the requirements of the Convention for International Trade of Endangered Species of Flora and Fauna. In Maine, American ginseng is considered state endangered and the Department does not certify wild-harvested ginseng for sale. A license is required to grow cultivated ginseng for sale to out-of-state markets; harvested ginseng must be weighed and certified before sale. In 2015 there were 16 licenses issued for ginseng growers. Interest in growing ginseng is on the rise in Maine and the Department received many inquiries from potential future growers; 5 licenses issued in 2015 were for growers planting ginseng for the first time. Ginseng can be a difficult crop to grow in Maine and no cultivated ginseng has been harvested and certified for sale since 2001.

INTEGRATED PEST MANAGEMENT PROGRAM

SCHOOL IPM

The Maine School IPM Program continued to support compliance with state pesticide regulations requiring all K-12 schools to utilize IPM methods aimed at minimizing risks of exposure to pests and pesticides. In 2015 the School IPM Program conducted eight workshops for over 200 school staff. The IPM Program also provided one-on-one pest problem solving to public and private schools. In addition, IPM literacy among teachers and youth audiences was supported through teacher workshops and statewide youth education events. In 2015 we trained 50 pre-service teachers at the University of Maine Farmington and engaged over 3,000 young learners and educators at various educational events across the state.

APIARY PROGRAM

REGISTRATION AND INTERSTATE MOVEMENT

In 2015, 975 resident beekeepers registered 9,789 hives and entry permits were issued for 76,058 hives managed by 37 commercial beekeeping operations contracted for blueberry, apple and cranberry pollination. Greater than 77,000 honey bee colonies were rented for blueberry pollination in 2015. Maine blueberry growers produced another bumper crop in 2015, estimated to be in excess of 100 million pounds (The official NASS estimate will not be available until July 2016) that may exceed the 104.4 million pounds produced in 2014. The blueberry crops produced in 2014 and 2015 approach the state's 2000 record of 110.6 million pounds and both crops exceed the current five year average of 89.6 million pounds.

In 2015, 7,569 hives were issued Maine health certificates for interstate movement to MA, RI, FL and GA for crop pollination and wintering purposes. After blueberry pollination, the majority of hives return to their states of origin under certification previously issued by that particular state. In recent years, beekeepers have made far fewer requests for Health Certificates for interstate movement.

INSPECTION AND DISEASE DETECTION

Throughout the year 9,400 colonies were surveyed at random with 1,900 opened, inspected and sampled for disease and parasites. Spring inspections focused on hives that died during late winter and spring. The winter of 2014/15 was harsh with significant snow and long periods of bee confinement due to cold temperatures and snow pack. Dysentery was common among dead and surviving colonies, however, random samples examined from affected colonies had relatively low nosema levels. Two thirds of wintered hives inspected during March and April were dead. One third of the inspected hives perished due to starvation and the remaining third of hive mortality was due to Varroa and associated viral complex. Deformed wing virus was prevalent among dead hives. Colony buildup for surviving hives was delayed during spring due to cool temperatures and slow progression of plant bloom. Swarming was minimal and delayed in 2015.

Mid-summer inspections focused on hives located in Cumberland County where a cluster of American foulbrood (*Paenibacillus larvae*) infection was found. Locating the source and reservoir of infection was difficult due to the number of new unregistered hobby beekeepers. AFB was found

in 1.0% of inspected hives. Three samples of AFB sent to the USDA Bee Lab, Beltsville, MD for antibiotic resistance screening were found to be resistant to oxy-tetracycline and remained susceptible to tylosin. These were the first finds of oxy-tetracycline resistant AFB identified since 2007. Prior detections of tetracycline resistant AFB were found among commercial beekeeping operations. All of the hives infected with AFB were burned. European foulbrood (*Melissococcus pluton*) and sacbrood virus were detected in 2.0% and 1.0% of the inspected hives respectively. There appears to be a highly virulent strain of EFB that will kill a colony in 6-8 weeks without prompt antibiotic treatment when symptoms first appear. The virulent strain of EFB was especially common among certain package bee shipments from GA and nuclei hives originating from TX. The pending Veterinary Feed Directive (VFD) scheduled to be implemented in January 2017 will likely result in more AFB and EFB prevalence and will likely pose an obstacle in beekeeper's ability to promptly treat hives with EFB and prophylactically for AFB. The VFD has caused concern within the bee industry and among state regulators. Chalkbrood (*Ascosphaera apis*) infection was minimal in 2015 in keeping with the recent trend. South African small hive beetles (*Aethina tumida*) SHB were common in migratory beekeeping operations and honey bee shipments originating from southeastern states. SHB was frequently detected in 2015 and were more numerous in hives, consistent with recent trends.

During fall, several hives were found with bees parasitized by a Phorid fly (*Apocephalus borealis*). These flies are commonly known as zombie flies and have been previously documented in other states and in New England.

Nurse bees from 180 hives were sampled for *Varroa destructor* via the alcohol wash method and 63% of sampled hives were positive. This is the exact percentage of infested hives found in 2014. *Varroa* infestations were also detected via inspection of drone brood and the bottom board insert method. As usual, *Varroa* populations increased to damaging levels during late summer/fall in 2015 and viral infections associated with *Varroa* that afflict both brood and adult honey bees were prevalent. Viral symptoms now appear at relatively low *Varroa* infestation levels unlike in previous years where high *Varroa* populations initiated viral infection.

In 2015, there was an increase in nuisance complaints and stinging incidents associated with urban/suburban beekeeping and hives used for blueberry pollination. A serious stinging incident occurred in Franklin that involved migratory hives used for blueberry pollination. Two woman required treatment for multiple stings at a nearby hospital's emergency room. Like previous years, some of the hives inspected during pollination exhibit extreme defensive behavior. The state apiarist responded to calls from the Maine Turnpike Authority, Maine State Police, local law enforcement and public to exterminate or remove clusters of bees left in blueberry fields and clusters of bees that escape from semis at truck stops, fuel stations and rest areas along I-95. One situation was so bad that truck drivers and a commercial beekeeper from CA sent photos of the negligent beekeeper's truck to the department. The truck load of unsecure bees (holes in the net) was parked at a truck stop on a warm day. There were clouds of agitated bees flying overhead and several customers were stung. Truck stop management told the non-offending beekeepers they were not welcome given the problem caused by the irresponsible beekeeping operation.

OUTREACH

In 2015 the state apiarist presented 26 lectures and workshops on a variety of beekeeping topics to blueberry growers, ME Board of Pesticide Control inspectors, beekeeping associations, and at beekeeping short courses offered via County Extension and Adult Education programs. He

coordinated and co-instructed an eight week course on beekeeping at the Maine Academy of Natural Sciences, a charter school located at Good Will-Hinckley. The state apiarist participated in conference calls with the US-EPA Pollination Protection Workgroup, Pesticide Program Dialog Committee and NASDA Pollination Protection Plan committee.

The state apiarist also made recommendations to town code enforcement and the public regarding nuisance situations involving bees and wasps in urban and suburban settings.

MISCELLANEOUS

The US-EPA granted general Section 3 registrations for HopGuard II (beta acids) and Oxalic Acid Dihydrate for Varroa control. Both of these organic Varroa controls are effective treatment options.

LD 110- An Act to Compensate Beekeepers for Hive Losses. The State Apiarist presented testimony on behalf of the Department in opposition. The bill failed to pass.

COOPERATIVE AGRICULTURAL PEST SURVEY (CAPS)

The Division administered the Cooperative Agricultural Pest Survey (CAPS) Program, a cooperative effort between the USDA APHIS PPQ, state departments of agriculture and state universities. The CAPS program supports the position of the state survey coordinator (SSC).

The Maine CAPS Program allowed for survey work of the following in 2015:

- Corn Commodity Survey; conducted by the Division and the University of Maine Cooperative Extension. Traps were deployed for old world bollworm (*Helicoverpa armigera*), Western bean cutworm (WBC) (*Striacosta albicosta*), cotton cutworm (*Spodoptera litura*), Egyptian cottonworm (*Spodoptera littoralis*), and false codling moth (*Thaumatotibia leucotreta*). Visual inspections were made to detect Northern corn leaf blight (*Exserohilum turcicum*). The Division deployed traps for all target species at 11 farms in 6 counties; The University Cooperative Extension deployed traps for all target species at 5 farms in 5 counties, with an additional farm deployed with WBC trap. WBC was found in 9 of 10 counties. No other target species were found.
- Mixed Berry Pest Survey; conducted by the Division and the University of Maine Cooperative Extension. Traps were deployed for summer fruit tortrix (*Adoxophyes orana*), European grapevine moth (*Lobesia botrana*), light brown apple moth (*Epiphyas postvittana*), spotted wing drosophila (*Drosophila suzukii*), and African fig fly (*Zaprionus indianus*) in various crops of blueberry, blackberry, raspberry and strawberry. The Division deployed traps for all target species at 10 farms in 9 counties; The University Cooperative Extension deployed traps for all target species at 10 farms in 7 counties. SWD was found in all traps (29) except 1 in Waldo Co. No other target species were found.
- Nursery Commodity Survey; conducted by the Division. Visual inspections of host trees were conducted at 30 nurseries in 9 counties for the following targets: city longhorned beetle (*Aeolesthes sarta*), goldspotted oak borer (*Agrilus auroguttatus*), oak splendour beetle (*Agrilus biguttatus*), emerald ash borer (*Agrilus planipennis*), Asian longhorned beetle (*Anoplophora glabripennis*), sakhalin pine sawyer (*Monochamus saltuarius*), and small white-marmorated longhorned beetle (*Monochamus sutor*). Trapping surveys were conducted at 10 nurseries in 6 counties for the following targets: variegated golden tortrix (*Archips xylosteanus*), rosy moth (*Lymantria mathura*), green oak tortrix (*Tortrix viridana*).

None of the target species were found. Negative data for goldspotted oak borer could not be entered into NAPIS since visual survey for this pest is not an approved method.

In addition, several other projects were administered through the CAPS program with funding from the Farm Bill:

- Grape Commodity Survey; conducted by the Division. Traps were deployed at 6 vineyards in 4 counties for Christmas berry webworm (*Cryptoblabes gnidiella*), European grape berry moth (*Eupoecilia ambiguella*), European grapevine moth (*Lobesia botrana*), false codling moth (*Thaumatotibia leucotreta*), light brown apple moth (*Epiphyas postvittana*), silver Y moth (*Autographa gamma*), and spotted wing drosophila (*Drosophila suzukii*). SWD was collected from all traps except one from Kennebec Co. No other target species were found.
- Potato Cyst Nematode (PCN) National Survey; discussed elsewhere in this report.
- Forest Pest Outreach and Survey Project; discussed elsewhere in this report.

Data was entered into NAPIS for 37 pests. There were no new state pest finds entered into NAPIS.

FOREST PEST OUTREACH AND SURVEY PROJECT (FPOSP)

The CAPS Program coordinated the Forest Pest Outreach and Survey Project (FPOSP) for the seventh year. This project has grown to include over 25 states in an effort to build an awareness program aimed at early detection of Asian longhorned beetle (ALB), emerald ash borer (EAB), and other invasive forest pests. Maine hired a part-time coordinator to manage the training and volunteer program. A number of NGOs, e.g. soil and water conservation districts, participated on this project. For FY14 Farm Bill (9/20/14-9/19/15), 152 new volunteers were trained in seven formal train-the-trainer workshops around the state, bringing the total to 558 volunteers to help conduct outreach and survey on ALB, EAB, and other recent tree invasives, such as hemlock woolly adelgid (HWA) and winter moth (WM). Between Department staff and volunteers, over 40 different events occurred, including tabling at more than 15 fairs, tree tagging events, various presentations to school groups and environmental associations, written articles, etc.

No ALB or EAB have been found in Maine, although HWA is expanding its range, and the recent establishment of winter moth has caused noticeable defoliation in certain areas of the state. This project has been continued for the next Farm Bill cycle, where we have developed contracts with previous volunteer groups to take over much of the training and outreach.

SEED POTATO CERTIFICATION

Seed potatoes are certified to control the level of pests in Maine's potato industry. Certification is a three step process: inspection of seed potatoes during the summer, post-harvest disease evaluation of samples submitted for testing and inspection during shipping to ensure the potatoes meet grade standards. Only lots that have been found to meet, field, post-harvest testing and shipping point inspection can be tagged as certified seed.

SUMMER FIELD INSPECTION

In 2015, 10,486 acres met disease tolerances for regulated diseases and pests during the summer field inspection program. A directory of producers whose seed lots passed the summer inspection program is compiled at the conclusion of the field inspection season and posted at www.maine.gov/dacf/php/seed_potato.

POST-HARVEST TESTING

Due to severe crop loss at the State's test farm in Homestead, Florida, the 2015 Florida Post Harvest Test for Maine Certified Seed Potatoes was terminated. The area received approximately 13 inches of rain during the first two weeks of December that rotted seed pieces and drowned viable plants that had emerged. This is the first time in over 25 years that the Department has lost the crop in Florida. The last time there was an issue it was due to frost.

Departmental Rule Chapter 252(F)(2)(5)(a) states that "Samples with less than 50% emergence will be so designated in the annual Post-Harvest Test Booklet. Such samples shall be granted certification on the basis of the results of the summer field inspection." Since the weather affected the entire crop of samples sent for certification, it was decided to revert back to all field readings that passed the summer field inspection. More information on the 2015 Post-Harvest Testing situation is posted at www.maine.gov/dacf/php/seed_potato/FloridaTest2016.shtml

BLACK LEG AND DICKEYA

In recent years blackleg and Dickeya have contributed to crop losses in Maine and other potato producing states resulting in severe economic losses for several potato growers. With this in mind the Seed Potato Certification Program has been developing new standards in cooperation with industry stakeholders and university researchers to better inspect and identify Maine seed lots that may contain pectolytic bacteria and Dickeya by adding visual field tolerances for blackleg as part of the summer field inspection.

The hope is that these new standards and inspections will identify problem lots and more quickly flush these lots out of the seed system to better insure seed quality for the end grower receiving the seed, whether they grow seed, table stock or processing potatoes. Currently the department is working on rulemaking to ensure these new rules will benefit the 2016 growing season.

POTATO CYST NEMATODE NATIONAL SURVEY

The Seed Potato Certification Program participated in the Potato Cyst Nematode (PCN) National Survey for the sixth year in a row. Funding for the 2015 survey came from the Farm Bill. No seed potatoes could be shipped out of Maine unless they came from fields that have been sampled and tested for PCN (*Globodera pallida*) and Golden nematode (GN) (*Globodera rostochiensis*). Division staff used either soil probes or specialized mechanical samplers to survey choice seed potato fields in Aroostook County that grow seed for export. Each acre was sampled according to protocol to collect a 5 lb sample, resulting in 2060 samples. All soil samples were shipped to the USDA APHIS Nematode Laboratory in Avoca, NY. No PCN or GN was found. Data was entered into NAPIS and IPHIS.

BOARD OF PESTICIDES CONTROL

PESTICIDE USE AND APPLICATOR LICENSING

The Board of Pesticides Control (BPC) licenses pesticide applicators (Agricultural Basic, Private and Commercial) and pesticide dealers (limited/restricted and general use products). As of March 2016, there are 457 active Agricultural basic licensees, 1133 active private licensees, 1730 active

commercial licensees, 259 spray contracting firm (business) licenses, 62 limited/restricted use dealers, and 995 general use dealers.

LEGISLATION

The first regular session of the 127th Maine Legislature entertained eight bills regarding pesticides.

- Two bills (LD 202 and LD 203) were legislative reviews of major substantive rules (Chapter 22 and Chapter 28, see below) that the Board of Pesticides Control had provisionally adopted.
- One Bill was passed and signed into law. LD817, An Act Regarding Aerial Pesticide Spray Projects, dealt with amendments requested by the Department to update requirements around major forest insect aerial pesticide spray projects to make them consistent with other aerial spraying.
- One Bill was carried over to the next legislative session. LD 1099 An Act to Establish a Fund for the Operations and Outreach Activities of the University of Maine Cooperative Extension Animal and Plant Disease and Insect Control Laboratory, proposed placing a tax on “homeowner” pesticide products to fund the laboratory.
- Four bills were voted Ought-Not-To-Pass by the Agriculture, Conservation and Forestry Committee.
 - LD 708 An Act to Limit the Use of Pesticides on School Grounds, proposed restricting the use of pesticides on school grounds to situations that pose a health threat or for animals and insects identified as a public health nuisance and required the Commissioner of Education to adopt rules to implement landscaping design that minimizes or avoids the necessity for the use of pesticides for new schools.
 - LD 884 An Act to Amend Laws Concerning Water Quality Standards, proposed rules for the Department of Environmental Protection around chemical use, including pesticides, near or in water which would have resulted in two departments having jurisdiction.
 - LD 1106 An Act to Compensate Beekeepers for Hive Losses, proposed providing compensation to honeybee owners for honeybee deaths from the application of pesticides and required the Department to establish rules and a compensation fund.
 - LD 1105 An Act to Protect Populations of Bees and Other Pollinators, proposed prohibiting labels on nursery stock as beneficial to pollinators if the plant had been treated with an insecticide that posed a risk to pollinators.

The Board also adopted amendments to 9 rules in 2015:

- Chapter 20 Special Provisions: Add a requirement for applicators making outdoor treatments to residential properties to implement a system to positively identify application sites in a manner approved by the Board. This requirement was previously in policy.
- Chapter 22 Standards for Outdoor Application of Pesticides by Powered Equipment in Order to Minimize Off-Target Deposition: Improve the effectiveness of the rule by eliminating the requirement of identifying sensitive areas for commercial applications conducted under categories 6A (rights-of-way vegetation management), 6B (industrial/commercial/municipal vegetation management) and 7E (biting fly & other arthropod vectors [ticks]). Applications conducted under category 6A and to sidewalks and trails under category 6B will require the applicator to implement a drift management plan.

- Chapter 28 Notification Provisions for Outdoor Pesticide Applications: Add to the list of categories that require posting: 6B (industrial/commercial/municipal vegetation management) except when making applications to sidewalks and trails, and 7E (biting fly & other arthropod vectors [ticks]). Require advance notice be published in a newspaper for applications conducted under 6A (rights-of-way vegetation management), and to sidewalks and trails under 6B (industrial/commercial/municipal vegetation management). This aligns with the proposed amendments to Chapter 22, eliminating the requirement for mapping sensitive areas, in lieu of posting or public notice.
- Chapter 31 Certification and Licensing Provisions/Commercial Applicators:
 - Clarify that certain applications (adults applying repellents to children with the written consent of parents/guardians and persons installing antimicrobial metal hardware) are exempt from commercial licensing requirements.
 - Exempt aerial applicators certified in other states from passing a written regulation exam and allow for issuance of reciprocal licensing when the staff determines that an urgent pest issue exists and when staff verbally reviews pertinent Maine laws with the applicator.
 - Shorten the time period a person must wait before re-taking an exam they have failed to 6 days.
 - Change the license period from two years to three; change the certification period from six years to three and align the licensing and certification periods.
 - Amend the description of Category 6B to clarify what types of applications are included.
 - Change the requirement for passing both the core and category exams within one year of each other to within five years.
 - Clarify that certified or licensed wastewater or drinking water operators are exempt from licensing only while applying pesticides to the wastewater or drinking water and not while performing other duties such as weed management.
- Chapter 32 Certification and Licensing Provisions/Private Applicator and Chapter 33 Certification & Licensing Provisions/Private Applicators of General Use Pesticides (Agricultural Basic License): Shorten the time period a person must wait before re-taking an exam they have failed to 6 days.
- Chapter 34 Certification and Licensing Provisions/Dealers: Shorten the time period a person must wait before re-taking an exam they have failed to align with other licensing rules and change the license period from one year to three; change the certification period from five years to three and align the licensing and certification periods.
- Chapter 35 Certification and Licensing Provisions/Spray Contracting Firms: Remove the requirements for spotters and monitors for forest insect aerial spray programs and change the license period from two years to three.
- Chapter 41 Special Restrictions on Pesticide Use: Eliminate the restrictions on hexazinone relative to pesticide distributors and air-assisted application equipment.

ARBORIST PROGRAM

All individuals performing arborist work in Maine must have a license. According to Maine Arborist Licensing Law (7MRSA Section 2173-2191) an arborist is anyone who, for compensation, takes down or fells, diagnoses or evaluates, recommends or supervises treatment, or in any manner or for any purpose treats or cares for shade or ornamental trees. In order to become a Maine licensed

arborist, individuals must pass an exam demonstrating proficiency in arborist techniques, safe use of arborist tools and equipment, tree identification and pest identification. Licenses and exams are offered in two categories, landscape and utility. In 2015 a total of 993 arborist licenses were issued by the Division.

FOREST INSECT AND DISEASE CONDITIONS

Courtesy of the Forest Health & Monitoring Division, Maine Forest Service (MFS). Growing season condition reports are available on the MFS website

www.maine.gov/dacf/mfs/publications/condition_reports.html

SPRUCE BUDWORM

Spruce budworm is a periodic major pest of fir and spruce in Maine. The Maine Forest Service has been monitoring this insect since the early part of the last century. Since 1992 MFS has been using pheromone traps and catches have averaged well below 5 moths/trap across the northern part of the state. Starting in 2011 the average moths per trap has crept up and this year the average was 27 moths/trap; up slightly from 25 moths/trap in 2014.

For the second year MFS has asked large land owners and managers in northern Maine to help survey for spruce budworm by setting out pheromone traps on their lands. MFS requests one 3-trap sample per six mile-square township set in at least a 25 acre spruce-fir stand that is composed of more than 50% spruce-fir pole sized or larger trees. This year 19 entities participated in setting out over 1300 traps at 452 sites. An additional 129 traps used in a research project were included in the tally as well.

The overall average moths/trap was 25.7 moths/trap with 98% of the traps positive for spruce budworm. The townships with the most moths are in Aroostook and Piscataquis Counties. The number of traps with over 100 moths has gone from 6 in 2014 to 17 in 2015 and the number of traps with over 50 moths has doubled.

No spruce budworm damage was detected either in ground or aerial surveys. The University of Maine spear headed an overwintering larval survey. Land managers had crews take three mid-crown branch samples from 100 of the most at risk sites. Branch samples were sent to Canada for processing. Eight larvae were found, all in townships in Aroostook County.

Maine is poised at the beginning of another spruce budworm outbreak. Outbreaks occur on a roughly 40 year cycle in response to maturing forest stands and reduced pressure from parasites; the last time spruce budworm was a problem in Maine was in the 1970's and 1980's. This native defoliator of balsam fir and spruce has been defoliating trees in Quebec north of the Saint Lawrence Seaway for more than 10 years. Defoliation, which has spread to the south shore, currently covers more than 15 million acres. New Brunswick is seeing increased numbers of budworm moths in their pheromone traps and may see light amounts of defoliation in the northern part of the province in 2016.

NATIONAL EMERALD ASH BORER TRAPPING SURVEY

Three agencies participated in a national trapping survey for the emerald ash borer; Maine Department of Agriculture, Conservation and Forestry, USDA APHIS PPQ, and the Penobscot Indian

Nation. Approximately 700 purple traps, 20 green funnel traps, 24 trap trees and 25 biosurveillance sites were used to monitor for EAB in Maine in 2015. The National EAB Survey Protocol was followed. No EAB was collected from any of the traps. Data was entered into NAPIS and IPHIS.

CALICIOPSIS PINEA SURVEY

Caliciopsis canker (*Caliciopsis pinea*) is a disease that has been historically associated with overstocked, pole-sized white pine stands of low vigor. More recently, it has been observed to be more aggressive in some situations, so a re-examination study of the disease was initiated, with the USDA Forest Service, New Hampshire Division of Forest and Lands, Maine Forest Service and the University of Maine as cooperators. The survey and research effort is ongoing in both Maine and New Hampshire. A summary of only the Maine Forest Service efforts are outlined here.

In 2014, 22 randomly selected stands were surveyed in Maine, with *Caliciopsis pinea* identified on white pine regeneration from 16 stands. *Caliciopsis* symptoms in overstory trees were also identified in 16 stands, but not always from those infected white pine regeneration. Relationships between tree stress resulting from the white pine needle disease complex, and the incidence and severity of *Caliciopsis* canker have not been established, but may become apparent as studies continue.

In 2015, the study was expanded to assess *Caliciopsis* canker incidence and severity as it may be related to soil type characteristics. An additional 16 white pine stands were surveyed for the canker disease in Maine and the data will be combined with similar data collected in New Hampshire. Of the 16 plots surveyed in Maine this year, fruiting of the pathogen was found on sapling-sized white pines in ten of the stands. Symptoms of pitching (pitch streaks along the main bole) were observed in all 16 stands. Percentage of white pines exhibiting pitching ranged from a low of 10% in a stand in Lyman to 73% in a stand in Shapleigh. Although pitching is one criterion for assessing infection by *Caliciopsis*, not all pitching is likely the result of infection by this pathogen. Detailed canker analyses are being conducted by University of Maine, other State and USDA Forest Service cooperators to determine the reliability of using pitching as a survey tool for this disease.

WHITE PINE NEEDLE CAST AND NEEDLE BLIGHT

The needle disease complex that has resulted in extensive premature needle shedding in white pines over the past several years continued at a similar level of intensity in 2015. Losses of one-year old needles during late May and through June resulted in numerous disease clinic requests for assistance. This is believed to be the ninth consecutive year of heavy needle loss in Maine from this disease complex. As part of a region wide study coordinated by USDA Forest Service Personnel, two permanent plots in Maine were again assessed for white pine needle disease symptoms. The disease complex was also noted when conducting surveys for *Caliciopsis*. The disease remains widespread but most severe throughout central, western and southern Maine. An extensive survey of eastern and northern regions of Maine indicated disease presence wherever white pine was found, but disease intensity in these regions was judged to be considerably less than in southern and western areas.