The U.S. Department of Agriculture (USDA) and the U.S. Environmental Protection Agency (EPA) released a comprehensive scientific report on honey bee health in May 2013. This Report of the National Stakeholders Conference on Honey Bee Health states that there are multiple factors playing a role in honey bee colony declines, including parasites and disease, genetics, poor nutrition and pesticide exposure. In spite of the many factors playing a part in the decline of honey bees and pollinators in general, recent incidences related to applications of neonicotinoid insecticides have led to new regulatory changes.

In the spring of 2012, the deaths of millions of honey bees in the Midwest United States and in Ontario and Quebec, Canada were attributed to dust generated during planting of neonicotinoid-treated corn seed. The following May, the EPA and representatives from industry held a “Bee Summit” to discuss honey bee health and technology to reduce dust from treated seed. In June 2013, more than 50,000 bumblebees were killed in Wilsonville, Oregon when a landscaping company applied Safari (i.e., dinotefuran) insecticide to blooming linden trees. Three other incidents occurred that summer in Oregon resulting in bumblebee deaths in Hillsboro, West Linn, and downtown Portland from applications of dinotefuran and imidacloprid. The Oregon Department of Agriculture restricted the use of dinotefuran and imidacloprid application by any method to linden, basswood, or Tilia species of trees.

The EPA responded in August 2013 with a letter to pesticide registrants requiring new pesticide labels for pesticide products containing the neonicotinoids clothianidin, dinotefuran, imidacloprid, and thiamethoxam. These new labels include a Bee Advisory Box and new Directions for Use. The Bee Advisory Box, pictured below, informs the applicator that there are new application restrictions described in the Directions for Use in order to protect pollinators. A new Bee Hazard Icon is depicted to alert applicators to site-specific instructions on the label. Other information in the Bee Advisory Box includes statements about potential routes of exposure of pesticides to bees and best management practices (BMPs) to reduce risk, including minimizing drift.

The new Directions for Use on the labels for these pesticide products are described by three different scenarios: (1) For Crops under Contracted Pollination Services; (2) For Food Crops...
and Commercially Grown Ornamentals not Under Contracted Pollination Services but Attractive to Pollinators; and (3) Non-agricultural Products.

1. **For Crops under Contracted Pollination Services**, the directions state “Do not apply this product while bees are foraging. Do not apply this product until flowering is complete and all petals have fallen unless the following condition has been met: If an application must be made when managed bees are at the treatment site, the beekeeper providing the pollination services must be notified no less than 48-hours prior to the time of the planned application so that the bees can be removed, covered or otherwise protected prior to spraying.”

2. **For Food Crops & Commercially Grown Ornamentals Not Under Contract for Pollination Services but Attractive to Pollinators**, the directions state “Do not apply this product while bees are foraging. Do not apply this product until flowering is complete and all petals have fallen unless one of the following conditions has been met:
   - The application is made to the target site after sunset
   - The application is made to the target site when temperatures are below 55°F
   - The application is made in accordance with a government-initiated public health response
   - The application is made in accordance with an active state-administered apiary registry program where beekeepers are notified no less than 48-hours prior to the time of the planned application so that the bees can be removed, covered or otherwise protected prior to spraying.
   - The application is made due to an imminent threat of significant crop loss, and a documented determination consistent
with an IPM plan or predetermined economic threshold is met. Every effort should be made to notify beekeepers no less than 48 hours prior to the time of the planned application so that the bees can be removed, covered, or otherwise protected prior to spraying.”

3. **For Non-Agricultural Products**, the directions state “Do not apply the product while bees are foraging. Do not apply this product to plants that are flowering. Only apply after all flower petals have fallen off.”

As with any changes in labeling, the new labeling to protect pollinators has brought up several questions about interpretation. It is important to note that the new labeling on these products does not replace previously-existing product-specific warnings. Applicators should follow the more restrictive labeling. The EPA is working with registrants to address any conflicting text. Additionally, the new labeling addresses foliar application only—it does not apply to soil, trunk injection, or seed treatments. These pesticide products can be applied pre-bloom (unless directed otherwise) and after flowering is complete (to the extent that bees are no longer foraging). The term “bees” refers to honey bees and native bees which forage for pollen and nectar. The applicator should determine and document “imminent threat of significant crop loss” in consultation with CES, crop consultant, certified crop advisor, or a state recognized pest management model/tool.

Examples of products with these neonicotinoid active ingredients registered for use in North Carolina are listed in the table below:

<table>
<thead>
<tr>
<th>Brand name</th>
<th>Active ingredient(s)</th>
<th>Crop(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actara</td>
<td>Thiamethoxam</td>
<td>Apples, blueberries, cantaloupe, cucumber, peppers, squash, strawberries, watermelon</td>
</tr>
<tr>
<td>Admire Pro</td>
<td>Imidacloprid</td>
<td>Apples, blueberries, cantaloupe, cotton, cucumber, peppers, squash, strawberries, watermelon</td>
</tr>
<tr>
<td>Aloft</td>
<td>Clothianidin + bifenthrin</td>
<td>Ornamental &amp; Turf</td>
</tr>
<tr>
<td>Arena</td>
<td>Clothianidin</td>
<td>Ornamental &amp; Turf</td>
</tr>
<tr>
<td>Belay</td>
<td>Clothianidin</td>
<td>Apples, cantaloupe, cotton, cucumber, peppers, squash, watermelon</td>
</tr>
<tr>
<td>Brigadier</td>
<td>Imidacloprid + bifenthrin</td>
<td>Cotton, soybeans</td>
</tr>
<tr>
<td>Centric</td>
<td>Thiamethoxam</td>
<td>Cotton</td>
</tr>
<tr>
<td>Endigo ZC</td>
<td>Thiamethoxam + lambda-cyhalothrin</td>
<td>Cotton, soybeans</td>
</tr>
<tr>
<td>Leverage 360</td>
<td>Imidacloprid + cyfluthrin</td>
<td>Cotton, soybeans</td>
</tr>
<tr>
<td>Merit</td>
<td>Imidacloprid</td>
<td>Ornamental &amp; Turf</td>
</tr>
<tr>
<td>Provado</td>
<td>Imidacloprid</td>
<td>Apples</td>
</tr>
<tr>
<td>Scorpion</td>
<td>Dinotefuan</td>
<td>Cantaloupe, watermelon</td>
</tr>
<tr>
<td>Swagger</td>
<td>Imidacloprid + bifenthrin</td>
<td>Cotton, soybeans</td>
</tr>
<tr>
<td>Trimax Pro</td>
<td>Imidacloprid</td>
<td>Cotton</td>
</tr>
<tr>
<td>Venom</td>
<td>Dinotefuran</td>
<td>Cotton</td>
</tr>
<tr>
<td>Wrangler</td>
<td>Imidacloprid</td>
<td>Cotton</td>
</tr>
</tbody>
</table>

On June 20, 2014, the White House released a Presidential Memorandum entitled “Creating a Federal Strategy to Promote the Health of Honey Bees and Other Pollinators” with the goal of expanding federal efforts and taking new steps to reverse pollinator losses and restore populations to healthy levels. Steps include: establishing the Pollinator Health Task Force (USDA & EPA); developing a National Pollinator Health Strategy via a Pollinator Research Action Plan, Public Education Plan, and Public-Private Partnerships; and increasing and improving pollinator habitat. In particular, the memo directed the EPA to engage state agencies in developing state pollinator protection plans as a means of mitigating the risk of pesticides to bees and other managed pollinators.
The primary purpose of a state Managed Pollinator Protection Plan (MP³) is to establish a framework for open communication and coordination among key stakeholders, including beekeepers, growers, pesticide applicators, and landowners. Improved communication will not only help build relationships and increase mutual understanding, but will also promote practices that both mitigate potential pesticide exposure to bees and allow for crop production. MP³s are intended to reduce pesticide exposure to bees that are near a pesticide treatment site where bees could be exposed via drift or by flying to and foraging in the treatment site.

The NC Farm Bureau initiated a Pollinator Stewardship Initiative with a kickoff meeting in July 2014 with representatives from NCDA&CS (Structural Pest Control & Pesticides Division & Plant Industry Division), NC Farm Bureau, NC State University, farmers, beekeepers, and commodity groups. In addition to a presentation from the Structural Pest Control and Pesticides Division on the new pollinator protection language for neonicotinoid products, pollinator protection efforts from other state departments of agriculture were presented, including Mississippi’s steps to alert applicators to the locations of apiaries by a “Bee Aware” flag (depicted below) and Florida’s efforts at mapping apiaries using GPS for applicators in the citrus industry.

![Mississippi “Bee Aware” Flag](image)

The “Bee Aware” flag serves as a signal for pesticide applicators that honey bees are nearby. Flags will be flown so that they are visible to ground and aerial applicators of pesticides. The goal is to increase the visibility of apiaries to applicators in order to reduce accidental drift of pesticides onto hives.

North Carolina is in the initial stages of developing a state Managed Pollinator Protection Plan (MP³). NC beekeepers and growers are encouraged to complete a survey, available online at [http://ncagr.gov/spcap/bee/surveys](http://ncagr.gov/spcap/bee/surveys), to help determine the best ways to communicate to applicators “Pollinator Awareness Zones” around apiaries to prevent loss of managed bees from pesticide applications. In the meantime, applicators are reminded to follow all label directions, including notification of beekeepers, and to be diligent about minimizing risk to bees by spraying when bees are not foraging (in the evening, early morning, or when it is cool) and to document situations in which applications are necessary based on a predetermined economic threshold of significant crop loss. Additionally for aerial applications, the pesticide law for notification of apiaries (02 NCAC 09L .1009) is still in effect, which states that “any person who hires the services of an aerial applicator to apply a pesticide labeled as toxic to bees, shall notify, based on available listings of registered apiaries, the owner or operator of any registered apiary located within one-half mile of the target area not less than twenty-four hours nor more than ten days prior to the beginning of a single application or a seasonal spray schedule...”. Beekeepers wanting to register their apiaries should fill out the form available on Plant Industry Division’s website [http://www.ncagr.gov/plantindustry/](http://www.ncagr.gov/plantindustry/), and applicators may request the list of registered apiaries from Renee Woody with the Structural Pest Control and Pesticides Division.

John Allran
Environmental Toxicologist
NCDA&CS
Please visit our new website, [http://ncagr.gov/spcap/bee/](http://ncagr.gov/spcap/bee/)
**Green Industry Pollinator Protection Best Management Practices**

1. Familiarize yourself with pollinator-attractive plants in your area and be able to determine what plants are in bloom. Remember that many plants produce small and/or cryptic flowers that are not readily apparent. Prior to application, applicators are advised to perform an inspection of the property to locate flowering plants that are attractive to pollinators.

2. Do not make insecticide applications to the flowers or foliage of blooming plants, even weeds (unless specifically allowed by the label instructions). Careful application to other parts of the plant (trunk, stems, and roots) may be permissible if the label allows and pesticide residues will not be deposited on flowers or foliage during application.

3. Use caution while making any applications if managed hives are known to be nearby and when bees are foraging near the application site. The distance will vary and should be based on variables of the application including: weather, type of equipment, and application method. If managed hives are on the property, or adjacent to the property, communicate with your client and/or hive owner to consider moving, covering, or otherwise protecting hives prior to treatment. Check to see if your state has a registry or voluntary beehive location program to help communicate with beekeepers and locate beehives in areas in which you make treatments.

4. Be aware of environmental conditions before, during, and after treatment to keep insecticides where you intended to apply them. Account for wind conditions to prevent insecticides from drifting onto flowers when making spray or mist applications. Use low pressure, coarse spray application when possible to minimize drift. If wind conditions make spray and mist applications unwise, consider using a granular formulation if similar results can be achieved.

*BMP’s adapted from the Pollinator Protection Best Management Practices publication by the National Pest Management Association*
New Mole Regulation

The regulation below took effect April 1, 2015 allowing homeowners or applicators licensed in the Ornamental & Turf category to control eastern and hairy-tailed moles. Previously, N.C. Pesticide Law prohibited the registration and sale of pesticides to control moles. Pesticide labels are currently being revised by the manufacturers to reflect the regulation change and products should be available in the near future. As noted below, control will be limited to managed turf areas. See regulation below for complete details and as always, THE LABEL IS THE LAW!

02 NCAC 09L .0707 EASTERN AND HAIRY-TAILED MOLES

(a) The North Carolina Pesticide Board hereby declares the eastern mole, *Scalopus aquaticus*, and the hairy-tailed mole, *Parascalops breweri*, to be pests as provided by law.

(b) Pesticides registered for use to control the eastern mole and the hairy-tailed mole may be used when either species is tunneling in managed turf in the following areas:

1. residential;
2. commercial;
3. government property, excluding federal and state parks;
4. golf courses, driving ranges, and golf instructional facilities;
5. sod farms;
6. athletic fields; or
7. visitor centers and cemeteries.

(c) For purposes of this Rule, managed turf shall not include pastures.

(d) Pesticides used to control the eastern mole and the hairy-tailed mole shall not be applied within 100 feet of natural or man-made bodies of water, including streams, rivers, ponds, swamps, lakes, and wetlands.

(e) Pesticides used to control the eastern mole and the hairy-tailed mole shall not be applied at elevations of 4000 feet or greater.

History Note: Authority G.S. 143-444(1); 143-458
Eff. April 1, 2015.

For more information on Mole Regulation contact the NCDA&CS, Structural Pest Control & Pesticides Division at (919)733-3556.
North Carolina Pesticide Board Actions

At the May 2014, September 2014, and November 2014 meetings of the North Carolina Pesticide Board, the following settlement agreements, including monetary penalties totaling $31,750, were approved for alleged violations of the NC Pesticide Law of 1971. Consent to the terms of the settlement agreement does not constitute an admission of guilt to any alleged violation.

Charles H. Wainwright, Winterville, NC, for alleged violation(s) of using a pesticide in a manner inconsistent with its labeling and applying a pesticide(s) under such conditions that drift from pesticide(s) particles or vapors results in adverse effect. Mr. Wainwright agreed to pay a monetary penalty of $650.00.

Charles G. Lewis, Washington, NC, for alleged violation(s) of using a pesticide in a manner inconsistent with its labeling and applying a pesticide(s) under such conditions that drift from pesticide(s) particles or vapors results in adverse effect. Mr. Lewis agreed to pay a monetary penalty of $1,050.00.

Dirk Fromman, Kingstree, SC, for alleged violation(s) of aerially applying pesticides in an aircraft not properly licensed to do so in NC and failure to complete a written application record within 72 hours of the application. Mr. Fromman agreed to pay a monetary penalty of $1,200.00.

Timothy K. Weadon, Sr., Blanch, NC, for alleged violation(s) of using a pesticide in a manner inconsistent with its labeling, and the improper disposal of pesticides and/or pesticide containers. Mr. Weadon agreed to pay a monetary penalty of $800.00.

Daniel O’Dell, Sims, NC, for alleged violation(s) of using a pesticide in a manner inconsistent with its labeling and for alleged violation(s) of the Worker Protection Standard. Mr. O’Dell agreed to pay a monetary penalty of $1,100.00.

Wepak Corporation, Charlotte, NC, for alleged violation(s) of distributing, selling or offering for sale a pesticide which is adulterated or misbranded. The Wepak Corporation agreed to pay a monetary penalty of $600.00.

Control Solutions, Inc., Pasadena, TX, for alleged violation(s) of distributing, selling or offering for sale a pesticide which is adulterated or misbranded. Control Solutions, Inc. agreed to pay a monetary penalty of $600.00.

Russell H. Harrell, Oak City, NC, for alleged violation(s) of using a pesticide in a manner inconsistent with its labeling and applying a pesticide(s) under such conditions that drift from pesticide(s) particles or vapors results in adverse effect. Mr. Harrell agreed to pay a monetary penalty of $650.00.

David P. Hrupsa, Roper, NC, for alleged violation(s) of using a pesticide in a manner inconsistent with its labeling, aerially applying a pesticide(s) under such conditions that drift from pesticide(s) particles or vapors results in adverse effect, and depositing a pesticide within 100 feet of a residence. Mr. Hrupsa agreed to pay a monetary penalty of $1,400.00.

David E. Whitehurst, Robersonville, NC, for alleged violation(s) of using a pesticide in a manner inconsistent with its labeling and applying a pesticide(s) under such conditions that drift from pesticide(s) particles or vapors results in adverse effect. Mr. Whitehurst agreed to pay a monetary penalty of $1,000.00.

Richard W. Carter, Goldsboro, NC, for alleged violation(s) of using a pesticide in a manner inconsistent with its labeling and failure to keep and maintain required application records. Mr. Carter agreed to pay a monetary penalty of $1,600.00.

Douglas Robertson, Swannanoa, NC, for alleged violation(s) of using a pesticide in a manner inconsistent with its labeling, providing or making available a restricted use pesticide to a non-certified applicator, and failure to maintain all required sales records. Mr. Robertson agreed to pay a monetary penalty of $1,400.00.

Eric Peeler, Statesville, NC, for alleged violation(s) of using a pesticide in a manner inconsistent with its labeling and applying a pesticide(s) under such conditions that drift from pesticide(s) particles or vapors results in adverse effect. Mr. Peeler agreed to pay a monetary penalty of $1,500.00.
John D. Stone, Waltersburg, PA, for alleged violation(s) of engaging in the business of pesticide applicator without a license. Mr. Stone agreed to pay a monetary penalty of $800.00.

Donald E. Turbeville, Cerro Gordo, NC, for alleged violation(s) of using a pesticide in a manner inconsistent with its labeling and applying a pesticide(s) under such conditions that drift from pesticide(s) particles or vapors results in adverse effect. Mr. Turbeville agreed to pay a monetary penalty of $600.00.

Danny K. McDonald, Lillington, NC, for alleged violation(s) of using a pesticide in a manner inconsistent with its labeling and applying a pesticide(s) under such conditions that drift from pesticide(s) particles or vapors results in adverse effect. Mr. McDonald agreed to pay a monetary penalty of $1,000.00.

Mitch Lancaster, Morrisville, NC, for alleged violation(s) of using a pesticide in a manner inconsistent with its labeling. Mr. Lancaster agreed to pay a monetary penalty of $1,200.00.

Weston A. Waters, Belhaven, NC, for alleged violation(s) of using a pesticide in a manner inconsistent with its labeling and of providing or making available a restricted use pesticide to a non-certified applicator. Mr. Waters agreed to pay a monetary penalty of $1,500.00.

Thomas E. Lowe, Jr., Williamston, NC, for alleged violation(s) of providing or making available a restricted use pesticide to a non-certified applicator and failure to maintain all required sales records. Mr. Lowe agreed to pay a monetary penalty of $1,500.00.

Hoyt M. Haddock, Sr., Greenville, NC, for alleged violation(s) of fraud and presenting false information in an effort to complete the licensing exam to aid another individual in fraudulently obtaining a pesticide license. Mr. Haddock agreed to pay a monetary penalty of $2,100.00.

Greg Jenkins, Beulaville, NC, for alleged violation(s) of using a pesticide in a manner inconsistent with its labeling, applying a restricted use pesticide without the proper license or certification, and applying a pesticide(s) under such conditions that drift from pesticide(s) particles or vapors results in adverse effect. Mr. Jenkins agreed to pay a monetary penalty of $1,200.00.

Anthony C. Pyrtle, Westfield, NC, for alleged violation(s) of using a pesticide in a manner inconsistent with its labeling and for alleged violation(s) of the Worker Protection Standard. Mr. Pyrtle agreed to pay a monetary penalty of $2,000.00.

Andrew Q. Eure, Jr., Hamilton, NC, for alleged violation(s) of using a pesticide in a manner inconsistent with its labeling and of providing or making available a restricted use pesticide to a non-certified applicator. Mr. Eure agreed to pay a monetary penalty of $2,100.00.

Jeffery A. Tann, Sr., Hertford, NC, for alleged violation(s) of using a pesticide in a manner inconsistent with its labeling and applying a pesticide(s) under such conditions that drift from pesticide(s) particles or vapors results in adverse effect. Mr. Tann agreed to pay a monetary penalty of $1,000.00.

Stuart Ricks, Pantego, NC, for alleged violation(s) of using a pesticide in a manner inconsistent with its labeling and applying a restricted use pesticide without the proper license or certification. Mr. Ricks agreed to pay a monetary penalty of $500.00.

Douglas A. Black, Pantego, NC, for alleged violation(s) of using a pesticide in a manner inconsistent with its labeling and providing or making available a restricted use pesticide to a non-certified applicator. Mr. Black agreed to pay a monetary penalty of $1,000.00.

Albert E. Dellinger, Vale, NC, for alleged violation(s) of using a pesticide in a manner inconsistent with its labeling and applying a pesticide(s) under such conditions that drift from pesticide(s) particles or vapors results in adverse effect. Mr. Dellinger agreed to pay a monetary penalty of $700.00.

Wepak Corporation, Charlotte, NC, for alleged violation(s) of distributing, selling or offering for sale a pesticide which is adulterated or misbranded. The Wepak Corporation agreed to install a filtration system and produce a future batch for additional testing of this product.

Salvador Estrada, Jr., Easley, SC, for alleged violation(s) of using a pesticide in a manner inconsistent with its labeling and for alleged violation(s) of the Worker Protection Standard. Mr. Estrada agreed to pay a monetary penalty of $1,000.00.
PESTICIDE SECTION

- INFORMATION & ASSISTANCE WITH PESTICIDE REGULATORY & COMPLIANCE
- PESTICIDE CERTIFICATION & LICENSING QUESTIONS
- EXAM SCHEDULES & REGISTRATION
- RECERTIFICATION CREDIT QUESTIONS & APPROVED COURSES

NC Department of Agriculture & Consumer Services
Structural Pest Control and Pesticides Division
James W. Burnette, Jr., Director
1090 Mail Service Center, Raleigh, NC 27699-1090
Phone - (919) 733-3556 • Fax - (919) 733-9796
http://www.ncagr.gov/SPCAP/pesticides/

POLLINATOR PROTECTION:
http://ncagr.gov/spcap/bee/

PESTICIDE CONTAINER RECYCLING:
Dr. Henry Wade

PESTICIDE WASTE DISPOSAL:
Derrick Bell

PESTICIDE SCHOOLS AND MATERIALS FOR CERTIFICATION & RECERTIFICATION

CONTACT: Dr. Wayne Buhler, Dept. of Horticultural Science
Box 7609, NCSU, Raleigh, NC 27695
Phone - (919) 515-3113

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