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# REPORT TO THE EASTERN PLANT BOARD

## Martinsburg, WV

### 2016 Activity Summary

<b>Contents</b>	<b>Page</b>
Apiary Inspection	2
Cooperative Agricultural Pest Survey	4
Noxious Weed Control	7
Nursery Inspection and Certification	9
Seed Certification and Grain Inspection	11
Plant Regulatory Programs	13



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## **Apiary Inspection**

Annually, honey bees are responsible for pollinating \$20 million of Delaware fruit and vegetable crops. This dollar amount is estimated at the “Farm Gate” level, not the wholesale or retail level. According to the Agriculture Beekeeping Law, all honeybee colonies must be registered and inspected for diseases, mites, and Africanized bees. We conduct surveys for Africanized bees along Delaware’s coast as well as in the Ports of Wilmington and Delaware City.

### ***Honey Bee Transportation***

The transportation of honey bees is a stressful process for bees and beekeepers alike. Aside from the stress inflicted on the hives, the risk for transmitting disease is also quite high. To ensure hives are health and disease free, colonies are inspected prior to transportation into and out of Delaware. In 2016, honey bee interstate transportation into Delaware included 1,500 colonies from Maryland, 900 colonies from West Virginia, 1,332 colonies from New Jersey, and 1,200 colonies from Pennsylvania. An additional 4,932 colonies were transported into Delaware for vine crop pollination.

The Delaware Department of Agriculture provided additional inspections for 1,013 colonies to transport into Maryland and eventually into California for almond pollination services. Inspections for 157 colonies to move into Maryland for vine crop pollination were also provided.

### **Apiary Inspection Unit Activities**

	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
Certification of Honeybee Colonies for Interstate Transport	1,016	1,293	1,379	1,008	1,013
Certification of Honeybee Queen and Package Suppliers	3	4	4	4	6
Honeybee Colonies Permitted for Entrance into Delaware	1,360	2146	2860	4,330	4,900
Evaluations of Pesticide Damage to Honeybee Colonies	4	4	4	4	0
Stinging Insect Related Phone Calls	730	987	870	----	50
Information Provided to Public on Beginning Beekeeping	84	142	187	----	10
Educational Presentations	11	17	12	----	----
Educational Displays & Exhibits Presented	3	4	4	----	----
Technical Workshops Presented	12	6	14	----	----
Basic Beekeeper Courses Presented	3	2	2	1	----
Information Provided at Beekeeping Industry Meetings	5	11	16	14	5
Successful Media Contacts	2	2	3	----	----

### ***Africanized Honey Bees***

Africanized honey bees (*Apis mellifera scutellata*) continue to threaten agriculture in the U.S. and Delaware. So Delaware maintains pheromone-baited artificial nesting cavities along Delaware's coast. Africanized honey bees were not found in Delaware. In 2016, 10 traps were set for Africanized Honey Bees. No swarms were captured.

### ***Brood Inspections***

The State Apiarist registers and inspects honeybee colonies to protect the industry from costly diseases and parasites.

#### **Delaware Apiary Registration and Inspection**

	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
Registered Beekeepers	263	370	394	311	200
Registered Colonies	1,724	1,842	2,412	2,068	1,572
Brood Inspections	1,043	1,018	362	723	354
Apiaries Inspected	88	104	52	81	32

#### **2016 Brood Inspection Results**

<b>Honey Bee Disease / Pest</b>		<b>Infected / Infested Colonies</b>
Chalkbrood	<i>Ascophaera apis</i>	0
Sacbrood Virus		0
American Foulbrood	<i>Paenibacillus larvae</i>	2
European Foulbrood	<i>Melissococcus pluton</i>	0
Tracheal Mite	<i>Acarapis woodi</i>	100%
Varroa Mite	<i>Varroa jacobsoni</i>	100%
Small Hive Beetle	<i>Aethina tumida</i>	100%

### ***Education and Outreach***

The Apiary Inspection Unit works with the Delaware Beekeepers Association to share technical information and provide training. Additionally, one apiary maintained at State Forest facilities provides observation colonies for classroom demonstrations and promotional exhibits. The apiary is also used during the annual beginner beekeeping course.

In addition, the draft of "Standard Operation Procedures" for adult mosquito control and pesticide application by the Delaware DNREC F&W Mosquito Control Section was

reviewed. The Apiary Inspection Unit continues to work with Wesley College and Delaware Beekeepers Association to provide a beginner beekeeping course.

The National Honey Bee Survey, in conjunction with the Bee Informed Partnership (BIP) and the USDA Animal Plant Health Inspection Service (APHIS), is a comprehensive examination of colony health throughout apiaries in the United States. The NHBS began in 2009 to address the emerging concern about the diminishing health of honey bee colonies. Delaware joined survey efforts in conjunction with The NHBS beginning in 2016. Adult and larval bees were collected from 20 apiary sites for analysis by the USDA. Additionally, pollen from 10 of those 20 apiaries was also collected for analysis.

## **Cooperative Agricultural Pest Survey**

The Cooperative Agricultural Pest Survey program is a partnership between the Delaware Department of Agriculture (DDA), University of Delaware and USDA-APHIS. Surveys are conducted for pests not known to occur in Delaware or those that have recently been introduced.

### ***Red Imported Fire Ant Survey***

<b>Geuns</b>	<b>Species</b>	<b>Common Name</b>	<b>Survey Dates</b>	<b>Sties/Traps</b>
<i>Solenopsis</i>	<i>invicta</i>	Red Imported Fire Ant	April 15-Sept 1	35 sites

The CAPS program inspected shipments of Palm Trees originating from within the RIFA quarantine area destined for commercial businesses such as Restaurants, gift shops, and miniature golf courses. Nurseries and garden centers which resold plants originating from the RIFA quarantine area were also subject to inspection.

Red Imported Fire Ants were not discovered in any shipments of palm trees in 2016.

### ***Forest Pest Survey***

<b>Genus</b>	<b>Species</b>	<b>Common Name</b>	<b>Survey Dates</b>	<b>Sites / Traps</b>
<b>Nursery Survey</b>				
<i>Anoplophora</i>	<i>glabripennis</i>	Asian Longhorned Beetle	Jan 1 - Dec 31	50 sites
<i>Agrilus</i>	<i>biguttatus</i>	Oak Splendour Beetle	May 1st - Sep 30th	50 sites
<i>Callidiellum</i>	<i>rufipenne</i>	Japanese Cedar Longhorn Beetle	Apr 1st - Sep 30th	50 sites
<i>Aeolesthes</i>	<i>sarta</i>	Quetta Borer	Apr 1st - Jul 31st	50 sites
<i>Tomicus</i>	<i>piniperda</i>	Pine Shoot Beetle	Nov 1 – Dec 25	25 sites
<b>Trap-Based Survey</b>				
<i>Agrilus</i>	<i>planipennis</i>	Emerald Ash Borer	Apr 1st - Aug 31st	10 sites
<i>Tomicus</i>	<i>destruens</i>	Pine Shoot Beetle	Jan 1 - Apr 30	12 traps
<i>Hylurgus</i>	<i>ligniperda</i>	Red-haired pine bark beetle	May 1 – Sept 30	12 traps
<i>Monochamus</i>	<i>alternatus</i>	Japanese Pine Sawyer	Apr 1 – Aug 31	12 traps

<i>Ips</i>	<i>sexdentatus</i>	Six-toothed bark beetle	May 1 – Sept 30	12 traps
<i>Ips</i>	<i>typographus</i>	European spruce bark beetle	May 1 – Sept 30	12 traps
<i>Orthotomicus</i>	<i>erosus</i>	Mediterranean pine engraver	May 1 – Sept 30	12 traps
<i>Tomicus</i>	<i>piniperda</i>	Pine Shoot Beetle (PSB)	Jan 1 - Apr 30	12 traps
<i>Pityophthorus</i>	<i>juglandis</i>	Walnut Twig Beetle	Jun 15 – Sept 30	8 traps

**Wood-boring/Bark Beetle Survey**

Traps were maintained for select pests from the Wood Bring/Bark Beetle Survey guidelines at 12 sites throughout Delaware. No target pests were found.

**Walnut Twig Beetle**

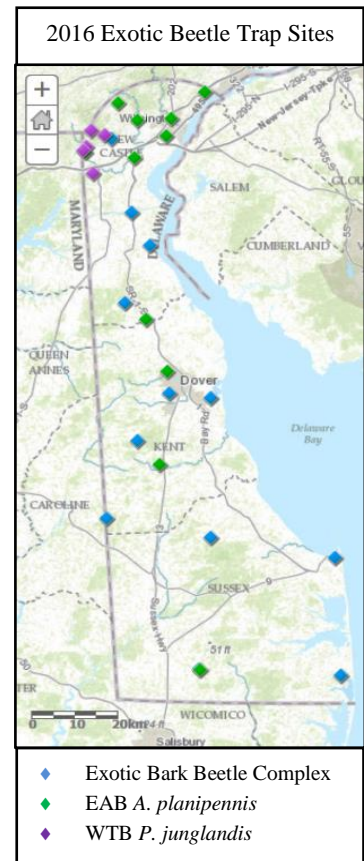
DDA placed 5 Walnut Twig Beetle traps in North-Western Delaware, near the 2014 MD infestation site. Walnut Twig Beetle was not found in any trap catch.

**Nursery Survey**

DDA conducted a survey of nursery industry businesses for target pests at 50 sites. No locations were positive for any of the species.

**Emerald Ash Borer**

EAB was detected in Delaware for the first time in July 2016 – one beetle was caught in a Purple Prism Trap deployed by Delta-21 in Hockessin, DE. In total, Delta-21 placed 108 Purple Prism Traps throughout Delaware. DDA assisted the trapping effort by deploying 10 Green Funnel Traps and 2 Purple Prism Traps throughout the state. EAB was not detected in any DDA trap samples.



**Forest Pest Outreach**

The Delaware Department of Agriculture Forest Pest Outreach program was funded through the Farm Bill. Highlights from this project follow.

**Events and Presentations**

We staffed informational booths at 10 public events and community meetings as well as creating content for the 2016 Envirothon competition.

**Media**

Interviews were conducted by 2 newspapers and 1 radio program regarding the confirmation of Emerald Ash Borer in Delaware. News stories about the discovery were published in seven news websites and papers in Delaware, Maryland, and Pennsylvania.

**Emerald Ash Borer Preparedness**

Due to the imminent threat posed by emerald ash borer, DDA has focused on warning cities, parks, and community associations about the financial risk posed by the decline

and death of infested trees. We presented information at 5 technical meetings. Attendees included municipal tree health specialists, park managers, and landscape and nursery professionals.

#### *Delaware Plant Emergency Response Plan*

DDA has compiled an Emergency Response Plan as a guide for responding to plant pest emergencies. The plan outlines agencies and stakeholders, legal authorities, personnel and communications. It also includes detailed response plans for 15 high-impact pests.

Each plan contains pest highlights, projected impacts in Delaware, survey methodology, identification protocols, and a practical discussion of likely responses to a positive find in Delaware. Response plans are periodically reviewed and updated. Pests were ranked into three tiers which considered the pest's potential for damage, public visibility, public health impact, level of regulatory response, and feasibility of eradication.

### **Current and Significant Plant Pest Response Plans**

#### **Tier 1 – High impact to agriculture, industries, and environment; High level of public visibility; high level of regulatory response**

- Africanized Honey Bee, *Apis mellifera scutellata*
- Red Imported Fire Ant, *Solenopsis invicta*
- Asian Longhorned Beetle, *Anoplophora glabripennis*

#### **Tier 2 – Moderate or localized impact; little or no impact on public health; moderate level of regulatory response**

- Plum Pox, *Potyvirus*
- Spotted Lanternfly, *Lycurma delicatula*

#### **Tier 3 – No impact on public health; limited impact; little or no regulatory response**

- Emerald Ash Borer, *Agrilus planipennis*
- Pine Shoot Beetle, *Tomicus piniperda*
- Walnut Twig Beetle, *Pityophthorus juglandis*
- *Dickeya*, *Dickeya solani*, *Dickeya dianthicola*
- Boxwood Blight, *Cylindrocladium pseudonaviculatum*

#### **Other pests of concern – Impact varies**

- Chrysanthemum White Rust, *Puccinia horiana*
- Ramorum Blight, *Phytophthora ramorum* and *P. kernoviae*
- Karnal Bunt, *Tilletia indica*
- Soybean Rust, *Phakopsora pachyrhizi*
- Viburnum Leaf Beetle, *Pyrrhalta viburni*

## **Noxious Weed Control**

### ***Delaware Noxious Weeds***

Between 1970 – 2012, six plant species have been designated as noxious weeds in Delaware. The current list of noxious weeds in Delaware includes: Johnsongrass (*Sorghum halepense halepense*), Canada thistle (*Cirsium arvense*), burcucumber (*Sicyos angulatus*), Giant Ragweed (*Ambrosia trifida*), Texas Panicum (*Urochloa texana*) and Palmer Amaranth (*Amaranthus palmeri*). Delaware law requires that these weeds not be allowed to reach 24 inches in height or set seed. Compliance agreements are used to formulate a workable control program.

### ***Other Weeds***

Mechanical and herbicide control was applied on selected sites containing kudzu (*Pueraria lobata*), Japanese knotweed (*Polygonum cuspidatum*), bamboo, Porcelain-berry (*Ampelopsis brevipedunculata*), and other invasive species. We continue to implement an equipment loan program to assist the public in the control of noxious weeds. We also assist with mile-a-minute biocontrol through University of Delaware insect share days.

### **Noxious Weed Control Program Activities**

	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
Landowners Contacted	1,153	1,454	1,393	1,755	2057
Compliance Agreements	45	36	37	60	86
Acres Under Compliance Agreements					
<i>New Castle County</i>	10,570	6,007	7,250	10,800	12970
<i>Kent County</i>	55,800	26,545	20,950	36,920	59020
<i>Sussex County</i>	34,940	44,130	36,000	30,900	47100
Equipment Days	1,570	1,812	1,504	1,617	1653
Right-of-ways Sprayed	3,401	3,082	3,339	3,484	3044
Violation Letters	0	4	0	0	0
Court Cases	0	1	0	0	0
Bamboo Phone Calls	50	60	32	34	33
Noxious Weed Phone Calls	91	98	123	149	144
Other Weed Related Calls	86	69	43	46	79

### ***Cooperative Efforts***

The Noxious Weed Control Supervisor is licensed by the American Society of Agronomy as Certified Crop Advisor. The Noxious Weed Control staff works closely with the University of Delaware Cooperative Extension Service, Maryland Noxious Weed Unit, USDA, DE State

University, DE Dept. of Transportation, and DE Dept. of Natural Resources and Environmental Control regarding noxious weed issues.

### ***Compliance Agreements***

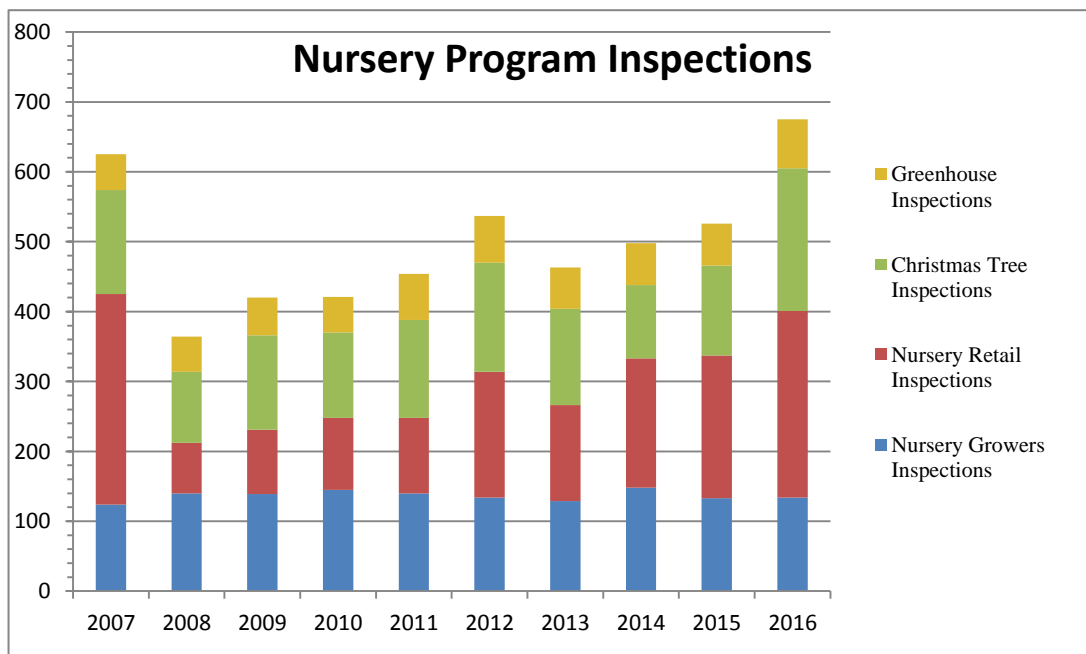
There has been a significant decrease in the number of compliance agreements and violations letters reported during the last five years. The compliance form includes all the land that each farmer tilled or all the land under each landowner’s control. This reduced the paperwork substantially while keeping the same acreage under compliance agreements. Genetically modified soybeans and corn have also reduced the number of violations. Finally, the conversion of farmland to housing and commercial development has reduced the number of infested acres under tillage.

### ***Weed Related Calls***

The noxious weed unit assists the public in identification and proper control procedures for invasive species. Upon request, a noxious weed specialist will visit the infested site and develop a control plan to eradicate the weeds while maintaining the desirable and/or native plants.

## **Nursery Inspection and Certification**

Delaware's greenhouse and nursery industry reports \$17.5 million in annual gross cash receipts. The Nursery Inspection and Certification Unit inspects nursery stock and Christmas trees for insect and plant disease pests. All nursery businesses must maintain a current Nursery Industry License from Plant Industries. Certification and inspections are conducted to prevent the introduction of unwanted plant pest into Delaware and to facilitate grower shipments of nursery stock to other states and countries.





## ***Licensing***

In 2016, 1,100 acres of production nursery stock were licensed and inspected. Plant Industries issued 728 nursery industry licenses, including 61 greenhouse operations, 5 plant brokers, 1 wholesale florist, 1 distribution center, and 7 mail-order businesses, as well as 67 new Nursery Industry Licenses.

Given the staffing shortage, the Nursery Unit concentrated on maintaining the nursery licensing and certification requirements and inspecting growers that needed certificates of inspection for interstate sales.

## ***Additional Inspections***



Delaware's Nursery Program also conducted inspections for APHIS-PPQ, CAPS programs, including 117 pine shoot beetle, 44 chrysanthemum white rust and 59 red imported fire ant inspections.

Boxwood blight, *Cylindrocaldium pseudonaviculatum* was not detected this year in Delaware. During our statewide retail nursery inspections 48 retail nurseries were inspected for symptoms of boxwood blight.



Sanitary landfill permit conditions do not allow for the disposal of plant material for burial at the landfills. As a result, the Department now makes an official plant material burial request through the Department of Natural Resources, Solid & Hazardous Waste Management Section.

Chrysanthemum white rust (*Puccinia horiana*) was surveyed for during retail nursery inspections this year and no chrysanthemum white rust was detected. Also during compliance visits there were no Pine shoot beetle (*Tomicus piniperda*) quarantine violations detected.

## ***Ribes Permitting***

*Online Ribes Permit:* [http://dda.delaware.gov/pdfs/Ribes\\_Permit.pdf](http://dda.delaware.gov/pdfs/Ribes_Permit.pdf)

Permits Issued: 2

### **CERTIFICATION OF CURRANT PLANTS**

STATES REGULATED: All

MATERIALS REGULATED: Plants of *Ribes spp.*

RESTRICTIONS: Shipment of regulated materials into and cultivation within Delaware will be allowed, provided a permit authorizing shipment into this area and planting and propagation within the area is obtained from the Plant Industries Section. No permits shall be

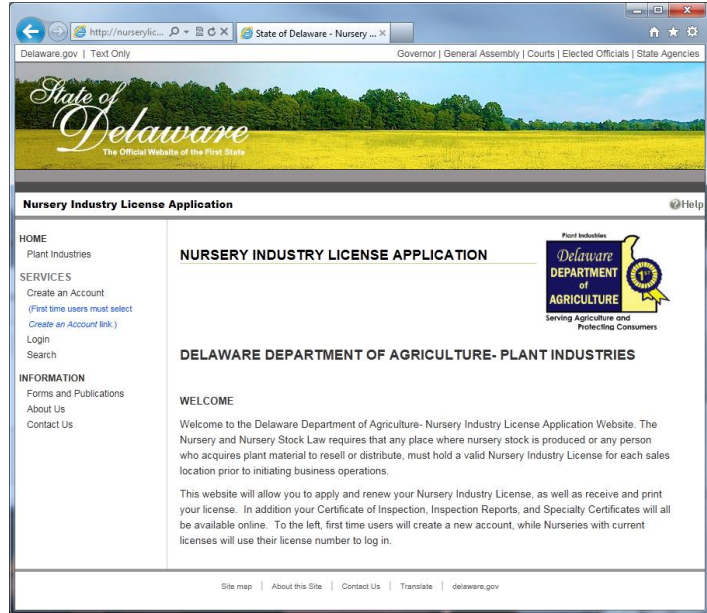
issued for the plants *Ribes aurium* or *Ribes nigrum*.

## Online Nursery License Applications and Inspections System (NILA)

Web Address For Online Nursery Licensing Site: <https://egov.delaware.gov/NILA>

The website allows users to apply, renew, update, and print their Nursery Industry License.

- In the fall of 2011 NILA was launched.
- In January of 2015 the system was transitioned from private industry administration to state administration.
- In December of 2016 NILA was reviewed for a complete program rewrite.
- The rewrite is needed to update code and add some new enhancements.
- NILA will remain as a fully functional web interface for both nursery and DDA staff users.



## Seed Certification and Grain Inspection

The DDA Seed Lab is a member of the Association of Official Seed Certifying Agencies (AOSCA). The lab is responsible for seed certification, grain inspection, and enforcement of the seed law.

### *Seed Certification Program*

The Delaware Seed Certification Program ensures the production of quality seed for planting. The program works to improve field crop varieties, increase the supply and speed the distribution of certified seed. The steps of the certification process are: field inspection and sampling of seed crop, laboratory analysis, and proper labeling of certified seed tags.

**Certified Seed Program Activities**

Activity	2012	2013	2014	2015	2016
Certified Seed Samples Tested	395	323	232	206	171
Certified Acres Inspected	9,589	9,934	8,407	7,970	8257
Certified Seed Tags Issued	145,719	109,661	54,722	38,563	34,779

### *Grain Inspection Program*

The DDA Grain Inspection Unit inspects and certifies every grain mill during the harvest season, and establishes and checks standard operating procedures. The inspection unit also

conducts quality tests and resolves grain analysis disputes between growers and the grain mill operator. Most grain harvested is used by the poultry industry.

### Grain Inspection Activities

Activity	2012	2013	2014	2015	2016
Certified Granaries	17	17	17	17	17
<i>Grain Inspector License Tests</i>	14	15	16	19	11
Granary Inspections	150	160	178	167	165
<i>Equipment Tests</i>					
Moisture Meters	186	160	180	125	176
Scales	110	157	162	137	140
Samples	5	0	7	7	17
Official Samples					
<i>Tested for Certification</i>	94	271	193	160	148
<i>Tested for Fungal Diseases</i>					
Aflatoxin	0	0	0	0	0
Vomitoxin (DON)	38	125	48	1	1

### Standards Established for the Grading Grain in DE

	Wheat	Corn	Sorghum	Barley	Soybeans
Damage		√	√		√
Defects	√				
Dockage	√		√	√	
Foreign Material		√			√
Garlicky	√			√	
Insect Infested	√	√	√	√	√
Shrunken & Broken Kernels	√				
Test Weight	√	√	√	√	√
Thins				√	
Moisture	√	√	√	√	√
Other Standards	√	√	√	√	√

### Seed Law Enforcement

Seed lab inspectors conduct sell-by-date inspections at retail and wholesale outlets selling seed to the public. Seed is also purchased for germination testing. If the seed does not meet the standards, a stop-sale is issued and the seed is removed from the shelf. If the violation is corrected then the seed is allowed for sale.

### Seed Testing and Inspection

<b>Activity</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
Retail Store Inspections	337	419	475	459	614
Seed Testing					
<i>Official Seed Samples</i>	763	646	781	493	531
<i>Service Seed Samples</i>	271	455	215	104	207
<i>Roundup Tolerance Samples</i>	12	5	15	53	14

### **Plant Regulatory Programs**

The Plant Industries Section, in cooperation with the USDA-APHIS-PPQ, seeks to control the establishment and spread of economically injurious plant pests and diseases. The intercontinental and interstate movement of infected plants and plant products is the major pathway for introduction of nonresident pest species. To regulate the movement of plants, DDA processed the permits in the table below.

<b>Permit Type and Description</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
USDA-APHIS-PPQ-525 Soil Permit	4	10	2	5	1
USDA-APHIS-PPQ-526 Move Live Plant Pests	150	65	80	105	75
USDA-APHIS-PPQ-546 Agreement - Post Entry Quarantine	0	0	0	0	0
USDA-APHIS-PPQ-588 Plants for Experimental Purposes	3	3	5	7	4
USDA-APHIS-PPQ-597 Import Permit - Plants & Plant products	0	0	0	0	0
USDA-APHIS-BRS Biotechnology Permit	12	13	11	10	6
USDA Permit Lab Inspections	12	-	11	9	6
Federal Phytosanitary Certificate	-	-	-	-	9
State Phytosanitary Certificate	5	4	3	3	2
State Issued Boxwood Blight Compliance Agreements	-	-	-	1	1
State Issued European Corn Borer Compliance Agreements	-	2	3	2	1
State Issued House Plant Inspection Certificates	1	1	0	2	2
State Issued Japanese Beetle Greenhouse Certificates	2	4	5	4	5