Long Island Pesticide Pollution Prevention Strategy

January 21, 2016
Overview

1) Brief Background on LI Pesticide Pollution Prevention Strategy

2) Long Island Aquifer

3) Occurrence of Pesticides in Long Island Groundwater

4) Best Management Practices (BMPs)/Pollution Prevention (P2) Measures

5) Education, Outreach, and BMP Implementation
Long Island Pesticide Pollution Prevention Strategy

The goal of the Strategy is to:

Prevent adverse effects on human health and the environment by protecting Long Island's groundwater and surface water resources from pesticide-related contamination.

Continue to meet pest management needs of agricultural, residential, commercial, industrial, and institutional sectors.
HIGHLIGHTS OF THE STRATEGY

• Pollution Prevention (P2) approach

• Coordinated Collaboration with Stakeholders
  - Technical Review and Advisory Committee (TRAC)
  - Stakeholder Workgroups

• Monitoring focused on Strategy issues
SCOPE OF THE STRATEGY

• 47 active ingredients detected in groundwater since 1996 and currently registered for use on LI

• First 3 active ingredients currently being evaluated:

<table>
<thead>
<tr>
<th>Pesticide</th>
<th>Type</th>
<th>Some Common/Trade Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atrazine</td>
<td>Herbicide</td>
<td>Aatrex, Atrazine, Atrazine 4L</td>
</tr>
<tr>
<td>Imidacloprid</td>
<td>Insecticide</td>
<td>Marathon, Admire, Gaucho, Provado, Merit</td>
</tr>
<tr>
<td>Metalaxyl/Mefenoxam</td>
<td>Fungicide</td>
<td>Ridomil, Subdue</td>
</tr>
</tbody>
</table>
Timeline

July 2014
LI Strategy Finalized

October 2014 & February 2015
TRAC Meetings

May 2015 – Data Packages Available

June 2015
Stakeholder Meetings

CURRENT:
Education & Outreach

UPCOMING GROWING SEASON:
Implement BMPs
Long Island Aquifer

Groundwater
- Commonly occurs in pore spaces between sand and gravel

3 Aquifers
1) Upper Glacial
2) Magothy
3) Lloyd
Understanding Groundwater Quality

- Program with Suffolk & Nassau Counties
- Monitoring Wells, Private Wells & Community Supply Wells
- Samples Submitted to Suffolk Lab for Analysis of ~300 Parameters
- Key Component to Strategy
Groundwater Monitoring cont’d

• ~600 Monitoring Wells Between Nassau & Suffolk Counties

• ~26,000 Groundwater Samples Since 1997

• 19 Cooperating Growers Across 6 Commodities
Imidacloprid Mis-Uses/Spills/Poor Housekeeping

- Between 2005 & 2008
- Highest concentrations linked to mis-use
- >50 ppb standard
- Confirms rapid movement to groundwater
- Concentrations have declined
2014 Imidacloprid Groundwater Data

- 75 detections
- Much lower concentrations: ≤ 2.2 ppb
- Likely associated with labeled uses
- Credit to the users
2014 Metalaxyl Groundwater Data

- 65 detections
- Detections ranging from: 0.1 – 1.9 ppb
- Most detections in eastern half of Suffolk
- Likely associated with labeled uses
Monitoring Program to Establish Baseline Conditions

Groundwater Monitoring Strategy – Plan for Measuring Success

Identify Areas of Concern

Identify P2/BMP Measures

Implement Pollution Prevention Measures

Assess Effectiveness of Pollution Prevention Measures

Groundwater Trends Over Time

Concentration

Time

0.00

0.50

1.00

1.50

Adjust Pollution Prevention Measures as Necessary

Continue Monitoring Program
Possible Alternatives

1. Modified Applications
Continued pesticide use, but through improved application techniques → Best Management Practices/Pollution Prevention Measures

2. Possible Alternative Active Ingredients
Possible alternatives or rotational pesticide products

3. Non-Pesticide Options/IPM Practices
Possible cultural practices not involving use of pesticides
<table>
<thead>
<tr>
<th>Modified Applications</th>
<th>Alternative Pesticides</th>
<th>Non-Pesticide Options/IPM Practices</th>
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</thead>
<tbody>
<tr>
<td>✓ Rotation</td>
<td>✓ Segway (cyazofamid)</td>
<td>✓ Use of resistant plants/cultivars (soil and foliar)</td>
</tr>
<tr>
<td>✓ Limit Applications</td>
<td>✓ Stature (dimethomorph)</td>
<td>✓ Use of biocontrols (in particular for Pythium)</td>
</tr>
<tr>
<td>✓ Improved Calibration &amp; Properly Working Eqpt.</td>
<td>✓ Truban, Terrazole, and Banrot (etridiazole) – Soil Applications</td>
<td>✓ Crop rotations (soil and foliar)</td>
</tr>
<tr>
<td></td>
<td>✓ Aliette, Alude (fosetyl-Al and phosphites)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ Pageant and Compass (strobilurins)</td>
<td></td>
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<tr>
<td>Modified Applications</td>
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<td>--------------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>✓ Use of minimum application rates or possibly at reduced rates (agricultural)</td>
<td>✓ Dylox - Oriental beetle &amp; other white grubs for turf</td>
<td>✓ Resistant cultivars</td>
</tr>
<tr>
<td>✓ Hot spot treatments</td>
<td>✓ TriStar &amp; Safari basal trunk spray</td>
<td>✓ Physical removal of pests and infested foliage/plants</td>
</tr>
<tr>
<td>✓ Foliar instead of soil treatment</td>
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<td></td>
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<tr>
<td>✓ Trunk or bark injection or bark application instead of soil application</td>
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Outreach and Training

Putting the Strategy Into Action…
Factsheet Development

- Being developed by Cornell Cooperative Extension of Suffolk County specialists
- Based on high priority use patterns:

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<th>Metalaxyl/Mefenoxam</th>
<th>Imidacloprid</th>
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</thead>
<tbody>
<tr>
<td>1) Sweet Corn</td>
<td>1) Greenhouse</td>
<td>1) Potato</td>
</tr>
<tr>
<td></td>
<td>2) Container Nursery</td>
<td>2) Greenhouse</td>
</tr>
<tr>
<td></td>
<td>3) Potato/Tomatoes</td>
<td>3) Cucurbits</td>
</tr>
</tbody>
</table>

- Expect availability in early 2016
BMP Seminars/Workshops/Conferences

- Training programs emphasizing pollution prevention strategies
  - The target audiences based on land use categories
  - The topics and speakers will best represent each of the land use categories.
  - NYSDEC Core and Category specific credits to be available
  - Beginning late 2015/early 2016
Thank You

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Nassau County Groundwater Use

- Nearly all of Nassau serviced by municipal water supply wells
- Just under 500 supply wells
- Private wells in northeast
Suffolk County Groundwater Use

- Most of Suffolk serviced by municipal water
- ~600 supply wells
- Riverhead district
- 1,000’s of private wells
Understanding Groundwater Quality

- Groundwater Monitoring Wells Installed
- ~600 Monitoring Wells Between Nassau & Suffolk Counties
- Samples Submitted to Suffolk Lab for Analysis
- Analysis Includes ~300 Parameters
- Key Component to Strategy
Suffolk County Groundwater Monitoring

- Program Between Department and Suffolk County Since 1997
- Established ~200 Monitoring Wells
- 24,000 Groundwater Samples Since 1997
- 20 Cooperating Growers Across 5 Commodities
Nassau County Groundwater Monitoring

- Groundwater Sampling with NCDOH & NCDPW
- Annually Collect ~150 Groundwater Samples Monitoring Wells
- Combination of Monitoring Wells, Supply Wells, and Irrigation Wells