Spear® T Liquid Concentrate

Daniel Peck
Field Development Biologist
Vestaron Corporation
**Background**

- **Approved Aug 2017**
  - VST 006340 Sublabel A
  - Preceded by dry formulation (VST-006330 EP) in 2014
- **Biological Insecticide/Miticide**
- **Peptide active ingredient**
  - GS-omega/kappa-Hxtx-Hv1a
- **Greenhouse use only**
  - Works through contact
  - Broad spectrum
  - Aphids, Mites, Thrips, Whiteflies
  - 2-3 gallons per 100 gallons
Background (cont)

- New IRAC Group 32
  - Awarded in Nov 2018
  - Nicotinic Acetylcholine Receptor (nAChR) Allosteric Modulators - Site II
  - Novel Mode of Action
  - Disrupts the nAChR of the nervous system
  - Binding site is distinct from neonicotinoids and spinosyns
  - Only the 14th “nerve and muscular” MoA
Fit in Env't Hort

- 0-day PHI, 4-hour REI
- 2-year shelf life; no refrigeration
- Non-toxic to bees
- Soft on beneficials
- No known phytotoxicity
- Versatility for ULV and dipping
- New tool for insecticide resistance management
- Reduce reliance on conventional products with less favorable safety profiles

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Performance Example

Efficacy of Spear T against Broad Mites

Mean Broad Mite Mortality (%)

- Before Treatment
- 24 Hours
- 92 Hours

- AgriMek
- Vestaron
- Water

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University of Arkansas
Data Support Needed in Envt Hort

- Additional target species
  - Lewis mites, Russet mites
  - Chilli thrips, Echinothrips
  - Aphids (any), Mealybugs (any)

- Expansion into outdoor uses
  - Landscape ornamentals, Nurseries

- Best use practices
  - Water volume, ULV
  - Role of surfactants/adjuvants
  - Feasibility of lower use rates

- Role as rotational product
  - Resistance management programs
Spear®-Lep

Daniel Peck
Field Development Biologist
Vestaron Corporation
Background

- Approved Sept 2018 Sublabel B
  - VST 006340
  - Preceded by 006340 Sublabel A
- Biological Insecticide for caterpillars
- Co-applied with Bt ssp. kurstaki
  - Sublethal rates of both actives have synergistic interaction
  - Gut disruption from Bt allows peptide into hemocoel
  - Works through ingestion
  - 1-2 pints per acre with 1-2 pints Leprotec (Vestaron’s branded Btk product)

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Fit in Env Hort Program

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- 2-year shelf life; no refrigeration
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- New tool for insecticide resistance management
- Reduce reliance on conventional products with less favorable safety profiles
Performance Example

Synergy Between Spear and Btk Products

- Btk products alone
- Spear with Btk

Mortality ± SEM

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<thead>
<tr>
<th>Product</th>
<th>Mortality</th>
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<tbody>
<tr>
<td>none</td>
<td>10%</td>
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<tr>
<td>BioProtec</td>
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<tr>
<td>BMP123</td>
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<td>DiPel</td>
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Performance Example

Efficacy of Spear-Lep against Beet Armyworm on Tomato

- **UTC**
- **Btk alone**
- **Spear-Lep**
- **Intrepid**

<table>
<thead>
<tr>
<th>Date</th>
<th>UTC</th>
<th>Btk alone</th>
<th>Spear-Lep</th>
<th>Intrepid</th>
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Florida, 2018

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Data Support Needed in Envt Hort

- On label, but no performance data
  - Flowers, bedding plants, container plants, nurseries
  - Forest, ornamental and shade trees
- Co-application with other synergists (gut disruptors)
  - Bt ssp. aizawai for other lep species
  - Bt ssp. tenebrionis or ssp. galleriae for beetle species
- Role as rotational product

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