



Power of synthetics. Sustainability of biologicals.

Presented by: Ben Cicora, SVP Sales and Marketing

Previous Barriers Due To:

Production

- At scale
- At reasonable cost

Bioavailability

- Formulation Stability
- Insect uptake

Regulatory

- Biologic vs. chemical

SPEAR® OVERCOMES CHALLENGES:

Production

Proprietary production platform capable of producing a wide variety of peptides at scale and at reasonable cost

Bioavailability

- Stable peptide
- Significant optimization of formulation
- Synergy with Bt to ensure penetration of target insects

Regulatory

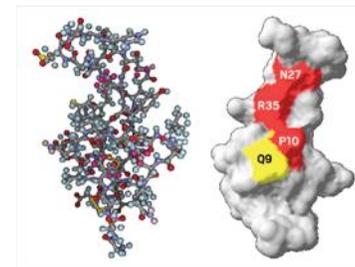
- Efficient path established with EPA Emerging Technology

Our First Product Family

- Natural ICK-type peptide, 40 amino acid
- IRAC Group 32 – nAChR
- Broad pest spectrum (Contact and Ingestion)
- Designed to be safe for humans, mammals, birds, fish, honeybees & Beneficial's
- Certified sustainable
- 0 days Pre-harvest interval, 4 hours re-entry interval
- No phytotoxicity observed, no toxic residues (MRL)



- Greenhouse version SPEAR[®]-T launched in July 2018
- Field version Spear[®]-Lep now available in Q1/2019



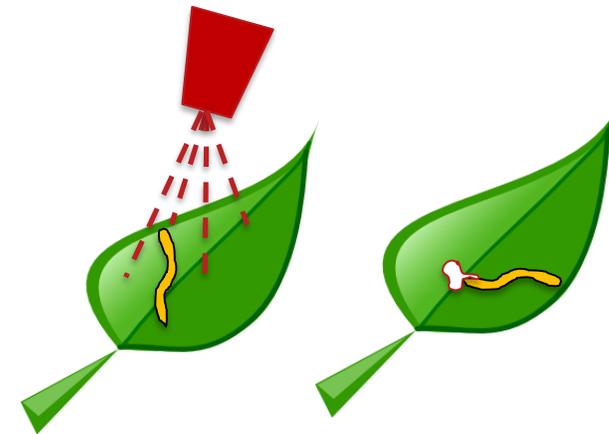
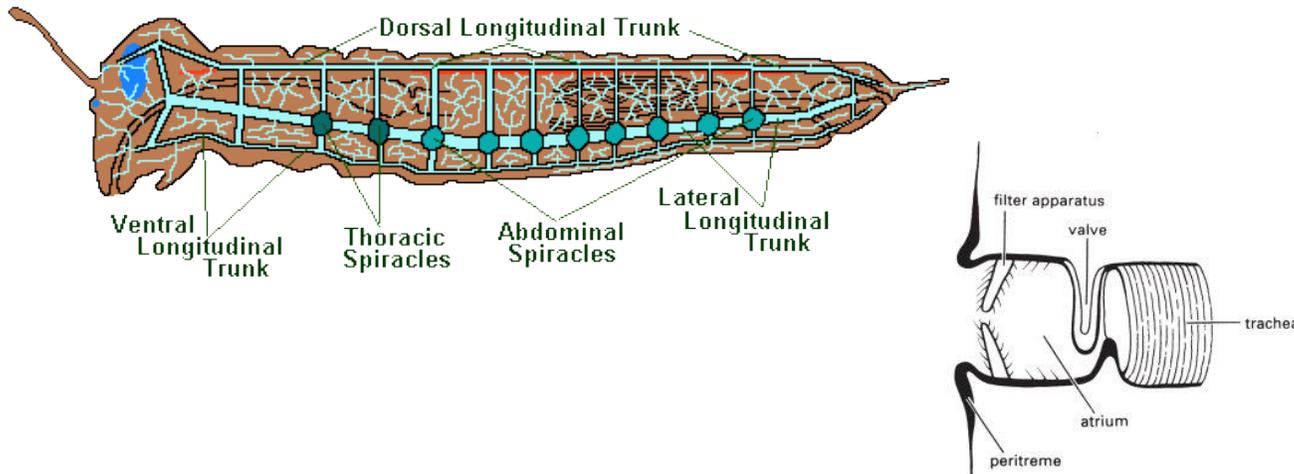
Two routes of entry:

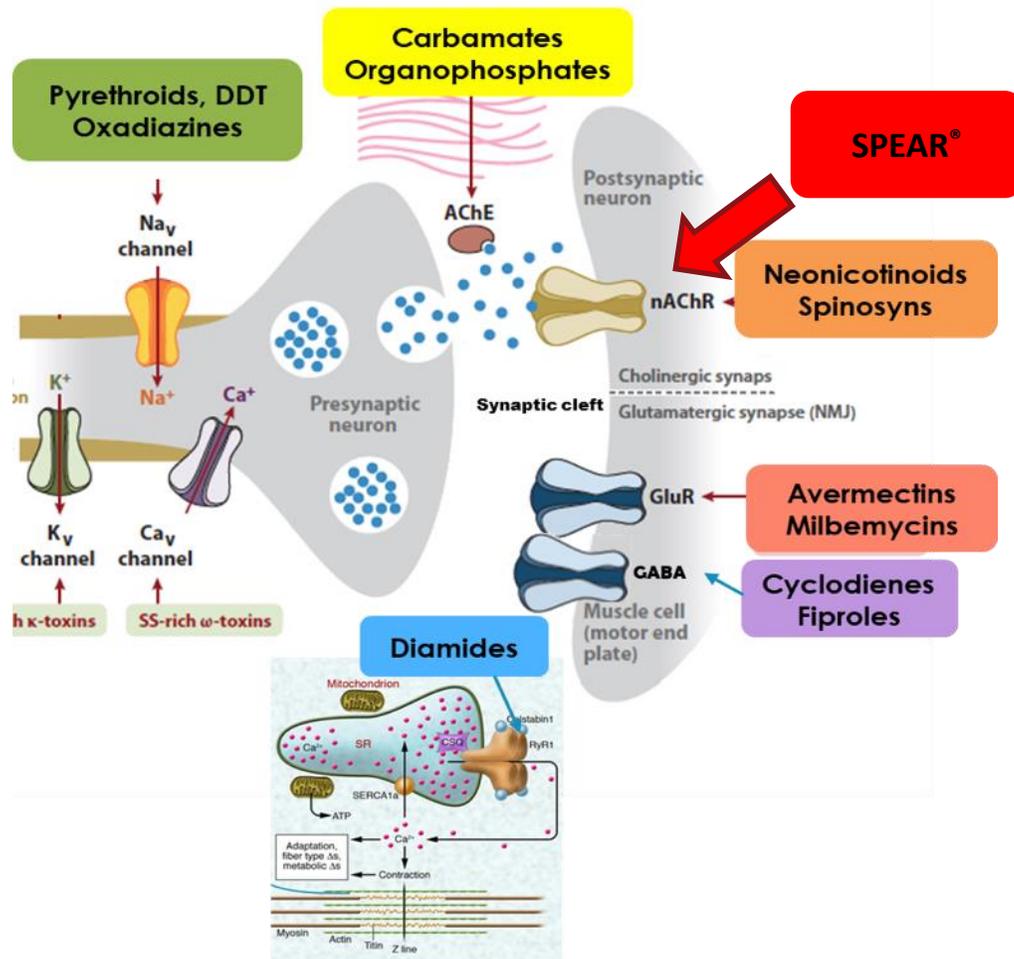
SPEAR[®]T
LIQUID CONCENTRATE

Contact – for existing insects at the time of spray (through spiracles/surface to volume ratio)

SPEAR[®]LEP

Oral ingestion – for insects that appear post-spray (bioavailability enhanced by non-lethal dose synergy with Bt)





- November 26, 2018: the IRAC approved **Group 32 Nicotinic Acetylcholine Receptor (nAChR) Allosteric Modulators - Site II**.
- This confirms that SPEAR[®] targets the nicotinic acetylcholine receptor (nAChR) in a different way from any existing class of insecticides.
- **SPEAR[®] binds to the nAChR** at a site allosteric to nicotine (and neonics). This MoA is similar to, but distinct from spinosyns.
- Insect pests resistant against other nAChR insecticides show **no cross-resistance** to SPEAR[®].
- As of today only 13 nerve and muscular modes-of-action are known in the insecticide world.

VST - 6700

VST - 7300

VST - 7400

VST - 7500

VST 7600

A rich pipeline of new
novel AI's with
defined modes of
action for insecticidal
& fungicidal activity



**THE POWER OF SYNTHETICS.
THE SAFETY AND SUSTAINABILITY OF
BIOLOGICALS.**



**Ben Cicora
SVP, Vestaron Corp**

— solution by —



HARNESSING THE POWER OF PEPTIDES

Vestaron exists to improve the safety, efficacy and sustainability of crop protection through migration from chemical pesticides to biological peptides