SPEAR® LEP | Insecticide for Cranberries
THE POWER OF SYNTHETICS. THE SAFETY AND SUSTAINABILITY OF BIOLOGICALS.

Spear® LEP is Vestaron’s revolutionary insecticide for tree nuts, fruits, vegetables, and other and other high-value specialty crops. Targeting lepidopteran pests such as loopers, worms, and caterpillars, field trials with Spear LEP show performance that is equivalent to conventional insecticides. With no known resistance or cross resistance, Spear LEP works as a standalone or in rotation with conventional insecticides. Spear LEP is an excellent IPM and resistance management tool.

**PRODUCT INFORMATION**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPA REG #</td>
<td>88847-6</td>
</tr>
<tr>
<td>AI</td>
<td>GS-OMEGA/KAPPA-HXTX-HV1A</td>
</tr>
<tr>
<td>FORMULATION</td>
<td>LIQUID</td>
</tr>
<tr>
<td>IRAC GROUP</td>
<td>32</td>
</tr>
<tr>
<td>SIGNAL WORD</td>
<td>CAUTION</td>
</tr>
<tr>
<td>REI</td>
<td>4 HOURS</td>
</tr>
<tr>
<td>PHI</td>
<td>0 DAYS</td>
</tr>
<tr>
<td>PACKAGE SIZE</td>
<td>1 GAL, 4X1 GAL CASE</td>
</tr>
<tr>
<td>USE RATE</td>
<td>2 PT/ACRE PLUS Btk</td>
</tr>
<tr>
<td>SURFACTANT</td>
<td>For best performance, use with a NIS or spreader/sticker at 0.125% v/v</td>
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</table>

**KEY FACTS**

- Insecticide based on a naturally occurring peptide
- Highly specific for lepidopteran larvae with very low risk to beneficials
- Control equivalent to synthetic options
- Vital new tool for sustainable pest management
- New IRAC Group 32 supporting resistance management
  - Mode of Entry: Ingestion
  - Mode of Action: Disruption of the nicotinic acetylcholine receptor
- Spear LEP is effective when tank-mixed with a gut disrupting facilitator such as Bacillus thuringiensis (Btk) (we recommend Leprotec®)
- Excellent environmental and worker safety profile
- 0-Day PHI, 4-Hour REI, & MRL Exempt
- Low risk of phytotoxicity

**PESTS CONTROLLED**

(refer to label for full list)

- BLACKHEADED FIREWORM
- CRANBERRY FRUITWORM
- GREEN SPANWORM
- SPARGANOTHIS FRUITWORM

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TANK MIXING

• TANK MIX ORDER
  1st: Powder/dry products
  2nd: Non-EC liquid, flowable, soluble concentrate products
  3rd: Emulsifiable concentrates (EC)
  4th: Adjuvants and surfactants

• WATER, AGITATE, SPEAR-LEP
  Do not add Spear LEP to the mix tank before introducing the desired amount of water.
  Start mechanical/hydraulic agitation before adding Spear LEP.

• ADJUVANTS & SURFACTANTS
  Always use adjuvant and/or surfactant to improve spray coverage. Check/adjust the spray solution pH to 5.5-6.5, then add adjuvant/surfactant to the dilute spray solution.

• CIRCULATE
  Maintain circulation while loading and spraying solution.

HOW IT WORKS

Pests plant tissue treated with Spear LEP and a low dose of Btk.

Btk crystal proteins damage the gut cells allowing Spear LEP access to the nervous system.

Spear LEP helps neurotransmitters to bind and open the receptor’s ion channels.

An MRL exemption indicates residue levels on food are not required to be measured or enforced when the product is used as directed by the label.

A short Restricted-Entry Interval (REI) provides flexibility and desired worker safety profiles.

Spear LEP works on a unique neuromuscular receptor qualifying as the first product in IRAC Group 32.

Spear LEP can be applied and crops can be harvested within the same day, providing a tool that allows growers flexibility in the field.

The open channel causes persistent depolarization of the nerve cell.

The affected cells are unable to reset and transmit new electrical signals.

This causes paralysis and death of the insect.

* Leprotec is Vestaron’s OMRI Certified Btk insecticide that is the ideal partner for use with Spear LEP. When ingested together, the non-lethal dose of Btk proteins perforate the insect mid-gut allowing the Spear peptide to access the target receptor in the nervous system, killing the pest.