

SOMSTAR™ -Ha
Helicoverpa armigera -NPV
BioInsecticide

(Being Registered in Central Insecticides Board, Govt of India)

APPROVED FOR USE IN ORGANIC AGRICULTURE

Introducing SoMSTAR™ -Ha

SOMSTAR™ -Ha is a biological insecticide based on Polyhedral Inclusion Bodies (PIB) of Nuclear Polyhedrosis Virus (NPV) of *Helicoverpa armigera* with a PIB count of 1×10^9 /ml that infects and kills *Helicoverpa armigera*.

SOMSTAR™ -Ha is being registered by Indian Pesticides Regulatory Authority - Central Insecticides Board, Govt of India. SOMSTAR-Ha™ is approved for use in Organic agriculture.

Mode of Action

Ingestion: The Occlusion bodies are ingested by insect larvae. In the highly alkaline pH of the midgut, the occlusion body protein dissolves and is further degraded by host's alkaline proteases.

Virus reproduction: The virus strain is protected in a polygonal structured capsid which enables the virus to infect host cells easily and aids in reproduction of the virus. When the capsid is broken down inside the host, virus strains are released and begin reproduction. The virus particles are released from polyhedra and subsequently attach to the peritrophic membrane lining the midgut. The lipoprotein membrane surrounding the virus fuses with plasma membrane of the gut wall cells and liberates nucleocapsids into the cytoplasm. The nucleotide transport virus DNA into the nucleus of the cell and virus gene expression begins. The virus multiplies rapidly and eventually fills the body of the host with virus particles.

Infection: The host will become visibly swollen with fluid containing the virus and will eventually die - turning black with decay. A pale whitish fluid is released from the insect's body within 2-5 days of application of SOMSTAR™ -Ha at young larval stages. The infection of NPV is sometimes carried inside the infected pupae and adults. The caterpillars emerging out of the eggs layed by such adults also carry the Poly Inclusion Bodies of NPV.

Method of Application

Foliar application : Spray SOMSTAR™ -Ha @ 1ml / L of water

The spray volume depends upon the crop canopy.

Addition of blue dye and skim milk powder will enhance bio efficacy of the product.

Target Pests

Helicoverpa armigera

Crops

SOMSTAR™ -Ha is suitable for application on Cereals , Millets , Pulses, Oilseeds, Fibre Crops , Sugar Crops , Forage Crops , Plantation crops ,Vegetables, Fruits, Spices , Flowers , Medicinal crops , Aromatic Crops , Orchards and Ornamentals.

Compatibility

SOMSTAR™ -Ha is compatible with Pesticides and BioPesticides

Shelf Life

SOMSTAR™ -Ha is stable for a period of 12 months from the date of manufacturing.

Mass Composition

CONSTITUENT	W/W %	FUNCTION
<i>Helicoverpa armigera</i> -NPV Content mass/mass	5%	Active
Inactive ingredients (Glycerol)	50%	Inactive
Moisture	45% max	Inactive

Biological Composition

CONSTITUENT	PIB/ml.	FORMULATION
Polyhedral Inclusion Bodies of <i>Helicoverpa armigera</i> Nuclear Polyhedrosis Virus.	1*10 ⁹	Sprayable Liquid

Free from Salmonella, Shigella , E.Coli

Cautions for handling and use of product

1. Avoid inhalation and skin contact while diluting as there could be spillage / splashes of the product
2. Mixing and spraying equipment is to be thoroughly rinsed with water and detergent before using the same equipment for spraying other pesticides.
3. Surplus spray solution should not be disposed in crop lands / stagnant water / flowing water where there is a possibility of causing pollution to natural resources
4. Do not eat / drink / smoke during application.
5. Direct incidence of SOMSTAR[™] -Ha may cause irritation and therefore it is recommended that the operator should use protective gear viz gloves, apron, mask, eye gear and hood.

Symptoms and Antidotes

Symptoms: Occasional symptoms include head ache and nausea.

Antidote: In the case of ingestion: symptomatic treatment is advised. In the case of contact with Eyes: Flush with water liberally for 20 minutes. In case of skin contact, wash the affected area with plenty of water and soap.

Citations

There are many citations in public domain on effectiveness of *Helicoverpa armigera* -NPV

Commitment to Nature

- SOMSTAR[™] -Ha is approved for use in organic agriculture.
- SOMSTAR[™] -Ha is safe to natural parasites, pollinators and predators.
- SOMSTAR[™] -Ha can be used as an effective component in IPM programmes, thereby leading to a reduction in use of chemical pesticides and creating a safer environment.
- SOMSTAR[™] -Ha does not lead to residue problems and doesn't cause resistance or resurgence problems.

Benefits from SOMSTAR[™] -Ha

- SOMSTAR[™] -Ha effectively controls one of the most economically important pests- *Helicoverpa armigera*
- Pest reduction leads to improved plant health and thereby increased crop productivity.
- SOMSTAR[™] -Ha is pet friendly, eco friendly and infant friendly