



**Government of India**  
**Ministry of Agriculture**  
**Department of Agriculture & Cooperation Directorate**  
**of Plant Protection, Quarantine & Storage Central**  
**Insecticide Board & Registration Committee N.H. IV,**  
**Faridabad-121 001**

# **MAJOR USES OF BIOPESTICIDES**

## **Registered under the Insecticides Act, 1968**

**AS ON 15.10.2013**

**Disclaimer: The document has been compiled on the basis of available information for guidance and not for legal purposes.**

**Major uses of Bio-fungicides : Page 2-10**

**Major uses of Bio-insecticides  
in field crops & public health : Page 11-24**

## Bio-fungicides

Crop	Common name of the disease	Dosage per ha			Waiting period from last application to harvest (in days)
		a.i. (g)	Formulation (g/ml)/%	Dilution in water (L)	
<b>Neem oil based EC containing <i>Azadirachtin</i> 0.030% (300 ppm)</b>					
Bhindi	Powdery mildew		2-2.5	500	3
<b><i>Pseudomonas fluorescens</i> 1.75% WP (In house isolated Strain Accession No. MTCC 5176)</b>					
Wheat	Loose smut		5 g/kg seed (Seed treatment)	Mix the required quantity of seeds with the required quantity of <i>Pseudomonas fluorescens</i> 1.75% WP formulation and ensure uniform coating. Shade dry and sow the seeds.	-
			5 g/litre (Foliar spray)	Dissolve 5 kg of <i>Pseudomonas fluorescens</i> 1.75% WP in 1000 litres of water and spray	
<b><i>Pseudomonas fluorescens</i> 0.5% WP (TNAU Strain Accession No. ITCC BE 0005)</b>					

Groundnut	Late leaf spot		10 g/kg seed	<p><b>Seed treatment</b></p> <p>Mix the required quantity of seeds with the required quantity of <i>Pseudomonas fluorescens</i> 0.5% WP formulation and ensure uniform coating. Shade dry and sow the seeds.</p> <p><b>Soil treatment :</b> 1 kg of <i>Pseudomonas fluorescens</i> 0.5% WP spread uniformly over 1 hectare of land (foliar spray @ 2%)</p>	-
Rice	Leaf and neck blast ( <i>Pyricularia oryzae</i> )		10 gm / kg seed	<p><b>Seed treatment:</b></p> <p>Mix required quantity of the seeds with the required quantity of <i>Pseudomonas fluorescens</i> 0.5% WP</p>	Nil
			1 kg/ha	<p><b>Soil treatment:</b></p> <p>Broadcast 1 kg <i>Pseudomonas fluorescens</i> 0.5% WP by mixing with 2.5 kg organic manure in one ha area</p>	
			1 kg/ha	<p><b>Foliar spray:</b></p> <p>Spray <i>Pseudomonas fluorescens</i> 0.5% WP @ 1 kg/ha</p>	

Chili seedlings	Damping off ( <i>Pythium aphanidermatum</i> )		10 g/kg seed	<b>Seed treatment</b> Mix required quantity of the seeds with the required quantity of <i>Pseudomonas fluorescens</i> 0.5% WP and ensure uniform coating, shade dry and sow.	Nil
Tomato	Wilt ( <i>Fusarium oxysporum</i> F.sp)		10 gm/kg of seeds	<b>Seed treatment</b> Mix required quantity of the seeds with the required quantity of <i>Pseudomonas fluorescens</i> 0.5% WP and ensure uniform coating, shade dry and sow	Nil
			2.5 kg/hectare	<b>Soil Treatment-</b> 2.5 kg of <i>Pseudomonas fluorescens</i> 0.5% wp. Spread uniformly over a hectare of land	-
<b><i>Trichoderma harzianum</i> 0.50% WS</b>					
Cardamom	Capsule rot ( <i>Phytophthora meadii</i> )		100 gm /plant (Soil treatment)	<b>Soil treatment:</b> Apply 100 gm product/ plant along with neem cake (0.5 kg/ plant) and 5 kg FYM/ plant	-
<b><i>Trichoderma harzianum</i> 2.0% WP</b>					
Maize	Root rot Fusarium wilt ( <i>Fusarium moniliforme</i> )		20 gm /kg seed	<b>Seed treatment:</b> Make a thin paste of required quantity of <i>Trichoderma harzianum</i> 2% WP with minimum volume of water and coat the seeds	-

				uniformly, shade dry the seeds just before sowing.	
<b><i>Trichoderma viride</i> 1% WP</b>					
Pigeonpea	Wilt, root rot		8 gm /kg seed  5.0 kg/ha	Seed treatment Soil treatment	Nil  Nil
<b><i>Trichoderma viride</i> 1% WP (TNAU Strain Accession No. ITCC 6914)</b>					
Cowpea	Root Rot		5 gm /kg seed  2.5 kg/ha	<b>Seed treatment:</b> Make a fresh slurry of required quantity of <i>Trichoderma viride</i> 1.0% WP with minimum volume of water and coat the seeds niformly, shade dry the seeds just before sowing.  <b>Soil treatment :</b> Mix 2.5 kg of <i>Trichoderma viride</i> 1.0% WP with 62.5 kg FYM and broadcast uniformly over a hectare of land and irrigate the field immediately	Nil
Chili seedlings	Damping off (Pythium aphanidermatum)		4 g/kg seed	<b>Seed treatment</b>  Mix required quantity of the seeds with the required quantity of trichoderma viride 1% WP and ensure uniform coating shade dry and sow	Nil
Urd bean	Root rot (Macrophomina phaseolina)		4 g/kg seed	<b>Seed treatment</b>  Mix required quantity of the seeds with the	Nil

				required quantity of trichoderma viride 1% WP and ensure uniform coating shade dry and sow	
Pigeon Pea	Root rot (Macrophomina phaseolina)		4 g/kg seed	<b>Seed treatment</b> Mix required quantity of the seeds with the required quantity of trichoderma viride 1% WP and ensure uniform coating shade dry and sow	Nil
<b>Trichoderma viride 1% WP (Strain T-14 in house isolate of M/s Indore Biotech Inputs &amp; Research (P) Ltd., Indore)</b>					
Chickpea	Wilt ( <i>Fusarium oxysporum</i> )		5 gm /kg seed	<b>Seed treatment:</b> Make slurry of required quantity of <i>Trichoderma viride</i> 1.0% WP with minimum volume of water & coat the seeds uniformly, shade dry the seeds just before sowing	
	Root Rot ( <i>Rhizoctonia solani</i> & <i>Sclerotium rolfsii</i> )		5.0 kg/ha	<b>Soil treatment :</b> Mix 5.0 kg of <i>Trichoderma viride</i> 1.0% WP in 100 kg FYM and broadcast over a hectare land mix well with soil and irrigate the field immediately.	-
Paddy	Sheath blight ( <i>Rhizoctonia solani</i> )		5-10 gm/litre of water	<b>Foliar spray:</b> Mix 2.5 kg of <i>Trichoderma viride</i> 1.0% WP in 500 litres of water. Spray three	

				times at 15 days interval uniformly over one hectare land 30 days after planting	
<b><i>Trichoderma viride</i> 1% WP</b>					
Cauliflower	Stalk rot ó <i>Sclerotinia sclerotiorum</i>		4 gm /kg seed	<b>Seed treatment:</b> Make a thin paste of required quantity of <i>Trichoderma viride</i> 1.0% WP with minimum volume of water and coat the seeds uniformly, shade dry the seeds just before sowing	-
			2.50 kg/ha	<b>Soil treatment :</b> Mix 2.5 kg of <i>Trichoderma viride</i> 1.0% WP with 62.5 kg FYM and broadcast uniformly over a hectare of land and irrigate the field immediately	
Brinjal	Root Rot/ Wilt/ Damping off  <i>Rhizoctonia bataticola,</i> <i>Sclerotium rolfsii,</i> <i>Fusarium oxysporum,</i> <i>Rhizoctonia solani</i>		5 gm/kg seeds	<b>Seed treatment:</b> Make a thin paste of required quantity of <i>Trichoderma viride</i> 1.0% WP with minimum volume of water and coat the seeds uniformly, shade dry the seeds just before sowing	
	Root Rot/ Wilt/ Damping off  <i>Rhizoctonia bataticola,</i> <i>Sclerotium rolfsii,</i>		250 gm/50 litre of water/ 400 sq.	<b>Nursery Treatment:</b> Mix 250 gm of <i>Trichoderma viride</i> 1.0% WP in 50 litre of water and drench the soil in 400 sq. mt. area	

	<i>Fusarium oxysporum</i> , <i>Rhizoctonia solani</i>		mt.	<b>Seedling Root dip treatment:</b> Mix 10 gm of <i>Trichoderma viride</i> 1.0% WP in one litre of water and dip the Brinjal seedling root for 15 minutes	
			2.5 kg/ hectare	<b>Soil treatment :</b> Mix 2.5 kg of <i>Trichoderma viride</i> 1.0% WP with 62.5 kg FYM and broadcast uniformly over a hectare of land and irrigate the field immediately	
Cabbage	Root rot/Collar rot <i>Rhizoctonia solani</i>		10 gm/ litre water	<b>Seedling Root dip treatment:</b> Mix 10 gm of <i>Trichoderma viride</i> 1.0% WP in one litre of water and dip the Cabbage seedling root for 30 minutes	
			2.5 kg/ hectare	<b>Soil treatment :</b> Mix 2.5 kg of <i>Trichoderma viride</i> 1.0% WP with 62.5 kg FYM and broadcast uniformly over a hectare of land and irrigate the field immediately	
<b><i>Trichoderma viride</i> 1% WP</b>					
Tomato	Seedling wilt <i>Fusarium oxysporum</i>		9 g/kg seed	<b>Seed treatment</b> Mix 9 kg of the product per kg seed.	-
	Damping off <i>Pythium</i>		2.5 kg	<b>Root zone application</b> Mix thoroughly 2.5 kg of the product in 150 kg of compost or	



	<i>aphanideramatum</i> <i>Rhizoctonia solani</i>			farmyard manure and apply this mixture in the field after sowing/ transplanting of crops	
Bengal gram	Seedling wilt <i>Fusarium oxysporum</i>  Damping off <i>Pythium aphanideramatum</i> <i>Rhizoctonia solani</i>		9 g/kg seed  2.5 kg	<b>Seed Treatment</b> Mix 9 kg of the product per kg seed.  <b>Root zone application</b> Mix thoroughly 2.5kg of the product in 150 kg of compost or farmyard manure and apply this mixture in the field after sowing/ transplanting crops	-
<b><i>Trichoderma viride</i> 1% WP</b>					
Sunflower	Seed rot <i>Sclerotium rolfsii</i>  Root rot <i>Sclerotium rolfsii</i>		6 g/kg seed  1.25-2.5 kg/ha	<b>Seed treatment</b> Mix required quantity of the seeds with the required quantity of product in rice gruel, ensure uniform coating, shade dry and sow <b>Soil treatment</b> Mix with 30-60 kg of compost/ farmyard manure and spread uniformly over 1 hectare of land	

<b><i>Trichoderma viride</i> 1% WP (TNAU Strain Accession no. ITCC 6914)</b>					
Cowpea	Wilt ( <i>Fusarium oxysporum</i> )		4 gm/kg seed	(Seed treatment) Mix required quantity of the seeds with the required quantity of <i>Trichoderma viride</i> 1% WP and ensure uniform coating, shade dry and sow.	
<b><i>Trichoderma viride</i> 5% WP</b>					
Groundnut	Stem rot  ( <i>Sclerotium rolfsii</i> )		4 gm Formulated <i>Trichoderma viride</i> 1% WP / kg of seed (Seed Treatment)	(Seed treatment) Mix required quantity of the seeds with the required quantity of <i>Trichoderma viride</i> 1% WP and ensure uniform coating, shade dry and sow.  <b>Apply 2.5 kg <i>Trichoderma viride</i> 1% WP in 500 kg Castor cake in furrow at the time of sowing.</b>	
			2.5 kg Formulated <i>Trichoderma viride</i> 1% WP /hectare (Soil Treatment )		

## **Bio-Insecticides:**

### **1. Azadirachtin 0.15% W/W Min. Neem Seed Kernel Based E.C.**

**M/s Murkumbi, Belgaum**

Name of Crop	Name of Insect	Formulation (ml)	Dilution in water (Litre)	Waiting period (Days)
Cotton	White fly	2500-5000 ml	500-1000 lit	5
	Bollworm	2500-5000	500-1000 lit	5
Rice	Thrips, Stem borer, Brown Plant hopper, Leaf folder	1500 to 2500 ml	500	5

### **2. Azadirachtin 0.3% (3000 PPM) Min. Neem Seed Kernel Based E.C.**

**M/s P. J. Margo, Tumkur, Karnataka**

**M/s Agro Pack, Bharuch, Gujarat**

Cotton	American bollworm	4000	1000	5
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### **3. Azadirachtin 1% Min. E.C. Neem based.**

Tea	Thrips	400-500	450	1
	Red Spider mites	400-500	600	1

### **4. Azadirachtin 1% (10000 ppm) Min. Neem Based E.C. Containing**

**M/s P. J. Margo, Tumkur, Karnataka**

Tomato	Fruit borer (Helicoverpa armigera)	1000-1500	500	3
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Brinjal	Fruit and Shoot borer (Leucinodes orbonalis)	1000-1500	500	3
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**5. Azadirachtin 0.03% Min. Neem Oil Based E.C. Containing**

Cotton	Bollworm (Helicoverpa Armigera),	2500-5000	500	5
	Aphids	2500-5000	500	5
Rice	Leaf roller, Stem borer, BPH	2000	1000	5

**6. Azadirachtin 0.03% (300 ppm) Neem Oil Based WSP Containing  
M/s Bahar Agro Chem & Feeds Pvt. Ltd, Ratnagiri**

Bengal Gram	Pod Borer (Heliopsis)	2500-5000	500-1000	7
Red Gram	Pod Borer (Melangromyza)	2500-5000	500-1000	7
Cotton	Aphids, Jassids, White Flies, Bollworms,	2500-5000	500-1000	7
Okra	Fruit borer, White flies, Leaf Hopper	2500-5000	500-1000	7
Brinjal	Shoot & Fruit borer, beetles	2500-5000	500-1000	7
Cabbage	Aphids, DBM, Cabbage - worm, Cabbage - looper	2500-5000	500-1000	7
Jute	Semi looper, Hairy caterpillar	2500-5000	500-1000	7

**7. Azadirachtin 5% w/w Min. Neem Extract Concentrate Containing  
M/s EID Perry, Chennai**

Tea	Caterpillar,	200	400	5
	Pink mite,	200	400	5
	Red Spider mites,	200	400	5
	Thrips	200	400	5
Tobacco	Tobacco caterpillar,	200	400	5
	Aphids	200	400	5
Rice	Brown Plant Hopper,	200	400	5
	Leaf Folder,	200	400	5
	Stem Borer	200	400	5
Cotton	White Fly,	375	750	5
	Leaf hoppers	375	750	5
	Heliothis, Aphids	375	750	5
Cauliflower	Spodoptera,	200	400	5
Bhindi	Leafhopper,	200	400	5
	whitefly, Aphid, Pod Borer	200	400	5
Tomato	Aphids, Whitefly, Fruit borer	200	400	5

**8. *Bacillus thuringiensis* var. *galleriae* 1593 M sero type H 59 5b, 1.3% flowable concentrate**

**M/s Tuti Corin**

**Potency 1500 IU/mg**

Name of the Crop	Name of the Insect	Formulation (litre)	Dilution in water (Litre)	
Cabbage & Cauliflower	Diamond back moth ( <i>Plutella xylostella</i> )	0.6-1.0	500	-
Tomato	Fruit borer ( <i>Helicoverpa armigera</i> )	1.0-1.5	500	
Bhendi	Fruit borer ( <i>Earias</i> spp.)	1.0-1.5	500	

Chillies	Fruit borer (spodoptera litura)	1.5-2.0	1000	
Cotton	Bollworm (Heliothis armigera)	2.0-2.5	1000	
Rice	Leaf folder (Cnaphalocrocis medinalis)	1.0-3.0	1000	

### 9. *Bacillus thuringiensis*-k

Cotton	Bollworm	750-1000ml	750-1000 ltr	Nil
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**10. *Bacillus thuringiensis* Serovar Kurstaki (3a, 3b, 3c) 5% WP**  
**M/s Wockhardt Ltd, Aurangabad**  
**Potency 55000 su(spodoptra unit based) ( $5 \times 10^7$  spore/mg)**

Cotton	American Bollworm	25.00-50.00	500-1000	500-1000	-
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	Spotted Bollworm	37.50-50.00	750-100	500-1000	-
Red gram	Pod Borer	50.00-62.50	1000-1250	500-1000	-
Cabbage	Diamond back moth	25.00-50.00	500-1000	500-1000	-

**11. Bacillus thuriengiensis var Kurstaki 0.5% WP serotype 3a, 3b, 3c, Strain DOR Bt-1, Potency 9000 IU/mg min. U/s 9(3b)**

**M/s Kan Biosys Pvt Ltd, Pune**

Crop	Common name of Pest	Formulation (kg)	Dilution of water (lit.)
Caster	Caster Semilooper (Achaearae janata)	0.25	250-300

**12. Bacillus thuriengiensis var Kurstaki 0.5% WP serotype 3a, 3b, 3c, Strain DOR Bt-1, Potency 9000 IU/mg min. U/s 9(3b)**

**M/s Biotech, Hyderabad**

Crop	Common name of Pest	Formulation (kg)	Dilution of water (lit.)
Caster	Caster Semilooper (Achaearae janata)	0.25- 0.375	250

**13. Bacillus thuriengiensis var Kurstaki 0.5% WP serotype 3a, 3b, 3c, Strain DOR Bt-1, Potency 16000 IU/mg min.**

Crop	Common name of Pest	Formulation (kg)	Dilution of water (lit.)
Chickpea	Chick pea podborer (Helicoverpa armigera)	2.0	500

**14. Bacillus thuringiensis var Kurstaki 2.5% AS.(Spicbio-Btk AS)  
M/s Tuticorin Alkali Chemicals & fertilizers Ltd,**

Crop	Common name of Pest	Formulation (Lit.)	Dilution of water (lit.)
Gram	Grampod borer (Helicoverpa armigera)	1.0-1.5	500

**15. Bacillus thuringiensis var. Kurstaki, Serotype H-3a, 3b, Strain Z-52**

**Mfd by - M/s Berdsk Plant, Russia**

**Imported, Repacked by - M/s Bio-tech. International, Delhi**

**Potency:-**

- (i) 3000 IU/mg min - on Gypsy moth**
- (ii) 32000 IU/mg min – Trichoplusia vi**
- (iii) 50000 IU/mg min – H.armigera**
- (iv) 55000 IU/mg min – Spodoptera exiqua**

Cotton	Bollworms, Spodoptera	-	0.75-1.0 kg.	500-750	-
Rice	Stem borer & Leaf folder	-	1.50 kg.	500-750	-
Gram	Heliothis	-	0.75 kg.	500-750	
Pigeon Pea	Heliothis	-	0.75 kg.	500-750	-
Soyabean	Spodoptera, Heliothis, Spilosoma, Semilooper,		0.75 kg.	500-750	



	Leaf miner				
Tobacco	Spodoptera, Heliothis	-	1.50-2.00 kg.	500-750	-
Castor	Hairy caterpillar, Ahea janata	-	1.00 kg.	500-750	
Teak	Dfoliater (Hyblaea pured), Skeletonizer (Eutectona machaeralis	-	0.25-0.50% Sol.	As required.	

**16. Bacillus thuriengiensis var Kurstaki Strain HD-1, serotype 3a, 3b, 3.5% ES  
for Import & repack. Potency 17600 IU/mg  
Mfd by – M/s Abloott Laboratories, USA, Australia  
Imported, Repacked by – M/s Cheminova India Ltd, Panali, Gujarat**

Crop	Common name of Pest	Formulation (ml/ha)	Dilution of water (lit.)
Cotton	Bollworm	750-1000	750-1000

**17. Bacillus thuriengiensis Var Kurstaki Serotype 3a, 3b, SA II WG**

**Mfd by – M/s Sandoz Agro Inc, Sandoz House, USA**

**Imported & Repacked by – M/s Sandoz India Ltd, Mumbai**

**Potency:-**

**53000 SU/mg**

**32000 IU/mg**

Cabbage, Cauliflower	Diamond back moth	0.5 kg/ha	500-700 l/ha
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**18. Beauveria bassiana 1.15% W.P.**

Cotton	Bollworm	2000	400	-
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**19. Beauveria bassiana 1.15% W.P. ( $1 \times 10^8$ /gm min) Strain BB-ICAR-RJP**  
**Accession No – MCC 1022**  
**M/s RB Herbal Agro, Nasik**

Rice	Rice leaf folder ( <i>Cnaphalocrosis medinalis</i> )	2.5 kg	750-850 L/Ha	-
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**20. Beauveria bassiana 1% WP Strain No: NBRI – 9947 ( $1 \times 10^8$  CFU/gm min)**

**M/s Deptt. of Agriculture (PP), Govt of UP, Lucknow**

Chick pea	Pod borer ( <i>Helicoverpa armigera</i> )	-	3 kg.	500 L/Ha	-
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**21. Beauveria bassiana 1% WP ( $1 \times 10^9$  CFU/gm min)**

**(a) International Panaacea Ltd, New Delhi Strain No. IPL/BB/MI/01**

Okra	Fruit borer / spotted bollworm	-	3.75-5.0 kg	400-500 L/Ha	-
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**22. Metarhizium Anisopliae 1.15% WP ( $1 \times 10^8$  CFU/gm min) MTCC - 5173**  
**M/s T. Stains & Co. Ltd, Coimbatore**

Crop	Name of the Pest	Dosage per hectare		Waiting period
Rice	Brown plant hopper (BPH) ( <i>Nilaparvata lugens</i> )	2.5 kgs (Formulated)	500 Liters of water	-----

**23. Verticillium Lecanii 1.15%WP (1x10<sup>8</sup> CFU/gm min) Strain – AS MEGH-VL Acession No – MCC-1028**

**M/s T. Stains**

Cotton	White flies	2500 (formulated)	500 litres of water	----
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**24. Verticillium Lecanii 1.15%WP (1x10<sup>8</sup> CFU/gm min) Strain – AS MEGH-VL Acession No – MCC-1028**

**M/s RB Herbal Agro, Nasik**

Citrus	Mealybugs ( <i>Planococcus citri</i> )	2.5 kg	550 litres of water	----
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**25. Nuclear Polyhedrosis Virus of Helicoverpa Armigera 0.43% AS (1x10<sup>9</sup> POB/ml)**

**M/s Pest Control India Ltd, Banglore**

Cotton	Helicoverpa Armigera		2700 ml	400-600 L/Ha	-
Tomato	Helicoverpa Armigera		1500 mlo	400-600 L/Ha	-

**26. NPV of *Helicoverpa armigera* 2.0% AS**

**Strain No. GBS/HNPV -01 (1x10<sup>9</sup> POB/ml min)**

**M/S. Ganesh bio-control systems, Rajkot (Gujarat)**

Pigeon pea	Pod borer ( <i>Helicoverpa armigera</i> )	-	250-500 ml	500-750	-
Gram	Pod borer ( <i>Helicoverpa armigera</i> )	-	250-500 ml	500-750	-

**27. NPV of *Helicoverpa armigera* 2.0% AS  
POB/ml min)**

**Strain No. IBH-17268 (1x10<sup>9</sup>**

**M/s. Indore Biotech Inputs & Research (P) LTD., Indore**

Pigeon pea	Pod borer ( <i>Helicoverpa armigera</i> )	-	250-500 ml	500-750	-
Gram	Pod borer ( <i>Helicoverpa armigera</i> )	-	250-500 ml	500-750	-

**M/s. Bio-tech international**

**Strain No. BIL/HV-9 POB(1x10<sup>9</sup> POB/ml)**

Pigeon pea	Pod borer ( <i>Helicoverpa armigera</i> )	-	250-500 ml	500-750	-
Chick pea	Pod borer ( <i>Helicoverpa armigera</i> )	-	250-500 ml	500-750	-
Tomato	Fruit borer ( <i>Helicoverpa</i> )	-	250-500 ml	500	-

	<i>armigera</i> )				
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**Indore Bio-tech input & research**

**Strain No. IBL-17268**

Pigeon pea	Pod borer ( <i>Helicoverpa armigera</i> )	-	250-500 ml	500-750	-
Chick pea	Pod borer ( <i>Helicoverpa armigera</i> )	-	500-1000 ml	500-750	-

**28. NPV of *Helicoverpa armigera* 0.43% AS Strain No. BIL/HV-9 (1x10<sup>9</sup> POB/ml)**

**M/s Pest Control India Ltd, Banglore**

Cotton	<i>Helicoverpa armigera</i>	-	2700 ml	400-600	-
Tomato	<i>Helicoverpa armigera</i>	-	1500 ml	400-600	-

**29. NPV of *Spodoptera litura* 0.5%AS (1x10<sup>9</sup> POB/ml min)**

**M/s Pest Control India Ltd, Banglore**

Tobacco	<i>Spodoptera litura</i>	-	1500	400-600	-
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**Public health use**

**1. Azadirachtin 0.15% EC**

Mosquito larvae	Habitat	a.i. (gm)	Formulation (gm)	Surface
Mosquito larvae	Stagnant water, drainage, water puddle, iron containers, machinery scraps, iron box, iron tanks, plastic scraps, pit.	1.0	1.0	10.7 m <sup>2</sup>
		5.0	5.0	53.6 m <sup>2</sup>
		933.3	933.3	1 hectare

## 2. *Bacillus thuringiensis* var. *israelensis* WP.

Name of insect	Dosage/h		Interval between applications
	a.i. (gm)	Formulation(Kg.)	
Anopheles and Culex (larvae)	---	2 ó 5 Kg/ha	2-4 weeks

## 3. *Bacillus thuringiensis* Var-*israelensis* , Serotype H-14 (VECTOBAC 12 AS) Potency 1200 ITU / MG (VCRC Serotype H-14 strain)

Culex	Drains, Cesspits, Casuarina pits, Disused wells	5.0 litres.	1 liter in 100 lts of water
Anopheles	Paddy fields, Ponds, pools	10.0 litres.	1 liter in 50 lts of water
Aedes	Tree holes, disused tyres	10.0 litres.	1 liter in 50 lts of water
Culex	Drains, Cesspits, Casuarina pits, Disused wells	5.0 litres.	1 liter in 100 lts of water

**4. Bacillus thuriengiensis var Israelensis, Serotyp H-14 (Vectobac 12 AS)  
potency 1200 ITU/mg**

**M/s Valent Bioscience Corp., USA**

**Imported & Mkt by – M/s Aventis Crop Science India Ltd.**

Name of Insect	Habitat	Formulation (lit/ha.)
Anopheles	Clean water, cement tanks	1-2 ltrs
Culex	Polluted water, Casspits, Cement tank, Stagnant and flowering drains	2-4

**5. Bacillus thuriengiensis var Israelensis, Serotyp H-14, 5% WP Potency 2000  
ITU/mg**

**M/s Wockhardt Life Sciences Ltd, Bandra**

Area and Breeding (Habitat)	Dose (g/m <sup>2</sup> )	Recommended application Frequency
River bed pool	0.5	Weekly
Cement tanks	0.5	Fortnightly
Pokhars small kaccha or cement tanks with low walls	0.5	Weekly
Pits and ditches	0.5	Weekly
Paddy fields	0.5	Weekly
Semi polluted pits	0.5	Weekly
Ornamental fountains	0.5	Fortnightly
Septic tanks	1.0	Weekly / Fortnightly
Flood prone polluted cesspits and ditches	0.5	Weekly
Drains with polluted stagnant or flowing very slowly	0.5	Weekly / Fortnightly

**6. Bacillus thuriengiensis var. sphaericus 1593 M sero type H 59 5b**

Name of Insect	Habitat	Formulation (Kg.)	Dilution in water
Anophles species Culex species	For Drains, Cesspits Cesspools, Paddy fields, ponds	112	1 liter in 10 lts of water
Anophles species Culex species	Camsuarina pits, unused wells, unused overhed tanks, Domestic wells (Not for drinking requirements )	112	1 liter in 10 lts of water

**7. Bti 12% AS (Vectobac)**

Anopheles	Clean water, cement tanks	1-2 ltrs.
Culex	Polluted water, cess pits, cement tanks, stagnant and flowing drains	2-4ltrs.

**8. Bacillus sphaericus 1593 M sero type H 59 5b, 1.3% flowable concentrate  
M/s Tuti Corin  
Potency 13000 IU/mg**

Anophles species Culex species	For Drains, Cesspits Cesspools, paddy fields, ponds	112ml	1 ltr/10 ltr of water	-
Anophles species Culex species	Camsuarina pits, unused wells, unused overhed tanks, Domestic wells (Not for drinking requirements)	112ml	1 ltr/10 ltr of water	