भारत सरकार / **Government of India**
कृ षि एवं षकसान कल्याण मंत्रालय / **Ministry of Agriculture & Farmers Welfare**
कृ षि एवं षकसान कल्याण षवभाग
Department of Agriculture & Farmers Welfare
वनस्पषि संरक्षण, संगरोध और संग्रह षनदेशालय
Directorate of Plant Protection, Quarantine & Storage
के ं द्र ीय क ीटनाशी ब ोर ्ड एव ं प ंज ीकरण सषमषि
Central Insecticide Board & Registration Committee
एन. एच. - 4, फरीदाबाद – **121 001** (हररयाणा)
N.H.-IV, Faridabad - 121 001 (Haryana)

MAJOR USES OF PESTICIDES

(Registered under the Insecticides Act, 1968)

(As on – 31/05/2022)

(Based on certificate issued)

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

BIO-INSECTICIDES

1. Major uses of Bio-insecticides - (Page No. 2 to 14).
2. Public health use - (Page No.15 to 19).

1. Major uses of Bio-Insecticides					
Name of crop	**Name of Insect**	**Dose/ha**		**Dilution in water (liter/ha)**	**Waiting period (Days)**
		a.i. (g)	**Formulation (g/ml)/%**		
Azadirachtin 0.15% EC w/w Min. Neem Seed Kernel Based					
Cotton	White fly, Bollworms	-	2500-5000	500-1000	05
Rice (Paddy)	Thrips, Stem borer, Brown plant hopper, Leaf folder	-	1500-2500	500	05
Azadirachtin 00.30% EC (3000 PPM) Min. Neem Seed Kernel Based					
Cotton	American bollworm	-	4000	1000	05
Azadirachtin 01.00% EC Min. Neem Based					
Tea	Thrips	-	400-500	450	01
	Red spider mites	-	400-500	600	01
Azadirachtin 01.00% EC (10000 PPM) Min. Neem Based					
Tomato	Fruit borer (*Helicoverpa armigera*)	-	1000-1500	500	03
Brinjal	Shoot & fruit borer (*Leucinodes orbonalis*)	-	1000-1500	500	03
Azadirachtin 00.03% EC Min. Neem Oil Based					
Cotton	Bollworm (*Helicoverpa armigera*), Aphids	-	2500-5000	500	05
Rice (Paddy)	Leaf roller, Stem borer, Brown plant hopper	-	2000	1000	05
Azadirachtin 00.03% WSP (300 PPM) Neem Oil Based					
Bengal Gram (Gram or Chickpea)	Pod borer (*Helicoverpa armigera*)	-	-	-	07

Red Gram (Tur or Arhar)	Pod borer (*Melanagromyza* sp.)	-	2500-5000	500-1000	07
Cotton	Aphids, Jassids, Whitefly, Bollworms	-	2500-5000	500-1000	07
Okra (Bhindi)	Fruit borer, Whitefly, Leaf Hopper	-	2500-5000	500-1000	07
Brinjal	Shoot & Fruit borer, beetles	-	2500-5000	500-1000	07
Cabbage	Aphids, Diamond back moth, Cabbage worm, Cabbage looper	-	2500-5000	500-1000	07
Jute	Semi looper, Hairy caterpillar	-	2500-5000	500-1000	07
Azadirachtin 05.00% w/w Min. Neem Extract Concentrates					
Tea	Caterpillar, Pink mite, Red spider mites, Thrips	-	200.0	400	05
Tobacco	Tobacco caterpillar, Aphids	-	200.0	400	05
Rice (Paddy)	Brown plant hopper, Leaf folder, Stem borer	-	200.0	400	05
Cotton	Whitefly, Leaf hoppers, *Helicoverpa armigera*, Aphids	-	375.0	750	05
Cauliflower	*Spodoptera*, Diamond back moth, Aphids	-	200.0	400	05
Bhindi (Okra)	Leafhopper, whitefly, Aphid, Pod borer	-	200.0	400	05
Tomato	Aphids, Whitefly, Fruit borer	-	200.0	400	05
***Bacillus thuringiensis* var. galleriae 1593 M sero type H 59 5b, 1.3% flowable concentrate Potency 1500 IU/mg**					

Cabbage & Cauliflower	Diamond back moth (*Plutella xylostella*)	-	06-1.0	500	-
Tomato	Fruit borer (*Helicoverpa armigera*)	-	1.0-1.5	500	-
Bhindi (Okra)	Fruit borer (*Earias* spp.)	-	1.0-1.5	500	-
Chilli	Fruit borer (*Spodoptera litura*)	-	1.5-2.0	1000	-
Cotton	Bollworm (*Helicoverpa armigera*)	-	2.0-2.5	1000	-
Rice (Paddy)	Leaf folder (*Cnaphalocrocis medinalis*)	-	1.0-3.0	1000	-
Bacillus thuringiensis* var. *4rustaki					
Cotton	Bollworm	-	750-1000	750-1000	-
***Bacillus thuringiensis* var. *4rustaki*, serotype H-39, 3B, Strain Z-52**					
Cotton	Bollworms, *Spodoptera*	0.75-1.00	500-750	-	-
Rice (Paddy)	Stem borer & Leaf folder	1.50	500-750	-	-
Gram	*Heliothis* sp.	0.75	500-750	-	-
Pigeon Pea	*Heliothis* sp.	0.75	500-750	-	-
Soybean	*Spodoptera*, *Heliothis*, *Spilosoma*, Semilooper, Leaf miner	0.75	500-750	-	-
Tobacco	*Spodoptera, Heliothis*	1.50-2.00	500-750	-	-
Castor	Hairy caterpillar, *Achaea janata*	1.00	500-750	-	-
Teak	Defoliator (*Hyblaea puera*), Skeletonizer (*Eutectona machaeralis*)	0.25-0.50	500-750	-	-
***Bacillus thuringiensis* serovar 4rustaki (3a, 3b, 3c) 5.0% WP Potency 55000 SU (*Spodoptra* unit based)**					

(5x107 spore/mg)					
Cotton	American Bollworm	25.00-50.00	500-1000	500-1000	-
	Spotted Bollworm	37.50-50.00	750-1000	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	-
***Bacillus thuringiensis* var. 5rustaki 0.5% WP serotype 3a, 3b, 3c, Strain DOR Bt-1, Potency 9000 IU/mg min. U/s 9(3b)**					
Caster	Caster 5rustaki5r (*Achaea janata*)	-	0.25	250-300	-
***Bacillus thuringiensis* var. 5rustaki 0.5% WP serotype 3a, 3b, 3c, Strain DOR Bt-1 NAIMCC-B-01118, Potency 13329 IU/mg min. U/s 9(3b)**					
Pigeon pea	Bollworm (*Helicoverpa armigera*)	-	1-1.25	1000	-
***Bacillus thuringiensis* var. 5rustaki 0.5% WP serotype 3a, 3b, 3c, Strain DOR Bt-1, Potency 9000 IU/mg min. U/s 9(3b)**					
Caster	Caster 5rustaki5r (*Achaea janata*)	-	0.25- 0.375	250	-
***Bacillus thuringiensis* var. 5rustaki 0.5% WP serotype 3a, 3b, 3c, Strain DOR Bt-1, Potency 16000 IU/mg min.**					
Chickpea	Chick pea pod borer (*Helicoverpa armigera*)	-	2.0	500	-
***Bacillus thuringiensis* var. 5rustaki 2.5% AS (Spicbio-BTK AS)**					
Gram	Gram pod borer (*Helicoverpa armigera*)	-	1.0-1.5	500	-
Bacillus thuringiensis var. 5rustaki, Serotype H-3a, 3b, Strain Z-52 Potency:- ☐ 3000 IU/mg min – on Gypsy moth					

□ 32000 IU/mg min – *Trichoplusia* vi □ 50000 IU/mg min – *Helicoverpa armigera* □ 55000 IU/mg min – *Spodptera exiqua*					
Cotton	Bollworms, Spodoptera	-	0.75-1.0 kg.	500-750	-
Rice	Stem borer & Leaf folder	-	1.50 kg.	500-750	-
Gram	*Helicoverpa armiger*	-	0.75 kg.	500-750	
Pigeon Pea	*Helicoverpa armiger*	-	0.75 kg.	500-750	-
Soyabean	*Spodoptera litura, Helicoverpa armigera*, *Spilosoma 6rustak*, Semilooper, Leaf miner	-	0.75 kg.	500-750	-
Tobacco	Spodoptera, Helicoverpa armigera	-	1.50-2.00 kg.	500-750	-
Castor	Hairy caterpillar, Caster 6rustaki6r (*Achaea janata*)	-	1.00 kg.	500-750	-
Teak	Defoliator (*Hyblaea puera*), Skeletonizer (Eutectona machaeralis)	-	0.25-0.50% Sol.	As required.	-
***Bacillus thuringiensis* var. 6rustaki Strain HD-1, serotype 3a, 3b, 3.5% ES for Import & repack.Potency17600 IU/mg**					
Cotton	Bollworms	-	750-1000	750-1000	-
***Bacillus thuringiensis* var. 6rustaki Serotype 3a, 3b, SA II WG Potency:- 53000 SU/mg, 32000 IU/mg**					
Cabbage, Cauliflower	Diamond back moth	-	0.5 kg.	500-700	-
***Beauveria bassiana* 1.15% WP**					
Cotton	Bollworms	-	400	750-1000	-
***Beauveria bassiana* 01.15% WP**					
Cotton	Bollworm	-	2000	400	-
Rice (Paddy)	Leaf folder	-	2.50 kg/ha	750-850	-

***Beauveria bassiana* 1.15% WP. (1x10^8 /gm min) Strain BB-ICAR-RJP, Accession No – MCC 1022**					
Rice	Rice leaf folder (*Cnaphalocrosis medinalis*)	-	2.5 kg.	750-850	-
***Beauveria bassiana* 1.15% WP (Strain : BB – 5372, own R & D Isolate)**					
Rice	Rice leaf folder (*Cnaphalocrosis medinalis*)	-	2.5 kg.	600-750	-
***Beauveria bassiana* 1.15% WP (1x10^8 /gm min) Strain ICAR, Research Complex, Umiam, Meghalaya, Accession No – NAIMCC-F-03045**					
Rice	Rice leaf folder (*Cnaphalocrosis medinalis*)	-	2.5 kg.	750-850	-
***Beauveria bassiana* 1.15% WP (1x10^8 /gm min) Accession No – NAIMCC-F-03045, Strain No. NBAIM, MAU.**					
Rice	Rice leaf folder (*Cnaphalocrosis medinalis*)	-	2.5 kg/ha	750 liter/ha	-
***Beauveria bassiana* 1.15% WP (1x10^8 /spores/ml) Strain BCRL, Accession No – BCRL Bbpx-6892**					
Cabbage	Diamond back moth (*Plutella xylostella*)	1-1.5 litre	500-750	Apply using any type of sprayer (high, low or ultra low volume) which gives good coverage	NA
***Beauveria bassiana* 1.0% WP, Strain No: NBRI – 9947 (1x10^8 CFU/gm Min.)**					
Chick pea	Pod borer (*Helicoverpa armigera*)	-	3.0 kg.	500	-
***Beauveria bassiana* 1.0% WP (1x10^9 CFU/gm min), Strain No. IPL/BB/MI/01**					
Okra (Bhindi)	Fruit borer, Spotted bollworm	-	3.75-5.0 kg.	400-500	-
***Beauveria bassiana* 1.0% WP (1x10^8 CFU/gm min), Strain No. SVBPU/CSP/Bb-10, Accession No. ITCC-**					

7520					
Chick pea	Pod borer (*Helicoverpa armigera*)	-	3.0 kg.	500	-
***Beauveria bassiana* 5.0% WP, (1x10^8 CFU/gm min) Strain IARI, Accession No. ITCC-7353**					
Cabbage	Diamond back moth (*Plutella xylostella*)	-	2.0 kg.	500	-
***Beauveria bassiana* 5.0% SC, Strain: NBAII , Bangalore , Accession No. ITCC-7102, (Strain Isolated by Project Directorate of Bio-logical control, Bangalore)**					
Tomato	Fruit borer (*Helicoverpa armigera*)	-	500	500	-
***Beauveria bassiana* 5.0% AS Strain : BB-AAU-RJP Accession No. MCC – 1024**					
Tomato	Fruit borer (*Helicoverpa armigera*)	-	0.5	500	-
***Beauveria bassiana* 1.15% WP (1x10^8 /gm min) Accession No – NAIMCC-F-03048**					
Chick pea	Gram Pod Borer (*Helicoverpa armigera*)	-	2500	500	-
***Beauveria bassiana* 10.00% SC**					
Cabbage	Diamond back moth	1-1.5	-	500-750	-
***Beauveria bassiana 1.5%* Liquid Formulation (CFU count 10X10^8) Accession No.MTCC-5171**					
Tomato	Fruit borer (*Helicoverpa armigera*)	2.0	Foliar spry	500	-
***Beauveria bassiana* 1.15% WP (1X10^6 CFU /gm min)**					
Cotton	Bollworm	20	-	400	-
***Metarhizium anisopliae* 1.15% WP (1x10^8 CFU/gm min) Accession No. MTCC – 5173**					
Rice	Brown plant hopper (*Nilapavata lungens*)	-	2.5 kg.	500	-
***Metarhizium anisopliae* 1.0% WP (1x10^8 CFU/gm min) Strain No. IPL/KC/44 (Own R & D Isolate), Accession No. 6895.**					
Brinjal	Shoot & Fruit borer (*Leucinodes orbonalis*)	-	2.5-5.0	500-750	-

***Metarhizium anisopliae* 1.15% WP ($1x10^8$ CFU/gm min) Strain No. AAI, Allahabad, Accession No. NAIMCC-F-03037.**

Chickpea	Heliothis armigera	2.5	500	--	--

***Metarhizium anisopliae* 10% GR (CFU count 1 X 10^8 /gm. min.) Strain BCRL– Me, Accession No. ITCC 6911**

Crop	Common name of the target organism	Dosage /ha/application		Waiting period
		Formulation	Method of application	
Potato	White grub	60kg.	Mix ***Metarhizium anisopliae* (Grub –X 10% GR) with FYM @ 1 : 10 and apply at the root base by broadcasting method @ 6gm/m^2 (=60 kg/ha) along the furrows at the time of sowing and next after one month at the time of earthing up.**	NA

***Pseudomonas fluorescens* 1.0% WP (Strain No. IIHR-PF-2, Accession No. ITCC- B0034)**

Tomato	Root-knot nematodes (*Meloidogyne* spp.)	Treat the seed with *Pseudomonas fluorescens* 1.0% WP @ 20 gm/kg of seeds & treat the nursery beds with the *Pseudomonas fluorescens* 1.0% WP @ 50 gm/sq.m and apply *Pseudomonas*
		fluorescens 1.0% WP @ 5 kg/ha enriched FYM* @ 5 tons/ha to the soil before transplanting.
Brinjal	Root-knot nematodes (*Meloidogyne* spp.)	Treat the seed with *Pseudomonas fluorescens* 1.0% WP @ 20 gm/kg of seeds & treat the nursery beds with the *Pseudomonas fluorescens* 1.0% WP @ 50 gm/sq.m and apply *Pseudomonas fluorescens* 1.0% WP (@ 5 kg/ha enriched FYM* @ 5 tons/ha to the soil before transplanting.
Carrot	Root-knot nematodes (*Meloidogyne* spp.)	Treat the seed with *Pseudomonas fluorescens* 1.0% WP @ 20 gm/kg of seeds & treat the nursery beds with the *Pseudomonas fluorescens* 1.0% WP @ 50gm/sq.m and apply *Pseudomonas fluorescens* 1.0% WP (@ 5 kg/ha enriched FYM* @ 5 tons/ha to the soil before transplanting.
Okra	Root-knot nematodes (*Meloidogyne* spp.)	Treat the seed with *Pseudomonas fluorescens* 1.0% WP @ 20 gm/kg of seeds & treat the nursery beds with the *Pseudomonas fluorescens* 1.0% WP @ 50gm/sq.m and apply *Pseudomonas fluorescens* 1.0% WP @ 5 kg/ha enriched FYM* @ 5 tons/ha to the soil before transplanting.

***Trichoderma harzianum* 1.0% WP (Strain No. IIHR-TH-2 Accessions No. ITCC 6888)**

Tomato	Root-knot nematodes (*Meloidogyne incognita*)	Treat the seeds with *Trichoderma harzianum* 1.0% WP @ 20 gm/kg of seeds & nursery beds with the *Trichoderma harzianum* 1.0% WP @ 50 gm/sq.m and also apply *Trichoderma harzianum* 1.0% WP (@ 5 kg/ha enriched FYM* @ 5 tons/ha to the soil before transplanting.
Brinjal	Root-knot nematodes (*Meloidogyne incognit*a)	Treat the seeds with *Trichoderma harzianum* 1.0% WP @ 20 gm/kg of seeds & nursery beds with the *Trichoderma harzianum* 1.0% WP @ 50 gm/sq.m and also apply *Trichoderma harzianum* 1.0% WP (@ 5 kg/ha enriched FYM* @ 5 tons/ha to the soil before transplanting.
Carrot	Root-knot nematodes (*Meloidogyne incognita*)	Treat the seeds with *Trichoderma harzianum* 1.0% WP @ 20 gm/kg of seeds and apply *Trichoderma harzianum* 1.0% WP (@ 5 kg/ha enriched FYM* @ 5 tons/ha to the soil before sowing.
Okra	Root-knot nematodes (*Meloidogyne*	Treat the seeds with *Trichoderma harzianum* 1.0%
	incognita)	WP @ 20 gm/kg of seeds and apply *Trichoderma harzianum* 1.0% WP (@ 5 kg/ha enriched FYM* @ 5 tons/ha to the soil before sowing.
Gerbera	*Meloidogyne incognita*	Apply the Nemastin @ 50 gm/sq.m at the time of planting
Carnations	*Meloidogyne incognita*	Apply the Nemastin @ 50 gm/sq.m at the time of planting
Tuberose	*Meloidogyne incognita*	Apply 2 Kg Nemastin 1% Wp mixed in 2 tones of FYM per acre to the soil before planting
Banana	*Meloidogyne incognita*	Apply 2 Kg Nemastin enriched FYM @ 2 Kg/pant at the time of planting and at an interval of 3 months after planting for a period of one year
Acid lime	Citrus nematodes *(Tylenchulus semipenetrans)*	Apply 2 Kg Nemastin enriched FYM @ 2 Kg/pant at the time of planting and at an interval of 3 months after planting for a period of one year
Papaya	*Meloidogyne spp.* Reniform Nematodes *(Rotelenchulus reniformis)*	Apply 2 Kg Nemastin enriched FYM @ 2 Kg/pant at the time of planting and at an interval of 3 months after planting for a period of one year

PB Rope L			
Crop	Common name of	Dosage	PHI (Days)

	pest	a.i.(mg/dispenser)	Pheromones dispensers	Recommended area of treatment in (Ha)	
Cotton	Pink bollworm (Pectinophora gossypiella)	>140	9875	25	NA

***Trichoderma harzianum* 1.5% WP (Strain No. IIHR-TV-5 Accessions No. ITCC 6889)**		
Tomato	Root-knot nematodes (*Meloidogyne incognita*)	Treat the seed with *Trichoderma harzianum* 1.5% WP @ 20 gm/kg of seeds & treat the nursery beds with the *Trichoderma harzianum* 1.5% WP @ 50gm/sq.m and also apply *Trichoderma harzianum* 1.5% WP @ 5kg/ha enriched FYM* @ 5 tons/ha to the soil before transplanting.
Brinjal	Root-knot nematodes (*Meloidogyne incognit*a)	Treat the seed with *Trichoderma harzianum* 1.5% WP @ 20 gm/kg of seeds & treat the nursery beds with the *Trichoderma harzianum* 1.5% WP @ 50 gm/sq.m and also apply *Trichoderma harzianum* 1.5% WP @ 5 kg/ha enriched FYM* @ 5 tons/ha to the soil before transplanting.
Carrot	Root-knot nematodes (*Meloidogyne*	Treat the seed with *Trichoderma harzianum* 1.5%
	incognita)	WP @ 20 gm/kg of seeds & treat the nursery beds with the *Trichoderma harzianum* 1.5% WP @ 50 gm/sq.m and also apply *Trichoderma harzianum* 1.5% WP @ 5 kg/ha enriched FYM* @ 5 tons/ha to the soil before transplanting.
Okra	Root-knot nematodes (*Meloidogyne incognita*)	Treat the seed with *Trichoderma harzianum* 1.5% WP @ 20 gm/kg of seeds & treat the nursery beds with the *Trichoderma harzianum* 1.5% WP @ 50 gm/sq.m and also apply *Trichoderma harzianum* 1.5% WP @ 5 kg/ha enriched FYM* @ 5 tons/ha to the soil before transplanting.
***Trichoderma viride* 1.5% WP (Strain No. IIHR-TV-5 Accessions No. ITCC 6889)**		

Tomato	Root-knot nematodes (*Meloidogyne incognita*)	Treat the seeds with *Trichoderma viride* l.5% WP @ 20 gm/kg of seeds & nursery beds with the *Trichoderma viride* l.5 % WP @ 50 gm/sq.m. and also apply *Trichoderma viride* 1.5% WP (@ 5 kg/ha enriched FYM* @ 5 tons/ha to the soil before transplanting.
Brinjal	Root-knot nematodes (*Meloidogyne incognita*)	Treat the seeds with *Trichoderma viride* l.5% WP @ 20 gm/kg of seeds & nursery beds with the *Trichoderma viride* l.5% WP @ 50 gm/sq.m. and also apply *Trichoderma viride* 1.5% WP (@ 5 kg/ha enriched FYM* @ 5 tons/ha to the soil before transplanting.
Carrot	Root-knot nematodes (*Meloidogyne incognita*)	Treat the seeds with *Trichoderma viride* l.5 % W P @ 20 gm/kg of seeds and apply *Trichoderma viride* 1.5% WP (@ 5 kg/ha enriched FYM* @ 5 tons/ha to the soil before Planting'.
Okra	Root-knot nematodes (*Meloidogyne incognita*)	Treat the seeds with *Trichoderma viride* l.5 % W P @ 20 gm/kg of seeds and apply *Trichoderma viride* 1.5% WP (@ 5 kg/ha enriched FYM* @ 5 tons/ha to the soil before Planting'.
***Verticillium chlamydosporium* 1.0% WP, (2x106 CFU/gm min) Strain – IIHR-VC-3 Accession No – ITCC-6898**		
Tomato	Root-knot nematodes (*Meloidogyne incognita*)	Treat the seeds with *Verticillium chlamydosporium* 1.0% WP @ 20 gm/kg of seeds & nursery beds with the *Verticillium chlamydosporium* 1.0% WP @ 50 gm/sq.m and
		also apply *Verticillium chlamydosporium* 1.0% WP @ 5 kg/ha enriched FYM* @ 5 tons/ha to the soil before transplanting.
Brinjal	Root-knot nematodes (*Meloidogyne incognita*)	Treat the seeds with *Verticillium chlamydosporium* 1.0% WP @ 20 gm/kg of seeds & nursery beds with the *Verticillium chlamydosporium* 1.0% WP @ 50 gm/sq.m and also apply *Verticillium chlamydosporium* 1.0% WP @ 5 kg/ha enriched FYM* @ 5 tons/ha to the soil before transplanting.

Carrot	Root-knot nematodes (*Meloidogyne incognita*)	Treat the seeds with *Verticillium chlamydosporium* 1.0% WP @ 20 gm/kg of seeds and apply *Verticillium chlamydosporium* 1.0% WP @ 5 kg/ha enriched FYM* @ 5 tons/ha to the soil before transplanting.			
Okra	Root-knot nematodes (*Meloidogyne incognita*)	Treat the seeds with *Verticillium chlamydosporium* 1.0% WP @ 20 gm/kg of seeds and apply *Verticillium chlamydosporium* 1.0% WP @ 5 kg/ha enriched FYM * @ 5 tons/ha to the soil before transplanting.			
***Verticillium lecanii* 1.15%WP, (1x10^8 CFU/gm min) Strain – AS MEGH-VL Accession No – MCC-1028**					
Cotton	White flies	-	2500	500	-
Citrus	Mealybug (*Planococcus citri*)	-	2500	550	-
***Verticillium Lecanii* 1.50% Liquid Formulation, (1x10^8 CFU/ml. min.) Strain – T Stanes VI-1, Accession No – MTCC-5172**					
Tomato	White fly (*Bemisia tabaci*)	-	2000 (Foliar spray)	500	-
***Verticillium lecanii* 3.0% AS, (strain: Accession No. MCC-1127, Strain No. MPKV / Biocontrol/ RVN/ VL-01**					
Onion	Thrips (*Thrips tabaci*)	-	2000-2500	500	-
***Verticillium lecanii* 5.0% SC, (Strain: Accession No. NFCCI - 2638**					
Cabbage	Diamond Back Moth (*Plutella xylostella*)	-	500	500	-
***Verticillium lecanii* 5.0% SC, (1x10^8 CFU/gm Min.) Strain – Own Red Isolate, Strain No. VI-17874, MTCC No.5716**					
Rice	White backed plant hopper (*Sogotella furcifera*)	-	3.125 kg.	600	-
Nuclear Polyhedrosis Virus of *Helicoverpa armigera* 0.43% AS (1x109 POB/ml)					
Cotton	*Helicoverpa armigera*	-	2700	400-600	-

Tomato	*Helicoverpa armigera*	-	1500	400-600	-
Nuclear Polyhedrosis Virus of Helicoverpa armigera 2.0% AS, Strain No. GBS/HNPV -01 (1x109 POB/ml Min.)					
Pigeon pea	Pod borer (*Helicoverpa armigera*)	-	250-500	500-750	-
Gram	Pod borer (*Helicoverpa armigera*)	-	250-500	500-750	-
Nuclear Polyhedrosis Virus of *Helicoverpa armigera* 2.0% AS, Strain No. NBRI-8821 (1x109 POB/ml Min.)					
Pigeon pea	Pod borer (Helicoverpa armigera)	-	500	500	-
Nuclear Polyhedrosis Virus of *Helicoverpa armigera* 2.0% AS, Strain No. IBH-17268 (1x109 POB/ml Min.)					
Pigeon pea	Pod borer (*Helicoverpa armigera*)	-	250-500 ml	500-750	-
Gram	Pod borer (*Helicoverpa armigera*)	-	250-500 ml	500-750	-
Nuclear Polyhedrosis Virus of *Helicoverpa armigera* 2.0% AS, Strain No. BIL/HV-9 POB(1x109 POB/ml Min.)					
Pigeon pea	Pod borer (*Helicoverpa armigera*)	-	250-500	500-750	-
Chick pea	Pod borer (*Helicoverpa armigera*)	-	250-500	500-750	-
Tomato	Pod borer (*Helicoverpa armigera*)	-	250-500	500	-
Nuclear Polyhedrosis Virus of *Helicoverpa armigera* 2.0% AS, Strain No. IBL-17268					
Pigeon pea	Pod borer (*Helicoverpa armigera*)	-	250-500	500-750	-
Chick pea	Pod borer (*Helicoverpa armigera*)	-	500-1000	500-750	-

Nuclear Polyhedrosis Virus of *Helicoverpa armigera* 0.43% AS, Strain No. BIL/HV-9 (1x109 POB/ml Min.)					
Cotton	*Helicoverpa armigera*	-	2700	400-600	-
Tomato	*Helicoverpa armigera*	-	1500	400-600	-
Nuclear Polyhedrosis Virus of *Spodoptera litura* 0.5% AS, (1x109 POB/ml Min.)					
Tobacco	*Spodoptera litura*	-	1500	400-600	-
NPV of *Helicoverpa armigera* 0.5%AS, (1x109 POB/ml Min.)					
Chickpea	Pod borer (*Helicoverpa armigera*)	-	250	500	-
NPV of Helicoverpa armigera 2.0%AS, (1x109 POBs count / ml min) Biological Insecticide					
Chickpea	Pod borer (*Helicoverpa armigera*)	-	250	600	-
***Paecilomyces lilacinus* 01.15% WP**					
Brinjal	Root Knot Nematode	03.0 kg	500 kg Organic manure/ Organic fertilizer	-	-

2. Public health use

Name of Insect	Habitat	Dose		Surface	Waiting Period (days)
		a.i. (gm)	Formulation (gm)		
Azadirachtin 0.15% EC					
Mosquito larvae	Stagnant water, Drainage water, Puddle	1.0	1.0	10.7 m^2	-
	Iron containers, Machinery scraps, Iron box, Iron tanks	5.0	5.0	53.6 m^2	-
	Plastic scraps, Pit	933.3	933.3	01 ha	-
***Bacillus thuringiensis* var. israelensis WP**					
Anopheles and Culex (larvae)	-	-	2-5 kg.	-	14-28

***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	01 liter in 100 liter of water	-
Anopheles	Paddy fields, Ponds, Pools	-	10.0 litres	01 liter in 50 liter of water	-
Aedes	Tree holes, Disused tyres	-	10.0 litres	01 liter in 50 liter of water	-
Culex	Drains, Cesspits Casuarina pits, Disused wells	-	5.0 litres	01 liter in 100 liter of water	-
***Bacillus thuringiensis* var. israelensis, Serotyp H-14 (Vectobac 12 AS) potency 1200 ITU/mg**					
Anoppheles	Clean water, cement tanks	-	1-2 liters	-	-
Culex	Polluted water, Casspits, Cement tank, Stagnant and flowering drains	-	2-4 liters	-	-
***Bacillus thuringiensis* var. israelensis 5.0% AS (Strain VCRC-B-17, Serotype H-14, Accession No.- MTCC 5596) potency 630 ITU/mg.min.**					
Culex	Polluted water (Drain, Cesspits, Casuarina, Pit, Disused well)	-	05-10 liters	01 liter in 50-100 liters of water	-
Anoppheles	Clean water (Ponds, Pool, Paddy fields)	-	05 liters	01 liter in 100 liters of water	-
Aedes	Tree holes, disused tyres	-	10 liters	01 liter in 100 liters of water	-
Culex	Polluted water (Drain, Cesspits, Casuarina, Pit, Disused well)	-	10 lit (1 ml/m^2)	01 liter in 100 liters of water	-
Anoppheles	Clean water (Ponds, Pool, Paddy fields)	-	05 liters(0.5 ml/m^2)	0.5 liter in 100 liters of water	-
Aedes	Tree holes, disused tyres	-	10 liters (1 ml/m^2)	01 liter in 100 liters of water	-

Culex	Drains, Cesspits, casuarinas pits, Disused Wells	-	5 lit/ha	01 liter in 100 liters of water	-
Anoppheles	Paddy fields, ponds, pools	-	10 lit/ha	01 liter in 50 liters of water	-
Aedes	Tree holes, disused tyres	-	10 lit/ha	01 liter in 50 liters of water	-
Culex	**Polluted water** (Drains, Cesspits, Casuarina Pits, Disused wells)	10 lit (1 ml/m2		200 Liters of Water	
Anopheles	**Clean water** (Paddy fields, Ponds, Pool)	5 (0.5 ml/m2)		200 Liters of Water	
***Bacillus thuringiensis* var. israelensis (H-14) 5.0% AS**					
Culex	Drains, Cesspits, casuarinas pits, Disused Wells	-	5 lit/ha	01 liter in 100 liters of water	-
Anoppheles	Paddy fields, ponds, pools	-	10 lit/ha	01 liter in 50 liters of water	-
Aedes	Tree holes, disused tyres	-	10 lit/ha	01 liter in 50 liters of water	-

***Bacillus thuringiensis* var. israelensis, Serotyp H-14, 5% WP Potency 2000 ITU/mg**		
Area and Breeding (Habitat)	**Dose (g/m2)**	**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

***Bacillus thuringiensis* var. israelensis, Strain Designation- ABIL, Accession No. NAMICC-B01318 (CFU Count- 4.8 x 10^8) Serotyp H-14, 5% WP Potency 7000 ITU/mg**					
Name of Insect	**Habitat**	**Formulation (lit/ha.)**		**Dilution in water (Liters)**	**Waiting period (Days)**
		Gm/m2	**Kg/ha**		
Anopheles species, *Culex* species, *Aedes*	Clean water, (Cement tanks, coolers, Drains, Pools and Pits)	0.75	7.50	200	-
species	Highly Polluted water- (Underground tanks, Container, Drums & Tyros)	1.00	10.00	200	-
***Bacillus thuringiensis* var. sphaericus1593 M sero type H 59 5b**					
Anopheles species, *Culex* species	For Drains, Cesspits Cesspools, Paddy fields, ponds	-	112	1 liter in 10 liter of water	-
Anopheles species, *Culex* species	Casuarinas pits, unused wells, unused overhead tanks, Domestic wells (Not for drinking requirements)	-	112	1 liter in 10 liter of water	-
***Bacillus thuringiensis* var. israelensis 12% AS (Vectobac)**					
Anopheles species	Clean water, cement tanks	-	1-2 liter	-	-
Culex species	Polluted water, cess pits, cement tanks, stagnant and flowing drains	-	2-4 liter	-	-
***Bacillus thuringiensis* var. israelensis 00.50%WP**					
Mosquito spp.	Anopheles, Culex and Aedes (Habitat-Cement tank, Coolers, Drains, Pool pits, Highly polluted underground tanks, Container drums & Tyres.)	0.75 mg/m^2	-	200	-
***Bacillus thuringiensis* var. israelensis 05.00%WP**					

Mosquito spp.	Anopheles, Culex and Aedes (Habitat-Cement Tank, Coolers, Drains, Pool pits	0.75 g/m^2	7.50 kg/ha.	200 L	-
	Highly polluted water (underground tanks, Container Drums and	1.00 g/m^2	10.00 kg/ha	200 L	-
	Tyres.)				
***Bacillus sphaericus* 1593 M sero type H 59 5b, 1.3% flowable concentrate Potency 13000 IU/mg**					
Anopheles species, *Culex* species	For Drains, Cesspits Cesspools, paddy fields, ponds	-	112 ml	1 liter/10 liter of water	-
Anopheles species, *Culex* species	Casuarinas pits, unused wells, unused overhead tanks, Domestic wells (Not for drinking requirements)	-	112 ml	1 liter/10 liter of water	-

END