

A Checklist of Lepidopterous pests of vegetables in India

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Annotated checklist of Lepidopterous pests of vegetables in India

No.	Species	Nature of damage	Pest status/Host	Reference
(1) Family: Arctiidae				
1.	<i>Amata passalis</i> (Fabricius)	Leaf feeder	Minor (Cow pea)	Butani & Jotwani, 1984
2.	<i>Amsacta albistriga</i> Walker	Leaf feeder	Major (Bean)	Fletcher, 1914; Butani & Jotwani, 1984; Gupta, 1990
3.	<i>Amsacta lactinea</i> (Cramer)	Leaf feeder/ Leaf eating caterpillar	Minor (Sweet Potato, Beans)	Fletcher, 1914; Nair, 1970; Butani & Jotwani, 1984; Gupta, 1990
4.	<i>Amsacta moorei</i> Butler	Leaf feeder	Major (Bean); Minor (Cowpea, Sunn hemp)	Butani & Jotwani, 1984; Gupta, 1990; Ahlawat <i>et al.</i> , 1993
5.	<i>Asura conferta</i> (Walker)	Leaf feeder	Minor (Brinjal)	Fletcher, 1914; Butani & Jotwani, 1984
6.	<i>Cretonotos gangis</i> (Linnaeus)	Leaf feeder	Minor (Sweet Potato)	Nair, 1970; Butani & Jotwani, 1984; Gupta, 1990
7.	<i>Euchromia polymena</i> (Linnaeus)	Leaf feeder/ Defoliator	Minor (Sweet potato)	Nair, 1970; Butani & Jotwani 1984; David, 2001
8.	<i>Pericallia ricini</i> (Fabricius)	Leaf feeder/ Plume Moth/ Defoliator/ Leaf eating caterpillar/ Black hairy caterpillar	Major (Elephant foot, Drumstick); Minor (Coccina, Brinjal, Cow pea, Yam, Sweet potato, Radish, Arum (Colocasia), Pumpkin)	Fletcher, 1914; Nair, 1970; Butani & Jotwani, 1984; David, 2001
9.	<i>Spilosoma obliqua</i> (Walker)	Leaf feeder / Leaf eating caterpillar/ Bihar hairy caterpillar	Major (Sweet Potato, Potato); Minor (Cole crops, Cow pea & garden pea, Beans, Radish, Yam)	Nair, 1970; Butani & Jotwani, 1984; Gupta, 1990; David, 2001
10.	<i>Spilosoma todara</i> Moore	Leaf webber/ Leaf feeder/ Leaf eating caterpillar	Minor (Sugar-beet) Major pest in tarai area of U.P.	Butani & Jotwani, 1984

11.	<i>Utetheisa pulchella</i> (Linnaeus)	Leaf feeder	Minor (Sunn hemp)	Fletcher, 1914
(2) Family: Cosmopterigidae				
12.	<i>Cosmopterix mimetis</i> Meyrick	Leaf miner	Minor (Indian bean, French bean)	Butani & Jotwani, 1984
13.	<i>Cosmopterix phaeogastra</i> Meyrick	Leaf miner	Minor (Indian bean, French bean)	Butani & Jotwani, 1984
14.	<i>Sathrobrotia simplex</i> (Walsingham)	Pod borer	Minor (Cow pea & garden pea)	Butani & Jotwani, 1984
(3) Family: Cossidae				
15.	<i>Indarbela tetraonis</i> Moore	Trunk borer (Bark eating caterpillar)	Minor (Drumstick); In South India Major Pest of Drumstick.	Butani & Jotwani, 1984; Gupta, 1990; David, 2001
(4) Family: Crambidae				
16.	<i>Cnaphalocrocis trapezalis</i> (Guenee)	Cut worm	Minor (Suger beet)	Butani & Jotwani, 1984
17.	<i>Crocidolomia binotalis</i> Zeller	Leaf webber	Major (Cruciferous vegetables: Cabbage, Cauliflower); Minor (Radish, Beet root)	Fletcher, 1914; Nair, 1970; Butani & Jotwani, 1984; David, 2001
18.	<i>Cryptographis indica</i> (Saunders)	Leaf Roller/ Pumpkin Catterpillar/ Leaf eating caterpillar	Minor (All Cucurbitaceous plants, Melons, Cucumbers, Gourd, Sugar-beet, Chow-chow, Coccina, Bitter gourd, Pumpkin)	Fletcher, 1914; Nair, 1970; Butani & Jotwani, 1984; David, 2001
19.	<i>Evergestis forficalis</i> (Linnaeus)	Leaf feeder	Minor (Cabbage, Cauliflower)	Gupta, 1992
20.	<i>Dichocrocis punctiferalis</i> (Guenee)	Leaf defoliator/ Leaf feeder	Minor (Sweet Potato, Amaranthus, Jack fruit)	Butani & Jotwani, 1984; Gupta, 1990
21.	<i>Glyphodes bivitalis</i> Guenee	Leaf feeder	Minor (Jack fruit)	Butani & Jotwani, 1984
22.	<i>Hellula undalis</i> (Fabricius)	Cabbage Borer/ Fruit borer/ Leaf feeder/ Oriental cabbage webworm (USA)	Major (Cabbage); Minor (Cauliflower, Radish, Beet root, Knolkhol)	Fletcher, 1914; Nair, 1970; Butani & Jotwani, 1984; Gupta, 1990; David, 2001; Capinera, 2001
23.	<i>Herpetogramma bipunctalis</i> (Fabricius)	Leaf webber/ Leaf feeder/ Southern beet webworm (USA)	Minor (Brinjal)	Nair, 1970; Butani & Jotwani, 1984; David, 2001; Capinera, 2001
24.	<i>Hymenia perspectalis</i> (Hübner)	Leaf webber/ Spotted beet webworm	Minor (Amaranthus)	Butani & Jotwani, 1984; Gupta, 1990; Capinera, 2001
25.	<i>Leucinodes orbonalis</i> Guenee	Shoot & Fruit Borer/ Pod Borer	Major (Brinjal); Minor (Cowpea & garden pea, Potato)	Fletcher, 1914; Pradhan, 1969; Nair, 1970; Butani & Jotwani, 1984; Gupta, 1990; Ashraf <i>et al.</i> , 1993; David 2001; Bhatia & Gupta, 2003

26.	<i>Maruca testulalis</i> (Geyer)	Pod Borer	Minor (Cowpea & garden pea, Beans)	Butani & Jotwani, 1984; Gupta, 1990
27.	<i>Noorda blitealis</i> Walker	Leaf feeder/ Leaf caterpillar	Major (Drumsticks in South India)	Nair, 1970; Butani & Jotwani, 1984; David, 2001
28.	<i>Noorda moringae</i> Tams.	Bud Borer/ Bud worm	Major (Drumsticks in South India)	Nair, 1970; Butani & Jotwani, 1984; David, 2001
29.	<i>Omiodes indicata</i> (Fabricius)	Pea leaf roller	Minor (Garden pea, Amaranthus)	Butani & Jotwani, 1984
30.	<i>Omphisa anastomosalis</i> (Guenee)	Stem borer/ Sweet potato vine Borer (USA)	Minor (Sweet Potato in South India)	Fletcher, 1914; Nair, 1970; Butani & Jotwani, 1984; David, 2001; Capinera, 2001
31.	<i>Palpita celsalis</i> (Walker)	Leaf feeder	Minor (Water melon, Sweet/ Musk melon)	Butani & Jotwani, 1984
32.	<i>Phostria piasusalis</i> Walker	Top shoot Folder/ Leaf feeder	Major (Brinjal); Minor (Coleus, Potato, Tomato, Chillies)	Nair, 1970; Butani & Jotwani, 1984
33.	<i>Protrigonia zizanialis</i> Swinhoe	Bud worm/ Leaf eating caterpillar	Minor (Drumsticks in South India (Kerala))	Nair, 1970; Butani & Jotwani, 1984
34.	<i>Psara basalis</i> Walker	Amaranthus leaf webber/ Leaf feeder	Minor (Brinjal, Amaranthus)	Nair (1970); Butani & Jotwani (1984)
35.	<i>Pycnarmon cribrata</i> Fabricius	Leaf Folder/ Leaf feeder	Minor (Coleus)	Nair, 1970; Butani & Jotwani, 1984
36.	<i>Spoladea recurvalis</i> (Fabricius)	Leaf eating caterpillar / Amaranthus leaf webber/ Hawaiian beet webworm	Major (Amaranthus, Spinach); Minor (Beet root, Coleus)	Fletcher, 1914; Nair, 1970; Butani & Jotwani, 1984; Gupta, 1990; David, 2001; Capinera, 2001
37.	<i>Stenia bruguieralis</i> Duponchel	Leaf feeder	Minor (Sweet potato)	Butani & Jotwani, 1984
38.	<i>Stenia coniotalis</i> Hampson	Tuber Borer	Minor (Sweet Potato)	Nair, 1970; Butani & Jotwani, 1984
39.	<i>Syllepte derogata</i> (Fabricius)	Cotton Leaf Roller/ Cutworm/ Leaf feeder	Major (Okra)	Fletcher, 1914; Nair, 1970; Butani & Jotwani, 1984; Gupta, 1990; David, 2001
(5) Family: Eupterotidae				
40.	<i>Eupterote geminata</i> Walker	Leaf feeder	Major (Drumsticks) in Tamil Nadu	Butani & Jotwani, 1984
41.	<i>Eupterote mollifera</i> Walker	Leaf feeder/ Leaf eating caterpillar/ Hairy Caterpillar	Major (Drumsticks in South India)	Fletcher, 1914; Nair, 1970; Butani & Jotwani, 1984; David, 2001
(6) Family: Gelechiidae				
42.	<i>Anarsia acerata</i> Meyrick	Pod Borer	Minor (Cowpea, Garden pea) from Coorg (Karnataka) & Tamil Nadu	Butani & Jotwani, 1984

43.	<i>Anarsia ephippias</i> Meyrick	Pod Borer	Minor (Cowpea, Garden pea) widely distributed in plains of India	Lefroy, 1909; Butani & Jotwani, 1984
44.	<i>Dichomeris exallacta</i> (Meyrick)	Pod Borer	Minor (Cowpea, Garden pea) from Bihar	Butani & Jotwani, 1984
45.	<i>Helcystogramma</i> <i>arotraea</i> (Meyrick)	Leaf roller/ Defoliator	Minor (Sweet Potato)	Butani & Jotwani, 1984
46.	<i>Helcystogramma</i> <i>convolvuli</i> Walsingham	Leaf roller	Minor (Sweet Potato)	Butani & Jotwani, 1984
47.	<i>Helcystogramma effera</i> (Meyrick)	Leaf folder/ Leaf feeder	Minor (Sweet Potato)	Butani & Jotwani, 1984; David, 2001
48.	<i>Helcystogramma</i> <i>engrapta</i> (Meyrick)	Defoliator	Major (Sweet Potato vines) in Coimbatore	Nair, 1970; Butani & Jotwani, 1984
49.	<i>Helcystogramma hibisci</i> (Stainton)	Leaf roller	Minor (Okra) widely distributed in South- east Asia	Lefroy, 1909; Nair, 1970; Butani & Jotwani, 1984
50.	<i>Helcystogramma</i> <i>lamprostoma</i> (Zeller)	Leaf roller	Minor (Sweet Potato)	Butani & Jotwani, 1984
51.	<i>Helcystogramma</i> <i>macroscopa</i> (Meyrick)	Defoliator	Minor (Sweet Potato vines) in Ludhiana (Punjab) & Hissar (Haryana)	Butani & Jotwani, 1984
52.	<i>Pectinophora gossypiella</i> Saunders	Cotton Pink bollworm	Minor (Okra)	Butani & Jotwani, 1984
53.	<i>Phthorimaea operculella</i> (Zeller)	Leaf miner/ Potato Tuberworm/ Tobacco splitworm Bud worm/	Major (Potato, Cabbage); Minor (Brinjal, Tomato). Notorious pest of Potato (stored potato) all over the world	Lefroy, 1909; Fletcher, 1914; Nair, 1970; Butani & Jotwani, 1984; Gupta, 1990; Trivedi <i>et</i> <i>al.</i> , 1994; Kapoor & Sharma, 1995; Capinera, 2001
54.	<i>Scrobipalpa blapsigona</i> (Meyrick)	Bud worm/ Bud borer	Minor (Brinjal in South India)	Nair, 1970; Butani & Jotwani, 1984; David, 2001
55.	<i>Scrobipalpa ergasima</i> (Meyrick)	Leaf miner	Minor (Brinjal in Northern India & Bihar)	Nair, 1970; Butani & Jotwani, 1984
56.	<i>Scrobipalpa heliopa</i> (Lower)	Leaf miner/ Top shoot borer	Minor (Brinjal in South India)	Nair, 1970; Butani & Jotwani, 1984
(7) Family: Geometridae				
57.	<i>Hyposidra successaria</i> Walker	Leaf feeder	Minor (Sweet Potato)	Nair, 1970; Butani & Jotwani, 1984
(8) Family: Gracillariidae				
58.	<i>Acrocercops prosacta</i> Meyrick	Leaf miner	Minor (Sweet Potato)	Nair, 1970; Butani & Jotwani, 1984
59.	<i>Acrocercops caerulea</i> Meyrick	Leaf miner	Minor (Cowpea, French bean & Indian Bean)	Butani & Jotwani, 1984
(9) Family: Hesperidae				
60.	<i>Parnara bada</i> (Moore)	Leaf feeder/ Skipper butterfly/ Leaf eating caterpillar	Minor (Cowpea, French bean & Yam)	Butani & Jotwani, 1984
61.	<i>Parnara guttatus</i>	Leaf feeder/	Minor (Cowpea & French	Butani & Jotwani, 1984

	(Bremer & Grey)	Skipper butterfly/ Leaf eating caterpillar	bean) in Srinagar (J&K)	
(10) Family: Lasiocampidae				
62.	<i>Metanastria hyrtaca</i> (Cramer)	Leaf feeder/ Leaf eating caterpillar/ Hairy Caterpillar	Major (Drumsticks)	Fletcher, 1914; Butani & Jotwani, 1984; David, 2001
63.	<i>Streblote siva</i> (Lefebvre)	Leaf feeder/ Leaf eating caterpillar/ Hairy Caterpillar	Minor (feeding on Drumstick trees)	Butani & Jotwani, 1984; David, 2001
(11) Family: Lycaenidae				
64.	<i>Catochrysops strabo</i> (Fabricius)	Pod borer	Minor (Indian Bean)	Butani & Jotwani, 1984
65.	<i>Euchrysops cnejns</i> (Fabricius)	Pod borer	Minor (Indian Bean)	Fletcher, 1914; Butani & Jotwani, 1984
66.	<i>Lampides boeticus</i> (Linnaeus)	Pod borer	Minor (Cowpea, Garden pea)	Fletcher, 1914; Butani & Jotwani, 1984; Dahiya & Chauhan, 1992
(12) Family: Lymantriidae				
67.	<i>Euproctis fraterna</i> (Moore)	Hairy Caterpillar/ Defoliator	Minor (Cowpea)	Butani & Jotwani, 1984; Gupta, 1990
68.	<i>Euproctis subfasciata</i> (Walker)	Leaf feeder	Minor (Cruciferous plants: Cabbage)	Nair, 1970; Butani & Jotwani, 1984
69.	<i>Olene mendosa</i> (Hübner)	Leaf feeder/ Leaf eating caterpillar	Minor (Potato)	Butani & Jotwani, 1984
70.	<i>Perina nuda</i> (Fabricius)	Leaf feeder	Minor (Jack Fruits)	Butani & Jotwani, 1984
71.	<i>Somena scintillans</i> Walker	Leaf feeder	Minor (Sunn hemp, Capsicum, Cowpea & Pea)	Fletcher, 1914; Butani & Jotwani, 1984; Gupta, 1990; Barwal & Joshi, 1996
(13) Family: Noctuidae				
72.	<i>Acantholeucania loreyi</i> (Duponchel)	Leaf defoliator/ Army worm	Minor (Chillies)	Butani & Jotwani, 1984
73.	<i>Acontia nitidula</i> Fabricius	Leaf feeder/ Semilooper (Leaf eating caterpillars)	Minor (Okra)	Butani & Jotwani, 1984
74.	<i>Adisura atkinsoni</i> Moore	Pod borer	Major (Indian Bean)	Butani & Jotwani, 1984
75.	<i>Agrotis c-nigrum</i> Linnaeus	Bud worm/ Cut worm	Minor (Cabbage, Cauliflower & Beetroot in hills, Potato, Cole crops (damage in nurseries)	Nair (1970); Butani & Jotwani (1984); David (2001)
76.	<i>Agrotis segetis</i> (Hübner)	Cut worm/ Stem cutter	Minor (Potato, Lettuce (Salad crops), Cabbage, Cauliflower,	Fletcher, 1914; Butani & Jotwani, 1984; Singh,

			Beetroot (most destructive pest in hills), Cole crops (damage in nurseries)	1989; Gupta, 1990; David, 2001
77.	<i>Agrotis spinifera</i> (Hübner)	Bud worm	Minor (Potato, Cabbage, Cauliflower)	Butani & Jotwani, 1984; Singh, 1989; Gupta, 1990
78.	<i>Agrotis ypsilon</i> (Rottemburg)	Cut worm/ Leaf feeder	Major (Potato); Minor (Tomato, brinjal, Okra, spring okra, Cabbage, carrot, onion (damage to seedling), Chillies, turnip, cauliflower, Beet root, Cole crops)	Nair, 1970; Butani & Jotwani, 1984; Singh & Misra, 1988; Misra & Sharma, 1988; Singh, 1989; Gupta, 1990; Bhat <i>et al.</i> , 1994; David, 2001; Pandey <i>et al.</i> , 2006; Badenes-Perez & Shelton, 2006
79.	<i>Anadevidia peponis</i> (Fabricius)	Leaf feeder/ Leaf eating caterpillar/ Snake gourd semilooper	Major (Snake gourd, Pumpkin) all over country	Fletcher, 1914; Nair, 1970; Butani & Jotwani, 1984; David, 2001
80.	<i>Anomis flava</i> Fabricius	Leaf feeder/ Fruit borer/ Green Semilooper	Major (Okra)	Nair, 1970; Butani & Jotwani, 1984; David, 2001
81.	<i>Antoba olivacea</i> (Walker)	Leaf folder/ Leaf roller	Minor (Brinjal)	Fletcher, 1914; Nair, 1970; Butani & Jotwani, 1984; David, 2001
82.	<i>Anua coronata</i> (Fabricius)	Fruit borer/ Fruit sucking moth	Minor (Chillies)	Butani & Jotwani, 1984
83.	<i>Autographa nigrisigna</i> Walker	Leaf feeder	Minor (Cabbage, Sugar-beet)	Nair, 1970; Butani & Jotwani, 1984; Gupta, 1990
84.	<i>Azazia irrorati</i> (Fabricius)	Leaf feeder	Minor (Cowpea)	Butani & Jotwani, 1984
85.	<i>Catephia inquieta</i> Walker	Leaf feeder	Minor (Sweet potato)	Nair, 1970; Butani & Jotwani, 1984; David, 2001
86.	<i>Chrysodeixis acuta</i> Walker	Leaf feeder	Minor (Soybean)	Choudhary and Bajpai, 2007
87.	<i>Chrysodeixis chalcites</i> (Esper)	Leaf feeder/ Semilooper (Leaf eating caterpillars)	Minor (Pea & Cowpea, Cole crops, Cabbage)	Butani & Jotwani, 1984; Gupta, 1990
88.	<i>Chrysodeixis eriosoma</i> (Doubleday)	Semilooper (Leaf eating caterpillars)	Minor (Amaranthus, Cabbage, Cowpea & garden pea)	Butani & Jotwani, 1984; David, 2001
89.	<i>Elygea materna</i> Linnaeus	Fruit borer/ Fruit sucking moth	Minor (Amaranthus, tomato, Chillies)	Butani & Jotwani, 1984; Gupta, 1990
90.	<i>Euxoa intracta</i> (Walker)	Cut worm	Minor (Potato)	Butani & Jotwani, 1984
91.	<i>Helicoverpa armigera</i>	Cut worm/ Fruit	Major (Tomato, Beans,	Nair, 1970; Butani &

	(Hübner)	borer Tomato/ Leaf feeder/ Gram pod borer/ Shoot borer	Brinjal); Minor (Okra, Drumsticks, Bitter gourd, Onion, Amaranthus, Chillies, Cowpea & garden pea)	Jotwani, 1984; Gupta, 1990; Dahiya & Chauhan, 1992; Rajet <i>et al.</i> , 1993; Bhatia & Verma, 1994; Thakur <i>et al.</i> , 1998; David, 2001; Pandey <i>et al.</i> , 2006; Badenes-Perez & Shelton, 2006
92.	<i>Helicoverpa assulta</i> (Guenee)	Bud worm	Minor (Tomato)	Butani & Jotwani, 1984; Gupta, 1990
93.	<i>Ilattia octo</i> Guenee	Leaf feeder/ Cut worm	Minor (Potato)	Nair, 1970; Butani & Jotwani, 1984
94.	<i>Mythimna separata</i> (Walker)	Leaf feeder	Minor (Garden pea)	Butani & Jotwani, 1984; Gupta, 1990
95.	<i>Nagia linteola</i> (Guenee)	Leaf feeder/ Leaf caterpillar	Minor (Sweet Potato)	Butani & Jotwani, 1984
96.	<i>Ochropleura flammatra</i> (Schifferrmüller)	Cut worm	Minor (Potato, Okra, spring okra) damages seedlings	Nair, 1970; Butani & Jotwani, 1984; Gupta, 1990; Singh & Misra, 1988
97.	<i>Othreis fullonica</i> (Linnaeus)	Fruit borer/ Fruit sucking moth	Minor (Amaranthus, tomato, Chillies)	Butani & Jotwani, 1984; Gupta, 1990
98.	<i>Plusia signata</i> Fabricius	Leaf feeder	Minor (Sunn hemp, Cabbage)	Fletcher, 1914; Nair, 1970; Butani & Jotwani, 1984; Gupta, 1990
99.	<i>Proxenus hugely</i> Felder	Leaf feeder	Minor (Cowpea)	Butani & Jotwani, 1984
100.	<i>Remigia frugalis</i> (Fabricius)	Leaf feeder	Minor (Cowpea)	Butani & Jotwani, 1984
101.	<i>Spodoptera downsei</i> Baly	Leaf feeder	Minor (Cole crops, Cruciferous)	Nair, 1970; Butani & Jotwani, 1984
102.	<i>Spodoptera exempta</i> (Walker)	Leaf feeder	Minor (Peas, Amaranthus)	Butani & Jotwani, 1984
103.	<i>Spodoptera exigua</i> (Hübner)	Lucerne caterpillar/ Ragi Cut worm/ Leaf eating caterpillar/ Bud worm/ Leaf feeder/ Beet armyworm (USA)	Major (Onion); Minor (Cabbage, Cowpea, cauliflower, brinjal, Sugar- beet, Peas, Tomato, Bean, Chillies, Amaranthus, Cole crops, Potato)	Fletcher, 1914; Nair, 1970; Butani & Jotwani, 1984; Gupta, 1990; David, 2001; Capinera, 2001
104.	<i>Spodoptera litura</i> (Fabricius)	Tobacco caterpillar/ Fruit borer Tomato/ Leaf eating caterpillar/ Leaf feeder/ Cut worm/ Shoot & Fruit feeder	Major (Tomato); Minor (Coccina, Brinjal, Pea, Cabbage & Cauliflower damage in West Bengal, Chillies, elephant's foot, Cowpea, Colocasia, Radish, Beet root, Onion, Sweet Potato, Potato, Amranthus, Okra, yam, Arum, Beans,	Fletcher, 1914; Nair, 1970; Butani & Jotwani, 1984; Saxena <i>et al.</i> , 1988; Gupta, 1990; David, 2001

			Elephant foot)	
105.	<i>Spodoptera mauritia</i> (Boisduval)	Leaf feeder	Minor (Sugar-beet); Most destructive in tarai area of U.P.	Butani & Jotwani, 1984
106.	<i>Thysanoplusia orichalcea</i> (Fabricius)	Leaf feeder/ Green Semilooper/ Tuber feeder	Minor (Brinjal, Cow pea, Cabbage, Cauliflower, Radish, Potato)	Fletcher, 1914; Nair, 1970; Butani & Jotwani, 1984; Gupta, 1990; Bhatia & Verma, 1994; Bhatia and Verma, 1995
107.	<i>Trichoplusia ni</i> (Hübner)	Leaf feeder/ Cabbage green semilooper	Major (Cabbage, Cauliflower); Minor (Tomato-serious damage in Southern India)	Nair, 1970; Butani & Jotwani, 1984; Gupta, 1990; David, 2001; Capinera, 2001
108.	<i>Trigonodes hyppasia</i> (Cramer)	Leaf feeder	Minor (Sugar-beet)	Butani & Jotwani, 1984
(14) Family: Nolidae				
109.	<i>Earias insulana</i> (Boisduval)	Fruit Borer/ Spotted bollworm of Cotton	Major (Okra in drier region, spring okra)	Fletcher, 1914; Singh & Misra, 1988; Gupta, 1990; David, 2001
110.	<i>Earias vittella</i> (Fabricius)	Shoot & Fruit Borer/ Spotted bollworm of Cotton	Major (Okra) throughout the plains of India, Minor (Spring okra)	Fletcher, 1914; Nair, 1970; Butani & Jotwani, 1984; Singh & Misra, 1988; Gupta, 1990; David, 2001
111.	<i>Pardoxia graellsii</i> (Feisthamel)	Leaf feeder/ Semilooper (Leaf eating caterpillars)	Major (Okra)	Fletcher, 1914; Nair, 1970; Butani & Jotwani, 1984
112.	<i>Selepa celtis</i> Moore	Leaf feeder (Hairy caterpillar)	Minor (Brinjal)	Butani & Jotwani, 1984; David, 2001
113.	<i>Selepa docilis</i> Butler	Leaf feeder (Hairy caterpillar)	Minor (Brinjal) common in Tamil Nadu	Nair, 1970; Butani & Jotwani, 1984
114.	<i>Selepa rabdota</i> (Hampson)	Leaf feeder (Hairy caterpillar)	Minor (Brinjal)	Butani & Jotwani, 1984
115.	<i>Xanthodes intersepta</i> Guenee	Leaf feeder/ Semilooper (Leaf eating caterpillars)	Minor (Okra)	Nair, 1970; Butani & Jotwani, 1984
116.	<i>Xanthodes malvae</i> Esper	Leaf feeder/ Semilooper (Leaf eating caterpillars)	Minor (Okra)	Nair, 1970; Butani & Jotwani, 1984
117.	<i>Xanthodes transversa</i> Guenee	Leaf feeder/ Semilooper (Leaf eating caterpillars)	Minor (Okra)	Nair, 1970; Butani & Jotwani, 1984
(15) Family: Nymphalidae				
118.	<i>Junonia orithya</i> (Linnaeus)	Leaf feeder	Minor (Amaranthus, sweet Potato)	Nair, 1970; Butani & Jotwani, 1984

(16) Family: Oecophoridae				
119.	<i>Notosara nephelotis</i> Meyrick	Leaf feeder	Minor (Brinjal)	Butani & Jotwani, 1984
(17) Family: Pieridae				
120.	<i>Pieris brassicae</i> (Linnaeus)	Defoliator/ Cabbage butterfly	Major (Cruciferous vegetables: Cabbage, Cauliflower); Minor (Radish, Turnip)	Nair, 1970; Butani & Jotwani, 1984; Gupta, 1990; Bhatia & Verma, 1994; Bhatia and Verma, 1995; Bhatia & Gupta, 2003; Pandey <i>et</i> <i>al.</i> , 2006; Badenes- Perez & Shelton, 2006
121.	<i>Pieris canidia</i> Linnaeus	Defoliator	Major (Cruciferous vegetables: Cabbage, Cauliflower)	Nair, 1970; Butani & Jotwani, 1984
122.	<i>Pieris napi</i> (Linnaeus)	Defoliator/ Mustard white	Major (Cruciferous vegetables: Cabbage, Cauliflower)	Butani & Jotwani, 1984; Gupta, 1990; Capinera, 2001
123.	<i>Pieris oleracea</i> (Harris)	Defoliator	Minor (Cruciferous vegetables: Cabbage, Cauliflower)	Butani & Jotwani, 1984
124.	<i>Pieris rapae</i> (Linnaeus)	Defoliator/ Imported cabbageworm (USA)	Major (Cruciferous vegetables: Cabbage, Cauliflower)	Butani & Jotwani, 1984; Gupta, 1990; Capinera, 2001
125.	<i>Pontieuchloia protodice</i> Boisduval & Le Conte	Defoliator	Minor (Cruciferous vegetables: Cabbage, Cauliflower)	Butani & Jotwani, 1984; Capinera, 2001
(18) Family: Plutellidae				
126.	<i>Plutella xylostella</i> (Linnaeus)	Leaf feeder/ Leaf borer/ Diamond back Moth	Major (All Cruciferous crops: Cabbage, Cauliflower; Radish); Minor (Knolkhol)	Lefroy, 1909; Fletcher, 1914; Nair, 1970; Butani & Jotwani, 1984; Gupta, 1990; Rai, 1992; Bhatia & Verma, 1994; Bhatia & Verma, 1995; Devi & Raj, 1995; Chauhan <i>et al.</i> , 1997; Rao & Lal, 1999; David, 2001; Capinera, 2001; Pandey <i>et al.</i> , 2006; Badenes-Perez & Shelton, 2006
(19) Family: Pterophoridae				
127.	<i>Exelastis atomosa</i> (Walsingham)	Pod Borer/ Bud borer/ Leaf feeder/ Tur plume moth	Major (Beans); Minor (Cowpea & Garden pea/ Pigeon pea)	Lefroy, 1909; Butani & Jotwani, 1984; Gupta, 1990
128.	<i>Hellinsia lienigianus</i> (Zeller)	Brinjal Plume Moth/ Leaf roller/ Leaf feeder	Minor (Brinjal)	Fletcher, 1914; Nair, 1970; Butani & Jotwani, 1984
129.	<i>Sphenarches caffer</i> Zeller	Bud borer/	Major (Bottle gourd); Minor	Lefroy, 1909; Fletcher,

		Plume Moth/ Pod Borer/ Leaf roller	(Beans, Cowpea & Garden pea, Pigeon pea, Snake gourd, Luffa spp.)	1914; Nair, 1970; Butani & Jotwani, 1984; David, 2001
(20) Family: Pyralidae				
130.	<i>Etiella zinckenella</i> (Treitschke)	Pod borer/ Limabean Pod borer (USA)	Major (Beans, Cowpea & garden pea, Sunn hemp)	Fletcher, 1914; Butani & Jotwani, 1984; Gupta, 1990; Dahiya & Chauhan, 1992; Capinera, 2001; Pandey <i>et al.</i> , 2006
131.	<i>Euzophera perticella</i> Ragonot	Brinjal Stem Borer	Major (Brinjal); Minor (Potato, Tomato, Chillies)	Fletcher, 1914; Pradhan, 1969; Nair, 1970; Butani & Jotwani, 1984; Gupta, 1990
132.	<i>Phycita clientella</i> Zeller	Leaf webber/ Leaf folder/ Leaf roller	Minor (Brinjal)	Nair, 1970; Butani & Jotwani, 1984; David, 2001
133.	<i>Pristarthria minutella</i> Ragonot	Leaf Feeder	Minor (Brinjal)	Nair, 1970; Butani & Jotwani, 1984
134.	<i>Pyralis farinalis</i> Linnaeus	Fruit borer	Minor (Stored potato)	Butani & Jotwani, 1984
(21) Family: Saturniidae				
135.	<i>Actias selene</i> Hübner	Leaf feeder/ Leaf eating caterpillar/ Moon moth	Minor (Drumsticks)	Fletcher, 1914; Butani & Jotwani, 1984; David, 2001
(22) Family: Scythrididae				
136.	<i>Eretmocera impactella</i> (Walker)	Leaf eating caterpillar/ Leaf webber/ Top shoot feeder	Major (Amaranthus) common in Bihar	Fletcher, 1914; Nair, 1970; Butani & Jotwani, 1984
(23) Family: Sesiidae				
137.	<i>Melittia bombylifformis</i> Cramer	Stem borer	Minor (Cucurbits, Coccina, Snake gourd in Orissa)	Nair, 1970; Butani & Jotwani, 1984
138.	<i>Melittia eurytion</i> (Westwood)	Stem borer/ Vine Borer	Major (Snake gourd) widely in India	Nair, 1970; David, 2001
(24) Family: Sphingidae				
139.	<i>Acherontia lachesis</i> Fabricius	Leaf feeder	Minor (Brinjal)	Butani & Jotwani, 1984
140.	<i>Acherontia styx</i> Westwood	Leaf feeder/ Leaf eating caterpillar/ Defoliator	Minor (Beans, Brinjal)	Fletcher, 1914; Nair, 1970; Butani & Jotwani, 1984; Gupta, 1990; David, 2001
141.	<i>Agrius convolvuli</i> Linnaeus	Leaf feeder/ Sphinx caterpillar/ Horned caterpillar/ Giant hawk moth/ Leaf eating	Major (Sweet Potato vines); Minor (Arum: Colocasia)	Butani & Jotwani, 1984

		caterpillar		
142.	<i>Eupanacra mydon</i> Walker	Leaf feeder/ Leaf eating caterpillar	Minor (Arum)	Butani & Jotwani, 1984
143.	<i>Hippotion celerio</i> Linnaeus	Leaf feeder	Minor (Elephant's foot, Yam)	Nair, 1970; Butani & Jotwani, 1984
144.	<i>Pergesa acteus</i> Cramer	Leaf feeder/ Leaf eating caterpillar	Minor (Arum: Colocasia), Elephant's foot, Yam)	Nair, 1970; Butani & Jotwani, 1984
145.	<i>Theretra gnoma</i> Fabricius	Leaf feeder	Minor (Arum, Elephant's foot)	Nair, 1970; Butani & Jotwani, 1984
146.	<i>Theretra oldenlandiae</i> Fabricius	Leaf feeder/ Leaf eating caterpillar	Minor (Arum, Elephant's foot, Sweet Potato, Yams)	Nair, 1970; Butani & Jotwani, 1984
147.	<i>Theretra pinastrina</i> Martyn	Leaf feeder/ Leaf eating caterpillar	Minor (Arum: Colocasia)	Butani & Jotwani, 1984
(25) Family: Tortricidae				
148.	<i>Archips micaceana</i> (Walker)	Leaf roller	Minor (Chillies plants)	Butani & Jotwani, 1984
149.	<i>Grapholita torodelta</i> (Meyrick)	Stem Borer	Minor (Indian bean, Cowpea in Tamil Nadu & Kerala)	Butani & Jotwani, 1984
150.	<i>Leguminivora tricentra</i> (Meyrick)	Stem Borer	Minor (Cowpea & Garden pea, Sunn hemp)	Fletcher, 1914; Butani & Jotwani, 1984
151.	<i>Mentheria hemidoxa</i> (Meyrick)	Pepper top shoot borer	Minor (Chillies)	Butani & Jotwani, 1984

REFERENCES

- Ahlawat, D.S., Verma, A.N., Singh, H. and Singh, D. 1993. Effect of host plants on the larval and post larval development of red hairy caterpillar, *Amsacta moorei* Butler. *Annals of Biology*. **9**(2): 254-256.
- Ashraf, M., Khaliq, A. and Ahmad, K.F. 1993. Control of brinjal fruit borer, *Leucinodes orbonalis* Gn. with some insecticides. *Pakistan Journal of Scientific and Industrial Research*. **36**(6-7): 264-266.
- Badenes-Perez, F.R. and Shelton, A.M. 2006. Pest management and other agricultural practices among farmers growing cruciferous vegetables in the Central and Western highland of Kenya and the Western Himalayas of India. *International Journal of Pest Management*. **52**(4): 303-315.
- Barwal, R.N. and Joshi, S. 1996. Hairy caterpillar *Euproctis scintillans* (Wlk.): a new pest of capsicum. *Insect Environment* **2**(1): 8-9.

- Bhat, O.K., Kaul, V. and Bhagat, K.C. 1994. Incidence of pests associated with the rhizosphere of tomato in Jammu. *Annals of Plant Protection Sciences*. **2**(2): 23-26.
- Bhatia, R. and Verma, A.K. 1994. Seasonal incidence of major insect pests associated with winter crop of cabbage in Himachal Pradesh. *Annals of Agricultural Research*. **15**(2): 222-225.
- Bhatia, R. and Verma, A.K. 1995. Seasonal incidence of major insect pests of summer cabbage in Himachal Pradesh. *Annals of Agricultural Research*. **16**(3): 278-281.
- Bhatia, R. and Gupta, D. 2003. Insect and mite pest status of subtropical horticultural crops in Himachal Pradesh. *Journal of Insect Science*. **16**(1/2): 1-8.
- Butani, D.K. and Jotwani, M.G. 1984. *Insects in vegetables*. Periodical Expert Book Agency, Delhi, India. 356pp.
- Capinera, J.L. 2001. *Handbook of vegetable pests*. Academic Press, California, USA. 729pp.
- Chauhan, U., Bhalla, O.P. and Sharma, K.C. 1997. Biology and seasonality of the diamondback moth, *Plutella xylostella* (L.) (Lepidoptera: Yponomeutidae) and its parasitoids on cabbage and cauliflower. *Pest management in Horticultural Ecosystems*. **3**(1): 7-12.
- Choudhary, H.R. and Bajpai, N.K. 2007. Effect of triazophos against insect pests of soybean (*Glycine max* Linn.) in south eastern plain zone of Rajasthan. *Indian Journal of Agricultural Sciences*. **77**(1): 62-64.
- Dahiya, B. and Chauhan R. 1992. Chemical control of pod borer complex in pea *Pisum sativum* L. *Bioecology and control of insect pests: Proceedings of the National Symposium on growth, development and control technology of Insect pests*. 170-174.
- David, B.V. 2001. *Elements of economic entomology*. Popular Book Depot. Chennai. 562 pp.
- Devi, N. and Raj, D. 1995. Biology and parasitization of diamondback moth, *Plutella xylostella* L. infesting cauliflower in mid hill region of Himachal Pradesh (India). *Journal of Entomological Research*. **19**(1): 83-89.
- Fletcher, T.B. 1914. *Some south Indian Insects*. Agricultural Research Institute, New Delhi. 565pp.
- Fletcher, T.B. 1921. Life history of Indian Insects, Microlepidoptera. *Mem. Dep. Agric., India*. **6**: 1-217.

- Gupta, P.R. 1992. Biology of *Evergestis forficalis* (L.) (Pyralidae), a pest of crucifers in Himachal Pradesh. *Journal of Insect Science*. **5**(2): 211-212.
- Gupta, S.L. 1990. Key for the identity of some major lepidopterous pests of vegetables in India. *Bulletin of Entomology*. **31**(1): 69-84.
- Kapoor, K.S. and Sharma, K.C. 1995. Field and storage infestation of potato tuber moth in Kangra. *Journal of the Indian Potato Association*. **22**(3/4): 172-173.
- Lefroy, H.M. 1909. *Indian Insect Life- Lepidoptera- Butterflies and Moths*. Vol. II, Agricultural Research Institute, Pusa, India. pp.397-786.
- Misra, S.S. and Sharma, H.C. 1988. Assessment of crop losses due to major insect pests (white grubs and cutworms) of potato crop. *Annual Scientific Report-1987, Central Potato Research Institute, India*. pp.142-149.
- Nair, M.R.G.K. 1970. *Insects and mites of crops in India*. New Jack Printing Works Private Limited, Bombay. 404pp.
- Pandey, A.K., Namgyal, D., Mehdi, M., Mir, M.S. and Ahmad, S.B. 2006. A case study-major insect pest associated with different vegetable crops in cold arid region Ladakh of Jammu and Kashmir. *Journal of Entomological Research*. **30**(2): 169-174.
- Pradhan, S. 1969. *Insect pests of crops*. National Book Trust, New Delhi, India, 198pp.
- Rai, S., Srivastava, K.M., Saxena, J.D. and Sinha, S.R. 1992. Distribution pattern of diamondback moth (*Plutella xylostella* L.) on cabbage and cauliflower. *Indian Journal of Entomology*. **54**(3): 262-265.
- Raj, H., Bhardwaj, M.L., Sharma, I.M. and Sharma, N.K. 1993. Performance of commercial okra (*Hibiscus esculentus*) varieties in relation to diseases and insect pests. *Indian Journal of Agricultural Sciences*. **63**(11): 747-748.
- Rao, S.R.K. and Lal, O.P. 1999. Distribution pattern of diamondback moth, *Plutella xylostella* (L.) on cabbage under Delhi conditions. *Journal of Entomological Research*. **23**(3): 261-265.
- Saxena, A.P., V.K., Chandla and Raj, B.T. 1988. Ecology of Potato pests and their natural enemies. *Annual Scientific Report-1987, Central Potato Research Institute, India*. pp.139-140.

- Singh, G. and Misra, P.N. 1988. Efficacy of new insecticides for control of insect pests of spring okra (*Abelmoschus esculentus*). *Indian Journal of Agricultural Sciences*. **58**(10): 783-785.
- Singh, S.P. 1989. A note on the adult biology of *Agrotis spinifera* (Hubner) on potato. *Bulletin of Entomology*. **27**(2): 191-193.
- Thakur, S.S., Chandel, K.S. and Kashyap, N.P. 1998. Field evaluation of tomato varieties against *Helicoverpa armigera* (Hubner) in the higher hills of Himachal Pradesh. *Insect Environment*. **4**(2): 51-52.
- Trivedi, T.P., Rajagopal, D. and Tandon, P.L. 1994. Assessment of losses due to tuber moth. *Journal of the Indian Potato Association*. **21**(3/4): 207-210.
