

❖ **Red Pumpkin Beetle (*Aulacophora foveicollis*, *A. lewisii*):**

- A puitling hian a hnah, a kuhmum leh a par te a ei chhe thin. A hnah a ei kaw chuk thin a, a than a thu in a chhe vek thin.
- A pangang hi leiah khawsa in a zung leh a kung a ei chhia a; a tawih mai thin.

A Enkawl Dan:

- A chinna tur a hrui zam leh balhhlawh awm te hal fai a, uluk tak a leh phut tur a ni a, chu chuan rannung dam khawchhuak leh in thlahpung zel tur a veng thei.
- A rannung hmuh hmasak a piang mankhawm a tihhlum tur a ni.
- **0.05% Malathion** a kah emaw **5% Malathion** emaw theh tur.



Red Pumpkin Beetle

❖ **Melon Fruit Fly (*Dacus cucurbitae*):**

- March-May thla velah an tam ber thin, a rah a ei ber a; a rahah a tui bawk thin.
- A pangang lain a rah a ei chhe thin.
- A rah a ei hek te a dum uk a rawn valin a tawih a, ei tlak lohin a tla tawih mai thin.

A Enkawl Dan:

- A hmun a fai tur a ni (a rah tla leh eitlak loh te chu chhar khawm vat a paih bo tur).
- A hmun uluk tak leh thuk taka leh phut tur.
- Tur hmanga chawchah siam tur.
- **0.05% Malathion** emaw **0.2% Carbaryl** in a par lain kah tur.



Melon Fruit Fly leh a tui

❖ **Blister beetle (*Mylabris pustulata*):**

- Aug-Dec thla thleng hian pawl an khawih thin.
- A par a ei thin a, a rah tur a khawih buai thei.

A Enkawl Dan:

- Rannung awm hmasa apiang man khawma tihhlum zel tur.
- A tam viau chuan **0.05% Malathion** a kah emaw **4% Carbaryl** emaw theh tur.



Blister beetle

❖ **Aphids (*Aphis gossypii*):**

- A hnah leh a chawrno bei-in a tuihnang an hip a, thlai a chawrche in a thang thei lo thin. A hnah a kir a, a ro vek thin.

A Enkawl Dan:

- A hnah leh a chawrno a rawn bawm tantirh te chu paihbo tur.
- A tam viau chuan **0.02% Pyrethrins** emaw **0.05% Malathion** emaw **Dichlorvos (DDVP)** a kah thin tur, tuibur a kah pawh a tha.



Aphids



Department of Biotechnology, Govt. of India
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Biotech KISAN Hub
Mizoram University, Aizawl
Deptt. of Horticulture, Aromatic and Medicinal Plants

Changkha Chin leh Enkawl Dan
(Scientific Cultivation of Bitter Gourd)



Prepared by:
Krishi Vigyan Kendra, Serchhip District
Govt. of Mizoram
Phone No: 9612693486
Email Id: kvkserchhip@gmail.com

Introduction:

Changkha hi kan thlai chinte zing a lar pawl tak a ni a, a rah hel/hmin hma a ei thin niin thlai dang ang lo takin a kha a ni. Vitamin chi hrang hrang vitamin A, B leh C te a pai hnem hle a, minerals heng Iron, Potassium, Magnesium leh a dangte pawh a pai tel bawk. Changkha hi thau lutuk leh taksa rit lutuk tur ven nan a tha hle a, kan taksa in sugar (thlum) a hip hnem lutuk tur nasa takin a veng a; zuntlum nei te tan a tha hle bawk.

Sik leh Sa Mamawh Dan:

Ram lum thlai a ni a, khaw vawtah pawh hlawhtling takin a chin theih. Temperature 25°C - 30°C hi a than nan leh hlawk taka thar turin a mamawh ber a, temperature 18°C aia a hniam chuan a thang muangin a rah a tha lo thin. Temperature 40°C aia a san chuan a pa par (male flower) a chhuak hnem a, virus natna chikhat (mosaic disease) a tam duh hle bawk.

A Chinna Leilung:

Eng leiah pawh a chin theih a, mahse changtual leithah a tha duh ber a. Lei thur lam lek lek pH 6.5 - 7 ah a tha ber bawk. Lei chhiat deuhna hmunah pawh fur laiin hlawhtling takin a chin theih bawk a ni.

A Chin Hun leh A Chi Thlak:

- Tlangramah chuan April – July velah an tuh thin a. Tui pek tur nei tan chuan Sept – Oct ah a chin theih bawk.
- A chi kg 4-5 hi tin 2 leh a chanve hmunah a tawk (4-5 kg/Ha).
- Tuh hmian a chi hi **Captan** in darkar 6 chiah phawt tur (changkha chi 1 kg zelah Captan gram 2 tui nen pawlh tur). Hei hian a chi a ti tiak hmian natna lakah a tiak tir aveng bawk ang.
- A bi inkar hlat zawng: feet 2-3

- Bi khatah a chi 4 thlak tur; a hnuah a tiak 2-3 chauh zuah tur.
- Khaw vawtah chuan a tiak har a, 25°-35°C ah a tiak tha ber. 8°C aia hniam leh 40°C aia sangah a tha thei lo.

Leitha Mamawh Dan: A tlakna lei that dan a zir in a leitha mamawh dan a danglam. Leitha mamawh dan tlangpui:

FYM : 20-25 kg/ha **N** : 100 kg/ha
P : 60 kg/ha **K** : 60 kg/ha

Tui Pek:

Ruah tlak loh lai chuan ni 3-5 danah pek thin tur a ni a, a zung awmna lai bawr kha a hnawng tawk tur a ni.

A Thar Hun:

A variety a zirin phun atanga ni 45-55 ah a par tan thin a, a rah hmasa chu ni 60–70 velah a lawh theih. A rah no leh itawm lai berin lawh thin a ni a, a rah veh ngun hian a rah hnem duhin; a thar hlawk thin. 100-150 Quintal/Ha a thar deuh tlangpui thin.

Natna leh Eichhetu Rannung Larzualte:

❖ Powdery Mildew (Vut Buak):

He natna hi boruak a hnawn deuhin a tam duh hle a, a hnah upa ah a awm hmasa thin. A hnah chunglamah vut ang deuh in a rawn awm hmasa thin a, a hnah hnuailamah duk val deuhin a awm bawk thin. A nasat chuan a hnah chung leh hnuai lam bawh khat vekin a kung leh a zikno thlengin a awm thin. A tawpah sawng te in a lo ro a; a til mai thin. A rah a insiam puitling lo a, a te bawk thin.



Powdery Mildew (Vut Buak Natna)

A Enkawl Dan: Carbendazim (1gm leh 1 liter tui chawhpawlh) emaw **Karathane** (0.5 ml leh 1 liter tui chawhpawlh) in kah vat tur. Ni 15 danah wawi 2-3 vel tal kah tur.

❖ Downy Mildew:

Downy mildew hi hmun lum leh hnawngah a tam duh thin. A hnah chunglamah val (spot) eng tereuh te te in a lang chhuak hmasa thin. Boruak lum leh hnawn nasatna hmunah chuan a hnah hnuailamah vut buak angin a awm thin. A darh chakin rang takin a hnah a ti til chhe thin.

A Enkawl Dan: Ridomil (1.5 g leh 1 liter tui chawhpawlh) leh **Mancozeb** (0.2%) nen kah thin tur.



Downy Mildew Natna

❖ Bitter Gourd Yellow Mosaic Virus:

He natna hi virus in a thlen a ni in aphids in an pu darh deuh ber a, a zik tawp lama a hnahah a natna hi a langchhuak ber thin. A hnah chu a eng a rawn de thet thet in a hnah a ti kir a, thang tha theilo in siam thin.

A Enkawl Dan: Monocrotophos (0.05%) emaw **Phosphamidon (0.05%)** ni 10 danah kah tur.



Changkha Hnah Kir Natna