

THLASIK THLAI CHIN LEH ENKAWL DAN

- Vanlalhmuaka Ngente, SMS (Horti)
KVK, Serchhip District, N.Vanlaiphai

Zikhlum (Cabbage)

Scientific name : *Brassica oleracea* Var *capitata*

Mizo : Zikhlum

Hindi : Gobhi

English : Cabbage

Sik leh sa :

- Khawvawt leh hnawng tawk a ngeih ber
- Vur tlem a tlaknaah pawh a chin theih
- Khawlum lam 25^oC aia a sanna hmunah chin loh tur
- Ni eng tam tawk a mamawh

Leilung mamawh zawng:

- Eng leiah pawh a chin theih chungin lei thur a ngai theilo.
- Tui tling thei leiah chin loh tur
- Lei thurah a tha theilo; pH 5.5 – 6.5 a ni tur a ni a, 5.5 aia hnuai a nih chuan chinai 4-8t/ha theh tur a ni.
- Lei thatna apiangah a tha duh

Leitha (fertilizer) mamawh zat : Leitha mamawh zat hi lei that leh that loh dan a zirin a danglam hret thei a, chumi mil chuan her rem tur a ni.

- Bawngek ro tha leh tawih tha : 2-5t/ha
N : P : K : : 80 : 60 : 60
Urea – 124 Kg/ha
DAP – 130 Kg/Ha
MOP – 100 Kg/Ha
- Urea hi kar 2-3 danah vawi 2-3 pekah hman tur.

A chi kui tiah dan :-

- A chi hrisel chauh hman tur
- Nursery bed, a 2ft(vang) x 12ft (dung) x 15cm a sang a siam tur
- Dip taka lei cheh phut tur
- 2-3 inches danah line rin a, chutha chuan tlem te te a a c hi thlak pheih tur ani, lei dip emaw balu emaw a khuh leh hlek tur a ni.
- A theih chuan buhpawl or hnim hnah ro in khuh tur. A tiah veleh laksawn leh tur
- A chung zar sak ngei bawk tur a ni.
- Captan or thiram(0.2%) a lei tih huhin a tiak tir natna lakah a veng thei

A kui hun: September to November

A chi mamawh zat : 500 – 750g/ha

Phun sawn hun - a kui atanga kar 4-6 ah phunsawn tur , Ni 4-5 vel chhung chu ni sa lutuk lahah ven tur a ni

A kar hlat zawng : 45cm x 45cm (row x plant), 60cm x 45cm

Enkawl zui dan :

- a hmun a hnim tur a nilova, a hnim chuan a par a bawr lian theilo
- a hnawng tawk reng tur a ni(a hlum a insiam tawh hnuah tui pek thut loh tur, a hlum a keh duh)
- tui thianghlim lovin a hnah chungah leih loh tur

Seng hun:

- A thar hma chi :- 80 – 90DAP
- A thar tlai chi :- 100 – 120 DAP

Thar zat :

- A thar hma chi :- 300 – 350q/ha
- A thar tlai chi :- 350 - 450q/ha

Broccoli

Scientific name : *Brassica oleracea* Var *italica*

Mizo : Parhlawm

English : Broccoli

Sik leh sa :

- Ram vawt leh hnawng ah a tha duh
- A than nan khawlum lam 20^oC -25^oC a mamawh a. A par insiam nan 15 - 20^oC a ngai
- Khua a lum deuh chuan a par a te a, a darsarh bawk.

Leilung mamawh zawng:

- Eng leiah pawh a tha thei deuh vek a, mahse lei dur tha lei hang tha tamna tui pai hnem thei mahse tui in paih tha si a tha ber
- Tui a mamawh tawh a hmuh loh chuan a kuang a fei duh hle
- Lei thurah a tha theilo; pH 5.5 – 6.5 a ni tur a ni a, 5.5 aia hnuai a nih chuan chinai 4-8t/ha theh tur a ni.

Leitha (fertilizer) mamawh zat : Leitha mamawh zat hi lei that leh that loh dan a zirin a danglam hret thei a, chumi mil chuan her rem tur a ni.

- N : P : K : : 80 : 60 : 50
- Urea – 124 Kg/ha
- DAP – 130 Kg/Ha
- MOP – 84 Kg/Ha
- Urea hi kar 2-3 danah vawi 2-3 pekah hman tur.

A chin hun: September to October

A chi mamawh zat : 600 – 750g/ha

A chi kui tiah dan :-

- A chi hrisel chauh hman tur
- Nursery bed, a 2ft(vang) x 12ft (dung) x 15cm a sang a siam tur
- Dip taka lei cheh phut tur
- 2-3 inches danah line rin a, chutah chuan tlem te te a a chi thlak pheih tur ani, lei dip emaw balu emaw a khuh leh hlek tur a ni.
- A theih chuan buhpawl or hnim hnah ro in khuh tur. A tiah veleh laksawn leh tur
- A chung zar sak ngei bawh tur a ni.
- Captan or thiram(0.2%) a lei tih huhin a tiak tir natna lakah a veng thei

Phun sawn hun - A kui atanga kar 3-6 ah phunsawn tur

A kar hlat zawng :

45cm x 45cm, 45 x 30cm

- Lei thatna hmunah chuan a inkar hlat zawng hi tih zim a tha, chutilo chu a kuang kua a awm duh
- A zim erawh chuan a puitling har duh

Enkawl zui dan :

- a hmun a hnim tur a nilova, a hnim chuan a par a bawr lian theilo
- a hnawng tawk reng tur a ni(bi a ro chuan leiah boruak a lut a, a than a thu thin)
- thlawhfai pahin urea tlem pek tel thin hi a tha khawp mai (a zung tihpem loh tur)
- tui tling khawp a pek loh tur

Seng hun:

- Ni 100 – 150 chhungin a seng a hun deh ber
- A kuh mum bawr inhlawm khawm that lai tak leh a hrin that lai a seng a tha ber .

Thar zat :- 100 – 150q/ha

Cauliflower

Scientific name : *Brassica oleracea* Var *Botrytis*

Mizo : Parbawr

Hindi : Phool Gobi

Sik leh sa :

- Khawvawt leh hnawng tawk a mamawh
- Khawlum lam 10^oC -25^oC a mamawh a. 21^oC hi a tha ber(optimum) a ni. Hei ai khua a lum chuana par bawr tha theilovin a hlawm tha thei lo.
- Khawro leh vawt lutuk ah chuan a par te tak te leh chang deuh a chhuak duh

Leilung mamawh zawng:

- Lei dur tha, mahse tui thli hul hma deuh a mamawh
- Tui tling thei leiah chin loh tur
- Lei thurah a tha theilo;pH 5.5 – 6.5 a ni tur a ni a, 5.5 aia hnuai a nih chuan chinai 4-8t/ha theh tur a ni.

Leitha (fertilizer) mamawh zat : Leitha mamawh zat hi lei that leh that loh dan a zirin a danglam hret thei a, chumi mil chuan her rem tur a ni.

- N : P : K : : 80 : 60 : 60
Urea – 124 Kg/ha
DAP – 130 Kg/Ha
MOP – 100 Kg/Ha
- Urea hi kar 2-3 danah vawi 2-3 pekah hman tur.

A chi hrangte (Varieties)

- **A thar hma chi**
Pride of India, Golden Acre, Early Drum Head, Capenhagen, Puse Mukta
- **A thar tlai chi**
- Pusa Drum Head, Super Snowball, Snow Ball 16.

A chi kui tiah dan :-

- A chi hrisel chauh hman tur
- Nursery bed, a 2ft(vang) x 12ft (dung) x 15cm a sang a siam tur
- Dip taka lei cheh phut tur
- 2-3 inches danah line rin a, chutha chuan tlem te te a a c hi thlak pheh tur ani, lei dip emaw balu emaw a khuh leh hlek tur a ni.
- A theih chuan buhpawl or hnim hnah ro in khuh tur. A tiah veleh laksawn leh tur
- A chung zar sak ngei bawk tur a ni.
- Captan or thiram(0.2%) a lei tih huhin a tiak tir natna lakah a veng thei

A kui hun:

- A thar hma chi :- July – August
- A thar tlai chi :- September – October

A chi mamawh zat :

- A thar hma chi :- 600 – 750gm
- A thar tlai chi :- 375 – 400gm

Phun sawn hun - a kui atanga kar 3-6 ah phunsawn tur

A kar hlat zawng :

- A thar hma chi :- 60cm x 30cm
- A thar tlai chi :- 60cm x 40cm

Enkawl zui dan :

- a hmun a hnim tur a nilova, a hnim chuan a par a bawr lian theilo
- a hnawng tawk reng tur a ni(bi a ro chuan leiah boruak a lut a, a than a thu thin)
- thlawhfai pahin urea tlem pek tel thin hi a tha khawp mai (a zung tihpem loh tur)
- tui tling khawp a pek loh tur

Seng hun:

- A par bawr a lo puitlin a, a par te a insan hleih hmain seng tur
- a tira a rawng (original color) a hlauh hmain seng tur
- seng tlai chuan a rawn a danglam a, a par a darsarh a, hralh a har duh

Thar zat :

- A thar hma chi :- 60 – 100q/ha
- A thar tlai chi :- 250 – 3000q/ha

French bean

Scientific name : *Phaseolus vulgaris*

Mizo : Sap bete

Hindi : Pharas bean

English : French bean

Sik leh sa :

- Khawlum lutuk lo vawt lutuk lovah chuan engtik lai pawhin a chin theih reng
- Ruahtui tam lutuk leh tui tling a ngai thei lo
- Khawlum lam 20^oC - 25^oC hi than nan leh a rah siam nan a mamawh tawk
- Khawlum lutuk (>35^oC) leh khawvawt lutukah a rah tha theilo

Leilung mamawh zawng:

- Lei thawl lam pang deuh dur tha bawk si, tuipai hnem mahse tui tling loah a tha
- Tlak leiah a tha theilo a, a thang chhe bawk
- Lei thurah a tha theilo;pH 5.5 – 6.8 a ni tur a ni a, 5.5 aia hnuai a nih chuan chinai 10-15q/ha theh tur a ni.
- Lei thatna apiangah a tha duh.

Leitha (fertilizer) mamawh zat : Leitha mamawh zat hi lei that leh that loh dan a zirin a danglam hret thei a, chumi mil chuan her rem tur a ni.

- Bawnggek ro tha leh tawih tha : 20-50t/ha
N : P : K : : 40 : 50 : 40
Urea – 46 Kg/ha
DAP – 108 Kg/Ha MOP – 67 Kg/Ha
- Urea hi kar 2-3 danah vawi 2-3 pekah hman tur.

A chin hun: Thlasik thlai - September to November
Nipui thlai - February to April

A chi mamawh zat :

Bean thu (a zam lo chi) - 50 – 60kg/ha
A zam chi - 25 – 30kg/ha

A kar hlat zawng :

Bean thu (a zam lo chi) - 30cm x 5cm
A zam chi - 90cm x 7.5cm.

Enkawl zui dan :

- Bean chu tuh atanga ni 3-4 ah a to
- Ni 45 hnu velah a par tan hlum a keh duh)
- a bul thlawh fai reng tur
- a hnah huh laiin thlawh loh hram a tha, a chhan chu natna chi khat Anthracnose leh anular leaf spot (spore) te kah ahuh laiin a thehdarh/kai duh bik
- a zam chi tan a zamna siam tur
- vaimim kung leh bawrhsaiabe kungah te pawh a zam tir mai theih(mixed crop)
- a zik zam kan tir tawh chi a kuai zawnga a zam chuan a zuih ral a, a bull amah a chawr thar leh a, a rah tlai thin

Tuiphek :

- A zung a pawn lang avangin tui tam lutuk leh lei ro an ngai thei lo
- Tui tling an duh lova, tui a hnawng tawk chauh a awm in a ngeih ber
- A par hma, a par tur insiam dawm lai(pre blooming), a parlai(blooming), a rah insiam dawn laite hian tui kham khawp an dawng ngei ngei tur a ni
- Tui kham khawp a hmuh loh chuana rah a dep duh

A rah seng :

- Bean zamlo chi chi ni 50 hnuah a rah a lawh thieh
- Bean zam chi chi ni 60 – 75 a mamawh
- A par atanga ni 7 – 12 hnuah a lawh theih tlangpui

Thar zat :

A zamlo chi :- 50 - 60q/ha
A zam chi :- 110 - 140q/ha

Seng hnua sawngbawl dan:

Bean hi a chhe hma em em a, a rah lawh veleh dah vawh vat a ngai thin. Bean seng zawh veleh hian sil fai a, natna kai leh a rah chhe deuh leh te deuh chu paih tur. Hetia a tha thlan chhuah tawh hi a dahthatna hmun ah emaw hmun danga phurh sawn hmain a rang thei ang bera dah vawh phawt tur. A dahthat nan hian boruak lum lam 5-7⁰C a tawk chauh a ni, hetia dahthat hian chuan ni 20-25 lai a dahthat theih a. 1-2.5⁰C hnuai lamah chuan ni 10-12 hnuah a vawtin a hmet chhe thei mai thin.

Thlai venhimna lam

Rannung:

A rah nget:

Pangang buang leh a hring te tak te te hian a rah chu a kher a, a mu a ei thin.

A ven dan:

1. Malathion 50Ec @ 2ml /lit of water or quinalphos 25 EC @ 1.5ml /lit of water or a ah tur a ni a, hemi a nih loh pawhin h Fenvelerate dust @ 20-25 kg /ha a phul tur a ni .

2. A rah chhe zawng zawng chu lawh a, paih vek tur ni.

Leaf eating caterpillar:

Pangang hring chi khat hian a hnah leh a kung no lai a ei thin

A ven dan:

1. A tui chu paih bova, a hnah a ei chhiat tawh pawh mal thlak a halral tur.
2. Quinalphose 25 EC 1.5ml/lit of water or Endosulphan 1 ml/lit of water a kah tur.

Aphids:

He rannung hi fanghmir tui ang tak a ni, a hnah, a kung no leh a kuhmum a tuihnang zawng zawng a hip ral vek thei a, a tawpah a lo khawrin a kir a, a tawpah a ro vek thin.

A ven dan:

1. Dimethoate 30 EC @ 1.5ml/lit of water or Chlorpyriphose @ 1 ml/lit of water a kah tur.

Natnate:**Anthracnose:**

A chi rawn tiak tir hi a duk sen khwar deuh anih loh pawn a eng a inrin riak in, a lei seh chin chunglam zawngah a rawn awm a, a ti thi hial thei. A mu pawh a khawih tel thei hial a ni.

A ven dan:

1. A chi kg khat ah carbendazim, Mancozeb @3 g a kah tur
2. A rahah chuan he natna hi a lan veleh carbendazim @ 1g/lit of water or Mancozeb 2g/lit of water a kah tur.
3. Remove affected parts and burn

Rust:

A rah bawrah a rawn en thet thet hian he natna hian a rawn khawi tan tihna a ni a. a hnuah a rawng uk tak leh a sei zawnga dum deuh ruahin a rawn awm leh a, he natna hi a nasat chuan a kung a thi hial thei a ni.

A ven dan:

1. A chi kg khat ah carbendazim, Mancozeb @3 g a kah tur
2. Mancozeb 2g/lit of water a kah tur

Leaf spot:

A hnaha bial te takte emaw rual loh deuh nuaih a dum thliah thliah-in a awm thin.

Control Measure:

1. A chi kg khat ah carbendazim, Mancozeb @3 g a kah tur
2. A natna a lan chhuah veleh Carbendazim @ 1g/lit of water or Mancozeb 2g/lit of water a kah tur
3. Natna kai lai chu mal thlak a hal ral vek tur ani.

Common bean mosaic:

A hnah chu nasa takin a lo chuar a, a puar deuh bawka, a kung a thang tha thei lovin a rah a tlem phah thin.

A vendan:

A natna kai chu paih chhuah a halral tur. A chi thlan lain natna kailo chauh thlan tur. A natna a nasat deuh chuan thlai dang nen a chin thlak daih tur.

Cole Crops Plant Protection:**Insect Pest:****Cabbage butterfly:**

Pangang hring ang chi a hnahah a lo awm a, a hnah chu a ei zo vek thin.

A ven dan:

3. A tui paih vek tur, a hnah ei chhiat tawh pawh paih a, tih chhiat vek tur.
4. Quinalphose 25 EC 1.5ml/lit of water or Endosulphan 1 ml/lit of water a kah tur.

Semi looper: Khapdiau in nasa takin a hnah a ei chhe thei.

Control Measure:

1. A tui (eggs) paih vek tur, a hnah ei chhiat tawh pawh paih a, tih chhiat vek tur.
2. Quinalphose 25 EC @ 1.5ml/lit of water or Endosulphan @ 1 ml/lit of water a kah tur.



Aphids:

Fanghmir tui ang deuh hring dal lampang a ni a, a hnah leh a kung no lai a tuihnang chu a hip ral a, a par pawh a khawih tel thin. Khawizu ang deuh thil thlum a ti chhuak bawk, chumi bawm chuan hmuar dum a siam vat thin.



Control Measure:

2. Dimethoate 30 EC @ 1.5ml/lit of water or Chlorpyrifos @ 1 ml/lit of water a kah tu .

Cut Worms:

Pangang hring balh hmel tak a ni a, a tiak tir chu lei seh chinah a tan chhum a, a hnah no leh a kung no a ei chhe thi.



A vendan:

1. Zingkarah a vaia, paih daih tur.
2. Carbofuran 3g or Fenvelerate dust @ 20-25 kg /ha chu thlai phun hmain, a phunna tur leiah chawhpawlh tur a ni.

Natnate:

Damping off:

A tiak kung chu a lei seh chinah lo nem a, a kung a tlu a, a thi mai thin.

Control Measure:

1. A chi theh laiin pan deuha theh tur, nursery bed pawha kanga siam tur.
2. A chi kg 1 zel chu Carbendazim, Mancozeb @ 2-3g a chawhpawlh tur.
3. A chung a chemical tarlan khawi zawk zawk emaw hian nursery bed a lei chu chawhpawlh tur.

Black rot:

1. A hnah tlang sir zai zai atanga a lai thleng chu V- angin a lawng thin
2. A hnah chhunga in rin bial te te (vascular bundles) a dum raih a, hei hi a hriat awlsamna ber a ni.

A vendan:

1. A chi kui tiah dawnah Streptocycline emaw Bactrinol solution @ 1g/l of water-in 30 minutes chhung chiah tur
2. A chi chu tui sa (50°C)-ah 30 minutes chhung chiah tur a ni.
3. Thlai in chin chhawk fo a tha

Club root:

1. Talhtum angin a zung a lo lian thin.
2. Thlai chu a thang chak lo thei

A vendan:

1. Huan lei chu test zawh hnuah chinai a mamawh zat pawlh tur.
2. A chi kui tiah dawnah Streptocycline emaw Bactrinol solution @ 1g/l of water-in 30 minutes chhung chiah tur
3. A chi chu tui sa (50°C)-ah 30 minutes chhung chiah tur a ni.
4. A tiak hi phunsawn hmain carbenazim solution @5-7 g/10lit water 5-10 minutes chhung chiah tur a ni.
5. Thlai in chin chhawk fo a tha.