

Sawhthing eichhetu rannung leh Natna venhim leh enkawl dan

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Sawhthing natnate

Bacterial wilt or Sawhthing vuai : *Ralstonia solanacearum*

A lan chhuah dan: Sawhthing natnaah chuan he natna hi a hlauhawm ber a ni a., July-August ah a rawn lang chhuak thin. A hnah tlang zai zai hi a rawn sen uk a, a chhung lamah a in vial lut thin. Sawhthing kung pumpui chu a vuai a, a thi mai thin. A sawhthing bawr lai leh a kuang bulah lam chu a rimchhe thin. Hetiang natna vei chu , han tanchhum ila, tui thianghlim a chiahin bawngnhute ang deuhvin tui chu a paw ngiai ngiai thin. He natna hriat awlsamna ber chu, a chawrno tan tir hi tlai lamah hian a uai thin.

A enkawl dan: A chi atangin natna a kai ber a, chuvang chuan he natna awm lohna hmun atang chauhin a chi lak tur a ni. A chi chu Streptocyclin(20g/100litre tui). A tira natna kai hmasa chu paih chhuah a, bordeaux mixture (kahsamir 1%) emaw copper oxychloride 0.2% emaw hmangin a hmun(lei) chu chiah tur a ni.

Soft rot or A tam tawih : *Pythium aphanidrematum*

A lan chhuah dan: Hei hi a chi leh lei atanga natna kai theih hlauhawm tak a ni a, July thla atangin a lang chhuak tan thin. A hnah hnuai lamah a hnah a eng tan a, a hnah chunglamah a rawn kai chho thin. He natna kai chu a zung a lo tawih a, a rawng ukin a rawn inthlak bawk thin. A chang chuan zawite a han pawh hi a kung chu awlsam tein a bal mai thin. A tawih lai hian hmuar natnate, bacteri leh eichhetu rannung dang a hip vat a, rhizome fly phei chu a hip rang hle. Ruahtui tlak lain he natna hi a darh chak hle a, a natna kai ve lohna hmun pawh a kai chhawng vat thin.

A enkawl dan: Sawhthing hmunah chuan tui tlin tir miah loh tur. Sawhthing lin hun laiin a chi chu Bordeaux mixture(1%) a chiah hnuah *Trichoderma* @ 8-10gm/l tui a chiah chhunzawm tur. Natna kai nasa lai chu paih daih tur a ni a, paih hnuah hai lan deuhva Bordeaux mixture (1%) or Copper oxychloride @ 2g/l tui a chiah leh tur ani.

Dry rot : *Fusarium and Pratylenchus* complex.

A lan chhuah dan: Hei hi hmuar leh thlai rulhut(nematode) inpawlh natna a ni a. Rhizome rot ang lo takin dry rot hi chu sawhthing huan hmun thenkhat lai te teah chauh a rawn lang phawt a, zawi muangin a tai darh thin. He natna kai sawhthing chu a than a thu a, a hnah thenkhat a eng sul thin. A hnah upa lam a ro hmasa, a hnah no chu a hnu lamah a ro chhunzawm thin. A nasat tawh chuan, a sawhthing bawr lai han tan hian a uk in a kual raih thin a, a chhung ril a khawih ber thin. Soft rot angin a kung pawhin awlsam tein a dawk a mai lo a ni. He natna tuar sawhthing chu a sawng a, a rova, a hralh theih thin lo a ni.

A enkawl dan: Lei rulhut hi chu antam tel sawrna fe (Mustard oil cake) 40Kg/ha a chinna hmun pawng laiah chuan chawhpawhlin a reh mai thin. Tui sa (51°C, 10min chhung) a chiah a, chumi zawh a Bordeaux mixture(1 %) a a chi chiah chhunzawm hian he natna hi chu a ven theih mai thin.

Leaf spot/blight: *Phyllosticta zingiberi*

A lan chhuah dan: A hnah no-ah hriau ang deuh leh bial sawl deuhvin a rawn val a. A val hi a lai takah lehkha ang deuhvin a awm a, a tlang sir kha a rawn uk kual ze ze a, chu chu a eng deuh phet thin. A val hi a rawn lian tulh

tulh a, chuan a rawn ro a, a hnah hring a tlem tual tual thin. A natna a nasat pheichuan a hnah zawng zawng a ro vek thin.

A enkawl dan: A natna lan tan tirhah Bordeaux mixture (1%) in ni 15 danah vawi 3-4 kah tur a ni. Tlem a daihlim deuh(Partial shade) ah he natna hi a awm thei mang lo ani.

Sawhthing eichhetu rannungte

White Grub or Vual(ngo): *Holotrichia spp.*

He rannung hi awm hun lai nei bik, awm reng lo a ni a, a chang chuan paw nasa tak a khawih thei thin ani. Vual anih laiin a zng leh a mo thar a ei chhe thin a. August –September thla chhungin a tam zual thin. A puitling chu a kawkun atanga a keu hnui Hmawng thing velah a biru a, a khawm a a awm lai hian a tih hlum theih thin. A tamna hmunah chuan neem cake @40kg/ha lin hmain theh tur a ni.

Shoot borer or a nget: *Conogethes punctiferalis*

He pangang hian a kung chawrna a verhin a lut thla a, a sawhthingah lung siam in a ei thin a, hei hian a hnah a ti eng a, a kung a tiro thin. June-October thla ah a tam bik. Nimbecidine(2-5ml/l tui) or *Beauveria bassiana* @ 2-5ml/l in kah tur. Rannung thahna hlo eg Kinnadan, Nuvan etc 1ml/1l of water in a hmun kha kah tur. Ni 14 danah emaw a nasat vak loh a, a ven lawkna ang chauh a nih chuan thla 1 ah vawi khat kah hi a tawk.

Shoot boring weevil or a kung nget: *Prodiocetes haematicus*

He rannung hi, vual a nih laiin sawhthing chu a verh a, a lairil a thi thin. Aieng tualto chi leh elaichi-te hi a tawm duhna a ni avangin sawhthing huan leh a bul vela a awm chuan paih vek tur. Keltelaimawm(a puitling) a nihah, a awm khawm laiin tih hlum thin tur. Nimbecidine@ 2-5ml/l or Carbofuran 3G granules @ 30kg/ha in, chawh veleh kah tur a ni. A nasat viau chuan Monochrotophos@ 1ml.l tui a kah tur.

Natna leh rannung enkawl dan tha(Integrated Pest & Disease Management):

- Sawhthing huan hi natna leh rannung laka him tur chuan a fai a pawimawh em em a. Tui a tling tur a ni lova. Tui luan ralna a tha tawk tur ani. A khat tawkin hnim thlawh fai reng tur. Bawngkek leh hnim tawihthe pek dawnin, a tawih tha tak chauh pek tur a ni. a. Bawngkek tawih tha tak 25t/Ha pek a, lei nen uluk taka chawhpawlh tur a ni. Lei thur tih al deuh nan dolomite @2t/ha sawhthing lin hmain theh tur. Sawhthing lei fit 1 vel(25-30cm) laih pawnah chin tur a nia, hnim hnah emaw antam oil cake emaw a khuh thin tur a ni. Natna a nasat dan a zirin sawhthing hmun hi kum 2-4 ah thlai chin thlak tur a ni.
- A chi tha chauh hmang thin ang che. A chi, natna kai lo, natna awm lohna hmun a mi ngei ngaihtuah ang che.
- Lin hmain tui sa (51°C, 10min chhung) chiah la. Chumi hnuah Bordeaux mixture (1%) in 15minutes chhung a chiah leh tur. Bacterial wilt natna a awm thin chuan Streptocyclin(20g/100 l tui) pawh telh tur ani. Damdawia chiah sa chu daihlim ah tih rova, lin tur a ni.
- Sawhthing chi chu bioinoculant *Pseudomonas fluorescens* leh *Trichoderma harzianum* in chiah tur a ni. Lin hnu ni 60 ah a tam tur ven nan pek chhonzawm tur ani.
- Natna a lan chhuah veleh, natna kai kha a bawrin paih vat a, lei chu ni 15 danah Bordeaux mixture (1%) in chiah tur a ni.
- Natna kai sawhthing chu chawh hmain en fiah vek tur a ni a. a chi atan hman chhonzawm loh tur a ni.
- Vualte, pangangte, thote leh keltelaimawm kan hmuh hmasak apiang kutin emaw tihhlum leh vai khawm emaw tur a ni. Hei hian rannung eichhetu nasa takin a tikiam thei a ni. Vual ngo chi a tam chuan Nimbecidine @ 2-5ml/l tui a kah tur ani.
- Sawhthing hi a lalnu chawh hnu hian, a hli-ah hian natna a tam duh tih hmuh a ni a. A hli kan ring dawn a nih chuan fungicide a kah vek tur ani.