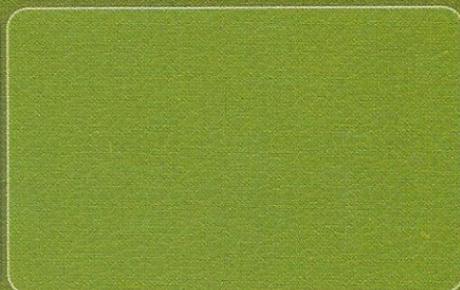
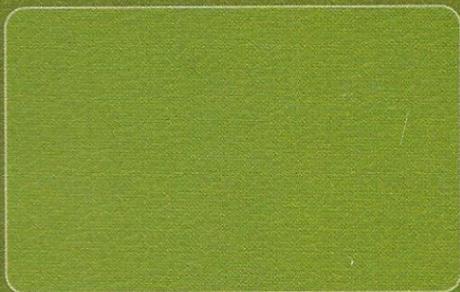


# KA INTEGRATED PEST MANAGEMENT HA U KBA



*Compiled By*

**Donbor Sing R. Sohliya**  
SMS(Plant Protection)

&

**Iadahunlang Kharkongor**  
SMS (Horticulture)

Krishi Vigyan Kendra(KVK)  
East Khasi Hills District  
Upper Shillong-793009

## KA INTEGRATED PEST MANAGEMENT HA U KBA

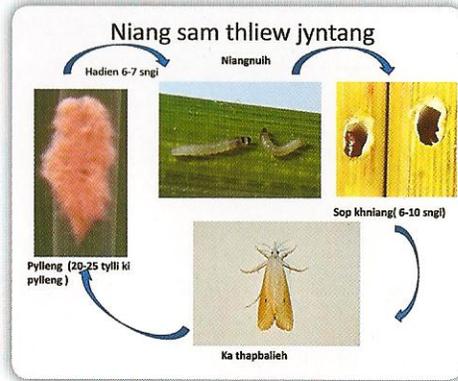
Ka dei ka rukom iada ia u jingthung na ki khniang da kaba pyn-donkam ia ki rukom ba pher ba pher khniang ba nym pynjulong ia ka mar-ang bad ban pynduna ia ka jingbun jong ki khniang.

### Ki Jingthmu jong ka IPM

- Ban pynduna ia ki khniang ym ban pynduh jait ia ki.
- Ban pynneh ia ka mariang.
- Ban iada na ki khniang ha ka dor kaba tad bad ka rukom kaba shngain.

### Ki Khniang kiba pynduh ia u kba ki long kumne harum:-

- 1) **Khniang sam thliw jyntang (Stem borers):** Kine ki niangniuh ki sam thliw ia u jyntang haduh u dohnud jong u jingthung ha ka por ba dang khie dang san bha kaba pynlong ia u dohnud kba ban iap. Lada ki pyn-jot da la phuh syntiew ki pynlong ia ki kba ban kylla thoh lieh bad stait.



### Ki jingpynjulong



Jingpynjulong ia u jyntang kba

Ka jingiap u dohnud kba

Ka jingthohlieh/ jingstait u kba

### IPM

#### a) Da ki buit jingshai/jingnang/jingtip :

- Da kaba lum bad pynduh ia ki pyleng ha ki kper sara.
- Da kaba khlai noh ia ki slakliar jong ki sara ka pynduna ia ki khniang.

- Da kaba puh bad pynduh ia ki jingtang hadien ba lah ot kba.
- Da kaba pyllait da ki khniang Trichogramma japonicum, T. chilonis @ 50,000 – 1,00,000 ki khniang ha ka shi hakter. (Tricho cards)
- Pynduna ka ai pathar ia ka fertilizer.

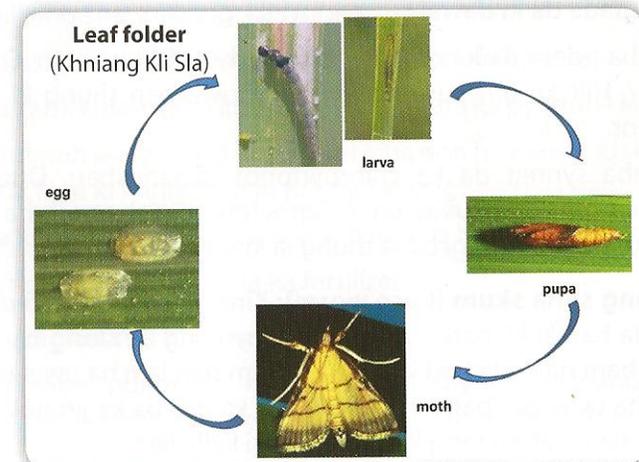
#### (b) Ka jingiada da ki dawai :

- Da kaba pdem da ka dawai chlorpyrifos (Dhanusban, Dursban) 10ml/10lt ka um kumba 4 kynta shuwa ban thung ki sara ha pynthor.
- Da kaba synreit da ka dawai chlorpyrifos (Dhanusban, Dursban) /Monocrotophos (Nuvacron / Agrocron) (5-6shamoit ha ka shi pump) hadien 45 sngi ba la thung ia ki sara ha pynthor.
- Kynmaw ban kyliang ia ki dawai.

### Tricho Cards



- 2) **Khniang Kli Sla (Leaf folder):** Kine ki khniang lung ki kli ia ki sla bad shong hapoh bad ki pynjulong da kaba bam ia ka jingjyrngam jong ki sla.



## Ki jingpynjulor



Ki sla kba kiba lah thoh lieh



Sla ba lah kli u khniang

### IPM

#### a) Da ki buit jingshai/jingnang/jingtip :

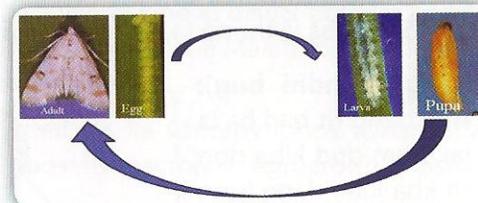
- Da kaba lum bad pynduh ia ki pylleng ha ki kper sara.
- Da kaba khelai noh ia ki slakliar jong ki sara ka pynduna ia ki khniang.
- Phut noh ia ki phlang bad ki nuit kiba don ha mar syndah ki lyngkha kiba kine ki khniang ki ju juh ban shong.
- Da kaba puh bad pynduh ia ki jingtang hadien ba lah ot kba.
- Da kaba pyllait da ki khniang *Trichogramma japonicum*, *T. chilonis* @ 50,000 –1,00,000 ki khniang ha ka shi hakter. (Tricho cards)
- Pynduna ka ai pathar ia ka fertilizer.
- Da ka tbeh da ka light lane ding ka pynduna ia ki thapbalong.
- Da kaba buh da ki sla diengkseh sawdong ka pynthor ka pynduna ia kine ki khniang.

#### (b) Ka jingiada da ki dawai :

- Da kaba pdem da ka dawai chlorpyrifos (Dhanusban, Dursban) 10ml / 10lt ka um kumba 4 kynta shuwa ban thung ki sara ha pynthor.
- Da kaba synreit da ka chlorpyrifos (Dhanusban, Dursban) / Monocrotophos (Nuvacron / Agrocron) (5-6shamoit ha ka shi pump) hadien 45 sngi ba la thung ia ki sara ha pynthor.

- 3) **Khniang shna skum (Case worm):** Kine ki nianglong ki dait ia ki kliar sla bad ki kli baroh arliang ban pynlong tyndong ban shong ing. Ki bam da ki sla bad ki per ha sla um ban jam na uwei u jingthung sha uwei pat ban leh kymjuh. Ha ka por ba ka jingjulor ka jur bha ki sla ki sah sa tang ki shruh bad ki kylla lieh.

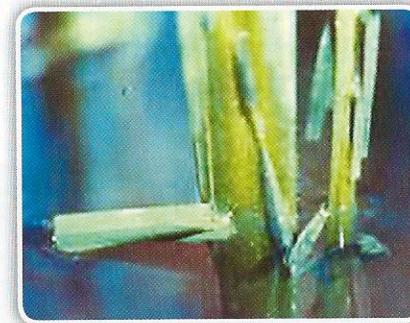
## Case worm (Khniang shna skum)



## Ki jingpynjulor



Ki kliar sla kiba lah shah dait



Ki tyndong sla

### IPM

#### a) Da ki buit jingshai/jingnang/jingtip :

- Pyntuid ia ka um na ki lyngkha khnang ban rah noh ia ki khniang bad skum ba la hap ha ka.
- Pynhap ia kine ki khniang bad skum da kaba tan da u tyllai na shilliang sha shilliang ka lyngkha.
- Da kaba lum bad pynduh ia ki pylleng ha ki kper sara
- Da kaba khelai noh ia ki slakliar jong ki sara ka pynduna ia ki khniang.
- Phut noh ia ki phlang bad ki nuit kiba don ha mar syndah ki lyngkha kiba kine ki khniang ki ju juh ban shong.
- Da kaba puh bad pynduh ia ki jingtang hadien ba lah ot kba.
- Pynduna ka ai pathar ia ka fertilizer.

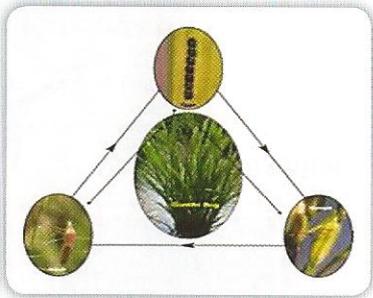
#### (b) Ka jingiada da ki dawai :

- Da kaba pdem da ka dawai chlorpyrifos (Dhanusban, Dursban) 10ml/10lt ka um kumba 4 kynta shuwa ban thung ki sara ha pynthor.

- Da kaba synreit da ka chlorpyrifos (Dhanusban/Dursban)/ Monocrotophos(Nuvacron/Agrocron) (5-6shamoit ha ka shi pump) hadien 45 sngi ba la thung ia ki sara ha pynthor.

4) **Khniang kseng (Gundhi bug):**

Ki khniang kiba dang rit bad ba la heh ki kjit iaka um dud kiba don ha ki symboh kba kiba dang lung kaba pynlong ia ki symboh kba ban kylla stait bad pait/praha ka por ba tyllait ia u kba. Kine ki khniang ki kham kynrei ha ki jaka ba lah ju rep kba man ka por.



**Ki jingpynjular**



Ki jingthohiong ki symboh kba



Ki khniang katba ki dang kjit

**IPM**

a) **Da ki buit jingshai/jingnang/jingtjip :**

- Da kaba pyndonkam da ka shrip(Baffle Trap) ba lah buh da ka tham/ki jakoid/dohkha rit ba lah iap bad sma iewtung khniang ba kine ki khniang kin ngat ha ka. Dei ban buh ha ka por ba u jingthung u lah sdang pun bad puh syntiew.
- Pynkhuid ia ki phlang bad ki nuit kiba don ha mar syndah ki pynthor kiba kine ki khniang ki ju juh ban shong.



Baffle trap

(b) **Ka jingiada da ki dawai :**

- Kynshait da kawei na kine ki dawai powder ba la kdew harum ha ka por step Carbaryl 5% lane Malathion 5% dust kumba 20 kilo ha ka shi hektar ka jaka.
  - Da kaba synreit da ka Chlorpyrifos (Dhanusban / Dursban) / Monocrotophos (Nuvacron / Agrocron) (5-6shamoit ha ka shi pump)
- 5) **Ki niang bam sla (Rice Hispa):** Ki khniang kiba dang rit ki ju sam shapoh jong ki sla bad im da kaba bam ia ki. Ki khniang ba lah san pat ki khrud ia ka snep sla bad iehnoh tang ia ka snieh ba shapoh. Ki pynthor ba lah shah ktah jur da kine ki khniang ki long lieh shaid haba peit na kham pajih.



Ki khniang rit bad ba lah san

**Ki jingpynjular**



Ki sla



Ka jingthoh lieh

**IPM**

a) **Da ki buit jingshai/jingnang/jingtjip :**

- Da kaba khlai noh ia ki sla kliar jong ki sara ka pynduna ia ki khniang.
- Pynkhuid ia ki phlang bad ki nuit kiba don ha mar syndah ki lyngkha kiba kine ki khniang ki ju juh ban shong.



Niangbyrnai



Niangbyrnai u ba lah san

### Ki jingpynjutor



U kba u kylla rong stem, lyngkot bad iap

### IPM

#### a) Da ki buit jingshai/jingnang/jingtip :

- Kaba lur jylliew iaka khyndew ka pynduna ia kine ki khniang bad ka ialad ia ki sim ban bam ia ki.
- Kaba ai sbob eit masi kaba lah pyut bha ka iarap ban pynduna ia ka jingroi jong kine ki khniang
- Ha ki jaka ba kyrni, dei bankem bad pyniap ia ki khniang kiba lah heh ha ka por mynmiet da kaba pyndonkam ia ka lite/ding.

#### (b) Ka jingiada da ki dawai:

- Ai kumba 25 kg u Phorate10G/Carbofuran 3G ha ka shi hektar
- Synreit da ka chloropyriphos 20EC (5-6 shamoit ha ka shi pump ka um).

**Ki paralok u nongrep:** Kine ki dei kita ki khniang kiba bam ia ki pyleng ne ia ki khniang kiba pynduh ia u kba. Kumta da kaba leh kumne ki pynduna ia ki khniang ba pynduh ia u kba bad ki iarap ia u nongrep ha kaba bun ki rukom.

### Ki Khnai

Kine ki khnai ki pynduh ia ka pynthor da kaba tieh thliw ban shna ing ha ki stiar. Ki pynduh ruh da kaba bam ia u kba

### Ki lad jingiada

- Pynkhuid pynsuba ia ka lyngkha ban lait na ki nuit kiba long ki jingbam bad jaka rieh jong ki khnai.
- Pynduna ia ki jingheh ki bun ne ki stiar jong ki hali.
- Lur kham jylliew ia ka lyngkha ha ka por ba pynkhreh ia ka lyngkha.
- Pyndonkam da ki shrip kem khnai ha ki lyngkha.
- Buh da ki dieng ha lyngkha khnang ban ioh dem ka dkhoh.
- Buh da ka jingbam ba la khleh bad ka dawai Bromodialone/Zinc phosphide(2-4 shamoit) ha man la ki thliw khnai hadien 6 bnai ba la dep rah ia ki sara.



# Ki khniang harum ki long ki paralok jong u nongrep.



Ground beetle



Elasmus wasp



Ichneumon



Trichogramma sp.



Tiger beetle



Lady bird beetle



Cotesia sp.



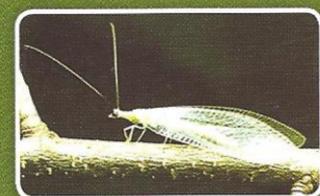
Damsel fly



Spider



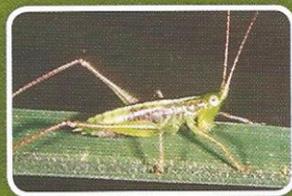
Assassin bug



Lacewing



Preying mantis



Grasshopper