



KA RUKOM PYNBIANG SBOH HA KA REP PHAN (NUTRIENT MANAGEMENT IN POTATO)



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La wad jingtip bad la pynwan sha ka ktien Khasi da I
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U PHAN

U phan u dei “u paralok jong u baduk” ia uba palat 300 snem mynta la thung ia u ha kylleng sawdong ka pyrthei. Ia u phan la pyndonkam khamtam ha ka ban shet jhur bad u long u jingbam ba bit dor uba pynbiang ia ka jingdonkam ka met u briew. U bun ka dawai vitamin khamtam ka vit. C bad vit. B1 bad kiwei de (minerals). U don 20.6% ka carbohydrate, 2.1% protein, 0.3% ka khlein bad ruh ki dawai leucine, tryptophane bad isoleucine ba donkam na bynta ka met u briew. Ha ki thain Ri Khasi Jaintia jong ngi, u phan u long u wei na ki jingthung ba kongsan u ba wan ba ar ha ka jingmih. Ia u phan lah ban pyndonkam ruh ban pynkhreh ia kiwei pat ki jait jingbam bad ki jingdonkam ha ki karkhana ba bun jait.

KI JINGDONKAM BA KHAM KONGSAN BAN THUNG IA U PHAN

Haba thung u phan u donkam ia ka khyndew ba lam shyiap, bym lang um, ba jylliew, ba ni, ba sboh bad ka jinglam jew 5-6.5 (pH). Donkam ban tih haduh kumba shiphut ka jingjylliew ha ka por pynkhreh ia ka lyngkha. Ka jingshit jingkhriat ka ba 17 – 19°C bad ym dei ban palat ia ka 30 ka long kaba biang eh ban thung phan. Ia u symbai lah ban wieh ha ka dawai Dithane M-45 kaba la khleh 2-3 gram lane $\frac{1}{2}$ shamoit ha ka 1 lt ka um na ka bynta 1kg u symbai kumba 10 minute ban iada na ki jingpang kiba shong ha u, bad dei ban jied da ki symbai ba bha. Pynbiang ka sboh, ka um bad kiar na ka jinglang um ha ka lyngkha. Ai khyndew kaba nyngkong 6-9 inshi ka jingrben ha ka por ba ai Urea bad ia kaba ar hadien ar taiew na kaba nyngkong.

U PHAN U JINGTHUNG BA DONKAM SBOH SHIBUN

U phan u donkam ka sboh shibun, na kata ka daw donkam ban pynbiang sboh ban bha ka jingmih. Na ka jaka baheh shi hektar (kata kat ka madan phutbol polo) lada ioh tih 400 quintal, u phan u kjit haduh 170-180 kg ka sboh Nitrogen, 25 kg ka Phosphorus bad 250 kg ka Potash. Na kine ki lai tylli ki jait sboh, kaba kham duna eh ha ka khyndew ki thain jong ngi ka dei ka sboh Phosphorus, kumta dei ban kham pynbiang ia ka jingdonkam jong ka. Leh ia ka soil test ban kham tip kham bha shaphang ka jinglong jingman bad jingdonkam sboh ka khyndew.

Ia u phan la ju thung ha ka juh ka jaka da ki bun samoi khlem da kylla da kiwei pat ki jingthung bad namar ba u don ki thied ki bym da ngam jylliew bad shuh shuh namar ba u kjit shibun ka sboh, ka khyndew ka duna noh ia ka sboh bad kam lah pat ban pyndap iaka jingdonkam na ka bynta u ne u jingthung. Dei ha kine ki mat badonkam ban pynbiang iaka jingdonkam sboh jong u phan khnang ba ka jingmih kan long kaba iohnong.

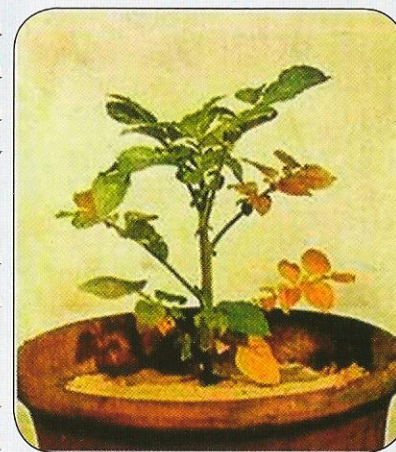
KI SBOH BAD KI JINGTREIKAM JONG KI

1. Ka Sboh Nitrogen:

- Ka iarap ban pynmih sla bad ki bynta ba halor ka khyndew.
- Ka iarap ban pynmih kham bun ki phan bad ruh ban pynheh ia ki.
- Ka pynjlan ne ai por kham jrong ban kharoi ki phan.
- Lada ai bun palat ia kaba donkam, ka ktah ia ka jingmih ki phan da kaba pyndier por noh bad ki phan kin san suki. Shuh shuh u jingthung un jlop ne tlot ka met bad ioh kem pang ne shah pynjlor ha ki khniang lada ai bun palat ka nitrogen.

Ki dak ki shin ha u jingthung ba duna ka Nitrogen ha ka khyndew:

- Ka jingkylla rong ki sla sha kaba jyrngam lam stem kaba sdang na ki bynta ne sla ba iaw ba na sharum bad kiew pat sha ki bynta ba shajrong.
- Ki sla ba lung ki kham jyrngam bad ki sla ba kham iaw ha trai ki lam stem.
- Ki sla barit ba jur ka jingduna ha ka nitrogen ki kyllain shajrong ha ka dur ka pela.



Jingpynbiang ia ka sboh Nitrogen ha u Phan:

- Lah ban pyndonkam da ka dawai sboh Urea (sboh mluh) ne da ka Calcium ammonium nitrate ban pynbiang iaka Nitrogen.
- Donkam 2 muna shiteng - 4 muna shiteng ka Urea na ka bynta shi hektar/2 acre shiteng ka jaka.
- Phiah ia ka dawai Urea ha ki ar bynta lada ai khyndew tang shisien, kata shiteng ha ka por ba thung bad ia kaba sah shiteng pat ha ka por ai khyndew.
- Lada ai khyndew ar sien, phiah ia ka dawai ha ki lai bynta, shiteng ai ha ka por ba thung, shipawa ha ka por ai khyndew nyngkong bad shipawa kaba sah pat ha ka por ai khyndew kaba ar.

2. Ka Sboh Phosphorus:

- Ka iarap ia u jingthung ban *suh thied* bad khie san.
- Ka iarap ha ka ban pynsan ia u phan ba dang lung.
- Ka iarap ban pynmih kham bun ki phan kiba biang ka jingheh.
- Ka *ai bor* ia u jingthung ba un shait ban khlain bad ban heh bad san.



Ki dak ki shin ha u jingthung ba duna ka Phosphorus ha ka khyndew:

- Ka sboh phosphorus ka duna bha ha ki lum ka ri khasi jong ngi.
- U jingthung *um lah ban san* bad u lyngkot ka ryngeng.
- U jingthung u kham *dum rong* ne kham *lam jylliew* ka *jingjyrngam*.
- Ka bynta ba shapoh u sla ka *lam rong dpei jyrngam*.
- Ki sla haba jur ka jingduna ka phosphorus ki kyllain shajrong.

Jingpynbiang ia ka sboh Phosphorus ha u Phan:

- Pyndonkam da ka dawai sboh SSP (dawai dpei) ne DAP ban pynbiang iaka Phosphorus ba duna.
- Donkam 750 kilo lane 15 muna ka sboh dpei ne SSP ha ka shi hektar ka jaka.
- Ai tang shisien ha ka por ba thung.
- *Lada pyndonkam da ka DAP, ai 250 kilo lane 5 muna ka sboh na ka bynta shi hektar ban ioh ia ka sboh Phosphorus ba donkam bad pynduna noh ka Urea sha ka 120 kilo lane 2 muna shiteng na ka bynta shi hektar.*

*Ka dawai DAP ym tang ba ka ai sboh Phosphorus hynrei ka don ruh haka ka sboh nitrogen kaba ngi ioh naka Urea.

3. Ka Sboh Potash:

- Ka iarap ban pynheh ia u phan.
- Ka pynmih kham bun ki phan bad ruh ban *pyndap doh* ia ki namar ka long ka sboh kaba iarap ha kaban *rah iaka jingbam* ba shna u jingthung ha ki sla bad *pynlang pat ha u phan*.
- Ka iarap ia u phan ba un lait na ka jing iong shapoh.
- Ka iarap ha ka ban *pynneh slem* ia u phan ban lait na ka jing julor ha ka por ba buh ne ba rah ia ki.
- Ka iarap ruh ban pynkhlain ia u jingthung *ban ialeh pyrshah* ia ki *jingpang* bad ki *khniang* bad *kumjuh* ka *jingtyrkhong* bad *jing khriat*.

Ki dak ki shin ha u jingthung ba duna ka Phosphorus ha ka khyndew:

- Ki dak ki paw ha ki sla ba thymmai ba dang lung.



- Ki sla kim mih ryntih bad don ka jing khohruh ha ba khmih.
- Ki sla ki don ki dak ba long kumba shah thang bad ki don ki dak thoh iong ba ker da ka bynta ba lah iap.

Jingpyngbiang ia ka sbob Potash ha u Phan:

- Pyndonkam da ka dawai sbob MOP (Sbob Shyia).
- Donkam ka sbob MOP 100 - 170 kg lane 2-3 muna shiteng na ka bynta shi hektar ka jaka.
- Ai tang shisien ha ka por ba thung ha ki nur lem bad kiwei ki sbob dawai.

Ka sbob Mariang bad ka jingdonkam jong ka ha u Phan:

Ka sbob mariang ka long kaba donkam ha ka khyndew. Ka pynbha ia ka da kaba ka pynroi ia ki khniang/phngit jingim ki ba donkam ha ka ban pynsboh shuh shuh iaka khyndew, ka pynbha iaka jinglong ka khyndew kum ka jing pynlong phrui phrui bad jem, ka pynsah iaka jingsngem, ka pynbiang iaka jingsyaid hapoh bad kiwei kiwei de. Ka sbob mariang kam ktah ia ka khyndew bad ka bha na ka bynta ka mariang, kumta ka long kaba kongsan naka bynta ban pynneh ia ka jingmih na ka khyndew wat ha ka lawei ban wan ruh.

Katto katne shaphang ki rukom ai sbob mariang:

- Ha ka shi hektar ka jaka donkam kumba 10 haduh 15 ton ka sbob eit masi ka ba lah pyut bha.
- Lah ban pyndonkam da ka sbob niut ba lah pynkhreh bha (compost) 10 haduh 15 ton shi hektar.
- Lada ioh,ai u neem (powder) 35 quintal ha ka shi hektar, kane ka dawai na une u jingthung ka ai sbob nitrogen, phosphorus bad potash ba donkam ia u phan bad kumjuh ruh ka iada na ki khniang bad ki jingpang.
- Tep iaki niut jyrngam (green manure) ha ka khyndew, u phan u sngewtynnad ia ki sbob ba ioh na ki.

Ka rukom ai sbob ha ka khyndew:

Barabor ia ka sbob dei ban buh hapoh bad ia u symbai pat halor jong ka. Lada thung lain, buh ia ka sbob dawai ba la khleh lang (Urea+SSP+MOP) ha ki nur nangta sa pynbud pat nalor da ka sbob mariang (eit masi ne kiwei de). Dei ban buh ia u symbai 3-4 inshi hapoh kyndew bad ka sbob pat hapoh jong kata. Pyndonkam ki sbob dawai tang kat kum ka jingdonkam ba la bthah khnang ban ym sep ei.

KI SBOH THYMMAI-BIO FERTILIZERS

Ki Bio fertilizers ki dei ki phngit lane jait jingthaw ba im ki barit kiba iarap ha ka ban pynioh ne pynmih ne shna ia ki sbob na ka bynta u jingthung. Ki shna ia ki sbob na kiei kiba don ha ka mariang. Kim ktah ia ka mariang ne jingthung bad kin pynbha ia ka khyndew katba ka por ka nang iaid.

Ki nuksa jong ki Bio fertilizers ba lah ban pyndonkam ha u phan:

- Azotobacter- Na ka bynta ban ioh iaka sbob Nitrogen.
- PSB (Phosphorus solubilising bacteria)-Na ka bynta ban ioh iaka sbob Phosphorus.

Na ka bynta kiwei pat ki jait sbob:

Kum u briew, u Phan ruh u donkam kiwei ki jait jingbam ne ki sbob kum ka Sulphur, Zinc, Iron, Magnesium bad kiwei de khnang ba un san bad plung bha. *Ha ki thain jong ngi ka Zinc ka long kaba kham duna ban ia kiwei.* Lada duna ha ka khyndew ki lah ban paw ki dak ki shin kumta ngi lah ban ai 25 kg lane shiteng muna ka $ZnSO_4$ (Zinc sulphate) ha shi hektar na ka bynta ban ioh ia ka sbob Zinc bad 25 kg $FeSO_4$ ha shi hektar na ka bynta ban ioh ia ka sbob Iron.

Katto katne ki dak ki ba paw ha u jingthung lada duna kine ki Sbob:



Ba duna Sulphur



Ba duna ka Magnesium



Ba duna ka Iron

Ka jingai sboh ia ka khyndew da ki lad ba kyllum ka long kaba kongsan ha u Phan:

Lada pyndonkam tang ki sboh dawai marwei, kan sa ktah ia ka mariang bad lada ai tang ia ka sboh mariang ha ka khyndew, u phan un ym ioh lut ia ka sboh kaba u donkam. Shuh shuh ka sboh mariang ka kham shim por ban pyut bad kylla jingbam ban ioh kjit da u phan. Dei na kine ki daw ka jingpyngbiang sboh da ki lad bapher bapher kyllum ka long kaba kongsan. Ngi lah ban bud ia kine ki lad ba bun rukom bala batai harum:-

- i. Lada long kaba lah, ai ia ki sboh ba kongsan (Mluh/Dpei/Sboh shyiap) kat kum ka jingdonkam, hadien ba lah dep leh ia ka 'soil testing'.
(*Soil testing kadei ka jing test ia ka khyndew ban tip ia ka jinglong jingman bad jingdon sboh ka khyndew).
- ii. **Pyndonkam ki sboh dawai lem bad ka sboh mariang bad ki Biofertilizer ban pynbha bad pynneh ia ka khyndew.**
- iii. Pynkylla ia ki jait jingthung ha ka lyngkha jong phi man ki samoi lane pynbud ia u phan da ki jait jingthung kum u rymbai ktung ne motor ki ba pynbha bad pynsboh ia ka khyndew.
- iv. Iada na ka jingshah rong noh ka dew sboh da ki lad bapher. Thung lain ia u phan da pyngkiang ha ki sharing lum ban iada ia ka jingshah rong noh ka khyndew bad sboh na u slap. Bud ia ka jinghikai rukom rep terrace ne rep ha ki lum ba la pynkhreh kum ki ben.



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