

Ennima Ennungi Eyemmere Ekulira mu ttaka mu Uganda

*Enkola enyangu
ez'okulimamu
emmere obulungi*



FOOD PLANT SOLUTIONS
ROTARY ACTION GROUP
Solutions to Malnutrition and Food Security

*Ni kithongole ekikabererera emikolere ye rilyam-
bulha emiryambo ye kalyo omwa sya distrikit 9830*

www.foodplantsolutions.org

Ennima Ennungi Eyemmere Ekulira mu ttaka mu Uganda



Omugaso gwa Food Plant Solutions kwe kusobozesa abantu okutegeera omutindo gw'ebimera eby'emmere nga tuyita mu biwandiiko ebisomesa n'obuyambi obulala kubanga buli dakiika buli lunnaku abaana abato abali wansi w'emyaka etaanno baffa anga kiva ku ndya mbi.

Ng'ogyeko ebitabo bino, ebiwandiiko ebirara bitegekeddwa nga bya Uganda, bye tusobola okuwanula okuva ku mutimbagano ku kibanja kyaffe ekya:

www.foodplantsolutions.org

Twaniriza era twongera okusaba obuyambi bwo.

Food Plant Solutions: Emirimu egikolebwa ekitongole kya Rotary Club mu Devonport North & Rotary District 9830

Food Plant Solutions ekola emirimu gyayo ng'egoberera amateeka agafuga ekitongole kya Rotary International naye si kitongole ekifugibwa era ekikolera wansi wa Rotary International.

Endya ennungi nyangu

Okulima n'okulya ebika by'emmere ebyenjawulo.

Singa ekiriisa kibula mu kimera ekimu kiba kijja kwongerebwa mu kimera ekirala awo netusobola okufuna endya ennungi.



Fei banana



Edible hibiscus

Endabirira ey'ebyobulamu

Abantu bonna naddala abaana balina okulya ebimera eby'emmere ebyenjawulo okubeera abalamu. Bino mulina okubeeramu ebika byonna eby'emmere. Emmere ewa amaanyi, emmere ezimba omubiri n'eyo ekuuma omubiri. Era buli kyetaagisa mumibiri kiba kifuniddwa bulungi.



Lumunde omunsi

Emmere ewa amaanyi



Amapera

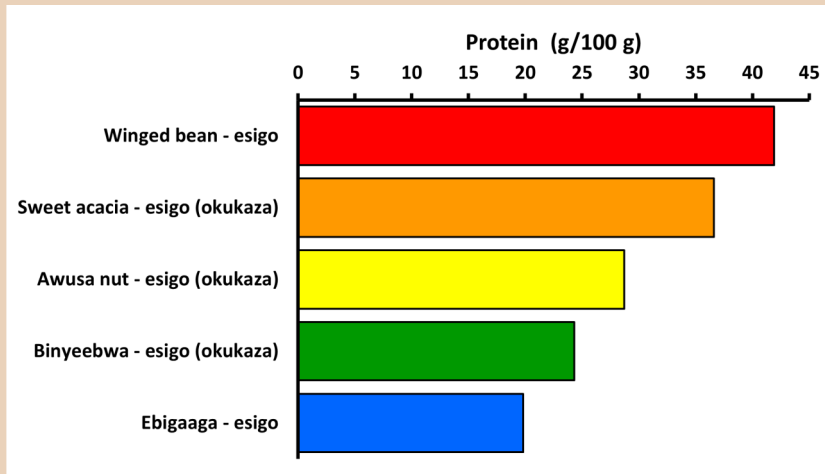
Emmere ekuuma omubiri



Binyeebwa

Emmere ekuza omubiri

Emmere ezimba omubiri



Emmere ezimba omubiri

Emmere etuwa ekiriisa ekikuza omubiri mu ndya yaffe. Ebyenyanja n'enyama by'ongera omuttindo gw'ekirungo ekizimba omubiri.



Ensigo nnyingi zisikiibwa era neziribwa nga snacks.

Ebimera ebinnansi bituwa emmere eyabuli lunaku



Doodo

Olwokuba nga mmere nnansi, ebimera ebyo bibeera biguminkiriza embeera y'obudde n'ebirwadde wamu n'ebiwuka ebibiyiganya.



Amayuuni

Okukozesa emmere ennansi oba ebimera eby'emmeere tufuna emmere obudde bwonna.



Ebigaaga

Ebimera ebyo byonna birina engeri gy'ebisobola okukula n'okulwanyisa embeera y'obudde embi.

Omusomo gwébyobulimi – okulima ebimera mu nkola eya bulijjo



Okulima emmere nga tugitabika n'ebimera ebirara kyanguya ate kiyamba okukendeza kubiwuka n'obulwadde obulumba ebimera.



Omusomo gwébyobulimi – engeri ebirime gyebikulamu mubutonde

Mubutonde ebimera tebikulira mu nyiriri.

Okulima ekika kimu ekyebimera tekikola mu butonde.

Ebika ebyenjawulo birabirirwa mu butonde.

Mu butonde, ekimera ekituufu kikulira bulungi mu kifo ekituufu.

Mu butonde ne mu mbeera ezabulijjo, ebibala bukungulwa mu sizoni.

Ekiriisa kikyusibwa mu butonde.

Enkola ezo mubutonde ziwangazibwa nnyo

Mubutonde ettaka lisigala ddamu n'obujimu nga bungi.

Ennima y'ekintabuli nnungi nnyo

**Doodo osobola okulimira
wamu ne kasooli.**



**Amayuuni, amatooke nago
galimibwa wamu n'eva eddirwa.**

Obubaka obukwata ku nnima

Ebintu ebitamala



Okutereka ensigo

**Ffena tulina okuyigira
wamu n'okugabana
kukyetuba tumanyi.**



**Ebiwuka
ebirumba
ebimera**



**Obulwadde
bw'ebimera**



Ebimera byo bikula bulungi?

Ebimera biraga obubonero obwenjawulo nga tebiri kukula bulungi.

Ekikoola kya kasooli ono kiraga nti kibulako ekirungo kya Nitrogen. Kiraga ekitundu ekikalu ekirimu nukuta ya V mu makati g'ebikoola ebikadde.

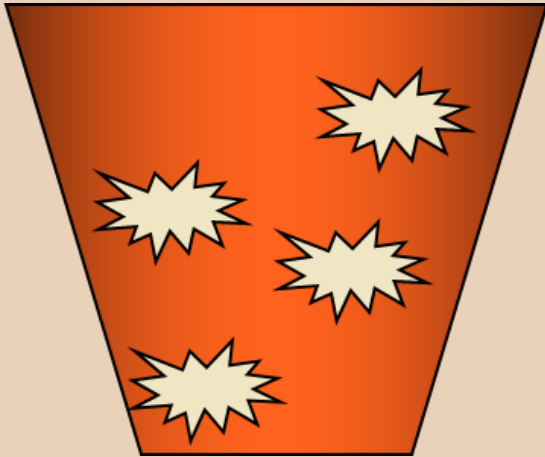
N'ebimera ebirara nabyo biraga obubonero obwefanyirizako ng'obwo.

Ekirungo kya nitrogen kiri mumpewo naye ekimera tekisobola kukikoseza okujjako obuwuka obuli mu ttaka, nemu mirandira gyebimera ebigwa mu kika ky'ebijanjala, bikyusa ekirisa ky'ebimera ebirara byegikozesa.



Omukebe gw'ebiriisa!

Singa tutebereza ettaka okubeera ng'omukeye gw'ekiriisa, tulina okuteeka akatuli katono (oba okugatta ekariisa akanatwala), ng'omukeye tegutfulumya kintu kirara kyonna.



Tusobola okuyiga okumanya kirungo ki ekitali mu ttaka singa tutunulira ebimera nobwegendereza.

Phosphorus



Potash



Nitrogen



Ebimera eby'enjawulo bikulira mu ttaka ery'ebika eby'enjawulo



Amayuuni
getaaga ettaka
eggimu.



Taros
byetaaga
ettaka eddungi.



Chines taros bikulira
ku ttaka ne
bweribeera bbi.



Lumonde asobola
okukulira mu ttaka
eririna obugimu
obusaamusaamu.



Muwogo asobola
okuzaalira ku ttaka eritali ggimu.



Singa ekirisa kibeera kitono...



**Ekimera ky'enaanansi
kifuuka kimyufu.**

**Ekiriisa kyamugaso kubimera,
okusobozesa okukuza ebikoola ebirungi.**



**Ebikoola ebikulu
bifuuka kyenvu.**

**Omuddo gubeera n'ekitundu ekikalu
ekirina "V" ku bikoola ebikulu.**

Ebijanjaalo biwa ekirungo ekikuuma obugimu era kiyamba ettaka okudda obujja

Ebijanjaalo birina obuwuka obwekwata ku mirandira gyabyo obuyamba okutwala ekiriisa okuva mu mpewo ate ne bugiteeka mu ttaka ebimera bisobole okubikozesa. Kino kigimusa kyabwerere!



Ebigaaga



Winged bean

Ebijanjaalo ebirandira waggulu bisobola okukkirizibwa okulandira ku kasooli netufuna ebimera bya kasooli ne n'ebijanjalo nga byombi birungi.

Okwokya ebisubi kumalamu ekigimusa ate kwonoona ettaka

Okwokya ebisubi kuyamba okulongoosa ennimiro, naye bwekiba kisoboka twandibadde tuleka ebisubi ne bivunda nebyongerera obugimu mu ttaka.

Kino kireeta ekiriisa mu ttaka era kiyamba obuwuka n'ebyetagisa ebirara ebyomugaso okubeera mu ttaka okuyamba ebimera okukula obulungi.

Ettaka eririna obugimu ob'ebimera ebivundidde mu ttaka, biyamba ettaka obutagwamu kigimusa ng'enkuba etonnye nnyingi.

Nitrogen (ne Sulphur) bibulira mu mpewo nga ebisubi byokeddwa. Ekigimusa ekirara nga Potash, kisigala mu vvu.



Okukola nakavundira



Nakavundira mulungi nnyo mu bulimiro obutono obwo mulujja.

Toyokya bisubi wabula bikolemu nakavundira!



Engeri y'okukolamu nakavundira

Amateeka agatulambika okukola nakavundira:

- **Zimba oba teekawo ebokisi ogikuume obutatukibwako bisolo.**
- **Tekamu ebintu ebivundu okutandika enkola eno.**
- **Tabulamu ebikoola byakiragala n' ebimera ebikalu.**
- **Kkiriza empewo okuyingira mu nakavundira.**
- **Ekinnya kyanakavundira kikuume nga kitotobadde.**
- **Gatamu buli kintu kyonna ekibadde n'obulamu nga tekikyakozesebwa.**
- **Bwekiba kisoboka, kyusakyusa ebisasiro bisobole okufuna ebbugumu erinabiyamba okumenyekamenyeka amangu obulungi .**

Lwaki twetaaga nakavundira

Obuwuka obutono n'ebintu ebirara ebiramu bikola nnyo okumenyamenya ebimera ebikulu n'ebintu ebirara byonna okufuuka nakavundira.



Kubanga obuwuka buba bulamu, byetaaga empewo n'amazzi, omuddo ogwenjawulo ngagwakiragala n'ebisasiro ebikalu okubitangira okukala.

Ebintu ebirina obulamu birina ekirisa mu bungi obwetagisa mu kukula kw'ebimera, n'olwekyo ekyo kigimusa kirungi nnyo .



Ettaka okusigala nga ggimu, lyetaaga nakavundira okusobola okukola omulimu ogwewunyisa ogutalabwa mu ttaka era nga lyamugaso .

Nakavundira alina okubanga alimu ebugumu lingi okusobola okutta omuddo n'ebiwuka.

Endwadde mu bimera zirina ebizogerwako bingi



Peanut rust



Eteeka erisooka okulwanyisa ebiwuka n'endwadde kwe kusimba ekimera ekituufu, era mu kifo ekituufu, n'okubirabirira obulungi bisobole kukula obulungi.



Amabala ku ndagala z'ebitooke

Endwadde mu bimera zirina ebizogerwako bingi

Elsinoe scab mu lumonde kituteeza ebintu bisatu:

- Ettaka likendedde obugimu era lirimu ekigimusa kitono ddala.
- Lumonde kyekika ekifuna amangu ebirwadde.
- Ekika kya lumonde kyandiba ngakyava mu nsi ndala etalina birwadde, era tekibeera na buwangaazi.



Engeri y'okukendeezamu obulabe:

- Okulinnyisa omutindo gw'ettaka.
- Londa ebimera ebinnansi ebigumira embeera y'obudde.

Ebiwuka

Okulima ebimera ebyenjawulo nga bitabike kiba kirungi era kitangira ebiwuka ebyobulabe obutayonona bimera.

Banana scab moth. Sikako flower bracts, kubanga obuwuka (small moth) bwekweka omwo nga bwewala omusana.



Otereka ensigo zo obulungi

Ebimera ebiva munsigo zetweterekedde ebiseera ebisinga tebirumbibwa birwadde anti biba by'amannyiira embeera y'obudde.



Mildew

Ebimera ebigwa mu kika ky'ensujju bifuna ekirwadde kya mildew n'ebirwadde ebirara .

Air-layering

Air-layering y'engeri eyenjawulo y'okusaliramu ebimera. Osalako katono okwetoolola etabi ettono nga likyali ku kumuti. Wosaze oteekawo etaka n'obibikka n'obisibisaako akaveera. Wosibidde wajja kuleeta emirandira. Etabi lino olitemako nolisimba.



Ebibala ebiwomerera byangu nnyo okusimba nga tukozesa air- layering anti omuti omuto gufanagana n'omukulu.

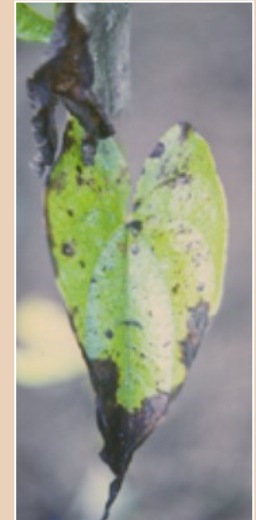
Ebiwuka, endwadde n'okukendera kwekiriisa

Taro blight fungus
enazzibwako enkuba
mu kidedde ekiro.



Amalagala ga lumonde agewesewese.
Kino ekirwadde kya fungus scab kiyisa
bubi nnyo amalagala naddala nga ettaka
bbi, ate ne ku bika ebirala ebitagumira
mbeera mbi.

Yam anthracnose -
ekirwadde kino kikaza
ebikoola era nebigwa
nga bimaze
okwononeka.



Okulima amatooke



Ebitooke birimwa ng'osimba nsukusa.

**Ensigo z'ebitooke zikozesebwa
okwongera omutindo ob'okufuna ekika
ky'ebitooke ebirungi okusingawo.**

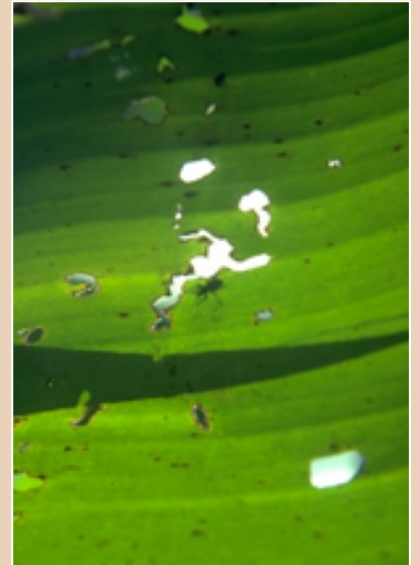


Ebiwuka eby'ebitooke



Shot hole weevil - ebisaanyi, essenene n'ebiwuka ebirara bilya endagala z'ebitooke. Tusimbe bulungi ebimera okusobola okuzaako endagala amangu singa biba bikoseddwa.

Rhinoceros beetle - ebimu ku beetles ne taro beetles bisobola okuyingira mu kikolo ky'ekitooke n'emirandira nebinafuya ekitooke.



Ebiwuka by'ebitooke



Banana scab moth - sikako flower bracts, kubanga obuwuka (small moth) bwekweka omwo nga bwewala omusana. Ekirwadde kino kyonoona emmere. Tusarira ebitooke n'ebibala ate tubiwe n'amabanga agamala it.

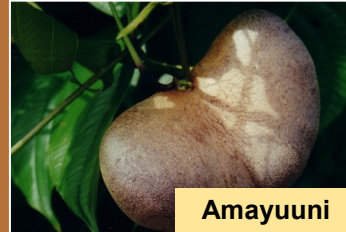
Banana weevil borer - kiwuka ekiyingira mu kikolo ky'ekitooke n'emirandira ne kiretera ekitooke okugwa amangu.



Emmere yo mutaka mu Uganda



Balugu



Amayuuni



Lumunde omunsi



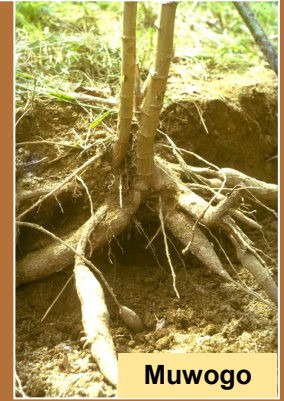
Lumonde

Emmere yo mutaka nnungi mu
budde bw'omusana.

Kino ky'ekika ky'emere ekisinga obukulu munsi
yaffe, nolwekyo twetaaga okugimanya obulungi.



Taro



Muwogo

Okulima amayuuni

- Amayuuni tulina kugasimba mu ttaaka egimu ate nga lirimu amazzi aggala.
- Amayuuni getaaga omusana ngamungi.
- Amayuuni getaaga okusimba ekikolo ekiwanvu mita nga bbiri.
- Ekikolo ekyawagulu ku mayuuni amakulu kye kisinga obulungi okusimba.
- Ensigo z'amayuuni zikumibwa awantu awanyogoga, zigenda mu Musana nga zimaze okuleeta olulimi lw'ekikoola.



Ebyawagulu ebisimbibwa



Amayuuni agalina ekikolo ekilungi

Endwadde z'amayuuni

Yam anthracnose - ebikoola bya mayuuni bifuuka bidugavu nebifa mangu nga birumbiddwa fungus mu mayuuni amakulu, mubiseera by'obunyogovu ne'bimera nga byononese.



Yam rust - ekirwadde kino kiretera ebikoola by'amayuuni okufuuka kyenvu era ne kikosa ebikoola byonna.

Endwadde z'amayuuni

Akawuka akakosa amayuuni nga galina ebikoola ebya kyenvu. Amayuuni agakoseddwa obulwadde buno si malungi kusimba.



Amagondogondo ku bikoola agaletebwa Fungus tegakosa nnyo mayuuni singa gabeera gakula bulungi.

Okulima taro



Balugu

Chines taro kimera ekikulira waggulu mu ttaka eritamyuukiridde. Ekimera kino kikulira mu bbanga lya myezi Mwenda (9) okulibwa. Kirimibwa mu kisikirize ekisamusamu.

Taro kirimwa bulungi ku bintu ebiwanikiddwa waggulu. Ekimera kino kikula bulungi mu mazzi agakulukuta mu kisikirize. Kikulira mu myezi 6-9 okuba nga kiriibwa.



Taro

Endwadde ya taro

Taro blight ne Alomae/Bobone virus bye birwadde ebisinga okukosa ekimera kya taro.



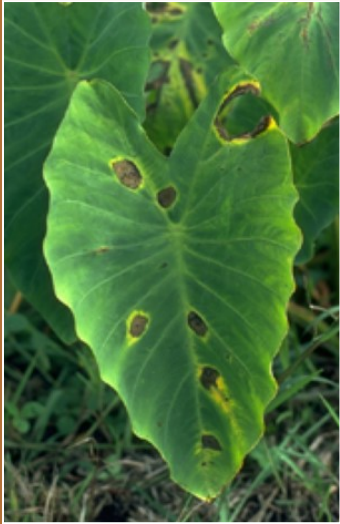
Alomae / Bobone virus

Okusimba ebimera eby'enjawulo kisobola okuziyiza ebirwadde ebitawaanya ekirime kino.



Taro blight - kirwadde kizibu nnyo mu kubonyabonya ekimera kya taro.

Endwadde ya taro



**Taro shot hole - a
minor fungal disease**

Taro mosaic virus



**Taro diffuse yellow
leaf spot**

Taro insect pests



White fly



Cluster caterpillar



Taro beetle

Taro insect pests



**Aphids sucking
sap**

Taro hawkmoth



Grasshopper nymphs



Okulima lumonde

Ebyetagisa okulima lumonde:

- Empewo mu ttaka. Lumonde asimbibwa mu bikata singa ettaka libaamu obunyogovu obanga lyabbumba
- Lumonde ayinza okudda obulungi nga waliwo n'omusana.
- Ettaka eririmu ekigimusa naddala ekiringa evvu likola bulungi ku lumonde.



Waliwo ebika bya lumonde bingi. Ebimu bikula mangu naye lwakuba bivaako emmere ntono. Wetaaga okulima ebika bya lumonde eby'enjawulo okuleetawo enjawulo mu by'emere.

Okulima muwogo

Muwogo mmere ya mirandira ekulira mu ttaka era nyangu okulima, esobola okuterekebwa mu ttaka, era esobola okukulira ku ttaka ebbi n'okugumira obudde bw'omusana. Simba ekitundu kyomuti mu ttaka ng'osimye obuwanvu (obuwanvu centimita 15) mu ttaka nga okitunuza yonna gyoyagala.

Singa ettaka teriba ddungi, tewetaaga kusooka kulimirako mangu. Ebimera kikungulwa wakati w'emyezi 10-14 oluvanyuma lw'okukisimba. Muwogo tabala bulungi singa asimbibwa mu ttaka eririmu acid ne mu kisikirize.



Muwogo alina okufumbibwa obulungi kubanga abeeramu obutwa obukaawa obuyitibwa Cyanide, obukulira mu mubiri ne bukosa obwongo. Okumufumba kumalawo ekizibu kino.

Ebikoola bya muwogo bisobola okufumbibwa era nebiriibwa.



Ebimu ku bizibu bya muwogo

Ebikoola ebikulu ngabigeenda bifuuka bya kyenvu kitegeeza ekiriisa kikendedde mu ttaka.



Ng'ebimera ebirara byonna, muwogo atuwaga emmere nnyingi ng'alimiddwa mu ttaka eggimu eririmu oluvuvuvu. Evvu eriva mubintu ebyokeddwa omuliro libeeramu ekiriisa kya potash.

Ebikoola okufuuka erya kikuusikuusi nga kivudde ku fungus. Muwogo tayisibwa bubi nnyo ng'ettaka ddungi.



Ebikoola ebito bifuuka kyenvu ng'ettaka bbi oba nga lirimu oluyinjayinja ne coral sites.

Okulima obumonde

Lumonde mmere ewa
amaanyi era erina
n'ebirungo by'emmere
endala byetuwa.



Tugezeeko okulya
emmere endala
ng'otaddeko
n'obumonde.

Obumonde bukulira mu bikata.
Akamonde akanene kasobola
okusalibwamu nga kuliko omutunsi oba
“eriiso”. Ebimera biteekebwa muttaka
ngabwebikula. Obumonde buno bulina
okukumibwa mu nzikiza singa buba
bukunguddwa.



Okwebaza

Ekiwandiiko kino kyabagibwa ngekitundu ku mirimu gya Food Plant Solutions Rotary Action ate kyamalirizibwa n’obuyambi bw’ensimbi okuva mu kibiina kya Rotary District 9830.

Omulimo guno tegwandibadde mwangu singa tetwafuna buyambi kuva eri abantu banakyewa abagabana ebirowoozo n’obudde bwabwe okutukkiriza n’okumaliriza omulimo guno.

Twebaza eyasengeka era natereza endabika yekiwandiiko kino- Lyndie Kite, John McPhee

Okuvunula kwasomebwamu ne kukkakasibwa: Kiberu John Chrysostom

Food Plant Solutions: Emirimu egikolebwa ekitongole kya Rotary Club mu Devonport North & Rotary District 9830

Ekitabo kino kyawandiikibwa nga kyesigamizibwa ku bubaka okuva mu Food Plants International (FPI) database, “Edible Plants of the World”, ekyawandikibwa Tasmanian agricultural scientist Bruce French.



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