

Zisyango Zyelede Ziligwa Zyamu Zambia



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



A Project of the Rotary Club of Devonport North,
District 9830 & Food Plants International



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Victorite Enterprise (VE) Aaka Kabunga kalo kaka bika mbaakani kuli zezyo zintu zili mumizeezo ziyandika kuti zicitwe. Kakatalika mu mwezi Wa November, 2016 kalo kakalembwa mubbuku Iyamulawo Wa Namba 16 Wamu 2011 kalo Kajisi Namba 320160012479. Alimwi kakatalika kubeleka Mu Mwezi Wa January, 2018. Swebo Tuli mumpindu yakuvuba Nkuunku alimwi abulimi bwa cisyumani.

Cibela Cimwi cakabunga aaka, ncakubelekela aantomwe abalimi basyoonto bajanika mu minzi, akubaisya nzila zimwi zibotu zyabulimi zisumpula bulimi kutegwa baabe abutebuzi bubotu. Nkaakambo kaako ncotwa kayanda kubelekela antoomwe aba Food Plants Solutions.

Aboobo bbuku eeli lilagwasya bana Zambia Banji Kapati bamakaintu abakubushi Bajanika Muminzi kutegwa baabe aluzibo lwakulima zisyango ziligwa zyalo zitimane bucete mumikwasyi alimwi kuteqwa kube cakulya cinji mpoona kube mikwasyi iipona kabotu ijisi luzibo.

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ZISYANGO ZYELEDE ZILIGWA ZYAMU ZAMBIA

Dedication (Kupegwa)

Eeli bbuku lilipedwe kuzyulu zyulu zyamikwasyi miyumu nyika yoonse mboizulwa ilima zeezi, alimwi amichelo iligwa yakuti kabaligwasya abaabo baibamba mubunji kutegwa abamwi bantu baikkomanine.

Bruce French (FO) Aaba Mbaa Habumpampu. Bakatalisya Kabunga Kaitwa kuti Food Plant International and Developer of the Edible Plants of The World Database.

Cibeela cazisyango ziligwa mu Zambia 1 December 2021

Preface (Bupanduluzi)

Ootu Twaambo Tuzwa kuli zyakulya Aszisyango zizwa kunze a cisi (Food Plants International, FPI) Twakabambwa aba Tasmanian Agricultural Bruce French. Twaambo tuli mubbuku eeli Ba food plants International Rotary club district 9830 kapati kabunga ka-Rotary club of Devon port North Kalo Nkaka-Talisya kabunga kutegwa food plant solution pele (kaindi kakali kwitwa kuti Learn Grow project) Alimwi Abantu bambi bakagwasya munzila zyandeene.

Zisyango zimwi zisalidwe zyakabambwa akabunga kutegwa Lyndie Kite Kalo kakali kugwasyiliza buyo kakunyina kubbadelwa kalo kakali kubelesya nzila zyaka bambwa akabunga kutegwa Food Plant Solution. Nzila eezi zila zyakabelesegwa zilanganya buyo zisyango azyakulya zijisi busani bubotu kumuntu bukozya kumana malwazi. Eeli bubuku ligwasilizya kutondezya bupati bwazisyango azyakulya ziminina busani. Zizyango zimwi zijisi busani azyalo zilikabotu. Akalo Kabunga kaitwa kuit FPI kabelesegwa kujana twaambo Tweelene kujatikizya zisyango zijanika mu Zambia. Eeli Bbuku lyakalembwa kutegwa bantu babe aluzibo azisyango Ziligwa Zyamu Zambia Alimwi Bazibe kuti Liyoolangwa langwa abantu Bamwi bahaabupampu bajisi Luzibo azisyango Ziligwa.

Food Plant Solution yakatalisigwa aba otary Club of Devo Port North, kugwasilizya kuba Aluzibo alzisyango Ziligwa Zyabambwa aba FPI. Aka Kabunga Kalijisi Nguzu Zyakumana Bulwazi Bwakutalya Kabotu aku kwabilila Cakulya nyika Yoonse.

Mu- June 2007 FPI Yakatalisigwa akabunga kutegwa Rotary District 9830 a Rotary Club of Devonport North and Food Plants International. Muzezo ngwa kuti bantu babe aluzibo lyakuti zyakulya zinji zilajanika mumichelo ijanika Muchisi, zyalo zikonzya kukomena kabotua mumasena Muzibede.Zikozya kumana nzala akuti kube chakulya cinji.

Twaambo ootu Toonse Tujana ku-Website www.Foodplantssolutions.org

Disclaimer: Twaambo Toonse ootu tuli Mubbuku tulikwabilidwe nkaambo twaakajanwa muzisyango zilingwa nyika yoonse mbozulwa kubekela antomwe ankamu a kabunga kaiwa kuti Bruce French of Food plants international. Nokuba kuti twaambo tuli Mubbuku eeli tuli kwabilidwe atubunga ootu

Food plants international Alimwi Aba food Plants Solutions, Na Tubunga Tumwi olo Bantu Bamwi bakali kugwasyilizya kubungika twaambo.

- Kuti nakulibizya naa kusotoka mabala akutlemba inga taakwe mulandu ngobapengwa
- Kuti Bandula kabotu kuzisyango zimwi mbozelede kubeleka
- Naa kwamba kuciswa, Lufu, akukolwa nkaambo kakulya cisyango takwe upegwa mulandu.

Pele amube bwina kuti zisyango eezi tazikoli pe, pele muzibe boceeled kucitwa kwindi mukubuzya ba haabupampu. Twaambo tuli Mubbuku eeli twakalanganizigwa akabunga ka Food plants International mpooma nakwayandika kucinca inga kwaba.

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Kupandulula

Eeli bbuku lipandulula zisyango ziligwa zizizilwe zya mu zambia. Tuyeya kuti bantu balayandisisya zisyango eezi mpoona baambilwe mbuli mbozilimwa. Zisyango ziligwa zilimu masena motukkala zijanika mucisi a cisi zyakulya zibotu. Mukubula coolwe bantu balazikaka zisyango ziligwa zyacintu, mpoona bantu balima zisyu zyakeetwa mbuli kkabichi. Eezi zisyu zyamu syobo ooyu tazijisi busani mbuli zyacintu cisiya. Azilimwa zimwi zijisi mubala wamatuvu wanyanzi bili.

Kulima Cakulya

Kulima cakulya ca kusanina mukwasyi tacili cakuzumbauzya, ncimwi cintu celede kucitwa kumuntu woonse. Waba aluyandisisya kuba ambewu mpoona ulayandisisya kwiiya michelo mbuli mboisyangwa mpoona iinga wakkomana kuba ambewu yazisyango zyakulya.

Cisi cijisi zisyango zyaandeene

Zisyango zyciintu zijanika mu zisi zyaandene taakwe nozilumbaizigwa kabotu pe. Kuti waunka kumusika wazyakulya ulakonzya kubona zisyango ziligwa zijisi busani bwaandeene zikonzya kulimwa mu cisi eeci. Makani mabotu aazisyango eezi zili mumizezo yabalimi bajisi luzibo, mpoona takwe niyakalembwa mumabbuku. Eeci cipa buyumuyumu kuciinga cabana bana ciboola kuti bakazibe mbozilimwa.

Muzisi zinji zisyango zycilyo ziligwa zyacintu zilatebulwa kuzwa musyookwe mpoona zizizilwe buyo mumasena masyoonto. Mulumbe wazisyango eezi zyoonse abusani buli muli zyakulya eezi amalwazi azinyonyauna alajanwa muma bbukku abeendelezi bendelezya zisyango ziligwa bali kunze acisi.

Kuzibisisya zisyango

Bantu babaa aciindi cinji cakujanika mumbewu yazisyango ziligwa balakonzya kuba aluzibo luli kabotu. Ncibotu kwiiya kumuntu uulima michelo eeyi. Muchelo a muchelo ukomena kabotu kwendelena abusena alimwi kuli lwiiyo luyandika kutegwa zisyango eezi zikomene kabotu. Citondezyo, cimbwali tacikonzyi kuba aamiyanda mipati kubusena kukkalila maanzi, pele cikonzya buyo kaba amavu manji, jinja ilakonzya kukomena mucimvule. Kukosaula tutabi twa pepa (pepper) mpoona ciipa kuti ikomene kabotu akuzyala michelo minji. Kuli zintu zinji zyaandeene kumuchelo amuchelo, lino na wabaa alwiiyo, lulagwasya kuti ube ambewu izyala michelo ya zyakulya zinji.

Mazina azisyango

Zisamu zyamichelo iligwa zilijisi mazina acintu, alimwi zilijisi acikuwa atasyupi. Kufwumbwa cisyango cilijisi zina lyabu haabupampu. Nokuba kuti zina eeli inga tali zibidwe loko. Eeci cipa kuti bantu bazwa muzisi zyaandeene andeene amisyobo yandeene bazizibe zisyango zilalimwa muzisi zyandeene, ndiza inga titwaiziba michelo kwiinda kumazina aayo atasyupi, ndiza inga titwaiziba michelo eeyi, njiyona ilimwa mumasena aasiyeene siyeene pele kubelesya mazina abu haabupampu tulakonzya kuiziba micelo eeyi mpoona tulakonzya kuba amulumbe ulikabotu kuzwa kubantu bazwa muzisi zyaandeene.

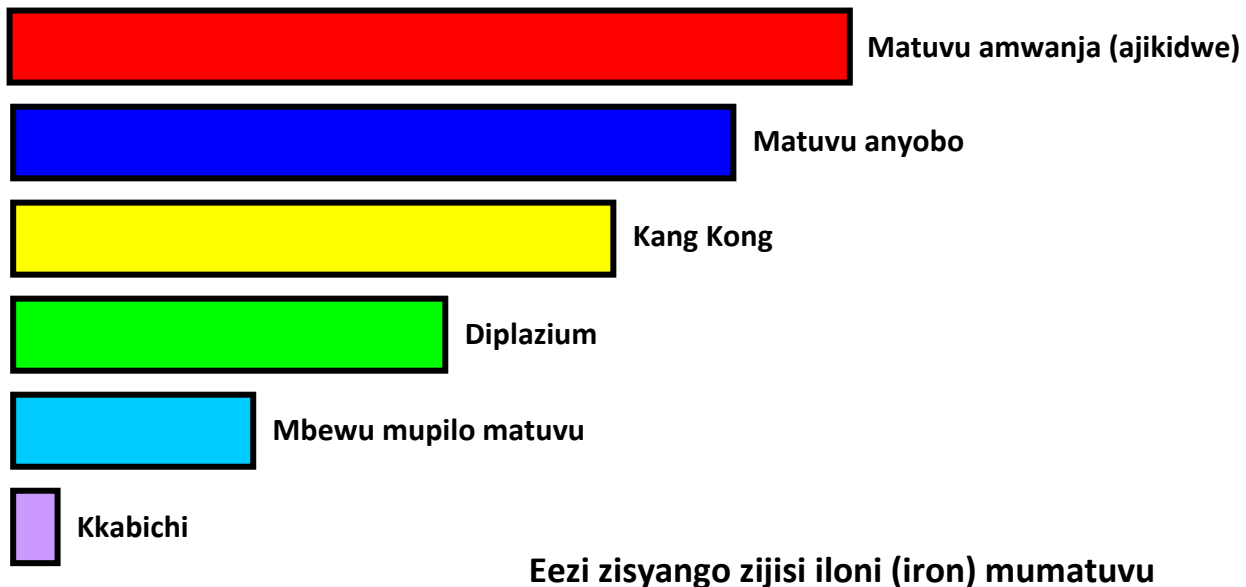
Kuti na kulakozeka, zisyango zili mubbukku eeli zilakonzya kwitwa amazina amu chikuwa aba haabupampu alo atasyupi.

Zisyango ziligwa zyamumunzi azyalo zili kabotu

Bantu, zimwi ziindi bayeeya kuti zisyango ziligwa zyamumunzi tazili kabotu pe mpoona bayeya kuti kufumbwa zisyango ziligwa zizwa kunze acisi nzezili kabotu. Eeci tacili camasimpe. Bunji bwazisyango ziligwa zyeetwa kunze acisi mbuli kkabichi walo ulijisi busani busyoonto. Bunji bwa cisyu mani camusyobo wanyanzabili cilijisi busani bunji kwiinda kkabichi olo letesi. Tweelede kuti katujisi mulumbe ujatikizya busani bwiindeene indene muzisyango ziligwa kuti na tuyanda kulya

kabotu. Michelo ilimbuli malemani ama fuleenke aliminwa kuti kaatupa vitamini C yalo igwasilizya kuti bantu kabapona kabotu. Michelo eyi taikomeni kabotu mumasena moitawi loko imvula. Magwaba alijisi vitamini C munji alimwi bana balauyanda loko muchelo ooyo. Eeci ncikozyano buyo citondezya kuti zisyango ziligwa zyamumunzi zili busani buyandika mumibili yesu. Mibili ilayanda zisyango zinji ziligwa kutegwa tukomene kabotu, katuli aamibili ilikabotu alimwi kutegwa tube anguzu.

Zyakulya ziindeene zilayandika kutegwa tube aanguzu ama vitamini. Eeci cipikicha cili ansi citondezya zimwi zintu ziyandika mumibili yesu zyalo zijanika muzisyango ziligwa zijanika mumunzi. Matavu ajanika mumasena atakwe mvula loko kweelenya akkabichi iloni (iron) ilayandika loko mumibili kapati mubulowa. Bantu batajisi iloni (iron) mumibili yabo balakonzya kuciswa bulwazi bwakubula bulowa akubula nguzu.



Mbotweelede kulya

Mbotweelede kulya zilyo zyeede, eeci ncintu cubauba. Kuti bantu balya zilyo zinji, mibili yabo inga kaijisi busani bwelede bwalo buyandika mumubili. Kuti na takwe busani muzisyango ziligwa nkokuti obu busani inga bwalo bwajanika muli zyakulya zimbi zinji ziligwa. Akaambo kaako muntu woonse welede kulya zilyo zyazisyango ziligwa zyandeene andeene buzuba abuzuba. Zilyo zyalo ziyandika kubana bana ngaalya matuvu amusyobo wanyanzabili. Muntu woonse welede kulya cisyu camatuvu asiyasiya amubala wanyanzabili. Aaya matuvu alijisi mavitamini abusani bumwi bukwabilila mubili. Kuli zisyango zimwi zinunkilila zipa kuti cakulya cinone, pele kunona ooku kulandeene abusani.

Kwiiya kujika kabotu

Busani muli zyakulya zimwi inga bwamana nkaambo kakwiindilizya kujika. Ncibotu kujika zilyo eezi zyamichelo iligwa kwamawola masyoonto buyo. Tuzunda tupa kusoomona tulajanika mumbewu amuzisyango eezi. Tuzunda ootu tulafwa ciindi mucelo nowajikwa. Zisyango zinji eezyo zyalo zikomene mumasena atakwe mvula loko kukulya zilalula alimwi zilakonzya kujaya. Eeci cilacitika kapati kuli Mwanja Anyabo, alimwi cilakonzya kucitika kuli zyakulya zimwi. Kujika cakulya kwa ciindi cisyoonto calo eeci cijaya tuzunda mpoona cakulya inga caba kabotu kukucilya. Bumwi busani buyanda mibili yesu (mbuli mavitamini amenso) alakonzya kujanika kuti na cakulya cabikwa mafuta.

Kwiiya kukomezwa michelo iligwa yamusokwe

Michelo minji ikomena musyokwe taisyangwi abantu pe. Tulakonzya kujana muntu ujisi luyandisisyo mpona wakaiya mboikomezegwa micelo eeyi. Aba balakonzya kuba bantu bamusyobo umbi. Ndiza inga busena bwabo mbobakajana kuli michelo imbi mibotu kwiinda yalo michelo ikomena biyo ilike.

Kukwabilila misyobo mibotu yazisyango

Natuyanda kuti zisyango kazimenena kunseke, lusumpuko ndotwa kajanide lwakujana michelo mibotu na ilwela inga lwasweeka. Zisyango zyamichelo imwi mboibede oobu aabona michelo izyalwa inga tailweli. Pele ciyandika ncakuti twelede kucigonka cisamu eeci kutegwa kusuuke ciimbi cikozyanya acakaindi. Kuti naa cisyango tacyuuki kwiinda mukutyola kasamu kuzwa kuli ncico akukasimpa mubulongo. Pele nkoi nzila imwi ikonzya kucigwasilizya cisyango eeci kutegwa cimene cibe amiyanda. Nzila imwi mbotu njakugonka katabi kafwafwi kuzwa kucinyina, mpoona katabi aaka mwakaanga mukapulasitiki mwabikka abulongo. Michelo ili mbuli magwaba ilakonzya kutalika kumena miyanda mumona mukapulasitiki. Mpoona mulakonzya kukasimpula akuyokasyanga mumbewu yanu na kubusena nkomuyanda.

Kusyanga kwiinda mukugonka tutabi

Zisyango ziligwa zinji zilasyangwa kwiinda mukugonka tutabi tukomenena mumambali. Eeci cileelede kucitwa kutegwa michelo minji ili mbuli mabbanana, cimbwali, minsale yacikuwa kaizumanana kulimwa akuzikwabilila. Muchelo amuchelo ulijisi mboweede kubambwa. Ncibotu kubelesya nzila bbotu twanosyanga michelo eeyi kutemwa malwazi atayambukili.

Kukwabilila nseke

Zisyango ziligwa zimwi zilasyangwa kuzwa kunseke. Cimwi ciindi eeci ncubauba nkaambo inga nseke nzipati alimwi akubambwa kabotu, mpoona zilakomena kabotu mbuli kucisamu kkoyakazwa nseke. Zimwi zisyango zilakatazwa. Alimwi zimwi nseke ziyanda kusyangwa eciya ciindi nozicili zitete nkaambo kakuti zila syupa kuyobola. Zimwi nseke tazimeni mbuli cinyina. Citondezyo, michelo imwi inga taili mipati alimwi tailweeli ndiza akutanona. Michelo yamusyobo ooyo ncibotu kujana nzila imbi mbuli kutyola katabi akukagonka akati mbubonya mbotwanga katabi kamafulenke kukasamu kakalemani. Zimwi zisyango tazikomeni kabotu nkaambo takwe bungu buzwa kumbi pe. Mpoona kujanika kuti zisyango zyamusyobo uliboobu zilaceya limwi mane caakufwa. Aalo mapopwe alimwa muzibela zisyoonto-syoonto takomeni kabotu, inga imbuto iya buceya mwaka amwaka nkaambo kakuti takwe bungu buzwa kumbi. Lino nseke ezi zyelede kukwabililwa kumalwazi asiyene siyene.

Zimwi nseke zijisi cikwa ciyumu mpoona nseke zyamusyobo ooyu zyelede kuzikwalakwala na kuzinyika mu meenda akasala na atontola. Kukwabilila nseke ya zisyango nzotulima cilikabotu nkaambo nseke eezi zilizibide kusyangwa mumasena aali boobo. Mukozyano, nseke zyamyungu zilakonzya kuzyla loko nkaambo kakuti malwazi azilwana masyoonto kwiinda yakulya kumbi.

Kulima mbewu ijisi zisyango zindeeneindeene

Mubwini chisyango cilikke tachikonzyi kukomena kabotu. Lyoonse inga kuli zisyango zindene mubupati amubusyonto pele zilakonzya kukomena antoomwe. Kufumbwa muntu wakainda kale musyookwe pati ulakazumina kaambo aaka. Aboobo bantu nyika yoonse bayanda kukwabilila masamu nkaambo kakuti balizi kuti kuli zisyango zimwi zikomena antoomwe amasamu. Kulima zisyango ziligwa mumbewu ceelene buyo mbuli zisyango zilimenena zyamusyokwe zyalo inga zilisangene sangene pele zilakomena antoomwe, obu mbobulimi bubotu. Kusanganya zisyango mumbewu cipa kuti ube abutebuzi bunji, nkaambo na mvula kuti yawa meenda alatutola tuuka tujisi malwazi.

Zisyango zyacakulya zindene

Nkakaambo kamwi ncotwelede kulima zisyango zindene indene mumbewu na mumunzi wesu. Kuti na kuli calubila, nazisyango zyanjililwa malwazi inga butebuzi abwalo tabuli kabotu. Kuti mumbewu kuli zisyango zindene indene zimwi zilakonzya kufutuka mpoona kulakonzya kuti mwaba acakulya mumunzi. Alimwi kuti zisyango kazindene indene eeci caamba kuti tazikobizilwa aantoomwe, pele eeci cigwasilizya kuti cakulya kacitamani mumunzi. Kuli zisyango zimwi nzotukonzya kupanga lukwakwa mumaanda eesu iziligwa alimwi amichelo njotukonzya kusyanga yalo njotukonzya kupa bana besu. Alimwi tulakonzya kwiyoibola imwi michelo akuyoipa bana besu kuti bakalye ciindi ncotuyooyanda.

Kubamba bulongo

Balimi bambewu ciimwi ciindi balalonzya lonzya mbewu yabo kumasena mapya. Pele kuli twaambo totatwe cipa kuti bacite boobo.

- Mumasena amwi nsaku ndipenzi pati. Abona mwaka wakutanguna wakulima mbewu, nsaku inga nisyoono tailinji, pele myaka mboiya kuvula ayalo nsaku iya kuvula.
- Abona ibusani inga buya bumana mubulongo mwaka amwaka mpoona azyalo zisyango inga tazikomeni kabotu. Pele nkoili nzila imwi ikonzya kucitwa kutegwa busani kabutamani kufwambana.
- Nkotuli tuzunda tusyoono tujanika mubulongo mpoona tukkala kumiyanda, mbuli cisyumani cilimwa mwaka amwaka na Matomato olo Nyabo tulalya miyanda mpoona ciipa kuti zisyango zitakomeni kabotu.

Kubamba bulongo kutegwa bube abusani

Kuti na kwatalikwa mbewu impya inga kuli matuvu manji azisamu zinji zili ansi zyakabola. Eeci cipa kuti kube busani bupa kuti zisyango zipya zikomene kabotu, kuli nzila nguba-uba ikonzya kupa kuti zisyango zikomene akukwabilila bulongo “ikuti na cisyango cilapona,” “cilakonzya kupona alimwi.” Kufumbwa eecocakawida ansi ceelede kuti cibole kutegwa cipe mbolezi na busani. Bumwi busani na mbolezi ila nyonyaunwa abusi obuya bwa mulilo kuzwa kumbewu yesu. Kuti kwabula busani na mbolezi, matavu azisyango inga atalika kusalala. Kuti na kwakonzeka matavu twelede kwazikka kuleka kwaumpa.

Bulongo butakwe mbolezi zisyango tazikomeni

Kuti na bulongo bulabyuuka/bulalula. Zisyango tazikonzyi kuba abusani, kuli misamu ili munyika yalo ikonzya kuti zisyango zitakomeni kabotu nkaambo eeyi misamu kuti na yayaaya ilasangana abulongo alimwi ilanjala amuzisyango mpoona ipa kuti zisyango zitakomeni kabotu. Kubika laimo mubulongo iyungizya busani.

Busani buli mubulongo

Zisyango ziyanda busani bwindene indene butaleli kukkumi a tosanwe kutegwa zikomene kabotu. Zisyango zyakamena ziyoba abusani obu bwalo bwelede. Nkakaambo kaako, mbolezi yamatu na zisamu zyakayuma zibolede zilayandika. Kuti na takwe mbolezi yamusyobo oyo zisyango inga zyatalika kuyuma.

Bumwi busani bwelede mbusani bwakabikkwa aa Leza buli mubulongo kale. Kuti na zisyango zيابula busani obu buli mubulongo kale inga zyasalaluka.

Zisyango zimwi zili mbuli misale yacikuwa na mapopwe kuti zيابula busani obu inga zyatalika kuyuma akufwa. Zisyango zyelede kuba ambolezi ikuzwa kumatuvu azisamu zibolede zili mubulongo. Balimi bamumunzi kuti na bayanda kubamba mbewu balanga kujanika bwizu bunji kabatana bamba mbewu, inga bayanda kubona kuti na bwizu bwakayuma akufwa, nkaambo balizi

kuti kulima mbewu mubusena buli boobu, zisyingo tazikonzyi kumena kabotu. Pele ncibotu kuti na wali pangila mbolezi nakulima zisyingo mbuli Nyabo kutegwa busani buyandika bujokele mubulongo.

Mapopwe alikabotu kwaalima nkaambo alakutondezya busani buyandika. Kuti na makwele atalika kuyuma nkwali kumbele nkokuti eeci caamba kuti kuyandika bufumba bwa n'gombe. Kanji kanji zisyingo zyamatu mbuli luungu ziyanda busani mpoona zisyingo zyamiyanda mbuli cimwali ziyanda mbolezi ya mafumba an'gombe.

Mboipangwa mbolezi

Mbolezi zeziya zintu zyakabola kungsi abulongo. Eeyi mbolezi ilakonzya kubikwa mubulongo alimwi kutegwa zisyingo zipya zikomene. Mbolezi mboibambwa mboobu. Mwaalundika matu alatalika kubola mpoona tuzunda tuli munyika tulatalika kulya matu kutegwa ibe mbolezi, ootu tuzunda tulapona pele tulainka amuwu, ameenda alimwi acakulya. Alya matu ngomwalundika alayanda muwo pele mutaavumbi kapulasitiki na kwabikka muchigabba. Eeci cipakuti mbolezi italike kununka bubi nkaambo kakuti tuzunda tumwi tatuyandi muwo tupa kuti mbolezi eeyi ibule busani bubotu. Kuti na mwabelesya mbolezi yatavumbwa kapulasitiki na bubikka muchigabba ili jisi busani bubotu. Mulakonzya kwiibikka muzisyingo mbolezi njo mwalundika mumbewu yanu. Mpoona mulajana kuti zisyingo zilakomena kabotu.

Tuuka

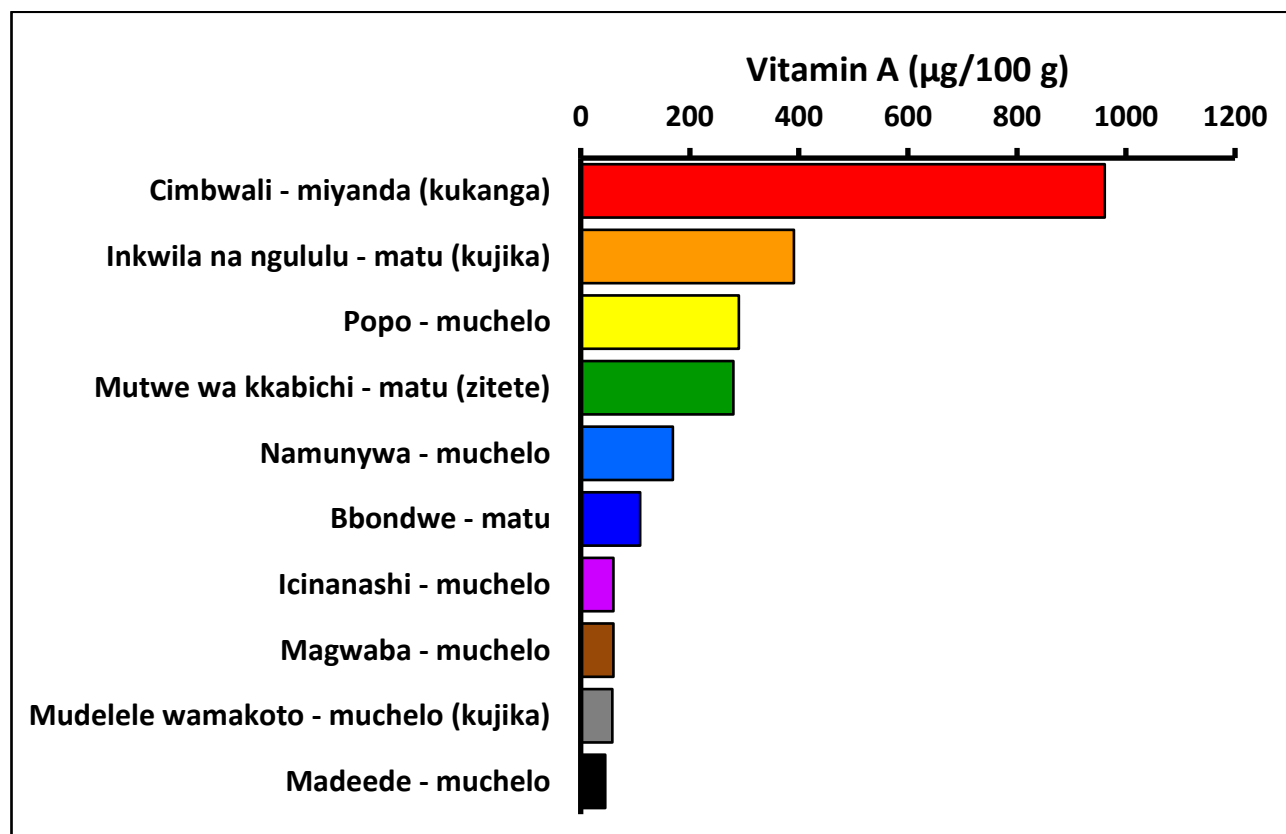
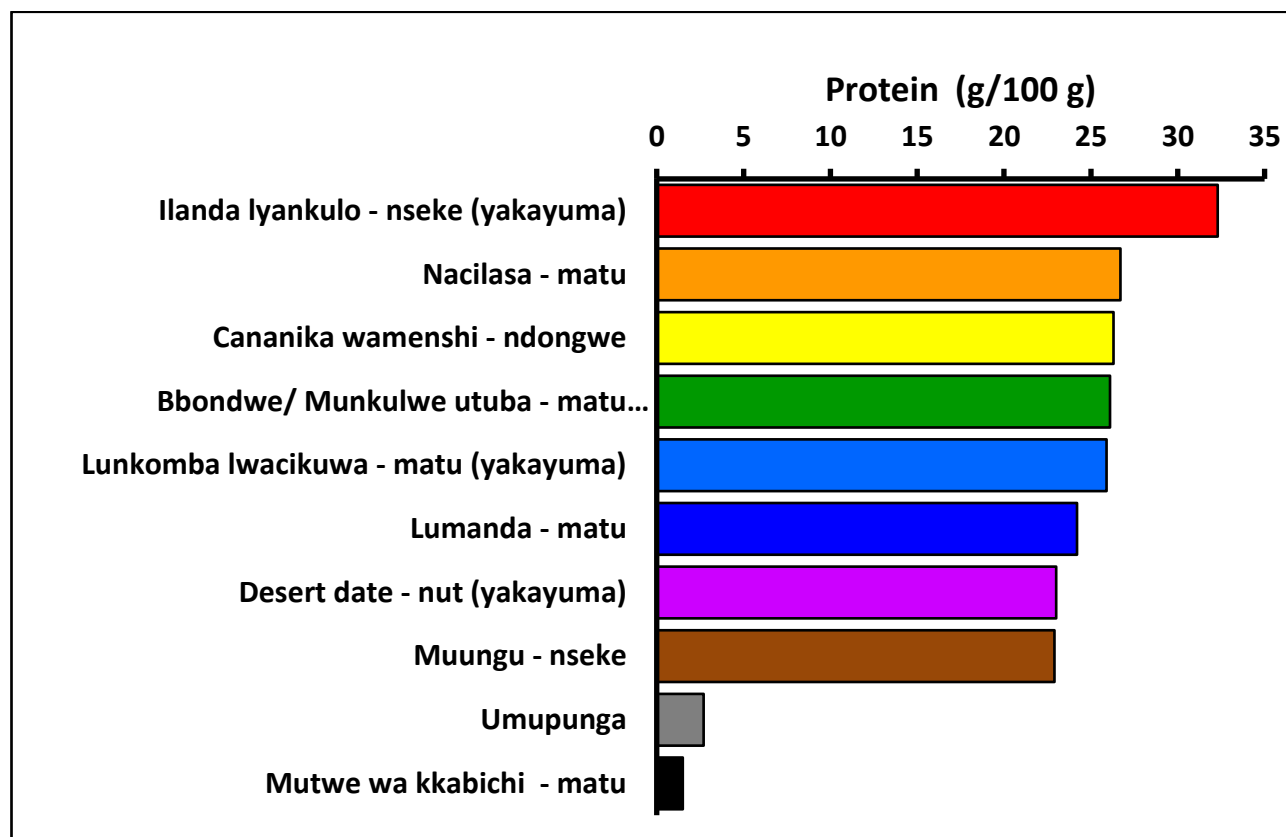
Kuli tuuka tunji ntotwaabana cakulya. Pele tatweelede kuno tujaya tuuka twamusyobo ooyu nkaambo tujisi cibeela cakuti zintu zibe kabotu akweelana. Ncotwelede kucita nkwiiya mbuli mbotweelede kutubamba tuuka twamusyobo ooyu kutegwa swebo tujane cakulya tulye! Tumwi tuuka tuyandisya mumuni, na kuti mbewu yesu ili mungsi mungsi amungsi nkokuti mumuni ulakonzya kutumunika tuuka mpoona twalo inga twaba acoolwe akatalika kulya zisyingo zili mumbewu. Kuti twalima cisyango comwe abusena bupati, tuuka otu tulakonzya kuzyalana mubunji mpoona twatalika kweenda, tweenda mbuli basikalumamba twanonjila mumbewu. Tumwi tuuka tupati tulakonzya kutugwisya kucisyango. Tumwi tuuka tweeta mapenzi kuzisyingo nkabela tumwi tulaligwa mbuli nsozi. Tumwi tatuyandi mumuni wazuba. Tumwi tuuka tuli mbuli nkonkolekwa zisiya zikkala mubwina na muzigodi zilya loko mabbanana, ziyandisya kukkala kumatuvu amabbanana, pele kuti mumuni wa zuba wanjila kungsi amatuvu ulajana zyauluka nkaambo taziandi mumuni wa zuba.

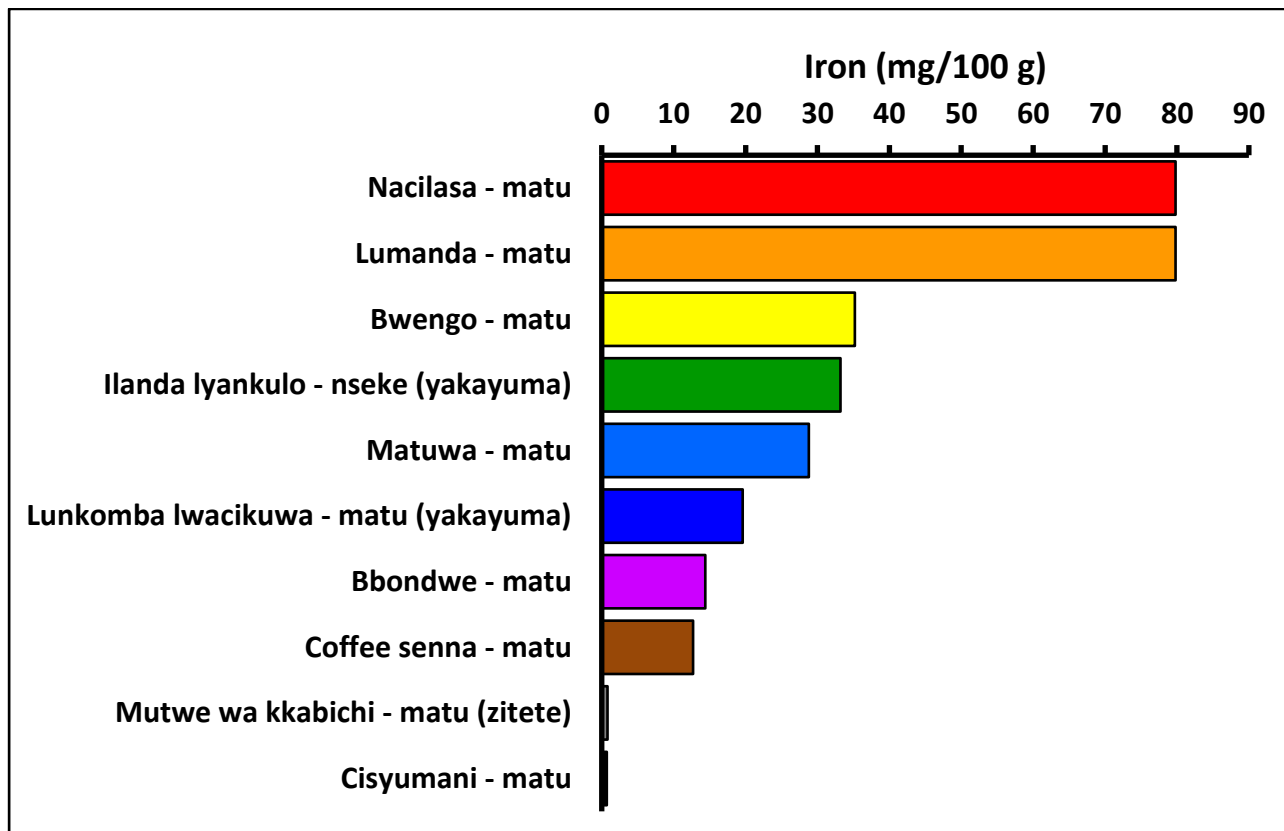
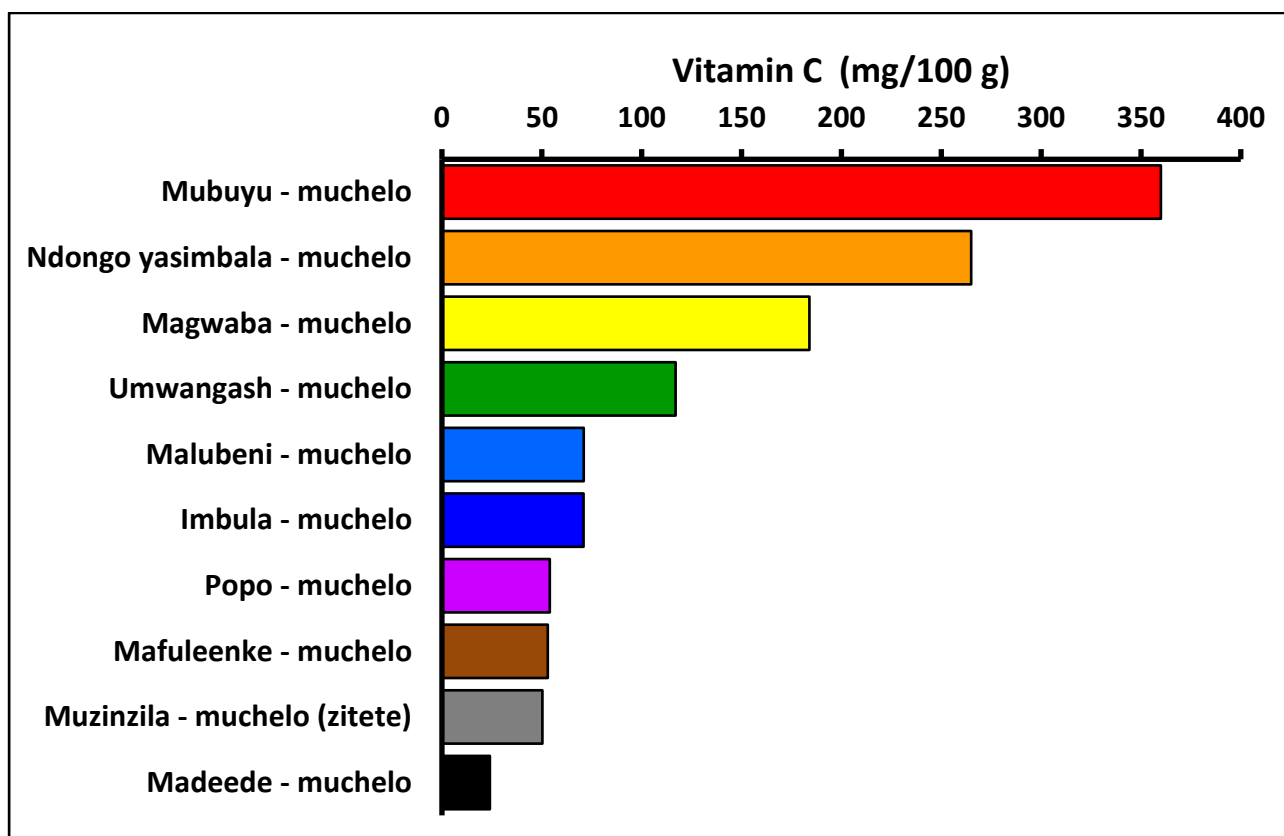
Malwazi

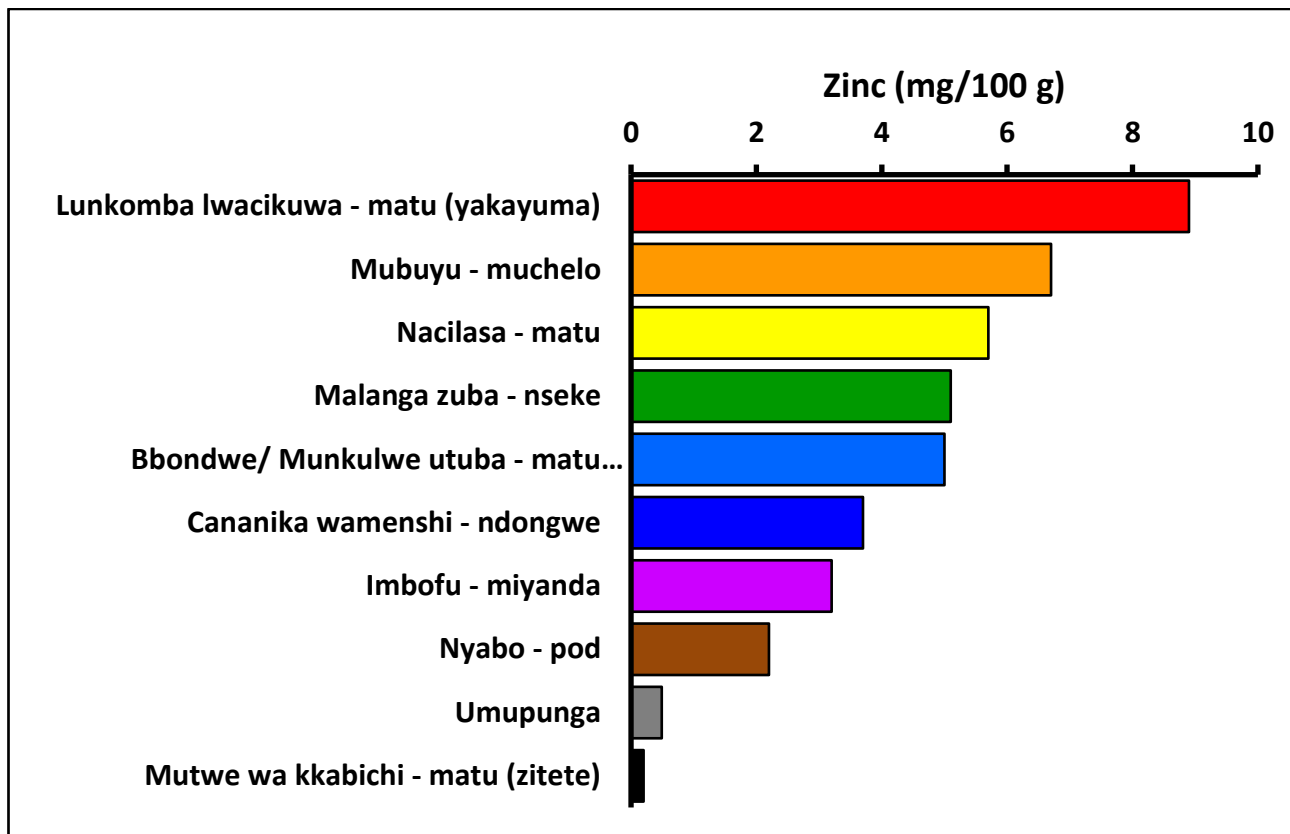
Tuuka tumwi tweeta malwazi tusyoonto kwiinda tumwi. Pele ootu tulabonwa kwiinda mukubelesya minchini yacikuwa. Kuli misyobo yotatwe.

1. CISESELA, ootu tuzunda tuli mbuli bowa mbotulya, pele tusyoonto loko. Ootu tupa kuti matuvu acisyango kaayuma.
2. KAZUNDA kakkala mumasena akkalila meenda. Ootu tupa kuti cisyango citeteete mpoonya inga catalika kununka.
3. KATATU AKA KAZUNDA nkasyoonto loko mpoonya kapa kuti kakuli milaini atala amatavu acisyango coonse. Kazunda aaka katatu kalayambukila kwiinda muzibelelesyo zotubelesya mubulimi bwesu. Mbuli kazunda kajanika kumatuvu acimbwali kapa kuti matu akokonyane. Na kuti mbewu yalo yaapangwa kaindi mpoona mbewu taicikwe busani bunji tuzunda ootu inga tunji. Pele mukuba acoolwe tuzunda ootu tatuyambukili mbewu yacimbwali yoonse. Muzezo tauli akumana bulwazi pele nkumwaya biyo mbolezi. Mulawo mupati ngwakuti zisyingo zyalo zikomena kabotu inga tazinyonyauki loko kumalwazi.

Busani bujanika muli zyakulya zimwi zya mu Zambia







Mbozyakali kusalwa zisyango eezi: mukuziba antomwe eezi zisyango tulizi kuti zimwi zyakulya, azezyo zilimwa mubunji muzisi zimwi tizyakalembwa. Zyakulya zyamusyobo ooyu zili mumusyobo (wa laici a mapopwe). Eeci tacaambi ikuti tazeede kuligwa, pele eeci citondezya luyandisisyo lwa kabunga aaka kaitwa kuti food plant solution project kutegwa kalo kabikkile manu ku zisyango zitazizilwe loko alimwi zitaligwi ligwi.

Ciilyo cijisi nguzu

English: African pumpkin

Local: Muungu

Zyina libelesaga Abasya Bumpampu: *Telfairia pedata*

Zyisyango zyamukwasyi: CUCURBITACEAE

Kapandulula: Eeci cisyango cili muchinga ca myungu. Ncisyango calo ciyaanda kutalela 30 m mubulamfu. Matu aacisyango eeci taakwe tuyasa alimwi alibulungene. Matu alandeene mbubonya mbuli minwe yakumanza, malubaluba acikaintu acisankwa taali antomwe, pele abeda kuzisyango zyandeene. Nseke zikkala mucinkuli mbuli camuungu, nseke zilipapalele. Nseke mozili mwida zipati kutalela 4 cm mpoona kuneneya zilasika 1 cm. nseke zilasika ku 500 mucinkuli comwe.

Nkozijanika: Eeci cisyango cilajanika mumasena aatakwe mvula loko. Tacyandi caanda na kutontola loko nocitaninga komena. Ku Malawi ciliminwa mumasena mukasala.

Mbociblesegwa: Nseke zilakonzya kukangwa akuligwa, alimwi zilakonzya kupangisya mafuta akujisya.

Mbocilimwa: Cisyango eeci cila syangwa kwiinda mukusyanga nseke mubulongo. Yasyangwa itola nsondo kutegwa italike kumena. Kuti na mucelo wacisyango eeci wabizwa inga wateteeta mpoona kuti na wawida ansi ulaanduka cikwa cilacala cilike. Nseke zilakonzya kuba 100 – 400 mucikwa comwe.

Mbouzyala: Cisyango cilakomena cakufwambana. Cilazyala micelo kwainda myaka ili yosanwe aibili. Mucelo ulalema kuma kilo asika kuma kumi obilo atubili.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
nseke	2.8	2821	22.9	-	-	6.2	1.6

Image accessed from: <http://gardenbreizh.org/photos/galleries.html> © Paul Latham



Ciilyo cijisi nguzu

English: Greater yam

Local: Lusala

Zyina libelesega Abasya Bumpampu: *Dioscorea alata*

Zyisyango zyamukwasyi: DIOSCOREACEAE

Kapandulula: Lusala nkasamu kateteete kazambaila kutusamunyina pele kaitwa kuti insinga. Nkamusyobo wamubala wa nyanzabili. Matu ali mbuli moyo na matu acimbwali, bulamfu bwamatu alasika ku 10-30 cm mpoona mwida alasika ku 5-20 cm cisiko cilasika 6-12 cm kulampa. Maluba amenena ampakatwa yacisiko. Maluba-luba acisankwa ajisi mitwe misyoonto, mubulamfu alasika 25 cm mpoona ngamusyobo wa nyazabili. Pele aalo maluba-luba acikaintu taali malamfu. Oluya lusala lwakusyanga taluzyali nseke zijisi busani. Mucelo wa lusala wazyalwa ulijisene mbuli mababa otatwe lulalampa 2-5 cm alimwi 3-5 cm mubupati na mwida. Nseke inga zilibonya mbuli kuti zili amababa. Muchelo walusala umenena kungsi anyika. Lusala lulisiyene siyene.



Nkozijanika: Eeci cisyango cilakomena mubusena mutakwe mvula loko. Lusala lulayandika mumasena mutakwe ciisyu mani, lwalo luyanda mwaatakalili meenda alimwi kakuli mbolezi. Lulakomena cakufwambana mumasena aatatontoli loko. Mumasena muli lusala imvula yeelede kaiwa kumwaka. Lulakomena munsondo zili 14-20. Lwakomena biyo taluyandi mvula inji. Lulakonzya kukomena mucimpayuma. Taluyandi mukkalila manzi. Lulayanda kubalilwa zuba kwamawoola ataleli ku 10-13. Lulakonzya kukomena munyika njumu.

Mbociblesegwa: Ulakonzya kulujika na kulukanga.

Mbocilimwa: Nkubebesya miyanda kukusyanga, mpoona lwamena buyo nkusimpa kasamu kutegwa lutalike kuzambaila kutasinsikanya kukulusyanga. Eeci cipa kuti luzyale kabotu. Akulutebula inga ncubauba. Mucelo walusala ooyu ukosolwa muzibela bela akuyobola mucivule mpoona lwasyuuka lulapa butebuzi bubotu kwiinda oluya lumena muzilwi molwalundikwa antoomwe nkaambo inga talumeni kufwambana. Lwasyuuka biyo lulatola myezi italeli kumyezi ili 5-6.

Mpoona nkusimpa tusamu mpolwelede kuzambaila. Kwelede kusimpa kasamu kajisi tupanda panda kutegwa lwazambaila kalutawi. Pele kuyandika biyo kasamu kataleli kuma mitazi obilo (2m) mubulamfu. Kasamu aaka keleede kuti kakali kayumu kakatakonzyi kutyoka. Lusala luli muzibela zyandeene andeene kwendelanya ambuli mbolukomena. Lusala lula miyanda indeene indene, nsinga zilakonzya kuzamba kukasamu aako kasimpidwe kutegwa lusyuuke kufwambana.

Kuti na nsinga ya lusala yazambaila aakasamu aaka kasimpidwe lwasika kumamanino akasamu aaka ulajana kuti aaka kasamu kalemewa mponya nsinga yalusala ilawida ansi mponya inga matu atalika kusyuuka. Kutegwa kasamu komwe katalemenwi mulakonzya kuti mwasimpa kambi kumbele akako kasimpidwe acisiko kutegwa tugwasyane, nsinga yalusala itawidi ansi.

Kutegwa miyanda yalusala ikomene kabotu lweelede kuti kalubalilwa zuba. Kuti na nyika yatalika kwandauka mponya mumuni wazuba wabalila muyanda walusala ulajana kuti muyanda na miyanda ilaceya. Tamwele kubikka mavu manji atala amiyanda na kubikka mabwe nkaambo inga muwo taunjili kabotu pe, mponya butebuzi inga bwaceya. Miyanda yalusala ilayanda muwo, taikomani

loko munyika ya chilongo amumasena mukkalila meenda. Tulakonzya kubamba busani kwiinda mukubikka matuvu muzilindi motuyanda kusyanga nsinga zyalusala. Munyika yamusenga tulakonzya kusyanga lusala kakunyina akupanga mibunda mbuli yacimbwali.

Mbouzyala: Mumasena amwi lusala lulakomena kwendelanya amvula mboiwa. Lusala lwelede kusyanga imvula mboyatanga biyo. luyanda kuti mvula kaiwa kumwezi italaleli ku 8 na 10. Lwalo inga lwatalika kuzyala myezi mboyakkwana biyo ili 6 kuti na imvula iwa kabotu mumasena alaabwizu alimwi atakwe mvula loko, kwelede kuvumba bwizu muzilindi musimpidwe lusala kutegwa mudumo kaukkala mponya ulajana kuti lusala lunji talufwi pe.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
miyanda	76.6	323	2.0	18	10	0.8	0.39

Ciilyo cijisi nguzu

English: Finger millet

Local: Maila mucheme

Zyina libelesega Abasya Bumpampu: *Eleusine coracana*

Zyisyango zyamukwasyi: POACEAE

Kapandulula: Maila mucheme abalilwa mumukwashi wabwizu. Alimwa kumwaka, cisiko mpocili ansi na kumiyanda kwalo kulamena twana tunji. Maila mubulamfu alalampa kusika 120 cm, cisiko ca maila cilipapalele mpoona tutuvu tusyoonto alimwi tulabosha. Ayanda kulangaza, maluba-luba azwida kwali kumutwe mutukotokoto. Kakoto komwe kuli nseke zitaleli ku 7.



Nkozijanika: Maila alakonzya kukomena olo mvula nisyoono. Kutegwa kube butebuzi bubotu, ayanda bulongo bubotu butakalili meenda pele kakuli mudumo. Eeci cisyango cilakomena kumasena atawi mvula loko. Maila tayandi kutontola loko.

Mbociblesegwa: Nseke zilaligwa kwinda mukuzikanga olo kuzigaya kuti ibe fulawa, busu mulakonzya kujika polegi na kupanga cinkwa naa kujika bukoko, aalo matuvu alaligwa.

Mbocilimwa: Asyangwa kuzwa kunseke mpoona alakonzya kumena, alakonzya kusingwa antoomwe mumunda muli mapopwe azembwe. Kaatanasyangwa maila kweelede kuti mumunda mwayanda kusingwa wabambwa kabotu kutegwa nsaku zitakavuli. Maila kwasyanga amwaigwa biya atalika biyo kumena kwainda mazuba masyoono ayelede kutalika kusakwida. Nseke zyoona kuti zyayobolwa kabotu inga zyabelesegwa kwa myaka yobilo. Kusinga takweelede kusiinkanya 25-30 kg njiyandika kusinga muhectare yomwe kuti naa nseke nzyakumwaya. 5-10 kg njiyandika mu hectare yomwe kuti naa takuli kumwaya kusinga mbuli mbotusyanga mapopwe. Kubelesya camutunzya cipa butebuzi bubotu. Mponya camutunzya yeelede kubikkwa asika mumagondo.

Mbouzyala: Alalizyala alike kwinda mukusangana bungu kwa mazuba ataleli ku 8-10. Maila alakonzya kuyobolwa kakwina kunyonyooka kwamyaka ili kkumi. Maila ayobwedwa mutukoto koto. Muhectare yomwe ulakonzya kuba abutebuzi butaleli 900kg.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
nseke	11.7	1594	6.2	-	-	5.3	-

Ciilyo cijisi nguzu

English: Sorghum

Local: Mayale

Zyina libelesega Abasya Bumpampu: *Sorghum bicolor*

Zyisyango zyamukwasyi: POACEAE

Kapandulula: Mabele/Nzembwe ali mumukwasyi wabwizu, kuti na akomena alakozyana amapopwe. Alindeene indeene mubulamfu. Alimwa kumwaka alo ajisi cisiko ciyumu. Miyanda ilatalika kumena kungsi acisiko. Ali muzibela zisiyene siyene, alimwi ajisi cisiko comwe, alimwi kulamena tumbi kuzwa kucisiko. Kutu na asyangwa mukutantanyana nokukonzya kumena tumbi. Mponya ootu tutabi tumena kuzwa kucisiko tatutyoki biyo pe. Mabele/Nzembwe mafwafwi ajisi matuvu ali biyo 7 pele aayo malamfu alijisi matuvu



asika 24. Tuvu lyomwe lilampa 30-135 cm. Matuvu nga nyanzabili alimwi alanangamuka. Alakomena omuya mukkalila meenda. Alakonzya alimwi kukomena mubulongo bulemu olo buuba-uba. Alakonzya kutalika kulanga mazuba masyoonto. Musyobo wa mabele/nzembwe umwi ulakonzya kukomena kumazuba ayelede kwendelanya amvula mboiwa.

Nkozijanika: Maila Ncisyango cikomena mumasena mutakwe mvula looko. Eeci cisyango cilakomena mubusena buupya alimwi acilanga. Naa-kakacili kasyoonto kasyango kalakonzya kukomena mucilanga. Maila Ncisyango cikonzya kukomena munyika ikkalila meenda. Cilakozya kukomena munyika ya ciilobe Ataakwe ciilobe. Maila Alalangazya mumazuba masyoonto buyo. Maila alakomena mumazuba masyoonto buyo ngoyawa mvula, alimwi alakomena munyika njumu 9-12.

Mbociblesegwa: Nseke zya mabele/nzembwe zilaligwa mbuli muligwa mapopwe. Nseke zyagaigwa, busu mulakonzya kujika polegi na kujika nsima, na kupanga cinkwa. Cisiko camabele/nzembwe amwi cilalweela cilakonzya kuligwa. A miyanda ilakonzya kuligwa.

Mbocilimwa: Nseke eziya ziloka ciindi cakutebula zilamena mbomwamana biyo kutebula. Nseke zilakkala ciindi cilamfu kuti zyayobolwa kabotu.

Mbouzyala: Mabele/Nzembwe alabizwa kwa nsondo zili 4-8 mbaamana biyo kulangazya.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
nseke	-	1459	11.1	-	-	-	-

Ciilyo cijisi nguzu

English: African yam bean

Local: Bunyangu

Zyina libeesege Abasya Bumpampu: *Sphenostylis stenocarpa*

Zyisyango zyamukwasyi: FABACEAE

Kapandulula: Bunyangu oobo balukomena kwiinda mukuzambaila atusamu. Bulakomena mubulamfu kutalela ku 2 cm. Matuvu alajatana otatwe-otatwe aalo malamfu alasika ku 14 cm, mubupati 5 cm. Malubaluba azyalwa ngamusyobo wanyanzabili akutuba-tuba. Malubaluba amenena akati amatuva. Zikwa muzyalilwa nseke zilibulungene, mubulamfu tazileli ku 25-30 cm, mubupati zilasika ku 1-1.5 cm. nseke zilindeene indene. Mubala wanzizyo zilasalala salala.



Nkozijanika: Bunyangu bwamusyobo ooyu bulimwa munyika mukomena zisamu abwizu. Alimwi bulakomena olo mvula nisyonto.

Mbociblesegwa: Zikwa zyanseke, matuvu, miyanda alimwi anseke zilajikwa akuligwa. Ulakonzya kubika mumusozya na muli rice. Nseke zyalo ziyumu wayanda kuzijika ulakonzya kuzinyika mumanzi kwaciindi cilamfu.

Mbocilimwa: Bulalimwa kwiinda mukusyanga nseke.

Mbouzyala: Bunyangu bulatebulwa yakwana myezi ili 8.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
nseke	9.0	1470	19.2	-	-	-	-
nseke (kujika)	67.9	542	3.8	-	-	-	-
miyanda	64.0	542	3.8	-	-	-	-

Ciilyo cijisi nguzu

English: Taro

Local: Imbofu

Zyina libelesega Abasya Bumpampu: *Colocasia esculenta*

Zyisyango zyamukwasyi: ARACEAE

Kapandulula: Matuvu acisyango eeci mapati. Mubulamfu asika 1m. katabi kajisi matuvu amenena acisiko, matuvu mubulamfu alasika 20-50 cm. cisiko mpocili ansi muni muni abulongo, musuku mpouzyalilwa. Kuzinguluka cisiko kulamena tutabi-tabi. Imbofu ili muzibela zyardene andene. Yakomena buyo kuzyalwa iluba-luba lilimbuli mpana akati acisyango. Maluba-luba ngamusyobo wamungunga waji mpoona amenena ampakatwa. Imbofu zilijisi mazina aindene indene kwendelanya amusyobo wanzizyo. Imbofu aabona zili mumisyobo yobilo. Pele lwaandano lubola kwiinda mbuli mboziyobolwa. Zilakonzya kuyobolwa kabotu mubusena butajisi manzi.

Nkozijanika: Eeci cisyango cilajanwa mumasena mutawi mvula looko alimwi cilakomena muvu lyacilongo alimwi kakuli cimvule cuba-uba.

Mbociblesegwa: Misuku amatuvu zilaligwa zyamana kujikwa. Matuvu alakonzya kwaampwa akwayobola. Matuvu matete alakonzya kuyobolwa kwa mazuba ali one na osanwe. **Kucenjezya:** Umwi musyobo wa imbofu upa goyoyo (Goitre).

Mbocilimwa: Imbofu ilakonzya kusingwa kwiinda kusimpa musuku. Pele kusinga boobu taci citiki citiki. Kusinga nseke kupa kuti cakomena cisyango kumene tumbi twana alya mpawida matu alimwi a nseke. Maluba aaya alakonzya kubikkilwa musamu wacikuwa kutegwa akomene cakufwambana. Matuvu mwayakuvula akukomena mbocikomena.

Imbofu ilakonzya kukomena mumasena mwayenda manzi pele miyanda ilabola kuti manzi aleka kwenda mpoona akkalila. Omo mukkalila manzi, busena bulakonzya kubambwa kabotu akulimwa. Ikuti na muzezo ngwakuti kube muunda mubusena omu mukalila manzi nkubamba migelo kutegwa kakutakkalili manzi mumuunda. Omuya mumasena muli manzi atakunki loko kusinga nkwaikutantanya. Mumasena mutakwe manzi, buloongo bulabambwa kwiinda mukulima na kupanga muunda mupya akupanga mibunda mpoona akupanga tulindi, mpoona nkusinga tusinga ootu tusingoonto mutulindi, mbotwajatila biyo nkutulimina kutegwa mudumo ukkalilile alimwi kutegwa nsaku itakomeni cakufwambaana.

Cisyango eeci cilakonzya kusingwa ciindi nokucili mudumo munji. Alimwi mulakonzya kucisyanga mvula mboyasinizya buyo kuwa, kuti na kwateta alimwi kwaabe kwayuma Yuma. Mvula nji akupya loko alimwi akuti zuba kalibala kwa ciindi cilamfu. Eeci cipa kuti kakuli bulimi, abutebuzi bubotu.

Imbofu taiyandi kukomenena antoomwe a nsaku. Cisyango eeci ciindi nocijisi mwezi yotatwe na yone ciyanda kuliminwa kuzwa ku nsaku. Alimi kuzwa kumyezi ili 7 kusika ku 9 kwelede kulimina kutegwa mumunda kakusalala alimwi inga nocikomena kabotu. Kutu na cisyango tacikomeni akulampa amatuvu tacikomeni kusikila kuciindi ncoizyala micelo ulajana iya micelo yazyalwa kuciindi eeco inga ijisi sitaciti (Starch) munji. Cintu ciyandika nkutalika kulimina nsaku. Kujaya nsaku



takuyandiki kubelesya misamu yacikuwa nkaambo eeci cijaya busani a miyanda yacisyango. Musamu uuitwa kuti herbicides ngu elede kubelesya ku ciindi eeci.

Imbofu na mucelo ooyu uzyala kabotu kuti na ulabalilwa zuba kabotu kabotu. Olo na kakuli civule cansaizi ulakonzya kukomena. Pele na kuti cakomenena mucivule inga tacikomeni kufwambana alimwi inga misuku misyoonto taili minji. Mucelo ooyu uyanda kuti kakuli mudumo alimwi kakutakwe cilanga makwishilili azwa kucisyango eeci mabi apa kuti zisyango zimwi zilimbuli nyabo zitameni kuti na zilimidwe mumunda omwe.

Cisyango eeci ciyanda mbolezi nji kuti na mbolezi nisyonto kwelede kubika camutunzya uitwa kuti NPK.

Mwasyanga mucelo ooyu tamwelede kusiinkanya kutegwa watalika kuzyala micelo kailema kabotu kabotu akuba abutebuzi bubotu. Kutu na kusyanga kwaba 30cm x 30 cm inga micelo yazyalwa kaitaleli ku 110,000 a hectare a hectares. Kusyanga kwamusyobo ooyu (30 cm x 30 cm) kuyanda zibelesyo zinj kutegwa kukabe butebuzi bubotu. Kusyanga kwa 90 cm x 90 cm inga butebuzi tabuli bunji pe.

Mbouzyala: Cisyango cilatalika kukomena canojisi myezi ili 6-18. Kutu cakomena kabotu cilakonzya kuzyala kabotu inga kwaba butebuzi butaleli ku 5-15 tonnes.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
miyanda	66.8	1231	1.96	3	5	0.68	3.2
matu	85.0	210	5.0	57	90	0.62	0.7
matu stalk	93.0	101	0.5	180	13	0.9	-
matu (kujika)	92.2	100	2.7	424	35.5	1.2	0.2

Ciilyo cijisi nguzu

English: Sweet potato

Local: Cimbwali

Zyina libelesega Abasya Bumpampu: *Ipomoea batatas*

Zyisyango zyamukwasyi: CONVOLVULACEAE

Kapandulula: Cimbwali ncisyango camiyanda alimwi cilayanda. Matuvu amenena kumiyanda iyandila atala. Matavu alimbuli minwe na mbuli moyo. Cimbwali catalika kulangazya, maluba luba abeda kumbele a miyanda. Zikoto zyacimbwali zibeda kungsi anyika. Cimbwali cili mumisyobo yandeene-andeene kwendelanya ambuli matuvu mbwabede, zikoto mbuli mbozibede, amusyobo mbuli mboubede alimwi akunona mbocinona.



Nkozijanika: Cimbwali cijanika mumasena mukomena masamu amomuya mwatakomeni loko. Cisyango eci ciyanda mvula isyoonto alimwi amubulongo bwindene indene. Cisyango eeci tacyandi kutontola loko na caanda alimwi anyika ikkalila manzi. Cikomena kabotu kuti na tempulicha ili a 21-26°C. Cimbwali tacivwani a civule, ciyanda nyika yacilongo.

Mbociblesegwa: Cimbwali cijikwa biya na kukanga na kucinyika mumanzi, cabombela mbuli cimena mulakonzya kubelesya kujika bukoko. Mulakonzya kucikanga kucitenda mutubela tusyooonto syoonto akubicikka akati afulawa (flour) akucibumba caba mbuli citumbuwa na kkekke(cake). Mulakonzya alimwi kucitenda mutubelabela mwamana nkucijika kusanganya a rice na kucigaya bwaba busu mpoonya mwasanganya abusu bwafulawa akukanga kupanga cinkwa. Matuvu aalo alaligwa.

Mbocilimwa: Cilasyangwa kwinda mukukosola miyanda muzibela bela akwisyanga. Munyika ya bwizu loko, nkubamba tubunda bunda tusyooonto syoonto. Cilayanda kubalilwa zuba. Kuti na nyika ikkalila manzi tacikonzyi kubikka zikkoto. Mumuunda wa hectare yomwe kuinda tubela tusika ku 33,000 twa kusyanga. Twalo ootu tubela bela tulema 500 kg katulampa 30 cm. kufumbwa kuti ootu tubela bela twasimpwa kale munyika tatusyupi kusuuka. Azyalo zikoto kuzisyanga zilakonzya kusuuka na kumena. Kuti cimbwali cabikilwa camutunzya na monia munji tacikonzyi kubikka na kuzyala kabotu pele inga cizyala biyo matuvu manji. Kuti na kwabikkwa bufumba a mbolezi mbuto inga zikoto zizyalwa zilanona tazibyuki.

Cimbwali tacyandi civule. Kuti na kuli civule inga tacibikki na tacizyali kabotu. Pele nokuba boobo kuti na tacili cinji pele zuba kalinjila cilakonzya kubikka na kuzyala. Mucivule cikonzya biyo kuyanda akuba amatuvu masyoonto. Cimbwali ciyanda camutunzya witwa kuti potassium.

Cimbwali cisyangilwa mumusena cilatalika kukomena munsondo kutalika zili cisamboomwe kusika ku kkumi acisamboomwe (6-16). Noci cisyooonto celeede kuliminwa nsaku. Kuti na catalika kuyanda ulajana nyika yoonse yavumbwa mpoonya inga nsaku taikomeni. Kuti na abusena ali muunda kuli tuuka tuli mubulongo mpoonya kukkala manzi, tacikonzyi kubikka na kuzyala pe, kuti na busena buli boobo nkokuti kwelede kubamba mibunda. Mumasena mwainda kabotu manzi alimwi muli mbolezi mibunda taiyandiki pe. Eeci cipa kuti citabikki. Kutegwa zikoto zyacimbwali zitanyonyauki tazyelede kumwa muwo pele zyelede kuvwikilwa kabotu kabotu.

Mbouzyala: Cimbwali cilatalika kubizwa yakwana myezi ili 5 na 12 pele ciya mbuli musyobo wacimbwali.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
miyanda (kukanga)	72.9	431	1.7	961	24.6	0.5	0.3
miyanda (itajikidwe)	70.0	387	1.2	709	25	0.7	0.4
miyanda (ljikidwe)	72.0	363	1.1	787	15	0.6	0.3
matu	86.3	168	3.9	105	58	2.9	-

Ciilyo cijisi nguzu

English: Rice

Local: Umupunga

Zyina libelesega Abasya Bumpampu: *Oryza sativa*

Zyisyango zyamukwasyi: POACEAE

Kapandulula: Eci cisyango cilimumukwasyi wabwizu. Cisiko cilakonzya kulampa 30-150 cm (iibauka na itabbili mumanzi ilampa 5 m) zikwa moikkala inga zili neneede. Cisiko cilikwabilidwe a zikwa. Matuvu masyoonto alimwi alaboya. Alalengelela nkwali kumamanino mpoona alanga ansi. Cisiko acisiko cilazyala matuvu ali kkumi na ma kkumi obilo mponya nseke zikkala mutukwa tulamfu. Imwi misyobo kuti na yajikwa ilajanatana.



Nkozijanika: Cisyango eeci cilalimwa mumasena aalamvula na atakwe mvula loko. Alimwi amomuya mwakkalila manzi. Pele iyanda kapati mumasena mukasaala mutatontoli na muli caanda. Ilakomena mumazuba ali 130.

Mbociblesegwa: Nseke zilajikwa zygwisigwa mumakwa akuligwa. Mulakonzya kuzigaya akupanga fulawa (flour). Mupunga (rice) ulakonzya kuligwa kusanganya acisyumani. Mupunga nocili musyoyo ulakozya kujikwa mbuli bujikwa cisyu mani, ulakonzya kupangisya bukoko.

Mbocilimwa: Cisyango eeci cisyangwa kuzwa ku nseke. Nseke zilakonzya kusyangwa yomwe yomwe na kusyangwa mubunji mpoona yakomena nkusimpula akuyoisyanga mbewu komwe komwe. Mumasena mutawi mvula loko, nkusya zilindi mpoona mucilindi comwe nkusyangwa nseke zyosanwe na kkumi kazitanteene zilindi 20-25 cm. Na tusyango ootu tuli muzilindi twakomena komena nkutusimpula akutusyanga tobile na totatwe kututantanya 20 x 20 cm. Cisyango eeci nocicili cisyoonto nsaku inga kwina. Kuti na kakukalila manzi nsaku inga taikomeni nkaambo ka manzi akalila.

Mbouzyala: Zikwa omuya mwakkala mapunga zilagwisigwa kwamana nkwakumba mapunga aayo kutegwa aboneke kabotu.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
nseke (ituba)	11.4	1530	6.4	-	0	1.9	-
nseke (brown)	13.5	1480	7.6	-	-	2.8	-

Zyakulyazijisi makwa

English: Marama bean

Zyina libelesega Abasya Bumpampu: *Tylosema fassoglensis*

Local: Nyabo

Zyisyango zyamukwasyi: FABACEAE

Kapandulula: Eeci ncisyango cizambaila kutusamu. Musyobo wacisyango ngwanyanzabili. Calo cilampa 6 m. Cijisi miyanda milamfu kuya ansi kusika 2.5 m zibela zimwi zycisyango eeci zijisi boya busalala. Matuvu maubaua alimwi alibulungene pele kuli kalaini mpaali akati ka andaanya. Mubulamfu alasika 5-20 cm. Nkwaali kusi aalaaboya. Zikwa muzwida malubaluba zilamfu kuzwa ku 2-42 cm. Nyabo zizyalwa zilasika 7-12 cm mubulamfu, mubupati zilasika 4-7 cm nseke zyalo tazibulungene loko mubulamfu zilasika 1.7-2.8 cm.



Nkozijanika: Zijanika loko moiwa kabotu mvula. Zizyala kabotu mumasena mutete. Ziyanda mwatakalili manzi. Ku Malawi zikomana kabotu nkaambo kakuti cisi eeci cili muni muni aliwizi mpoona takupyi loko kula tontola alimwi nkutete. Mumasena muwa mvula ziyanda kubalilwa zuba.

Mbociblesega: Zikwa mukkala nseke zilaligwa olo kazili zikwange (kazitajikidwe). Nseke azyalo zilakonzya kujikwa na kukangwa zilakonzya kupangisya kofi na masamba. Zikwa mukkala nseke zilaligwa kazitajikidwe azyalo, alimwi nkaambo kakuti zitete kuti na mwazi tyanka zilazwa manzi ngo mukonzya kunywa. Alimwi na zayuma zilakonzya kuzitwa akupanga busu.

Mbocilimwa: Zilalimwa kwiinda mukusyanga nseke.

Mbouzyala: Cisyango eeci cilakomena cakufwambana. Zilatebulwa mboyamana biyo mvula.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
nseke	7.5	452	43.5	-	-	-	-
cikwa	72.5	446	6.4	-	39	0.5	2.2
miyanda	79.4	237	1.6	-	6.5	0.3	0.5

Image accessed from http://www.africamuseum.be/collections/external/prelude/view_plant?pi=12675

Zyakulyazijisi makwa

English: Winged bean **Zyina libelesega Abasya Bumpampu:** *Psophocarpus tetragonolobus*
Local: Nyabo (Wanakabalala) **Zyisyango zyamukwasyi:** FABACEAE

Kapandulula: Nyabo zili mumisyobo isiyene siyene. Awalo ooyu musyobo uzambaila ulampa 4 m. Nyabo eezi na musyobo ooyu ulakonzya kusyuuka kumiyanda. Cisiko calo cilazamba ansi nkaambo cilijisi tuyanda yanda tusyoonto syoonto. Matuvu alajatana otatwe otatwe alampa 8-15 cm. Maluba luba nga bbulu (blue) akutuba tuba alalangazya kumbele atutabi. Zikwa muzyalilwa nseke zilipapalele. Mubulamfu zilasika 6-36 cm mpoona mukkala nseke zitaleli ku 5-30. Nseke zilakonzya kuti kazituba, kusalala na kusiya. Muzikwa mozikkala nseke kuli cikanda ciyumu, nseke zilibulungene.



Nkozijanika: Nyabo eezi zilimwa loko akukomena loko mumasamu nyika nkoili kunyika (equatorial forest). Kutu na zيابambwa kabotu zilazyala zikwa zyanseke zinji. Nyabo eezi taziyandi kubalwa loko zuba. Zilazyala maluba luba kuti masena na busena bulikule a equator. Kumasena nkozizyala ngalya masena atontola na mumasi alikunyika. Kutegwa nseke zikomene kabotu ziyanda tempulica isika ku 23-27°C mpoonya zikwa zijisi nseke ziyanda tempulica isika ku 18-27 °C. Nyabo eezi zilakomena mubulongo busiyene siyene. Takwelede kuti manzi kakkalila.

Mbociblesegwa: Matavu, malubaluba, zikwa mukkala nseke, miyanda anseke zyoonse zilaligwa. Nseke zilakonzya kupangisya mafuta akubika mucisyu.

Mbocilimwa: Nseke zilasyangwa kumatalikilo amwaka mboyatanga buyo mvula. Nseke mbozyamena buyo kwa nsondo zytatwe kusikila zyosanwe tazizyali kabotu kuti na tizyakokweda, mboziya kukomenena maluba luba amwi kwagwisya. Eeci cisyango cilalimwa kwendelana ambuli busena mbobubede.

Mbouzyala: Zikwa kazili mumusyobo wanyanzabili zilaba mu nsondo zili kkumi. Twana tulaba mumyezi iili yone kusika lusele. Nseke zizyalwa zilasika ku 1.2 tonne mu hectare yomwe. Cisiko comwe cilazyala bana basika ku makkumi ali ciloba atosanwe.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
nseke	8.5	1764	41.9	-	-	15.0	4.5
cikwa (zitete)	92.0	105	2.1	-	-	-	-
matu	95.0	197	5.0	809	30	6.2	1.3
nseke (ishonto)	87.0	205	7.0	13.0	18.3	1.5	0.4
miyanda	57.4	619	11.6	-	-	2.0	1.4

Zyakulyazijisi makwa

English: African locust bean

Local: Ilanda Iyankulo

Zyina libelesega Abasya Bumpampu: *Parkia filicoidea*

Zyisyango zyamukwasyi: FABACEAE

Kapandulula: Cisamu eeci cilakomena akulampa kusika 35 m. Cisiko cili bulungene kabotu. Makwa alasiyasiya akusalala salala. Kuti na cakomena loko inga catalika kusiya akwandauka. Matuvu alimbuli mapepe, tuvu lyomwe lilijisi tubbela tuli cisamboomwe kusikila ku 9. Mubulamfu alasika 2 cm, mubupati alasika 5-8 cm. Tulubaluba tusyoonto. Catalika kulangaza inga tulubaluba inga talanga kuzwa kumitabi. Mitwe yatulubaluba kulampa ilasika 8 cm. Micelo izyalwa ilasalaluka akulengelela kuzwa kumitabi. Kulampa ilasika 30-60 cm mpoona mubupati ilasika 2 cm. Cikwa civumba nseke ncisyoonto nkocilikumbele cilabosya. Nseke zilasalala. Kuti na zyayanikwa zyayuma zilaligwa.

Nkozijanika: Eeci cisamu cilakomena mu Africa muni muni a tulonga. Cilakomena alimwi amwalo mumasena mutontola muli mudumo. Ciyanda mvula ya nsaizi itali nji loko. Amalo mumasena moitawi mvula cilakonzya kukomena.

Mbociblesegwa: Makwa aatala alaligwa. Nseke nkuzijika mpoonya nkuzinyika mumanzi kutegwa zisase kwamana nkulya. Pele kwamana boobo zilaakanunko, kanunko kalamana mukuzikanga na kuziyoka. Nkuzi gaya bwaba busu, mpoona busu mulakonzya kubamba misinza inunkilila njomukonzya kubelesya muli rice. Matavu alajikwa mbuboona mbuli cisyumani.

Mbocilimwa: Eeci cisamu cisyangwa kuzwa kunseke. Cikwa mukkalila nseke nkucipwaya akuzigusya nseke. Nseke nkuzijika ciindi cisyonto mpoona nkuzi leka zyatontola akuzinyika mumanzi maola ali kkumi atobilo kazitana syangwa.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
nseke (yakayuma)	7.0	1780	32.3	-	6	33.2	-
muchelo	13.2	1263	3.4	-	-	3.6	-

Image accessed from http://farm8.staticflickr.com/7277/7804911110_92bcd0012a_b.jpg



Zyakulyazijisi makwa

English: Cowpea

Local: Ilanda lyancete

Zyina libelesega Abasya Bumpampu: *Vigna unguiculata*

Zyisyango zyamukwasyi: FABACEAE

Kapandulula: Musyoobo wabunyangu oobu awalo ulayanda kuzambaila. Kuli muyanda mulamfu uinka ansi alimwi atutabi tabi tuli atala anyika. Ooyu muyanda uya ansi mupati kwiinda tuyanda yanda tumwi. Matuvu alajatana otatwe-otatwe. Lyomwe lijatide kukatabi ndilamfu kwiinda aya obile. Lilasika 12-16 cm kulampa. Aaya obile ajatilide kuli leli lyomwe lijatilide kukatabi. Bunyangu bwatalika kulangazya zikwakwati muzwida malubaluba zikkala zyobile-zyobile kazijatene. Muzikwakwati eezi kwelede kuzwa maluba obile na one (4). Malubaluba aaya alatuba amwi ngamungunga waji. Mapati aalo kulekule alalibonya. Zikwakwati mubulamfu zilasika 15 cm nseke zila tuba akati zilasika.



Nkozijanika: Zilakomena mumasena muli mvula amutakwe mvula. Olo kakupya loko zilakonzya kukomena. Umwi musyobo wazezi olo na kuli cilanga zilakomena. Taziyandi kutontola zilafwa acaanda. Zyalo zilamena atempulica isika ku 11.5-15.5°C. Zyalo zilakomena kufumbwa bulongo na kuti tabukkalili manzi. Taziyandi zuba loko taziyandi mubulongo bubyuka zilakomena mumasena mvula moiwa kuzwa ku 280-410 mm. Olo muciyuma Yuma ilakomena.

Mbociblesegwa: Matuvu kacili masyoonto azikwakwati kazicili ziyoonto alimwi anseke zyabizwa zilaligwa. Zilajikwa na kuzikanga. Matuvu alayanikwa akwayobola. Nseke zilakonzya kangisya musinza alimwi zyagaigwa busu mulakonzya kupanga fulawa (flour). Nseke na zyakangwa zilakonzya kupanga kofi.

Mbocilimwa: Zimena kuzwa ku nseke. Kuti nseke zyayobolwa kabotu zilakkala ciindi cilamfu. Mulakonzya kumwaya kukuzisya mpoona zyamena nkuzisimpula akusyanga kabotu.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
nseke (yakayuma)	11.2	1189	23.5	-	1.5	6.4	-
nseke (ishonto, kujika)	75.5	406	3.2	79	2.2	1.1	1.0
matu	88.4	143	4.2	36	35	4.7	0.3
young cikwa + nseke (kujika)	89.5	142	2.6	45	17.0	0.7	0.2
matu (kujika)	91.3	92	4.7	29	18	1.1	0.2

Zyakulyazijisi makwa

English: Mung bean

Local: Intongwe

Zyina libelesega Abasya Bumpampu: *Vigna radiata*

Zyisyango zyamukwasyi: FABACEAE

Kapandulula: Oobu bunyangu bulakomena kukasamu kulampa 1 m. Kasiko aka kajisi tutabi tunji. Matuvu amena otatwe-otatwe pele kajisene, alimwi nga musyobo wanyanzabili. Malubaluba ngamungunga waji, malubaluba aaya akkala mubunji kutalikila ku kkumi kusikila kuma kumi obilo. Zikwakwati mwakala maluba aaya zilasiya pele tazibosyi nkozili kumbele. Nseke zili muzikwa eezi zilasila 10-12. Zikwa mukkala nseke zyanyanzabili. Bunyangu oobu bulasiya.



Nkozijanika: Zilalimwa mumasena moiwa amoitawi mvula. Olo kakuli cilanga tazifwi zilakomena pele omuya mwakalila maanzi zilamfwa. Cisyango eci cilafwa akutontola na caanda. Kuti catalika kulangazya tacyandi mvula. Ciyanda mubulongo bulemu. Cilakonzya kukomena kuti tempulica na kupya kakusika kuzwa 8-28°C. Muciyuma yuma ilakomena.

Mbociblesega: Nseke zilaligwa bukwange na kukanga. Mulakonzya kusanganya mumusinza. Zilakonzya kunyikwa mumanzi mbubona mbuli bumena. Zikwa mukala nseke nozitana sima amatuvu zilaligwa.

Mbocilimwa: Bunyangu oobu busyangwa akumena kuzwa kunseke. Mumasena amwi mulakonzya kuzimwaya kukuzisya. Pele mummyunda misyoonto mulakonzya kuya tulindi akusyanga nseke zyobile na zyotatwe mukalindi komwe akututantanya 50-60 cm. Mulakonzya kusyanga 6-22 kg mu hectare yomwe. Kutegwa bunyangu bukomene kufwambana mulakonzya kubikka camutunzya waansi. Nseke zilatalika kumena kwindi mazuba otatwe kusika kumazuba osanwe.

Mbouzyala: Zikwakwati zyanyanzabili zilatalika kukomena mumyezi yobile kubizwa zitola myezi yone. Bunyangu oobu bulatebulwa mbobwabizwa biyo. Mu hectae yomwe mulakonzya kutebula 450-500kg.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
nseke	11.0	1432	22.9	55	4	7.1	-
nseke (kujika)	-	439	7.0	2.4	1.0	1.4	-
nseke (sprouted)	90.4	126	3.0	2	13.2	0.9	0.4

Zyakulyazijisi makwa

English: Lablab bean

Local: Cilemba wampanga

Zyina libelesega Abasya Bumpampu: *Lablab purpureus*

Zyisyango zyamukwasyi: FABACEAE

Kapandulula: Bunyangu oobu bulazambaila kulampa kulasika ku 1.5 cm. bulakonzya kabukomena mwaka amwaka. Cisiko cilibulungene alimwi cilijisi boya. Matuvu alasika 5-15 cm mubulamfu mpoona mubupati 3-14 cm. Malubaluba alatuba akusalaluka. Zikwa zilibbambasele akubosya nkozili kumbele mubulamfu zilasika 12 cm mubupati 2 cm. Mubala ngwa nyanzabili akutubatuba. Nseke zijanika mucikwa zilasika zytatwe na zili five zyalo zilatuba akusiyasiya. Nseke kulampa zilasika 0.5-1.5 cm.



Nkozijanika: Eci cisyango cilakonzya kukomena mumasena moitawi loko mvula nokuba muciyuma Yuma. Umwi musyobo uyanda zuba umwi tauyandi zuba.

Mbociblesegwa: Nseke nozicili zitete, amatuva nataninga Yuma zyoonse eezi zilaligwa kuti na zyajikwa. Malubaluba alaligwa olo katajikidwe olo na kwavumika mumpoto abe abilabila mpoona nkwabambila musinza. Azyalo nseke zyayuma zilakonzya kujikwa. Mulakonzya mwazigaya bwaba busu akujika. Muyanda uuya mulamfu uinka ansi ulaligwa. **Kucenjezya:** Misyobo minji yabunyangi oobu bulakonzya kukola. Bwajikwa biyo manzi alya akusanguna kwatila.

Mbocilimwa: Nseke zyakutataanya 30 x 60 cm akuzisyanga. Hectare yomwe mulakonzya kusyanga 20 kg. Mulakonzya kubika camutuzya kacitana langazy (cisyango).

Mbouzyala: Nseke zilatalika kubizwa kutalikila myezi ili 6-8.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
nseke (yakayuma)	10.0	1428	22.8	-	-	9.0	-
nseke (ishonto)	86.9	209	3.0	14	5.1	0.8	0.4
cikwa (zitete)	86.7	203	3.9	-	1.0	2.4	-

Zyakulyazijisi makwa

English: Lima bean

Local: Intongwe shamumpanga

Zyina libelesega Abasya Bumpampu: *Phaseolus lunatus*

Zyisango zyamukwasyi: FABACEAE

Kapandulula: Musyobo wabunyangu oobu bulazambaila. Mubulamfu akuzamba canguzu acisamu, cisyango eeci cilakonzya kukomena kwamyaka. Matuvu alibulungene nkwali kumbele. Malubaluba alatuba, kangoma mwalo mwazwida malubaluba kabee kalinyonedwe nyonedwe mpotubonena lwandaano acilembe wampanga nabunyangu bwamusyokwe. Zikwa zilamfu zilasika 10 cm alimwi zilipapalele mpoona kuli nseke zili 3-4 zyamusyobo mubotu. Nseke zipati zijisi nkombo mpoonya nkombo eeyi ijata kucikwa.



Nkozijanika: Cisyango ciyanda kuti kakukasala kutegwa nseke zimene. Kuyandika bulongo bujisi tempulica iindilila a 15.5°C taiyandi kutontola nokuba caanda. Kutu kwapya loko nseke tazibi, zilaba kuti na tempulica ngu 14-21°C mumasena moitawi loko mvula zilakonzya kukomena.

Mbociblesegwa: Matuvu alimwi anseke zyoonse zilaligwa. Nseke zilaligwa kazili zitete olo na zyayuma zilakangwa mumafuta. Intongwe na zyayuma zilajikwa na kukangwa, na zyajikwa mulakonzya kubikka musinza.

KUCENJEZYA: Musyobo umwi wa intongwe ulajaya na kukola. Pele kuti zyabila loko kwaciindi cilamfu, inga zyaleka kukola.

Mbocilimwa: Zimena kuzwa kunseke, lino nseke zyamabala mabala zilasyupa kujana kwiinda zituba pele ezi zituba tazisyupi kukomena. Mwasyanga nseke zytatwe na zyone atala akalundu nkusimpa kasamu kalampa 2-3 m akati. Ootu tulindu twelede kuti katwaandene 1 m. Tulindi musyangwa nseke twelede kulampa 2-4 cm.

Mbouzyala: Kwainda mazuba aali 100 butebuzi inga bwatalika. Bunyangu bwayuma inga bwayobolwa kwamyezi minji kabuta sumpwi.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
nseke	12.0	1407	19.8	-	-	5.6	-
nseke (ishonto, kujika)	67.2	515	6.8	37	10.1	2.5	0.8
nseke (ishonto, itajikidwe)	70.2	473	6.8	30	23.4	3.1	0.8

Zyakulyazijisi makwa

English: Soybean

Local: Chilemba yamituntula

Zyina libelesega Abasya Bumpampu: *Glycine max*

Zyisyango zyamukwasyi: FABACEAE

Kapandulula: Oobu bunyangu mbusyoonto syoonto bulakomena akulampa 60 cm. Bulakomena akumena kuzwa kunseke. Tusiko, matuvu azikwa ziteteete alimwi zili aboya. Matuvu ala mpanda zyotatwe, mpanda eezi zijisi cisiko. Malubaluba masyoonto pele alatuba. Azwa mubunji amenena apanda zyamativu, zikwa mukala nske zipati, zilipapalele alimwi zijisi boya. Cikwa acikwa kukala nseke zybile na zyone. Nseke zilasiya na mungunga waji.



Nkozijanika: Ncisyango eeci tacyandi kutontola. Cikomena kabotu munyika ikede. Misyobo imwi taikomeni mumpeyo. Ciyanda bulongo bulambolezi. Cilafwa na kwatontola loko.

Mbociblesegwa: Zikwa anseke zyzabizwa zilaligwa. Zilabelesegwa kupanga fulawa. Nseke zyakayuma zilajikwa na kuzikanga mpoona nkubika mumusinza. Nseke zilabelesegwa kupangisya mafuta akubika mucisyu, zyakangwa loko zilakonzya kupangisya kofi. Fulawa eeyi mulakonzya kupanga tumbuwa. Alimwi matuvu nacilimasyoonto alaligwa. Nseke zilakonzya kupanga salad.

Mbocilimwa: Cilimwa kuzwa kunseke. Nseke zyelede kuzilanga kuti na tazijisi tuuka. Zelede kutantaanya kukuzisyaanga kazisiyana a 20 cm.

Mbouzyala: Kwainda nsondo zyone inga catalika kulangazya mpoona zikwa mukala nseke zilakomena kwa nsondo zili 16. Zyzabizwa na zyatalika kuyuma nkuzigwisya akuziyanika.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
nseke	9.0	1701	33.7	55	-	6.1	-
nseke (citanakomena)	68.0	584	13.0	16	27	3.8	0.9
sprout	79.5	339	8.5	1.0	8.3	1.3	1.0

Cisyumani

English: Yellow ipomoea

Local: Matuwa

Zyina libelesega Abasya Bumpampu: *Ipomoea obscura*

Zyisyango zyamukwasyi: CONVOLVULACEAE

Kapandulula: Eeci cilayanda ansi pele cilakonzya kuzamba kuya mujulu. Cilijisi muyanda mulamfu uinka ansi. Eeci cisyango cilakonzya kukomena mwaka amwaka. Matavu alasika kulampa 1.5 cm. Matuvu alabosya mwali mumbali alimwi malamfu ababbidwe mbuli moyo. Malubaluba amenena ampanda yamatuvu alamena mubunji aabona yomwe, maluba alimbuli kafanelo. Mubulamfu alasika 4 cm mpoona mubupati alasika 3 cm. ngamungunga waji.

Nkozijanika: Cilakomena munyika ijisi masamu manji asyookwe linji. Alimwi cilakomena mumbali amilonga amasena moitawi loko mvula cilakonzya kukomena.



Mbociblesegwa: Matuvu alajikwa akuligwa mbuli cisyu. Matuvu alakonzya ku bikwa mumusinza

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
matu	56.6	569	8.8	-	-	28.8	1.1

Image sourced from: https://en.wikipedia.org/wiki/Ipomoea_obscura

Cisyumani

English: Flower-of-an-hour

Local: Nacilasa

Zyina libelesega Abasya Bumpampu: *Hibiscus trionum*

Zyisyango zyamukwasyi: MALVACEAE

Kapandulula: Eeci ncilelo cakumwaka cilakomena kuya mujulu kutalikila a 25-70 cm cisiko, mpajata matuvu cilapa 4 cm. Matuvu alabozya mwali mumbali alimwi alasika 3-6 cm mubupati. Matuvu ajisi boya, malubaluba amenena akatabi mpazwida matuvu. Musyobo wamatuvu mpali ansi ngwamungunga waji, mucelo uzylwa ulimbuli piluci lyakapuso kulampa mubupati lilampa 1cm. Nseke zizylwa zilasiya.



Nkozijanika: Cicelo eeci cilakomena mumasena moiwa amoitawi loko imvula. Cikomena kabotu kuti kacibalilwa zuba. Tacijaniki mumasena muli ciyuma-yuma. Cilayandisya mumasena mukasala kasala, amumasena munga cilimo tacili cilamfu loko.

Mbociblesegwa: Aalya catalika kusuuka naa nocitalika kumena matuvu akomena zilajikwa akuligwa. Zikwa mukala nseke zilakonzya kupanzya musinza. Alimwi zikwa eezi zilayanikwa akuzigaya bwaba busu. Ku Sudan balabulesya busu bwamusyobo ooyu. Nseke zilaligwa bukwange alimwi zilanunkilila.

Mbocilimwa: Cisyango eci cilamena kuzwa kunseke na kugonka tusamu kuzwa kulincico akutusimpa tulakonzya kumena akusuuka.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
matu	6.3	1263	26.7	-	-	79.8	5.7
tuzwa kucisyango	-	-	21.0	-	-	21.8	9.4

Image accessed from: L. von Richter ©The Royal Botanic Gardens & Domain Trust

Cisyumani

English: Goat's horns

Local: Lumanda

Zyina libelesega Abasya Bumpampu: *Sida cordifolia*

Zyisyango zyamukwasyi: MALVACEAE

Kapandulula: Lumanda lulakomena kuya mujulu 0.4-1 m. Lulakonzya kalusyuuka muzisiko kaluya kukomena mwaka amwaka. Lujisi boya mpona boya oobu mbobupa kuti matuvu kaali mateteete. Cisiko cijata matuvu cilasika kulampa 2.5 cm, matu alijisene mpoona abambidwe mbuli moyo. Nkwamanina kumbele abambidwe mbuli meno. Aalo alasika kulampa 1.5-4.5 cm. maluba luba ngamungunga waji, cicelo cizyalwa mubupati cilasika 6-8 mm.



Nkozijanika: Cilakomena calo mumasena alya aabe taali kabotu cijanika loko ku Philipines. Mumasena atakwe loko mvula cilakomena. Olo na mvula yawa kusika ku 520 mm cilakonzya kukomena. Cilakomena munyika yamusenga alimwi amunyika ijisi sautu. Cilakonzya kukomena olo mucivule, anyika moili jumu.

Mbociblesegwa: Matuvu alajikwa akuligwa.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
matu	6.6	1296	24.2	-	-	79.8	-

Image accessed from

[http://upload.wikimedia.org/wikipedia/commons/f/f4/Sida_cordifolia \(Bala\) in Hyderabad, AP W IMG 9420.jpg](http://upload.wikimedia.org/wikipedia/commons/f/f4/Sida_cordifolia_(Bala)_in_Hyderabad,_AP_W_IMG_9420.jpg)

Cisyumani

English: Hibiscus

Local: Lunkomba lwacikuwa

Zyina libelesega Abasya Bumpampu: *Hibiscus rosa-sinensis*

Zyisango zyamukwasyi: MALVACEAE

Kapandulula: Ncisamu canyanzabili alimwi cilabelesegwa kulukwa calo cilampa 2-5 m cisiko ncamusyobo wagileyi atwengo tutuba. Matuvu aalo nganyanzabili nkwalu kumbele alabosya. Malubaluba azwida apakatwa yamatuvu. Matuvu alakonzya kaili yomwe olo kajatene obile. Abambidwe mbuli mulangu mpoona mubupati alasika kukomena 10-15 cm nga misyobo. Muchelo uzalwa ulibulungene akuba mbuli mapilusi ategwa makapuso anseke zinji mukati. Muchelo ooyu ulasya nkouli kumbele mbuli mulomo wakayuni. Cisamu eeci tacizyali michelo kuti kakupya.



Nkozijanika: Cisamu na cisyango eeci cakazwa ku China cilakomena kufumbwa musyobo wabulongo. Misyobo eeyi indene indene ilayanda muzuba nokuba mucivule. Olo kakuli mudumo cilakomena alimwi kuti kupya kakusika ku 15-30°C. tacyandi kutontola loko na caanda ciyanda mvula iwa kusika ku 70 mm amwaka.

Mbociblesegwa: Matuvu alajikwa akuligwa. Mumasena amwi basaanguna kwaatwa matu katana jikwa. Maluba-luba alaligwa bukwange. Alimwi mulakonzya kwasanganya mulizyakulya. Alabelesegwa mukupendula na kusandula zyakulya na mumicelo imwi mbuli mapainepo olo mucisyumani. Cikwa cijata maluba cilaligwa acalo.

Mbocilimwa: Cilasyangwa kwiinda mukukosola tusamu twancico akutusimpa.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
matu (yakayuma)	6.4	1339	25.9	-	-	19.6	8.9
matu (zitete)	76.0	321	2.3	-	-	-	-

Cisyumani

English: Prickly amaranth

Local: Bbondwe

Zyina libelesega Abasya Bumpampu: *Amaranthus spinosus*

Zyisyango zyamukwasyi: AMARANTHACEAE

Kapandulula: Cisyango eeci cilalimwa kumwaka, calo cilampa 60-100 cm. Cilakonzya kwimikila na kuyanda. Cisiko cilakonzya kuti kacibulungene. Mitabi izwida ansi kuya mujulu, matuvu mabotu pele takwe boya. Kasiko kajisi matuvu malamfu kuzwa 0.5-10 cm. Matavu abambidwe mbuli mupeni mpoona alampa kusika 2-7 cm mubupati 0.6-3 cm. Matuvu alalengelela nkwalikumbele akulanga ansi. Zikwa zijata maluba-luba zikala mumbali, zikwa eezi mubulamfu zilasika 3-10 cm. Maluba-luba aazwida atala ngacisankwa mpoona aazwida kungsi ngacikaintu. Nseke kukomena mubupati zilasika 1-1.2 mm.

Nkozijanika: Cisyango eeci cilakomena muzisi zinji mwalo mutatontoli loko. Cilakomena muzuba amucivule ku Tanzania mumasena imvula moiwa kusika 1,300 mm. Cikomena kabotu alimwi muli mudumo loko.

Mbociblesegwa: Matuvu alaligwa akujikwa. Nseke zilagaigwa akupanga busu bwa fulawa. **Kucenjezya:** Cisyango eeci cilakola kuti na camutuzya yavulisya.



Mbocilimwa: Cisyango eeci cilalimenena nokuba kuti cilakonzya kusyangwa anseke.

Mbouzyala: Matavu alacelwa kufwambana kacili masyonto nkaambo kuti na akomena alalula. Matuvu alayanikwa akwaampwa akwayobola.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
matu	91.7	84	3.6	109	46	14.4	0.3

Cisyumani

English: Coffee senna

Local:

Zyina libelesega Abasya Bumpampu: *Senna occidentalis*

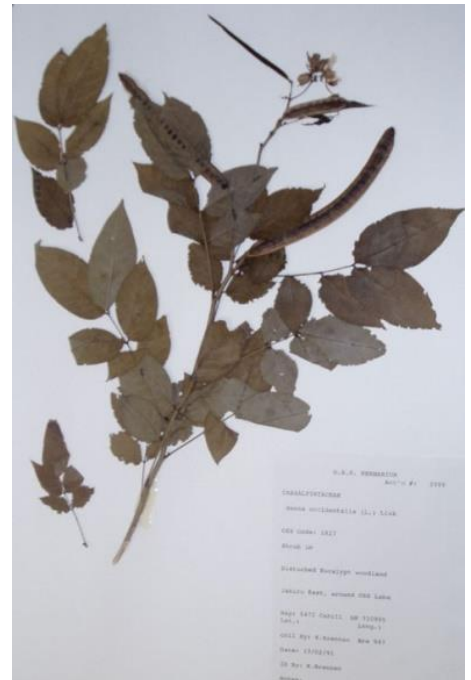
Zyisyango zyamukwasyi: FABACEAE

Kapandulula: Ncicelo na ncisamu cikomena mumwaka. Cilakonzya kuzumanana kukomena mumwaka akulampa 1-2.5 cm. Tusiko tulijisi boya busyoonto, kasiko kajata tuvu kajisi cikoto alya mpolimenena tuvu pele takwe cikoto ciliko atala atuvu. Matuvu alijisene obile-obile. Ayenda obile-obile mpoona akatabi komwe ali cisamboomwe. Matuvu nga laundi alampa 4-12 cm mubupati alasika 1.5-4 cm. Zikwa zijata maluba-luba zifwafwi alimwi zya mungunga waji. Zyalo zili papalele. Nseke zilijatene muzikwa mozikala mpoona antomwe zili 28-32. Zyamusyobo wa nyanzabili mubulamfu zilampa 5 mm pele tazili zipati zisyoonto.

Nkozijanika: Cilajanika mumasena mukomena masamu loko alimwi amoomo mvula moitawi loko mu Africa cilakomena mubulongo bubyuuka. Ciyanda kupya kutaleli a 12.5-28°C alimwi amvula iwa kusika a 500 na 4,000 mm amwaka.

Mbociblesega: Nseke zyakangwa zilakonzya kupanga kofi.

Kucenjezya: Kuti na nseke tizyakangwa kuzilya zilakola. Matuvu nacili masyoonto anseke, ziligwa zyajikwa. Matuvu na ajikwa mulakonzya kwasanganya a musinza. Zikwa mukala nseke zilaligwa kuzisanganya a rice. Twe, Iya zikwa eezi ilabelesega akuba munyo.



Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
matu (yakayuma)	10.0	-	31.7	-	-	3.1	-
matu	84.9	205	5	-	17.9	12.7	-

Cisyumani

English: Spreading pigweed

Zyina libelesega Abasya Bumpampu: *Amaranthus graecizans*

Local: Bbondwe/Munkulwe utuba

Zyisyango zyamukwasyi: AMARANTHACEAE

Kapandulula: Eeci ncisyango cakumwaka cilampa 50 cm kuya mujulu. Cilakomena kuzwa ansi alimwi cijisi muyanda mulamfu uya ansi. Mitabi taijisi boya, malubaluba atalika kuzwa alimbuli matuvu mpoona nga nyanzabili.



Nkozijanika: Cilakomena kumbali amulonga cijanika kapati ku Ethiopia alimwi amumasena aciyumayuma.

Mbociblesegwa: Matuvu a nseke ziligwa zyajikwa, nseke zyutwigwa inga bwaba busu mpoona busu bulakonzya kupangisya cinkwa.

Kucenjezya: Bbondwe ilakola kuti na yabikwa moniya munji. Kutu naa yaligwa mubunji ipa kusoona.

Mbocilimwa: Mboyamana biyo kuwa mvula noitalika kukomena kabotu. Kwainda mazuba ali 12 inga yatalikwa kucelwa.

Bubotu bwakulya: Per 100 g Cibeele Ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
matu (yakayuma)	6.3	903	26.1	-	-	9.8	5.0

Cisyumani

English: Rose-pink sesame

Local: Bwengo

Zyina libelesega Abasya Bumpampu: *Sesamum calycinum*

Zyisyango zyamukwasyi: PEDALIACEAE

Kapandulula: Ncicelo cikonzya kukomena mumwaka omwe na myaka misyoonto. Cisiko cilakonzya kacyolampa nociyopanga mitabi. Matuvu malamfu mpoona masyoonto na alifulukide. Alalampa 2-5 cm mpoona musyobo wangawo alasalaluka. Mucelo uzyalwa mulamfu-lamfu mbuli musyobo wa mapiluci utegwa makapuso.

Nkozijanika: Cilajanika ku Kenya. Cikomena loko munyika itali yacilongo alimwi amumusenga. Cilakomena amwalo mumasena moitawi loko mvula.

Mbociblesegwa: Matuvu Alajikwa Akuligwa kaacili masyoonto. Alimwi ala jikwa amatuvu azisyango zimwi, zilimbuli Corchorus.

Mbocilimwa: Cilamena kuzwa kunseke akutantaanya kukucisyanga (20 cm).

Mbouzyala: Matuvu nacili masyoonto alacelwa kuzwa kucinyina.



Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
leaf	76.5	-	5.6	-	47.0	35.2	-

Image accessed from: <http://www.zimbabweflora.co.zw/speciesdata/images/15/152550-2.jpg>

Muchelo

English: Guava
Local: Magwaba

Zyina libelesaga Abasya Bumpampu: *Psidium guajava*
Zyisango zyamukwasyi: MYRTACEAE

Kapandulula: Ncisamu ciniini camusyobo wanyanzabili kumatuvu ciindi coonse. Kulampa cilasika 8-10 m calo cijisi cisiko cibulungene mpoona cilakwakwamuka. Miyanda tayuunki ansi loko ayalo mitabi ilalengelela muni anyika alimwi taijatene loko. Matuvu alalangana alimwi ajisi boya busyoonto akubosha nkwalu kumbele amusyule. Mubulamfu alalampa 15 cm mpoona mubupati alampa 2-5 cm. Malubaluba alatuba pele alo taswangene loko mpoona amenena ampakatwa zyamatuva. Ampakatwa yomwe kumena maluba-luba aali 1-3. Zikwa mukala maluba-luba zilampa 1.5-2 cm. Bungu aabona buzwida mukagwaba kambi na pe bulazwa moona mulinkako. Mucelo wamagwaba ngwa laundi akulampa 4-5 cm natana bizwa nga mubala wanyanzabili pele abizwa nga mungunga waji, mwali mukati alasalala alimwi alanunkilila, alaligwa alimwi ajisi nseke zinji. Musyobo umwi, cikanda anseke zilaligwa umwi musyobo ulapapa akulweela.



Nkozijanika: Mucelo ooyu ujanika loko ku America, magwaba alakomena mumasena amwalo moitawi loko mvula alimwi alayanda kubalilwa azuba. Taamvwani acaanda (kutontola) pele ayanda biyo kutontola tontola. Alimwi alayanda amomuya mukalila manzi. Ayanda kukasala kukasika a 30°C. tamvwani anyika ijisi munyo.

Mbociblesegwa: Mucelo ooyu ulaligwa olo kautajikidwe alimwi ulakonzya kupangisya jamu. Matuvu nacili masyoonto alaligwa bukwange olo kwajika. Alapa busani mumubili.

Mbocilimwa: Magwaba alasyangwa kuzwa kunseke na muziki wacisyango eeci ulindeene-indene. Nseke kuti zyayobolwa kabotu zilakala kwa ciindi cilamfu kakwina akunyonyauka, nseke zitola nsondo zyobilo na zyotatwe kutegwa zimene, pele abona zilatola nsondo zili 8. Kutu na muyanda musyobo umwi ngomutajisi mbomwelede ku cita mbobu, nkutyola katabi kokali kumbele nkokasyuukila kalo kamusyobo ngomuyanda akukaanga kumbele nkokasyuukila aako kamusyobo ngomujisi kale. Mpoona kwayinda nsondo zisyoonto kalatalika kusyuuka akaya katabi kamusyobo walo ngomuyanda nkomwakaanga akeenzinyina. Cisyango eeci ciyanda kupya kutalikila 20-30°C. Mumasena mutontola kapati magwaba alalimenena nkaambo kanseke zilekusoogwa. Kutu magwaba atalika kuzyala olo mwatalika kusonzala na kugwisya ootuya tutabi tutayandiki, mucelo uuya wazyalwa taukonzyi kunyonyauka pe. Zisamu zyamagwaba kutegwa zizyale zilede kubambwa kabotu. Tusamu twamagwaba, akutusyanga twelede kutantaanisizigwa 2.5 m mpoona mu mulaini wabili kakuli mweenya mubupati usika ku 6 m (apart).

Mbouzyala: Magwaba alatalika kuzyala kwainda myaka yobile na yotatwe. Kusonzala tutabi tutayandiki cipa kuti magwaba azyale loko akuba abutebuzi bunji. Magwaba abizwa naatacinca mubala alakonzya kukala nsondo zyobile kusikila ku nsondo zyosanwe atempulica ya 8-10°C. Mucelo uzyalwa wakomena biyo ulatalika ku bizwa mumazuba obile na otatwe.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
muchelo	77.1	238	1.1	60	184	1.4	0.2

Muchelo

English: Key apple

Local: Umwangash

Zyina libelesega Abasya Bumpampu: *Dovyalis caffra*

Zyisyango zyamukwasyi: SALICACEAE

Kapandulula: Aaka nkateyo na nkasamu kakomena na kalampa 6-9 m. Kajisi tweengo na tulaini tulamfu kuzwa kucisiko kusika kumitabi. Zikwa zyakasamu aaka zilatuba nozicili zisyoonto. Matuvu aboneka kabotu mpoona amenede lyomwe lyomwe kuya mujulu kutobelezuya tutabi. Matuvu mwali mumbali abe alongomene, musyobo wangawo ngwa nyanzabili. Cisyango eeci cilisiyene calumi alimwi acikaintu. Malubaluba acikaintu kulampa alasika 3 mm mpoona ngamusyobo wa nyanzabili. Amenena aalya matuvu mpamenena akatabi, amena inga aabona ndimwi na otatwe mpoona kajisene. Maluba luba acisankwa mafwafwi alimwi amenena alya matavu mpamena akatabi. Mucelo uzalwa ngwansaizi ngwamungunga waji. Mucelo ooyu ngwa laundi kukomena mubupati ulasika 2.5-4 cm. cikanda tacibulungene alimwi ulaligwa.



Nkozijanika: Ujanika loko kumusanza akujwe munyika ya Africa, olo kakuli cilanga walo ulakomena pele taukonzyi kukomena mucaanda. Ukomena kabotu alimwi kuti tempulica kaisika a 14-22°C. Alimwi mucelo ukomena kabotu kuti mvula mumwaka kaisika kuwa a 1000-1700 mm ulayanda munyika itakalili manzi.

Mbociblesegwa: Mucelo ooyu ulaligwa kaucili mutete alimwi ulabikwa muli jamu. Alimwi uube ulapapa papa.

Mbocilimwa: Cisyangwa anseke, nseke eezi zizwa kumucelo. Kuti muyanda kugwisya nseke nkusaanguna kupwaya, wanduka akuuleka kusikila wabola. Mwamana mulakonzya kuzigwisya nseke. Nseke zilasika ku 20 mucelo omwe. Nseke zyakumwaya mumubunda mpoona kwayinda mazuba ali 12 zilatalika kumena. Cisyango eeci mulakonzya kucisyanga kuzinguluka lubuwa kutegwa lwaba lukwakwa.

Mbouzyala: Mucelo ulatalika kubizwa kwainda myaka iili 5-6. Uyandika kuti wabizwa cakumaninina kautana tebulwa. Mucelo ulatebulwa watalika kuwida ansi. Ulatalika kubizwa mu myezi yotatwe.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
muchelo	85.9	238	0.4	-	117	0.1	-

Muchelo

English: Indian jujube

Local: Malubeni

Zyina libelesega Abasya Bumpampu: *Ziziphus mauritiana*

Zyisyango zyamukwasyi: RHAMNACEAE

Kapandulula: Eeci cisamu tacilicipati loko mpoona matuvu alawa loko ansi mu mwaka. Calo cilampa 12 m, cisiko cilasiyasiya. Mitabi alimwi matuvu nkwali kungsi ajisi boya eeciya ciindi nacili masyoonto alimwi alijisi atumvwa mpali ansi. Mwaali mumbali alimbali menyo. Ali bulungene mpoona kulampa alasika 8 cm mubupati alampa 5 cm. malubaluba nga nyanzabili mpoona ali akanunko. Alasika otatwe na osanwe alimwi amenena antoomwe. Kulampa alasika 1-2 cm amenena kututabi tusyoonto. Micelo ilalwela alimwi tusyoonto-syoonto, kuti na yabizwa ilasalala



kukomena ilasika 2.5 cm, kulampa 2-5 cm. Micelo noitana bizwa nja nyanzabili mpoona yabizwa ilasalala. Mucelo ujisi nseke yomwe ilimukati acikutu eeci cikutu nciyumu loko. Mucelo ooyu wayanda kufwa ulakokonyana.

Nkozijanika: Musamu ooyu ukomena kabotu munyika yamuseenga. Ulakomena mucilanga. Walo uyanda kupya kusika a 44°C akutontola tontola eeciya ciindi nocakomena cisamu. Alimwi cilakomena kabotu kuti kupya kwamu mwaka kulasika a 22-30°C. Kuti naa kwapa loko tacikomeni kabotu, ciindi micelo yatalika kuzyalwa ciyanda manzi. Mumasena mvula moiwa kutalika a 150-900 mm mpoona cilajanika loko mumasena mvula moiwa kutalikila a 300-500 mm. Mucelo nouzyalwa tauyandi muya upya. Ulakomena olo mumasena mukalila manzi.

Mbociblesegwa: Ulaligwa kauli mutete. Alimwi ulakonzya kupangisya madilinki ajamu. Matu nacili masyoonto alajikwa akuligwa alimwi alabikwa mumusinza, anseke zilaligwa. Nseke nazyakangwa zilabelesegwa kuti zyaba masamba na kofi. Alimwi mucelo ooyu ulakonzya kupangisya bukoko.

Mbocilimwa: Cisyangwa aanseke cikutu cilaatala aanseke nciyumu mpoona cipa kuti nseke kazitameni kufwambana. Cikwa mwalo mukala nseke cilajaigwa akuzigwisya nseke akuzisyanga kazili zitete. Alimwi zilakonzya kunyikwa mumanzi mawoola ali 50 mpoona zyazwa mumanzi nkuzinyika muli asidi (acid) kwatumvwalu mvwalu tuli 6. Nseke zilakonzya kusyanga mutupepa akusimpula zyakwana nsondo zili 18-24 akusyanga abusena mpomuyanda pele nokuba boobo ooto twakusimpula akusyanga tulasypa kukomena. Twakomena tusyango mulakonzya kutusakwida, kuleelede kulimina ciindi a ciindi eliya nokupya.

Mbouzyala: Micelo ilatalika kuzyalwa kwindi myaka ili 4 ulakonzya kauzyala kusikila myaka ili 50. Micelo izyalwa ilasika ku 80-130 kg mucisamu comwe amwaka. Mucelo taibizilwi antoomwe aboobo butebuzi bulayandika ciindi a ciindi.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
muchelo	77.0	360	0.8	21	71	0.4	0.4
muchelo (yakayuma)	17.4	1201	4.3	-	-	-	-

Muchelo

English: Bird plum

Local: Muzinzila

Zyina libelesega Abasya Bumpampu: *Berchemia discolor*

Zyisyangyo zyamukwasyi: RHAMNACEAE

Kapandulula: Eeci cisamu kulampa cilasika 12-18 m, cilalosya matuvu mumwaka, mitabi ilikwazeme. Civule ncilemu alimwi cilibulungene, matuvu mauba-uba, nga musyobo wanyanzabili mpoona nkwalikunsi alabalangala. Kulampa alasika 2.5-10 cm mubupati alasika 8 cm. Alibulungene pele nkwalikumbele alabosya. Maluba-luba masyoonto-syoonto mpoona azwida muzikwakwati zyalo zimenena ampakatwa yamatuvu. Micelo misyoonto-syoonto mpoona ilabosya kumbele mbuli mulomo wakayuni. Kulampa ilasika 2cm. Wabizwa uli mbuli mungunga waji na kusalaluka. Cikanda catala cilalwela mpoona mukati kuli nseke zyobile, mucelo ooyu ulaligwa.



Nkozijanika: Cisamu eeci cikomenena musyookwe alimwi cilajanika loko ku South Africa aku East Africa tacyandi caanda na muwo utontola. Cilakomena olo kwiina mvula. Cilakomena mwalo mumasena mvula moiwa kusika a 300-635 mm alimwi cilakomena mucimpayuma, atala azyuulu alimwi akutobelezwa milonga.

Mbociblesegwa: Mucelo ulaligwa kaucili mutete olo na wayuma. Alimwi ulabelesegwa amu poleji, mucelo wayuma ulayobolwa. Nyama yamucelo yagwisigwa kuzwa ku nseke mulakonzya kutwa antoomwe anseke zyamaila (millet) akuzikanga aba mabbisiketi. Alimwi mulakonzya kunyika mumanzi kutegwa usase akupanga bukoko.

Mbocilimwa: Cilalimwa kwiinda mukusyanga nseke, nseke tazisyupi kumena. Muziki mulakonzya kuusimpula akuyoosyangila kubusena nkomuyanda. Alimwi atotuya tusiko tumenena mumbali mulakonzya kututyola akuyootusimpa kooko nkomuyanda.

Mbouzyala: Cisamu eeci tacikomeni kwambana. Mucelo wayuma buyo ulakonzya kuyobolwa kwaciindi cilamfu alimwi ulajanika ciindi camainza.

Bubotu bwakulya: Per 100 g Cibeele Ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
muchelo (zitete)	78.8	305	1.1	-	50.3	2.2	0.3
muchelo (yakayuma)	38.7	-	1.0	-	116	-	-

Muchelo

English: Pineapple

Local: Icinanashi

Zyina libelesega Abasya Bumpampu: *Ananas comosus*

Zyisyango zyamukwasyi: BROMELIACEAE

Kapandulula: Eeci ncicelo cijisi matuvu malamfu, abosya nkwali kumbele alimwi mayumu yumu, mubulamfu alasika 1m alimwi cilayanda kutalikila a 1-15 m matuvu alimvwi mbuli mukusa. Amwi alijisi mamvwa mwali mumbali, cisyango eeci cilijisi tusyango tumenena mumbali alisiko mane tulasika alya amenena mucelo. Mulakonzya kututyola akutusyanga. Cisiko cilafwa mbocamana biyo kuzyala pele otuya tumena mumbali tulazumanana kukomena. Luba amucelo zimenena kumamanino, mucelo upangidwe atukoto-koto mbuli twamulubbeni tusika ku 150 tuube tuliswangene. Civule ncisyonto cipangwa amatuvu alo azwida atala amucelo. Mucelo ulampa 25 cm alimwi ulema 0.5-4 kg. Cinanashi cilimuzibela zyobile, kuli camatuvu mayumu yumu mpoona cizyala micelo misyoonto-syoonto. Cimwi eeci cilamatuvu mateteete cizyala michelo mapati pati.



Nkozijanika: Cisyango eeci cakatolwa mumasena manji mulimvula amutakwe mvula. Cilakomena kumbali na munsu munsu a equator cilakomena olo kakutontola na caanda. Pele kutontola oku inga kwapa kuti kacitakomeni kufwambana alimwi mucelo inga watalika kupapa. Cisyango eeci cilakomena kabotu omuya manzi mwatakalili alimwi kakuli mbolezi. Icinanashi ciyanda kupya kutalikila 17.2-26°C. Cilaleka kukomena kuti na kupya takusiki a 20 °C. Icinanashi ciyanda mutakalili manzi alimwi kakuli mbolezi. Kuti na nyika kaibyuuka mwelede kwibikila laimo kutegwa miyanda icikonzye kuunka ansi.

Mbociblesegwa: Cilaligwa kacicili citete na kupanga mulolo. Kuti kacitana bizwa cilakonzya kujikwa akuligwa, matuvu nacili masyoonto alaligwa. Eeci ncakulya cibotu cilajanika muzintoolo mobasambala zyakulya.

Mbocilimwa: Otuya tutabi tumenena mumbali acisiko aatala amucelo tulakonzya kusimpula akutusyanga. Ootuya tutabi tulikucisiko twasyangwa tulakomena kufwambana kwiinda ootuya tumenena atala acicelo. Aboobo ootuya tutabi tumenena ansi tontwelede kusyanga. Cisyango eeci tacikomeni kabotu mumilundu pele cilakomena munyika iikede. Mulakonzya kusyanga tusyango tuli 35,000-43,000/ha na tusyango tuli 3-4/sq m. Kuti na mwasisinkanya kusyanga micelo izyalwa inga kaipapa. Kuti na tutabi tumenena kucisiko twamvula kakwiina kutujwa, mucelo uzyalwa inga musyoonto. Mutakwe cimvule loko cilakomena pele musyobo Waco ngwanyanzabili. Kuti na matuvu atalika kusalaluka caamba kuti kuyandika kubika busani, matavu alabonwa kuti na atalika kusalala kuti kaali muzuba. Kuti cisyango ncipati, cilakonzya kucinca kuti na manzi aceya olo na mbolezi yaceya mpoona inga catalika kuzyala maluba luba kwiinda kuti cizyale mucelo cilayanda kubalilwa zuba asyoonto akuti takupyi loko eeci cipa kuti maluba-luba azyalwe cakufwambana. Bubotu bwaceci maluba alimwi amucelo inga kazizyalwa mumwaka. Cicelo eeci cilakonzya kukomena muciyumayuma nkaambo kakuti matuvu alaba amanzi manji. Pele nokuba boobo manzi alauluka kwiinda kumatuvu pele cilakomena kabotu kakuli manzi manji. Miyanda taiyandi mukalila manzi manji. Cisyango eeci miyanda taibbili loko kuya ansi pele ciyanda kupangila mibunda kutegwa kaciliminwa kabotu.

Mbouzyala: Cilaleka kuzyala kwainda myaka ili 4. Kuti na kwatontola tacizyali kabotu. Citola mazuba aali 60 kuti mucelo utalike kuzwa mumalubaluba alimwi kwiinda myezi ili 5 kutegwa citebulwe. Kuzwa ciindi cakucisyanga akucitebula kwelede kwiinda myezi kutalikila a 11-32 pele ciya mbuli nyika mboibede. Kuti naa tempulica taili kabotu ulajana mucelo uzalwa musyoonto alimwi tauboneki kabotu.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
muchelo	84.3	194	0.5	60	25	0.4	0.1

Muchelo

English: Pawpaw

Local: Popo

Zyina libelesega Abasya Bumpampu: *Carica papaya*

Zyisyango zyamukwasyi: CARICACEAE

Kapandulula: Popo ncisyango cikomena akulampa cilasika 3-5 m, tacijisi tutabi tunji. Cisiko nciteteete mpoona alya pazwa matu ciboneka mbuli kuti cilicuzukide matuvu aliswangene kocimanina cisamu. Matuvu kukomena alasika 150 cm mubulamfu alasika 90 cm cisyango eeci cilakonzya kuba cisankwa na cikaintu na zyoonse. Cisankwa, maluba-luba alatuba alimwi tusyooonto-syooonto, maluba acikaintu amenena azifumpu. Maluba-luba acikaintu aacalumi kuti na amenena antoomwe kucisamu comwe tacizyali micelo. Misyobo yama popo ili yotatwe, yalo milamfu nseke zyalo zilasiya.



Nkozijanika: Eeci cisyango cijanika loko kunyika na ku equator, mumasena atontola cisyangwa biya pele omo mukasala kasala cilalimenena. Kutu na calibalilwa zuba alimwi kuti na takwe masamu manji tacisyupi kumena. Taciyandi kutontolesya ciyanda kukasala kusika a 12°C alimwi taciyandi busena bukalila manzi, calo cilakonzya kuti kacili mumanzi kwamazuba obilo.

Mbociblesegwa: Mucelo ulaligwa wabizwa olo kautabizidwe. Ciindi noutana bizwa kaucili wanyanzabili ulakonzya kujikwa mpoona caba cisyu. Matuvu nacili masyooonto aalo alajikwa akuligwa pele alalula, malubaluba aalo alaligwa. Nseke zyayuma zilakonzya kupangisya tunukilizyo twamucisyu.

Mbocilimwa: Nseke zyasyangwa zilamena cakufwambana zitete zilabelesegwa, ziyumu azyalo zilabelesegwa pele nkuzinyika mumanzi kusaanguna. Nseke zisyangwa biyo kuti kakukasala kusika kuzwa a 24-30°C ciyanda abusena alimbolezi. Nseke zilakonzya kuzisyanga kakunyina akupanga muziki olo mulakonzya kupanga muziki akusimpula akusyanga komwe komwe. Muziki ulasimpulwa tusyango twalampa kusikila a 20 cm, tusyango ootu twasyangwa twelede kuti katutanteene kwa mamita otatwe. Cisyango inga kacizyala kuti na abusena awo kulibbolezi, kakutapyi loko alimwi kakutayumide loko. Popo ilakonzya kuti kaizyala mwaka woonse pele yalo ilaleka kuzyala ciindi mbociya kucinca akukomena inga yaleka na kwatontola loko mucelo taukomeni loko. Bungu bulauluka amuwo alimwi bulatolwa atuuka. Aabona bungu bulauluka akuunka kumapopo alimunsimunsi akuyomisya bumwi bulacaala akumisya popo ndilyona awo mpobubede. Nseke zilabwezegwa akutolwa mumasena asiyene siyene abantu na tuyuni.

Mbouzyala: Nseke zilamena kwainda nsondo zyobile na zyotatwe. Malubaluba alatalika kwainda biyo myezi ili 4-8. Mucelo na micelo imenena alya mpazwida matu. Kutu na kakuli busani cisamu mumwaka cilakonzya kuzyala micelo ili 100. Kuzwa kukumita akukukomena citole myezi yobile na yotatwe. Kunyika na ku equator popo ilatalika kuzyala micelo kwayinda biyo myezi yone na yosanwe pele munyika yazilundu itola myezi ili 12 kusika 18. Mucelo ooyu na cisamu cilakonzya kupona myaka yobilo na yotatwe pele abona cilakonzya kupona myaka iili 10-12.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
matu	75.4	378	8.0	-	140	0.77	-
muchelo	88.0	163	0.5	290	54	0.4	0.18
muchelo (utapide)	92.1	109	1.0	-	-	0.3	-

Muchelo

English: Canteloupe

Local: Namunywa

Zyina libelesega Abasya Bumpampu: *Cucumis melo*

Zyisyango zyamukwasyi: CUCURBITACEAE

Kapandulula: Eeci cilimuciinga camyungu, calo cilayanda. Kulampa cilasika a 0.5 m alimwi cilayanda kuya mumbali kusika a 1.5 m. Cisiko nciteteete alimwi cili aboya matuvu abambidwe mbuli meno amuntu alabosya nkwalu kumbele. Alimwi nkwalu kunsu alijisi boya. Malubaluba nga mungunga waji malubaluba a cisankwa ali antoomwe mubunji pele alazya kusanguna acikaintu katazyala. Muchelo uubulungene mpoona ube ulasiya siya. Mouli mukati ngwa nyanzabili mucelo ooyu ulaligwa banamunya balisiyene siyene, bamwi cikanda mpocili atala nciyumu bamwi balatwengo tube migelo mukati.



Nkozijanika: Cilalimwa kapati mumasena moitawi loko mvula banamunywa bayanda kapati alimwi mumasena mupya kakuli ambolezi pele manzi katakalili. Bayanda kuti kakuli acimvule cisyoono. Tabayandi ciyumayuma bayanda kukasala kutalikila a 24-28°C pele na kuti kwapyo loko balafwa. Tabayandi nyika ibe ilapapapapa.

Mbociblesegwa: Namunywa abizwa biyo ulaligwa kakwina kujika. Mulakonzya kuyanika akupanga jamu, nske zilaligwa abona kuti na zyakangwa. Nseke zyavwelana amulo zipanga cakunywa na dulinki. Namunywa natana komena ulajikwa akuba cisyu, nseke zilakonzya kupanga mafuta akukka mucisyu.

Mbocilimwa: Banamunywa ba syangwa kuzwa kunseke kulampa kuya ansi 1-4 cm. cisyango ciyanda kuti kacisiyana 1-2 m. Tusyango tusyoonto tulasimpulwa twalampa kusika a 10-15 cm.

Mbouzyala: Kwayinda biyo myezi yotatwe nay one cisyango inga cabizwa. Mulakonzya kutebula 20 kg abusena buyo busyoono.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
nseke	7.0	2319	15.8	-	-	-	-
matu	85.0	172	4.2	72	-	-	-
muchelo	93.0	109	0.5	169	30	0.4	0.2

Muchelo

English: Boabab

Local: Mubuyu

Zyina libelesega Abasya Bumpampu: *Adansonia digitata*

Zyisyang zyamukwasyi: BOMBACACEAE

Kapandulula: Eli ndisamu mpati, kulampa cilasika 25 m matuvu alaloka ku myaka, mitabi miyumu alimwi mipati. Cisiko ncifwafwi kukomena mubupati cilasika 10-14 m. Cisiko cijisi megelo pele tacijisi makwa mpoona cijisi minganjo. Mitabi ili tandabale mbuli minwe takumanza, matuvu amenena kumbele amitabi. Malubaluba mubupati alasika kukomena 12-15 cm. Zikwakwati mwamenena maluba zilatuba, mucelo wazyalwa inga ulalengelela kututabi mpoona cikwa nciyumu. Kulampa ulasika 20-30 cm mpoonya mubupati. Mukati kuli nseke ziyumu kulampa zilasika 15 mm, nseke zilakala mubusu butuba busu oobu bulaligwa.



Nkozijanika: Cisamu cilakomena mumisena, mu Africa cilajanwa mucipayuma. Cilakomena mvula nkoiwa kusika a 100-1000 mm mumwaka, tacipyi loko amulilo. Cilakomena kuti kupya kakusika a 20-30°C mubuyu uyanda atakalili manzi.

Mbociblesegwa: Matuvu na ajikwa alaligwa, matuvu ayuma alabelesegwa kutegwa musinza uleme leme. Busu bulaligwa kabutajikidwe alimwi mulakonzya kupanga dulinki aalo maluba alaligwa bukwange. Nseke zilaligwa kazili ziteete na kuzigaya mpoona bwaba busu mulakonzya kusanganya mumusinza. Zilapansisya mafuta akubika mucisyu. Ootuya tusyango tumenena kunseke tulaligwa matuvu alabelesegwa akuba tununkilizyo.

Mbocilimwa: Cisamu cilakomena kuzwa kunseke. Nseke ilakala kwaciindi cilamfu pele kazitana syangwa zyelede kunyikwa mumanzi kutegwa cikanda eciya ciyumu cilatala cizwe na kucitenda a cimpoko. Nseke zyanyikwa mumanzi eziya zibauka tazelede kusyangwa, nseke zilakonzya kusyangilwa mutupepa kwainda mwezi ili 6 nkusimpula akusyanga kubusena mbomuyanda.

Mbouzyala: Mumyaka yobile cisamu cilakonzya kulampa 2 m, cilatalika kuzyala micelo kwainda yobile kusika ku 15. Bungu kutegwa cimate buletwa atumpafwa, tuuka amuwo, cisamu eeci cilakonzya kupona kumyaka italeli ku 600 akwindilila. Mucelo ulakonzya kukala mwaka kakunyina akubola.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
ndongwe (yakayuma)	7.8	1832	33.7	-		13.9	-
muchelo	16.0	1212	2.2	-	360	7.4	6.7
matu	77.0	290	3.8	-	50	-	-

Zisyango ziligwa

English: Bottle gourd

Local: Inkombo

Zyina libelesega Abasya Bumpampu: *Lagenaria siceraria*

Zyisyango zyamukwasyi: CUCURBITACEAE

Kapandulula: Eeci cisyango cili muchinga ca myungu calo cijisi matuvu mapati. Cilakomena akulampa 3-9 m alimwi akuyanda mumbali kusikila ku 3-6 m. Cisiko calo nciyumu alimwi cilakonzya kuzambaila kuzisamu zipati. Matuvu mapati alimwi alijisi boya buteteete nkwali kungsi. Maluba acaluumi acikaintu alazyala kucisiko comwe malubaluba acalumi ngasanguna kuzyalwa acikaintu. Malubaluba alo mapati alimwi alatuba kukomena mubupati alasika 10 cm. Bungu bulatolwa kucisyango akucisyango atuuka. Micelo kukomena akulampa 8-90 cm, nseke zilasalaluka mpoona zilimubusu bube mbwanyanzabili. Kuli misyobo isiyene siyene.



Nkozijanika: Ncisyango cikomena kabotu mumasena mukasala, tacyandi kutontola pele cilayanda akubalilwa zuba. Masiku ciyanda kukasala kutalikila a 17-23°C mpoona sikati kakutalikila a 28-36°C.

Mbociblesegwa: Noci cili cisyoono cicelo cilajikwa mbuli cisyumani, cikanda anseke zilagwisyigwa akuzijika na kuzikanga. Matuvu aalo alakonzya kujikwa amukupa kutegwa cinukkilile. Alimwi cilakonzya kusanganizigwa kujikwa a matuvu ambi aligwa. Nseke azyalo zilaligwa akupangisya mafuta amucisyu ooyu mucelo nawakomena mwazigwisya nseke zyoonse mucinkuli mulakonzya kuno yobola zintu mukati. Nseke zyakomena taziligwi.

Mbocilimwa: Kutegwa nseke zimene antoomwe nkusanguna kuzi nyika mumaanzi buzuba bomwe. Nseke ziyanda kuzisyangila mumibunda, zilatalika kumena mumazuba ali 5-7. Tusyango tulakonzya kusimpulwa nkaambo twakomena bungu inga kabuzinguluka mpoona akumita. Micelo izyala inga kaine indene, kuti na micelo yacelwa kaicili misyoonto inga cipa kuti cisiko citafwi kufwambana. Yagwisyigwa misyoonto akwisiya imwi iilya yashala ilakomena loko. Kukusyanga nkutantaanya 1-2 m miyanda tayunki loko ansi pele casika ciindi cakulimina nkulimina kabotu.

Mbouzyala: Cilakomena kufwambana akutalika kulangazya kwainda myezi yobilo.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
bean (yakayuma)	3.2	2399	28.2	-	-	5.3	-
matu	83.0	180	4.4	66	-	7.4	-
muchelo	93.0	88	0.5	25	10	2.4	-

Zisyango ziligwa

English: African eggplant

Local: Impwa

Zyina libelesega Abasya Bumpampu: *Solanum macrocarpon*

Zyisyango zyamukwasyi: SOLANACEAE

Kapandulula: Eeci cisyango cijisi matuvu amusyobo wanyanzabili, tutabi tuzwa kucisiko tulasyupa kutupandula. Matuvu tajisi boya, malubaluba bunji bwaziindi alatba. Impwa zilibulungene zya musyobo wanyanzabili akutubatuba zyangizwa zimwi zibee zyamungunga waji. Mpozili atala ziyumu mpoona kuli cikwa ciyumu nkozijatilila.



Nkozijanika: Impwa cilajanika mumasena mupya.

Mbociblesegwa: Matuvu alajikwa akuligwa, nkuzijika camana caba cisyu cambali mulakonzya kusangunya a rice na kupanga musinza.

Mbocilimwa: Nseke Zilakonzya kuzinkilwa mpoona muzikki ulakonzya kusimpulwa akusyangwa.

Mbouzyala: Impwa zilatalika kuzyala kwainda mazuba aali 60 kusikila ku 120.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
matu	86.0	176	4.6	-	65	6.0	-
muchelo (cakakomena)	89.0	168	1.4	-	-	-	-

Zisyango ziligwa

English: Marrow

Local:

Zyina libelesega Abasya Bumpampu: *Cucurbita pepo*

Zyisyango zyamukwasyi: CUCURBITACEAE

Kapandulula: Eeci cisyango tacijsi zina lyacintu pele calo cijanika muchinga ca myungu. Mitabi misyoonto syoonto mbuli miyanda, cisiko cilaatuyasayasa matuvu aligalagene alimwi mwaali mumbali alabosya akukozyana ameno. Cisamu ca cisankwa a cikaintu zilaandene. Malubaluba acisankwa alamatila kukatabi kwalo kwamenena atutabi tufwafwi tutabi tujisi mucelo mpotuli ansi tuli mbuli ootuya twabowa. Mucelo ooyu uya mbuli mbobambidwe alimwi amusyobo wanguwe. Bube bwamucelo ooyu alimbuli ji alimwi musyobo wawo ngwa mungunga waji mubulamfu ulampa 20 cm mubupati ngu 15 cm nseke zisyonto kwiinda zyamungu pele tazisyupi kazisala kuzwa kucikanda zilalimwa mubunji.



Nkozijanika: Zijanika loko mumasena mutakwe mvula, taciyadi kutontola pele ciyanda kupya kwasikati kutalikila a 24-29°C mpoona masiku kakutalikila a 16-24°C.

Mbociblesegwa: Mucelo noucili musyoonto ulajikwa akuligwa na kukangwa. Wakangwa mulakonzya kubika nyama akati, matuvu nacili masyoonto anseke zyzabizwa zilajikwa azyalo akuligwa nseke zilakonzya kuyanikwa mwazibika amunyo mwamana mwazikanga akulya. Alimwi kuti na zyatyanikwa zilakonzya kuzwa mafuta, malubaluba amomuya mwakala muzikwakwati zilaligwa olo kuziyanika akuyooligwa aakale.

Mbocilimwa: Cisyango anseke zilamena na kwainda biyo nsondo yomwe alimwi na mwatu kosaula tutabi akusyanga tulamena. Cimenakabotu mwapanga mibunda akutantaanya kukusyangwa alimwi cilasyangwa kwiinda akumiyanda.

Mbouzyala: Michelo latalikwa kuzyolwa kwainda nsondo zili 7-8 Nokuba kuti inga taina sima.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
nseke (yakayuma)	3.7	2266	29.4	-	-	7.3	-
matu	89.0	113	4.0	180	80	0.8	-
muchelo (cakakomena)	92.0	105	1.6	17	16	2.4	-
muchelo	91.3	102	1.1	-	12	0.8	0.2
yellow muchelo	92.0	97	1.0	180	8	1.4	-
citanakomena muchelo (raw)	92.0	92	1.5	-	9	0.4	0.1

Zisyingo ziligwa

English: Pumpkin

Local: Muunga muunda

Zyina libelesega Abasya Bumpampu: *Cucurbita maxima*

Zyisingo zyamukwasyi: CUCURBITACEAE

Kapandulula: Uli mucilinga camyungu, ulayanda alimwi ulakongya kulimwa mumwaka woose cisiko nciteteete. Matu mapati alimwi alalengelela ngamusyobo wanyanzabili alimwi mbuli muni. Mwali mumbali mapati, tutabi tuteteete malubaluba acisankwa amenena atutabi tuyanda. Maluba acikaintu mapati kwiinda acisankwa alimwi taali manji. Myungu yazyalwa ilindene kukomena amusyobo, ilakongya kaibulungene na mbuli ji akuba amibala ndiza mbuli mungunga na wanyanzabili. Mouli mukati ngwa mubala wamungunga waji alimwi cikanda cilaligwa. Nseke zikala akati pele zilaligwa. Myungu ili mumisyobo iindene indene.



Nkozijanika: Iyanda mubusena mulimbolezi, tayandi kutontola loko na caanda.

Mbociblesega: Matu alajikwa akuligwa alimwi akulampa myungu ilakangwa. Mulakongya kupanga cake. Nseke zilaligwa antoomwe amungu wajikwa na kuzikanga. Olo na kuzigaya bwaba busu, malu acisankwa alaligwa kwasanganya amatu.

Mbocilimwa: Ilalimwa kwiinda mukusyanga nseke, nkusyanga nseke zyobile na zyotatwe antoomwe kutegwa na imwi yafwa zyobilo zilakongya kumena. Tazyeede kuzitantaanya mwazisyanga, lumwi luungu ndubotu biyo kumatu ncibotu kuba anseke zinji zyamisyobo iindene indene.

Mbouzyala: Myungu ilatebulwa kwainda myezi yotatwe nay one. Mulakongya kusyanga kusingulula nseke ziomwakagusya kuzwa ku muungu. Pele bungu bwaululuka akuunka kuluungu lumbi eeci cipa kuzyalwe myungu yamisyobo misyobo.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
nseke (yakayuma)	6.9	2264	24.5	38	1.9	14.9	7.5
muchelo	69.6	439	1.4	-	-	-	-
matu	88.0	160	4.9	260	28	2.5	0.9
flower	88.7	107	1.4	173	14	0.8	0.1

Zisyango ziligwa

English: Bitter cucumber

Local: Makowa alula

Zyina libelesega Abasya Bumpampu: *Momordica charantia*

Zyisyango zyamukwasyi: CUCURBITACEAE

Kapandulula: Makowa ali mucinga camyuungu, aka nkasamu kaubauba, kukomena kwakkako kazambaila kuya mujulu. Malubaluba oonse acisankwa acikaintu ali antoomwe akasamu kazambaila kuya mujulu kulampa kalasika 4 m, matuvu nga musyobo wanyanzabili alampa 5-12 cm, malubaluba alanunkilila. Makowa azyalwa ngwa nyanzabili pele na abizwa nga musyobo wamafulenke na abizwa alaanduka mpoona mukati kuli cikanda cisalala civumba nseke. Nseke zilasiya kulampa zilasika 10-16 mm mpoona mubupati zilasika 7-10 mm.



Nkozijanika: Makowa alakomena mumasena mwakatalili manzi alimwi kakulimbolezi. Nseke tazimeni kuti na kwatontola loko mane kwasika a 15°C pele makowa alakomena kabotu kabotu kukusala kutakila 18-35°C.

Mbociblesegwa: Makowa aaya nacili masyoonto alajikwa akuligwa nokuba boobo alalula lula na kupapa, alimwi alakangwa akubikwa mumusinza. Nseke zizwa mumakowa abizidwe zilabilegwa zilabikwa muli cakulya kutegwa cinunkilile. Matuvu alo alajikwa alimwi alaligwa alimwi alanunkilizya muli zyakulya zimwi. **Kucenjezya:** Matuvu kwalya loko apa kusoomona akuluka.

Mbocilimwa: Alimwa kuzwa nseke kuti asyangwa papati mulakonzya kuba nseke zitaleli ku 6-7 kg nseke zyasyangwa zyakutantaanya 50 cm. kwelede kwasimpila atusamu twakuti kazambaila. Kuti na mwayanda mulakonzya kupanga mibunda akusyanga, nseke zilijisi cikwa ciyumu mpoonya zilamuka kumena. Pele kuti na zyanyikwa mumanzi kwabuzuba bomwe zilamena cakufwambana. Kuti na mvula takwe zilakonzya kutililwa.

Mbouzyala: Kwainda mazuba ali 45-55 makowa alakonzya kutebulwa, ayelede kutebulwa katana kola na kukomena. Kuti na abamusyobo wamungunga waji nkokuti akola nakukomena tacelede kulya kuti na acelya kufwambana cipa kuti azyale alimwi mpoona mulakonzya kuno cela ziindi ziteledi ku 6-8. Cimwi ciindi makowa azyalwa mulakonzya kwazamba mumapepa kutegwa atanyonyaunwi atuuka. Nseke na zyayobolwa kabotu zilkkala myaka iili 4-5, makowa nalulaalajikwa akuligwa kutegwa nkwaanyika avwelene amunyo.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
nseke	8.6	2020	18.6	-	-	-	-
matu (raw)	84.7	252	5.0	44	170	7.1	0.3
matu (kujika)	88.7	146	3.6	173	57	1.0	0.3
muchelo	93.6	105	1.2	-	-	0.2	-
cikwa (boiled)	94.0	79	0.8	11	33	0.4	0.8
cikwa (raw)	94.0	71	1.0	380	84	0.4	0.8

Zisyango ziligwa

English: Fat hen
Local: Inkwila na ngululu

Zyina libelesega Abasya Bumpampu: *Chenopodium album*
Zyisyango zyamukwasyi: CHENOPODIACEAE

Kapandulula: Eeci ncisyango cilimwa mumwaka cilakomena akulampa 1 m alimwi cilakomena mocili mumbali mbubona bowa. Cisiko cilimvwi pele takwe boya, lino cilijisi zikoto koto mucisiko pele zilamana na zyakumbwa. Matuvu maubauba pele amena lyomwe lyomwe alimwi alimbulasaha mwali mumbali ampa. Kulampa alasika 5-12 cm mubupati alasika 3-10 cm nkwali kungsi alaatubala tube tulatuba tuba. Malubaluba azwida muzikwa zituba kumbele atutabi, mucelo uzyalwa musyoonto mpoona ulibulungene mpoona nkouli kumbele nkowandidwa (kwandula) mucikwa kulinseke zinji zisiya.



Nkozijanika: Ncisyango cikomena munyika ikomena masamu, zilakomena kapati mumasena mutakalili manzi ziyandisya loko muzuba alimwi olo kakuli cimvule zilakomena kunyina mvula kakuli cilanga na kakutontola talikonzi kufwa. Muzimbambwe mumasena muyumuyumu muli tempulica italikila a 5-30°C.

Mbociblesegwa: Nseke zilagaigwa akuba busu bwafulawa akukonzya kupanga cinkwa olo mabisiketi. Matuvu nacili masyoonto alajikwa akuligwa mbuli cisyumani olo kusanganya mumusinza. Malubaluba nacili masyoonto alajikwa akuligwa, nseke azyalo zyamena zilaligwa.

Mbocilimwa: Inkwila zimena kuzwa kukusyanga nseke zyamena buyo tusyango tulasimpulwa akututantaanya kutusyanga 30 cm. Zikomena kabotu muvu lijisi nitrogen. Cilakonzya kulimenena mpoona ku India citebulwa mbuli mapoteto.

Mbouzyala: Tukoto twazyalwa tulaligwa camana kulagazya. Kwainda mazuba ali 40 cilakonzya kutebulwa.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
nseke	-	1654	16	-	-	-	-
matu (kujika)	88.9	134	3.2	391	37.0	0.7	0.3
matu	87.7	113	5.3	33	108	-	-

Zisyango ziligwa

English: Horseradish tree

Local: Moringa

Zyina libelesega Abasya Bumpampu: *Moringa oleifera*

Zyisyango zyamukwasyi: MORINGACEAE

Kapandulula: Eeci ncisamu citeteete cilampa 9-12 m, matuvu alaloka mumwaka. Cisiko cibe cilasiyasisya, nciyumu alimwi cilakwakwamuka. Matuvu nga musyobo wanyanzabili alimwi ali muzibela zyotatwe. Tuvu lyoonse lilampa 30-60 cm mpoona tuvu atuvu lilampa 1-2 cm. malubaluba nga musyobo wa mungunga waji, luba aluba tukwa-tukwa tuli tosanwe oomuya mwazwida mpoona kakwa komwe kalimvwi kulanga mujulu pele ootu tuli tone tulonga musyule. Cicelo cazyalwa cili mbuli pilusi lya capsule lilampa 30-100 cm mubupati ngu 2cm, nseke zilampa 45 cm tazibulungene. Nseke zijisi mababa otatwe pele eeco cisamu cizyala cilazyala mwaka amwaka.



Nkozijanika: Cisamu eeci cilakomena mumasena nyika moikkede, tacifwi akwandwa mpeyo, taciandi mukalila manzi. Cilakomena olo mucimpayuma.

Mbociblesega: Twana tuzyalwa alimwi amatuvu zilaligwa zilabelesegwa kwiinda mukuzibika mumusinja. Matuvu alayanikwa akuyobolwa, zikwa zizyalwa zilamfu pele zilaligwa azyalo. Nseke nozicili zinini zilakangwa akuligwa. Miyanda ayalo ilabeleka, makwa alabikwa mu tea miyanda, matu, malubaluba alimwi amicelo zilaligwa zyajikwa mumanzi kuzisanganya amunyo apilibili. Nseke na zyatyankwa kuzwa mafuta akubika mucisyu.

Mbocilimwa: Cilimwa kabotu kwiinda mukukosola tusamu tulamfu lamfu kuzwa kucinyina akutusimpula kutusyanga pele mulakonzya kusyanga nseke. Moringa kwasisinkanya kwisyanga kuzinguluka lubuwa lwang'anda lulakonzya kuba lukwakwa. Nseke na zyayuma kabotu kabotu akuziyobola mucigabba cijalwa kamuli mubusena butontola zilakonzya kukkala kwaciindi cilamfu kakunyina akubola.

Mbouzyala: Zisamu eezi zilafwambana kukomena, zilaliminwa. Musyobo umwi zisamu amalubaluba tazileki kuzyala pele umwi musyobo uzyala buyo ciindi comwe amwaka mucelo ulatalika kubizwa mbokwainda biyo myezi yotatwe. Eeciya calo cisamu cizyala ciindi coomwe amwaka cilazyala micelo kwainda myezi ili cisamboomwe kuzwa kukusyanga. Matuvu ayuma kabotu mucimvule alimwi vitamin A noiba kabotu.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
matu	76.4	302	5.0	197	165	3.6	-
flower	84.2	205	3.3	-	-	5.2	-
matu (kujika)	87	189	4.7	40	31.0	2.0	0.2
cikwa (raw)	88.2	155	2.1	7	141	0.4	0.5
nseke	6.5	-	46.6	-	-	-	-

Zisyango ziligwa

English: Okra

Zyina libelesega Abasya Bumpampu: *Abelmoschus esculentus*

Local: Mudelele wamakoto

Zyisyango zyamukwasyi: MALVACEAE

Kapandulula: Eeci ncisyango cilampa kukukomena kwacho alimwi cisiko cijisi boya, kulampa cilasika 1 m pele aboona cilakonzya kulampa 3.5 m. Matuvu alampa 30 cm, matuvu alisiyene siyene mwali mumbali abee meno. Malubaluba nga mungunga waji mpoona moyo ngwa musyobo usalala mucelo ngwa musyobo wanyanzabili mpoona uli mbuli mabambo. Nseke zilisiyene siyene kukkala 4-5 mm. zilibulungene alimwi zibe zilasiya siya.



Nkozijanika: Mudelele ulakomena mupya yalo nyika moikkede pele muzilundu taukomeni kabotu. Kuti na taakwe mvula ulakomena kwiinda mukutilila. Uyandisya loko munyika itakalili manzi alimwi ka ijisi busani nokuba boobo ulakomena mumavu aindene indene.

Mbociblesegwa: Zikwa zyajikwa zilaligwa zilatezemuka pele zyakangwa tazitezemuki loko. Nseke zyakayanikwa zyagaigwa naa bwaba busu bulabelesegwa kubikka mumusinza kutegwa ulemeleme. Mautuvu aalo na ajikwa alaligwa alimwi alakonzya kuyanikwa, aalo malubaluba alaligwa, mudelele ulabikkwa mu fridge. Nseke zyakangwa zilabelesegwa mukupanga coffee.

Mbocilimwa: Mudelele ulasyangwa kwiinda kunseke, kutegwa zimene ziyanda kuti kakupya kwindilila a 20°C alimwi kaubalilwa zuba. Kutegwa nseke zimene kufwambana nkunyika mumanzi kwa maola ali makkumi yobile atone. Zilindi mwakuzyangila zeledde kulampa 1.5-2-5 cm mpoona mucilindi acilindi kwelede kusyanga nseke zyobile na zyotatwe, zyamena alya zimwi nkuzisimpula akuzisyanga kumbi. Nseke zilakonzya mubunji akuzisimpula akusyanga komwe komwe. Kwelede kutantaanya kusika 0x45cm kusyanga mu 1 ha kwelede 8-10 kg. Musyobo munji uyanda camutuzya. Bungu na bwawangana amusyobo umbi wamudelele uli munsu munsu musyobo ulakonzya kuti tusamu amucelo a mudelele lwalo ziliindene.

Mbouzyala: Mudelele ulazyala loko moulelelwa kwainda biyo nsondo zili lusele kusika kkumi kuzwa kukusyangwa inga watalikwa kutebulwa mu hectare yomwe mulakonzya kutebula 500-800 kg zya nseke mpoona mulatebula zikwa zya mudelele zili 4-6 tonnes mu hectare yomwe. Kuyandika myezi yobile nay one kutegwa zikwa zitebulwe. Zikwa zilatalika kukomena kwainda mazuba ali 5-10 watalika kulangazya. Mulakonzya kutebula kwa mwezi na yobilo. Zikwa kuzisiya aninyina inga capa kuti medelele utazyali zimbi zikwa.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
nseke	9.2	1721	23.7	-	-	-	-
matu	81.0	235	4.4	116	59	0.7	-
cikwa (fresh)	88.0	151	2.1	185	47	1.2	-
muchelo (kujika)	90.0	134	1.9	58	16.3	0.5	0.6

Muchelo ujisi cikwa ciyumu, nseke, cisyango cijisi matuvu, nseke na maluba luba akununkilizya naa busani

English: Sand apple

Zyina libelesega Abasya Bumpampu: *Parinari capensis*

Local: Cananika wamenshi

Zyisango zyamukwasyi: CHRYSOBALANACEAE

Kapandulula: Nciteyo cijisi cisiko cimena ansi mpoona kukomena cilasika 1 cm, eeci citeyo cilaamiyanda minji mpoona kumiyanda eeyi nkokumenena tutabi pele kulampa tulasika 20 cm. Matuvu aimikila kuyamunjulu masyoonto. Matuvu alimbuli nceba, kulampa alasika 8 cm kukomena mubupatiasika 1.5 cm, mpalansi alimwi nkwali kumamanino alatuba tuba. Malubaluba amenena muzikwa abe alatuba tuba. Mucelo uzyalwa ulibulungene alimwi muteteete. Kulampa ulasika 1.8 cm pele ujisi nseke yomwe biyo. Mucelo ooyu ulanunkilila.



Nkozijanika: Ukomenena akati amabwe, mumasenga amucilongo. Cilakonzya kacili manzi mumwaka cilakomena amumasena mutakwe mvula loko.

Mbociblesegwa: Cikwa caatala cilaligwa. Mwayanda kucilya nkucivukila mumavu kutegwa cibizwe kufwambana. Cilayanikwa akuligwa mbubona mbuli cake, mulakonzya kujisya bukoko mulo walo ulanwugwa kautajikidwe olo na wabila loko. Zikwakwati mulakonzya kuzisanga anyama akulya.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
ndongwe	1.9	2919	26.3	-	-	4.7	3.7

Muchelo ujisi cikwa ciyumu, nseke, cisyango cijisi matuvu, nseke na maluba luba akununkilizya naa busani

English: Cashew

Zyina libelesega Abasya Bumpampu: *Anacardium occidentale*

Local: Ndongo yasimbala

Zyisyangyo zyamukwasyi: ANACARDIACEAE

Kapandulula: Ncamusyobo wanyanzabili cilijisi cimvule cibotu kulampa cilasika 7-14 m cimvule cilasika kukomena 12 m. Muyanda ulaunka ansi akuyanda loko, matuvu nga nyanzabili mpoona mapati. Kulampa alasika 10-15 cm kukomena mubupati alasika 6-8 cm. Alatupulopulo tусуоonto, maluba azyalilwa kumbele amitabi mpoona mucelo uzalwa mulamfu mbubona mbuli mafufwe kulampa ulasika 3 cm.



Nkozijanika: Eeci cisyango cikomena nyika moikede, cizyala kabotu mumasena muyumu mutakwe mudumo. Ciyandisya kukasala na kupya kutalikila a 22-26°C, imvula lwakusika 1,750 mm amwaka olo na yawa kusika a 7,750 mm kulonzya kuba abutebuzi bubotu. Munyika mbi cilakomena pele na kuti manzi katakalili, citeteete cilaligwa pele na cabizwa loko cilapapa.

Mbociblesega: Mulakonzya kupangisya jam azwa kunya kangoma kaligwa kakangwa. Ootuya tусууuka amatuvu zilaligwa zticelwa ciindi camvula. **Kucenjezya:** Mafuta azwa kumucelo kuti na alokela acikanda kuti natana kangwa alaumpa.

Mbocilimwa: Cilasyangwa kuzwa kunseke, nseke zyasyangwa tazimeni kabotu pele ezyo zyasanguna kunyikwa mumanzi asanganizigwa asugar nzezimena kabotu. Olo na zyayanikwa azuba azyalo zilamena cakufwambana, nkuziyanika biyo mazuba obilo na otatwe. Nseke zilasyangwa mubunji mpoona nkusimpula akusyanga kasyango komwe. Tusamu twasyangwa twelede kuti katutantaana 7-10 m, bungu bulatolwa kuzisamu zimbi atuuka kuti kube butebuzi bubotu zisamu zeledde kubikilwa moniya na mafumba. Kwainda myaka yotatwe cisyango celede kutalika kuliminwa na kujwidwa. Simbala cilakonzya kusyanga uumbi mumbeu yomwe. Kubabwida cikwabilila mulilo alimwi aku bungika bwizu amatu akuyoosowa ndondo yasimbangala iwida ansi na yabizwa noibwezelwa.

Mbouzyala: Kwainda myaka yotatwe cisyango cilatalika kuzyala pele kwainda myezi yobilo na yotatwe ndongo izyalwa inga yatalika kukomena komena. Mu hectare yomwe butebuzi butaleli ku 80-200 kg. Zisamu zilakonzya kazizyala kusika kwa myaka ili kkumi pele zilakonzya kukala myaka ili makkumi ali kkumi kakwiina kufwa.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
ndongwe	4.0	2478	17.5	-	-	2.8	4.8
matu	69.9	418	5.2	-	-	-	-
muchelo	84.7	213	0.8	0.12	265	1.0	0.2

Muchelo ujisi cikwa ciyumu, nseke, cisyango cijisi matuvu, nseke na maluba luba akununkilizya naa busani

English: Peanut
Local: Ndongwe

Zyina libelesega Abasya Bumpampu: *Arachis hypogea*
Zyisyango zyamukwasyi: FABACEAE

Kapandulula: Ndongwe zilakomena kwiinda mukuyanda akulampa kuya mujulu zilasika 40 cm, matuvu amena obilo obilo pele kaindene. Maluba luba amenena akati amutu alya obilo mpaswanganina. Kuli misyobo yobilo umwi witwa kuti Virginia ooyu musyobo tauzyali bana banji. Wabili witwa kuti Spanish Valencia ooyu musyobo uzyala bana banji. Ndongwe zikomena kuyaya mujulu, zikwa zimena amiyanda mipati yalo eeyo il ansi muzikwa omu kulajana bana bobile na bali cisamboomwe cikwa acikwa. Maluba luba alelede kuzwa ansi kakuli 18 cm kutegwa zikwa zilimunyika zitalike kuzyalwa akukomena.



Nkozijanika: Ndongwe zivula kukomena mumasena namunyika ikomena loko bwizu amuli masamu manji, alimwi amumasena ali mbuli ku equator. Ziyanda kupya kutalika a 24-33°C cisyango eeci cilafwa acaanda ndongwe ziyanda mwatakalili manzi. Aabona ziyanda kupangilwa mibunda. Ndongwe ziyanda mvula italikila a 300-500 mm, kuyumayuma kulayandika casika ciindi ca kuzitebula.

Mbociblesegwa: Ndongwe zilakonzya kakwina akuzijika olo na zyajikwa zilaligwa. Zilajikwa, kukangwa, kuyokwa na kupagisya peanut butter. Matuvu alaligwa nacili masyoonto alimwi zyagaigwa zipanga mafuta akubika mucisyu.

Mbocilimwa: Ndongwe ziyanda kuliminwa mumasena muli mbolezi kuti na takwe mbolezi aba mabbo tazibiki. Ndongwe zijisi tuuka tuli munyika twalo tunyina musamu witwa kuti nitrogen walo uyeta mbolezi mpoona kutegwa zizyale. Nseke zilayupwa kuzwa mucikwa kutegwa zisyangwe kabotu muzilindi zilampa 2-3 cm mpoona 10 cm kwaandana kuzwa kukasyango akasyango. Kwandaana mulaini kweele kuti kakulampa 60-80 cm kazitana talika kulangazya zyelede kuliminwa.

Mbouzyala: Kwainda biyo mwezi omwe kuzwa nozyasyangwa maluba luba alatalika kulibonya kusikila myezi yotatwe na yosanwe. Ndongwe kuzitebula zijugwa alo matu atalika kufwa nakuyuma. Zyajugwa zyelede kuyanika muzuba mazuba yotatwe nay one. Musyobo wa Virginia utola ciindi kukomena mpoona nseke zyelede kuyobolwa kwamazuba ali 30 na aindilila zitalika kumena.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
nseke (yakayuma)	4.5	2364	24.3	-	-	2.0	3.0
nseke (zitete)	45	1394	15	-	10	1.5	-
matu	78.5	228	4.4	-	-	4.2	-

Muchelo ujisi cikwa ciyumu, nseke, cisyango cijisi matuvu, nseke na maluba luba akununkilizya naa busani

English: Sebastan tree

Local: Ifafisa Ishabuta

Zyina libelesega Abasya Bumpampu: *Cordia myxa*

Zyisyango zyamukwasyi: BORAGINACEAE

Kapandulula: Ooyu mucelo taujisi zina lyacitonga. Eeci calo nciteyo na cisamu camushobo wanyanzabili kulampa cilasika kukomena 1-1.5 m, matuvu alikwazeme nkwaali mumbali alimbuli meno. Malubaluba acisankwa acikaintu oonse alatuba. Micelo izyala minsyoonot syoonto ilimbuli nyemu mbwila kuceya. Mushobo wamucelo ooyo ngwa mungunga waji na kusiya kwamana boobo ulalwela akunangamuka.



Nkozijanika: Eeci cisyango calo cikomena kabotu munyika yamabwe.

Mbociblesegwa: Matuvu ajikwa nkwasanga amunyo antoomwe a pilibili. Malubaluba amucelo ubizidwe alimwi anseke zilaligwa pele nkusanganya abuchi kutegwa cibe cakulya cilwela.

Mbocilimwa: Calo eeci cisyangwa kuzwa kunseke, nseke zyanyika mumanzi kwa maola ali cisamboomwe kazitanasyangwa kutegwa zitakamuki loko kumena. Namwazinyika mumanzi zilatola mazuba asika ku 40-60 kuti zitalike kumena. Kutu na mwayanda nseke nkuzimwaya kutegwa waba muzikki walo ukonzya kwainda mwezi ili 4-6. Mulakonzya kutyola tusamu kuzwa kucinyika akutusimpa. Ayalo eyi ninzila imwi ibelesegwa kukucisyanga kunze akubelesya nseke.

Mbouzyala: Cilakomena kufwambana, cilatalika kulangazya kwainda biyo myaka iili 3-5. Cilalangazya akutalika kuzyala mwaka woonse. Micelo ilatalika kubizwa kwainda mazuba ali 30-45.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
ndongwe (yakayuma)	5.6	2103	34.8	-	-	-	-
muchelo	66.4	577	2.1	-	-	0.3	0.6
matu	64.0	272	5.1	-	-	7.2	-

Muchelo ujisi cikwa ciyumu, nseke, cisyango cijisi matuvu, nseke na maluba luba akununkilizya naa busani

English: Sunflower
Local: Malanga zuba

Zyina libelesega Abasya Bumpampu: *Helianthus annuus*
Zyisyango zyamukwasyi: ASTERACEAE

Kapandulula: Ncisyango cimvwi nji pele kulampa ciliindene indene kutalikila a 1-4 m. Cijisi muyanda mulamfu uunka ansi, cisyango eeci tacikwe mitabi pele abona cilijisi tutabi tusyoonto, cisiko cijisi boya. Matuvu mapati kwamana boobo alibulungene mbubona mbuli moyo mpoona mwali mumbali alimbuli meno. Alimwi aalo ajisi boya mpoona nga musyobo wanyanzabili. Matuvu kulampa alasika kulampa 10-40 cm mubupati 5-20 cm. Cisiko cijata matu ncilamfu, matu nganyanzabili abona zimwi ziindi alasala pyi.



Nkozijanika: Ncisyango cikomena nyika yalo moikkede pele kuti takutontoli loko tacikonzyi kufwa pe. Ciyanda mumyuunda mu takalili manzi alimwi kakuli mbolezi. Tacifwambi kufwa kwanooli cilanga. Malanga akomena kabotu nyika nkoili kunyika na ku equator. Tayandi munyika ntete ciindi coonse. Lyanda kakuli kuyumuyumu. Mumasena manji ali aziindi zindene indene amwalo ilakomena kabotu.

Mbociblesega: Nseke na zyagaigwa zipanga mafuta akubika mucisyu. Aabona nseke zilaligwa bukwange olo kuzikanga. Nseke zyoona eezi zyagaigwa na kuziyanika busu buzwa mulakonzya kupanga cinkwa alimwi na zyayanikwa akuzikanga akuzigaya busu buzwa bulakonzya kubeleka mu tii na kkofi. Nseke zyajikwa kuzisanganya abuchi mulakonzya cakunya. Nseke zyanyikwa mumanzi mpoona bwaba bumena mulakonzya kupa yorghurt na cheese.

Mbocilimwa: Asyangwa kuzwa kunseke, nseke zilibonya kabotu. Nseke zilibonya kabotu nzezisyangwa, kuti na syayanikwa akuyuma kabotu mulakonzya kulipangila mbuto. Mwasyanga zyelee kusiya milaini 1 m. Zilindi zisyangilwa zyelede kuti kazilampa 2-4 cm, mitwe yabizwa njakubweza amanza nkuyanika yayuma nkwishela.

Mbouzyala: Malanga zuba alatalika kubizwa kwainda biyo mwezi ili 4-5. Malubaluba atalika biyo kuwida ansi nkokuti anseke zyabizwa.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
nseke	5.4	2385	22.8	5	1.4	6.8	5.1

Muchelo ujisi cikwa ciyumu, nseke, cisyango cijisi matuvu, nseke na maluba luba akununkilizya naa busani

English: Desert date

Zyina libelesega Abasya Bumpampu: *Balanites aegyptiaca*

Local:

Zyisyango zyamukwasyi: ZYGOPHYLLACEAE

Kapandulula: Tacijaniki mu Zambia pele nokuba boobo cilakonzya kulimwa. Aaka nkasamu kasyoonto nkanyanzabili kulampa kalasika 6-15 m, kazyala tutabi tulaamamvwu mpoona tuli njilene njilene mbubona mbuli mushini wamvwa. Cisiko cilasiyasiya, mociyakukomena inga ciyabwandauka. Tutabi tuteetete tatufwambi kutyoka tulaimikila nji kulampa tulasika 8 cm. Mamvwa nacili masyoonto mateteetete pele mwaya kukomena inga ayumayuma. Matuvu alalibonya loko nkaambo kamusyobo wangawo nganyanzabili, kulampa alasika 2-6



cm, mubupati alasika 1.5-4 cm mpoona maubauba kajisi aboya. Cisamu muciya kukomena inga matu ayabwindana, ali tulaini tone tuboneke mpali ansi malubaluba mosyoonto, alaboya alimwi amenena antoomwe. Mubupati alasika kukomena 1.4 cm, ngamungunga waji kamvwelengene anyanzabili alimwi anunkilila kabotu. Muchelo ngwa mungunga waji kulampa ulasika 5 cm mubupati ngu 2.5 cm, muchelo nkouli kumbele akumatako ulibulungene. Nseke iili mukati mpoona kulampa ilasika 4 cm mpoona mubupati ilasika 2.5 cm kukomena. Cikanda cizingulukide nseke ncamungunga waji alimwi cilalululula. Nseke taisyupi kugwisya mucikanda.

Nkozijanika: Chisyango eeci cilajanwa mu Africa kunze amu Zambia, cilakomena amwalo nyiika moili muncelero na mumisena na mumasena masamu mwakomena loko. Mumasena mupya amutakwe mvula amwalo cilakonzya kukomena, alimwi nyika moikkede namuvali amwalo cilakonzya kukomena. Alimwi nyika moikkede na muvali amwalo cilakomena pele muvu lyandene andene amwalo cilakomena. Matuvu alaligwa, ciyanda mvula italikila a 200-800mm. Akupya kutalikila a 20-30°C.

Mbociblesegwa: Nseke ilabelesegwa kuti caba cakulya, nseke zyajikwa manzi mbwabilabila nkwalimwi nkubikka ambi aalo mbwabilabila nkwegwisya abikka aambi ndiza nkucita mbubona oobu ziindi zili 4-5. Mpoona mwasangana amaila akulya nseke zyajikwa kwaciindi cilamfu kuzwa mafuta a mungunga waji pele aalo alaligwa mucelo na wayanikwa alyalo ulaligwa. Kuti na taubizidwe loko ulapapa papa, ulabelesegwa kupanga syrup olo zikola mbuli bukoko. Matuvu a malubaluba zilaligwa mbuli cisyumani, makwa aazwa kucisiko na asanzigwa alaligwa alimwi muchelo nguwana ooyu ulabelesegwa mumanzi omuya muli nkumba zyitete na zipa kansyunsyu kutegwa zifwe alimwi atuuka tweeta malwazi asiyesiyene.

Mbocilimwa: Cisyangwa kuzwa kunseke, atotuya tusamu tusyoonto tumenena kumiyanda tulakonzya kutyolwa akutusyanga. Mu 1kg kuli nseke zili 600-1,200 nske zyazwa mumucelo zilakonzya kuyobolwa mwaka oonse. Nseke zysyangwa mubulongo zyeede kuti kazilala kuleka kuti kaziimikila kutegwa zikazyale kabotu. Zilatalika kumena mwainda nsondo zili 1-4. Kuti na zyanyikwa mumanzi kusaanguna zilafwambana kumena. Mulakonzya kuzinyika mumanzi atontola kwa mazuba obilo. Pele kwainda buzuba bomwe manzi alya nkwatila akubikka ambi. Zyamena nseke tusyango tulamuka kukomena kwiinda kusyanga ootuya twatyolwa kuzwa kumiyanda.

Mbouzyala: Zisamu zilatalika kuzyala kwainda myaka ili 5-8, kwainda myezi yobilo muchelo inga watalika kukomena. Mu Tanzania muchelo ulatalika kuswezelelwa kutalikila mu April-June. Cisamu coomwe kuti na cili kabotu cilanzia kuzyala michelo ili 10,000 mu mwaka omwe. Muchelo yabizwa ilakonzia kuyanikwa muzuba.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
matu	63.5	249	10.5	-	-	4.9	0.4
ndongwe (yakayuma)	5.0	2286	23.0	-	-	7.0	-
muchelo (yakayuma)	19.0	1150	5.0	-	-	3.1	-
muchelo	64.0	510	2.2	-	-	-	-

Muchelo ujisi cikwa ciyumu, nseke, cisyango cijisi matuvu, nseke na maluba luba akununkilizya naa busani

English: Mobola plum

Zyina libelesega Abasya Bumpampu: *Parinari curatellifolia*

Local: Imbula

Zyisyango zyamukwasyi: CHRYSOBALANACEAE

Kapandulula: Cisamu eeci cilakomena na kulampa katalikila a 12-20 m, cisiko tacijisi makwa pesi tacityoki-tyoki biyo alimwi kumulilo tacijatilili kufwambana. Mitabi noicili misyoonto ilaaboya, matuvu mauba kulampa alasika 4-11 cm 2-5 cm mubupati namwida. Nkwamena masyoonto, mpaalo atala alamweka mumusyobo wanyanzabili. Mpaali ansi alasiyasiya mpoona alijisi tweengo tutalikila ansi na mpamena kusikila nkwalu kumbele. Zikwakwati mwamenena malubaluba zizwida kumbele amitabi, malubaluba nga nyanzabili alimwi alanunkilila. Muchelo kulampa ulasika 2.5-4 cm ngwa nyanzabili mpoona cikanda caatala nciyumu cijisi tubbabbata tube tulatuba tuba. Mbula zyabizwa mukati zyamungunga waji, mbula zyabizwa zilaligwa kuli misyobo yobilo yambula.



Nkozijanika: Eeci cisamu cijanwa loko mu Africa, alimwi cilakanika munyika yamuseenga. Taciandi kutontola ciyanda mvula italikila a 700-1,500 mm. Cilakonzya kukomena munyika mutakalili manzi na capya a mulilo cilakonzya kuzyuuka alimwi. Cilakomena amwalo mumasena mutakwe mvula loko.

Mbociblesegwa: Mbula zilaligwa zyaloka ansi nozibwezelelwa. Cikanda anseke taziligwi pele munyemfu ulaligwa mulakonzya kupanga zyakunywa ambula zikola azitakoli. Nseke zilabelesegwa kukununkilizya.

Mbocilimwa: Mbula zilamena kuzwa kunseke, nseke zyelede kubwezelela nozicili zitete mwamana cikanda nkucigwisya kwacala biyo nseke mpoona nkuziyanika mucimvule. Nseke zyakusyanga mutulindi tusyoonto namwayanda kusimpula nkutujata kabotu tusamu kutegwa miyanda iya ansi itatyoki. Tusimpulwa biyo kwainda myaka yobilo.

Mbouzyala: Zisamu zimenena kunseke zilalampa 3.9 m kwainda myaka iili 9. Muchelo na wabizwa butebuzi bulakonzya kabucitika mokwindila myaka yabilo. Kwainda mazuba ali 250 muchelo inga wasima akutalika kubizwa.

Bubotu bwakulya: Per 100 g cibeela ciligwa

Ciligwa	Mudumo %	Nguzu kJ	Protein g	proVit A g	proVit C mg	Iron mg	Zinc mg
ndongwe	2.6	2737	28.7	-	-	5.5	3.1
muchelo	64.6	533	1.6	-	70.9	0.9	0.4

Image accessed from: <http://www.plantzafrica.com/plantnop/parinaricurat.htm>

Busani bujanika muzisyango ziligwa

Zyisyango zyamukwasyi	Zyina libelesega Abasya Bumpampu	Zyina Lizizilwe	Ciligwa	Mudumo %	Nguzu kJ	Protein g	Vit A g	Vit C mg	Iron mg	Zinc mg	Page
AMARANTHACEAE	<i>Amaranthus spinosus</i>	Bbondwe	matu	91.7	84	3.6	109	46	14.4	0.3	32
AMARANTHACEAE	<i>Amaranthus graecizans</i>	Bbondwe/ Munkulwe utuba	matu (yakayuma)	6.3	903	26.1	-	-	9.8	5.0	34
ANACARDIACEAE	<i>Anacardium occidentale</i>	Ndongo yasimbala	muchelo	84.7	213	0.8	0.12	265	1.0	0.2	56
ARACEAE	<i>Colocasia esculenta</i>	Imbofu	miyanda	66.8	1231	1.96	3	5	0.68	3.2	15
ASTERACEAE	<i>Helianthus annuus</i>	Malanga zuba	nseke	5.4	2385	22.8	5	1.4	6.8	5.1	59
BOMBACACEAE	<i>Adansonia digitate</i>	Mubuyu	muchelo	16.0	1212	2.2	-	360	7.4	6.7	46
BORAGINACEAE	<i>Cordia myxa</i>	Ifafisa Ishabuta	muchelo	66.4	577	2.1	-	-	0.3	0.6	58
BROMELIACEAE	<i>Ananas comosus</i>	Icinanashi	muchelo	84.3	194	0.5	60	25	0.4	0.1	41
CARICACEAE	<i>Carica papaya</i>	Popo	muchelo	88.0	163	0.5	290	54	0.4	0.18	43
CHENOPODIACEAE	<i>Chenopodium album</i>	Inkwila na ngululu	matu (kujika)	88.9	134	3.2	391	37.0	0.7	0.3	52
CHRYSOBALANACEAE	<i>Parinari capensis</i>	Cananika wamenshi	ndongwe	1.9	2919	26.3	-	-	4.7	3.7	55
CHRYSOBALANACEAE	<i>Parinari curatellifolia</i>	Imbula	muchelo	64.6	533	1.6	-	70.9	0.9	0.4	62
CONVOLVULACEAE	<i>Ipomoea batatas</i>	Cimbwali	miyanda (kukanga)	72.9	431	1.7	961	24.6	0.5	0.3	17
CONVOLVULACEAE	<i>Ipomoea obscura</i>	Matuwa	matu	56.6	569	8.8	-	-	28.8	1.1	28
CUCURBITACEAE	<i>Telfairia pedata</i>	Muungu	nseke	2.8	2821	22.9	-	-	6.2	1.6	9
CUCURBITACEAE	<i>Cucumis melo</i>	Namunywa	muchelo	93.0	109	0.5	169	30	0.4	0.2	45
CUCURBITACEAE	<i>Lagenaria siceraria</i>	Inkombo	muchelo	93.0	88	0.5	25	10	2.4	-	47
CUCURBITACEAE	<i>Cucurbita pepo</i>	Marrow	muchelo	91.3	102	1.1	-	12	0.8	0.2	49
CUCURBITACEAE	<i>Cucurbita maxima</i>	Muunga muunda	muchelo	69.6	439	1.4	-	-	-	-	50
CUCURBITACEAE	<i>Momordica charantia</i>	Makowa alula	Cikwa (kujika)	94.0	79	0.8	11	33	0.4	0.8	51
DIOSCOREACEAE	<i>Dioscorea alata</i>	Lusala	miyanda	76.6	323	2.0	18	10	0.8	0.39	10
FABACEAE	<i>Sphenostylis stenocarpa</i>	Bunyangu	nseke (kujika)	67.9	542	3.8	-	-	-	-	14
FABACEAE	<i>Tylosema fassoglensis</i>	Nyabo	Cikwa	72.5	446	6.4	-	39	0.5	2.2	20
FABACEAE	<i>Psophocarpus tetragonolobus</i>	Nyabo (Wanakabalala)	nseke (ishonto)	87.0	205	7.0	13.0	18.3	1.5	0.4	21
FABACEAE	<i>Parkia filicoidea</i>	Ilanda lyankulo	nseke (yakayuma)	7.0	1780	32.3	-	6	33.2	-	22
FABACEAE	<i>Vigna unguiculat</i>	Ilanda lyancete	nseke (ishonto, kujika)	89.5	142	2.6	45	17.0	0.7	0.2	23
FABACEAE	<i>Vigna radiata</i>	Intongwe	nseke (sprouted)	90.4	126	3.0	2	13.2	0.9	0.4	24
FABACEAE	<i>Lablab purpureus</i>	Cilemba wampanga	nseke (ishonto)	86.9	209	3.0	14	5.1	0.8	0.4	25
FABACEAE	<i>Phaseolus lunatus</i>	Intongwe shamumpanga	nseke (ishonto, kujika)	67.2	515	6.8	37	10.1	2.5	0.8	26
FABACEAE	<i>Glycine max</i>	Chilemba yamituntula	nseke (citanakomena)	68.0	584	13.0	16	27	3.8	0.9	27
FABACEAE	<i>Senna occidentalis</i>	Coffee senna	matu	84.9	205	5	-	17.9	12.7	-	33
FABACEAE	<i>Arachis hypogea</i>	Ndongwe	nseke (zitete)	45	1394	15	-	10	1.5	-	57
MALVACEAE	<i>Hibiscus trionum</i>	Nacilasa	matu	6.3	1263	26.7	-	-	79.8	5.7	29
MALVACEAE	<i>Sida cordifolia</i>	Lumanda	matu	6.6	1296	24.2	-	-	79.8	-	30
MALVACEAE	<i>Hibiscus rosa-sinensis</i>	Lunkomba lwacikuwa	matu (yakayuma)	6.4	1339	25.9	-	-	19.6	8.9	31
MALVACEAE	<i>Abelmoschus esculentus</i>	Mudelele wamakoto	muchelo (kujika)	90.0	134	1.9	58	16.3	0.5	0.6	54
MORINGACEAE	<i>Moringa oleifera</i>	Moringa	matu (kujika)	87	189	4.7	40	31.0	2.0	0.2	53
MYRTACEAE	<i>Psidium guajava</i>	Magwaba	muchelo	77.1	238	1.1	60	184	1.4	0.2	36

Zyisyango zyamukwasyi	Zyina libelesega Abasya Bumpampu	Zyina Lizizilwe	Ciligwa	Mudumo %	Nguzu kJ	Protein g	Vit A g	Vit C mg	Iron mg	Zinc mg	Page
PEDALIACEAE	<i>Sesamum calycinum</i>	Bwengo	matu	76.5	-	5.6	-	47.0	35.2	-	35
POACEAE	<i>Eleusine coracana</i>	Maila mucheme	nseke	11.7	1594	6.2	-	-	5.3	-	12
POACEAE	<i>Sorghum bicolor</i>	Mayale	nseke	-	1459	11.1	-	-	-	-	13
POACEAE	<i>Oryza sativa</i>	Umupunga	nseke (brown)	13.5	1480	7.6	-	-	2.8	-	19
RHAMNACEAE	<i>Ziziphus mauritiana</i>	Malubeni	muchelo	77.0	360	0.8	21	71	0.4	0.4	39
RHAMNACEAE	<i>Berchemia discolor</i>	Muzinzila	muchelo (zitete)	78.8	305	1.1	-	50.3	2.2	0.3	40
SALICACEAE	<i>Dovyalis caffra</i>	Umwangash	muchelo	85.9	238	0.4	-	117	0.1	-	38
SOLANACEAE	<i>Solanum macrocarpon</i>	Impwa	muchelo (cakakomena)	89.0	168	1.4	-	-	-	-	48
ZYGOPHYLLACEAE	<i>Balanites aegyptiaca</i>	Desert date	nut (yakayuma)	5.0	2286	23.0	-	-	7.0	-	60



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