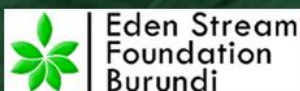


Ibiterwa kama (mbumbarugo) birimwa mu Burundi Bishobora Kugira Akamaro



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



A project of the Rotary Club of
Devonport North and District 9830

www.foodplantsolutions.org

Ibiterwa kama (mbumbarugo) birimwa mu Burundi Bishobora Kugira Akamaro

Intasho

Iki gitabo ceguriwe imiryango n’abarimyi imiliyari zitanu (3 billions) bakora cane kw’isi yose, barima ibi bitera n’ibindi kugira bavyifashishe mu buzima bwabo bwa misi yose, no kugira bikingire ubwo bwoko butandukanye bw’ibitera kugira n’abandi babishobore kubikoresha.

Bruce French (AO), umuhinga mu vy’uburimyi, akaba ari na we yatanguye ishirahamwe *Food Plants International* akaba ari na we yateguye intonde z’ibitera (database) yise “*Edible Plants of the World*” (ibitera biribwa kw’isi).

Iki gitabo cashoboye kwandikwa bivuye ku mfashanyo y’amafaranga yatanze n’ishirahamwe rya **Rotary Club ryo muri Cobourg, muri Kanada.**

Igitabo ngenderwako ku bitera biribwa – Uburundi, Inyigisho ya 3 (mu Congereza), Ruheshi 2025.

Ijambo ry'intangamarara

Iki gitabo ngenderwako gishingiye ku makuru yakuriwe mu ntonde z'ibimera (database) za *Food Plants International (FPI)* zateguwe n'umuhinga mu vy'uburimi w'umunyatasmuniya Bruce French, AO. Amashirahamwe n'ubuyobozi mu gutegura iki gitabo vyashobotse biciye mu mfashanyo y'ishirahamwe *Food Plants International*, amashirahamwe ya *Rotary Clubs* yo mu karere ka 9830, na cane cane ishirahamwe rya *Rotary Club* rya Devonport North rwatanguje umugambi wa *Food Plant Solutions* (hambere wahora witwa *Learn2Grow*), hamwe n'abitanga benshi bafashije mu buryo butandukanye.

Guhitamo ibimera biri muri iki gitabo vyakozwe na Tom Goninon abikora nk'abitangira weza, akoresheje amategeko ngenderwako yateguwe na *Food Plant Solutions*. Ayo mategeko yibanda ku bimera vy'akarere biva mu mice nyamukuru y'ibifungurwa bifise urugero ruri hejuru rw'intungamubiri zikenewe ku buzima bw'abantu no kugabanya ingwara z'amashoke (malnutrition). Iki gitabo kigenewe kuba nk'icerekana ibimera bimwebimwe bifise akamaro bikora nk'akarorero kuri iyo ntego. Ibindi bimera vyose bifise intungamubiri birashobora kugira akamaro, kandi harafiswe icizere ko urutonde rwa *FPI* rwokoresheka mu kuronka amakuru ku bimera vyose bizwi ko biboneka mu Burundi. Iki gitabo categuwe n'ishaka ryiza ryo gutuma abantu babona akamaro kandi bakarushiriza gusobanukirwa ibimera biribwa vy'akarere mu Burundi, kandi hategekanijwe ko kizobandanya gikosorwa no kwongerwako n'abahinga b'aho mu Burundi bafise ubumenyi n'ugusobanukirwa gukwiye kw'ibimera vy'iwacu.

Food Plant Solutions yatangujwe n'ishirahamwe rya *Rotary Club* rya Devonport North kugira ngo ifashe gutuma abantu bamenya amakuru ari ku rutonde rw'ibimera biribwa rwashizweho na *Food Plants International*, hamwe n'akamaro karwo mu kurwanya amashoke no kwizeza umutekano w'ibifungurwa mu gihugu ico ari co cyose kw'isi. Muri Ruheshi 2007, *Food Plant Solutions* yashizweho nk'umugambi wa *Rotary District 9830*, *Rotary Club* ya Devonport North hamwe na *Food Plants International*. Intumbero nyamukuru y'uyu mugambi ni ukwongereza kumenyekanisha no gusobanukirwa ubutunzi bwinshi bw'ibifungurwa biri mu bimera vy'akarere, bimenyereye imice n'ibihe bimereramo, n'uburyo ubwo butunzi bwashobora gukoresheka mu kurwanya inzara, amashoke, n'umutekano w'ibifungurwa. Kugira uronke ayandi makuru, vura urubuga rwa www.foodplantsolutions.org. Amakuru arambuye canke adasanzwe ku bimera, harimwo n'ibandiko vy'abandi banditse, arashobora kuboneka kuri DVD ubisavye.

Kwirengagiza uruhara (Disclaimer): Kiretse aho vyanditse ukundi, amakuru n'amasanamu ari muri iki Gitabo Ngenderwako yakuriwe mu ntonde z'ibimera za *Food Plants International* yitwa "Edible Plants of the World" hubahirijwe amategeko ya *Creative Commons Attribution 3.0 Licence*. Hashobora kuba habayeho n'ugukosora gato kugira ngo bikwirane n'uko urupapuro ruteye. Naho habayeho kwitwararika gukomereye na *Food Plants International* hamwe na *Food Plant Solutions*, haba amashirahamwe canke abantu bateguye urutonde rw'amakuru canke iki Gitabo Ngenderwako:

- Ntabwo bishingira mu buryo ubwo ari bwo bwose (bwaba ubwanditse canke ubitavuzwe) kwizera kw'ayo makuru ari muri urwo rutonde canke muri iki Gitabo Ngenderwako, kandi ntibashobora kubazwa n'amategeko canke kwemera uburyozwa ku makosa canke ibitasizweko.
- Ntibashobora kubazwa ku bitakozwe neza bivuye ku kwibesha kw'ubwoko bw'ikimera canke gukoresha ikimera mu buryo butari bwo.
- Ntibemera uburyozwa bw'indwara, urupfu canke ingaruka mbi izo ari zo zose ziva ku kurya canke gukoresha ikimera ico ari co cose kivugwa mu ntonde z'amakuru canke muri iki Gitabo Ngenderwako.

Igihe cose ni ukwama muraba ko mufise ikimera nyaco, kandi mukurikize uburyo bwiza bwo kugitegura mubifashijwemwo n'abahinga canke abamenyereye gukoresha ico kimera mu karere. Urutonde rwa *Food Plants International*, ari naho amakuru yo muri iki Gitabo Ngenderwako yakuriwe, urutonde rw'ibi bimera ruracandikwa kandi rurabandanya gukosorwa no gusubirwamwo imisi yose.

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Intangamarara

Bruce French, AO – uwatanguje Food Plants International (FPI) akaba ari na we yateguye urutonde rw’amakuru rwa FPI. Vyakosowe na Food Plant Solutions.

Ibimera biribwa mu Burundi bishobora kugira akamaro.

Iki gitabo categoriwe gutanga amakuru ku bimera biribwa bikabakaba 40 bizwi ko bikura mu Burundi. Ibi bimera biva mu mice yose nyamukuru y’ibifungurwa kandi vyahizwemwo kubera agaciro kavyo k’intungamubiri ku rugero rwo hejuru. Vyinshi mu bimera biri muri iki gitabo bishobora kuba ari ibimera vyibagiwe canke bidakoreshejwe cane. Ibi bishaka kuvuga ko bishobora kuba bitazwi cane. Ariko rero, kubera ko bifise intungamubiri nyinshi zifitiye umubiri akamaro, kandi bikaba bimenyeranye n’ibidukikije, bituma bidasaba kwongewrwamwo izindi fumbire ziva hanze, bishobora kuba ibimera biribwa bihambaye kandi bishobora kuba vyiza kuruta ibifungurwa n’ibimera biva mu mahanga. Ibimera birimwa mu buryo bw’ubudandaji na vyo birashobora gushirwa muri iki gitabo, ariko gusa niba ari ibifungurwa mbumarugo. Hari icizere ko abantu bazobigirira icizere kandi bakamenya uburyo bwo kurima n’ugukoresha ibi bimera kuko vyinshi mu biterwa mbumarugo bitanga ibifungurwa bifise urugero rwiza cane.

Kurima ibifungurwa

Kurima ibifungurwa vyo kugaburira umuryango, nta gukeka, ni kimwe mu bintu bihambaye cane umuntu wese ashobora gukora. Uko urushiriza kwitaho umurima wawe ni uko urushiriza kwiga ku bimera n’uburyo bwo kubirima neza, ni ko uburimi bw’ibifungurwa burushiriza kuryoha no kuba igikorwa gishimishije.

Igihugu gifise ibimera bidasanze

Ibiterwa kama mu bihugu vyinshi ntabwo vyatejwe imbere canke ngo bishirwe imbere mu buryo bubereye. Kugendera isoko ry’ibiribwa ryo mu karere bizokwereka bidatevye ubwoko bwinshi bw’ibimera biribwa bishobora kurimwa muri iki gihugu. Amakuru meza kuri ibi bimera akenshi aracari mu mitwe n’uburamba bw’abarimi b’aho mu karere kandi ntabwo yanditswe mu bitabo. Ibi bishobora gutuma bigora urwaruka ruzokurikira kuronka uburyo bwo kumenya kurima ivyo bimera.

Mu bihugu vyinshi, bimwe mu bimera vy’indagano vyandurwa gusa mw’ishamba kandi ibindi bizwi gusa mu duce duto. Ibindi bifise amajana y’ubwoko butandukanye kandi ni vyo bifungurwa nyamukuru ku bantu bo mu turere dutandukanye. Amakuru kuri ibi bimera vyose, agaciro kavyo mu gufungura n’ubukoko canke indwara bivyona, aboneka mu ntonde z’amakuru za *Food Plants International*. Guhitamo n’ugukoresha ibiterwa bimenyerewe imice itandukanye y’uburimi biriko birushiriza kuba bihambaye uko guhindagurika kw’ibihe kwonona umwimbu mu buryo butandukanye mu turere dutandukanye.

Kumenya ibiterwa kama

Abantu bamara umwanya mu mirima n’ibiterwa vyabo biribwa barashobora kubimenya neza cane. Ni icyumviro ciza kwigira ku muntu arima ibimera neza. Ikimera cose gikura neza mu bihe kanaka kandi akenshi haba harimwo ubuhinga budasanze bwo gutuma gikura neza. Hariho ibintu vyinshi bidasanze ku kimera cose kandi kwiga kuri ivyo bifasha umurimi mwiza kwimbuza ibifungurwa vyinshi.

Kuvuga amazina y’ibimera

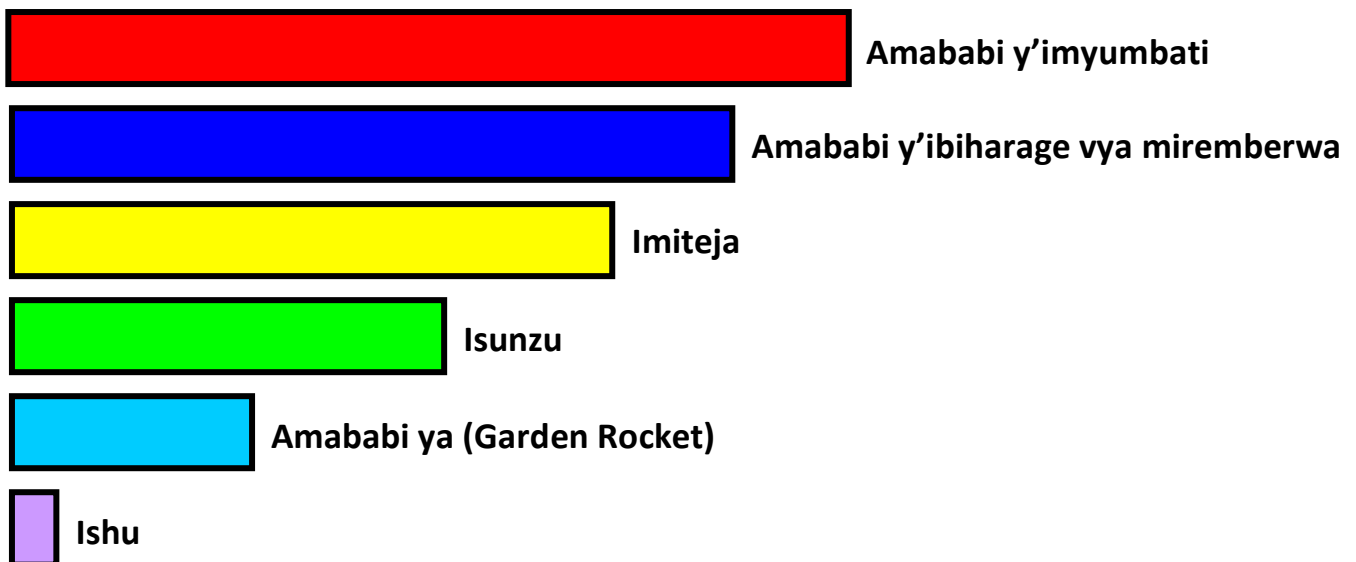
Ibimera vyinshi biribwa bifise amazina y’akarere (mu Kirundi), hamwe n’izina risanze mu Congereza. Ubwoko bwose bw’ikimera kandi bufise izina ryaco ry’ubumenyi (scientific name). Naho

izina ry’ubumenyi rishobora kuba ritozwi cane, ni ryo ruzindiko rwatuma abantu bo mu bihugu bitandukanye n’indimi zitandukanye bashobora kumenya ikimera kimwe. Tuzi ko ibimera vyinshi birimwa mu bihugu vyinshi bitandukanye, ariko kwizigira amazina y’akarere canke asanzwe, dushobora kutamenya ikimera kimwe kirimwa mu bibanza bitandukanye. Mu gukoresha amazina y’ubumenyi mu kumenya ibimera neza, turashobora kuronka amakuru y’ingirakamaro ava ku bantu bo mu bindi bihugu. Aho bishoboka hose, ibimera muri iki gitabo vyahawe amazina yavyo asanzwe mu Congereza n’amazina yavyo y’ubumenyi.

Ibimera biribwa vy’akarere akenshi ni vyiza cane

Abantu rimwe na rimwe biyumvira ko ibimera biribwa vy’iwacu atari ibintu bidasanzwe kandi ko ikimera cose gishasha canke kiva mu rindi gihugu kigenda kiba ciza cane kuruta. Ibi akenshi si vyo. Vyinshi mu bimera bishasha canke ivyazanywe bivuye ahandi, nk’amashu y’uruvugwa (round/ballhead cabbages), bifise agaciro gake cane mu gufungura. Imboga nyinshi z’amababi n’amasunzu vy’indagano vyo mu bice bishushe (tropics) bifise agaciro k’ibiribwa incuro 10 canke kurenga kuruta ishushu y’uruvugwa canke lettuce. Ni bihambaye kuronka amakuru menshi ku gaciro k’ibifungurwa bitandukanye niba dushaka kurya neza. Imbutu z’indimu (Citrus fruit), nk’indimu n’amacungwa, akenshi birimwa kubera vitamine C ifasha abantu kuguma bafise amagara meza. Izi mbuto ntizikura neza mu bice bishushe cane—ipapayi (guava) isanzwe ifise incuro zitatu za vitamine C kandi ikundwa cane n’abana. Iki ni akarorero kamwe gusa k’uko akenshi haba hari amahitamo meza y’ibifungurwa vy’iwacu bifise urugero ruri hejuru rw’intungamubiri zihambaye.

Imibiri yacu ikenera ubwoko butandukanye bw’ibimera biribwa kugira ngo dushobore gukura, kuguma dufise amagara meza no kugira inguvu zikwiye zo gukora. Ibifungurwa bitandukanye birakenewe kugira bitange inguvu, *protein*, *vitamine* n’imyunyuyu na ntanganguvu. Igishushanyo gikurikira cerekana agaciro k’icunyuyu ngaburira muburi (iron) kiri mu mababi amwe n’amwe y’ibimera vy’indagano biribwa mu bice bishushe, ubigereraniye n’ishu. Icunyuyu ca ironi ni intungamubiri ihambaye cane ku mibiri yacu na cane cane ku maraso yacu. Abantu bafise icunyuyu ca fere gike barwara anémie (ukubura amaraso) kandi bakabura inguvu.



Ingero y’icunyuyu kiri mu mababi amwe n’amwe aribwa

Ivyo kurya vyujuje intungamubiri

Intungamubiri nziza, canke kurya ivyo kurya vyuzuye bituma umuntu agira amagara meza, kandi birashobora kuboneka naho umuntu yoba afise uburyo buke, ikibanza gito canke uburyo buke. Niba abantu barya ubwoko bw’inshi bw’ibimera biribwa, imibiri yabo ubusanzwe izoronka urugero ruringaniye rw’intungamubiri zose zitandukanye ikenera. Niba intungamubiri imwe ibuze mu kimera kimwe kiribwa, rero barashobora kuyironka mu kindi kimera niba barya ubwoko butandukanye

bw'ibimera. Ku bw'iyi mvo, birasabwa kurya ubwoko butandukanye bw'ibimera biribwa buri musi. Nk'akarorero, umugwi w'ibimera uhambaye ku bantu, na cane cane ku rwaruka, ni amababi y'icatsi kibisi kandi cijimye. Igihe uronse imboga z'amababi zijimye ku musi, biha umubiri vitamine nyinshi, imyunyu ngugu, hamwe n'ibiceri (fibre). Hariho ibirungo vyinshi canke ibimera bitanga uburyohe bishobora kuryohora ibifungurwa, bituma umuntu aziganya amafaranga ku bintu vyongereza uburyohe bishirwamwo mu buryo bwa kizungu. Uburyohe bukwiye gufatwa ukwabwo ugereranije n'agaciro k'ibifungurwa.

Kwiga guteka neza

Naho intungamubiri zimwe mu biribwa zishobora gutakaza agaciro kazo mu gihe co guteka, ubusanzwe ni vyiza cane guteka ibimera vyose biribwa, naho vyoba mu mwanya muto. Ubukoko (bacteria), butera macinya, bushobora kuba mu mirima no ku bimera biribwa. Ibi biricwa mu gihe co guteka. Ibimera vyinshi mu bice bishushe bigira cyanide, ubumara butuma birura kandi bukaba ubumara. Ibi bikunze gushika ku myumbati n'ibiharage, ariko birashobora no gushika mu bindi bimera vyinshi. Birasabwa ko ibijumba n'imyumbati bihishwa, bigatekwa mu mazi hanyuma bigatekwa iminuta 15-30. Amababi akwiye kusekurwa hanyuma agatekwa mu mazi akanya k'iminuta 10. Guteka ibiribwa mu minuta ibiri ubusanzwe birandura cyanide kandi bigatuma ibiribwa biba vyiza kuribwa. Zimwe mu ntungamubiri imibiri yacu ikenera (nka vitamine A ku maso meza) zishobora gusa kwinjira mu mubiri canke kwinjira kwazo kwongerekana iyo biteguriwe hamwe n'amavuta make.

Kwiga kurima ibimera biribwa vyo mw'ishamba

Ibimera vyinshi bikura mw'ishamba kandi ntibirimwa n'abantu. Mubisanzwe turashobora kuronka umuntu yabishizeko umutima kandi akiga kubirima. Aba bashobora kuba ari abantu bava mu migwi no mu moko atandukanye ndetse banavuga indimi zitandukanye. Bashobora kuba ari abantu bironkeye ubwoko bwiza bw'imbuta zo mw'ishamba zimera mu gace k'iwabo.

Kuziganya ubwoko bwiza bw'ibimera

Niba turetse gusa ibimera bigakura biva mu mbuto (seed), ivyiza vyashitsweko mu kuronka ubwoko buryoshe kuruta canke bwiza kuruta bishobora gutakara. Ibiti vy'ivyamwa bimwe bimeze gutyo kandi ivyamwa vyerako bishobora kuba bitaryoshe namba. Akenshi ni ngombwa gufata uduce tw'ishami (cuttings) rya ca giti kugira wizere neza ko ico giti gishasha kimeze neza nk'icari kihanazwe. Niba ibimera bitazokura neza biciye mu duce tw'amashami mu kuyashira gusa mw'ivu, hariho ubundi buryo bwo gufasha ibi bimera kugira imizi no gutangura gukura. Uburyo bumwe bwiza ni ugukora agaseke gato mu gishishwa c'ishami rito hanyuma ugahambiriza ivu kuri ako gaseke ukanagupfuka n'ishashi (plastic). Ku bimera nk'ipapayi (guava), imizi mishasha izotangura gukura muri ako gaseke ije muri rya vu riri ku ku gishishwa wakoze nk'agaseke. Hanyuma rishobora gukurwako rigaterwa. Ibi vyitwa air-layering. Uburyo busa n'ubwo bukoreshwa ku mizi y'ikijumpu (breadfruit). Umuzi uri hejuru urawukurako uwukase n'akabugita gakarisha hagakorwa agaseke gato aho ikindi camwa kizotuturiza kigakura. Imaze gukura urashobora kuyijana ahandi ukayiteraho.

Kurima bivuye ku duce tw'amashami n'ishuhira

Ibimera vyinshi biribwa birimwa biciye mu duce tw'amashami n'ishuhira. Ibi ni bihambaye cane, kuko bituma amoko yose atandukanye y'ibijumpu, amashaza (taros), ibitoke, ibijumba n'imisigati bibandanya kurimwa bigatanga icizere ko ubwoko bwavyo buzogumaho. Ikimera cose gifise uburyo bwaco cisangije bwo kwongerekana. Birahambaye kugira ibikoreshe vyiza vyo gukoresha mu gutera imbuto nshasha, kuko iyo bitameze neza indwara zishobora gukwiragira mu bikoreshe vyo gutera.

Kuziganya imbuto

Ibiterwa bitari bike biribwa bikura biva mu mbuto. Rimwe na rimwe ibi biroroshe cane kuko imbuto ziba ari nini, ziziganywa neza, zikura neza kandi zikura zimeze nk'igiterwa ca mbere. Biragoye kuruta ku bindi biterwa. Imbuto nyinshi nini kandi zifise inyama, nk'iz'ikijumpu (breadfruit), zikenera guterwa zikiri nshasha kuko ntiziziganywa mu buryo bworoshe. Izindi mbuto ntizikura zimeze nk'izo zavuyeko. Nk'akarorero, imbuto zishobora kutaba nini canke ngo ziryoshe canke ngo zigire ibara rya mbere canke uburyohe bwa mbere. Kuri ivyo biterwa vyinshi, bishobora kuba ngombwa kuronka uburyo bwo kubirima biciye mu duce tw'amashami canke ubundi buhinga nka grafting (kudomeka ishami ku rindi). Ibiterwa bimwe birigwiza (inbreed) bikaba bito canke bikaba bibi. Ibi bishika iyo ikimera cigwijije ubwaco canke kikaronka umukungugu (pollen) uva ku kindi kimera bafitanye isano rya hafi. Ibigori birimwa mu mirima mito akenshi ni ko bigira kandi ibigori biva mu mbuto zakuwe muri ubwo buryo bigenda biba bito cane buri mwaka. Imbuto zikenera kuziganywa zikuwe mu bimera bitandukanye bifise amamuko atandukanye hanyuma zikavangwa imbere yo guterwa. Imbuto zose ziri ku gikenye kimwe zirafitanye isano kandi zizokwigwiza (inbreed). Imbuto zimwe zigira igishishwa gikomeye kandi zikenera kugarwa, gushirwa mu mazi, canke mbere gushirwa mu mazi ashushye, imbere y'uko zitangura gukura. Kuziganya imbuto z'iwacu akenshi ni icyumviro ciza kuko ziba zamenyereye ibihe vy'iwacu. Nk'akarorero, imbuto zaziganywe mu myungu yarimwe iwacu zizotuma haboneka ibimera biticwa cane n'ubukoko n'indwara ugereranije n'izivuye mu mbuto zazanywe mu mahanga. Niba udashobora kuronka imbuto canke ibikoresho vyo gutera bivuye mu mirima y'iwacu – rero birashoboka ko ico giterwa kitazashobora gukura neza iwacu!

Kurima umurima uvanze

Mu bice vy'ishamba, ubwoko bumwe bw'igiterwa ntibwigera bukura bwonyene. Hama hariho ibimera vyinshi bitandukanye, vy'amoko atandukanye n'ubunini butandukanye, vyose bikurira hamwe. Umuntu wese amenyereye ibidukikije vy'ishamba arabizi neza. Impamvu abantu kw'isi yose banwirizwa gukingira ibidukikije ni uko biba birimwo amoko menshi y'ibimera akurira hamwe. Kurima ibimera mu murima w'ibikoni mu buryo busa n'uko bikura mw'ishamba, nk'umugwi uvanze w'ibiterwa, ni uburimi bwiza cane. Kuvanga ibimera mu murima akenshi bituma umwimbu w'ibifungurwa wizigirwa, kuko indwara ivuye ku kimera kimwe ishobora gukurwaho n'imvura ikajya ku kindi kimera kitandukanye, aho iyo ndwara idashobora kuramba. Ibimera bito bito vyuzuzwa imyanya isigaye bigatuma biba ngombwa kubagira bike.

Amoko atandukanye y'ibimera ku bw'umutekano w'ibifungurwa

Hariho n'indi mpamvu yo kurima ubwoko bwinshi bw'ibimera mu murima w'iwacu canke hafi y'ikigwati. Niba hari ikintu cigize nabi, nk'udukoko twonona cane ibiterwa, indwara yadutse mu murima, canke niba igihe cy'uburimi kigenze nabi, ibimera bimwe bizokwononekara kuruta ibindi. Iyo hariho ubwoko bwinshi bw'ibimera, hazoguma hariho ibifungurwa vyo kurya gushika ikindi giterwa gishubiye gukura. Kandi, kugira ubwoko bwinshi bituma ibiterwa bitandukanye bishika mu gihe co kwimbura mu bihe bitandukanye, bigafasha kwizeza ko ibifungurwa bizohoraho. Hariho ibiti bito (shrubs) bishobora guterwa nk'uruzitiro ruribwa (edible hedges) ruzunguruka amazu, n'ibiti vy'ivyamwa n'ivyo bishishwa (nuts) bikeneye guterwa nk'ingabire ku bana bawe, imyaka itari mike imbere y'uko bazashobora kubirya. Umwimbu umara igihe kirekire ushobora kuziganywa hanyuma ukaribwa igihe ibindi biribwa bitabonetse. Ibijumpu (yams) vyinshi biziganywa neza mu mezi make.

Kwagura ubutaka

Abakora uburimi kama mu bice bishushye (tropics) akenshi bimura imirima yabo mu kwimukira ku gice gishasha c'ubutaka. Akenshi haba hariho imvo zitatu z'ivyo:

- Mu bice Vy'imirambi bishushye, ivyatsi (weeds) bishobora kuba ikibazo gikomeye cane. Akenshi haba hari ivyatsi bike mu mwaka wa mbere canke uwa kabiri inyuma yo kurahura no guturira ubutaka, ariko ivyatsi birongerekana mu myaka ikurikira.

- Zimwe mu ntungamubiri mu butaka zirakoreshwa buri mwaka maze ubutaka bukagenda buba bubi n'ibiterwa ntibikure neza. Hariho uburyo bwo kugabanya uko gutakara kw'intungamubiri.
- Inyongorera nto cane zitwa *nematodes* zirivumbura mu butaka inyuma y'imyaka mike maze zikinjira mu mizi, na cane cane mu bimera vy'imboga birimwa buri mwaka, bigatuma imizi yavyo idakora neza. Nk'akarorero, *root knot nematode* ituma imizi y'ibimera nk'inyanya n'ibiharage yihinahina bigatuma ikimera kidakura neza.

Kwubaka ubutaka

Iyo umurima mushasha umaze kuboneka, uba ufise ibisigarira vy'amababi (leaf mulch) vyinshi n'ibindi bice vy'ibiterwa bishaje. Ibi bitanga intungamubiri kugira ibiterwa bishasha bikure. Hariho itegeko ryoroshe ryo kurima no kuryohora ubutaka – “Niba carigeze kubaho, gishobora kongera kubaho.” Igice ico ari co cose c'ikimera gishaje gishobora gutanga intungamubiri kugira ibimera bishasha bikure, ariko kigomba kurekwa kikabona kigahinduka amavuta (mulch) canke compost kugira ngo ivyo bishike. Niba ico gice c'igiterwa gituriwe, intungamubiri zimwe, na cane cane phosphorus na potassium (“potash”), zisigara mu minyota kugira ibimera bishasha biyikoreshe, naho bishobora gutuma izi ntungamubiri zihambaye zitakarira mu mvura izitembana. Mu guturira, izindi ntungamubiri zihambaye, nka nitrogen na sulphur, zitakarira mu mwotsi maze zikabura mu murima no mu butaka. Izi ntungamubiri zibiri za nyuma zihambaye cane mu gukurisha amababi y'icatsi, kandi iyo ziri ku rugero ruri hasi, ibimera bikura ari bito canke bifise icatsi cererana. Iyo nitrogen ibuze, amababi ashaje y'ikimera aba ayerera maze agahunguka kare, kandi iyo sulphur ibuze, amababi akiri mato aba ayerera, nta nguvu aba afise. Aho bishoboka hose, ibice vy'ibimera bishaje bikwiye gupfukishwa ubutaka kugira ngo bire aho kuguma vyumangana gusa canke ngo biturirwe.

Ubutaka bubi aho ibimera bidakura neza

Iyo ubutaka burura cane (acid/sour), ibimera ntibishobora kuronka intungamubiri zikenewe. Ibikunze kuba mu butaka mu buryo bwa kamere buba ari ubumara ku bimera iyo bihari ku rugero ruri hejuru bica binyerera, bikinjira mu biterwa, maze bigahagarika gukura kwavyo. Kwongera ishwaraga (limestone) kuri ubwo butaka birashobora kuburyohora. Gukoresha compost ntibizotuma ubutaka buba budashanyaraye kuruta, ariko bizogumiza intungamubiri mu butaka mu buryo bworoshe gutambuka kugira ibimera bishobore kubikoresha.

Intungamubiri mu butaka

Ibiterwa bikenera ubwoko 16 butandukanye bw'ibifungurwa vy'ibiterwa canke intungamubiri mu ngero zitandukanye kugira bikure neza. Igiterwa kiba cari gisanzwe gikura kizoba gifise izo ntungamubiri muri co kandi kumbure no mu rugero ruringaniye. Ni co gituma gukora compost mu bice by'ibiterwa bishaje ari bihambaye. Ibiterwa kenshi vyerekana ibimenyetso iyo zimwe muri izo ntungamubiri ziriko zirahera.

Imwe mu ntungamubiri isanzwe kandi ihambaye mu gukura kw'ikimera ni *nitrogen*, ubusanzwe iva mu mwuka ibiterwa bihumeka (air), ariko yinjira mu bimera biciye mu butaka. Iyo ibimera bishonje *nitrogen*, amababi yavyo ashaje akenshi aba umuhondo canke agasa n'ayererana. Iyo ibimera mu muryango w'ivyatsi (grass family), nk'imisigati n'ibigori, bishonje *nitrogen*, hagati y'amababi ashaje cane (ari hasi) hatangura kuzako imiterere yumye canke ipfuye imeze nk'urudome V. Igiterwa ntigishobora kuronka *nitrogen* ikwiye mu butaka rero kiyikura mu bababi ashaje kugira gikuze ibabi rishasha. Ibi bituma ibabi rishaje ripfa, bigakora ya miterere ya V hagati mu bababi. Igiterwa ntigikura na gato kuko ibabi rishaje ripfa buri gihe iyo ibabi rishasha rivutse. Abarimyi bo mu kigwati kenshi bagendera mu vyatsi imbere yo kubirahura ngo bahakore imirima, baraba niba amababi y'ivyatsi yumye kandi yafuye, kuko bazi ko imirima kuri ubwo butaka ishobora kutazokura neza. Ni

ngombwa gukoresha *compost* canke ibinyamisogwe (nk'ibiharage) kugira ngo ushire *nitrogen* mu butaka. Kurima ibiterwa vyo mu muryango w'ibiharago ni bwo buryo bwiza cane bwo kwongereza urugero rwa *nitrogen* mu butaka.

Ibigori ni igiterwa ciza cerekana ko intungamubiri ziriko zirashira mu butaka. Niba amababi ashaje yumye ku mpera, ubutaka buriko burashirwamo *potash*. Niba amababi asanzwe ari icatsi agira ibara ry'ubururu, ubutaka bufise *phosphorus* nshishikarira. Muri rusange, ibimera vy'amababi bikenera *nitrogen* nyinshi, na ho ibimera vy'imizigo (root crops) bikenera *potash* nyinshi.

Gukora Nyabarega

Nyabarega ikorerwamwo ifumbire mu bice vy'ibiterwa bishaje vyaretswe bikabora maze bigahinduka amase meza (mulch) rimwe na rimwe anuka, yuzuye intungamubiri ashobora gusubizwa mu butaka kugira hakure ibimera bishasha. Gukora nyabarega nziza biroroshe cane. Ikirundo c'ibice vy'ibiterwa gishobora gushirwa mu mfuruka y'umurima canke hafi y'inzu. Igikorwa co gukora nyabarega gikorwa n'udukoko duto (bacteria) tuba mu butaka kandi tukarya ku bitegwa tugatuma bibora. Utwo dukoko dutoduto dusesangura ibice vy'ibiterwa bishaje bikaba umwavu. Utwo dukoko kugira tubeho rero dukenera impwemu (air), amazi n'ibifungurwa. Ikirundo ciza c'umwavu (amase) kigomba kuba gifise umwuka gihumeka neza'biba vyiza rero iyo birundanirije ahantu haca umuyaga.

Ibi bituma haboneka umwavu unuka nabi, kuko utundi dukoko tudakenera umuyaga tugihindura imvange irura. Umwavu mwiza ugomba kuba ufise ubuhehere (harimwo amazi), iciza rero ikirundo ciza c'umwavu kibwiriza kuba gitose ariko kitarimwo amazi menshi. Udukoko dukora umwavu dukenera gufungura neza, ibi bisigura ko ibice vy'icatsi kibisi n'ivyumye vyose bikenerewe kugira ngo hahingurwe carbon na nitrogen mu kirundo c'umwavu. Niba ibikoreshwa muri *compost* vyumye cane kandi bikaba umutuku, ntibiheza ngo bibore, kandi niba ari icatsi kibisi cane, bizogira urunyengetera (slimy). Gukoresha umwavu mukeya uvuye mu kirundo gishaje biratuma udukoko biratmuna udukoko bizananye dutuma ico kirundo kindi kibora naco nyene ningoga. Igihe cose ibice vy'ibiterwa birunzwe hamwe bikaba amase meza (mulch), bishobora gushirwa mu murima. Ni vyiza niba vyimuriwe munsu y'ubutaka, ariko niba bishirwa ku buso bw'umurima buri gihe, inyongorera (worms) zizobivanga mu butaka.

Udukoko

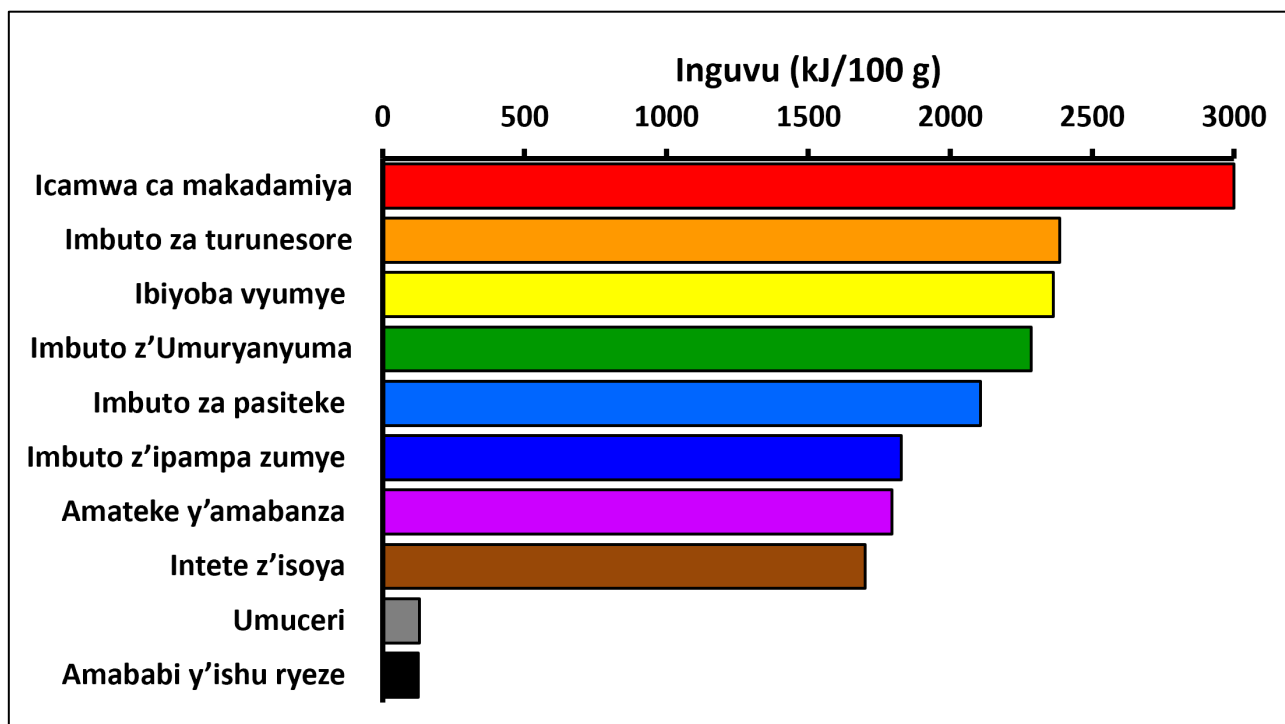
Hariho udukoko twinshi dukunda gusangira natwe ibifungurwa vyacu. Ntidukwiye kugerageza kwica utwo dukoko twose kuko dufise uruhara ruhambaye mu kugumya ibintu vyose mu buryo burunganiye muri kamere. icyo dukeneye gukora ni ukwiga gucunga utwo dukoko kugira ngo twese turonke ibifungurwa vyo kurya. Udukoko tumwe dukurwa n'amata, kandi niba umurima uri hafi y'amata y'ikigwati udukoko tumwe dushobora gutera umurima tukawonona. Nimba imirima minini y'igiterwa kimwe itewe, udukoko dushobora kwitubura vuba cane maze tugatera uwo murima mu buryo budasanzwe. Nk'akarorero, udukoko twitwa armyworms dushobora kwirwiza ku bwinshi ku biti bitanga igitutu ca cacao hanyuma tukimukira "nk'ingabo" mu mirima. Udukoko tumwe ni tunini kandi kwitubura gake maze tukaba dushobora gutorwa tukavanwaho. Inyongori nini z'icatsi kibisi zifise imitwe isongoye zinyegeza munsu y'amababi y'ubwishaza (taro) ni vyiza kuzicunga mu kuzitora gusa. Udukoko tumwe, nk'udusazi tw'ubwishaza (taro beetles), dushobora kuba ikibazo gikomeye, ariko inyongori z'utwo dukoko ziraryoha iyo uzifashe ukaziteka. Udukoko tumwe ntidukunda umucyo w'izuba. Inyugunyu ntoya cane yonona imbuto z'ibitoke imeze gutyo. Gukuraho gusa ibishishwa vy'amababi (leafy bracts) bipfuka imbuto z'igitoke bigabanya guterwa n'udukoko, kuko bireka umucyo w'izuba ukinjira maze ako gakoko kakaguruka. Uburyo bwiza bwo kugabanya utwo dukoko ni ukurima ibiterwa bifise amagara meza, kuko biticwa cane.

Indwara

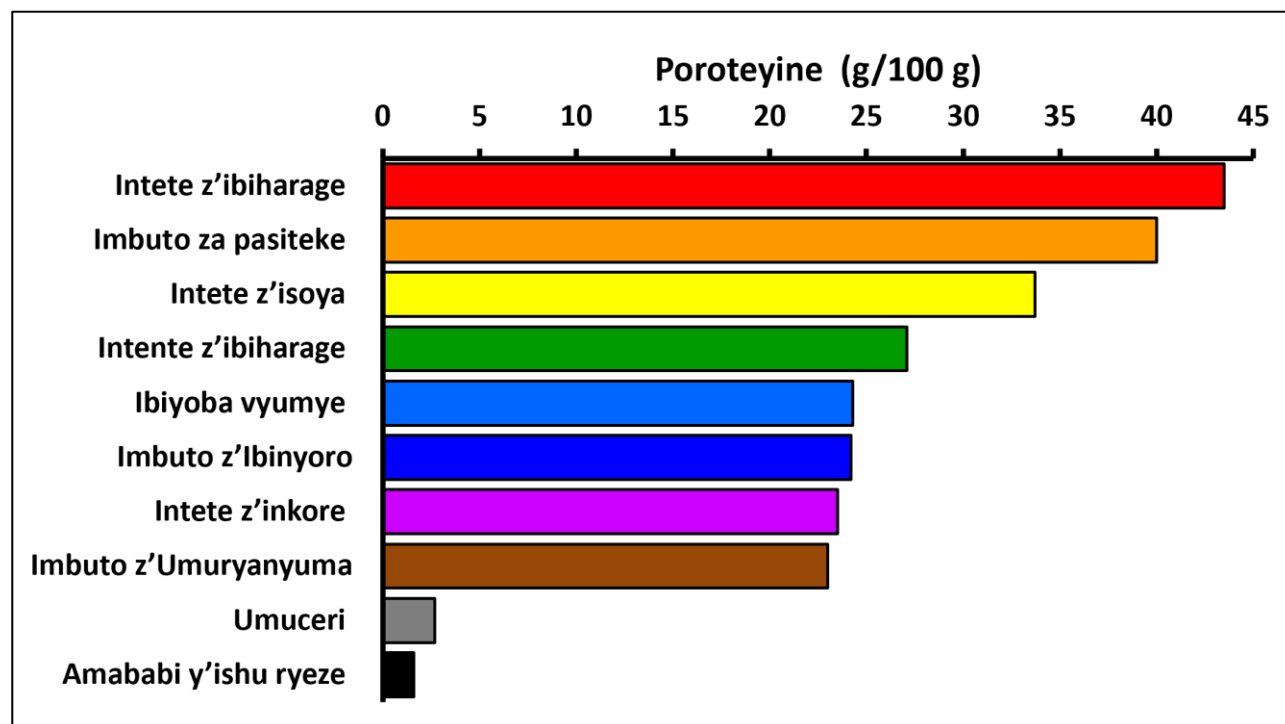
Ibifise ubuzima (living organisms) bitera indwara ni bito cane kuruta udukoko. Ivyo bitera indwara akenshi bishobora gusa kubonwa hakoreshejwe microscope. Hariho amoko atatu nyamukuru y'ibitera indwara – fungi (ibizinu bitobito), bacteria, na viruses. Fungi zimeze nk'ibizinu dufungura, gusa zozo ni nto nto cane. Kenshi zikora amabara yumye ku mababi no ku bindi bice vy'igiterwa. Fungi zifise imbuto zikwiragizwa n'umuyaga. Bacteria akenshi ni ntoya kandi ziba mu bibanza bifise ubuhehere. Akenshi zituma ibiterwa bibora kandi bikanyerera, kandi bishobora no gutuma binuka. Bacteria akenshi zikwiragizwa n'imvura n'amazi. Viruses ni ntoya cane, kandi kenshi zikora imirongo muburyo budasanzwe ku mababi no ku bindi bice vy'igiterwa. Viruses akenshi zikwiragira mu bikoresho vyo gutera canke mu minwa y'udukoko duto dushoka (sucking insects). Indwara imwe isanzwe ya fungus ku bijumba ituma amababi yihinahina kandi akigobeka. Kenshi yiyongera mu mirima ishaje n'aho ubutaka buriko burashirwamo intungamubiri. Ntabwo ikora ku moko yose y'ibijumba mu rugero rumwe. Inyishu si uguhagarika iyo ndwara, ariko ni ukuryohora ubutaka. Ikihari ni uko ibimera bifise amagara meza bikura neza kandi bizingamikwa n'indwara mu rugero ruri hasi.

Amashusho yose muri iki gitabo (keretse aho vyanditse ukundi) yakuwe mu ntonde z'amakuru za Food Plants International (www.foodplantsinternational.com).

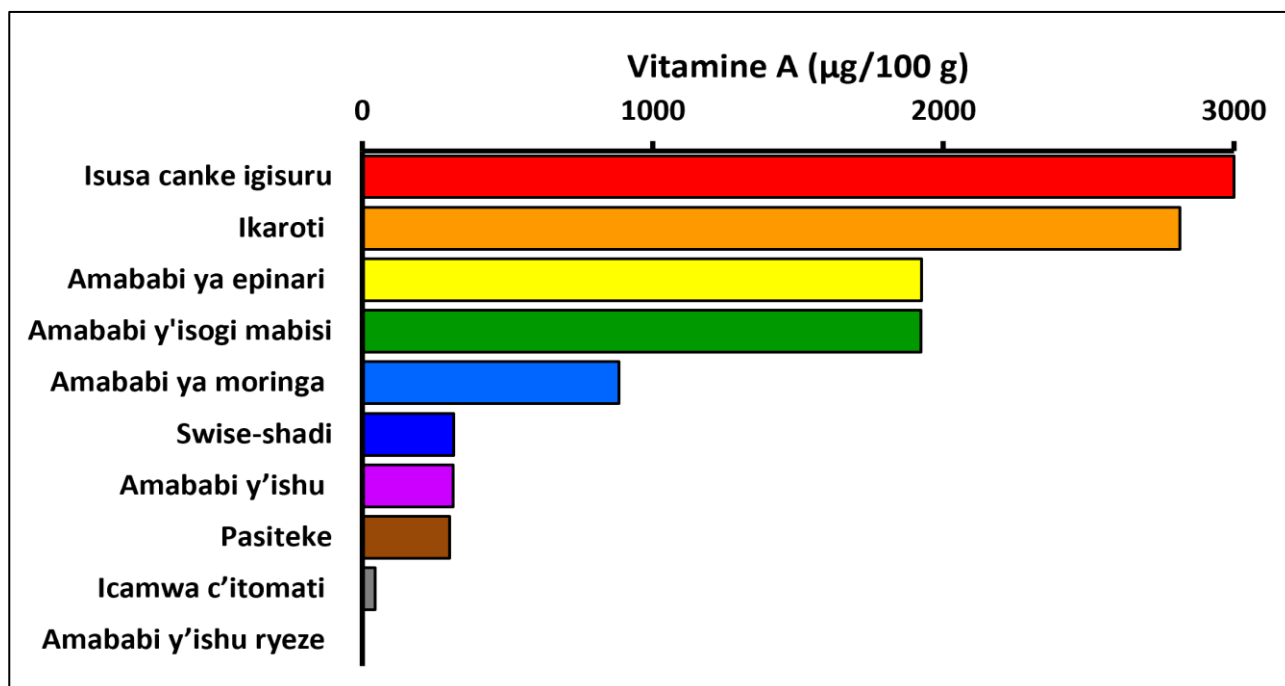
Imbonerahamwe z'agaciro k'ibifungurwa (Food Value Charts)



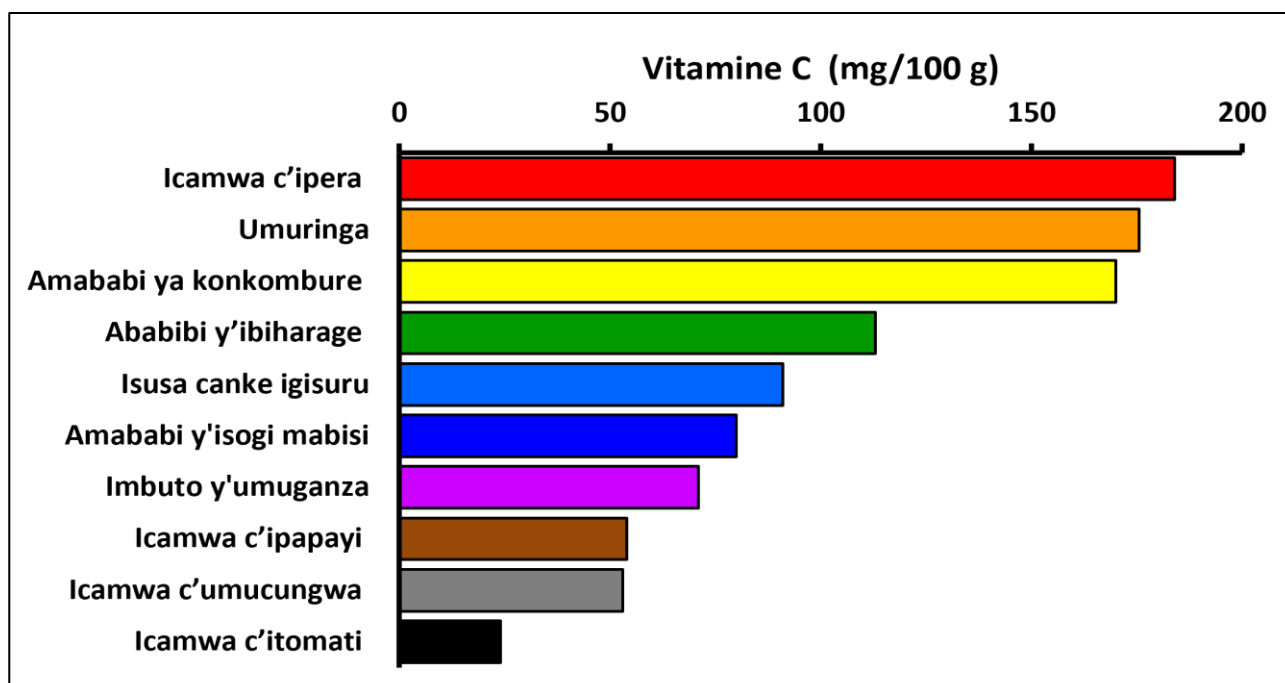
Inguvu ni ngombwa mu gukura no gusubiriza ibice vy'umubiri vyononekaye, mu kutuma amaraso atembera neza, no mu kunyeganyega mu gihe c'akazi, mu myimenyerezo ngororangingo, no mu gukina. Ibifungurwa vyose bitanga inguvu, ariko ibifungurwa birimwo amavuta, nk'ivyamwa bivamwo amavuta, n'ibirimwo isitari, nk'ibinyampeke n'ibijumba, ni vyo na cane cane bifise inguvu nyinshi.



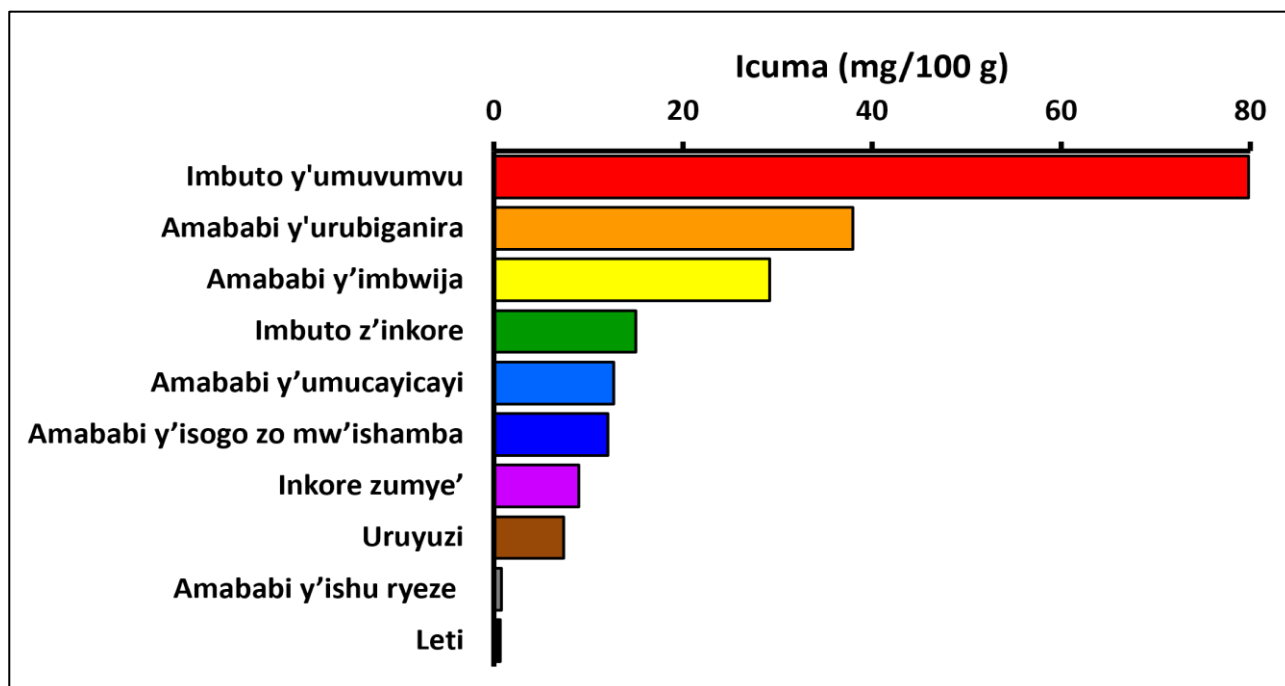
Poroteyine ifasha umubiri gusana uturemangingo twononekaye no gukora utundi dushasha. Poroteyine kandi ni ngombwa mu gukura no kwi Yongera ku bana, ku rwaruka, no ku bagore bibaruka (abibungenze). Ibimenyetso vyo kubura poroteyine harimwo kumanuka no kugabanuka kw'inyama z'umubiri (imitsi), hamwe n'ugukura biguru ntege (ku bana).



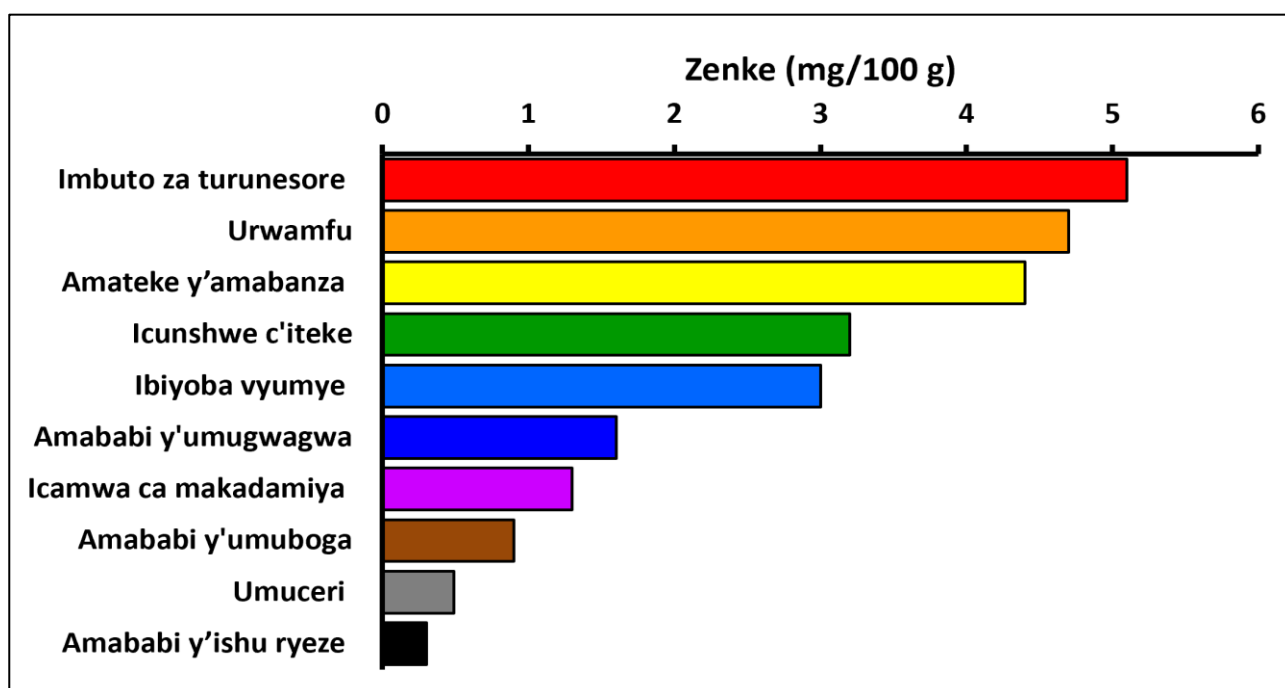
Vitamine A ni ngombwa cane ku maso (gutuma umuntu abona neza) no mu kurwanya indwara, na cane cane ku mpinja, abana bato, n'abagore bibungenze. Abantu bafise vitamine A nkeya bagira ingorane zo kubona neza mw'ijoro.



Vitamine C idufasha kwirinda indwara, gukiza ibikomere, gukingira indwara z'ubumara, no kuvana icunyunyu ca fere mu bifungurwa. Kubura cane vitamine C mu mubiri vyongereza ibyago vyo kurwara indwara ya *scurvy* (indwara y'ishavu), irangwa n'ibimenyetso nko kuvyimba no kuva amaraso ku rukoba, kugira urusato rwayaze, kuva amaraso mu mazuru, hamwe n'ukuryaryatwa mu nkoranyangingo.



Icunyunyu ca fere ni ngombwa kuko gifasha uturemangingo dutukura tw'amaraso gutwara umwuka uva mu mahaha ukajya mu bindi bice vyose vy'umubiri. Urugero ruri hasi rwa fere rutera anémie (ukubura amaraso), bituma twumva turushe cane. Fer kandi ni ngombwa mu kugumya amagara meza y'uturemangingo, urusato, umushatsi n'inzara. Icuma kwinjira mu mubiri biroroha iyo hariho na Vitamine C.



Zenke ni ngombwa ku magara y'abana n'urwaruka, no gufasha umubiri gukira indwara. Urwego rw'umubiri rwo kwivuna indwara ruyikenera kugira ngo rukore neza. Zinc ifise uruhara mu kwigabura kw'aturemangingo, gukura kw'aturemangingo, gukira kw'ibikomere, no gusesagura ibitera inguvu. Zinc kandi irakenewe ku bwumve bwo kunuka n'uburyohe. Kubura Zinc mu mubiri birangwa n'ugukura nabi, kubura apetit n'urwego rw'umubiri rwo kwivuna indwara rudakora neza.

Icitonderwa ku bijanye n'ihitamwo ry'ibiterwa: Mu gutegura ibi bitabo ngenderwako, turemera ko ibifungurwa bimwe na bimwe shingiro n'ibiterwa vy'ubudandaji birimwa cane bishobora kuba bitashizwemwo. Ivyo biribwa akenshi biba biri mu mugwi w'ibitera inguvu (nk'umuceri canke ibigori). Ibi ntibivuze ko ivyo biribwa atari ingirakamaro, ariko vyerekana gusa ishaka ry'umugambi wa *Food Plant Solutions* ryo kwibanda ku bimera bitazwi cane canke bidakoreshwa mu buryo bukwiye.

Ibitera Inguvu

Izina risanzwe: Taro
Izina ry'ikirundi: Iteke

Izina ry'ubumenyi: *Colocasia esculenta*
Umuryango w'ikimera: ARACEAE

Insobanuro: Iki kimera gifise amababi manini aringaniye ari ku mpera z'amashami ahagaze yemye. Gishobora gukura gushika ku metero imwe (1 m). Ishami ry'ibabi canke *petiole* rihurira n'ibabi hagati na hagati. Amababi afise uburebure bwa santimetero 20-50 (cm). Hafi y'ubutaka, harakura ikijumba c'isekurwa (corm) kinini kandi gizingiye. Ku mpande z'iki giterwa, ubusanzwe haba hari uruzitiro rw'utwana twaco duto duto twitwa ishuhu (suckers). Hariho amoko menshi atandukanye. Iyo bishitse mu gihe co kwera, hagati muri iki giterwa hazamwo ishurwe rimeze nka lily. Iryo shurwe rifise isaka (spathe) rya 15-30 cm ryizingiye imbere. Ishurwe risa ni umuhondo kandi rifatatiye ku giti. Hariho amoko menshi y'indimano yahawe amazina. Amateke (Taro) aza mu buryo bubiri nyamukuru: Ubwoko bwa *Dasheen* (*Colocasia esculenta* var. *esculenta*) n'ubwoko bwa *Eddoe* (*Colocasia esculenta* var. *antiquorum*). Itandukaniro riri hagati yayo ni uko ubwoko bwa *Eddoe* bumenyereye kuziganywa no kubaho mu bihe vy'izuba, mu gihe ubwoko bwa *Dasheen* bukenere kugumizwa mu bihe vyo gukura bitahagarara.



Aho aboneka: Ni ikimera co mu bice bishushe (tropics). Iteke rikura kuva ku rugero rw'ikiyaga gushika ku burebure bwa metero 2300 (m) mu bice bishushe. Rikura neza mu bibanza bifise ubuhehere. Rishobora kwihanganira ubutaka butose kandi rigakura mu gitutu gike. Rikwiranye n'uturere tw'ubukonje bwa 9-12 (hardiness zones).

Ugukoresha: Ibijumba (corms), amashami y'amababi (petioles) n'amababi vyose biraribwa inyuma yo gutekwa. Amababi kandi arashobora kwanikwa akaziganywa. Amababi mashasha arashobora kuziganywa mu misi 4-5. **Icitonderwa:** Amoko amwe amwe araryana mu muhogo bivuye ku tuntu tumeze nk'ibikaya turimwo (oxalate crystals).

Ukurima: Iteke rishobora guterwa rikuwe ku tundi tujumba duto (cormels) canke ku gice co hejuru c'igijumba nyamukuru. Ibindi bice vy'igijumba na vyo birashobora gukoreshwa ariko ntibyakunze gukorwa. Kwera kw'iteke n'ihera ry'imbuto bishobora gutuma havuka ubwoko bushasha bw'indimano. Kwera kw'indabo kurashobora gushigikirwa mu gukoresha *gibberellic acid*. Uburyo bwo gukura muri rusange ni uko igice co hejuru gikura mu bwinshi bw'amababi, mu bunini bw'ibabi no mu burebure bw'ishami, bikabandanya mu mezi nk'atandatu (6) mu bice bishushe by'imirambi, hanyuma ivyo bigatangura kugabanuka maze igijumba (tuber) kikabandanya kuvyibuha. Uburemere bw'ikijumba bwiyongera cane kuva ku mezi 5-11. Isitari (starch) na yo iriyongera uko igihe kigenda ariko poroteyine (protein) ikagabanuka mu gihe igijumba kiriko kirakura.

Iteke rishobora kurimwa mu mazi (flooded conditions) ariko imizi ishobora kubora niba amazi adatemba (stagnant). Mu kurima mu mazi, ubutaka burarahurwa, bukarimwa neza kandi bugakora urunyengetera. Intumbero ni ukuronka umurima baringaniye uriko imikingo (embankments) ituma amazi agumamwo. Iteke rishikirwa n'amazi afise uburebure bwa 2-5 cm.

Ku bijanye n'iteke ririmwa mu butaka bwumutse (dryland taro), ubutaka burategurwa mu kurimwa, kiretse iyo hakoreshejwe ubutaka bwari bwarasubiriye kuba ishamba aho kuba kamere y'ubutaka yorohereza gutera ibiterwa mu mwobo muto wateguwe utarimye ubutaka bwose. Ibiterwa bishirwa mu mwobo wa 5-7 cm canke urenga. Gupfukira ubutaka (mulching) kugira ngo ubuhehere bugumemo kandi ivyatsi bigabanuke birafasha cane. Ibishitswe ku gijumba (setts) ubusanzwe bitanga umwimbu mwinshi kururuta ibivuye ku tundi duteke duto (cormels). Ubunini bw'ibabi n'ikura ry'imizi bishobora kuba ari vyo bituma biba gutyo. Ibishishwa (setts) bifise uburemere bwa garama 150 (g) ni vyo vyiza cane.

Igihe co gutera ahanini gishingira ku kuboneka kw'ubuhehere. Itera ry'amateke rishikirwa gatoyi inyuma y'aho imvura itanguriye kugwa ku buryo buhoraho, niba hariho ibihe bitandukanye vy'imvura n'izuba. Imvura nyinshi, ubushuhe n'amasaha y'umuco w'izuba, bituma umwimbu wiyongera kandi bikerekana n'ibihe vy'imbura.

Ibipimo vyo gutakaza amazi (Evapotranspiration) ku mateke arimwa mu mazi bigera ku milimetero 4 (4 mm) ku musi, bikava kuri 1.5 gushika kuri 7.2 mm, bikaba ibironko bishika 1,200 mm ku mwimbu wose. Ubuhehere buza bukagenda bushobora gutuma ibishishwa (corms) bigira imiterere idasanzwe. Kurima mu mazi vyabonetse ko ari vyo bifise akamaro kuruta kuvomera hakoreshejwe uburyo bw'imicungararo (sprinklers) canke imiyoboro (furrows). Kwi Yongera kw'ishuhira (suckering), bituma amababi aba menshi, ni ryo riboneka ko ari ryo mvo y'ivyoye.

Iteke rirashobora kwicwa n'ivyatsi mu gihe kirekire c'ikura ryaryo, ariko biba bibi cane mu gihe ritarashika ku mezi 3 canke 4. Ibagara (weeding) riva kuri 7 gushika ku 9 rirashobora gukenenerwa kugira ngo umurima ugume utunganye mu bice bishushe vy'imirambyi aho uburyo bw'amazi (flooding) budakoreshejwe. Kubera ukugabanuka kw'uburebure n'ubunini bw'amababi mu mpera z'ikura ryaryo, igihe isitari (starch) iba iriko iregeranira mu biguri, kurwanya ivyatsi biba bihambaye cane. Ibagara rikoreshejwe ivyuma rigomba kuba ridashika kure kugira ngo ntihononeke imizi y'iteke iba iri hejuru. Hariho imiti y'ivyatsi (herbicides) itandukanye yagiye irasabwa mu bihe bitandukanye.

Iteke ritanga umwimbu mwinshi mu muco w'izuba wose, ariko rirashobora no gukura mu gitutu kiringaniye. Mu gitutu, rikura bukebuke kandi rikagira utujumba (cormels) duke. Rikenera ubuhehere bwiza kandi ntirashobora kwihanganira uruzuba. Ibisigazwa vy'iteke bifise ubumara (allelopathic factor) bushobora kugabanya imero n'ikura ry'ibindi biterwa, nk'akarorero, ibiharage.

Iteke rikenera ubutaka bufise ifumbire nyinshi, kandi ryitabira neza inyongeragifumbire ya NPK. Igero riri hejuru rya K (potassium) ryongereza isitari, na ho igero riri hejuru rya N (nitrogen) ryongereza poroteyine (protein). Gukoresha N na K byose vyongereza ubumara (oxalic acid) mu biguri.

Uburyo bwo kubiba (spacing) bugira ingaruka ku mwimbu wose no ku mwimbu ushobora kugurishwa canke kwimburwa. Gutera wegeraniye vyongereza umwimbu w'ibiguri ku buso, ariko bikagabanya umwimbu w'ikiguri kuri buri giterwa. Aho aba ari 30 cm x 30 cm, biha nk'ibimera 110,000 kuri hegitari, biba bikeneye imbuto nyinshi cane. Iterwa rya 60 cm x 60 cm ni ryo risanzwe rikoreshejwe cane. Iterwa rya kure rya 90 cm x 90 cm rigabanya umwimbu wose.

Umwimbu: Umwimbu ushika mu mezi 6 gushika ku 18. Umwimbu wa toni 5 gushika kuri 15 kuri hegitari ni wo ugereraniye.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
igiguri	66.8	1231	1.96	3	5	0.68	3.2
ibabi	85.0	210	5.0	57	90	0.62	0.7
ishami	93.0	101	0.5	180	13	0.9	-
ibabi (ritetswe)	92.2	100	2.7	424	35.5	1.2	0.2

Ibitera inguvu

Izina risanzwe: Finger millet

Izina ry'ikurundi: Uburo

Izina ry'ubumenyi: *Eleusine coracana*

Umuryango w'ikimera: POACEAE

Insobanuro: Ubu ni ubwoko bw'icatsi c'uburo cera buri mwaka (annual millet grass). Ni ikimera gikomeye kandi kimeza udukurohwa (tillers) twinshi canke imiswi mishasha itibuka hasi ku giti. Gikura gushika ku burebure bwa santimetero 40-120 (cm). Amashami (stems) yaco ameze nk'ayaringaniye gatoyi, amababi na yo akaba ari magufi.



Umutwe w'ishurwe (flower head) ugizwe n'imishishito (spikes) 2 gushika kuri 7 imeze nk'intoke, ifise ubunini bwa santimetero 1.5 (cm) n'uburebure bwa santimetero 10-15 (cm). Iyo mishishito na yo nyene igizwe n'utundi dushishito duto dushika mirongo irindwi (70). Buri kamwe muri utwo dushishito duto duba dufise imbuto 4 gushika kuri 7. Imbuto (seeds) zimeze nk'izitungurutse kandi zifise ubunini bwa milimetero 1-2 (mm). Hariho amoko abiri (subspecies) yitwa *coracana* na *africana*.

Aho aboneka: Ni igiterwa co mu bice bishushe (tropical) cihanganira amapfa cane. Kugira hatangwe umwimbu mwiza, gikenera ubutaka bubika amazi neza (drainage) n'ubuherehere bukwiye. Ntibushobora kwihanganira ubutaka bwarezemo amazi (water-logging). Ni igiterwa gihambaye mu duce dufise imvura y'umwaka iri hagati ya milimetero 900-1250 (mm). Kibereye cane cane uduce dufise ibihe vy'ici birebire kandi bishushe. Gukenere ubushuhe butari muni y'urugero rwa 18°C kandi gukura neza cane aho ubushuhe buri hejuru ya 27°C. Muri Afrika, bukura kuva ku rugero rw'ikiyaga gushika ku burebure bwa metero 2400 (m). Ni ikimera gikunda imisi migufi (short day length) kandi gikura neza cane aho umunsi umara amasaha 12. Bushobora gukura mu bibanza bikubira (arid places).

Ugukoresha: Imbuto ziraribwa zaba zikaranze canke zishekuwe mu kuryamwo ifu. Iyo fu ikoreshe mu gukora umutsima (porridge) n'imikate ibase (flat bread). Inzoga iratengwa ikuwe muri utwo dutoke. Amababi na yo nyene araribwa.

Ukurima: Uburo burimwa buvuye mu mbuto. Kenshi uburo burimwa buvanze n'amasaka canke ibigori. Gutunganya ubutaka neza ni ngombwa kugira ngo hagabanuke ivyatsi bipiganwa na bwo. Imbuto zishobora kuminjirwa (broadcast) canke zigaterwa mu mirongo (drilled). Uburo bukiri buto bukeneye kubagarwa no gutunganywa neza (thinning). Ubushobozi bw'uburo bwo kumera bugabanuka gushika ku bice 50% inyuma y'imyaka 2. Mugutera uburo ushiraho itandukaniro rya santimetero 5 (5 cm) hagati y'ibimera mu mirongo itandukanye kuri 30-33 cm, canke 10-12 cm hagati y'ibimera mu mirongo itandukanye kuri 25 cm. Ibiro biri hagati ya 25 kg na 35kg vy'imbuto kuri hegitari nivyho bikenewe iyo imbuto ziminjwe. Naho ibiro biri hagati ya 5 kg na 10 kg kuri hegitari nivyho bikenewe iyo uburo butewe ku mirongo. Gukoresha ifumbire bishobora kwongereza umwimbu mu buryo bukomereye cane. Igipimo ca kilogarama 125 kuri hegitari c'ifumbire ya sulphate of ammonia igihe uburo butewe bufise uburebure bwa cm 15 nico gikoreshe muri Uganda.

Umwimbu: Uburo burigwiza bwo nyene (self-pollinating) kandi ivyo bishika mu misi iri hagati ya 8 gushika kuri 10. Imbuto z'uburo ziziganywa neza cane kandi zishobora kumara imyaka 10

zitononekaye. Akenshi buziganywa bukiri ku mitwe (heads). Umwimbu wa Kilogarama 450-900 w'uburo bwumye kuri hegitari ni wo ushobora kuboneka vyoroshe. Uwo mwimbu ushobora kwiyongera gushika ku kilogarama 1650 kuri hegitari. Uburo bumara amezi ari hagati ya 3 gushika kuri 6 kugira bwere neza.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
imbuto	11.7	1594	6.2	-	-	5.3	-

Ibitera inguvu

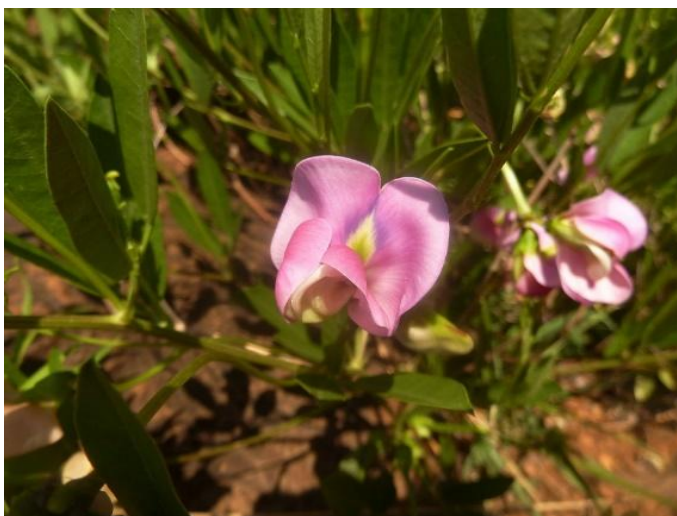
Izina risanzwe: African yam bean

Izina ry'ikirundi: Ikinyambo

Izina ry'ubumenyi: *Sphenostylis stenocarpa*

Umuryango w'ikimera: FABACEAE

Insobanuro: Ni uruyuzi ruranda rushobora gukura cane (vigorous climbing vine). Gukura gushika ku burebure bwa metero 1.5-2 (m). Amababi yaco agizwe n'udupapuro dutatu (3 leaflets). Afise uburebure bwa santimetero 14 (cm) n'ubwaguke bwa santimetero 5 (cm). Amashurwe yarwo afise ibara ry'iroza, idoma (purple) canke uruvange rw'icatsi n'umweru (greenish-white). Zifise uburebure bwa santimetero 2.5 (cm). Zimeza ku giti gikomeye mu ntege zikagira amababi (axils). Imigogoro y'imbutu (seed pods) iranyerera kandi ifise uburebure bwa santimetero 25-30 (cm) n'ubwaguke bwa santimetero 1-1.5 (cm). Ziraringaniye (flat) ariko zifise impande zose zimeze nkizivyibushye. Imbutu zitandukanye mu miterere, mu bunini no mu bwaguke. Zishobora kugira uburebure bwa santimetero 1 (cm) n'ubwaguke bwa santimetero 0.7 (cm). Zishobora kugira ibara ry'amata (cream) canke umubigabiga (brown). Munsu y'ubutaka hamera utugijumba duto kandi dufunganye (small narrow tubers). DUshobora kugira uburebure bwa santimetero 5-7.5 (cm) kandi tugapima garama 50-150 (g). Icamwa kivako kirera (white) kandi kirimo amazi.



Aho aboneka: Ni ikimera co mu bice bishushye (tropical) gikura kuva ku rugero rw'ikiyaga gushika ku burebure bwa metero 1800 (m). Gikura mu mirambi y'ivyatsi (grassland), mu mashamba (woodland) kandi rimwe na rimwe mu bibanza vy'ibishanga (marshy sites). Gishobora no gukura mu bibanza bikubira (arid places).

Ugukoresha: Imigogoro (pods), amababi, imbutu hamwe n'ibijumba (tubers) vyose biratekwa kandi bikaribwa. Bikoreshwa muvuyo kurya nk'isupu canke bivanze n'ibigori canke umuceri. Imbutu zikomeye zitegerezwa kubikwa mu mazi (soaked) mu masaha 12 imbere yo gutekwa canke gusekurwa. Ibijumba biratekwa maze bikaribwa.

Ukurima: Gishobora kurimwa gikuwe mu mbuto (seed) canke mu bijumba (tubers).

Umwimbu: Ubiteye hahera amezi umunani 8 ugaca utangura kwimbura.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
imbuto	9.0	1470	19.2	-	-	-	-
imbuto (zitetse)	67.9	485	7	-	-	1.3	1.1
igijumba	64.0	542	3.8	-	-	-	-

Ibitera inguvu

Izina risanzwe: Wheat

Izina ry'ikirundi: Ingano

Izina ry'ubumenyi: *Triticum aestivum*

Umuryango w'ikimera: POACEAE

Insobanuro: Ni icatsi kimera buri mwaka (annual grass) kigira udushami twinshi (tillers) mu buryo bworoshe zigaheza zigahinduka ishamba mu mwanya muto. Ibi bimera bikura gushika ku burebure bwa santimetero 30-80 (cm). Amashami (stems) yaco ahagaze yemye kandi asanzwe. Ubusanzwe ntigira ubwoya. Amashami afise amafundo (nodes) 5 gushika kuri 7, kandi hagati y'ayo mafundo harimo ubusa (hollow). Ishingiro ry'ibabi (leaf sheath) rizingiriye ku giti. Rishitse hasi riraunitse, ariko rigenda rirasatuka uko riduga hejuru. Agace kameze nk'umukandara aho ibabi rifatira (ligule) ntigafise ibara kandi karasongoye mu ntege. Ibabi ryaco riraringaniye, rirafungane kandi rirasongoye. Rifise uburebure bwa santimetero 20-37 (cm) n'ubugari bwa santimetero 1.2 (cm). Imitsi y'ibabi igenda ibangikanye (parallel veins).



Umutwe w'ishurwe canke umusigati (ear) uri ku mpera y'igiti umeze nk'umusigati uvanze (compound spike). Ufise uburebure bwa santimetero 5-10 (cm). Hariho imirongo ibiri y'utubuto (spikelets) ku mpande zose. Akenshi utubuto tubiri (2 grains) nitwo tuvuka kuri buri musigati, kandi tumeze nk'amagi (oval) dufise umuferege (groove) hagati na hagati. Hariho agatsiba k'ubwoya ku mpera y'akabuto. Hariho amoko arenga 25,000 y'ingano zirimwa yagiye araboneka.

Aho aboneka: Ni igiterwa co mu bice bifise ubushuhe buringaniye (temperate) kikaba kirimwa mu misozi miremire mu bice bishushe (subtropics na tropics). Muri Afrika y'uburengerero (East Africa), ingano nyinshi zirimwa hagati ya metero 1600 na 3000 (m) z'uburebure. Ubushuhe bwiza bwo kumera ni nka 29°C, na ho ubushuhe bwa mbere bukiri hasi ni nka 4°C. Mu bihe vyiza, imbuto zimera mu misi 4-5. Muri Nepal, zikura gushika ku burebure bwa metero 3000 (m). Ingano zishobora kurimwa gushika ku rugero rwa 57°N mu Bwongereza. Ingano nyinshi zirimwa hagati y'ubugari bwa 30° na 60° mu buraruko, na hagati ya 30° na 40° mu bumanuko. Rikwiranye n'uturere tw'ubukonje bwa 9-11 (hardiness zones).

Ugukoresha: Zikoreshe mu bintu vyengwa (fermented) n'ibitengwa. Ifu ya Chapati akenshi ituruka mu moko y'ingano afise urugero ruri hasi rwa gluten. Ingano zishobora kuribwa nk'ikinyampeke. Zishobora gukorwamo ibishishwa (flakes), kuvyimbishwa (puffed), gusenywa (shredded) n'ubundi buryo bw'ibifungurwa vya mu gitondo. Ingano zitetse mu mazi (parboiled), zikanikwa maze zikasaduka, zidandazwa kw'izina rya tabouli. Ingano zitwa ubumera zirategurwa zikavamwo umutobe (juice) ukoreshwa nk'ikinyobwa ca wheatgrass.

Ukurima: Ingano zikwiye kurimwa mu murima urimwe neza kandi utagira ivyatsi. Ingano zishobora kuminjirwa (broadcast) canke zigaterwa mu mirongo (drilled). Imbuto zikwiye kuja mu butaka ku burebure bwa 2.5-5 cm, na ho ibimera bikaba bitandukanye ku rugero rwa 20-25 cm.

Umwimbu: Ingano z'igihe c'imvura (Spring wheat) zimara imisi 100 canke urenga kugira zere. Imvura mu bice vyinshi birimwamwo ingano ni milimetero 750 (mm) ku mwaka canke n'idashika. Mu bice

bishushe (tropics), igihe co kwera kiratandukana kuva ku misi 95 gushika kuri 150. Umwimbu wa kilogarama 1,420 kuri hegitari (kg/ha) ni wo rugero rwo kw'isi yose.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
imbuto	12.5	1387	11.7	-	-	3.3	-

Ibitera inguvu

Izina risanzwe: Japanese arrowroot

Izina ry'ikirundi: Isunzu

Izina ry'ubumenyi: *Dolichos trilobus*

Umuryango w'ikimera: FABACEAE

Insobanuro: Ni igiterwa co mu muryango w'ibiharage. Ni uruyuzi ruranda (twining herb) rubaho imyaka n'iyindi rugenda rurashurika rukuwe mu bijumba vyo ku mizi (root tubers). Amababi yaco agizwe n'udupapuro dutatu (3 leaflets). Amashami y'amababi afise uburebure bwa santimetero 2-3 (cm). Udupapuro tw'ibabi (leaflets) dufise impande zine, kandi dufise uburebure bwa santimetero 2-6 (cm) n'ubunini bwa santimetero 2-5 (cm). Amashami y'amashurwe amerera mu ntege z'amababi (axils), kandi hagati y'ishurwe 1 na 4 ashobora kuba ari mu kagwi kamwe.



Ivyamwa (fruit) ni umugogoro ufise uburebure bwa santimetero 6 (cm) n'ubugari bwa milimetero 8 (mm). Uyu mugogoro uragoronzwe gatoyi. Urimwo imbuto 6 gushika kuri 7.

Aho aboneka: Ni igiterwa co mu bice bishushe (tropical) gikura mu mirambi y'ivyatsi (grassland) n'ibihuru (bushland). Muri Tanzaniya, gikura kuva ku rugero rw'ikiyaga gushika ku burebure bwa metero 1200 (m) hejuru y'ikiyaga.

Ugukoresha: Ivyamwa vyaco biraribwa, biregeranywa maze bigatekwa bikiri bishasha, canke inyuma yo kwanikirwa ku zuba.

Ukurima: Gishobora kurimwa gikuwe mu mbuto nshasha.

Umwimbu: Imbuto zumye zishobora kuziganywa mu mezi kanaka.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
igiguri	72.4	1794	7.1	-	-	0.2	4.4

Ibitera inguvu

Izina risanzwe: Cassava

Izina ry'ikurundi: Umwumbati

Izina ry'ubumenyi: *Manihot esculenta*

Umuryango w'ikimera: EUPHORBIACEAE

Insobanuro: Ni igiterwa gishobora gusubira gukura umwaka ku wundi gikuwe mu mizi yavyimvye. Gishobora kugira amashami (stems) menshi. Amashami nk'ay'igiti (woody) kandi agira udushami tune. Iki giterwa gikura gushika ku metero 3. Amashami afise inkoro (scars) zigaragara neza aho amababi yakutse. Amababi akunda kuba hafi y'impera z'amashami. Amababi yaguye nk'intoke z'itaho. Afise utubunzu tw'ibabi (leaf stalks) turerure. Amababi afise uduce (lobes) turerure 3-7 dushobora kugira uburebure bwa 20 cm. Utwo duce ni tunini cane ku rugero rwa 1/3 uvuye ku mpera maze tukagenda tukanyerera dushika hasi. Iburiy bwayo buratandukana. Umwumbati wera ibiguri (tubers) binererereye kandi biterereye. Bishobora kugira uburebure bwa 50 cm n'ubwaguke bwa 10 cm. Amashurwe ari ku dushami tugufi twazingiriye ku giti hagati. Amera hafi y'impera z'amashami. Amashurwe y'ingore (female) aba hafi y'ishitsi vy'ururabo na ho ay'ingabo (male) akaba hejuru.



Aho aboneka: Ni igiterwa co mu bice bishushe (tropical). Gikura kuva ku rugero rw'ikiyaga gushika ku metero 1650. Muri Fiji gikura gushika ku metero 900. Gishobora gukura mu butaka bukenye kandi gishobora kwirinda uruzuba (drought). Gikomoka muri Amerika y'ubushuye. Gikura hagati ya 25°N na 25°S kandi gikenera imvura iri hejuru ya 750 mm. Gikwiranye n'uturere tw'ubukonje bwa 10-12 (hardiness zones).

Ugukoresha: Imizi (ibijumbu vyayo) biraribwa inyuma yo gutekwa neza cane. Biratekwa mu mazi, bikotswa canke bigakorwamwo ifu. Isitari (starch) ikoresha mu gukora puddings, isupu, n'imikate y'amazi (dumplings). Amababi akiri mato (isombe) araribwa inyuma yo gutekwa. Rimwe na rimwe aranikwa akaziganywa. Imbuta na zo nyene ziraribwa. **Icitonderwa:** Amoko y'umwumbati urura (bitter cassava) arimwo ubumara ariko ubu bumara buratandukana iyo butekejwe. Uyu mwumbati utegerezwa gutekwa, kwanikwa ku zuba, kwinkwa mu mazi, hanyuma ugateshwa kandi.

Ukurima: Umwumbati uterwa ukuwe mu bice vy'igiti (imigozi). Ibice bishika 15-20 cm vy'igiti kikuze kandi gikomeye biracibwa maze bigashikwa mu butaka. Bishobora gupfukwa vyose canke bigashikwa ku mfuruka iyo ari yo yose, kandi ntibigira ingaruka nini ku gukura. Bidatinze imizi iravuka maze amababi agatangura kumerera ku muguzi. Imbuta z'umwumbati zikenera ubushuhe bw'ubutaka bwa 30°C kugira zimere. Kwera kw'indabo n'imbuta bikunze kuboneka mu bushuye buri hasi nk'iyo mu misozi miremire.

Ntibiri ngombwa kwimba umwobo wo guteramwo umwumbati kandi mu butaka bwinshi bworoheje ushobora guterwa utabanje kurima. Umwumbati ntukunda ubutaka bwarezemo amazi, kandi ntukwiye kuba mu butaka bufungane cane canke burimo amabuye menshi.

Umwumbati ushobora guterwa mu gihe ico ari co cose c'umwaka, ariko kugira utangure gukura ukenera ubuhehere, ni co gituma ukunze guterwa mu ntango z'imvura. Ikimera iyo gishinze imizi gishobora kumara amezi menshi ata mvura igwa. Ubushobozi bwo kwihanganira uruzuba

buratandukana cane hagati y'amoko. Mu gihe c'uruzuba, amababi macye kandi mato ni yo amera, kandi amababi apfa vuba, ariko ibiguri birashobora kwiyongera mu gihe gito.

Kubera ko umwumbati ushobora gukura neza mu butaka bukenye, akenshi ushirwa mu kibanza ca nyuma mu gukuranya ibimera (rotation). Umwumbati witaba neza *nitrogen* na *potassium* kuruta *phosphorus*. *Nitrogen* irashobora kwongereza ubumara bwa *cyanide*. Mu butaka bufise aside nyinshi n'urugero ruri hejuru rwa *aluminium*, umwumbati urashobora gukura neza hejuru ariko umwimbu w'ibiguri ukagabanuka cane. Iyo ubutaka butegekanya amazi neza, imigozi y'umwumbati ishobora guterwa ihagaze, irambaraye, canke ifunguye, ariko mu butaka bw'umusenye ni bwiza kuwuterera hasi (horizontal), na ho mu butaka bw'itongo (clay) kuwutera uhagaze (vertical) ni kwo kwiza kuruta.

Kubera ikura rishira (slow growth) mu ntango, isuri ishobora gutwara ubutaka mu gihe c'imvura nyinshi. Kugira ivyo vyirindwe, iterwa rikwiye gupangwa kugira ngo ikura rinini ry'amababi rishike mu gihe c'imvura nyinshi. Kurwanya ivyatsi ni ngombwa cane mu gihe c'indwi 2 gushika kuri 8 inyuma yo gutera. Kwongera k'uburemere bw'ibiguri kurateba mu gicucu, kandi n'umwimbu uragabanuka. Mu kuvanga ibimera, gukoresha ibimera vyera vuba bituma umwumbati uronka umwanya wo gukura neza.

Umwumbati ufata amezi 10-12 kugira utange ibiguri bikuze mu mirambi, naho amoko amwe na bamwe atanga umwimbu muto imbere y'aho. Imyimburo ya toni 20-45 kuri hegitari yaranditswe ku mwimbu w'amezi 12-14. Ibi bimera bishobora kugumishwa mu murima maze ibiguri bikaziganywa mu butaka mu gihe kirekire. Inyuma yo kuwurimbura, ntiubaka imisi myinshi utononekaye. Gukata amababi n'amashami mbeere yo kurimbura bituma umwumbati umara igihe kirekire utarononeka inyuma yo kuwimbura.

Iterwa rishobora kuba hagati y'ibimera 10,000 gushika kuri 30,000 kuri hegitari. Gupfukira ubutaka (mulching) bituma umwimbu wiyongera cane kandi bikagabanya udukoko turya imizi.

Umwimbu: Ibimera bishobora kwimburwa inyuma y'amezi 10 mu mirambi. Hariho amoko akura vuba kuruta ayo. Umwimbu uri hagati ya toni 20-45 kuri hegitari urashobora kuronka mu mezi 12-14.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
igiguri	62.8	625	1.4	30	15	0.23	0.48
ibabi	82.0	382	7.1	57	275	7.6	-

Ibitera inguvu

Izina risanzwe: Maize

Izina ry'ikurundi: Ikigori

Izina ry'ubumenyi: *Zea mays*

Umuryango w'ikimera: POACEAE

Insobanuro: Ni igiterwa kimera buri mwaka (annual plant) gifise igiti kimwe gishobora gukura gushika ku metero 2-3 (m). Igiti caco kirakomeye kandi gifise ubugari bwa santimetero 2-3 (cm). Ni igiterwa kiri mu muryango w'ivyatsi (grass family) gifise imizi iseruka hejuru y'ubutaka (prop roots) hafi y'igishitsi gishinze. Amoko amwe n'amwe ameza udukurohwa (tillers) hafi y'igishitsi. Imizi y'imbuto igaburira igiterwa mu ntango, hanyuma imizi y'impande igakura ku fundo rya mbere ryo hasi ikabandanya kurondera ifumbire. Imizi ishobora kuja ku mpande ku rugero rwa metero 1 canke ikamanuka ikuzimu metero 2-3. Amababi akura akurikirana ku mpande zibiri zishishana ku giti, akaba ari hagati ya 8 na 21. Ishingiro ry'ibabi rizingiriye ku giti ariko rikasatuka hejuru.



Amababi akura akurikirana ku mpande zibiri zishishana ku giti, akaba ari hagati ya 8 na 21. Ishingiro ry'ibabi rizingiriye ku giti ariko rikasatuka hejuru.

Ibabi rifise uburebure bwa santimetero 30-150 (cm) n'ubugari bwa 5-15 (cm). Ibabi rigira umutsi munini hagati (midrib) kandi kenshi rikaba rifise iminkanyari ku mpande. Ishurwe ry'ingabo (tassel) riri hejuru, na ho iry'ingore rukitwa igisunzu (ear). Kiba kiri ku giti kigufi mu ntege z'amababi manini hagati na hagati ku giti c'ikigori. Cimbura ikigori (cob) kizingiriye mu mababi. Ikigori ubusanzwe kiba kirimo utubuto 300 gushika ku 1000. Akenshi, ikigori kimwe canke bibiri ni vyo bikura kuri buri giterwa.

Aho aboneka: Ni igiterwa co mu bice bifise ubushuhe bukurikira (warm temperate). Imbuto zikenera ubushuhe bw'ubutaka buri hejuru ya 10°C kugira zimere. Gikura neza cane mu bice bitarenga metero 1800 (m) z'uburebure mu bice by'imirambi (equatorial tropics). Ikigori kirarimwa mu bice vyinshi vyo muri Aziya, kandi muri Amerika kirarimwa kuva ku rugero rw'ikiyaga gushika ku metero 3300 (m). Gikunze kurimwa mu bice vyumutse cane ku muceri ariko bifise imvura nshika kuruta iy'uburo. Ikigori gikenera imisi irenga 120 itagira imbeho ikaze cane (frost-free).

Ugukoresha: Ibikorwa biraribwa bitetswe. Imbuto zumye zishobora gusekurwa (gusesha) maze ifu yazo ikoreshe mu gukora umutsima, imikate, isupu, n'ibindi biribwa bitandukanye. Tortillas zimeze nk'imikate ibase zikuwe mu bigori ni ryo fungurwa nshingiro muri Amerika yo hagati. Ikigori gitegurwa mu buryo bwinshi: gutekwa mu mazi, kwotswa, kwanikwa, canke gutekwa mu mufu (steamed). Amavuta y'ibigori akoreshe mu masalati no mu guteka. Uturabo tw'ingabo (tassel) dukiri duto turatekwa tukaribwa. Imvumbi (pollen) ikoreshe mu masupu. Ubwanwa bw'ibigori (silks) bukiri bushasha bukoreshwa mu gukora tortillas. Igice c'imbere c'igiti gishobora guhekenywa canke kugirwamwo iserupo (syrup). Imbuto zamereye na zo zirashobora kuribwa.

Ukurima: Giterwa hakoreshejwe imbuto. Bisanze ko haterwa akabuto kamwe mu mwobo ku burebure bwa santimetero 1-2 (cm). Iterwa rya santimetero 30 (cm) hagati y'ibimera ni ryo rikwiye. Imbuto zikwiye kuziganywa mu mirima ifise ibimera birenze 200, kandi imbuto zivuye mu bigori bitandukanye zivangwe kugira ngo ikimera kigume gikomeye (avoid inbreeding depression).

Umwimbu: Mu butaka bushyira kandi butose, imbuto zimera mu misi 2-3 inyuma yo guterwa. Ibigori vyimburwa iyo utubuto twuzuye kandi ubwanwa bugitangura guhinduka umubigabiga. Ibi bisanzwe bishika mu misi nka 50 inyuma yo kwitubura. Biraryoshe cane iyo birirwa bimaze kwimburwa vuba. Uruzuba n'ibihe bibi bishobora gutuma ubwanwa (silks) busohoka inyuma y'aho imvumbi (pollen) yamaze gukutika, ivyo rero bituma ikigori kiterera neza (poorly pollinated cobs).

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
imbuto (zikuze)	10.4	1528	10.0	100	4	4.9	2.2

Ibitera inguvu

Izina risanzwe: Rice

Izina ry'ikirundi: Umuceri

Izina ry'ubumenyi: *Oryza sativa*

Umuryango w'ikimera: POACEAE

Insobanuro: Umuceri ni icatsi kimera buri mwaka (annual grass) gifise amashami arimo ubusa imbere (hollow stems). Amashami ashobora kugira uburebure bwa santimetero 30-150 (cm). (Hariho amoko arembeje ashobora gushika ku metero 5 z'uburebure). Amafundo (nodes) y'igiti ni amakomeye kandi yavyimvye. Igiti gikingirwa n'agakoba k'inyuma gakunze kuba gakomeye biturutse ku kinyabutare citwa *silicon*. Udukurohwa (tillers) twinshi turakura dukuwe mu mfundiko ari mu ntege z'amababi yo hasi.



Amababi ni magufi kandi afise ubwoya. Agenda arasongora uko ashika ku mpera. Buri giti kigira amababi 10-20, maze imbuto zikamanuka zikuwe ku giti c'ururabo kiri hejuru. Amoko amwe n'amwe aranyerera (glutinous) kandi agafatana iyo atetswe.

Aho aboneka: Ni igiterwa co mu bice bishushe (tropical). Gikura mu bihugu bishushe (tropical) n'ibishushe biringaniye (subtropical). Umuceri urimwa mu bibanza vyaretsemwo amazi (flooded) canke mu butaka bwumutse (dryland). Ushobora gukura mu bihe bitandukanye, ariko kenshi biba hagati y'urugero rw'ikiyaga na metero 900 z'uburebure mu bice bishushe. Rimwe na rimwe urarimwa gushika ku metero 1600. Ukenere imisi irenga 130 itagira imbeho ikaze.

Ugukoresha: Imbuto zitatewe (grains) ziratekwa maze zikaribwa inyuma yo gukurwako ibishishwa (husks) mu kuzisekura no kuzigosora. Umuceri kandi ugirwamo ifu, ivyo kurya binyohereye (*desserts*), *puddings*, isitari, n'iminofu yitwa *noodles*. Ifu yawo ishobora gukorwamwo impapuro z'umuceri (*rice paper*). Ibishishwa by'imbere (*rice bran*) bikoreshwa mu gutunganya imboga zitwa *pickles*. Imbuto zamereye ziraribwa muri salati. Imiswi y'umuceri ikiri mito ishobora gukoreshwa nk'imboga. Umuceri urashobora kandi gukorwamo inzoga n'ibinyobwa bimeze nk'amata.

Ukurima: Umuceri uterwa hakoreshejwe imbuto. Imbuto zishobora kuminjirwa mu murima canke zikabanza guterwa mu matuta (nursery) hanyuma zikimurwa. Ku muceri urimwa mu butaka bwumutse, batera imbuto 5-10 mu mwobo utandukanye ku rugero rwa 20-25 cm. Ku muceri wimurwa, imbuto 2 canke 3 ku ntera ya 20 x 20 cm ni kwo kwiza. Kurwanya ivyatsi ni ingorane mu ntango. Amazi areka (flooding) arashobora gukoreshwa mu kurwanya ivyatsi.

Umwimbu: Ibishishwa vy'inyuma (*glu: mes*) birakurwako kugira aboneke umuceri utonoye. Kuwuharura (*polishing*) gukuraho agakoba k'imbere kakaba umuceri wera (polished rice). Ikura ry'umuceri rifata imisi 90-200 bivanye n'ubwoko bwawo.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
imbuto (izera)	11.4	1530	6.4	-	0	1.9	-
imbuto (izigumye agahu)	13.5	1480	7.6	-	-	2.8	-

Ibitera inguvu

Izina risanzwe: Sorghum

Izina ry'ikirundi: Amasaka

Izina ry'ubumenyi: *Sorghum bicolor*

Umuryango w'ikimera: POACEAE

Insobanuro: Isaka ni ubwoko bw'icatsi c'ikinyampeke (millet grass). Ikimera c'isaka gikuze gisa n'ikigori uravye uko kimeze. Ibimera biratandukana mu burebure kuva ku santimetero 45 (cm) gushika kuri metero 4 (m). Ni icatsi kimera buri mwaka gifise amashami ahagaze yemye kandi akomeye. Igiti gishobora kugira ubugari bwa santimetero 3 (cm) gishinze hasi. Imizi iseruka hejuru y'ubutaka (prop roots) iraboneka hasi ku giti. Hariho amoko menshi cane y'amasaka. Amwe agira igiti kimwe n'aho ayandi amera udukurohwa (tillers) twinshi. Udukurohwa twiyongera iyo amasaka yatewe atandukanye cane.



Amafundo (nodes) ku giti arabyimbye gatoyi. Amasaka magufi agira amababi gushika kuri 7, na ho amoko maremare ateba kwera ashobora kugira amababi gushika kuri 24. Ibabi rishobora kugira uburebure bwa santimetero 30-135 (cm). Amababi afise ibara ry'icatsi kivanze n'ubururu (bluish green) kandi ameze nk'ayisize ibira (waxy). Afise umutsi munini ubononeka hagati. Umutsi munini w'ururabo (panicle) ushobora kugira uburebure bwa santimetero 20-40 (cm). Ishurwe rinini riza ku mutwe w'isaka ; rishobora guhagarara rigororotse canke rigahengama. Iryo shurwe rishobora kuba risatuye canke rifatanye cane. Mu Bushinwa honyene, hariho amoko arenga 1000 y'amasaka arimwa.

Aho aboneka: Isaka ni ikimera co mu bice bishushe (tropical). Rikwiranye n'uduce tw'ubugarane (savannah) mu bice bishushe kandi rirashobora kwihanganira ubushuhe bwinshi n'uruzuba. Rishobora kuzanzamuka inyuma y'uruzuba naho ryoba rikiri rito cane. Rishobora kwihanganira ubutaka bwarezemo amazi. Rishobora kurimwa mu butaka bukomeye (heavy) canke bworohyeje (light). Amasaka akenera imisi mike (short day lengths) kugira akure. Amoko menshi yisunze uburebure bw'iminsi n'ingene imvura igwa mu duce arimwamwo. Rikwiranye n'uturere tw'ubukonje bwa 9-12 (hardiness zones).

Ugukoresha: Inete z'amasaka ziraribwa nk'ikinyampeke. Ifu ishobora gukorwa mu mbuto maze ikoreshwa mu gukora umutsima, igikoma, n'ibindi biryo. Akoreshwa mu gukora imikate y'amazi (dumplings), amandazi bakaranze mu mavuta, n'ibinyobwa (nk'inzoga canke impeke). Ntashobora gukorwamo umukate usanzwe kuko atagira imyunyu ituma ifu ifatana (gluten). Amashami y'amoko amwe na bamwe ni arioshe (sweet) kandi arashobora guhekenywa. Utubuto turashobora kotswa tukavyimbuka (popped) maze tukaribwa. Imbuta zamereye na zo zirashobora kuribwa.

Ukurima: Imbuta z'amasaka zimera vuba cane inyuma yo kwimburwa. Imbuta kandi ziziganywa neza iyo zigumijwe ahantu humutse kandi zikingiwe udukoko.

Umwimbu: Imbuta ziba zigeze kwimburwa inyuma y'indwi 4 gushika kuri 8 zishuye.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
imbuto	-	1459	11.1	-	-	-	-

Ibitera inguvu

Izina risanzwe: Common millet
Izina ry'ikirundi: Uburo busanzwe

Izina ry'ubumenyi: *Panicum miliaceum*
Umuryango w'ikimera: POACEAE

Insobanuro: Ni icatsi kimera buri mwaka (annual grass) gishobora gukura gushika ku burebure bwa metero 1 (m). Gishobora kwaguka ku bugari bwa santimetero 15 (cm). Gifise imizi itandukanye kandi ifise utuvunja (fibrous root system). Ibiti vyaco biri mu migwi (tufted). Bifise ubwoya hasi ku gishitsi no ku mafundo (nodes). Amababi afise uburebure bwa santimetero 30-50 (cm) n'ubugari bwa 1-5 cm. Ni amababi afunganye kandi aryatse (flat). Impande z'ibabi zirakaraye gatoyi kandi zifise ubwoya burebure hafi y'itsitso. Umutwe w'imbutu ufise amashami menshi cane. Ishurwe ry'ururo risa n'umuhondo. Icamwa c'ururo ni agatete gatoyi (grain). Hariho amoko menshi atandukanye y'ububuro.



Aho aboneka: Ni igiterwa co mu bice bifise ubushuhe buringaniye (temperate plant). Gikenera ubutaka bufise ifumbire ikwiye kandi butegukanya amazi neza, kikaba gikeneye n'izuba ryinshi. Iyo kimaze gushinga imizi, gishobora kwihanganira ubushuhe n'uruzuba. Kibereye uturere dufise ubushuhe riringaniye n'uturere twegereye utwo mu bice bishushe (subtropical). Ibi bimera birononeka vuba n'imbeho ikaze (frost sensitive). Muri Nepal, bukura gushika ku burebure bwa metero 2200 (m). Bushobora gukura mu bibanza bikubira (arid places). Rikwiranye n'uturere tw'ubukonje bwa 5-9 (hardiness zones).

Ugukoresha: Imbutu zishobora gutekwa maze zikaribwa zose, canke zigaseshwa (gusya) mu gukuramwo ifu yo kurya. Zishobora gukoreshwa mu gukora umukate, pasita (pasta), canke imikate y'amazi (*dumplings*). Akenshi zirabanza gukarangwa mu gapanu (*skillet*) imbere yo gushirwa mu biryo vy'isosi, isupu, canke mu bintu bisigirwa mu nyama. Zirengwa (fermented) kugira zivemwo ibiryo bita *tempeh* canke *miso*. Imbutu zirashobora kumerezwa (sprouted) maze zigashirwa mu masupu no mu masalati.

Ukurima: Uburo burimwa bivuye mu mbuto, kandi zifata indwi imwe kugira zimere.

Umwimbu: Imbutu zo kwimbura zishobora kuboneka mu ndwi 10 gusa.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
imbutu	9.6	1548	11	-	-	-	-

Ibinyamisogwe

Izina risanzwe: Pigeon pea

Izina ry'ikirundi: Inkore

Izina ry'ubumenyi: *Cajanus cajan*

Umuryango w'ikimera: FABACEAE

Insobanuro: Ni ikinyamisogwe kimeze nk'igihuru (shrubby legume) gishobora kumara imyaka 3-4. Gishobora gukura gushika ku burebure bwa metero 4 (m) n'ubugari bwa metero 1.5 (m). Gifise ishusho y'ishamba n'umuzi munini (taproot) uja ikuzimu cane. Utubumbe tw'ifumbire ku mizi (nodules) ni ruziga kandi rimwe na rimwe twubatse mu duce (lobed). Ibabi rigizwe n'udupapuro dutatu (3 leaflets) dufungane, tw'icatsi kibisi hejuru n'icatsi kijimye kimeze nk'ifeza munsu. Agapapuro k'imvura ni ko kanini kandi gafise agati k'ibabi karekare. Ishurwe ryazo rimeze nk'iry'ibiharage rifise ibara ry'umuhondo n'umutuku, zikamera ku mashami y'amashurwe ahagaze yemye mu ntege z'amababi.



Imigogoro ni miremire, igororotse kandi ifunganye, kenshi irimwo imbuto 4-8. Imbuto zitandukanye mu miterere, mu bunini no mu mabara. Imigogoro ifise ubwoya buke, ubusanzwe ifise uburebure bwa 4-8 cm kandi ifise agasongero ku mpera. Imigogoro irafunganye hagati y'imbuto. Hariho amoko menshi y'inkore, amwe ni magufi kurugero rutandukanye.

Aho aboneka: Ni ikimera co mu bice bishushe (tropical) gikenera ubushuhe bwo mu bice bishushe canke ibice bifise ubushuhe buringaniye. Gikura kuva ku rugero rw'ikiyaga gushika kuri metero 1800 (m) mu bice bishushe. Inkore zirashobora kwihanganira uruzuba kandi zibereye uduce dufise imvura nyinshi. Zishobora gukura mu bibanza bironka imvura iri munsu ya 750 mm ku mwaka. Ntizikura neza mu bice bitose cane. Zononekara vuba mu butaka bwarezemo amazi kandi imbeho ikaze irazikarira. Irashobora kwihanganira ubushuhe bwinshi. Inkore zishobora gukura mu butaka bukenye ariko ntishobora gukura mu butaka bw'umunyu. Zikura mu bibanza bikubira (arid places) kandi bikwiranye n'uturere tw'ubukonje bwa 10-12.

Ugukoresha: Amababi akiri mato, imiteja n'imigogoro biraribwa. Imigogoro ishobora gushirwa mu biryo vy'isosi (*curries*). Amababi n'imateja bikoreshwa nk'imboga zitetse. Imbuto zikiri nshasha ziratekwa zikaribwa nk'amashaza (*peas*). Imbuto zikuze na zo ziratekwa mu masupu n'amasosi. Imbuto zamereye (*sprouts*) zirashobora gukorwa maze zikaribwa. Ugutegura imbuto mu gukora ibiryo bita *dahl* biragoye gatoyi.

Ukurima: Inkore zirimwa zikuwe mu mbuto. Nivyiza gutera imbuto aho nyene zizokurira zikongera zikanerera. Ubusanzwe imbuto zimera vuba kandi neza. Imbere yo gutera, birafasha kwinika imbuto mu mazi akanye umunsi wose. Imbuto zibikwa neza iyo zigumijwe ahantu hakanye kandi humutse. Intera ya 1.5 m x 1.5 m hagati y'ibimera ni yo ikwiye. Ibimera bishobora gukatwa maze bigasubira kumerera. Inkore zirashobora kandi kurimwa zikuwe mu bikoro (cuttings).

Umwimbu: Iki giterwa bikura vuba cane. Imigogoro itangura kwimburwa inyuma y'amezi 5. Imbuto zikuze zifata amezi 8. Ibi biterwa kenshi bimara imyaka 3-4.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
imbuto	10.0	1449	19.5	55	-	15.0	-
umugogoro (ukiri muto)	64.4	477	8.7	-	-	2.0	-
imbuto (nshasha, zitetse)	71.8	464	6.0	13	28.1	1.6	0.8

Ibinyamisogwe

Izina risanzwe: Soybean

Izina ry'ikirundi: Isoya

Izina ry'ubumenyi: *Glycine max*

Umuryango w'ikimera: FABACEAE

Insobanuro: Soya ni ikiharage gito gishobora gukura gushika ku burebure bwa santimetero 60 (cm). Gikura buri mwaka gikuwe mu mbuto. Hariho amoko ashobora kuranda gatoyi. Amashami, amababi n'imigogoro bifise ubwoya bworoshe. Amababi agizwe n'udupapuro dutatu (3 leaflets), kandi utwo dupapuro dufise uduzi (stalks) tuzifata. Indabo ni ntoya kandi zifise ibara ry'umweru canke ubururu. Zimeza mu matsinda mu ntege z'amababi (axils). Imigogoro ni migari, iraryatse kandi ifise ubwoya. Imigogoro irimwo imbuto hagati ya 2 na 4. Imbuto zishobora kugira ibara ry'umuhondo gushika ku rirabura.



Aho aboneka: Ni ikimera co mu bice bifise ubushuhe buringaniye (temperate) kibereye uturere tw'amataba. Rishobora kurimwa kuva ku rugero rw'ikiyaga gushika ku burebure bwa metero 2000 (m). Amoko menshi ntiyashurika mu bice bishushye (tropics) kubera imisi yaho ari migufi. Gikenera ubutaka bufise ifumbire. Ubusharire bw'ubutaka bwiza (pH) buri hagati ya 5.5-7.0. Soya irononeka cane n'imbeho ikaze.

Ugukoresha: Imigogoro ikiri mito n'imbuto zikuze vyose biraribwa. Zikoreshe mu gukora ifu. Imbuto zumye ziratekwa mu mazi canke zikotswe maze zigashirwa mu masupu n'ivyo kurya bivanze. Imbuto zikurwamo amavuta. Imbuto zikaranze ziraribwa nk'utuntu turyoshe (snack). Imbuto zikaranze cane zikoreshe mu gukora ikawa ya soya. Ifu ya soya ikoreshwa mu gukora *noodles* n'ibintu biryohera (*confectionary*). Ibiharage vya soya birengwa (fermented) maze bigakoreshe mu biryo bitandukanye. Rimwe na rimwe amababi akiri mato araribwa. Imbuto ziramera (*sprouts*) maze zikaribwa canke zigakorwamo amavuta yo guteka, *soya sauce*, n'ibindi. Kubera ko soya irimwo akantu gatumye igogorwa rigora (*trypsin inhibitor*), ikwiye gutekwa neza, mbere n'amamera yayo (*sprouts*) akwiye gutekwa gato.

Ukurima: Soya irimwa ikuwe mu mbuto. Imbuto zikenera kuvangwa n'udukoko twiza (bacteria) imbere yo guterwa. Ibiharage bikwiye guterwa bitandukanye ku rugero rwa santimetero 20 (cm).

Umwimbu: Iki giterwa gishurika inyuma y'indwi 8 kibibwe, na ho imigogoro igashika kwimburwa inyuma y'indwi 16. Akenshi soya irarandurwa maze ikamanikwa imbere y'uko bakuramwo imbuto.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
imbuto	9.0	1701	33.7	55	-	6.1	-
imbuto (zitarize)	68.0	584	13.0	16	27	3.8	0.9
imishwi	79.5	339	8.5	1.0	8.3	1.3	1.0

Ibinyamisogwe

Izina risanzwe: Lablab bean

Izina ry'ikirundi: Ibiharage vya Lablab

Izina ry'ubumenyi: *Lablab purpureus*

Umuryango w'ikimera: FABACEAE

Insobanuro: Ni igiharage kiranda (climbing bean) gishobora kugira imizizi ifise uburebure bwa metero 1-5 (m). Kibandanya gukura umwaka ku wundi. Amashami (stems) ashobora kuba anyerera canke afise ubwoya. Amababi agizwe n'udupapuro dutatu (3 leaflets) tumeze nk'inyatatu (triangular). Utwo dupapuro dufise uburebure bwa santimetero 5-15 (cm) n'ubugari bwa 3-14 (cm). Udupapuro tw'impande ntiduhuye neza (asymmetrical). Akenshi ibi bitera biba bifise ibara ry'idoma (purple). Udutsiba tw'indabo dufise uburebure bwa 5-20 cm. Indabo akenshi ni umweru ariko zishobora guhinduka kuva ku mutuku gushika ku bururu.



Imigogoro ni iyaryatse, irasongoye kandi ishobora gushika ku burebure bwa 12 cm n'ubugari bwa 2 cm. Ishobora kuba icatsi, idoma canke umweru. Imbere harimo imbuto 3-5 zera canke zijimye. Imigogoro ifise impande zimeze nk'iminkanyari (wavy margin). Imbuto zifise uburebure bwa 0.5-1.5 cm. (Iki kiharage gisa n'ikiharage ca *Lima* ariko indabo zaco n'imigogoro biratandukanye gato).

Aho aboneka: Ni igiterwa co mu bice bishushe (tropical) n'ibice bishushe biringaniye (subtropical). Akenshi gikura hagati ya metero 750 na 2175 (m) z'uburebure mu bice bishushe. Kirianganira amapfa kandi gishobora gukura mu duce dufise imvura nshika cane. Hariho amoko akunda imisi migufi n'andi akunda imisi miremire. Rikwiranye n'uturere tw'ubukonje bwa 9-12.

Ugukoresha: Imigogoro ikiri mito, imbuto zikuze, n'amababi akiri mato biraribwa bitetswe. Amashurwe ashobora kuribwa ari mabisi, atetse mu mufa (steamed), canke zigashirwa mu masupu n'ibiryo bivanze. Imbuto zumye ziratekwa nk'imboga. Imbuto kandi zirashobora kumerezwa (sprouted) hanyuma zikashekwa maze zigatekwa. Umuzi munini urimwo isitari na wo nyeneuriribwa. **Icitonderwa:** Amoko menshi arashobora kuba arimwo ubumara. Akwiye gutekwa mu mazi maze amazi ya mbere agasheshwa.

Ukurima: Imbuto ziterwa ku ntera ya 30 x 60 cm hafi y'ibiti vyo kurandirako. Garama nka 20 z'imbuto kuri hegitari ni zo zikenewe. Gushira ifumbire ya *nitrogen* na *potash* mu butaka gushika igihe cyo gushurika ni vyo bishikizwa.

Umwimbu: Imigogoro ikiri mito itangura kwimburwa inyuma y'amezi 4-6 bibibwe, na ho imbuto zikuze zikaboneka mu mezi 6-8. Imigogoro akenshi yimburwa mu gihe c'imyaka 2 canke 3. Ubwivurure (pollination) n'itubuka ry'imbuto biragabanuka mu gihe c'ubukonje bwinshi.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
imbuto (zumye)	10.0	1428	22.8	-	-	9.0	-
imbuto (nshasha)	86.9	209	3.0	14	5.1	0.8	0.4
umugogoro (mushasha)	86.7	203	3.9	-	1.0	2.4	-

Ibinyamisogwe

Izina risanzwe: Camel's foot leaf tree

Izina ry'ikirundi: Umuravumba

Izina ry'ubumenyi: *Piliostigma thonningii*

Umuryango w'ikimera: FABACEAE

Insobanuro: Ni igihuru gifise amababi menshi canke igiti gikura kikiganza. Gishobora guhungura amababi mu bihe bimwe na bimwe vy'umwaka. Gikura gushika ku burebure bwa metero 12 (m). Amababi yaco ni ayagutse kandi agizwe n'uduce tubiri (lobed). Igishishwa c'igiti (bark) kirakaraye kandi ni umubigabiga. Amababi ni ayasanzwe kandi ashobora kugira ubugari bwa santimetero 20 (cm). Akasongero k'ibabi karasatuye (ameze nk'ikirenge c'ingamiya), na ho hasi k'ibabi hagashitira mu ntege. Imitsi y'ibabi isatukira muri izo ntege. Hejuru ibabi ni icatsi kibisi, na ho munsu rifise ibara ryerurutse n'imitsi y'umutuku. Amababi ari ku dushami tudahunitse.



Amashurwe y'amagabo n'ay'ingore amaera mu buryo butandukanye. Udutsiba tw'amashurwe y'ingabo dufise amashurwe makeya kuruta ay'ingore. Ipundo ry'ishurwe rikiko rirapfundika riravyimba kandi rimeze nk'igi (oval). Zimeze nk'izisize ibara (velvety) kandi ziri mu migozi miremire ku dushami dukomeye. Ishurwe rifise ubugari bwa santimetero 2.5 (cm). Ishurwe rimwe canke abiri ni yo yuguruka rimwe mu gatsiba. Amanuka hasi kandi akagwira vuba. Imigogoro ni minini kandi ni iy'igiti (woody). Ishobora gushika ku burebure bwa 23 cm n'ubugari bwa 8 cm. Iba ari icatsi ariko igahinduka umubigabiga. Ishitse hasi ntisatuka ariko irakunguka yose. Imigogoro n'imbuto biraribwa.

Aho aboneka: Ni ikimera co mu bice bishushe (tropical). Gikura mu mashamba yuguruye (open woodland) kandi akenshi hafi y'imigenderere y'amazi. Gikura mu karere ka Sahel. Muri Etiyopiya, gikura mu bice vy'amataba no mu misozi iringaniye, na cane cane hagati ya metero 900-1700. Ntishobora kwihanganira imbeho ikaze canke urubura (frost) ariko irashobora kwihanganira uruzuba (drought). Umuravumba ukura mu duce uronka imvura iri hagati ya 400-1200 mm ku mwaka. Ushobora gukura mu bibanza bikubira (arid places) no ku birundo vy'inswa (termite mounds). Gikura mu mirambi (lowlands) no mu mashamba ya *Miombo* muri Afrika.

Ugukoreshwa: Imigogoro yumye n'imbuto biraribwa mu bihe vy'amapfa (indya y'amajigija). Amababi akiri mato arahekenywa kugira ngo agabanye inyota. Igishishwa (bark) n'amababi yumye bishobora gukorwamwo icayi.

Ukurima: Ibi bimera birimwa bikuwe mu mbuto. Imbuto zikurwa mu mugogoro wumye mu kuwumenagura n'inyundo. Imbuto zishirwa mu mazi ashushe maze zikanikwa ijoro ryose. Hanyuma ziraterwa. Zimera mu misi 5-10. Imishwi yimurwa iyo amababi ya mbere akuze yagaragaye.

Umwimbu: Gikura bukebuke. Imvuto ziboneka mu gihe c'imvura.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
imbuto	9.9	1381	22.7	-	-	4.7	1.6
umugogoro	7.0	1079	4.8	-	-	6.8	0.3

Ibinyamisogwe

Izina risanzwe: Marama bean
Izina ry'ikirundi: Igiharage-kijumbu

Izina ry'ubumenyi: *Tylosema fassoglensis*
Umuryango w'ikimera: FABACEAE

Insobanuro: Ni ikimera kirandaranda (trailing or climbing plant) kiguma ari icatsi umwaka wose (evergreen) kandi kimeze nk'igihuru. Gishobora kugira uburebure bwa metero 6 (m). Gifise umuzi munini umeze nk'igijumba (tuberous root) ushobora kumanuka ikuzimu gushika kuri metero 2.5 (m). Utuce tw'iki kimera tukiri duto turyosheje ubugufi bw'amabara y'ingese (rusty coloured hairs). Amababi ni asanzwe kandi agomba kumera nk'umuzingi, ariko agizwe



n'uduce tubiri canke akaba asatuye ku mpera. Amababi afise uburebure bwa 5-20 cm n'ubugari bwa 6-23 cm. Munsu y'ibabi, ku mitsi, hariho ubwoya busa n'ingese. Udutsiba tw'amashurwe dufise uburebure bwa 2-42 cm ku dushami twa 2-17 cm. Amashurwe agizwe n'udupapuro (petals) dutano; tume muri tuwo ni umuhondo na ho akandi kamwe ni gato cane k'icatsi. Ibinyamushanga (sepals) bifise utubaba. Ivyamwawa (fruit) bifise uburebure bwa 7-12 cm n'ubugari bwa 4-7 cm. Imbuto ntiziteye nk'umuzingi neza kandi zifise uburebure bwa 1.7-2.8 cm.

Aho aboneka: Ni ikimera co mu bice bishushe (tropical). Gikura neza mu bihe birimwo imvura n'izuba (seasonally wet and dry). Gikenera ubutaka butegukanya amazi neza. Muri Malawi, gikura hagati ya metero 900-1200 (m), na ho muri Tanzaniya gishika kuri metero 1500 hejuru y'ikiyaga, mu duce bironka imvura iri hagati ya 1000-1600 mm. Gikenera izuba ryinshi kandi gishobora gukura mu bibanza bikubira (arid places). Rikwiranye n'uturere tw'ubukonje bwa 9-12.

Ugukoresha: Imigogoro (pods) iraribwa ari mibisi canke itetswe. Imigogoro ikiri mito iribwa ari mibisi. Imbuto zishobora kuribwa ari mbisi ariko kenshi ziratekwa canke zikotswa. Imbuto kandi zishobora gukoreshwa mu kuryamo ikawa (coffee substitute). Ibiguri (tubers) biraribwa ari bibisi, kandi birimwo amazi (atuma umuntu atagira n'inyota). Bishobora kwotswa bikaribwa canke bikabikwa kugira biribwe hanyuma. Birashobora kandi guseshe maze bikagira ifu yo guteka.

Ukurima: Ibi bimera birimwa bikuwe mu mbuto.

Umwimbu: Ni igiterwa gikura vuba cane. Ibiguri bishika ku rugero rwa kilogarama 78 (kg) vyarigeze kwandikwa. Imbuto zeregeranywa mu mpera y'igihe c'imvura.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
imbuto	7.5	452	43.5	-	-	-	-
umugogoro	72.5	446	6.4	-	39	0.5	2.2
igijumba	79.4	237	1.6	-	6.5	0.3	0.5

Isanamu yavuye kuri: https://live.staticflickr.com/3680/11668753985_8e6df5c180_b.jpg

Ibinyamisogwe

Izina risanzwe: Mung bean

Izina ry'ikirundi: Ibiharage vya Mung

Izina ry'ubumenyi: *Vigna radiata*

Umuryango w'ikimera: FABACEAE

Insobanuro: Ni igiterwa gikura gihagaze cemye, gifise ubwoya bukaze, gishobora gukura gushika ku burebure bwa metero 1 (m). Gifise amashami menshi. Amababi agizwe n'udupapuro dutatu (3 leaflets), afise ibara ry'icatsi kibisi cijimye kandi akurira ku dushami turerure. Hariho udufupuro tw'utubumbe (stipules) tumeze nk'igi rishinze hasi k'ibabi. Amashurwe yavyo asa n'umuhondo ukeye kandi ni matoya. Amaera mu migwi y'amashurwe 10-20 ku mpera z'amashami maremare kandi afise ubwoya.



Imigogoro ni irabura kandi iragororotse, ntibigira agasongero (beak). Imigogoro irimwo imbuto 10-20 akenshi ziba ari icatsi kibisi canke umuhondo ukeye (golden yellow). Ni ntoya kuruta iz'ikiharage bita *black gram*. Ibi biharage bishobora no kuba vyirabura. Bifise akantu kera karyatse (hilum) kemeze nk'indindo ku kanyamugogoro. Hariho amoko ashika 2000.

Aho aboneka: Ni ikimera co mu bice bishushe (tropical) n'ibice bishushe biringaniye (subtropical). Gikura kuva ku rugero rw'ikiyaga gushika ku metero 2000 (m) mu bice bishushe. Kirihanganira uruzuba ariko ntigishobora gukura mu butaka bwarezemo amazi. Ibi bimera birononeka n'imbeho ikaze (frost). Ntivishanganira umunyu mu butaka. Imvura igwa mu gihe co gushurika ironona umwimbu. Gikenera ubutaka bwimbitse. Hariho amoko akunda imisi migufi n'ayakunda imisi miremire. Gishobora gukura mu duce bupima ubushuhe buri hagati ya 8-28°C. Gishobora kwihanganira ubusharire bw'ubutaka (pH) buri hagati ya 4.3-8.1. Kibereye uduce twumutse kandi gishobora gukura mu bibanza bikubira (arid places). Rikwiranye n'uturere tw'ubukonje bwa 10-11.

Ugukoresha: Imbuto ziraribwa zikuze, ari mbisi canke zikaranze. Zishirwa mu masupu n'ibiryo bivanze. Zirashobora kandi kwengwa (fermented). Imigogoro ikiri mito n'amababi birashobora kuribwa. Imbuto zirashobora kumerezwa (sprouted) maze zigashirwa mu masalati no mu biryo bikaranze vuba (*stir-fried*). Imbuto zirashekwa maze ifu yazo igakorwamwo isitari yo gukora *noodles*.

Ukurima: Zirimwa zikuwe mu mbuto. Mu bice bimwe na bimwe imbuto ziraminjirwa mu murima, na ho mu mirima mito akenshi haterwa imbuto 2-3 mu mwobo utandukanye ku ntera ya 50-60 cm. Kilogarama hagati ya 6-22 z'imbuto kuri hegitari ni zo zikoreshwa mu bibanza bitandukanye. Ubusanzwe gikenera ifumbire ya *phosphorus* kugira gikure neza. Imbuto zimera mu misi 3-5.

Umwimbu: Imigogoro y'icatsi (green pods) iba yabonetse inyuma y'amezi 2, na ho imigogoro ihiye ikunda kuboneka inyuma y'ukwezi 1 canke 2. Iyo bikuye bigeze gusarurwa birarandurwa bikanikirwa imbere yo kubitonora. Umwimbu wa kilogarama 450-560 kuri hegitari ni wo ukunze kuboneka.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
imbuto	11.0	1432	22.9	55	4	7.1	-
imbuto (zitetse)	-	439	7.0	2.4	1.0	1.4	-
imishwi	90.4	126	3.0	2	13.2	0.9	0.4

Ibinyamisogwe

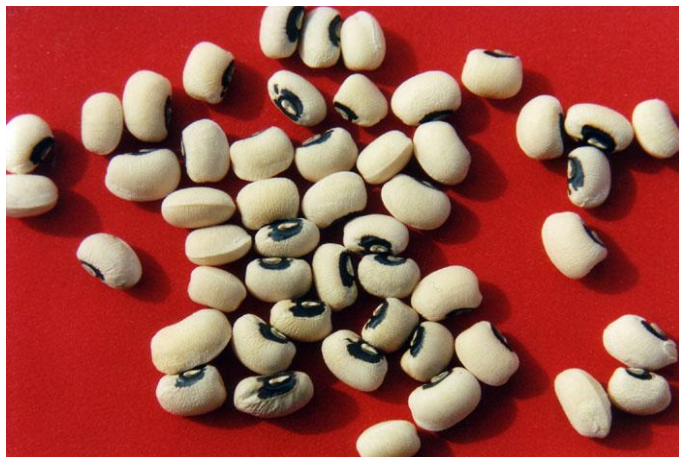
Izina risanzwe: Cowpea

Izina ry'ikirundi: Inkore

Izina ry'ubumenyi: *Vigna unguiculata*

Umuryango w'ikimera: FABACEAE

Insobanuro: Ni igiterwa kirandaranda (creeping) kigira imigogoro igorotse kandi ikomeye. Gifise umuzi munini (tap root) uja ikuzimu n'andi mashami menshi y'imizi asatira hejuru y'ubutaka. Utubumbe tw'ifumbire ku mizi (nodules) ni tunini kandi ni ruziga. Amababi agizwe n'udupapuro dutatu (3 leaflets). Agapapuro k'imvura (end leaflet) gashobora kugira uburebure bwa santimetero 12-16 (cm). Udupapuro tw'impande ntiduhuye neza (asymmetrical). Udunyamababi (stipules) tw'ishitso y'ibabi ni tunini kandi dufise utuzitiriza (spurs) hasi.



Indabo zikunze kumeza ari zibiri zibiri ku mpera z'amashami y'indabo maremare. Imigogoro 2 gushika kuri 4 ni yo yumburuka kuri buri giti c'indabo. Indabo zishobora kuba umweru, umuhondo, canke ubururu ; zirahambaye kandi ni nziza kuziraba. Imigogoro ifise uburebure bwa santimetero 15 (cm). Imbutu ni izera uretse inkoro y'aho zifatira (dark scar) ari yo yirabura.

Aho aboneka: Inkore zikura mu bice bishushe (tropical) n'ibice bishushe biringaniye (subtropical). Ni ikiterwa gikura kuva ku rugero rw'ikiyaga gushika kuri metero 1800 (m) mu bice bishushe. Ibi bimera bishobora kwihanganira ubushuhe bwinshi. Amoko amwe na bamwe arashobora kwihanganira uruzuba. Ibi bimera ntivishanganira imbeho kandi birononeka vuba n'urubura (frost). Imbutu zimera mu bushuye buri hagati ya 11.5-15.5°C. Gukura neza bishika hagati ya 20-35°C. Bishobora gukura mu butaka butandukanye ariko butegekanya amazi neza. Ni ikimera gikunda kerera imisi mikeya (short day plant). Bikura neza mu bice bishushe bikubira (semiarid tropics). Ntivyihanganira ubutaka bufise aside nyinshi canke ubutaka bw'umunyu (alkaline). Gikura mu duce bironka imvura iri hagati ya 280-410 mm ku mwaka. Gishobora gukura mu bibanza bikubira (arid places).

Ugukoresha: Amababi akiri mato, imigogoro mitoto, n'imbutu zikuze vyose biraribwa. Bishobora gutekwa mu mufa (steamed), gutekwa mu mazi (boiled), canke gukarangwa vuba (stir-fried). Amababi arashobora kwanikwa akabikwa. Imbutu zumye zikoreshwa mu masupu n'ibiryo bivanze. Baranazisyesha mu kuryamo ifu canke zikengwa (fermented). Imbutu kandi zikoreshwa mu kumerezwa (sprouts). Imbutu zikaranze cane zikoreshwa mu kuvanamwo amayani amaeze nk'ikawa.

Ukurima: Zirimwa zikuwe mu mbuto. Imbutu ziguma ari nzima mu myaka itari mike iyo zabitswe neza. Kilogarama nka 20 z'imbutu kuri hegitari ni zo zikwiye. Rimwe na rimwe imbutu ziraminjirwa hanyuma ibimera bikagabanywa kugira ngo bitafungana.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
imbuto (zumye)	11.2	1189	23.5	-	1.5	6.4	-
imbuto (nshasha, zitetse)	75.5	406	3.2	79	2.2	1.1	1.0
ibabi	88.4	143	4.2	36	35	4.7	0.3
umugogoro + imbuto (zitetse)	89.5	142	2.6	45	17.0	0.7	0.2
ibabi (zitetse)	91.3	92	4.7	29	18	1.1	0.2

Ibinyamisogwe

Izina risanzwe: Sword bean

Izina ry'ikirundi: Igiharage-nkota

Izina ry'ubumenyi: *Canavalia gladiata*

Umuryango w'ikimera: FABACEAE

Insobanuro: Ni ikimera kirandaranda (climbing) ariko rimwe na rimwe gishobora kumera nk'igihuru gihagaze cemye. Kenshi ni ururanda rushobora gukura gushika kuri metero 4 (m). Amababi agizwe n'udupapuro dutatu (3 leaflets) tunini. Utwo dupapuro dumeze nk'igi (oval), dufise uburebure bwa santimetero 7.5-20 (cm) n'ubugari bwa 5-12 (cm). Agasongerera k'ibabi gashobora gufungana vuba, na ho ishishiro ryaryo rikaba ruziga. Amababi afise ubwoya buke kumpande zose. Agati k'ibabi gafise uburebure bwa 5-12 cm. Amashurwe yera ameza mu kagwi gafise uburebure bwa 7-12 cm. Imigogoro ni miremire (20-40 cm) kandi irigonze. Imbuto zifise ibara ry'umutuku canke iroza. Akanyamugogoro (hilum) ni umubigabiga kandi gashaka kungana n'akabuto kose mu burebure.



Aho aboneka: Ni ikimera co mu bice bishushye (tropical). Ubushuhe bwa 20-30°C ni bwo bukiviranye na co, kandi gikura kuva ku rugero rw'ikiyaga gushika kuri metero 1000 (m) mu turere tw'amataba. Ibi biharage birihanganira uruzuba n'umunyu mu butaka. Bishobora gukura mu butaka bukenye bwo mu mataba no mu butaka bufise aside (pH) hagati ya 4.5-7.0. Birashobora kandi gukura mu gitutu gike.

Ugukoresha: Imigogoro ikiri mito iratekwa maze ikaribwa. Imbuto na zo ziratekwa zikaribwa, ariko amazi ya mbere akwiye guhindurwa kandi zigatekwa neza cane. Zirashobora kandi kwengwa (fermented). Amababi aratsibwa (blanched) maze akaribwa. **Icitonderwa:** Imbuto zishobora kuba zirimo ubumara (hydrocyanic acid na saponin). Guteka neza ni vyo bikuramwo ubwo bumara.

Ukurima: Imbuto zirimwa zikuwe mu mbuto z'ivyo biharage nyene. Imbuto zimera vuba kandi ikimera gikura n'ingoga. Imbuto zishobora guterwa ku burebure bwa santimetero 5 (cm) ikuzimu. Ibi bimera bikwiye guterwa bitandukanye ku rugero rwa 60-70 cm. Amoko aranda akenera ibiti vyo kurandirako. Akenshi abantu bakoresha ibiti, impome, canke inkingi mu mirima yabo yo hafi y'inzu. Ku barimyi bafise imirima minini, hakenenerwa kilogarama 25-40 z'imbuto kuri hegitari.

Umwimbu: Imbuto nshasha canke imigogoro mito mito biboneka inyuma y'amezi 3-4, na ho imbuto zikuze zigafata amezi 5-10. Umwimbu wa kilogarama 700-900 kuri hegitari urashoboka. Imigogoro mito yimburwa n'intoke iyo ifise uburebure bwa 10-15 cm, imbere y'uko ivyimba ngo ikomere (become fibrous).

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
imbuto	15.0	1335	27.1	-	-	-	-
umugogoro (mushasha)	89.0	142	2.8	-	-	-	-

Ivyamwa

Izina risanzwe: Sweetsop (Pomme cannelle)

Izina ry'ikirundi: Anona

Izina ry'ubumenyi: *Annona squamosa*

Umuryango w'ikimera: ANNONACEAE

Insobanuro: Ni igiti kimeze nk'igihuru, gihungura amababi (deciduous), kandi gishobora gukura gushika kuri metero 6 (m). Gifise amashami akura nabi kandi agasanzara. Amababi ni maremare kandi afunganye, akenshi akagira uburebure bwa santimetero 12 (cm) n'ubugari bwa 4 (cm). Amababi afise ubwoya bworoshe cane munsu yayo. Amababi ni icatsi kibisi cijimye kandi agira akamoto iyo auyakozeko n'intoke. Amashurwe amanuka hasi akuwe ku mashami, haba rimwe rimwe canke mu matsinda y'indabo 2 canke 3. Izuba zifise ibara ry'icatsi kibisi. Ivyamwa gifise ubugari bwa santimetero 8-10 (cm) kandi gifise ibara ry'icatsi. Ivyamwa gipfutse n'ubwikubeko (scales) buziga kandi burimwo inyama, bukunguka iyo itunda ryeze. Imbere mu tunda harimo imbuto nyinshi zirabura, zirabagirana, zifise uburebure bwa santimetero 1.5 (cm). Inyama y'itunda ni iyera kandi yoroshe cane.



Aho aboneka: Iki giti carashizwe mu bihugu vyinshi vyo mu bice bishushye (tropical). Gikunda uduce twumutse kandi tw'amataba. Ibi bita bikura neza gushika kuri metero 1000 (m) z'uburebure mu bice vyo hagati ku mugabane (*equatorial zones*). Iki giti ntigishobora kwihanganira imbeho ikaze (frost), ariko gishobora kwihanganira uruzuba kuruta ibindi bita vy'ivyamwa vyinshi. Ibi bita ntibikunda ubutaka butose cane (waterlogged). Gishobora gukura mu butaka bukenye, bwumutse, kandi burimo amabuye. Gikura mu duce bironka imvura iri hagati ya 500-1000 mm ku mwaka. Rikwiranye n'uturere tw'ubukonje bwa 10-12.

Ugukoresha: Iryo tunda riraribwa ari ribisi. Inyama yaco iraryoshe, iroroshe, iri ku mbuto ni yo iribwa. Rikoresheya kandi mu gukora *ice cream*. Umutoke wayo (juice) ukoresheya mu binyobwa.

Icitonderwa: Imbuto, amababi n'imizi birimwo ubumara (*alkaloid* na *hydrocyanic acid*). Ntakwiye kuribwa.

Ukurima: Ubusanzwe ririmwa rikuwe mu mbuto, kandi imbuto ziguma ari nzima mu myaka itari mike. Ni bwiza kurishira ukoresheje imbuto nshasha, kandi ni bwiza kunika imbuto mu mazi mu gihe c'imisi 3 imbere yo kuzitera. Imbuto zimera maze zigatangura gukura mu misi 50-70 inyuma yo guterwa. Ivyamwa kimeza ku mashami ashaje n'amashashu. Kubera ko itunda riboneka cane ku mashashu, gukatira amashami (pruning) ni vyiza. Ibi bita birashobora kandi guteranyirizwa (*grafted*). Biragoye cane gukurisha iki giti ukoresheje ibikoro (cuttings). Intera ya metero 6 (m) hagati y'ibiti ni yo ikwiye. Iyo itunda ryeze, biroroshe gutandukanya inyama yaryo. Ni bwiza kwimbura itunda rishaka kwera maze ukarireka rikera neza ahantu hashushye.

Umwimbu: Iki giti gikura bukebuke. Igiti gishobora gutangura kwama imyaka ibiri inyuma yo guterwa. Itunda rimwe rishobora gupima magarama 200-300 (g). Inyama y'itunda irimwo isukari ku rugero rwa 20%.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
icyamwa	76.4	441	2.1	1	40	0.6	0.1

Ivyamwa

Izina risanzwe: Chewing gum tree (Snot apple)

Izina ry'ikirundi: Igiti c'ivyamwa bihekenywa

Izina ry'ubumenyi: *Azanza garckeana*

Umuryango w'ikimera: MALVACEAE

Insobanuro: Ni igihuru canke igiti gito kiguma ari icatsi umwaka wose (evergreen), gishobora gukura ku burebure bwa metero 3-10 (m). Igishishwa c'igiti (bark) ni umubigabiga kandi kirakaraye. Udushami duto dufise ubwoya bwinshi bumeze nk'ubwoya bw'intama. Amababi akura asimburana (alternate), agizwe n'uduce (lobes) 3 gushika kuri 5. Ashobora kugira uburebure bwa santimetero 20 (cm) n'ubugari bwa 20 (cm). Afise ubwoya kumpande zose. Agati k'ibabi gafise uburebure bwa 13 cm. Indabo ni umuhondo ariko zigahinduka orange uko zimara igihe. Zifise ikizinga c'ibara ry'idoma (maroon) hasi kuri buri gapapuro k'ururabo (*petal*). Zifise ubugari bwa santimetero 6 (cm) kandi zimeza imwe imwe mu ntege z'amababi. Icamwa ni nk'agakombe k'igiti (woody capsule) kagomba kuba nk'umuzingirigirye, gifise ubugari bwa 2.5-4 cm. Ivyo vyamwa bifise ubwoya bukaze kandi bugufi. Bigabuyemo ibice bitanu (5 sections). Iyo bishitse, biba bifise ibara riri hagati y'umuhondo, umubigabiga n'icatsi. Ivyo vyamwa biraribwa.



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Aho aboneka: Ni ikimera co mu mataba y'ibice bishushe (lowland tropical plant). Gikura mu mashamba menshi kuva ku rugero rw'ikiyaga gushika kuri metero 1,700 (m) z'uburebure muri Afrika y'Epfo. Gikura mu duce tw'ubugaragwa (savannah), mu bibanza bishushe kandi bikubira bironka imvura iri hagati ya 255-1270 mm ku mwaka. Muri Zimbabwe, kiboneka cane mu duce bironka imvura iri hagati ya 750-900 mm. Akenshi gikura ku birundo vy'inswa (termite mounds) no mu mashamba ya *Miombo* muri Afrika.

Ugukoresha: Icamwa cose, uretse imbuto, kirahekenywa nk'ijojo (chewing gum). Gituma mu kanwa haboneka ururenda ruryoshe. **Imbuto ntiziribwa.** Icyamwa gitegerezwa kuba gihiye neza (ripe). Agakoba k'inyuma gakomeye karaturwa. Ivyamwa vyumye bikoreshe mu gukora amajeri (*jellies*). Biratekwa kandi bikaribwa ari vyinshi mu bihe vy'amapfa. Icamwa gishobora gutekwa mu mazi, kikanikwa maze kigashirwamo akunyu gake, kikabikwa mu gihe c'amezi 4.

Ukurima: Ibi bimera birimwa bikuwe mu mbuto. Nivyiza gukuraho agakoba k'inyuma k'akabuto imbere yo kugatera. Imbuto zimera mu misi 20-60. Udusanduku bumbikiramo imbuto (seedling trays) ntidukwiye kuguma dutose cane. Imishwi ishobora kwimurwa iyo imaze kugira amababi atatu (3). Akenshi imbuto ziterwa mu murima zikasohokerayo.

Umwimbu: Iki giti gikura bukebuke.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
icyamwa	14.8	1042	5.0	-	-	5.0	0.4

Ivyamwa

Izina risanzwe: Cantaloupe

Izina ry'ikirundi: Meroni

Izina ry'ubumenyi: *Cucumis melo*

Umuryango w'ikimera: CUCURBITACEAE

Insobanuro: Ni ikimera kiva mu muryango w'imyungu (pumpkin family). Ni ururanda rumera buri mwaka (annual climber) rufise utugozi (tendrils) rurandirako. Gishobora gukura gushika kuri metero 0.5 (m) z'uburebure kandi kikaganzanza ku bugari bwa metero 1.5 (m). Amashami yaco (stems) aroroshe, afise ubwoya, kandi akenshi usanga afise imbehe (angled). Amababi afise uduce (lobes) kandi impande zayo usanga zimeze nk'iminkanyari canke zifise udukanu nka sawari (toothed edge). Amababi ari ku dushami turerure kandi akenshi usanga afise ubwoya munsu yayo. Utugozi rurandirako ntitugira amashami.



Amashurwe yayoasa n'umuhondo kandi ameze nk'inkitso (funnel shaped). Amashurwe y'ingabo amera mu migwi kandi aboneka imbere y'amashurwe y'ingore. Icamwa (itunda) ni ruziga, akenshi gifise igishishwa kicaraye canke kiriko imirongo. Imbere mu mwungu ni icatsi canke umuhondo. Iryo tunda riraribwa. Hariho amoko menshi ya meroni: amwe agira igishishwa gikomeye, kiriko uduheri canke udukakayira; ayandi na yo usanga afise uduhoru tumeze nk'urusago hejuru.

Aho aboneka: Ni ikimera co mu bice bishushe (tropical), ariko ntigikunda mu bice bigwamo imvura nyinshi cane. Kibereye mu duce dushushe kandi twumutse, mu butaka bufise ifumbire kandi butegukanya amazi neza. Gikenera ikibanza gikingiye umuyaga kandi kiriko izuba ryanagana. Gikangwa n'uruzuba rwinshi rurenganya rugatuma ruma, kandi irononeka n'imbeho ikaze. Ubushuhe buri hagati ya 24-28°C ni bwo bwiza, ariko kirashobora kwihanganira n'uburenga aho. Akenshi ririmwa mu bice biri munsu ya metero 500 (m) z'uburebure mu bice bishushe. Ubusharire bw'ubutaka (pH) bwa 6-6.7 ni bwo bwiza; ubutaka bufise aside nyinshi ntibubereye. Rishobora gukura mu bibanza bikubira (arid places). Rikwiranye n'uturere tw'ubukonje bwa 9-12.

Ugukoresha: Iryo tunda iyo ryeze riraribwa ari ribisi. Rirashobora kandi kwanikwa, gushirwa mu biryo biryohera (candied), canke gukorwamo amajeri (*jams, jellies*). Imbutu rimwe na rimwe ziribwa zikaranze. Imbutu kandi zishobora kuvangwa n'umutobe w'ivyamwa (fruit juice) kugira bivemwo ikinyobwa. Rimwe na rimwe, itunda ritari bwere neza riratekwa nk'imboga. Imbutu zirimo amavuta yo guteka yoroheje. Amababi akiri mato na yo araribwa nk'imboga zitetse.

Ukurima: Zirimwa zikuwe mu mbuto ziterwa ku burebure bwa santimetero 1-4 (cm) ikuzimu. Ibimera bikwiye guterwa bitandukanye ku rugero rwa metero 1-2 (m). Imishwi ishobora kwimurwa iyo ifise uburebure bwa santimetero 10-15 (cm).

Umwimbu: Ibimera biba bishitse kwimburwa inyuma y'amezi 3-4 biterwa. Umwimbu usanzwe uba ari kilogarama 20 kuri buri metero kare 10 (10 m²\$).

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
imbuto	7.0	2319	15.8	-	-	-	-
ibabi	85.0	172	4.2	72	-	-	-
icyamwa	93.0	109	0.5	300	30	0.4	0.2

Ivyamwa

Izina risanzwe: Monkey guava

Izina ry'ikurundi: Umunyamasaka

Izina ry'ubumenyi: *Diospyros mespiliformis*

Umuryango w'ikimera: EBENACEAE

Insobanuro: Ni igiti kiguma ari icatsi umwaka wose (evergreen) gishobora gukura ku burebure bwa metero 15-20 (m). Mu mashamba y'inzitane, gishobora gushika kuri metero 45 (m). Gifise umutwe w'amababi ukundanye kandi wagutse (round crown). Igishitsi (trunk) rimwe na rimwe kigira imizi isohokera hejuru y'ubutaka (buttresses). Utushami duto dufise ubwoya bworoshe. Igishishwa c'igiti (bark) ni imvure ijimye. Ibi gishishwa kirorohere mu biti bikiri bito, ariko kigakara mu biti bishaje. Utuvunja



tw'amashami dufise ibara ry'iroza. Amababi ni asanzwe, afise uburebure bwa santimetero 4-17 (cm) n'ubugari bwa 1.5-5.5 (cm). Umutsi w'ibabi rwagati uruneye hejuru ariko ugasohokera cane muni y'ibabi. Indabo z'ingabo n'iz'ingore zimeza ku biti bitandukanye. Indabo z'ingabo zimeza mu matsinda, na ho iz'ingore zikameza imwe imwe. Ivyamwa ni ruziga kandi gifise ubugari bwa santimetero 3 (cm). Gifise inyama (pulp) ruryoshe ruribwa. Ivyamwa kiba ari icatsi kandi gifise ubwoya bukiri gito, kigahinduka umuhondo canke idoma iyo gishitse. Kirimo imbuto 4-6 z'umubigabiga, zireza kandi zaryatse.

Aho aboneka: Ni ikimera co mu bice bishushe (tropical). Gikura mu mirambi yo mu bice bishushe, mu bice vya Afrika biri muni y'ubugarane bwa Sahara no mu karere ka Sahel. Gikura mu mashamba ya Miombo muri Afrika. Kiboneka mu duce bufise ubushuhe buri hagati ya 16°C-27°C. Muri Tanzaniya, gikura hagati ya metero 350-1250 (m) z'uburebure. Kiboneka cane mu duce bironka imvura iri hagati ya 500-1270 mm ku mwaka. Gikura neza mu butaka bukomeye (heavy soils). Akenshi gikura hafi y'imigenderere y'amazi n'amazi meza. Gishobora kandi gukura ku birundo vy'inswa (termite mounds).

Ugukoresha: Ivyamwa biraribwa ari mibisi canke byumye. Birashobora kandi gukorwamo umutsima (porridge). Ivyamwa gishobora kwanikwa kikaziganywa. Imbuto na zo nyene biraribwa. Iryo tunda rirakoreshwa kandi mu gukora inzoga (beer canke wine).

Ukurima: Ibi biti birimwa bikuwe mu mbuto. Imbuto zifata ukwezi kumwe (1) kugira zimere. Imbuto zishobora gusukwako amazi abira maze zigakanikwa ijoro ryose imbere yo kuzitera. Birashobora kandi gukurishwa hakoreshejwe ibikoro bitereye (coppicing) canke imishwi ishotse ku mizi (root suckers). Imbuto zikenera amazi menshi kugira zimere neza. Ivyamwa akenshi vyeregeranywa hasi ariko birashobora no gusoromwa ku giti.

Umwimbu: Ibimera bikiri bito bikura bukebuke, ariko bishika ku burebure bwinshi inyuma y'amezi makeya. Gushurika bishika mu gihe c'imvura, na ho kwama bishika mu gihe c'izuba. Bifata amezi 6-8 kuva ku rurabo gushika ku tunda rishitse. Ivyamwa bishika vuba mu duce bishushye kandi bumutse.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
icyamwa	64.5	523	1.1	-	-	2.0	-

Ivyamwa

Izina risanzwe: Doum palm

Izina ry'ikirundi: Ikigazi

Izina ry'ubumenyi: *Hyphaene petersiana*

Umuryango w'ikimera: ARECACEAE (Umuryango w'imikindo)

Insobanuro: Ni umukindo muremare, ubusanzwe utagira amashami asatuye. Igishitsi cawo (trunk) akenshi usanga kivyimvye hagati. Ni igiti gikomeye (woody) gifise uburebure bwa metero 15-20 (m). Umutwe w'igiti ugizwe n'amababi ameze nk'ishakashaka (*fan shaped*). Amababi ni manini, afise ibara ry'icatsi kimeze nk'ifeza (grey-green). Ashanyutse kuva hagati kandi agabuyemo uduce dukomeye. Amababi ashobora kugira ubugari bwa metero 2 (m).



Agati k'ibabi gafise uburebure bwa metero 1.3 (m) kandi kaba kariko amahwa agonze yubura inyuma. Hasi k'udupapuro tw'amababi usanga hadahuye (unequal).

Indabo z'ingabo n'iz'ingore zimeza ku biti bitandukanye. Indabo z'ingabo zimeza mu dushami tugufi, tuziriganije mu mababi. Indabo z'ingore ni nini kuruta iz'ingabo kandi zifise udufuti tugufi. Ivyamwa ni ruziga kandi bimeza mu matsinda (clusters). Ivyamwa gishobora kugira ubugari bwa santimetero 4-5 (cm) canke kurenga. Bifise igishishwa (shell) gikomeye, kirabagirana kandi c'umubigabiga. Iryo vyamwa bifise inyama ruryoshe ruribwa ikikuje imbuto (kernel) ikomeye nk'igufa. Iyo mbuto ishobora kunikwa maze ikaribwa.

Aho aboneka: Ni ikimera co mu bice bishushe (tropical). Gikura mu bice bishushe vyo muri Afrika y'Epfo. Gikura mu bugarane (savannah) no ku nkingi z'imigezi n'inzu. Gishobora gukura mu butaka bw'umunyu kandi gishobora kumerera inyuma y'umuriro w'ubugarane. Gikura kuva kuri metero 275 gushika kuri 1300 hejuru y'ikiyaga. Gishobora gukura mu bibanza bikubira (arid places) no mu mashamba ya Miombo muri Afrika. Rikwiranye n'uturere tw'ubukonje bwa 10-12.

Ugukoresha: Ipfundo ry'ururabo n'igishitsi birashobora gukorerwa umuforo kugira hakuwe umutobe ukorwamo inzoga (wine). Gukura uwo mutobe mu gishitsi bituma uwo mukindo upfa. Umutima w'umukindo (palm heart) uraribwa. Hagati mu gishitsi c'imikindo ikiri mito hashobora gukoreshwa nk'imboga. Inyama ikikuje itunda riraribwa ari ribisi. Ivyamwa bikiri bito biratekwa mu mazi maze bikaribwa. Imbuto (kernel) irakanikwa ikaribwa ari mibisi.

Ukurima: Ibi bimera birimwa bikuwe mu mbuto.

Umwimbu: Kugira baronke umutobe, amababi yose arandurwa maze agasongero k'igishitsi kagakatwa kugira ngo umutobe utangure kutemba. Ishobora kubandanya itemba mu gihe c'indwi 7 mu kuguma bayikata bukebuke. Umwimbu urashobora gushika ku maritiro 8 gushika kuri 60. Igiti kimwe gishobora kwama kilogarama 20-50 z'ivyamwa.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
icyamwa	6.6	1265	4.9	19.7	2.0	0.6	

Ivyamwa

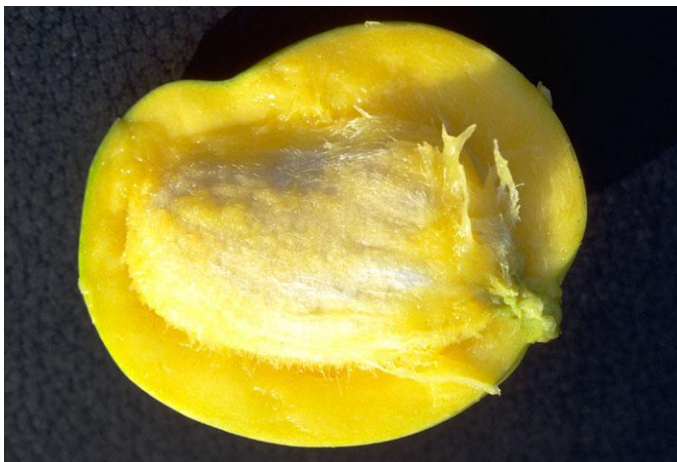
Izina risanzwe: Mango

Izina ry'ikirundi: Umwembe

Izina ry'ubumenyi: *Mangifera indica*

Umuryango w'ikimera: ANACARDIACEAE

Insobanuro: Ni igiti gihagaze cemye, gifise amashami menshi kandi kiguma ari icatsi umwaka wose. Kishobora gukura ku burebure bwa metero 10-40 (m) kandi kirama cane. (Ibiti vyakuwe mu bice vy'ibindi bita biba ari bito kandi bigundanye). Amashami yacyo ashobora gusanzara ku bugari bwa metero 15 (m). Gifise imizi ikomeye ija ikuzimu. Igishitsi ni kinini kandi igishishwa c'igiti ni umubigabiga uvanze n'imvure. Amababi ni ayasanzwe kandi ameze nk'icumu. Amwe mu moko y'imyembe agira amababi afise impande zimeze nk'iminkanyari. Ashobora kugira uburebure bwa 10-30 cm n'ubugari bwa 2-10 cm. Amababi akiri mato akunze kugira ibara ry'umutuku wijimye canke idoma kandi akaba anyerera, ariko iyo akuze aca akomera akagira ibara ry'icatsi kibisi. Urutsiba rw'indabo rumeza ku mpera z'amashami, rufise uburebure bwa 10-50 cm. Indabo zishobora gushika ku 6,000 ku rutsiba rumwe. Ivyamwa bishobora kuba icatsi, umuhondo canke umutuku, bifise uburebure bwa 2.5-30 cm. Ivyamwa kiba kirimo akabuto kamwe gakomeye kandi k'ubwoya.



Aho aboneka: Ni ikimera co mu bice bishushe (tropical) n'ibice bishushe biringaniye. Gikura cane mu mirambi kuva ku rugero rw'ikiyaga gushika ku metero 1,300 (m) z'uburebure. Gikura neza mu duce turi muni ya metero 700 (m) kandi dufise igihe c'izuba. Imvura n'ubuhehere bw'inshi mu gihe co gushurika bituma itunda ritamba. Gikura neza ku bushuhe bwa 25°C ariko gishobora kwihanganira kuva kuri 10°C gushika kuri 42°C. Ubusharire bw'ubutaka (pH) bwa 5.5-6.5 ni bwo bwiza. Gishobora gukura mu bibanza bikubira (arid places).

Ugukoresha: Imyembe ihiye iraribwa ari mibisi. Imyembe mibisi iratekegwa ikagemurwa (pickled). Imbuto (iziri mu gishishwa) zirashobora kuribwa zitetse: zirahekenywa canke zikotswe, kandi zirashobora guseshwa zikagira ifu. Amababi akiri mato araribwa ari mabisi canke atetswe. Mu Buhindi, imbuto zikoreshe nk'indya y'amajigija mu bihe vy'amapfa. **Icitonderwa:** Amata y'igiti canke y'itunda rishatse kwera ashobora gutuma abantu bamwe bagira uburyaryate canke uduheri ku mubiri.

Ukurima: Imyembe irimwa haterwa imbuto nshasha kandi ishobora kwimurwa. Kugira imbuto zimere neza, biba vyiza iyo zishizwe mu mazi afise ubushuhe bwa 50°C mu gihe c'iminuta 20, hanyuma zigaterwa zihengetse. Imbuto zimera mu ndwi 3-6. Ibi bita birashobora kandi guteranyirizwa (*grafting*). Ibimera bikiri bito bikenera kuvomerwa kenshi. Ni bwiza gutera ibiti bitandukanye ku rugero rwa metero 6-12 (m). Gukatira amashami (pruning) bikwiye gukorwa bukebuke cane kuko itunda rimeza ku mashashu.

Umwimbu: Igiti giteye ku mbuto gitangura kwama inyuma y'imyaka 4-6 kandi umwimbu ukabandanya kwiyongera gushika ku myaka 20. Akenshi ibiti vyama neza cane rimwe mu myaka ibiri. Kwama bishika mu mpera z'umwaka, kandi bitwara amezi 4-5 kugira itunda ryeze. Itunda rimwe rishobora gupima magarama 200 gushika ku kimeza (1,000 g). Igiti kimwe gishobora kurunda indabo imiliyoni imwe, ariko hakavamwo imyembe 500 gusa.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
icyamwa	83.0	253	0.5	180	30	0.5	0.04
ibabi	82.1	226	3.9	-	60	2.8	-

Ivyamwa

Izina risanzwe: Mobola plum

Izina ry'ikirundi: Umunazi

Izina ry'ubumenyi: *Parinari curatellifolia*

Umuryango w'ikimera: CHRYSOBALANACEAE

Insobanuro: Ni igiti gishobora gukura ku burebure bwa metero 12-20 (m). Igishitsi caco (trunk) kiragororotse kandi gikeye. Igishishwa c'igiti (bark) ni umubigabiga kandi kirihanganira umuriyo w'ubugarane. Utushami duto dufise ubwoya. Amababi ni asanzwe kandi akaba maremare (oblong), afise uburebure bwa santimetero 4-11 (cm) n'ubugari bwa 2-5 (cm). Hejuru, ibabi rirarabagirana n'ibara ry'icatsi kibisi kijimye, na ho muni rirasa n'imvure kandi rikapfutswe n'ubwoya bworoshe (felt). Imitsi y'ibabi iragaragara cane kandi igororotse gushika ku nkombe z'ibabiamashurwe ameta mu gatsiba (sprays) ku mpera z'amashami. amashurwe asa ni icatsi cerurutse kandi afise urumuri (mpumuro) ruryoshe cane. Ivyamwa bifise uburebure bwa santimetero 2.5-4 (cm). Ni icatsi kibisi kimeze nk'itunda rya *olive* kandi biriko uduheri tw'imvure. Iyo bishitse (ryeze), bihinduka umuhondo uvanze n'umutuku. Inyama y'itunda ifatira cane ku kabuto (kernel). Iryo tunda riraribwa. Hariho amoko abiri (2 subspecies).



Aho aboneka: Ni ikimera co mu bice bishushe cyavuye muri Afrika. Kiboneka cane mu butaka bw'umusenye no mu mashamba asatuye ahungura amababi. Kirangwa n'imbeho ikaze n'urubura. Gikura mu duce bironka imvura iri hagati ya 700-1500 mm ku mwaka. Akenshi kiboneka mu butaka budateganya amazi neza. Ibi bita birashobora kumerera inyuma y'umuriro w'ubugarane. Gikura kuva ku rugero rw'ikiyaga gushika kuri metero 2100 (m) z'uburebure. Gishobora gukura mu bibanza bikubira (arid places) no mu mashamba ya Miombo muri Afrika.

Ugukoresha: Ivyamwa biraribwa. Ivyamwa vyeregeranywa hasi inyuma yo gukunguka. Igicucu (skin) n'imbuto birashibwa ariko inyama (pulp) ikaribwa. Iryo tunda rikoreshe mu gukora ibinyobwa bisanzwe n'ibisindisha. Imbuto (seeds) zikoreshe mu kuryoshya ibifungurwa canke zikaryibwa nk'utubuto dukaranze.

Ukurima: Ibi bita birimwa bikuwe mu mbuto. Imbuto zikwiye kweregeranywa zikiri nshasha zikuwe ku tunda riri ku giti. Inyama irakurwaho maze imbuto zikanikwa mu gicucu. Imbuto ziterwa hejuru mu butaka (ntizimbitse). Imishwi ikwiye kwimurwa neza cane kugira ngo umuzi munini (taproot) ntiwononeke. Ashobora kwimurwa inyuma y'imyaka ibiri (2).

Umwimbu: Ibita bitewe ku mbuto bishobora gushika kuri metero 3.9 (m) inyuma y'imyaka 9. Kwama akenshi bishika rimwe mu myaka ibiri. Itunda rifata imisi 250 kugira ryeze neza.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
akabuto	2.6	2737	28.7	-	-	5.5	3.1
icyamwa	64.6	533	1.6	-	70.9	0.9	0.4

Ivyamwa

Izina risanzwe: Water berry

Izina ry'ikirundi: Umugote

Izina ry'ubumenyi: *Syzygium cordatum*

Umuryango w'ikimera: MYRTACEAE

Insobanuro: Ni igiti giringaniye kiguma ari icatsi umwaka wose, gikura ku burebure bwa metero 8-15 (m). Igishitsi rimwe na rimwe kigira imizi isohokera hejuru. Umutwe w'igiti uba ari ruziga. Igishishwa c'igiti ni umubigabiga uvanze n'imvure kandi kirasatuye mu burebure. Amababi aba ari menshi ku mpera z'amashami, akura asatanye abiri abiri (pairs). Amababi ni akomeye nka kashu kandi afise ibara ry'icatsi kibisi kimeze nk'ubururu. Amababi akiri mato aba ari umutuku utse. Indabo ni umweru canke iroza, kandi zishurika mu matsinda akundanye. icyamwa (itunda) gifise uburebure bwa 1.3 cm kandi gifise ibara ry'idoma (purple). Iryo tunda riraribwa kandi ririmwo akabuto kamwe.



Aho aboneka: Ni ikimera co mu bice bishushe. Kiboneka mu mashamba y'imirambi hafi y'imigezi n'ibishanga. Gishobora gukura gushika kuri metero 1680 (m) hejuru y'ikiyaga. Gishobora kumerera inyuma y'umuriro kandi gikura mu bibanza bironka imvura irenga 500 mm ku mwaka.

Ugukoresha: Iryo tunda riraribwa ari ribisi. Rikoreshwa kandi mu gukora ibinyobwa, amajeri (*jams*), n'inzoga zikomeye.

Ukurima: Ririmwa rikuwe mu mbuto nshasha. Imbuto zimera neza mu misi 25. **Icitonderwa:** Imbuto ntizikwiye kwanikwa ngo zume cane kuko zica zipfa mu musi umwe gusa.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
icyamwa	85.8	204	0.6	-	11.6	1.4	0.2

Ivyamwa

Izina risanzwe: Pawpaw

Izina ry'ikirundi: Ipapayi

Izina ry'ubumenyi: *Carica papaya*

Umuryango w'ikimera: CARICACEAE

Insobanuro: Ipapayi ni icamwa co mu bice bishushe gikura ku burebure bwa metero 3-5 (m) kandi ntigikunze kugira amashami menshi. Igishitsi cacyo kiroroheje (softly woody) kandi kiriko inkovu z'amababi yagurutse. Amababi yose ashurika mu gasongero k'igiti. Amababi ni manini (ubugari bwa 50 cm), asatuye cane, kandi ari ku dushami turerure gushika kuri santimetero 90 (cm). Ibityi bishobora kuba ingabo, ingore, canke *bisexual* (bifise ibice vyose). amashurwe y'ingabo ni matoya, kandi arera, akaba yimeza ku dushami turerure. amashurwe y'ingore nay'imvange (*bisexual*) zimeza ku dushami tugufi; izi na zo zishobora kutagira itunda, kugira itunda ruziga, canke itunda rirerure. Imbutu (seeds) ni zirabura.



Aho aboneka: Ni ikimera co mu bice bishushe gikura kuva ku rugero rw'ikiyaga gushika kuri metero 1700 (m) mu bice bishushe cane (*equatorial tropics*). Mu duce dukonje bategerezwa kuyitera, ariko mu duce dushushe kandi dutose akenshi zimeza ubwazo. Ntigishobora kwihanganira imbeho ikaze (*frost*). Gikenere ubushuhe bw'ijoro buri hejuru ya 12°C kandi ntigishobora kwihanganira ubutaka bwarezemo amazi (ibimera bipfa inyuma y'amasaha 48 mu mazi adatembera). Gikenere ubusharire bw'ubutaka (pH) hagati ya 5-8.

Ugukoresha: Itunda ryeze riraribwa ari ribisi. Ipapayi mibisi (icatsi) irashobora gutekwa nk'imbuga. Amababi akiri mato arashobora kuribwa atetswe ariko ararura. Indabo n'umutima w'igishitsi birashobora kuribwa. Amapapayi arimwo akantu bita *papain* gafasha korosha inyama mu kuyiteka. Imbutu zumye zirashobora gukoreshwa nk'ibirungo.

Ukurima: Imbutu z'ipapayi zimera vuba kandi igiti gikura n'ingoga. Imbutu nshasha ni zo nziza. Iyo ukoresheje zumye, bategerezwa kuzinika mu mazi imbere yo kuzitera. Imbutu ziterwa mu bushuye bwa 24-30°C. Zikenere ubutaka bufise ifumbire ikwiye. Zirashobora guterwa mu niniro (*nursery*) maze imishwi ikimurwa iyo ifise uburebure bwa 20 cm. Ibimera bikwiye guterwa bitandukanye ku rugero rwa metero 3 (m). Kwama biba umwaka wose iyo ubutaka n'ubushuhe bimeze neza.

Umwimbu: Imbutu zimera mu ndwi 2-3. Igiti gitangura gushurika inyuma y'amezi 4-8. Muri y'amababi, amapapayi mashasha yumburuka buri ndwi 1-2. Igiti gishobora kwama amapapayi 100 mu mwaka umwe. Ku nkombe z'ikiyaga, gitangura kwama inyuma y'amezi 4-5, ariko mu misozi miremire bishobora gufata amezi 12-18. Ipapayi ya mbere ishobora kwera inyuma y'amezi 6-11 biterwa. Igiti gikunze kurama imyaka 2-3, naho bishobora gushika ku myaka 10-12.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
ibabi	75.4	378	8.0	-	140	0.77	-
icyamwa	88.0	163	0.5	290	54	0.4	-
ipapayi mibisi	92.1	109	1.0	-	-	0.3	-

Ivyamwa

Izina risanzwe: Guava

Izina ry'ikirundi: Iperera

Izina ry'ubumenyi: *Psidium guajava*

Umuryango w'ikimera: MYRTACEAE

Insobanuro: Ni igiti gito kiguma ari icatsi umwaka wose, gifise uburebure bwa metero 8-10 (m). Igishishwa cacyo (bark) kiroroheje kandi kiratumbuka (peels off). Imizi yacyo ntiyajikuzimu cane, kandi amashami yacyo atangurira hafi y'ubutaka. Amashami agizwe n'imbavu nka nne (four-angled). Amababi ameze nk'igi (oval), afise ibara ry'icatsi kibisi kandi akaba afise ubwoya buke. Indabo ni izera kandi zishurika mu ntege z'amababi. Ivyamwa (itunda) ni ruziga, gifise uburebure bwa 4-5 cm. Iperere rikiri rito riba ari icatsi, ryamara kwera rigahinduka umuhondo. Inyama y'iperere ishobora kuba iroza canke umweru, ikaba iryohera kandi inuka neza. Imbutu ziri mu nyama y'iperere na zo nyene ziraribwa.



Aho aboneka: Iperere ryakutse muri Amerika yo hagati no muri Amerika y'Epfo, ariko ubu ririmwa mu bihugu vyinshi vyo mu bice bishushe (tropical). Rikura neza mu duce dushushe kandi rishobora kwihanganira n'aho bidatose cane, ariko rikunda ahantu hari izuba ryinshi. Ntirishobora kwihanganira imbeho ikaze (*frost*). Gikura neza mu butaka butegukanya amazi neza kandi bufise ifumbire y'izina, ariko kirashobora kwihanganira n'amazi arezemo gato. Ubusharire bw'ubutaka (pH) bwa 5-7 ni bwo bwiza.

Ugukoresha: Iperere ryeze riraribwa ari ribisi. Rirashobora kandi gukorwamo amajeri (*jams, jellies*) n'umutobe. Amababi akiri mato araribwa ari mibisi canke atetswe (akenshi akoreshewa no mu gukora icyayi gifasha mu kuvura indwara zimwe na zimwe). Ni itunda riryohera kandi ririmwo intungamubiri nyinshi cane.

Ukurima: Akenshi ririmwa rikuwe mu mbuto, ariko imbuto zimera mu ndwi 2 gushika kuri 8. Birashobora kandi kumereshwa hakoreshejwe ibikoro (*cuttings*) canke mu guteranyiriza (*grafting*). Kubera ko ivyamwa bimeza ku mashashu, gukatira amashami (pruning) ntibonona umwimbu ; ahubwo bituma igiti kigira amashami mashasha menshi. Ni bwiza gutera ibiti bitandukanye ku rugero rwa metero 2.5 mu murongo, na ho hagati y'imirongo hakaba metero 6.

Umwimbu: Igiti gitewe ku mbuto gitangura kwama inyuma y'imyaka 2-3 kwimurwa. Iperere ryeze neza riri ku giti ni ryo riryohera cane. Kugira iperere rihiri vuba inyuma yo kurisomora, urashobora kuryishira mw'ishashi y'igipapuro hamwe n'itoke canke pome. Iperere ryeze rishobora kumara imisi 7 ritononekaye mu rugero rusanze rw'ubushuhe.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
icyamwa	77.1	238	1.1	60	184	1.4	0.2

Imboga

Izina risanzwe: Silver beet (Swiss chard)

Izina ry'ikirundi: Shangu

Izina ry'ubumenyi: *Beta vulgaris* subsp. *cicla*

Umuryango w'ikimera: CHENOPODIACEAE

Insobanuro

Ni ikimera kimeza buri mwaka (annual), kikagira amababi yagutse. Ututi tw'amababi (stalks) turoroheje kandi akenshi usanga ari umweru, n'ibabi ry'icatsi kibisi kijimye. Utwo tuti n'amababi bimezera hamwe hasi ku gishitsi. Ibi bimera birashobora kandi kugira ibara ry'ubururu. Amababi ashobora kugira uburebure bwa santimetero 12-25 (cm). Indabo ni ntoya, zifise ibara ry'icatsi kandi zimeza mu matsinda matoya maremare. Ivyamwa vyaryo (fruit) birumye kandi biriko amahwa.



Aho aboneka

Mu bice bishushe (tropics), iki kimera gikeneye kuba ku burebure bwa metero 500 (m) hejuru y'ikiyaga, ariko akenshi ririmwa hagati ya metero 1000-2600 (m). Kirashobora kwihanganira imbeho ikaze n'uburubura (frost).

Ugukoresha

Amababi n'ututi twayo (stalks) biratekwa maze bikaribwa. Ututi tw'amababi turashobora gukatwa tukatereka maze tugatekwa ukwayo nka asparagus. Birashobora kandi gutekwa mu buryo bwa braising maze bikaribwa n'umukate uriko amavuta ya beurre. Hariho amoko amwe na amwe agira imizi iribwa.

Ukurima

Zirimwa zikuwe mu mbuto. Mu bice bishushe (tropical conditions), ubusanzwe ntibishoboka ko umurimy yiziganyiriza imbuto ziwe bwite (zikunze kuva mu bihugu bikonje). Mu bihugu bikonje, bategerezwa kuzitera mu gihe hari ubushuhe kugira ngo ikimera ntigice gishurika bitareregera. Ni bwiza gutera ibiti bitandukanye ku rugero rwa santimetero 30 (cm). Imbuto ziterwa ku burebure bwa 2.5 cm ikuzimu.

Umwimbu

Amababi ya mbere aba amaze kwera inyuma y'indwi 8-10, kandi ikimera gishobora kumara imyaka 2 kishurika. Soroma amababi y'inyuma gusa, ugasiga aya hagati kugira ngo abandanye akura.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
ibabi (ritetse)	92.7	84	1.9	314	18	2.3	0.3
ibabi (ribisi)	92.0	80	1.8	330	30	1.8	0.4

Imboga

Izina risanzwe: Java bean (Sicklepod)

Izina ry'ikirundi: Umuyobera

Izina ry'ubumenyi: *Senna obtusifolia*

Umuryango w'ikimera: FABACEAE

Insobanuro

Ni ikimera kimeza buri mwaka canke kikamara imyaka itari mike (perennial), gikura ku burebure bwa metero 0.6-2.5 (m). Ibabi ryagwo rigizwe n'udupapuro (leaflets) dushize hamwe mu matsinda atatu (3 pairs) ameze nk'igi, dufise uburebure bwa 1-6 cm n'ubugari bwa 0.5-3.9 cm. Agasongero k'ibabi kaba ari ruziga ariko kakagira itshunzu (sharp tip). Indabo zimeza imwe imwe canke ziri kumwe ari nka zibiri. Amapapuro y'indabo (petals) afise ibara riri hagati y'umuhondo n'oranje kandi afise uburebure bwa 1-2 cm. Ibihe (pods) vyaryo ni bito, biragoronzwe gato, kandi ni birebire (13-23 cm). Imbutu ni iz'umubigabiga.



Aho aboneka

Ni ikimera co mu bice bishushe (tropical) gisanzwe gimeza ahantu hose mu bice bishushe. Akenshi kimeza nk'icatsi kibi ku nkombe z'amabarabara no mu bibanza bitagira mwimbu. Gikura kuva ku rugero rw'ikiyaga gushika kuri metero 2000 (m) hejuru y'ikiyaga. Muri Afrika, gikura gushika kuri metero 1700 (m). Rishobora no gukura mu bibanza bikubira (arid places).

Ugukoresha

Amababi akiri mato aratekwa maze akariwa nk'imboga. Amababi arashobora kandi kubora (fermented) kugira ngo akorwemo indya ifise poroteyine nyinshi isubirira inyama. Umutohe uva muri uwo mwimburo ukoreshe mu gukora isupu irimo imboga (nk'imbwija/okra), inyama y'inka n'umunyu. Imbutu rimwe na rimwe zirashobora kwanikwa, zigashakwa mu fu maze zigatekwa zikariwa. Imbutu kandi zirashobora kotswa maze zigakoreshe mu gukora ikinyobwa gisubirira ikawa. **Icitonderwa:** Amababi ashaje arashobora gutuma umuntu ahindura (diarrhoea). Imbutu zishobora kuba zirimo ubumara, rero bategerezwa kuziteka neza cane imbere yo kuzirya.

Ukurima

Iki kimera gishobora kurimwa gikuwe mu mbuto.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
ibabi	79.7	251	5.6	-	113	5.9	-

Imboga

Izina risanzwe: Pumpkin

Izina ry'ikirundi: Igihaza/umwungu

Izina ry'ubumenyi: *Cucurbita maxima*

Umuryango w'ikimera: CUCURBITACEAE

Insobanuro

Ni ikimera kiva mu muryango w'ibihaza. Ni ururanda ruranda hasi rufise utugozi (tendrils) rurandirako. Ni ikimera kimeza buri mwaka (annual). Amashami (stems) yaroroheje kandi ni ruziga iyo uyasekeje. Amababi ni manini, afise ibara ry'icatsi kibisi kijimye, kandi ameze nk'ikiriko (kidney shaped). Imbehe z'ibabi ni nshingane (entire). Indabo z'ingabo zimeza ku dushami turerure duhaze. Utupapuro 5 tw'ururabo (petals) duhujwe tukagira umuyoboro muremure w'umuhondo. Indabo z'ingore ni



nini kuruta iz'ingabo ariko ni nzi nkeya, kandi zimeza ku dushami tugufi. Icyamwa (igihaza) kiratandukanye mu bunini, mu mabara, n'uburyo igishishwa kimeze. Bishobora kuba ruziga, birebire, canke vyagiye hasi, bifise igishishwa c'umuhondo, orange, canke icatsi. Inyama yacyo ni umuhondo kandi iraribwa. Imbuto ziba ziri hagati na hagati ; zishobora kuba umweru canke umubigabiga. Imbuto na zo nyene zirashobora kuribwa.

Aho aboneka

Ni ikimera gikura mu bice bishushe riringaniye (subtropical), kuva ku rugero rw'ikiyaga gushika kuri metero 2400 (m) z'uburebure. Gikenera ubutaka bufise ifumbire ikwiye. Kirashobora gukura mu bibanza bikubira (arid places).

Ugukoresha

Amababi: Udusongero tw'amababi akiri mato (isunzu) turatekwa tukaribwa. Arashobora kandi kwanikwa akaziganywa. **Icyamwa:** Igihaza kiratekwa (gukanikwa, gukaranwa, canke gushekurwa). Gikoresheka kandi mu gukora imikate n'ibindi biryo biryohere. **Imbuto:** Imbuto zirirwa mibisi canke zikaranze. Zirashobora kandi gushekwa mu fu. **Amashurwe:** amashurwe y'ingabo na yo nyene araribwa inyuma yo gukuramwo utuntu twayo tw'imbatara.

Ukurima

Zirimwa zikuwe mu mbuto. Akenshi haterwa imbuto 2 canke 3 hamwe ku rundo. Hariho amoko menshi y'ibihaza, amwe akaba meza cane ku bafise intumbero yo kurya amababi (isunzu).

Umwimbu

Ibihaza biba bishitse kwimburwa inyuma y'amezi 3-4 biterwa. Imbuto zishobora kuziganywa kugira ngo zongere ziterwe, ariko biba vyiza kumenya ko ubwoko bw'ibihaza bushobora kuvangana mu gihe bibaye hafi y'ibindi.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
imbuto	6.9	2264	24.5	38	1.9	14.9	7.5
icyamwa	69.6	439	1.4	-	-	-	-
ibabi (isunzu)	88.0	160	4.9	260	28	2.5	0.9
ururabo	88.7	107	1.4	173	14	0.8	0.1

Imboga

Izina risanzwe: Bottle gourd

Izina ry'ikirundi: Ikirende

Izina ry'ubumenyi: *Lagenaria siceraria*

Umuryango w'ikimera: CUCURBITACEAE

Insobanuro

Ni ikimera kiva mu muryango w'iimyungu. Ni ururanda rumeza buri mwaka (annual) rugira amababi manini. Rushobora gukura ku burebure bwa metero 3-9 (m) kandi rukaganzanza ku bugari bwa metero 3-6 (m). Amashami yacyo ashashaye (thick stems) agira uturembe mu burebure bwayo. Rushobora kurandira ku biti bishaje mu gukoresha utugozi (tendrils) tumeza hafi y'amababi. Amababi ni manini kandi afise ubwoya bworoshe, na cane cane munsu yayo. Indabo z'ingabo n'iz'ingore zimeza ku kimera kimwe. Indabo z'ingabo ni zo zibanza kumera



kandi zimeza ku dushami turerure ; inyuma yaho hagaca haza indabo z'ingore ku dushami tugufi. Indabo ni nini, ni izera, kandi zishobora kugira ubugari bwa santimetero 10 (cm). Akenshi zikwiragizwa n'ubugurube. Ivyamwa (fruit) biratandukanye mu nsobanuro : bishobora kugira uburebure bwa 8-90 cm. Birimo imbuto z'umubigabiga ziri mu nyama y'icatsi ryerurutse.

Aho aboneka

Ni ikimera co mu bice bishushe (tropical) gikura kuva ku rugero rw'ikiyaga gushika kuri metero 2700 (m) z'uburebure. Gikura neza mu duce dushushe kandi dutose. Nticyihanganira imbeho ikaze (frost) kandi gikunda izuba ryinshi. Ubushuhe bw'ijoro bwa 17-23°C n'ubw'umurango bwa 28-36°C ni bwo bwiza.

Ugukoresha

Itunda rikiri rito: Riratekwa mu mazi nk'imboga. Igishishwa n'imbutu birakurwaho, maze inyama igatekwa mu mazi, ikagaranwa, canke igagemurwa (pickled). *Udusongero n'amababi:* Udusongero tw'amashami n'amababi akiri mato riraribwa. Akenshi bateka bakoresheje amata canke amata y'inazi (coconut milk) kugira ngo binyohe. *Imbuto:* Rimwe na rimwe zirirwa kandi zirimo amavuta yo guteka meza. *Ibikoresho:* Ivyamwa bishaje (vyumye) bikoreshwa nk'ibikoresho vyo kubikamo amazi canke amata (nk'ibirende, ivyere, inkongoro, canke ingunzu). Imbuto z'ivyumye ubusanzwe ntiziribwa.

Ukurima

Kugira ngo zimere vuba kandi rimwe, imbuto zikwiye kunikwa mu mazi ijoro ryose. Ni bwiza kuzitera mu mirima yuburuye (raised beds). Imishwi imera mu misi 5-7. Iki kimera gikunda kurandira ku ruri (trellis/fence). Kubera ko imizi yacyo itaja ikuzimu cane, kurimira (weeding) bategerezwa kubigira babigiranye ubwitonzi.

Umwimbu

Iki kimera gikura n'ingoga cane, kandi gitangura gushurika inyuma y'amezi abiri (2) gitewe.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
imbuto	3.2	2399	28.2	-	-	5.3	-
ibabi	83.0	180	4.4	66	-	7.4	-
imbuto (kibisi)	97.0	-	0.2	-	-	0.1	0.2
icyamwa	93.0	88	0.5	25	10	2.4	-

Imboga

Izina risanzwe: Bitter cucumber

Izina ry'ikirundi: Umushishiro

Izina ry'ubumenyi: *Momordica charantia*

Umuryango w'ikimera: CUCURBITACEAE

Insobanuro

Ni ikimera kiva mu muryango w'ibihaza. Ni ururanda rurerure rumeza buri mwaka (annual), rushobora gukura ku burebure bwa metero 4 (m). Rufise amababi y'icatsi kibisi utse afise ubugari bwa 5-12 cm. Indabo z'ingabo n'iz'ingore zimeza ku kimera kimwe, zikaba ari umuhondo kandi zinuka neza. Icyamwa (fruit) kiba ari icatsi kibisi iyo kikiri gito, kigahinduka orange iyo kigeze. Icyamwa kiragahe (lumpy) kandi kigira iminkanyari mu burebure bwacyo. Iyo gishitse cane (ryeze), kiriyatura maze kikerekana imbuto zirimo zishashaye n'ibara ry'umutuku utse. Imbuto ubwazo ni umubigabiga ryerurutse.



Aho aboneka

Ni ikimera co mu bice bishushye gikura kuva ku rugero rw'ikiyaga gushika kuri metero 500 (m), ariko gishobora gukura gushika kuri metero 1000 (m). Gikura neza mu butaka butegukanya amazi neza kandi bufise ifumbire y'izina. Imbuto ntizimera muni y'ubushuhe bwa 15°C. Ubushuhe bwa 18-35°C ni bwo bwiza ku gukura kwacyo.

Ugukoresha

Itunda rikiri rito: Ibyamwa bikiri bito kandi birura biratekwa mu mazi, bikagaranwa, canke bigagemurwa (pickled). Bikoreshe mu masupu no mu bindi biryo bishizwe mu masafuriye. *Umutobe w'imbuto:* Inyama itukura ikikuje imbuto z'itunda ryeze ikoreshe mu kuryoshya ibifungurwa (flavouring). *Amababi:* Amababi n'udusongero na vyo nyene biratekwa nk'imboga.

Icitonderwa: Amababi ashobora gutuma umuntu ahindura (diarrhoea) canke akaruka ku bantu bamwe. Kugira ngo ururura rugabanuke mu tunda, bategerezwa kurunika mu mazi arimo umunyu imbere yo kuruteka.

Ukurima

Zirimwa zikuwe mu mbuto. Imbuto zigira igishishwa gikomeye maze zikamera bukebuke. Kunika imbuto mu mazi mu gihe c'amasaha 24 imbere yo kuzitera bituma zimera vuba kandi rimwe. Ibi bimera bikenera gushigikirwa n'ibiti kugira birandireko. Bikenera kuvomerwa kenshi.

Umwimbu

Ibyamwa biba bishitse kwimburwa inyuma y'imisi 45-55 bitewe. Bategerezwa kubisoroma bikiri bito kandi binyerera. Iyo vyatandukanye gutangura guhinduka umuhondo, biba vyarengeje igihe co kuribwa. Gusoroma amatunda hakiri kare bituma igiti kibandanya kwama ayandi mashasha.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
imbuto	8.6	2020	18.6	-	-	-	-
ibabi	84.7	252	5.0	44	170	7.1	0.3
udusongero	88.7	146	3.6	173	57	1.0	0.3
icyamwa	93.6	105	1.2	-	-	0.2	-
umugogoro (zitetse)	94.0	79	0.8	11	33	0.4	0.8
umugogoro (ribisi)	94.0	71	1.0	380	84	0.4	0.8

Imboga

Izina risanzwe: Moringa

Izina ry'ikirundi: Moringa

Izina ry'ubumenyi: *Moringa oleifera*

Umuryango w'ikimera: MORINGACEAE

Insobanuro

Ni igiti gito, gifise igiti coroshe (soft-wooded), gikura ku burebure bwa metero 9-12 (m). Iki giti gishobora guhungura amababi mu bihe bimwe na bimwe vy'umwaka. Igishishwa cacyo ni imvure, kiravyimbye, kandi kiratumbuka. Amababi ni icatsi ryerurutse kandi agabuyemo uduce twinshi (leaflets) tumeza nk'igi (oval) dufise uburebure bwa 1-2 cm. Indabo ni umuhondo ryerurutse, zimeza mu dushami turerure tw'indabo tushika kuri santimetero 30 (cm). Icyamwa (fruit) kimeze nk'agahu kurerure cane gashobora gushika kuri santimetero 30-100 (cm) mu burebure. Imbutu ziba zifise utubaba dutatu (3 wings).



Aho aboneka

Ni ikimera co mu bice bishushe (tropical) n'ibice bishushe riringaniye. Gikura neza mu mirambi gushika kuri metero 1350 (m) hejuru y'ikiyaga. Nticyihanganira imbeho ikaze (frost) canke ubutaka bwarezemo amazi. Gikura no mu bibanza bikubira (arid places).

Ugukoresha

Moringa ni ikimera c'itangaza kuko hafi ya vyose ku giti biraribwa. *Amababi n'udusongero*: Biratekwa nk'imboga, mu masupu canke mu birungo. Arashobora kandi kwanikwa akashekwa mu fu maze akaziganywa. *Ibihi (Pods) bikiri bito*: Biratekwa mu masupu canke mu birungo nka curry. *Imbutu*: Imbutu zikiri ntoya zirirwa zikaranze. *Imizi*: Rimwe na rimwe ikoreshwa nk'insubirizi ya horseradish. *Amavuta*: Amavuta akuwe mu mbuto akoreshwa mu masalati. *Ibindi*: Igishishwa gikorwamo icyayi, kandi indabo na zo nyene ziratekwa zikariwa hamwe n'umunyu n'urusenda.

Ukurima

Birashobora kumereshwa hakoreshejwe ibiti (cuttings) bifise uburebure bwa metero 1 (m) canke mu gutera imbuto. Moringa irashobora guterwa nk'uruzitiro (hedge) ikaguma ikatwa kugira ngo itange amababi menshi hashika. Imbutu zumye neza zishobora kuziganywa igihe kirekire mu bikingira imbeho n'ubushuhe.

Umwimbu

Igiti gikura n'ingoga cane. Umwimbu w'amapode uboneka inyuma y'amezi 3 indabo zishurutse. Amababi ni bwiza kuyanika mu gicucu (aho izuba ritarasa cane) kugira ngo agumane Vitamine A nyinshi.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
ibabi	76.4	302	5.0	197	165	3.6	-
ibabi (ritetse)	87	189	4.7	883	31.0	2.0	0.2
ururabo	84.2	205	3.3	-	-	5.2	-
igihi	88.2	155	2.1	7	141	0.4	0.5
akabuto	6.5	-	46.6	-	-	-	-

Imboga

Izina risanzwe: Jewel plant

Izina ry'ikirundi: Umunuranura

Izina ry'ubumenyi: *Talinum portulacifolium*

Umuryango w'ikimera: TALINACEAE

Insobanuro

Ni ikimera gikura kiguma kimeza buri mwaka (perennial herb). Igishitsi cacyo gishobora kuba gishashaye gato (softly woody). Ututi twayo ni umubigabiga kandi turanda hasi, n'imizi yacyo ni minini kandi ivyimbye. Ututi tumezako indabo tuba dutose kandi tunyera (succulent). Iki kimera gishobora gukura ku burebure bwa metero 1 (m) iyo gihagaze, canke metero 2 (m) iyo kiranda hasi. Amababi ni manini, ameze nk'igi (oval), kandi akaba afise uburebure bwa 2-8 cm n'ubugari bwa 1-3 cm. Indabo zimeza mu matsinda hejuru ku gishitsi kirebire gishika kuri santimetero 30 (cm). Icyamwa cyaryo ni capsule ruziga yitandukanya mu bice bitatu (3 valves).



Aho aboneka

Ni ikimera co mu bice bishushe (tropical) gikura kuva kuri metero 300 gushika kuri 1850 (m) hejuru y'ikiyaga. Gikunda gukura mu butaka bukanya (dry soils), akenshi mu duce turimo amabuye y'ingwa (limestone). Kirashobora no gukura mu bibanza bikubira (arid places) no mu mirambi y'ikiyaga.

Ugukoresha

Ikimera cose kirakatwa maze kigatekwa mu mazi kikariwa nk'imboga. Amababi arashobora kandi kuribwa ari mibisi mu masalati. Amababi arashobora kwanikwa maze akaziganywa kugira ngo akoreshwe hanyuma.

Ukurima

Iki kimera gishobora kurimwa gikuwe mu mbuto canke mu gutera ibiti byacyo (cuttings).

Umwimbu

Amababi yeregeranywa canke asoromwa mu gihe c'imvura.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
ibabi	90	-	1.9	-	175.6	1.4	0.5

Image sourced from: https://commons.wikimedia.org/wiki/Category:Talinum_portulacifolium

Imboga

Izina risanzwe: Eggplant (Aubergine)

Izina ry'ikirundi: Inyanya ndende

Izina ry'ubumenyi: *Solanum melongena*

Umuryango w'ikimera: SOLANACEAE

Insobanuro

Inyanya ndende ni ikimera kimeza kiguma kimeza buri mwaka (perennial), ariko akenshi kirimwa nk'ikimeza umwaka umwe (annual). Gishobora gukura gushika kuri metero 1 (m) mu burebure. Gifise umuzi munini uja ikuzimu (taproot) n'indi mizi isatira ku mpande. Igishitsi ni gishashaye kandi gipfutse n'ubwoya bwinshi bworoshe. Amababi ashobora kugira uburebure bwa santimetero 20 (cm) kandi akaba agoronzwe ku nkombe (wavy). Indabo zifise ibara ry'ubururu buvaze n'umutuku, kandi



zishurika mu ntege z'amababi. icyamwa (itunda) gishobora kugira amabara atandukanye: umweru, ubururu, icatsi, canke idoma (purple). Akenshi bifise uburebure bwa 10-20 cm n'ubugari bwa 5-8 cm. Mu nyama y'itunda harimwo imbuto nyinshi zimeze nk'ikiriko (kidney shaped).

Aho aboneka

Ni ikimera co mu bice bishushe (tropical). Gikura kuva ku rugero rw'ikiyaga gushika kuri metero 2200 (m) hejuru y'ikiyaga. Gikunda ubutaka bufise ifumbire kandi bworoshe. Gikura neza mu bice bifise ubushuhe buri hagati ya 20-30°C. Nticyihanganira imbeho ikaze (frost).

Ugukoresha

Ibyamwa akenshi birakarnwa mu mavuta (fried) maze bikariwa. Birashobora kandi gutekwa mu buryo bwa grilled, baked, canke bigashirwa mu masupu n'ibirungo (curries). Ibyamwa kandi birashobora kwanikwa maze bikaziganywa. Amababi na yo nyene araribwa, ariko kubera ko afise ubwoya bwinshi, ntagira uburyohe bwiza cane.

Ukurima

Zirimwa zikuwe mu mbuto. Imbuto zimera bukebuke hagati y'imisi 8-12. Zibanza guterwa mu niniro (nursery), maze imishwi ikimurwa inyuma y'indwi 4-6 (iyo ifise uburebure bwa 8 cm). Ibiti biterwa bitandukanye ku rugero rwa santimetero 60-100 (cm).

Umwimbu

Ibyamwa biba bishitse kwimburwa inyuma y'amezi 3 bitewe. Bishobora kubandanya bitanga umwimbu mu gihe c'amezi 3 canke 4.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
icyamwa	91.8	117	0.8	6	1.3	0.4	0.2
ibabi	86.4	198	4.6	280	-	3.4	0.6
icyamwa	93.4	62	0.7	50	5	0.4	0.3

Imboga

Izina risanzwe: Carrot
Izina ry'ikirundi: Karoti

Izina ry'ubumenyi: *Daucus carota* subsp. *sativus*
Umuryango w'ikimera: APIACEAE

Insobanuro

Karoti ni imboga ziribwa umuzi zirimwa zikuwe mu mbuto. Ubusanzwe, ikimera kigira umuzi uvyimbye mu mwaka wa mbere, maze kigashurika indabo mu mwaka ugira kabiri. Igishitsi cacyo kiragororotse, kirakomeye, kandi gifise uturembe. Amababi ameze nk'ubwoya bw'inyoni (feathery) kandi agabuyemo uduce twinshi. Indabo ni izera kandi zimeze nk'idantire (lacy), zishurika mu matsinda akundanye hejuru ku giti. Umuzi uba ari muremure kandi ufise ibara rya oranje.



Aho aboneka

Ni ikimera gikunda ubutaka bukonje (temperate plant). Mu bice bishushe (tropics), akenshi zirimwa mu misozi miremire, ariko zirashobora gukura kuva ku rugero rw'ikiyaga gushika kuri metero 2600 (m). Karoti zirihanganira imbeho ikaze n'uburubura (frost). Gikenera ubutaka bworoshe kandi bujya ikuzimu kugira umuzi ukure neza. Imbuto zimera neza mu bushuhe buri hagati ya 7-24°C, kandi ibimera bikura neza mu bushuhe bwa 15°C.

Ugukoresha

Imizi: Karoti zirirwa mibisi canke zitetswe. Zishobora gutekwa mu mazi, gukaranwa mu mavuta, gukorwamo amajeri (jam), canke gushirwa mu masupu n'ibirungo. Umutoke wa karoti na wo uranyobwa ari mubisi canke waboze gato (fermented). Karoti zumye zishobora gushekwa mu fu rugakoreshwa mu kuryoshya n'ukuvyibisha isupu. *Amababi:* Amababi akiri mato araribwa kandi akoreshwa mu masupu. *Imbuto:* Amavuta akuwe mu mbuto za karoti akoreshwa mu kuryoshya ibifungurwa.

Ukurima

Zirimwa zikuwe mu mbuto ziterwa mu murima zica zimera aho nyene (direct sowing). Kubera ko imbuto za karoti ari ntoya cane, rimwe na rimwe zivangwa n'umusenyi imbere yo kuzitera kugira ngo zikwiragire neza mu murima. Ni bwiza kuzitera ku ntabwe ya santimetero 5 hagati y'ikimera n'ikindi, n'indwi ya santimetero 15-20 hagati y'imirongo.

Umwimbu

Hariho amoko ya karoti yo mu bice bishushe ashobora kwera mu misi 90-110.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
umuzi (mubisi)	89.9	180	1.0	2813	6	0.6	0.4
umuzi (utetswe)	91.5	79	0.6	2455	4	0.4	0.3
ibabi	87.4	-	2.2	65	-	-	-

Imboga

Izina risanzwe: Kale
Izina ry'ikirundi: Ishu

Izina ry'ubumenyi: *Brassica oleracea var. acephala*
Umuryango w'ikimera: BRASSICACEAE

Insobanuro

Iki ni ikimera kiva mu muryango w'amashu (cabbage). Amababi yacyo akunze kuba agoronzwe canke yihinye (ruffled/crinkled), ariko amwe aba ameze nk'ay'amashu asanzwe. Inshusho n'ibara ry'amababi biratandukanye cane bivanye n'ubwoko bwayo. Indabo ziba ari umuhondo canke umweru.



Aho aboneka

Ni ikimera gikura mu bice bifise ubushuhe buringaniye (warm temperate) gushika mu bice bishushe (subtropical). Amababi akura neza cane mu gihe c'imbeho canke mu duce dukonje.

Ugukoresha

Amababi araribwa atetswe mu mazi, agemurwa mu mwuka (steamed), canke agashirwa mu masupu n'ibirungo. Utubuto tw'indabo tutari bwashurike (flower buds) turashobora kuribwa nk'uko barya imboga za broccoli.

Ukurima

Zirimwa zikuwe mu mbuto canke mu kwimura imishwi (transplanted). Ibiti bikwiye guterwa bitandukanye ku rugero rwa santimetero 30-45 (cm), kandi imbuto ntizirengerane santimetero 1 (cm) ikuzimu.

Umwimbu

Amababi atangura gusoromwa inyuma y'imisi 40-60.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
ibabi (mubisi)	84	210	3.3	70	120	1.7	0.3
ibabi (ritetse)	91.7	109	2.1	313	18	0.5	0.4

Imboga z'amababi

Izina risanzwe: Coffee senna

Izina ry'ikirundi: Umuyobera

Izina ry'ubumenyi: *Senna occidentalis*

Umuryango w'ikimera: FABACEAE

Insobanuro

Ni ikimera kimeza buri mwaka (annual) canke kigashobora kuba igisaka gito kimeza imyaka itari mike. Gikura ku burebure bwa metero 1-2.5 (m). Amababi agizwe n'udupapuro (leaflets) dushize hamwe mu matsinda 4 canke 6. Udwo dupapuro dufise inshusho nk'igi (oval), tukagira uburebure bwa 4-12 cm n'ubugari bwa 1.5-4 cm. Indabo zifise ibara ry'umuhondo kandi zimeza mu ntege z'amababi. Icyamwa (fruit) ni igihu gito (pod) kigoramye gato, gifise uburebure bwa 5-10 cm. Imbuto zirimo ziba ari hagati ya 28-32, zikaba ari icatsi canke umubigabiga.



Aho aboneka

Ni ikimera co mu bice bishushe (tropical). Gikura mu mashamba y'imvura (monsoon forest) no mu bice bikubira (arid areas). Muri Afrika, gikura gushika kuri metero 2400 (m) hejuru y'ikiyaga. Gishobora gukura mu butaka bw'uburyo bwose (acid canke alkaline). Ubushuhe buri hagati ya 12.5-28°C ni bwo bwiza kuri iki kimera.

Ugukoresha

Imbuto: Imbuto zirotswa maze zigakoreshwa nk'ikawa (ariko ntizigira *caffeine*). **Icitonderwa:** Imbuto zirimo ubumara (poisonous) kiretse iyo zotswe neza. **Amababi:** Amababi akiri mato na yo nyene aratekwa akariwa, canke agashirwa mu masupu. **Ibihu (Pods):** Ibihu bikiri bito (bitareze) biratekwa maze bikaribwa n'umuheri (umuceri). Iminyota (ashes) y'ibihu bishaje ikorekwa nk'umunyu w'ibiryo (food salt).

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
ibabi	84.9	-	5	-	17.9	12.7	-
ibabi (ryumye)	10.0	-	31.7	-		3.1	-

Image sourced from: <https://tse1.mm.bing.net/th?id=OIP.wjO-VnTA1RQnqZQ4llp9wHaFe&pid=Api>

Imboga z'amababi

Izina risanzwe: Burweed

Izina ry'ikirundi: Umutambwe

Izina ry'ubumenyi: *Triumfetta rhomboidei*

Umuryango w'ikimera: MALVACEAE

Insobanuro: Ni ikimera kimera kiguma kimeza buri mwaka (perennial herb) canke igisaka gito. Gishobora gukura ku burebure bwa metero 1.5 (m). Igishishwa cacyo kirakomeye kandi kirimwo imifitanya (fibrous). Ututi tukiri duto hamwe n'amababi n'indabo biba bipfutse n'ubwoya bwinsi. Amababi ameze nk'ayakurikirana (alternate) kandi inkombe zayo zifise utunyo. Amababi yo hasi agabuyemo uduce dutatu (3 lobes).



Indabo ni umuhondo kandi zimeza mu matsinda matoya. Icyamwa (itunda) ni ikigina (brown), kiriko ubwoya n'amahwa agoranye (hooked spines). Utwo tunda ni ruziga kandi dufise ubugari bwa 5 mm. Iyo ushikiriye iki kimera, utwo tunda duca dufatira ku mpuzu. Imbere mu tunda harimwo imbuto hagati ya 2 na 4.

Aho aboneka: Ni ikimera co mu bice bishushe (tropical). Gimeza ubwazo mu mbuga n'ahantu hashurika amashamba mashasha. Gikunze kuboneka mu bice bishushe bifise ibihe vy'imvura n'izuba bitandukanye. Gikura gushika kuri metero 1280 (m) hejuru y'ikiyaga. Kirashobora no gukura mu bibanza bikubira (arid places).

Ugukoresha: Amababi araribwa nk'imboga, na cane cane mu bihe vy'amashashu canke mu gihe ibifungurwa vyabuze (scarcity). Imizi na yo nyene iraribwa itetswe.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
ibabi	78.4	284	4.2	-	-	29.2	-

Image accessed from:

http://www.phytoimages.siu.edu/users/paraman1/2_15_10/Upload15Feb10/077TriumfettaRhomboidea.jpg

Imboga z'amababi

Izina risanzwe: Shepherd's purse

Izina ry'ikirundi: Nyiramitende

Izina ry'ubumenyi: *Capsella bursa-pastoris*

Umuryango w'ikimera: BRASSICACEAE

Insobanuro: Ni ikimera kiva mu muryango w'amashu. Gishobora kumeza umwaka umwe (annual) canke imyaka ibiri. Igishitsi kiragororotse kandi gishobora gushika kuri santimetero 60 (cm) mu burebure. Amababi yo hasi ameze nk'urugori (rosette), akaba afise inshusho zitandukanye n'utunye ku nkombe. Amababi yo hejuru ni mato, ameze nk'inkota kandi nta dushami agira. Indabo ni izera, zimeza mu matsinda ku mpera z'amashami. Icyamwa (itunda) kimeze nk'agahu (pod) karinganiye kandi gifise inshusho y'intatatu (triangular).



Aho aboneka: Gikura mu bice bifise ubushuhe buringaniye (temperate) no mu bice bishushe (subtropical). Gikura neza ahantu hagwa imvura kenshi kandi mu butaka butose. Kirihanganira imbeho ikaze n'izuba rirura, ndetse kishobora kurara mu rubura. Muri Afrika y'amajepfo (nk'ubw'i Zimbabwe), gikura ku burebure bwa metero 1490-1920 (m) hejuru y'ikiyaga.

Ugukoresha:

Amababi: Amababi akiri mato kandi anyerera aratekwa maze akariwa nk'imboga. Arashobora kandi kuribwa ari mibisi mu masalati. Ni bwiza kuyasoroma imbere y'uko indabo zishurika. **Ibihu (Pods):** Ibihu vyumye bitanga uburyohe bumeze nk'urusenda (pepper). **Imizi:** Imizi mibisi canke yumye ishobora gukoreshwa nk'insubirizi ya tangawizi (ginger).

Icitonderwa: Iki kimera ntigikwiye kuribwa n'umugore yibaruka (aribungenze) kuko gishobora gutuma akubura (gusohora umwana atageza).

Ukurima: Zirimwa zikuwe mu mbuto. Imbuto zishobora kumara imyaka 30 mu butaka zitaronona ariko zitameze (dormant).

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
ibabi	88.2	138	4.2	150	91	4.8	-

Image sourced from: https://fr.wikipedia.org/wiki/Fichier:Capsella_bursa-pastoris_1.JPG

Imboga z'amababi

Izina risanzwe: Silver spinach
izina ry'ikirundi: Imbwija z'umweru

Izina ry'ubumenyi: *Celosia trigyna*
Umuryango w'ikimera: AMARANTHACEAE

Insobanuro: Ni igiterwa canke ikimera kimera hasi kikaranda, gifise amashami menshi kandi gishobora gukura ku burebure bwa santimetero 25-120 (cm). Amababi yo hasi agira ututi turerure. Iki kimera gisa cane n'imbwija zisanze (*Amaranthus hybridus*) gushika kishuritse indabo. Aho akati k'ibabi gahurira n'igishitsi, hariho uduce tubiri tumeze nk'ukwezi (moon-shaped) dukikuje igishitsi. Indabo ni ntoya, ni izera canke zisa n'ifeza, kandi zimeza zegeranye mu matsinda. icyamwa (itunda) ni capsule imeze nk'uruziga irimwo imbuto nyinshi.



Aho aboneka: Ni ikimera co mu bice bishushye (tropical) gikura mu mirambi no mu misozi miremire yo muri Afrika. Gishobora gukura ku rugero rw'ikiyaga gushika kuri metero 1960 (m) hejuru y'ikiyaga. Gikenera imvura nyinshi n'ubushuhe buri hagati ya 25-30°C. Nticyihanganira ubushuhe buri muni ya 15°C. Gikura neza mu butaka bufise ifumbire kandi budarezemo amazi.

Ugukoresha: Udusongero n'amababi akiri mato biratekwa maze bikaribwa. Bicagagurwa neza maze bigashirwa mu masupu, mu masefuriye, canke mu masosi. Kubera ko bishobora kurura gato, bikenera gutekwa umwanya muremure canke kuvangwa n'ibindi biryo.

Ukurima: Zirimwa zikuwe mu mbuto zimera mu misi 4-5. Ikimera gishika ku gihe cyo kwimburwa mu misi 90-120. Kubera ko imbuto ari ntoya cane, ni bwiza kuzivanga n'umusenye imbere yo kuzitera kugira ngo zikwiragire neza mu murima.

Umwimbu: Ibirimwa bishobora kurandurwa vyose bikimburwa canke hagasoromwa amababi gusa. Urashobora kwimbura amatone hagati ya 4-5 ku hegitari (t/ha) mu gihe usoroma buri ndwi mu kiringo c'amezi abiri.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
ibabi	89.0	139	2.7	94	10	5.0	-

Image accessed from <http://www.flickr.com/photos/36517976@N06/5063937939>

Imboga z'amababi

Izina risanzwe: Cat's-whiskers

Izina ry'ikirundi: Isusa

Izina ry'ubumenyi: *Cleome gynandra*

Umuryango w'ikimera: CLEOMACEAE

Insobanuro: Ni ikimera kimera buri mwaka (annual) gifise umuzi munini uja ikuzimu, kikagira uburebure bwa santimetero 60-90 (cm). Iki kimera kiragorotse kandi gifise ubwoya buke. Akenshi igishitsi cacyo kiba gifise ibara ry'idoma (purple). Amababi agizwe n'udupapuro hagati ya 5 na 7 (leaflets) dusatira hanze nka kiganza. Indabo ni izera canke iz'idoma, zimeza mu matsinda murerure ku mpera z'amashami. Utwo dushami tw'indabo dushobora gushika kuri santimetero 30 (cm). Indabo zifise ishusho itandukanye isize nka kigazigazi (*spidery appearance*). icyamwa (itunda) ni agahu kamanutse (capsule) karimwo imbuto nyinshi zimeze nk'ikiriko.



Aho aboneka: Ni ikimera kiboneka henshi mu bice bishushe (tropical). Akenshi kimeza nk'icatsi kibi mu mirima yarimwe. Gikura neza mu bice bishushe na cane cane hejuru ya metero 600 (m) z'uburebure. Gishobora gukura mu butaka bw'uburyo bwinshi ariko gikenera ubutaka bufise ifumbire kugira gitange amababi menshi. Ubushuhe bwa 18-25°C ni bwo bwiza. Nticyihanganira kurengerwa n'amazi (flooding).

Ugukoresha:

Amababi: Amababi araribwa. Iyo atetswe, rurura rwayo ruragabanuka. Amababi kandi arashobora kwanikwa maze akaziganywa. **Indabo n'ibihu:** Indabo n'ibihu (pods) bikiri bito na vyo nyene biraribwa. **Imbuto:** Amavuta ava mu mbuto araribwa nta n'uko yotswe. Imbuto kandi zishobora gukoreshwa nk'ibirungo mu ndya za *curry*. **Ibindi:** Amababi arashobora gushirwa mu mazi arimo umunyu canke vinegar maze akariwa hamwe n'ifi.

Icitonderwa: Ikimera kikiri kibisi gishobora kuba kirimwo ubumara (hydrocyanic acid), rero bategerezwa kukiteka neza imbere yo kurya.

Ukurima: Zirimwa zikuwe mu mbuto ziterwa mu buryo bwo kwandaza (broadcast). Imbuto zimera neza inyuma y'amezi 6 zishitwe kuko zikenera akaruhuko (rest period). Zaba zimaze kwitegura, zimera mu misi 4-5. Gusoroma udusongerero bituma ikimera gishurika amashami menshi y'impande bityo kigakura amababi menshi.

Umwimbu: Amababi ashobora gutangura gusoromwa inyuma y'indwi 4-5 bitewe. Imbuto zishika igihe cyo kwimburwa inyuma y'amezi 5.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
ibabi	86.6	142	4.8	-	26	6.0	-

Imboga z'amababi

Izina risanzwe: Jute (Jew's mallow)

Izina ry'ikirundi: Gombo

Izina ry'ubumenyi: *Corchorus olitorius*

Umuryango w'ikimera : MALVACEAE

Insobanuro: Ni ikimera kimera buri mwaka (annual). Kiragororotse, kirashurika amashami, kandi igiti cyacyo kirakomeye gato. Ibihingwa biterwa ku bw'amababi akenshi biba bifise uburebure bwa santimetero 30 (cm). Amababi ararabagirana kandi afise utunye ku nkombe. Indabo ni ntoya z'umuhondo, zimeza mu ntege z'amababi. icyamwa (itunda) ni capsule igabuyemo uduce dutandukanye ishobora gushika kuri santimetero 7 (cm). Iyo itunda ryeye, ririmo imbuto hagati ya 180 na 230.



Aho aboneka: Ni ikimera co mu bice bishushye (tropical). Gikura neza mu mirambi yo ku nkombe z'ibiyaga canke inyanja. Ubushuhe bwa 22-35°C ni bwo bwiza. Iki kimera kirashobora kwihanganira uruzuba mu gihe c'indwi 2-3, ndetse no kurengerwa n'amazi (flooding) iyo maze gukura. Gikura neza mu butaka bufise ifumbire y'izina (humus). Ubushuhe bwo mu kirere bukwiye kuba buri hejuru (80-90%). Gikura mu bihugu vyinshi vya Afrika na Aziya.

Ugukoresha:

Amababi n'udusongero: Amababi akiri mato n'udusongero tw'amashami biratekwa maze bikariwa.

Ukunyereza: Izi mboga ziranyerera cane (slimy) kiretse iyo zikaranze mu mavuta. Akenshi zikoreshwa mu gukora isupu itose kandi ivyimbye. **Kubika:** Amababi arashobora kwanikwa ku zuba, agashekwa mu fu, maze akaziganywa igihe kirekire.

Ukurima: Zirimwa zikuwe mu mbuto, kandi zirashobora kwimurwa (transplanted). Imbuto akenshi ziterwa mu buryo bwo kwandaza (broadcast) mu ntango z'imvura. Kubera ko imbuto ari ntoya, ni bwiza kuzivanga n'umusenyi imbere yo kuzitera. Imbuto rimwe na rimwe zirateba kumera ; kugira zimere vuba, ni bwiza kuzinika mu mazi ashushye. Ni bwiza gutera ibiti bitandukanye ku rugero rwa santimetero 20-30 (cm).

Umwimbu: Amababi ya mbere ashobora gusoromwa inyuma y'indwi 5-6. Udusongero dufise uburebure bwa 20-30 cm ni dwo dusoromwa. Urashobora gusoroma inshuro 3-8 mu kiringo c'amezi 3-4. Imbuto zo gusubira gutera zeregeranywa inyuma y'indwi 13-15.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
ibabi (mubisi)	80.4	244	4.5	1923	80	7.2	-
ibabi (ritetse)	87.2	155	3.4	156	33.0	3.1	-

Imboga z'amababi

Izina risanzwe: Vegetable kenaf

Izina ry'ikirundi: Isusa y'iseke

Izina ry'ubumenyi : *Hibiscus cannabinus*

Umuryango w'ikimera: MALVACEAE

Insobanuro: Ni ikimera gishobora kumera umwaka umwe (annual) canke kikaguma kimera imyaka itari mike. Gishobora gukura gushika kuri metero 3.5 (m) mu burebure. Gifise amahwa make akarihe. Amababi afise ututi turerure (6-20 cm) kandi agira inshusho zibiri: amababi yo hasi ameze nk'umutima, nayo amababi yo hejuru agabuyemo uduce 4-7 tumeze nka kiganza. Indabo ni nini (gushika kuri 10 cm), zifise ibara ry'umuhondo, umweru, canke *ivory*, kandi zikaba zitukura mu ntege zazo. icyamwa (itunda) ni capsule ifise ubugari bwa 1.5 cm, ikaba irimwo imbuto zimeze nk'ikiriko.



Aho aboneka: Ni ikimera co mu bice bishushye (tropical). Gikura neza mu butaka bw'umusenye budarezemo amazi, ariko kandi kirashobora kumeza mu bibanza bibika amazi mu bihe bimwe na bimwe. Gikura ku burebure bwa metero 1500-2100 (m) hejuru y'ikiyaga. Gishobora kumeza mu bice bikubira (arid places) kandi kiboneka mu bihugu vyinshi vya Afrika na Aziya.

Ugukoresha:

Amababi: Aratekwa maze akariwa nk'imboga. Akenshi akoresheye mu kuryoshya isupu canke mu mwanya w'ubushishi (*tamarind*) kubera uburyohe bwayo burura gato. Amababi atekwa hakoreshejwe umunyu w'ibiryo (potashes/magadi). **Imbuto:** Imbuto zishobora kotswa maze zikariwa, canke zikaborerwa (*fermented*). Zitanga kandi amavuta yo guteka meza. **Amashurwe:** Indabo na zo nyene ziratekwa zikariwa nk'imboga. **Igishishwa (Bark):** Igishishwa cy'iki kimera kirayoshe, rero abana barakironka bakakirya nk'umutsima.

Ukurima: Akenshi zirimwa zikuwe mu mbuto, ariko zirashobora no kumereshwa hakoreshejwe ibiti (*cuttings*). Imbuto zishobora kuziganywa mu gihe c'amezi 8, kandi zimera neza cane iyo ubushuhe buri kuri 35°C.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
ibabi	79.0	280	5.5	34	-	12.1	-
akabuto	8.1	1785	20.2	-	-	-	-

Imboga z'amababi

Izina risanzwe: Slenderleaf rattlepod

Izina ry'ikirundi: Isunzu

Izina ry'ubumenyi: *Crotalaria brevidens*

Umuryango w'ikimera: FABACEAE

Insobanuro: Ni ikimera / igiterwa kigira amashami menshi cane. Gishobora kumara umwaka umwe (annual) canke kurenza. Gikura gushika kuri metero 2 (m) mu burebure. Amashami yacyo agoramyeye yerekeza hejuru kandi afise ubwoya bworoshe. Amababi agizwe n'udupapuro dutatu (3 leaflets) tunegetse, dufise uburebure bwa 4-10 cm n'ubugari bwa 1-2 cm. Indabo zimeza mu matsinda hejuru ku giti, dushobora gushika kuri santimetero 50 (cm). Indabo ni umuhondo ariko zifise utunyamirera (veins) dutukura. Icyamwa (itunda) ni igihu (pod) kigufi (4-5 cm) kirimwo imbuto nyinshi z'umuhondo canke oranje.



Aho aboneka: Ni ikimera co mu bice bishushye (tropical). Gikura hagati ya metero 500 na 2700 (m) hejuru y'ikiyaga. Gishobora no kumeza mu bibanza bikubira (arid places).

Ugukoresha: Amababi anyerera aratekwa maze akariwa nk'imboga. Akenshi atekwa hakoreshejwe umunyu w'ibiryo (potash/magadi) maze bagashiramo ibiyimbi (peanuts) kugira ngo binyohe. Amababi arashobora kandi kwanikwa maze akaziganywa. **Icitonderwa:** Izi mboga ziratura (bitter). Kugira ngo ururura rugabanuke, ni bwiza kuziteka zivanzwe n'imboga zitwa *Corchorus* (Gombo) canke amata.

Ukurima: Zirimwa zikuwe mu mbuto. Imbuto zimera mu misi 3-4. Iki kimera gikura neza cane iyo gishiriwe ifumbire y'ibirundo canke iy'ibitungwa.

Umwimbu: Ibirimwa biba bishitse kwimburwa inyuma y'indwi 8 (amezi abiri). Umwimbu ushobora kubandanya usoromwa mu kiringo c'amezi 4.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
ibabi	74.5	-	8.8	-	-	38	-

Image sourced from: <https://en.wikipedia.org/wiki/Crotalaria#/media/File:Rattlepod.JPG>

Imboga z'amababi

Izina risanzwe: Lettuce

Izina ry'ikirundi: Salata

Izina ry'ubumenyi: *Lactuca sativa*

Umuryango w'ikimera: ASTERACEAE

Insobanuro: Salata ni imboga z'amababi zimera zegeranye (clump) canke zigakora nk'umutima w'amababi apfunyitse iyo hari ubukonje. Amababi akenshi ni icatsi ryerurutse, kandi iki kimera gishika ku burebure bwa santimetero 20 (cm). Ni ikimera kimeza umwaka umwe (annual), kikagira amababi anyerera kandi akanyunyunuka (crisp). Hariho amoko menshi:



- *Amoko yo mu mirambi:* Agira amababi arekuye, agoronzwe kandi afise inkombe zimeze nk'idantire (*frilly margins*).
- *Amoko yo mu misozi miremire:* Amababi yayo arapfunyika akagira ishusho nk'umutwe (head), akaba ari icatsi ryerurutse gushika ku mweru.

Aho aboneka: Ni ikimera gikunda ubutaka bukonje canke bukanye (temperate plant), ariko kirimwa no mu bihugu bishushe (tropics) nka Solomon Islands na Afrika. Mu Burundi, irimwa henshi ariko cane cane mu bice bikonje by'imisozi miremire aho bayirima no kugira bayidandaze.

Ugukoresha: Amababi ya salata akenshi arirwa ari mibisi mu masalata (salades). Arashobora kandi gushirwa mu masupu mu bice bimwe na bimwe bya Aziya.

Ukurima: Zirimwa zikuwe mu mbuto, maze imishwi ikimurwa (transplanted) inyuma y'imisi 30-35. Ibiti biterwa bitandukanye ku rugero rwa santimetero 45 (cm). Imbuta zitegetse guterwa hejuru cane (shallowly). **Icitonderwa:** Ahantu hashushe cane, salata ishobora kurura iyo itimuwe neza canke iyo gukura kwayo guhagaze. Guca umuzi munini (tap root) birashobora gufasha ikimera kudaca gishurika indabo vuba.

Umwimbu: Amoko y'amababi (leafy varieties) ashobora kwimburwa inyuma y'imisi 50-60.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
ibabi	94.0	84	1.2	180	15	0.7	-

Imboga z'amababi

Izina risanzwe: Goat's horns

Izina ry'ikirundi: Umushishiro

Izina ry'ubumenyi: *Sida cordifolia*

Umuryango w'ikimera: MALVACEAE

Insobanuro: Ni igisaka gishashaye (woody shrub) kiguma gikura uko imyaka ishira (perennial), kikagira uburebure bwa metero 0.4 gushika kuri 1 (m). Iki kimera gipfutse n'ubwoya bwinshi bugufi n'uburerure butuma kiyorosha cane iyo ugitatuye (*feel soft*). Amababi ameze nk'umutima mu ntege zayo, kandi afise utunyo ku nkombe. Indabo ni umuhondo kandi zimeza mu ntege z'amababi. icyamwa (itunda) gifise ubugari bwa 6-8 mm.



Aho aboneka: Ni ikimera co mu bice bishushe (tropical) gikura ahantu hatandukanye, na cane cane mu bisaka no mu matongo arekerewe.

Gikura neza mu bice bishushe cane kandi bikubira (arid places) bifise igihe c'izuba kirekire. Gishobora gukura mu butaka bw'umusenye bwumye, mbere no mu butaka burimo umunyu kimeza. Gikura mu bice biri muni ya metero 1100 (m) hejuru y'ikiyaga.

Ugukoresha: Amababi y'iki kimera araribwa iyo atetswe neza. Ugereraniye n'izindi mboga, iki kimera gifise urugero rw'icuma (Iron) ruri hejuru cane, akaba ari nacyo gituma rimwe na rimwe gikoreshwa mu buvuzi bw'ikirundi.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
ibabi	6.6	1296	24.2	-	-	79.8	-

Ishusho yakuwe kuri uru rubuga

[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)

Imbuto, ibirungo n'ibindi biribwa

Izina risanzwe: Peanut (Groundnut)

Izina ry'ikirundi: Ikiyoba

Izina ry'ubumenyi: *Arachis hypogaea*

Umuryango w'ikimera: FABACEAE

Insobanuro: Ibiyoba ni igiterwa kimeze nk'igisaka kigufi gishika ku burebure bwa santimetero 40 (cm). Amababi agizwe n'udupapuro tume (4 leaflets) dushize hamwe bibiri bibiri bitumbereye. Indabo zimeza mu ntege z'amababi. icyiyumviro c'itangaza kuri iki kimera n'uko iyo ururabo rumaze gufatwa, akati kacyo (peg) gakura kerekeza hasi maze kakishira mu butaka, ari naho ikiyemba nyirizina (pod) gikurira. Rero, amapode y'ibiyemba akurira ikuzimu mu butaka. Hariho amoko abiri y'ibiyemba:

1. Amoko aranda (Runner type): Amashami yaranda hasi agahuvya umurima.
2. Amoko ahagaze (Bunch type): Akura ahagaze kandi yera vuba.



Aho aboneka: Gikura mu bice bishushe (tropical) na subtropical. Mu Burundi, vyera neza kuva ku rugero rw'ikiyaga gushika kuri metero 1650 (m) hejuru y'ikiyaga. Gikenera ubushuhe buri hagati ya 24-33°C. Ibiyemba ntivyihanganira imbeho ikaze (*frost*) canke ubutaka bwarezemo amazi; rero bikeneye ubutaka bukama neza (well-drained soil).

Ugukoresha:

Imbuto: Zishobora kuribwa ziri mibisi, zitetswe, zotswe, canke zikaranze. Zikurwamo kandi ifu canke amavuta yo guteka meza cane. **Isosi y'ibiyemba:** Mu Burundi, ibiyemba bikaranze hanyuma bigashekwa (pasted) bikora isosi iryoshe cane ifunguranwa n'umutsima, ibijumbu, canke ibitoke. **Ibindi:** Amababi akiri mato na yo nyene araribwa iyo atetswe.

Ukurima: Ibiyemba bikeneye ubutaka burimo ubutare bwa *calcium*. Kubera ko bifise uburyo bwo kwitunganyiriza ifumbire ya *nitrogen* mu mizi, bishobora kwera neza no mu butaka butarimo ifumbire nyinshi. Mbere yo gutera, urasatura ibiyemba ugakura imbuto mu bishishwa, ukazitera ku burebure bwa 2-3 cm ikuzimu. Ni ngombwa kurima no koroshya ubutaka mu gihe vishurika kugira ngo ututi tw'imbuto (pegs) dushobore kwinjira mu butaka bitagoranye.

Umwimbu: Bitangura kushurika inyuma y'imisi 30, maze bikageza igihe cyo kwimburwa inyuma y'amezi 3.5 gushika kuri 5. Iyo amababi yatanguye kuma, ni ikimenyetso c'uko bishitse. Inyuma yo kurandura, bikeneye kwanikwa ku zuba mu gihe c'imisi 3-4.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
akabuto (kumye)	4.5	2364	24.3	-	-	2.0	3.0
akabuto (kibisi)	45	1394	15	-	-	1.5	-
ibabi (leaf)	78.5	228	4.4	-	-	4.2	-

Imbuto, ibirungo n'ibindi biribwa

Izina risanzwe: Desert date
Izina ry'ikirundi: Umugogoma

Izina ry'ubumenyi: *Balanites aegyptiaca*
Umuryango w'ikimera: ZYGOPHYLLACEAE

Insobanuro: Ni igiti gito kiguma kimeza amababi umwaka wose (evergreen), gifise amahwa kandi gishobora gukura ku burebure bwa metero 6-15 (m). Gifise amashami yitandukaniye arimo amahwa akomeye ashobora gushika kuri santimetero 8 (cm). Igishishwa cacyo ni igikara canke ic'imubigabiga, kikaza kirasandara uko igiti gisaza. Amababi ameze nk'ayerekeranye bibiri bibiri, akaba akomeye nk'urusago kandi afise ubwoya buke. Indabo ni umuhondo uvanze n'icatsi, zikagira umunuko uryoheye. Icyamwa (itunda) kirasa n'itende (*date*), kikagira uburebure bwa 5 cm n'ubugari bwa 2.5 cm. Inyama y'itunda irura ikongera ikaryohera (bittersweet). Imbere harimwo akabuto gakomeye gashika kuri 4 cm mu burebure.



Aho aboneka: Ni ikimera co mu bice bishushe kiboneka muri Afrika yose. Gikura mu mirambi no mu mashamba ya *Miombo*. Gikunda cane ibice bishushe kandi vyumye nka *Sahel*. Gishobora gukura kuva ku rugero rw'ikiyaga gushika kuri metero 2000 (m) hejuru y'ikiyaga. Gikenera ubushuhe buri hagati ya 20-30°C.

Ugukoresha:

Imbuto: Akabuto kategerezwa gutekwa mu mazi menshi aguma ahindurwa, hanyuma kakariwa hamwe n'ishaka (*sorghum*). Gatanga kandi amavuta y'umuhondo iyo gatetswe umwanya muremure. **Ibyamwa:** Ibyamwa biraribwa ari mibisi canke byumye, kandi bikorwamo *syrup* canke ibinyobwa bisindisha. **Amababi n'indabo:** Biratekwa maze bikariwa nk'imboga. **Ubuvuzi:** Icyamwa gishobora gukoreshwa mu gusukura amazi kugira ngo kice ibinyamujonjoro bitera indwara ya *Bilharzia* (mburugu) n'utundi dukoko dutera indwara ya *Guinea worm*.

Ukurima: Zirimwa zikuwe mu mbuto ziterwa mu niniro canke zicimbwa aho nyene. Imbuto zimera mu misi 7-28. Kugira zimere vuba, ni bwiza kuzinika mu mazi akonje mu gihe c'imisi ibiri (2 days), ariko amazi agahindurwa inyuma y'umusi wa mbere.

Umwimbu: Ibiti bitangura kwera inyuma y'imyaka 5-8. Igiti kimwe kikuze neza gishobora kwera ibyamwa 10,000 mu mwaka umwe. Ibyamwa bishitse bishobora kwanikwa ku zuba maze bikaziganywa. Imbuto zishobora kuvamo amavuta ku rugero rwa 60%.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
ibabi	63.5	249	10.5	-	-	4.9	-
akabuto (kumye)	5.0	2286	23.0	-	-	7.0	-
icyamwa	19.0	1150	5.0	-	-	3.1	-
icyamwa	64.0	510	2.2	-	-	-	-

Imbuto, ibirungo n'ibindi biribwa

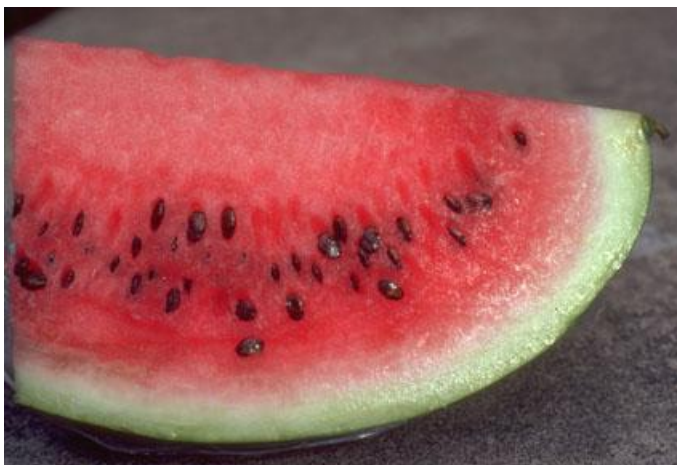
Izina risanzwe: Watermelon (Pastèque)

Izina ry'ikirundi: Pasiteke

Izina ry'ubumenyi: *Citrullus lanatus*

Umuryango w'ikimera: CUCURBITACEAE

Insobanuro: Pastèque ni ikimera kimeza buri mwaka (annual) kiranda hasi kandi kigira utugozi (tendrils) dufasha mu kwizigira. Igishitsi cacyo kiriko ubwoya kandi kiragondagonze. Amababi afise ututi turerure kandi agabuyemo uduce twinshi tugoronzwe. Iki kimera kigira indabo z'ingabo n'iz'ingore ku giti kimwe. Indabo ni umuhondo ryerurutse kandi ni ntoyane ugereranije n'iz'ibihaza. icyamwa (itunda) ni rinini cane, rikaba ruziga canke rifise ishusho nk'igi. Igishishwa cacyo kirakomeye kandi kiranyerera, akenshi kikaba ari icatsi kirimwo utubanga canke imirongo. Inyama y'itunda ni itukura, irimwo amazi menshi, hamwe n'imbuto zirabura canke zitukura.



Aho aboneka: Gikura mu bihugu vyinshi bishushe (tropical) na subtropical. Mu Burundi, yezwa neza mu mirambi y'ubushyuhe (nk'i **Kumoso** canke mu **Rusizi**) ariko ishobora gukura gushika kuri metero 1000 (m) hejuru y'ikiyaga. Ntishobora kwihanganira ubutaka bwarezemo amazi kandi ikura neza mu butaka bw'umusenye. Ubushuhe buri hagati ya 24-30°C ni bwo bwiza, kandi imbuto ntizimera munsu ya 21°C.

Ugukoresha:

Icyamwa: Kirirwa ari mibisi iyo caze. Ibyamwa bikiri bito cane bishobora gutekwa nk'imboga.

Imbuto: Ziraribwa! Ziranikwa, zigashirwa mu mazi arimo umunyu, hanyuma zikotswa. Zishobora kandi gukurwamo amavuta. **Amababi:** Amababi akiri mato cane rimwe na rimwe araribwa.

Ukurima: Zirimwa neza cane mu gihe c'izuba (dry season) iyo hari uburyo bwo kuzivomerera. Ibimera biterwa bitandukanye ku rugero rwa metero 1.5 gushika kuri 2 (m). Zikura vuba zikuwe mu mbuto kandi zikunda cane akazuba kenshi.

Umwimbu: Kwimbura bitangura inyuma y'amezi 4-5. Kugira umenye ko yeze, urayikubita n'urutoke: iyo itanze ijwi ruzitira (dull sound), biba bishaka kuvuga ko yeze. Ikindi kimenyetso n'uko ahantu yahora ihagaze hasi hatangura guhindura ibara kuva ku catsi kija ku muhondo ryerurutse.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
icyamwa	90	148	0.6	-	-	0.2	-
akabuto	10	2107	40	-	-	5.6	-

Imbuto, ibirungo n'ibindi biribwa

Izina risanzwe: Comb fringe grass

Izina ry'ikirundi: Urwinyange

Izina ry'ubumenyi: *Dactyloctenium aegyptium*

Umuryango w'ikimera: POACEAE

Insobanuro: Ni ubwatsi bumeza buri mwaka (annual grass). Ibishitsi vyabwo ni bito kandi bishobora kuranda hasi, aho bitanga imizi mu ntege (nodes). Bushobora gukura ku burebure bwa santimetero 15-60 (cm). Amababi ni ayaringaniye, akagira uburebure bwa 5-20 cm, kandi hejuru akaba afise ubwoya canke utubumbe. Indabo zimeze nka kiganza (fingers on a hand), zifise utubuto duto cane (1 mm).



Aho aboneka: Ni ikimera co mu bice bishushe (tropical). Gikunze kumeza mu bibanza vyononekaye, canke mu butaka bw'umusenye, n'ubw'ibumba. Gishobora kumeza hafi y'ibiyaga, mu bishanga, canke mu butaka burimwo umunyu. Gikura kuva ku rugero rw'ikiyaga gushika kuri metero 2000 (m) hejuru y'ikiyaga. Gishobora kwihanganira izuba rirura cane (arid places).

Ugukoresha:

Imbuto: Imbuto barazihonora (husked), hanyuma bakaziteka nk'umutsima w'uburo (porridge). **Ifu:** Imbuto zishobora kandi gukaranwa mu gasafuriye gashushe kugira zoroshe, maze zigasekwa mu fu ikorwamo umutsima. **Imizi (Runners):** Imizi canke utugozi turanda hasi (rhizomes) turashobora kuribwa ari mibisi.

Ukurima n'Umwimbu: Iki kimera kimeza kikuwe mu mbuto zacyo. Imbuto zeregeranywa mu gihe c'izuba, kandi zishobora kuziganywa amezi atari make imbere yo gukoreshwa.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
akabuto	7.5	1234	9.8	-	-	6.9	4.7

Ishusho yavuye kuri: <https://www.feedipedia.org/node/465>

Imbuto, ibirungo n'ibindi biribwa

Izina risanzwe: Sunflower

Izina ry'ikirundi: Ikiyungurushwa

Izina ry'ubumenyi: *Helianthus annuus*

Umuryango w'ikimera: ASTERACEAE

Insobanuro: Ikiyungurushwa ni ikimera kimeza umwaka umwe (annual), kigahagarara kigovyeye ku burebure bwa metero 1 gushika kuri 4 (m). Gifise umuzi munini uja ikuzimu (tap root). Igishitsi cacyo kiriko ubwoya, kandi akenshi kiba ari igiti kimwe kidashurika amashami menshi. Amababi ni manini cane (10-40 cm), ameze nk'umutima kandi afise utunye ku nkombe. Indabo ni nini cane, zifise ibara ry'umuhondo urarabagirana nk'izuba, zikaba zishobora gushika ku bugari bwa 20 cm.



Aho aboneka: Ikiyungurushwa gikura neza mu bice bikonje by'imisozi miremire (highlands) ariko kirihanganira n'izuba rirura (drought resistant).² Ntigikunda ubutaka burimo acid nyinshi canke ibice bishushe cane kandi birimo imvura y'itumba idasiba (wet tropics). Gikura neza mu butaka busanzwe bukama amazi (well-drained).

Ugukoresha:

Amavuta: Imbuto zivamwo amavuta yo guteka meza cane kandi akunzwe mu Burundi. **Imbuto:** Imbuto zishobora kuribwa ari mibisi canke zotswe. Zishobora kandi gushekwa mu fu ikorwamo imitsima (cakes/bread). **Ibinyobwa:** Imbuto zaranitswe, zikotswa zikongera zikashekwa, zishobora gusubirira ikawa. Zishobora kandi gutekwa mu mazi avanze n'ubuki kugira bibe ikinyobwa. **Ibindi:** Imbuto zimeze (germinated) zishobora gukorwamo *yogurt* canke *cheese* binyuze mu kuborerwa (fermentation).

Ukurima: Zirimwa zikuwe mu mbuto zereze neza. Imbuto ziterwa ku burebure bwa 2-4 cm ikuzimu, zigaterwa zitandukanye ku rugero rwa santimetero 50 hagati y'igiti n'ikindi, na metero 1 hagati y'imirongo. Iyo imitwe y'indabo imaze kuma, iregeranywa maze igahurwa kugira haboneke imbuto.

Umwimbu: Ikiyungurushwa gishika igihe cyo kwimburwa inyuma y'amezi 4-5. Imbuto ziba zishitse kuribwa iyo ururabo rwatanguye kwanika canke kuma.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
akabuto	5.4	2385	22.8	-	-	6.8	5.1

Imbuto, ibirungo n'ibindi biribwa

Izina risanzwe: Smooth-shelled macadamia

Izina ry'ikirundi: Makadamiya

Izina ry'ubumenyi: *Macadamia integrifolia*

Umuryango w'ikimera: PROTEACEAE

Insobanuro: Ni igiti giringaniye kiguma kimeza amababi umwaka wose (evergreen). Gishobora gukura gushika kuri metero 18 (m) mu burebure, kigashurika amashami kugeza kuri metero 15 mu bugari. Amababi yacyo ni amagondagonze ku nkombe, akagira ibara ry'icatsi kirekevu kandi agakomera. Indabo zimeza mu matsinda amanuka hasi, zikaba zifise uburebure bwa 10-30 cm. Indabo nyirizina ni ndende kandi ni izera. Ibyamwa (fruits) bifise ubugari bwa 3-4 cm, bikaba ari icatsi kandi bikungana n'urusago. Imbuto (nuts) zimeza zimanuka, zikaba ari ruziga (2-3 cm), zinyerera kandi zirabagirana.



Aho aboneka: Ni ikimera co mu bice bitari bishushe cane (subtropical) ariko gikura neza mu misozi miremire y'ibice bishushe (highlands). Gikunda ahantu hatose kandi mu butaka bukama amazi neza. Gikura neza mu butaka burimo ifumbire y'izina (humus). Mu Burundi, iki giti gishobora kwera neza mu misozi miremire (hagati ya metero 1000 na 1700) nko mu **Buragane, Kirimiro**, canke **Mugamba**.

Ugukoresha:

Imbuto: Imbuto ziribwa ari mbisi canke zokejwe. Ni zimwe mu mbuto ziryoshe cane kw'isi. **Ibindi:** Zishobora gushirwa mu mugwi w'ibirungo (pastries), mu turyo tw'abana (candies), mu mitsima (cakes), no muri kereme (canke Ikereme galase). **Amavuta:** Amavuta yazo arashobora gukoreshwa mu masalata canke mu gukaranga ivyo kurya.

Ukurima: Ibiti akenshi bikurwa mu mbuto zigeze guterwa zikiri mbisi kugira zimere vuba. Birashobora kandi kumereshwa hakoreshejwe uburyo bwo gutera amashami (*cuttings*) canke amagefi (*grafting*). Ni vyiza gutera ibiti bitandukanye ku rugero rwa metero 5 gushika kuri 10 (m).

Umwimbu: Imbuto zeregeranywa hasi inyuma y'uko zimanuka zivuye ku giti. Igishishwa c'inyuma gitegerezwa gukurwa ko imbere y'uko imbuto zanikirwa ku zuba.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
akabuto	1.4	3004	7.9	-	-	3.7	1.3

Imbuto, ibirungo n'ibindi biribwa

Izina risanzwe: Short-staple cotton

Izina ry'ikirundi: Ipampa

Izina ry'ubumenyi: *Gossypium herbaceum*

Umuryango w'ikimera: MALVACEAE

Insobanuro: Ipampa ni igisaka gishobora gukura gushika kuri metero 2 (m) mu burebure. Amababi yaryo agabuyemo uduce 5 tumaze nka kiganza (lobes), akagira ubugari bwa santimetero 5-10 (cm).

Aho aboneka: Ni ikimera co mu bice bishushe (tropical). Kugira gikuze neza, gikenera ubushuhe buri hejuru ya 13-18°C. Mu Burundi, ryahora ririmwa cane mu bice by'ubushyuhe nko mu **Rusizi**.

Ugukoresha:

Mavuta: Imbuto zivamo amavuta (cottonseed oil) akoreshwa mu masalata no mu guteka busanzwe. Imbuto zishobora kotswa maze zigasekwa zikoreshwa nk'ikawa. **Amababi:** Amababi na yo nyene araribwa nk'imboga mu bice bimwe na bimwe.

Ukurima: Ibimera vy'ipamba bikurwa mu mbuto zavyo ziterwa mu butaka.

Agaciro k'ibifungurwa: Ku magarama 100 y'igice kiribwa

Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg
akabuto	8.0	1827	20.2	-	-	-	-
amavuta	-	3700	-	-	-	-	-



Agaciro k'ibiribwa: kuri garama 100 z'ibiryo biribwa

Plant Family	Scientific name	Common name	Kirundi name	Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg	Page
AMARANTHACEAE	<i>Celosia trigyna</i>	Silver spinach	Imbwija z'umweru	ibabi	89.0	139	2.7	1925	10	5.0	-	72
ANACARDIACEAE	<i>Mangifera indica</i>	Mango	Umwembe	icyamwa	83.0	253	0.5	180	30	0.5	0.04	49
ANNONACEAE	<i>Annona squamosa</i>	Sweetsop	Anona	icyamwa	76.4	441	2.1	1	40	0.6	0.1	41
APIACEAE	<i>Daucus carota subsp. sativus</i>	Carrot	Karoti	umuzi (mubisi)	89.9	180	1.0	2813	6	0.6	0.4	67
ARACEAE	<i>Colocasia esculenta</i>	Taro	Iteke	igiguri	66.8	1231	1.96	3	5	0.68	3.2	12
ARECACEAE	<i>Hyphaene petersiana</i>	Doum palm	Ikigazi	icyamwa	6.6	1265	4.9	-	19.7	2.0	0.6	48
ASTERACEAE	<i>Lactuca sativa</i>	Lettuce	Salata	ibabi	94.0	84	1.2	180	15	0.7	0.2	77
ASTERACEAE	<i>Helianthus annuus</i>	Sunflower	Ikiyungurushwa	akabuto	5.4	2385	22.8	5	1.4	6.8	5.1	83
BRASSICACEAE	<i>Brassica oleraceae var acephala</i>	Kale	Ishu	ibabi (ritetse)	91.7	109	2.1	313	18	0.5	0.4	68
BRASSICACEAE	<i>Capsella bursa-pastoris</i>	Shepherd's purse	Nyiramitende	ibabi	88.2	138	4.2	3000	91	4.8	-	71
CARICACEAE	<i>Carica papaya</i>	Pawpaw	Ipapayi	icyamwa	88.0	163	0.5	290	54	0.4	0.18	53
CHENOPODIACEAE	<i>Beta vulgaris subsp. cicla</i>	Silverbeet	Shangu	ibabi (ritetse)	92.7	84	1.8	314	18	2.3	0.3	55
CHRYSOBALANACEAE	<i>Parinari curatellifolia</i>	Mobola plum	Umunazi	icyamwa	64.6	533	1.6	-	70.9	0.9	0.4	51
CLEOMACEAE	<i>Cleome gynandra</i>	Cat's-whiskers	Isusa	ibabi	86.6	142	4.8	-	26	6.0	-	73
CUCURBITACEAE	<i>Cucurbita maxima</i>	Pumpkin	Igihaza	ibabi (isunzu)	88.0	160	4.9	260	28	2.5	0.9	57
CUCURBITACEAE	<i>Lagenaria siceraria</i>	Bottle gourd	Ikirende	ibabi	83.0	180	4.4	66	-	7.4	-	59
CUCURBITACEAE	<i>Cucumis melo</i>	Cantaloupe	Meroni	icyamwa	93.0	109	0.5	300	30	0.4	0.2	44
CUCURBITACEAE	<i>Citrullus lanatus</i>	Watermelon	Pasiteke	akabuto	10.0	2107	40	-	-	5.6	-	81
CUCURBITACEAE	<i>Momordica charantia</i>	Bitter cucumber	Umushishiro	ibabi	84.7	252	5.0	44	170	7.1	0.3	61
EBENACEAE	<i>Diospyros mespiliformis</i>	Monkey guava	Umunyamasaka	icyamwa	64.5	523	1.1	-	-	2.0	-	46
EUPHORBIACEAE	<i>Manihot esculenta</i>	Cassava	Umwumbati	igiguri	62.8	625	1.4	30	15	0.23	0.48	21
FABACEAE	<i>Sphenostylis stenocarpa</i>	African yam bean	Ikinyambo	imbuto	9.0	1470	19.2	-	-	-	-	17
FABACEAE	<i>Dolichos trilobus</i>	Japanese arrowroot	Isunzu	igiguri	72.4	1794	7.1	-	-	0.2	4.4	20
FABACEAE	<i>Cajanus cajan</i>	Pigeon pea	Inkore	imbuto	10.0	1449	19.5	55	-	15.0	-	29

Plant Family	Scientific name	Common name	Kirundi name	Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg	Page
FABACEAE	<i>Glycine max</i>	Soybean	Isoya	imbuto	9.0	1701	33.7	55	-	6.1	-	31
FABACEAE	<i>Lablab purpureus</i>	Lablab bean	Ibiharage vya Lablab	imbuto (zumye)	10.0	1428	22.8	-	-	9.0	-	32
FABACEAE	<i>Piliostigma thonningii</i>	Camel's foot leaf tree	Umuravumba	imbuto	9.9	1381	22.7	-	-	4.7	1.6	34
FABACEAE	<i>Tylosema fassoglensis</i>	Marama bean	Igiharage-kijumbu	imbuto	7.5	452	43.5	-	-	-	-	36
FABACEAE	<i>Vigna radiata</i>	Mung bean	Ibiharage vya Mung	imbuto	11.0	1432	22.9	55	4	7.1	-	37
FABACEAE	<i>Vigna unguiculata</i>	Cowpea	Inkore	imbuto (zumye)	11.2	1189	23.5	-	1.5	6.4	-	38
FABACEAE	<i>Canavalia gladiata</i>	Sword bean	Igiharage-nkota	imbuto	15.0	1335	27.1	-	-	-	-	40
FABACEAE	<i>Senna obtusifolia</i>	Java bean	Umuyobera	ibabi	79.7	251	5.6	-	113	5.9	-	56
FABACEAE	<i>Senna occidentalis</i>	Coffee senna	Umuyobera	ibabi	84.9	205	5.0	-	17.9	12.7	-	69
FABACEAE	<i>Crotalaria brevidens</i>	Slenderleaf rattlepod	Isunzu	ibabi	74.5	-	8.8	-	-	38	-	76
FABACEAE	<i>Arachis hypogaea</i>	Peanut	Ikiyoba	akabuto (kumye)	4.5	2364	24.3	-	-	2.0	3.0	79
MALVACEAE	<i>Azanza garckeana</i>	Chewing gum tree	Igiti c'ivyamwa bihekenywa	icyamwa	14.8	1042	5.0	-	-	5.0	0.4	43
MALVACEAE	<i>Triumfetta rhomboidea</i>	Burweed	Umutambwe	ibabi	78.4	284	4.2	-	-	29.2	-	70
MALVACEAE	<i>Corchorus olitorius</i>	Jute	Gombo	ibabi (mubisi)	80.4	244	4.5	1923	80	7.2	-	74
MALVACEAE	<i>Hibiscus cannabinus</i>	Vegetable kenaf	Isusa y'iseke	ibabi	79.0	280	5.5	34	-	12.1	-	75
MALVACEAE	<i>Sida cordifolia</i>	Goat's horns	Umushishiro	ibabi	6.6	1296	24.2	-	-	79.8	-	78
MALVACEAE	<i>Gossypium herbaceum</i>	Cotton	Ipampa	akabuto	8.0	1827	20.2	-	-	-	-	85
MORINGACEAE	<i>Moringa oleifera</i>	Moringa	Moringa	ibabi (ritetse)	87	189	4.7	883	31.0	2.0	0.2	63
MYRTACEAE	<i>Syzygium cordatum</i>	Water berry	Umugote	icyamwa	85.8	204	0.6	-	11.6	1.4	0.2	52
MYRTACEAE	<i>Psidium guajava</i>	Guava	Iperera	icyamwa	77.1	238	1.1	60	184	1.4	0.2	54
POACEAE	<i>Eleusine coracana</i>	Finger millet	Uburo	imbuto	11.7	1594	6.2	-	-	5.3	-	15
POACEAE	<i>Triticum aestivum</i>	Wheat	Ingano	imbuto	12.5	1387	11.7	-	-	3.3	-	18
POACEAE	<i>Zea mays</i>	Maize	Ikigori	imbuto (zikuze)	10.4	1528	10.0	100	4	4.9	-	23
POACEAE	<i>Oryza sativa</i>	Rice	Umuceri	imbuto (izigumye agahu)	13.5	1480	7.6	-	-	2.8	-	25
POACEAE	<i>Sorghum bicolor</i>	Sorghum	Amasaka	imbuto	-	1459	11.1	-	-	-	-	26
POACEAE	<i>Panicum miliaceum</i>	Common millet	Uburo busanzwe	imbuto	9.6	1548	11.0	-	-	-	-	28

Plant Family	Scientific name	Common name	Kirundi name	Igice kiribwa	Ubuhehere %	Inguvu kJ	Poroteyine g	proVit A mg	Vit C mg	Fere mg	Zenke mg	Page
POACEAE	<i>Dactyloctenium aegyptium</i>	Comb fringe grass	Urwinyange	akabuto	7.5	1234	9.8	-	-	6.9	4.7	82
PROTEACEAE	<i>Macadamia integrifolia</i>	Macadamia	Makadamiya	akabuto	1.4	3004	7.9	-	1.2	3.7	1.3	84
SOLANACEAE	<i>Solanum melogena</i>	Eggplant	Inyanya ndende	icyamwa	91.8	117	0.83	6	1.3	0.4	0.2	66
TALINACEAE	<i>Talinum portulacifolium</i>	Jewel plant	Umunuranura	ibabi	90	-	1.9	-	175.6	1.4	0.5	65
ZYGOPHYLLACEAE	<i>Balanites aegyptiaca</i>	Desert date	Umugogoma	akabuto (kumye)	5.0	2286	23.0	-	-	7.0	-	80



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