

JICA CUP2 Project

IMFASHANYIGISHO GUTUNGANYA KAWA

Imfashanyigisho y'uruganda
rutunganya kawa



Ibirimo

Iyi Nyandiko isobanura:

**Kawa itonowe
ihugutishirijwe ahagera
umwuka ikaniwa itogeje**



Ubusobanuro bw'inyito

Gukurikirana inkomoko:

Uburyo bwo gukurikirana urugendo rwa kawa kuva mu murima kugeza kumuguzi wanyuma, harimo n'ibyiciro byo kuyitunganya no kuyitaho

Ihugutisha murubuto:

Uburyo bwo gutunganya kawa aho ihuguta idakuweho igishishwa, bigafasha utunyabuzima gukora mu rubuto rwose.

Ihugutisha ntamazi:

Uburyo bwo gutunganya kawa aho ihugutishwa itari mu mazi, bigafasha utunyabuzima karemano gutunganyiriza umurenda ahantu hadatose cyangwa hadahehereye cyane.

Ihugutisha ntamwuka:

Ahatagera umwukam wa ogisijeni.

Ihugutisha ahari umwuka:

Ahari ogisijeni.

Akabaho k'ibitumbwe(Cherry paddle):

Igikoresho kifashishwa mu kugenzura igipimo cyo guhisha cyangwa kureremba kw'ibitumbwe bya kawa.

Kubabuka:

Kwanika ku zuba ry'igikatu bigatuma kawa yuma igice cy'inyuma imburagihe. .

Brix:

Igipimo cy'ingano y'isukari iri mubisukika, kibarwa nk'ijanisha kuburemere.

pH:

Igipimo kigaragaza ubusharire bw'igisukika, kibarwa hagati ya 0 (igishaririye)na 14 (ikidashaririye).

Azoti (N):

Intungagihingwa y'ingenzi mubuhinzi bwa kawa ifasha igihingwa gukura neza no gutanga umusaruro

P (Phosphorus):

Intungagihingwa y'ingenzi mubuhinzi bwa kawa ifasha imizi gukura neza ndetse n'uruyange rukiyongera bityo umusaruro ukaba mwiza.

K (Potassium):

Intungagihingwa y'ingenzi mubuhinzi bwa kawa ituma ibiti bigira imbaraga, bikihanganira izuba, kandi bikera kawa nziza.

Kohereza umwuka:

Iyinjira n'isohoka ry'umwuka ahantu runaka hagamijwe kwinjiza umwuka mushya kugira ngo ubushyuhe, ubuhehere cyangwa ibyahumanya bisohoke.

Urutonde rw'ibikoresho n'imashini

Cherry paddle:

Igikoresho cyoroshye gikoreshwa mu kugenzura uko imbuto za kawa zeze cyangwa uburemere bwazo, akenshi hakoreshejwe kuzikorogoshora mu mazi kugira ngo harebwe izireremba mu gihe cyo gutoranya.



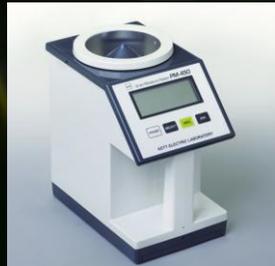
Brix meter:

Igikoresho gipima ingano y'isukari (°Brix) iri mu mbuto za kawa, umutobe cyangwa mucilage, gikoreshwa mu kumenya uko imbuto zeze n'ubushobozi bwazo bwo guhugutishwa.



Moisture meter:

Igikoresho gipima ubushuhe buri muri kawa iri mu ikawa y'amaganda (Parchment) cyangwa ikawa itonoye (green coffee), gifasha kumenya niba yumye neza kandi ishobora kubikwa neza.



pH meter:

Igikoresho gifatwa mu ntoki gipima ubukana bwa (pH) by'amazi y'umurenda, ibishishwa bya kawa cyangwa umurenda mu gihe cyo kuyitunganya.



Air-tight tank:

Ikigega gifunze neza kitinjiramo umwuka, gikoreshwa mu guhugutisha kawa mu buryo bwa butageramo umwuka (Anaerobic).



GrainPro bag:

Umufuka udacengerwa n'umwuka ukoresheya mu guhugutisha kawa (Ibitumbwe cyangwa ikawa yatonowe) mu buryo bugabanya umwuka/oxygen kugira ngo uburyo bwa anaerobic bukore neza.



Uko n'Impamvu Dukoresha Ibi Bikoresho n'Imashini

Gukoresha ibikoresho bikwiye kuri buri cyiciro cyo gutunganya kawa bituma ubwiza bwa kawa buguma buhoraho, bigafasha gufata ibyemezo byiza kandi bikagabanya inenge. Ibikoresho bikurikira bikoreshwa mu gusuzuma neza ubuziranenge bw'imbuto za kawa (cherries), kugenzura ihugutisha (fermentation), no kurinda kawa mu gihe cyo kuyanika no kuyibika.

Cherry paddle:

IMPAMVU: Gikoreshwa mu kugenzura ubwiza bw'imbuto za kawa mu gihe cyo gutoranya.

INTAMBWE 1: Fata imbuto za kawa 100 udatoranyije mu mufuka uzishyire kurubaho (cherry paddle).

INTAMBWE 2: Hitamo ibara ry'imbuto zeze neza zemewe.

INTAMBWE 3: Bara umubare w'imbuto zeze muri izo 100 hanyuma ubone ijanisha.

INTAMBWE 4: Ijanisha ry'imbuto zeze zigomba kuba nibura riri hejuru ya 70%.

INTAMBWE 1



INTAMBWE 2



INTAMBWE 3&4



Brix meter:

IMPAMVU: Gikoreshwa mu kumenya uko imbuto zeze no kumenya ubushobozi bwo guhugutishwa hifashishijwe ingano y'isukari.

INTAMBWE 1: Fata imbuto za kawa 3 udatoranyije (Randomly).

INTAMBWE 2: Shyira umutobe uva mugitumbwe cya kawa kuri hagati kuri Brix meter.

INTAMBWE 3: Soma igipimo kigaragara °Brix hanyuma ucyandike.

INTAMBWE 4: Koresha impuzandengo uhitamo uburyo bwo gutunganya n'igihe cyo guhugutisha.

INTAMBWE 1&2



INTAMBWE 3&4



Uko n'Impamvu Dukoresha Ibi Bikoresho n'Imashini

Gukoresha ibikoresho bikwiye kuri buri cyiciro cyo gutunganya kawa bituma ubwiza bwa kawa buguma buhoraho, bigafasha gufata ibyemezo byiza kandi bikagabanya inenge. Ibikoresho bikurikira bikoreshwa mu gusuzuma neza ubuziranenge bw'imbuta za kawa (cherries), kugenzura Ihugutisha, no kurinda kawa mu gihe cyo kuyanika no kuyibika.

Moisture meter:

IMPAMVU: Gikoreshwa mu kumenya ubuhehere bwa kawa kugira ngo hamenyekane niba yumye neza kandi ishobora kubikwa neza

INTAMBWE 1: Hitamo uburyo bwo gupima bitewe n'icyo uri gupima (parchment, dried cherry cyangwa green coffee).

INTAMBWE 2: Fata ingano nke ya kawa.

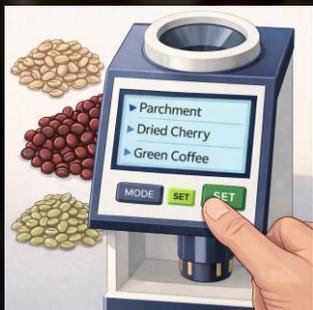
INTAMBWE 3: Pima ubuhehere ukoresheje moisture meter.

INTAMBWE 4: Soma ijanisha ry'ubuhehere hanyuma ucyandike.

INTAMBWE 5: Niba ubuhehere buri hejuru, komeza kuyanika.

Niba buri mu rwego rwemewe, jya kuyibika.

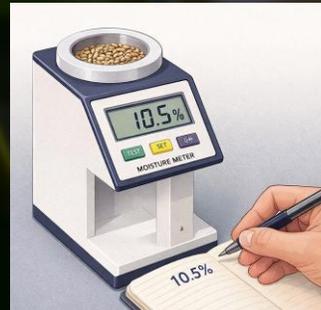
INTAMBWE 1



INTAMBWE 2



INTAMBWE 3&4&5



pH meter:

IMPAMVU: Gikoreshwa mu kugenzura aside (pH) mu gihe cyo guhugutisha.

INTAMBWE 1: Reba niba igikoresho kiri kukigero kimwe n'amazi (kigomba kwerekana hafi ya pH 7.0).

INTAMBWE 2: Fata urugero rw'amazi ya ava mugihe cyo guhugutisha cyangwa umurenda.

INTAMBWE 3: Shyira umutwe wa pH meter muri ayo mazi.

INTAMBWE 4: Soma pH hanyuma ucyandike.

INTAMBWE 5: Niba pH igabanutse cyane cyangwa vuba cyane, uhagarike cyangwa uhindure ihugutisha.

INTAMBWE 1



INTAMBWE 2&3



INTAMBWE 4&5



Uko n'Impamvu Dukoresha Ibi Bikoresho n'Imashini

Gukoresha ibikoresho bikwiye kuri buri cyiciro cyo gutunganya kawa bituma ubwiza bwa kawa buguma buhoraho, bigafasha gufata ibyemezo byiza kandi bikagabanya inenge. Ibikoresho bikurikira bikoreshwa mu gusuzuma neza ubuziranenge bw'imbutu za kawa (cherries), kugenzura ihigutishwa, no kurinda kawa mu gihe cyo kuyanika no kuyibika.

Air-tight tank:

IMPAMVU: Gikoreshwa mu kugenzura fermentation hagabanywa umwuka winjira kugira ngo habeho (anaerobic fermentation).

INTAMBWE 1: Sukura ikigega neza kugira ngo wirinde umwanda cyangwa ubwandu.

INTAMBWE 2: Shyira imbuto za kawa cyangwa ikawa y'amaganda mu kigega.

INTAMBWE 3: Funga ikigega neza kugira ngo umwuka utinjira.

INTAMBWE 4: Koresha S-hook urebe niba ihugutishwa ritageramo umwuka/anaerobic iri kuba.

INTAMBWE 5: Reka kawa ihugutishwe mu gihe cyateganyijwe.

INTAMBWE 6: Fungura ikigega ugenzure pH urebe niba ihugutishwa ryaragenze neza.

INTAMBWE 1

INTAMBWE 2

INTAMBWE 3&4&5

INTAMBWE 6



GrainPro bag:

IMPAMVU: Gikoreshwa mu kugenzura ihugutishwa no kurinda ubwiza bwa kawa hagabanywa umwuka.

INTAMBWE 1: Shyira imbuto za kawa cyangwa ikawa yamaganda mu mufuka wa GrainPro.

INTAMBWE 2: Kuramo umwuka uri mu mufuka hanyuma uwufunge neza.

INTAMBWE 3: Bika uwo mufuka ahantu hasukuye kandi hari igicucu.

INTAMBWE 4: Reka kawa ihugutishwe mu gihe cyateganyijwe.

INTAMBWE 5: Fungura umufuka ukomeze gutunganya cyangwa ugenzure ubwiza bwa kawa (impumuro, pH n'imiterere).

INTAMBWE 1

INTAMBWE 2

INTAMBWE 3&4

INTAMBWE 5



Ibyitabwaho points

Gufata neza ubutaka

Igipima pH



Igipima ubushyuhe & ubuhehere



Amazi / isuku



Gukurikirana kawa



Ibipimo

- **pH:** Igipimo intungagihingwa zifatirwaho (5.0-6.0)
- **N:** Ngombwa kuri fotosenteze
- **P:** Imizi n'uruyange bizima
- **K:** Gukura kw'intete no kongera uburyohe muri rusange

- **Ibara:** atanduye kandi abonerana
- **pH:** iyo atanduye, pH yakagombye kuba hafi ya 7.0
- **Incuro zo gusukura:** Burimunsi imashini igomba kozwa mbere yo gukoreshwa

- Gukoresha igitabo n'udupapuro twerekana inkomoko
 - Aho ibitumbwe byaturutse
 - Uburyo bwo kubitunganya
 - icyiciro n'uburemere
 - Tarike yakiriweho
 - Igihe guhugutisha no kwanika bimara

Impamvu



Ubutaka bwiza
↓
Ibitumbwe byiza
↓
Impumuro nziza



Amazi mabi
↓
Kawa yanduye n'impumuro mbi



Nta gukurikirana
↓
Uburyo butanoze mu gutunganya no kwamamaza kawa

Uburyo butandukanye bwo gutunganya kawa

Izina	1 Kawa Yogeje neza (Ihugutisha ntamazi)	2 Kawa Yogeje neza (ihugutisha idatonoye)	3 Itunganyije Ntamazi ahagera umwuka	4 Itunganyije ntamazi ahatagera umwuka	5 Yanitswe je idatonoye	6 Ihugutishijwe idatonoye ahatagera umwuka
Ifoto						
Imiterere	<ul style="list-style-type: none"> Niyo imenyerewe Biroroshye kuyikurikirana Uburyohe bwumvikana 	<ul style="list-style-type: none"> Biroroshye kuyikurikirana Uburyohe bwumvikana 	<ul style="list-style-type: none"> Iryohereye biringaniye Impumuro y'imbuto 	<ul style="list-style-type: none"> Ahatagera ogisijeni Impumuro y'umuzabibu w'umweru 	<ul style="list-style-type: none"> Nta guhera bikenewe Iryohereye, impumuro zitandukanye Impumuro ya divayi 	<ul style="list-style-type: none"> Nta ogisijeni Impumuro y'imbuto z'ahashyuha
Ibyiciro	Gusarura	Gusarura	Gusarura	Gusarura	Gusarura	Gusarura
	Kujonjora	Kujonjora	Kujonjora	Kujonjora	Kujonjora	Kijonjora
	Guhera	Guhugutisha ibitumbwe	Guhera	Guhera	↓	↓
	Guhugutisha ntamazi	Guhera	Guhera	Guhugutisha ahatagera ogisijeni		
	Koza no gushyira mubyiciro	Kozaa no gushyira mubyiciro	↓	↓	↓	↓
	Kumutsa mbere yo kwanika	Kumutsa mbere yo kwanika				
	Kwanika	Kwanika	☀️ Kwanika	☀️ Kwanika	☀️ Kwanika	☀️ Kwanika
	Kubika	Kubika	Kubika	Kubika	Kubika	Kubika

3. Kawa itunganyijwe nta mazi kandi ihugutishijwe ntamwuka

Ibyiza by'ububuryo

- Hakoresha amazi macye ugereranyije n'uburyo bwo Koza kawa
- Kugabanya ibyatera ubusembwa ugereranyije nuburyo bwa gakondo
- Itanga impumuro yihariye y'imbuto

Ibisabwa byiza

1. Isukari iri hejuru ya 20.0
2. Kugenzura neza uburyo bwo kwanikana umurenda, cyane cyane mu minsi yambere
3. Kwirinda ubusembwa buturutse ku guhugutisha no kuma insigane

1

Gusarura

2

Kujonjora

3

Harvesting

4

Guhera

5

Kwanika

6

Kubika

UMUNSI 1

UMUNSI 1- 2

UMUNSI 2

UMUNSI 2
(Mugihe cy'iminsi 30)

Ibyiciro



Intambwe 1: Gusarura

Intego: Ikawa ihishije ifite isukari nyinshi n'icyanga bitanga impumuro

Ibikoresho bikenewe



Koresha **igisarurirwamo** mugihe cyo gusarura kawa



Sasa **shitingi muni** y'igiti itangire ikawa yaguye hasi



Koresha **imifuka isa neza** mugukusanya umusaruro

Ingingo nyamukuru

① Gusarura **ibitumbwe bihishije neza gusa**



Kuberako...



70kg



100kg

Uburemere

Igiciro ku muhinzi

700rwf/kg

700rwf/kg

Igiciro

49,000rwf

70,000rwf



② Tangira gusarura **mugitondo**.



③ Geza kawa kuruganda **bitarenze amasaha amasaha 8 nyuma yo gusarura**



④ Ntutore kawa yaguye **ku butaka**, Kumira **ubwandu**



⑤ Shyira umusaruro wa kawa **ahatagera izuba** uyirinde ihuguta riyihuse

3. Kawa itunganyijwe nta mazi

Intambwe 2: Kujonjora – Kujonjora hagendewe ku ibara

Ikigamijwe: Gushyira kawa mubyicro – Zihishije/ Izidahishije/ izarengeranye

Ibyitabwaho ①

95% bya kawa irahishije neza



Ibyitabwaho ②

Ingano y'isukari: hejuru ya 20.0



Intambwe 3: Guhugutisha Ibitumbwe (Amasaha 12-18)

Purpose: enhance fermentation aroma through in-fruit fermentation

Ibikoresho

Koresha **indobo, itanki cyangwa umufuka** uhugutisha igihe cy'amasaha 12-18 (Kugera mugitondo)



Ingingo nyamukuru

① Guhugutisha **ahagera umwuka** (umufuka cg itanki ifunguye) **amasaha 12-18** (Kugera mugitondo)



② Nyuma yo guhuguta, reba neza ko kawa yahuguse **ifite impumuro y'inzoga kandi upime ubusharire (pH:5.5)**



Intamwe 3: Guhera

Intego: Gukuraho igishishwa hadakuweho umurenda

Ibikoresho

Gukoresha **imashini ihera** ikoresha amazi macye



Ingingo nyamukuru

- ① Imashini ihera yakabaye **ikoresha amazi macye** kugira ngo idakuraho umurenda
- ② **Kuregera imashini, ingano y'ibitumbwe n'umuvuduko** hirindwa ko kawa yangirika.
- ③ **Koza imashini burimunsi** hirindwa kwanduza kawa



Ibyitabwaho

Fata intete 100 za Kawa ugenzure niba izangiritse ziri munsi ya 10% kandi niba imbuto zitatonowe neza ziri munsi ya 10%

+

Kandi genzura kawa y'amaganda nyuma yo gutonora kugira ngo urebe ko umurenda itatakaye cyane.



Intambwe ya 4: Kwanika

Intego: Kugabanya ubuhehere hadakuweho umurenda utanga impumuro

Ibikoresho



shadineti n'is Ashe hirindwa ubushyuhe bwinshi, imvura n'urume



Rato y'igiti muguhindura kawa hadakuweho umurenda



Moisture meter mukugenzura ubuhehere bwa kawa

Ingingo z'ingenzi

① **Koresha shadineti** hirinda ubushyuhe bukabije hagati ya **saa tanu** na **saa cyenda**



② **Kwanika ku zuba umunsi** 1-2 uhagarika ihugutisha isukari iguma kuri kawa.

③ **Kuruhuka:** Umunsi umwe mu cyumweru, pfuka parchment neza yose.



④ **kumira rimwe:** Korogosha kawa inshuro 3 ku munsi ukoresheje rake. Ubunini bw'urutonde rwa kawa: 3 cm (mu minsi 2 ya mbere) → 5-7 cm nyuma.



**Irinde gukorogosha cyane.*

Ibyitabwaho

① **Ubuhehere:** Hagamijwe **10-12%** mubihe byiza. Pima ubuhehere 2 kumunsi.



② **Igihe:** Byibuze **iminsi 30**. kwanika bigomba gukurikiranwa hakirindwakuma vuba kandi insigane.



③ **Ubushyuhe bwa kawa:** Ubushyuhe bwakagombye guhora **munsi ya 25 °C muminsi 3 yambere na 35°C nyuma yaho** hirindwa kwangiza umutima wa kawa.



Icyiciro 5: Kubika

Intego: Kugumisha kawa kukigero kimwe nyuma yo kwanika hagamijwe gucuruza no Guhera

Ibikoresho

Palete hirindwa kwangirika



Ingingo nyamukuru

- ① **Kugenzura ubuhehere:** Kugumisha kawa kububore bwa **10-12%**



- ② **Kohereza umwuka/guhungiza:** Kugenzura umwuka winjira n'usohoka hirindwa urume n'ubuhehere bwo hejuru



Ibyitabwaho

- ① **Ubushyuhe:** Gukomeza ubushyuhe bwa **15-23°C** hirindwa kwangirika



- ② **Ubuhehere:** Gukomeza ubuhehere kuri **50-70%** hirindwa uruhumbu



- ③ **Kuruhuka:** Kawa igomba kubikwa hafi **amezi 2** kugira ngo ubushuho bwayo bugume ku gipimo gihamye.



Inyongera A: Urugero rw'ifishi ikoresheha mu gucunga lot ya kawa

Lot management sheet

CWS: _____ Name: _____

-Receiving date: dd/mm/yyyy

-Process method: FW / HN / NR / Other (____)

-Certificate: _____

-Lot name: _____

-Main area: _____

-Fermentation: _____ hours (From ____:____ to ____:____)

-Soaking: _____ hours (From ____:____ to ____:____)

-Grade: A1 / A2 / A3 / Triage

-Drying start date: dd/mm/yyyy

-Drying end date: dd/mm/yyyy

-Moisture content: _____%

-Final weight: _____ kg

Weight

kg

CWS: izina rya Coffee Washing Station yakiriye kandi itunganya iyo lot ya kawa.

Receiving date: itariki nyayo imbuto za kawa zagejwe kuri Coffee Washing Station.

Process method: uburyo bwo gutunganya bwakoreshejwe kuri iyo lot ya kawa (nka Fully Washed, Honey, Natural cyangwa ubundi buryo bwagenwe).

Certificate: icyemezo cy'ubuziranenge iyo lot ya kawa ifite niba gihari (nka Organic, Fairtrade, cyangwa Rainforest Alliance).

Lot name: izina cyangwa kode yihariye ihabwa lot ya kawa kugira ngo ikurikiranwe neza.

Main area: aho imbuto za kawa zaturutse cyane, nko mu murenge, akagari cyangwa umudugudu zasaruwemo.

Fermentation: igihe cyose kawa yamaze iboragizwa (mu masaha), harimo igihe yatangiriye n'igihe yarangiriye.

Soaking: igihe kawa yamaze mu mazi meza nyuma ya fermentation, harimo igihe yatangiriye n'igihe yarangiriye.

Drying start/end date: itariki kumisha byatangiriye n'itariki byarangiyeye, bigaragaza igihe cyose cyo kumisha.

Moisture content: igipimo cy'ubushyuhe (%) bwa nyuma bwa kawa nyuma yo kumishwa, gipimwa mbere yo kuyibika cyangwa kuyitonora.