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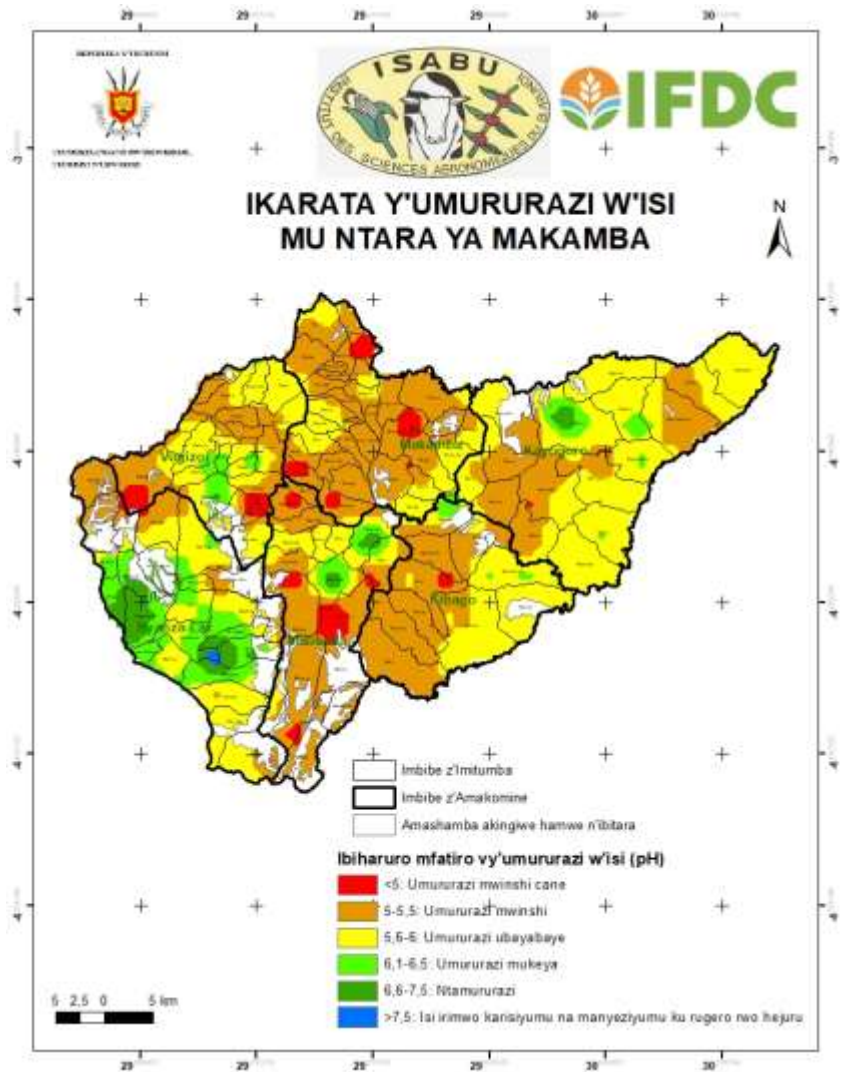


UBUSHIKIRANGANJI BW'IBIDUKIKIJE,
UBURIMYI N'UBWOROZI



**AGATABU KEREKANA AMAKARATA
Y'AKANOVERA K'ISI NDIMWA YO MU
NTARA YA MAKAMBA**

Umwaka wa 2022



Bujumbura, Ruheshi 2022

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1. INTANGAMARARA

1.1. Ingene akanovera k'isi ndimwa kifashe

Itituka ry'isi ndimwa mu Burundi ntirikiri agaseseshwa rumuri, bituma umwimbu ugabanuka kandi abantu nabo batera biyongera. Ibituma akanovera k'isi kagabanuka navyo ahani nibi bikurikira :kudakoresha neza ibisigarira vy'ivyimburwa, kutarwanya inkukura ku rugero rushimishije, ubuhinga n'ubumenyi budakwiye mu guhingura no kurwiza ifumbire y'ikirundi,....

Kugira ngo isi isubire yimbuke, birakenewe ko hamenyekana ingene isi yifashe muri rusangi mu gihugu kugira ngo abafasha n'abakorera mu gisata c'uburimyi bisunge ibiharuro vya none.

Amararata yo mu ntara yafatiye ku rugero rw'umururazi w'isi (pH), ku vyunyuny : rukomezangingo (P), nyarubabi (N) na nyaruteke (K). Ubuhinga bwinshi burakoreshwa rero mu kugarukana akanovera k'isi ndimwa : gukoresha ifumbire y'ikirundi ; gukoresha ishwaraga, guhingura imicafu yo mu ngo n'ibisagara (ibigigarira vy'imfungurwa, umwanda muto na mukuru,

ibisigarira vyo mu mahinguriro,...), kurwanya inkukura, gukoresha neza ifumbire y'ikizungu, n'ibindi n'ibindi.

1.2. Intumbero nyamukuru yayo makarata

Gufasha kugarukana akanovera k'isi mu kwerekana urugero rw'ivyunyunyuru nyamukuru n'umururazi turiko kugira ngo abajewe gufata ingingo no kuzishira mu ngiro bavyisunge.

Kugira dushikire iryo hangiro hakoze ibi bikurikira :

- Gukora amakarata y'umururazi, y'ivyunyunyuru bikuru bikuru : nyarubabi, fosifore na nyaruteke ;
- Gutanga insiguro y'ivyibonekeza ku makarata ;
- Gutanga intumbero yo gufumbira isi ndimwa.

2. INGENE IBIKORWA VYAKURIKIRANYE

Abakozi bo muri ISABU bafashaniye nabo mu gisata kijejwe gufumbira isi ndimwa mu bushikirangaji bw'uburimy, ibidukikije, n'ubworozi bafashwe mu mugongo na IFDC, baragiye mu gihugu cose batora ivu ry'isi ndimwa mu bibanza 1377. Iryo vu ryapimiwe muri ISABU. Inyuma yaho amakarata y'akanovera n'umururazi w'isi ndimwa yarakozwe hisunzwe

ibiharuro vyavuye muri laboratware. Mu nama yo kuyemeza, hasabwa ko hokorwa amakarata intara ku ntara n'insiguro yayo no gushika muri komine.

3. IKARATA Y'UMURURAZI/UBUKARIHE (pH)

3.1. Ibiharuro mfatiro vy'umururazi w'isi (pH)

Urugero	Ibiharuro mfatiro vy'umururazi w'isi
umururazi mwinshi cane	< 5
umururazi mwinshi	5 - 5,5
umururazi ubayabaye	5,6 - 6,0
umururazi mukeya	6,1 - 6,5
nta mururazi	6,6 -7,5 :
Isi irimwo kariciyumu na manyesiyumu kurugero rwo hejuru.	> 7,5

3.2. Ivyashitsweko

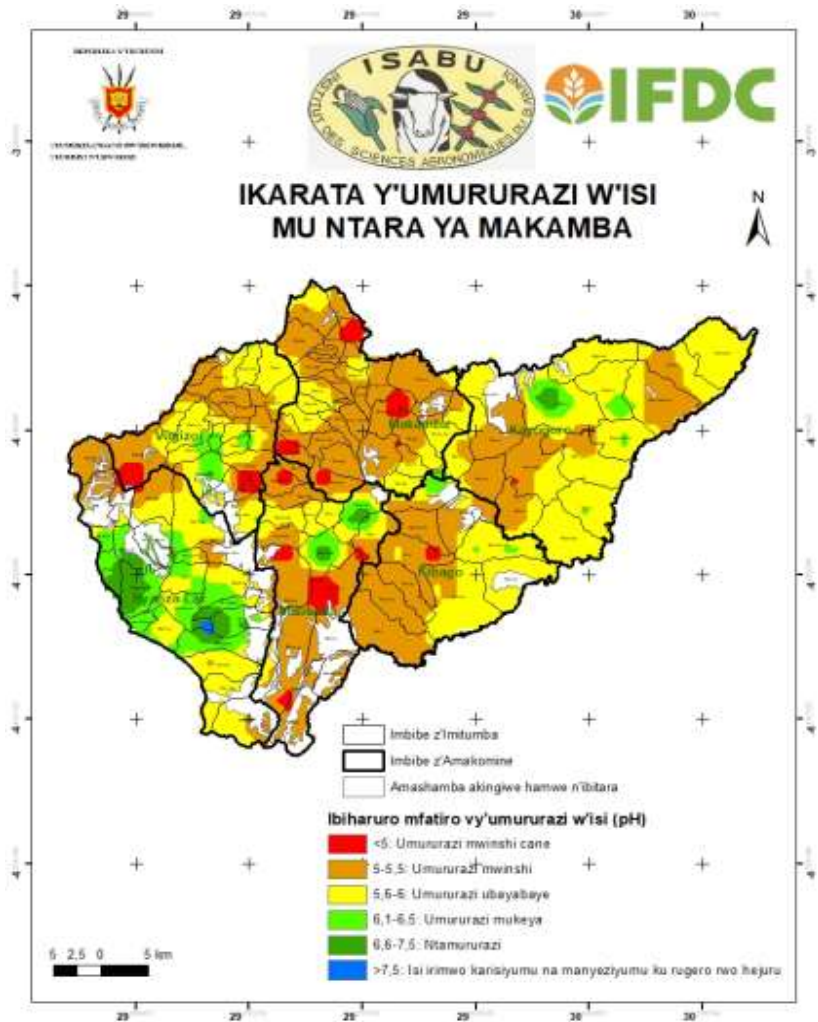
- Ibice vyababa 47 kw' ijana (47 %) vy'isi ndimwa yo mu ntara ya Makamba bifise umururazi mwinshi gushika kuri mwinshi cane;

- Ibice 43 kw`ijana (43%) vy`isi ndimwa bifise umururazi ubayebaye;
- Ahasigaye hari umururazi mukeyi, ahandi nta mururazi uhari canke hari isi ndimwa irimwo kalisiyumu na manyeziyumu ku rugero rwo hejuru;
- Ikomine ya Nyanza-Lac ifise isi irimwo kalisiyumu na manyeziyumu ku rugero rwo hejuru.

Uburunganire bw`isi ndimwa dufatiye ku rugero rw`umururazi

Urugero rw`umururazi	Uburunganire (ha)	Ibice kw`ijana (%)
Umururazi mwinshi cane	5154,1	3,1
Umururazi mwinshi	72931,8	43,4
Umururazi ubayabaye	72301,2	43,0
Umururazi mukeyi	12967,1	7,7
Nta mururazi	4495,7	2,7
isi irimwo kalisiyumu na manyeziyumu ku rugero rwo hejuru	157,1	0,1
Vyose hamwe	168007	100,0

3.3. Ikarata y`umurazi (pH)



4. IKARATA Y'ICUNYUNYU NYARUBABI (N)

4.1. Ibiharuro mfatiro ku cunyunyu nyarubabi (N)

Urugero	Urugero rwa nyarubabi kw`ijana (%)
Rukeyi cane	< 0,1
Rukeyi	0,1-0,2
Rubayabaye	0,2-0,5
Rukwiye	0,5-1,0
Rukwiye cane	>1,0

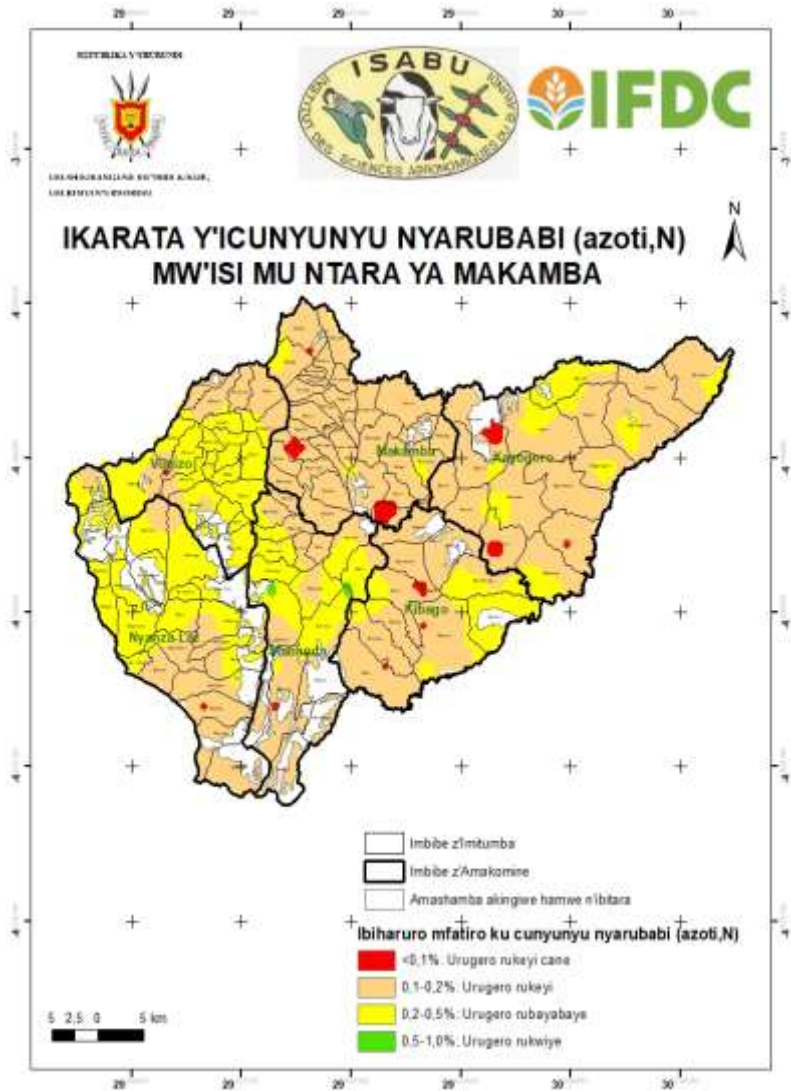
4.2. Ivyashitsweko

- Ibice birenga gato 32 kw`ijana (32 %) vy'isi ndimwa bifise urugero rubayabaye ku cunyunyu nyarubabi ;
- Ibice birenga gato 66 kw`ijana (66 %) vy'isi ndimwa bifise urugero rukeyi ;

Uburinganire bw`isi ndimwa dufatiye ku rugero rw`icunyunyu nyarubabi

Urugero rw`icunyunyu nyarubabi	Uburinganire (ha)	Ibice kw`ijana (%)
Rukeyi cane	1857,1	1,1
Rukeyi	111523,8	66,4
Rubayabaye	54450,5	32,4
Ruri hejuru	183,6	0,1
Vyose hamwe	168015	100,0

4.3. Ikarata y'icunyunyu nyarubabi (N)



**5. IKARATA Y' ICUNYUNYU
RUKOMEZANGINGO (P) IGITERWA
GISHOBORA GUKORESHA**

**5.1. Ibiharuro mfatiro ku cunyunyu rukomezangingo
(P) (mg/kg)**

Urugero	Ibiharuro vya rukomezangingo (mg/kg)
Kiri ku rugero ruri hasi cane	0 - 5
Kiri ku rugero ruri hasi	5 - 20
Kiri ku rugero rubayabaye	20 - 50
Kiri ku rugero rukwiye	50 - 100
Kiri ku rugero rukwiye cane	>100

5.2. Ivyashitsweko

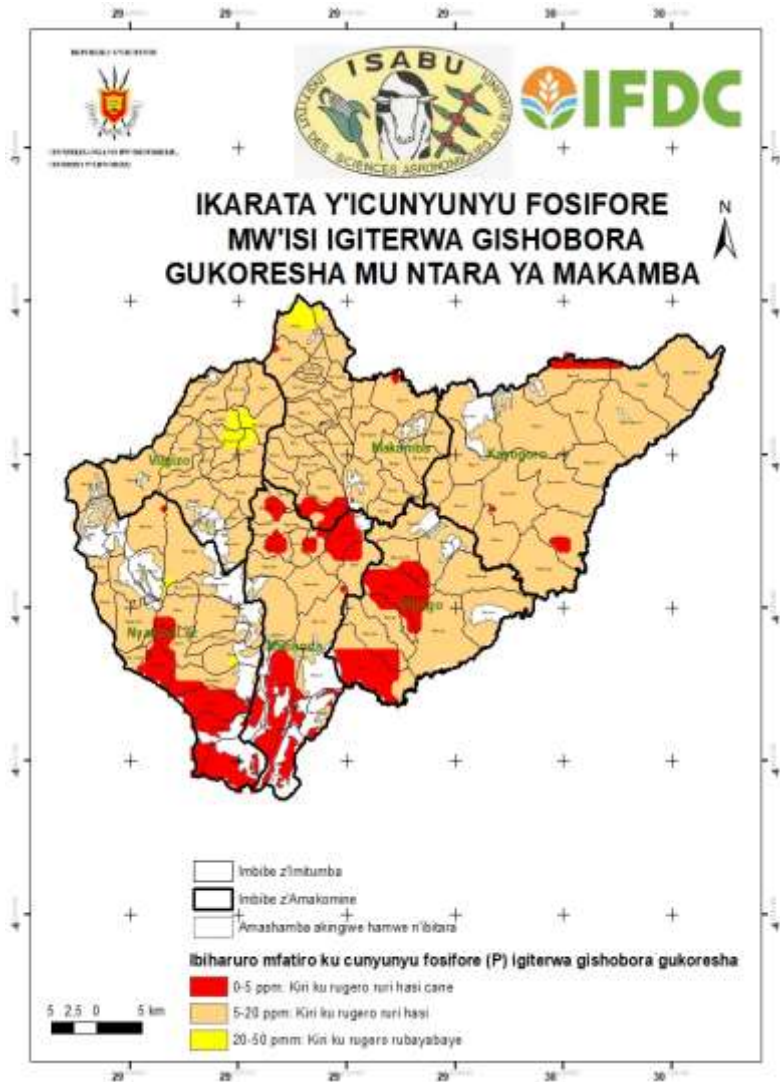
- Ibice vyababa 14 kw`ijana (14 %) vy`isi ndimwa vy`intara ya Makamba bifise icunyunyu ca rukomezangingo kiri ku rugero ruri hasi cane ;
- Ibice vyababa 99 kw`ijana (99 %) vy`isi ndimwa vy`intara ya Makamba bifise icunyunyu ca

rukomezangingo kiri ku rugero ruri hasi canke
ruri hasi cane ;

**Uburinganire bw`isi ndimwa dufatiye ku rugero
rw`icunyunyu fosifore igiterwa gishobora gukoresha**

Urugero	Uburinganire (ha)	Ibice kw`ijana (%)
Ruri hasi cane	22779	13,6
Ruri hasi	142802	85,0
Rubayebaye	2464,1	1,5
Vyose hamwe	168045	100,0

5.3. Ikarata y'icunyunyu rukomezangingo (P) igiterwa gishobora gukoresha



6. IKARATA Y'ICUNYUNYU NYARUTEKE (K) IGITERWA GISHOBORA GUKOresha

6.1. Ibiharuro mfatiro ku cunyunyu nyaruteke (még ku magarama ijana y`ivu ryumye)

Urugero	Ibiharuro vya nyaruteke (még ku magarama ijana y`ivu ryumye)
urugero ruri hasi ;	< 0,25
urugero rubayabaye ;	0,25-0,5
urugero rukwiye ;	0,5-1,0
urugero rukwiye cane.	>1,0

6.2. Ivyashitsweko

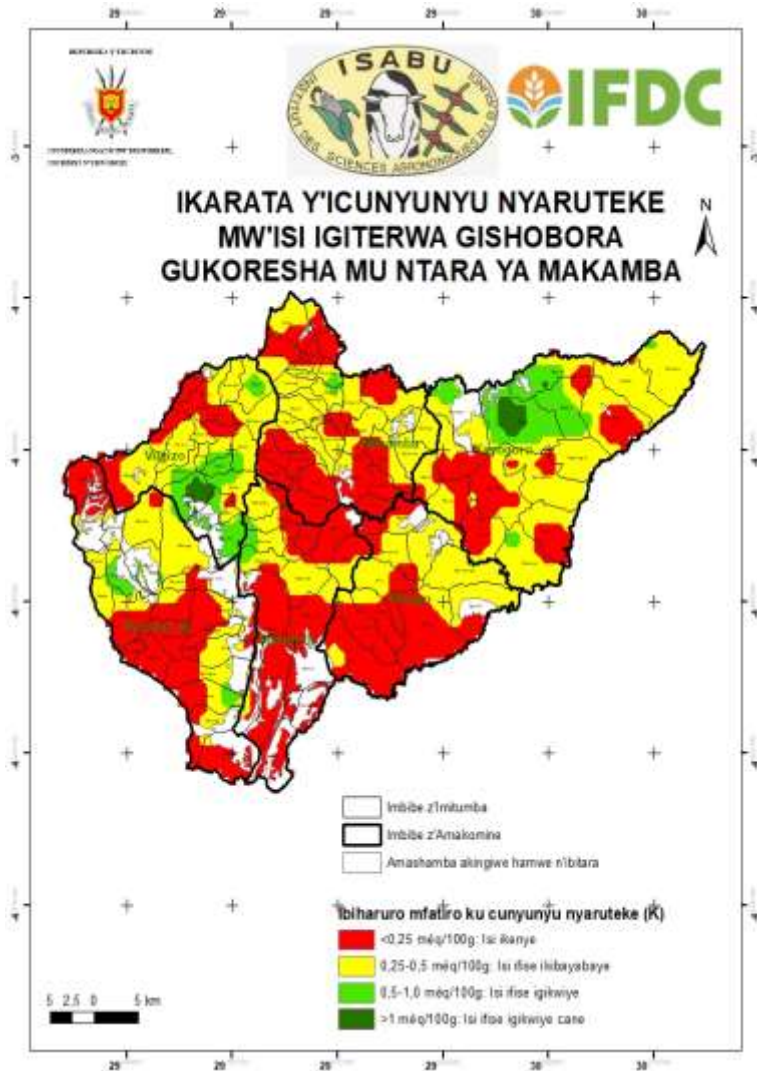
- Ibice birenga gato 48 kw`ijana (48 %) vy'isi ndimwa yo mu ntara ya Makamba bifise icunyunyu nyaruteke ku rugero rubayabaye.
- Ibice vyababa 43 kw`ijana (43 %) vy'isi ndimwa yo mu ntara ya Makamba bifise icunyunyu nyaruteke ku rugero ruri hasi ;

- Ibice birenga gato 9 kw'ijana (9 %) vy'isi ndimwa bifise icunyunyu nyaruteke ku rugero rukwiye canke rukwiye cane.
- Amakomine ya Kayogoro na Vugizo afise isi ndimwa ifise icunyunyu nyaruteke ku rugero ruri hejuru cane ugereranije n'ayandi.

Uburinganire bw'isi ndimwa dufatiye ku rugero rw'icunyunyu nyaruteke (K) igiterwa gishobora gukoresha

Urugero	Uburinganire (ha)	Ibice kw'ijana (%)
Urugero ruri hasi	71983	42,8
Urugero rubayabaye	80838,9	48,1
Urugero rukwiye	13482,5	8,0
Urugero rukwiye cane	1797,2	1,1
Vyose hamwe	168101,6	100,0

6.3. Ikarata y'icunyuny nyaruteke igiterwa gishobora gukoresha



7. INSIGURO

Isi ndimwa y'intara ya Makamba igizwe n'umururazi mukeya. Amakomine yo mu kiyaya c'Imbo agizwe n'isi ndimwa irimwo kalisiyumu na manyeziyumu ku rugero rwo hejuru ugereranije n'ayandi makomine. Icunyunyu nyarubabi (N) kiri ku rugero rubayabaye ku bice mirongo itatu na bibiri kw'ijana (32%), nyaruteke (K) iri ku rugero rubayabaye ku bice mirongo ine n'umunani kw'ijana (48%) ariko icunyunyu rukomezangingo (P) kiri ku rugero rudashemeye ku bice birenga mirongo icenda n'icenda kw'ijana (+99%).

8. GUSOZERA

Icunyunyu rukomezangingo (P) gitegerezwa kwongerezwa mw'isi ndimwa y'intara yose ya Makamba. Ivyunyunyu nyarubabi (N) na nyaruteke (K) birakenewe kwongerezwa kugira ibiterwa bikure neza. Gukoresha ishwaraga mu kugabanura umururazi w'isi birafasha mu kubohora icunyunyu rukomezangingo kiba caboshwe n'ivyunyunyu vy'ubumara. Gukoresha ifumbure y'ikirundi birafasha mu gusahiriza ifumbire y'ikizungu yarisanzwe ikoreshwa.

IVYONGEWEKO: Urugero rw’ishwagara ikoreshwa mu ndimo

Ubwoko bw’isi	Ibipimo vy’umururazi w’isi	Urugero rwo kuvura isi	Urugero rwo kubungabunga isi
		Kg/are	Kg/are
Isi y’ibumba/inombe	< 4,7	17	6
	4,7-5,2	14	6
	5,2-5,7	7	5
	>5,7	0	0
Isi y’ikivuvu	< 4,7	14	5
	4,7-5,2	10	5
	5,2-5,7	7	4
	>5,7	0	0
Isi y’umusenyi	< 4,7	8	4
	4,7-5,2	5	4
	5,2-5,7	3	3
	>5,7	0	0
Ibi biharuro bifatiye kw’ishwagara ikorerwa mu burundi. Ibipimo vyayo ni: CaO:27% gushika kuri 30%; MgO:20% gushika kuri 21%			