	<b>Uburyo bwo gukusanya, gutunganya no gukwirakwiza amakuru kuri filiyeri y'imbuto mu Rwanda</b>	Kode y'inyandiko: 41KR138I147v0
	<b>IGICE CYA 4 : UBUMENYI BW'IMIKORERE MU BYA TEKINIKI</b>	Itariki yo kujyanisha inyandiko n'igihe UKUBOZA 2007
<b>IFISHI IRANGA ITUBURA RY'IMBUTO ZIFITE ICYEMEZO : Ibirayi</b>		Inyandiko ikomatanyije

<b>Inkomoko y'inyandiko</b>	Projet AFSR
-----------------------------	-------------

<b>Itariki inyandiko yasohokeye</b>	Ukwakira 2007
-------------------------------------	---------------

<b>Umubare w'amapagi</b>	4
--------------------------	---

# **IFISHI IRANGA ITUBURA RY'IMBUTO ZIFITE ICYEMEZO (Semences certifiées)**



## **Ibirayi (Solanum tuberosum L.)**



Ibirayi Gikungu



### **1. AHO BIHINGWA**

#### **1.1. Akarere :**

Kuva kuri m 1800 kugeza kuri m 2300 mu misozi miremire y'ubutaka bw'amakoro, mu misozi miremire ya Buberuka n'imisozi y'Isunzu rya Congo Nil.

#### **1.2. Ubutaka :**

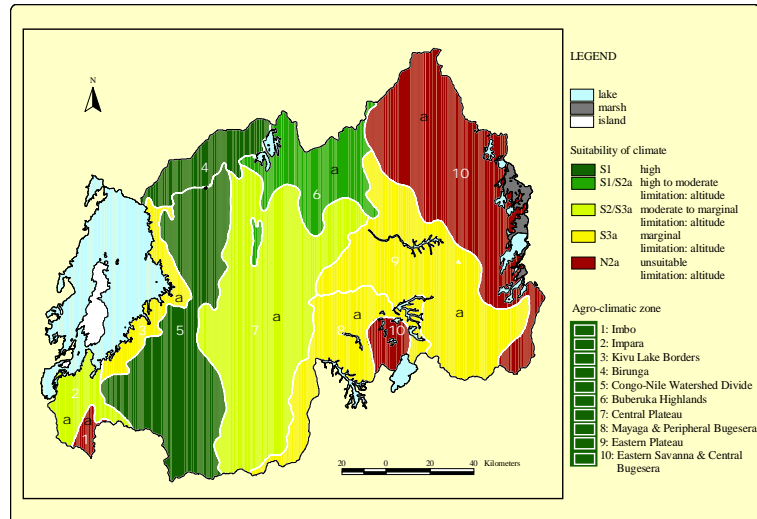
Ubutaka bwera, bworoshye, burimo amazi ahagije bufite n'ubusharire buke (pH 6 kugeza kuri 6,5).

#### **1.3. Umurima bihingwamo:**

- Nyuma yo gutera urangwa n'icyapa cyanditseho : izina ry'imbuto, itariki iterweho, ubuso, ubwoko bw'imbuto zisarurwa, na numero iranga umuhinzi n'umurima.
- **Ugomba kuba uri kuri m 5 uvuye ku yindi mirima y'ibirayi ariko bitarobanuye cyangwa by'ubundi bwoko.**

#### **1.4. Ibindi bisabwa**

- Ubushyuhe bwo hejuru bukenewe kugira ngo ibirayi bikure neza kandi bishore bugomba kuba hagati ya 12° na 20° C;
- Bikenera amazi igihe cyose bikura (mm ±300).



### **2. UKO BISIMBURANA N'IBINDI BIHINGWA**

Kugira ngo indwara zigabanuke, byaba byiza **ibirayi bihinzwe mu murima wavuyemo ibindi birayi nyuma y'ibihe by'ihinga bine** kandi ibyimejeje byose bikarandurwa muri icyo gihe. Ibirayi bigomba guhingwa ahatahinzwe indi myaka, mu murima udaheruka guhingwa cyangwa warajwe.

### 3. IBIRANGA IMBUTO ZIBONEKA MU RWANDA

UBWOKO	IBIBURANGA				
	Igihe bwerera (Iminsi)	Umusaruro( Toni /Hegitari)	Igihe bimara bitaramera (iminsi)	Uko bwihanganira indwara ya kirabiranya	Uko bwihanganira indwara y'imvura (mildiou)
Sangema	110-120	20-25	100-120	Burayihanganira	Ntiyihanganira
Kirundo	100-110	25	30-50	Burayihanganira	Ntacyo ibutwara
Mabondo	100-110	25	50-60	Birrazihanganira	Ntacyo ibutwara
Victoria	100-110	25	30-50	Burayihanganira	Ntacyo ibutwara
Cruza	120-130	25	20-30	Ntacyo zibutwara	Burihangana buke
Gikungu	100-120	34,7	70	Burayihanganira	Ntacyo ibutwara
Kigega	100-120	39,8	70	Burayihanganira	Ntacyo ibutwara
Mizero	100-120	40,5	60	Burayihanganira	Ntacyo ibutwara

### 4. UBURYO IMBUTO ZIHINGWA

#### 4.1. Itera

- Haterwa umufungo umwe w'imbuto **shingiro** z'ibirayi bifite imimeri, byuzuye, bizima kandi bingana.
- Igihe cyo gutera: Muri Nzeri mu gihe cy'ihinga A no muri Werurwe mu gihe cy'ihinga B, bitewe n'igihe imvura itangiriye kugwa.
- Igipimo cy'imbuto: Toni 2 kugeza kuri 3 kuri hegitari bitewe n'ubunini bw'imbuto.
- Umwanya hagati y'ibirayi: Gutera ku mirongo itandukanijwe na cm 60 kugeza kuri 80, ibirayi bitandukanwa na cm 30 kugeza kuri 40 mu murongo.
- Ubuzyakuzimu: cm 5 kugeza kuri cm 10; imimeri yerekera hejuru.

#### 4.2. Ifumbire no gutunganya umurima

- Mu butaka bushaririye, gutera toni 1-2 z'ishwagara kuri hegitari ku itabira rya kabiri bitewe n'uko ubusharire bw'ubutaka bungana.
- Kunyanyagiza toni 20 kugeza kuri 30 z'ifumbire y'imborera kuri hegitari imwe mu gihe cy'isanza, igihe ifumbire ari nkeya, gushyira ifumbire mu migende cyangwa mu myobo mu gihe cy'itera kugira ngo ifumbire igire akamaro kurushaho.
- Gushyira mu migende cyangwa imyobo ibiro 150 by'ifumbire ya NPK 17-17-17 mu gihe cyo gutera.
- Gushyiramo ibiro 150 by'ifumbire ya NPK 17-17-17 kuri hegitari imwe mu isukira rya mbere, iminsi nka 55 nyuma y'itera.

#### 4.3. Kubagara no kuvanamo izindi mbuto zidakenewe

- Ibagara rikorwa ibirayi bimaze kugira cm 10 z'uburebure; isukira rya mbere rikorwa bigize cm 20-30 z'uburebure naho isukira rya kabiri rigakorwa mbere y'uko igihingwa gitwikira ubutaka.
- **Kuvanamo izindi mbuto** ni ngombwa kuva mw'imera, harandurwa ibirayi by'ubundi bwoko.

#### 4.4. Igenzurwa ry'umurima

- Igenzurwa rya mbere rikorwa ukwezi kumwe nyuma y'uko ibirayi bimera, hagamijwe kureba intera itandukanya umurima n'iyindi, uko ibihingwa bikenurwa, uko ibihingwa bidakenewe birandurwa, no kureba ikigereranyo cya buri ndwara.
- Isurwa rya kabiri rikorwa ukwezi kumwe mbere yo gukuraho kunyomora (defanage), igihe ibiranga ubwoko bw'imbuto bimaze kugaragara kugira ngo bizere ubwimerere bw'imbuto, banamenye ikigereranyo cy'indwara.
- Ingero ngenderwaho ziteganywa: Ubundi bwoko bw'ibirayi butemewe (ibishibu, ubundi bwoko, iby'imvange, ibitemewe) ntibugomba kurenga 2%, ibyafashwe na virusi, 5,0% , ibyafashwe na kirabiranya, 2,0%.

#### 4.5. Kurwanya indwara n'ibikoko byangiza

- Kurandura no kuvana mu murima ibihingwa byose byafashwe n'indwara zituruka ku mbuto, nko kirabiranya (*Ralstonia solanacearum* na *Erwinia ssp*) na za virusi. Isarurura

ry'ibirayi byegereye aharanduwe icyafashwe na kirabiranya rikorwa nyuma, bikagenerwa kuribwa (**gutoranya ibibi**). Hagomba gusigara ibirayi bimeze neza, bizima, bitegereye ibyafashwe n'indwara ibyo byatoranyijwe ni byo bivamo imbuto (**gutoranya ibyiza**).

- Kurwanya indwara y'imvura (Phytophthora infestans) haterwa ibiro 2,5 by'umuti wa Ridomil kuri hegitari imwe inshuro ebyiri, ubwa mbere ibirayi bimaze kuva mu butaka (amababi 2 kugeza kuri 3), ubwa kabiri mu gihe cy'ikura ry'igihingwa bibaye ngombwa, ariko ugaterwa ukurikira uwa Dithane. Umuti wa Dithane M45 uterwa inshuro 4 kugeza kuri 6, buri minsi 10 kugeza byeze neza, hagaterwa litiro 2,5 kuri hegitari. Dithane ya mbere iterwa hashize iminsi 15 hatewe ridomil ya mbere. Mu gihe cy'imvura nyinshi cyane aho gukomeza gutera Dithane, hongera guterwa ridomil ya 2 ikazongera gukurikirwa na dithane hashize iminsi 15.
- Kurwanya inanda n'ubuhunduguru haterwa umuti wa Rogor (Diméthoate) 40%EC (cyangwa undi muti wica udukoko), litiro 1,5 kuri hegitari imwe.
- Kwica udukoko mu mbuto hakoreshejwe umuti wa formol, barwanya uduheri dufite ifu (gale poudreuse), no kongera guhinga ibirayi mu murima umwe nyuma y'imyaka ibiri.

## 5. GUSARURA, KWANIKA, GUTORANYA NO GUHUNIKA

- Iminsi 15 mbere y'isarura, kvanaho igice cyo hejuru ni ngombwa. Bifasha kugenzura ubunini bw'ibirayi, bigatuma n'ibishishwa bikomera kugira ngo bitazakomereka cyane mu gihe cy'isarura n'irobanura.
- Isarura rikorwa humutse, ukirinda gukomeretsa ibirayi. Ni byiza ko ibirayi bibanza kuma mbere yo guhunikwa. Hagomba guhunikwa gusa ibirayi bizima, bitariho itaka.
- Gushyira ibirayi mu bice bitatu: ibifite mm 25-35 (ibito), mm 35-45 (ibiringaniye) na mm 45-55 (ibinini), kvanamo ibirwaye, ibyakomeretse, ibiteye nabi n'ibyafashwe n'ubuheri.
- Uzuza kandi woherereze uru rupapuro rwo **kumenyekanisha umusaruro**.
- Ibirayi bihunikwa mu byumba byatewemo imiti, birimo urumuri hose. Ntibigerekerana ari byinshi kugira ngo umuyaga ukomeze gucamo neza. Hashobora no gukoreshwa udufuka dufite imyenge. Gusuzuma buri gihe kugira ngo ibirayi birwaye bivanwemo.
- Ku bwoko butinda kumera, ni ngombwa kubanza kubihunika birunze kugira ngo bimere vuba.
- Ni ngombwa kurinda ububiko udusimba n'udukoko turya imbuto.
- Ibirayi bitwarwa mu mifuka imeze nk'utuyungiro kugira ngo imimeri itononekara no kugira ngo hacemo umuyaga.

## 6. IBIJYANYE N'UBUKUNGU

Igiciro cy'ibikorwa (kuri hegitari)	Ingano	Igipimo	Igiciro kuri buri gipimo (FRw)	Igiciro cyose hamwe (FRw)	
Abakozi	600	Umubyizi	500	300000	
Ifumbire y'imborera	20000	Ikiro	10	200000	
Imbuto	2500	Ikiro	350	875000	
Ifumbire y'imvaruganda					
	NPK 17.17.17	300	Ikiro	300	90000
Imiti					
	Ridomil	5	Ikiro	10000	50000
	Dithane M45	15	Ikiro	1600	24000
	Diméthoate	3	Litiro	6000	18000
<b>Igiciro cyose (FRw/hegitari)</b>				<b>1557000</b>	
<b>Umusaruro</b>					
Umusaruro ku mbuto (FRw/hegitari)	12500	Ikiro	240	<b>3000000</b>	
<b>Inyungu (FRw/hegitari)</b>				<b>1443000</b>	
Igicuruzo (FRw/Kg)				<b>125</b>	

**IBIRAYI : Uko bihingwa**

**Umunsi**

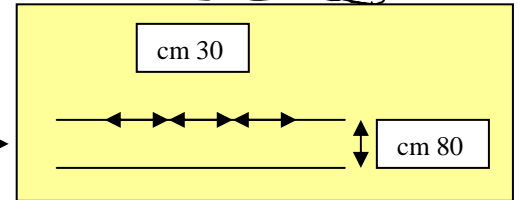
**Guhitamo no gutegura umurima :** uko bikurikirana n'ibindi bihingwa : ibinyampeke – ibinyamisogwe –ibinyampeke – kuraza –ibirayi/ cm 5 uvuye ku zindi mbuto / kurima amasinde

**Aho imbuto shingiro zigurirwa** (imbuto nzima ifite imimeri y'urugero rumwe ) : mu bigo byemewe cyangwa abikorera ku giti cyabo bemewe.

**GIKUNGU**  
05/09/06  
Imbuto ifite icyemezo kuri hegitari 5  
N° GIK/04/07A  
N° imenyekanisha umuhinzi

1

**Itera :** Itabira + Kunyanyagiza toni 20-30 z'ifumbire y'imborera kuri hegitari. Gutera kuri cm 30 mu murongo na cm 80 hagati y'imirongo. ; ikirayi 1 mu mwobo (toni 2-3 z'imbuto kuri hegitari. Gushyiramo ibiro 150 by'ifumbire ya NPK 17-17-17 kuri hegitari.



21

**Kumenyekanisha igihingwa** bitarenze ibyumweru 3 kuva igihe cy'itera mu ishami rishinzwe igenzura no gutanga ibyemezo rya RADA (BP 538 Kigali)



25-30

**Kurwanya indwara y'imvura (mildiou):** Gutera kg 2,5 z'umuti wa Ridomil kuri hegitari imwe inshuro ebyiri hanyuma umuti wa Dithane M<sub>45</sub> inshuro 4 kugeza kuri 6 kg 2,5 kuri hegitari buri minsi 10 kugeza igihe cy'isarura. Guteramwo umuti wica inanda n'ubuhunduguru wa Rogor 40 EC, Litiro 1,5 kuri hegitari ; Kuvanamo ibihingwa byafashwe na virusi na bagiteri.



40-45

**Ibagara rya mbere:** uburebure bw'ibihingwa = cm ± 10.

**Igenzura rya mbere** kugira ngo hatangwe icyemezo

55

**Isukira rya mbere** uburebure bw'ibihingwa = cm ± 20-30 ; Gushyiramo ibiro 150 by'ifumbire ya NPK 17-17-17 kuri hegitari imwe.



70

**Isukira rya kabiri:** Mbere y'uko bitwikira ubutaka bwose

**Igenzura rya kabiri** kugira ngo hatangwe icyemezo

75

**Irabya n'ishora**



95

**Kunyomora (défanage):** Iminsi 15 mbere y'isarura



120

**Gusarura, gutera, imiti no guhunika:** Kurobanura, gushyira mu byiciro hakurikijwe ubunini, gupfunyika no komekaho udupapuro. Uzaza kandi wohereze uru rupapuro rwo **kumenyekanisha umusaruro.**

**Gukomeza gukuramo izindi mbuto kugeza byeze**

**ICYAPA**

Umuhinzi : .....  
Imbuto ibirayi ifite icyemezo / Gikungu  
Igihe yerera : iminsi 100 kugeza ku minsi 120  
Umusaruro: T 34,7 kuri hegitari  
Imisozi miremire  
N° 15/07A/Sig/04/C  
Date: 4/4  
50 Kg