



**CIP**  
INTERNATIONAL  
POTATO CENTER



**Guhinga neza Ibirayi mu Rwanda**

### **Byashyizwe ahagaragara na:**

Ikigo mpuzamahanga cyita ku birayi (CIP)

Icyicaro gikuru: Avenida La Molina 1895, La Molina, Apartado Postal 1558, Lima, Peru

E cip@cgiar.org

I cipotato.org

**Correct citation:** CIP (2021). Guhinga neza Ibirayi mu Rwanda • Producer handout. International Potato Center (CIP), Lima, Peru.

### **Gushimira:**

Iyi mfashanyigisho yakozwe ku bufatanye bw'Ikigo mpuzamahanga cyita ku birayi (CIP), Ikigo cy'igihugu gishinzwe guteza imbere ubuhinzi n'ubworozi mu Rwanda (RAB), n'umuryango w'abahinzi n'aborozi (Agriterra).

Iyi mfashanyigisho ishyizwe ahagaragara hifashishijwe zimwe mu nyandiko nka "Guhinga neza ibirayi muri Kameruni" yatewe inkunga na minisiteri y'Ubudage ishinze ubufatanye mu by'Ubukungu n'Iterambere (BMZ) igaragara ku <https://hdl.handle.net/10568/108468> under Creative Commons Attribution 4.0 International license (CC BY 4.0); Inyandiko zitandukanye zakozwe ku buhinzi bw'Ibirayi ndetse n'ibitekerezo by'abahinzi b'Ibirayi mu Rwanda.

Turashimira cyane ibitekerezo n'ubufatanye bw'abahagarariye: Umuryango w'Abahinzi n'Aborozi mu Rwanda "Imbaragara", Delphy, SPF-Ikigega, Rwandan Potato Stakeholders Platform, INES-Ruhengeri, UR-CAVM, Horizon-Sopyrwa, Akarere ka Musanze, Holland Greentech, Hollanda Fair Foods, HoReCo Rwanda, amahuriro y'abahinzi b'Ibirayi bo mu turere twa Musanze, Nyabihu na Rubavu, n'amakoperative afashwa mu bujyanama na Agriterra ibinyujije mu "Imbaraga".

Iyi mfashanyigisho yateguwe ku nkungu y'Umuryango w'Abahinzi n'Aborozi "Agriterra".

### **Ahantu n'itariki byatangarijweho:**

Kigali / Nyakanga 2021

# Ishakiro

---

<b>Igice cya 1:</b> Akamaro k'igihingwa cy'ibirayi	3
<b>Igice cya 2:</b> Kumva neza imikurire y'ibirayi	5
<b>Igice cya 3:</b> Guhitamo ubutaka no gusimburanya ibihingwa	7
<b>Igice cya 4:</b> Gutegura umurima	9
<b>Igice cya 5:</b> Gufumbira (ifumbire y'amatungo, imborera n'imvaruganda)	11
<b>Igice cya 6:</b> Uburyo bwo gutera	13
<b>Igice cya 7:</b> Kubagara no gusukira itaka	15
<b>Igice cya 8:</b> Kuvomerera	17
<b>Igice cya 9:</b> Kuvanga ibirayi nibindi bihingwa	19
<b>Igice cya 10:</b> Mpandeshatu y'indwara	21
<b>Igice cya 11:</b> Kurwanya indwara y'imvura	23
<b>Igice cya 12:</b> Kurwanya Kirabiranya	25
<b>Igice cya 13:</b> Kurwanya Kabore	27
<b>Igice cya 14:</b> Kurwanya Imfunyarazi	29
<b>Igice cya 15:</b> Kurwanya imungu y'ibirayi	31
<b>Igice cya 16:</b> Kurwanya amavunja y'ibirayi	33
<b>Igice cya 17:</b> Gukoresha neza imiti irwanya indwara n'ibyonnyi	35
<b>Igice cya 18:</b> Gusarura	37
<b>Igice cya 19:</b> Gutoranya no gutondeka ibirayi	39
<b>Igice cya 20:</b> Guhunika ibirayi byo kurya	41

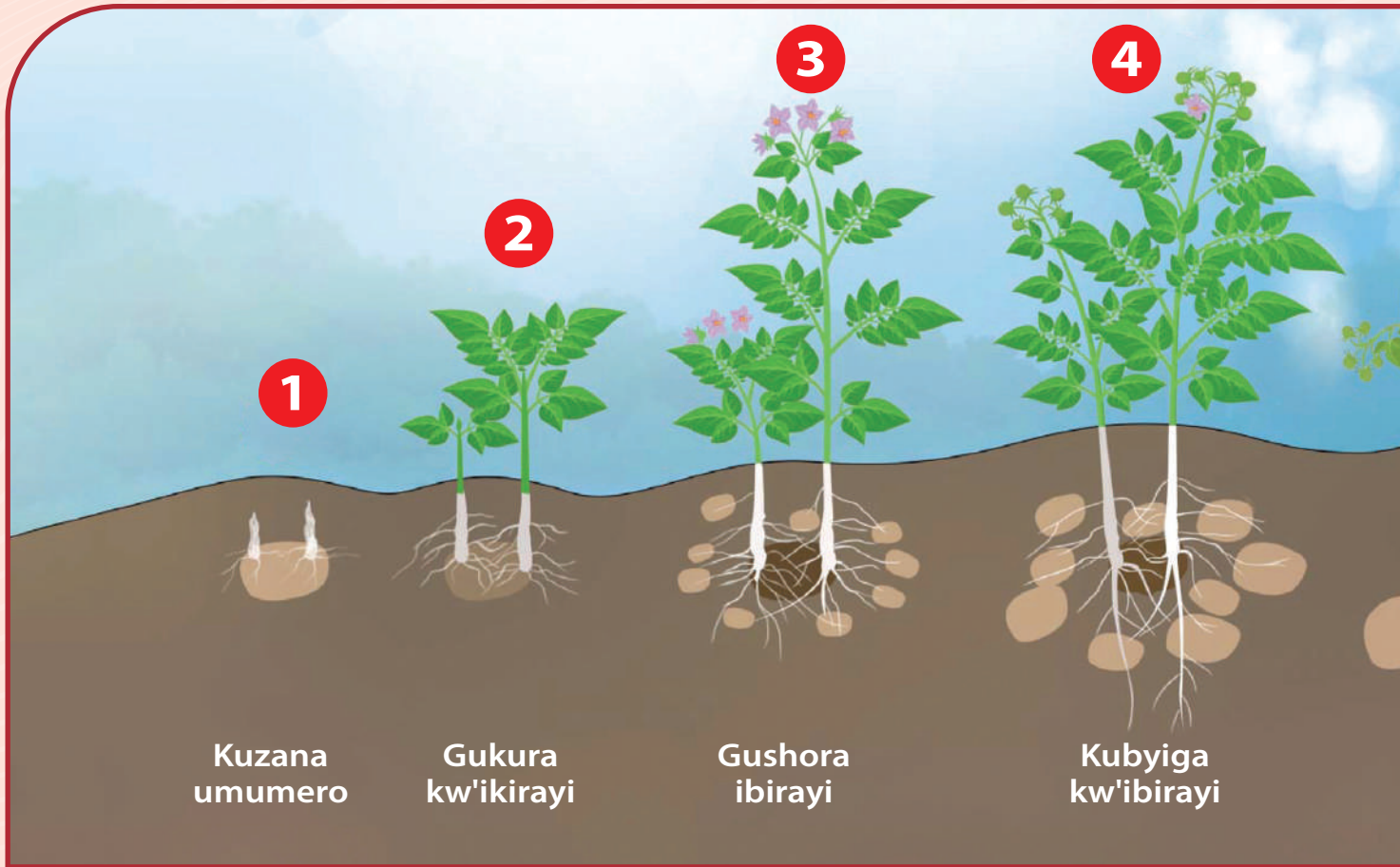


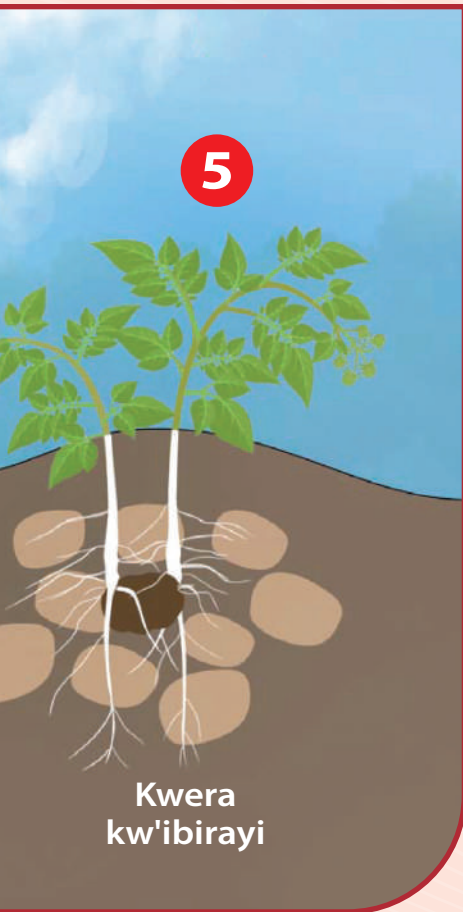


## Igice cya 1: Akamaro k'igihingwa cy'ibirayi

---

- Igihingwa cy'ibirayi gikomoka mu misozi miremire yo muri **Amerika y'amajyepfo**.
- Iki gihingwa kuri ubu ni **igihingwa cya gatatu** ku isi mu bihingwa ngandurarugo, nyuma y'Ingano n'Umuceri.
- Ibirayi bitanga **karori nyinshi** ku buso no mu gihe runaka kuruta ibindi bihingwa byera ahantu h'ikirere gikonja.
- Ibirayi ni igihingwa cy'ingenzi **kinjiza amafaranga** mu Rwanda. Amafaranga yinjizwa mu birayi atuma abahinzi bato bateza imbere imibereho yabo.





## Igice cya 2: Kumva neza imikurire y'ibirayi

### Icyiciro cya 1 • Kuzana umumero no kuva mu butaka

- Igihe cyo kumera giterwa n'ubwoko bw'ubutaka n'ubuherehere, igihe imbuto imaze, ubujyakuzimu wateyeho n'ubushyuhe bw'ubutaka.
- Tera ibirayi nibura bifite imimero 3 cyangwa irenga kandi ibyibushye kugirango ubone imigozi n'umusaruro mwinshi.

### Icyiciro cya 2 • Gukura kw'ikirayi

- Igihe cy'imikurire giterwa n'ubwoko bw'ibirayi.
- Kurinda indwara nk'iy'Imvura ni ngombwa cyane kuri iki cyiciro.

### Icyiciro cya 3 • Gushora ibirayi

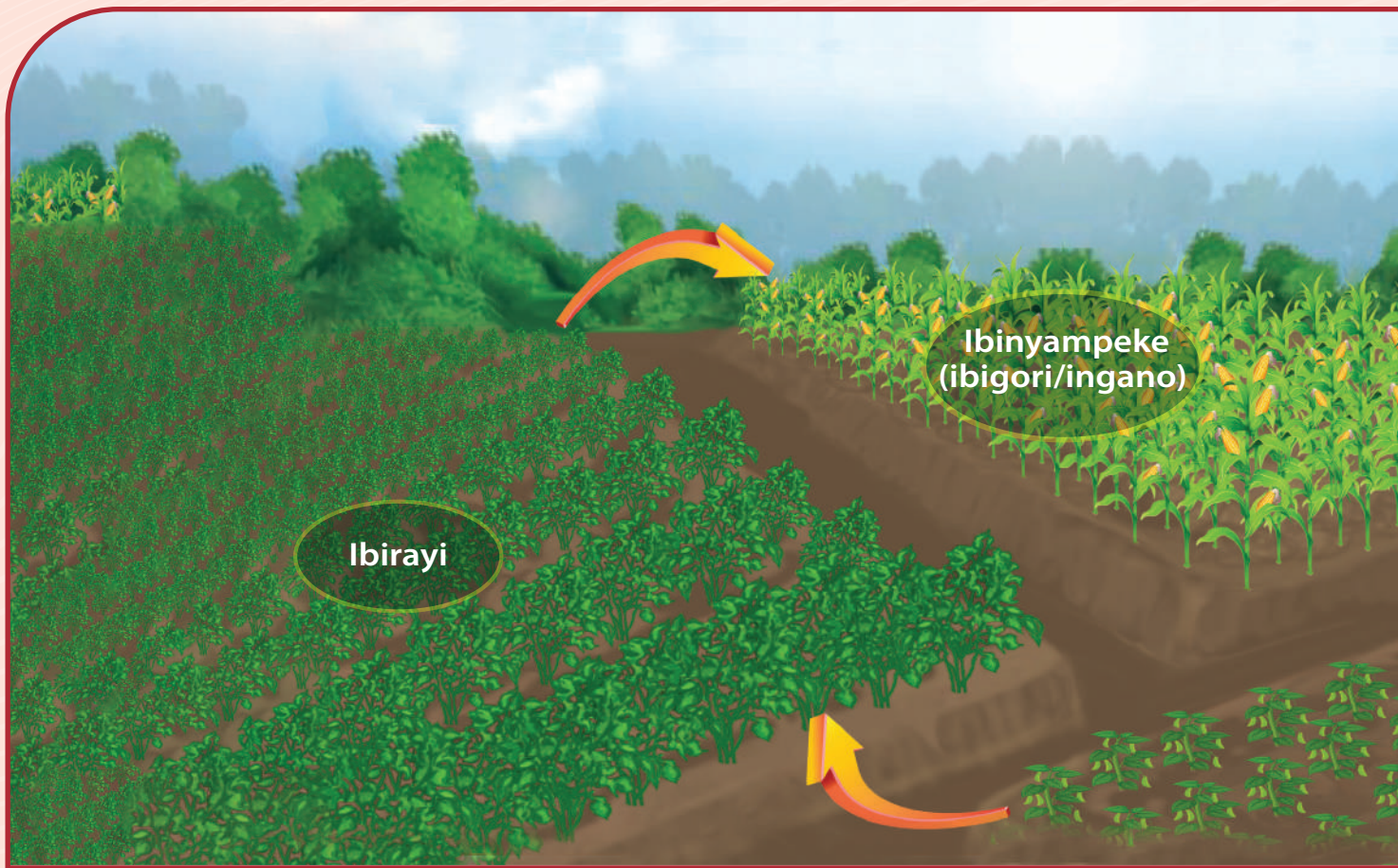
- Icyiciro kigufi gihuza igihe cyo kuzana indabo ndetse no kurangiza gukura kw'amababi.
- Menya neza ko gusukira itaka byakozwe neza kandi ukomeze kurinda indwara n'ibyonnyi.

### Icyiciro cya 4 • Kubyiga kw'ikirayi

- Ibirayi biba binini kandi amababi ahinduka umuhondo nyuma akuma.
- Ugomba guhagarika gutera imiti (irinda indwara n'udukoko) nibura mu byumweru 2-3 mbere yo gusarura.

### Icyiciro cya 5 • Kwera kw'ibirayi

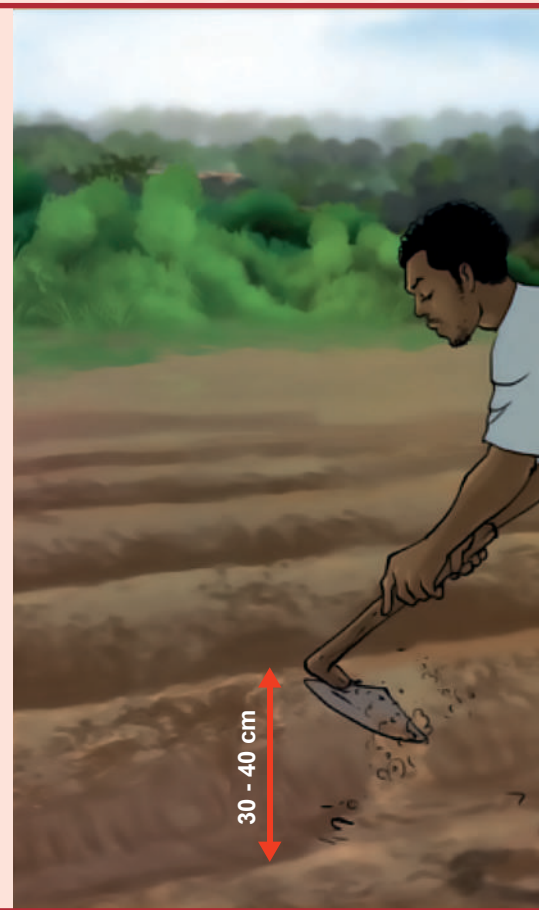
- Nta kongera gukura kw'igihingwa.
- Uruhu rw'ikirayi rurakomera.





## Igice cya 3: Guhitamo ubutaka no gusimburanya ibihingwa

- Ibirayi bikunda **ikirere gikonje** (15-20°C).
- **Ubutaka** bugomba kuba burebure, bwumutse neza, kandi buseseka kugirango ibirayi bikure neza.
- Hitamo ubutaka butahinzweho ibirayi nibura mu **bihe by'ihinga 2 bishize**.
- Tegura gahunda yo **gusimburanya ibihingwa** mu bihe 3 by'ihinga, simburanya ibirayi hamwe n'ihinga ry'ibishyimbo/ soya/ amashaza bikurikiwe n'ihinga ry'ibigori/ ingano. Irinde gutera ibigori mbere y'ibirayi mu murima wari ufite ubwandu bwa nematode cyangwa uburumbuke buke bw'ubutaka.
- Ibirayi ntibigomba gukurikira ibirayi cyangwa ibindi bihingwa biri mu muryango umwe (intoryi, urusenda, inyanya, itabi) kuko bishobora kuba bifite indwara zifata ibirayi.



30 - 40 cm



## Igice cya 4: Gutegura umurima

---

- Tegura ubutaka hakiri kare, **nibura ibyumweru bibiri mbere yo gutera**, mu gihe ubutaka bwumye wirinde ko burushaho kumagatana.
- Tegura ubutaka kugeza bworoshye, butarimo ibinonko, kugeza ku bujakuzimu **nibura bwa cm 30**.
- Guhinga bishobora gukorwa hifashishijwe isuka cyangwa imashini zihinga.
- Mu gihe hashobora kubaho isuri cyangwa amazi yiretse, ni ngombwa guhinga ku **mitabo**.





## Igice cya 5: Gufumbira (ifumbire y'amatungo, imborera n'imvaruganda)

- Mu byukuri, igipimo cy'ifumbire kigomba gushingira ku miterere y'ubutaka n'amateka y'umurima. Ibi byitwa **"Igipimo cy'ifumbire kigendeye ku miterere y'ahantu"**.
- Ifumbire mvaruganda igomba gukoreshwa **mu bihe bibiri**, mu gihe cyo gutera no mu gihe cy'ibagara rya mbere no gusukira itaka.
- Mu gihe hataraboneka igipimo cy'ifumbire igendeye ku miterere y'ahantu, shyira ibiro 3 bya NPK 17-17-17 kuri ari 1 igabanijwe mu byiciro bibiri. Mu buryo bufatika, shyira ifumbire ya NPK 17-17-17 yuzuye agafuniko 1 k'icupa ry'amazi cyangwa rya fanta ku birayi bibiri **mu gihe cyo gutera**. Uzungere utere akandi gafuniko k'ifumbire ya NPK 17-17-17 ku birayi 2 mu gihe **cy'ibagara rya mbere** no gusukira itaka.
- Usibye ifumbire mvaruganda, shyiramo ibiganza bibiri byuzuye **ifumbire mborera** cg y'amatungo ku kirayi kimwe mu gihe cyo gutera (bihwanye na kg 200-300 y'ifumbire mborera kuri ari 1).
- Mu gihe cyo gutera, shyiramo bwa mbere ifumbire mborera, urenzeho ifumbire mvaruganda, hanyuma **utwikire** kugera kuri cm 5-10 z'ubutaka. Noneho ubone gushyiramo ibirayi by'imbuta.
- Iyo ibirayi bimaze kumera, shyira ifumbire mvaruganda mu gaferegi kari kuri cm 10-15 uvuye aho ikirayi gitereye.
- Ifumbire ikungahaye kuri Azote ituma ibirayi bikura nabi n'umusaruro ukagabanuka, igomba kwirindwa.
- Niba ubutaka busharira (munsi ya pH 5.5), shyiramo **ishwagara** kg 25-50 kuri ari 1 mu gihe cyo gutegura ubutaka.



Ø : 30 mm



Ø : 40 mm



Ø :

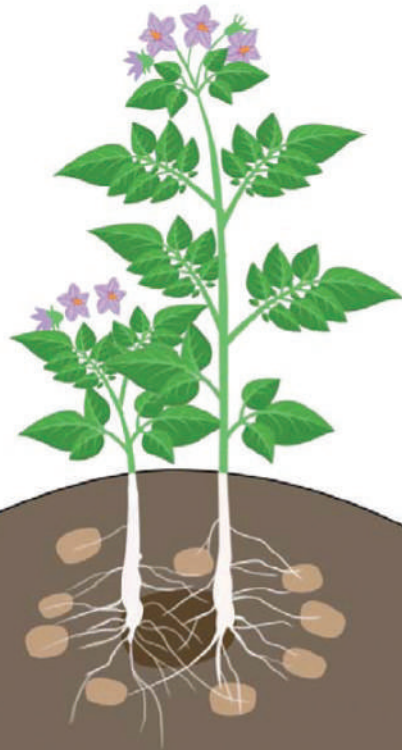


50 mm



## Igice cya 6: Uburyo bwo gutera

- Koresha **imbuto nziza kandi yizewe** ivuye mu batubuzi b'imbuto bazwi. Ntukoreshe imbuto nto ivuye ku isoko, iba yuzuye indwara.
- Menya neza ko ibirayi by'imbuto **bimaze kumera neza**, bifite imimero ikomeye, y'icyatsi kijimye ndetse ari migufi (cm 1-2), kandi wirinde ibirayi bishaje bifite imimero miremire.
- Tera by'imbuto y'ibirayi ingana ahantu hamwe.
- Ushobora gutera imbuto mu **mwobo cyangwa mu gaferegi**. Gutera mabimba bishobora gukorwa mu murima uri ahantu hahanamye, haba imvura nyinshi, cyangwa hakunda kureka amazi.
- Tegura uduferegi cyangwa imyobo ihana intera ya **cm 70-80**. Ariko niba ubwoko bwawe bugira amababi menshi cyangwa aho utera hahanamye cyane, intera wayigeza kuri cm 90.
- Mu murongo, koresha intera ya **cm 25** mu gihe ibirayi by'imbuto ari bito, **cm 30** mu gihe ibirayi by'imbuto biringaniye, na **cm 35** mu gihe ari binini.
- Ahantu hahanamye, imyobo cyangwa uduferegi two guteramo imbuto, bigomba kugendana n'ubuhaname.
- Nyuma yo gutera, ibirayi bigomba **gutwikirwa** n'ubutaka buhagije (cm 10 - 15). Imyobo cyangwa uduferegi tudatwikiriwe bigomba kwirindwa buri gihe.



**Gusukira itaka neza**

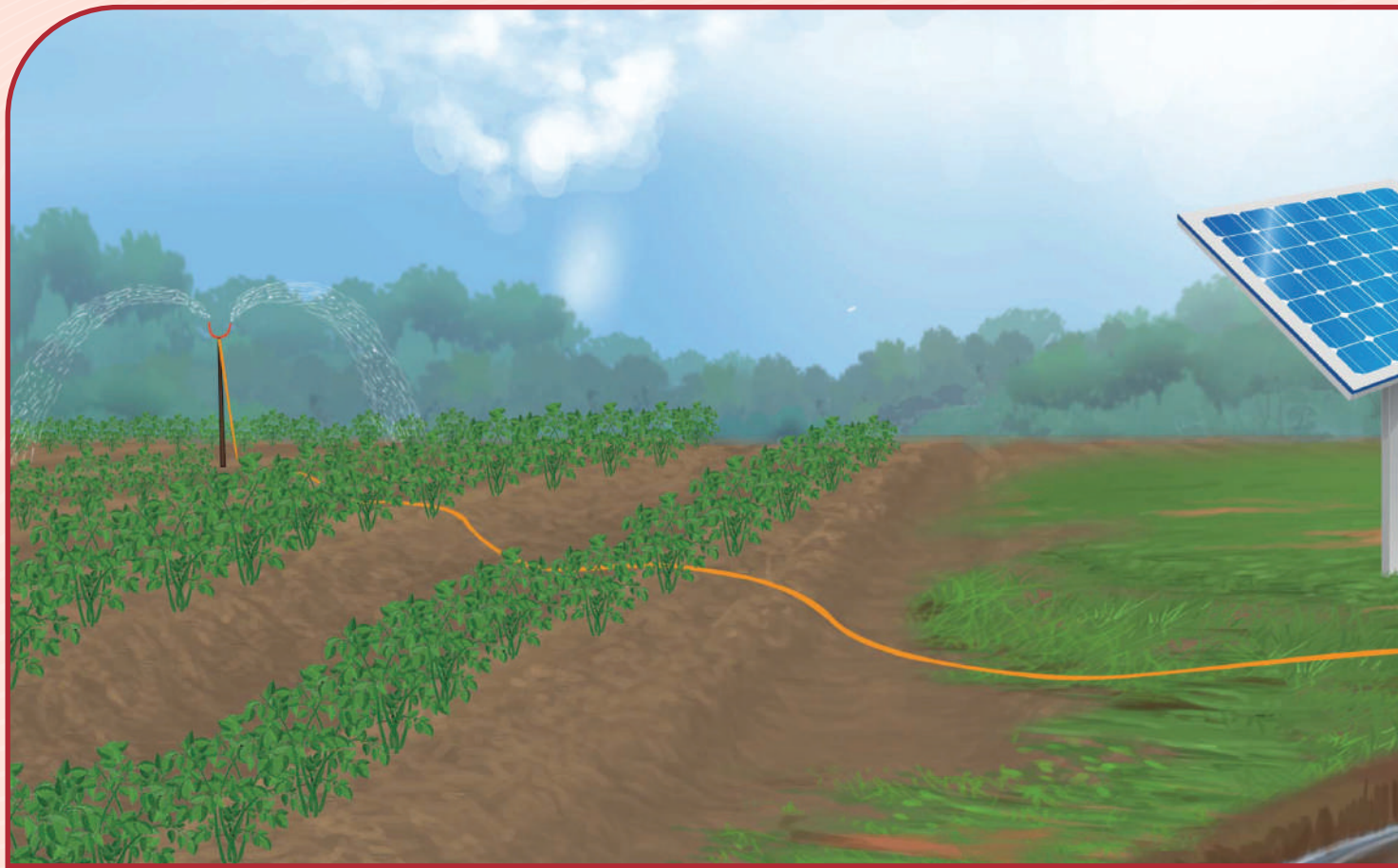


**Gusukira itaka**



## Igice cya 7: Kubagara no gusukira itaka

- **Kubagara** bigabanya gucuranwa umucyo, intungagihingwa n'amazi, kandi birinda ibyatsi bibi bicumbikira udukoko n'indwara.
- Kubagara bwa mbere bigomba gukorwa nyuma yo kumera kw'ibirayi.
- **Gusukira** ni ukongera itaka ryinshi ahakijije uruti rw'ibirayi.
- Gusukira neza biganisha ku mubare munini w'ibirayi bifite ubunini bwiza, kandi birinda ibirayi ibyonnyi n'indwara.
- Gusukira ibirayi **nibura 2-3** ni ngombwa ku birayi biteye ahantu hashashe, ndetse nibura inshuro 1 ku birayi bitewe ku mabimba.
- **Sukira bwa mbere** mu gihe cyo kubagara nyuma yo kumera kw'ibirayi, **gusukira bwa kabiri** bikorwa nyuma y'ibyumweru 2-3. Gusukira bwa gatatu ari nabwo bwa nyuma nabyo bikorwa nyuma y'ibyumweru 2-3, cyane cyane iyo ahantu hahanamye haba n'imvura nyinshi.
- Uburebure bw'ubutaka nyuma yo kuhira bwa mbere bugomba kuba bugera kuri **cm 15**, na **cm 30** nyuma yo kuhira bwa kabiri.



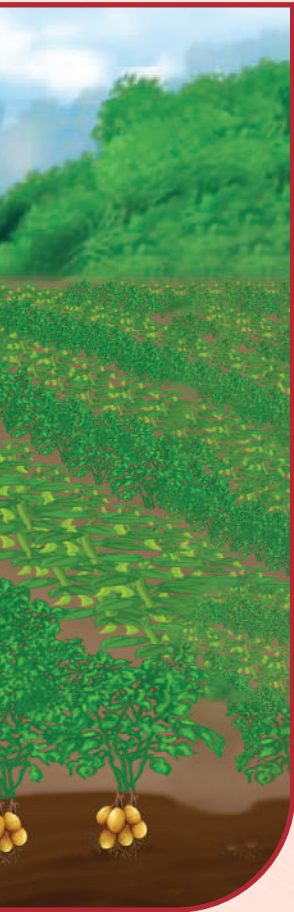


## Igice cya 8: Kuvomerera

---

- Kuvomerera ni bumwe mu buryo bwiza bwo kugendana n'imihindagurikire y'ikirere.
- Ibirayi bikenera hagati **ya milimetero 500 na 800** z'amazi muri buri gihembwe kugirango bikure neza.
- Ibirayi bikenera cyane amazi mu gihe **bitangiye gushora**.
- Mu Rwanda, Birashoboka guhinga ibirayi mu gihe cy'izuba (Gicurasi kugeza Kanama) iyo abahinzi bashoye imari **muri gahunda yo kuhira**.
- Kuvomerera ukoreshe **utugende mu butaka** (by gravity) igihe cyose bishoboka n'uburyo bwizewe kandi buhendutse.
- Mu gihe hari indwara ya Kirabiranya mu murima, amazi atembera mu murima agomba kwirindwa kugirango adakwirakwiza iyo ndwara.

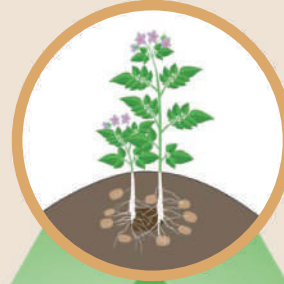




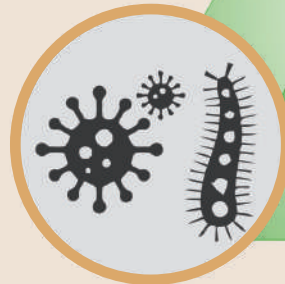
## Igice cya 9: Kuvanga ibirayi nibindi bihingwa

- Mu bice bifite ahantu hahanamye kandi hagwa imvura nyinshi, kuvanga ibirayi n'indi myaka mu murima bishobora **kugabanya isuri** bitewe n'ubutaka butwikiriwe neza n'ibihingwa.
- Ahantu hashyuha, kuvanga ibirayi n'indi myaka **birinda ubutaka kuma** kandi bigatuma ubushyushe bw'ubutaka buba bucyeye bigatera imikurire myiza y'ibirayi.
- Kuvanga ibirayi n'indi myaka bishobora kandi **kugabanya indwara n'ibyonnyi** mu murima binyuze mu gukora uruzitiro hagati y'ibirayi cyangwa udukoko tubifata.
- Kuvanga ibirayi n'ibinyamisogwe bikungahaye kuri azote nka soya/ amashaza byongera **imyungu ngugu mu butaka** kandi ni ngombwa k'ubutaka bufite imyungu ngugu micyeza cyangwa se mu gihe azote nkeya iri mubutaka yakoreshejwe.

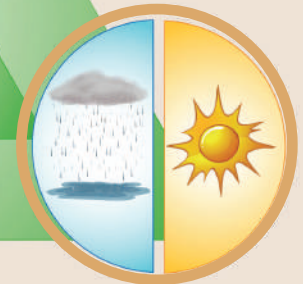
**Igihingwa**



**Indwara**



**Pathogen**



**Ibidukikije**

## Igice cya 10: Mpandeshatu y'indwara

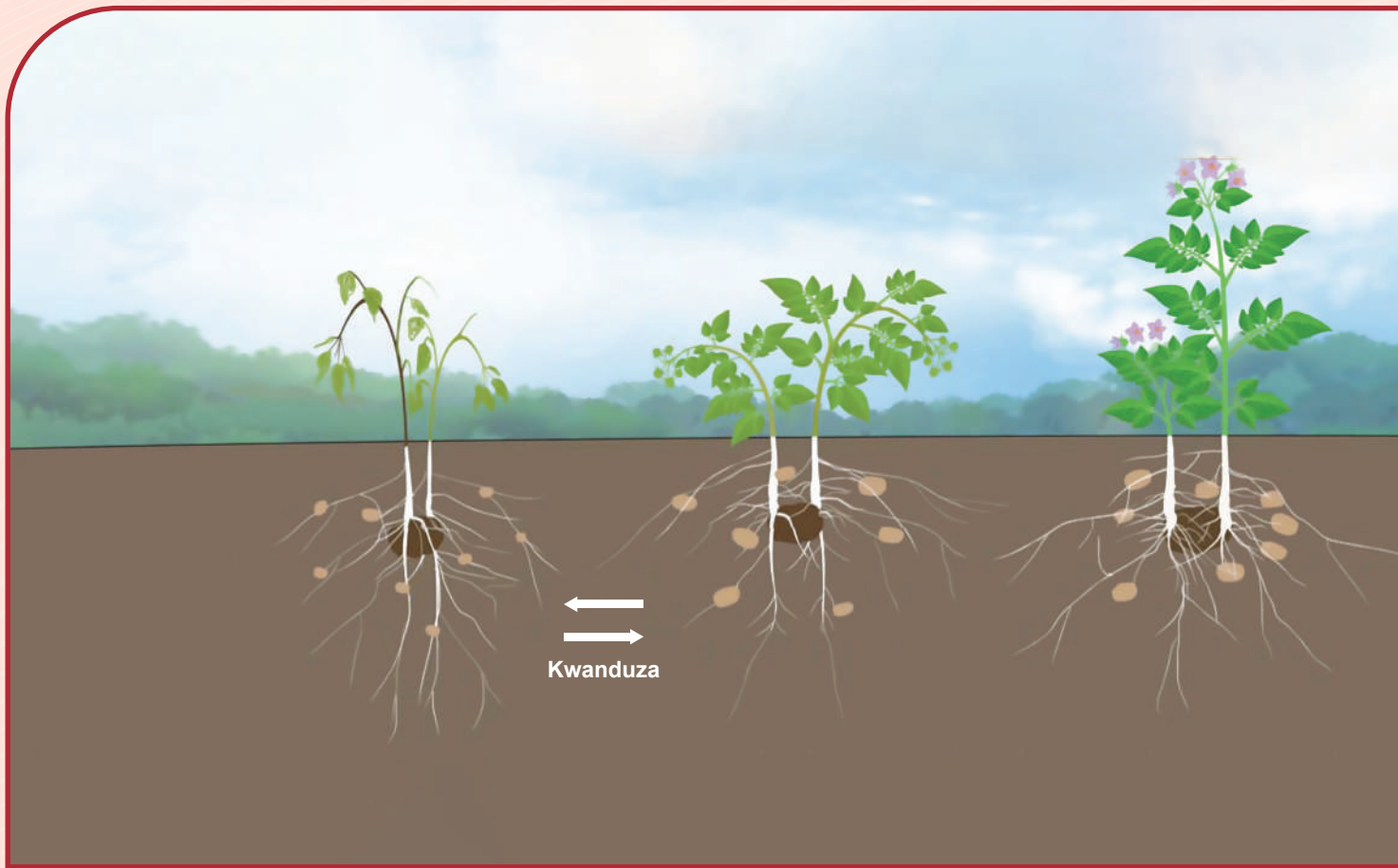
---

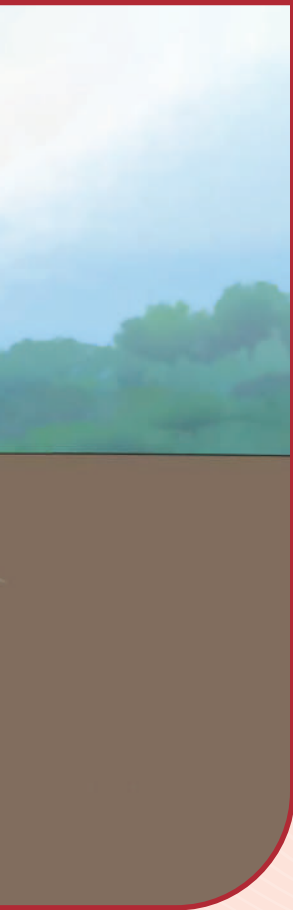
- Ni ngombwa kurinda ibirayi indwara n'ibyonnyi kuko bigabanya ubwiza n'umusaruro w'ibirayi (kugera ku gihombo cya 100%).
- Indwara zishobora kwiyongera mu gihe habaye imikoranire myiza hagati y'ibitera indwara (agakoko), igihingwa cyiyakira hamwe nibidukikije (**MPANDESHATU Y'INDWARA**).
- Gukura kw'indwara guterwa niyo **agakoko** gahari, **igihingwa** cyakakiriye gikunda kurwara, kandi ibidukikije Bihari nabyo bifasha gukura no gukwirakwiza iyo indwara.
- Hari Ibintu bibiri by'ingenzi cyane mu kurwanya indwara n'ibyonnyi: gukoresha **imbuto nziza**, no **guhinduranya ibihingwa** mu murima.



# Igice cya 11: Kurwanya indwara y'imvura

- Indwara y'imvura yangiza amababi, ibiti n'ibirayi. Amababi cg ibiti byarwaye byerekana uruhumbu/ kwijima/ ibidomo by'umukara nkaho byatwitse. Ibimenyetso kandi birimo imirongo yera ndetse no kwera muni y'amababi.
- Indwara ikwirakwizwa n'umuyaga, n'amazi, ubutaka, cyangwa ibirayi n'ibikoreshe byanduye. Ibihe bikonje bitiza umurindi uburwayi.
- Tera **imbuto nziza n'ubwoko budakunda kurwara** kugirango urinde indwara mu murima.
- **Kusanya unatwike imigozi y'ibirayi** nyuma yo gusarura kugirango usukure umurima.
- Intera nini hagati y'ibirayi igabanya ubukonje mu murima bityo bigafasha kugabanya indwara y'imvura.
- Koresha **imiti irinda indwara** (urugero: Mancozeb) kugirango wirinde kwandura ndetse **n'imiti irwanya indwara** (urugero Ridomil) kugirango uvure indwara:
  - Tera umuti urinda indwara ako kanya ibirayi bimaze kumera nibura bifite uburebure bwa cm 10.
  - Tera umuti urwanya indwara ku minsi 40-45 nyuma yo gutera, gusa niba hari imvura nyinshi n'indwara yageze muri ako gace.
  - Gukurikiranya umuti, tera umuti urinda indwara nyuma ya buri byumweru 2. Mu gihe ibimenyetso by'indwara bigaragara mu murima. koresha umuti urwanya indwara. Mu gihe ibimenyetso by'indwara bimaze kugenda, subira ku gutera umuti urinda indwara.
- Umuti urwanya indwara ntugomba gukoreshwa inshuro zirenze ebyiri mu gihembwe bitewe nuko uhenda kandi wangiza ibidukikije.
- Mu gihe ukoresheje imiti, buri gihe koresha igipimo nkuko bisabwa n'uwawukoze.
- Imiti irinda indwara (nka Mancozeb) igomba gukoreshwa **byibuze amasaha 6 mbere yuko imvura** igwa kugirango wirinde ko umuti utwarwa n'indwara. Imiti irwanya indwara (nka Ridomil) igomba gukoreshwa **byibura amasaha 3 mbere yuko imvura igwa**. Amababi agomba kuba yumutse adafite urume.

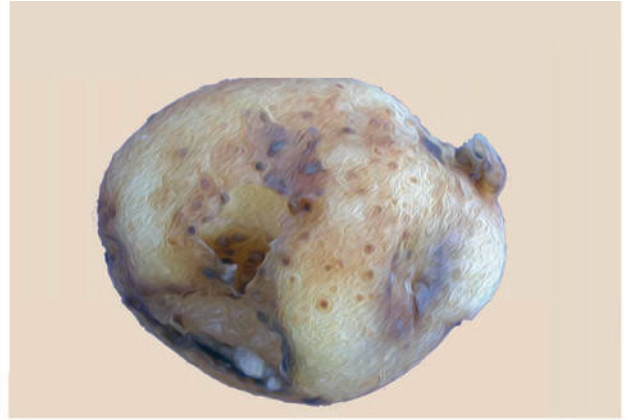




## Igice cya 12: Kurwanya Kirabiranya

---

- Indwara ya Kirabiranya **yumisha igice cyangwa igihingwa cyose** nubwo haba hari amazi ahagije mu butaka. Iyo ikirayi cyanduye ugiciyemo kabiri, ubona inziga zirabura mu kirayi.
- Indwara ikwirakwira binyuze mu mbuto zanduye, amazi, imizi, ubutaka, ibikoresho byo guhinga, amatungo n'abantu.
- Ifata kandi **ibindi bihingwa biri mu muryango** umwe n'ibirayi nk'urusenda, inyanya, itabi, hamwe n'ntoryi ndetse n'ubwoko bw'ibyasti butandukanye.
- Nta miti yubucuruzi izwi irwanya Kirabiranya.
- Tera imbuto **nziza z'ubwoko bwihanganira indwara** mu mirima idafite Kirabiranya.
- **Gusimbuza ibirayi** n'ibindi bihingwa bitari mu muryango umwe nk'ibinyamisogwe n'ibinyampeke.
- **Kurandura no kujugunya** ibihingwa byanduye hamwe n'ubutaka bukikije imizi.
- Ntukoreshe ifumbire mborera ivuye ku birayi cyangwa ibihingwa biri mu muryango umwe.
- **Sukura** ibikoresho by'umurima ukoresheje umuriro cyangwa Jik mbere na nyuma yo kubikoresha.



## Igice cya 13: Kurwanya Kabore

---

- Kabore, ihindura ingirangingo **y'ibirayi mo amazi cyangwa** kubora byoroshye kandi igatera **ibikobore by'umukara munsu y'uruti**.
- Ibirayi byanduye birabura haba mu murima cyangwa mu buhunikiro kandi bigatanga **impumuro mbi (bikanuka)**.
- Kurwanya iyi ndwara ukoresha **ingamba zimwe** nk'izatanzwe mu kurwanya Kirabiranya arizo: gukoresha imbuto nziza, gusimbura ibihingwa, kurandura ibihingwa byarwaye no gusukura neza ibikoreshe by'ubuhinzi.



## Igice cyo 14: Kurwanya Imfunyarazi

---

- Indwara z'imfunyarazi ziragoye kuzimenya mu murima. Iyo indwara yoroheje, igihingwa gishobora kuterekana ibimenyetso na gato.
- Iyo indwara iri mu rugero cyangwa ikabije **bitera impinduka mu miterere** y'igihingwa (amababi arifunga, akaba umuhondo, akaba magufi ndetse akikunja).
- Indwara z'imfunyarazi **zituma ibirayi biba bito**. Guhitamo ibirayi bito nk'imbutu uzatera ubutaha bishobora kugabanya umusaruro mu gihe ibyo birayi bishobora kuba byanduye!
- Rwanya izi ndwara **utera imbuto nziza** z'ubwoko **bwihanganira indwara**.
- **Kurandura no kujugunya** ibihingwa byanduye.
- Udukoko tw'uduhunduguru n'amasazi bishobora gukwirakwiza indwara z'imfunyarazi. Imiti yica udukoko ishobora gukoreshwa mu **kurwanya udukoko**, ariko nk'uburyo bwa nyuma mu gihe habayeho ibimenyetso bikomeye by'indwara.



## Igice cya 15: Kurwanya imungu y'ibirayi

---

- Imungu y'ibirayi (nanone bita urunyo rw'ibirayi) yangiza igihingwa mu murima hanyuma ikimukana n'ibirayi mu buhunikiro.
- Urunyo rw'ikinyugunyugu rwinjira mu kirayi rugakoramo **imyenge** kandi rugakora n'imiyoboro mu ruti ndetse no mu mababi.
- Irinde gutera mu butaka bworoshye kandi buseseka cyane kuko butuma ibirayi bigaragara hejuru.
- **Sukira itaka** neza kugirango urinde ibirayi.
- **Genzura ibirayi witonze** mbere no mu gihe cyo kubihunika hanyuma ukureho buri kirayi cyerekana imyenge.
- Koresha **ibimera birwanya udukoko** nka Lantana cyangwa inturusi bitera ibinyugunyugu kuguruka.
- Umurima ushobora guterwamo **imiti yica udukoko**, ariko nk'uburyo bwa nyuma mu gihe hari ibimenyetso by'indwara.



## Igice cya 16: Kurwanya amavunja y'ibirayi (Nematode)

---

- Ubwoko bubiri bw'amavunja buzwi mu buhinzi bw'ibirayi ni **root-knot nematodes** (niyo izwi cyane) na **potato cyst nematodes**.
- Ibirayi byafashwe n'amavunja biragwingira, amababi akaba umuhondo ndetse akamera nkagiye kuma mu gihe ubuhehere ari bucyeye. Aya mavunja atera inenge ku birayi bigatuma bitabona isoko ku buryo bworoshye.
- Kurwanya aya mavunja y'ibirayi ni ukuyirinda kuko bigoye kuyarwanya iyo yageze mu murima.
- Tera imbuto **nziza z'ubwoko bwihanganira indwara** mu mirima idafite amavunja y'ibirayi.
- Mu gihe aya mavunja amaze kuboneka mu murima, **tegereza imyaka 5** mbere yo kongera gutera ibirayi mu murima kandi wirinde ibihingwa biva mu muryango umwe (nk'inyanya, intoryi, urusenda).





## Igice cya 17: Gukoresha neza imiti irwanya indwara n'ibyonnyi

- Imiti irwanya indwa n'ibyonnyi (irwanya indwara, udukoko, iyangiza ibyatsi bibi) **irangiza** kandi igomba gukoreshwa neza kugirango wirinde kwangiza ubuzima bw'uyikoresha, ubw'abaturanyi ndetse n'ibidukikije.
- Imiti igomba kuza ari **inzira ya nyuma** y'umuhinzi amaze kugerageza ubundi buryo bwo kwirinda nko gukoresha ubwoko bwihanganira indwara, imbuto nziza no gusimburanya ibihingwa.
- Buri gihe soma ku gifuniko **amabwiriza** yatanze nuwakoze imiti.
- Ntutere ibirenze **urugero rusabwa** n'uwakoze umuti.
- Kwambara **ibikoresho by'ubwirinzi**: isarubeti itwikiriye amaboko n'amaguru, masike, bote n'akarinda ntoki.
- Irinde igihe cy'umuyaga mwinshi kandi ntutere urebana n'icyerekezo cy'umuyaga.
- Gutera imiti ntibigomba na rimwe gukorwa **n'abagore batwite cyangwa abana**. Na none abagore batwite n'abana ntibagomba kwinjira mu murima **mugihe cyangwa nyuma yo gutera umuti**.
- Ntuzigere utera umuti mbere gato yo gusarura ibirayi, kuko bitera ingaruka mbi ku babiriye.
- Shyira imiti **ahantu hizewe** hatagerwaho n'abana kandi kure yibyo kurya.
- **Ntugashyire aho ubonye** ibisigazwa by'umuti.
- Ntukongere gukoresha ibikoresho byajemo umuti mu bindi bikorwa.





## Igice cya 18: Gusarura

---

- Gusarura bigomba gukorwa mu gihe ibirayi byeze neza, iyo amababi yamaze kuma burundu n'igihe uruhu rw'ibirayi rukomeye.
- Ni byiza **kunyomora nibura iminsi 10-15** mbere yo gusarura kugirango uruhu rw'ibirayi rukomere.
- Gusarura bigomba gukorwa **mu gihe cy'umucyo** ntabwo ari igihe imvura igiye kugwa.
- Gusarura bishobora gukorwa n'intoki, isuka, cyangwa imashini.
- Gusarura n'intoki bifata igihe kirekire ariko bitanga umusaruro mwiza kandi utangiritse.
- **Ntukajugunye** ibirayi kure mu gihe cyo gusarura.
- Nyuma yo gukura ibirayi, birekere hasi mu gihe gito (bitarenze amasaha 2) kugirango ubutaka bwume, buvaho.
- Nyuma yo gusarura, **sukura umurima** ukusanya ukanajugunya ibisigazwa by'ibirayi biboze.





## Igice cywa 19: Gutoranya no gutondeka ibirayi

---

- Ibirayi biva ku migozi irwaye bigomba **gusarurwa bikanakusanywa bwa nyuma** ndetse bikabikwa ku ruhande (ibi babyita gutoranya).
- Ibirayi bisa neza bigomba **gutondekwa**, bigatandukanywa, maze ibirayi binini, ibiringaniye n'ibito bigashyirwa ukwabyo.
- Umuhinzi agomba gutekereza kuri ibi byiciro **by'ubunini bw'ibirayi** mu gihe ashyiraho ibiciro (ukurikije ibyo isoko risaba).
- Ibirayi binini gusa (hejuru ya mm 60) mu bisanzwe bikoreshwa mu gutunganywamo ibindi biribwa (nko gukoramo amafiriti).
- Koresha **umunzani** mu gihe cyo kugurisha kugirango ushyire icyizere hagati y'ugurisha n'uwaguze.



## Igice cya 20: Guhunika ibirayi byo kurya

---

- Kubika neza ibirayi byo kurya bishobora gufasha abahinzi **kuzigama ibiribwa** byo mu rugo cyangwa kubona **igiciro kiri hejuru** nyuma iyo isarura rirangiye.
- Ibirayi byiza gusa nibyo bigomba kubikwa kugirango birinde gukwirakwiza udukoko no kubora mu gihe bihunitse.
- Ibirayi byo kurya bishobora kubikwa igihe kirekire mu gihe hari **ubushyuhe buri hasi** (munsi ya 20°C), **umwijima**, kandi bishobora no **guhumeke**.
- Koresha ibikoresho byo gusakara ubuhunikiro bifasha kugumana ubukonje imbere mubuhunikiro.
- **Funga imiryango ku manywa**. Imiryango ishobora gukingurwa nijoro kugirango ifashe mu guhumeke.
- Ibirayi bihura n'urumuri rw'izuba bihinduka **icyatsi kandi bikaba byaba uburozi**.
- Hunika ibirayi **kuma etajeri cyangwa kuma kureti** kugirango bibashe guhumeke. Ubundi buryo, ibirayi bishobora gusukwa hasi ku kirundo. Ibirayi bishobora kubikwa mu mifuka mu gihe cyitarenze ibyumweru 3.
- **Kugenzura kenshi** ubuhunikiro bw'ibirayi ureba ibirayi biboze cyangwa byangijwe n'imungu. Vanamo unajugunye ibirayi byanduye.
- Koresha **ibimera byirukana udukoko** nka Lantana cyangwa Inturusu. Bitere hafi y'ubuhunikiro cyangwa utwikirize ibirayi amababi n'amashami yabyo.

