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HITAMO ICYIZA

GUHITAMO IKIRAYI CYIZA MU BINDI HAGAMIJWE KONGERA UBWIZA BW'IMBUTO Y'IBIRAYI ABAHINZI BAKURA
KU MUSARURO WABO

IGITABO CY'ABATANGA AMAHUGURWA

Peter Gildemacher, Paul Demo, Peter Kinyae, Mercy Wakahiu, Moses Nyongesa, Thomas Zschocke



Itsinda ry'abahinzi basarura mu murima wageragerejwemo «Uburyo bwo guhitamo icyiza», Njoro, Kenya

Ikigo mpuzamahanga cyita ku ibirayi (CIP) cyihaye intego yo kurwanya ubukene no gufasha abaturage bo mu bihugu bikiri mu nzira y'amajyambere kwihaza ku biribwa ku buryo burambye. Kugira ngo iyo ntego igerweho, icyo kigo cyahisemo gukora ubushakashatsi mu by'ubuhanga ndetse n'ibindi bikorwa bifitanye isano na bwo ku birayi, ibijumba n'ibindi bihingwa by'ibinyabijumba. Ubwo bushakashatsi kandi bukorwa ku bijyanye n'imirungire myiza y'umutungo kamere mu misozi ya Ande mu majyepfo y'Amerika no mu tundi turere tw'imisozi.

www.cipotato.org

Ibyo bikorwa byose Ikigo CIP kibiterwamo inkunga na za Guverinoma zitandukanye, imiryango yigenga ndetse n'imiryango mpuzamahanga n'iy'uturere bizwi nk'itsinda ngishwanama ryita ku bushakashatsi mu by'ubuhinzi ku rwego mpuzamahanga (CGIAR). www.cgiar.org.

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Abasomyi barashishikarizwa kwifashisha cyangwa gutubura zimwe mu mpapuro z'iki gitabo igihe bakeneye gukoresha ibizikubiyemo. Ariko gishingiye ku burenganzira gifite ku gitabo cyacyo, Ikigo mpuzamahanga cyita ku birayi (CIP) kirasaba uwakifashisha cyangwa uwakoresha izo mpapuro mu rwego rwo kuzitangaza, kucyohereza kopi y'inyandiko yatangaje yakoreshejwemo ibikubiye mu mpapuro z'iyi raporo.

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Ijambo Ry'ibanze

Mu bihe byashize hakoze byinshi hagamijwe kurushaho kugera umusaruro w'imbuto nziza y'ibirayi. Ibyinshi muri ibyo byakozwe harimo guteza imbere abatubuzi b'imbuto babizobereyemo. Nyamara ariko usanga mu bihugu by'Afurika byo muni y'ubutayu bwa Sahara bihingwamo ibirayi abahinzi bato bato bibagora kubona imbuto y'ibirayi ku isoko bigatuma bacungira gusa ku mbuto y'ibirayi ivuye mu mirima yabo.

Ni yo mpamvu Ikigo mpuzamahanga cyita ku mbuto y'ibirayi (CIP) n'Ikigo cya Kenya gishinzwe ubushakashatsi mu by'ubuhinzi (KARI), byashyizeho gahunda igamije kongera ubwiza bw'imbuto y'ibirayi. Hakoze igerageza rigamije kureba ibyiza byo gutoranya imbuto nziza y'ibirayi mu murima. Byagaragaye ko ubwo buryo bwakoreshejwe mu igerageza ari ingirakamaro. Igice kinini cy'abahinzi bahuguwe bahise bitabira gukoresha ubwo buryo bugezweho (28%). Nk'uko byagaragajwe n'ayo magerageza yakozwe, ubwo buryo bwakoreshejwe bwatumye umusaruro wiyongeraho ku kigero cya 30% muri rusange nyuma y'uko abahinzi babukoresheje mu gihe kimwe cy'ihinga gusa. Abahinzi bitabiriye gukoresha ubwo buryo bemeje ko umusaruro wabo wiyongereyeho ku kigero kirenga 100%.

Iki gitabo cy'amahugurwa kizatuma imiryango igamije ibikorwa by'iterambere kandi ishishikajwe no guteza imbere imibereho y'abahinzi b'ibirayi bo mu bihugu kikiri mu nzira y'amajyambere, bugarijwe n'ubukene, ishobora kumenya ubwo buryo ikanabukoresha. Ibikubiye muri iki gitabo kandi bishobora guhuzwa n'imiterere y'uduce dutandukanye duhingwamo ibirayi two mu bihugu byo muni y'ubutayu bwa Sahara n'ahandi.

Bitewe n'akamaro k'amahugurwa ndetse hashingiwe no kuba ubu buryo bworohera ababwitabira kubukoresha, iyi gahunda ishobora guhindura isura y'ubuhinzi bw'ibirayi mu duce usanga kubona vuba imbuto y'ibirayi ivuye ku isoko bikiri inzosi.

Gushimira

Abantu benshi batandukanye bagize uruhare mu gutegura iki gitabo. Urwo ruhare barugaragaje bategura kandi bagashyira mu bikorwa inyigisho z'amahugurwa zifasha abayitabira kumenya uburyo bwo gutoranya imbuto nziza mu murima. Itsinda ry'ibanze ryafatanyije mu gutegura aka gatabo rigizwe na Peter Gildemacher, Paul Demo bakorera ikigo CIP ndetse na Peter Kinyae, Moses Nyongesa na Mercy Wakahiu bakorera ikigo KARI.

Turashimira ku buryo bw'umwihariko abahuzabikorwa b'uturere ari bo Hannah Oduor, Mark Yego, Wilson Bii na Michael Macharia ndetse n'abandi bakozi ba Minisiteri y'ubuhinzi kubera ubwitange bushimishije bagaragaje mu gushyira mu bikorwa gahunda y'amahugurwa ku byerekeranye no gutoranya imbuto nziza. Turashimira kandi Thomas Zschocke ukorera CIP kubera uruhare rwe mu mitunganyirize y'iki gitabo.

Ishyirwa mu bikorwa rya gahunda ijyanye no gutoranya imbuto nziza ndetse n'ibikorwa byo gucisha mu icapiro ibitabo byo gukoresha mu mahugurwa byatewe inkunga na CIP, PRAPACE, KARI, Minisiteri y'Ubuhanzi n'Ubworozi ya Kenya, GTZ-PSDA, IFAD na ASARECA.

Ntitwarangiza kandi tudashimiye amatsinda yose y'abahanzi afite uruhare mu igerageza rya gahunda yo gutoranya neza imbuto ndetse bagashobora no kuyihuza n'imiterere y'uduce batuyemo.

Intangiriro

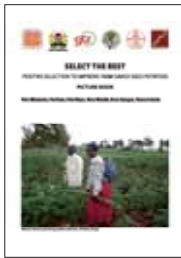
Intego y'iki gitabo ni uguha abatanga amahugurwa inama bagomba kwifashisha iyo bigisha abahinzi b'ibirayi uburyo bwo gutoranya imbuto nziza ni ukuvuga «guhitemo icyiza». Gutoranya icyiza ni uburyo bushobora gufasha kugera ku ntego yo kurushaho guteza imbere ubwiza bw'imbuto y'ibirayi abahinzi baba bazigamye ku musaruro bejeje. Mbere yo gukoresha iki gitabo ni ngombwa ko utanga amahugurwa na we ubwe aba yarahawe amahugurwa ngiro y'iminsi iri hagati y'ibiri n'itatu yerekeranye no gutoranya imbuto nziza. Utanga amahugurwa agomba kuba ashobora kumenya ibimenyetso bya virusi (imfunyarazi), ibimenyetso by'indwara ya Kirabiranya, n'iby'indwara y'imvura (Milidiyu). Na none kandi utanga amahugurwa aba agomba kuba azi uburyo bwo guhinga ibirayi.

Iki gitabo gafasha guha utanga amahugurwa inama zitandukanye hifashishijwe ibyiciro bitandukanye bya gahunda y'amahugurwa. Nyamara ariko ni ngombwa kumenya ko ibikubiye muri iki gitabo atari ko byose bigomba gukurikizwa uko byakabaye. Ni nayo mpamvu hari bimwe mu bikubiye muri iyi gahunda y'amahugurwa bishobora guhindurwa kugira ngo buri wese utanga amahugurwa agire ibyo yongeramo ku giti cye.

Iki gitabo gikubiyemo ibice bibiri by'ingenzi. Igice cya mbere gikubiyemo ibisubizo ku bibazo abahinzi bashobora kwibaza. Muri byo twavugaga: Ese ni izihe ndwara z'ingenzi zandurira mu mbuto y'ibirayi? Ese ni ryari «guhitemo icyiza» byagirira umuhinzi akamaro? Ese guhitamo icyiza mu murima bikorwa gute? Icyi gice kizafasha utanga amahugurwa gusobanukirwa neza ibisubizo kuri ibyo bibazo ndetse n'uburyo yakwigisha abahinzi uburyo nyabwo bwo kubigeraho.

Iki gice kirakenewe kuko abahinzi bagomba kwigishwa tekini bakoresha bamaze kubona ibyiza byayo kandi n'ubaha amahugurwa akaba agomba gushobora gusubiza ibibazo bamubajije.

Igice cya kabiri gikubiyemo gahunda y'amahugurwa igamije kwigisha itsinda ry'abahinzi uburyo bwo guhitamo imbuto nziza. Intego y'ingenzi y'iyi gahunda ni igerageza rikorwa kugira ngo abahinzi barebereho. Uburyo bukoreshwa mu gutanga amahugurwa no gufasha abahinzi kwigira mu byo bakora bikorewe mu murima ufatwa nk'ishuri. Iyo gahunda y'amahugurwa ifasha kwirinda gukora amanama ya buri gihe. Hateganijwe ibyiciro 9 by'amahugurwa agomba gutangwa mu gihe kingana n'amezi agera ku icyenda.



Mu rwego rwo kunganira ibikubiye muri aka gatabo k'amahugurwa, hateguwe agatabo karimo amafoto manini agaragaza ibimenyetso by'indwara z'ibirayi. Utanga amahugurwa ashobora kwifashisha ako gatabo kakamubera imfashanyigisho yifashisha iyo ahugura abahinzi mbere yo kubajyana mu murima bakibonera ubwabo ibimenyetso by'izo ndwara.



Inyigisho z'amahugurwa zisozwa n'imfashanyigisho ishingiyeye ku murima kandi ikubiyemo mu ncamake uburyo bwo gutoranya imbuto nziza bugaragazwa mu magambo yoroheje no mu mafoto. Aka gatabo kandi abahinzi bahuguwe kimwe n'abahinzi bashaka kwigisha bagenzi babo ubumenyi bungutse mu mahugurwa na bo bashobora kukifashisha.

IGICE CYA 1

Impamvu Y'amahugurwa

Kwiga uburyo bwo kubungabunga ubwiza bw'imbutu y'ibirayi, kumenya indwara zifata ibirayi n'akamaro ko gukoresha uburyo bwo« Guhitamo icyiza» hagamijwe kurwanya igabanuka ry'ubwiza bw'imbutu.

Gusaza kw'imbutu y'ibirayi

Kirabiranya

Imfunyarazi (Virusi)

Indwara y'imvura (Milidiyu)

Izindi ndwara z'ibirayi

Guhitamo icyiza

1. Gusaza kw'imbuto y'ibirayi

Kimwe mu bibazo by'ingutu byugarije abahinzi bato bato b'ibirayi bo mu bihugu bikiri mu nzira y'amajyambere ni ukutabona imbuto nziza y'ibirayi ku giciro kijyanye n'amikoro yabo. « Imbuto y' Ibirayi » tuvuga ni ibirayi bikoreshwa mu butubuzi.

Kubona imbuto y'ibirayi birakomeye kandi birahenze. Igikorwa cyo gutubura usanga kigenda gahoro kuko ikirayi kimwe cy'imbuto kibyara «ibirayi» bigera ku 10 gusa. Kugira ngo rero umuntu abone imbuto nyinshi ni ngombwa gutera ibirayi by'imbuto byinshi. Iyo bene ibyo birayi byongeye guterwa bishobora kwandura indwara.

Gutwara no guhunika ibirayi by'imbuto na byo ntibyoroshye. Ibirayi by'imbuto biba biremereye, birangirika kandi bigomba kuba bimeze neza igihe bikenewe mu murima. Ni yo mpamvu rero ibirayi by'imbuto nziza biba bihenze.

Usanga muri rusange abahinzi b'ibirayi bato bato bahura n'ikibazo cyo kudashobora kugura ibirayi by'imbuto biba biri ku giciro gihanitse bitewe n'uko baba badafite uburyo bwo kubona amafaranga akenewe. N'iyi abahinzi b'abakene bagurishije ibirayi byabo ku masoko bakabona amafaranga, ayo mafaranga baba bagomba kuyakoresha mu bintu by'ibanze bakenera nko kwivuza, kugura imyambaro no kwishyurira abana amashuri. Ndetse n'igihe abahinzi baba bafite amikoro yo kugura ibirayi byiza by'imbuto usanga akenshi batabona aho bagura izo mbuto. Rimwe na rimwe kandi usanga abahinzi b'ibirayi batarasobanuriwe ku buryo buhagije akamaro ko gukoresha imbuto nziza y'ibirayi.

Ibiciro biri hejuru ndetse no kuba imbuto nziza itaboneka hiyongereyeho no kuba abahinzi batarasobanuriwe ku buryo buhagije, bituma bahora bakoresha imbuto yabo buri gihe. Iyo bagiye gutera

Gusaza kw'imbuto

Gusaza kw'imbuto ni uruhurirane rw'indwara mu birayi uko ibihe by'ihinga bikurikirana bitewe n'uko hongeye guterwa imbuto zifite za virusi, indwara ya Kirabiranya cyangwa izindi ndwara zifata imbuto.

imbuto, abahinzi bahitamo kwikoreshereza ibirayi bito baba barizigamiye mu isarura riba riheruka. Ibi rero bituma indwara ziba uruhurirane. Iyo ibirayi by'imbuto byongeye gukoreshwa nk'imbuto inshuro nyinshi usanga umusaruro ugenda ugabanuka uko ibihe by'isarura bije. Ibi ni byo byitwa «Gusaza kw'imbuto». Gusaza kw'imbuto biterwa n'uruhurirane rw'indwara ibirayi bigenda byanduzanya.

Indwara ya Kirabiranya n'indwara z'imfunyarazi (virusi) ni zo ndwara za mbere zifata imbuto. Ubusanzwe indwara ya Kirabiranya iyo iri mu murima abahinzi barayimenya ariko ugasanga akenshi batamenya neza impamvu nyazo ziyitera. Indwara z'imfunyarazi (virusi) ni ndwara zitera ikibazo gikomeye igihe cyo gukomeza gutera imbuto imwe kandi zo usanga akenshi abantu batazisobanukirwa cyangwa ngo bazimenye.

2. Indwara ya Kirabiranya

Nk'uko bigaragara, indwara ya Kirabiranya ni indwara iterwa na bagiteri (*Ralstonia solanacearum*). Bagiteri yinjira mu ruti inyuze mu mizi. Iyo igeze mu ruti hagati irabyara noneho nyuma ikica icyo gihingwa. Igihingwa kitari cyinjirwamo na bagiteri nyinshi gishobora gukomeza kubyara ibirayi. Ibyo birayi biba bifite bagiteri bitera indwara igihe bitewe mu gihe cy'ihinga gikurikiyeho. Iyo bagiteri na yo ikomeza kwibera mu butaka.

2.1 Ibimenyetso by'indwara ya Kirabiranya

Icyitonderwa:

Amashusho y'amabara agaragaza ibimenyetso dusanga muri iki gice uyasanga no mu gitabo cyihariye gikubiyemo amashusho.



Ishusho ya 1: igihingwa cy'ikirayi cyarabiranye cyose

Birorohye kumenya ibirayi byafashwe n'indwara ya Kirabiranya mu murima. Iyo bagiteri zimaze kuba nyinshi mu nzira y'amatababuzi y'uruti bituma amazi ava mu mizi ajya mu ruti ruri hejuru y'ubutaka atongera kubona aho anyura. Icyo gihe uruti rumaze kumera rurabirana bitewe no kubura ubuhehere. Urwo ruti ruruma kabone n'ubwo izindi nti zameze usanga zitagaragaraho kubura amazi kandi n'ubutaka bukaba bugaragaza ko bufite ubuhehere. Mu bimenyetso by'iyi ndwara bikunda kugaragara harimo ibi bikurikira:

- Usanga igihingwa cyafashwe cyarabiranye cyonyine mu gihe ibindi biri kumwe mu murima bimeze neza.



- Usanga amashami amwe ari ku ruti rw'igihingwa agenda arabirana mu gihe andi mashami y'urwo ruti agenda akura neza.



Ishusho ya 2: Igihingwa cy'ikirayi cyarabiranyehho igice

Ibyo bimenyetso bigaragaza bidasubirwaho ko igihingwa cyafashwe n'indwara ya Kirabiranya. Nyamara ariko ni ngombwa kumenya ko ibyo bimenyetso bishobora guterwa n'izindi mpamvu. Aha twavugaga nko kuribwa n'amafuku cyangwa hari ikibazo ku nzira y'amatembabuzi no ku mizi.

Iyo igihingwa gifashwe cyari cyigeze ku ntera ya nyuma y'imukurire yacyo, mu gihe cyo gutanga ibirayi, bagiteri zinjira mu kirayi zikiberamo. Iyo bagiteri ari nyinshi zituma ibirayi bigaragaza bya bimenyetso by'indwara ya Kirabiranya bikunda kwigaragaza. Muri byo harimo:

- Kuninda kw'amaso y'ikirayi (havamo ibintu bimeze nk'amata)
- Igitaka gifata ku maso y'ikirayi



Ishusho ya 3c: Ibimenyetso by'indwara ya Kirabiranya mu kirayi: Amazi aninda ava mu nzira y'amatembabuzi

Ishusho ya 3b: Ibimenyetso by'indwara ya Kirabiranya mu kirayi: Inzira y'amatembabuzi ifata ibara ry'ikijju

- Inzira y'amatembabuzi ihinduka ikijju



Ishusho ya 3c: Ibimenyetso by'indwara ya Kirabiranya mu kirayi: Amazi aninda ava mu nzira y'amatembabuzi

- Amazi aninda ava mu gice cy'inzira y'amatembabuzi



Ishusho ya 3: Ibimenyetso by'indwara ya Kirabiranya mu kirayi: Kubora kw'ikirayi

- Kubora kw'ikirayi



Uburyo umuntu akoresha kugira ngo yemeze neza ko ari ibimenyetso by'indwara ya Kirabiranya.

Kugira ngo wemeze neza ko ibimenyetso ubona ari iby'indwara ya Kirabiranya, hari ibintu byoroshye ushobora gukora:

- Gucukura ibirayi bimwe niba byaratangiye kwera ukareba niba bifite ibimenyetso byavuzwe haruguru.
- Niba ibirayi bitari byatangira kuza ushobora gukata ishami ryatangira kurabirana ukareba niba inzira yaryo y'amatembabuzi yatangiyeye kuninda.

Niba ushaka kwizera neza ko ibyo bimenyetso ari byo koko, ni ngombwa ko ukoresha uburyo bwo gupima amatembabuzi ava mu ishami ry'uruti:

Ibikoresho bikenerwa:

- Ikirahure kimwe kibonerana cyuzuye amazi acyeye
- Icyuma kimwe

Gukora ibintu bikurikira: (ishusho ya 4):

- Gukata igice gifite uburebure buri hagati ya cm 2 - 3, uhereye ku ntangiriro y'uruti
- Gushyira icyo gice mu mazi acyeye gifashwe n'akuma gakoreshwa mu gufata impapuro (paper clip)
- Gukora ku buryo icyo gice cy'uruti kireba hejuru nk'uko cyari cyimeze ku gihingwa
- Nyuma y'iminota mike kuri icyo gice cy'uruti, hatangira kumanukamo ibintu bimeze nk'amata iyo uko kurabirana kwatewe n'indwara ya Kirabiranya.
- Iyo ibyo ubigerageje ku bice by'uruti 2 cg 3 byarabiranye ariko muri utwo duti ntihamanukemo amazi aninda atemba uko kuba kwatewe n'ikindi kintu.



Ishusho ya 4: Kureba niba ibimenyetso ari iby'indwara ya Kirabiranya koko (reba ibyanditse mu kazu)

2.2. Indwara itari yigaragaza cyangwa itagaragaza ibimenyetso

Ikibazo gikomeye usanga akenshi kidaterwa n'ibirayi bihita bigaragaza ibimenyetso by'indwara ahubwo ikibazo kigoye ni icy'indwara iba yarafashe igihingwa ariko ibimenyetso byayo bikaba bitarigaragaza. Ubu ni uburyo indwara igenda ikwirakwizwa n'ibirayi nyamara butagaragara inyuma. Bagiteri iragenda ikibera mu birayi ariko ibyo birayi ntibigaragaze ikimenyetso na kimwe cy'indwara.

Ibyo biterwa n'uko umubare wa bagiteri ziba ziri mu kirayi aba ari muto ku buryo udashobora gutuma kimwe mu bimenyetso byavuzwe haruguru kigaragara. Nta muntu n'umwe kabone n'ubwo yaba ari inzobere ushobora kumenya ibirayi bifite indwara koko. icyo gihe uburyo bwonyine bushobora gufasha kumenya ko ikirayi gifite indwara ni ugukoresha tekinike ihambaye ya laboratwari kugira ngo iyo ndwara imenyekane.

Ukutigaragaza kw'ibimenyetso by'indwara ya Kirabiranya

Ibirayi bifite umubare muto wa bagiteri usanga bitagaragaza ikimenyetso na kimwe cy'uko byafashwe n'indwara.

Indwara irakomeza ikibera muri ibyo birayi bitagaragaza ibimenyetso, iyo bigizwe imbuto maze bigaterwa mu gihe cy'ihinga rikurikiyeho bikazabyara ibihingwa birwaye. Ibyo kandi binatuma ubutaka bumaze guterwamo izo mbuto zanduye na bwo bwandura iyo ndwara.

Imbuto irwaye ariko itagaragaza ibimenyetso usanga isa neza nk'izindi. Ariko iyo imaze guterwa, igihingwa kiyimezeho ntigitinda kugaragaza ibimenyetso bya Kirabiranyabishobora gutuma gipfa. Ubutaka gitewemo na bwo bwandura iyo bagiteri. Iyo bagiteri yavuye ku kirayi cyari kirwaye ariko kitagaragaza ibimenyetso ishobora kwanduza ibindi birayi. Kugira ibirayi bigaragaze ibimenyetso, biterwa n'ingano y'ubushyuhe n'ubuhere bw'ubutaka by'aho bihinze. Hari n'igihe ubwazo zishobora kutagaragaza ibimenyetso na none zigakwirakwiza iyo ndwara ku cyindi gihingwa kitari cyandura kiri mu wundi murima.

Iyo ibirayi byafashwe n'indwara ya Kirabiranya nta buryo buriho bwo kubivura. Ni yo mpamvu hagomba gufatwa ingamba zo kurwanya iyo ndwara ntifate igihingwa. Iyo igihingwa cyamaze gufatwa n'indwara, ni ngombwa guhita hashyirwaho uburyo bwo gutuma iyo ndwara idakwirakwira mu bindi bihingwa.

“Guhitamo icyiza” ni bwo buryo bwonyine bushobora gukoreshwa mu gukumira iyo ndwara mu turere yagezemo ku buryo butunguranye. Iyo igice kinini cy'umurima w'ibirayi kimaze kwandura bagiteri ku buryo bukabije ni ngombwa gufata izindi ngamba zikaze kugira ngo iyo ndwara idakomeze gukwirakwira. Guhugura abahinzi ku bijyanye no guhitamo icyiza biba bitagihagije. Mu turere twugarijwe n'indwara ya Kirabiranya ku buryo bukabije, hari igihe usanga ari ngombwa gushyiraho gahunda yihariye yo gukangurira abaturage iyo ndwara kugira ngo bashobore kuyirwanya no kuyikumira.

Ingamba ya mbere yo gukumira indwara ya Kirabiranya bityo ntigere mu murima w'ibirayi ni ugukoresha imbuto nziza zitarwaye. Iyo imbuto yamaze kwandura iyo ndwara nta kindi kintu gishobora gukorwa.

Na none kandi, ikibazo kirushaho gukomera kuko ubutaka na bwo bushobora kwandura iyo ndwara kubera imbuto yabutewemo. Ni ngombwa kugura imbuto ku bacuruzi bazwi. Iyo umuntu aramutse aguze imbuto ku muturanyi ni ngombwa kubanza kugenzura umurima iyo mbuto yavuyemo akareba niba nta bimenyetso by'indwara ya Kirabiranya uwo murima wari ufite igihe cy'ihinga. . Iyo imbuto yavuguruwe iturutse mu murima w'umuhinzi bwite igomba gutoranywa mu murima utagaragaramo indwara ya Kirabiranya.

2.3. Uburyo bwo gukumira indwara ya Kirabiranya

Gukoresha imbuto itarwaye

Gukoresha umurima utanduye

Iyo ubutaka bwanduye indwara ya Kirabiranya, ntabwo gutera imbuto itarwaye ubwa byo bihagije kugira ngo igihingwa cy'ikirayi gikure kitarwaye. Bagiteri ifite ubushobozi bwo gukomeza kwibera mu butaka igihe kirekire cyane. Uburyo bwa mbere bworoshye bwo kwizera ko ubutaka butanduye ni ugusimburanya ibihingwa ku buryo buhagije.

Gusimburanya ibihingwa mu murima

Igihe habayeho gusimburanya ibihingwa, bagiteri itera iyo ndwara ntishobora kubona ikiyitunga mu butaka, bityo igihe ibuze ibyo irya iba igomba gupfa. Nyamara ariko hari ibindi bihingwa byo mu bwoko bumwe n'ibirayi bishobora gukwirakwiza iyo ndwara no kuyifasha gukomeza kubaho. Mu yandi magambo bivuze ko bagiteri ishobora gutungwa n'ibihingwa bifitanye isano n'ibirayi. Ni yo mpamvu muri iryo simburanya ari ngombwa kwirinda gusimburanya ibirayi inyanya, itabi, intoryi, urusenda cyangwa ibindi bihingwa biri mu muryango umwe na byo.

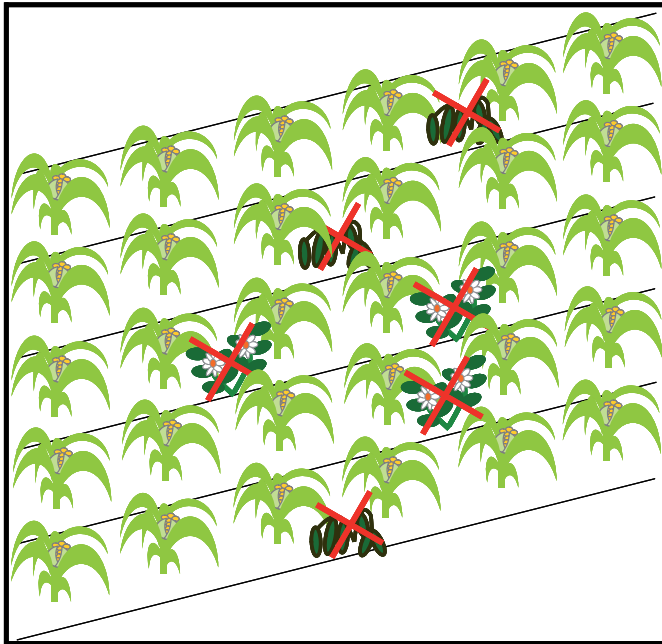
Icyifuzo ni uko habaho isimburanya ry'ibihingwa hagami-jwe guhinga gusa ibirayi inshuro imwe nyuma y'ibihe bine by'ihinga. Nyamara ariko usanga uduce twinshi duhingwamo ibirayi tudafite ubutaka buhagije bwatuma hakorwa iryo simburanya ry'ibihingwa. Ni yo mpamvu abahinzi bashobora kugirwa inama zikurikira ku bijyanye n'imirima ya bo y'ibirayi:

- Gusimburanya ibihingwa nibura rimwe nyuma y'igihembwe kimwe cy'ihinga igihe nta ndwara ya kirabiranya yagaragaye muri uwo murima cyangwa aho hantu
- Gusimburanya ibihingwa nibura nyuma y'ibihembwe bibiri by'ihinga iyo ibihingwa by'ibirayi biri munsu ya 5% ari byo byagaragaje indwara ya Kirabiranya muri wa murima.
- Gusimburanya ibihingwa nibura nyuma y'ibihembwe bitatu by'ihinga iyo ibihingwa by'ibirayi biri hejuru ya 5% byagaraje indwara ya kirabiranya.

Mu gihe cyisimburanya ry'ibihingwa ryavuzwe haruguru, ni ngombwa cyane kurandura ibihingwa by'ibirayi biba byimejeje. Bisanzwe bizwi ko abahinzi bakunda kurekera

mu mirima yabo ibirayi biba byimejeje biba byarasigaye mu mirima yabo igihe basarura (Ishusho ya 5). Iyo babirekeyemo usanga ibyo birayi bivanze mu murima n'ikindi gihingwa bahinze muri uwo murima nk'ibigori. Ibyo birayi byimejeje usanga bisarurwa mu gihe cyo kubagarira ibigori ubwa kabiri maze bigatunga urugo.

Kurandura ibirayi bya kimeza



Ishusho ya 5: Ibiringwa by'ibirayi bya kimeza bigomba kurandurwa mu bindi biringwa byahinzwe bisimbura ibirayi.



Ishusho ya 6: Kurandura igihingwa cy'ikirayi cyafashwe n'indwara ya Kirabiranya, umwobo cyari giteyemo ugashyirwamo ivu.

Ibirayi bya kimeza

Kimeza ni ibirayi biba byarasigaye mu murima igihe cy'isarura riba riheruka. Ubusanzwe usanga abahinzi babireka bigakura kugira ngo bazabisarure bizatunge urugo. Iyo abahinzi baretse bene ibyo birayi byimejeje bigakurira mu murima uhinzemo ikindi gihingwa basimburanije n'ibirayi bituma ya ndwara ya Kirabiranya ikomeza ikigumira mu murima. Ni yo mpamvu rero ari ngombwa kurandura buri gihe ibyo birayi biba byimejeje.

Gusimburanya ibihingwa ntacyo biba bimaze iyo umuhinzi ataranduye ibirayi biba byarimejeje nyuma y'isarura. Iyo ibirayi byimejeje birekewe mu murima bikaguma mu kindi gihingwa cyasimbuye ibirayi bituma indwara ya Kirabiranya ikomeza ikibera mu murima muri icyo gihe cyose cy'ihinga. Bagiteri ziri mu butaka ntizishobora kugabanuka kuberako ziba zihafite «ibizitunga» bihagije ari byo ibyo birayi biba byarimejeje. Na none kandi bimwe mu birayi biba byarasigaye mu murima bishobora kuba bifite iyo ndwara noneho bigatuma bagiteri irushaho kwiyongera mu butaka. Iyo rero abahinzi barekeye mu murima ibyo birayi byimejeje baba bagize uruhare mu «kugaburira» iyo bagiteri.

Indi ngamba ifasha mu kurwanya iyo ndwara ni ukurandura ibihingwa birwaye (Ishusho ya 6). Iyo igihingwa gitangiye kugaragaza ibimenyetso bya mbere by'iyi ndwara kigomba kurandurwa hamwe n'ibirayi byacyo byose igihe byamaze kuza ndetse n'igitaka kiri mu mwobo icyo gihingwa cyatewemo.

Kurandura igihingwa cyafashwe n'indwara

Ni ngombwa cyane kwirinda gukwirakwiza icyo gitaka ahandi. Ni byiza gushyira icyo gitaka mu ndobo cyangwa se mu kindi kintu ukakivana mu murima maze ukajya kukijugunya mu mwobo. Iyo bigenze gutyo umaze kukijugunya mu mwobo indwara ntishobora kuhava ngo ikwirakwire. Kugira ngo uburyo bwo kurandura igihingwa cyafashwe n'indwara bushobore kurushaho kugira akamaro, ni byiza gufata ivu cyangwa ishwaraga ukabivanga n'igitaka cyo mu mwobo igihingwa cyaranduwemo.

Ivu n'ishwagara bizwiho kwica bagiteri cyane cyane bitewe nuko bigabanya ubusharire bw'ubutaka. Gukoresha ivu kandi bigira akarusho kuko rifite intungamubiri cyane cyane potasiyumu na fosifori. Nubwo nta gipimo kizwi umuntu asabwa gukoresha, hari ihame ry'uko umuntu adashobora kurenza ishwaraga ryuzuye igipfunsi cyangwa ivu ryuzuye ibipfunsi bibiri kuri buri mwobo uranduwemo igihingwa.

Ingamba zo gukumira indwara mu murima

Iyo iyo ndwara ikomeje kwibera mu butaka ishobora gukwirakwira mu murima usanzwe utayifite bitewe n'igitaka irimo kiba cyafashe ku bikoreho cyangwa ku nkweto umuntu yambaye. Ishobora kandi gukwirakwizwa n'amazi y'imvura atemba. Ni ngombwa kwirinda kujyana ikintu cyanduye mu murima ushobora kuba urimo iyo bagiteri. Ni yo mpamvu ibikoreho, inkweto, bote cyangwa ibirenge bigomba kuba bisukuye.

Akenshi iyo imirima ikikije umurima uhingwamo yanduye, gusukura byonyine ntibihagije kuko ari ngombwa kwica udukoko tuba twafashe ku bikoreho no ku nkweto hakoreshejwe umuti w'amazi cyangwa w'ifu ukoreshwa mu ngo wica udukoko ("JIK" sodium hypochloride). Iyo ukoreshwe muri ubwo buryo, uwo muti ushobora gufungurwa kuva ku nshuro 5 kugera ku nshuro 10 zawo no kugera hafi ku gipimo cya 0.5% byawo.

Na none kandi ni ngombwa kwirinda kujya mu mirima igihe atari ngombwa. Ariko ibi ngibi bitandukanye no kurandura ibirayi byafashwe kubera icyo gihe umuhinzi aba asabwa kujya mu murima akawugenzura kugira ngo arandure ibyafashwe. Kwifashisha utuyira dukikije umurima ni ikintu gishobora gufasha.

Uko warwanya indwara ya Kirabiranya

1. Gukoresha imbuta itarwaye
2. Gukoresha ubutaka butanduye
3. Gukoresha ibikoresho bifite isuku
4. Kwirinda kunyura mu butaka bwanduye
5. Gusimburanya ibihingwa nibura:
 - Mu gihe kimwe cy'ihinga iyo nta ndwara ya cyumya yagaragaye mu murima
 - Mu bihe bibiri by'ihinga iyo ibihingwa biri hasi ya 5% y'ibiri mu murima ari byo byafashwe n'indwara
 - Mu bihe bitatu by'ihinga iyo ibihingwa birenze 5% y'ibiri mu murima ari byo byafashwe n'indwara
6. Kurandura ibirayi bya kimeza iyo ukora isimburanya ry'ibihingwa kugira ngo bagiteri zitabona «ibizitunga».
7. Kurinda isuri ivuye mu mirima yafashwe n'indwara
8. Gusukura ibikoresho n'inkweto cyangwa bote ukoresheje amazi cyangwa umuti wica udukoko ukoreshe mu rugo umaze gufungurwa
9. Kurandura ibirayi birwaye mu murima wirinda gukwirakwiza igitaka (kiri mu ndobo cyangwa mu mufuka) maze ukajya kubijugunya mu mwobo
10. Gushyira mu mwobo umaze kurandurwamo igihingwa ibipfunsi bibiri by'ivu cyangwa igipfunsi kimwe cy'ishwagara.

3. Indwara y'imfunyarazi (Virusi)

Kugabanuka k'ubwiza bw'imbutu bitewe na virusi ntibikunze kugaragara cyane nk'ibitewe na Kirabiranya, ariko nibyo bigaragara ahantu henshi. Iyo umugozi wikirayi wafashwe na virusi, nta muti wakoresha kugira ngo ukire. Ikirushijeho kuba kibi kandi nuko ibirayi bikivuyeho na byo bishobora kugira iyo ndwara. Ni yo mpamvu iyo igihingwa cyafashwe na virusi n'ibirayi byacyo byose na byo bifatwa n'iyi virusi. Iyo ibyo birayi bitewe nk'imbutu mu gihe cy'ihinga gikurikiyeho bibyara na byo ibihingwa birwaye. Uko ibihe by'ihinga bigenda bisimburana ni na ko ibimenyetso bigenda bikara kuberako ibihingwa bigenda birushaho kwandura ari byinshi kandi kenshi. Ibyo ntibitinda gutuma umusaruro uba mubi.

Amashusho y'amabara agaragaza ibimenyetso dusanga muri iki gice uyasanga no mu gitabo cyihariye gikubiyemo amashusho.



3.1 Ibimenyetso by'indwara y'imfunyarazi (virusi)

Inshuro imbutu ishobora guhingwa mbere y'uko umuhinzi ashaka indi mbuto nshya ku bacuruzi b'imbutu ziterwa n'aho iyo mbuto iteye. Biterwa kandi n'ubutumburuke ibirayi bihinzeho. Ubushyuhe buke buba buri mu misozi miremire butuma udukoko dukwirakwiza inyinshi muri virusi mu bihingwa tugabanyuka. Umubare w'izo nshuro ushobora kandi guterwa n'ubwoko bw'imbutu y'ibirayi yakoreshejwe. Hari ubwoko bw'imbutu butakaza ubwiza bwabwo vuba cyane kurusha ubundi.

Virusi ntabwo zica ibihingwa kuko icyo zikora ni ugutuma ibihingwa birwara. Ukugabanuka k'umusaruro guterwa n'uburyo igihingwa kirwaye kandi uwo musaruro ushobora kugabanuka ku kigero cyo kuva ku 10% kugera ku 100%. Usanga virusi zimwe na zimwe zidakunda kugaragara ibimenyetso ariko zikagira uruhare mu gutuma umusaruro ugabanuka mu gihe hari izindi zituma ibihingwa bigaragarazo ko birwaye cyane.

3.2. Ikwirakwira ry'indwara y'imfunyarazi (virusi)

Virusi yanduza ibirayi yandura mu buryo butandukanye. Virusi zikaze cyane zanduza ibirayi ni virusi zikwirakwizwa n'udukoko tumeze nk'inda tuza ku gihingwa dutungwa n'amatembabuzi yacyo. Ibyo utwo

dukoko twanyunyuje mu gihingwa cyanduye virusi na byo biba bifite iyo virusi. Utwo dukoko dutwara iyo virusi tukanduza ikindi gihingwa tugiye gutaraho ibidutunga. Na none kandi hari utundi dukoko tunyunyuzaga igihingwa dushobora gukwirakwiza iyo virusi. Muri two twavugaga utunyugunyugu, utuvunvuri, nematode ndetse n'utundi dukoko.

Uburyo bwa kabiri virusi yanduriramo ni uburyo bufatiye ku gukomereka kw'igihingwa. Iyo umuntu agenda cyangwa akora mu murima hari virusi zimwe na zimwe ashobora gukwirakwiza muri uwo murima. Igihingwa gishobora kwangirika buhoro noneho hakagira igice cyacyo kirimo ibigitunga kirimo virusi kikaba cyafata ku bikoreho, ku ntoki cyangwa ku myenda noneho kigakwirakwizwa ku bindi bihingwa bityo virusi zacyo zikinjirira mu dukomere duto tw'ikindi gihingwa cyakomeretse.

Ubundi buryo bwa gatatu nk'uko bwavuzwe haruguru ni uburyo virusi ikwirakwira inyuze mu mbuto. Mu by'ukuri ubu buryo si uburyo wavugaga ko bukwirakwiza virusi. Ubusanzwe virusi ishobora gukomeza kwibera mu birayi ikazafata n'ikindi kirayi kizakomoka kuri icyo cyanduye.

Bitewe no kuba nta buryo buriho bwo kuvura igihingwa cyafashwe na virusi, uburyo bwo kuyirwanya bushingira ku bikorwa byo kuyikumira. Nyamara ariko hari ibintu abahinzi bashobora gukora nubwo ibyo bintu bidahendutse cyane cyangwa se bidashobora gukorwa ku musaruro wose abahinzi basaruye kugira ngo bawuhunike. Inyinshi muri izo ngamba zikoreshwa gusa mu itubura ry'imbuto y'ibirayi yo kugurishwa.

Uburyo nyabwo bwizewe kurenza ubundi bufasha kurinda ko umusaruro wagabanyuka bitewe na virusi ni uburyo bwo guhindura imbuto umuntu agatera imbuto itarwaye akuye ahantu hazwi kandi hizewe. Ibihugu bimwe na bimwe bikiri mu nzira y'amajyambere usanga bifite uburyo bwo kwemeza imbuto zifite ubwiza bityo bigatuma

Ubwandu bw'indwara bukwirakwijwe n'ubuhunduguru

Ikwirakwira ry'indwara y'imfunyarazi (virusi) inyuze mu gihingwa cyakomeretse

3.3. Uburyo bwo gukumira imfunyarazi (virusi)

Gukoresha imbuto itanduye

habahohakoreshwa imbuto zizewe. Ikibazo ariko ni uko iyo mbuto ifite ubwiza bwizewe idapfa kugera ku bahinzi bato bato bitewe n'amikoro yabo aba adahagije. Na none hari igihe usanga iyo mbuto iboneka idahagije igihe cyose iba ikenerewe cyangwa ahantu hose iba ikenewe.

Usanga mu bihugu bimwe na bimwe hari uburyo abahinzi bo mu duce tw'imisozi migufi bishyiriraho bubafasha kuvugurura imbuto yabo bayisimbuza imbuto baguze mu duce tw'imisozi miremire. Bitewe n'uko udukoko tumeze nk'inda tuza ku gihingwa tutajya tuza ku bihingwa ari twinshi mu duce dukonja tw'imisozi miremire, usanga imbuto ziturutse muri utwo duce ziba zitaranduye cyane iyo virusi.

Kurandura igihingwa gifite ibimenyetso by'indwara

Kurandura igihingwa bikorwa iyo ibihingwa bifite ibimenyetso bya virusi. Ni byiza ko ibyo bikorwa mu gihe cy'itubura ry'imbuto. Nyamara ariko iyo ari ibirayi abahinzi bahinze bagamije kubisarura kugira ngo bitunge ingo zabo, icyo gikorwa cyo kurandura ibihingwa byafashwe na virusi gikorwa iyo hari bihingwa bike cyane byanduye (ku kigero cyo hasi ya 5%) kugira ngo hagabanywe umuvuduko w'igabanyuka ry'ubwiza no kurinda ko indwara ikwirakwira mu bindi bihingwa biri bugufi aho. Iyo hari ibihingwa byinshi byanduye, wasanga habaye igabanyuka ry'umugaruro rikabije ku buryo butumvikana.

Usanga akenshi igabanuka ry'umugaruro ritewe no kurandura ibihingwa byanduye riba ritajyanye n'umubare w'ibihingwa byaranduwe. Iyo igihingwa kiranduwe, ibindi bihingwa bigikikije bibona umwanya uhagije wo gukuriramo bityo bigatanga umugaruro urenze uw'ibindi bihingwa noneho umugaruro bitanze ukanafasha kuziba igice cy'icyuho cy'umugaruro wari gutangwa n'igihingwa cyaranduwe. Ni ngombwa kandi kumenya ko iyo ibihingwa byaranduwe ari bike usanga akenshi umugaruro watakaye atari mwinshi.

Nyamara ariko biragoye cyane Kumvisha abahinzi bato bato baba barihingiyeye bagamije kubona umugaruro

wo gutunga ingo zabo kugira ngo ubumvishe ibyiza byo kurandura ibihingwa bitapfuye kandi bishobora gukomeza kweraho ibirayi kabone n'ubwo biba byaranduye virusi. Ni yo mpamvu kurandura ibihingwa hagamijwe kurwanya virusi atari ikintu cyiza umuntu yakora igihe aba yarahinze ibirayi agamije kubona umusaruro wo gutunga urugo.

Ubundi buryo bwo kugabanya igabanuka ry'ubwiza bw'imbuto ritewe na virusi ni ukurwanya ku buryo bwimazeyo udukoko dukwirakwiza iyo ndwara. Nyamara ariko ni ngombwa kumenya ko ubu buryo ari ingenzi cyangwa butanga inyungu gusa iyo bukoreshajwe mu bikorwa byo gutubura imbuto yo kugurisha. Iyo abahinzi bahinze bagamije kubona umusaruro wo gutunga ingo zabo, uburyo bwo kurwanya udusimba tw'uduhunduguru hakoreshajwe imiti yica udukoko ihenze bukoreshwa gusa iyo utwo dukoko twangiza cyane, kandi ibyo ntibikunze kubaho.

Gukomeretsa igihingwa ni ikintu umuhinzi ashobora kwirinda gukora buri gihe. Ibyo abigeraho yirinda kujya mu murima igihe bitari ngombwa, gusukira ibirayi no kubibagarira ku gihe kugira ngo yirinde kwinjira mu bihingwa igihe bimaze gukura, bityo atazavaho abyangiza.

Guhitamo icyiza ni bwo buryo bushoboka cyane bufasha kugabanya igabanuka ry'ubwiza bw'imbuto rituruka ku ndwara ziterwa na virusi.

***Kurwanya udukoko
tugira uruhare mu
gukwirakwiza indwara***

***Kugabanya ibituma
igihingwa gikomereka***

Guhitamo icyiza

Indwara y'imfunyarazi (Virusi)

- Imfunyarazi ntabwo yica ibirayi ahubwo ituma umusaruro ugabanyuka
- Imfunyarazi igaragaza ibimenyetso byinshi bitandukanye kandi bigoye kubibona
- Imfunyarazi ikwirakwizwa n'udukoko ndetse n'igihe igihingwa cyegeranye n'ikindi kirwaye
- Ikirayi kivuye ku gihingwa cyanduye kibyara ibihingwa byanduye iyo gitewe
- Umuhinzi arwanya imfunyarazi atera imbuto itarwaye
- Iyo umuhinzi adashoboye kubona imbuto itarwaye cyangwa se igihe adafite amikoro yo kuyigura «Guhitamo icyiza» ni uburyo bushobora kumufasha kugabanya igabanyuka ry'umusaruro riterwa n'imfunyarazi.

Indwara y'imvura no guhitamo icyiza
Ibihingwa bifite ibimenyetso bimwe na
bimwe bya milidiyu bishobora gutoranywa
kugira ngo bizatange imbuto

4. Indwara y'imvura (Milidiyu)

Indwara y'imvura (milidiyu) ifata ibirayi iterwa n'akanyabuzima kabeshwaho n'ibindi binyabuzima (*Phytophthora infestans*). Iyo ndwara ishobora kwan-giza igihingwa ku buryo bukabije (Ishusho ya 7). Iyo itarwanyijwe, igihingwa cyose gishobora kuba imfabu-sa. Milidiyu ntikunda gufata ibirayi byo hasi mu butaka. Ibihingwa bifite ibimenyetso bidakabije bya milidiyu bishobora gutoranywa hakoreshejwe ubushishozi bit-yo bikaba byakoreshwa mu gutanga imbuto.



Ishusho ya 7: Ikirayi cyazahajwe na milidiyu

4.1 Ibimenyetso by'indwara y'imvura (milidiyu)

Amashusho y'amabara agaragaza ibimenyetso dusanga muri iki gice uyasanga no mu gitabo cyihariye gikubiyemo amashusho.



Ntabwo ibimenyetso by'indwara ya milidiyu biba buri gihe birangwa n'udukomere tw'ishusho y'uruziga tuza ku mababi (Ishusho ya 8). Ibyo bimenyetso bishobora kuba bikikijwe n'igice gito cy'ikibabi kigifite ibara ry'icyatsi cyangwa cyazanye ibara ry'umuhondo ariko bikaba bigomba kumvikanako na cyo kiba cyaranduye. Ubusanzwe udukomere tw'ikibabi ntitugarukira ku dutsi twacyo. Iyo ari mu bihe by'ubukonje n'ubuherehere imi-satsi igaragaza ibara ry'umuhondo weruruka ku nguni y'udukomere cyane cyane ku gice cy'ikibabi kiri ku ru-hande rureba hasi. Indwara ya milidiyu kandi ishobora gutera udukomere ku ishami ry'ikirayi (reba ifoto ya 9).



Ishusho ya 8. Ibimenyetso by'indwara ya milidiyu ku kibabi



Ishusho ya 9. Ibimenyetso by'indwara ya milidiyu k'uruti rw'ikirayi

Indwara ya milidiyu ikwirakwira igenda mu misatsi iza ku nguni zaho ikirayi cyafashwe. iyo misatsi irakwira ikagera kure kuko itwarwa n'umuyaga. Iyo utwo dusatsi tugiye tukagwa mu murima w'ibirayi umurima wose ushobora guhita wandura iyo ibihe bimeze neza. Indwara ya milidiyu yiyongera vuba cyane iyo ari mu bihe by'ubukonje n'ubuherehere (5-20°C).

4.2 Uburyo indwara y'imvura (milidiyu) ikwirakwira

Imisatsi y'indwara y'imvura (milidiyu)

Imisatsi ifatwa nk'imbuto y'indwara ya milidiyu. Utwo dusatsi tuzanwa ni ibabi ryafashwe n'indwara kandi tugakwirakwizwa n'umuyaga. Iyo tuguye ku kibabi cy'ikirayi gitose utwo dusatsi turamera, tukanduza igihingwa kandi tukanatera akandi gakomere kuri icyo gihingwa.

4.3 Uburyo bwo gukumira ingaruka z'indwara ya milidiyu

Milidiyu ishobora kwica igihingwa cy'ikirayi. Ni yo mpamvu ari ngombwa kuyirwanya. Hari uburyo butatu bwuzuzanya bwo kurinda igihingwa cy'ibirayi indwara ya milidiyu:

1. Gukoresha ubwoko bw'imbuto bwihanganira indwara
2. Gukoresha imiti yica udukoko tuyitera
3. Gutera imbuto igihe hatari imvura nyinshi

Ubwoko bumwe na bumwe bw'ibirayi usanga butihanganira cyane indwara ya milidiyu ugereranyije n'ubundi. Ni byiza ko abahinzi bato bashaka ubwoko bw'imbuto bufite ubushobozi buhagije bwo kwihanganira indwara. Icyo gihe ibihingwa bishobora kwandura iyo ndwara ariko iyo ndwara ntabwo ipfa kubufata. Iyo bene ubwo bwoko bwanduye, indwara ntiyiyongera cyane ku buryo kwangirika kw'igihingwa cyose uko cyakabaye bidakunze kubaho. Iyo kandi indwara itiyongera cyane biha umuhinzi umwanya wo gukoresha umuti urwanya iyo ndwara.

Imiti yica utunyabuzima

Uburyo bwonyine bufasha kurinda ubwoko bw'imbuto itihanganira indwara ni ugukoresha imiti iyirwanya ifite ingufu. N'iyi wahinga imbuto zihangana ni byiza ko akoresha imiti iyirwanya kugira ngo ashobore kuzabona umusaruro mwinshi ushoboka

Uburyo bwiza bwo gutera umuti buba bushingiye ku miterere y'agace igihingwa kirimo no ku bwoko bw'imbuto umuhinzi yateye. Niba umuhinzi akeneye izindi nama ku bijyanye n'uburyo yatera imiti

hashingiwe ku bwoko bw'imbutu yateye ni byiza ko yegera ikigo cy'iyamamazabuhinzi cyangwa ikigo cy'ubushakashatsi ku birayi kimwegereye.

Ubusanzwe hari ubwoko bubiri bw'imiti irwanya imvura. Hari imiti iterwa bashaka kurinda ngo indwara itinjira mu mababi. Bayita na none imiti ikumira indwara. Umuti wo muri ubwo bwoko ukunda gukoreshwa cyane ni uwitwa «Mancozeb», ukaba ucuruzwa ku izina rya «Dithane M-45» rizwi cyane. Hari andi mazina y'ubucuruzi uhabwa n'andi masosiyete awukora kandi ugashobora kuba waboneka ku giciro kiri hasi y'icya Dithane M-45.

Imiti irinda indwara.

Ubwoko bwa kabiri bw'iyoye miti irwanya imvura ni imiti irinda indwara.. Ubu bwoko bw'imiti bushobora kurinda igihingwa buri imbere muri cyo bityo bukacyivura iyo ndwara igihe kiyanduye. Umuti wo muri ubwo bwoko ukunda gukoreshwa cyane ni uwitwa «Metalaxyl».

Imiti irwanya indwara

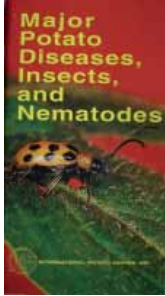
Uwo muti ucuruzwa ku mazina atandukanye. Ukunda gucuruzwa cyane kandi ufite « Metalaxyl» ni uzwi ku izina rya «Ridomil Gold». Uwo muti witwa «Ridomil» ubumbiye hamwe « Metalaxyl» na « Mancozeb». Hari indi miti ibumbiye hamwe « Metalaxyl» na « Mancozeb» kandi ishobora kuba ihendutse kurusha «Ridomil Gold».

Iyo umuhinzi adashobora kubona'imbutu zihanganira indwara kandi akaba atanashobora kubona imiti irwanya imvura, uburyo bwonyine bushoboka bwamufasha ni ugutera imbuto ye y'ibirayi igihe hatari mu gihe cy'imvura nyinshi. Usanga iyo ndwara idashobora gutera ibibazo mu bihe by'izuba. Ariko na none ni ngombwa kumenya ko ibirayi bidatanga umusaruro mwiza mu bihe by'izuba.

Gutera imbuto igihe hatari imvura nyinshi

5. Izindi ndwara zifata ibirayi

Igitabo cyitwa « Pests and Diseases of Potato» cyanditswe n'Ikigo mpuzamahanga cyita ku birayi (CIP) gikubiyemo ibisobanuro ku bwoko bwose bw'ibyonnyi n'indwara bukunda kugaragara mu duce dushyuha.



5.1 Uburyo bwo gukumira izindi ndwara zifata ibirayi

Indwara ya Kirabiranya, Imfunyarazi (virusi) ndetse n'indwara y'imvura (milidiyu) ni zo ndwara z'ibirayi eshatu z'ingenzi zigaragara mu duce dushyuha tw'imisozi miremire. Nyamara ariko hari izindi ndwara zishobora gufata ibirayi bikiri mu murima. Zimwe muri izo ndwara zishobora na zo gukomeza kwibera mu mbuto bityo zigateza ibibazo mu gihe iyo mbuto itewe mu gihe cy'ihinga gikuikiraho.

Hano turagaragaza gusa mu ncamake ingamba rusange zo gukumira izindi ndwara z'ibirayi. Ntabwo izo ndwara dushobora kuzivugaho birambuye bitewe n'uko tudashobora kuzibonera umwanya uhagije muri aka gatabo.

Hari amahame y'ibanze afasha kugabanya ibibazo biterwa n'izindi ndwara zangiza igihingwa cy'ibirayi:

1. Guhinga imbuto nziza Guhitamo icyiza
2. Guhitamo imbuto ifite uruhu rukomeye
3. Gutoranya imbuto igihe cy'isarura
4. Gutunganya neza imbuto
5. Guhunika neza imbuto no gukora ku buryo iyo imeze imera neza

Gufata neza igihingwa

Guhinga neza igihingwa cy'ikirayi bivuga gukora ku buryo icyo gihingwa gihabwa uburyo bwose bushoboka bwo gukura nta kintu kikibangamiye. Ibyo bituma kigira ingufu bityo kigashobora kwihanganira indwara. Gucunga neza igihingwa bivuga gutegura neza ubutaka kigomba guterwamo, kukibagarira ku gihe, kugisukira neza kandi ku gihe, gukoresha amafumbire mvaruganda akwiye no kurwanya ku buryo bunoze indwara ya milidiyu.

Guhitamo icyiza mu murima

Uretse kurwanya imfunyarazi (virusi) na milidiyu, guhitamo icyiza bigira n'uruhare mu kurwanya izindi ndwara zifata imbuto. Indwara yandurira mu mbuto ituma igihingwa kigaragaza ibimenyetso mu buryo ubu n'ubu. Mu yandi magambo usanga igihingwa gifite isura idasanzwe igaragaza ko cyanduye.

Igihingwa cyose kigaragaza kudakura neza ntikigomba gufatwa nk'igihingwa kizabyara imbuto.

Ni ngombwa kumenyako guhitamo icyiza bikorwa mbere y'uko igihingwa gitangira cyangwa kigitangira kuzana uruyange. Iki gihe ni bwo biba byoroshye cyane kumenya ibimenyetso by'indwara zifata igihingwa. Iyo igihingwa gitangiye gusaza, usanga hari ibimenyetso byinshi bitangira kugaragara. icyo gihe usanga bitamwohera guhitamo imbuto nziza.

Gusaza kw'igihingwa

Gusaza kw'igihingwa bivuga ko ibirayi biba bigenda bisaza noneho bigatangira gufata. Iyo biri gusaza usanga ubushobozi bwabyo mu kwihangana bugabanuka. icyo gihe ni bwo amababi yabyo atangira kuba umuhondo, akazana ibibara by'umukara bitewe n'izindi ndwara ubusanzwe zitangira ingaruka ku musaruro. Iyo ibirayi bitangiye gusaza biba bitagishobotse guhitamo imbuto nziza.

Uruhu rw'ikirayi rukirinda gufatwa n'indwara ziturutse hanze. Ni ngombwa guhitamo imbuto ifite uruhu cyangwa igishishwa gikomeye ku buryo nyabwo. Uruhu rw'ikirayi rugenda rurushaho gukomera uko igihingwa cy'ikirayi kigenda gikura. Ibirayi bigenda birushaho kugira uruhu rukomeye iyo baretse kubisarura bakabisarura ari uko uruti n'amababi byumye koko. Iyo abahinzi badashoboye gutegerezako icyo giti n'amababi byuma bashobora kumisha icyo giti n'amababi ku bwabo cyangwa gukoresha imiti ibyumisha cyangwa kubikata. Ibyo bigomba gukorwa mu minsi iri hagati 10-14 mbere y'isarura ry'ibirayi.

Ibimenyetso by'indwara iyo ari yo yose ifata igihingwa cy'ikirayi ishobora kugagarira mu bijumba byacyo. Ibi nako bigomba kugenda iyo umuhinzi ashaka guhitamo ibihingwa bitarwaye. Iyo ikijumba kimwe cyangwa ibijumba bibiri by'ikirayi bikomoka ku gihingwa kimwe cyatoranyijwe ariko bikaba bigaragara ko bidasanzwe, ibijumba by'icyo gihingwa cy'ikirayi ntibishobora gukoreshwa nk'imbuto. Na none kandi ibijumba

Gukomera k'uruhu rw'inyuma rw'ikirayi

Gutoranya imbuto igihe cy'isarura

by'ibirayi byangiritse igihe cy'isarura ntibigomba gukoreshwa nk'imbutu. Iyo uruhu rwangiritse bituma indwara ishobora kwinjira ku buryo bworoshye igihe ibirayi bihunitse. Na none kandi icyo kirayi gifite uruhu rwangiritse cyanduye gishobora na cyo kwanduza ibindi birayi bihunitse hamwe bityo kigateza ibibazo igihe umuhinzi abikoresheje nk'imbutu.

Gufata neza imbuto

Umuhinzi agomba kwitondera ibirayi kugira ngo atabikomereza. Ikirayi gikomereze gishobora kwangirika vuba cyane. Iki ni ikintu kigomba kwitonderwa ku buryo bw'umwihariko iyo ari ibirayi by'imbutu kuko umusaruro w'igihe cy'ihinga gikurikiyeho ari byo uba ushingiyeho. Kubiyitaho rero bivuga kubikura aho biri no kubiterura inshuro nke zishoboka igihe ari ngombwa. Ntibigomba guturwa hasi ndetse no kunagwa.

Kubika neza imbuto no kumera kw'imbutu

Ibirayi by'imbutu biba bifite ubuzima kandi birahumeka. Bigomba gushyirwa ahantu hafashwe neza hatuma bizana imimeru myiza. Ahantu haberanye no kubikwa ibyo birayi by'imbutu ni ahantu hadakonje cyane kandi hinjira akayaga gahagije.

Uburyo bwo guhunika neza ibirayi by'imbutu ni ukubishyira aho bigerwaho n'urumuri ku buryo buziguye. Urumuri ni rwo rutuma buri kirayi gihunitswe kizana imimeru myinshi. Urumuri kandi ni rwo rutuma imimeru ikomera. Ni ngombwa kwirinda ko ibirayi by'imbutu bigerwaho n'urumuri rw'izuba ku buryo butaziguye.

Kugira ngo umuntu yizere neza ko ibirayi byose bigerwaho n'urumuri ni byiza ko abihunika kuri etajeri kandi agakora ku buryo ibirayi bigerekeranye kuri buri rubaho biba biri hagati y'ibirayi 3 -5 mu buhagarike. Iyo ibirayi bigerekeranye mu kirundo kinini bituma ibirayi biri hagati bitagerwaho n'urumuri na ruke.

Mu turere tugira ibihe bibiri by'imvura buri mwaka cyangwa mu duce duhingwamo ibihe byose abahinzi

bagomba kugira uburyo butuma ibirayi bitadindira mu mikurire yabyo. Mu yandi magambo ni ukuvuga ko bagomba gukora ku buryo bizana imimero. Ni ngombwa gukora ku buryo bigerwaho n’urumuri nibura mu gihe cy’ibyumweru 2 mbere y’uko biterwa nk’uko byasobanuwe haruguru. Kuberako ubwinshi mu buryo butuma ibirayi bizana imimero ku buryo bwihuse busaba kubishyira ahantu hijimye usanga akenshi iyo mimero idakomeye. Kugira ngo ishobore gukomera ni ngombwa kuyishyira ahantu igerwaho n’urumuri ku buryo buziguye kugira ngo imimero ikure neza kandi izashobore kuba ikomeye igihe cyo gutera ibyo birayi.

Kumeza ibirayi vuba

Igihe amoko y’ikirayi amara atari yazana umumero kiri hagati y’ibyumweru 2-12. Amoko y’ibirayi amara igihe kirekire atari yazana umumero ni byiza kuyahinga mu duce duhingwamo ibirayi tugira igihe kimwe cy’ihinga mu mwaka. Iyo bene ubwo bwoko bw’ibirayi buhinzwe mu duce tugira ibihe bibiri by’imvura mu mwaka, imbuto igomba guhunikwa igihe cyose cy’ihinga kugira ngo ishobore guterwa mu gihe cy’ihinga gikurikiyeho.

Hari amoko amwe n’amwe y’ibirayi abanza kuzana umumere umwe kabone n’iyo yaba ahunitswe ahantu hagerwa n’urumuri. Ni ngombwa rero ko imbuto igenzurwa mu gihe cy’ibyumweru 2 mbere yo kuyitera noneho ya mimere yaje ari yonyine rukumbi igahungurwa kugira ngo imbuto izazane indi mimero. Iyo uwo mumere rukumbi ukuweho bituma andi maso asigaye avumbuka bityo akamera. Ibirayi by’imbuto biba byarameze hakoreshejwe uburyo bukoreshwa mu buhinzi usanga akenshi bizana umumere umwe rukumbi.

Umumere umwe rukumbi

Ibirayi bigomba kuba buri gihe bifite imimero myiza mbere yo kubitera. Buri kirayi cy’imbuto gitewe kigomba kuba gifite imimero myinshi ikomeye. Igihe cyose ikirayi kiri mu butaka noneho imimero na yo ikaba irwana no kuzamuka mu butaka kugira ngo izane uruti n’amababi cyiba cyagira ibibazo. Muri rusange rero ni byiza ko igihe kiri hagati y’itera no kuzamuka k’umumero kiba kigufi.

Imimere myinshi kandi ikomeye

6. Guhitamo icyiza

6.1 Guhitamo icyiza ni iki?

«Guhitamo icyiza» ni ugutoranya ibihingwa by'ibirayi bigaragara neza biri mu murima kugira ngo ari byo bizatanga imbuto mu gihe cy'ihinga gikurikira.

Gushinga uduti ku bihingwa bitarwaye

Bitewe n'uko uruti n'amababi by'ikirayi bipfa iyo ibirayi byeze, ni ngombwa ko ibyo bihingwa bizatanga imbuto bitoranywa mu gihe cyabyo cyo gukura. Iyo ibyo bihingwa byatangiyeye gusaza ntabwo umuhinzi aba agishoboye gutandukanya ibihingwa bitarwaye n'ibirwaye. Bigomba gushyirwaho uduti kugira ngo bizamenyekane neza igihe cy'isarura. Igihe cy'isarura iyo kigeze ibyo bihingwa byashyizweho ikimenyetso bisarurwa kimwe kimwe. icyemezo cyo kumenya niba bizakoreshwa nk'imbuto gifatwa hashingiwe ku buryo ikirayi kiri ku gihingwa kingana, umubare w'ibirayi bikiriho ndetse n'uburyo biremetse.

Ibintu by'ibanze abahinzi bagomba kumenya

Kugira ngo umuntu ashobore gutoranya imbuto nziza, hari ibintu by'ibanze agomba kuba azi:

Kumenya indwara

- Igihe guhitamo icyiza bikorerwa
- Uburyo bwo kumenya ibihingwa byafashwe n'imfunyarazi (virusi)
- Uburyo bwo kumenya ibihingwa byafashwe n'indwara ya Kirabiranya
- Uburyo bwo kumenya ibirayi bitarwaye
- Uburyo bwo kumenyako ubwiza bw'igihingwa hashingiwe ku birayi byacyo

Gutoranya igihingwa kitarwaye

Ntabwo buri muhinzi wese ashobora kumenya neza ku buryo buhagije ibihingwa birwaye kuko kumenya bene ibyo bihingwa ni ikintu kitoroshye na gato. Nyamara ariko icyo ikoranabuhanga ryacu rigamije cy'ibanze ni ukumenya igihingwa kitarwaye no kugishyiraho ikimenyetso. Ibihingwa bitarwaye birangwa n'ibimenyetso bikurikira:

1. Kubyibuha
2. Kugira amashami menshi kandi abyibushye

3. Kugira amababi y'icyatsi kijimye kandi aremetse neza atagoramye
4. Kugira ibirayi byinshi, binini kandi biremetse neza
5. Kutaragaza ibimenyetso by'indwara bisanzwe bigaragara

Ibirayi bitagaragaza imikurire myiza ntibigomba gutoranywa kandi buri muhinzi ashobora kumenya bene icyo gihingwa kuburyo bworoshye.

Amahugurwa ku buryo bwo guhitamo icyiza, byamenyekanye

Abenshi mu bahinzi bo mu gihugu cya Kenya ntibari bazi indwara z'ibirayi ziterwa na virusi. Abahinzi bagize itsinda Wendi Mwega ryo muri Kenya muri Kinangop y'amajyaruguru bavuzeko bumvaga ko ntacyo bazungukira mu mahugurwa. Batangiye guhinga ibirayi kuva kera ku buryo bumvagako bari bazi ikintu cyose kijyanye n'igihingwa cy'ibirayi. Nyuma yo guhabwa amahugurwa akubiye mu gitabo cya mbere basubiye iwabo maze baragenda bitegereza imirima yabo y'ibirayi. Batunguwe cyane no kubonako ibyinshi mu birayi byabo bifite indwara. Kuva icyo gihe bahise babonako hari ubundi bumenyi bari bakeneye kwiga ku bijyanye no guhinga ibirayi.

Abakozi bashinzwe iyamamazabuhinzi na bo bumvagako bari bafite ubumenyi bwose bukenewe ku bijyanye n'igihingwa cy'ibirayi. Nyuma yo guhabwa ayo mahugurwa y'iminsi 2 ajyanye no guhitamo imbuto nziza agenewe abahugura abandi babonyeko ibihingwa bumvagako bitarwaye ari byo ahubwo byari bifite indwara ziterwa na virusi. Agoronome w'akarere ka Nyandarua witwa Michael Macharia yagize ati: « aya mahugurwa yatugiriye akamaro kuko yaduhumuye amaso kuko mbere ntitwigeze tumenyako ibyinshi mu bihingwa byacu by'ibirayi bifite indwara». « Ubu buryo twigishijwe bwaje ari igisubizo kitaziguye ku bibazo abahinzi bacu b'ibirayi bahura na byo kuko badafite uburyo bwo kubona imbuto y'ibirayi itarwaye».

Iyo inyinshi mu mbuto z'ibirayi zihingwa n'abahinzi ari imbuto baba barisaruriye, uburyo bwo « Guhitamo icyiza » ni bwo buryo nyabwo bufasha guhangana n'ikibazo cy'umusaruro ugenda urushaho kubaganuka bitewe n'uko imbuto zigenda zisaza.

6.2. Kuki ari ngombwa guhitamo icyiza?

Ubwo buryo buri wese yumva impamvu yabwo ku buryo bworoshye. Guhitamo icyiza ni ikintu gikenewe kuko bizwi neza ko hari indwara z'ibirayi zikomeza kubana nabyo. Abahinzi bose bashobora kumva ku buryo bworoshye ko ikirayi kitarwaye gitanga igihingwa kitarwaye kandi ko n'ikirayi kirwaye gitanga igihingwa kirwaye.

Nta mafaranga asabwa

Ubwo buryo bushobora gukoreshwa n'umuhinzi uwo ari we wese mu mirima mito y'ibirayi. Nta mafaranga ubwo buryo busaba kugira ngo bukorwe buri wese yabukoresha. Ibyo busaba gusa ni ibi bikurikira:

- Igihe cyo kubwiga
- Igihe cyo gushyira ikimenyetso ku bihingwa bitarwaye
- Igihe cyo gusarura ibihingwa bitarwaye ukwabyo
- Uduti two gushinga ku bihingwa bitarwaye

Umusaruro wiyongeraho 30%

Amagerageza yakozwe mu mirima y'abahinzi yatumye umusaruro wiyongeraho ku kigero cya 30% mu gihe kimwe cy'ihinga hakoreshejwe ubu buryo bwo gutoranya imbuto ugereranije n'uburyo busanze bukoreshwa bwo gutoranya imbuto zivuye mu birayi bimaze gusarurwa.

Abahinzi bahisemo gukoresha ubwo buryo bavugako umusaruro wabo wikubye kabiri nyuma yo gukoresha ubwo buryo bwo gutoranya imbuto inshuro nyinshi.

Abajura b'ibirayi ni ikimenyetso cy'uko uburyo bwo guturanya icyiza cyishimiwe muri Kenya.

Wainaina Njoroge ni umwe mu bagize ubwoko bw'abapigima mu karere ka Naivasha.

Yavuzeko yatangiye gukoresha uburyo bwo guhitamo icyiza akimara guhabwa amahugurwa yo kubukoresha. Yagize ati: « Nahagaritse akazi kanjye k'ubwarimu kubera iza bukuru none ubu nashyize ingufu zanjye mu bikorwa by'ubuhinzi. Ni yo mpamvu natekereje nkasanga ari byiza ko nagerageza guhinga ibirayi nkoreheje uburyo bwo guhitamo icyiza». «Nakoresheje uburyo bwo guhitamo icyiza mu bihe by'ihinga bitatu [. . .], maze bituma imisaruro yanjye yikuba gatatu.» Nizeye kuzasarura imifuka 20 muri uyu murima wanjye (toni 22 kuri hegitari imwe)».

«Muri iki gihe abahinzi bagenzi banjye baza iwanjye kugura imbuto kuko bamaze kumenyako imbuto yanjye ifite ubwiza buruta ubw'iyabo».

« Ibirayi byanjye byasaga neza mu murima ku buryo abajura baje nijoro kubyiba. Ubu nafashe icyemezo cyo gukwirakwiza ubwo buryo mu bandi bahinzi ku buryo ntawe uzongera kuza kwiba ibirayi byanjye».

Umushakashatsi ukorera Ikigo cya Kenya gishinzwe ubushakashatsi mu by'ubuhinzi (KARI) mu gace ka Tigoni yagize ati:« Igitangaje nuko twansanze harabaye ubujura bwinshi bwo kwiba ibirayi mu mirima y'abahinzi bari barateye imbuto nziza itoranijwe. Iki ni ikimenyetso cyiza kigaragazako abantu bagenda babona akamaro k'uburyo bwo guhitamo icyiza. Byageze n'aho abandi bahinzi babona akamaro kabwo bigatuma bagera aho bafata n'icyemezo cyo kujya kwiba kugira ngo babone iyo mbuto».

Uburyo bwo guhitamo cyiza ni uburyo usanga bushobora gukoreshwa n'abahinzi b'ibirayi bato bato badashobora kubona amikoro yo kugura buri gihe imbuto nziza y'ibirayi. Ubwo buryo bugenewe abahinzi bakoresha imbuto y'ibirayi bisaruriye mu mirima yabo. Ni uburyo usanga bufite akamaro mu duce utasangamo ubwoko bw'imbuto nziza y'ibirayi ikenewe cyangwa se mu duce usangamo abahinzi badashobora kubona ubwo bwoko bw'imbuto bitewe n'impamvu iyi n'iyi.

6.3 Ni nde ugomba gukoresha uburyo bwo «Guhitamo icyiza »?

Uburyo bwo guhitamo icyiza bubereye abahinzi bakoresha imirima mito

Uburyo bwo guhitamo icyiza ntibuberanya n'itubura ry'imbutu yo kugurisha.

Uburyo bwo gutoranya imbuto nziza hifashishijwe ibihingwa bikiri mu murima ntibuberanye n'itubura ry'imbutu yo kugurisha. Umuhinzi wese ushaka gukora igikorwa cyo gutubura imbuto yo kugurisha ku bandi bahinzi akeneye kwiga izindi teknikiki cyangwa ubundi buryo buberanye neza n'icyo gikorwa ku buryo burushijeho. Yagombye kugura imbuto y'ibanze ku mucuruzi w'imbutu wemewe kandi agakoresha uburyo bwo kurandura ibihingwa birwaye butandukanye n'uburyo twavuze bwo guhitamo icyiza bityo imbuto ye igashobora kugumana ubwiza bwayo.

Kurandura ibirayi byafashwe n'indwara

Nyuma yo gukoresha uburyo bwo guhitamo imbuto nziza mu bihe by'ihinga byinshi, abahinzi bashobora kwifuzza gukoresha uburyo busaba kurandura ibihingwa birwaye cyane ko biba bitoroshye gutoranya ibihingwa byose bitarwaye kubera ko ibyinshi muri ibyo bihingwa bizaba bifite igihagararo cyiza bigaragara ko nta ndwara bifite. Na none kandi gushyira uduti ku bihingwa byose bitarwaye byaba ari akazi katoroshye.

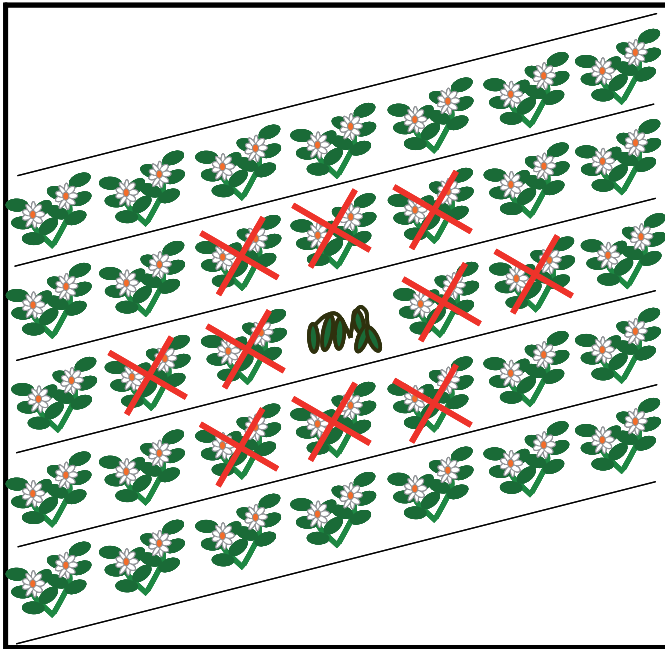
Uburyo bwo kurandura ibihingwa byafashwe n'indwara

Uburyo bwo kurandura ibirayi byafashwe n'indwara bukorwa umuhinzi arandura mu murima we ibirayi byafashwe n'indwara kugira ngo imbuto ishobore gukomeza kugira ubwiza bwayo. Ubu buryo buberanye n'imirima igenewe gutuburirwamo imbuto zifite ubwiza buri hejuru. Gukoresha ubu buryo ku mirima igaragaramo umubare munini w'ibihingwa birwaye ni ikintu gituma umuhinzi atakaza ibihingwa byinshi ku buryo abahinzi b'ibirayi bafite imirima mito badasabwa kubukoresha.

«Uburyo bwo guhitamo icyiza» ntabwo buha umuhinzi icyizere cyo kuzakomeza kugira umusaruro mwiza. Icyo ubwo buryo bumufasha gusa ni ugutuma imbuto ye idatakaza ubwiza bwayo vuba. Ubwo buryo bushobora gutuma imbuto yatakaje ubwiza itanga umusaruro ku kigero iki n'iki ariko ako kamaro kabwo gafite aho kagarukira. Niba abahinzi bashaka gukomeza kugira umusaruro mwinshi ni ngombwa ko bakomeza gushaka buri gihe imbuto ku bacuruzi bazwi kugira ngo imbuto yabo ishobore gusubirana ubwiza bwayo.

Iyo ibirayi byafashwe n’indwara ya Kirabiranya, si byiza gukoresha uburyo bwo ghitamo icyiza igihe bigaragara ko muri uwo murima harimo ibihingwa byinshi byafashwe n’iyo ndwara. Iyo ibihingwa byafashwe n’iyo ndwara biri ku kigero cya 2% ni ukuvuga iyo muri buri bihingwa ijana harimo ibihingwa bibiri byafashwe n’iyo ndwara ni byiza ko umuhinzi ashaka imbuto ivuye mu mirima ifite ibihingwa bitarwaye. Iyo nta mirima nk’iyo ashobora kubona, icyo asabwa gukora ni ugukora ku buryo yirinda gutoranya igihingwa icyo ari cyo cyose cyegereye igihingwa cyafashwe n’iyo ndwara. Nta na rimwe agomba gutoranya ibihingwa bibiri bikurikira icyo gihingwa biri ku murongo umwe na cyo cyangwa se ibihingwa bicyegereye biri ku murongo ukurikiyeho (reba ishusho ya 10).

Indwara ya Kirabiranya n’ «Uburyo bwo guhitamo icyiza»



Ishusho ya 10: Ntugomba gutoranya ibihingwa byegereye igihingwa cyafashwe n’indwara ya Kirabiranya.

IGICE CYA 2

Gahunda y'amahugurwa agamije guha abahinzi inyigisho ku bijyanye no guhitemo icyiza

Guha abahinzi inyigisho zibafasha gukoresha « Uburyo bwo Guhitamo icyiza » hifashishwa gahunda y'amahugurwa akubiye mu byiciro 9 by'inyigisho.

Uburyo amahugurwa agomba gutangwa

Intangiriro no kurema amatsinda

Gutoranya ibihingwa bitarwaye bikiri mu murima igihe bitangiye
kuzana uruyange

Kugenzura niba ibihingwa byatoranyijwe bitarwaye

Gusarura

Gutera imbuto mu murima ukorerwamo igerageza

Gutoranya ibihingwa byiza kugira ngo bizatange imbuto

Kumurika ibyo abahinzi bagezeho

Gusarura ibihingwa biri mu murima ukorerwamo igerageza

Isuzuma no gutanga inyemezabumenyi

1. Uburyo amahugurwa agomba gutangwa

1.1 Kwigira ku bikorwa

Ikintu cy'ibanze kigamijwe ni uguhugura amatsinda y'abahinzi hakoreshejwe uburyo bwo kwigira ku bikorwa. Mu rwego rw'iyi gahunda y'amahugurwa umurima ni wo uhinduka ishuri (umurima shuri). icyo iyi gahunda y'amahugurwa yibandaho ni ugukora igerageza rituma abahinzi b'ibirayi bafata uburyo bakoresha mu gutoranya imbuto bakabugereranya n'uburyo bwo guhitamo imbuto nziza. Mu ntangiriro no mu isozwa ry'amahugurwa abahinzi bazashobora ubwabo gusuzuma inyungu zifatye ku buryo bushya bigishijwe bagereranije n'uburyo bari basanzwe bakoresha mu gutoranya imbuto.

Kwigira ku bikorwa

Gahunda y'ayo mahugurwa kandi yibanda ku kibazo cy'ubwiza bw'imbuto y'ibirayi. N'ubwo abahinzi b'ibirayi bahura n'ibindi bibazo byinshi bitandukanye, usanga akenshi mu bibazo abahinzi b'ibirayi bafite imirima mito mito bahura na byo, ubwiza bw'imbuto y'ibirayi ari cyo kibazo kiza ku isonga. Kuba rero gahunda y'amahugurwa yibanda kuri icyo kibazo ni uburyo buutuma igihe utanga amahugurwa n'abahugurwa basabwa gukoresha kigabanuka ku buryo bwose bushoboka.

1.2 Imyiteguro ikenewe mbere yo gutangira

Umuntu wese ukoresha aka gatabo k'amahugurwa agomba kuba yarakurikiranye amahugurwa y'igihe gito rigenewe abahugurwa abandi. Ku muni wa mbere wayo mahugurwa amara iminsi iri hagati y'ibiri n'itatu, abaryitabiriye bagomba kugezwaho amavu n'amavuko ndetse n'amahame y'uburyo bwo gutoranya imbuto nziza. Ku muni ukurikiyeho, abitabiriye ihugurwa bajya mu murima bagatoranya ubwabo imbuto bakoresheje uburyo bwo gutoranya imbuto nziza. Iyo ibyo byose birangiye hagenwa inzira igomba gukurikizwa mu guhugura itsinda ry'abahinzi.

Guhugura abagomba guhugura abandi

Utanga amahugurwa agomba kuba ari umukozi ushinze iyamamazabuhinzi ufite ubumenyi

bw'ibanze ku bijyanye n'ubuhinzi bw'ibirayi. Nyuma y'amahugurwa, uwo mukozi agomba kuba yiteguye gutangira guhugura itsinda ry'abahinzi ku bijyanye no gutoranya imbuto nziza, kandi ibyo akabikora agenzurwa n'ikigo akorera ndetse n'ikigo cyamuhaye amahugurwa y'ibanze.

Undi muntu ushobora gutanga amahugurwa ni uri mu bagize itsinda ry'abahinzi rigomba guhugurwa wahawe amahugurwa ajoyanye n'uburyo bwo guhitamo icyiza. Bene uwo muhinzi na we aba agomba guhabwa amahugurwa akenewe abahugura abandi kugira ngo ashobore kurushaho kumenya amavu n'amavuko ndetse n'amahame by'uburyo bwo guhitamo icyiza kugira ngo azashobore kubugeza ku bandi bahinzi.

Ikigo mpuzamahanga cyita birayi (CIP) ndetse n'ikigo cya Kenya gishinzwe ubushakashatsi mu by'ubuhinzi (KARI) byakoresheje amahugurwa menshi akenewe abahugura abandi muri Kenya. Hashingiwe kuri ayo mahugurwa, hazategurwa agatabo gafasha ibindi bigo kumenya gutegura inyigisho zabyo zigenewe abahugura abandi. CIP na KARI bifite ubushake bwinshi bwo kugeza ku bindi bigo ubumenyi bujyanye no gutegura amahugurwa.

Iyo gahunda y'amahugurwa ishingiyeye ku matsinda. Ni yo mpamvu hagomba gutoranwa itsinda ry'abagomba guhugurwa. Gukorana n'itsinda ryari risanzwe ririho ryagararaje ko rifitanye ubwumvikane ni ikintu kiba cyoroshye cyane kurusha ibindi. Iryo tsinda rigomba kuba ari itsinda ryakoreye hamwe mu murima shuri cyangwa se itsinda rifite icyo rihuriyeho risanzwe ryarahuguwe cyangwa itsinda ry'abagore rishamikiye ku idini iri n'iri cyangwa se irindi tsinda iryo ari ryo ryose rishobora kuba ryarigeze gukorera hamwe. Ikintu cya mbere hejuru y'ibyo kandi n'uko abagize iryo tsinda bagomba kuba bafite ubushake bwo kongera umusaruro wabo w'ibirayi. Na none byarushaho kuba byiza igihe ari itsinda ubwaryo ryisabiye ayo mahugurwa. Aha twavugaga gusaba guhabwa ayo

Umuhinzi uhugura bagenzi be

Kurema itsinda

Kwifashisha itsinda ryari risanzwe ririho

mahugurwa nk'igihe cyo kumurika ibyo abahinzi bagezeho mu murima bikozwe n'itsinda ryahuguwe cyangwa rikabisaba ribinyujije ku mukozi ushinzwe iyamamazabuhinzi.

Gukora itsinda rishya

Iyo nta tsinda risanzwe ririho, rishobora gukorwa. Ubu buryo ariko bwo gukora itsinda rishya usanga atari bwiza kuko usanga abagize iryo tsinda bafite amahirwe make yo kugumana ugereranije n'itsinda ryari risanzwe ririho. Nyamara ariko ni ngombwa kumenyako iryo tsinda risabwa kubaho gusa mu gihe kingana n'igihe umurima shuri umara. Iyo hakoze itsinda rishya ni ngombwa ko abarigize bibutswa ko rigomba kuba rigizwe n'umubare ungana w'abagore n'abagabo. Ni ukuvuga ko byaba byiza abagore baririmo bangana na 50%. Na none kandi umuyobozi n'umwanditsi b'itsinda bagomba kuba ari abantu bafatwa nk'abatanga amakuru yerekeye abagize itsinda kandi bafite inshingano yo kubashishikariza kwitabira inama no gukora akazi ko mu murima shuri.

Ibyo abagize itsinda bagomba gusobanurirwa neza

Kuva itsinda rigitangira abarigize bagomba gusobanurirwa ko gahunda y'amahugurwa bagomba guhabwa ari umushinga bahuriyeho n'ubaha amahugurwa kandi ko uwo mushinga ugomba kumara igihe cy'amezi 9. Buri wese ugize itsinda afite kandi inshingano yo kwitabira inama zikorwa kuva itsinda ritangiye kugera rirangiye. Gahunda y'amahugurwa iba iteguye ku buryo bitakorohera utarakurikiye inyigisho za mbere gushobora kuzazumva nyuma. Ni ngombwa ko abahugurwa bakurikirana ibyiciro byose by'inyigisho kuva ku cyiciro cya mbere kugeza ku cyiciro cya 8 kugira ngo bashobore gusobanurirwa neza ku buryo buhagije «Guhitamo icyiza».

Na none kandi kuva amahugurwa atangira ni ngombwa gusobanurirwa neza abahugurwa ibikubiye muri gahunda y'ayo mahugurwa ndetse n'inshingano itsinda rifite izo ari zo. icyo abahinzi bahabwa mu rwego rw'amahugurwa ni amakuru aba akenewe ndetse n'ibitabo by'amahugurwa. Ibirayi by'imbutu,

ifumbire mvaruganda n'imiti yica udukoko twangiza imyaka ndetse n'ubutaka n'abakozi bakora mu murima shuri ni inshingano z'itsinda ry'abahinzi. Ingurane cyangwa inyishyu igomba guhabwa uwatanze umurima wo kugeragerezamo imbuto n'uburyo bwo guhitamo icyiza na byo ni inshingano z'abahinzi. Na none kandi itsinda rifite inshingano yo kujya impaka ku ngurane ihabwa nyir'umurima wakoreshejwe nk'umurima shuri.

Gahunda nyayo y'inyigisho igizwe n'ibyciro by'inyigisho kuva ku cyiciro cy'ibanze cy'inyigisho cyerekeye irema ry'amatsinda kiyongeraho ibindi byiciro 8 bikubiyemo inyigisho zigomba gutangwa hakurikijwe ikigero ibirayi bigezeho. Buri cyiciro cy'inyigisho kiba gikubiyemo ibikorwa bitandukanye. Ibisobanuro birambuye kuri ibyo bikorwa bikubiye mu gice gikurikiyeho. Na none kandi mu gice gikurikiyeho harimo ibisobanuro ku byerekeye igihe, ibikoresho ndetse n'imyiteguro (bikenewe n'utanga amahugurwa cyangwa/ndetse n'abahugurwa). Ibindi utanga amahugurwa yakwifashisha bifatwa nk'imfashanyigisho y'inyongera bishobora gutangwa. Incamake ya gahunda y'inyigisho turayisanga mu gishushanyo cya 11.

Umugereka wa 2 turawusangamo ifishi zikoreshwa mu gukusanya makuru. Izo fishi zifasha utanga amahugurwa gukurikirana igikorwa kandi ikanafasha kubona amakuru y'ibanze akenewe amufasha gukora raporo igenewe umukozi umukuriye. Igikorwa cyo gukusanya amakuru kigomba kugenerwa igihe gito gishoboka kugira ngo kidatwara igihe kinini. Ni byiza kutagira icyo wandika mu ifishi iri muri iki gitabo. Icyo usabwa gukora ahubwo ni ukuyifotoza kugira ngo ushobore kuyikoresha mu murima.

Uretse iki gitabo gikubiyemo inyigisho hari n'igitabo kirimo amafoto y'ibara agaragaza ibimenyetso by'indwara ndetse n'imfashanyigisho y'umuhinzi mu murima. Icyo gitabo cy'amafoto gikubiyemo

1.3 Uburyo amahugurwa ateye

Ibyiciro by'inyigisho zitangwa mu mahugurwa

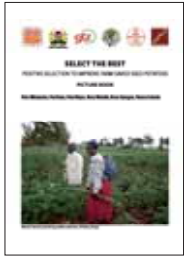
1.4 Ibyifashishwa mu mahugurwa

Gukusanya amakuru

Ibyifashishwa mu mahugurwa

amafoto y'amabara agaragaza indwara z'ingenzi zifata igihingwa cy'ibirayi. Ayo mafoto kandi ari ku rupapuro rusanze (A4) kandi yateguwe kugira ngo utanga amahugurwa ayakoreshe nk'imfashanyigisho y'inyongera.

igitabo cy'amafoto



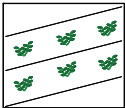
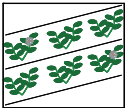
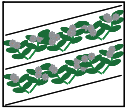
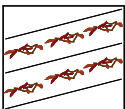
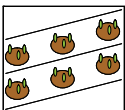
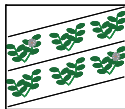
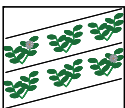
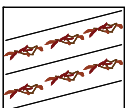

Icyo gitabo gikubiyemo amafoto ntigishobora ariko gusimbura igikorwa cyo kujyana abitabiriye amahugurwa mu murima kugira ngo birebere n'amaso yabo izo ndwara. Icyo gitabo kigamije gufasha utanga amahugurwa kurushaho gusobanurira abahugurwa ibimenyetso bitandukanye by'indwara ziri mu murima mbere y'uko abahinzi bajya kuzirebera ubwabo mu murima. Icyo gitabo kiza cyuzuzanya ingero z'ibimenyetso by'indwara abahinzi bashobora kwibonera mu murima cyane ko hari igihe ibimenyetso byose bishoboka by'izo ndwara bidashobora kuboneka buri gihe mu murima ku buryo bigaragara neza mu gitabo cy'amafoto.

Imfashanyigisho y'abahinzi mu murima



Iyo mfashanyigisho y'umuhinzi ni agatabo gato kagizwe n'impapuro 8 gakubiyemo incamake y'ibisobanuro bigenewe abahinzi ku « kuburyo bwo guhitamo icyiza». Ako gatabo gakubiyemo amafoto y'ibara agaragaza ibimenyetso by'indwara z'ingenzi zifata igihingwa cy'ibirayi. Kazafasha abahinzi mu murima bahugurwa kandi bakazajya banakifashisha igihe cyose nyuma yo kurangiza gahunda y'amahugurwa. Abahinzi bahuguwe na bo bashobora kukifashisha igihe bashakira kugeza kuri bagenzi babo b'abahinzi ubumenyi bungutse.

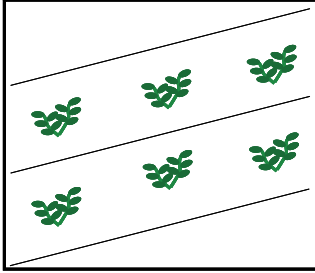
Iyo mfashanyigisho yanditse ku buryo bwumvikana neza. kuyishyira mu ndimi zo mu bihugu abahugurwa bakomokamo biroroshye. Ni agatabo gatoya kandi kadahenze ku buryo gashobora gukorwamo udutabo twinshi cyane tugahabwa abahinzi. Gashobora kuboneka kuri website ya CIP (www.cipotato.org) muri forma ya adobe.

Icyiciro cy'inyigisho	Ikigero Ibirayi bigezeho	Igihe gikenewe	Intego	
Icyiciro: 0 Kurema itsinda		Kumera	Amasaha 2	Gushaka/gukora itsinda ribyifuza Gusobanura intego z'amahugurwa Kugena gahunda y'amahugurwa
Icyiciro: 1 Gutoranya ibihingwa bitarwaye mu murima usanzwe		Ururunge rwa mbere; Ibirayi bitari byafatana cyane	Amasaha 6	Kwiga uburyo bwo guhitamo icyiza Gutoranya ibirayi bizatanga imbuto no gukora igerageza mu murima
Icyiciro: 2 Kugenzura ubuzima bw'ibyatoranyijwe		Ururunge rwose rwagaragaye; Amababi atwikiye ubutaka	Amasaha 2	Kugenzura niba ibihingwa byatoranyijwe bitarwaye
Icyiciro: 3 Gusarura		Imigozi yatanguye gusaza	Amasaha 4	Kwiga guhitamo icyiza mu isarura Gusarura ubwoko bubiri bw'ibirayi kugira ngo buzakoreshe mu murima w'igerageza
Icyiciro: 4 Gutera umurima w'igerageza		Gutera, Imbuto imeze neza	Amasaha 4	Gutera umurima w'igerageza
Icyiciro: 5 Guhitamo icyiza		Ururunge rwa mbere; bitari byafatana cyane Gusobanura neza ibyo abahinzi batasobanukiye neza	Amasaha 2	Gusuzuma ubushobozi bw'abahinzi ku bijyanye no guhitamo icyiza
Icyiciro : 6 Umunsi w'imurika bikorwa		Ururunge rwa mbere ; bitari byafatana cyane	Amasaha 4	Gushishikarira abandi bahinzi uburyo bwo guhitamo icyiza
Icyiciro : 7 Gusarura umurima W'igerageza		Imigozi yatangiye gusaza	Amasaha 4	Gusarura umuriima w'igerageza no kwandika ibyavuyemo
Icyiciro : 8 Kurebera hamwe Ibyakozwe no gutanga inyemezabumenyi		Igihe gito nyuma yo gusarura	Amasaha 2	Gusuzuma ibyavuye mu igerageza Gusuzuma ibyavuye mu mahugurwa Gutanga inyemezabumenyi

Ishusho ya 11 : Gahunda y'amahugurwa

Icyiciro cy'ibanze: 0

Gusobanurira uko amahugurwa ateye no gukora amatsinda



Igihe ibyo bikorerwa:

Igihe mu karere abahinzi batuyemo hari ibirayi byatangiyeye kumera

Intego:

- Kumenya itsinda ririho cyangwa kurema itsinda rishaka gukurikirana amahugurwa
- Kumenyesha abahinzi icyo amahugurwa agamije
- Gukora gahunda y'amahugurwa

Incamake y'ibikorwa:

1. Intangiriro ya gahunda y'amahugurwa ajyanye n'«Guhitamo icyiza»
2. Gukora itsinda rishya
3. Kuja impaka ku mategeko agomba kugenga abagize itsinda
4. Kwandika abagize itsinda
5. Gukora gahunda y'icyiciro cya 1 cy'amahugurwa

Igihe gikenewe:

Amasaha abiri (2)

Gutegura

- Kugena igihe cyo guhura kugira ngo hakorwe inama
- Niba ari itsinda ryari risanzwe ririho, ni ugusabako abarigize bose bagomba kwitabira iyi nama yo kubagezaho amakuru bakeneye ku bijyanye n'amahugurwa
- Niba ari ukurema itsinda rishya, ni ugukora ku buryo abaturage batuye mu gace ushaka gukoreramo iryo tsinda bamenyeshwa icyo nama igamije kubagezaho amakuru yerekeranye n'amahugurwa kandi ayo makuru bakayagezwaho hakoreshejwe uburyo butandukanye. Muri ubwo buryo twavugaga kwifashisha andi mashyirahamwe y'abahinzi asanzwe ariho, mu zindi nama zihuza abaturage, mu isoko cyangwa mu kiriziya cyangwa mu musigiti.

Utanga amahugurwa ashobora gutangira abasobanurira abahugurwa ko «Uburyo bwo guhitamo icyiza» ari uburyo abahinzi bashobora gukoresha kugira ngo bongere imbuto y'ibirayi basarura mu murima wabo. Ibyo bituma bashobora kongera umusaruro wabo w'ibirayi mu gihe cy'ihinga kiba gikurikiyeho.

Abahinzi bashobora kwiga ubu buryo hakoreshejwe gahunda y'amahugurwa imara hafi igihe kingana n'ibihe bibiri by'ihinga ry'ibirayi ni ukuvuga igihe kingana n'amezi agera ku icyenda. Muri icyo gihe cy'amezi 9 abahinzi bagize itsinda baba bagomba guhura inshuro 8 kandi buri nshuro bahuye ikaba ingana n'igice cy'umunsi. Igihe cy'ayo mahugurwa utanga amahugurwa n'abayahabwa bakorera hamwe igerageza kugira ngo bagenzure niba ubwo buryo bushya ari bwiza kurenza uburyo abahinzi bari basanzwe bakoresha. Iyo iryo gerageza rirangiye, abahinzi bazaba barashoboye kwiga no kumenya gukoresha «Uburyo bwo guhitamo icyiza». Bazashobora kandi kureba niba ubu buryo ari bwiza kurenza ubwo bari basanzwe bamenyereye gukoresha.

Aha ni ngombwa kubumvisha ko icyo utanga amahugurwa azabaha nta kindi uretse amakuru bakeneye no kwemera gufata igihe cye akabahugura. Ni ngombwa kumenya ko nta mpano ziteganijwe nk'imbuto, inyongeramusaruro cyangwa ibikoresho.

Abahinzi ni bo ubwabo bagomba gutanga umurima ukenewe uberanye no guhingwamo ibirayi ungana na hafi na m² 600 cyangwa ufite ubugari bwa m 20 n'uburebure bwa m30 kugira ngo ukoreshwe mu igerageza mu gihe kimwe cy'ihinga.

Imbuto zikoreshwa mu igerageza zigomba gutoranywa mu murima w'ibirayi usanzwe uriho. Abagize itsinda niba baha nyir'uwo murima ingurane. Ni ngombwa ko haba hari nibura ibirayi by'imbuto bigera hafi ku bihumbi bibiri (2000).

**Igikorwa cya 1:
Gusobanurira
abahugurwa
ibijyanye na gahunda
y'amahugurwa
yerekeye « Guhitamo
icyiza »**

***Ese ni iki abahugurwa
bahabwa?***

***Ese ni iki abahinzi
basabwa
gutanga ?***

Gushaka abakozi bagomba kwita kuri uwo murima ukorerwamo igerageza ni inshingano z’abahinzi bagize itsinda. Na none kandi nibo barebwa no gushaka imiti yica udukoko twangiza imyaka ndetse n’ifumbire mvaruganda bikeneye gukoreshwa muri uwo murima.

Kujya impaka hagamijwe kureba niba abagize itsinda bafite ubushake bwo gukora iki gikorwa cyangwa se niba ntabwo bafite.

Inama utanga amahugurwa yifashisha

- Guha abahinzi umwanya uhagije bakabaza ibibazo bibafasha kurushaho gusobanukirwa neza iyo gahunda
- Utanga amahugurwa ashobora guha abahinzi urugero rw’abahinzi bo muri Kenya bemeza ko umusaruro wabo wikubye kabiri nyuma yo guhabwa amahugurwa.

Igikorwa cya 2: Kurema itsinda rishya

Iki gikorwa gikorwa gusa ku bantu bakeneye gukora itsinda rishya rikenewe ku buryo bw’umwihariko kubera aya mahugurwa.

Kugira umubare w’abagabo n’abagore ungana

Igihe ari ngombwa gukora itsinda rishya ni ngombwa kwibutsa ko abagenewe aya mahugurwa ari abantu bakora ibikorwa by’ubuhinzi bw’ibirayi. Ni ukuvuga ko abagore n’urubyiruko na bo bagomba kuba bari mu bagize itsinda. Bitewe n’umuco w’aho abahinzi batuye, utanga amahugurwa ashobora kwibutsa abagize itsinda ko itsinda ryabo rigomba kuba rigizwe n’umubare ungana w’abagore n’abagabo. Na none kandi ni ngombwa kubibutsa ko urubyiruko ari rwo bahinzi b’ejo bityo rukaba rukeneye ayo mahugurwa.

Niba utanga amahugurwa ari mu gace usanga abagabo n’abagore badakorera hamwe ku buryo bwisanzuye hubahirizwa uburinganire ashobora kureba uburyo bwo gukora itsinda rigizwe n’abagore gusa.

Uko itsinda riba ringana

Kugira ngo amahugurwa ashoboke, ni byiza kwirinda kugira amatsinda arimo abantu benshi cyane. Na none kandi iyo amatsinda agizwe n’abantu bake cyane biba bivuzeko inyigisho utanga zigera ku bantu bake cyane.

Ibyiza nuko itsinda ryagombye kugira abantu batari hasi hasi ya 20 kandi batanarenze 30. Igihe abagize itsinda bageze kuri 40 ushobora gufata icyemezo cyo kubagabanyamo amatsinda 2. Igihe umubare w'abagize ayo matsinda abiri ugeze aho ukagabanuka cyangwa se igihe utanga amahugurwa adafite igihe cyo guhugura ayo matsinda 2 atandukanye, ashobora kongera kuyahuriza hamwe akayahugurira hamwe. Nyamara ariko ni byizako buri tsinda muri ayo matsinda 2 rigira umurima waryo wo gukoreramo igerageza.

Igihe cyose ukoze itsinda abenshi mu barigize batangira ari abantu bishimiye iryo tsinda kandi bafite ubushake. Ariko uko iminsi igenda iza hari abagenda barivamo ku mpamvu zitandukanye. Hari abashobora kumvako ntacyo ubungura ku bumenyi bari basanganwe ndetse hashobora kuba hari n'abafite ibindi bikorwa byinshi ku ruhande bakora cyangwa hakaba harimo n'ababona ko amahugurwa bahabwa atari yo bari biteze.

Ubushake bw'abagize itsinda

Icyo utanga amahugurwa aba agomba kwirinda ni ukugira itsinda rigizwe n'abantu badafite ubushake kuva rigitangira. Abahinzi bamwe na bamwe bashobora kuza mu itsinda bagamije kureba niba bashobora kuzahabwa ubwoko bushya bw'imbutu ku buntu. Hari n'abaza bumva bazabona ibikoresho by'ubuhinzi ku buntu cyangwa se bumva bazahabwa ingorofani y'ubuntu. Ibi baba babitekereje gutyo kuko rimwe na rimwe baba barabonye hari indi mishinga yigeze kubitanga. Abitabira bene iyo mishinga usanga bashobora kugira ibikoresho bahabwa iyo barangije amahugurwa. Kuva amahugurwa agitangira, ni ngombwa gusobanurira abahugurwa ko nta mpano bazahabwa. Ni ngombwa kubibasobanurira neza bakabimenya. Icyo umushinga uzaha abahinzi bose bitabiriye amahugurwa ni inyigisho gusa.

Bitewe n'uko uba ugomba gukorana n'abantu bari mu itsinda rikozwe bushya, ni ngombwa kujya na bo

Amategeko agenga itsina

impaka ku bijyanye no gushyiraho amategeko agenga itsinda ryabo.

Ayo mategeko abagize itsinda bagomba kuyumvikanaho bese kandi agomba kuba afite aho yanditse. Izo mpaka wenda si ngombwa ko zirangira muri iyo nama ikozwe bwa mbere kuko zishobora gukomeza no mu nama ziba zigomba kuzakurikiraho. Mu bihugu byinshi amatsinda ashobora kwiyandikisha ubwayo mu nzego zibishinzwe. Hari igihe aba ari ngombwa ko ufasha itsinda rishya mu nzira yo kwiyandikisha igihe uri guhugura abarigize.

Hari amatsinda ategeka ko ushaka kuyinjiramo abanza gutanga amafaranga y’umunyamuryango kugira ngo hizerwe ko abayarimo ari abantu bafite ubushake koko.

Abayobozi b’itsinda

Ni ngombwa gukora ku buryo itsinda ryihitiramo Perezida n’umwanditsi baryo ndetse byaba ngombwa n’umubitsi iyo iryo shyirahamwe rikora ibikorwa bifatanye isano n’amafaranga. Ni ngombwa gukora ku buryo mu bayobora iryo tsinda haba harimo abagabo n’abagore.

Ni ngombwa kwibutsa abagize itsinda ko byaba byiza ko bareka abandi bafite ubushake bakaryinjiramo. Umubare nyawo wa nyuma w’abagize itsinda ushobora kwandikwa mu nama ikurikira. Na none kandi ibyo ni byo bizatuma iryo tsinda rishya riboneraho umwanya wo kongera umubare w’abagore cyangwa urubyiruko baririmo igihe ari ngombwa.

Inama utanga amahugurwa yifashisha

- Aho gukora itsinda rishya byaba byiza kwifashisha itsinda risanzwe ririhohotse kabone n’iyo iryo tsinda ryaba ritarakoraga ibikorwa by’ubuhinzi mbere.
- Ni byiza ko utanga amahugurwa abaza abahinzi bagize itsinda bakamubwira abakora mu mirima yabo y’ibirayi kugira ngo bumbe ubwabo akamaro ko guhugura buri wese harimo urubyiruko n’abagore.
- Ni byiza ko umugore ari we ugirwa umubitsi kubera ko mu duce twinshi usanga abagore bazwiho gucunga neza umutungo w’umuryango kurusha abagabo.

Amahugurwa yakorewe mu gihugu cya Kenya yerekana ko ari ngombwa kujya impaka ku mategeko agenga abagize itsinda igihe ku muni wa mbere wamahugurwa.

Igikorwa cya 3: Kujya impaka ku mategeko agenga abagize itsinda

Hariho amategeko 4 y'ibanze agomba kubahirizwa:

1. Abagize itsinda bese bagomba kwitabira ibikorwa byo mu murima. Ibikorwa byo mu murima bigomba gukorerwa hamwe hatitawe ku myaka no ku gitsina by'abagize itsinda.
2. Igitekerezo cya buri wese kigomba guhabwa agaciro. Abagize itsinda bagomba gutega amatwi ibitekerezo bya buri wese muri bo kandi bakamuha umwanya akavuga hatitawe ku myaka afite no ku gitsina cye.
3. Abagize itsinda bagomba kwitabira inama zose z'itsinda. Iyo umwe mubagize itsinda adashoboye kwitabira inama, agomba kubimenyeshya Perezida cyangwa umwanditsi b'itsinda. Iyo umwe mu bagize itsinda atitabiriye inama zirenze 2 mu nama 8 ziteganijwe nta nyemezabumenyi ashobora guhabwa.
4. Utanga amahugurwa n'abahugurwa bagomba kubahiriza igihe. Bagomba kumvako igihe ari ikintu gifite agaciro. Isaha yo gutangiriraho inama ishobora kugibwaho impaka kugira ngo hashyirweho isaha ibereye buri wese. Iyo saha yashyizweho igomba kubahirizwa kugira ngo itabangamira ibindi bikorwa.

Utanga amahugurwa agomba gukora ku buryo we n'umwanditsi bandika ibintu bikurikira:

- Amazina na nimero za telefoni by'abayobozi b'itsinda
- Amazina y'abandi bagize itsinda bahari
- Amazina y'abagize itsinda bataje ndetse n'impamvu

Igikorwa cya 4: Kwandika abagize itsinda

Igikorwa cya nyuma kirangwa no kugena gahunda y'icyiciro cya mbere cy'inyigisho. icyo cyiciro c'inyigisho gitangwa igihe ibirayi bitangiye kuzana imbuto cyangwa mbere ho hato y'uko kizana imbuto.

Igikorwa cya 5: Kugena gahunda y'icyiciro cya 1 cy'amahugurwa

***Ibyo umurima
ukorerwamo igerageza
ugomba kuba wujuje***

Umurima ugomba kuba wujuje ibi bikurikira:

- Kuba ufite ubuso bungana hafi na 0,1 ha cyangwa burenze (nibura ibirayi 4000)
- Kuba ari umurima ufite ubwiza buringaniye, singomwa kuba umurima mwiza cyane
- Kuba uhinzemo ubwoko bumwe butavangiye
- Nyirawo yagombye kuba umwe mu bagize itsinda ariko akaba ari umuhinzi ufite ubushake bwo gukorana n'abandi
- Umurima w'ibirayi umaze ibyumweru 8 (bitangiye kuzana uruyange rwa mbere) mu gihe amahugurwa atangiye.

Kujya impaka n'abagize itsinda hagamijwe kureba aho uwo murima waboneka. Niba nta numwe mu bagize itsinda ufite umurima wujuje ibyo bisabwa, hashobora gukoreshwa umurima w'undi muhinzi. Ibi ariko bivuzeko abagize itsinda bagomba kugirana amasezerano na nyir'uwo murima kugira ngo bamuhe ingurane ihwanye n'imbuto y'ibirayi izakurwa mu murima we.

Nyir'umurima agomba na none kumenyako itsinda rizakenera gusarura iyo mbuto mbere y'uko ibindi birayi bisigaye bisarurwa. Ni ukuvuga ko umuhinzi adashobora kugurisha ibirayi bye vuba igihe ibiciro biba biri hejuru. icyo gihe ahubwo aba agomba gutegereza ko abagize itsinda basarura iyo mbuto.

Ni ngombwa ko umurima utoranyijwe aba ari umurima utameze neza cyane kandi utanameze nabi cyane. Ni umurima w'ibirayi ufite ubwiza buringaniye ku buryo abahinzi bose bashobora gutekerezako umurima wabo bwite umeze nk'uwo nguwo.

Icyiciro cya 1 cy'inyigisho: Guhitamo ibihingwa bizima mu murima

Igihe bikorwa:

Igihe igihingwa gitangiye kuzana indabo, igihe indabo za mbere zigatangira kugaragara za virusi zishobora kugaragara neza kurusha ikindi gihe. Icyi ni cyo gihe cyiza cyo gutangira guhitamo ibihingwa by'ibirayi bidafite indwara.

Ikigamijwe:

- Gukusanya amakuru y'ibanze
- Kumenya uko bahitamo icyiza
- Guhitamo ibihingwa byiza bizakoreshe mu igerageza
- Gutegura gahunda y'igerageza

Incamake y'ibikorwa:

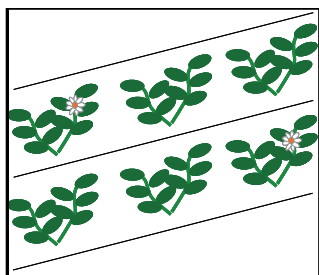
1. Urupapuro rw'ibibazo byo gufasha kumenya akamaro k'amahugurwa
2. Gusobanura gahunda y'amahugurwa yo guhitamo icyiza
3. Imyimenyerezo yo kumenya indwara ziri ku bihingwa by'ibirayi
4. Imyimenyerezo yo kugena ibigero indwara zigezeho
5. Guhitamo icyiza no gushyira ikimenyetso kubigaragara ko ari bizima mugice kimwe cy'umurima
6. Kuja impaka kubikenewe mu isarura, ndetse igihe n'ahantu bizakorerwa
7. Incamake y'amasomo yatanzwe no gutegura gahunda itaha.

Igihe gikenewe:

Amasaha ane (4)

Gutegura

- Gushaka uduti 300 two gushinga ku bihingwa
- Gushaka umurima w'ibirayi ukwiye ufite nibura ubuso bungana na ha 0,1 ufite ibihingwa bigeze mu kigero kijyane n'inyigisho ziri mu gitabo (reba igitabo cy'ibanze kugira ngo umenye ibindi murima ugomba kuba wujuje)
- Gufotoza umugereka wa 1 ugafotozamo kopi zingana n'umubare w'abagomba guhugurwa
- Kuzana ibirayi 9 bifite ingano ibereye kuba imbuto n'ibindi birayi 7 binini
- Kuzana amakaramu (ball points) abiri cyangwa marikeri 2 bifite amabara atandukanye



**Igikorwa cya 1:
Urupapuro rw'ibibazo
byo gufasha
kumenya akamaro k'
amahugurwa**

Mu rwego rwo kumenya niba hari icyo abahinzi bitabiriye amahugurwa bungutse, ndetse no kureba niba barashoboye kongera umusaruro nyuma yo guhugurwa, hateguwe urupapuro rw'ibibazo (reba umugereka wa 1). Urwo rupapuro rugomba kuzuzwa n'abahinzi bose bagitangira amahugurwa bakazongera kurwuzuzwa nyuma yo kurangiza amahugurwa.

Icyiciro A cy'urwo rupapuro rw'ibibazo kirimo ibibazo biherekejwe n'ibisubizo byo guhitamo bigamije gufasha gusuzuma ikigero cy'ubumenyi abahinzi bafite kandi ibibazo biri muri icyo cyiciro bigomba kuzuzwa n'umubare munini w'abahinzi ushoboka. Abahinzi bashyira ikimeneyetso ku gisubizo kiricyo . Mu cyiciro cyanyuma cy'amahugurwa isuzuma ryongera gukorwa. Mu gutanga inota kuri buri gisubizo ukurikirana amahugurwa yasubije neza no gukuraho inota ku kibazo umuhinzi atasubije neza, icyo gihe bizaba byoroshye kumenya neza ibyo abahinzi bashoboye kwiga mu mahugurwa bakurikiranye. Icyo gihe utanga amahugurwa azashobora kumenya ibyo agomba kuzibandaho mu guhugura itsinda `rikurikiraho.

Icyiciro B cy'urwo rupapuro rw'ibibazo kigamije kumenya niba abahinzi barahinduye koko uburyo basanzwe bakoresha mu buhinzi bwabo ugereranije n'uburyo bari basanzwe bakoresha mbere yo guhabwa amahugurwa. Icyiciro cya C kigamije kugenzura niba mu by'ukuri abahinzi barashoboye kongera umusaruro nyuma yo guhabwa amahugurwa. Ibyiciro B na C byuzuzwa mbere y'uko amahugurwa atangira kandi bigomba kongera kuzuzwa nyuma y'igihembwe cya 2 cy'ihinga nyuma y'amahugurwa.

Abahugurwa bose bitaye kwiri suzuma, babasha kumenya niba amahugurwa yarongeye umusaruro w'ibirayi kubitabiriye amahugurwa. Iki ni ikintu cy'ingenzi ku buryo bw'umwihariko ku bayobozi bafata ibyemezo gushyigikira gahunda y'amahugurwa. Bizabafasha gushyigikira abayobozi bafata ibyemezo gushyigikira gahunda y'amahugurwa.

Utanga amahugurwa aganira n'abahinzi ku kibazo cy'umusaruro muke n'ikibazo cy'imbutu mbi. icyo gihe baganira ku bintu bikurikira:

- Gusobanurako hariho indwara nyinshi z'ibirayi zibera mu mbutu
- Gusobanurako igihingwa kirwaye gitanga imbuto irwaye nayo igatanga igihingwa kirwaye
- Kubaza abahinzi uburyo bakoresha muguhitamo imbuto bakoresha. Kubumvishako iyo mbutu bakoresha inndwaye cg ifite ubwandu. Igihe cy'isarura ntibishoboka kubona itandukaniro hagati y'ibihingwa birwaye n'ibihingwa bitarwaye.
- Kureka abahinzi bakishakira ibibazo bashobora kubona kuri icyo kibazo kandi utanga amahugurwa agakora ku buryo asoza asaba abahinzi guhitamo gukora kimwe mu bintu bitatu bikurikira:

1. Gushinga udukiye ku bihingwa bizima no kubikoresha mu gutanga imbuto
2. Kugura imbuto idafite indwara
3. Gukura mu murima ibihingwa byose birwaye

- Kuja impaka n'abahinzi hagamijwe kureba kimwe muri ibyo bintu bitatu bashobora gukora. Bigaragara nezako ikintu cya 2 abahinzi basabwa gukora kidashoboka kubera imbuto itarwaye irahenze kandi ntikunda no kuboneka. Ikintu cya 3 basabwa gukora urebye usanga abahinzi batacyishimira kuko gituma batakaza umusaruro wabo. Ibihingwa birwaye bishobora gukurwaho ibirayi bishobora kugurishwa cyangwa kuribwa. Ikintu cya mbere mu bintu bitatu abahinzi basabwa gukora usanga ari cyo abahinzi bashobora kugerageza.
- Gusobanurako icyo gahunda y'amahugurwa igamije ari kwigisha abahinzi uburyo bwo gushinga udukiye cyangwa gushyira ikimenyetso ku bihingwa bitarwaye noneho bagashobora kwirebera ubwabo itandukaniro riri hagati y'uburyo basanzwe

Igikorwa cya 2: Gusobanura uburyo bwo «guhita icyiza»

*Isano hagati
y'umusaruro muke
n'imbutu mbi*

*Uburyo bwo gukemura
ikibazo cy'imbutu
y'ibirayi itari nziza*

bakoresha mu gutoranya imbuto n'uburyo bwo gutoranya imbuto nziza.

- Kugira ngo ibyo bikorwe, ni ngombwa guhitamo umurima itsinda rigomba guhingamo imbuto yatoranijwe kugira ngo abahinzi bagize iryo tsinda bashobore kugereranya ubwo bwoko bubiri bw'imbuto.
- Ikintu cya mbere kigomba gukorwa ni ukwiga uburyo bwo gutoranya imbuto nziza no gushinga uduti cyangwa gushyira ikimenyetso ku bihingwa bitarwaye bigomba gukoreshwa mu igerageza kandi ibyo bigomba gukorwa kuri uwo muni.

Nyuma y'iki gikorwa abahinzi bagomba kongera guhura inshuro zirindwi kugira ngo bakore ibintu bikurikira:

1. Kugenzura ibihingwa byatoranijwe bitarwaye
2. Gusarura
3. Gutera umurima w'igerageza
4. Guhitamo icyiza
5. Umunsi wo kumurika ibyagezweweho
6. Gusarura ibihingwa byashizweweho ikimenyetso
7. Gusuzuma ibyavuye mu murima wakorewemo isuzuma no gutanga inyemezabumenyi

***Inama utanga
amahugurwa agomba
kwifashisha***

- Ushobora gufata ibihingwa birwaye bitanga ibirayi birwaye ukabigereranya n'umubyeyi urwaye ubyara umwana udafite intege.
- Ushobora kubaza abahinzi niba bazi aho bakura imbuto itarwaye noneho ukanababaza impamvu batayigura.
- Guha abahinzi umwanya bakajya impaka hagati yabo noneho bakishakira ibisubizo ku bibazo ubabajije.
- Ushobora kuba uzi ikindi gihingwa cyavuye ku mbuto yakuwe ku bihingwa bigaragara neza cyane ko bitarwaye noneho ukaba wacyifashisha mu gutanga urugero.

Utanga amahugurwa aya impaka n'abahinzi bagize itsinda bakaganira ku ndwara z'ibirayi mu murima. Ni ugukora ku buryo bajya impaka kandi bakungurana ibitekerezo. Akenshi usanga abahinzi bazi indwara ya cyumya cg kirabiranya. Ni ngombwa kubareka bakavuga ibiyiranga noneho ukaba wabunganira igihe ubona ari ngombwa. Ingwara eshatu zigomba kugibwaho impaka ni izi zikurikira:

- Kujya impaka ku bimenyetso byayo
- Kwerekana amafoto agaragaza ibimenyetso byayo ari mu gitabo gikubiyemo amafoto
- Kwerekana ingero z'ibyo bimenyetso mu murima ibihe birimo
- Kujya impaka ku buryo iyo ndwara yandura inyuze mu mbuto
- Kujya impaka ku buryo imbuto iba yanduye ariko ntigaragaze ibimenyetso
- Kuvugako nta buryo bwo kuvura iyo ndwara hakoreshejwe imiti
- Kujya impaka ku bintu 10 bikorwa mu kurwanya indwara ya cyumya (reba ku rupapuro rwa 13)

- Akenshi abahinzi ntibamenya ko izo ari indwara
- Kwerekana amafoto ari mu gitabo gikubiyemo amafoto agaragaza ibihingwa n'ibijumba by'ibirayi bifite virusi
- Kwerekana ingero z'izo ndwara mu murima
- Gusobanurako igihingwa kidapfa ahubwo gitanga ibijumba by'ibirayi bike kandi bito
- Gusobanurako ibihingwa byanduzanya izo ndwara iyo byegeranye cyangwa binyuze mu dukoko
- Gusobanurako nta miti iriho ikoreshwa mu kuvura virusi
- Gukora umwitozo werekeranye n'uburyo virusi ikwirakwira nk'uko ugaragara mu magambo ari mu kazu ku rupapuro rukurikira.

Igikorwa cya 3: Imyimenyerezo yo kumenya indwara zifata igihingwa cy'ibirayi

Indwara ya cyumya cg kirabiranya:

Indwara ziterwa na virusi:

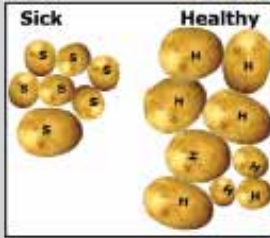
Indwara y'imvura:

- Kwerekana amafoto y'ibihingwa byafashwe na milidiyu
- Kwerekana ingero z'ibyohingwa mu murima
- Gusobanurako iyi ndwara idakunda kujya mu bijumba by'ibirayi. Rimwe na rimwe indwara ya milidiyu ntishobora kuba intandaro yo kudakoresha igihingwa mu gutanga imbuto
- Uburyo bwo kurwanya indwara ya milidiyu ni ugukoresha ubwoko bw'imbuto y'ibirayi yihanganira indwara no gukoresha imiti yica udukoko tuyitera
- Indwara ya milidiyu ntabwo ariyo igamije kwigishwa muri aya mahugurwa kuko yo itajya ifata imbuto.

Umwitozo werekeranye n'ikwirakwira rya virusi

Ibisabwa:

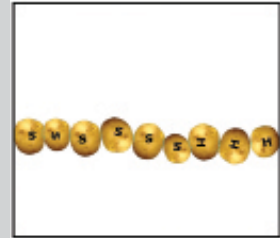
- Ibirayi 9 bito n'ibirayi 7 bito
- Amakaramu (ball points) abiri cyangwa marikeri 2 bifite amabara atandukanye



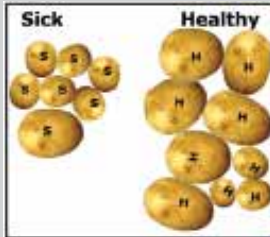
Gukurikiranya ibirayi nk'uko bimeze aha hejuru. ibumoso hari ibirayi birwaye, iburyo hari ibirayi bitarwaye. Shyira akamenyetso S ku gihingwa n'akamenyetso H ku gihingwa kizima.



Shyira ibyo birayi byose hamwe nk'uko abahinzi babigenza iyo basarura noneho usabe abahinzi gutandukanya ibirayi by'imbuto n'ibizagurishwa/ibizaribwa.



Erekanako ibyo byatuma habaho ibihingwa bibiri birwaye kuri buri gihingwa kitarwaye. Ibihingwa birwaye bizongera bitange ibirayi bito



Gusubiza ibirayi mu mwanya byari birimo nk'uko bigaragara hejuru. Ibumoso ni ibirwaye iburyo hari ibirayi bizima. Shyira akamenyetso Rw ku gihingwa kirwaye n'akamenyetso Z ku gihingwa kizima.



Gusaba abahinzi gutoranya imbuto bakoresheje uburyo bwo guhitamo icyiza noneho ibirayi bisigaye babishyire iruhande kugira ngo bazabagurishwe/bazabirye.



Erekanako ibyo bizatuma haboneka ibihingwa bitatu bizima kandi twatangiyeye dufite igihingwa kimwe kirwaye n'ikindi kimwe kitarwaye. Ibyo bihingwa bizatanga umusaruro mwiza.

Uyu mwitozo ugaragaza ibintu bikurikira:

- Ihame ryo guhitamo icyiza
- Kwerekana uburyo indwara za virusi zigenda ziyongera uko ibihe by'ihinga bigenda bisimburana
- Uburyo bwo guhitamo imbuto nziza ntibushobora gukoreshwa mu gutubura imbuto nyinshi, ariko burahagije kongera ubwiza bw'imbuto abahinzi bibikira.
- Ibirayi bitatoranijwe ngo bibe imbuto ntabwo bijugunywa ahubwo biba bigomba kuribwa cyangwa kugurishwa.

Gukorera mu matsinda mato

Nyuma yo kujya impaka,shyira abagize itsinda mu matsinda 5 mato. Ayo matsinda mato yoherezwa mu bice bitandukanye by'umurima noneho bagatoranya ibihingwa biri hagati ya bitanu (5) n'icumi (10) byafashwe n'indwara zitandukanye.

Utanga amahugurwa agomba kunyura kuri buri tsinda kugira ngo bajye impaka ku bintu bikurikira:

- Ibimenyetso by'indwara ziri kubihingwa biri hagati ya bitanu(5) n'icumi (10) batarobanuye
- Kugaragaza ibindi bimenyetso bimwe na bimwe by'indwara itsinda rito rishobora kuba ritabonye
- Kwerekana igihingwa gifite ibimenyetso byinshi bya virusi no gusaba itsinda kuvuga ibyo bimenyetso
- Kureka itsinda ry'abantu batanu rikagenura ibihingwa 20 biri ku murongo kugira ngo bavuge niba ibyo bihingwa birwaye cyangwa bitarwaye kandi ibyo bakabikora utanga amahugurwa abahagarikiye.

Gusaba ya matsinda mato yose gusubira hamwe no gusubiza ibibazo. Ni ngombwa gukora ku buryo ibibazo byiza byabajijwe mu matsinda mato byongerera gusubirwamo imbere y'itsinda ryose kandi bigasubizwa mbere na mbere n'umuntu wabibajije.

Inama utanga amahugurwa yifashisha

- Virusi usanga rimwe na rimwe abahinzi bazita amazina atandukanye. Usanga akenshi hari icyo baba bazi ku bihingwa bikunda kugwingira, ku ndwara ya mozayike ifata ibishyimbo, ku kwizinga kw'amababi y'ibirayi. Ibyo byose biterwa na za virusi.
- Kumenya indwara ntibyoroshye. Ni yo mpamvu ari ngombwa kwerekana ingero zose zishoboka z'ibihingwa birwaye bigaragara mu murima.
- Iyo hakorwa ayo matsinda mato, ni ngombwa gukora ku buryo itsinda rikozwe riba ririmo abantu b'imyaka n'ibitsina bitandukanye.
- Ni ngombwa kandi gukora ku buryo abagize itsinda bose bahabwa umwanya wo kuvuga. Igihe abagabo aribo bashaka kuvuga buri gihe naho abagore n'urubyiruko bo bakaba bashaka

kwicecekerera, ni byiza kubaza ku buryo bw'umwihariko ibibazo bigomba gusubizwa n'abagore n'abana kubira ngo na bo bashobore kuvuga.

- Ni ngombwa gukora ku buryo igihingwa kiba kigeze mu kigero nyacyo cy'igikuriro gifasha kumenya indwara ku buryo bworoshye. icyo gihingwa kigomba kuba kimaze ibyumweru bigera hafi ku byumweru biri hagati ya 6 n'umunani (8) uhereye igihe cyamereye cyangwa se kikaba kikimara kuzana indabo za mbere.

Muri iki gikorwa abahinzi bagarageza kugenekereza bakagenda ijanisha ry'ibihingwa birwaye mu bice bibiri bigize umurima .

Kugabanya umurima mu bice bibiri bijya kungana noneho ibyo bice bigatandukanywa neza hakoreshejwe ududi tunini. Igice abahinzi babonako gifite ibihingwa byiza kurusha ibindi ni cyo gikoreshwa mu guhitamo ibihingwa bizatanga imbuto mu gihe ikindi gice kiba kigomba kuzasarurwa uko cyakabaye noneho umusaruro wacyo akaba ari wo abahinzi bazakuramo imbuto nk'uko basanzwe babigenza.

Niba umurima ari muto, ushobora gufata icyemezo cyo kuwugabanyamo ibice bibiri igice kimwe kikaba kingana na 1/3 cyawo naho ikindi gice kikaba kingana na 2/3 byawo. 2/3 hagakorwamo uburyo bwo guhitamo icyiza noneho igice gisigaye kigize 1/3 hagakorwamo uburyo busanzwe.

Buri tsinda ry'abantu batanu (5) rigomba mbere na mbere kubara umubare w'ibihingwa byafashwe na virusi ndetse n'umubare w'ibihingwa byafashwe n'indwara ya cyumya biri mu mirongo ibiri. Iyo barangije kubara, bakurikizaho kubara umubare w'ibihingwa byose biri muri iyo mirongo ibiri. Imibare babonye utanga amahugurwa ayandika mu ifishi yabugenewe (Umugereka wa 2).

Ni ngombwa kwandika ahantu hatandukanye ibivuye mu gice gikoreshwa mu guhitamo icyiza n'ibivuye mu gice cyakorewemo uburyo busanzwe.. Imirongo ifite ibihingwa bigomba kubarwa na yo itoranyirizwa aho ngaho mu murima.

Igikorwa cya 4: Imyimenyerezo yo kugereranya igipimo indwara igezeho

Inama utanga amahugurwa yifashisha

- Utanga amahugurwa ashobora kuba yakoze icyo gikorwa cyo kubara ari kumwe n'amatsinda mato mu rwego rw'igikorwa cya 3 ariko na none hari n'igihe ashobora guhitamo ko icyo gikorwa gisubirwamo agasaba umuhinzi umwe akabara ibihingwa birwaye biri mu murongo noneho nyuma agasaba itsinda ryose kugira icyo rivuga ku buryo uwo muhinzi yabaze ibyo bihingwa.
- Utanga amahugurwa agomba kugerageza kubara ibihingwa muri buri murongo muri iyo mirongo uko ari ibiri kugira ngo arebe niba koko umubare w'ibihingwa abonye ungana n'umubare umuhinzi yabonye.
- Ashobora kugenzura niba umubare w'ibihingwa umuhinzi yabonye ari wo koko yifashishije abahinzi bamwe na bamwe bagenda babara mu ijwi riranguruye kugira ngo ashobore kumenya uburyo babara ibyo bihingwa.
- Gukora ku buryo mu kubara hatabarwa ibihingwa byafashwe n'indwara ya milidiyu.

Igikorwa cya 5: Imyimenyerezo mu guhitami icyiza

Gusobanurako gutoranya imbuto nziza bitavuga gutoranya ibihingwa birwaye. Gutoranya ibihingwa bigaragara neza bidafite indwara ni ikintu cyoroshye kurusha gutoranya ibihingwa birwaye.

Kubaza abahinzi bakavuga uburyo igihingwa kimeze neza cyane kiba gisa kugira ngo bavuge ibikiranga

Ingero z'ibintu bimwe na bimwe biranga icyo gihingwa:

Ese ibihingwa bitarwaye biba bisa bite?

- Kuba gishishe
- Kuba gifite amashami menshi
- Kuba gifite amashami abyibushye
- Kuba gifite amababi y'icyatsi cyijimye
- Kuba gifite amababi abyibushye
- Kuba gifite ibirayi binini
- Kuba gifite ibirayi byinshi
- N'ibindi.

Gusaba umwe mu bari mu mahugurwa gushinga agati cyangwa gushyira ikimenyetso ku bihingwa bitanu bitarwaye bishobora gukoreshwa mu itoranya ry'imbuto

kandi ibyo akabikorera imbere ya bagenzi be bagize itsinda. Kujya impaka ugira ngo harebwe niba abagize itsinda bemerako ibihingwa yashyizeho ikimenyetso ari byo koko. Gukora ku buryo abagize itsinda bibukako ibihingwa byegereye ibihingwa byafashwe n'indwara ya cyumya bitagomba gutoranywa mu bihingwa bigomba kuzatanga imbuto.

Ikibazo mu guhitamo icyiza.

Mu rwego rwo guhitamo icyiza mu gace ka Kisiriri mu gihugu cya Kenya, abahinzi bahisemo umurima muto cyane. Abahinzi bakoresheje uwo murima bahitamo icyiza, noneho bakoresha undi murima urimo ubundi bwoko bw'igihingwa kugira ngo bakoreshe uburyo abahinzi basanzwe bakoresha. icyaje gukurikiraho nuko mu gutera imbuto yatoranijwe ikiri mu murima abahinzi baje gufata uwo murima wari urimo imbuto yatoranijwe igihe ikiri mu murima bageteramo ubundi bwoko bw'imbuto noneho bagakurikizaho umurima urimo ibihingwa umuhinzi asarura akabona kubitoranyamo imbuto. icyo byaje gutanga ni uko igikorwa cyo guhitamo icyiza ntacyo cyatanze. Impamvu nuko ntabwo abahinzi bari kumenya niba itandukaniro hagati y'umusaruro ryaratewe no gutera imbuto yavuye mu guhitamo icyiza, cyangwa ryaratewe n'itandukaniro hagati y'ubwoko bw'imbuto bwatewe.

Niba hari ikibazo cy'umurima muto cyane abahinzi bafata icyemezo cyo kongeraho undi murima. Iyo mirima uko ari ibiri yagombaga kugabanywamo ibice bibiri noneho icya kabiri cyawo kikaba kirimo uburyo bwo guhitamo icyiza noneho igice gisigaye kikaba kirimo uburyo abahinzi basanzwe bakoresha.

Gusobanurako ihame ryo guhitamo icyiza igihe cyose ukimara gushidikanya niba igihingwa kirwaye cyangwa kitarwaye ari ngombwa kudatoranya icyo gihingwa ushidikanyaho. Kugira ngo abahinzi bashobore kongera umusaruro bagomba «guhita icyiza».

Kujya mu gice cy'umurima kirimo uburyo bwo guhitamo icyiza . Kubara no kwandika umubare w'uduti two gushinga ku bihingwa bitarwaye mbere y'uko dushingwa ku bihingwa. Kureba niba umubare w'utwo duti utari hasi ya 300. Kureka abahinzi bose bagakoresha utwo duti badushinga ku bihingwa bitarwaye. Ibyo bihingwa ni byo bizatoranywa mu gutanga imbuto yo gutera mu gice cy'umurima kigomba gukorerwamo uburyo bwo guhitamo icyiza. Ikindi gice gisigaye ni cyo kizavamo imbuto umuhinzi atoranya ivuye mu bihingwa bimaze gusarurwa. Iyo mbuto itoranywa hakurikijwe uburyo abahinzi basanzwe bakoresha mu gutoranya imbuto igihe cy'isarura.

***Inama utanga
amahugurwa yifashisha***

- Utanga amahugurwa ashobora gushinga agati ku gihingwa kigaragarako kimeze neza ariko cyegereye igihingwa cyafashwe n'indwara ya cyumya noneho akabaza abahinzi niba icyo gihingwa cyatoranywa koko kugira ngo kizatange imbuto.
- Uburyo bwo guhitamo icyiza bushobora gukoreshwa mu murima uwo ari wo wose. Igihe umuhinzi afite imirima myinshi yahitamo, icyo gihe aba agomba guhitamo umurima we w'ibirayi mwiza kurusha iyindi.
- Igihe mu murima hagaragaramo ibihingwa byinshi byafashwe n'indwara ya cyumya ni byizako umuhinzi ashaka imbuto ivuye ahantu hizewe .
- Utanga amahugurwa ashobora kuganira n'abahinzi bakajya inama y'uko abahinzi bose bagize itsinda iryo gerageza bazarikora mu mirima yabo bwite.
- Igihe bigoye kubona uduti, hashobora gukoreshwa ubundi buryo bwo gushyira ikimenyetso kuri ibyo bihingwa nko gukoresha umugozi uzengurutse ku gihingwa cyangwa gukoresha inti z'ibigori mu mwanya w'uduti.

Ibikoresho bimwe nabimwe bikenwe mu igerageza:

- Ese ni ryari umurima urimo ibihingwa byashinzweho uduti cyangwa byashyizweho ikimenyetso ugomba gusarurwa?
- Nyir'umurima agomba kureka abagize itsinda bakabanza bagasarura imbuto ikenewe
- Ese ni nde nyir'umurima agomba kureba igihe hari ikibazo kivutse mu murima we?
- Ese ni gute nyir'umurima agomba guhabwa ingurane y'imbuto yasaruwe mu murima we?
- Ni hehe imbuto igomba kubikwa/guhunikwa?
- Ni ryari imbuto igomba kongera guterwa kandi hazakorwa iki igihe iyo mbuto itinze kumera igihe bibaye ngombwa?
- Ni hehe haboneka ntangarugero ungana na 0,10 Ha (umurima ushobora kujyamo ibihingwa biri hagati ya 2.000 na 4.000)
- Gusobanurako ari ngombwa ko ubwo bwoko bubiri bw'imbuto bugomba gufatwa kimwe ibyo bikaba bivugako bugomba guterwa ku butaka bufite imiterere imwe. Uwo murima wose ugomba kuba ufite uburumbuke bumwe, utose kimwe kandi ukaba uheruka gukoreshwa ku buryo bumwe.
- Gusobanura nezako igihe ayo moko abiri y'imbuto atewe agomba gufatwa kimwe igihe cyose (igihe ahinikwa, igihe habayeho kuyorohereza kumera igihe yatinze kumera).

- Gukora ku buryo abagize itsinda baha nyir'umurima ingurane hakurikijwe uburyo abagize itsinda babyumvikanyeho.
- Gufatanyana na nyir'umurima hagamijwe gukurikirana buri gihe kugira ngo harebwe niba nyir'umurima yarasaruye bitewe nuko yari akenewe amafaranga ku buryo bwihutirwa cyane ko iyo bigenze bityo bibangamira gahunda y'amahugurwa. Igikorwa cyo gusarura kigomba gukorwa nyuma y'uko abagize itsinda basarura ibihingwa mu murima wo guhitamo icyizakandi bakanasarura ibihingwa mu murima usanzwe.

Igikorwa cya 6:
Ibikoresho bikenerwa mu isarura, ihunika no gutera imbuto mu murima w'igerageza

Inama utanga amahugurwa yifashisha

**Igikorwa cya 7:
Incamake y'inyigisho
zatanzwe**

- Guhitamo umwe mu bahinzi akavuga mu ncamake inyigisho bize uwo muni noneho ugasaba undi muhinzi kumwunganira mbere yo gusaba abagize itsinda kuvuga icyo abo babiri baba bibagiwe.
- Ni ngombwa gukora ku buryo abagore na bo babona umwanya wo kuvuga
- Kubaza niba hari ibibazo bisigaye/cyangwa niba hari ibintu bitavuzweo
- Gukora ku buryo huzuzwa urutonde rw'abitabiriye amahugurwa
- Kumvikana ku gihe abagize itsinda bagomba kongera guhuriraho

Icyiciro cya 2 cy'inyigisho:

Kugenzura niba ibihingwa byatoranijwe birwaye cyangwa bitarwaye

Igihe ibyo bikorerwa:

Igihe igihingwa kimaze kuzana ururabyo ,mbere y'uko gitangira gusaza, hagati yibyumweru 2 na 3 nyuma y'itangwa ry'inyigisho ziri mu cyiciro cya 1.

Intego:

- Kugenzura ubuzima bw'ibihingwa byatoranijwe

Incamake y'ibikorwa:

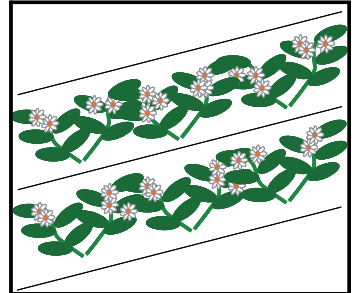
1. Kongera kwiyibutsa inyigisho zatanzwe ku muni wa mbere
2. Kugenzura ubuzima bw'ibihingwa byatoranijwe ndetse n'ibindi bihingwa bibyegereye; kurandura uduti twashinzwe ku bihingwa byaje kwandura nyuma yo gutoranywa cyangwa utwashinzwe ku bihingwa bifite ibihingwa bibyegereye byafashwe n'indwara ya cyumya.

Igihe gikenewe:

Amasaha abiri (2)

Gutegura

Utanga amahurwa agomba gukora ku buryo asubiza ibibazo bitashoboye gusubizwa igihe cy'amahurwa yambere



**Igikorwa cya 1:
Kwiyibutsa inyigisho
zatanzwe ku munsu wa
mbere**

- Kureba umubare w'abitabiriye ihugurwa bari bitabiriye ihugurwa ribanza no kureba umubare w'abataje. Kujya impaka ku mpamvu zatumye bataza
- Kongera kwibutsako ari ngombwa ko amahugurwa yuzuzanya akaba ari nay o mpamvu abahugurwa bagomba kuyitabira igihe cyose kuberako ari bwo buryo bwonyine bushobora kubafasha kumenya neza ubwo buryo bwo gutoranya imbuto. Gukomeza kubabwirako abasiba amahugurwa arenze abiri batamenyesheje abayobozi b'itsinda batazahabwa icyemezo kigaragazako bakurikiranye amahugurwa.
- Kureka umwe mu bahinzi agasobanurira umwe mu bahinzi bashya akababwira uburyo bwo guhitamo icyiza kandi akanamubwira igikorwa cyakozwe mu ihugurwa riheruka kugira ngo yige uko gikorwa.
- Gusaba abitabiriye ihugurwa gusubiramo ibimenyetso biranga virusi n'ibiranga indwara ya cyumya byavuzweho mu ihugurwa riheruka
- Gusaba abitabiriye ihugurwa kongera bakavuga ingamba zikoreshwa mu kurwanya virusi
- Gusaba abitabiriye ihugurwa kongera bakavuga ingamba zikoreshwa mu kurwanya indwara ya cyumya

**Igikorwa cya 2:
Kugenzura ubuzima bw'
ibihingwa byatoranijwe
ndetse n'ibibyegereye
birwaye cyangwa
bitarwaye**

Nyuma y'ibyumweru bibiri hakoze igikorwa cyo guhitamo icyizakandi bigashingwaho uduti, hari ibihingwa bishobora kuba byagaragaza ibimenyetso. Ibihingwa byose byashinzweho uduti bigomba kugenzurwa. Igihe igihingwa cyashinzweho agati kigaragaje ibimenyetso bya virusi ako gati kagomba kuvanwa kuri icyo gihingwa.

Igihe igihingwa cyashinzweho agati cyangwa se igihe kimwe mu bihingwa bicyegereye bifashwe n'indwara ya cyumya (reba ifoto ya 9), ako gati kagomba kuvanwa kuri icyo gihingwa.

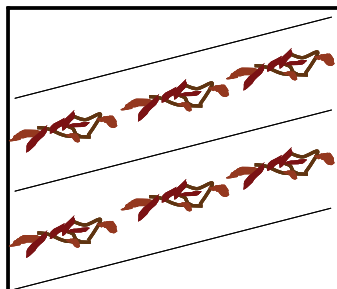
Kubara umubare w'uduti twakuwe ku bihingwa no kuwandika (reba umugereka wa 2). Kubara umubare w'uduti dusigaye dushinze ku bihingwa no kuwandika.

- Kureka umwe mubitariye ihugurwa akavuga mu ncamake inyigisho zatanzwe ku munsi
- Gusubiza ibibazo
- Gukora ku buryo abitabiriye ihugurwa bandikwa
- Kumvikana ku gihe cyo gusarura ibihingwa byo mu murima wakoreshewe mu igerageza

**Igikorwa cya 3:
Incamake y'inyigisho
zatanzwe uwo munsi
no kugena igihe cyo
kongera guhuriraho**

Icyiciro cya 3 cy'inyigisho:

Gusarura



Igihe bikorwa: Iyo ibirayi byeze neza

Intego:

- Kwiga uburyo bwo guhitamo icyiza mu murima igihe cy'isarura
- Kubona ibirayi by'imbuto bikenewe kugira ngo biterwe mu murima uzageragerezwamo imbuto ivuye mu guhitamo icyiza.

Incamake y'ibikorwa:

1. Kwiyibutsa inyigisho zatanze mu minsi ibiri ya mbere
2. Uko «Uburyo bwo guhitamo icyiza» bikorwa igihe cy'isarura
3. Gusarura ibihingwa byashinzweho uduti ukwabyo no gutoranya ibyiza muri byo
4. Gusarura ibihingwa byatoranyijwe mu butyo busanzwe bukoreshwa n'abahinzi.
5. Gushyira imbuto mu byiciro
6. Uburyo imbuto zibikwa
7. Kujya impaka ku bijyanye no kubika/guhunika imbuto, korohera imbuto zatinze kumera kugira ngo zimere ndetse n'igihe gutera imbuto bikorerwaho n'igihe bigomba gukorwa
8. Incamake y'inyigisho zatanze ku muni no kugena igihe cyo kongera guhuriraho

Igihe gikenewe: Igice cy'umunsi

Gutegura

- Imifuka 8 yo gutwaramo imbuto
- Umunzani wo gupima umusaruro wose
- Kumenya igipimo cy'ifumbire mvaruganda igomba gukoreshwa ku birayi mu gace abahinzi barimo

- Kureba umubare w'abitabiriye ihugurwa bari bitabiriye ihugurwa ribanza no kureba umubare w'abataje. Kuja impaka ku mpamvu zatumye bataza
- Kongera kwibutsako ari ngombwa ko amahugurwa yuzuzanya akaba ari na yo mpamvu abahugurwa bagomba kuyitabira igihe cyose kuberako ari bwo buryo bwonyine bushobora kubafasha kumenya neza ubwo buryo bwo gutoranya imbuto.
- Kureka umwe mu bahinzi akibutsa inyigisho zikubiye mu bitabo bibiri biheruka kwigwa
- Gusobanurako uburyo bwo gutoranya imbuto bukomeza igihe cy'isarura kandi ko ibihingwa bisarurwa ari kimwe kimwe. Kwerekana amafoto agaragaza ibimenyetso by'indwara ya cyumya ku bijumba by'ikirayi n'ibya virusi.
- Kubaza abahinzi bakavuga ikintu bashaka guheraho bakacyifashisha mu kureka guhitamo igihingwa. Kubagira inama ku bintu bimwe bikurikira:

1. Umubare muke w'ibijumba (kureka abagize itsinda bagafata icyemezo ku mubare muke w'ibirayi igihingwa kigomba kuba gifite)
2. Ikiyumba giteye nabi ugereranije n'ibindi
3. Ibijumba bito
4. Ikiyumba kininda
5. Igitaka gifata ku maso y'ikirayi

1. Gusarura ibihingwa byose byashinzweho uduti ukwabyo no kureka ibijumba by'ibirayi iruhande rw'ibihingwa byasaruweho
2. Guca ku bihingwa 20 hagamijwe gafatira hamwe n'abagize itsinda bese icyemezo cyo kwemeza niba ibyo bihingwa byatoranywa no gutoragura ibijumba by'ibirayi by'ibihingwa byatoranijwe
3. Kureka abitabiriye ihugurwa bakajya mu matsinda ya babiri noheho bagatoranya ibihingwa byujuje ibisabwa kandi bagatoranya ibihingwa bisigaye bishinzeho uduti
4. Kubara umubare w'ibihingwa bitatoranijwe igihe cyo gusarura no kwandika uwo mubare
5. Gupima ibiro byose by'ibirayi byujuje ibisabwa no kwandika ibyo biro

Igikorwa cya 1:
Kwiyibutsa inyigisho zatanze mu minsi ibiri ya mbere

Igikorwa cya 2: Uko Uburyo bwo guhitamo icyiza mugihe cy'isarura

Imbuto nzima ifite akamaro kuruta ubunini bw'ibirayi

Igikorwa cya 3:
Gusarura ibihingwa byashinzweho uduti ukwabyo no gutoranya ibyiza muri byo

Gusarura ibihingwa byashinzweho uduti ukwabyo

**Igikorwa cya 4:
Gusarura ibirayi
byahinzwe mu buryo
busanzwe**

Gusarura imirongo y'ibirayi yo mu gice cy'umurima wahinzwe mu buryo busanzwe abahinzi bakoresha. Gusarura ibihingwa 300 nta gutoranya.

Hashobora gufatwa icyemezo cyo gusarura umurima wose hagamijwe korohereza nyir'umurima wemeye gutanga isambu ye kugira ngo ikoreshe.

**Igikorwa cya 5: Gushyira
imbuto mu byiciro**

Gushyira imbuto zasaruwe kuri ubwo buryo uko ari bubiri mu cyiciro kigizwe n'ibirayi byo kurya ndetse n'ibirayi by'imbuto biba byatoranijwe hakurikijwe uburyo abahinzi basanzwe bakoresha. Guhitamo nibura ibijumba by'ibirayi 1000 kuri ubwo bwoko bw'imbuto uko ari bubiri.

***Imbuto nzima ifite
akamaro kututa ubunini
bw'ibirayi***

Uko ikirayi kingana si ikibazo cyane ku birebana n'igihingwa icyo kirayi kizabyara kabone n'ubwo ikirayi gito kibyara igihingwa kiba kidakomeye ndetse akenshi kikagira n'amashami make mu gihe ibirayi binini usanga abahinzi bakunda kubirya no kubigurisha. Ni byiza gutera ikirayi gito cyangwa kinini aho gutera ikirayi kirwaye. Ikirayi icyo ari cyo cyose gifite ubunini buri hagati ya mm 25 na mm 90 na byo bishobora kuba imbuto.

Kwandika umubare w'ibirayi byasaruwe bigomba guhunika kugira ngo bizabe imbuto yo gutera mu bice bibiri bitandukanye by'umurima ndetse no kwandika mu ifishi yabugenewe (reba umugereka wa 2) ibiro byose by'ibirayi byasaruwe.

**Igikorwa cya 6: Uburyo
bwo kubika ibirayi
by'imbuto**

Uburyo bwo kubika ibirayi by'imbuto ni uburyo bufite akamaro cyane bufasha umuhinzi kubona ubwoko bwiza bw'imbuto. Ni ngombwa gusobanurako ikirayi kivamo imbuto nziza ari ikirayi gifite imimere myinshi kandi ifite ingufu. Kugira ngo ikirayi gitange imimero myiza kigomba kubikwa ahantu hagera urumuri. Imbuto zibikwa neza iyo zibitswe ahantu hagera urumuri (urumuri rungana n'urwo umuntu akenera asoma ikinyamakuru), ariko aho hantu hagomba kuba hatagerwaho n'imirasire y'izuba ku buryo butaziguye.

***Ubuhuniko bwinjiza
umwuka n'urumuri***

Kugira ngo umuntu yizere nezako ibirayi byasaruwe biri ahantu bigerwaho n'urumuri, ibyo birayi bigomba gusanzwa ku buryo bitagomba kurundwa mu kirundo. Ibirayi ntibigomba kugerekerana birenze bitatu cyangwa bine.

Ni byizako imbaho zibikwaho ibirayi zishyirwa ahantu hinjira akayaga n'urumuri bihagije kugira ngo ari ho habikwa ibirayi. Iyo ibirayi biri ku mbaho biba byoroshye kubigeraho kandi n'ibirayi byinshi bishobora kubikwa ahantu hatwo kandi bigakomeza kugerwaho n'urumuri.

Iyo ibirayi bibitse ahantu hari urumuri bituma bitinda kumera kandi ibyo ni ikintu agahinzi bo mu misozi y'uturere dushyuha baba badashaka. Abahinzi bashobora gukoresha uburyo bwab busanzwe kugira ngo ibirayi byabo bishobore kumera vuba igihe cyose ibyo birayi bibitswe mu gihe kingana nibura n'ibyumweru bibiri kandi bikabikwa mu buryo bwavuzwe haruguru kugira ibirayi bizane imimere myinshi kandi ikomeye.

Ahantu hari hasanzwe hakoreshwa mu guhunika hashobora guhindurwa ku buryo bworoshye cyane hagahindurwamo ububiko bwinjirwamo n'urumuri rudakaze ruringaniye. Ububiko bwijimye busakajwe amabati bushobora guhindurwa bugahinduka ububiko bwinjirwamo n'urumuri rudakaze ruringaniye kandi ibyo bigakorwa ibati rimwe muri ayo mabati risimbuzwa ibati rireberwamo cyangwa ribonerana (reba ifoto ya 12a-b).

Muri Etiyopiya ububiko bwinjirwamo n'urumuri rudakaze ruringaniye bwubakishwa ibiti bugasakazwa ibyatsi (reba ishusho ya 13).

Guhindura ubuhuniko busanzwe mu buhuniko bwinjiza umwuka n'urumuri



Ifoto ya 12a: Ububiko bw'ibigori muri Kenya bwahinduwemo ububiko bwinjirwamo n'urumuri ku buryo buziguye (urebera hanze)



Ishusho ya 12b: Ububiko bw'ibigori muri Kenya bwahinduwemo ububiko bwinjirwamo n'urumuri, ariko nta butandaro burimo



Ifoto ya 13: ubuhuniko bwinjiza umwuka n'urumuri muri Etiyopiya bwubakishije ibiti rusakajwe ibyatsi

Ku buryo bw'umwihariko, ni ngombwa kumenyako iyo imbuto y'ibirayi ihatiriwe kumera ibijumba byayo bishobora kubyara umumero umwe. Ijisho rya mbere ribyara umumero rituma andi maso atamera. Ibi ni uburyo kamere busanzwe bwitwa kwiganza kw'ishami ryaruse ayandi. Kugira ngo habeho keirinda uko kwiganza kw'ishami ryaruse ayandi ni ngombwa kuvanaho iryo shami ryaje ryonyine. Iyo bigenze gutyo andi maso y'ikirayi atangira kuzana imimere nyuma y'igihe gito.

Gutoranya ibirayi 40 by'imbuto maze ubibike iwawe aho bitagerwaho n'izuba. Kubika ibirayi 20 muri byo bipfunyitse mu mpapuro ebyiri z'ikinyamakuru ariko bidahambiriye noneho ibindi birayi 20 bisigaye ubishyire hejuru y'impapuro ebyiri z'ikinyamakuru. icyo gikorwa kigufasha kwerekana itandukaniro hagati y'ibyo birayi uhereye ku buryo bizamuka mu butaka bikamera mu gihe cy'ihinga kiba kizakurikiraho.

Kumvikana n'abagize itsinda mu kugena ahantu heza ho kubika imbuto kugeza igihe cyo gutera imbuto mu murima w'igerageza ry'imbuto zatoranijwe. Ni ngombwa gusobanurako imbuto igomba kubikwa neza, igashyirwaho ikimenyetso kiyigaragaza kandi ntivangwe n'izindi. Ibirayi by'imbuto byavuye mu guhitamo icyiza ndetse n'imbuto zavuye mu buryo abahinzi basanzwe bakoresha zigomba kubikwa mu buryo bumwe.

Ni ngombwa gukora impaka zigamije kumenya niba ari ngomba ko hagira ikintu gikorwa cyihariye kugira ngo imbuto yoroherezwe kumera igihe yatinze kumera hashingiwe ku bitekerezo by'abahinzi.

Kujya impaka zigamije kumenya igihe imbuto zigomba gutererwa mu murima w'igerageza n'aho uwo murima ugomba kuba uri

Igihe cyiza cyo gutera imbuto usanga ari igihe imvura iba igwa. Abahinzi bagomba kumenya igihe imvura ishobora

***Umumere umwe
rukumbi***

Igikorwa cya 7: Kujya impaka kubijanye n'ihunika, kumeza ibirayi, igihe cyo gutera imbuto n'aho zigomba guterwa

Kwerekana imimere ifite ingufu

Aho imbuto igomba kubikwa

Korohereza imbuto kumera vuba

Gutegura ubutaka

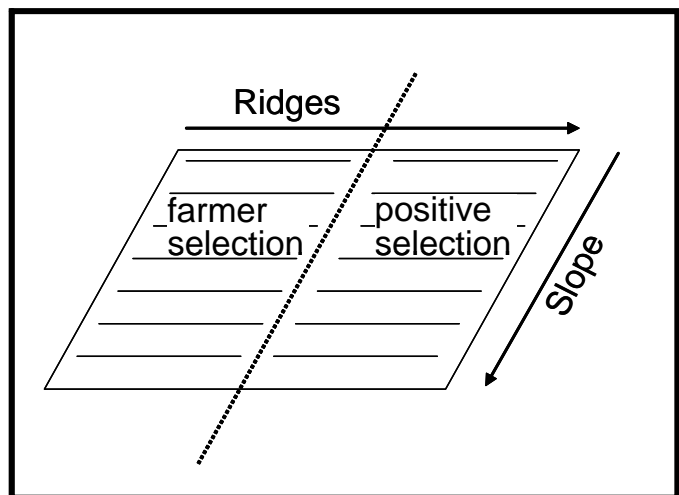
kugwira kandi bakamenya niba ubwoko bw'imbutu bateye buzashobora kumera muri ibyo bihe by'imvura.

Ni ngombwa gushimangirako mbere yo gutera imbutu mu murima w'igerageza ubutaka bugomba kuba bwarateguwe kandi bwashyizwemo amayogi. Iyo hakorwa amayogi ku gice cy'umurima gifite ubuhaname ni ngombwako ayo mayogi akorwa ku mfuruka ya mpande enye zingana kandi iyo mfuruka ikaba ifatiye ku buhaname bw'uwo murima (reba ishusho ya 14).

Aho imbuto iterwa

Abahinzi bashobora gusiga hagati y'imbuto n'indi umwanya basanzwe basiga iyo batera imyaka yabo ndetse n'ubutaka na bwo bakabutegura bakurikije uburyo basanzwe bakoresha mu mirima yabo.

Kugerageza kwirinda gukoresha umurima wegereye ibiti. Ibiti bizana igicucu kandi bigacuranwa n'igihingwa cy'ibirayi intungamubiri n'amazi. Umurima wegereye ibiti usanga ugira cy'ubukame burenze iyo ari igihe cy'amapfa kandi ibihingwa biwurimo ntibikura vuba kubera igicucu cy'ibiti kandi ntibinabona ibibitunga biba bikeneye.



Ishusho ya 14: Imiterere y'umurima

Gushimangirako abahinzi bagomba gushaka ifumbire mvaruganda. Kujya impaka zerekeranye n'ikigero cy'ifumbire bifuza gukoresha. Muri Kenya ikigero cy'ifumbire abahinzi basabwa gukoresha ni ibiro 500 by'ifumbire yitwa DAP kuri hegitari 1. Mu tundi duce abahinzi bagirwa inama yo gukoresha ikigero cyihariye cy'ifumbire.

Ifumbire mvaruganda

Abahinzi bashobora gufata icyemezo ku giti cyabo mu kugena ikigero cy'ifumbire babonako gikwiye. Iyo bari basanzwe bamenyereye gukoresha ikigero cy'ifumbire kiri hasi y'icyo basabwa gukoresha cyangwa se igihe nta n'ifumbire n'imwe bakoresha bashobora gufata icyemezo cyo gukomeza kubigenza gutyo mu murima w'igerageza cyane ko ari ikintu bagize akamenyero kandi babonako ari cyo. Intego y'ibanze iba igamije kuzagerwaho ni ukureba niba guhitamo ibihingwa bikiri mu murima kugira ngo ari byo bizatanga imbuto bizabagirira akamaro. Igihe cyose hakoreshejwe ikigero kingana ku gihingwa haba mu gihe cyo bakoresha uburyo bwo guhitamo icyiza ino gukoresha uburyo abahinzi basanzwe bakoresha, abahinzi ni bo ubwabo bifatira icyemezo cy'ikigero cy'ifumbire bifuza gukoresha.

Uburyo ihunikwa ry'imbuto rishobora gukorwa nabi

Mu gihugu cya Kenya itsinda ry'abahinzi ryahunitse mu nzu y'umuntu imbuto ivuye mu buryo bwo guhitamo icyiza noneho imbuto ivuye mu buryo abahinzi basanzwe bakoresha, bayihunitse mu murima w'ibigori. Imbuto yavuye mu bihingwa byasaruwe ku buryo busanzwe yabitswe mu murima w'ibigori yameze vuba cyane kandi izamuka vuba mu butaka. Imbuto yavuye mu guhitamo icyiza yo ntiyameze neza kandi yaje no kuzamuka mu butaka nyuma y'igihe kirekire. Ibyo byatumye umurima w'umuhinzi usanzwe wera neza kurenza umurima wakoreshewemo imbuto ivuye mu guhitamo icyiza.

Iyo izo mbuto zombi ziramuka zihunitswe ahantu hamwe mu murima w'ibigori byari kurushaho kuba byiza. Iyo izo mbuto zombie ziza kubikwa na none ahantu hamwe mu nzu y'umuntu na byo byari kurushaho kuba byiza. Ariko icyo zibitswe ahantu hatandukanye usanga na zo zikurira ahantu hatandukanye. icyo gihe rero ntibyari gushoboka kwemeza niba itandukaniro hagati y'imisaruro ryaratewe n'uburyo imbuto zatoranijwe cyangwa ryaratewe n'uburyo iryo mbuto zabitswe.

Igikorwa cya 8: Incamake y'inyigisho zatanzwe uwo muni no kugena gahunda itaha.

- Kureka umwe mu bakurikirana amahugurwa agakora incamake inyigisho zatanzwe uwo muni
- Gusubiza ibibazo
- Kugena umuni wo kongera guhura kugira ngo haterwe imbuto zatoranijwe

Icyiciro cya 4 cy'inyigisho:

Gutera imbuto mu murima ukorerwamo igerageza

Igihe cyo gutera imbuto:

Igihe abahinzi bumvako igihe cy'ihinga kimeze neza kandi imbuto yabo ikaba yarazanye imimero myiza

Intego:

- Gutera imbuto mu murima w'igerageza hagamijwe kugereranya uburyo abahinzi basanzwe bakoresha n'uburyo bwo guhitamo icyiza

Incamake y'ibikorwa:

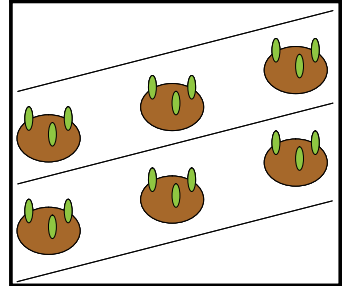
1. Kongera kwiyibutsa uko umurima w'igerageza uteye
2. Kugenzura ubwiza bw'imimero
3. Gitera imbuto mu murima ukorerwamo igerageza
4. Incamake y'inyigisho zatanzwe uwo muni no kugena igihe abahinzi bazongera guhuriraho

Igihe gikenewe:

Igice cy'umunsi

Gutegura

- Kureba niba ifumbire mvaruganda yarataeguwe
- Kwizerako amayogi yateguwe
- Kuzana ibirayi byazanye imimere biri mu mwijima no kuzana ibyazanye imimere biri mu rumuri
- Kuzana ibirayi bimwe na bimwe bifite umumere umwe rukumbi



**Igikorwa cya 1:
Kwiyibutsa uko
umurima wigerageza
uteye**

Gusobanura uko umurima w'igerageza ugomba guterwamo imbuto. Ibirayi by'imbuto byaturutse mu guhitamo icyiza biterwa impande y'imbuto abahinzi batoranije ku buryo busanzwe. Ibyo bituma abahinzi birebera ubwabo niba ari ngombwa cyangwa atari ngombwa gukoresha ibirayi by'imbuto byaturutse mu guhitamo icyiza. Mu yandi magambo ni ukuvugako bagomba kwemera ari uko babonye!

Abahinzi ni bo ubwabo bareba ikigero cya virusi n'icy'indwara ya cyumya kigaragara muri iyo mirima uko ari ibiri. Na none kandi imisaruro yavuye muri iyo mirima uko ari ibiri igomba kugereranywa.

Kugira ngo kugereranya iyo mirima ibiri ku buryo nyabwo bishoboke ni ngombwako ibikorwa muri iyo mirima aba ari bimwe. Ibyo bikaba bivugako ubwo bwoko bubiri bw'imbuto bugomba guterwa mu mirima yegeranye kandi isa. Niba mu murima harimo ubuhaname ni byizako uwo murima ukatwamo ibice bibiri hakurikijwe uburebure bw'ubwo buhaname ku buryo iyo mirima ibiri igabana ubwo buhaname cyangwa se ubwike ku buryo bungana (Ifoto ya 13). Ibyo bituma iyo mirima yombi yaba yagira ibibazo bimwe iyo habaye amapfa cyangwa se ikagira uburumbuke bumwe ku buhaname no ku bwike bwayo kandi ikaba yahura n'ibibazo bimwe by'ubukamuke igihe haje ibihe by'imvura nyinshi.

Uburyo umurima w'igerageza ushobora gucungwa nabi

Igihe amapfa yari amaze gutera, abahinzi bahuriye mu itsinda bafashe icyemezo cyo kuhira uwo murima w'igerageza kugira ngo umusaruro wabo utazaba mubi. Igihe bari bararangije umurima utewemo imbuto abahinzi batoranije mu buryo busanzwe utanga amahugurwa yarahanyuze. Yababwiyeko baomba guhagarika kuhira kuko atari bwo buryo busanzwe abahinzi bakoresha mu buhinzi bwabo bw'ibirayi. Umurima watewemo imbuto abahinzi batoranije ku buryo busanzwe waje kwera neza kurusha wa murima uteyemo imbuto yaturutse ku bihingwa byatoranijwe bikiri mu murima kugira ngo bizatange imbuto. Byari kuba byiza iyo batuhira kuko

ibyo byari gutuma iyo mirima yombi ihura n'ikibazo cy'amapfa ku buryo bumwe. Byari na none kuba byiza iyo buhira iyo mirima yombi kuko byari gutuma yose ibona amazi ku kigero kimwe. Gusaba abahinzi guhagarika kuhira kandi bari barabitangiyeye ni cyo kintu kibi cyane utanga amahugurwa yakoze. Ntawavugako itandukaniro hagati y'umusaruro wavuye muri iyo mirima ibiri rishingiye gusa ku nkomoko y'imbutu kuko rishingiye na none ku buryo butandukanye iyo mirima yombi yahuye n'ikibazo cy'amapfa.

Gusobanurira abahinzi ihame ry'ibanze umurima w'igerageza ushingiyeho. Ibindi bintu bishingirwaho usanga ari bimwe uretse ikintu kimwe dusahaka gusuzuma. Duhereye ku rugero dufite, ni ukuvugako iyo mirima yombi igomba gucungwa kimwe hakaba hari itandukaniro rimwe rishingiye ku hantu imbuto yaturutse ku buryo dushobora kwemezako itandukaniro iryo ari ryo ryose rigaragaye mu musaruro ryatewe no guhitamo icyiza.

Icyoukeneye kuri uru rwego ni imbuto wabitse iwawe mu rugo ku mpapuro z'ikinyamakuru. Iyo bigenze neza uko bikwiye ibirayi bibitse ahantu hagerwa n'urumuri bizana imimero ifite amabara, migufi, ikomeye kandi myinshi. Ibirayi bibitswe mu mpapuro z'ikinyamakuru ahantu hatagerwa n'urumuri yo izagira imimero ifite ibara ry'umweru, miremire kandi idakomeye.

Birashobokako ibirayi bibitse mu mpapuro z'ikinyamakuru zaba zarazanye imimero vuba. Ibirayi bibitse ahantu hatagerwa n'urumuri kandi hagerwa n'akayaga kadahagije bishobora kuzana imimero vuba.

Kwerekana abakurikira amahugurwa ibirayi bifite umumere umwe. Kwerekana abahinzi ko umumero umwe uri kuri icyo kirayi ugomba gukurwaho maze ukawukuraho kugira andi maso y'ikirayi na yo azazane imimero. Nyuma yo ukura ku kirayi wa mumero umwe rukumbi ni ngombwa gusaba abahinzi kuzongera kureba cya kirayi cyakuweho umumero nyuma y'icyumweru kimwe. Icyo gihe bazasanga andi maso yarazanye imimero.

Igikorwa cya 2: Kugenzura uburyo imbuto izana imimere aho ibitse

*Kugereranya imbuto
zamerejwe ahari
urumuri na hari
umwijima*

Igikorwa cya 3: Gutera imbuto mu murima w'igerageza

Gukora ku buryo amayogi akorwa hakurikijwe igishushanyo kiri mu ifoto ya 13. Na none kandi ni ngombwa gukora ku buryo iyo mirima yombi iba ifite ubuso bungana. Iyo udashobora kubona metero bushumi yo gukoresha ushobora kuyipima ukoresheje intambwe unabara umubare w'amayogi.

Gukoresha ifumbire mvaruganda

Kugabanya ifumbire mo ibice bibiri bingana noneho ukayikwirakwiza uyisanza kuri ridges ziri muri buri murima. Gushyira ifumbire mu mayogi no kuyivanga n'ubutaka gahoro gahoro ukoresheje igiti. Gukoresha intoki uvanga ifumbire n'igitaka igihe icyo gitaka cyumye ushobora kwangiza imimere y'ikirayi.

Kubara ikigero cy'ifumbire ikenewe no kuyikoresha

Ikigero cy'ifumbire ikenewe

Ikigero cy'ifumbire ikenewe kuri buri gihingwa:

Ikigero cy'ifumbire kigomba gukoreshwa kuri hegitari/umubare w'ibihingwa kuri hegitari imwe

Umubare w'ibihingwa kuri hegitari = $m^2 \ 10.000 \times$ umubare w'ibirayi kuri m^2

Umubare w'ibirayi kuri $m^2 = m^2 \ 1 /$ umwanya ugenerwa buri kirayi gitewe

Umwanya ugenerwa buri kirayi gitewe: umwanya usigwa hagati y'ibirayi biri ku murongo \times umwanya uri hagati y'imirongo

Iyo umwanya uri hagati y'ibihingwa ari cm 30 noneho hagati y'amayogi hakaba hari cm 75 kandi ikigero cy'ifumbire isabwa gukoreshwa kikaba ari kg 500 z'ifumbire ya DAP kuri hegitari 1, icyo gihe tubona ingero zikurikira:

Umwanya ugenerwa buri kirayi: $m \ 0,30 \times m \ 0,75 = m^2 \ 0,225$

Umubare w'ibirayi kuri $m^2 = m^2 \ 1 / 0,225 = 4,444$

Umubare w'ibihingwa kuri ha: $m^2 \ 10.000 \times 4,444 =$ ibihingwa 44.444 kuri hegitari.

ikigero cy'ifumbire kuri buri gihingwa = $kg \ 500 / 44.444 = kg \ 0,011 =$ garama 11 z'ifumbire ya DAP.

Uburyo bwo gupima ifumbire iyo ufite umunzani

1. Kubara ikigero cy'ifumbire kigomba gukoreshwa kuri buri yogi ugakuba n'ikigero cy'ifumbire ikenewe kuri buri gihingwa ugakuba n'umubare w'ibihingwa biri kuri buri yogi.
2. Gufata umunzani ugapima iyo fumbire, ukayishyira mu kintu noneho ugashyira akamenyetso aho igarukiye.
3. Gushyira muri buri yogi ifumbire ingana ityo

Uburyo bwo gupima ifumbire iyo umuntu adafite umunzani

1. Kubara ifumbire yose ikenewe mu murima w'igerageza. Dukurikije ingero zatanzwe haruguru uba ugomba gukoresha hafi ikilo kimwe cy'ifumbire ya DAP kuri buri bihingwa 100. Niba umurima wawe w'igerageza ufite ibihingwa 300 kuri buri gice cyawo uba ukeneye ifumbire ingana n'ibiro 6 yo gukoresha muri ibyo bice byombi.
2. Kureka abagize itsinda bakagura ifumbire y'ibiro 6 ku mucuruzi w'inyongeramusaruro
3. Kugabanya ifumbire mo ibice bibiri bingana igice kimwe kigakoreshwa mu gice cy'umurima kigomba guterwamo imbuto yavuye ku bihingwa byatoranijwe bikiri mu murima kugira ngo bizatange imbuto naho ikindi gice kigakoreshwa mu gice cy'umurima kigomba guterwamo imbuto abahinzi batoranije ku buryo busanzwe nyuma yo gusarura.
4. Kugabanya iyo fumbire mo uduce twinshi tungana n'umubare w'amayogi ari muri buri gice cy'umurima
5. Gushyira muri buri yogi ifumbire iteganijwe.

Kugenda urambika ibirayi hejuru y'amayogi ku buryo buri yogi rishyirwaho umubare nyawo w'ibirayi Nyuma yaho ibirayi birongera bigakwirakwizwa mu mirongo hagati y'ikirayi n'ikindi bagasigamo hafi cm 30 uhereye ku hantu ikirayi kimwe kirambitse ukagera aho ikindi kirayi kigikurikiye kirambitse.

Iyo umaze kugenzurako umubare nyawo w'ibirayi nyawo washyizwe ku ntera zingana kuri buri yogi icyo gihe ku birayi ushobora kurenzaho itaka.

Ni ngombwa kugaragaza ku buryo bugaragara neza cyane ahateye imbuto yavuye mu guhitamo icyiza n’ahateye imbuto abahinzi batoranije ku buryo busanzwe kandi hagakorwa ku buryo umunyamabanga na we ibyo agira aho abyandika. Gusaba abahinzi gushyiraho ikimenyetso kiranga neza iyo mirima.

Inama utanga amahugurwa yifashisha

- Kureka abahinzi bagatera imbuto mu murima w’igerageza bakurikije uburyo basanzwe bakoresha mu gutera ibirayi. Ni ngombwa kwirinda guhangayikira cyane uburyo bwo gupima neza umwanya ugomba kuba hagati y’igihingwa n’ikindi. Igihe cyose imbuto itewe kimwe muri ibyo bice bibiri by’umurima kandi muri buri murongo wa buri gice cy’umurima hagaterwamo umubare ungana w’ibirayi by’imbuto, nta kabuza umurima w’igerageza uzagenda neza.
- Gupima ifumbire ikenewe kuri buri gice cy’umurima no kuyikwirakwiza ku mubare w’amayogi ari muri buri gice mbere yo kuyisanzaho (reba amagambo yanditse mu kazu).
- Bitewe n’uko hacaho igihe kiri hagati y’itera ry’imbuto mu murima w’igerageza n’igihe cyo kongera guhuriraho, ni byiza ko utanga amahugurwa agerageza guhura na bamwe mu bagize itsinda akajya ababaza uko imbuto yatewe imeze igihe hagategerejwe kuzongera guhura cyangwa se agasura umurima w’igerageza kugira ngo arebe uko imbuto yatewe imeze igihe igihe cyo kongera guhura kitari cyagera.

**Igikorwa cya 4:
Incamake y’inyigisho zizwe uwo munsu no kugena igihe cyo kuzongera guhuriraho**

- Kureka umwe mu bitabiriye amahugurwa agatanga incamake y’inyigisho z’uwo munsu
- Kuja impaka zigamije kureba uko uwo murima uzitabwaho, kugena ugomba gutera imiti, kubagara, gusukira n’ibindi.
- Kongera gusobanurako kubagara, gufuhira imiti no gusukira ari ibintu bigomba gukorwa ku buryo bumwe muri ibyo bice bibiri by’umurima.
- Gusubiza ibibazo
- Kugena umunsu wo kuzongera gusura uwo murima (mu gihe cy’uruyange rwa mbere cyangwa hagati y’ibyumweru bitandatu

n'umunani nyuma yuko imbuto zizamutse mu butaka) ngo hongere hatoranywemo ibirayi byiza

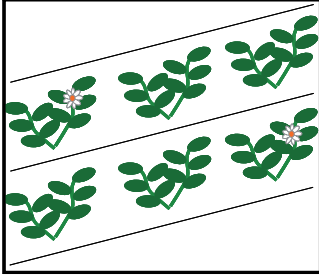
- Kugena itariki yo kumurika ibyo abahinzi bagezeho mu murima, mu gihe gito gikurikira irangiza ry'icyiciro cya 5 cy'inyigisho

Mu rwego rwo gutanga urugero, utanga amahugurwa ashobora gusaba umuhinzi kuvuga icyakorwa igihe imvura itangiye kugwa nyamara barangije kubagara igice kimwe cy'umurima. Igisubizo nyacyo nuko igice kindi cy'umurima kigomba kubagarirwa bitarenze umunsi ukurikiraho.

***Inama utanga
amahugurwa yifashisha***

Icyiciro cya 5 cy'inyigisho:

Gutoranya icyiza



Igihe ibyo bigomba gukorerwa:

Igihe igihingwa kigitangira kuzana uruyange rwa mbere cyangwa hagati y'ibyumweru bitandatu n'umunani nyuma yuko imbuto zizamutse mu butaka

Intego:

- Kugenzura ubushobozi abahinzi bagize itsinda bafite bwo gutoranya imbuto icyiza
- Kuziba icyuho cyaba kigaragara mu bumenyi abahinzi bafite
- Kugena umunsi wo kumurika ibyo abahinzi bagezeho mu murima

Incamake y'ibikorwa:

1. Gutoranya icyiza
2. Itandukaniro riri hagati yo guhinga imbuto yo gucuruza n'uburyo bwo gutoranya imbuto zikiri mu murima
3. Gusobanura uburyo bwo kurandura ibihingwa birwaye
4. Kujya impaka ku buryo bwo gutegura umunsi wo kumurika ibyo abahinzi bagezeho mu murima
5. Incamake y'inyigisho zigishijwe uwo munsi no kugena umunsi wo kongera guhuriraho

Igihe gikenewe:

Amasaha abiri (2)

Gutegura

- Uduti turi hagati ya 200 na 400 two gukoresha mu rwego gutoranya imbuto nziza mu murima

Ni ngombwa kujya impaka n'abahinzi hagamijwe kumenya icyo bashaka kuzakoresha imbuto itoranywa nyuma y'irangira ry'igihe cy'ihinga. Uburyo batekereza kuzakoresha imbuto yatoranijwe mu bihe bizaza. Dore bimwe mu byo bashobora gukora:

Igikorwa cya 1: Gutoranya icyiza

1. Gusarura imbuto zo ku migozi yatoranijwe no kuzigabagabanya mu bahinzi bagize itsinda
2. Guhinga undi murima w'igerageza mu gihe cy'ihinga gikurikiyeho hagamijwe kugereranya ubwoko butatu bw'imbuto:
 - a. imbuto yatoranijwe ahari harahinzwe iyatoranijwe mbere (imaze gutoranywa inshuro ebyiri)
 - b. imbuto yatoranijwe mu murima w'umuhinzi (imaze gutoranywa rimwe)
 - c. Imbuto zitoranijwe mu gice gisanzwe cy'umuhinzi (aho atahisemo icyiza)
3. Guhinga undi murima w'igerageza mu gihe cy'ihinga gikurikiraho hagamijwe kugereranya ubwoko bubiri bw'imbuto:
 - a. imbuto yatoranijwe ahari harahinzwe iyatoranijwe mbere (imaze gutoranywa inshuro ebyiri)) Imbuto zitoranijwe mu gice gisanzwe cy'umuhinzi (aho atahisemo icyiza)
 - b. ku buryo busanzwe abahinzi basanzwe bakoresha (gutoranya bwa 2 ibihingwa bikiri mu murima kugira ngo bizatange imbuto)

Bitewe n'ibyo abahinzi bihitiyemo, gutoranya icyiza bikorerwa gusa mu gice cy'umurima kirimo imbuto yari yatoranijwe mbere (uburyo bwa 2) cyangwa bigakorerwa muri ibyo bice bibiri by'umurima (uburyo bwa 1 n'ubwa 3).

Reka umwe mu bahinzi yongere kuvuga ibishingirwaho mu gutoranya icyiza no kwereka abagize itsinda uburyo ibihingwa bitoranywa. Reka abahinzi ubwabo bongereho ibyo atavuze banamukosore iyo hari ibyo yavuze bitari byo.

Kongera gutoranya icyiza

Kureka abahinzi bagashinga uduti ku bihingwa biri hagati ya 200 na 400 kandi bitarwaye kandi ibyo bigakorwa hashingiwe ku byo itsinda ryihitiyemo bitewe n’uko bateganya kuzakorera hamwe mu itsinda mu bihe bizaza.

Utanga amahugurwa icyo akora ni ukureba neza niba uburyo bwo gutoranya icyiza bwakurikijwe neza kandi ibyo akabikora ativanze.

Nyuma yo gutoranya ni ngombwa kuganira no kujya impaka kugira ngo hasuzumwe ibitaragenze neza n’ibyagenze neza ku bijyanye n’igikorwa cyo gutoranya imbuto. Gufatanyaga n’abagize itsinda bose hagamije kugenzura ibihingwa byatoranyijwe no kujya impaka hagamijwe kureba niba itoranya ryakozwe hari icyo ryashingiyeho koko cyangwa se niba nta kintu ryashingiyeho.

Abahinzi bamaze kugira ubumenyi buhagije ku bijyanye n’uburyo bwo gutoranya imbuto nziza hashingiwe ku bihingwa bikiri mu murima

Usoza ubwira abahinzi ko bamaze kuba inzobere mu gutoranya icyiza. Kubabaza igikorwa kigomba gukurikiraho mu rwego rwo gutoranya noneho ugasoza ubabwirako igikorwa kigomba gukurikiraho mu gihe cy’ibyumweru bibiri biri imbere ari ukugenzura niba hari indwara zafashe ibyatoranijwe. Utanga amahugurwa agomba kubasobanurirako yumvako icyo gikorwa ari inshingano zabo bityo akaba Atari ngombwa kuba ari kumwe na bo mbere y’igihe cy’isarura keretse ku munsu abahinzi bamurikaho byo bagezeho mu murima.

Inama utanga amahugurwa yifashisha

Iki ni igihe cyiza cyo kureba niba abahinzi barize neza uburyo bwo gutoranya imbuto icyiza kandi akaba ari na cyo gihe cya nyuma cyo kubona umwanya wo gusobanura no gukosora ibyo batumva neza.

**Igikorwa cya 2:
Itandukaniro hagati yo guhinga imbuto zo kugurisha n’uburyo bwo gutoranya icyiza**

Ni ngombwa gusobanurira abakurikirana amahugurwa ko uburyo bwo gutoranya icyiza bugamije kubungabunga ubwiza bw’imbuto iba igenda ikoresha inshuro nyinshi. Icyo ubwo buryo bugamije si ugushaka imbuto yo gucuruza. Kugira ngo abahinzi

bagere ku musaruro ushimishije bashobora gukomeza gukoresha buri gihe imbuto yemejwe n'inzego zibishinzwe kandi itarwaye.

Iyo abahinzi bakora igikorwa cyo gutubura imbuto yo gucuruza bagomba gutangira bakoresha imbuto itarwaye kandi bakarandura mu murima ibihingwa byafashwe n'indwara kugira ngo imbuto itandura cyane.

Gutoranya icyiza mu murima w'umuhinzi

Igikorwa cyo gutubura imbuto yo gucuruza ni igikorwa cy'ubucuruza cyihariye kandi gisaba ibintu bikurikira:

- Kuba umuhinzi wihaye intego kandi w'inyangamugayo
- Amafaranga yo kugura imbuto y'ibanze ku mucuruza wizewe uzwi ariko cyane cyane Ikigo cy'ubushakashatsi
- Amafaranga yo kubaka ubuhunikiro bw'imbuto bukwiye bwinjirwamo n'urumuri
- Amafaranga yo kugura ifumbire isabwa gukoreshwa ku kigero iki n'iki, kugura imiti yica udukoko twangiza imyaka
- Isambu ihagije ishobora guhingwamo ibirayi nibura kuri ha 0,5 buri gihe cy'ihinga. Bitewe nuko ibirayi by'imbuto bisaba abahinzi gukora isimburanya ry'ibihe nibura bine, abahinzi bagomba kugira nibura ha 2 z'ubutaka bwo guhinga.
- Hagomba kandi abakiriya bo kugura imbuto
- Bisaba kwihangana kuko bisabako ucuruza imbuto agomba kubanza kumenyekana abantu bakamenyako agira imbuto nziza kandi bikamusaba n'igihe kugira ngo abakiriya bamugirire icyizere.

Abahinzi bumva bifuzaga gukora umwuga w'ubutubuzi bw'imbuto bagomba kwegera ikigo cy'Igihugu gishinzwe ubushakashatsi gifite inshingano yo gutubura imbuto y'ibirayi kikabagira inama kikabaha n'amahugurwa cyangwa se bakisunga Serivisi y'Igihugu ishinze iyamamazabuhinzi

**Igikorwa cya 3:
Gusobanura uburyo
bwo kurandura
ibihingwa birwaye mu
murima**

Bwira abahinzi ko nk’uko byagaragajwe n’uburyo bwo gutoranya icyiza, iyo ubwo buryo bumaze gukoreshwa inshuro kuva kuri ebyiri kugera kuri eshatu biba bigoye gushinga uduti ku bihingwa bigaragarako bitarwaye. Iyo ubwo buryo bukoze neza, ibihingwa byose usanga bigaragarako bitarwaye. icyo gihe bishobora korohera umuhinzi kurandura ibihingwa birwaye bikava mu murima. Ubwo buryo rero bwo kwikiza ibihingwa birwaye ni bwo bwitwaga uburyo bwo kurandura ibihingwa birwaye.

***Kurandura ibihingwa
birwaye mu murima***

Icyiza cy’ubwo buryo bwo kurandura ibihingwa birwaye bikava mu murima nuko icyo gihe umuhinzi aba aranduye inkomoko y’indwara ziterwa na virusi. Ubundi igihingwa kirwaye gikwirakwiza indwara kirwaye mu bindi bihingwa. Iyo cyegeranye n’ibindi bihingwa kibyanduza iyo ndwara cyangwa se iyo ndwara igakwirakwizwa ku bindi bihingwa n’udukoko Duto tw’uduhunduguru

Hari igihe biba bitoroheye abahinzi gukoresha uburyo bwo kurandura ibihingwa birwaye. Impamvu nuko n’igihingwa kirwaye kivaho ibirayi biribwa. Nubwo ibirayi by’igihingwa cyafashwe na virusi bishobora kuba bike no kugwingira ntibikure biba bishobora kuribwa no kugurishwa. Uburyo bwakoreshwa mu gukemura icyo kibazo ni ugushinga uduti ku bihingwa birwaye noneho umuhinzi akirinda gutoranya ibyo bihingwa bishinzweho uduti igihe atoranya ibihingwa byo gutanga imbuto. Ibirayi bisaruwe kuri ibyo bihingwa bishobora kugurishwa cyangwa kuribwa.

**Igikorwa cya 4:
Kuganira ku buryo bwo
gutegura umunsi wo
kumurika ibyo abahinzi
bagezeho mu murima**

Icyo gikorwa cyo kumurika ibyagezweho mu murima kigamije kugeza ku bandi bahinzi ubumenyi abahinzi bitabiriye amahugurwa bungutse. Birushaho kuba byiza iyo abahinzi bitabiriye umunsi wo kumurika ibyagezweho mu murima ari benshi. Igihe cyiza cyo kumurika ibyo abahinzi bagezeho mu murima ni igihe indwara z’imfunyarazi ziba zishobora kugaragara neza, ibyo bikavugako kumurika ibyagezweho mu murima

bikorwa iminsi mike nyuma y’uku guhura kw’abahinzi.
Ni ngomba gufatanya n’abagize itsinda hagamijwe
kumvikana ku bintu bikurikira:

1. Itariki yo kumurika ibyagezweho mu murima
2. Kumvikana ku bantu buri wese mu bagize itsinda agomba gutumira
3. Kujya impaka ku bigomba gukorwa igihe cyo kumurika ibyagezweho mu murima. Kumvikana kubya korwa:
 - Kwerekana umurima w’igerageza
 - Gusobanura uko uburyo bwo gutoranya icyiza bukorwa
 - Guha akanya abashyitsi kugira ngo batoranye ibirayi byiza mu murima uri aho hafi
4. Kugena uburyo bwo kumenyekanisha umunsi wo kumurikaho ibyagezweho mu murima
 - ni byiza kumenyekanisha mu kiriziya, ku isoko cyangwa ahandi hantu abantu bahurira umunsi wo kumurikaho ibyagezweho mu murima kugira ngo uwo munsi uzitabirwe n’abantu benshi.
 - Ni ngombwa kwizerako abagukiriye mu kazi bamenya akazi uba ukora. Iyo bitabiriye umunsi wo kumurikaho ibyagezweho mu murima bituma barushaho gushima ibikorwa byawe kandi bikanatuma bagushyigikira mu itegura ry’amahugurwa ataha agenewe andi matsinda y’abahinzi.

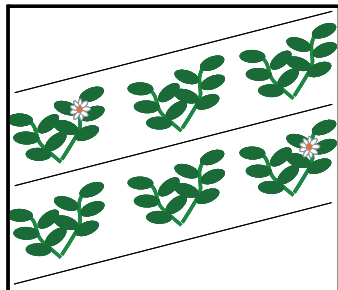
- Kureka umwe mu bahinzi akavuga mu ncamake inyigisho zatanzwe uwo munsi
- Gusubiza ibibazo

*Inama utanga
amahugurwa yifashisha*

**Igikorwa cya 5:
Incamake y’inyigisho
zatanzwe uwo munsi**

Icyiciro cya 6 cy'inyigisho:

Kumurika ibyo abahinzi bagezeho mu murima



Igihe bikorerwa:

Ibirayi bimaze kuzana uruyange (nyuma y'uko abagize itsinda barangije gutoranya icyiza mu murima ukorerwamo igerageza). Aha twavugaga mu cyumweru kimwe nyuma yo kurangiza icyiciro cya 5 cy'inyigisho

Intego:

- Gushishikariza abandi bahinzi batari mu itsinda kwitabira uburyo bwo gutoranya icyiza

Incamake y'ibikorwa:

1. Abagize itsinda bereka abandi bahinzi ibyavuye mu igerageza bakoze kandi bakabasobanurira ihame uburyo bwo gutoranya icyiza bushingiyeho
2. Abashyitsi bigishwa uburyo bwo gushobora kumenya indwara ziterwa na virusi (imfunyarazi)
3. Abashyitsi bakora uburyo bwo gutoranya imbuto nziza mu murima uri bugufi aho

Igihe gikenewe:

Igice cy'umunsi

Gutegura

Ni ngombwa gukora ku buryo:

- Abantu bishishikaje bese babimenyeshwa
- Abayobozi ba gahunda babimenyeshwa
- Hamenyekana neza abazatangira ibisobanuro ku munsi wo kumurikaho ibyagezweho n'ibyo bazasobanura ibyo ari byo

Ureka abahinzi bakereka abandi bahinzi uko igeragezwa ryakozwe. Urabareka bagasobanura amahame ngenderwaho yo guhitamo icyiza.

Ureka abagize itsinda bagasobanurira abahinzi babasuye uko bamenya indwara z'ibirayi ziterwa na virusi.

Ureka abagize itsinda bagasobanurira abahinzi babasuye uko bahitamo ikirayi cyiza mu bindi. Ureka abahinzi basuye bagahitamo ibirayi byiza mu murima wundi uteri uwakorewemo igerageza ariko bakabikora bakurikiranwa n'abagize itsinda

- Menya neza ko abantu bose baje mu muni w'imuruka bikorwa babonye inyigisho, Atari gusa k'uwaje mbere. Kugendagenda aho hafi bishobora gukorwa kugirango bose bamenye amahame y'ingenzi
- Ntago ari ushinze amahugurwa ugomba gusobanura kuri uwo muni ahubwo n'abahinzi bahuguwe
- Umuni wo kumurikaho ibikorwa niwo muni mwiza wo kubona amatsinda mashya yifuza kuba yahugurwa
- Nibyiza kwandika mazina y'abahinzi bitabiriye icyo gikorwa n'aho babarizwa kugirango uzarebe niba hari uwaba yaritabiriye icyo gikorwa cyo guhitamo icyiza
- Muri Kenya, hamwe na hamwe byagaragaye ko umuni w'imurika bikorwa watumye abajura biba mu murima w'igerageza. Ni ngombwa kuganira n'abahinzi niba uwo murima ugomba kurindwa kugeza mu gihe cy'isarura

Igikorwa cya 1: Gusobanura uko igeragezwa ryakozwe

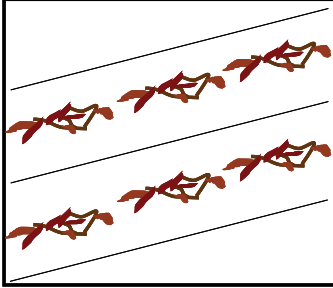
Igikorwa cya 2: Kwigisha uko bamenya indwara y'imfunyarazi (virusi)

Igikorwa cya 3: Kwigisha uko bahitamo icyiza

Inama utanga amahugurwa yifashisha

Icyiciro cya 7 cy'inyigisho:

Gusarura umurima w'igerageza



Igihe ibyo bikorerwa:

Igihe ibirayi byeze neza

Intego:

- Gukusanya amakuru yerekeranya n'umugaruro hagamijwe gusuzuma uburyo ubwo bwoko bubiri bw'imbutu bwatanze umugaruro

Incamake y'ibikorwa:

1. Gusarura igice cy'umurima cyakoreshejwemo uburyo bwo gutoranya icyiza
2. Gusarura igice cy'umurima cyakoreshejwemo uburyo abahinzi basanzwe bakoresha mu gutoranya imbuto Kubara itandukaniro riri mu misaruro yavuye muri ibyo bice bibiri by'umurima

Igihe gikenewe:

Igice cy'umunsi

Gutegura

- Kuzana umunzani kugira ngo umugaruro upimwe; kwizera nezako uwo munzani uregeye neza ku kigero cya kg 1 nibura
- Kuzana imifuka y'igunira kugira ngo ibikwemo imbuto yavuye mu murima wakoreshejwemo uburyo bwo gutoranya icyiza kandi ikanabikwamo undi musaruro usigaye
- Kuzana akamashini ko kubara

Kureka umwe mu bahinzi agasobanura uburyo bwo gusarura imbuto yatewe mu gice cy'umurima cyakoreshejwemo uburyo bwo gutoranya icyiza (reba icyiciro cya 3 cy'inyigisho). Kwizerako abandi bahinzi bamwunganira igihe hari ibyo yibagiwe mu bisobanuro bye

Gusarura ni igikorwa gikorana ingufu n'ubwira. Ni ngombwa rero ko amakuru aba akenewe mu gufasha gusuzuma uburyo bwo gutoranya icyiza akusanywa neza. Kugira ngo ibyo bigerweho ni ngombwa ko utanga amuhugurwa yerekera abahinzi igihe basarura. Kwibeshya muri iki gikorwa birashoboka kandi bishobora gutuma igerageza ryakozwe ritagera ku ntego yari igamijwe.

Ni ngombwa gutangirira ku gice cy'umurima cyakorejwemo uburyo bwo gutoranya icyiza:

1. Kubara umubare w'ibihingwa byose no kuwandika
2. Gusarura buri gihingwa cyashyinzweho uduti ukwacyo noneho ukarekera impande ibirayi byacyo
3. Kureka abahinzi bagasuzuma buri kimwe kimwe mu bihingwa byasaruwe no gufata ibirayi byavuye ku migozi itaratoranjwe ukabishyira mu kirundo iruhande rw'icyo gice cy'umurima
4. Kubara uubare w'ibihingwa abahinzi BATORANIJE no kuwandika
5. Gushyira hamwe ibirayi byavuye ku bihingwa byemejwe ko ari byiza/byatoranjwe
6. Gutandukanya ibirayi byavuye ku bihingwa byatoranjwe ukabishyira hamwe mu matsinda y'ibirayi bito cyane (biri hasi ya mm 25), ibirayi by'imbutu (biri hagati ya mm 25 na mm 90) no mu itsinda ry'ibirayi byo kurya n'ibyo kugurisha (birengeje mm 90)
7. Kubara umubare w'ibirayi biri mu itsinda ry'ibirayi by'imbutu no kuwandika
8. Gupima ku munzani ibiro by'ibirayi biri mu itsinda ry'ibirayi by'imbutu no kuwandika ibyo biro, gushyira ibyo birayi mu mufuka, ubishyiraho ikimenyetso ukubishyira ukwabyo

Igikorwa cya 1: Gusarura igice cy'umurima cyakoreshejwemo uburyo bwo gutoranya icyiza

Gusarura ibihingwa byashyinzweho uduti

9. Gushyira ibirayi biri mu itsinda ry'ibirayi byo kurya no kugurisha (ibirengeje mm 90) ukwabyo
10. Gusarura ibindi birayi byose bisigaye mu gice cy'umurima cyakoreshejwemo uburyo bwo gutoranya icyiza ukabyongera ku birayi byakuwe ku migozi itatoranijwe
11. Gufata ibirayi bito cyane (biri hasi ya mm 25) ukabishyira ukwabyo
12. Gufata ibirayi bisigaye (ibirengeje mm 25) ukabishyira hamwe n'ibirayi binini byakuwe ku bihingwa byatoranijwe
13. Kubara umubare w'ibyo birayi no kuwandika
14. Gupima ku munzani ibyo birayi birengeje mm 25 no kwandika ibiro ubonye

**Igikorwa cya 2:
Gusarura igice
cy'umurima cyatewemo
iimbuto y'umuhinzi**

Iyo wakoresheje uburyo bwo gutoranya icyiza mu murima w'umuhinzi, ibyo usabwa gukora ni nk'ibyavuzwe haruguru.

Iyo nta birayi na bimwe byo muri icyo gice cy'umurima byatoranijwe, uburyo ukoresha buroroshye cyane:

1. Bara umubare w'imigozi yose wandike
2. Sarura imigozi yose yo muri icyo gice cy'umurima
3. Toranya ibirayi bito cyane (biri hasi ya mm 25) ubishyire ukwabyo
4. Bara umubare w'ibirayi birengeje mm 25 uwandike
5. Pima ku munzani ibyo birayi birengeje mm 25 wandike ibiro ubonye.

**Igikorwa cya 3: Kubara
inyungu ituruka ku
buryo bwo gutoranya
icyiza**

Wifashisha imibare yabonetse kugirango ubare umusaruro wose wavuye muri buri gice cy'umurima, umusaruro wavuye kuri buri mugozi ndetse n'umubare rusange w'ibirayi byavuye kuri buri mugozi haba mu gice cy'umurima cyatoranijwemo icyiza no mu gice cy'umurima imbuto isanzwe y'umuhinzi. Muganira n'abahinzi kuri icyo gikorwa.

Ibyavuye mu igerageza

Icyiciro cya 8 cy'inyigisho:

Isuzuma no gutanga inyemezabumenyi

Igihe ibyo bikorerwa:

Igihe gito nyuma yo gusarura

Intego:

- Gusuzuma no kuganira ku musaruro wabonetse mu bice by'umirima byakorewemo igerageza
- Gukora isuzuma ry'amahugurwa
- Guha abahinzi inyemezabumenyi ku mugaragaro

Incamake y'ibikorwa:

1. Kwerekana ibyavuye mu bushakashatsi bwakozwe no kubiganiraho
2. Gutanga inyemezabumenyi ku bahinzi basobanukiwe neza n'«uburyo bwo gutoranya icyiza»
3. Kuzaza urupapuro rw'ibibazo (umugereka 1A)
4. Isuzuma
5. Kuganira kuri ejo hazaza h'itsinda.

Igihe gikenewe:

Igice cy'umunsi

Gutegura

- Kwaka umuhuzabikorwa w'umushinga ibyemezo by'amahugurwa no kubyuzamo amazina y'abahinzi bashoboye gukurikirana amahugurwa
- Kwifashisha umuyobozi w'itsinda n'umwanditsi waryo kugira ngo hatoranywe abagomba guhabwa inyemezabumenyi
- Gufotoza Umugereka A1
- Kubara umusaruro wose wavuye muri buri gice cy'umurima cyaba igice cyakoreshejwemo uburyo bwo gutoranya icyiza n'igice cyakoreshejwemo uburyo abahinzi basanzwe bakoresha mu gutoranya imbuto nyuma ukabishira kubuso fatizo (urugero: kuri hegitare cg are)
- Kuzana akamashini ko kubara



**Igikorwa cya 1:
Kwerekana
ibyavuye muri ubwo
bushakashatsi
mukabiganiraho**

**Gusuzuma inyungu
mu mafaranga
ryakozwe**

- Kwerekana itandukaniro riri hagati y'umugaruro wavuye muri ibyo bice bibiri by'umurima
- Gufatanya n'abahinzi mu kubara itandukaniro riri hagati y'umubare w'imifuka yasaruwe muri ibyo bice by'umurima hashingiwe ku buso fatizo ubu n'ubu.
- Gufatanya n'abahinzi kubara amafaranga ahwanye n'iy mifuka kandi ayo mafaranga akabarwa hashingiwe ku biciro biri ku isoko, ubazu ku giciro cyo hasi n'igiciro cyo hejuru.

Murebera hamwe umubare w'amafaranga yatanze ku bahinzi n'ibikoresho kugirango mubone uwo musaruro mukareba koko niba ibyo hari inyungu bigaragaje.

**Igikorwa cya 2: Gutanga
inyemezabumenyi**

Menya neza koko niba abahinzi bose babonye inyemezabumenyi zabo. Urugero, reba ishusho ya 15



Ifoto ya 15: Inyemezabumenyi yakoreshejwe muri Kenya

**Igikorwa cya 3: Kuzuzura
urupapuro rw'ibibazo**

Menya neza niba abahinzi buzuzura ari benshi urupapuro rw'ibibazo bisaba guhitamo ibisubizo kandi buri muhinzi akuzuzura urwo rupapuro ruri mu mugereka 1A ku giti cye.

Abagize itsinda baganira ku byiza n'ibibi byaranze gahunda yabo y'inyigisho no kureba uburyo ibibazo byavutse byakemurwa.

Igikorwa cya 4: Isuzuma

Utanga amahugurwa agomba kwandika ibivuye muri icyo kiganiro kugira ngo azabishyire muri raporo ye ya nyuma

Kujya impaka mu itsinda

- Ubaza abagize itsinda bakavuga ibyiza bize kurusha ibindi
- Ubaza abagize itsinda bakavuga ibyo batashoboye kwigira mu nyigisho bahawe
- Ubaza abagize itsinda bakavuga icyo bakunze cyane kurusha icyindi n'ikitarabashimishije kurusha icyindi
- Ubaza abagize itsinda kugira ngo bavuge uko babona gahunda ishobora kunozwa
- Ushaka amakuru ku bijyanye n'abahinzi bamaze gukoresha ubwo buryo mu mirima yabo
- Ubaza abataritabiriye gukoresha ubwo buryo impamvu batabwitabiriye

Muganira n'abagize itsinda bakavuga gahunda bafite mu bihe bizaza

Igikorwa cya 5: Ibyo itsinda riteganya kuzakora mu bihe bizakurikiraho

- Ubabaza niba bateganya gukomeza gukora igerageza ry'ubwo buryo nk' itsinda
- Ubabaza niba bazakoresha ku giti cyabo uburyo bwo guhitamo icyiza
- Ubabaza niba hari izindi gahunda bateganya gukorera hamwe mu itsinda ryabo
- Kubabaza niba bafite gahunda yo kuzageza ku bandi bahinzi ubumenyi bungutse

Ibyo abahinzi bateganya gukora mu bihe bizaza

IGICE CYA 3:

Umugereka

Uburyo bwifashishwa mu kwigisha abahinzi guhitamo icyiza

Urupapuro rw'ibibazo rugamije gufasha
gusuzuma akamaro amahugurwa yagiriye
abayitabiriye

Ifishi yo gukusanyirizaho amakuru

Umugereka wa 1:

Urupapuro rw'ibibazo rufasha gusuzuma akamaro k'amahugurwa

- Rugomba kuzuzwa na buri wese witabiriye amahugurwa mu itangira ryayo no mu isozwa ryayo
- Fotoramo kopi nyinshi zose za ngombwa
- Shyira urupapuro rw'ibibazo mu rurimi rukoreshwa mu gihugu, niba ari ngombwa
- Fasha abahinzi batazi gusoma no kwandika ubabaza ibyo bibazo
- Niba kuzuzwa urwo rupapuro rw'ibibazo bisaba igihe kirekire cyane, toranya abantu baringaniye basubiza ibyo bibazo

Izina Aho umuhinzi abarizwa Itsinda Itariki
.....

A. Suzuma ubumenyi ufite ku bijyanye n'indwara z'ibirayi

Gushyira ikimenyetso ku bisubizo BYOSE biri byo

1. Indwara ya Kirabiranya iterwa n'iki?

Ibisubizo byinshi birashoboka kuri iki kibazo

- A. Imbutu yanduye
- B. Ifumbire nyinshi cyane
- C. Izuba ryinshi
- D. Udukoko twangiza imyaka
- E. Ibikoresho byanduye
- F. Amazi ashoka y'imvura avuye mu yindi mirima
- G. Igitaka cyanduye indwara cyafashe ku birenge cyangwa ku nkweto
- H. Ubukonje
- I. Ibindi.....

2. Ni gute bakumira indwara ya Kirabiranya?

Ibisubizo byinshi birashoboka kuri iki kibazo

- A. Gukoresha imiti yica udukoko
- B. Kubagarira neza Gutera imiti yica udukoko ku bikoresho abahinzi bakoresha
- C. Gutera imbutu itanduye
- D. Gukoresha ifumbire mvaruganda
- E. Koza inkweto cyangwa ibirenge
- F. Gusimburanya ibihingwa
- G. Ibindi.....

3. Indwara z'imfunyarazi (Virusi) zikwirakwizwa n'iki?

Ibisubizo byinshi birashoboka kuri iki kibazo

- A. Imbutu yanduye
- B. Umuyaga
- C. Gukorakora
- D. Udukoko

- E. Ifumbire y'imborera
- F. Amazi y'imvura atemba
- G. Ibindi.....

4. Ese twakumira gute imfunyarazi (virusi)?

Ibisubizo byinshi birashoboka kuri iki kibazo

- A. Gukoresha imiti yica udukoko twangiza imyaka
- B. Gukoresha imbuto itanduye
- C. Kubagarira igihe
- D. Guhinga mu murima igihingwa kirenze kimwe
- E. Gusimburanya ibihingwa
- F. Ibindi.....

5. N'akaha kamaro ko guhitamo icyiza mu murima

Ibisubizo byinshi birashoboka kuri iki kibazo

- A. Kurwanya indwara y'imvura (milidiyu)
- B. Gutoranya imbuto itarwaye ivuye mu murima urimo ibirayi bike birwaye kirabiranya
- C. Bituma imbuto imera neza
- D. Gutubura imbuto y'ibirayi yo gucuruza
- E. Gutoranya ibirayi by'imbuto bitanduye cyane imfunyarazi (virusi)
- F. Gutoranya ibirayi by'imbuto mu murima wangijwe n'indwara ya Kirabiranya
- G. Kongera ubwiza bw'imbuto zitaboneka ku batubuzi b'imbuto
- H. Ibindi.....

Izina	Aho umuhinzi abarizwa	Itsinda	Itariki
.....

B. Suzuma ubumenyi ufite ku bijyanye no guhitamo icyiza (imbuto nziza mu murima)

6. Utoranya gute imbuto yawe?

- A. Utoranya ibirayi by'imbuto ako kanya ukimara gusarura
- B. Utoranya ibirayi by'imbuto nyuma yo guhunika
- C. Ugura buri gihe ibirayi by'imbuto
- D. Ushyira ikimenyetso ku bigaragara neza igihe bimaze kuzana uruyange ukabisarura ubitandukanije n'ibindi kugira ngo bizatange imbuto
- E. Utoranya imbuto ivuye mu murima mwiza
- F. Ibindi.....

7. Uhunika gute imbuto yawe?

- A. Ahantu hijimye kandi bikoze ikirundo
- B. Ahantu hagerwa n'urumuri kandi bikoze ikirundo
- C. Mu murima
- D. Mu mifuka
- E. Kubitanda (etajeri) ahantu hagerwa n'urumuri
- F. Ikindi.....

8. Umeza gute imbuto yawe?

- A. Ndategereza
- B. Nyishyira mu cyobo
- C. Nyishyira mu mifuka
- D. Nyibika mu murima
- E. Nyishyira ku zuba
- F. Nyishyira ahantu hijimye
- G. Ibindi.....

zina Aho umuhinzi abarizwa Itsinda Itariki

C. Kwandika umusaruro wabonetse

(Niba ubwoko bw'imbuto burenze bubiri, vuga ku bwoko bubiri bw'ingenzi)

	uko umurima ungana (ubuso)	Aho imbuto yakomotse (reba inyuguti bijyanye)	Niba ari imbuto umuhinzi yikuriye mu murima we		Igihe umuhinzi yasaruriye (Ukwezi)	Imbuto yateye uko ingana	Umusaruro wabonetse
			igihe waboneyeho imbuto bwa mbere	Aho imbuto yavuye (reba inyuguti bijyanye)			
Igihe cy'ihinga githeruka							
Ubwoko bwa 1							
Ubwoko bwa 2							
Igihe cy'ihinga kibanziriza igitheruka							
Ubwoko bwa 1							
Ubwoko bwa 2							

- Aho umuhinzi yakuye imbuto:
 A = ku isoko
 B = ku muturanyi
 C = mu murima we bwite
 D = ku muhinzi w'imbuto, ariko utemewe n'inzego zibishinzwe
 E = imbuto yemejweko ari nziza
 F = ahandi (havuye)

Umugereka wa 2:

Ifishi yo gushyiraho amakuru yakusanijwe

- Aha huzuzwa n'utanga amahugurwa afatanije n'umwanditsi w'itsinda
- Gutuburamo kopi ukeneye na kopi umwanditsi w'itsinda agomba gukoresha mu murima

Izina ry'itsinda: _____

Izina ry'utanga amahugurwa: _____

Aho itsinda ribarizwa: _____

Icyiciro cya 1 cy'inyigisho: Gutoranya icyiza

Itariki: _____

Ubwoko bw'imbuta:-----

Ikigereranyo cy'ubuso bw'umurima:-----

Izina rya nyir'umurima:-----

Ikigero ibirayi byari bigezemo igihe hatangwaga icyiciro cya 1 cy'inyigisho: _____

Umubare w'uduti twashinzwe mu murima (tubare mbere yo kudushinga):-----

GKora ikigereranyo cy'ijanisha ry'ubwandu bw'indwara z'imfunyarazi na Kirabiranya

- Kora ikigereranyo cy'ijanisha ry'ubwandu bw'indwara z'imfunyarazi ubara umubare w'ibihingwa byanduye
- Kora ibyo ngibyo kuri kimwe cya kabiri (1/2) cy'ahatoranijwe ibirayi byiza no kuri kimwe cya kabiri (1/2) cy'ahataratoranijwe.
- Reba umubare rusange ugera ku migozi y'ibirayi hafi 400 iri hirya no hino mu murima. Urugero: Ubara nk'imigozi irwaye ku mitabo 5 hanyuma ubare umubare wose hamwe w'imigozi y'ibirayi yose kuri iyo mitabo itanu. Niba imitabo ari migufi fata umubare mwinshi w'imitabo
-
- Ni ngombwa kwizerako imitabo yabazwe ikwirakwiye mu murima hose ku buryo itaba iri ahantu hamwe.
- Irengagize indwara y'imvura (milidiyu). Ubara gusa imigozi ifite ibimenyetso by'indwara y'imfunyarazi na Kirabiranya ukabyandika ukwabyo mu mbonerahamwe ikurikira.

Imfunyarazi (Virusi)

	Igice cy'umurima cyatoranijwemo imbuto nziza			Igice cy'umurima cyakoreshejwemo uburyo busanzwe bw'umuhinzi		
	Umubare w'imigozi irwaye	Umubare w'imigozi yose	Ijanisha ry'imigozi irwaye	Umubare w'imigozi irwaye	Umubare w'imigozi yose	Ijanisha ry'imigozi irwaye
Umutabo wa 1						
Umutabo wa 2						
Umutabo wa 3						
Umutabo wa 4						
Umutabo wa 5						
Ibimba rya 6						
Umutabo wa 7						
Umutabo wa 8						

Indwara ya Kiribiranya

	Igice cy'umurima cyatoranijwemo imbuto nziza			Igice cy'umurima cyakoreshejwemo uburyo busanzwe bw'umuhinzi		
	Umubare w'imigozi irwaye	Umubare w'imigozi yose	Ijanisha ry'imigozi irwaye	Umubare w'imigozi irwaye	Umubare w'imigozi yose	Ijanisha ry'imigozi irwaye
Umutabo wa 1						
Umutabo wa 2						
Umutabo wa 3						
Umutabo wa 4						
Umutabo wa 5						
Ibimba rya 6						
Umutabo wa 7						
Umutabo wa 8						

Icyiciro cya 2 cy'inyigisho: Igenzura rigamije kumenya niba igihingwa kirwaye cyangwa kitarwaye

Itariki: _____

Ikigero ibirayi bigezeho:-----

Umubare w'uduti twaranduwe mu gice cy'umurima gikoreshwamo uburyo bwo gutoranya imbuto nziza _____

Ikigereranyo cy'ijanisha ry'ibihingwa bigifite indwara ya Kirabiranya:

Uburyo bwo kubibara ni bumwe n'ubukoreshwa mu cyiciro cya 1 cy'inyigisho, kubara ibihingwa bigera hafi kuri 400, mu mabimba 5 cyangwa arenga igihe muri ayo mabimba harimo ibirayi bike

Indwara ya Kirabiranya

	Igice cy'umurima cyatoranijwemo imbuto nziza			Igice cy'umurima cyakoreshejwemo uburyo busanzwe bw'umuhinzi		
	Umubare w'imigozi irwaye	Umubare w'imigozi yose	Umubare w'imigozi irwaye	Umubare w'imigozi yose	Umubare w'imigozi irwaye	Ijanisha ry'imigozi irwaye
Umutabo wa 1						
Umutabo wa 2						
Umutabo wa 3						
Umutabo wa 4						
Umutabo wa 5						
Ibimba rya 6						
Umutabo wa 7						
Umutabo wa 8						

Icyitonderwa: _____

Icyiciro cya 3 cy'inyigisho: Gusarura umurima wakorewemo igerageza

Itariki: _____

	Igice cy'umurima cyatoranijwemo imbuto nziza	Igice cy'umurima cyakoreshejwemo uburyo busanzwe bw'umuhinzi
Umubare w'imigozi yatoranijwe		
Igiteranyo cy'ibiro b'ibirayi byatoranijwe		

Gusobanura uburyo bukoreshwa mu guhunika ibirayi:

Icyitonderwa: _____

Igice cya 4 cy'inyigisho: Gutera

Icyitonderwa: *Mutera imbuto mu murima w'igerageza hakurikijwe uko bigaragara mu gishushanyo*

- *Shyira akayira hagati y'ibice bibiri by'umurima ku nguni igorotse ifatiye ku mabimba*
- *Shyira amabimba ku nguni igorotse ifatiye ku buhaname*
- *Utera mu murima umeze kimwe hose kuburyo imbuto ziteye muri bya bice bibiri by'umurima bikurira mu buzima bumwe.*
- *Shyira igice cy'umurima gikoreshwamo uburyo abahinzi basanzwe bakoresha iruhande rw'ahahinzwemo izatoranijwe*
- *Ni ngombwa kwibukako ibyo bice byombi by'umurima bikorerwamo igerageza bigomba gufatwa kimwe (gutera umuti, kubagara, gusukira no gutera ifumbire) kugira ngo igikorwa cyo kubigereranya kizashoboke.*

Igishushanyo cy'umurima ukorerwamo igerageza:



Itariki: _____

Ubwoko bw'ifumbire mvaruganda: -----

Ikigero cy'ifumbire kuri buri gice cy'umurima: -----

Umubare w'ibirayi biteye muri buri gice cy'umurima:-----

Icyitonderwa: _____

Icyiciro cya 5 cy'inyigisho: Gutoranya icyiza

Itariki: _____

Ikigero ibirayi bigezemo: _____

Ikigereranyo cy'ijanisha ry'ibihingwa birwaye imfunyarazi na Kirabirayi

- Muri buri gice cy'uurima, toranya imitabo 8 cyangwa arenga akwirakwiriye mu bice byombi by'umurima
- Reka abahinzi babare umubare w'imigozi yafashwe n'imfunyarazi hamwe na Kirabiranya hamwe n'umubare w'imigozi yose muri iyo mitabo
- Ntiwita ku migozi yafashwe n'indwara y'imvura (milidiyu) cyangwa ibifite ibimenyetso byo kugunduka k'ubutaka.

Imfunyarazi (Virusi)

	Igice cy'umurima cyatoranjwemo imbuto nziza			Igice cy'umurima cyakoreshejwemo uburyo busanzwe bw'umuhinzi		
	Umubare w'imigozi irwaye	Umubare w'imigozi yose	Ijanisha ry'imigozi irwaye	Umubare w'imigozi irwaye	Umubare w'imigozi yose	Ijanisha ry'imigozi irwaye
Umutabo wa 1						
Umutabo wa 2						
Umutabo wa 3						
Umutabo wa 4						
Umutabo wa 5						
Ibimba rya 6						
Umutabo wa 7						
Umutabo wa 8						

Indwara ya cyumya

	Igice cy'umurima cyatoranjwemo imbuto nziza			Igice cy'umurima cyakoreshejwemo uburyo busanzwe bw'umuhinzi		
	Umubare w'imigozi irwaye	Umubare w'imigozi yose	Umubare w'imigozi irwaye	Umubare w'imigozi yose	Umubare w'imigozi irwaye	Umubare w'imigozi yose
Umutabo wa 1						
Umutabo wa 2						
Umutabo wa 3						
Umutabo wa 4						
Umutabo wa 5						
Ibimba rya 6						
Umutabo wa 7						
Umutabo wa 8						

Icyitonderwa: _____

Icyiciro cya 6 cy'inyigisho: Kumurika ibyo abahinzi bagezeho mu murima

Itariki: _____

Ikigero igihingwa kigezeho: _____

Umubare w'abashyitsi: _____

Icyitonderwa: _____

Icyiciro cya 7 cy'inyigisho: Gusarura

Itariki: _____

	Umubare w'imigozi yose	Umubare w'imigozi yatoranijwe	Umubare w'imbutu zatoranijwe	Iburo by'imbutu zatoranijwe	Umubare w'ibirayi byasigaye bidatoranijwe	Iburo by'ibirayi byasigaye bidatoranijwe
Igice cy'umurima cyatoranijwemo imbutu nziza						
Igice cy'umurima cyakoreshejwemo uburyo busanzwe bw'umuhinzi						

Kubara:

	Umubare w'ibirayi byose	Iburo byose	Ikigereranyo cy'umubare w'ibirayi kuri buri mugozi	Ikigereranyo cy'iburo kuri buri mugozi	Toni/ha *	Agaciro k'umusaruro /ha
Igice cy'umurima cyatoranijwemo imbutu nziza						
Igice cy'umurima cyakoreshejwemo uburyo busanzwe bw'umuhinzi						

* Iyo abahinzi bamenyereye gukoresha ingero fatizo izi n'izi zo gupima ubuso nka m2 icyo gihe ni zo ushobora gukoresha. Ibyo kandi ni na ko bishobora kugenda mu gupima umusaruro kuko hari igihe abahinzi bashobora kuba bamenyereye gukoresha ingero fatizo zindi zitari toni.

Icyitonderwa: _____

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