



**REPUBLIKA Y'U RWANDA
MINISITERI Y'UBUHINZI N'UBWOROZI**

UBUHINZI BW'IBIHUMYO BIHINGWA MU BUTAKA

Ibihumyo byo mu bwoko bwa

Pleurotus Ostreatus



INTANGIRIRO

Ubuhinzi bw` ibihumyo ni bumwe mu buryo bufasha abahinzi kurya neza no kwivana mu bukene kandi bidasabye isambu nini. Aka gatabo kanditswe na Ministeri y` Ubuhinzi n` Ubworozi kagamije kwereka abahinzi b` ibihumyo n` abandi bashaka gutangira uyu mushinga uburyo bworoshye bwo guhinga ibihumyo ndetse no kubishoramo imari.

Ibihumyo bivugwa muri aka gatabo ni ibyo mu bwoko bwa *Pleurotus ostreatus*, bukaba bumwe mu bwoko bw` ibihumyo biribwa bihingwa mu butaka. Aka gatabo gasobanura uburyo bworoshye kandi bunononsoye bwo guhinga ibyo bihumyo mu butaka, kakagaragaza akamaro ntungamubiri k`ibyo biribwa, kakerekana kandi n`umusaruro mpuzandengo w`ubuhinzi bwabyo.

Amakuru ari muri aka gatabo agabanyijemo ibice 3 by` ingenzi:

Amakuru rusange ku bihumyo,

Ihingwa ry` ibihumyo bya *Pleurotus ostreatus*

Isarurwa ry` ibihumyo bya *Pleurotus ostreatus*

Gushora imali mu buhinzi bw` ibihumyo bya *Pleurotus ostreatus*

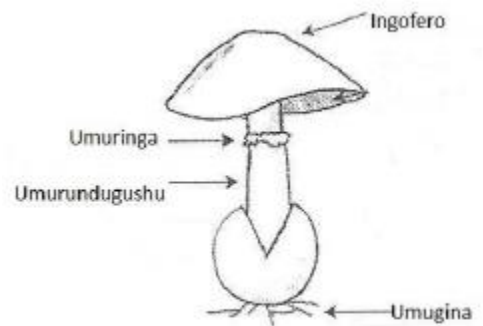
I. AMAKURU RUSANGE KU BIHUMYO

IGIHUMYO NI IKI?



Igihumyo ni igihingwa cyihariye; ntikigira indabo cyangwa imbuto.

Umurundugushu wacyo ntugira imizi, amashami n'amababi. Ibi bisimburwa n' **umuringa** ndetse n' **ingofero**. Uyu murundugushu niwo ufata ku **mugina** aho giteye ukavomamo intungamubiri.



NI AKAHE KAMARO K` IBIHUMYO MU MIRIRE ?



Mu ntungamubiri zigize ibihumyo harimo izitu-
ma ubiriye

- Yirinda indwara z'imirire mibi,
- Yirinda indwara zijyanye no kugira amaraso make,
- Igifu, umwijima n'amara bye bikora neza;
- Bimufasha kwituma neza,
- Yongerera umubiri ubushobozi mu kwirwanaho,
- Yirinda indwara ziterwa no kugira ibinure byinshi mu miyoboro y'amaraso
- Agira amagufa akura neza kandi akomeye,
- Agira umubiri utoshye kandi utarwaragurika

Ibihumyo bifasha izindi ntungamubiri gukora neza akazi kazo.



Isosi na boulettes z` ibihumyo

Ibyiza by'ubwoko bw'ibihumyo bya Pleurotus Ostreatus

Buroroshye guhinga,
Buhingwa mu butaka,
Ntibusaba ikoranabuhanga rihambaye,
Ntibusaba ubutaka bunini kuko no kuri metero
kare imwe hahingwa,
Ibikoresho bikenerwa mu kubuhinga biboneka
hose mu Rwanda ku buryo bworoshye,
Umusaruro wabyo urashimishije:ku mugina umwe
hashobora kweraho hagati ya 600g- 1Kg,
Ibihumyo byerera igihe gito cyane: hagati y'iminsi
7-10 uba utangiye gusarura, kandi ukamara
amezi 3-4 usarura ahantu hamwe mu bihe
bitandukanye,
Gutangira kubihinga ntibisaba amafaranga
menshi, umuntun ashabora guhera ku
mafaranga 50,000 gusa
Ntubitwara umwanya munini mu kubyitaho,
Ubihinze arunguka.



Umurima w'ibihumyo bya
Pleurotus ostreatus

ESE IBIHUMYO BYOSE BIRARIBWA ?



Ubushakashatsi bwagaragaje ko ku isi hari amoko menshi y' ibihumyo. Nyamara byose siko biribwa. Hari ibihumyo biribwa ariko kandi hari n' ibihumyo byica. Hari kandi n'abantu barya ubwoko bw'ibihumyo biribwa, umubiri wabo ntubyakire bagafuruta cyangwa se barya ibyo mu macupa bitabitswe neza bikabamerera nabi mu nda. Ni byiza rero kugenzura igihe ibyo bihumyo byo mu icupa byakorewe mbere yo kurigura. Ku bafuruta, ni byiza ko babyihorera ntibabirye bakagana abaganga bakabagira inama.



Ibihumyo byose utaziye inkomoko ujye wirinda kubisoroma ngo ubirye. Ugomba kwirinda cyane cyane ibifite amabara meza. Uramutse uriye ibihumyo bitaribwa byakwica kuko nta muti nta n' urukingo ruraboneka



AMWE MU MOKO Y` IBIHUMYO BIRIBWA AKORESHWA MU RWANDA

Mu Rwanda hamaze kugezwa amoko menshi y` ibihumyo. Amwe yatangiye guhingwa andi aracyari mu bushakashatsi:



Ganoderma lucidum,
ikunze gukoreshwa nk`umuti

Auricularia auricula

Agrocybe Pholiota aegerita

Pleurotus eryngii(King Oyster),

Tricholoma giganteum

Pleurotus pulmonarius
(Phoenix Oyster Mushroom),

Lentinus edodes (Shitaake),

Pleurotus cornucopiae

Agaricus bisporus

Pleurotus ostreatus

Muri aya moko yose ***Pleurotus ostreatus*** niyo yatangiye guhingwa, andi ari kugeragezwa

II. IHINGWA RY' IBIHUMYO

Umuhinzi ushaka guhinga ibihumyo agomba kuba afite **imigina** (imbuto) kandi akubaka **igisharagati** (umurima).



Umugina



Igisharagati

UMUGINA NI IKI?



Umugina ni uruvange rw'**ibyatsi** biseye babibamo **umwayi** bikamara iminsi 40 kugeza kuri 45 bibitse ahantu habugenewe kugirango ube ugeze igihe cyo guhingwa.



Mu gukora umugina hifashishwa ibyatsi birimo urubingo, ibigorigori, ibitiritiri, ibishogoshogo by'ingano, iby'umuceri, iby'uburo, iby'ibishyimbo, ibikatsi n'ibikongorwa by'ibisheke n'ibikenyeri by'amasaka. Hifashishwa kandi **ifumbire mvaruganda (Urea)**; **Ishwagara** n'**imashini** eshatu harimo isya ibikoresho byavuzwe haruguru, ibivanga ndetse n'ishyira imvange mu mashashi.

UMUGINA MWIZA UWUBWIRWA N'IKI?



Mbere yo kugura umugina, ni ngombwa kugenzura niba ari mwiza. Umugina mwiza ni **uweze** (wuzuye), **wererana**, **udafite uburwayi** cyangwa indi nenge



Uburwayi ku mugina bugaragazwa n'ibara ry'**icyatsi** cyangwa se iry'**umukara**. Umugina ufite aya mabara umuhinzi akwiye kuwirinda kuko unawuteye utakwera ibihumyo



Umugina wuzuye uri kumwe n' utaruzura



Imigina irwaye



IGISHARAGATI CYUBAKWA HEHE ?



Mu rwego rwo kwirinda icyabangamira gukura neza kw'ibihumyo, ni byiza kubaka igisharagati kure y'**umusarani**, kure y'**ububiko** n'ibikoresho by'**imiti**, kure y'**ikidendezi cy`amazi** na kure y'**ikigega cy'imyaka**; ukanamenya ko mu gisharagati hagomba guhora **hahehereye**.

IGISHARAGATI CYUBAKWA GITE ?



Mu kubaka igisharagati si ngombwa gukoresha ibikoresho bikomeye cyane cyangwa se bihenze. Igikenewe ni **ubuhere umwuka n`urumuri** biringaniye. Cyakora ni byiza ko igisharagati kiba **kitava** kugira ngo ibihumyo bitangirika mu gihe cy`imvura. Igisharagati gishobora kuba **mpandeshatu** cyangwa se **mpandeye**.



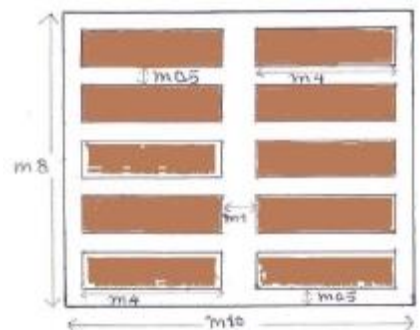
Igisharagati cya mpandeshatu cyubakishije imigano n`amashara ariko kitaruzura



Igisharagati cya mpandeye cyubakishije ibibambano by`urufunzo

Urugero rw'ibipimo by'ibisharagati

Ubwoko bw'igisharagati	Uburebure	Ubugari	Ubugarike
Mpandeshatu	m 10	m8	m 3.5 hagati na m 2.2 ku mpande
Mpandenye	m 10	m8	m 3.5 hagati na m 2.5 ku mpande



BATEGURA BATE AHATERWA IMIGINA?



Iyo umaze kubaka igisharagati, ucukuramo **uturingoti cyangwa imitabo** nk'uko bigaragara ku gishushanyo kiri iruhande. Dukurikije ibipimo by'igisharagati cyatanzwe haruguru, umutabo umwe ugira **metero 4** kuri **m 0.8** (cm 80) n'ubujyakuzimu bufite hagati ya **cm 25 na cm 30**. Imitabo yose hamwe ni 10 icye ku buryo hasigara inzira ya metero imwe hagati mu gisharagati.

BATERA BATE IMIGINA Y`IBIHUMYO ?



-Ku bugari n'uburebure bya **metero imwe** kuri **imwe** ($1m^2$) iri mu gisharagati, haterwa imigina **64**.

-Mu turere dukonja nko mu Majyaruguru hagaragaye umusaruro utubutse kurusha ahandi ku buryo batera imigina 32 gusa kuri m^2 imwe kugira ngo ibihumyo bitabangamirana,

-Utera imigina, ayitereka ku murongo ayitondekanya muri wa mutabo, yegeranya umwe ku wundi, yarangiza akorosaho **agataka ka cm 1**



Kuvomerera

- Iyo bamaze gutera imigina **baravomerera n'amazi**.
- Muri rusange umugina umwe uvomererwa na mililitiro magana atatu (300 ml) ariko igipimo cya nyacyo giterwa n'ubuhere bw'ubutaka buhinzemo.
- Iyo umaze kuvomerera, **ushyiraho ishashi** igondeye ku biti byibura kuri **metero 1** ubariye aho igiti kigondeye, kugira ngo **hagumemo ubuhere** kandi hatagira ikibazo cyo kumagara kugeza igihe bitangiye kuzamuka.



Mu gihe ugiye gutera imigina yawe ahantu hari imiswa,
-ushobora gushyira ivu cyangwa ishwagara mu mutabo mbere yo gutera imigina,
-ugatera imigina wayipfumuye muni no hejuru gusa ishashi ukayirekeraho, -kandi ugasiga ibiti byubatse igisharagati cyawe godoro cyangwa vidange kugirango ubirinde gufatwa n'umuswa cyangwa se kumungwa.
-Ushobora ndetse gusasa hasi mu mutabo ishashi y'umweru yo mu bwoko bw'iyoroswa ku mugina kugirango ifashe gukingira imigina kwangizwa n'imiswa.
Ariko mu gihe bigushobokeye, wakwirinda gutera imigina yawe ahantu hari imiswa kuko nta muti wirukana imiswa burundu wari waboneka.

NI GUTE WAKWITA KU BIHUMYO MU GIHE BIZAMUKA ?

Iyo umaze gutera imigina, buri munyi:

- utwikurura ya shashi mbere ya saa moya za mu gitondo mu gihe cy'igice cy'isaha (iminota 30), ukavomerera, ukongera ugatwikira,
- Mu gihe izuba rirenzeukaza kongera gutwikurura igice cy'isaha, ukavomerera,
- Ibyo bikorwa kugira ngo bizamuke neza kandi binahumeke umwuka mwiza.
- Mu gihe cy'izuba ryinshi, birashoboka ko ubutaka bwumagara, icyo gihe rero ushobora gusuka amazi ku mpande z'umutabo watewemo imigina.



Umuhinzi w'ibihumyo yirinda gusuka amazi ku bihumyo bizamuka kuko ashobora kubyan-duza cyangwa se kubyangiza cyangwa akaba yatuma itaka ritarukiraho umusaruro ukaba mubi.

Mu gitondo

6:30 → 7:00

Nimugoroba

5:30 → 6:00

Amasaha yo gukuraho isashi no kuvomerera iyo ari ngombwa

NI IBIKI BISHOBORA GUTUMA IBIHUMYO BIDAKURA NEZA ?



Ibihumyo bikura, bishobora guhungabanywa no kubura ubuhehere buhagije, kubura **umwuka mwiza** bikeneye ngo bikure, cyangwa se **kurwara** ku mpamvu zitandukanye, cyangwa se bikangizwa n' **ibyonnyi** nk'imbeba, inzukira, imiswa, ibinyamunjonjorerwa n'uducurama.

NI IKI WAKORA KUGIRA NGO UFATE NEZA UMURIMA W`IBIHUMYO ?

Mu rwego rwo kwirinda ibi bibazo byose ni ngombwa:

- Kubaka igisharagati no kwita ku migina wubahirije amabwiriza yatanzwe,
- Kugira isuku ihagije,
- Kwirinda amasazi mu gisharagati,
- Gufunga umuryango w'aho bihinze mu gihe ibyahakorerwaga birangiye,
- Kugenzura uburwayi no kubukumira hakiri kare, ukamenyesha abakugurishijeho imigina cyangwa abaguhuguye igihe ubonye ikibazo,
- Gukubura neza ibisigazwa mu gihe umaze gusarura kugirango bitabora bigatera indwara,
- Gukuramo ibisigazwa by'imigina yahunduye no gutunganya neza umutabo mbere yo kongera gutera indi migina.

III. GUSARURA IBIHUMYO

IBIHUMYO BISARURWA RYARI ?



Ubu bwoko bw'ibihumyo busarurwa ingofero ikigondeye imbere, ni ukuvuga itararambuka neza. Iyo irambutse, igihumyo gita ibiro, ntikigire isura nziza kandi ntikiba gishobora kubikwa neza



GUSARURA IBIHUMYO BIKORWA BITE ?



Ni byiza gusarura ibihumyo mu gitondo mbere y` uko izuba riva cyangwa se nimugoroba izuba rirenze. Ugiye gusarura abanza koza intoki ze akazumutsa, akitwaza icyuma n`agatebo ka pulasitiki bisukuye neza. Hasarurwa umugina umwe umwe. Ufatisha ibiganza byombi ugasa n`ufungura ivisi ujjana mu ruhande rumwe ukagarura mu rundi, hanyuma ukazamura witonze wirinda kwangiza imigina kugirango izakomeze kwera neza



Umugina umwe ushobora gusarurwaho hagati ya garama magana ane (400g) n` ikilo kimwe (1kg) mu gihe cy`amezi atatu bitewe n`aho uhinze n`uburyo witaweho.



- Usarura ibihumyo yirinda kwinjirana mu gisharagati intoki zanduye cyangwa zitose, imyenda avanye mu murima cyangwa se yateresheje imiti, kuko ibi byose bishobora kwanduza ibihumyo.
- Si byiza kuvuna igihumyo kuko igice cy`umurundugushu kiramutse kigumye mu mugina, cyabura kigatuma wangirika, bityo ibindi bihumyo ntibishobore gushibuka.

IBIHUMYO BYIZA BIBA BIMEZE BITE ?



- Ibihumyo byiza ni ibisarurwa bigifite **itoto** kuko ari byo **bishimwa ku masoko** kandi biryoha kurushaho.
- Iyo ibihumyo bisaruwe bigifite itoto, bisigira ibizashibuka **itungamubiri zihagije**.
- Iyo umuhinzi ashaka kongera umusaruro atinda gusarura, ibihumyo nibyo koko byera neza bishishe, ariko ibishibuka ntibiba bimeze nk'ibyabibanjirije,
- Ibihumyo byiza biba bisukuye nta taka bifite,



IMIGINA IMARA IGIHE KINGANA IKI MU MUTABO ?



Imigina imara mu mutabo hagati y'amezi **atatu** n'ane. Iyo ubonye ibihumyo bitakizamuka, upfukuraho ya shashi mu gihe cy'iminsi **irindwi (7)**, nyuma ukongera ukavomerera ukanatwikira nka mbere; iyo na none nyuma y'icyo gihe nta kizamutse, ni uko iba yahunduye, iba igeze ihige cyo gusimbuzwa indi.

IMIGINA ISHAJE (YAHUNDUYE) IMARA IKI ?

Umugina wahunduye ushobora gukoreshwa ibintu bitandukanye: **kongera ugakoreshwa indi imigina (ariko ibanje gutunganywa), imborera no kuwugaburira amatungo** nk'ingurube, amafi n'inkoko. Ubwatsi bugize umugina wahunduye burimo imyunyu y'ingenzi igize inyongeramusaruro. Iyo myunyu ni **Azoti**, **Fosiforo** na **Potasi**.

Iyi mbonerahamwe iragereranya imborera ivuye mu migina n' izindi

IMYUNYU	Azoti (%)	Fosiforo (%)	Potasi (%)
Imborera ivuye mu <i>migina</i>	1.70	0.61	1.13
Umusarani w'umuntu	0.30	0.16	0.30
Amahurunguru y'ingurube	0.60	0.60	0.50
Amase y'inka	0.59	0.28	0.14

UMWANZURO

Kuva iri koranabuhanga ryo guhinga ibihumyo hakoreshejwe tekinologi ya Juncao ryatangira gushyirwa mu bikorwa mu Rwanda, rimaze kwitabirwa n'abikorera ku giti cyabo ndetse n'amashyirahamwe bakorana n'ikigo cy'igihugu gishinzwe iterambere ry'ubuhinzi n'ubworozi (RAB) batubura imigina bageza ku bahinzi b'ibihumyo.

Iri koranabuhanga ni ingenzi cyane, ku mpamvu enye z'ingenzi:

- Riraciriritse,
- Riri mu makoranabuhanga make yungura uyitabiriye akoresheje ubutaka buto,
- Ribungabunga ibidukikije,
- Rifasha abaturarwanda kugira imirire myiza.

Umugereka 1

Ibikoresho nkenerwa byo gukora umugina

ibikoresho	ingano
Ifu y'urubingo	39 Kg
son de riz	10kg
ishwagara	1kg
ifumbire (urée)	0.1kg

Ibi byose ukabivanga n'amazi angana na 65 l.Ibi bishobora gukora imigina100

UMUGEREKA 2

Imbonerahamwe ikurikira yo irerekana urugero rw'ibipimo n'ibikoresho bikenerwa, hakurikijwe iby'igisharagati cyavuzwe hejuru. Buri wese ashobora kubiharaho akubaka igisharagati cye akurikije ingano y'umurima we, ndetse n'ibiciro by'ibikoresho ndetse n'igihembo cy'Abakozi mu Karere atuyemo.

Ibyo ari byo	Ingano
IGISHARAGATI	8mX10m
Abakozi ba nyakabyizi bo kubaka igisharagati	
Ibiti	
Imbariro	
Imisumari	
amashara cyangwa ibibambano	
Imigozi	
sheeting yo gusakaza igisharagati	3
ishashi yo gupfundikira imigina	m 60
Imigano (bamboos)cyangwa uduti tugondeka	
Kugura imigina	2560
Guhemba abubatse imitabo bakanatera imigina	
Gutwara imigina	
Umuzani wujuje ubuziranenge	1
Udutebo twa pulastiki two gusaruriramo no gutwaramo ibihumyo	6
amazi yo kuhira	
Arrosoir (Ikivomerezo)	1
Umukozi ushinze kwita ku bihumyo	