

Company for agriculture and livestock improvement and Research (CALIR)

More evidence and less povert for sustainable tomorrow

Imfashanyigisho ku bworozi bw'inkoko zitanga amagi



I.Ubworozi bw'inkoko z'amagi

1.1. Kubaka ikiraro cy'inkoko

Ubwubatsi bw'ikiraro cy'inkoko bugomba kwita kungingo nyinshi zikurikira:

- ✓ Kigomba koroshya imirimo y'isukura no kurwanya mikorobe,
- ✓ Kigomba kubakwa ku butaka bukomeye,
- ✓ Kugira icyerekezo kiza (iburasirazuba kireba iburengera zuba),
- ✓ Kuba gituma ibiryo n'amazi by'inkoko bihorana amafu,

N'ubwo inkoko zihanganira ubushyuhe, hari igihe zibangamirwa n'ubushyuhe bwiyongeranya buri kanya, dore ingamba wafata mu kuburwanya:

- ✓ Gutera ibiti iruhande bitanga igicucu ku gisenge cy'ikiraro,
- ✓ Gukora igisenge gifite ibaraza nibuze rya cm 90,
- ✓ Gufungisha amadirishya ya giryaje cyangwa ibindi bituma habaho ihindaguranya ry'umwuka mu kiraro,
- ✓ Kubahiriza ubucucike buto bushoboka mu kiraro.



Imwe mu nzu yororewemo inkoko



Ibiraro cy'inkoko bikirimo kubakwa



1.2. Gutegura ikiraro mbere yo ku cyinjiramo inkoko

1.2.1. Gusukura no kurwanya mikorobe

Mbere yo kwinjiza inkoko mu kiraro, cyaba gishya cyangwa igisanzwe cyororerwamo, kugisukura no kwica mikorobe ni ngobwa.

Ibyo bidakozwe mikorobe ziri mu kiraro zishobora guhita zifata inkoko zikinijjwemo.

1.2.1.1. Dore uko basukura ikiraro

- Gusohora isaso (niba ihari) igashyirwa kure hashoboka,
- Gusohora ibikoresho byose byo mu kiraro,
- Guhungura umukungugu wose kuri parafo no ku bikuta
- Kumenamo amazi arimo isabune ya omo ukayarekeramo hagati y'amasaha 4 – 5,
- Gukoropa neza uharura imyanda yafashe mu kiraro,
- Gutera umuti wica mikorobe incuro ya mbere,



Mu gutera umuti wica microbe umworozi ashobora gukoresha ipompe cg ubundi buryo bushoboka bitewe n'ubushobozi bwe (iyi foto iri hejuru iragaragaza uko watera umuti mu kiraro cyawe)

- Kubahiriza ya minsi 15 y'ikiruhuko,
- Gutera umuti wica mikorobe incuro ya kabiri hasigaye iminsi 3 ngo winjize inkoko mu kiraro.
- Gushyira umuti mu mwanya wabugenewe (pédelive) imbere y'umuryango,



Iyi ni pediluve ishyirwamo umuti bakandagiramo mbere yo kwinjira mu nzu y'inkoko.

1.2.1.2. Uko barwanya mikorobe mu kiraro no ku bikoresho

- Kwinika ibikoresho mu ruvange rw'umuti wica mikorobe cya ukawutera ukoresheje ipompe itera umuti mu bihingwa,
- Kogesha umuti kuri pavoma no mu mpande zose z'ikiraro,
- Gutera umuti mu mpande zose z'ikiraro,



uyu arimo aratera umuti mu mpande zose z'ikiraro.

- Ni byiza gusiga ishwanagira impande zose z'ikiraro,
- Kurinda ibiti ubisiga umuti wabugenewe (niba bihari),
- Gusukura ububiko by'ibiryo n'ibindi bikoresho byo mu bubiko,
- Gushyiraho imitego y'imbeba no gufunga aho zishobora kunyura hose,
- Kureka ikiraro kikaruhuka iminsi nibura 15.

1.2.2. Gushyira isaso mu kiraro



Urugero rw'isaso mu kiraro

Isaso ifite akamaro ko kurwanya ubukonje, iranyuranye bitewe niyo wabona hafi yawe bitaguhenze.

Urugero: ibarizo, ibisigazwa by'ibinyampeke, ibyatsi byumye kandi bikase neza...

Mbere yo kuyishyiramo, ubutaka (pavoma) bugomba kuba bwumutse neza. Kugirango bwumuke neza, nibyiza kunyanyagizamo 40kg z'ishwagara kuri m^2100 . icyo gihe uritonda nyuma yo gushyiramo ishwagara ugategereza ubukonje bugashyiramo nyuma ukabona gushyiramo isaso. Isaso ishyirwamo nibuze hasigaye amasaha 24 ngo inkoko zinjizwe mukiraro. Isaso igomba kugira umubyimba wa cm 5 – 10.

1.3. Kwakira inkoko

Mu kwakira inkoko umworozi agomba kugenzura ibi bikurikira:

- Umubare w'inkoko zigemuwe,
- Ikigereranyo cy'ibiro by'inkoko,
- Ubuzima bwazo muri rusange (amababa yumutse kandi afite isuku).

1.4. Gukurikirana ubworozi bw'inkoko

1.4.1. Imishwi

Kuva ku muni umwe kugera ku kwezi kumwe, imishwi y'inkoko z'amagi kimwe n'izinyama igomba gushyirwa ahantu hashyushye. Ubushyuhe bukenewe ku nkoko z'inyama ni nabwo bukenewe ku nkoko z'amagi.

Ikigereranyo cy'ubushyuhe bukenewe mu gihe cyo korora imishwi,

Iminsi	Ubushyuhe (muri dogere)
0 – 7	30 – 35
7– 14	29– 33
14 – 21	28 – 30
21 – 28	26 – 28

Kugira ngo ushyushye imishwi ushobora gukoresha imbabura, cyangwa se amatara y'amashanyarazi.



Ubu ni bumwe mu buryo butagoye umworozi ashobora gukoresha ashyushya imishwi

Ubushyuhe bugomba kuba buringaniye, atari bwinshi cyane, ariko na none atari buke cyane.

Imishwi ubwayo irabikwerekana:

- a) Iyo hakonje cyane, imishwi yegera imbabura,
- (b) Haba harimo ubushyuhe bwinshi imishwi igahunga imbabura.
- (c) Iyo hari umuyaga, Imishwi yigira uruhande rumwe, naho haba hari ubushyuhe buringaniye



(d) Yo hari ubushyuhe buringaniye, imishwi iba imerewe neza yisanzuye nk'uko bigaragazwa n'igishushanyo gikurikira:



1.5.Kugaburira inkoko (alimentation)

Kugira ngo inkoko zikure neza kandi zitange amagi menshi, zigomba kugaburirwa neza. Buri cyiciro cy'inkoko kigira ubwoko n'ingano y'ibyo kurya gikenera kugira ngo inkoko zikure neza.



Inkoko zigaburirwa muri mangeoires abugenewe kandi buri cyiciro kigahabwa ibiryo bikwiranye

Ibiryo bitariwe n'inkoko bigomba kujugunywa nyuma y'umunsi igihe cyo gukora isuku. Ni iby'agaciro ko ibyo kunyweramo no kuriramo biba bihagije kandi biri mu nzu y'inkoko ku buryo bumwe, kugira ngo inkoko zose zikure ziri mu kigero kimwe zitarutanywa bitewe no gucuranwa ibyo kurya no kunywa.

Ubwoko bw'ibiryo inkoko zikenenera

Inkoko zikenenera ibiryo bifite intungamubiri zihagije kugirango umubiri wazo ukore neza kandi zinatange umusaruro uhagije waba uw'amagi cyagwa uw'inyama.

Kugira ngo inkoko zigire ubuzima bwiza kandi zishobore gutanga umusaruro uhagije, zigomba guhabwa ibyo zikeneye.

1.5.1. Ibyibanze baheraho mu kugaburira inkoko ni:

- Ibinyampeke,
- Ibinyamisongwe (soya)
- Ibisigazwa byo mu nganda zitunganya ibikomoka ku buhinzi (tourteaux, melasse et drèches),
- Ibikomoka ku nganda z'ubutabire (vitamine, imyunyu,...)

a) Ibiryo bitanga ingufu by'ibinyampeke dusangamo ibi bikurikira :

- 🌱 ibigori,
- 🌱 ibimene by'umuceri,
- 🌱 amasaka,
- 🌱 ingano cyangwa ibice byazo,
- 🌱 imyumbati,
- 🌱 melasse.

b) Ibiryo byubaka umubiri dusangamo ibi :

- 🌱 ibisigazwa by'ibihingwa bivamo amavuta : soya, ubunyobwa, ibihwagari,...
- 🌱 ibikomoka ku matungo twavuga : ifu y'indagara, ifu y'amaraso.

c) Ibiribwa bikize ku myunyu : ifu y'amagufwa, kokiye.

d) Imyunyu na vitamine : ibi byo bikorerwa mu nganda, umworozi abigura aho bacururiza imiti y'amatungo ; hari ibyo bashobora kuvanga mu biryo igihe cyo kubikora.

Urugero : ibyo bita premix volailles

1.5.2. Uko bagaburira inkoko hakurikijwe ikigero cyazo

1.5.2.1.Imishwi

Kuva ku muni wa mbere kugeza ku cyumweru cya gatanu imishwi igaburirwa ibiryo byagenewe imishwi.

1.5.2.2. Ibigwana

Kuva ku cyumweru cya 6 kugera ku cyumweru cya 20 inkoko zigaburirwa ibiryo byagenewe ibigwana. Ni muricyo gihe inkoko zigomba gukurikiranwa, zigahabwa inkingo zose zabugenewe, isuku ikitabwaho, ibiryo n'amazi nabyo bihagije bikaboneka.



Ibigwana bigenerwa ibiryo byihariye byagenewe icyo cyiciro

N.B: Mu cyumweru cya 20, ukibona igi rya mbere, ugomba guhita uhindura igaburo: ugatanga ibiryo bya genewe inkoko zitera.

1.5.2.3. Inkoko zitangiye gutera



Guhera ku cyumweru cya 20 (ukibona igi rya mbere) kugeza inkoko zishaje, zigaburirwa ibiryo byagenewe inkoko zitera.

Mbere y'ibyumweru 2 ngo inkoko zitangire gutera, umworozi agomba gushyira mu nzu y'inkoko udusanduku zitereramo kugira ngo zizatangiye gutera zaratumenyereye.



Tumwe mu dusanduku inkoko zitereramo

Iyo inkoko zatangiye gutera, umworozi agomba kunyura mu nzu yazo nibura inshuro eshatu ku muni kugira ngo akuremo amagi yatewe.

1.5.3. Ikigero cy'ibiryo n'amazi bikenewe mu bworozi bw'inkoko z'amagi

Igihe imaze (Ibyumweru)	Igipimo cy'Ibiryo (muri garama)	Amazi (ml)	Uburemere Bwayo
1	10	20-30	50 g
2	20	40-50	100g
3	25	50-60	150g
4	30	60-70	200 g
5	35	70-80	300 g
6	40	80-100	400g
7	45	100-120	500g
8	50	120-130	650g
9	55	130-140	800g
10	60	150-160	900g
11	60	160-165	1000g
12	65	165-170	1100g
13	65	170-175	1200g
14	70	175-180	1300g
15	70	180-190	1400g
16	75	190-195	1500g
17	80	195-200	1600g
18	85	205-210	1700g
19	90	210-220	1750g
20	95	220-230	1800g
Inkoko zitera	120-130	240-260	2000g



Ibiryo by'amatungo bigomba kubikwa ahantu heza kandi bigaterekwa kuri za palettes kugira ngo bitangirika (cfr photo)

1.5.4. UKO UMWOROZI ASHOBORA KWIVANGIRA IBIRYO BY'INKOKO ZE

Ibiryo by'imishwi: Umunsi- 60	Ibiryo by'amashashi (ibigwana)	Ibiryo by'izitera
Buranda 200kgs	Buranda 400kgs	Buranda 450kgs
Ibigori 200kgs	Ibigori 200kgs	Ibigori 120kgs
Soya 180kgs	Soya 80kgs	Soya 100kgs
Indagara 200kgs	Indagara 100kgs	Indagara 120kgs
Ibisigazwa bya coto 50kgs	Ibisigazwa bya coto 50kgs	Ibisigazwa bya coto 50kgs
Ibihwagari 50kgs	Ibihwagari 45kgs	Ibihwagari 50kgs
Palme 40kgs	Palme 45kgs	Palme 50kgs
Kokiye 30 kgs	Kokiye 27 kgs	Kokiye 20 kgs
Amagufwa 30 kgs	Amagufwa 30 kgs	Amagufwa 20 kgs
Ishwara 12 kgs	Ishwara 15 kgs	Ishwara 12 kgs
Primex 3kgs	Primex 2,5kgs	Primex 3kgs
Umunyu 5kgs	Umunyu 5,5kgs	Umunyu 5kgs
Igiteranyo 1000	Igiteranyo 1000	Igiteranyo 1000

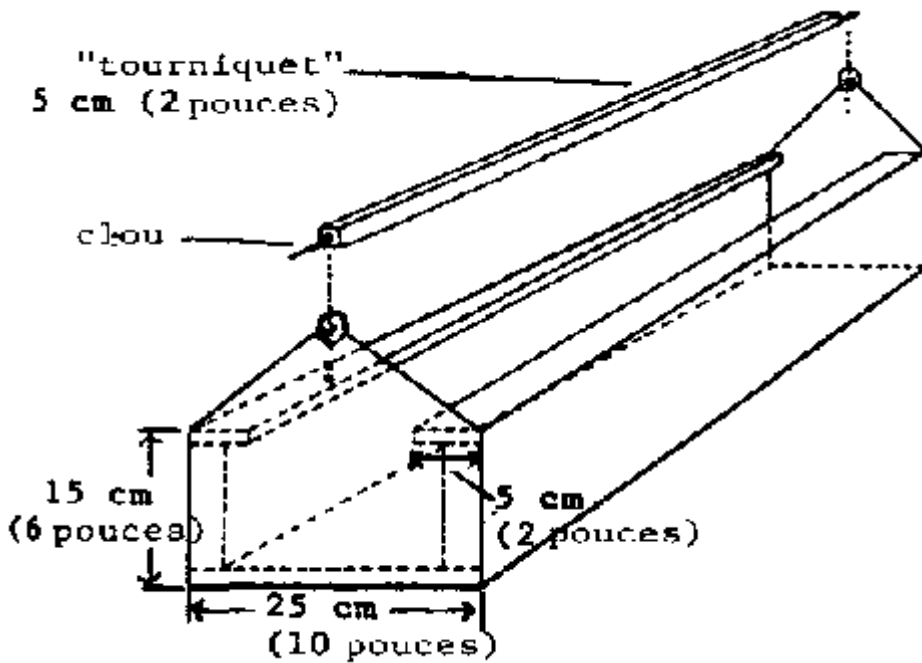
Icyitonderwa: Uru ni urugero rw'imvage y'ibiryo by'inkoko umworozi ashobora kwifashisha mu kugaburira inkoko ze, ariko ibyibanze mu kuyikora, umworozi ashobora kubisimbuza ibindi bitewe nibyo ashobora kubona hafi kandi bimuhendukiye. Ariko mu gusimbuza, umworozi agomba kwita ku ntungamubiri zitangwa na buri bwoko.

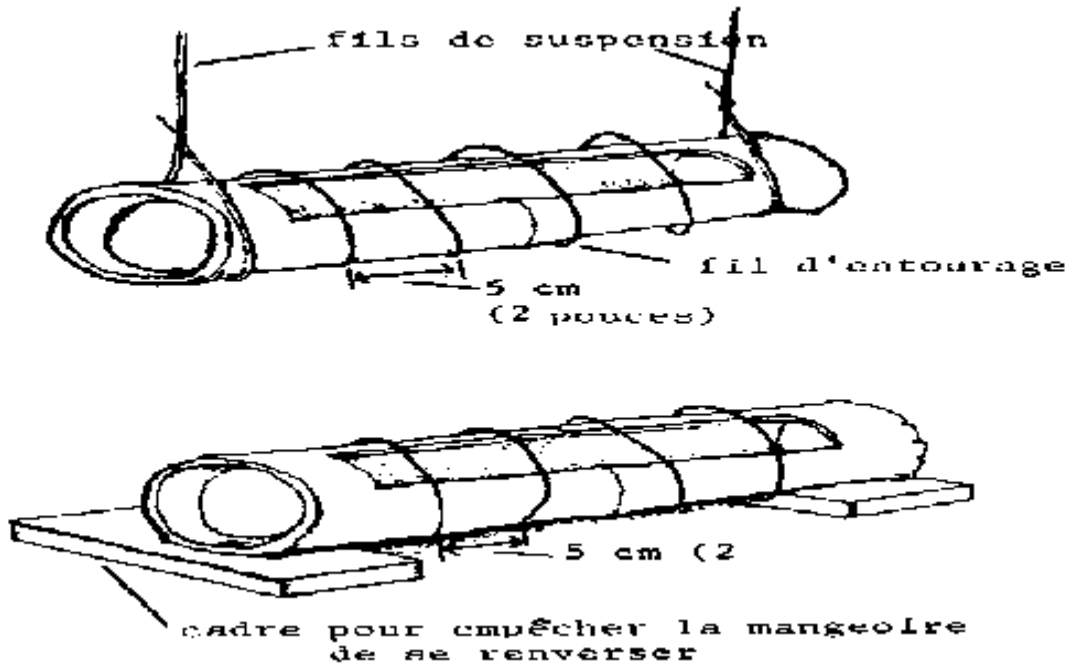
1.5.4.1.Ibyo kuriramo no kunyweramo

Ibyo kuriramo bishobora gukorwa mu mabati, garivanize, mu mbaho cyangwa muri purasitiki. Ikingenzi n’uko biba bijyanye n’ikigero cy’inkoko ugomba kugaburira kandi byoroshya kubikorera isuku.

Ibifite iforume y’uruziga cyangwa y’iburungushuye nibyo byiza kuko bituma ibiryo bidapfa ubusa.

Amwe mu mafoto agaragaza ibyo kuriramo (Mangeoires) binyuranye umworozi ashobora kwifashisha bitewe n’ubushobozi bwe :





Mukugabura ni byiza kubyuzuzza kugera 2/3 gusa.

Ibyo kunyweramo bishobora kuba bikozwe mu mabati garivanize,muri aluminiyumu, mu birahure, muri pulasitike, byoroshye kubisukura kandi bijyanye n'ikigero cy'inkoko. Ugomba kuzamura ibyo zinyweramo kugirango wirinde gutosa isaso.



Bimwe mu byo inkoko zinyweramo (abrevoirs)



Ibyo gutereramo (nids)

Nk'uko twabivuze hejuru, yo inkoko zigeze igihe cyo gutera umworozi ashyira udusanduku two gutereramo mu nzu yazo. Amafoto akurikira aragaragaza imiterere y'udusanduku tunyuranye dushobora kwifashisha.



Umworozi ahitamo udusanduku akoresha akurikije ubushobozi bwe

1.6.Indwara z'inkoko n'uko zirindwa

Uburyo bwiza bwo kurwanya indwara z'inkoko ni ukuzirinda mu kuzirinda rero harimo kugirira isuku aho ziba, kuzikingira n'ibindi...

1.6.1. Gukingira inkoko

Uko batanga urukingo :

1. kwicisha inkoko inyota nibura amasaha 2, wazihungishije ibyo zinyweramo,
2. koza ibyo zinyweramo,
3. gushyira mu ndobo amazi (yisoko) yo gukinziza,
4. gutegura indi ndobo yo kuvangiramo,
5. gukura urukingo muri firigo,gufungura agacupa ukakamena mu mazi ukavanga nibura incuro eshanu, wirinda kugira umutonyi wa mena,
6. kugenda ushyira urukingo ruke ruke mu byo inkoko zinyweramo ku buryo inkoko zose zinywa nta muvundo,
7. nyuma y'isaha urukingo rutanzwe, usohora urukingo rutanyowe,ukarujugunya kure y'abana, ukoza ibyo inkoko zanyweragamo.
8. Gukingira indwara ya new castle inkoko bayitera agashinge mu ibaba



Inkoko ikingirwa new castle




Ibyitonderwa:



1. ukingira inkoko zitarwaye, iyo zirwaye urareka zigakira
2. ukoresha urukingo rutarengeje igihe kandi rubitswe mu bukonge buri hagati ya dogere 20^{0c} na 80^{0c}
3. ukoresha amazi y'isoko,
4. ukoresha ibyo zinyweramo bikoze muri palasitiki,
5. urukingo inkoko zirunywa mu gihe kitarenze isaha urutanze.

Gahunda yo gukingira inkoko z'amagi

Igihe(iminsi)	Urukingo	Igipimo cy'umuti n'urukingo
1	New castle	New Castle HB 1 : agacupa k'inkingo 1000 bashyira muri ??
1 –3	Vitamine (Anti-stress)	AMINOVIT: garama 1 bayivanga na litiro 1 y'amazi meza
4-6	Controle coccidiose	VETACOX : garama 1 bayivanga na litiro 1 z'amazi meza
7	Gumboro	Cevac Gumbo L : agacupa k'inkingo 1000 bashyira muri litiro 20
21	Gumboro	Cevac Gumbo L : agacupa k'inkingo 1000 bashyira muri litiro 20 z'amazi meza.
22-23	Controle coccidiose	Amprolium : garama 1 bayivanga na litiro 1 y'amazi meza
24	Bronchite infectieuse	BIH52: agacupa k'inkingo 1000 bashyira muri litiro 20
28	Newcastle	Newcastle La sota : agacupa k'inkingo 1000 bashyira muri litiro 20 z'amazi meza
42-45	Controle cocidiose	Amprolium : garama 1 bayivanga na litiro 1 y'amazi meza
56	Bronchite infectieuse	BI H52: agacupa k'inkingo 1000 bashyira muri litiro 20
70	Varirole aviaire	Cevac FPL: BAtera mu ibaba n'agashinge kabigenewe
85	Controle coccidiose	Amprolium : garama 1 bayivanga na litiro 1 y'amazi meza
126	Newcastle	Newcastle La sota : agacupa k'inkingo 1000 bashyira muri litiro 20 z'amazi meza
Zigeze igihe cyo gutera	Anti stress vennifugation	Aminovit Levalap

1.6.2. Indwara zingenzi z'inkoko n'uko zakwirindwa cg zarwanywa

indwara	Ikigero cy'inkoko zifatwa	Ibimenyetso	Uburyo bwo kuyirwanya
Inzoka	Inkoko zo cyane imishwi	Guhumeka nabi, gufureka, gukura nabi, guhitwa, kwitsamura, kunanuka	Imiti y'inzoka, kugira isuku yaho ziba n'ibyo ziriramo
Umuzimire (coccidiose)	Inkoko zo mukigero cyose	Guhitwa amaraso, kunanuka bikabije, gupfa ari nyinshi 	Kuvuza sulfamides (amprolium), kugira isuku yaho ziba n'ibyo ziriramo
Umuraramo (umusinziro)	Inkoko ntoya n'inkuru	Guhitwa ibyumweru cg iby'umuhondo, amababa aracurama, inkoko ziriyegegeranya, ntizishobore kugenda, ntizirye, ntizibona ntizibashe guhagarara. 	kugira isuku yaho ziba n'ibyo ziriramo, kuzikingira zikivuka, kumezi 2 no ku mezi 4; kuziha sulfamides (furazolidone)
		Zihitwa iby'umuhondo cg umweru 	
		Ziranahuma	

		 <p>Inkoko zirahondobera</p>	
Indwara ya Gumburo	Ibyana by'ibyumweru 3 kugeza kuri 6	<p>Guhitwa cyane ibyumweru, guhinda umushyitsi, gutumba, kwigunga, hapfa 10 – 30% by'izafashwe.</p>  <p>Inkoko irigunga</p>	Gukingira imishwi
Ubushita (variole)	Inkoko n'inkuru ntoya	<p>Kubyimba amaso n'amazuru no k'umunwa, kuzana uduheri ku ruhu tukazana urukoko.</p>	Gutera antibiotike na vitamine

1.7.Amahame y'ubworozi bw'inkoko aganisha mu kurwanya indwara

- **Ihame ryo kutavanga inkoko**

Birabujijwe kuvanga cyagwa kororera mu cyumba kimwe,ku butaka bumwe inkoko zo mu kigero gitandukanye, z'ubwoko butandukanye cg kuvanga inkoko n'ibishuhe,dendo n'ibindi....Kuko mikorobe zimwe zishobora kutagira icyo zitwara ubwoko bumwe ariko zikaba zakwangiza ubundi ku buryo bukomeye; murimake hubahirizwa ibyo bita principe dela bande unique < *all in all out* > rivuga ko bororera hamwe mu gihe kimwe inkoko z'ubwoko bumwe kandi zikigero kimwe (zinganya imyaka).

Bivuzeko atari byiza korora inkoko z'inyama mu cyumba gikurikiranye n'icyororewemo inkoko z'amagi.

- **Kubahiriza umubare w'inkoko kuri m^2 (kwirinda ubucucike burenze)**

Ubucucike bukabije mu bworozi bw'inkoko bworohereza kwiyongera kwa mikorobe zinyuranye. Ni byiza gukurikiraza ingero zikurikira; zigenda zihinduka bitewe n'ikigero cy'imyaka inkoko zifite:

- $1m^2$ ku mishwi 20 (umunsi 1 kugera kuri 30)
- $1m^2$ ku bingwana 10(ukwezi kugera ku mezi 5)
- $1m^2$ ku nkoko 5 zitera

- **Gutanga umuyaga mwiza mu bworozi**

Mu bworozi bufashwe neza kandi bwahawe umwanya w'umuyaga neza, nta mpumuro mbi ugomba kunwa.gusimburana k'umuyaga kurwanya ihumana ry'ubworozi guterwa na mikorobe cyagwa umukungugu. Bituma kandi hatabamo ubushyuhe bwinshi butewe n'umwuka w'inkoko n'isaso.

- **Kwirinda umujagararo w'amatungo (stress)**

Ihindagurika nubwo ryaba rito ku bwisanzure cyagwa ibyo inkoko zimenyereye rishobora kuba intandaro y'umujagararo; muri byo twavuga:

- Guhinduguranya ibyo ziriramo,
- Kubura amazi mu byo zinyweramo,
- Guhindura ibyo zirya uhubutse,
- Ibiryanyi n'indwara.

Ihinduka ritunguranye ry'ibiryo inkoko zari zimenyere rishobora gutera umujagararo mu nkoko ukurikirwa n'igabanuka ry'ijanisha ry'amagi inkoko zari zisazwe zitera. Ni byiza ko iyo ugiye guhindura folumire y'ibiryo; ugomba kubikora buhoro buhoro.

- **Gukora neza imirimo y'isukura no kurwanya mikorobe**

Iyo ugiye gutangira ubworozi cyangwa gusimbura izisazwe; bigomba gutangirwa no gusukura no kurwanya mikorobe, hanyuma icyumba kikaruhuka nibura iminsi 15.

- **Umworozi agomba gukurikiranira hafi imyitwarire y'inkoko**

Umworozi yitegereza inkoko yitonze cyane kugira ngo ashobore kubona ibitagenda neza.

Dore uburyo bwiza umworozi ashobora kubikoramo:

- ❖ Umworozi yinjira mukiraro,
- ❖ Kuguma ahagaze akanya gato,
- ❖ Kureka inkoko zigasubira mu mirimo yazo isanzwe,
- ❖ Noneho akitegereza neza (uko zigenda, zirya, zinywa), akunviriza, icyo gihe ashobora kubona no gutandukanya ibisanzwe n'ibidasanzwe mu bworozi bwe.

Umusaruro

- Inkoko yo mu bwoko bwa RIR (Rhod Island Red) ishobora gutanga amagi 220 iyo yafashwe neza. Ni ukuvuga umusaruro w'amagi wa 60% ;
- Inkoko yo mu bwoko bwa Derco, iyo ifashwe neza ishobora gutera amagi 250 ku mwaka. ni ukuvuga umusaruro wa 69% ku mwaka ;
- Inkoko yo mu bwoko bwa Warren ishobora gutera amagi agera kuri 300 ku mwaka ;
- Inkoko isanzwe ya kinyarwanda ishobora gutera amagi 60 kugeza kuri 90 ku mwaka. Mu bwoko bwa kinyarwanda hagenda habamo zimwe nziza kuruta izindi.