

# Ubulimi Busuma Ubwe Sabi Ukuyana ne Miceele Ubwa Balimi Banoono Abateeka Isabi: Ukukondenkanya Ubulimi bwe Sabi no Bulimi Bunoono Ubwa Fiteekwa



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# Ukutasha

Uyu mulimo wakukampusha kwakufwailisha ifitumbuka mu miceele ukwabuyantanshi (Accelerating the Impact of CGIAR Climate Research for Development (AICCRA) ni polojekiti uwafwa ukutwala ubulimi mu Afilika ukuyana ne miceele ukupitila mukubomfya sayanshi nokwaluka mu bulimi. Polojeketi utungululwa na ba Alliance of Bioversity International and CIAT elyo nobwafwilisho ukufuma kuli ba International Development Association (IDA) aka ba World Bank. Ukufwailisha umulimo wesu pa [aiccra.cgiar.org](http://aiccra.cgiar.org). Uyu mulimo wapa bulimi bwesabi ukuyana ne miceele watungulwile naba WorldFish elyo nabayafwile abakwete ubuyo bwa CGIAR's Resilient Aquatic Food Systems Initiative ubwaiminina pakushansha mu mibombele yakukwata ifyakulya mu bulimi bwe sabi umulimo kabili uwatungulwilwe naba, WorldFish. Kabili tuletasha abasangilweko ukufuma kutubungwe utwabulamo ulubali, ukubikapo abalimi banono, abamakwebo banono ,ifiputulwa fya Ministry of Fisheries and Livestock, Ministry of Agriculture and the Department of Fisheries mu Zambia, bonse abasangilwe mukupituluka muli aya masambililo nokuyasuminisha.

## Bakalemba

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## Ifikope

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# 1. Ubulondoloshi bwa Pa Bulimi Bwe Sabi Ukuyana ne Miceele

Ukwaluka kwa miceele na mafya yafumamo yalalenga abantu abashakwanisha mu mikalile ukuculilako. Ifintu ifiletumbuka mu miceele yanshita inono filebipilakofye mu fitungu fye sonde ifingi ku mulandu wakwaluka kwa miceele yanshita ntali. Icikabilila icakucila mu cipimo , icilala, ukubundilwa elyo nenshita sha bulimi ishabula ukwenekela filaleta ubwafya ku balimi elyo nemilimine, ico icibika ubwikashi bwabo mu mafya. Mu ncende umwaba ukupatululwa nabantu abashakwanisha , ubulimi bwe sabi enshila imo ikalamba umo bakwata ubwikashi bwakutwalilila pa mulandu wakuti bulalunda pa misungile yafyakulya elyo ne milile isuma. Abalimi be sabi abengi mu Zambia balashingwana na mafya ya miceele pakuti bakwate ubulimi bwe sabi ubwakutwalilila.

Mu fitungu fya Northen na Luapula ngecilangililo, ubulimi bwesabi no bupalu bwe sabi lya mu mimana fyalishingwana na mafya pa mulandu wa fintu ifibi ificitika mu miceele yacila bushiku ifili nga ukubundilwa, ukunina kwa tempeleca elyo nokukana konkanya ukukwata imfula ( Ministry of National Development 2017:35). Aya mafya yesa ku mulandu wa miceele yalititikisha bubi bubi misungile yafyakulya na meenshi ayasuma elyo ne mikalile ya bantu , maka maka mu ncende sha mu mishi umo abantu bashintilila pa bulimi bwe sabi nge cakulya (National Fisheries and Aquaculture Plicy, Zambia). Ifitungu fya Northern na Luapula efyalekeleshako ku bupina mu Zambia , ku cipendo 80.5% ica bantu mu fitungu fibili ababikwa ukuti bapina, elyo 64.5% ebantu abalekeleshako mu bupina mu mwaka 2010(CSO2010). Abapina abalekeleshako ebashingwana sana nefifuma mu miceele. Icitungu ca Kapinda ka kulyo ica Zambia, calishibikwa ukuti imiceele yaba iyakaba. Pa myaka ukucila 30, icitungu ecalekeleshako ukukwata imfula inono. Cikakonkanyapofye ukulundilwapo ukukwata icilala nokubundilwa mu caalo conse, ico icikatitikisha ubulimi bwe sabi neciputulwa ce sabi(Kalantary, 2010).

Pamo ne miku ficitikilamo elyo nokufula kwa fintu ififuma ku miceele ifilecetekelwa ukwilako pamulu kuntanshi, amafya yakufumamo ayakumine imikalile, imisungile yafyakulya, imilile iisuma elyo ne mifwaile ya ndalama shakubomfya pa ng'anda yakabipilako ngacakuti takuli inshila shakubikako ishakucingilila. Kanshi, cikankala ukubombela pamo nabalimi ukubikako nokusabankanya inshila shalinga ukubomfya pakucimfya nokukonka ifyo miceele ileba. Ishi nshila shikakoselesha abalimi ukushansha mukucimfya amafya nokukonka ifyo ukwaluka kwa miceele kuleba.

## 1.1 Utunkomfyo nkomfyo tulenga abalimi banoono abateeka isabi ukukanashansha mu kucimfya amafya yakwaluka kwa miceele.

Amaka yakukoselesha mukucimfya ukwaluka kwa miceele mu balimi be sabi nabalondo besabi yalacilinganishiwa ku mulandu wa ifi:

- Ukubulilwa imbuto isuma iyashansha
- Ukubulilwa ukwakufumya ifyakulya fyesabi ifisuma kabili ifingasangwa muli iyo ncende.
- Imisungile iibi iya meenshi ku balimi abene.
- Ukukana kwata amano yakwishiba inshila shisuma isha bulimi bwe sabi isho ishitungilila ukuba abashipa mu nshita ya kwaluka kwa miceele.
- Ukubulilwa ilyashi lya pa miceele ilyakubomfya abalimi be sabi pakuti beshibe ilyo balepanga ubupingushi nelyo balepekanya.
- Ukukana bomfya inshila shisuma ishalinga mu bulimi bwe sabi ishitungilila ubusomboshi ubukulu elyo nokutantallila ukubelesha .
- Ukukana kwata ubwafwilisho ukufuma kunse ukutungilila amano yakubomba (amasikilu) namano yakwishiba ifyakucita ku balimi.
- Ukubulilwa ifibombelo ne lyashi ililefwaika pakubelesha ifitumbuka mukwaluka kwa miceele.

Ukulundilapo ukwishiba nokubomfya inshila ishishuma ishayana ne miceele mu bulimi bwe sabi kuti kwakosha nokuwamya imisungile yafyakulya elyo nokushininkisha ukuti kwaba ukukwata ubwikashi ubusuma kabili ubwakutwalilila mu balimi besabi abanono mu Zambia.

Eico, ici citabo ca masambililo cikalundilapo ukukwata amano nemibomfeshe ya tekinoloji no bukose mu balimi banono nabambi abasendamo ulubali mu fyakulya ifi fuma mu meenshi (Aquatic Food Systems-AFS) mu nshita ya kwaluka kwa miceele.

Icitabo cakutungulula bakafundisha nangu abatungulula ukupeela amasambililo ku balimi banono pa milandu ikankala iya pa kwaluka kwa miceele no bulimi busuma ubwe sabi ukukonka imiceele mu mulimo wakukampusha ukucimfya ifitumbuka mu miceele mu citungu ca Afilika( Accelerating the Impact of CGIAR Climate Research for Africa (AICCRA). Nangu kwaba inshila ishingira isha bulimi busuma ubwe sabi ishakuyana ne miceele, aya masambililo yakalolekesha maka maka pakukondenkanya ubulimi bwe sabi no bulimi bumbi (IAAS). Ici citabo camasambililo cayampama ne citabo capa nshila shisuma isha balimi banono ,abateeka tilapia mu fishiba mu Zambia (Better management practices manual for smallholders farming tilapia in pond-based systems in Zambia,") Ifi efyo caba pa mulandu wakuti nshila shisuma isha pa mibombele shikankala mukuba abashansha mukulwisha no kukonka ifyo imiceele ileeba. Ifyakucingilila imbuto(utwana twe sabi), ifyakulisha elyo nelyashi likumine ku miceele filafwaika ukwafwa abalimi banono ukukusha ubusomboshi bwabo elyo nokulundilapo amaka yakushansha mukucimfya ukwaluka kwa miceele elyo napakulekelesha ukufusha ifyakulya nemilile isuma elyo ne ndalama shapa ng'anda.,

## 1.2 Ifyo bwakuma ku fintu icaalo cabika pantanshi

Mufintu ififwaikwa ukulunda ku bunonshi bwa caalo (Intended Nationally Determined Contribution-INDC), icaalo ca Zambia cilefwaya ukukosha imisungile ya fyakulya, ukufuntula nokutungilila inshila ishakucitilamo ubulimi ukukonka ne miceele yapanshita ntali ukulima ifisabo, ukuteeka ifiteekwa nobunonshi bwe sabi, ukubikapo nokusungilila ama germplasm ifili nge mbuto nefintu ifiteekwa elyo ne fishiteekwa. Umulimo ukalamba utantikwe ulekuma ukutungilila inshila sha bulimi bwe sabi pakuti shatwalilila ukupitila mu misungile ya meenshi iyawamishiwa elyo ne mipekanishe yakulishishamo elyo nokubomfya ama stock ayaayana. Inshila iyakondenkana iya bulimi bwesabi(IAA) ilatungilila imibombele isuma mu misungile ya meenshi elyo nokuwamya imilishishe ye sabi elyo nokukosha abalimi munshita yakwaluka kwa miceele yapanshita ntali, napakulekelesha kulaba ukwafwilisha mu fintu icaalo ca Zambia cabika pantanshi (INDC).

Ukuceceta kuleitwa Technology Needs Assessment ukwa kukonka nangu ukubelesha ukwaluka kwa miceele mu Zambia kwakomaila pa nshila sha tekinoloji ishitungilila pa mibomfeshe ya mpanga,ameenshi nemisungile yesabi iyakutwalilila (p:xiii). Muli ishi nshila sha tekinoloji, inshila ishalandwapo ishakucitilamo ubulimi elyo ne misungile yafyakulya paliba inshila sha tekinoloji ishitungilila ukukondenkanya ukuteeka inama ishinono,isabi, ifyuni elyo nokulima imisalu,(p:xiv). Kabili ishi nshila umwaba tekinoloji (IAAS) shilafwa icaalo ca Zambia pa mipekanishe yapa kwaluka kwa miceele ya nshita ntali umo banamayo nabashitata basendamo ulubali (IUCN 2017). Shilafwa mumisungile ya ncende umwaba ameenshi isho banamayo nabantu bambi abapina bashintililamo mu bwikashi bwabo.

## 1.3 Ifilekabilwa ukufumamo

Abaleyafwilishiwa bafwile:

- Ukwishiba ifikankala pa kwaluka kwa miceele
- Ukwishiba pa shila ishayana ne miceele elyo nokucimfya amafya yafuma mukwaluka kwa miceele.
- Ukwishiba ifyo bafwile ukukuula nokukwata ukushipa mukucimfya amafya mu mibombele ya bulimi bwabo
- Ukwishiba ifyaba mubulimi bwesabi ukuyana ne miceele (CSA) elyo nefyo bengabomfya ishi inshila shaba muli ubu bulimi.
- Ukuupoka ilyashi likumine pakukosha amano yakwishiba nenshila sha tekinoloji ishakupapeela ukushipa mu mu mibombele yakuteeka sabi nge fyakulya (Aquatic Food Systems-AFS) munshita yakwaluka kwa miceele.

## 2.1 Imiceele yacila bushiku ne miceele yanshita ntali

Imiceele yanshita ntali ilingi line ipalanishiwa ku miceele yanshita inono. Lelo iyi miceele yonse ibili yalipusana ngeefi.

Imiceele yacila bushiku(weather) kuti yayaluka munshita munshita nangu cilamwaka. Imiceele yacila bushiku ilondolola ifyo buceele pali ilya nshita mu ncende imo. Icilangililo,nga mwamona kuli imfula panse enshila mwingalondolwelamo imiceele yaleelo. Nga kuli icimwela(icipupu) lyena kuti twatila imiceele yaleelo ya cimwela nangu icipupu. Kanshi kuti twatila imiceele ya leelo muloke nangu icipupu.

Imiceele yanshita ntali ilondolola imiceele ya cila bushiku ili mu citungu nangu isonde liba pa myaka iingi.Ici cicitwa ilyo kuli ukuceceta imiceele yacila bushiku pa numa ya myaka iingi. Imiceele ya citungu ilanga tempeleca yacila fiputulwa fya myeshi elyo nokusansha kwa fipendo fya mfula pamo pene nefyo umwela uba. Cila citungu nangu incende ilaikwatila imiceele iyaibela.

Ifi efilangililo fya miceele yapanshita ntali:

- Iciswebebe nincende umwaba imiceele yanshita ntali ico imfula iloka inono nangu sino munshita ya mwaka.
- Tempeleca ya miceele ikwata imyeshi imo iyakaba elyo neya talala.
- Imiceele iyakaba, iyatalala ne miloke.

### 2.1.1 Bushe imiceele yaba shani mu Zambia?

Imiceele yamu Zambia yaba Tropical nangu subtropical. Umusango wamiceele kuti waba ukulingana nencende. Lelo mukati ka mweshi wa Cinshi kubili(November) ukufika kuli Kutumpu(March) icaalo ca Zambia cilakwata imfula, Muli iyi nshita kuba icikabilila nokutalala, Ukufuma muli Sinde(April) ukufika Cinshikubili (November) enshita kuba ukwauma. Ukufuma pakati ka Kapepo kanono(May) ukufika pakati ka Kasakantobo (August) icaalo ca Zambia cilakwata tempeleca iyatalala, elyo pakati ka Lusuba lunono (September) nokufika pakati ka Cinshikubili(November) kulaba ukwakaba nokutalala.

## 2.2 Bushe ukwaluka kwa miceele cinshi?

Ukwaluka kwa miceele cipilibula ukwaluka kwa tempeleca nefyo imiceele yacila bushiku iba mu citungu. Uku kwaluka mu miceele kusenda inshita iitali mu citungu cesonde. Lelo ukwaluka kwa miceele ye sonde kucitika mwisonde lyonse panshita itali. Apa paba ukukaba kwe sonde elyo nokwaluka kwa mishile ya mfula nangu sino.Iyi micinjishe kuti yacitwafye palwaiko nangu yacitwa no muntu. Ukwaluka kwa miceele ye sonde kulacitwa lyonse ilyofye umuntunse talaisa mwisonde. Nomba, ama scientist balisanga imyalukile imbi iicitika. Icilangililo, icipendo conse pamo ica tempeleca nacilako pa mulu ukucila ifyo calekabilwa pa myaka ukucila 150 iyapita. Ukulingana naba Royal Society, tempeleca ya mwela yesonde yalilako pamulu necipendo ca 1°C ukufuma 1900.

Ukwaluka kwa miceele yanshita ntali kuti kwalenga ukukana shininkisha ifyo ubutantiko bwa miceele yacila bushiku bungaba. Icilangililo, incende shimo kuti shakwata icipuupu(tropical cyclone) ico bashakwatapo kunuma, icakulenga imfula ukulokesha, ukubundilwa, icimwela icakonaula ifintu nokulufya imyeo yabantu. Incende shimbi kuti shakwata icilala nokubundilwa ukwakutwalilila.

Ngacakuti ubutantiko bwa tempeleca ne milokele ya mfula nga taishibikwe, cilaba icayafya ukupekanya nokukonka inshila sha bulimi bwe sabi ne misango ya bulimi bumbi. Ukukana shininkisha kufwaika ukukwata ilyashi lya pa miceele yapa nshita ntali ukwangusha imibombebe isuma kabili iyakutwalilila pakuti kwaba ukucimfya amafya yaba mumisungile yafyakulya ku mulandu wakwaluka kwa miceele yanshita ntali.

### **2.2.1 Ukwaluka kwa Miceele mu Zambia**

Mu Zambia, ukwaluka aluka kwa miishile ya cilala nokubundilwa mu ncende shonse isha caalo kukalundilako amafya ayakunwena, amalwele yaletwa ne miceele, amalwele yaku fisabo, amalwele yambukila pakati kabantu ne nama, ubonaushi ku filimwa, imisebo, amayanda, amalaiti elyo ne fikulwa fya meenshi, ukucilinganya imibombele yapakutangata ubumi elyo nobwafwilisho bumbi ubupeelwa, ifyo ifikatwala ku kubulilwa ifyakulya nokulundilapo imilile iibi nangu insala. Ukwaluka kwa miceele kabili kukalenga icipendo ca bantu mu Zambia abengi ukwikala muncende bashifwile ukuba, icikaleta amasakamiko, ukutitikishiwa elyo nokufulisha kwa bantu mu ncende shimo.

### **2.2.2 Fintunshi ifilenga ukwaluka kwa miceele?**

#### **2.2.2.1 Ificitwa fya bantu (Imilimo ibomba abantu)**

Iyi milimo ibombwa na bantu ifumya amagasi (Green house gases-GHGs) elyo nemilimo iicefya ubwingi bwa kaboni. Imilimo iingi ilalenga imiceele ukwaluka. Muno twalandafye pafilangililo ifinono. Ukubomfya amalasha ya coal, amafuta na gasi ukupanga enezi kufumya amagasi ayengi (GHGs) ukutwala mulwele, ayali nga kaboni dayoxidi na methane. Aya magasi yalacefya imilimo iicitwa iicefya ubwingi bwa mwela wa kabooni uusendwa mu lwelele, nokulenga ukukwata icikabilila.

Ukute Maula imiti nokonaula impanga nafyo filacefya ubwingi bwa kabooni. Iciputulwa ce sabi nabateeka isabi: amaalati yabomfiwa, imyenseshe elyo nefyakufwaya ifyakulisha isabi ninshila isha ishikalamba isha ciputulwa ce sabi ishilundilako amagasi yapangwa (GHGs). Lelo ubwingi bwa magasi iciputulwa cilundilapo bunono.

#### **2.2.2.2 Ukwaluka kwa filengwa na Lesa ifine**

Iyi ninshila umo ifintu fyaba mulwelele lwe sonde fyaluka palwafiko pa nshita itali. Muno tulelanda pamyalukile itatu: icikabilila cipokwa, ukwaluka kwe sonde elyo nokupooka kwa mpili (vokano). Icintu icikalamba icipeela icikabilila kasuba elyo ukukula nangu ukucepe kwa cikabilila kuti kwa cinja imiceele. Nga kwaba icikabilila icikulu, lyena tempeleca ye sonde ikaba pa mulu.

Isonde lyalikwata nshita yacikabilila nokutalala kwaliko ukucitika pa mulandu nefyo casendeka nangu ukupilibuka nangu ifyo cishinguluka akasuba. Nga kwaba intamfu ishalekana lekana pakati ke sonde na kasuba panshita ntali, lyena kukalaba ukwaluka kwa lyonse mukufula kwa cikabilila (sola enezi) icikalafika ku ma pulaneti, nokulenga ukwaluka kwa miceele yapa nshita ntali.

Ukulepuka kwa mpili (AmaVokano) kwalikwata ifitumbukamo ifya cimfundawila ifikuma ku miceele ya nshita ntali. Lelo nayo yalafumya kaboni dayokisaidi, uyo uleta icikabilila. Nangu ukulepuka kwa mpili kulenga ukwaluka kwa miceele ukwa nshita inono elyo nokukuma ku kwaluka aluka kwa miceele iine, teefimo ifilenga icikabilila ce sonde. Ukutalala ekwaseka ukucila icikabilila pa fitumbuka ku mulandu wakulepuka kwa vokano.

## **2.3 Ukubelesha (ukukonka) kwa kwaluka kwa miceele**

### **2.3.1 Climate change adaptation**

Ici cilepilibula "ukucinja imisango yesu, imibombele ne mipekanishe, elyo munshita shimo – imicitile ya mu bwikashi iyakucingilila indupwa shesu, ubunonshi bwesu, elyo nencende twikalamo ku fitumbuka mukwaluka kwa miceele" (WWF, nd) Nangu ukucefyavamagasi (GHG) kutikwacefya ififuma mukwaluka kwa miceele kuntanshi elyo nokutwafwa ukubelesha bwino, ifyalukamo fimo ifyacitika kale teeti ficinjishiwe, kanshi cikankala ukufibelesha nomba. Ukubelesha nangu ukukonka cilepilibula ukwalula "inshila sha mibombele, elyo ne micitile ukunasha ubonaushi bwingesa nangu ukumwenamo ubusuma mufintu ifikuma ku kwaluka



kwa micidele” (UNFCCC, Website. Ukubeelesha kutungilila imibombele namasuko yakucimfya ifiletumbuka nefikalatumbuka ku ntanshi mukwaluka kwa micidele

Ukuuteeka isabi ilisanda bwino kabili ilyakosa munshita yakwaluka kwa micidele ecilangililo cimo ica kubelesha iffumamo.

### 2.3.2 Ukucefyanya ukwaluka kwa micidele

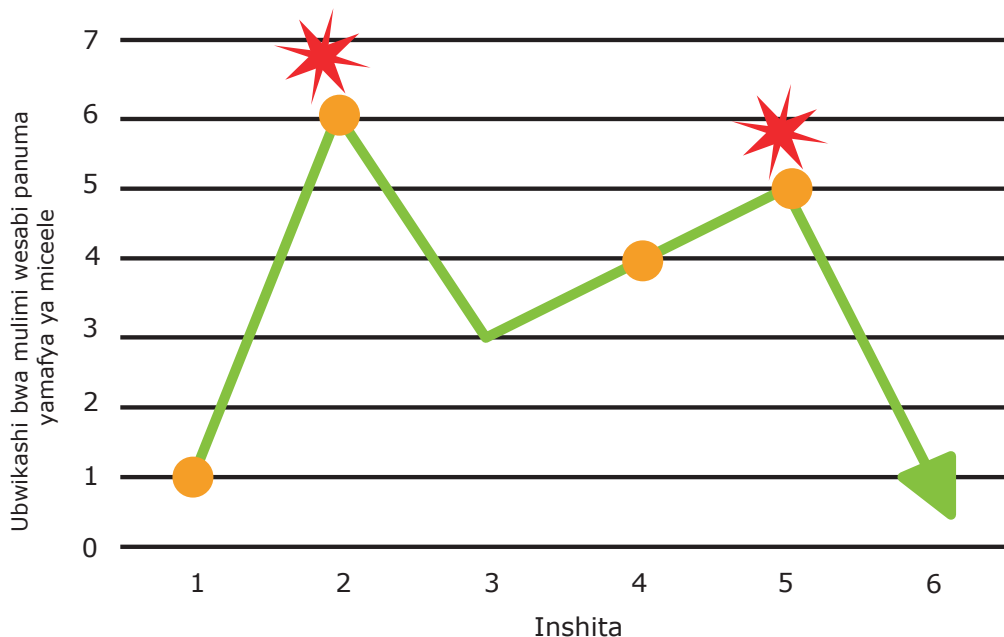
Ici cilepilibula “ukucefyanya ifitumbuka mukwaluka kwa micidele yanshita ntali ukupitila mukulesha nangu ukucefyanya amagasi yapangwa (GHG) mu lwelele” (EEA, Website). Nga kwaba ukukonkanyapo ukucefyanya amagasi nombaline ,lyena cikaba icayanguka ukubeelesha ukwaluka ukuli konse Nga twacefyanya amagasi yapangwa (GHG), lyena kuti twacingilila nangu ukucefyanya ukukaba kwe sonde elyo nokulesha ukunina kwa tempeleca iingaleta ubwafya ku bumi mwisonde. “Ukucefyanya ukwaluka kwa micidele kufikilishiwa limbi nga kwaba ukucefyanya intulo ya magasi- icilangililo ukufusha amaka ya enezi ayapangululwa, nangu ukubikako imyendele isuma—nangu ukukosha imisungile ya aya magasi—icilangililo. Ukufuntula imibomfeshe ya enezi iyo iingabomfiwa imiku ingi, nangu ukukosha imisungile ya magasi, icilangililo ukufuntula ubukulu bwa mpanga.Namukwipifya, ukucefyanya ninshila umuntu abomfya ukucefyanya intulo ukufuma amagasi (GHG) elyo/nangu ukukosha amasinki yabulimi.” (EEA, Website).

Nge cilangililo, ukulimba imiti elyo nokulesha ukutemaula imiti enshila shimo ukucefyanya amafya,pantu kulaba ukucilikila amagasi(GHG) munshita yafumishiwe ukuya mulwelele. Ifyakucita ukucefyanya amagasi mu bulimi bwe sabi, pali inonshita kuti paba inshila shakubomfya inshila sha tekinoloji umwabula ubonaushi elyo nemicitile, inshila shisuma ishabulimi bwe sabi pamo ne misungile ya menshi ukuwamya imibomfeshe ya menshi elyo nokucefyako ukonaula amenshi pamofye na mapologalamu yagenetiki ayawamishiwa.

### 2.3.3 Ukuipekanya mukuba abashansa munshita ya micidele

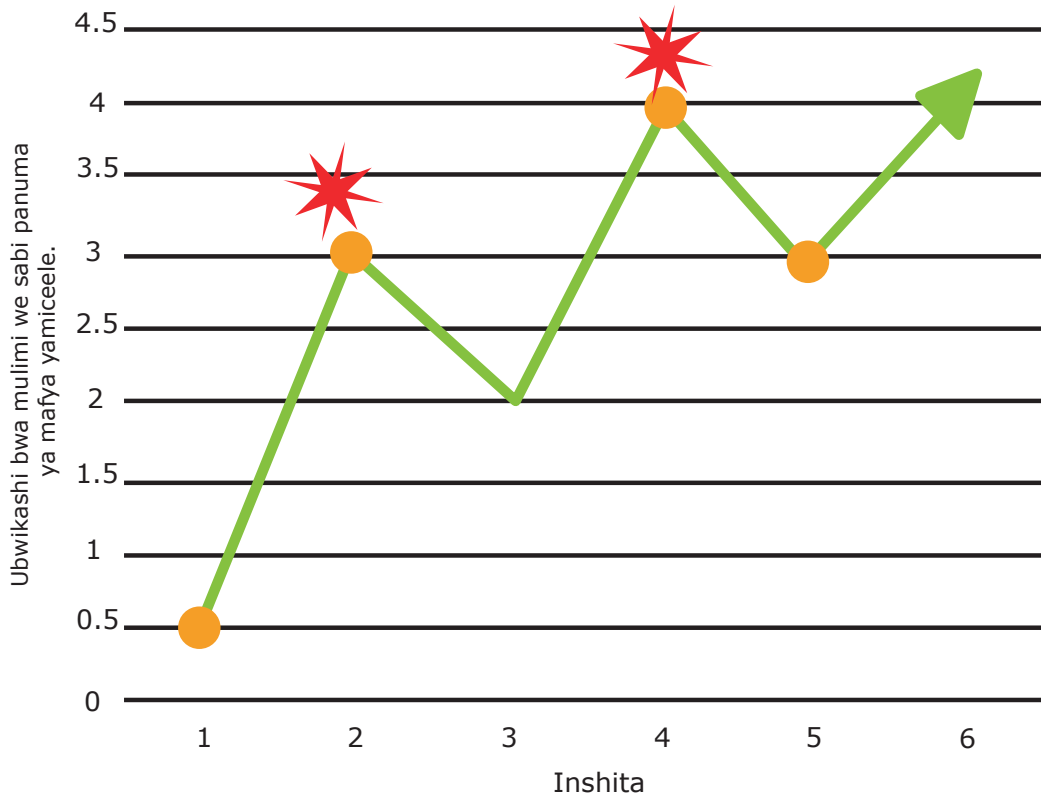
Ici cilepilibula “ukupupuluka, ukubeelesha nokucimfya amafya yafuma mukwaluka kwa micidele yanshita ntali” (c2ES 2019). Napakuipekanya bwino ukucimfya amafya ya mukwaluka kwa micidele, mufwile ukwishiba ificitika elyo namafya yabamo pakuti mwapekanya amapulani ayasuma ayakucimfishamo. Imibombele umushili amaka yakucimfya lyena teti kube ukupusuka ku mafya yaleta no kwaluka kwa micidele. Nga cakuti cila muntu , cila ng’anda, cila bumba elyo nemibombele taipekanishiwe ukupwisha amafya nokutitikishiwa kufuma mu kwaluka kwa micidele, lyena kuti baba mu bupina ngefyo cilangilwe mu Icilangililo ca galafu 1.

#### **Icilangililo ca galafu 1.** Imibombele ishaipekanya ukucimfya amafya.



Icilangililo ca galafu 1. Imibombele ishaipekanya ukucimfya amafya. Icintu bwingi ne ndupwa tabakwata amaka yakucimfya amafya.elyo nokububa mubupina saana.

**Icilangililo ca galafu 2.** Imibombele umwaba ukushipa kwa kucimfya amafya



Icilangililo ca galafu 2 Cilelondolola ifyo ciba ngakwaba ukucimfya imiceele. Icintu bwingi nendupwa balakwata amaka yakucimfya nelyo ukusungilila imibombele yabo iyabuyantanshi nangu bareshingwana namafya nokutitikishiwa.

Ifintu fyalekana lekana ifitumbuka mu miceele. Ici cilelondolola ifitumbuka mu kwaluka kwa miceele ifyo fititikisha abantu nencintu bwingi munshila ishalekana lekana ukulingana nemilandu iingi apa apali iikumine abanakashi nabaume, icifulo, incende elyo namano yakwishiba pakwaluka kwa miceele, pamofye nokwaluka kwa mitekele, bunonshi elyo nemikalile yacintu bwingi. Incenshi ishibomba uyu mulimo shifwile ukwishiba ubu bupusano bwabapo ilyo kuli ukupekanya inshila shakucefeshamo nokubelesha ififuma mukwaluka kwa miceele.

### 2.3.4 Ukutitikishiwa kwa bulimi bwe sabi ku mulandu wakwaluka kwa miceele

Ubutantiko bwa milimo yonse iibombwa mu bulimi bwe sabi ilafulunganishiwa ku mulandu wakutitikishiwa kwaku kwaluka kwa miceele, ifitumbukamo elyo nefyo imiceele icita kuti fyaba ifisuma nangu ifibi. Mu bulimi bwe sabi,tempeleca iyakaba kuti yatungilila ubulimi bwa tilapia nafimbi ifya mu meenshi ifibelesha icikabilila elyo ukubundilwa kwa ncende shasuluka kuti kwalundilako incende yakupangilamo ifishiba fye sabi ifyabelamo amenshi kale. Inshita shacikabilila nga shatwalilila kuti shatantalisha inshita sha kukushishamo isabi limo ilili nga tilapia elyo pamuku umo wine kuti kwalundilapo ukufwaya isabi iliteekwa mu fishiba pa mulandu wakuti isabi lya mu mimana lyabundilwa.

Lelo ifitumbuka mukwaluka kwa miceele ifibi fyalifulapo ukucila ifisuma mu bulimi bwe sabi. Abalimi banono abateka isabi bakatitikishiwa sana pa mulandu wa mitengo yafintu fibikwamo ukukoselako, takuba ifintu ifyakubacingilila ifili nga insurance yakucingilila ifipe fyabo nga abalimi be sabi banono.

Aya emafya yafuma mukwaluka kwa miceele ifilungamana no bulimi bwe sabi:

- Tempeleca alanina, kuti kwalenga ukufwa kwe sabi lya musango umo.
- Ukwaluka kwa tempeleca kuleta amalwele ayaletwa nama bakitelelya, palasaiti, ayambukila na fangai (Maulu et al. 2021), ico icilenga isabi ukulakwata amalwele sana pamulandu wakunina kwa tempeleca. Ukunina kwa tempeleca kuti kwaleta amalwele yetwa epizooti
- Ama algae bloom ayabi ayakuma ku kwaluka kwa miceele. Ifi kuti fyaba ifilwani kwi sabi elyo kuti fyakowesha isabi nokukana kula bwino.
- Ifyakulya fye sabi namafuta yapeelwa filakoselako elyo na mapologramu yaiminina pakusandanya isabi kuti yaiminina ku mulandu wakukana kwata imbuto sha tusabi ukufuma mu mimana. ` Emukutila, amafya yalesubilwa ukufuma mukwaluka kwa miceele mu bulimi na mwisabi yalekabilwa ukubwesha ififwaikwa mu bulimi panshi elyo nokutwala umutengo wafintu ifibomfiwa mu bulimi pa mulu, ifili nge mbuto nelyo utwana twesabi elyo nefisankanishiwa mu bulimi bwesabi”(Maulu et al, 2021:8)
- Ukulokeshwa kwa mfula nokubundilwa bwafya ubukuma ku bulimi mu ncende sha suluka Ici kuti caonaula ifishiba fye sabi nokulenga isabi ukufuma mu fishiba , ico icingalenga imitundu imbi iye isabi iishilefwaika ukwingila mu fishiba.
- Ukucepelwa ameenshi ayasuma. Ukwaluka kwa mu milokele ya mfula ukufuma ku cilala ukufika ku kubundilwa kulalenga ukubulilwa kwa meenshi, ico icilenga ukukana kwata ameenshi ayasuma mu bulimi bwe sabi. Ukusendwa kwa mushili kuti kwaleta ama nyutilenti ukufuma ku mufundo wa fetalaisa ubomba mu bulimi nokupanga algal bloom. Ici kuti calenga ukucefya umwela wa okisijeni mu meenshi ico icingalenga isabi ukufwa. **(Icikope 1)**. Ukunina kwa tempeleca kabili kulacefya ubwingi bwa okisijeni, ico icingatwala kwi sabi ukufwa.
- Ifitumbuka mu kwaluka kwa miceele ifishilungamana no bulimi ku mulandu wakwalula inshila shakupangilamo ifyakulya kuti fyalenga imitengo yafibomfiwa mu bulimi ukucinja. Icilangililo, nga cakuti umutengo wa fyakulya fye sabi wanina, ici kuti calenga imitengo yakulisha isabi ukwilako pa mulu.
- Ukutwalilila kwa cikuuku icifumya isabi mu fishiba kuti kwaleta ubuluse ku balimi besabi.

Ifibi ifitumbuka mukwaluka kwa miceele filatukuma mu musango wafilemoneka ukucilapo mu miceele ya cila bushiku. Icikope 1 cilelenga ifibi ifyatumbwike mukwaluka kwa milokele ya mfula mu 2021-2022 mwi boma lya Mporokoso mu citungu ca Northern ifikumine ku kwaluka kwa miceele yanshita ntali, icalengele uku kwata ubulimi bwe sabi ubunoo ku balimi banoono abateeka sabi. Ukufulisha kwa mfula kwalengele amanyutilenti ayengi ukwingila mufishiba, nokufusha ama algae bloom ifyo fyaba fiilwani kwisabi.

**Icikope 1.** Ukufula kwa ma algae bloom mwi boma lya Mporokoso pa mulandu wakufulishakwa ma nyutilenti ayesa ukufuma kuli fetalaisa nefisoso fya mu meenshi..



Ukwaluka kwa mu milokele yamfula nako kulacilinganya imiteekele yesabi mu fitungu fya Northen na Luapula, pantu abalimi ilingi balasha ifishiba fyabo ilyo fyauma munshita ya cilala nga catantalila.

**Icikope 2.** Icishiba cesabi icilekama ameenshi mwi boma lya Samfya (kukuso) elyo necishima icauma elyo nokucileka mwiboma lya Mpulungu(ku kulyo) fyonse nikumulandu wakucelwa kwa mfula.



**Icikope 3.** Ifibumba fya cishiba na matanki ifyatobauka mwi Boma Iya Luwingu pa mulandu wamfula ukulokelamo.



*Ifibumba fya cishiba na matanki ayaonaika ukulenga isabi ukufuma*

Ukukana kwanisha mu bulumi bwe sabi ku bantu mu ncende shimo ilingi ni pamulandu wakushingwana nefintu ifibi ifiletwa ne miceele ya cila bushiku elyo nefitumbuka mukwaluka kwa miceele yapa nshita ntali ifyo naula ifintu ififwile ukubomfiwa mubulimi bwe sabi ifili nga ameenshi ayabusaka , impanga, imbuto nefyakulisha isabi.

### **2.3.6 Abashakwanisha**

Abalimi banono bonse tabakwanisha ku mulandu wa fibi ifitumbuka mukwaluka kwa miceele. Mu Zambia banamaayo bashintililila mu ncende umwaba ameenshi, isho pamuku umo wine shibomba ku bulimi bwe sabi (IUCN 2017). Nga cakuti ishi ncende umusangwa ameenshi tashibomfiwe bwino nangu shauma pamulandu wamafya pa mulandu wakwaluka kwa miceele ya cila bushiku, banamayo abashintilila pali ishi ncende balakwata ubwafya. Ilyo ameenshi ayasuma yakowela indupwa shilashingwana na amalwele ya mu meenshi elyo nokulufya indalama shabo ishapa ng'anda. Ukubomfya ameenshi munshila isuma, ukukonka na tekinoloji wa bulimi busuma ukulingana ne miceele (CSA), kukafwa banamayo abashintilila pali ishi ncende sha meenshi. Ishi nshila sha kucimfishamo amafya nokubelesha ukubomfya shifwile ukusalanganishiwa ukutungilila imikalile isuma. Apa pali ubumi busuma ukupitila mukufusha ifyakulya umwaba umulyo (ukubikapo isabi) elyo no bulimi bwakukwatilamo ndalama kabili pamuku umo wine ukucefya ifintu ifibi ifyonaula incende.

Ukunina kwa mitengo yafyakulisha isabi nako kula titikisha abalimi banono, abo pali ndakai tabakwanisha ukushita ifyakulisha isabi. . Inshila sha bulimi ishisuma ukukonka imiceele nisho ishikalacefya ukushintililafye pa fyakulisha sabi elyo nafimbi ifili nga fish oil ififwaikwa. Ukulingana nakabungwe kamona pa bulimi aka Food Agriculture Organization (FAO 2009), "inshila sha mibombele ya bulimi bwe sabi, isho ishishashintilila pa fyakulya fye sabi namafutal (icilangililo. bivalves n macroalgae), kuti shakushiwa ukucila ubulimi ubwashintilila pa fyakulya fshitwa" (2009:4).

Abalimi banono abateeka isabi balashingwana na mafya ayengi, ukubikapofye ukukana kwata ukwakufumya umusango usuma uwa (ma fingalingi) mbuto ukwingi,

ukukana kwata isabi ilingekala panshita ntali, ukukana kwata ifyakulya fye sabi elyo ne miceele yacila bushiku iyakukana ishikikwa. (Kakwasha and Mudege et al. 2020). Napa mulandu uyu, aba balimi ilingi line bateeka isabi ilinono ukusansa ku cipendo 26% ica caalo ice sabi liteekwa, ico icilenga ukulaikata isabi lya mu mimana. Inshila shakucimfya amafya yakumine imbuto, ifyakulya fye sabi elyo nelyashi lya pa miceele filefwaika ukwafwa abalimi banono ukukusha ubulimi bwabo, ukuba abashipikisha ilyo kwaba ukwaluka mu miceele elyo, napakulekelesha ukufusha nokucingilila ifyakulya fyabo elyo ne mililile isuma pamo nendalama sha pa ng'anda.

### **3. Ubulimi busuma ubwe sabi ukuyana ne miceele**

Ubulimi bwe sabi ukuyana nangu ukukonka imiceele yapa nshita iinono nangu iyatantalila (CSA) bulatungilila imibomfesho yaameenshi bwino elyo nokutungilila ifya kubomba ukukonka ukwaluka kwa miceele. Yaba ni nshila iyakondenkanishiwa isanshano ukwishiba ifyakubelesha nokucefya amafya munshila iya kuti kwaba ukukosha ukutwalilila elyo nokucingilila fyakulya mu nshita yakwaluka kwa miceele. Inshila yabulimi bwe sabi ukuyana ne miceele ( CSA) ilolekesha pa mafya ayesako pa kwikatanya ifilekabilwa ukufikilisha ifyabikwa mufya kucefya ukwaluka kwa imiceele, ifyakubelesha iyi miceele elyo ne fyakukusha ubulimi ne ndalama. Ubulondo bwe sabi lya mu mimana no bulimi bwesabi ukuyana ne miceele bufwaya ukuwamya inshila mukubomfya bwino ifilengwa na Lesa pakukwata isabi ne fyakulya fisangwa mu fishiba, ukukwata inshila ishakalabana ishakukwatilamo ifi fyakulya fisangwa mu fishiba elyo nabekala caalo bonse abashintililamo ukusuminisha iciputulwa ukukonkanyapo ukwafwa mu buyantanshi bwakutwalilila. Kabili ubu bulimi bukabila ukwishiba nshila ishingwa bomfiwa pakuti kwaba ukucefya ubucushi bwa bantu maka maka abo abengatitikishiwa ku kwaluka kwa miceele (Ahmed na Solomon 2017)

Ubulimi busuma ukuyana ne miceele ni nshila iyanshano imicitile ya bulimi bwe sabi iyapusaana pusaana nefya tekenoloji ukubikapofye no bulimi bumbi ubwasansanshiwa no bulimi bwe sabi nge micitile iisuma iyakutwalilila pakuti kube ukubelesha ififuma mukwaluka kwa miceele, ukulenga ukubomfya bwino ifibombelo elyo nokukusha busomboshi bwa pa faamu. Ukubomfya imicitile iisuma iya bulimi bwesabi pa faamu kabili yaaba lubali lwa mu bulimi bwe sabi ukuyana ne miceele.

#### **3.1 Inshila shakukonka mukubelesha elyo nokucefya amafya yamiceele**

Inshila shakubeleshamo nokucefeshamo amafya ya miceele kuti shayafwa ukulundapo amaka yakushansha nokubelesha mu balimi banono pamofye ne filengwa na Lesa. Inshila sha bulimi nenshila sha tekinoloji kuti mwaba pali ifi:

- Ubulimi bwesabi no bulimi bumbi ubwakondenkana nge nshila yakubelesha.
- Ukwimba ifishima pakulapeela ameenshi mu nshita ya cilala
- Ukubomfya amatanki ya meenshi ukucefya ukusalangana kwa meenshi munshita ya cilala.
- Ukwanshika fimo ifingalenga ameenshi ukusungililwa mu tushiba
- Ukubomfya ameenshi ayabomfiwapo kale bwino pakuti kwaba ukulundilapo imibomfesho isuma iya meenshi nokwishiba ukuti ameenshi yalapwa.
- Amano ya tekinoloji ayakusungilamo ameenshi
- Ukubelesha inshita yakuteeka isabi ukulingana nobutantiko bwa bulimi bwe sabi.
- Ukukula imifoolo ya meenshi ne fibumba pakucefya ukubundilwa
- Ukubomfya imitundu ye sabi iinga shansha ku fitumbuka mukwaluka kwa miceele pamo nga imilonge, impata, inkomo ifyo ifingashansha nga kuli umwela na meenshi ayanono.
- Ukufikilisha imicitile yamitungulwile isuma iya bulimi bwe sabi
- Ukubomfya icushi nelyo amalaiti ukucila amalasha paku kanga isabi
- Ukususulula ameenshi ayafiko ayafuma mu fishiba fye sabi nangu ukubikamo umuti.

Ukulunda pa nshila sha tekinoloji ishakubelesha ififuma mu miceele, inshila shimbi shikabila ifipani fya buteko nefikomo ukwalulwa ukushininkisha ukuti abalimi banono batungililwa kabili

balakwanisha ukupupuluka ku mafya ya leta imiceele. Ishi nshila paaba ukucingililwa (insurance) kwa mu fipe ukwayanguka nga balimi be sabi banono, ukumona ukuti kwaba ukupeela ilyashi lyapakupanga ubupingushi bwapa bulimi, ukusungilila ababomfi nefibomfiwa/ifibombelo fya mu bulimi pakuti kwaba ukutungilila abalimi mukubapeela ubwafwilisho ubwalinga.

## **4. Ubulimi bwe sabi–no Bulimi bumbi ubwakondenkana nge nshila ya tekinojji iya bulimi bwe sabi ukuyana ne miceele**

Ici citabo cilelanda pa Ubulimi bwe sabi –no Bulimi bumbi ubwakondenkana nangu ubulimi bwe sabi nge nshila yatekinojji munshita kwaba amafya ayakuma ku kwaluka kwa miceele. Iyi nshila ya kukondenkana mufya bulimi bwe sabi tenshila nangu tekinojji uupya. Pakubala iyi nshila yatendeke mu China ukucila imyeshi 2000 apo abanensu batendeke ukubomfya, na kabili yalibomfiwa mu fyalo fya balungwana (South East Asia). Iyi nshila yaliseeka mu bulimi ubwakusungila ifiteekwa kunse elyo na mu bulimi bwakufisungilila pamo.

Ici citabo cilekomaila paku kondenkanya ubulimi bwe sabi no bulimi bunono ubwa fiteekwa(nkoko ne mbushi). Abengi abalimi banono baibimba mu bulimi bwe sabi pa cipimo cinono, lelo imibombele yabo ilabwelela panuma ku kucepelwa no mutengo wa fyakulisha isabi lyamu fishiba. Abalimi banono abengi bateeka inkoko shacikaya elyo necipimo icinono icafiteekwa ifli nge mbushi. Leelo abengi saana balukile mukuteeka imbushi pa mulandu wakuti umunani wa mbushi nautemwikwa saana mu caalo cesu ica Zambia ne fyalo fyatushinguluka, maka-maka mu Democratic Republic of Congo (DRC). Namulifyo, abalimi banono balekabila ukukondenkanya ubulimi bwe sabi pamo no bulimi bwa fiteekwa elyo ne filimwa fya mu mushili nge shila imo iyakukwata ubulimi ubwakutwalilila kabili umuli ukushangana ubwaiminina pakufusha polofiti elyo nokucefyako ndalama shiposwa mu mibombele yonse.

### **4.1 Bushe ubulimi bwe sabi–nobulimi bumbi ubwakondenkana cinshi?**

Ubulimi bwe sabi –nobulimi bumbi ubwakondenkana ninshila yabulimi umo kuba ukuteeka isabi na fimbini ifya mweo fya mu meenshi ukusankanya pamo ne milimo ya mu bulimi bumbi ili nga ubulimi bwa fisabo elyo nokuteeka nama nangu ifyuni pakutungilila ubusomboshi ubukalamba bwakufumamo. Iyi nshila ya bulimi yaba nga seeko iyaiminina pakucefyako ubonaushi bwa fintu nokufusha ubusomboshi elyo nokuwamya mibombele.

Abalimi kuti babomfya mufundo wacitindi(manyuwa) uufuma ku fiteekwa fya nama ne fyuni ukubiiika mu fishiba fye sabi pa kuti ifimenwa fya mu meenshi filekula nokufula ifyo isabi lilya. Kabili kuti babomfya ifisekwa (ifisoso fishala panuma yakusombola) pa faamu nge fyakulya fyakulundapo ku fiteekwa naku musango umbi uwe sabi,ilili nga Coptodoni rendalli ifyo ifingalya ifisekwa fishala ku fisabo.Ama nyutilenti yasangwa mu fishiba fya meenshi kuti yabomfiwa ukutapilila ifisabo nangu mu ochadi. Kabili abalimi kuti babomfya amatipa nangu amaloba yasangwa mu cishiba ngo mufundo mu fisabo.

Ifilangililo fimo ifyaseka saana muli ubu bulimi bwe sabi ubwakondenkana; ubulimi bwakukondenkanya nkoko pamo ne sabi (inkoko nangula ifibata). Ubulimi bwakukondenkanya nkumba pamo ne sabi. Elyo nobulimi bwakukondenkanya umupunga pamo ne sabi.

### **4.2 Mulandunshi kwingabela ukubomfya inshila ya bulimi bwe sabi -no bulimi bumbi iyakondenkana?**

Kwaliba imilandu ingi ilenga ukubomfya inshila ya bulimi bwe sabi no bulimi bumbi ubwakondenkana:nokuwamyako umwakufwaila indalamo elyo no bwikashi.

- Ninshila iyakutwalilila umwaba ukushansha pakukusha nokukosha imisungile yafyakulya ne mikwatile ya ndalama.
- Yaba ni mfungulo ya mubwikashi bwa balimi banono iyakwiswilamo inshila shimbi ishakupatilamo indalama, ukusalanganya amafya bashingwana nayo, ukukwata ubusomboshi bwakukana cinja elyo nokufusha fyonse ifyo babomfya.
- Inshila ilawamya imibombebele elyo nokukwata polofiti wakusunga pa mulandu wakukondenkanya ubulimi ubwapusana pusana.
- Inshila ilasungilila incende nefyesonde pa mulandu wakuti impanga iibomfiwa iba iinono paku sombolamo ifyapusana-pusana ifyamu meenshi nafyonse ifilimwa mupeepi ne fishiba.
- Inshila ishampusana pusana isha mibomfeshe yaameenshi ne mpanga shilenga iyi mibombebele ya bulimi ubwakondenkana nokushansha ukucila ukubomfya ameenshi ne mpanga pa ncintu fye cimo.
- Inshila ilasalanganya amafya yaba bunonshi nefyakuma kuli sayanshi pa mulandu wakuti kulaba ukubomfya inshila shimbi, ukucila ukubomfya inshila imo mu bulimi icilangililo mubulimi bwa kusankanya umupunga ne sabi umo amanyutilenti yaba mu meenshi ukufuma ku busali bwe sabi fiba umufundo wa mupunga.
- Ukubula ubu bulimi nge nshila iibomba mulaba ubutungulushi ubwalondoloka ubwakuma ku fintu Lesa apanga mu mushili na meenshi ifipema na ifishipema ukwikatana kwa fine fyeka. Isabi na umupunga ukusangwa pamo pantu ameenshi ayakwata umufundo ukufuma ku menshi yabomfya isabi yalapela umulyo ku mupunga mu mibomfeshe ya ya meenshi yamo yene.
- Ukubomfya yeka nge nshila ya kondenkana, taitwalafye ubusomboshi pa ntanshi nelyo ukutungilila ubulimi ukuti butwalilile, lelo yalikwata umulimo wakucefyako amafya ayashingwana ne ciputulwa ca bulimi bwe sabi elyo nokuba abashansha mu nshita ya miceele yapa nshita ntali.
- Kulaba ukulima ifilimwa ukucila pali fibili ico icitwala ku bulimi bwakucita ifintu ifingi nokuwamyako umwakufwaila indalamo elyo no bwikashi.

### 4.3 Mulandunshi kungabela ukukondenkanya nefiteekwa finono?

Ubulimi bwakuteeka ifiteekwa finono bulafwilishako ukucingilila ifyakulya ne milile isuma no bwikashi ubusuma nga abalimi banono, pa milandu iyi iipeelwe:

- Ifiteekwa finono kuti fyayafwako indupwa ukucita fimbini elyo no kushipikisha ngacakuti imibombebele ye fwamu yasanswa ku miceele yacila bushiku ileyaluka-yaluka.
- Fyonse ififumako ngamafi ya fyuni kuti fyaba mufundo usuma uwingabikwa mu cishiba ce sabi.
- Ifiteekwa finono filafushishako umunani wanama, umukaka na mani ifyo ifyaba intulo ya fyakulya filenga ukukula, ba vitamini A (ukuwamya inkanda, ukucefyako akafifi pa menso na ubulebe, elyo miniro (ayoni mwi libu ukutupela umulopa uwakashika).
- Ukusankanya kwa bulimi bwa nkoko no bwe sabi kulenga impanga ukukana onaike, ukucingilila ifyakulya noku kwata imilili isuma, ukushansha ku mafya ayaponako nokucefya ubucushi bwakubulilwa ifyakulya.
- Ubwikalo bwaba mu ng'anda bulawaminako, pantu ifiteekwa finono filasanda(ukufula) munshita fye inono ico filakwata utwana inshita ishingi ukucila ifiteekwa ifikalamba.
- Ifiteekwa finono filakula bwangu ukucila ifikalamba.
- Imisungile yafiteekwa finono ilaba iyayanguka ukucila ifikalamba.
- Ifiteekwa finono fikwata impanga inono, amenshi nefyakulya ifinono pakufisunga.
- Abalimi balabomfya citindi(umufundo)
- Ifiteekwa finono filaba ifyashipa ku malwele na munshita ya cilala.
- Imisungile ne misendele yalyanguka.
- Kutu kwaba ukubomfya impanga inono iyasulwa ku bulimi.
- Abalimi kutu babomfya umufundo mu magadeni yapa ng'anda ne fishiba fye sabi.



## 4.4 Bushe ubulimi- nobulimi bwe sabi ubwakondenkana bwasantinkana shani?

Ubulimi – no bulimi bwe sabi ubwakondenkana bwali suntinkana ku bulimi bwa fisabo elyo ne miteekele yafiteekwa munshila ishingji:

### 4.4.1 Ukukondenkana kwa citika

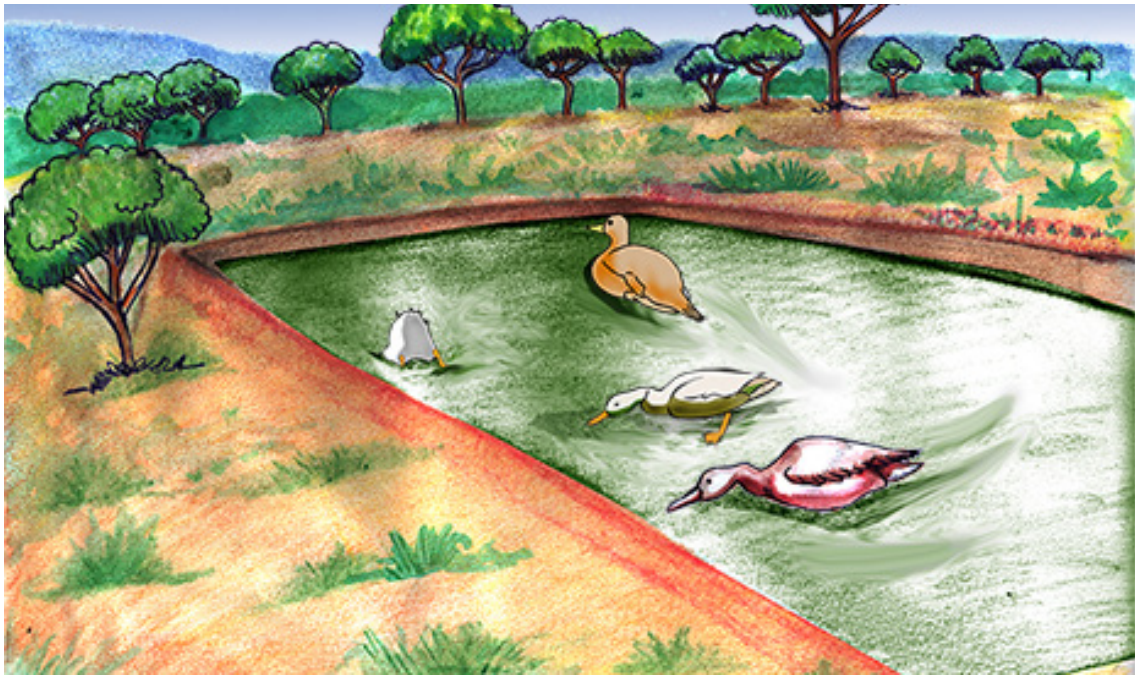
Ubu bulimi bwakuti fyonse ifikumine imilimine filesangwa pe fwamu limo lelo fyalibikwa akatalamukila ukufuma kuli cila cintu. Icilangililo, ubulimi bwa fiteekwa ifili nge nkoko, imbushi, inkumba) umwakulala elyo ne fisabo fyaba ukutaliko ukufuma ku fishiba fye sabi, lelo filafwana ifine fyeka mu nshila ishampusana-pusana ngefi:

- Citindi nelyo umufundo ukufuma mu mayanda ya fiteekwa ulabomfiwa mu fishiba fye sabi nge fyakulya fyesabi ifishipangwa no muntu elyo na mu fisabo pakuti fyapanga ngo mufundo.
- Panuma ya busombososhi bufuma mufya mbuto, ifisense, amakapa, amabula, imisale, filapelwa ku fiteekwa ifili nge mbushi, inkumba elyo ne sabi ishilya fye icani nangula ifyakucimuti. Ifyaku nkonde nafyo filabomba ukulisha inkumba.
- Pa numa yaku sombola isabi, ifisekwa fishala panshi ya cishiba ce sabi, filakwata umulyo waba miniro na vitamini ifingabomfiwa nga umufundo muli ba garadeni na mwibala ya fitwalo(ochadi) elyo namu fisabo fimbi ngo mufundo.
- Ameenshi ayamu cishiba umwaba umulyo kuti yabomfiwa ukutapilila amagaladeniukubomfya ukulingana nefyo mwapanga ibala.

**Icikope 4.** Ibala umwaba ukukondenkanya ubulimi pa faamu lyaba Manfred Bwalya mwi boma lya Samfya.



Pa cikope 5, Umulimi mwi Boma Iya Samfya ena atwalafye ifibata fyakwe ku cishiba ce sabi ilyo alefilisha pakuti ifitotooli fileponena mu fishiba nokupanga umufundo.



**Pa cikope 5.** Ubulimi bwakukondenkana ukubomfya ifitotooli fileponena mu fishiba nokupanga umufundo.

#### **4.4.2 Ukukondenkana Kwapwililika**

Iyi ninshla yakondenkana iyapwililika umu abalimi bakula ifiteele fyankoko pa mulu wa fishiba fye sabi pakuti amatootoli ya fitekwa yaleponenafye mu meenshi ya fishiba.

##### **4.4.2.1 Ukutekela inkoko pamo nesabi**

Inkoko kuti shateekelwa pamo nesabi ukulesha imitengo ya fetalaisa nefyakulya fye sabi pakuti ubusomboshi bwakula. Inkoko kuti shabikwa pamulu nangu mupeepi nefishiba fye sabi.

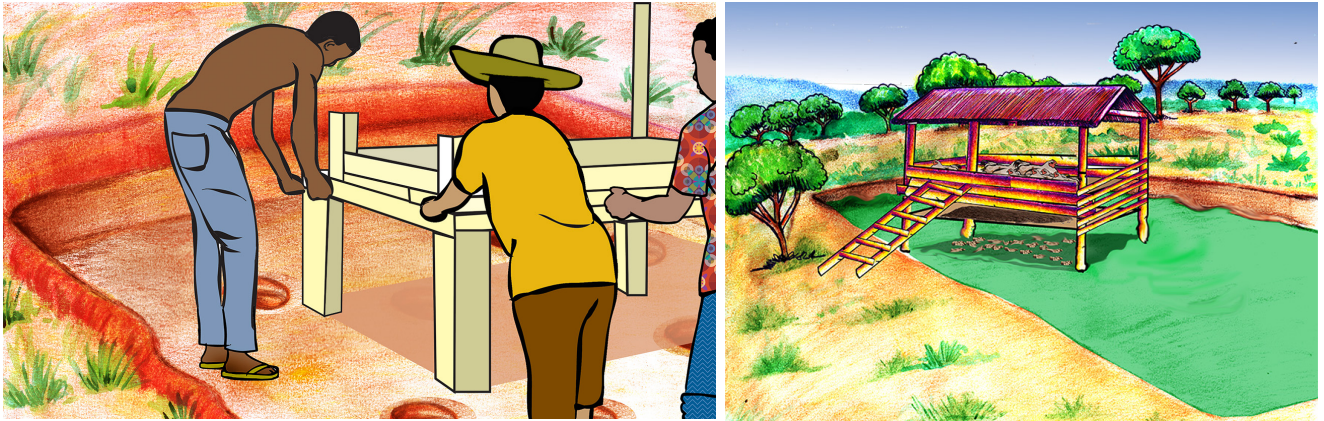
Ukuteeka inkoko pa mulu wa fishiba kwalikwata ifisuma ngefi;

- Kulaba ukubomfya incende bwino
- Kulaba ukucefyako umulimo wakusenda citindi wa nkoko ukuleta ku cishiba pa mulandu wakuti amatootoli ya mufitele yalaponena mu fishiba
- Icitele ca nkoko cilaba icabusaka(na mumilimo yonse)
- Takuba ukupeela ifyakulya pantu amatootoli ya nkoko yaponena mu fishiba
- Takuba ukubomfya umufundo pantu amatootoli ya nkoko yalalenga ifishiba ukufunda

Lintu amaplankton bloom yacitikwa, ameenshi yaba ayakatapa katapa sana ku mulandu wa caani, umwela wa oxigini mu meenshi limbi kuti wacepa no kulenga isabi ukufwa. Ici ngacacitika, bomfyeni ama maati nangu amapulasitiki ukwanshika panshi ya citele nelyo mukati ka citele, pakuti amatootoli nefya kulya ifishapo inkoko fileponenapo. Uyu mufundo wa manyuwa kuti wabomfiwa mu fya bulimi bumbi. Moneni ifikope 8 na 9 pesamba ifilelondolola imipekanishe yacitele pamulu wa cishiba ce sabi elyo nefyakukondenkana ubulimi bwe sabi ne nkoko.

Ukukwata manyuwa wa nkoko uwingi, abalimi abateeka inkoko shacikaya bafwile ukusungila inkoko mu citeele ukucila ukulayendelafye.

Icikope 6 na 7 filelanga ukupekanya ing'anda pa mulu wa fishiba fye sabi pakuti ukukondenkanya isabi ne nkoko.



**Icikope 6.** Ukupekanya ing'anda ya fyuni pa mulu wa cishiba cesabi. **Icikope 7.** Ukusankanya isabi nenkoko

Inkumba nasho kuti shasankanishiwa no bulimi bwe sabi. Icikope 8 cilelanga ukukondenkanya inkumba ne sabi. Iyi nshila ibomfya amapaipi ukusamfya inkumba pakuti amafi yaleingila mu cishiba ce sabi.



**Icikope 8.** Cilelanga ukusankanya kwa bulimi bwe sabi elyo ne nkumba pa Hopeways, iboma lya Mansa

#### **4.4.2 Ukukondenkanya ubulimi ubwatalukana**

Iyi ninshila imo abalimi babomfya ififuma mu mabala nge fintu ifibomfiwa mu milimo ya bulimi bwe sabi.

##### **4.4.3.1 Ukukondenkanya mbushi ne sabi**

Mu citungu ca Northern mu Zambia, abengi abalimi banono bateka imbushi ukucila ing'ombe ne nkumba, icilenga citindi wa mbushi muli ici citungu cilakwata citindi lyonse. Ici cilapeela amano yakukondenkanya imbushi ne sabi. Citindi wa mbushi mufundo uusuma saana mu fishiba fye sabi. Ukubomfya citindi wa mbushi ukufumafye ku mbushi ukubiika mu cishiba ce sabi casangwa kuti cibeleso icilundako ifipimo fya busomboshi bwa mbushi ne sabi.

## 5. Ukubomfya ubulimi-nobulimi bwesabi ubwakondenkana ukwafwa abalimi ukubelesha nokucefya ififuma mukwaluka kwa miceele

Ukubikako inshila shimbi palwa mifwaile yafyakulya elyo nokukondenkana imisango yakuliminamo kuti yaba inshila iyacindama saana mukubelesha nokucimfya ififuma mu miceele yanshita ntali (Mbow nabanabo, 2019). Iyi nshila ilacefyako icikabilila nangula umwela uwakowela ukuya mu lwelele. Inshila yaba citika mu bulimi, ifyapimwa ifyakulisha elyo no mulyo upelwa pamo nokubomfya amalaiti fibafye ifyalinga. Ici cilepilibula ukuti amagasi tayalefuma ayengi. Mukulundapo, ubutekeshi bwa nama ne sabi, uko citindi wa nama shamu famu pamo nga inkoko, ii citindi ilapindulwa mumu fundo uupelwa kwisabi, umwela uubi uwa metheni naba naitrasi dayoxaidi ififuma mufibola filatalushiwa.

**Teebulo 1.** Ifilangililo fyanshila shaba mubulimi bumbi-no bulimi bwesabi ubwakondenkana nefyo shibomba mukubelesha nokucefya amafya ya miceele.

Inshila	Ubulondoloshi	Ukubelesha	Imicimfishe
Ukusankanya kwakutekela pamo isabi, fishiba elyo ne nama	Ninshila iyacikaya iibomfya ifiposwa fya mu bulimi fitatu ifyakondenkana: garaden, icishiba ne nama	- Ameenshi ya mucishiba kuti yabomba ukutapilila, ukulenga ama famu ukushansha kukwaluka kwa milokele ya mfula, na mu nshita yakucepelwa kwa meenshi, neci ukubomfya bwino meenshi yanono.  - Iyi nshila ilalenga ukubomfya bwino umushili pakuti kwaba imisango iingi iya kuliminamo pa inshita fye imo ine.	- Ama Garadeni iba ni nshila yakulundilako ba kaboni, icakuti citindi wa nama abomba ngo mufundo ne sabi lilalya nokulesha umwela uubi uufuma mu kubola kwa mafi ya nama.  - Kulaba ukulesha umwela uwasuntinkana mukupanga umufundo na ifyakulya fya fitekwa.
Inshila ya butekeshi bwe Sabi ne nama	Ubulimi bwafunguluka ubwe sabi no bwamu mushili mu bwine bweka buletako fye ifisoso ifingi, nokukowesha kwa mwela, umushili na meenshi. Ukulangilafye, lintu umufundo uufuma ku nama ne fimuti wabomfiwa pa mushili, nga cakuti wafula saana uwalenga ameenshi ukuba icicelekese nelyo mwaba ba asidi iilenga umushili ukuuma saana. Mu butekeshi bwa bulimi bwe sabi ne nama ubwakondenkana, fyonse ifyamu famu ifyasongoloka nelyo imfimpulukunsu	- Iyi nshila yakupilibula ifisoso ifyashaifulila ilapela isabi ba miniro, naitrojeni, ba fosiforasi, ba vitamini icakuti icipendo ca busomboshi ubukulu. - Kulaba ukucefyo ukutitikishiwa kwakucepelako kwafikulisha isabi pamo nga amatuwa(pulankitoni) nokulenga uyu musango wa milimine iyashintilwapo.	- Ukubomfya bwino umufundo ufuma kufisoso ilacefyako ukufuma kwa myela yaba kaboni dayoxisaidi, meveni, naitrojeni, ifilenga icipuki.  - Kulaba ukusola kwakuposa imwela wakowela lintu balepanga ifilyo fye sabi.
	ubwakondenkana, fyonse ifyamu famu ifyasongoloka nelyo imfimpulukunsu		

Inshila	Ubulondoloshi	Ukubelesha	Imicimfishe
Inshila ya bulimi ubwa Mupunga pamo ne sabi	Inshila ya bulimi ubwa Mupunga ne sabi ilenga imibofeshe ya mpanga na meenshi no kutupela ubusomboshi bwafyakulya fitupela amaka nokuti tukule. Iyi nshila ilakabila ukubikamo icuma icingi, ukulime sabi kulalenga icipao ukukula kabili ipela ukubomba kwayanguka nefya kubomfya.	- Inshila ya bulimi ubwa Mupunga pamo ne sabi ilafwilishako imibomfeshe ya meenshi icakuti ifyakucita fimbi.  - Kulaba ubusomboshi ubwa paka muli fyonse fibili umupunga ne sabi icakuti limo teti mufwaye no kushita nangu ukubomfya umufundo.	- Imitundu imo iye sabi ilalishiwa no mufundo uufuma ku fitekwa fya nama, Kulaba ukukanya leta umwela uubi uufuma mukubola fisoso fya nama.  -Takuba umwela uufuma pa mulandu wakupanga muli ba fakitori umufundo nefya kulya
Isabi-umusalu/ukulima ifilimwa fyafitwalo	Ici cipilibula ubulimi bwakondenkana ubwe sabi no musalu, ifimuti fyafitwalo pamo nga inkonde. Umusalu kuti walimwa tumikololwa ya cishiba nge nshila yaku bomfeshamo umushili na meenshi. Umusalu nakalimo kuti walimwa mwibalafye lyeka, ifyapala ifimuti fya fitwalo nokutapililwa na meenshi yamu fishiba	- Ubulimi bwe sabi no musalu/pamo ne fya fitwalo kuti yaba inshila iisuma iinga wamyako imibofenshe meenshi no mulundu pa fam una kabili noku suminisha fimbi ifyakucita icila ifilumbwilwe - Ameenshi ya mu cishiba kuti ya bomfiwa mu ntapila, no kulenga ama famu ukushansha amafya na lintu imfula ileloka mukwaluka aluka. Iyi nshila ilalenga ubusomboshi ubwisa pa mulandu wa fiposwa, pantu takuba ukufwaya umufundo	Umusalu, inkonde na ifimuti ifyafitwalo filalenga umwela waba carbon ukushikama. -Ukufunda kusangwa mu meenshi yamu cishiba ne tipa lisangwa panshi ya cishiba kuti fyabomfiwa ngo mufundo ku musalu naku fimuti fya fitwalo. - Kulaba ukusengauka ififumako lintu balepanga imufundo pamo nga umwela, ifya songoloka, ne fimpulukusu.
Inshila yaikatana iya bulimi bwe sabi mu cishiba ne fitwalo	Inshila iyatunguluka kabili iyaikatana iya bulimi bwe sabi mu cishiba ne fitwalo pamo ni nshila yakulima imiti ya fitwalo iibomba maka-maka mu ncende emo umushili waonaika. Ilabomba bwino ku bulimi bwe sabi ne misalu iyalekana-lekana	-Ifisoso fifuma kwi sabi filapindulwa notushishi twa bakitiria nokubomfiwa ngo mulyo ku musalu. Iyi nshila yonse pakutampa napampela tailetako ubwafya ku mwela, ameenshi, umushili pa mulandu wakuti ameenshi tayonaika kabili tabapa fyakuposa -Iyi nshila ilatwala icipimo ca kubomfya bwino ameenshi, umulyo ne ncende	Umulyo waba naitreti no mwela uusuma iwaba oxijini filacinjishiwa pakati ke sabi na umusalu nokufumyapo isakamiko lyakufwaya umufundo - Kulaba ukusengauka ififumako lintu balepanga imufundo pamo nga umwela, ifya songoloka, ne fimpulukusu.
Ukukondenkana kwakukwata imipokele ya filyo fyakwatamo umulyo(IMTA)	Cili icapala no bulimi umo ifintu ukucila pali cimo filalimwa pamo. Ukukondenkana kwakukwata imipokele kwa filyo fyakwatamo umulyo, imitundu ya filimwa pamo no bulimi bwe sabi ukufiteleta pamo	-Ifilimwa fya mu meenshi fibomfya ifisoso pamo nga ubusali bwe sabi fyonse ifyakulya ifishako isabi. -Iyi nshila ipilibula ifisoso fyonse ukusisangula ifyakulisha fyakwatamo umulyo ku filimwa fyamu meenshi.	- Kulaba ukusengauka ififumako lintu balepanga imufundo pamo nga umwela, ifya songoloka, ne fimpulukusu.

ukwangufyanyako, uku-  
cefyako ifyakuposa  
nokupeleshanya kulifimo  
ne finankwe ngefi fipema  
nefipema ifimuti, inama,  
abantu mu ncende pamo  
nga ukufumya umwela  
wakowela mu meenshi,  
mu mushili ku fipema  
nefya fwa mu nshila Lesa  
afingilamo namuli ba te-  
chinologi. Ifimuti, umusa-  
lu nelyo ifyani fyakulisha  
isabi fifwile ukufumyako  
fyonse ifinya isabi kabili  
isabi nalyo ukutuka fi-  
menwa fya mu meenshi

**Intulo ya fyabo:** Anschell naSalamanca 2021.

Namukusupawila, iyi nshila yakukondenkana ubulimi ilacefyako ubonaushi mu fisoso fyakuposa nokukushako ubusomboshi ukubomfya fyonse i nge fiko kufya mbuto-mbuto, ku fitekwa fya nama ne sabi, na fyonse ifiko ngefyo mu nshila shimbi. Iyi nshila bulimi, kanshi ilapela abalimi ukukana shintilila pa fipangwa muli ba indastiri pamo ngo umufundo wakushita nefyakulya bapanga ifyakulisha inama nelyo isabi ifyo ifilundako umwela uubi uwingaisanga mumeenshi, mu mushili na mulwelele.

## 6. Ukusansha ubulimi bwe sabi pamo ne fyuni

Uku kukondenkana ubulimi bwe sabi pamo na ifyuni, kutekela pamo imisango ya fyuni pamo nga inkoko, ifibata elyo na ba kaluku-luku. Umuntu kuti ateka inkoko shakupela umunani, ishakupela amaani nangula fyonse fibili ukupela umunani na maani. Ukulingana naba Agri-farming, "Umutundu we sabi uwingakondenkanishiwa pamo no butekeshi bwe sabi waba musango we sabi ilyo ilinga susulula no kulya ba pulankitoni, zuupulankitoni natuma bakitiria tusangwa mu cishiba ce sabi.

Nga cakuti umulimi tatekele ifyuni ifingi, ukukondenkana takuletamo ubukumu ukulingana nefinga poswamo. Kanshi pakuti kube ukubomfya bwino ifiposwa pamo no bukumu, umulimi alekabila ukukwata 500-6,000 ifyuni fyamu citele hecta umo uwa cishiba (Ramanathan et al. 2000). Nga kulinganya kwa kubika umufundo cila bushiku ba kilogilamu 50 -60 muli hekita umo uwa cishiba ce sabi. (Agrifaring, website).

### 6.1 Inkoko ne fibata

Ifyuni ifikula bwangu ifyakutekela paku peela amaani no munani fisuma ukufikondenkana mu bulimi bwa nkoko ne sabi. Lelo abalimi kuti babomfya inkoko sha cikaya ne fibata ifyaseka sana nge fitekwa mu mishi mu Zambia, kabili ifipela umulyo waba puroten (ifyakulya fitulenga ukukula na ukucingililwa ku malwele) maka-maka mu ncende sha mishi sha ku kapinda kakuso (Northern Region). Pa mulandu wakuti shilashipikisha saana ku malwele kabili fyalyanguka ukufishilisha.

Mu Zambia mu ncende sha mu mishi, inkoko sha mu mushi ne fibata, bafileka fye fileyendela nokuifwala ifyakulya no mwakulala. Muli ubu bulimi ubwakondenkana ubwe sabi no bulimi bumbi, nga kwaba ukubomfya inkoko ne fibata, abalimi balekabilwa ukucinja imitungulwile yabo pakuti bakwata amatooli ayalinga mu fishiba fye sabi.

Ifibata fyalikosa no kushansha ku malwele yekata ifyuni ifiteekwa. Kabili filasanduluka bwangu nangu tafilesungwa bwino. Fyalyanguka ukufiteeka ku bantu abekala mu mishi. Nga fyasungwa umwaisalilwa, kuti fyafula bwangu nokulakwata amani ukucila inkoko.

### 6.1.1 6.1.1 Inkoko sha mu mushi

Kwaliba imitundu ya nkoko iingi mu Zambia.

#### Teebulo 2. Imitundu yankoko sha mu mushi

Umutundu wa Nkoko	Ifishibilo fyafiko
Isha mikoshi	<ul style="list-style-type: none"> <li>• Tashikwata amasako pa mikoshi</li> <li>• Ukukula ukwalinga</li> <li>• Shilabikila amani ukufika(18)</li> <li>• Yonse amani ngacakuti shalaalila kuti yatootwa</li> <li>• Shisuma mu mitotelele muncende ishacikaya.</li> <li>• Shisuma mukushipikisha ku malwele</li> </ul>
Isha molu ayepi	<ul style="list-style-type: none"> <li>• Amolu ayepi</li> <li>• Ishalinga mbukulu</li> <li>• Kuti shabikila 14 ukufika kuli 18</li> <li>• Shisuma mukubilila amani nokutoota</li> <li>• Kuti shatotola amani yonse aya lalilwa</li> </ul>
Ishakwata amasako pa mulu wa mutwe	<ul style="list-style-type: none"> <li>• Shilakwata amasako pa mutwe icimoneka kwati cisote</li> <li>• Ishikota shalikwata amaka yakubikila amani ayeni nokutoota bwino</li> <li>• Shilabikila 18 no kucila</li> <li>• Shaliba shikalamba mukumoneka</li> </ul>
Amakanga (ayamabala mabala)	<ul style="list-style-type: none"> <li>• Shilakwata mu masako utumatoni utwafitulukila nokubutulukila</li> <li>• Shilakwata utumatoni kuti utwa bulauni no kufiita</li> <li>• Shikalamba mukukula</li> <li>• Shilabikila amani 10 ukufika kuli 14</li> </ul>
Inkoko sha Furizo	<ul style="list-style-type: none"> <li>• Amasako yaaba fye ayasalangana nelyo ayatelela</li> <li>• Tashakosa ku malwele, kanshi shi lafwa ku cikuko</li> </ul>
Ishakwata amasako ku mikonso	<ul style="list-style-type: none"> <li>• Amasako ku mikonso yalenga inkoko ukulamoneka kwati naifwala toloshi</li> </ul>
Utwipi nelyo utunsanda	<ul style="list-style-type: none"> <li>• Twaba utunono kabili utwipi saana</li> <li>• Twalishipa ku malwele</li> <li>• Tatushitiwa saana pa mulandu cimo iciipi</li> <li>• Tubikila amani 12 ukufika kuli 18</li> </ul>

**Intulo:** MAL 2013

### 6.1.2 Ifibata

Kwaba imitundu ine (4): iya fibata mu Zambia: iyi mitundu niyi: Aylesbury, Pekin, khaki Campell elyo na Muscovy. Lelo Muscovy e mutundu wa fibata uwaseka mu Zambia.

**Tebulo 3.** Imitundu ya fibata iyaseka mu Zambia

Umutundu	Ifishibilo fyafiko
Muscovy	<ul style="list-style-type: none"> <li>• Ifilume(drakes) filafina ama kilogramu ukufika kuli 7kg elyo ifikota</li> <li>• fyena 3.6Kg</li> <li>• Filakwata amalangi ayengi ukusansha ukufita, ukubuta, elyo iya fiita no twabuta</li> <li>•</li> <li>• Ifilume fyalikwata utupapatu twa nkanda utwakashikila mumbali ya meenso naku milomo</li> <li>• Filabikila amaani ukufika 80 pa mwaka</li> <li>• Ifikota filabikila amani ukufuma 8 -16, elyo ukuyabika muli incubator nokulolela imilungu 10 ukufika kuli 12.</li> <li>• Tafifwaya kwikala pa maani</li> <li>• inshiku shakulalila 35 nangu ukusungwa mu incubator (ci mashini citotola amaani)</li> </ul>
Aylesbury	<ul style="list-style-type: none"> <li>• intulo yafiko niku ma Ngalande(England)</li> <li>• Fibata ifikulu ifitekwa pakupela umunani nokulangisha</li> <li>• Amasako ayabuuta, umulomo wa pinki, amolu na amakasa aye oranshi (orange)</li> <li>• Filena bwangu ukufika kuli kilogiramu 2.3 pa mushinku wa milungu 8 icakuti calinga nokucilya nangu cakuti cili tacilakula</li> <li>• Ifilume filafina ba kilogramu 4.5 ukufika 5.5 elyo ifikota ba kilogramu 4 ukufika 5fi</li> <li>• Filabikila amani ukufuma pali 40 nokufika kuli 10</li> <li>• Cakwatafye inshiku 28 ukulalalila pakuti citotele</li> </ul>
Pekin	<ul style="list-style-type: none"> <li>• Fyatuntuka ku China</li> <li>• Filatekwa pakupeela amani no munani</li> <li>• Ifibata nga fyakula filafina ba kilogiramu 3.5 ukufika kuli 5</li> <li>• Amasako yaba ayabuuta, amolu na imilomo ya macungwa macungwa (orange)</li> <li>• Tafibikila</li> <li>• Filabikila amani ukufika kuli ba 200 pa mwaka</li> <li>• Fyakwata inshiku 28 pakuti yatotolwe</li> </ul>
<ul style="list-style-type: none"> <li>• Fyatuntuka ukufuma ku Mangalande (England)</li> <li>• Filatekwa pa mulandu wakuti filabikila amani ukufika pa cipimo 300 pa mwaka</li> <li>• Fiisa mwilangi lya khaki, ifitulukila noku buuta no mutwe uwafiita</li> <li>• Palapita imyeshi 6 pakufika pa mushinku wakukula</li> <li>• Tafyaseeka ukulalila kanshi cilekabila ukutotola amani ukubomfya fimashini nangula ukubika pa nkoko ilelalila</li> <li>• Fyakwate fye inshiku 28 ishakutotwelamo</li> </ul>	

**Intulo:** Cawaminishiwa ukufuma ku MAL 2013.



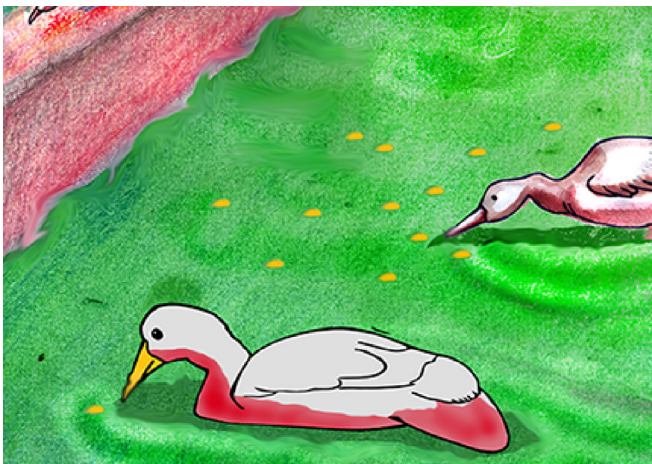
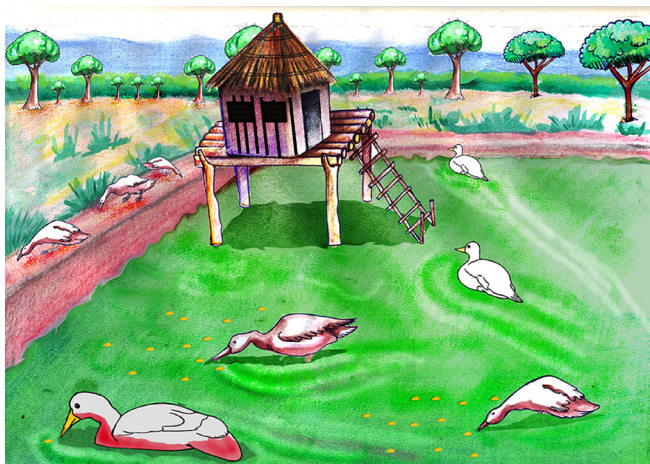
Ifibata nga kukonka fitendaka ukubikila amani pa mushinku wa myeshi 6. Ifikota fikula pa myeshi 5 kabili ifilume pa myeshi 8 elyo icibata cimo kuti catamfya ifibata ukufika ku fikota 4. Ifibata fya Muscovy fyena filatamfya no mutundu umbi uwa fibata lelo utwana twisa mukufumamo tulaba ing'umba. Elyo filalalila amani yabo no kutangata utwana, lelo imitundu imbi iya fibata tailalila, kanshi amani yafiko yakabila ukuya totola kuliba mashini. Inshita yakutotelamo yaba fye imilungu 4 ukufumyakofye ba Muscovy ifyakwata imilungu 5. Ifibata fyaba Muscovy filalila no kutotola amani ukufika kuli 30, lelo imitundu imbi iya fibata itotolafye 15 ukufika kuli 20. Inkoko kuti shabomfiwa ukulalila amani ya fibata.

Mu Zambia, abalimi banoono nabakalamba bateeka ifibata ifya munani na mani. Ifibata fyalikosa no kushansa ku malwele yekata ifyuni ifiteekwa. Kabili filasandulukwa bwangu nangu tafilesungwa bwino. Fyalyanguka ukufiteeka ku bantu abekala mu mishi. Nga fyasungwa umwaisalilwa, kuti fyafula bwangu nokulakwata amani ukucila inkoko.

Ifibata kuti fyasungwa munshila iili yonse, ukuteekela mu citele, ukwisalilwa pamuku umo wine nokwiswila elyo nangu ukufileka fileyanglila. Mu kwisalilwa, amayanda ya fibata yaba cimo cine nga mayanda yankoko ayakulwa pa mulu wa nkoko pakuti amatotoli yapeela umufundo ku meenshi ya mu cishiba. Amayanda kabili kuti yakulwa mumbali yafibumbili umo fingsalalila nokunwa ameenshi ukwabula ubwafya. Icikope 9 cilelenga ifyakukondenkanya ubulim bwa fibata ne sabi.

Mu miteekele umo fyendaukafye, ifibata filakwata inshita yakufwaya ifyakulwa mu ncende yameenshi nangu umwalimwa, elyo nokulya utusabi tunono nefishishi. Muli iyi miteekele, ifibata filakula ukufika imyeshi 6 pakuti fishitishiwe.

**Icikope 9.** Ukukondenkanya ifibata ne sabi



**6.2 Ukuteeka inkoko**

Mu Zambia, abalimi abanoono ilingi line baseka ukuteka inkoko sha mu mushi ukubomfya inshila yaseka iyacikaya. Mu Zambia, abalimi ilingi line bateeka ifibata ukulayendelafye mu lubansa. Tebulo 4 wakonkapo ulepalanya ifyo fyapangwa, ukumoneka, ubusuma no bubi bwa iyi mitundu itatu.

**Tebulo 4.** Ukuteeka inkoko elyo nobusuma no bubi bwabamo.

Ubulondoloshi bwa miteekele	Ishendaukafye(- Free-range or Extensive)	Pakati ka kucingililw nokuyendela (Semi-intensive)	Ishacingililwa (Intensive)
<b>Ifyakwishibilako</b>	<ul style="list-style-type: none"> <li>Ishi nkoko tashakwata ati umo shikala.</li> <li>Ishi nkoko shiyendelafye monse umuli ifyani na mupeepi ya mayanda</li> </ul>	<ul style="list-style-type: none"> <li>Ishi nkoko shilakwata ifitele ifyacingililwa no lupango.</li> </ul>	<ul style="list-style-type: none"> <li>Inkoko shilasungwa mu fitele.</li> </ul>

Ubulondoloshi bwa mitekele	Ishendaukafye(- Free-range or Extensive)	Pakati ka kucingililw nokuyendela (Semi-inten-sive)	Ishacingililwa (In-tensive)
	<ul style="list-style-type: none"> <li>• ishi nkoko shena shilaifwaila ifyakulya pamo nga ifipaso, ifyambo, ububenshi nefya nseke-nseke.</li> <li>• Ishi nkoko shilasanga ba mineral (ayoni, kashamu, foshiforashi) ifilenga umulopa ukukashika, ukukosha amafupa nokukusha bwino umubili ukufumya mu fyani na mu mushili.</li> <li>• Ishi nkoko shilapekanishiwa umwakulala mu nshuta ya bushiku ku fimuti.</li> <li>• Ishi nkoko shilaipangila ifinsa umwakubikila amani</li> <li>• Ishikota pamo ne shilume shendela pamo lyonse</li> <li>• Panuma yakutotola, bana nkoko balasakamana utwana</li> <li>• Ameenshi yalapelwa</li> </ul>	<ul style="list-style-type: none"> <li>• Ishi nkoko shilayendela akasuba no bushiku pa ncende apaba ifyani iyabikwako no lupango. Ishi nkoko shilapeelwa umwakulila, umwakunwina no mwakubikila amani.</li> <li>• Ishi nkoko shilapelwa ameenshi nefyakulya fyalundwako.</li> <li>• Ishi kota naba mukolwe shendelafye pamo.</li> </ul>	<ul style="list-style-type: none"> <li>• Ifitele fya nkoko filabikwamo ifintu ifingi pamo nga umwakulila, umwakunwina, ulubuuto nefi bokoshi umwakulalila amani.</li> <li>• Ishi nkoko shilalya no kunwa mukumanina.</li> <li>• Ishi nkoko tashipelwa ishuko yakulalila amani pa mulandu wakuti amani yalatalwa no kutotolwa na fimashini.</li> <li>• Mu nshila imbi, utwana twa nkoko tulasumunwa panuma ya milungu ibili</li> </ul>
<b>Ubusuma bwaku kondenkanya inkoko no bulimi bwe sabi</b>	<ul style="list-style-type: none"> <li>• Ilyo lyonse umulimi alefwaya ukukondenkanya inkoko no bulimi bwe sabi, umusango wakuteka inkoko ishi ifwaila no kuyendela tacicitika.</li> </ul> <p><b>Ifibata</b></p> <ul style="list-style-type: none"> <li>• Ifibata filendauka mu ncende mwaba amenshi na mu ncende umwaba utusabi tunono ne fipaso. Muli iyi mitekele ifibata filasenda imyeshi 6 pakuti fikule.</li> </ul>	<ul style="list-style-type: none"> <li>• Inkoko shilakwata ukulishiwa ifyakulya fyalundwako ico icilenga na matotooli ayapona yali ayawama.</li> <li>• Amatotooli ayengi kuti yakolonganishiwa ukucila ayafuma ku nkoko shiyendela nokuilisha.</li> </ul>	<ul style="list-style-type: none"> <li>• Amatotooli ayasuma yalafula ayesa mukubikwa pamo mu fishiba fye sabi pa mulandu wakuti inkoko shilapelwa ifyakulya na meenshi ifyakumanina.</li> <li>• Amatotooli ayengi</li> </ul>
<b>Amafya/ububi</b>	<ul style="list-style-type: none"> <li>• Citindi ukolonganishiwa aba umunono uupelwa kwi sabi.</li> <li>• Inshila yaliba iyamafya kabili teti ilinge ukukondenkanya ubulimi ne sabi.</li> <li>• - Mufundo/manyuwa uulaba ubi maka maka mu myeshi ilyo ifyakulwa fyafya ukukwata.</li> </ul>	<ul style="list-style-type: none"> <li>• Abakukolonganika citindi baba abalinga.</li> <li>• Kuti limbi basenda inshita itali ukukolonganika citindi uwalinga.</li> <li>• Citindi kuti aba umubi ukulingana nefyakulya filundwapo</li> </ul>	<ul style="list-style-type: none"> <li>• Indalama shibikwamo pakuti fye bakule amayanda ya nkoko, ifyakulya shilaba ishingini.</li> <li>• Cilakabilwa ababomfi abengi pakuti kube ukusunga inkoko.</li> </ul>

**Intulo:** Cawaminishiwa ukufuma ku MAL 2013.

**Icikope 10.** Namayo umulimi alelondolola ifyo bakwata ubwikashi bwabo ukupitila mukuteeka inkoko mwi boma lya Mpulungu.



### 6.3 Mulandunshi kufwile ukubela ukukondenkanya ubulimi bwe sabi ne fyuni?

Ukulingana naba Agrifarming, amatootooli yafuma ku fyuni fya kuteeka ya suma saana nga ifyakulisha isabi. Uyu citindi nangu manyuwa wa nkoko walikwata icipimo ca pa muulu ica mucele uusunguluka umwaba "Naitreti" na "Foshiforasi". Kuti mwasankanya pamo inkoko sha maboloila ne shakuponya amani nelyo inkoko ishakwata imilimo ibili" (Agrifarming, nd) Amatootooli ya fyuni ya pindulwa bwino mu bulimi bwe sabi ukucila mu bulimi bwa mu mushili. Citindi ya nkoko ilafwilisha saana mukusandulula utushishi beta Zuupulankotoni, utushishi utulya amatuwa nelyo ifimenwa fya mu cishiba. Utu ma Zuupulankitoni twendela pamo nama bakitiria ayafwilisha ukufungaula ifisoso ififuma mu fiteele fya fyuni icakuti fyaba fyakulya fyakulisha inkoko na kabili. Mufyo ba Agrifarming bafwailisha, "Panshi ya cishiba ce sabi palapangwa ico beta detiritashi, iiyi peela kemiko wakutekelesha utushishi utunoona maka maka tu chironomid larva."

Ukukondenkanya ubulimi bwa fyuni bufumya ubusali ubunono elyo, "Hekita umo uwa cishiba ce sabi umuli ameenshi yacikalishi yalikwata amaka yakupindula ifisoso fifuma ku mitekele ya fyuni 1, 500, umufuma ubusomboshi bwe sabi ukufika kuli 10 MT/ha ukwabula ukufwailapo ifyakulisha nangula fetilaiza" (Little and Satapornvani 1997: 426).

Ifibata fibomfya icshiba cila bushiku ukunwamo ameenshi no kupemamo umwela uusuma (AQAI 2021). Ifibata filakusha busomboshi pamulandu wakuti filapeela umulyo (ama nyutilenti) (AQAI 2021). Ifibata filapoka 50-75% icipendo conse icafyakulya fifwaikwa ukufuma mu cishiba icine mu usango wa mashinge, utushishi, molasikisi ukulumbulapo finono ifyo ifishipanga fyakulya fye sabi (AQAI 2021).

### **6.3.1 Fintu nshi ifisuma ifikabilwa mukukondenkana bulimi bwa fyuni no bwe sabi ne mibombele isuma?**

Ubulimi bwa fyuni no bulimi bwe sabi ubwakondenkana "bukabila icipimo ca tempeleca iyakabilila nolubuto lwa kasuba mu mwaka onse pakuti kwaba ukukusha fyonse fibili isabi elyo nefyakulya ifiipangwa palwafiko" (Little and Satapornvani,1997: 428). Icipimo cakukaba nga cabwelela panshi cilalengako ukucefyako ubwingi bwa fisoso ifingalulwa mu ncende yafishiba fye sabi (Little and satapornvani,1997). Icikabilila icifwaikwa ukukushishamo isabi ukubomfya ifisoso fya fyuni ni 25 0C (Little and Satapormvani,1997; 428). Ukushansha kwe sabi ku mufundo wa citindi wafyuni nako kulapusana. Umutundu we sabi lifwaya umwela ilili ngo muta kuti lyashansha mu mwela uwingi uwingila. Uyu mutundu we sabi kabili limbi tawakosa ukubomfya umwaba sana amatuwa nefyani fimbi.

Mu Thailand, cipimo calingile ica mufundo wa citindi wa fyuni mu fishiba umwabikilwe mufundo wamu fakitori (5kg N/ha/d) walisangilwe ukufika 75Kg/ha/ mu mulungu umu umwalifye umutundu we sabi umu uwa Nile tilapia (Knud-Hansen et al, 1991). Ifi fipimo fya citindi filepela icikope ica Livestock Feed Resources mu bulimi ubwakondenkana umuli 441 mwela wa oxygini ne fyakulya fipangwa mu cishiba icikwete saana ifiimenwa. Green et al (1994) bapeele icipendo ca busomboshi cimo cine (20 kg/ha/ pa bushiku) ica Nile tilapia ukubomfye fipimo ifyacilapo ifya citindi wa nkoko mukusankanya no mufundo wakupanga mu mafakitoli (LittleandSatapornvani,1997:440). "Mukupusanako, umutundu we sabi uwitwa Microphagous Nile Tilapia, isabi ilyangukilila ukwishiba ukucepa kwa mwela wa oxijini mu nshita ya lucelo lelo kuti lyaikala ukubomfya citindi wa fibata ifibikila amani ukufuma 1,000 ukufika 1,500 muli hekita umu uwa cishiba ukwabula ukusanshamo umufundo umbi. Ukubomfya fye citindi wa fyuni weka-weka, icipimo ca busomboshi cilafika ku 12MT, nangu 5-6MT/ha, cintu icimoneka ukwanguka mu butekeshi bwa mutundu wa tilapia umu" (Little and Satapornvani 1997).

### **6.3.2 Ifya kukondenkana ifyuni mu fishiba fye sabi?**

Kwaba inshila shibili isha kukondenkanishamo ubulimi bwa fyuni no bulimi bwe sabi: ukukula icitele cakwikalamo ifyuni pa muulu wa fishiba (veetiko) nangu ukupalamisha ubulimi bwa fyuni mupepi napali icishiba.

#### **6.3.2.1 Ukukondenkana kwa kubika ifitele pa mulu wa fishiba (veetiko)**

Uyu musango wa kukondenkana uwakukuula icitele pa muulu ukusuntinkanya ne cishiba ce sabi ubomfiwa ku mabuloila nenkoko sha mani lelo ifishima fikwata ameensi yakunwa nangu ukusamba ifipela ameenshi ku fishiba fye sabi ilingi line fibomfiwa ne fibata nabakalukuluku (Little and Satapornvani, 1997). "Ukukula icitele ca fyuni pa muulu wa cishiba cilalenga amatotooli ukuponena mukati ka cishiba, ico icicefyako incito yakukolonganika." (Little and Satapornvani,1997:438). Ukwima kwa bufumi bwa menshi ayatalala mu cishiba kuti kwa cefyako ukutitikishiwa kwa mabuloila(Theimisiri,1992) (Little and Satapoinvani,1997). Ilyo mulekula icitele ca nkoko pa muulu wa cishiba ce sabi, pangeni amapila yakonkiliti nangula imilando iilepele 2.4m mubutali mu mulu,1.2m ukushika panshi mukati elyo 1.2m ukufuntukila pa muulu pa kuti cayanguka ukwimya ama keeji pa muulu wa cishiba ce sabi neci ukwafwako abantu ukubomba bwino mwisamba lya fitele. Pa nshi yama Keeji kuti mwapangilapo isumbu lya waya pakuti amatotooli yaleponena fye yeka mu cishiba ce sabi. (Ramanathan et al, 2020).

Ubwafya ubuakaamba ubwaba muli uyu musango bwakuti mwaliba ubusanso bwakututula amatotooli ya nkoko ukucila mu cipimo, ico icikuma ukukana kwata ameenshi ayasuma ne cipimo ca mwela wa oxigini. Leelo ukufulisha kwa matotooli kuti kwacimfiwa ngacakuti mwakuula icitekele ca fyuni pali konkili nelyo pa mushili ukucila ukubika mumulola ne cishiba ce sabi, pa kuti lyonse kuleba ukukolonganika ku minwe nangu ukubomfya mashini. Iyi nshila imbi kuti yacefyako ifiposwa pa bukule kabili cilafwa abalimi ukushitishako citindi wa fyuni pa cipimo balefwailamo (Little naSatapornvani 1997). Elyo ukulapyanishamo ameenshi yambi libili-libili kulacefyako ba pulankitoni (amatuwa) nge fimenwa ifitulamana nokucefyako amafya yakukowesha ameenshi pa mulandu wakuponenamo ifintu ifingi. (Little na Satapornvani 1997).

### **6.3.2.2 Ukupalamisha icitele ca fyuni ku fishiba fye sabi**

Abalimi bafwile ukukolonganika citindi ukufuma mu citele nokusungila muncende iyacingililwa. Bafwile ukulabika uyu mufundo wa citindi cila luceelo panuma yakutula kwa kasuba ukubomfya icipimo 50-60kg cila hekita.

Uyu musango walikwata ubusuma bubili. Ukwima kwa bufumi bwa menshi ayatalala mu cishiba kuti kwa cefyako ukutitikishiwa kwa mabuloila (Theimisiri,1992) (Little and Satapoinvani,1997) elyo nokukwata ameenshi kulawamishako ukukula kwa masako ya fibata, nangu imikulile ya fine kuti yabipa (Edwards, 1986)

Amafya yabamo yakuti ukuleka ifibata ukwendauka mu mabumba ayakalamba pa mulu wafishiba kuti fyaonaula ifishiba nokukowesha ameenshi, nangu ukucingilila ifibata ukwingila mu meenshi kuti kwalesha ubu bwafya. (Edwards et al, 1983) (Little and Satapornvani, 1997:439). Edwards et al. (1983) kabili basangile ukuti amafya yakumine kumishitishe ya mani yafibata, elyo no mutengo wafyakulya uwaba pamulu filacingilila abalimi banoono ukukana kwata nelyofye ifibata ukufika kuli 30 mu fishiba ifinoono ifikulile (200m). Kabili abalimi abakwata ifitekwa fya fyuni ifyalingafye ukulinga no bukulu bwa cishiba bafwile ukulundilapo amanyutilenti pakufusha ubusomboshi' (Little and Satapornvani, 1997)

### **6.3.2.3 Ukubomfya umufundo ukufuma ku matotooli ya fyuni**

Umufundo wamanyuwa uufuma ku matotooli ya fyuni kuti wabomfiwa uwafuleshi nangu panuma waku pindula, ukutungilila ifyakulya ifipangwa palwafiko mu fishiba fye sabi ifipokelela ulubuuto lwa kasuba (Little and Satapornvani, 1997). Cintu icalinga ukulaceceta umwela wa oxigini uucilile pa cipimo 75kg DM/ha mu bushiku bumo ukukana pela uwingi ukucila mu cipimo ukulingana ne mitekele ye sabi (mu myeshi 4-8), ukulenga ukucepelwa kwa mwela wa oxijini mu nshita ya luceelo' (Little and Satapornvani, 1997:448).

Ukulinganafye ifyuni ifikulu filapeela amatotooli ayengi ukucila utuni utunoono. Ici cilenga amatotooli yapangwa ukufuililako mu nshita yakuteeka amaboloila. Ifyuni fibikila amaani filapeela kashamu na fosifalasi umwaba umulyo uwingi ukucila mu maboloila elyo ifyakulya fimbi ifipyanyanikishiwapo ukupeela ifyuni ifyabamo saana faiba tafiba bwino saana ukucila ififuma ku fyuni fibikila amaani (Little na Satapornvani 1997).

Nge cilangililo, ukubomfya ifyuni ifibikila amani ifyafina lyonse elyo nokupeela lyonse amatotooli ayalinga fyalyanguka ukusunga ukucila amaboloila umo amatotooli yashingulukafye mumo mwine. (Hopkins and Cruz 1982). Ukusanga ifyuni fyakupyanikishapo pa nshita iyalinga, umuti wakufipeela elyo nobufwayo bwa pa malikeeti kuti fyaba ifyakosa mu misungile ya bulimi bwa fyuni pamo na matotooli fipeela. (Little and Satapornvani 1997).

#### **6.3.2.3.1 Ifipimo fyakubikilamo umufundo uufuma ku fyuni**

##### **Icilangililo camipendele #1**

Fyuni finga abalimi bafwile ukukwata nga cakuti imifuko 50 ilefina 60kg umo uwa mufundo ulefwai kwa muli hekita mu bushiku bumo.

**Ifyakukonka:** Inkoko imo ilapeela 0.1kg ya matotooli cila bushiku.

##### **Ubwasuko:**

50 kg = 10,000m<sup>2</sup> ma kg yanga aya mufundo muli 1m<sup>2</sup>50 kg = 10,000 m<sup>2</sup>?

$$x = 1 \text{ m}^2$$

$$10,000x = 50\text{kg}$$

$$10,000x/10,000 = 50/10,000$$

$$x = 50/10,000$$

$$= 0.005 \text{ kg/m}^2$$

Pa kusanga impendwa ya nkoko pa cishiba ce sabi, kuti mwatamusha ubukulu bwa cishiba ( $m^2$ ) na 0.005 pa kusanga ama kilogramu ya mufundo pa bushiku bumo elyo nomba ukwakanyamo 0.1 kilogramu ya mufundo cila bushiku pa nkoko imo pa kwishiba ubwingi bwa nkoko mu bukulu bwaico cishiba.

## **Icilangililo #2**

Bushe mufundo unga ne nkoko shinga shinga kabilwa pa bukulu bwa cishiba ce sabi 600m<sup>2</sup>?

### **Ubwasuko:**

$600\text{ m}^2 * 0.005 = 3\text{ kg}$  ya mufundo cila bushiku

Inkoko imo = 0.1 kg umufundo cila bushiku

shinga inkoko pa bukulu bwa cishiba ce sabi 600m<sup>2</sup> =  $3\text{kg}/0.1\text{kg} = 3\text{kg}/0.1\text{kg} = 30$  inkoko.

### **6.3.3 6.3.3 Ifibelesho fisuma ifya kukondenkanishamo isabi nenkoko.**

Abalimi bafwile Kufwile kwaba ukukonka ifi fibelesho cila nshita pakuti kwaba ukuwamya ukukondenkanya kwe sabi nenkoko:

- Ukumona ifyo ama algae bloom elyo nokusampula isabi pakuti muceceete ifyo lilekula
- Ukulaceceta ubumi bwe sabi cila nshita
- Bomfyeni inshila ishakutekelamo ifyuni ukupitila mukufibika mu citele nangula mu shedi.
- Saleni inkoko ishikula bwangu nelyo isho shibikila bwino amaani mu bulimi bwe sabi ubwakondenkana no bulimi bwa fyuni.
- Ifyakulya fyalundwapo ifibi elyo nokukana bika ifyuni mukati ka citele mufuma umufundo ushipangwa bwino ushingalinga ukubika mu cishiba ce sabi“(Little and Satapornvani 1997:431)
- Umufundo uufuma ku fibata filishiwa na makapa ya mataba ulakwata nitrojeni (nitrogen) uwingi, sogaamu ewa konkapo elyo uufuma ku makapa ya mupunga ewakwata uunono, ukutupeela icipimo cacila fyakulya (Little and Satapornvani 1997:431).
- Ifyuni ifikushiwa pa fyakulya fyalinga filapeela umufundo uusuma, umwaba umulyo uwingi ukucila ulya ufuma ku fyuni filishiwa ne filyo fyalundwako (Little and Satapornvani 1997: 431).
- Bomfyeni ifyakulya fya nkoko ifyabamo umulyo. Umutundu wa fyakulya mupeela nkoko nao ulakuuma saana ku busuma bwa matotooli inkoko shipeela. Amatotoli aya shafikapo busuma kabili yalalenga imikulile ye sabi ibe iibi.

#### **6.3.3.1 Ifyakulisha Ifyuni**

Inkoko shikabila ifyakulya ifyalinga pakuti shileendauka umu shifwile ukuya, ukubweseshamo amasako yambi, ukulwisha amalwele, pakukula, napakuti shitampe ukubikila amani. Nga fintu caba fye ku bantu, ifilyo fya nkoko mufwile ukuba umulyo wa kaboidireti fipeela amaka, protein, amafuta yakulenga umubili ukukabilila, vitamin, amaminiro pamo nga ukukosha amafupa yambi ukulenga umulopa ukukashika, ba faiba ifyafulisha ukuti ifyakulya filesunguluka nokukana ikala muma tumbo elyo na meenshi. Inkoko ishilishiwa bwino shilapanga amatotooli ayasuma ayakuti yakondenkanishiwa bwino mu bulimi bwe sabi.

Ifyakulya ifyalondoloka elyo nemilile isuma filafushishako umunani wankoko na maani elyo nokulenga ukukula bwangu ne cipimo ca mikulile icisuma. Ukwabula ifyakulya fyalundwako, inkoko shilekala ne nsala mu nshita shimo isha mu mwaka nga cakuti kwaba ukushileka ukulaifwaila mu mushili nelyo ukupelwa ifishalako panuma yakulya filapeela amaka yakuipokolola ku malwele elyo nokupanga amatotooli ayasuma.

Ifyakulya umwaba umulyo uwakumanina filabomba saana mu fyo inkoko shi bomba. Umulyo usuma ulenga ubumi busuma, ubusuma bwa kusandulukana, umunani wa nkoko na maani ifisuma, ukwangufyanya mukukula elyo namatotooli aya londoloka.

**Teebulo 5.** Ififuma mu fyakulya fyakwata umulyo ifipelwa ku nkoko sha mu mushi.

Ififuma ngacakuti mulepela fyakulya fishafikapo	Ififuma ngacakuti mulepela fyakulya fyafikapo
<ul style="list-style-type: none"> <li>• Ukukana kula bwangu</li> <li>• Ukunakuka ku malwele no tushishi</li> <li>• Ukusandana takuba sana muli ba mukolwe ne nkota</li> <li>• Icipendo camani yapeelwa ciba icinoono pamo no munani</li> <li>• filaba ifyanakuka mukusandana/ukutamfyanya</li> <li>• Icipendo cakufwa cilaya pa muulu</li> </ul>	<ul style="list-style-type: none"> <li>• Ukukula bwangu nokupilibuka bwangu ukufuma mutunono</li> <li>• Inkoko ishikulu shilaponya matotooli ayengi</li> <li>• Ifuni filakwata bumi pa mulandu waku shansha ku malwele</li> <li>• Ukubikila amaani ayengi</li> <li>• Icipimo ca pa muulu ica kutotola amaani</li> <li>• Ishikota naba mukolwe balakwata amaka yakutamfyanya.</li> <li>• Amatotooli ayengi ayakuti ya kondenanishiwa mu bulimi bwe sabi</li> </ul>

Cibelesho icisuma saana ku mulimi ukushininkisha ukuti inkoko shabo shilekwata ifyakulya fyabamo umulyo. Ici cilenga ukukwata ubusomboshi ubusuma mu mwaka onse nangu kwingaba ukwaluka kwa nshita no bwingi bwa fyakulya kabili ifyalekana lekana. Umulimi afwile ukupekanisha kabala ifyakulisha fyalinga umwaka fye onse. Kufwile kwaba ukusunga ko imbuto sha makapa, tuute ne mbuto shipeela puroteni pamo nge fyakulundapo. Buleeni iminkoti namabula ya musalu ukufuma mu garadeni (ukufumyamo inseku nangu ukulaswako amabula ayashikwete incito) maka-maka ifyani fisangwa mumbali yatu milonga nangula mulya mu malungu. Shininkisheni ukuti fintu fingalishiwa ifishakwatamo suumu (poison) efyo mufwile ukulapeela inkoko. Ifyakulisha inkoko fifwile ukutwiwa nelyo ukusansatwako ukulenga inkoko shilekompa, no kulya pakuti fyasunguluka bwangu.

### 6.3.3.2 Ukupanga ifyakulya

Ngacakuti muteeka amabuloila ne nkoko sha maani, lyena abalimi bafwile ukushita ifyakulya ifilesangwa mu mashitolo. Leelo ngafintu cilangilwe mu Teebulo 6-8 abalimi kuti bapanga ifyakulya ifyayanguka ifyakulunda pa fyakulya fya nkoko sha mu mushi. Uku kupanga kwa fyakulya kufwile kwashintilila pa mutengo no bwingi bwa fya kusanshamo. Leelo, 5kg wa fyakulya ifyapangwa fifwile ukupeela 2.5kg iya munani wa nkoko.

**Teebulo 6.** Ifyakulya fyakusanshamo ifyo abalimi bengabomfya pafwile paaba:

Ifyakusanshamo	Umulyo usangwamo
Amataba/amakapa ya mataba, amasaka, tuute, amasaka, amakapa ya mupunga	ifyakulya ifyakupela amaka
Sanifulawa, icimpondwa ca mbalala, icipondwa intongwe, ifilyo fye sabi	Ifyakulya ifikula umubili
Ba Vitamin	Ifyakulya ifyasankana
Ifya mabula fingaliwa/ ne nseku shimena-mena	Ifyakulya ifyasanka (Ukutwa no kubika mu meenshi yaku nwa))
Ba Miniro	Ifyakulya ifi sangwa mumale nemisalu
Umuceele	Ba miniro pamo nga sodiamu.

**Teebulo 7.** icipimo icayanguka pakupanga ifyakulya pakukusha inkoko sha mu mushi

Ifyakusanshamo	Ubwingi
Amakapa ya mataba	1.485kg
Soya beans	495g
Ukugaisha isabi	4g
Umucele	8g

**Intulo:** Chazy 2009.

**Teebulo 8.** Icipimo icayanguka icakusansha pafyakulya fya twana twa nkoko utwa cikaya utuli ne milingu 6 iya kukula.

Ifyakutumbikanyamo	Icipimo
Amakapa ya mataba ayapelwa	1kg
Amakapa yaku ng'ano nelyo ku maale	1kg
Amakeke ya pangwa ninshi panuma yakwenga sun-flower	Utubokoshi tubili utwa machisala
Ifipapa fya muli ba Bemba/ukupelwa kwa mafupa/umucele wa canganishiwa	Akabokoshi kamo akamacisala ku tubokoshi 13 utwamacisala utwa mafupa yapelwa
Isabi nelyo icakulya ca mulopa	Utubokoshi tubili utwa macisala
Amabula ya Sesbania	Utubokoshi tubili utwa macisala

**Intulo:** Chibinga 2016

Methionine na lysine fyaba ngo mulyo ukabilwa ukulundwapo pantu inama shiteekwa tashikumanisha icipimo cifwaikwa ukufuma kuli soya bini maka-maka ngacakuti taipekanishiwe bwino. Uyu mulyo ulakomenenwa muli soya bini icilesha ukuti inama shikwata. Inkoko shaba ngo muntu uwakwata fye icifu cimo, icakuti soya bini iishipekanishiwe bwino kuti yaba poisoni. Kanshi cikankala ukusalula nelyo ukwipika soya bini uku shininkisha ukuti inkoko shilemina uwanaka nokusunguluka bwangu elyo nokuti shilekula bwino.

Intulo isuma iyafyakulya fya nkoko mititi pamo nga, ifishishi ifipupuka ifitwa soja fulai fyakwata icipimo caba puroteni ukufika kuli 40%. Nga cakweba ati soya bini tailemoneka, ukulisha inkoko imititi kuti capela puroteni alekabilwa.

Zambia Agriculture Research Institute (ZARI) ku Misamfu mwi boma lya Kasama balepeela abalimi ubwafwilisho ukumona ukuti bapima ifyakulya fya nama ifipangwa mu fwamu ukumona ngacakuti nafikwata mulyo onse uufwaikwa.

### 6.3.3.2.1 Imipangile yayanguka iyafyakulya

Pesamba pali ifilangililo nafimbi ukulanga inshila iyaangu ukupangila ifyakulya (MAL 2013):

- **Icakulya ca tukoko utwafyalwa:** Sansheni meeda umo umwaba ifyakulya fya enezi kuli meeda umo umuli ifyakulya fya puroteni. Ici cakulya cikapeela ukucila 22% uwa crudi (ifya kulya ifikula umubili) puroteni.
- **Icakulya ca ifyuni ifileya filekula:** Sansheni ba meeda babili umuli ifyakulya fya enezi kuli meeda umo umuli ifyakulya fya (ifya kulya ifikula umubili) puroteni.
- **Icakulya ca fyuni ifilekula:** Sansheni ba meeda babili umuli enezi kuli meeda umo umuli puroteni. Bikeni amavitamin mu meenshi yakunwa umuli ifyamusalu ifyatwiwa nangu ifyani ifiliwa ukubika mu meenshi.

### 6.3.3.2.2 Imipangile yapwililika iyafyakulya

Icakulya icisuma umwaba umulyo uwapwililika cifwile cakwata fyonse ifi: Umulyo umuli enezi uupeela amaka, nokucilisha ukufuma ku nseke. Umulyo umuli puroteni: Ifyuni filekabila umulyo umwaba puroteni uwingi mu milile ukufuma ku nama nefibyalwa ifyakwata ama puroteni. Ama miniro nama vitamin ifi fwaika: maka-maka ba kashamu (calcium, umucele (sodium) elyo na foshiforashi (phosphorus). Ukubika inkoko pa fyani nangu mwi bala umwaba icaani icafunda kuti cayafwa ukupeela ama vitamini (maka maka vitamin A)

### 6.3.3.2.3 Cipimo nshi icafyakulya cingapeelwa ku nkoko shacikaya ishishalilwa mu citele panshita inoono?

Teebulo 9 pesamba alelangilila icipimo ca fyakulya inkoko shacikaya shikabila ukulya pa mushinku wapusana pusana, icipimo cila nkoko ukulingana no mushinku upeelwe, ne cipimo ca fyakulya umuli ifyakulya fyalundwako nefyakuilisha mu lubansa.



**Table 9.** Feeding table for chickens according to age.

Umushinku (imilungu)	Icipimo capalaminako ku fyakulya fyalundwako pa cuni cimo pa bushiku bumo (ama grammu yafya umikwa)	Icipimo capalaminako kufyo icuni cifwile ukulya pa bushiku bumo (ama grammu yafya umikwa)
1	10-15g	12-15g
2	15-20g	15-21g
3	21-30g	21-35g
4-6	30-40g	35-50g
8	30-40g	55-60g
16-27 (ishilekula)	30-50g	65-80g
28 (ishikalamba)	30-50g	100g

**Intulo:** Chibinga 2016.

### **6.3.3.3 Ukubika inkoko sha mumishi mu citele**

Ukuteeka inkoko kufwaika umwakulala elyo ukufwaya ukwishiba ifyo amayanda ya nkoko yafwile ukukulwa mulimo umu ufwile ukupekanishiwa bwino. Aamayanda yankoko yalenga abalimi ukubomba imilimo yacilanshita bwino pamuku umu wine nokukwata mute mumibombele pakuti kwaba ukushisunga bwino nokukula elyo nga sha mani shifwile kupeela amani. Imipangile ya mayanda yankoko iifwile ukutangata umushinku utatu uwankoko apo apaaba ishikota ishili nabaana ukufi imilungu 8 ubukulu, tumukolwe no tukota utuleya tulekula, ne nkoko ishikalamba ishikota naba mukolwe.

Ukusungila inkoko mu cikulwa kulenga ukucingilila inkoko ku mfula, ukutalala, kuli bakabolala elyo nafimbi ifingalya inkoko ifili nga ba koswe, imbwa ne nsoka. Ifyuni fisungilwa mucikulwa filanguka ukufikata nga cakuti mulefwaya ukuficeceta nga nafikwata ifishibilo fya malwele, nangu ukucenwa nelyo ukufwaya ukushipeela umuti wakushicingilila ku malwele.

#### **6.3.3.3.1 Incende ukwakukulila ing'anda ya fyuni**

Ing'anda ya nkoko iisuma ifwile ukukulilwa apo ameenshi yalepita no mushili uwalinganishiwa bwino ukutinya ameenshi ukwikalilila mu lubansa lwa ng'anda elyo nokulenga umotonshi mukati ka ng'anda. Incende umuleikalila ameenshi ilasalanganya amalwele no tushishi elyo nokunasha umfula wa ng'anda. Ing'anda ya nkoko ifwile ukubela mupepi napaaba intulo ya meenshi iisuma pakuti inkoko shilenwa ameenshi ayasuma cila nshita kabili ng'anda ya nkoko ifwile ileba iyabusaka. Ing'anda umwakwikala inkoko ifwile ukukulwa mupepi na mayanda ya bantu pakuti caba icayanguka ukusopa no kushicingilila ku busanso ubuli bonse lelo mufwile ukusaha incende iyalinga pakati ka mayanda ukulesha ukusalanganya amalwele.

Ing'anda isuma umwakwikala inkoko ifwile ukukwata umwakwingilila umwela uusuma cila nshita elyo nokusuminisha ulubuto lwa kasuba ukwingila. Ifwile yakwata icibumba icakosa pakucingilila imfula ukukana, impepo necimwela ukukana ingila nokukaba ukwa kucila mu cipimo. Kabili ifwile yaba icingililwa ku tunama, ba puushi, imbwa nabakabola. Ifwile yakwata incende iyalinga iyakutushishamo nokulala bwino ukwabula ukutitinkana kabili Iyayanguka ukuwamyamo nokufuminikishamo umuti

#### **6.3.3.3.2 Ifyakubomfya mu bukuule bwa ng'anda ya nkoko**

Ifintu fyakubomfya pa kukula fishintilila pa musango wa ng'anda ilekulwa.

Ing'anda ya nkoko iishayafya ukukula babomfya imilando iya ubulwa, waya ya nkoko, iloba lya kukuulila nangu amatafwali ya njelwa aya ocewa, icani cakufimbila ne loba lyaku cuulu pakushingula panshi.

Iyi ng'anda ilakabilwa ifingi ifyakwanshika panshi icakuti kulaba ubwafya bwaku letako ubusako. Ukulingana no bwingi bwa nkoko mutekele, fyonse ifyo mwanshika fifwile ukulaficinja cila nshita. Ing'anda yacitele iyafikapo, ifwaika amatafwali aya ocewa nangu amabuloko, waya wakucingilila, imilando ya timba iyabikwako umuti nangu inshimbi, amalata yakufimbila elyo na sementi uwakubikila pa nshi. Lelo kuti caba icalinga ukwalula galaji yakale muntu basungila imyotoka nokucita ing'anda ya nkoko, ngacakuti muli ifipunda filepisha umwela elyo nokucingililwa ku miecele ibi elyo nokulawamya ukwabula ubwafya.

#### **6.3.3.3.3. Ing'anda umwakulaala nkoko mu nshita ya bushiku**

Pakukula ing'anda umwakulaala inkoko ishikulu no twana twa nkoko, konkeni ishi ntampulo:

- Kuleni ing'anda ukubomfya ifintu ifisangwa mu ncende muli, ifilinga insota nangu insengu
- Icitele cifwile caba 1.5m ukufuma panshi ukuya mu mulu elyo nokushamo ifipunda pakati ka nsonta panshi ya citele pakuti amatooli yaleponena panshi nokuyakolonganika bwino,
- Bikenifye inkoko ukukana cila 7 mu muputule uukulile sikweya mita umo ukutiina ukutitinkana nelyo ukufula ukucila mu cipimo.
- Nga cakuti mulebomfya amalata, moneni ukuti amalata ya mutenge yapula 0.8m kunse yacitele mumbali shonse pakucingilila imfula imfula ukukana ingila.
- Moneni ukuti mwabika 0.5m pakati ka mutenge no lubao pa mpela iyasuluka pakuti kwaba umwela ukwingila no kufuma.
- Nga cingacitika, kuleni icikulwa icipya pa ncende iipya panuma ya myaka itatu (3). Ukulacinjacinja incende yakukuulilapo ifikulwa fya nkoko filaafwako ukucingilila ukukolonganika kwa tushishi tuleta malwele.

#### **6.3.3.3.4 Imisango ya fikuulwa fya fyuni**

- Ifyuni ifikalamba ne filekula ilingi fifwile ukupekanishiwa pa muulu umwakulala mu nshita ya bushiku. Amayanda ya nkoko ayakulwa mupepi na panshi yawama fye ku nkoko ishikota ishikwete utwana utunoono utushingengila mu ng'anda iili pa muulu. Nacilinga ukwimba umukololwa ukushinguluka ing'anda nelyo ukwimyako ica panshi (apa kunyata) pakuti mu citele muleba umwauma mu nshita ya mainsa. Ing'anda ya nkoko iikulile mubutali(long) 4m, mukusenama (wide) 1m nokuya mu muulu 1.5 m iyi kuti yasunga ifyuni ifikalamba ukufika kuli 8- 10 nga cakuti filesungilwa mukati akasuba konse nelyo amakumi yabili (20) elyo nokulaala mu nshita ya bushiku . Iyii ng'anda ya fyuni kuti yapangwa na mapulanga yalepulwa nangu ukusha lubali lumo ulwa citele icaisuka ukubikakofye isumbu nangu nsengu ishapikaulwa.

#### **6.3.3.3.5 Ukukula ing'anda ya nkoko**

Pakukula ing'anda ya nkoko iyalondoloka, konkeni ifi:

- Sebeni ifyani ukushinguluka ukufika 3m mumbali shonse isha ng'anda pa kotalusha insoka naba koswe ku nkoko.
- Ukucefya indalama shakubumfya, kuleeni ing'anda yankoko ukubomfya ifintu ifilesangwa mu ncende yenu pamo nga ifimuti, imisambo ya mpanga nelyo amatete elyo ne cani cakufimbila.
- Ubukulu bwa ng'anda bufwile ukuba ukulingana nempendwa ya fyuni umulimi akwete( nangu ipange lya fyuni alefwaya ukukwata) elyo ngacakuti balefwaya ukuti fikalelaalamofye ubushiku nelyo pa nshita shimbi isho fingekelelamo
- Mwilasunga ifyuni ifingi pamo pene pa mulandu wakuti kuti fya tendeka ukukompana ici icingaleta ukuicena elyo na malwele.
- Lyonsefye ubuleni ifipaapa fyaku cimuti ifyo mulefwaya ukukulila ing'anda pakuti utushishi ne fipaso fikalako tafikwete umwakufisama
- Shininkisheni ukuti iiyi ng'anda ilecingilila inkoko ku mfula nokumona ukuti umwela uusuma kabili uwafuleshi uuleingila
- Umwinshi ufwile ukuba uukulu elyo uwalinga mukwisuka pakuti cileba icayanguka ukupyanga mukati bwino-bwino elyo cifwile ukukwata iciibi nangu inshila shimbi ishakwisalako.
- Pa mulandu wakuti amalwele ayengi ayambukila ayakuma inkoko ya tandananishiwa

ukupitila mu matotooli, moneni ukuti panshi ya citele palishala icipunda apakuti amatotooli yale ponena pa nshi.

- Umupoka-poka pakati ka mango (insengu, amatete, imisambo, ne myalo nelyo imisanse) uufwile ukukula ukulingana no mushinku elyo no bukulu bwa nkoko, elyo nokumona ukuti shilepelwa ubwafwilisho bwakuti fileiminina elyo na matotooli yapoonena panshi bwino.
- Nga cakuti ing'anda ya nkoko yakulilwa pa mulu wa fimuti, icitele cifwile ukulepa 1m ukufuma panshi lelo tacifwile ukuba apalepa sana apo umulimi engafilwa ukufika.

**Icikope 11** . cilelanga ing'anda yankoko iyakulilwa ukubomfya ifintu ifisangwa mu ncende abalimi bekala.



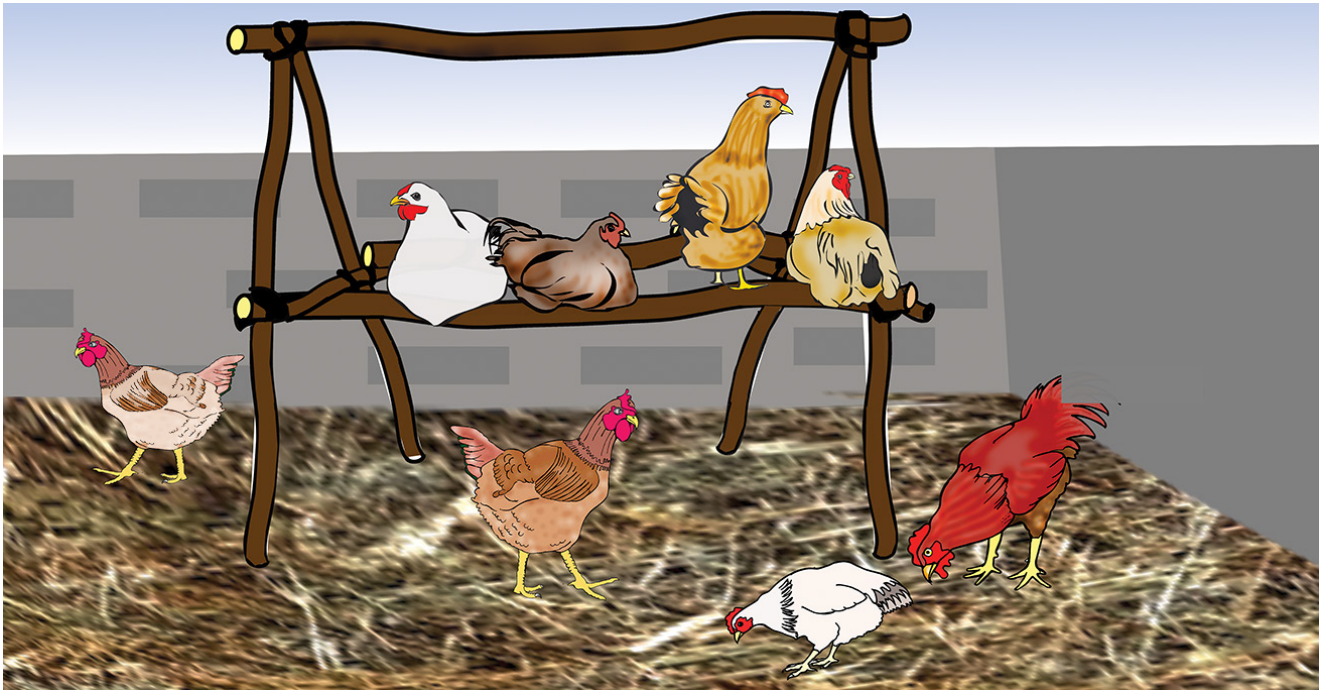
## **Umwakulaala inkoko**

### *6.3.3.3.6.1 Umwaketushisha inkoko pa nshita inoono*

Inkoko shalitemwa ukulaala mu mabula nangu mu misambo nangu ku mulu wacimuti ukucila panshi. Ukulala ku cimuti kulacefyako ifyuni ukunyantaula mu matotooli icilenga nokucefyako amalwele. Inkoko ishilaala panshi balashilwisha ku tushishi mukwangufyanya. Umwakulala kuti mwapanga ukufuma ku nsengu nelyo imisambo iyaololoka, mufwile ukushininkisha ukuti namubuulako ifipaapa ku misambo. Insengu nangu ifimuti fyakubomfya fifwile fyafika kuli 3cm mu dayamita.

Cila nkoko iikalamba ilafwaikwa incende iikulileko ukufika 20cm umo ilaala. Nga cakuti umwakulala mwingi mulefwaikwa lyena ishi incende shifwile ukutalukana ukufika 50cm kabili ifyalingana mu butali ukufuma panshi. Nga cakuti mumo umwakulaala muli apatali lyena ifyuni kuti filencimfyanya ukuya laala pa mpela ilyo fyaisa mucungulo ico icingalenga ukutitikishiwa.

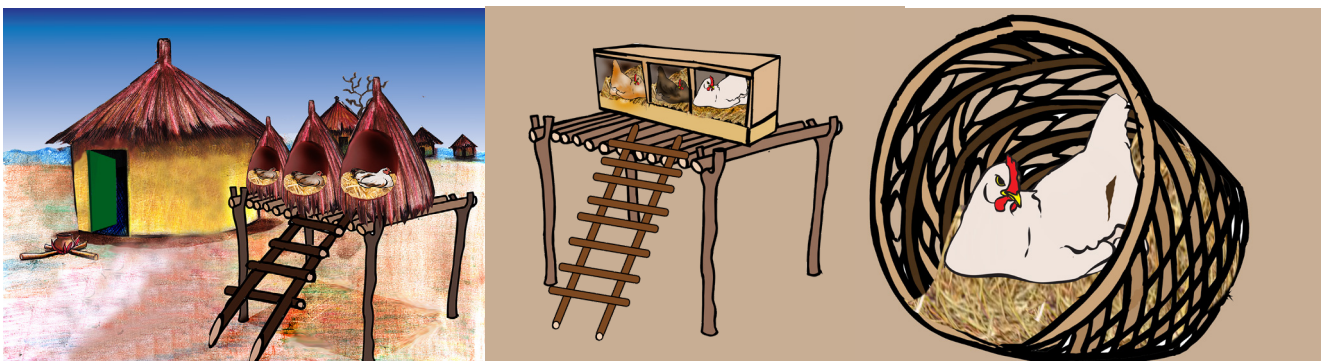
**Icikope 12.** Ing'anda yankoko umuli ifimuti apakutushisha nangu ukulaala.



#### 6.3.3.3.6.2 Ukwansa ifisansala

Ukumona ukuti nkoko ishilebikila amani shilebikila bwino, konkeni ifi iffwaikwa ukumona ukuti amani yalebikilwa nokupokelela icikabilila icalinga bwino.

- Ukumona ukuti ifisansala fya nkoko fili ifyacingililwa ku tushishi nefipaso fileta amalwele. Utushishi twikala mu cisansala kuti tulecinganya imitotwele ya maani pa mulandu wakuti inkoko ishiketwe tushishi shilafuma mu cisansala nokuposa inshita ikalamba elyo na maka ukulaiwamya no kulaifwena pa mubili.
- Biken iifisansala fya nkoko mu ncede umwaba cintelwele.
- Bomfyeni icani canakilila, icaumikwa ku kasuba elyo icabusaka ngecawkanshika mu cisansala.
- Sumbuleni ifisansala ubutali kufika 1.5m ukufuma panshi pakushicingilila.
- Sankanyeni imito, amabula ya fwaka nelyo imiti imbi iitalusha utushi nokubika mu cisansala ukutalusha utushishi utwingi utwingengila.

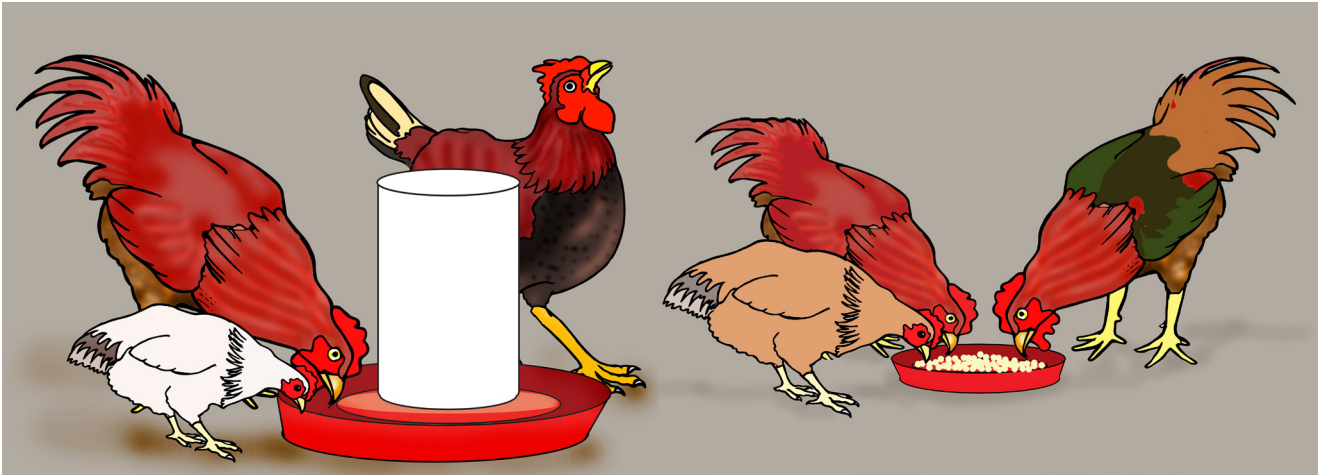


**Icikope 13.** Imisango ya finsala fya nkoko

#### 6.3.3.3.6.3 Umwakulila nokunwina ameenshi

Inkoko shifwaya lyonse ameenshi yakunwa ayasuma cila nshita. Kufwile kwaba ifipe fya twana twa nkoko neshikalamba ifyakulilamo nokunwinamo ukubomfya amapulasitiki, imbao nangu ifyela.

**Plate 14.** Icikope cilelanga umwakulila nokunwa ameenshi



#### 6.3.3.3.6.4 Ukusunga ing'anda ya nkoko ubusaka

Ukuwamya ing'anda umwikala inkoko cilafwilishako ukulesha amalwele maka-maka utushishi twikala ku nse ya mubili wa nkoko pamo nga konto no tushishi twa maiti. Ifi efifwile ukukonkwa pakuwamya bwino:

- Fumyeni amatotooli ne fisoso mukati ka ng'anda lyonse (cila mulungu) nelyo nga cakuti ing'anda yakusesha pa mipeto kuti mwaishesha ku ncede iipya.
- Mufwile ukulafumikisha mu ng'anda ya nkoko lyonse, panuma ya myeshi mutanda (6) ne cushi (ukubika umulilo mwisamba lya ng'anda) ukulesha utushishi tufuma kunse. Lelo kuti cawama ukufumya ifyuni fyonse ilyo takulaba ukubikamo icifukilisho.
- Sungeni incende iishingulwike ing'anda ya nkoko iyabulamo icani ne fimuti pa kotalusha insoka naba koswe.
- Mwilabika inkoko ishingwi mu citele cimo.
- Nga cakuti kuli ing'anda ya fyuni ifili na malwele, kuti cawama ukufumya shonse elyo noku wamyamo nangu mwaocefywa icitele no kukuula icipya umwakwikala ifyuni.
- Lyonse mulefumya amatotooli ayalesangwa mwisamba lya citele.
- Bikeni imito ya ku nkuni nangu laimu (lime) panshi nakufibuumba pakatalusha utushishi elyo nokuba icayanguka ukufumya citindi wa nkoko lintu mulewamya.
- Amabula yafwaka nayo yalishininkishiwa ukuti yalapwisha utushishi.

## 6.4 Ubumi bwa fyuni fyakuteeka

### 6.4.1 Amalwele nefya kutungilila ubumi

#### 6.4.1.1 Ukubomfya ama antibayotiki mu nkoko

Ama antibayotiki kuti yacingilila ifyuni nokundapa malwele elyo na malwele yaletwa no tushi twa ma baitelya. Lelo ukukanabomfya bwino elyo nokubomfya ama antibayotiki ukucila mu cipimo kufwile ukuleshiwa pantu umuti kuti wakana ukulabomba bwino nokufusha utushishi (antimicrobial resistance-AMR). Uyu musango ulatinya ubumi isonde lyonse. Ng cakuti kuli ukubomfya ama antibayotiki ukucila mu cipimo ukupeela ifyuni ifyo fyasankana ne sabi mulaba ubwafya ilyo amatooli yaponena mu cishiba nokulikwa nesabi, pakulekelesha abantu balalya isabi. Ici cilalenga ama antibayotiki ukukana kwata amaka yakuposha amalwele mu bantu icingatwala ku malwele ukufula ne mfwa. Ukukana bomfya ama antibayotiki bwino mu fyuni fyakuteeka emulandu ukalamba ilenga ama antibayotiki ukukana bomba bwino mu bantu (Okon et, al 2022)

Abalimi abalekondenkanya inkoko ne sabi pamo bafwile ukulabomfya ama antibayotiki ilyofye calinga elyo bafwile ukupoka ubwafwilisho ukufu ku ba bomfi abetwa extension officers. Ukulundapo, abalimi bafwile ukubomfya inshila ishi suma ishakuteekelamo ifyuni nokumona ukuti bacingilila ifyuni ku malwele yasalangana ayengafwaya ama antibayotiki pakundapa. Inshila yakukana bomfya imiti ukulesha amalwele nokundapa eshifwaika (Selaledi et al, 2020: Lojewska and Sakowicz, 2021) ukulesha ama antibayotiki ukulusa amaka yakundapa mu fyuni (AMR)

**Teebulo 10.** Ifintu ificilinganya ubumi bwa nkoko.

Ificilinganya	Ifyo fileta/ nefilandwapo
Ukutitikishiwa	<ul style="list-style-type: none"><li>Ukutitikishiwa bwafya ubukalamba ukulenga inkoko sha mu mishi ukukwata bulwele bwa New Castle Disease maka-maka mu nshita sha mupepo isha mupepo(June) ne Cingulupepo(July) na mu myeshi ya cikabilila mu Lusuba lunono (September) no Lusuba lukalamba (October)</li><li>Imiceele yacila bushiku iili ngo kukaba nelyo ukutalala, ukuloka kwa mfula kwakutwalilila, umutonshi ne milile ibi. Ifyakutitikisha filapanga bakapaso (hormones) mu mubili wankoko ukulashitikisha nokulenga;</li><li>Umubili wa nkoko ulaba uwanakuka nokufilwa ukulwisha ubwafya bwa kutitikishiwa.</li><li>Ukucefya amaka ya mu mibili ya nkoko ayakulwisha amalwele elyo namaka ya miti.</li></ul>
Imilile ibi	Ukubulwa kwa fyakulya fyabamo umulyo kulanasha imibili ya nkoko nokulenga ukulwala.
Imipokele ya mwela ibi	Ukubulwa Kwaku salangana kwa mwela mu cikulwa kulenga amalwele ayakuma ku mipemene ukutandanishiwa.
Ukufulisha kwa nkoko ukucila mu cipimo	Inkoko nga cakuti shafula mu ncende fye inoono, kulaba ukusalanganya amalwele pakati kashiko ngo bulwele bwa Newcastle.

**Intulo:** Ifintu ificilinganya ubumi bwa nkoko sha mu mishi. (Cawaminishiwa ukufuma mu Mal 2013)

## 6.4.2 Amalwele ayaseeka

**Teebulo 11 .** Amalwele ya mu nkoko sha cikaya (mu mishi)

Umusango wa bulwele	Ifyakumwenako/ifyo bucita	Ifyakubucingila
Ubulwele bwa New Castle	<ul style="list-style-type: none"> <li>Ifyuni fipemena mukanwa akaisuka- icishibilo cakulanga ubwafya mumipemene pamulandu wafimina fipangwa mukanwa nokupanga icongo. Ifimina fipangwa filafumina mukanwa na mu myona.</li> <li>Ifyuni filalanga ifishibilo fya mishipa yafilundwa ukukana shiipa pamo nga ukunyonga umukoshi, ukushingulusha umukoshi, ukututuma no bulebe bwa molu na mapindo. Ifyuni filashipula nokulaala pa nshita ntali no kupotela imitwe kunuma nangula ukukompela ku mubili.</li> <li>Umupaipi wa fyakulya panshi ya mukoshi limbi ulaba uwafimba.</li> <li>Ifyuni fi polomya ubusali ubwa mutuntula (yeelo).</li> <li>Ifipaapa fya mani fiiba ifyanakilila nelyo ifyakalabana..</li> <li>Ifyuni filya ifyakulya ifinono leelo filanwa ameenshi ayengi.</li> <li>Amaani ayabikilwa yalabwelela panshi.</li> <li>Ifingi ifyuni filafwa mu bushiku fye bumo. Nga cakuti ubulwele bwabisha saana ifyuni ifya mutende filafwila mu fisansala nelyo fye panshi ukwabula ukulanga nefishibilo filumbwilwe. Icipendo ca mfwa ilingi line cilakulilako, ukufika kufuma 90% ukufika 100%</li> </ul>	<ul style="list-style-type: none"> <li>Cingilileni kabela ukupitila mukupeela umuti ku nkoko shonse ukufuma fye pa mu shinku wa milungu ibili.</li> <li>Fumyeni fyonse ifyuni ififwile mu citele bwangu bwangu nokoca nangu ukushika mu cilindi icitali.</li> <li>Ilyo kwaba icikuko, moneni imyendele ya fyuni ukufuma umo shikala nokuya ku ncende imbi.</li> </ul> <p><b>Panuma ya cikuko na lintu tamulabikamo ifyuni fimbi:</b></p> <ul style="list-style-type: none"> <li>Fumyeni fyonse ifyo mwayanshike mu ng'anda yankoko nokufyoca.</li> <li>Wamyeni nokusansamo umuti wakwipaya utushishi mu ng'anda yafyuni pamo ne fiipe fyonse.</li> <li>Lekeni ing'anda ya fyuni ibe iyabulamo nangu kamo pa milungu itatu (3) nelyo imilungu ine (4) ilyo tamulabikamo ifyuni ifipya.</li> </ul>
Ubulwele bwa ku fikasala/ amakasa(Bumble foot)	<ul style="list-style-type: none"> <li>Amajemu yengilila ku fikasala/amakasa ya fyuni maka-maka ngakuli ifilonda nelyo ifikwebululwa ukufuma ku misomali iya nsompa nangu imisomali imyunga nefya kalabana. Filalenga amakasa ukufimba</li> </ul>	<ul style="list-style-type: none"> <li>Fumyeni imisomali, fyonse ifya twa pamo nga amabwe na fyonse ifilemoneka ukukalabana mu ng'anda ya fyuni.</li> <li>Bikeni mu ng'anda ifyakwanshika ifishakalabana pakuti ifyuni tafileikwebulula panshi.</li> </ul> <p><b>Ubundapishi</b></p> <ul style="list-style-type: none"> <li>Tlepuleni ifilonda ukubomfya akanesala nelyo umwele uwabusaka kabili ifyatwa pakufumyamo amafina.</li> <li>Wamyeni pa cilonda panuma yakufumyamo amafina.</li> <li>Bomfyeni umuti wa ayodini (iodine) pakwipaya utushishi pa cilonda.</li> </ul>

		<ul style="list-style-type: none"> <li>Bikeni icuni pambali nokwisalila mukamuputule akanoono ilyo mulecundaapa.</li> </ul>
Ubulwele bwa mu mipemene ubutwalilila. (Chronic respiratory disease)	<ul style="list-style-type: none"> <li>Ubulwele bwamu mipemene ubwaktwalilila bulwele bumo ubwaseka saana mu mitekele ya fyuni elyo bwisa pa mulandu misango ibi iya mitekele pamo nokucepelwa kwa mwela uusuma mu ng'anda, ukufulisha kwa fyuni no lukungu, kabili elyo no kotalala.</li> </ul>	<ul style="list-style-type: none"> <li>Mwiyesha ukuleta inkoko sha malwele pa mwibumba lyashi nankwe.</li> <li>Sungeni ing'anda ya nkoko bwino, moneni ukuti umwela uusuma ulesalangana kabili umwabula ulukungu.</li> <li>Cefyeni icena ca mwela wa amonya ukumona ukuti umutonshi taulesangwamo. Umutonshi ulalenga amatotooli ya nkoko ukukosa nokufumya umwela wa amonya. Umwela wa amonya ulacilinganya imipemene elyo nokulenga mu menso ukulababa</li> <li>Sungulileni icipimo icalungama mu mikabile nelyo mu mitalalile.</li> </ul>
Ubulwele bwakuma imipemene ubwaktwalilila	<ul style="list-style-type: none"> <li>Ubulwele bwakuma imipemene ubwaktwalilils ebwa seeka mu bulimi bwa kuteeka ifyuni.</li> <li>Icilenga micitile ibi iya misungile mu ng'anda ya fyuni, ukubikapofye ukukana kwata umwela usuma, ukufulisha kwa fyuni elyo nolukungu pamo penefye nokotalala.</li> </ul>	<ul style="list-style-type: none"> <li>Mwilabika inkoko ishingi mu ng'anda imo.</li> <li>Lisheni ifyuni bwino pakuti fikwate ubumi busuma.</li> <li>Mwibika inkoko ishalwala pamo neshikwete ubumi.</li> <li>Mwisunga utwana twa nkoko pamo ne shikalamba.</li> <li>Moneni ukuti ing'anda ya fyuni ileyingisha umwela uwingi kabili umwabula ulukungu.</li> <li>Moneni ukuti ukufuma kwa mwela wa amonya kwa cepanako ukupitila mukusunga ing'anda umwauma pantu na mubomba cilalenga ifitotooli ukubola.</li> <li>Ici cilenga umwela wa amonya ukufuma uwingi nokonaula imipemene ya fyuni elyo nokulenga ameenso ukulababa.</li> </ul>
Ukupolomya mulopa (Cocccidiosis)	<ul style="list-style-type: none"> <li>Icishibilo uku kupolomya lintu umulopa ulesangwa mulipolomya nelyo amatotoli, amapindo ayakompamina panshi, amasako ayafufubala kabili amenso ayaisalika.</li> <li>Utwana twa nkoko tulalya panono nokulusa imifinine.</li> <li>Utwingi utwana tufwa panuma ya nshiku 6 ukufika kuli 10, kabili icipimo cashilefwa cilaya pa muulu.</li> </ul> <p><b>Ukusalangana kwa bulwele</b></p> <ul style="list-style-type: none"> <li>ifyuni filya ifyakulya nelyo ukunwa ameenshi umwaba utushiishi, utuletwako no mwakunwina umwafiko.</li> </ul>	<ul style="list-style-type: none"> <li>Lisheni utwana twa nkoko mufyafungulwa no muti beta coccidiostat, umuti uwafwilisha mukulesha ukufula kwa tushiishi.</li> <li>Shininkisheni ukuti fyonse ifilesangwa mu citele fili ifyauma. Funyenimo fyonse ifilemoneka ukubomba.</li> <li>Fyonse ifyo mwanshika mu citele mulekabila ukufipilibula nelyo ukwalula pakuti mube abauma.</li> <li>Wamyeni mu citele bwino ilyo tamulabikamo inkoko.</li> </ul>



	<ul style="list-style-type: none"> <li>• Umwakulala mulasangwamo utushiishi utuleta polomya ya mulopa.</li> <li>• Ukusankanya nkoko ishikalamba isho ilingi line eshisenda amalwele umuli utwana.</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain the correct temperature in the house.</li> <li>• Funyenimo palya penefye ifyuni ififwilile.</li> <li>• Undapeni ifyuni ifilwele ukwabula ukuwayawaya.</li> </ul>
UKupolomya mulopa no muluko (Fowl cholera)	<ul style="list-style-type: none"> <li>• Ifyuni filashipula nokulnga amasako yabukali</li> <li>• Filafumya ubusali (amatotooli) ubwa yelo nakatapa katapa mukumoneka.</li> <li>• Ifyuni filalya ifyakulya ifinoono, lelo filanwa ameenshi ayengi.</li> <li>• Amani yafumako yaba ayanono</li> <li>• - Ifyuni fimo filafwa cila bushiku. Icipendo cakufwa kuti cafika 80%</li> </ul>	<ul style="list-style-type: none"> <li>• Peeni ifyuni umuti wakuficingilila ku malwele</li> <li>• Fumye ifyuni ififwile mu citele bwangu bwangu nokoca nelyo ukushika.</li> <li>• Mu nshita ya cikuko , moneni imyendele ya fyuni pakati ka fitele nelyo muncende fileyangala.</li> <li>• Panuma yacikuko ca fyuni elyo nalintu tamula bikamo ifipya:</li> <li>• Fumyeni fyonse ifyo mwanshikamo nokoca</li> <li>• Wamyeni mu citele nokubikamo umuti elyo nefipe mubomfya</li> <li>• Kuti mwawamya icitele ukubomfya ameenshi nga nacilinga.</li> <li>• Lekeneni icitele/ing'anda ya fyuni ukwikala pa milungu itatu(3) ukufika iine(4) ukwabula ukubikamo inkoko.</li> </ul>
Kansakala yaku fyuni (Fowl pox)	<ul style="list-style-type: none"> <li>• Mu menso mulafuma ifya menshi-menshi panuma kuti mwafafuma amafina ya yelo.</li> <li>• Mulaba ifilonda ifingi mu mutwe, ku mupopolo napa mukoshi wa cuuni.</li> <li>• Limbi ilinso lyonse kuti lyafimba nokwisalikwa.</li> <li>• Kuti mwaba filonda mukanwa; icingalenga ukulyafye panoono.</li> <li>• Ifi fya menshi-menshi ifyapala chisi kabili ifya yelo kuti fyapangwa pa mulandu wa filonda mukanwa napa mukolomino. Ici kuti calenga imipemene yaba iyashupa nga fyatulikana pamo.</li> </ul>	<ul style="list-style-type: none"> <li>• Peeleni kalibela inkoko umuti wakushicingilila kuli kansakala waku fyuni.</li> </ul>
Ubulebe bwaku fyuni (Fowl paralysis)	<ul style="list-style-type: none"> <li>• Ubu bulwele ilingline ubulenga ubulebe nangu ubulema ku moolu ya fyuni.</li> <li>• Ukulu kumo nelyo yonse yabili kuti yaikatwa no bulebe. Lyena icuni teti cileyenda. Nga cakweba ati ubulebe buli ubunono lyena ifyuni kuti fileenda nokulatalantata.</li> <li>• Amapindo ayeketwe no bulebe lyonse yalafilwa ukupupuka, yabafye panshi.</li> </ul>	<ul style="list-style-type: none"> <li>• Sungileni utwana twa fyuni mu fitele ifya busaka.</li> <li>• Tamufwile ukuteekela utwana twa fyuni mu fitele umwali kale ifyuni ifikalamba</li> <li>• Fumyenimo ifyuni ifilwele nokufipaya.</li> </ul>

Fowl paralysis	<ul style="list-style-type: none"> <li>• Ilinso limo nangu yonse yabili kuti yapilibuka. Iyi micitile eyo beta ilingi line ukuti "Ilinso lya buuta" nangu ilinso ilya butulukila"</li> <li>• Icipimo ca mani ayabikilwa cilabwelela panshi.</li> </ul>	
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**Intulo:** Cawaminishiwa ukufuma ku MAL 2013.

### **6.4.3 Amalwele yambi**

#### **6.4.3.1 Utushishi tusangwa mukati**

Utu tushishi utusangwa mukati ka matumbo ya nkoko nokulalya mukati ka mubili wa nkoko. Pa tushishi utusangwa mukati ka nkoko utwa bipa saana nyuto tusangwa mu matumbo mupita ifyakulya. No tushishi utwaseka saana myambo iyo beta roundworm elyo na tapeworm. Imyambo iingi isangwa mu matumbo yanono aya nkoko.

Pakucimfya imyambo mu nkoko, konkeni ifi:

- Mwila esha ukubomfya ifintu mwabomfya kale pa mulandu wakuti filakwata amani yatushishi.
- Wamyeni no kusansamo umuti mu ng'anda ya fyuni libili-libili.
- Mwisankanya utwana twa fyuni ne fikulu ukutinya ukwambukisha utwana imyambo.
- Lisheni bwino ifyuni.

#### **6.4.3.2 Utushishi tusangwa kunse**

Utu tushishi utusangwa pa mibili ya fyuni. Utu tushishi limbi kuti twaikala pa mubili wa fyuni mu bwikashi bwa fyuni bonse, nangu kuti tulelyafye umubili wa cuni lelo tuleikala mu ncende umuli imilale panshi nangu kucibumba, nangu apakumanina imilando ya citele na muli fyonse ifyo mubomfya mu citele. Utu tushishi twikala pa mubili wa fyuni twaba nge nkufu,inda no bubenshi.

Pakulesha utushishi twa kunse, konkeni ifi:

- Wamyeni no kusansa muti mu ng'anda yafyuni cila nshita. Fumyeni ifyuni fyonse mu ng'anda no kusansamo no muti wakwipayaya utushishi uwasuminishiwa.
- Fumyeni fyonse ifyo mwayanshikamo no kufyoca pakuti mwipaye tonse utushishi utungasangwa mukati ka citele. Ifi fisoso atemwa limbi kuti mwafibomfya ngo mufundo mu galadeni, lelo aya mabala yafwile yataluka ukufuma ku mayanda ya fyuni.
- Sinkeni yonse imilale ku cibumba nangu panshi mu citele umu utushishi tufisama.
- Sanseni ifyuni no muti wasuminishiwa uwa buunga.
- Sanseni kuli fyonse ifyo mwanshike mu citele namu fibokoshi mwaba ifisansala.
- Subeni/fumikisheni umuti wasuminishiwa uwakwipayaya utushishi ku moolu nangu pa mubili wa nkoko ukulesha ububenshi.

### **6.4.4 Nimunshilanshi amalwele yengila mwi bumba lya fyuni?**

Kwaliba inshila ishingwi umu amalwele yengilila mwi bumba lya fyuni:

- ukushita inkoko ku ncende ishaishibikwa bwino
- ukusankanya utwana twa nkoko pamo ne shikalamba isho ishingasenda amalwele
- ukusuminisha inkoko isho mushininkishe ukuti nashikwata amalwele ukufumya ku ma faamu yambi ukushisankanya pamo ne shikwete umutende.
- ukulenga ba koswe,ifipaso, ba lunshi ne fyuni fya mpanga ifyo fingasenda utushishi ukusangwa pamo ne nkoko ishikwete ubumi busuma
- ukusuminisha abantu abengakwata amajemusi ku makasa yabo, ku minwe nangu ifyakufwala ukwikata inkoko ishikwete umutende.
- ukubomfya ifipe ifyakowela (ifyakulishishamo nokunwishishamo ameenshi).

- Ukubomfya ifipe ifyakowela ku majemusi; ifyabula ukuwamya nangu ukukanafumikisha umuti mu citele.
- Ukupeela inkoko ifyakulya ifyakowela elyo nefyaonaika pamo na meenshi ayafiko.

#### 6.4.5 Nimunshilanshi abalimi bengalesha amalwele mu ma faamu yabo?

Abalimi kuti balesha amalwele mu ma faamu yabo ukubomfya ishi nshila:

- Lisheni ifyuni ifyakulya ifyasuminishiwa
- Shipeeleni amenshi yasuma, ayafuleshi mu fipe ifya busaka.
- Mwilayesha ukulisha ifyuni ifyakulya ifyaonaika.
- Mwisankanya utwana twa nkoko pamo ne shikalamba ilyo shilelalila.
- Mwilashita utwana twa nkoko ku ncende ishisha shininkishiwa bwino.
- Wamyeni no kusansamo umuti mu citele cafyuni. Ifipe fyakubomfya mukulya nokunwisha ameenshi ifyuni fifwile ukuba ifya busaka inshita yonse.
- Mwilabomfya ifyakulaalapo ifyuni nefipe fimbi ifyakowela
- Mwilasuminisha abatandashi ukwingila mu ng'anda ya fyuni.
- Moneni ukuti mwacingilila bakoswe, insoka notunama tunono ukwingila mu ng'anda ya fyuni.
- Konkeni amapologalamu yasuminishiwa pa mipeelele ya muti wakucingilila ifyuni.

#### 6.4.6 Nimunshilanshi umulimi engacefya icikuko ca malwele?

Umulimi kuti acefya icikuko ca malwele ukucita ifi:

- Ukuwamya inga'anda shaku sendamamo ubushiku munshita ne nshita ukulesha ukutulumana kwa matooli
- Ukusamfya ifyakwishishamo ifuni elyo no kubikamo amenshi yambi cila bushiku ukutalusha utushishi utwingekalamo
- Ukufumya no koca icaani cafisansala apalalile inkoko pamo nefipaapa fya maani panumafye yatoota.
- Ukuceceta utushishi no tunama utwingengila mu ng'anda ya fyuni elyo nokundapa. Nga cakuti umwakulalila nangu mumbi umwikala inkoko mwatebelelwa no tushishi twakunse, bomfyeni umuti nokufumikisha nkoko na muntu shikala.
- Oceeni amayanda(ifitele) yonse ayakale ayakulilwa nefimuti, ifyani elyo ne nsengu nokukuula yambi ayapya panuma yamyaka itatu (3) pamuku umo wine nefipe fya mu mayanda mu mushi nangu pa ncende apo ubulwele nelyo utushishi fikonkanya ukwisa.
- Ukubika umulilo mu mayanda ya maloba ukukwata icikabilila ukufika ku nsa imo elyo mucefyeke pakuti mubefye icushi icakwipayaya utushishi. Kutu mwabomfya muti wakulesha utushishi.
- Lekanyeni inkoko ishilewele mu ncende iisuma kabili iyacingililwa, peeleni ifyakulya (nefya musalu) pamo pene na menshi.
- Poseni inkoko shifwile ukupitila mu koca nangu ukushika mu cilindi. Nga cakuti mwasha pa mbilibili lyena kuti shaba entulo yatushishi tuleta amalwele.
- Bilausheni ifipe nangula ifisolobesho mu menshi ayakaaba pali baminiti 30 nokuleka fyauma ku kasuba. Pilibuleni ifisolobesho cila nshita pakuti akasuba kaingila monse-monse. Imyengele ya kasuba ibomba nge shila yakwipailamo utushishi tuleta amalwele.

Abalimi bafwile ukupeela umuti wakucingilila inkoko ku bulwele bwa Newcastle (NDC) ngafintu caba mu malwele yalwambu, amalwele yabipisha ayaletwa na vailasi kabili ayaleta ubonaushi. Ukucingilila inkoko ku malwele ayali nga NCD kwalisuminishiwa elyo kufwile kwa citwa panuma yacila myeshi 3.

#### 6.4.7 Ukulaceceta ubumi bwa nkoko

Ceceteni cila nkoko cila lucelo ukumona ifi pesamba:

- Icuni cibalilapo ukufuma mu citele
- Ifyo cila cuni ciba icapambana, ilingiline icuni icilwele taciba icapambana.
- Bushe inkoko shonse shilelya nokunwa ameenshi nelyo iyoo.
- Ceceteni ifishibilo fyakunakuka, ifilefuma mu menso namu myona, ukukola, ukupolomya nefishibilo fimbi ifya bulwele.

- Ceceteni ukumona nga cakuti inkoko shilekonkanya mukubikila amani
- Nga cakuti kwaishibikwa ubwafya bukumine ku bumi, lenguleni ifyo inkoko shonse shili elyo nga nacilinga, twaleni akasebo ka mulandu ku babomfi ba pafiteekwa (extension officer).

**6.4.8 Nimunshilanshi ukubomfya citindi ukufuma ku nama ishilewele ukubika mu fishiba ngo mufundo kwaba ukwa cingililwa?**

Nga cakuti inama tashili pa kundapwa; umulimi kuti abikako umuti kuli citindi ilyo talabika mu fishiba. Lyena ubukali bwa mufundo wa citindi bufikilila ku ntulo yafyakulya ifyafwa utushishi (amabakitelya) utwaba utusuma ukukula mu cishiba ukucila ukufikilila kwi sabi. Ngacakuti inama shili pakundapwa, inshita yakulekelapo ukupeela umuti ifwile ukukonkwa pakulesha ukukowesha ifishiba ukupitila mufyo umuti usha mu mafi ya nama.

Napamulandu wakufula kwa balimi abaleteeka inkoko isha mutundu wawaminako, amalwele ayapya nayesa mu citungu. Kanshi cikankala ukuti inkoko shapeelwa umuti wakushicingilila kuli aya malwele: Ubulwele bwa Newcastle, Ubulwele bwa mbukila ubwitwa bursa (Infectious bursa disease.IBD) (Gumboro), Coryza na nkasakala ya fyuni (Fowl pox)

**Teebulo 12.** Ubutantiko bwakupeela kwa muti waku cingilila ku malwele:

Umutundu wa muti wakucingilila kabela	NCD	IBD	NCD	IBD	Coryza	Kasankala ya ku fyuni
Ubushiku	10	14	18	21	42	52

Panuma, inkoko kuti shilepeelwa umuti wakucingilila kuli Newcastle panuma ya myeshi itatu (3). Inkoko (ama buloila) shitekelwa ukupeela umunani tashipeelwa umuti wakucingilila ku bulwele bwa coryza na kansakala ya nkoko (fowlpox) pa mulandu wakuti shili mupepi nokutampa ukulishiwa lintu muleshipela umuti.

Nga kulosha ku muti wakucingilila ku bulwele bwa New Castle, inkoko shilapeelwa umutundu wa mataba geleedi 1 pakuti shikwate cilaka ca menshi. Uyu muti upeelwa panuma yaba mineti 30 ilyofye inkoko shalya aya makapa. Uyu muti ulasankanishiwa pamo mu menshi shilenwa. Pa mulandu wakuti aya makapa ya mataba yalashilenga ukuba ne cilaka ca menshi, shilatendeka ukunwa amenshi ayengi namukulekelesha shilalundako icipimo ca muti ukupitila mu menshi.

**6.4.9 Ifyakucingilila**

Ukucingilila utushishi ukukana ingila pa faamu, abalimi kuti basenda inshila ishingi ishakucingilila: Bikeniko incende ukwa kusungila elyo nokwakushisambila ukubikapo ne myotika. Bikeniko ulubango nokukula amayanda ayasuma/umupita umwela elyo nokubikako ifipe umwakusambila ku maboko ne minwe. Kabili cikankala ukumona ukuti takuli ukwingila icingile ingile mufikulwa fya nama.

# 7. Ukukondenkanya ubulimi bwe sabi ne mbushi

## 7.1 Bushe bukankalanshi bwaba mukuteeka imbushi ku balimi banono?

Ukulingana nefyalanda Namonje-Kapembwa et al (2022), ukuteeka mbushi kwalikwata ifintu ifisuma ifyakufumamo ku balimi abanoono nge nshila yabwikashi pamo nge fi:

- Imbushi shilasandana.
- Ifyakubikamo fiba ifinoono pa bulimi ubwalinga.
- Shilafika pakukula bwangu ico icilenga ukumwenamo polofiti.
- Shilaafwilisha abalimi bamumishi no kushipa kwa mubulimi bunono munshita kuli imicele yaaluka aluuka, pamo nga ukukana kwata imfula iyalinga elyo necikabilila icapa muulu.
- Shilalunda pakusungilila ifyakulya ne milile isuma.
- Shalikwata abakufwaya ukushita apaliponse elyo ne mishitishishe yaliba iyayanguka, icakuti abalimi banoono balakwanisha ukushita ifya lupwa.
- Shilabomba bwino mu bwikalo bwa bantu musha mishi, pamo nga amenga, ukusefya kwa ntambi shacikaya, ukulipila ku nsalamu, kufililo elyo nokupwishafye ifikansa nelyo amafya.

Ukulingana na MFL, imbushi eshibomfiwa ukucingilila abantu ba mu mishi abapina mu mikalile yabo. "Icipao ce Banki lyenda ilyakututilamo icuma -Walking Savings Bank Account"(2015:1) elyo kabili pa mulandu wakufwaisha imbushi mu caalo cesu nakunse, imbushi tecintu mwingatila pali ino shita ukuti ninama shakuteeka umupina. Ukulundapo ukuteeka imbushi kulapeela incito kabili enshila iyaanguka iyakukwatilamo icuma nga mwashitisha inama, umukaka, imikupo iyo imbomfiwa mukupanga ifintu ifyapusana pusana ifya mu ng'anda pamo nga utupuna, ing'oma ne fimbipo. Kabili imbushi shilapeela cimwemwe ku ndupwa ukuti nabo balisungapo icuma.

Ubulimi bwa mbushi kuti bwakondenkanishiwa pamo no bulimi bwe sabi ico icinga lundako ubusomboshi bwa fyonse fibili imbushi ne sabi. Neeci cilakosha amaka yakushansha ku balimi banoono mu nshita ya mafya yaleta imiceele ya nshita ntali. Kabili kwaliba imitundu ya mbushi mu Zambia apo abalimi bafwile ukusala, nga fintu cilangilwe muli Teebulo 13.

**Teebulo 13.** Imitundu ya mbushi ishisangwa mu Zambia elyo nefyo shingeshibilwako.

UMUTUNDU	IFYAKWISHIBILAKO	IMIBOMFESHE
<b>Imbushi sha mu Plateau (Plateau goat)</b>	<ul style="list-style-type: none"> <li>• Shisangwa mu ncende shamu pulatu mu Zambia</li> <li>• Shaba fye pakati ka bukulu</li> <li>• namalangi (colours) ayapusana-pusana</li> <li>• Ishikalamba ishilume shilafina kuli sekelo wa 45kg elyo ishikota ukutampa pali 25kg - 30kg</li> </ul>	<ul style="list-style-type: none"> <li>• Ilingi line shibomfiwa fye ku munani ne mikupo</li> <li>• Limo-limo no kukamako umukaka</li> </ul>
<b>Imbushi shaku Gwembe (Gwembe goat)</b>	<ul style="list-style-type: none"> <li>• shisangwa fye kwi Boma lya Gwembe mu citungu ca Southern</li> <li>• Tunoono, utwakosa, utwauminina</li> <li>• Cintobe-ntobe utwa fiita, bu-launi no kubuuta</li> <li>• Twaliba utwapambana mumis-andulwike</li> <li>• Ishilume shilafina 25kg elyo ishikota 20kg</li> <li>• Tatufumya mukaka uwingi (0.2 ltrs mu bushiku fye bumo)</li> </ul>	<ul style="list-style-type: none"> <li>• Ilingi fye ku nama ne mikupo</li> </ul>

BREED	CHARACTERISTICS	USE
<b>Imbushi shaku Sinazongwe</b>	<ul style="list-style-type: none"> <li>shisangwa fye mwi Boma Iya Sinazongwe mu citungu ca Southern</li> <li>Shilakulapo ukucila isha Gwembe</li> <li>Shalikwata umwefu utali</li> <li>Tunono kabili utwakosa nokuminina</li> <li>- Utwa malangi yafita, ayabuta, bulauni nokubutamo</li> </ul>	<ul style="list-style-type: none"> <li>Ilingi line ni munani ne mikupo</li> </ul>
<b>BImbushi ishi shaishibikwa</b>	<ul style="list-style-type: none"> <li>Shisangwa mu Citungu ca Central</li> <li>amasako ayatali pa mpumi</li> </ul>	<ul style="list-style-type: none"> <li>umunani ne mikupo</li> </ul>
<b>Isha cikaya (Bantu goat (local))</b>	<ul style="list-style-type: none"> <li>Ubukulu bwa pakati elyo na malangi nelyo ifisemba ifyapusana-pusana</li> <li>Ishilume ishikalamba shifina ukufika kuli ba 30kg elyo ishikota kuli ba 25kg</li> </ul>	<ul style="list-style-type: none"> <li>umunani ne mikupo</li> </ul>
<b>Boer goat (exotic) Imbushi shafuma ku fyalo fimbi</b>	<ul style="list-style-type: none"> <li>Intuntuko yaku South Africa</li> <li>Isha buuta ne fisemba fya bulauni nangu ukukashikila na ku mutwe no mukoshi ukwa bulauni</li> <li>Ishilume ishikalamba shifina kuli ba 70kg elyo ishikota 50kg</li> <li>Kuti shakamwako umukaka ukufuma pali citika wa lita ukufika pama lita yabili (half litre -2litre)</li> <li>Amatwi ayakulu kabili ayakompama</li> </ul>	<ul style="list-style-type: none"> <li>Umunani, umukaka ne mikupo</li> </ul>
<b>Saanen goat (exotic)</b>	<ul style="list-style-type: none"> <li>Shatuntuka ku Ireland</li> <li>Isha buuta</li> <li>Ishikalamba shilafina 75kg elyo ishikota 65kg</li> <li>Kuti shapela amalita ya mukaka ukufuma pali 3 ukufika pali 5</li> <li>Amatwi ayapantalala</li> </ul>	<ul style="list-style-type: none"> <li>Umukaka</li> </ul>
<b>Toggenburg (exotic)</b>	<ul style="list-style-type: none"> <li>Shafuma ku fyalo fya ku Europe, nokushileta ku fyalo fyaku Kabanga fyamu Africa (East Africa)</li> <li>Sha bulauni ne mishilwa iya buta pa menso</li> <li>Ishikalamba ishilume shilafina ukufika kuli 80kg elyo ishikota 70kg</li> <li>-Kuti shakamwako umukaka ukufika kuma lita yatatu(3l) pa bushiku bumo</li> <li>Panono kofye amatwi ayasonta ku ntanshi kabili ayapantalala</li> </ul>	<ul style="list-style-type: none"> <li>Maka-maka ku mukaka</li> </ul>

BREED	CHARACTERISTICS	USE
<b>Anglo- Nubian (Nubian)</b>	<ul style="list-style-type: none"> <li>Ishakosa kabili shileshibila bwangu</li> <li>Amalangi ayengi</li> <li>Ishilume ishikalamba shifina 60kg elyo ishikota 65kg</li> <li>Shilapeela umukaka uwingi kabili uusuma</li> <li>Amatwi ayasonta ku ntashi kabili aya pantalala</li> </ul>	<ul style="list-style-type: none"> <li>Umukaka</li> </ul>

**Intulo:** Cawaminishiwa ukufuma ku MAL 2013.

Amafi ya mbushi kufuma manyuwa usuma pantu yalikhwata 60% organic carbon, 2.88% potashamu, 2.7% nitrogen elyo 1.78% fosifaras, K- 2.88%, elyo imisu yashiko nayo yalikhwata ubukankala muli nitrogen na potashamu (Farm Design 2021). Ukufika ku cipendo 50- 60 ica mbushi eshifwaika ukupeela umufundo muli ha wa cishiba. Imbushi shifwile ukwikala mu ng'anda umwauma, umwa cingililwa elyo nokucingililwa kucikabilila icakucila mu cipimo. (Farm Design 2021). Ngacaku mwalicitile bwino, ubulimi bwa mbushi kuti bwa mupeela 500-600kg iya munani elyo na 3000L iya mukaka pa mwaka, elyo pamuku umo wine nokumupeela impapa na faiba ifili nga mohair na cashmere(Singh n.d.) Ubusomboshi bwa mbushi 1.502.0 amataani ya citindi mwaba P-1.78% na K-2.88%. Ubulimi bwa mbushi kuti bwafumya ama kilogramu 500 -600kg iyamunani wa nama no mukaka ama lita 3000 pa mwaka ukulunda pakupeela imikupo ne nshinga(Singh, nd)

Ukulingana na Kumar et al. (2012:208, "Amafi ya mbushi yalilishapo ubukankala muli nitrogen na phosphoric acidi ukucila amafi ayafuma ku nama shimbi. Imisu ya mbushi nayo yalikhwata ubukankala muli fyonse fibili nitrogen potash." Kabili kalemba atila, "Citindi wa mbushi alikhwata ubusuma bwakuti kuba ukubikamo fye palya pene mu fishiba fye sabi ililekula pa mulandu wakuti ayamafisho yaba aya bulungana ukufika 6 - 7mm peeti, umo umusangwa fikole-kole elyo nokwe eleela mu menshi nga yali ayauma. Aya mafi yaalisangwa ukuti yalalikwa kwi sabi. Imbushi kuti sha sungwa mu ng'anda iyakulwa apa sumbulwako apapita umukolololwa pakuti ubusali buleingila mu cishiba ce sabi" Umufundo wa manyuwa(peleti) kuti walongwa mu mifuko elyo nokubika mu makoona ya cishiba, elyo nokumona ukuti ilepelela pakuti ilefumya manyuwa ngacakuti kwaba ama algal bloom. Umufundo wa manyuwa kuti walongwa utuntulu pakuti ulesuminishafye amanyutilentu ukupeela umufundo mu meenshi ya mucishiba. Limbi amapelleti kuti yashonaulwa ukusuminisha amanyutilent ukuya mu meenshi (2012:208).



**Icikope 15.** Ukukondenkanya isabi ne mbushi pamo

## 7.2 Amayanda(amacinka) ya mbushi

Ukubika imbushi mu ng'anda iisuma cikankala mukecefyako ukulusa kwa nama ukushalinga ku malwele, ifinama ifingafwaya ukwisa mukwikata, ku bupuupu ne miceele ibi iya cila bushiku. Amafya ayengi ayakumine ku bumi bwa mbushi yabako ku mulandu wakukana kwata ubusaka bwa mu mayanda ya mbushi ne ncede shashinguluka aya mayanda. Utwana twa mbushi nga cakuti tatuleisalilwa mu ng'anda bwino kuti twaikatwa ku nama shilya inama shinankwe pamo nga imbwa elyo kabili kuti kwaba utushishi na malwele. Neci kuti catwala kukulufya kwa nama ishili mwibumba, namukulesha ukubwelela panshi kwa busomboshi ne ndalama. Pa kucefyako ifiposwa pa bukule bwa mayanda ya mbushi nokukusha polofiti, umulimi afwile ukubomfya ifintu ifisangwa mu ncede ekala pamo nga insota, icani cakufimbila nelyo amalata. (MFL, 2015).

### 7.2.1 Apa kukulila ing'anda ya mbushi

Ing'anda ya mbushi ifwile ukukulwa mupepi ne ng'anda mwikalamo apali 100. Ifwile ukubikwa pa mushili uwakuti mulamba alepita kabili ku masamba (ukuwila akasuba) yakubelele ing'anda ya mulimi ukulesha icena ca citindi.

Ukukula ng'anda ya mbushi iisuma, abalimi bafwile ukukonka ifi:

- Iyaanguka mu fintu fyakubomfya ifisangwa mu ncede ifyapala insota ne fyani fyakufimbila.
- Ing'anda ifwile ukukwata insaka yakucingilila imbushi ku mfula, akasuba, umwela, inama shikata na bapuupu.
- Sumbuleniko apakunyanta ukulesha amalwele nokucefyako ukwikatwa ku nama elyo namukwangukililwa ukukolonganika citindi.
- Cingilileni imbushi kukukana kwata ubonaushi bwa fisabo.
- Kufwile kwaba umwakulila ifyakulya no kunwena amenshi.
- Ing'anda ifwile ukukwata umwakwingilila nokufumina umwela pakutalusha amalwele yamukushupika mukupeema (ayapala akalaso)
- Imiputule iikalamba ukulesha ukutitikana kwa nama, ukukoweshiwa nokukana ikala fye bwino.
- Ifibi ifyakoosa ukucingilila imbushi ku nama na bapuupu.
- Popeni umutengo uwasuluka bwino elyo no mutenge uwasolomoka ukufuma ku cibumba ukufika 0.5m pakuti ameenshi yalekonkoloka bwino ukukana ingila mukati.
- Ifipunda apakumanina amapulanga apakunyanta pafwile ukuba 1.5cm mukutalushanya (mupeepi nokwina kwa cikumo ca mukalamba) ukulesha ukuicena ku twana.
- Incende ukufuma ukufuma pa mushili ifwile ukufika kuli 1.2m pakuti cayanguka ukufumya citindi mwisamba.
- Cingilileni ing'anda ya mbushi no lupango pakuti takuli ukufuma lintu kwaba imiceele iyalubana.
- Bikenimiputule mu ng'anda, iya twana, inama ishilwele, nashimbipo.
- Limbeni ifimuti ukupeela icintelelwe apo mwakulila ing'anda nangu kuti mwakulila mu cintelelwe ca cimuti.



## Icikope 16. Ukubula/ukutol amafi ya mbushi ukufuma mu ng'anda ya mbushi



### 7.3 Imicitile isuma iya kuteekelamo imbushi.

Iyi emicitile yalyonse iyo ifwile ukubombwa pakuti ubulimi bwa kuteeka imbushi buleyenda bwino:

- Moneni ubumi bwa mbushi elyo nokuceceta ngakuli ifishibilo fyakulwala.
- Lisheni imbushi bwino pakusha fwilisha ukucimfya amalwele.
- Peeleni imbushi ameenshi ayalinga kabili kabili ayasuma. Ifyakunwinamo fifwile fyaba mulupango nangula mukati ka ng'anda ya mbushi.
- Fumyeni citindi ya mbushi cila nshita.

### 7.4 Ukulisha ne milile isuma ku mbushi

Ukusunga imbushi sha bumi ubusuma cilafwa ukulwisha amalwele. Kabili cilalenga ukuti shikule bwangu, ukusanduluka bwangu elyo nokupeela icipimo ca mukaka cikulu.

Ifi efikomo ifyo mufwile ukwishiba pa milishishe no mulyo ukabila imbushi:

- Imbushi shalitemwa ukusaba ku fimuti ukucila ukulya icani pa mushili eico limbi teti shikule bwino ngacakuti tashipeelwe inshita yakwangala mu mpanga umuli fimuti. Imbushi shilalya fyapusana pusana ifili icani nefya mabula pamo penefye ne fimuti fyamuunga.
- Umwakulila umusuma ku mbushi muntu musangwa fyonse fibili icani ne fya mishila ifyapala intongwe amabula ya soya, cilemba, kachesha, imbalala, ilanda. Ifyani fyalikwata iflenga ukusungulula bwangu ifyakulya mumala nokupeela amaka.
- Imbushi shilakula bwino ngacakuti kwaba ukushipeela ifyakulya fyakupeela amaka (ama carbohydrate) elyo nefyakulya fyakukusha umubili (ama protein) ifili nga amataba, amale, sogamu, sanfulawa, imbalala na soya. Mufwile ukwipikako soya nokutwa ilyo tamulalisha imbushi.
- Imbushi shalitemwa ukulya amabula yaku fimuti elyo ne cani cakatapa-katapa iciteku.
- Pamo nge nama shimbi, imbushi shikabila cilanshita amenshi yakunwa pakuti shisunge ubumi. Imbushi sha cikaya shilakabila ukunwa icipimo ca meenshi ukufuma 2-10L cila bushiku ukulinganafye no bukulu bwacitekwa.
- Imbushi ishilelya cani iciteku, icilekula shilakula bwino nangu tapali amenshi, lelo ubwafya buba muku panga umukaka elyo na mu mikuliile.
- Fimbi ifyo mwingashipeela kuti paaba ifisekwa fya busomboshi bwafya mbuto, amakapa, imisale, amapapa ya ntongwe, cilemba ne mbalala.
- Imbushi iikalamba kuti yalya icani icauma ukufuma 1- 1.6 kg mu bushiku bumo nangu 4-6kg icani icibishi.
- Mu nshita yakuma(ulusuba), icani cilakota no kukosa kabili tacikwata saana umulyo, kanshi imbushi shilafwaya ifyakulundapo pa fyakulya.

## 7.5 Amalwele nefyakucingilila ubumi bwa mbushi

Mu kusondwelela, imbushi shilashansa saana ku malwele ayengi. Lelo nga cakuti imibele pamo nga ukubika cinkupiti wa mbushi pamo, ing'anda ya mbushi iishakulwa bwino nokubulwa kwa busaka, ukubulilwa kwakupokelela no kufumya umwela mu ng'anda ya mbushi namafya yambi kuti calenga amalwele ayengi ukwisa, ico icingatwala ku kucepelwa kwa mbushi nokusandana. Paku cefyako ubuluse, cikankala ukuti kwaba ukusungilila ubumi bwa mbushi ukubikapo ne nshila shakushicingilila. Teebulo 14 muli ukulondolola amalwele ya mbushi yamo ayaseeka, ifyakwishibilako, ifyakucingilila no bundapishi.

Ubulwele	Ubulondoloshi/ifyakwishibilako	Ifya kubutalusha nokucingilila
Ukwingilwa ne myambo (Worm infestation)	<ul style="list-style-type: none"> <li>• Utushishi/imyambo iingasangwa mukati ka munda ya mbushi icakuti takuba kusanduluka kabili kulaba ukufwa</li> <li>• Ifyakwishibilako</li> <li>• ukucepelwa umulopa,</li> <li>• ukupolomya, ukonda,</li> <li>• ukulusa icipimo</li> <li>• ukukakabala kwa nkanda</li> <li>• Ukutola/ukukana kula bwangu,</li> <li>• ukufimba kwa panshi ya ncedwa,</li> <li>• ulufumo ulwafimba</li> <li>• imfwa yamukupumikisha.</li> </ul>	<ul style="list-style-type: none"> <li>• Cinjeni incende umwakulila panuma yacila milungu itatu ukutalusha imyambo</li> <li>• Talusheni imbushi ukulila ukuli amenshi no kwa boomba.</li> <li>• Mwishitwala mukulya muluceelo saana ilyo imyambo ilelenya mpakafye umume wapwa.</li> <li>• Nga cakuti muletunganya ukukwata imyambo, shipeeleni umuti ukubomfya Albendazole nelyo Nilzan.</li> <li>• Shipeeleni inyeleti beta Ivermectin</li> </ul>
Ukubola ifibondo(Foot rot)	<p>Ubu bulwele bulambukila kabili bwaliseeka saana mu mainsa icakuti bulaleta ukubosha panshi ya makasa no kuleta icena iciibi. Ifyakwishibilako</p> <ul style="list-style-type: none"> <li>• kusunta,</li> <li>• ukongoloka pa kwenda</li> <li>• amakasa ayeepuka ku cena</li> </ul>	<ul style="list-style-type: none"> <li>• Ukucingilila</li> <li>• Ukuwamya ku mabondo/makasa.</li> <li>• Mwiesha ukubika imbushi umwabomba kabili mu ncende umuli amatipa.</li> <li>• Shibikeni mu ng'anda iisuma</li> <li>• Ukundapa</li> <li>• lekeni shende nangula ukushitumpika amakasa umuli 10% iya copper sulphate nelyo zinc sulphate.</li> </ul>
Akalaso (Pneumonia)	<p>Ubulwele bwikata bapwapwa. Ifyakwishibilako</p> <ul style="list-style-type: none"> <li>• impepo,</li> <li>• ukukoo</li> <li>• ubwafya mu kupema,</li> <li>• ifimina ukufuma mu myona,</li> <li>• ukukana fwaya ukulya (anorexia)</li> <li>• ukonda ukucila mu cipimo</li> </ul>	<ul style="list-style-type: none"> <li>• Ukucingilila</li> <li>• Mwishibika muli cinkupiti</li> <li>• Wamyeni umutipila nokufumina mwela.</li> <li>• Peleeni amenshi ayasuma</li> <li>• Shipeeni umuti waku shi cingilila cila mwaka.</li> <li>• Ukundapa</li> <li>• Nga cakuti tushishi twa bakitiria etwaleta ubulwele, undapeni ukubomfya ama anti-biotics uwabanga penicillin nangu oxytetracycline na sulphonamides.</li> </ul>

Ubulwele	Ubulondoloshi/ifyakwishibilako	Ifya kubutalusha nokucingilila
Ukukpolomya (Diarrhoea)	<p>Ubu bulwele bwaliseka saana mutwana twa mbushi nokulenga ukufwa ukucila mucipimo. Ifyakwishibilako</p> <ul style="list-style-type: none"> <li>• Amafisho ya meenshi,</li> <li>• ukupopomenwa,</li> <li>• ukucepelwa meenshi mu mubili</li> <li>• Ukumfwa ukulanaka</li> </ul>	<ul style="list-style-type: none"> <li>• UKucingilila</li> <li>• moneni ukuti utwana twa mbushi tulenwa ameenshi ayengi.</li> <li>• Lyonse peeleni ameenshi ayengi kabili ayasuma</li> <li>• Twalilileni ukusunga incende iya busaka.</li> <li>• Pekanyeni ifyakulya ifingi ku mbushi shinono</li> <li>• -Lekanyeni inama ishilwele.</li> <li>• Ukundapa</li> <li>• Peeleni ameenshi(ORS) lita umo (1L) ukusankanya na citika wa supuni umucele (hafu) nama supuni yane (4) aya shuka nelyo ubuuci nangu ubuci.</li> <li>• Peeleni amalasha ukusankanya na meenshi nangu black tea.</li> <li>• Sungeni utwana twa mbushi umwakaba.</li> <li>• Peeleni ama anti-biotics pamo nga penicillin nangu sulfonamides nelyo oxytetracycline</li> </ul>
Ukupulumuna (Brucellosis)	<p>Ubu bulwele bulenga imbushi ukupulumuna mu nshinku shakulekelesha ishe fumo. Ifyakwishibilako</p> <ul style="list-style-type: none"> <li>• shilamoneka ukupungaila</li> <li>• ukukola nokushenda bwino</li> <li>• ukupona kwe fumo elyo nokukana fuma kwa ciisa(macenda)</li> </ul>	<ul style="list-style-type: none"> <li>• Peeleni ishikota umuti S19 vaccine pa myeshi 2-4.</li> <li>• Ipayeni ishikwete ubulwele nokoca.</li> <li>• Twaleni lipooti ku babomfi ba pumi bwa nama</li> <li>• Ukwabula ukundapwa, ukusunga incende busaka nokupeela ifyakulya ifisuma kukapwisha ubulwele</li> </ul>
Ubulwele bwa konto (Tick-borne disease)	<p>Ubu bulwele butandanishiwa naba konto. Ifyakwishibilako</p> <ul style="list-style-type: none"> <li>• kucepa kwa mulopa ukumonekelwa pa cipa ca linso</li> <li>• impepo, ukutunya nokushinguluka muli seeko.</li> <li>• Iminofu ukulayenda</li> <li>• imisu iyakashikila nokufitamo,</li> <li>• ukukula kwashingashinga,</li> <li>• ukonaika kwa nkanda</li> <li>• imfwa</li> </ul>	<ul style="list-style-type: none"> <li>• Ukucingilila</li> <li>• Tumpikeni imbushi mu muti ukulesha bakonto maka maka nga bafula pa mibili.</li> <li>• ifyasuminishiwa; shitumpikeni umuku umo mu mulungu munshita ya mainsa elyo umuku umo panuma ya milungu ibili munshita yakutalala.</li> <li>• Ukundapa</li> <li>• Peeleni umuti wa oxytetracycline, imizol, doxycycline nelyo berenil</li> </ul>

Ubulwele	Ubulondoloshi/ifyakwishibilako	Ifya kubutalusha nokucingilila
Ukunwa sumu(Poisoning)	<ul style="list-style-type: none"> <li>• icilenga lintu kwaba ukulya ifimenwa ifikwete poisoni</li> <li>• pamo nga lantana. Ifyakwishibilako</li> <li>• ukukana enda bwino</li> <li>• ukuponya ululenda nokufilwa ukupema bwino. Mufwile bwangu bwangu mwashi peela antidote</li> </ul>	<ul style="list-style-type: none"> <li>• Tekwasha ukulimbika nangu ukubyala ifimenwa fyakwata sumu mupeepi ne ng'anda ya mbushi.</li> <li>• Ukundapa Ukusankanya ifi cipimo icisuma icakusundula sumu; 500g ya malasha ayatwiwa na 500g iyapelekwa iya lime (pambali ngatamukweteni amalasha) muli 10 litre black tea</li> <li>• Peeleni imbushi ikalamba 1 litre pakusundula sumu</li> </ul>
Ukufimbiwa (Bloat)	<ul style="list-style-type: none"> <li>• Ilyo imbushi yaisulilwa umwela mukati ka cifulu icakuti yafilwa nokufumya uyu mwela ku kanwa.</li> <li>• Ifyomwingeshibilako</li> <li>• ukufimba lufumo kulubali lwa kuso ulwa lufumo,</li> <li>• ukukana fwaya ukulya,</li> <li>• ukufilwa ukupeema,</li> <li>• ukusheta ameenno no kufoloma</li> </ul>	<ul style="list-style-type: none"> <li>• Aluleni ubwingi bwa fyakulya shilelya</li> <li>• Mwilashilisha ifyakulya fyakulundapo ifili amataba ne fya mishila (legume) ifili soya bini, intongwe nelyo ilanda,</li> <li>• Ukundapa</li> <li>• Patikisheni imbushi ukunwa 250 ml ya mafuta yakwipikila</li> <li>• Ensheni nangu ukushingulusha inama ifimbiwe mu lubansa n pa kuikoselesha ukufumya umwela uuli mukati</li> <li>• Mwiyesha ukupeela inama ameenshi pantu amataba mukati ka mala kuti yapanga nsashiko nokulnga ukukulilako.</li> </ul>
Ubulwele bwa konto (Tick-borne disease)	<p>Ubu bulwele butandanishiwa naba konto. Ifyakwishibilako</p> <ul style="list-style-type: none"> <li>• kucepa kwa mulopa ukumonekelwa pa cipa ca linso</li> <li>• impepo, ukutunya nokushinguluka muli seeko.</li> <li>• Iminofu ukulayenda</li> <li>• imisu iyakashikila nokufitamo,</li> <li>• ukukula kwashingashinga,</li> <li>• ukonaika kwa nkanda</li> <li>• imfwa</li> </ul>	<ul style="list-style-type: none"> <li>• Ubulwele bwa ku nkanda (Mange) Ifyakwishibilako</li> <li>• ukususauka amasako</li> <li>• Ukufwenya nokulaikusulula fintu ifyakosa nokupanga ifilonda ifingaleta utushishi</li> <li>• Ukukana lya ifyakulya icinga twala kukondoloka.</li> <li>• Nga bwapitilila mulesa mukufuma imfwa.</li> <li>• Ngatakuli ukundapwa, ifyakutumba kuti fyafika umubili onse, icingatwala kukulusa icipimo, ukunakuka umubili elyo nokukana lya. Ukucingilila</li> <li>• Kuleni amayanda ayasuma, ayapisha umwela uusuma kabili ne ncende iyafunguluka.</li> <li>• -Tumpikeni nelyo ukushikana umuti cila nshita.</li> <li>• -Shenifye inama ishili no bumi ubusuma nokushibwesha umo shikala</li> <li>• Ukundapa</li> <li>• Kuseni inkanda nokufumya amaamba mpanka fye fyaswa umulopa. Panuma kuti mwacita ifi: mwasuba</li> <li>•</li> </ul>

Ubulwele	Ubulondoloshi/ifyakwishibi-lako	Ifya kubutalusha nokucingilila
		<ul style="list-style-type: none"> <li>• Peeleni sodium benzoate,</li> <li>• Oil ya mu injini iyabomfiwa</li> <li>• Castor oil liquid paraffin.</li> <li>• Citeni ifi panuma ya nshiku shibili nelyo shita mpaka fye shipole</li> <li>• Shitumpikeni mu muti</li> <li>• Shilaseni umuti wa Ivermectin.</li> </ul>

## 8. Ukusanshamo abaume na banakashi mu nshila yakukondenkanya ubulimi bwe sabi no bulimi bumbi

Umulinganya pakati ka baume na banakashi cintu cimo icikankala saana pakufikilisha imibombele yakukondenkanya ubulimi bwe sabi no bulimi bumbi pakuti kwaba imibomfeshe ya mpanga iyakutwalilila, ukusunga ifyakulya ne milile isuma, ukukwata amaka yakushansha elyo nokucefya ubupina. Iyi ninshila ishakoosa. Yaliba fye iyayanguka ukubomfya ku balimi banoono abakwatafye amasambililo aya panshi elyo nenshila yakusangilamo indalama nefintu fyakubomfya mu bulimi ifishafunguluka abo ababa maka maka banamaayo abashikwanisha. Banamaayo kuti bakusha amaka yabo ayakulwisha ukutitikishiwa kwa mu mikalile no bunonshi bwa fyakulya ne milile isuma, indalama sha pa ng'anda, ukupakamisha banamaayo, ukupanga ubupingushi elyo nokwalula imikalile yabo ukupitila munshila yakukondenkanya ubulimi bwe sabi no bulimi bumbi iyo iinga kusha amaka yakushansha mu bwikashi bwa mu mishi.

Inshila shakukondenkanya ubulimi shifwile ukulakuma saana ubwikashi bwa mu ncende elyo nenshila sha banamaayo abalimi bakonka isha mu mikalile. Inshila shakukondenkanya ubulimi shifwile ukusanshamo imicitile ilebomba iya banamaayo abalimi. Banamaayo abengi mu mishi balateeka inkoko shacikaya nge cishilano elyo ici cilapeela ishuko lya kukondenkanya inkoko ne sabi.

Ifikope 17-20 filelanga abalimi abapusana pusana mu Zambabwabi ababomfya inshila yakukondenkanya ubulimi no bulimi bwesabi.

**Icikope 17.** Namaayo mwi boma lya Mpulungu uuteeka inkoko umufuma indalama sha mubwikashi bwakwe.



**Icikope 18.** pesamba cilelanga banamaayo abalimi mwi boma lya Luwingu ababomfya manyuwa wa nkoko ne mbushi ukubika mu fishiba pakuti fifunde.



**Icikope 19.** Umulimi mwi boma lya Luwingu alelondolola ifyo akondenkanya ubulimi bwe sabi ne fyuni



**Wicikope 20.** Banamaayo abalimi be sabi lyamu fishiba mwi Boma Iya Mbala ababomfya manyuwa ukufuma ku nkoko shabo nokubika mu fishiba na magaladeni.



## 9. Ukusondwelela

Inshila yakukondenkanya ubulumi bwe sabi no bulimi bumbi (IAA) ni nshila iyatontonkanishiwapo bwino ukubomfya tekinoloji munshita yakwaluka kwa miceele ya panshita ntali. Ni nshila iyo iyafwa abantu nefilengwa na Lesa ukukwata amaka ya kushansa nokubelesha ififuma mu miceele. Iyi nshila yaba ni cibusa mu mibombele elyo nokubomfya bwino amenshi nge cintu icacepana mu mibomfeshe. Ishi nshila ishalekana lekana kuti shakoseshako bwikashi bwa balimi banoono no kucefya ubupiina mu ncende sha mu mishi ukupitila mukulima ifyakulya ifyalekana lekana.



## 10. Ifitabo nafimbi umwafuma amasambililo

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