

BUKHU LA MLIMI

# NDONDOMEKO YA KALIMIDWE KAMAKONO KA TSABOLA



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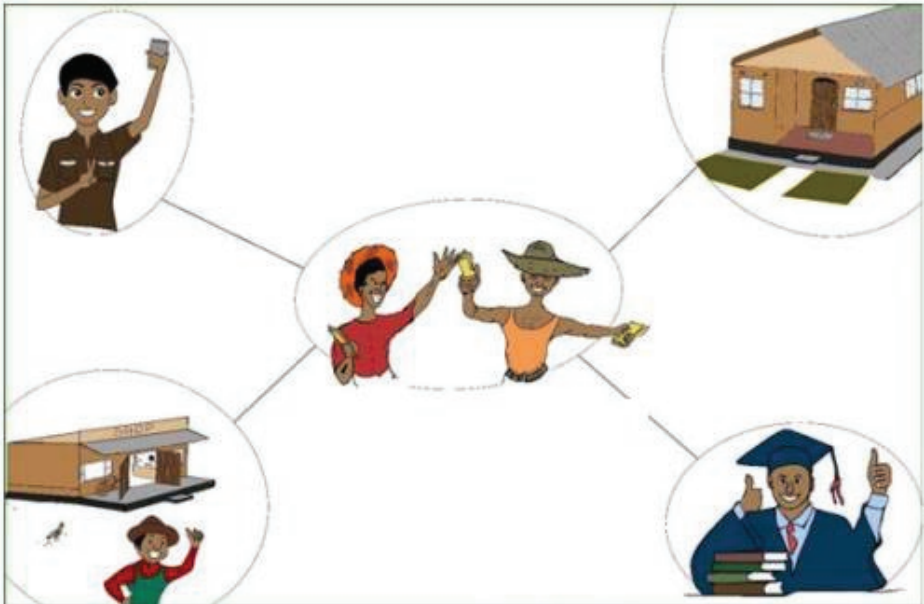
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# Mutu 1: Kukonzekera ulimi watsabola



## a. Kodi chithunzi chilimwambachi, chikufotokozera chani zaulimi wa tsabola?

- i. Ungatithandize kupeza zofunika zapakhomo monga chakudya ndi zovala
- ii. Ndalama zaulimi watsabola zingatithandize kutukuka kapena kuyambitsanso ma business ena ang'onoang'ono
- iii. Tingaphunzitse ana athu sukulu
- iv. Tithanso kukwaniritsa kumanga ndikukhala ndi nyumba

## b. Kodi timakonzekela bwanji ulimi wa tsabola?

Mlimi akuyenera kukhala ndi kalendala ya zamalimidwe, kupeza malo oyenera, kugula zipangizo zoyenera paulimi, kudziwa upangiri oyenera pa ulimi komanso kuziwa za misika.

## c. Kodi kusunga malekodi ndikofunika pa ulimi watsabola?

Kusunga malekodi ndikofunika paulimi chifukwa kumathandizira mlimi kudziwa ndalama zolowa komanso zotuluka mu bizinesi yake ya tsabola.

No. Activity	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
<b>1.0 Nursery establishment</b>												
1.1 Site selection for nursery and field												
1.2 Bush clearing												
1.3 Tilling												
1.4 Harrowing												
1.5 Making nursery beds												
1.6 Sterilizing nursery beds												
1.7 Making ridges in the field												
1.8 Seed sourcing												
1.9 Sowing seed												
<b>2.0 Nursery management</b>												
2.1 Watering												
2.2 Mulching												
2.3 Weeding												
2.4 Pests and disease control												
2.5 Hardening off												
<b>3.0 Transplanting of seedlings</b>												
<b>4.0 Field management</b>												
4.1 Irrigation												
4.2 Manure application												
4.3 Weeding												
<b>5.0 Pest and disease management</b>												
6.0 Harvesting												
7.0 Post-harvest handling												
7.1 Drying												
7.2 Grading												
7.3 Packaging												
7.4 Storage												

**d. Mlimi angasunge malekodi anji kuti ulimi wake utheke?**

- i. Malekodi a ndalama zogulira zipangizo ndiupangiri
- ii. Malekodi a antchito ndi zina zonse zofunika pa ulimi

**e. Ndizipangizo zANJI zoyenera kukhala nazo pofuna kukwaniritsa ulimi watsabola?**

- i. Mbewu yovomerezeka
- ii. Manyowa
- iii. Mankhwala ophera tizilombo
- iv. Zipangizo zokololera komanso zosungira tsabola

## Mutu 2: Kukonza Manyowa



**a. Kufunika kwa manyowa ndikotani paulimi watsabola?**

Manyowa ndi chakudya chabwino chambewu komanso amathandizira kubwezeretsa chonde mntchaka

**b. Ndimanyowa anji omwe timagwiritsa ntchito?**

Bokashi, Chimato, Changu, Chinese, Manyowa apa nkhuti, Windrow, a ziweto

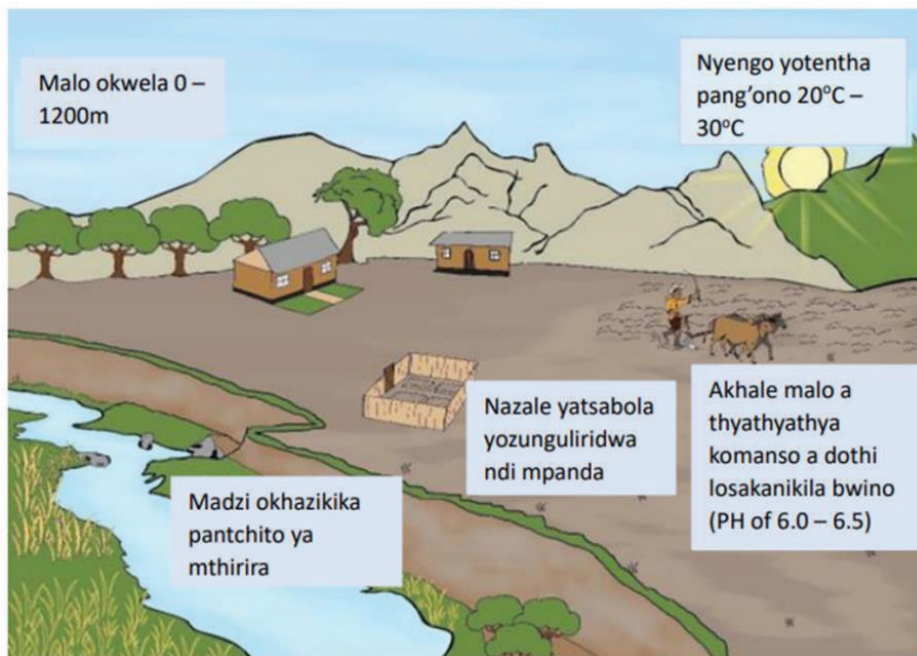
**c. Tikuyenera kukhala ndizipangizo zotani kuti tipange manyowa**

Manyowa osiyasiyana amafunanso zipangizo zosiyana. Funsani alangizi azamalimidwe pa zipangizo zoyeneradi. Kodi tikonze liti manyowa?

**d. Kodi tikonze liti manyowa?**

Konzani manyowa kumayambiri kwa chaka chaulimi, mvula isanafike.

## Mutu 3: Kukonza ndi kusamalira tsabola



### Pa Nazale

#### a. Kodi zoyenera kuwunikira posankha malo ofesapo tsabola ndi ziti?

- i. Kufupi ndi madzi, Kufupi ndi nyumba, malo otsika pang'ono kuti azitaya madzi komanso malo osaphimbika ndi chilichonse (mitengo)
- ii. Malo amene sipanalimidwepo mbewu zamgulu limodzi la tsabola ngati tomato, mbatata, fodya, mabilinganya, kwa zaka zitatu zapitazo

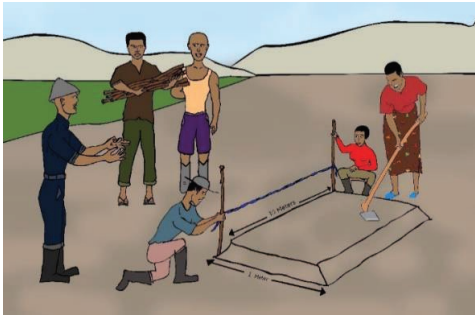
#### b. Kodi mbewu yabwino ya tsabola ndiyotani?

- i. Mbewu yosasakaniza, komanso yomwe ingamere

#### c. Mbewu yatsabola tingayipeze kuti?

- i. Mbewuyi tingayipeze ku Agwenda komanso makampani ena ovomelezeka ndi boma
- ii. Mbewu yosunga nokha koma mwadongosolo
  - a. Sankhani ndikuyika chizindikilo pa mbewu zathanzi mmunda
  - b. Thyolani tsabola pambewu zomwe munayika chizindikiro ndipo ayanikidwe payekha
  - c. Chotsani njere zatsabola nkusunga pabwino

#### iv. Tingakonzé bwanji nazale?



Tikuyenera kutchetcha zomera (osatentha moto), kugalawuza malo (25 – 30 cm kuzama), kukonza mabedi (mabedi akuyenela kukwera ndi 15 cm) ndikupha tizilombo tomwe timayambitsa matenda poyatsa moto mwandondomeko iyi

- ▶ Kuthira madzi pabedi
- ▶ Kuyika mapesi achimanga kapena timitengo

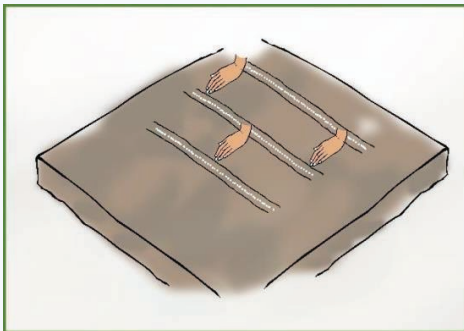
### Kufesa

#### a. Tifese bwanji tsabola?

Tikuyenera kutchetcha zomera (osatentha moto), kugalawuza malo (25 – 30 cm kuzama), kukonza mabedi (mabedi akuyenela kukwera ndi 15 cm) ndikupha tizilombo tomwe timayambitsa matenda poyatsa moto mwandondomeko iyi

- ▶ Thilani madzi pabedi
- ▶ Konzani timizere tolowa 0.5cm pa mbewu zing'onozing'ono
- ▶ Fesani m'mizele kapena kuwaza

#### b. Tichite bwanji tikamaliza kufesa?



- Kwilirani pang'ono ndi mchenga kuti zimere nsanga
- Vindikirani bedi ndi udzu (opanda njere, matenda kapena tizirombo) pofuna kusunga chinyontho
- Chotsani udzuwu mbewu zikayamba kumera
- Kuphimbira ndikuthilira mabedi ndizofunika kwambiri kuyambira pomwe tafesa mbewu zathu



### **Kodi kuphimbira kuli ndi ubwino wanjji?**

- ▶ Kumapewetsa kuluza madzi kuchokela munthaka Kamba kadzuwa
- ▶ Kumachepetsa kumela kwa mbewu zosafunika pamunda
- ▶ Kumateteza kukokoloka ndi kugwirana kwa dothi

### **Ubwino okweza zophimbira ndikotani?**

- ▶ Kumathandiza kusunga chinyezi kwambewu zimene sizinamele
- ▶ Kupewetsa mbewu zomera kuti zisafote
- ▶ Kupewetsa kuti mbewu zomera zisatchoke pothilira

**Dziwani!** Zophimbrirazi zikhale zochepa pofuna kulola kuti dzuwa lifikile mbewu

## **Kupalira**

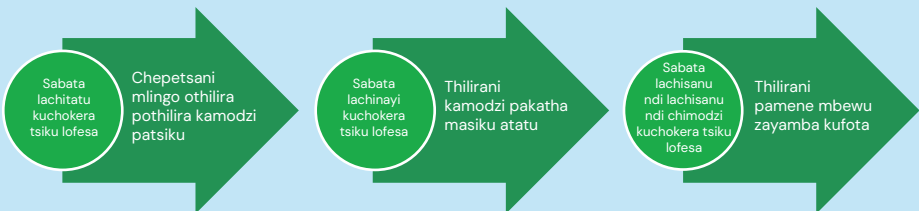
Kupalira kumathandizira kuchepetsa mpikisano pakati pambewu zathu ndi mbewu zosafunika mmunda.

### **Tipalire bwanji?**

- ▶ Zulani mbewu zosafunikira pogwiritsa ntchito manja, mukhonzanso kugwiritsa ntchito kakhasu kakang'ono.
- ▶ Pewani kuzulira udzu limodzi ndi mbewu zanu

## **Kuthilira**

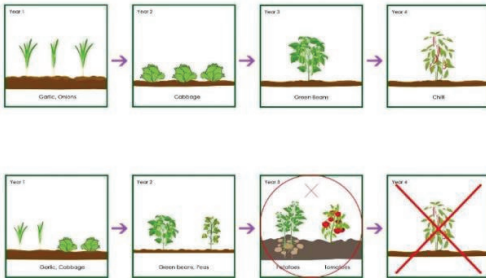
Dziwani! Pewani kuthira madzi ochuluka kwambiri kumbewu zanu. Tsatilani njira iyi:



# Mutu 4. Kumunda

## Kukonza munda

Tsabola akuyenela kulimidwa mosatsogozana ndi mbewu zamgulu lake monga mmene taonela mgawo 3



- ▶ Chitsanzo chambewu zomwe zitha kulimidwa motsogozana ndi tsabola monga mmene ziliri mchithunzichi
- ▶ Anyezi, kabichi, nyemba ndi tsabola

## Kuwokera

### Kodi tiwokere liti tsabola?



Wokerani pamene mbewu zili pafupifupi 1.5 cm (pamene zili za masabata 5 ndi 6)

- ▶ Thilirani mutangotha kuwokera
- ▶ Wokerani mbande zokhazo zimene zili zosagwidwa matenda komanso zathanzi
- ▶ Ndipo tayani mbande zonse zomwe zili zofooka, zamatenda komanso zopindika mizu
- ▶ Okelani mmizele ndipo mbewu zitalikilane 30 kulekeza 60 centimita Thilani manyuwa padzenje lomwe muwokere mbewu yano

### Nanga tiwokele bwanji?

- ▶ Thilirani nazale, ndipo muzule mbande mosamala pamodzi ndidothi lomwe lazungulira
- ▶ Wokerani kumayambiro kwanyengo ya mvula kuti zigwire bwino
- ▶ Onetsatsani kuti mbande zofanana mmakulidwe zili mu nzere umodzi
- ▶ Pewani kupinda mizu

## Kuthilira

### Tithilire liti?

- ▶ Thilirani pafupi pafupi maka kamodzi pasabata kutengera nyengo
- ▶ Pakapita masabata atatu chidzalireni, thilirani tsiku lilironse ngati sikugwa mvula
- ▶ Chepetsani mlingo othilira kufikira masiku atatu pa sabata



- ▶ Tsabola amafuna madzi okwanira 5–6ml

Dziwani!

- Onetsetsani kuti mwathilira tsabola wanu nthawi imene akuchita maluwa
- Osathilira madzi opitilira muyeso popewa matenda
- Pangani akalozera, mabeseni, makontuwa ndi ulimi wamtaya khasu ngati njira yosungira madzi mmunda

## Kupalira

### *Kodi ubwino opalira ndiwotani?*

Palirani tsabola wanu kuti muchepetse mpikisano omwe ungakhalepo pakati pa tsabola ndi mbewu zina pachakudya chamnthaka komanso dzuwa.



- ▶ Palirani munda watsabola pogwiritsa ntchito khasu, mankhwala ophera udzu, pozula ndi manja komanso pophimbira
- ▶ Onetsetsani kuti mwasamalira mizu yatsabola pomwe mukupalira ndi khasu
- ▶ Kuphimbira kumalepheretsa udzu kumera mmunda watsabola Mankhwala ophera udzu ndi njira yodalirika, koma imafunika ndalama yochulukira. Funsani alangizi azamalimidwe mdera lanu zamankhwala ovemerezeka ndikathiridwe kake

- ▶ Palirani nthawi zonse pamene udzu wamela

## Kuthira manyowa/ feteleza

### *Kufunikira kothira manyowa ku mbewu yatsabola ndi kotani?*



- ▶ Manyowa amakonza dothi la mmunda kuti ligwirane bwino
- ▶ Amathandiziranso kuti madzi asungike mnthaka
- ▶ Amapereka zakudya ku mbewu komansotimichere tofunikira kuti tsabola akule ndi thanzi
- ▶ Pali manyowa ochokera ku ziweto, akumunda komanso a masamba
- ▶ Dziwani! Feteleza wa chitowe komanso urea ali ovemerezeka kuthira mutsabola ndipo amathandizila;

Kuti tsabola akule bwino komanso amachulukitsa zokolola.

Motsogozedwa ndi alangizi azamalimidwe fufuzani za dothi la mmunda wanu ndikupeza feteleza kapena manyowa oyenelera.

## Mutu 5 Kuteteza ku tizirombo ndi matenda

### Tizilombo tomwe timawononga tsabola



Nsabwe/Chinoni



Adult



Larva



Ntchentche zoyera



Top surface of the leaf



Underside of the leaf



Mandolo

Kangaude ofira

### Matenda a tsabola



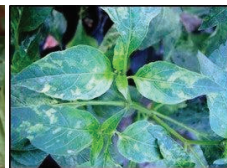
Nthomba



Kafota



Chiwawu



Matenda obwera chifukwa cha tizilomba tamavayilasi

## Kuthana ndi tizilombo

i. Pogwiritsa ntchito njira yakasakaniza yomwe imaphatikiza kugwiritsa ntchito mankhwala, kupha tizilombo ndi manja, komanso kugwiritsa ntchito zamoyo

ii. Kufufuza tizilombo mmunda (scouting)

- Izi zimathandiza mimi kuti apange chiganizo chabwino chanjira yotetezera tsabola kutizilombo ndi kumatenda

- Pofufuza tizilombo, yendelani munda onse mopinga kufikira mbali zonse zamunda

Mankhwala opha tizilombo komanso matenda

**DZIWANI!** Matendawa kapena tizimbotti timathanso kugwira mbeu pa nazale

## Mutu 6: Kukolora tsabola

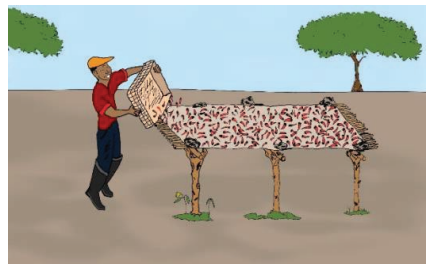
*Tingaziwe bwanji kuti mbewu yathu yatsabola ikuyenela kukoledwa?*

- ▶ Tsabola amawoneka ofiyila
- ▶ Tcholani tsabola mwachangu popewetsa mbalame
- ▶ Tcholani tsabola mosamala potchola tsabola yemwe ali ofiyila osati ndi mtengo omwe (kamchombo)
- ▶ Tivale zovala zozitetezela monga masiki komanso magolovesi
- ▶ Musayike tsabola mmapulasisitiki popewa kuwola
- ▶ Gwiritsani ntchito madengu kapena matumba a thonje potchola tsabola



### Kuyanika tsabola pa thandala

- ▶ Yanikani tsabola kuti asawole komanso asungike nthawi yayitali
- ▶ Thandala (mlitali 1 – 1.5m, lokwela mmwamba 1m) likhale malo ofika dzuwa
- ▶ Yalani matumba a thonje kapena bango pa thandala
- ▶ Onetsetsani kuti tsabola sanasanjizikane pamwamba, koma yense akuwombedwa ndidzuwa
- ▶ Tsabola asawume kwambiri kuposela mlingo wa madzi wovomelezedwa pamsika (8 – 10 %)



## Kusankha ndikusunga tsabola

Ndichifukwa chani tikuyenela kusankha tsabola?

- Kuti tipeze phindu popeza tsabola amagulidwa m'magiledi

Tisankhe bwanji tsabola?

- Chotsani zinthu zomwe zisali tsabola
- Chotsani tsabola wakuda kapena owola
- Chotsani tsabola osakanikira mitundu
- Ikani tsabola wamlingo ofanana pamodzi

## Magiledi atsabola

Giledi A: Tsabola owuma bwino, opanda chilema, ofiyila kwambiri

Giledi B: Tsabola yense osafikila giledi A

**Dziwani!** Funsani alangizi kuti akuwonetseni zithunzi zamagiledi

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## Kusunga tsabola

Tisunge bwanji tsabola?



- ▶ Tsabola asungidwe motalikana ndi katundu wina okhala ndi fungo monga mankhwala a mbeu
  - ▶ Tsekulani mawindo anyumba yosungira tsabola kuti mudutse mphepo, makamaka pomwe kunjika kuli bata
  - ▶ M'malo osungira tsabola musapezeke tizilombo
  - ▶ Muzimuyang'ana tsabola wanu pafupipafupi kupewa kuti angawole kapena kuchita chinyezi
- 
- ▶ Sungani tsabola owumitsidwa bwino m'matumba a thonje (hessian bags) omwe amathandiza kuti mpweya uzidutsa komanso amachepetsa mphamvu yadzuwa, amathandiziranso kuti tsabola akhale ndi mlingo wabwino wachinyontho
  - ▶ Tsabola asungidwe malo owuma komanso ozizira (0°C kufikila 4°C)

