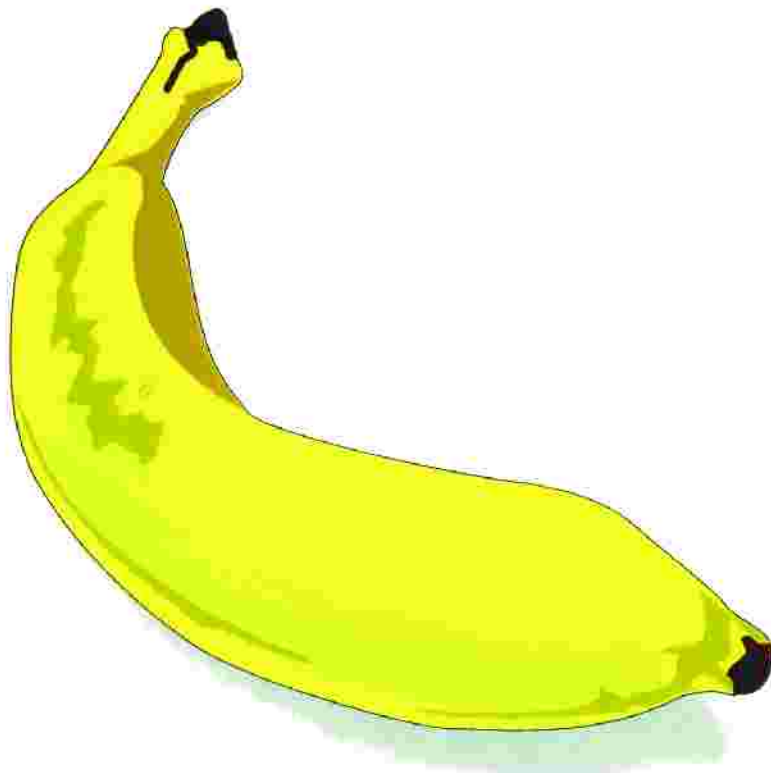


# UMKHIQISO KABHANANA



*ARC-Institute for Tropical and Subtropical Crops*

*Banana Production - Zulu*

# UMKHIQISO KABHANANA



Ihlanganiswe ngu-Mnyango Ka-Zwelonke weZolimo  
ngaphansi koMqondisi weZokuxhumana  
kanye no

W. Willemse, woMnyango weZolimo, KwaZulu-Natal

Imifanekiso yenziwe ngu L. Herbst, wase Mjindi Farming (Pty) Ltd

Amazwi alotshiwe/indikimba yebhuku ilungiswe ngabakwa  
ARC-Institute for Tropical and Subtropical Crops, Nelspruit

Tel (013) 753-7000

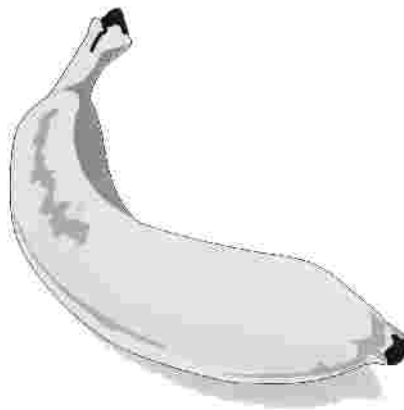


**1998**

**Igawe yashicilelwa eRiphabliki yase Ningizimu Afrika ngu**

ARC-Institute for Tropical and Subtropical Crops,  
Private Bag X11208, Nelspruit, 1200  
Tel (013) 753 7000 Fax (013) 752 3854

**ISBN 1-86871-053-X**



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## Ukuhlelwa komkhiqizo

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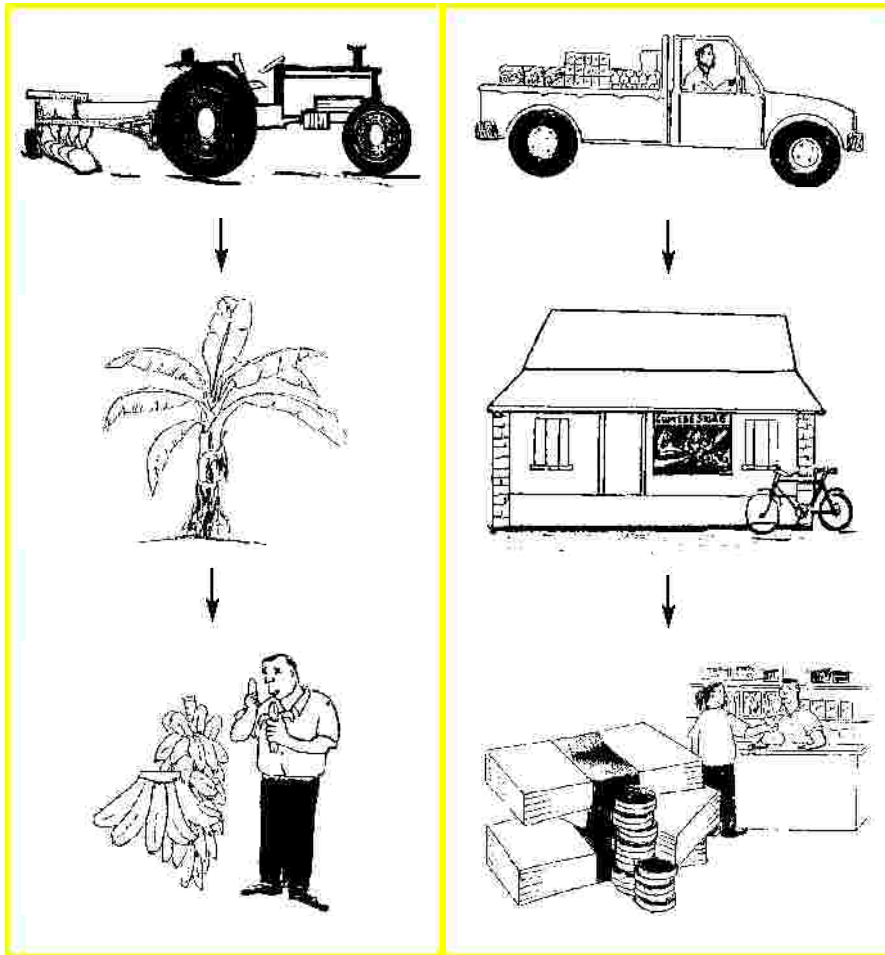


Hlela umkhiqizo kabhanana kahle. Ukulima ubhanana ukulimela inzuzo

**UKULIMA**

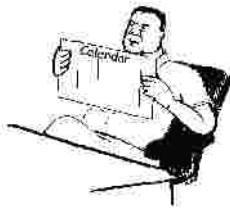
=

**UKUDAYISA**





## Uhlela kanjani?



Ukuzilungiselela izidingo zakho sebenzisa ikhalenda noma uhlelo lonyaka

### IKHALENDU/UHLELO LONYAKA



→ UKUHLOLWA NOMA UKUHLAZIYA KWENHLABATHI

Hlohla noma hlaziya inhlabathi yakho ngaphambi kokuba utshale - thatha amasampula ukuze ubone ukuthi izinambuzane zasemhlabathini (nematodes) zikhona yini nanokuthi ikuphi ukudla komhlabathi okushodayo



Chelela, qeqebula, lima, vukuza, bulala amagabadi ensimini. Faka umcako, namanyolo (potash and phosphate) ngenkathi ulima



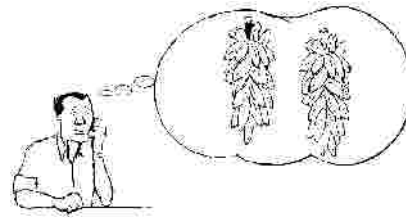
Kala ebese umba imigodi yokutshala



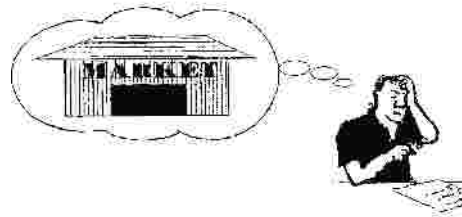
Tshala, faka umanyolo, uchelele izithombo kanye nokuhlakula ukhula

## Ikuphi okudinga ukuhlelwa

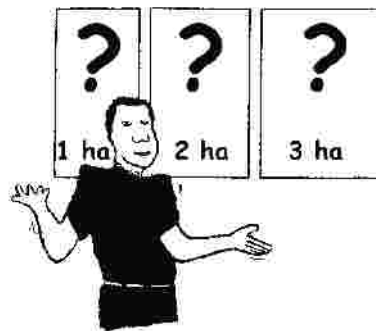
1. Cabanga uhlobo lwembewu ozolutshala



2. Khetha indawo ozodayisela khona ubhanana wakho #

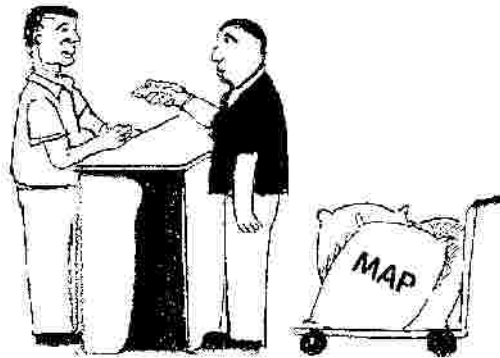


3. Cabanga ngobubanzi bendawo ozoyitshala kanye nezikhala ozoishiya phakathi kwezithombo

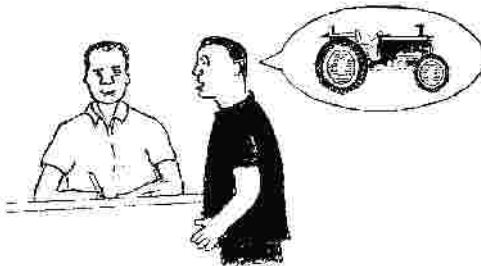


# Buza enhlanganweni yabalimi baka bhanana base Ningizimu Afrika (Banana Growers' Association of SA) ukuze uthole izeluleko

4. Thola imali ebese  
uthenga  
izidingo ezinjengomanyolo  
kanye nezithombo  
zokutshala



5. Thenga izinto  
zokulungisa umhlabathi  
ezinjengogandaganda  
bokulima, nokuhlela kahle  
umhlabathi

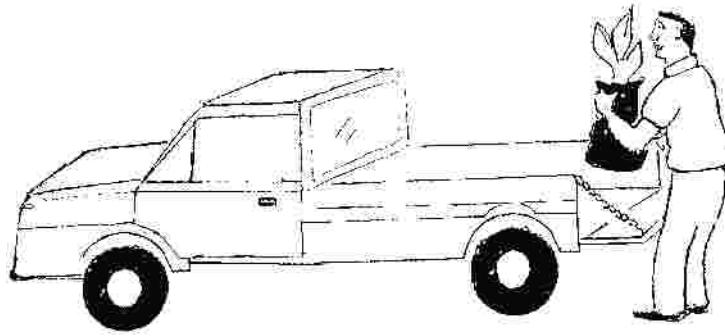


6. Hlela abazosebenza

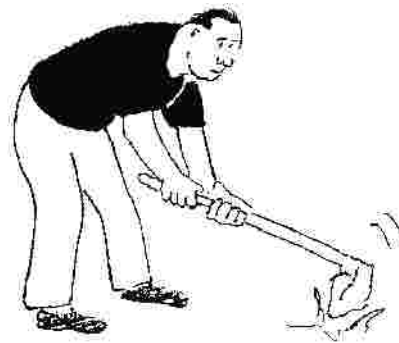




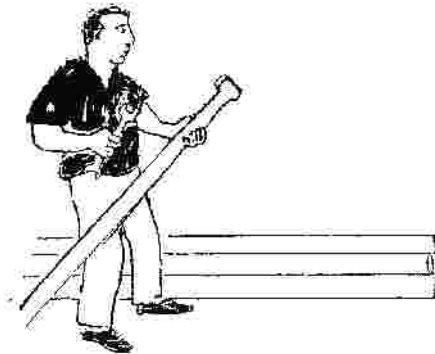
7. Thenga kanye nokulanda izithombo enesali



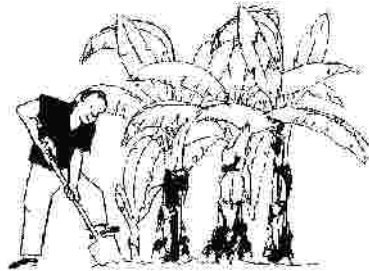
8. Hlela ukuthi uzoluxosha kanjani ukhula



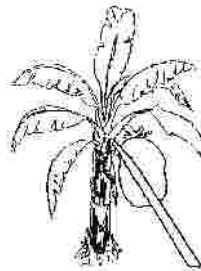
9. Gcina kanye nokukhuphula izinga lezinto zokusebenza enkaseni ebese uhlela izinhlelo/izikhathi zokuchelela/ukunisela



10. Hlela indlela yokukhipha amanhlumela kabhanana nanokukhetha amahlumela ozowagcina



11. Hlela ukumbozwa kwesixhele sikabhanana kanye nokusekela isihlanhla sikabhanana ngezinti



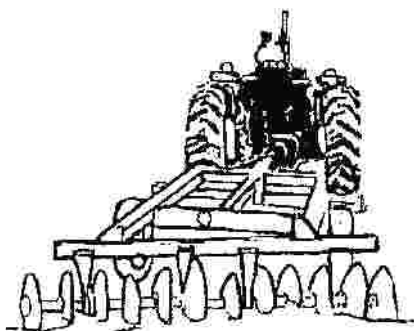
12. Hlelela ukuvunwa kukabhanana wakho



13. Hlela ukuthi inzuzo uzoyisebenzisa kanjani



## Ukulungiswa kwendawo



Ukuhlaziya umhlabathi kubalulekile ngaphambi kokuba utshale khona uzobona ukuthi umcaku (lime) kanye nephosphate iyadingeka yini. Faka umquba wezinkomo noma imvudela uma ikhona ensimini yakho.

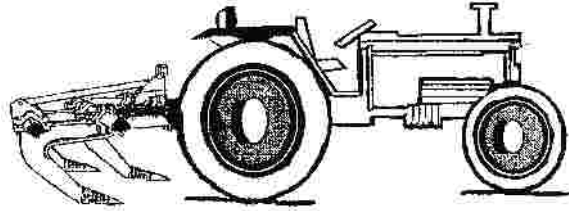
1. Faka amasaka amane emhlabathini kamanyolo owu MAP ngehectare



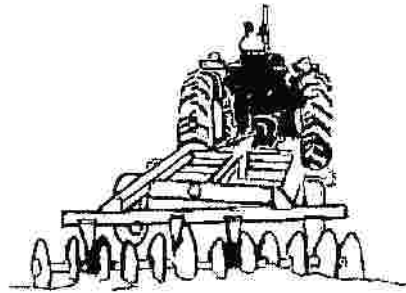
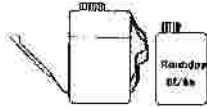
Nezela ngamasaka amabili omcako uma umhlabathi wakho ukhombisa ukuba muncu



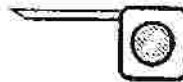
2. Vukiza insimu emuva  
kokufaka umanyolo  
ukuze uhlakaze  
umhlabathi ekujuleni  
kwawo



3. Chela ngophoyizeni  
noma ululime  
ukhula uma  
luluningi ensimini



4. Kala indawo  
ozoyitshala  
ebese umba  
nemigodi  
ozoyitshala



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## Ukutshala

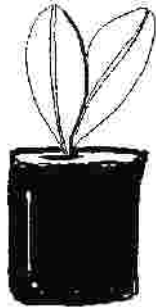
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Ubhanana ungatshalwa ngoku-sebenzisa izindlela ezintathu:

- (A) Izicubu/iziwexwe zikabhanana,
- (B) Izingcezu zikabhanana kanye
- (C) Amahlumela

### A. Indlela yokutshala izixwexwe/izicubu zikabhanana



izithombo zezicubu/zezixwexwe zokulima ubhanana ziyizitshalwana ezincane eziphuma ezicubini zikabhanana, zikhuliswa zisemasakeni, zize zikhule ngokwanele ukuthi sezikulungele ukutshalwa

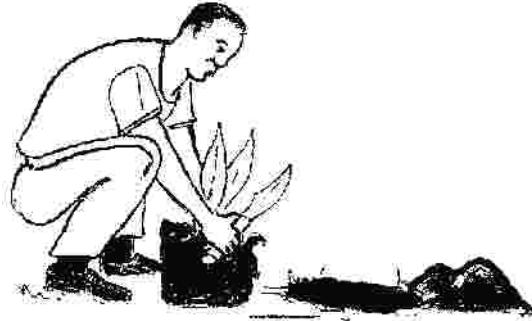
Ngezizathu zokuhlazeka iyona ndlela lena encomekayo yokutshala ubhanana

1. Lungisela ukutshala ngokuthi umbe imigodi

Nezela ngomquba omdala ebese ubuyisela inhlabathi ethambile emgodini. Ungafaki umanyolo ongaphezu kuka 10 g we MAP emgodini ngamunye



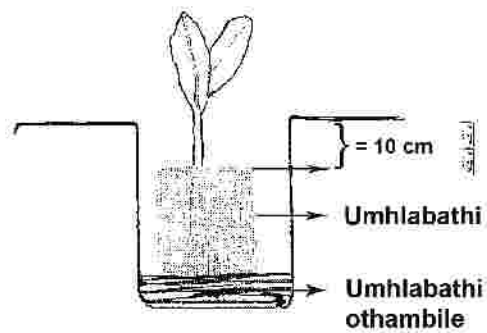
2. Yebula isikhwama sepulasitiki ngaphambi kokuba utshale ubhanana emgodini. Inhlabathi esesikhwameni kufanele ingahlephuki



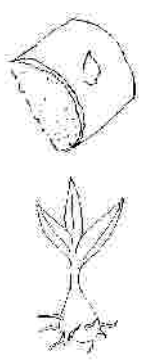
3. Gcwalisa umgodi ngenhlabathi eseduzane kukabhanana abese uyaqinisa/uyagxisha



Uma utshala hlohisisa kahle ububanzi bokutshala



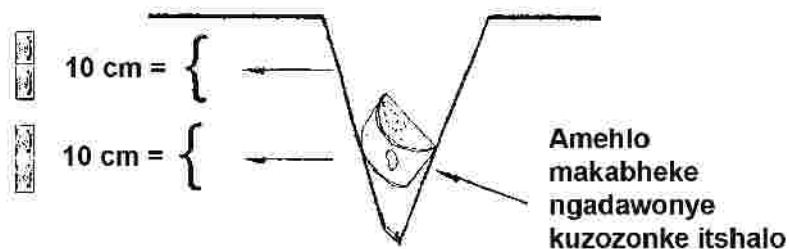
**B. Indlela yokutshala izingcezu kanye namahlumela/imixhantela kabhanana**



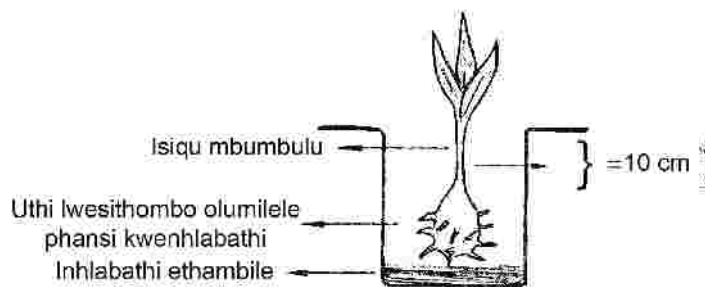
Izingcezu ziyingcezwana zikabhanana ezisuke zinqunywe esigaxeni (kwikhomi) sikabhanana sineso elixhumile

Amaxhantela noma amahlumela kabhanana angamahlumela amila esigacweni (kwikhomi) sikabhanana akhule aze abe ubhanana omusha

1. Uma utshala izingcezu zikabhanana ububanzi bokutshala bufanele bube u 10 cm kanjalo nocezu lube ngango 10 cm

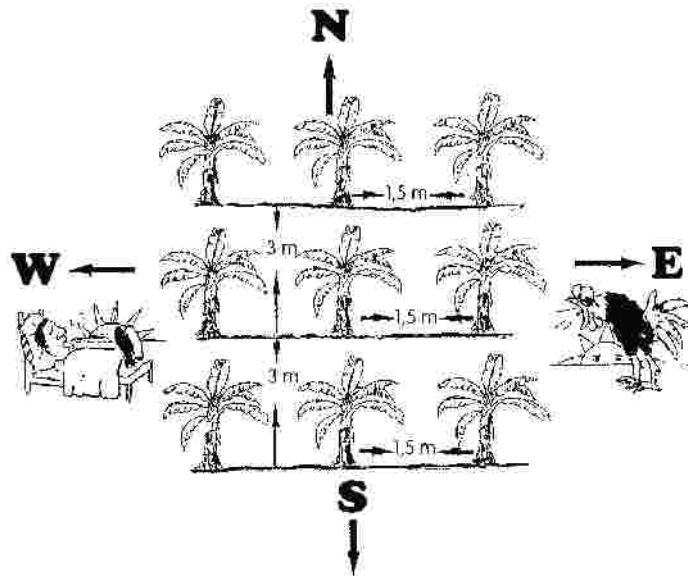


2. Indlela zokutshala amahlumela/imixhantela ziyefana nokutshala izixwexwe zokulima ubhanana



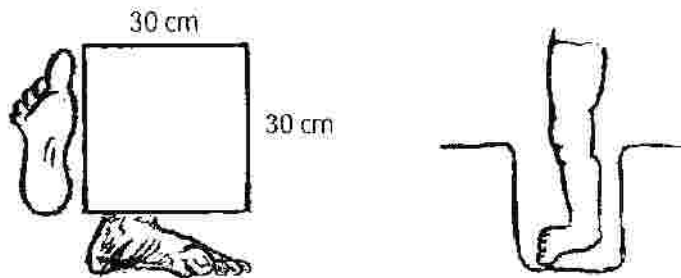
## Ububanzi

Ububanzi bukalayini/umugqa mabuhlukane ngebanga elinga 3 m, kanti itshalo zona ngu 1,5 m ukuqhelelana kulayini noma emugqeni



= Lokho kuzokunikeza ihlahla zikabhanana ezingu  
2 222 nge hectare

Islinganiso somgodi masibe ngu 30 cm x 30 cm kanti ukushona phansi bube ngangobude bedolo







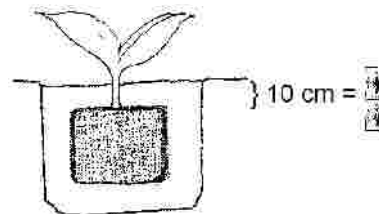
## Okufanele nokungafanele kwenziwe uma kutshalwa



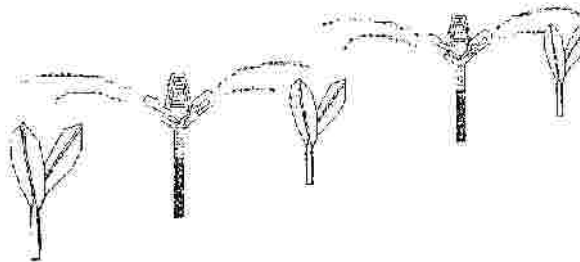
Ungasilimazi isihlahla sikabhanana noma uchithe inhlabathi ngenkathi ususa isikhwama esibambe ubhanana omncane - sebenzisa umunayifi esikhundleni segeja



Ungatshaleli phezulu kakhulu noma phansi kakhulu shiya isikhala esanele esingano 10 cm phakathi kwesitshalo nobuso bomhlabathi



Chelela itshalo (ithombo) zikabhanana ngemumva kokutshala



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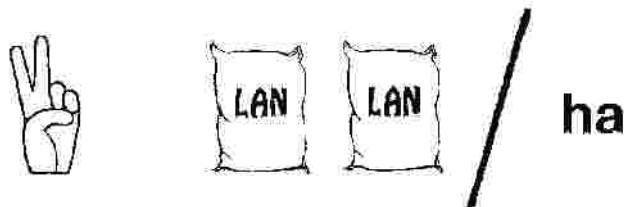
## Ukufaka umanyolo

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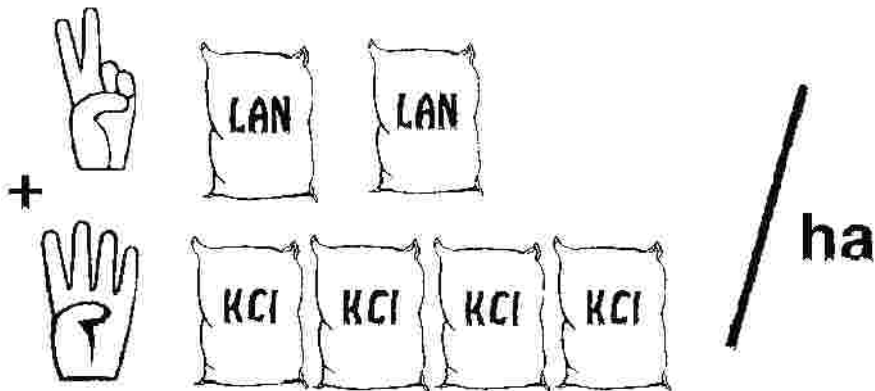


Yenza umhlabathi onobhanana uvunde ngokuthi emuva kokutshala ufake isikhuthaza manyolo

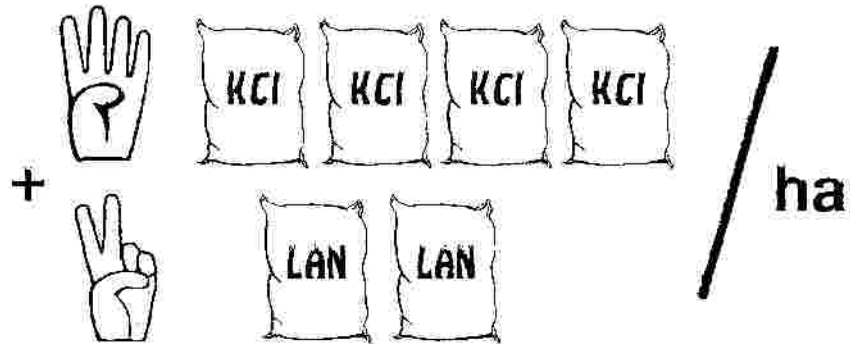
1. Faka isikhuthaza manyolo sokuqala emuva kwenyanga utshalile (Januwali) usebenzise amasaka amabili kamanyolo u LAN ngehectare (50 g ngesithombo sikabhanana)



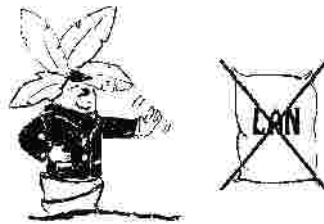
2. Faka isikhuthaza manyolo sesibili emuva kwezinyanga ezimbili utshalile (March) usebenzise amasaka amabili kamanyolo oyi LAN ngehectare (50 g ngesithombo sikabhanana) kanye namasaka amane kamanyolo u KCI ngehectare (100 g ngesihlahla sisinye sikabhanana)



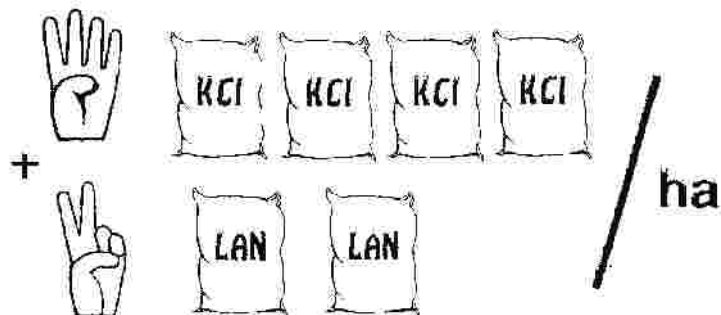
3. Faka isikhuthaza manyolo sesithathu emuva kwezinyanga ezihlanu utshalile (May) usebenzise amasaka amane kamanyolo u KCI kanye namasake amabili kamanyolo oyi LAN ngehectare



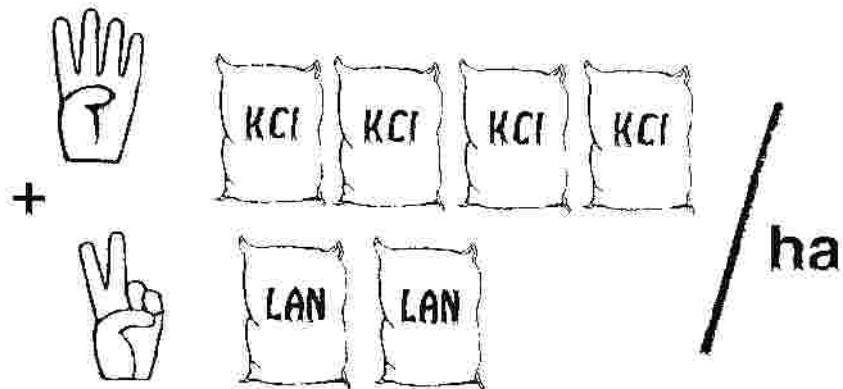
Ungasisebenzisi isikhuthaza manyolo ngenyanga ka Juni, Julayi kanye no August



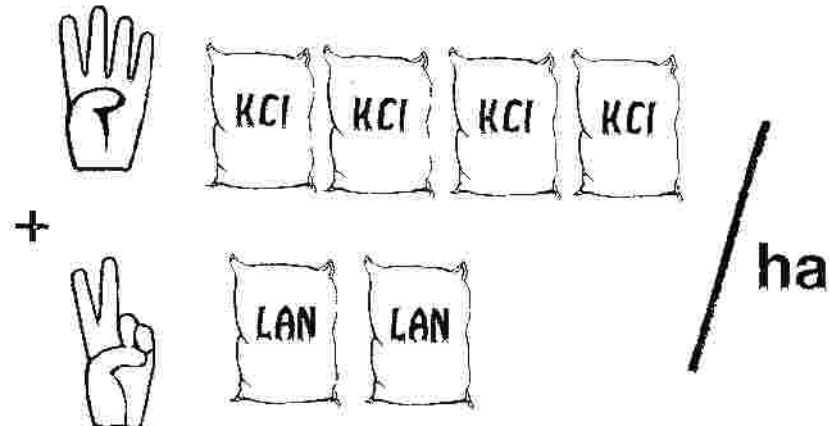
4. Phinda ufake isikhuthaza manyolo emuva kwezinyanga eziyisishiyagalolunye utshalile ngo Septemba ngokuba usebenzise amasaka amane kamanyolo oyi KCI kanye namasaka amabili kamanyolo oyi LAN ngehectare



5. Phinda futhi ufake isikhuthaza manyolo emuva kwezinyanga ezilishumi nanye utshalile (November) usebenzise amasaka amane kamanyolo oyi KCI kanye namasaka amabili kamanyolo oyi LAN ngehectare



6. Faka isikhuthaza khaba sokugcina ngo Januwali usebenzise amasaka amane kamanyolo oyi KCI kanye namasaka amabili kamanyolo oyi LAN ngehectare



Yenza ingqumbi/amagquma emvundela ngamahlamvu emifino emidala, umquba wezinkuku, owenzinkomo ongasetshenziselwa ukulekelela uhlelo lukamanyolo

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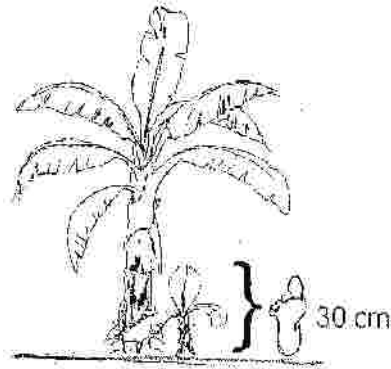
## Ukunquma ixhantela/ihlumela

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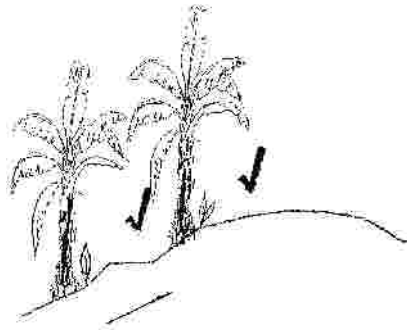


Ukunquma ixhantela/ihlumela kusho ukususa umxhantela (iklumu) ongadingakali esiqwini sikanina kabhanana

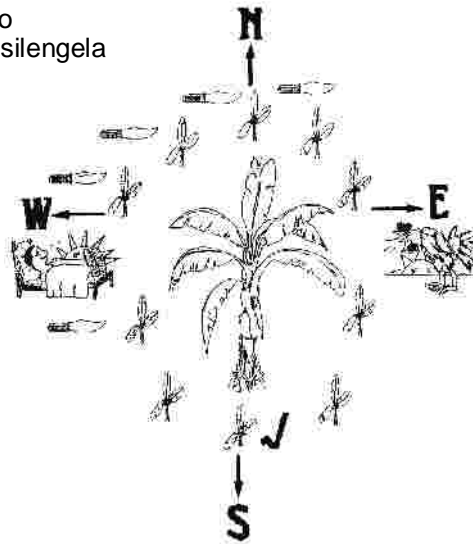
1. Sebenzisa umese/umanayifi uma unquma isiqu sehlumela eselimile laze laba ngangosayizi wonyawo



2. Uma utshala endaweni eyehlelayo, qinisela njalo ukushiya ihlumela eliseceleni elikhuphukayo



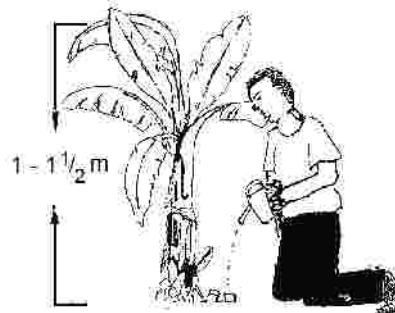
3. Nquma wonke amahlumela kabhanana angaseNyakatho Ntshonalanga kabhanana omdala. Leli icala lapho isixheke sikabhanana silengela ngakhona



4. Ngemumva kwezinyabga ezinhlanu utshalile khetha ihlemela ilekhule kahle. Nquma wonke lana asele

Qhubeka nokususa amahlumela angadingekile uma eqhubeka nokuvela

Ungawutheli udizili phezu kwesiqu sehlumela, chela ngamanzi okungenane



**NB: Kusemqoka ukugcina ithombo zakho zikabhanana zingengaphezulu kuka 2222 ngehectare. Ngakhoke emumva kokuvuna kufanele ushiye ihlemela elilodwa ozolivumela likhule**

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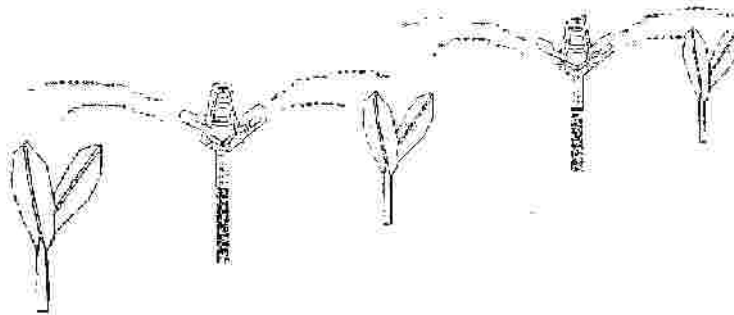
## Ukuchelela/Ukunisela

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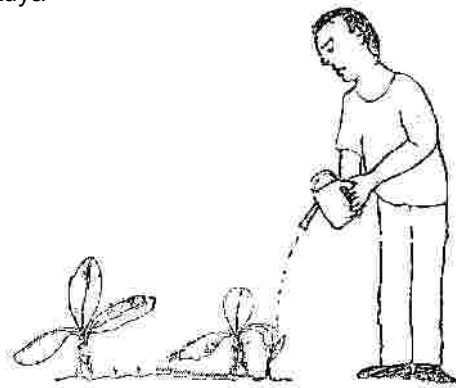


Chelela ithombo  
zikabhanana emumva  
kokutshala

1. Chelela ithombo zezixwexwe zikabhanana ezisandwa kutshwala nsukuzonke amasonto aze abe mabili (imizuzu eyishumi nanhlanu ngokuchelela okukodwa) ukuze uvikele amahlamva ekugqilazweni ukushisa

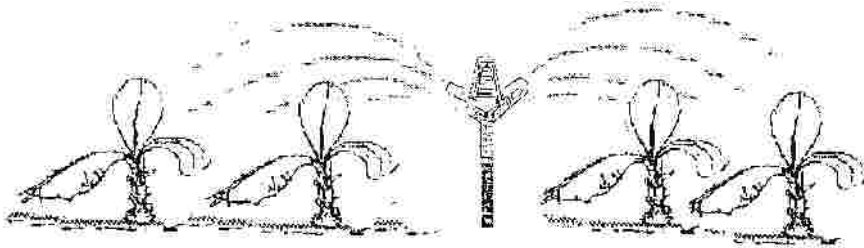


2. Uma imvula ingekho amanzi okuchelela kufanele asetshenziswe kancane noma kakhulu kuya nobhanana otshaliwe



3. Kwifenya/ugadanzima omkhulu wenhlabathi faka u 20 mm wamanzi njalo ngezinsuku ezintathu ehlobo noma njalo ngenzinsuku eziyisishiyagalombili ebusika

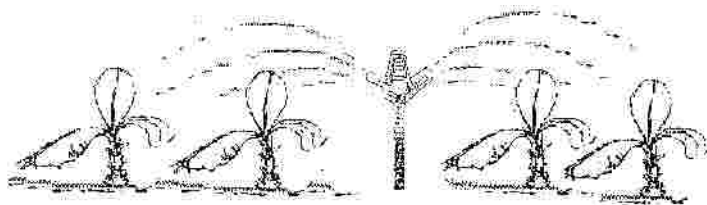
**NB: Thola isilinganiso esilethwa umlomo oxhumayo embotsheni yesifafazo noma isinyenzezo**



**Isibonelo: umlomo oxhumayo embotsheni yesifafazo uthulula isilinganiso esingago 3 mm ngehora lilinye**

Njalo uma uchelela, hambisa isimo senkasa amahora angu 20 ebese uwahlukanisa izigatshana ezingamahora amathathu lokho kwenza amahora ayisithupa kanye nemizuzu engamashumi amane ( $20/3 = 6$  hours, 40 min)

4. Esihlabathini esilula faka u 12 mm wamanzi njalo ezinsukwini ezimbili ehlobo bese kuba njalo ezinsukwini ezinhlanu ebusika



**Isibonelo: ukuthumela komlomo oxhumayo embotsheni = ngehora kungu 3 mm**

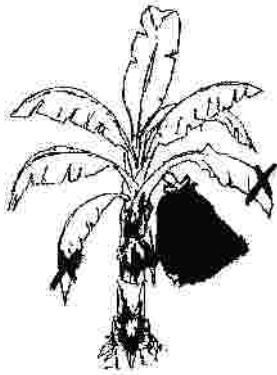
Njalo uma uchelela, hambisa isimo senkasa amahora ayishumi nambili ebese uyihlukanisa izigatshana ezingamahora amathathu kuya kwamane ( $12/3 = 4$  hours)



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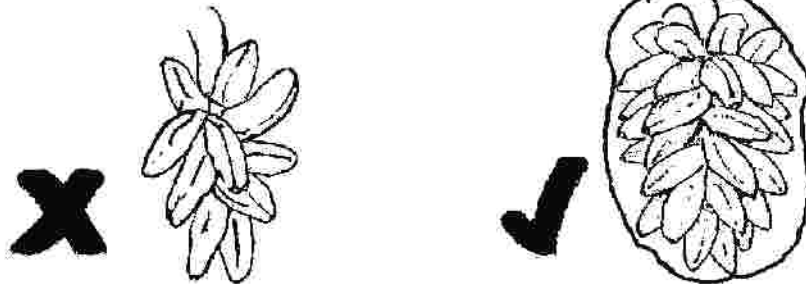
## Ukufaka esakeni kanye nokususa amahlamvu

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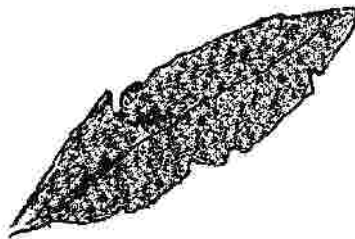


Mboza isixheke sikabhanana ngesikhwama/isaka ukuze uvimbeleke ezinambuzaneni nase moyeni. Susa amahlamvu aphuzi alengela phansi esihlahleni sikabhanana

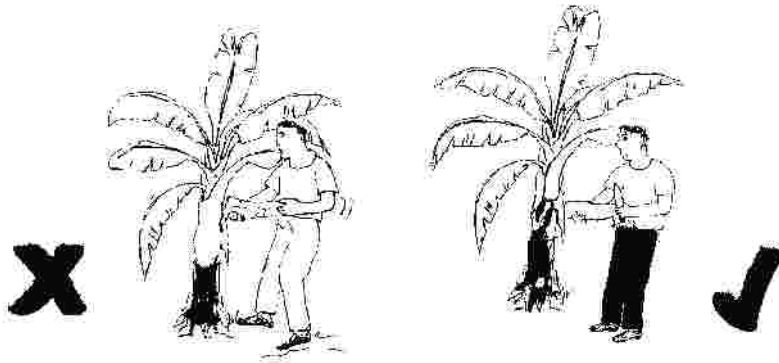
Ukumboza ubhanana kukunikeza isivuno sikabhanana esihle



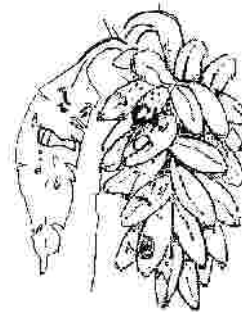
1. Susa amahlamvu angasezansi kukabhanana ngenkathi ethanda ukuguga ngoba engaletha izifo kanye nokuklwebha isixheke sikabhanana



Sebenzisa umumese ukususa amahlamvu amadala kabhanana - ungawadonsi



2. Amahlamvu amadala angaklwebha alimaze nesithelo esisesixhekeni sikabhanana



3. Nquma amahlamvu amadala ebese uwandlala phezu komhlabathi - amboza umhlabathi futhi akhulise nomsoco womhlabathi



## Ukukhalima/ukuvimba ukhula



Khalima/vimba ukhula  
ngokusebenzisa:

- (A) imithi noma
- (B) izandla (ngegeja) noma
- (C) zombili indlela

- A. Ukuchela ngophoyizeni kuyasetshenziswa ukubulala ukhula - sebenzisa kuphela imithi enconyiweyo ebese uyifaka ngokuqophelela ulandela imitheshwana ebhaliwe kwilebula ngaphandle

### Ungacheli:

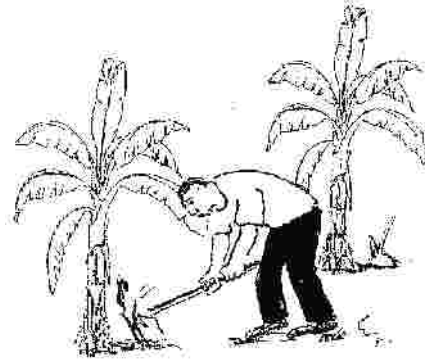
- kakhulu
- isihlahla sikabhanana
- uma kunomoya



Uma usebenzisa izindlela zokubulala ukhula ngophoyizeni abanjengo glyphosphate noma paraquat, qikelela ukuvikela zonke izinxa zikabhanana kwimisalela yokuchelela (amazolwana kaphoyizene)



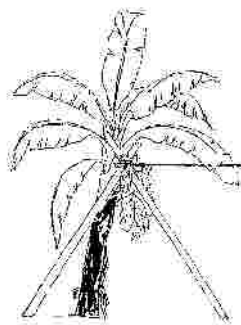
- B. Ukhula luyabulaleka ngokusebenzisa igeja noma isandla kakhulukazi kulezindawo eziseduze kwesitshalo ukuze uvikele isihlahla ekuthintaneni nophoyizeni uma kuchelelwa



- C. Izinlela zombili zingasetshenziswa ngesikhathi esifanayo ukubulala ukhula



Khumbula ukunikeza ubhanana wakho sekelongokusekela isixheke sikabhanana ngentambo kanye nangezinduku



rope

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## Ukuvimbela izinambuzane nezifo

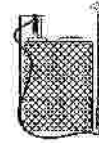
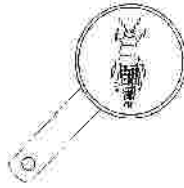
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Vimbela izinambuzane kanye nezifo. Inhlobo ezahlukene zezinambuzane kanye nezifo zidinga ukwelashwa okuhlukene

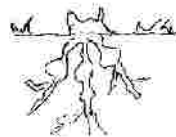
### Intothoviyane ezincane

Sebenzisa isibulala nambuzane esiyi chlorpyrifos kanye ngenyanga ukubulala intothoviyane ezincane uma zikhona



### Izinambuzane zasemhlabathini ezincane

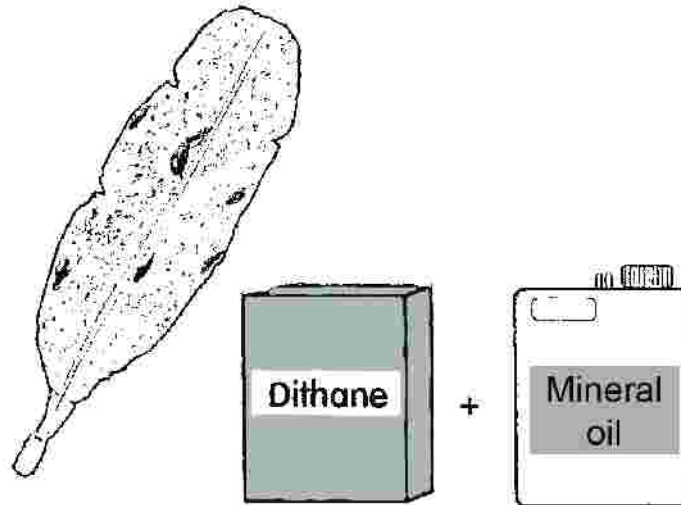
Uma zikhona, zibulale nge Nematicur usebenzise u 45 kg ngehectare (20 g ngesihlahla)



Imvundela, umquba wezinkomo kanye nomqula wezinkuku uma ufakwe waba muningi uyasiza ekucindezeleni inambuzane zasemhlabathini (ziyafa). Izixwexwe zikabhanana zokulima azinazo izinambuzane zasemhlabathine

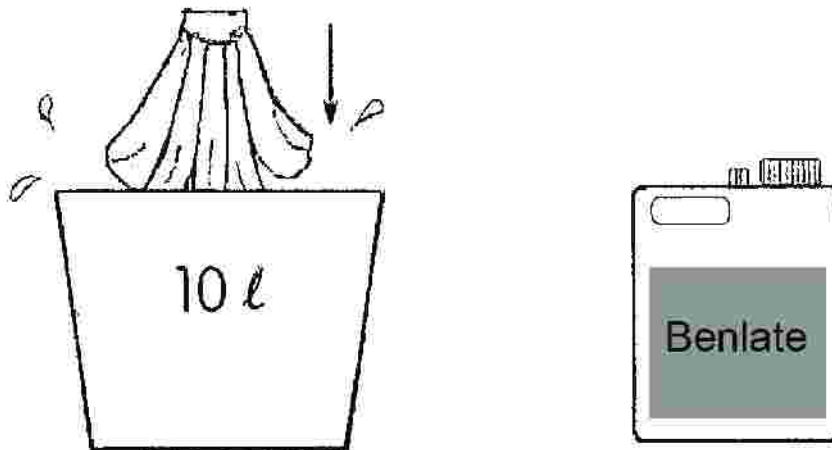
**Isifo samabala emahlamvini kabhanana**

Chela nge Dithane kanye no-oyela abasaketshezi



**Ukubola emuva kokuvuna**

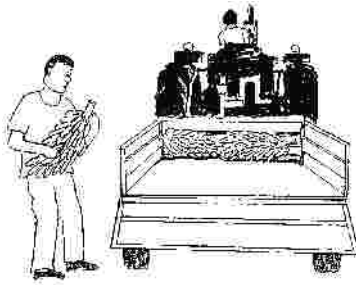
Cwilisa ubhanana ngesandla kwincibikiselo eyi Benlate (5 g ku 10 l wamanzi) ukuze uvikele ukubola emuva kokuvuna



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## Ukuvuna

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Vuna ubhanana uma  
usukhukhumele/udumbile futhi  
usebuhlaza ngombala kodwa ngaphanbi  
kokuthi uvuthwe (usuk huluphele kanye  
nokubaphuzi)

1. Ungasheshi uvune ngenkathi ubhanana usemncane futhi usakhombisa ubuhlaza lobu obumunyama noma uphuze ukuwuvuna ngenkathi usuqinile usujika usuba phuzi



Usheshe kakhulu



Kulungile



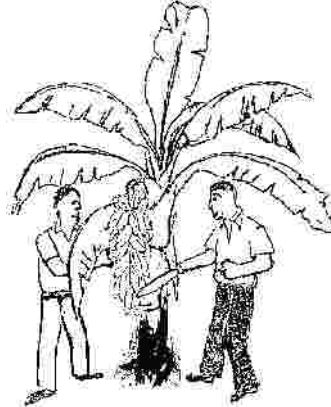
Usuphuze kakhulu  
(ukulibala)



## Uvuna kanjani



1. Thola okungenani abantu ababili abazokulekelela ukunquma maphakathi nendawo isiqu mbumbulu sikabhanana, kusukela maphakathi kuya njalo ezansi

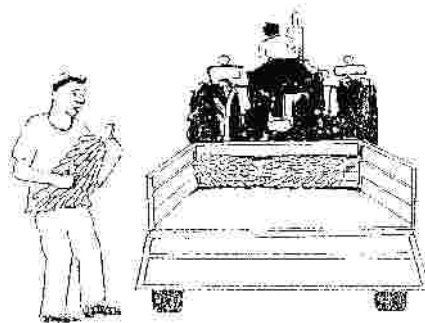


2. Vumela isihlahla sehle kancane ebese ususa isixheke sikabhanana ngokusingquma esiqwini sesixheke sikabhanana

Nqamula amahlamvu nezingxenywe zangaphezulu sesiqu mbumbulu ebese uwandlala ukuze amboze umhlabathi



3. Thwala izixheke uzizise enqoleni ufike uzibeke esinye eduze kwesinye (ungasikhwezi esinye phezu kwesinye)



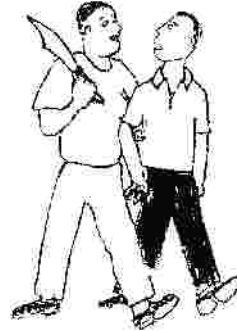




**Okufanele nokungafanele  
ukwenze uma uvuna ubhanana**



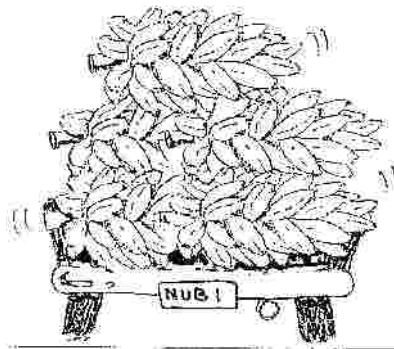
Ungasebenzi wedwa, sebenzani njalo ngababili



Ungavumeli izixheke ziwele emhlabathini



Ungahlanganisi/ukubeka izixheke esinye phezu kwesinye





Vuna kusesekuseni ilanga  
lingakashisi kakhulu



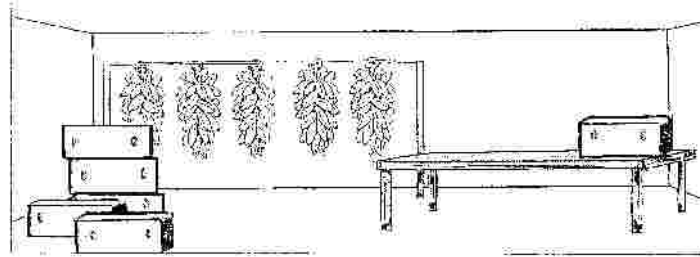
Ungashiya izixheke osuzinqumile  
elangeni



Ungazinqumi izixheke  
kwintambama eshisayo  
ngaphandle uma  
liguqubele



Yakha indlu yokubeka ubhanana ovuniwe endaweni epholile  
ukuze ulengise izixheke, ususe izandla, unqume kube  
izithungu, ukufake emakhathonini ebese uzingcina  
(ngasesayidini elingaseningizimu)



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## Ukudayisa

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Manje ubhanana wakho usukulungele ukuthathwa uyodayiswa ezimakethe ezahlukene

### Imakethi esendaweni

Ungawudayisa ubhanana wakho emugwaqeni noma esitodlwaneni esiseceleni komgwaqo



### Ezimakethe zikamasipala

Ungenza uhlelo nemakethe eseduzane ukuze udayise ubhanana wakho



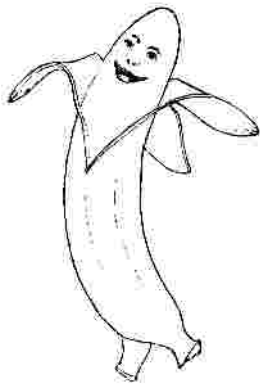
### Inkontileka/isivumelwane

Ungaba nenkotileka/isivumelwane nezitolo ezikhulu noma uxhaxha lwezitolo olungatfenga luphinde ludayise ubhanana wakho njalo njalo



### Ungawusebenzisela ikhaya

Ungasebenzisa abanye obhanana njengokudla komndeni



Uma ufuna ukuthola ulwazi ngokukhiqizwa  
kukabhanana xhumana nomeluleki  
wasendaweni yangakini