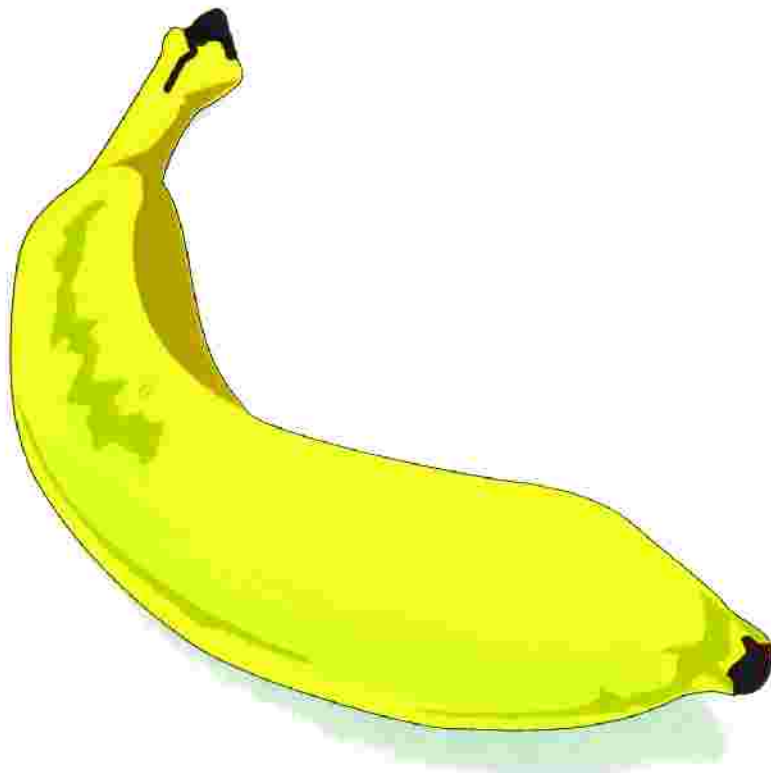


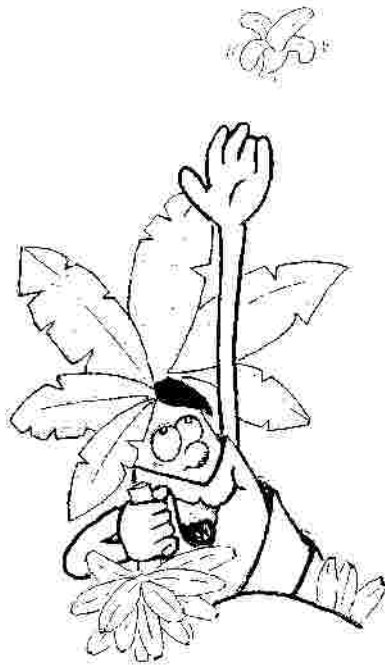
Umkhicto Wabhanana



ARC-Institute for Tropical and Subtropical Crops

Banana Production - Swazi

UMKHICTO WABHANANA



**Uhlanganiswe Lihhovisi Letekuchumana Ngaphansi Kwelitiko
Letekulima**

na

W.Willemse Welitiko Letekulima KwaZulu Natal

**Mifanekiso yentiwe ngu L.Herbst we-Mjindi Farming (Pty) Ltd
Lencwadzi Yemkhicito Wabhanana ihunyushwe yi-Phakama
Analouge**

**Emagama alungiswe be-
ARC-Institute for Tropical and Subtropical Crops, eNelspruit
Tel (013) 753-7000**

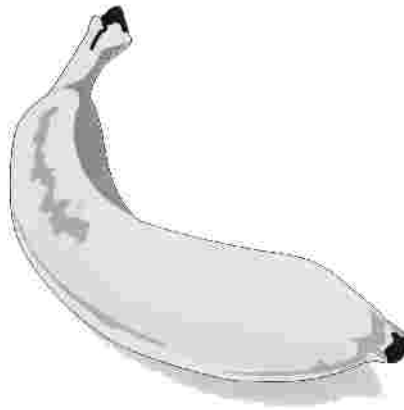


2008

Igaywe yashicilelwa e-Riphibliki yase-Ningizimu Africa

ARC-Institute for Tropical and Subtropical Crops,
Private Bag X11208, eNelspruit
Tel (013) 753 7000

ISBN 978-1-86849-436-1



LOKUCUKETFWE

Kuhlelwa kwemkhicito	1
Kulungiswa Kwemhlaba	7
Kuhlanyela	9
Kuvundzisa Ngamanyolo	14
Kuhluma	17
Kutselela	19
Kufaka Emasakeni Nekususwa Kwamacembe	21
Kuvimbela/Kulawula Likhula	23
Kulawula Tinambutane Netilwanyana	25
Kuvuna	27
Kutsengisa	31

Kuhlelwa Kwemkhicito

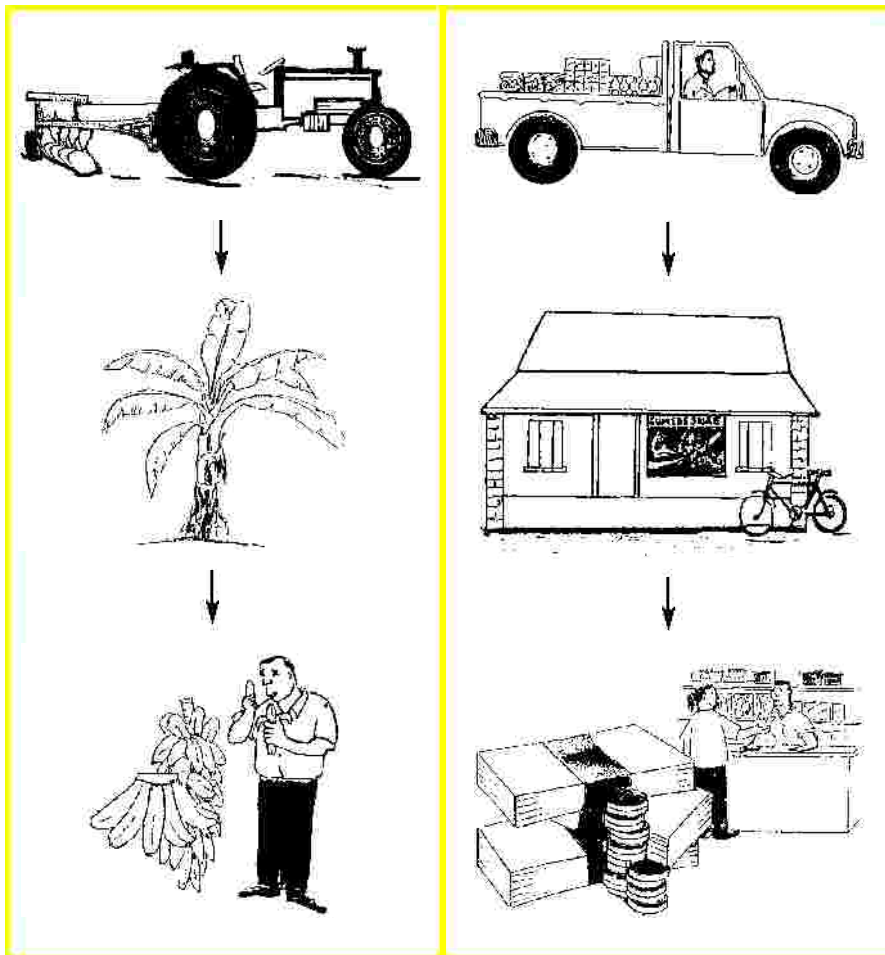


Hlela umkhicito wakho wabhanana ngendlela lekahle.
Kulima bhanana usuke ulimela inzunzo

KULIMA

=

LIBHIZINISI





UHLELA NJANI?



Sebentisa ikhalenda kumbe luhlelo lwemnyaka
kuhlembisa inchubo lotayilandzela

IKHANENDA/LUHLELO LWEMNYAKA

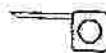


→ Kuhlolwa kwenhlabatsi

Hlola umhlabatsi wakho ngembi kwekuhlanyela - tsatsa isampula
yemhlaba wakho kuze utfole kwekutsi tikhona yini tinambutane
tasemhlabatsini (nematodes) nekutsi ngukuphi kudla
kwasesmhlabatsini lokushodako



Tselela/Nisela, cacabula, lima, gucula, bulala magabadze
ensimini vula imisele



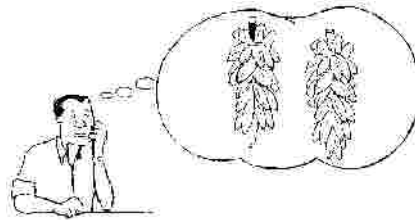
Linganisa bese ugubha imigodzi yekuhlanyela



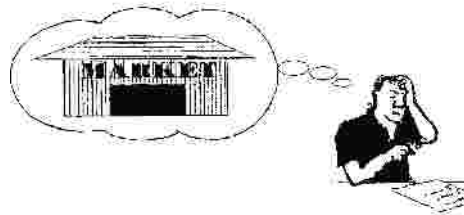
Hlanyela, faka manyolo, tselela/nisela titjalo takho uphindze
uhlakule likhula

YINI LEKUFANELE UYIHLELE ?

1. Cabanga lofuna kukuhlanyela



2. Tfola indzawo lotawutsengisa kuyo lobhanana wakho #

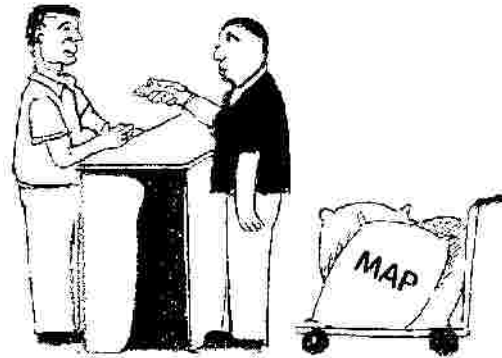


3. Tsatsa sincumo ngebubanti bendzawo lotawuyitjala kanye netikhala lotawutishiya emkhatsini kwenhlanyelo yakho

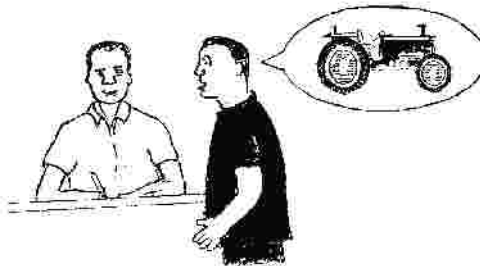


Ungacela seluleko enhlanganweni yebalimi babhanana e-Ningizimu Africa (Banana Growers Association of SA)

4. Boleka imali kuze ukhone kutsenga tinsita letifana namanyolo nenhlanyelo



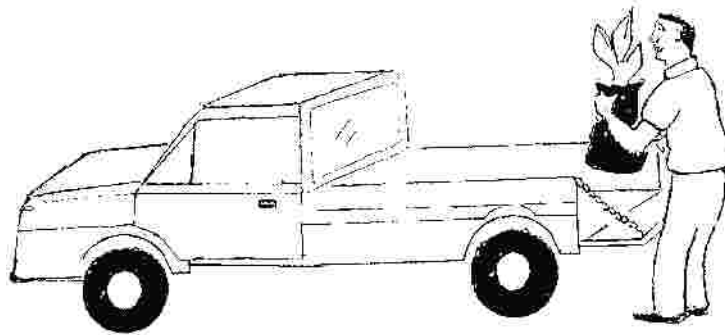
5. Tsenga tintfo tekulungisa umhlabatsi letinjengagandaganda wekulima, nekuhlela kahle umhlabatsi



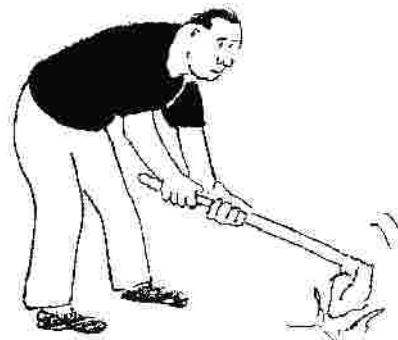
6. Lungisa tisebenti lotatidzinga



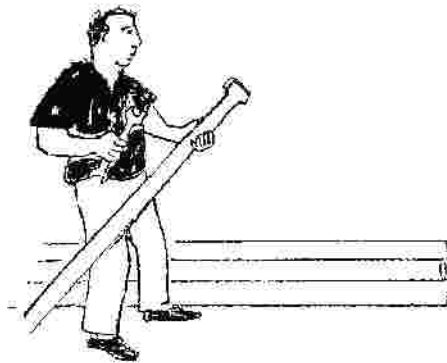
7. Tsenga uphindze utilandzele inhlanyelo yakho enesali



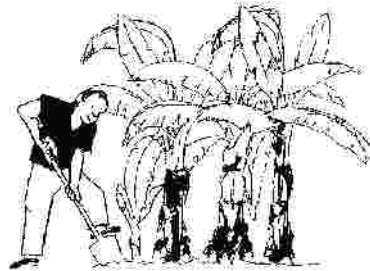
8. Hlela kutsi utolicedza njani likhula



9. Nakekela uphindze utfufukise emathulusi akho ekutselela ubese uhlela tikhatsi tekunisela



10. Hlela indlela yekukhipha emagatja langafuneki kulesihlahla sabhanana, nekukhetsa emagatja lotowagcina



11. Hlela kumbonywa kwesikhehle sabhanana kanye nekusekela lesihlahla sabhanana ngesigodvo



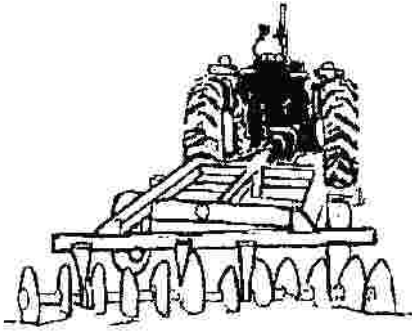
12. Hlelwa indlela lotawuvuna ngayo bhanana



13. Hlela kutsi imali loyitsengisile utoyisebentisa njani

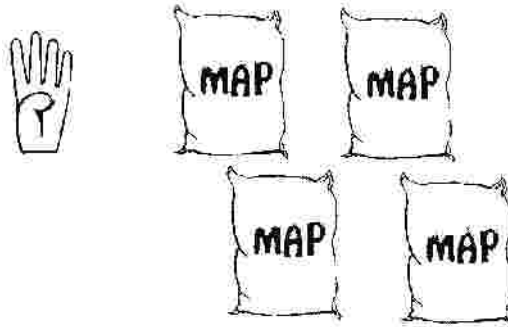


KULUNGISWA KWEMHLABA/INSIMU



Kuhlola umhlaba kwekutsi unayo i-lime ne phosphate ngembi kwekutjala kubalulekile. Faka umcuba wetinkhomo nobe manyolo nakakhona.

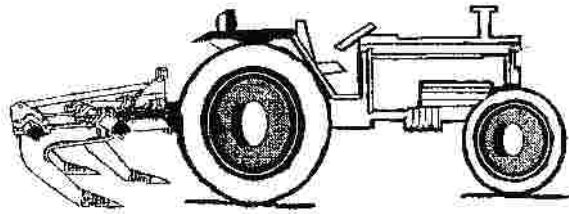
1. Tsela emasaka lamane amanyolo we-MAP emhlabatsini wakho, ku-hectare ngayinye



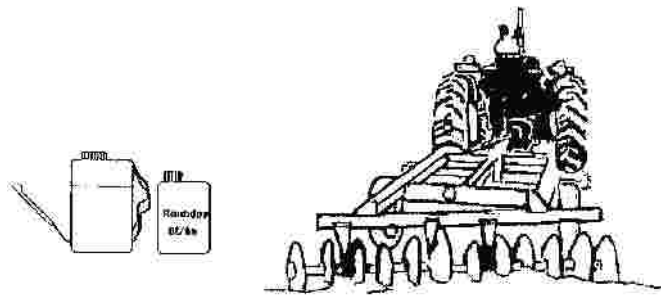
Yengetagemasaka lamabili e-lime uma umhlaba wakho ukhombisa kungahlahlambi kahle



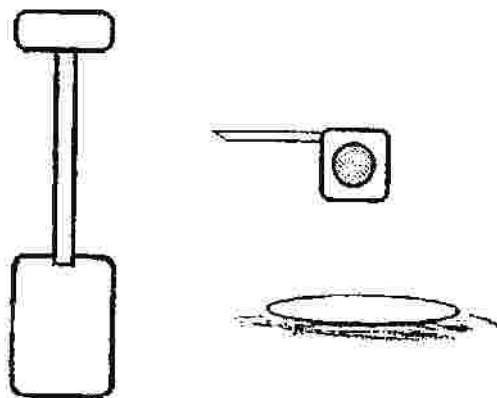
2. Hhaliga nobe ukefule insimi yakho nangabe sekugcwele likhula ensimini



3. Futsa nobe uhlakule likhula uma selulunyenti ensimini



4. Kala lendzawo yekuhlanyela bese ugubha tigozi lotawuhlanyela kuto



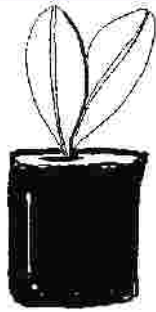
Kuhlanyela



Bhanana unghlanyelwa ngetindlela letintsatfu

- (A)Ticucu tabhanana
- (B)Tincetu tabhanana kanye
- (C)Nemahlumela

A. Indlela yekuhlanyela ticucu tabhanana



Inhlanyelo yeticucu tekulima bhanana iyinhlanyelo lencane lephuma kubhanana, tikhuliswa tisemasakeni tize tikhule ngalokunele

Ngenca yetizatfu tekuhlanteka, lena ngiyo indlela letfutukiswako lengasetjentiswa nawuhlanyela bhanana

1. Lungiselela kuhlanyela ngekutsi umbe imigodzi

Ngeta ngemcuba lomdzala bese ubuyisela umhlabatsi lotsambile emgodzini.

Ungafaki manyolo longetulu 10g we-MAP emgodzini ngamunye



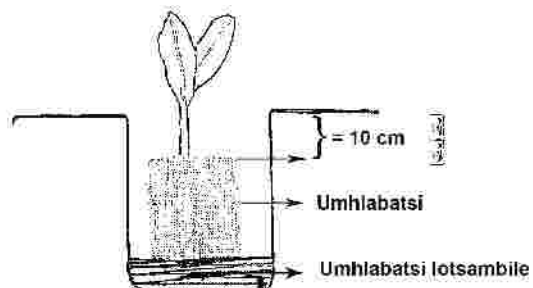
2. Khipha sikhwama sepulastiki ngembi kwekuhlanyela bhanana wakho emgodzini. Umhlabatsi losesikhwameni ungadliphiki



3. Gcwalisa umgodzi ngemhlabatsini losedvute nabhanana bese uyagcibetela



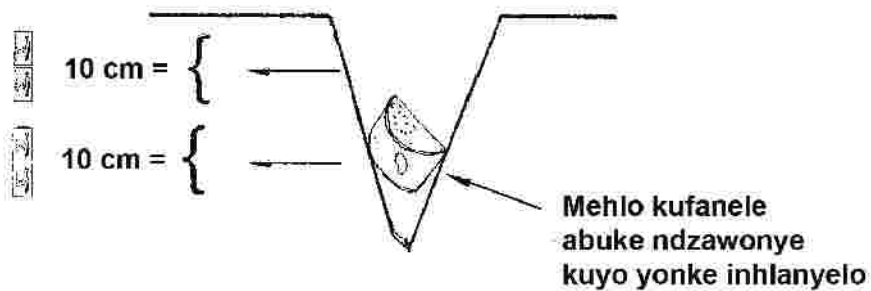
Nawuhlanyela
hlohisisa kahle bubanti
bekuhlanyela



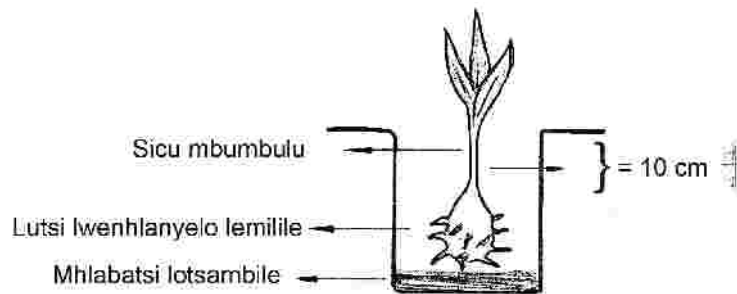
B. Indlela yekuhlanyela tincetu netinhlumane iyefana

	<p>Tincetu tabhanana tisuke tijutjwe esikhehleni sabhanana kantsi sineliso lelichumile</p>
	<p>Tinhlumela tabhanana titinhlumela letimila esikhehleni (khomi) sabhanana tikhule tibe ngubhanana lomusha</p>

1. Nawuhlanyela tincetu tabhanana bubanti bekuhlanyela kufanele bube ngu 10 cm kantsi nelicetu nalo kufanele libe ngu 10 cm

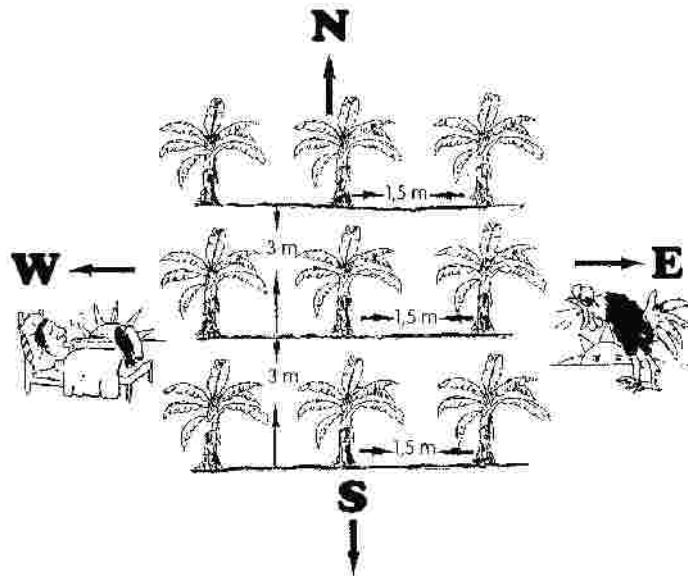


2. Indlela yekuhlanyela tinhlumela, iyafana netincetu tekulima bhanana



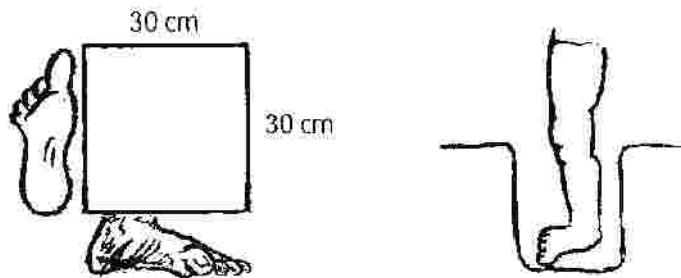
BUBANTI

Bubanti belilayini abuhlukane ngemabanga langu-3m,kantsi inhlanyelo yona ihlukane nga-1,5m



= Loku kutakuniketa tihlahla letingu 2 222 i-hectare ngayinye

Sayizi wemgodzi awube ngu 30 cm x 30 cm
Kantsi kushona phansi kufanele kufike emadolweni



Lekufanele nalokungakafaneli ukwente nawuhlanyela

X

Ungasilimati sihlahla sabhanana nobe ucitse umhlabatsi ngalesikhatsi ususa sikhwama lesibambe bhanana lomncane - sebentisa mukhwa esikhundleni sesigodvo



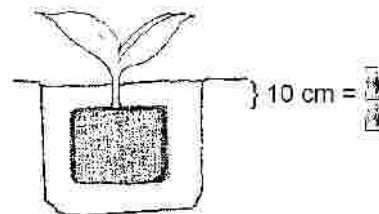
X

✓



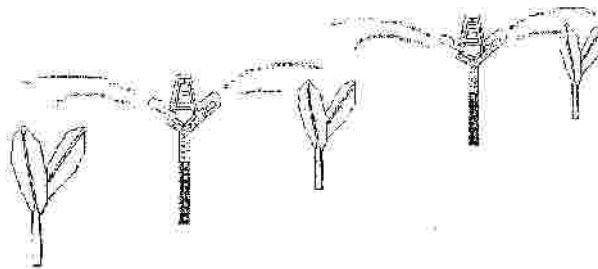
X

Ungahlanyeleli etulu kakhulu nobe phansi kakhulu, Shiya sikhala lesinele lesinganga 10 cm phakatsi kwenhlanyelo nemhlaba

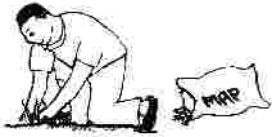


✓

Nisela sihlahla sabhanana ngemuva kwekuhlanyela

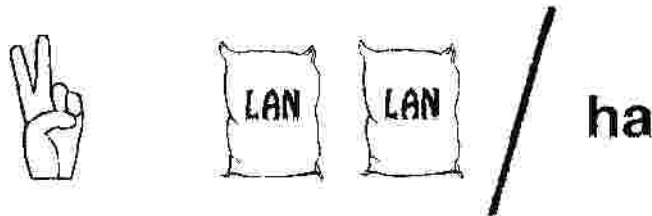


Kufaka manyolo

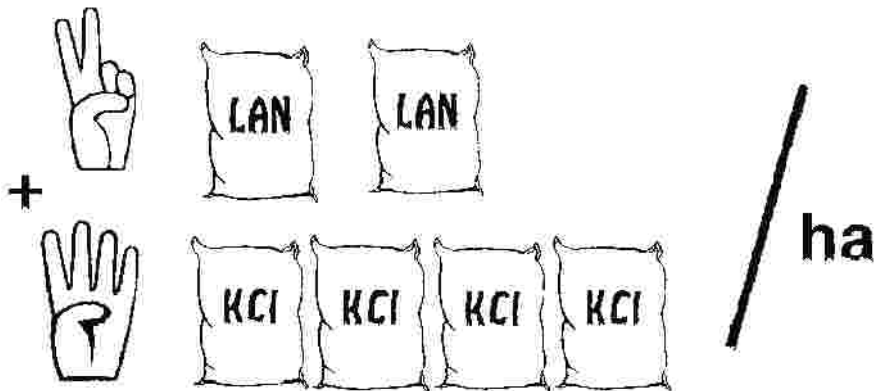


Vundzisa umhlabatsi wakho lonabhanana ngekutsi njalo ngemuva kwekuhlanyela ufake manyolo

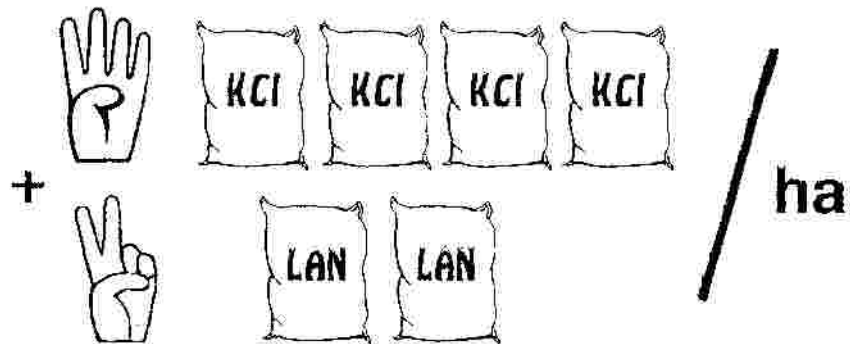
1. Faka manyolo wekucala ngemuva kwenyanga uhlanyelile (Bhimbidvwane) usebentise emasaka lamabili amanyolo we-LAN i-hectare ngayinye (50g sihlahla ngasinye)



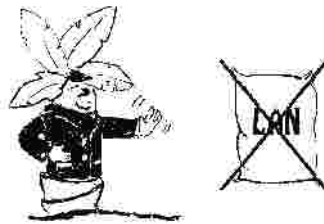
2. Faka manyolo wesibili ngemuva kwetinyanga letintsatfu uhlanyelile (Indlovulenkulu) usebentise emasaka lamabili e-LAN i-hectare ngayinye (50g sihlahla ngasinye) kanye nemasaka lamane amanyolo we-KCI i-hectare ngayinye (100g sihlahla ngasinye)



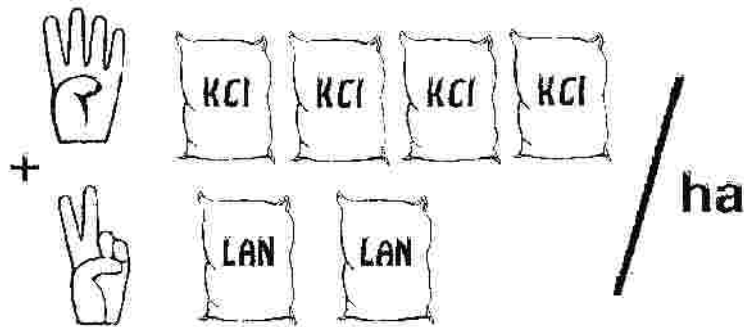
3. Faka manyolo wesitsatfu ngemuva kwetinyanga letisihlanu uhlanyelile (Inkhwekhweti) usebentise emasaka lamane amanyolo we-KCI nalamabili amanyolo we-LAN i-hectare ngayinye.



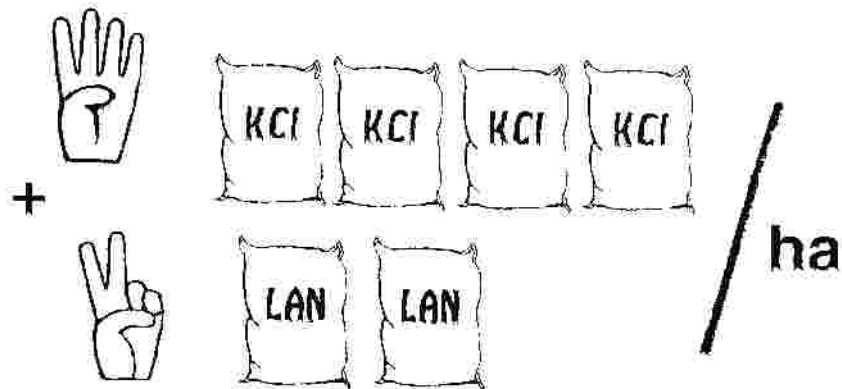
Ungafaki manyolo ngenyanga ye-Nhlaba, Kholwane, Ingci



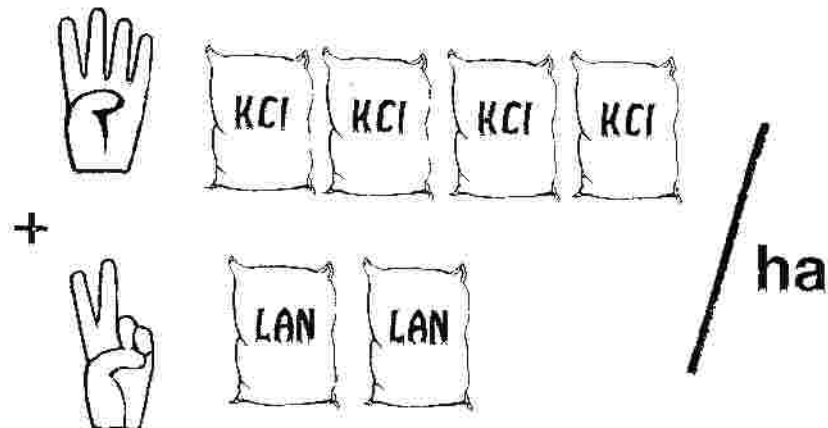
4. Faka manyolo tinyanga letiyimfica ngemuva kwekuhlanyela ngenyanga ye-Nyoni usebentise emasaka lamane amanyolo we-KCI nemasaka lamabili e-LAN



5. Faka manyolo tinyanga letilishumi nakunye ngemuva kwekuhlanyela (Lweti) sebentisa emasaka lamane amanyolo we-KCI nalamabili emasaka e-LAN li-hectare ngalinye



6. Faka manyolo kwekugcina ngenyanga ya-Bhimbidwane usebentise emasaka lamane amanyolo we-KCI kanye nemasaka lamabili e-LAN i-hectare ngayinye



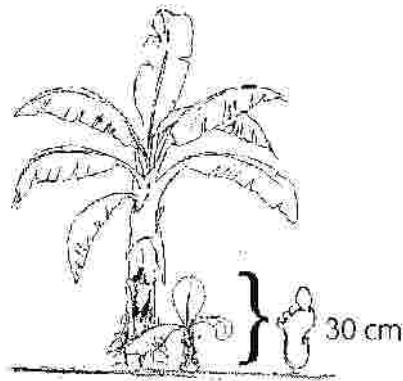
Tentele umcuba ngekuvundzisa tivandze letindzala, umcuba wetinkukhu, nemcuba wetinkhomo, lengasebenta esikhundleni seluhlelo lwamanyolo.

Kujuba lihlumela

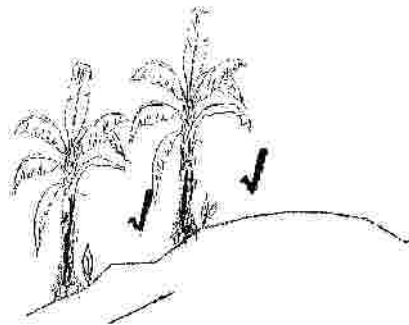


Kujuba lihlumela kusho kususa inhlanyelo lengadzingakali esicwini sanina wabhanana

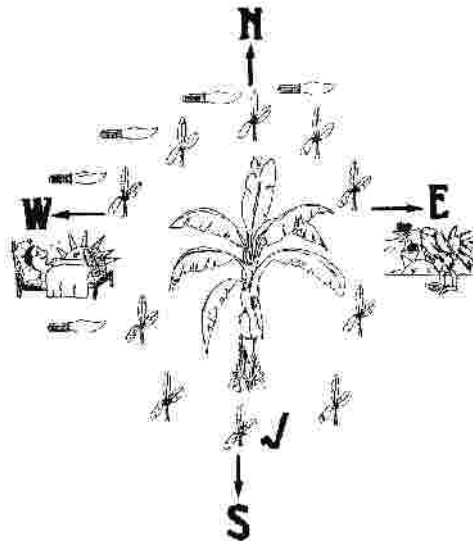
1. Sebentisa mukhwa kujuba sicu selihlumela leselimile laze laba ngusayizi welinyawo.



2. Nawuhlanyela endzaweni leyehlelako, ubohlale ushiya lihlumela leliseceleni lelikhuphukelako.

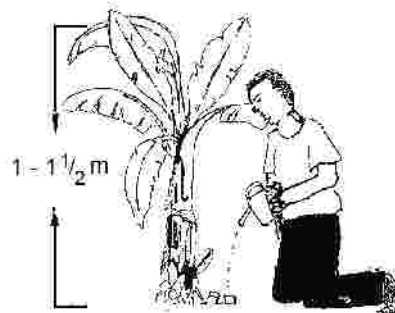


3. Juba onkhe emahlumela lase-Nyakatfo neNtshonalanga kwesihlahla sabhanana



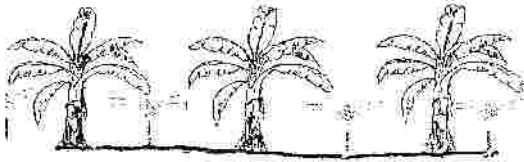
4. Ngemuva kwetinyanga letishlanu uhlanyelile, khetsa lihlumela lelikhule kahle. Juba onkhe lawo lasele Chubeka nekukhipha onke emahlumela langafuneki nakachubeka nekuvela

Ungatseli dizili etulu kwesicu selihlumela, kunaloko, nisela ngemanti nje kuphela



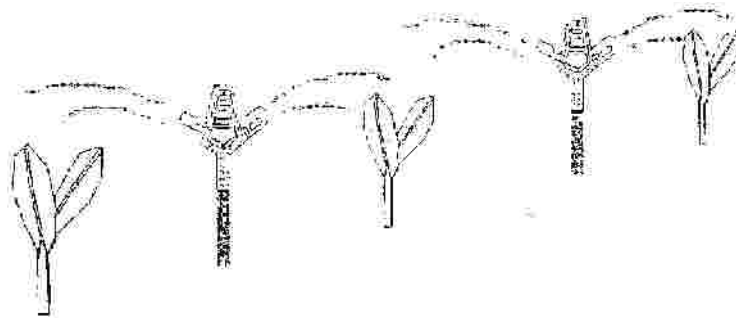
NB: Kubalilekile kwekutsi ungagcini titjalo letingetulu kwa 2 222 ku-hectare ngayinye. Ngakoke ngemuva kwekuvuna, kufanele ushiye lihlumela linye lotolivumela kutsi likhule.

Kunisela

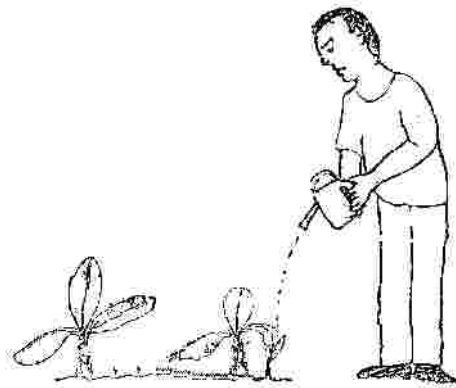


Nisela inhlanyelo yabhanana ngemuva kwekuhlanyela

1. Nisela inhlanyelo yeticucu tabhanana letisandza kuhlanyelwa malanga onkhe kuze kuphele emaviki lamabili (emaminitsi lalishumi nesihlanu kunisela ngakunye) kute uvikele emacembe ekushisweni lilanga

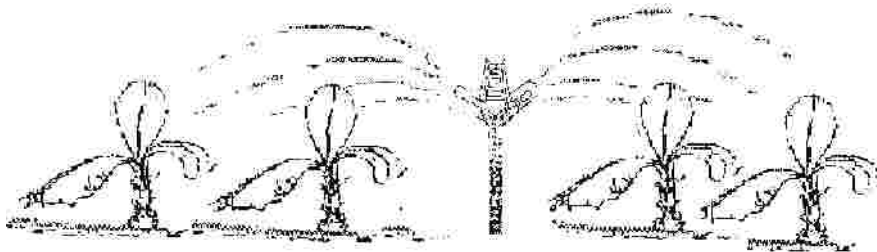


2. Uma invula ingekho, manti kufanele asetjentiswe kancane nobe njalo, sekuya ngabhanana lohlanyeliwe



3. Emhlabatsini losindzako, faka emanti lalinganiselwa ku-20 mm njalo ngemuva kwemalanga lamatsafu ehlobo nobe njalo ngemuva kwetinsuku letisiphohlongo ebusika

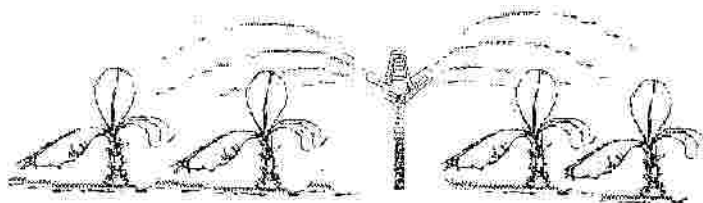
NB: Tfola kwekutsi tinyenyeto temanti tenta umsebenti longakanani



Sibonelo: Umlomo lochunywa embotjeni yesinyenyeto = utfula silinganiso lesingana 3 mm lihora ngalinye

Njalo uma unisela/utselela, chuba loluhlelo emahora langemashumi lamabili bese ulehlukanisa tigatjana letingemahora lamatsafu, loko kwenta emahora lasitfupha nemaminithi langemashumi lamane ($20/3 = 6$ hours, 40 min)

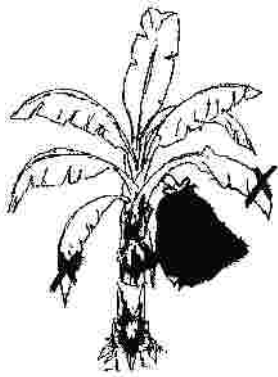
4. Emhlabatsini lolula, faka emanti langu-12 mm njalo ngemuva kwemalanga lamabili ehlobo bese kuba njalo ngemuva kwemalanga lasihlanu ebusika



Sibonelo: Umsebenti lowetfulwa tinyenyeto temanti = 3 mm lihora ngalinye

Njalo nawunisela , hambisa loluhlelo emahora lalishumi nambili lowahlukanise tigaba temahora lamatsafu = emahora lamane ($12/3 = 4$ hours)

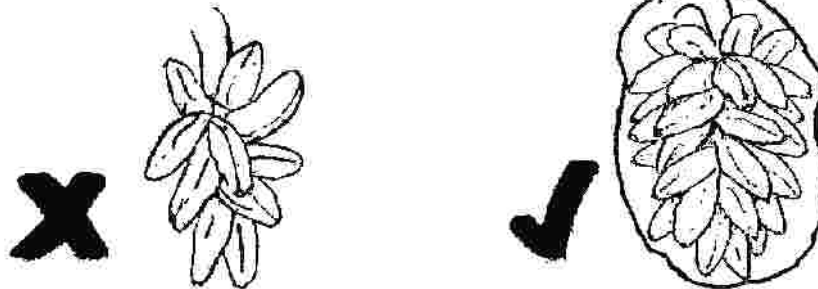
Kufaka esakeni nekususa emacembe



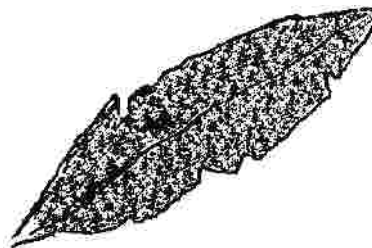
Mbonya tikhehle tabhanana ngemasaka kute utivikele kutilwanyana nasemoyeni

Khipha tinhlavu nemacembe laphuti lalengela phansi esihlahleni sabhanana

Kumbhonya sidleke sabhanana, kukuniketa sivuno lesihle



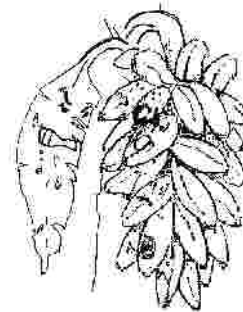
1. Khipha emacembe lasentansi kwesihlahla sabhanana lesewangatsi aba badzala ngoba angaletsa tifo aphindze alimate nesikhehle sabhanana



Sebentisa mukhwa kujuba emacembe lamadzala kubhanana wakho - ungawadvonsi



2. Macembe lamadzala angahwebha abuye alimate lesitselo lesisesikhehleri sabhanana



3. Juba emacembe lamadzala uwandlale ngetulu kwemhlabatsi - ambonya umhlabatsi aphindze angete umsoco emhlabatsini



Kuvimbela/Kulawula likhula



Lawula likhula ngekusebentisa :

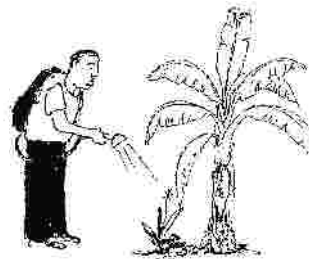
- (A) emakhemikhali nobe
- (B) sandla nobe
- (C) totimbili letindlela

Tifutfo letinemitsi loyikhemikhali tiyasetjentiswa kubulala likhula -

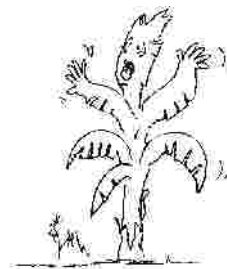
Sebentisa kuphela mitsi lenconotwako bese uyifaka ngekucopehelela ngekulandzela imitsetfo lebhawle kulomutsi

Ungafutsi :

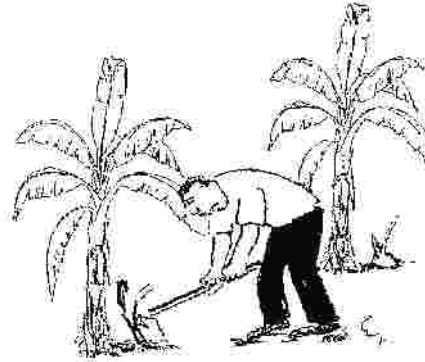
- kakhulu
- sihlahla sabhanana
- ngalesikhatsi kuhhusha umoya



Uma usebentisa lendlela yekubulala likhula ngemakhemikhali lafana ne-glyphosphate nobe i-paquet, vikela tonke tinhlangothi tesihlahla sabhanana tingavutelwa tinsalela talomutsi



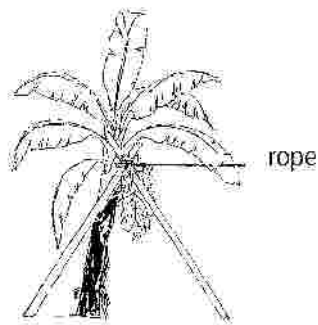
- B. Likhula liyabulaleka ngekusebentisa likhuba nobe sandla ikakhulukati kuletindzawo letisedvute nesitjalo kute uvikele sihlaha ekutsintfweni makhemikhali ngalesikhatsi ufutsa.



- C. Totimbili letindlela tingasetjentiswa ngesikhatsi lesifanako kubulala likhula



Khumbula kusekelisa bhanana wakho ngekutsi uwusimise ngentsambo nobe ngetindvuku.



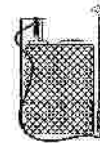
Kuvimbela nekulawula tinambitane netifo



Lawula nobe uvimbele tinambutane netifo.
Tinhlobo letahlukene tetinambutane netifo tidzinga kwelashwa ngetindlela letahlukene

Tinfotfoviyane letincane

Sebentisa ikhemikhali yekubulala tinambutane i-chlorpyrifos kanye ngenyanga kubulala tintfotfoviyane uma tikhona



Tinambutane tasemhlabatsini letincane

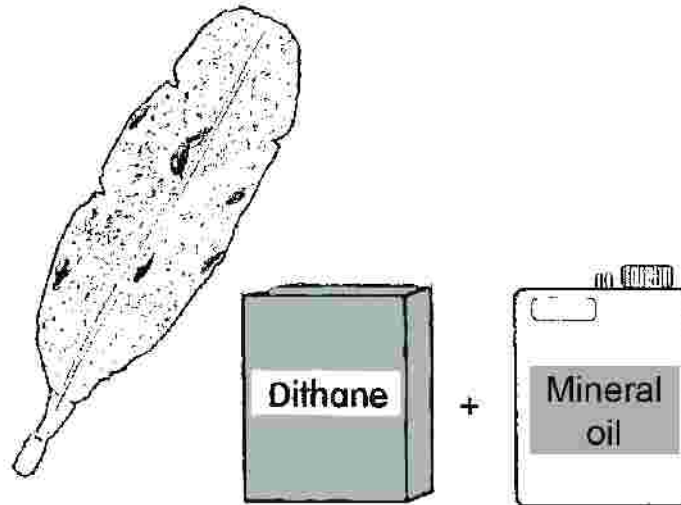
Uma tikhona, tibulale nge-Nemacur usebentise 45 kg lihectare ngalinye (20 g sihlahla ngasinye)



Livundzela, umcuba wetinkhomo nemcuba wetinkhukhu kuyasebenta kucindzetela tinambutane tasemhlabatsini uma kufakwe kwaba kunyenti. Ticwecwe tabhanana tekulinywa atinato tinambutane tasemhlabatsini.

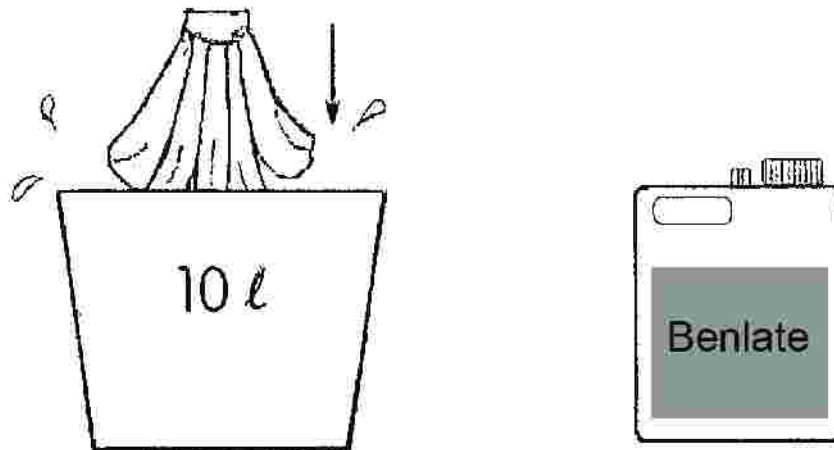
Sifo semabala emacembeni abhanana

Fafata nge-Dithane nawoyela

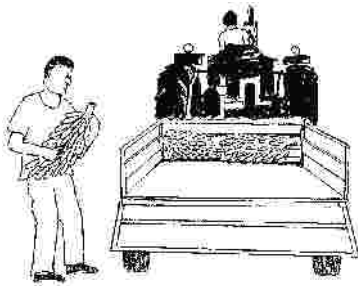


Kubola ngemuva kwesivuno.

Ncwilisa sikhehle sabhanana kwihlanganisela ye-Banlate (5 g kwi 10 emalitha) kute uvikele kubola ngemuva kwesivuno

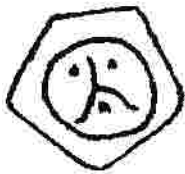


Kuvuna



Vuna bhanana
nasewukhukumukile uluhlata
ngembi kancane kwekutsi uvutfwe
(utsambe ube luphuti)

Ungasheshisi kuvuna bhanana wakho (ngalesikhatsi
usengakhukumuki kahle futsi uluhlata kakhulu) futsi
ungawuvuni sekuhambe sikhatsi lesidze (ngalesikhatsi
sewakhukumukile futsi sewaphuti)



Ungasheshisi



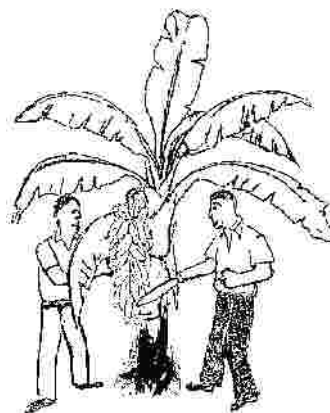
kukahle



Ungalindzi sikhatsi lesidze

INDLELA YEKUVUNA

1. Tfola bantfu lababili labatokuncedzisa kujuba sicu sabhanana sabhanana phakatsi nendzawo kuya entansi

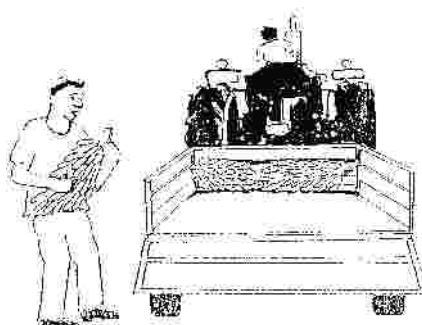


2. Vumela lesihlahla kwekutsi siwe kancane kancane bese ususa sikhehle sabhanana ngekujuba sicu sesihlahla

Juba emacembe nencenye lesetulu yesicu, bese uwandlala etulu kwemhlabatsi



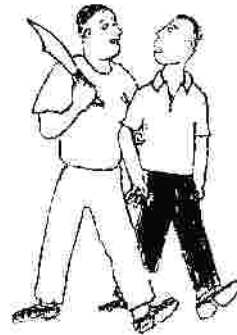
3. Layisha tikhehle tabhanana elolini, ubeke lesinye edvute nalesinye



LOKUFANELE NALOKUNGAKAFANELI UKWENTE NAWUVUNA



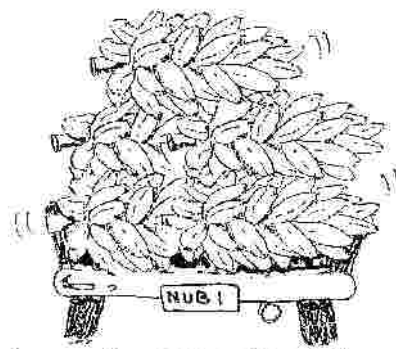
Ungasebenti wedvwa



Cinisekisa kwekutsi tikhehle
atiweli phansi



Ungapakishi tikhehle
etulu kwaletinye



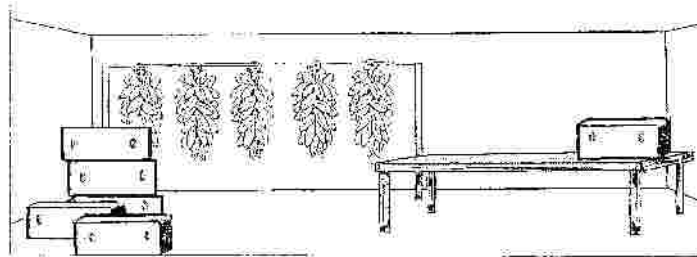
✓ Vuna ekuseni ngalesikhatsi lilanga lingashisi kakhulu



✗ Lomsebenti wekujuba ungawenti emini ngaphandle nje ke naligucubele



✓ Yakha indlu endzaweni lepholile yekubeka bhanana wakho lesewuvuniwe kuze ulengise tikhehle futsi ukhone kutihlukanisa, uwupakishe emabhokisini bese uwubeka (ehlangotsini leliseningizimu)



Kutsengisa



Nyalo emabhanana akho
sewalungele kutfunyelwa
etimakethe letahlukene lapho
ayawutsengiswa khona

Timakethe tendzawo

Ungawutsengisa bhanana
wakho emgwaceni nobe
etitolo letisedvute
nemgwaco



Etimakethe tabomasipala

Ungahlela nemakethe
lesedvute kute ikhone
kutsengisa bhanana
wakho



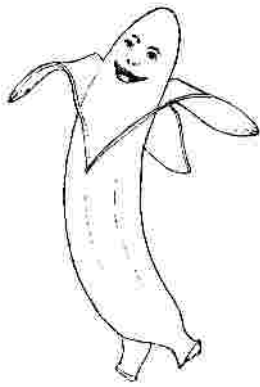
Inkontileka/Sivumelwano

Ungaba nenkontileka nobe
wente tivumelwano
netimakethe letinkulu nobe
neluchungechunge
lwetitolo letingatsenga
tiphindze titsengise
bhanana wakho njalo nje



Ungawusebentisa ekhaya

Ungasebentisa lomunye bhanana ekhaya



Nawufuna kufola lwati ngekukhicitwa
kwabhanana, chumana nemluleki
wasenzaweni yangakini