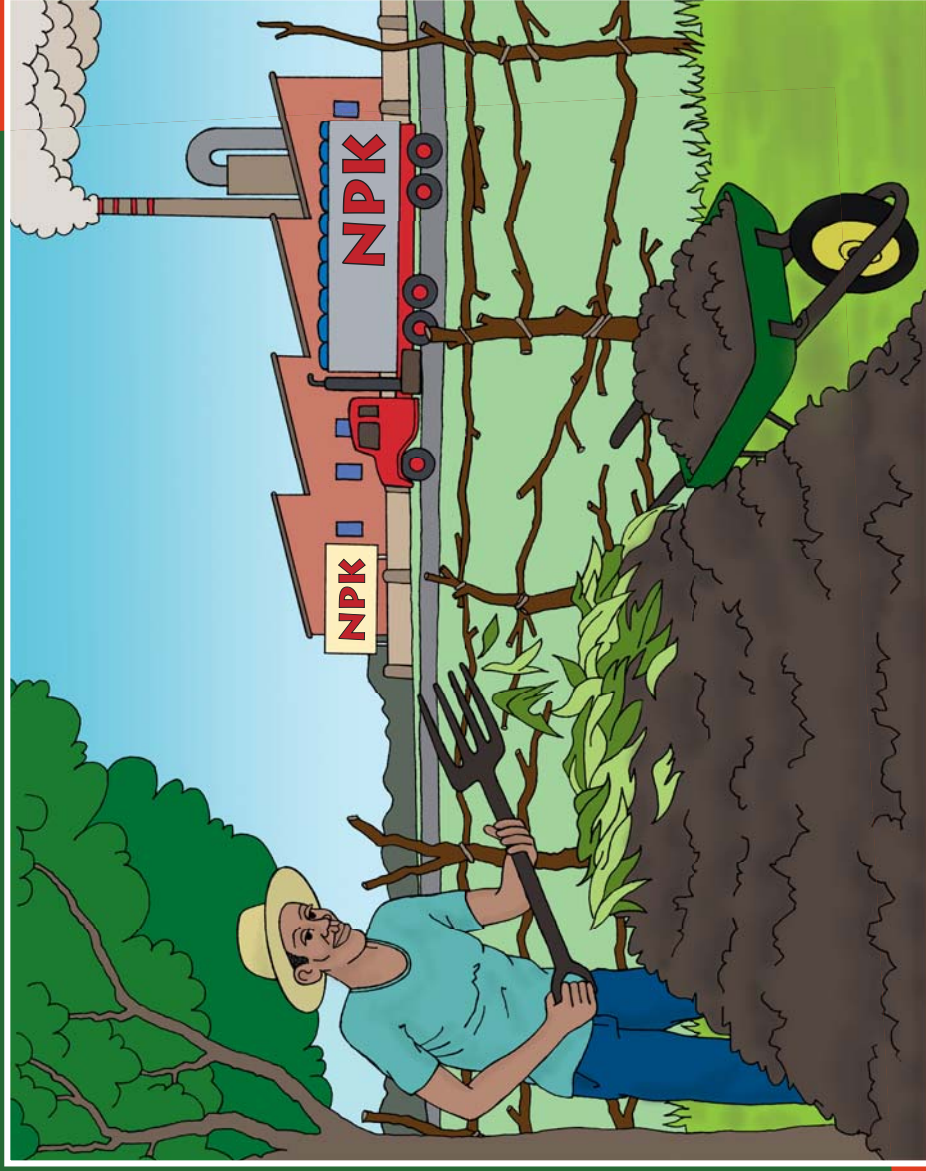


TTYINI

TTIVUNDZISIMBUMBULU?



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Kunetihlobo letimbili tetivundzisi: letentiwe ngalokuphilako (temvelo) netekwentiwa (mbumbulu). Tivundzisi letentiwe ngalokuphilako tikhicitwa etintfweni letenteka ngekwemvelo endzaweni. Tivundzisimbumbulu tentiwe bantfu ngetinhlanganisela temakhemikhali netintfo letentiwe ngalokungaphili (letingaphili nobe temvelo).

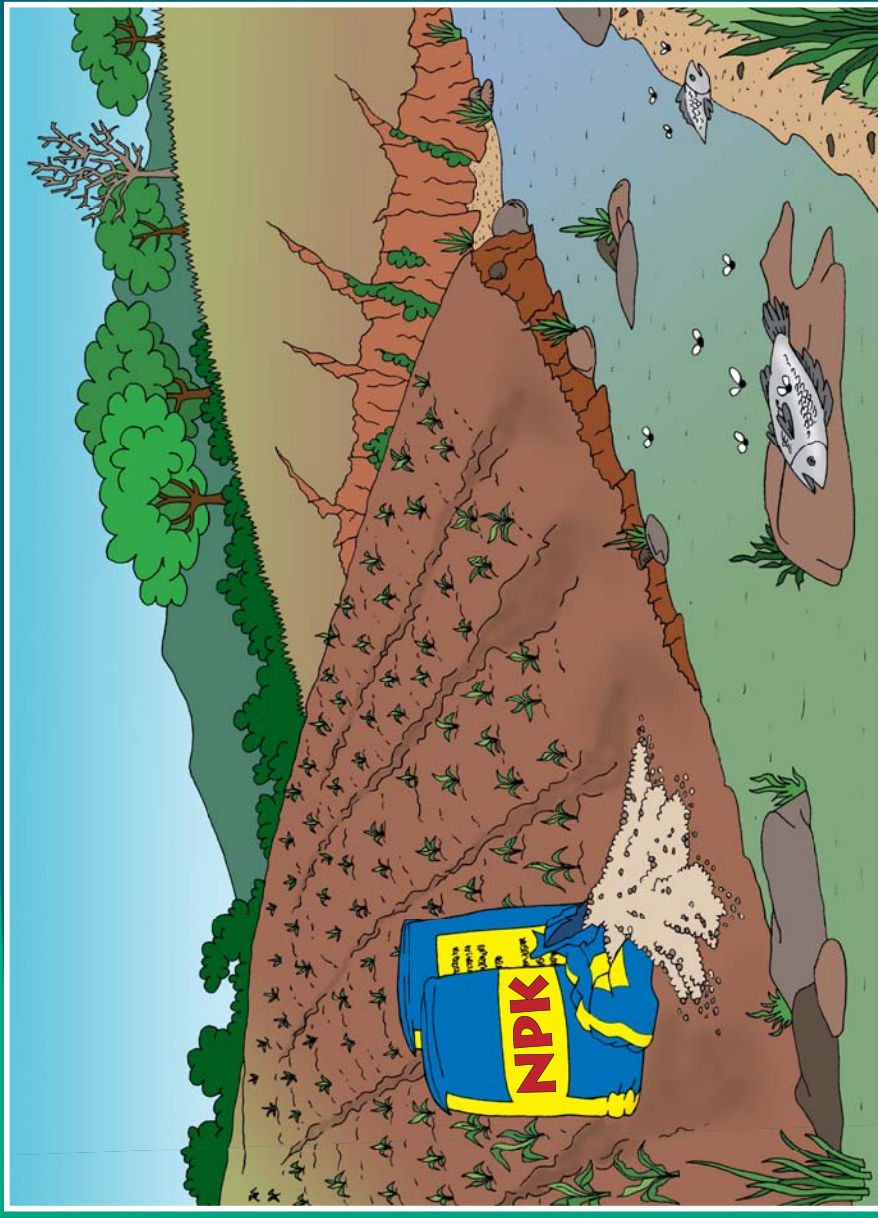
Tivundzisimbumbulu –

- Tentiwa emalabhorathrii nobe etikhungweni letingekho ensimini bese tihlanganiswa netikhulisi letinjengenayithrojini, ifosiforasi, iphotheziyamu, ikhalsiyamu, imagneziyamu naletinye ngemareshiyo lehlukene;
- *Yenta masinyane* kufaka tikhutsatikhaba letibalulekile emhlabatsini, letimunywa tifombo masinyane;
- Tikhicitwaa tibuye tiphutselwe etimbonini; bese
- Tibekwa emagushede bese tibatjalaliselwa titolo letehlukene nobe tiffunywa tebhizinisi eveni lonkhe.

Kusetjentiswa kwetivundzisimbumbulu kuchutjekiselwa phambili kakhulu bohulumende base-Afrika kungeta tivuno. Bohulumende labanyenti besekela kusetjentiswa kwetivundzisimbumbulu – letinjenge- NPK – njengencenye yetinhlelo tekwesekela imitfombolusito yemasimu.

Tivundzisimbumbu **tinemiphumela** lengasimihle **yesikhatsi lesidze** kusimondzawo. Titawuhlala ti:

- **bulala tintfo letincane letiphilako letilusito emhlabatsini (imayikhrozanizimu)** – tintfwana o letiphilako letincane kakhulu letigucula tibi tibe lutfo lwemvelo lolunotse ngetikhutsatikhaba, letikudla kwetijalo;
- **fakwa ngalokwendlulele** – loku kungeta sawoti locukafwa ngumhlabatsi tibuye tishise timphandze, tibe tiffombo kutso tikhule kancane, tilahlekelwe ngemanti, bese tigena ngekufa;
- **tengeta emazinga enayithreyithi emhlabatsini** – tiffombo letihlanyelwe kulomhlabatsi titawufakela bantfu butsi;
- **limate likhono lemhlabatsi lekuvutfuka** – ngumhlabatsi lovutfukako kuphela lokhona kumunya emanti;
- **khukhulekela emifudlaneni**, emifuleni nasemachibini laphe tifikameta lokuphila elwandle tibuye tibe kungcoliseka kwemanti;
- **khukhulekela emantini langaphasi kwemhlabatsi nasemhlabatsini longetulu** ngaphandle kwekunika tiffombo tinzuzo tangempela
- **khutsata tifo letehlukene etifonjeni**; tibuye
- khicite tifselo kanye netibidvo **letinesilinganiso setakhamimba lesiphasi kanye nekunambitseka lokuncane.**



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IMITSELELA YETIVUNDZISIMBUMBULU KUSIMIINDZAWO



IMIPHUMELA YETIVUNDZISIMBUMBULU EKUDLENI LOKUNEMSOCO



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Tivundzisimbumbulu tinemitselela lemibi yesikhatsi lesidze ekudleni lokunemsoco. Inhloso yato lekungiyo kuphela kungeta sivuno sebalimi, kodwa sivuno lesengetekile asikhulisi ikhwalithi yemsoco ekudleni lokukhicitwako.

E-Afrika, tivundzisimbumbulu tigcile kakhulu emmbileni naserayisini, ngetinhlelo tekwesekela ngemali kanye netekunikela. Loku kuholele ekwehleni kwetinhlobo talokulinywako kanye netinhlobonhlobo tekudla lokumisiwe – kokubili kudzingeka kakhulu kuze bantfu bahlale baphilile.

Balimi badzinga kulima tinhlobonhlobo tetitfombo netilimo kuze kube khona kudla lokunhlobonhlobo kanye nekudla lokumisiwe lokunemsoco. Loku kungalendlela emhlabeni losatfutfuka, lapho kudla lokumisiwe kuvamise kuba nekudla lokumcoka lokunesitashi nekudla lokumbalwa lokunemsoco – lokunjengemikhicito yetilwane, titselo, tibhidvo, emabhontjisi kanye nalokunye kudla lokusabhontjisi. Tinhlobonhlobo tetilimo letinjalo tingabuye tisite balimi kugcina luhlelo lwetinhlangano leticinile kanye naletehlukahlukene, ikakhulukati ngesikhatsi sesomiso kanye nesesimo selitulu lesimatima.



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TIYINI TIVUNDZISI LETENTIWE NGALOKUPHILAKO?

Tivundzisi letentiwe ngalokuphilako tikhicitwa tiselwa etintfweni letenteka ngekwenvelo kusimondzawo, kufake phakatsi **tinhlobonhlobo tetivundzisi, imvundzisa, namanyolo loluhlata nalovela kulokuphilako.** Tikhutsata kukhula kwetifombo tibuye tiftufukise imphilo yemhlabatsi ngekuhamba kwesikhatsi ngekukhiphela takhamtimba letibalulekile **kancane** emhlabatsini.

- **Tivundzisi temvelo leticuketse lokuphilako** tinemfucuta lephilako lebalulekile ekukhuleni kwetifombo.
- **Imvundzisa** ilutfo lwemvelo lolubolile – tibhidvo nobe manyolo.
- **Manyolo loluhlata** usitfombo lesilinywako bese siphindze sihlanyelwe emhlabatsini, lesingeta lutfo loluvela kulokuphilako luphindze lukhiphe takhalikhaba tetifombo letibalulekile. Ubuze usite ekugcineni umswakamo emhlabatsini.

- **Manyolo lovela kulokuphilako** ufaka phakatsi timfucuta tetilwane letibolile letinjengekudla kwematsambo, manyolo, ludzaka (inhlanganisela yebulongo nemanti) neguwano (bulongo betinyoni tasselwandle kanye nemalulwane).

Bomayolo labavela kulokuphilako labanyenti batfolakala mahhala, emhlabeni wakho nasekhaya lakho nasemfuyweni.





IYINI

IMPHILO YEMHLABATSI NOBE KUVUNDZA KWEMHLABATSI?

Imphilo yemhlabatsi ngumtsamo wemhlabatsi wekusebenta njengentfo lephilako eluhlelwenimphilo. **Luhlelomphilo** lusho tonkhe tintfo letiphilako kusimondzawo lesiphila kuso (tintfo letincane letiphilako, titfombo, tilwane, bantfu) nekuhlangu kwato naletinye kanye nesimondzawo (umoya, iklayimethi, umhlabatsi, lilanga, simo selitulu njll).

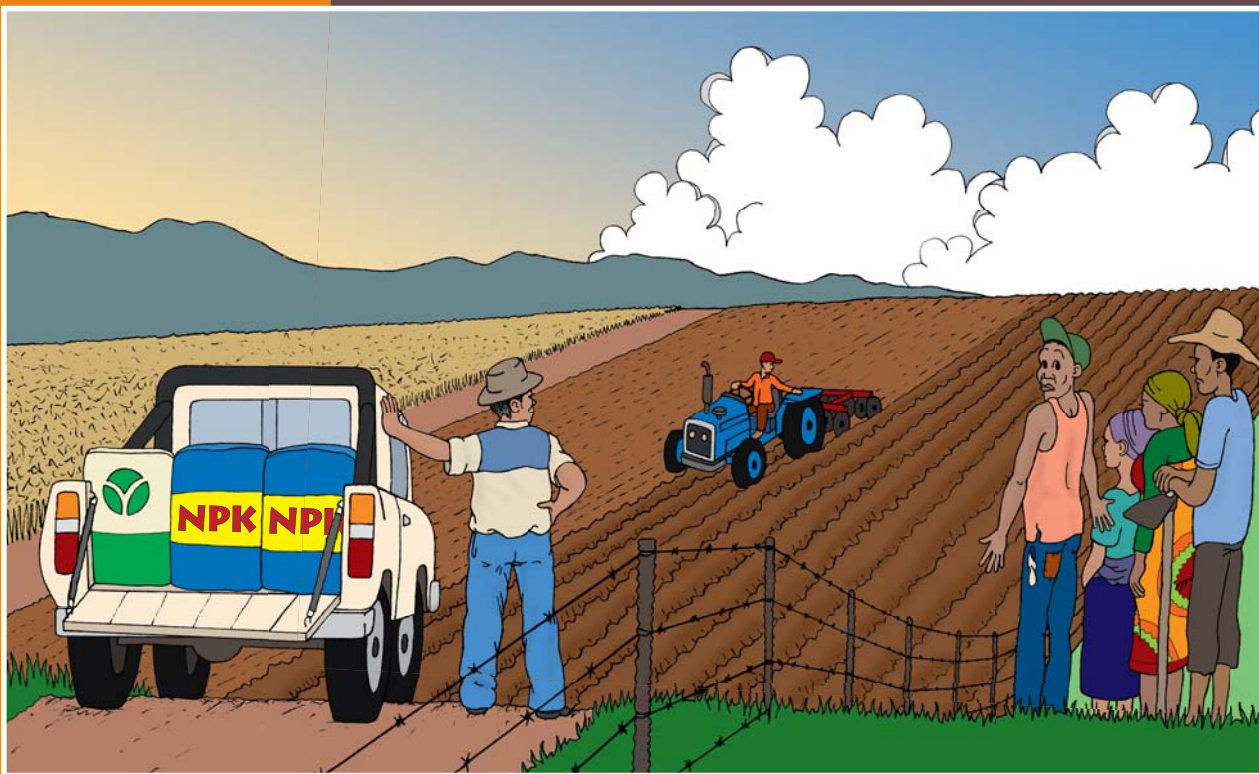
Umhlabatsi lonemphilo usimamisa tintfo letincane letiphilako letiphila kuwo, utfutukisa imphilo yetitfombo kanye netilwane letingetulu kwawo, ugcina ubuye ukhulise ikhwalithi yemanti emifuleni yetfu nemoya lesiphila nawo.

Kuhlanyela tinhlobo letehlukene tetitfombo letifanele umhlabatsi kanye neklayimethi kubaluleke kakhulu emphilweni yemhlabatsi. Titfombo letehlukene tinika tinhlobo letehlukene tekudla kwetintfo letincane letiphilako lehlukene emhlabatsini. Bese letintfo letincane letiphilako (*emamayikhroorganizimu*) tondla titfombo ngemanti nangetikhulisakhaba letibalulekile.

Umhlabatsi lonemphilo unciphisa sidzingo semitfombolusito levela ngaphandle (tivundzisi netibulalitolokatane) loku kusho kungeteka kwalokuhle kubalimi.

KUYINI

KUSETJENTISWA KWETIVUNDZISI TEMAKHEMIKHALI E-AFRIKA?



Kusebentisa tivundzisi temakhemikhali kusho kwentiwa kwetifombo tekweniwa letiveta tihlanyelo letinyenti, tibuye tibitwe 'ngetifombo tekweniwa letentiwe ncono' nobe 'tifombo tekweniwa leticinisekisiwe. Letihlanyelo tekweniwa tentelwa ikakhulu kukhacita tivuno letengetekile ngelihektare, njengencenye yalokucuketfwe buchwepheshe lokunetivundzisi tekweniwa, tibulalitolokatane nalamanye emakhemikhali lafakiwe, kwesekela ngetimali, kuvikela timakethe temikhicito, njll

Labesekela kusetjentiswa kwetivundzisi temakhemikhali baphikisa kwekutsi tindlela tayo

titfutukisa kakhulu kusimama kwetekulima, nesicinisekiso sekutfolakala kwekudla kanye netakhamtimba. Umcabango wabo wekutsi balimi batawutsenga imitfombolusito (lengsekelwa ngetimali tikhatsi letimbalwa tekucala kuze kucalwe lenchubo), lekutobasita kwekutsi bangenise tivuno letinkhulu letingatsengiselwa inzuzo. Loku kutawugcine kukhacita imalingena leyenele kukokubili kutsenga tidzingo tekudla kwabo kuze kufike sikhatsi lesitako nekutsenga imitfombolusito kute kukhacitwe kakhulu.

Empeleni, akusebenti ngalendlela, incenye lencane yebalimi labangazuza kulendlela.



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YINI LENGAKALUNGI NGEKUSEBENTISA TIVUNDZISI TEMAKHEMIKHALI E-AFRIKA?

Luhlelo Lwekusetjentiswa kwetivundzisi temakhemikhali *Green Revolution* (i-GR) lugcugcutela inchubomgomo yetekulima, kwentiwa kwetinhlelo kanye nelusiso e-Afrika. Loku kubonakala kusuka kunchubomgomo yesigodzi Yelubumbano yase-Afrika kuye phasi etinhlelweni tahlumende wavelonkhe neseluleko semahhovisi lengetiwe lesinikwa balimi.

Bantfu labambalwa kuphela labavela ecenjini lelikhetsiwe labazuza kulendlela ye-GR:

- Balimi abakhoni kufinyelela kubuchwepheshe be-GR, lobunjengetinhlangano letitfutukisiwe kanye nemakhemikhali etekulima, ngenca yetindleko letiphakeme letitsintsekako.

- Timakethe tekutsengisa – lapho tikhona khona – atikhoni kwemukela lokusele.
- Balimi labanyenti banebumatima bekufika etidzingweni temtsamo, tekhwalthi kanye netekulinganisa kutsengisa ngesilinganiso lesikhulu etimakethe tekutsengisa.
- Tintsengo temikhicito tiphasi kakhulu, ikakhulu esikhatsini sekuvuna, nebalimi abakavami kwenta inzuzo ekutsengiseni imikhicito lesele.
- Imindeni lelimako igodla incenye yetilimo tayo kute idle, kodvwa loku akusiyo ikhwalthi lengaphasi futsi kuholela ekwehleni kwemigomo yekulinganisa.

Tati letinyenti tiphikisane ngekutsi akukho kungenelela kwebuchwepheshe lokungatfutfukisa tekulima tase-Afrika. Kunaloko, bancoma kwekutsi balimi basebentise tindlela letehlukene etinhleweni tekulima letehlukene.

Njengoba letinye tindlela tekulima sifombo sinye ngekusebentisa emakhemikhali, tindlela tekulima ngaphandle kwemakhemikhali kufutkisa imphilo yemhlabatsi nekuvundza, kukhicitwa kwekudla lokusimeme nemalingena lengetekile yebalimi. Tifaka:

- Kuhlanyela efusini – kushiya umhlaba sikhatsi lesidze ungawuhlanyeli kute ulunge;
- kugcinwa emgodzini kwabomayolo netivundzisi;
- kwengeta emandla etinfo temvelo – kufake phakatsi umhlabatsi wesidvuli, manyolo wetilwane nemacembe labolile;
- kuhlanganisa lokusanhlavu nalokusabhontjisi, lokunjengetinhlumayo nemantongomane e- *bambara*;
- kulungisa inayithojini;
- kuntjinjanisa tijalo – sibonelo, lokusanhlavu, emantongomane netihlahla talokusabhontjisi (*i-faidherbia albid*);
- kuhlanyelwa kwetihlahla tihlanganiswe netitjalo netilwane – inhlanganisela yetihlahla, tilimo kanye nemfuyo; ne
- tindhlelo tetinhlaneyelo letehlukene kanye naletesekelwa balimi.

Tindlela tekulima letingasebentisi emakhemikhali letikhona nyalo tesekele etinchubeni tekulima tendzabuko lesetiguculwa emashumi eminyaka balimi base-Afrika. Letento tebalimi, lekufanele bafakwe kunobe nguyiphi inchubo yaluphi lucwaningo neyekutfutfukisa lebatsintsako.

BALIMI BANALETINYE TINDLELA KUNALENA YEKUHLANYELA NGAPHANDLE KWEMAKHEMIKHALI



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