

# I-MERCURY RISES

Funda uze uhlakoniphe  
ngotshintsho lwemozuli



Ukhetho Iwezihloko zotshintsho lwemozulu

# “I-MERCURY RISES”

INKQUBO YOTSHINTHSO  
LWEMOZULU  
EKUNOMATHOTHOLO

## INTSHAYELELO

Inkqubo yeveki ekunomathotholo yotshintsho lwemozulu kanye neziphumo zoko kubantu, kwizilwanyana, kwindalo nakwicandelo lezolimo yaqalwa ngowama-2018 yaze yaphela ngowama-2020 emva kweenkqubo ezili-104. Ezi nkqubo ngotshintsho lwemozulu zazipapashwa ku-RSG kwaye zazixoxa izihloko eziliqela ezinika umdla kanye neengcali ezahlukileyo.

Ngokutsho kukaGqirha Ilse Trautmann onguMlawuli oyintloko: kwicandelo loPhuhliso loBuchwephesh boPhando; okwanguye nomnxibeelanisi wenkqubo i-“Mercury Rising”, eli nyathelo laqala ngenkqubo ye-SmartAgri yeSebe lezoLimo leNtshona Koloni kwaye injongo yayikwandiswa ukuqondwa kwemeko “entsha” yemozulu kubaphulaphuli.

Le nkqubo yensiwa kwaye yaxhaswa liSebe. Kule nkqubo, umbonisi uLizma van Zyl uthetha nabantu abohlukileyo kweli candelo, ekhangela iingcebiso zeengcali malunga nokwenza uMzantsi Afrika,

ngakumbi icandelo lezolimo, uphinde umelane notshintsho lwemozulu.

Le nkqubo ikwagxinisa uxanduva lommi ngamnye. Njengokuba esitsho naye uLizma kumbuliso wakhe weveki nganye: “Umhlaba uxabisekile; masiwugcine.”

Kwezi nkqubo, ezili-14 zicatshulwe, zatolikwa kwaye zafakwa kule ncwadana. Usasazo lwezinckqubo zikanomathotholo lufumaneka ku-www.elsenburg.com – cofu u“drought portal” uze ucofe u“droughtmedia”.

**U-Dr Ilse Trautmann**  
**Chief Director: Research and Technology Development Services**  
**Western Cape Department of Agriculture**

Ukufumana iinkcukacha ezingaphezulu malunga nesicwangciso se-AgriSmart, izinto zokuphonononga kanye neenkucukacha zengaqingqi, ndwendwela: [www.greenagri.org.za](http://www.greenagri.org.za) or [www.elsenburg.com](http://www.elsenburg.com)



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# IZIQUULATHISO

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**“KWIMINYAKA ENGAMASHUMI  
AMABINI ANESIHLANU  
EYADLULAYO ABANTU  
BABENOKUXOLELWA NGENXA  
YOKUNGAZI OKUNINZI, OKANYE  
UKWENZA LUKHULU, MALUNGA  
NOTSHINTSHO LWEMOZULU.  
NAMHLANJE ASINASIZATHU  
SAKUZITHETHELELA.”**

**U-Desmond Tutu, OwayenguBhishophu omkhulu  
waseKapa**

# Cofa kula makhonkco alandelayo ngolwazi oluthe kratya kupapasho I-Mercury Rises

## Die Kwik Styg

Luister saam na ons klimaatsveranderingreeks

deur Dr. Ilse Trautmann



Lizma van Zyl  
Photo © Milan Cronje



“Die klimaatsveranderings-prentjie lyk donker, maar daar is altyd die spreekwoordelike lig aan die einde van die tonnel.”

In die reeks gaan aanbieder Lizma van Zyl met mense van regoor die spektrum gesels en kennerswenke inwin oor toepaslike maatreëls om Suid-Afrika meer klimaats-veerkrugtig te maak.

Lizma is 'n veteraan radiojoernalis en nuusredakteur met 'n meestersgraad in Joernalistiek. Sy is ook die stigter van Smile 90.4 FM en bied die kykNET-program *Hond se gedagtes aan*.

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’n Nuwe weeklikse program oor klimaatsverandering en die gevolge daarvan vir mens, dier, die omgewing en die landboubedryf het op 6 April 2018 afgeskop. Die program, *Die Kwik Styg*, word Vrydae om 12:45 op RSG uitgesaai en gaan vir 52 weke interessante onderwerpe bespreek met 'n verskeidenheid kenners as ateljee-gaste.

Volgens dr. Ilse Trautmann, Hoofdirekteur: Navorsing en Tegnologie-ontwikkeling en koördineerde van *Die Kwik Styg*-reeks, is hierdie inisiatief 'n uitvloeisel van die Wes-Kaapse Departement van Landbou se SmartAgri-plan en gaan dit poog om 'n groter bewusmaking van ons "nuwe" klimaatsomgewing by luisteraars te bewerkstellig. Die reeks word deur die departement vervaardig en befonds.

Agter elke radioprogram is daar...  
**'N TOEGEWYDE SPAN**

deur Dr. Ilse Trautmann

Image © IgorZh

“Die kuns lê beslis in die verskeidenheid sprekers en onderwerpe – ener syds om die luisteraar deurlopend te prikkel, maar ook die bewusmaking oor 'n wye reeks onderwerpe.”

In die Agriprobe van Junie 2018 is die nuwe radioreeks *Die Kwik Styg* aangekondig en ses maande sedert die eerste program op 6 April 2018 op RSG uitgesaai is, lok die reeks ongekende belangstelling, nie alleen van die ateljee-gaste nie, maar ook van die publiek en ons landboumense. Net minder as 300 000 luisteraars skakel weekliks in om na die program te luister!

Enige suksesvolle projek staan egter op twee bene – 'n duidelike doelwit en 'n toegewyde span wat week na week sorg vir

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**It is time to say farewell,  
but stay tuned to Station  
Climate Change!**

by Dr Ilse Trautmann, ilset@elsenburg.com

We truly hope that you tuned in to our second series of "Die Kwik Styg", which was broadcast on RSG at 12:45 on Friday afternoons. Our presenter Lizma van Zyl informed, educated, and empowered South Africans on climate change and relevant subject matters with world-renowned experts as her studio guests. We informed our AgriProbe readers on this most popular series in previous editions of *AgriProbe* (Vol 15, No 2, p 12-13; Vol 15, No 3, p 44-49).

The programme was funded by the Western Cape Department of Agriculture with Dr Ilse Trautmann, chief director of Research and Technology Development as project leader. This project was run as part

of the SmartAgri plan ([greenagri.org.za](http://greenagri.org.za) or [elsenburg.com](http://elsenburg.com)) with the objective of creating awareness on climate change for the agricultural sector and the general public. After the success of the first series, RSG invited the department to do a second series. Experts on climate change in South Africa (and one from the UK) took part in the two series.

The sad news is that the team, Lizma, Ilse and Lindsay, broadcast their last programme on Friday 3 April 2020 after 104 programmes. Please take time to listen to this programme – the grand finale of "Die Kwik Styg"!

Our sincere appreciation to our team of

## Department of agriculture scoops another “hot” climate-change award



by Dr Ilse Trautmann, ilset@elsenburg.com

In less than a year after being awarded the 2019 Eco-Logic gold award in the category "Climate Change" for its SmartAgri plan, the department once again took centre stage at the 2020 Eco-Logic Awards ceremony, which was presented in a virtual format during September. This time the gold award in the category "Climate Change" was awarded to the very popular radio series *Die Kwik Styg* (refer to *AgriProbe* Vol 15 (2) and (3) (2018) and Vol 17 (2) of 2020).

Western Cape Minister of Agriculture, Dr Ivan Meyer congratulated the Western Cape Department of Agriculture for winning the gold award and said, "Tackling climate change is one of my priorities. So I am extremely proud of Dr Trautmann and her team. Creating awareness among South Africans of the challenges and opportunities

of climate change is critical in our campaign to develop innovative solutions to the challenge it presents. *Die Kwik Styg* provided the perfect platform for the Western Cape to contribute to the building of a climate-resilient South Africa."

In an attempt to encourage prevention and planning that may lead to a climate-resilient South Africa, the department embarked on this innovative project to produce a radio series on climate change called *Die Kwik Styg* in 2018. This initiative was also one of the communication tools of the SmartAgri plan, the first ever provincial sector plan for the agricultural sector in South Africa. *Die Kwik Styg* was the first radio series on climate change produced and broadcast in South Africa.

The judges commented by saying, "This



# YINTONI UTSHINTSHO LWEMOZULU KWYE LUSICHAPHAZELA NJANI?

U-DR PETER JOHNSTON

Utshintsho Iwemozulu yinto esichaphazela sonke ebomini bethu. Kule nkqubo, siza kuqhuba udlwanondlebe nabantu abohlkileyo, ukuze siqonde ukuba aluchaphazeli ummi oqhelekileyo kuphela (uJoe Public). Luchaphazela ingakumbi icandelo lezolimo, embindini wobukho bethu.

Sihambe sibuza abantu ukuba bacinga ntoni na ngotshintsho Iwemozulu.

- “Kum, utshintsho Iwemozulu kukufika kwamaxesa onyaka kamva kunokuba kufanelekile. Ehlotenyi kubashushu kakhulu kwaye ebusika asisayifumani olahlobo sasiyifumana ngayo imvula.”
- “Kuxa iindlela zenkqubo zotshintsho Iwemozulu nemozulu kanye nesimo sendalo “singalunganga” ngenxa yezenzo ezimbi zoluntu oluninzi.”
- “Utshintsho Iwemozulu, ngokoluvo Iwam, kukufudumala komhlaba nesiphumo soko kumaxesha onyaka.”
- “Zinzi izenzo zoluntu ezikhupha ii-greenhouse gases njengomoya omdaka (icarbon dioxide) emoyeni. Uninzi lwezigesi lenza kubenzima ukuphuma kwemisebe ye-infrared emoyeni.”
- “Lutshintsho kwindlela yenqubo zemozulu kwixesha elithile elimisiweyo. Oku kubangela ukufudumala komhlaba. Oku kwenziwa luninzi lwabantu emhlabeni, ukutshatyalaliswa kwamahlathi kanye nezolimo.”



# USHINTSHOLWEMOZULU

ONgethetmba, abantu baqalisa ukubona okuqhubekeyo kokubangqongileyo malunga nembalela kwaye utshintsho Iwemozulu kuyinyani.” Isithethi sethu sokuqala yingcali kutshintsho Iwemozulu kanye nomphandi, uGqirha Peter Johnson, osuka kwiPhulo lokuPhuhlisa iMozulu yaseAfrika kwiYunivesithi yaseKapa.

## Yeyiphi eyona mibuzo oyibuzwa ngabantu malunga notshintsho Iwemozulu?

Eyona mibuzo ixhaphakileyo ithi: “Ingaba luyinyani?”, “Uyakholelwa kutshintsho Iwemozulu?”, “Kuza kwenzeka ntoni?”, “Siza kubanako na ukutya?”, Kuza kwenzeka ntoni ngamanzi?”

## Yintoni utshintsho Iwemozulu?

Lutshintsho Iwemozulu kwixesha elide. Umahluko Phakathi kotshintsho Iwemozulu kanye nemozulu ubaluleke kakhulu. Imozulu koku ukuvayo kodwa utshintsho Iwemozulu koku ukulindelayo. Imozulu kokuqhelekileyo emoyeni. Utshintsho Iwemozulu kokufumaneka emoyeni kwixesha elide.

## Sivile ukuba uJoe Public (abemi) bacinga ntoni malunga notshintsho Iwemozulu. Ingaba banyanisile?

Izimvo zabo ziyichanile, Thina sizizazinzulu

kufuneka sijonga idatha yeminyaka engama-50 ukuya kwiminyaka eli-100 ukuze sibone ukuba imozulu (imvula, amaqondo obushushu, njalo njalo) itshintshile na.

Sibonile ukuba amaqondo obushushu omhlaba anyukile. Kwaye anyuka minyaka le – kakhulu – kweminye iminyaka kushushu kakhulu kodwa kweminye akunjalo. Nangona kunjalo, amaqondo obushushu ayenyuka ona. lindlela zenkqubo zemvula nazo ziyatshintsha, kodwa kunzima ukutsho ukuba iindlela zenkqubo ziyafana kumhlaba wonke. Nangona, sisazi ukuba kubakho iziganeko zemozulu ezimbi ngokuqgithisileyo. Siyayazi ukuba kuyafudumala kwaye inani leentsuku ezitshisayo liyanda. Singatsho ngokuqinisekileyo ukuba imozulu iyatshintsha.

## Amaqondo obushushu anyuka kangakanani kwaye iindlela zenkqubo zemvula zitshintsha kangakanani?

Idata kwiminyaka eli-100 edlulileyo ibonisa ukuba amaqondo obushushu anyuka nge-0.2 kwisishumi seminyaka nganye.

## Ingathi ayiqondakali. Oku kuza kuba neziphumo ezibonakalyo kutshintsho Iwemozulu lomhlaba?

Uhlobo olukhumbulekayo lunemozulu

enyuka ngeqondo lobushushu elinye nakunohlobo oluqhelekileyo. Ukuba usuku ngalinye lunemozulu enyuka ngeqondo lobushushu elinye, oko kuthetha ukuba umndilili unyuka ngeqondo lobushushu elinye.

Asikwazi ukuthi ukuba kwixesha eladlulayo imozulu ibinyuka ngeqondo elinye lobushushu kwishumi leminyaka ngalinye. Kuthathe ixesa elide ukufudumala, Ngoku siqinisekile ukuba kushushu kunakuqala. Siyakwazi ukuqikelela ukuba ngonyaka wama-2100 imozulu ingabe inyuke ngamaqondo obushushu ama-4. Oku kuyingxaki kwimpilo eqhelekileyo.

### Akukho kubuya ngamva – ukuba imeko yangoku iyaqhubekaka?

Siyayazi ukuba amaqondo obushushu ayenyuka, ngenxa yee-greenhouse gases ezisemoyeni.

### Eso sesona sizathu?

Ngokuqinisekileyo. Isiphumo seegesi emoyeni senza ukuba umoya ufudumale, kwaye siyaghubekeka ngokukhuphela iigesi emoyeni (kwi-atmosphere). Akukabikho phawu lokuba oku kungancitthiswa. Amaqondo obushushu aseza kuqhubekeka anyuke kwiminyaka engama-50 ezayo, ngaphandle kokuba sikunciphisile oku. Ukuba imeko ihleli inje – xa kuphela le nkulungwane amaqondo obushushu aza kube sele enyuke ngamaqondo ama-3 ukuya kwama-5.

### Uzoba umfanekiso omfiliba. Sithini isisombululo?

Zimbini izisombululo:

- Sikunqande konke kungenzeki – kunyanzelekile kubanjwe ingqungquthela yehlabathi lonke ukuze kumiswe imithetho. Andiqondi ukuba oku kungenzeka, kuba abantu bafuna amandla (i-energy). Kungakho amandla

- ahlaziyekayo (awomoya nawelanga). Esi sisisombululo sexesha elide.
- Kufuneka siziqhelanise kwaye silungiselele amaqondo obushushu aphezulu. Kufuneka sijonge icandelo lethu lezolimo, amanzi kanye nendlela esiphila ngayo. Wonke umntu kufuneka abone anokwenza ekunqanden okanye ekunciphiseni umonakalo.

### Yintoni enokwenziwa luluntu ukunciphisa isiphumo see-greenhouse gas emoyeni?

li-greenhouse gas zinemithombo emithathu:

- Ezolimo: apho umhlaba onengca uthathelwa indawo zizilimo ezisemhlaben iinyanga ezi-6 enyakeni. Umhlaba onengca owayefunxa umoya omdaka (icarbon dioxide) awusekho. Abantu kufuneka banciphise inyama abayityayo – iinkomo zenza igesi efunyanwa emgodini wamalahle
- Ezothutho: ukuba sinokunciphisa ukuqhubekeka nohamba ngenqwelo moyo, singakhupha umoya omdaka (icarbon dioxide) ongaphantsi.
- Oomatshini bokwenza umbane abasebenzisa amalahle: kufuneka sifake uxinzelelo kurhulumente ukuze asebenzise amandla ahlaziyekayo endaweni yamalahle.

### Imozulu yomhlaba kudala yatshintsha. Kutheni ngequbuliso iziindaba eziphambili?

Imozulu oko ibitshintsha kwiinkulungwane ezidlulileyo. Umgama phakathi komhlaba nelanga nawo utshintshile kwaye kukho imijikelo yezechlo. Kwixesha eladlulayo, bekukho iminyaka yeqhwa kanye namaxesha obushushu. Olu tshintsho luyakhawuleza. IMinyaka yeQhwa yahlala iminyaka engama-20 000 ukuya kwiminyaka engama-30 000 phambi kokuba kufudumale. Ngoku sibona ukunyuka kwamaqondo ashushu kwixesha elifutshane

kakhulu – elingaphantsi kweminyaka eli-100. Oku kuyaxhalabis, kuba azange yenzeke ngokukhawuleza okungaka ngaphambili.

### Yeyiphi eyona meko imbi enokwenzeka?

“Ezolimo “yeyona meko imbi enokwenzeka”. Kuza kuba yingxaki ukuba amaqondo obushushu anyuke ngamaqondo ama-3 ukuya kumaqondo ama-5 ekupheleni kwenkulungwane, kuba izilimo ezinini aziwalungelanga amaqondo obushushu aphezulu kangaka. lintsuku ezishushu kakhulu ziza kunqanda ukukhula kwezityalo; ukukhulisa izityalo kuza kuncipha kwaye ukutya kuza kuba yingxaki.

Impembelelo yemvula ibalulekile. Utshintsho lwemozulu yeny, kodwa ukuba kutshintshe iindlela yeenqubo zemvula kokunye oko kwaye kubaluleke kakhulu. Sineenginqi zemvula yasehlotyeni kanye neengingqi zemvula yasebusika kwaye utshintsho kwezi ngingqi lwahlukile. Kufuneka utshintsho lwemozulu yaseMzantsi Afrika silujongisise malunga nezityalo esizikhulisayo. Uphando luqikelela ukuba eNtshona Koloni imvula yasebusika iza kuncipha. Oku kuza kwenzeka kwixesha lonyaka lokukhulisa izilimo kwaye xa kungona kudingeka amanzi. Kwiinginqi zemvula yasehlotyeni kohlukile – nakhona likhona ixesa lonyaka lokukhulisa izityalo, kodwa amanzi awadingi kugcina njengokuba kudingeka kwiinginqi zemvula yasebusika.

### Uthini umyalezo wakho kuthi luntu – singawugcina njani umhlaba wethu?

Kufuneka sihlole iimpilo zethu zicinge, okulungele thina kulungele umhlaba. Oku kusebenza kwamanzi, kungcoliseko (kwi-pollution), njalo njalo. Kufuneka siwukhathalele umhlaba.

### Isiqukumbelo

Izazinzulu ezifana noGqirha Johnson zikholelwu ukuba amaqondo obushushu omhlaba aza kunyuka kwiminyaka eli-100 ezayo kwaye iimozulu ezimbi ngokugqithisileyo ziza kwanda. UKusinda komhlaba kusezandleni zethu kwaye amanzi adlala indima enkulu Umntu olumkileyo wakhe wathi: “kumntu onxaniwego, ithontsi lamanzi lixabiseke ngakumbi kunengxowa yegolide.”

**“IDATHA KULE  
MINYAKA IYI-  
100 IDLULILEYO  
IBONISA UKUBA  
AMAQONDO  
OBUSHUSHU  
ANYUKA MALUNGA  
YI-0,2 DEGREES  
CELCIUS  
RHOQO EMVA  
KWEMINYAKA  
ELISHUMI. ”**

# Amanzi

U-ANDRÉ ROUX

**UMzantsi Afrika lilizwe lama-30 kumazwe omileyo kwihlabathi, kwaye imvula enayo ingaphansti ngama-40% kwimvula enayo kwihlabathi lonke. Eyona nto yenza ukuba olu lwazi luxhalabise yile yokuba abemmi baseMzantsi Afrika basebenzisa amanzi angama-60% nakune hlabathi lilonke.**

Ukusukela kowama-2015, thina, singabemmi boMzantsi Afrika, siye salibona ixabiso lamanzi kanye nokubaluleka kokugcina amanzi. Siphakathi kwimbalela kwaye sizibona sinqatylewe nayimvula, njangamanye amazwe, ngenxa yotshintsho lwemozulu.

Amanzi axhasa ubomi emhlabeni kwaye esi sixhobo sixabisekileyo sidingwa ngabantu, zizityalo kanye nezilwanyana. Amanzi abaluleke ngokwendalo ekuqinisekiseni ukuya kwaye icandelo lezolimo lisengozini

ngenza yezityalo kanye neemfuyo. Kwezi ntsuku, abemmi baseMzantsi Afrika bahlala befuna ukwazi isimo senqubo yethu yamanzi nokugcineka kwavo kwixesha elizayo. Ukuphendula le mibuzo kanye neminye imibuzo ebalulekileyo, simeme u-André Roux, umcebisi wamanzi okhethekileyo kaRhulumente weNtshona Koloni.

## **Ingaba aza kuphela na amanzi aseMzantsi Afrika?**

Andiqondi ukuba aza kuphela. Qha kuza kufuneka sisiqaphele isimo sawo ukuze siwalawule ngendlela eza kuwagcina ixesha elide. Sikwamkele ukuba amanzi aza kuhlala ekhona. Imbalela esiyivileyo kule minyaka idlulileyo, kwezinye iinginqi

eMzantsi Afrika, ibisisilumkiso ukuze sicingisise ukuba sifuna ukulibumba njani ikamva lethu. Kuza kufuneka sifunde ukuwasebenzisa kakuhle amanzi kwaye siphuhlise imithombo engekapphuliswa.

## **Ulibona linjani ikamva?**

Utshintsho lwemozulu lubonakala ngathi iNtshona Koloni iza kuba lelona phondo lichaphazelekayo. Ukuba uzoba umgca osuka eMonti uyokutsho eMantla – empuma kwaloo mgca kuza kuna kakhulu kwaye entshona kuza kuna kancinci. Isiphumo sijonge ekufumaneni iimbalela ezininzi kanye nezikhukula ezininzi – isimo sezulu esineendlela zenqubo ezingaqhelekanga.

## **E-SA, kubonakala ngathi yimithombo yamanzi eli-16% qha ekhuslekileyo. Kuza kunceda ukuba ipesenti inyusiwe? Ikamva**

## **lethu lingajongeka lingcono?**

Ewe, kuxhomekeka ukuba eli-16% liphi na. Ukuba liseengingqini zokuqokelela amanzi, njengamadama, okanye imilambo efaka amanzi emadameni, kunganceda kakhulu. Okwangoku, owona mceli mnjeni kukukhusela oko sinako. Ukuba ninokubona amanzi amdaka alahlawa emadameni nasemilanjeni mihla le – ngumceli mnjeni. Siwangcolisa amanzi ade angakwazi ukusebenziseka ngaphandle kokuba siphinde siwacocise ngamaxabiso aphezulu.

## **Yeyiphi eyona nto iphambili ngoku?**

Eyona nto iphambili ngoku kukugcina izakhiwo zikarhulumente kanye nomasipala ukuze siqinisekise ukuba amanzi ethu asemgangathweni ophezulu. Enye into ebalulekileyo yeokuba amanzi aphinde

abuyiselwe emlanjeni. Amanzi acociwego nawo kufuneka abesemgangathweni ophezulu. Amanzi abuyela emlanjeni aze aphinde asetyenziswe yidolophu. Kutsho ukuba athi amanzi oMlambo iVaal efika eDouglas, sewesetyenziswe izihlandlo ezi-7.

### **Singaqukumbela ukuba umngcipheko wokufumana isifo uphezulu?**

Umngcipheko uyenyuka kwaye ixabiso lokucoca amanzi nalo liyenyska. Baninzi kakhulu abantu abahlala ecaleni kwemilambo abaxhomekeke emanzini omlambo, kodwa abangenazo izixhobo zokuwacoca loo manzi. Bacinga ukuba la manzi omlambo aza kuba semgangathweni ophezulu.

iSebe laManzi noCoceko licinga ukuphinda lijongsise ixabiso lamanzi. Oku kuthetha ukuba wonke umntu osebenzisa amanzi uza kuchaphazeleka.

Ewe, okwangoku amanzi asimahla. Sihlawulela ukucocwa kwamanzi nokuwaziza ezindlwini zethu. Ngokunjalonje, iSebe lihlawulisa irhafu yolawulo nokusetyenziswa kwenqubo yalo kuba imali eyayisetyenzisewa izakhiwo zenqubo kufuneka iphindie ibuyiswe. Ingxaki kukuba iSebe lisebenzise umgaqo othi “umntu osebenzisa amanzi makawahlawulele”, amanzi angabiza kakhulu. Uxanduva lukaRhulumente kukubonelela ngamanzi ngexabiso eliphantsi.

**UMzantsi Afrika unemvula engaphantsi kwama-500mm, kodwa imvula yehlabathi ingama-850mm. Sekunjalo, phakathi kwama-37% nama-42% amanzi asebenzisekayo aselekayo awabalwa. Kwenzeka njani oku?**

Ngelishwa, kunjalo. Ngethamsanqa, akunjalo kubo bonke oomasipala. Oku kuthetha nangolahleko kwiinkqubo zamanzi kunye nangamanzi abiweyo. Amanzi akwasetyenzisewa amabala emidlalo kunye neepaki kwaye awalinganiswa.

Koomasipala abaninzi, luninzi ulahleko – ukusetyenziswa kweenqubo ngendlela engalunganga. Asinayo imali yokucoca amanzi eza kuphinda ilahleke. Njengokuba singenayo imali yokuba sisebenzise amanzi acociwego ukugungxula ilindle yethu. Kufuneka sisebenzise amanzi asetyenzisiwego ukugungxula ilindle yethu.

### **Izindlu zangaseze zeekhemikhali zilikamva?**

Andiqondi. Izindlu zethu azizilungelanga. Oko kusebenza kakuhle kwiindawo zeenkampu nakwiindawo ezikude ebantwini. Kodwa kuza kunyanzeleka ukuba uphinde uyakhe indlu yakho okanye icandelo libelinye ukuba ufuna indlu yangasese eyile ntlobo.

**Izindlu zexesha elizayo ziza kuba njani? Isakhiwo siza kubanjani? Uyilo luza kubanjani? Luza kutshintsha kakhulu ngokuhamba kwexesha?**

Ndicinga njalo. Selukhona utshintsho ngenxa yokuphucula ukusetyenziswa kombane. Ukuba nokukhanya okuninzi endlwini abe ona amaqondo obushushu engakhange anyuke. Izindlu ezidinga umbane ongaphantsi kwizinto ezifana nokupholisa kunye nokushushubeza zeazona eziza kulungela ihlabathi. Izindlu zase-SA azicwangciselwanga iinkqubo zamanzi eziphindene kabini. Asinawo amandla okucoca amanzi elindle, angekho semgangathweni ofana namanzi alungele ukuselwa.

### **Kungenzeka oku kwixesha elizayo?**

Ewe, ngokuqinisekileyo. Oku kufuneka kuhoywe kwimimiselo kamaspala kwaye izakhiwo ezintsha kufuneka zilandele le mimiselo.

**Yinyani ukuba eyona nto yomisa umhlaba kunye nemilambo ayizondlela zenqubo yemvula kuphela? Ukuphuma kwamanzi kunye nokusetyenziswa kwamanzi zizityalo kwenza ukuba kome umhlaba nemilambo?**

Ngumceli mngeni omkhulu kuthi. Kwezinye iijingqi, kungenzeka ukuba kwiminyaka eli-10 ukuya kwiminyaka eli-15 ezayo, singangakwazi ukukhulisa ama-apile. Oku kubangelwa kakhulu lutshintsho lwamaqondo obushushu. Iziqhamo zidinga iiyunithi ezimbawla zengqeles ebusika. Ukuba azyifuman le ngqeles ziyidlingayo, azikhuli. Ezi ngingqi kulinywa kuzo iziqhamo ziza kudibana notshintsho lwemozulu kule minyaka izayo ingama-20 ukuya kwama-30.

Kuza kufuneka siphuhlise izixhobo ezintsha zokulima – eziza kusebenza phantsi kwezi meko okanye sifuduken kwezinye iijingqi. Zininzi iingingqi zokunkcenkceshela eNTshona Koloni kune naseMpuma Koloni; phofu nakwezinye iindawo ezinamanzi aneleyo okunkcenkceshela. Oku kunempembelelo ethe ngqo kwifama kunye nabasebenzi bazo – abasisigxina nabexeshana.

### **Iziphumo zoqoqosho nezoluntu zizakubazikhulu?**

Kakhulu. Lo msebenzi nguwo wodwa umthombo wengeniso kubasebenzi bexeshana kwiinyanga ezi-6 ukuya kwezisi-7. Siyathembu ukuba kukho abantu abahlakaniphe nje ngawe ukuze bafumane izisombululo. Siphez' kwayo, kodwa ndicinga ukuba kweli nqanaba kubalulekile ukuba abantu bangawudlali umdlalo wokutyholana ngetylala. Ayincedi loo nto.

Ngaphambili, kungenzeka ukuba bezininzi iimpazamo, kodwa oko singaphinda sibyele kuko siphinde sikulungise. Kufuneka sigxile kokuhle kodwa kule ndawo sikuyo, nomakwenzeke ukuze sidlule kwesi simo. Okuba le ngxaki isinike ikhefu kubekho imvula eyaneleyo kulo nyaka, singakwazi ukuyila isicwangciso sexesha elifutshane, eliphakathi kunye nelide.

### **Isiqukumbelo**

Amanzi ngumthombo osinika ubomi kwaye sisixhobo esigcineka ixesa elide ekufuneka sisikhusele nakanjani – hayi ukwenzela thina kodwa ukwenzela nesizukulwane esizayo.



# UTSHINTSHO LWEMOZULU NEZOQOQOSHO

U-LOUW PIENAAR

Tle mbalela yehlele iingingqi zoMzantsi Afrika seyishiye inxeba kwezoqoqosho. Ukunyuka kwamaxabiso okutya kune nokulahlekelwa yimisebenzi zezinye zeziphumo. Nangona ingeyoNtshona Koloni yodwa echaphazelekayo, imbalela eqhubeketayo kwiphondo iza kude ibenempembelelo ebalulekileyo kwezoqoqosho. Ingeniso enxulumenenokhenketho eNtshona Koloni inoxanduva Iwesi-9% kwingeniso epheleleyo yokhenketho eMzantsi Afrika, kwaye eli phondo likwindawo yesibini enegalelo elikhulu kuqoqosho Iwezolimo eMzantsi Afrika.

Siqhuba udliwanondlebe nengcali yezoqoqosho kwezolimo, uLouw Pienaar, osuka kwiSebe IwezoLimo eNtshona Koloni. Uza kusazisa ngempembelelo yale mbalela kwezoqoqosho, ngakumbi kwicandelo lezolimo – elidlala eyona ndima kwimveliso yokutya, ukudala imisebenzi nasekungeniseni imali yangaphesheya kuthumelo lwangaphandle lokutya.

Kule minyaka mithathu idlulileyo, siphile kwimbalela kuninzi lweengingqi kweli lethu – zithini iziphumo kwezoqoqosho zesizwe ukuzothi ga ngoku?

**Okwangoku, sibona iimozulu (iimbalela)** ezineziphumo ezimbi ngakumbi kwicandelo lezolimo. Ukuqala kwembalela yonyaka wama-2015/2016, ezachaphezelaiingingqi zamazimba asehlotyenii eMzantsi Afrika, sibona ukuba imvula ene ngoko yayiyeyonaphantsi kwiimvula ezishicilelwego, ngokoshicilelo Iwethu Iwemozulu eziqale kunya we-1904.

Imbalela yangonyaka we-1992 yeyona inzima. Imvula ene ngowama-2015 yayingaphantsi kwemvula eyayine ngowe-1992. Eyona nto siyibonileyo kwimbalela yangowama-2015/16, yeyokuba iingingqi zamazimba azifumenanga mvula yaneleyo ukuze amazimba akhule. Ixesha elininzi, amazimba akhula kwiinkqubo ezomileyo eziphantsi komhlaba. Okukuthetha ukuba kwikota enye yonyaka, isivuno sombona sicutheke ngeetoniezigidi ezili-14 kowama-2014 ukuya kwiitoniezigidi ezi-7.7 kwiminyaka emibini.

Siqhele ukuba lilizwe elithumela umbona kumanye amazwe, ngoku kufuneka siwufumane kumazwe angaphandle kuba singasenayo intsalela. Okukube nempembelelo enkulukumaxabiso ombona. Amaxabiso ombona ogutiyewo

anyuke ngama-37%. Ekuhambeni kwexesha, kuye kwanyuka amaxabiso enyama kwayeiimboti zesoya ezondla iimfuyo nazoziyezanamaxabiso aphezulu. Konke oku kuyimpembelelo yembalela yangowama-2015/16. Eziziphumo zizaphazele izigidi zabantu abangabathengi benyama, umbona ogutiyewo kune nezinye izinto ezinxulumeneyo.

**Ikhona imveliso (yembalela) echaphazeka ukodlula ezinye ngokwexabiso?**

Kuba imvula ineendlela zenqubo ezingaqhelekanga kwezinye iingingqi kwaye ukugcwala kwamadama kuxhomekeke ekufumaneni imvula xakunetha kakhulu, iimpembelelo zembalela azifani. Umzekeleo, iNtshona Koloni idinga ukugcina amanzi emvula yasebusika ukuze babenamanzi okunkcenkceshela ehlotyeni, xa imvula inqabile. Ngowama-2017/18, amanzi ebenqabile emadameni. Kunjalonje, iifama bezabelwe amanzi angaphantsi nge0-30-40% kwamanzi esiqhelo. Ezinyeiingiqngqibezichaphazeke kakhulu, njengoMfula ilower Olifants, aphoiifama zabelwe amanzi acuthwe ngama-85%. INtshona Koloni ineengingqi ezinkulu zamazimba asebusika (ingqolowa, i-conola kune ne-barley), kune neengingqi ezinkulu ezilinywe izilimo ezifana neediliya, i-pome kune neziqhamo

ezineembewu ezinkulu. Lukhulu ulahleko kula macandelo ngenxa yembalela, kubekuchaphazeleka ukwenziwa kwezi ziqhamo kune nomgangatho wazo.

**Okukuthetha ukuba isiselo somdiliya (iwayini) siza kubiza?**

Kunzima ukutsho okwangoku, kubakuxhomekeka kwimarike yehlabathi. UKusuka kowama-2017, iwayini inyukile ngokwamaxabiso, kodwa oku kulawulwa kukunqongophala kwewayini eninzi kwimarike yehlabathi, UKunqongophala kuza kubangela ukunyuka kwamaxabiso eediliya kune newayini. Isiphumo esihle sembalela kukuba izinga lewayini liza kubaphewo kwaye oko ziindaba ezimnandi kwicandelo lewayini



**Icandelo lezolimo lisebenzisa amanzi asisibini kwisithathu kumanzi abelwego. Oku kwenza eli candelo libe lelona lisebenzisa amanzi: eli candelo liza kuqhubekeka njani ukuba sibanjwe yimbalela?**

ENtshona Koloni kukho ukhuphiswano olukhulu phakathi kwamanzi asetyenziswa licandelo lezolimo kunye namanzi asetyenziwa ezindlwini. Mkhulu kakhulu umahluko phakathi kwezinga lamanzi kunye nexabiso lamanzi kwezi meko zimbini kwaye kubalulekile ukuba siwugqamise loo mahluko.

Inkubo kunye namaxabiso anxulumene nokubonelela abantu ngamanzi okusela yenza ukuba ixabiso lala manzi libe phezulu.

Amanzi ecandelo lezolimo "ohlukile", kuba maninzi kwaye ngamanzi angacocekanga asuka kumadama kunye nemilambo, kunjalonje nexabiso lohlukile. Amanzi asetyenziswa licandelo lezolimo lineziphumo ezininzi kwezoqoqosho nakwezoluntu.

Iziqhamo ezhunyelwa ngaphandle zithetha ukuba sihlawulwa ngemali yaphesheya. Sikhupha iimveliso ezinexabiso eliphezulu kumazwe afana neMelika, eYurophu naseNgilane. Ngokwenza njalo, siyila amathuba azinzileyo oqoqosho.

**Sithetha ngeNtshona Koloni kunye nesiphumo sengxaki eqhubekeka kuMzantsi Afrika uwonke. Ucinga ukuba iza kuqapheleka?**

INTshona Koloni yahlukile kuba imvula yalapha ina ebusika. Uninzi lweemveliso ezenziwa apha ziziphumo zemozulu yethu. Senze uphando ngempembelelo yembalela kwezoqoqosho zaseNtshona Koloni. Sifumanise ukuba uqikelelo kwingeniso yamafama ephondweni yehle nge-R5.9 yezigidi.

Ngokulindelekileyo, inempembelelo enku kwezoqoqosho zaseMzantsi, kuba ingeniso epheleleyo esuka kwicandelo lezolimo eNTshona Koloni ingama-20% kwingeniso yezoqoqosho eMzantsi Afrika, kuba sikhupha iimveliso ezisemgangathweni. Isiphumo sembaleta kwezolimo zaseNTshona Koloni siza kuba nempembelelo embi eMzantsi Afrika.

**Lingcali zemozulu zithi "u-Day Zero" uza kufika ngonyaka wama-2019 eNTshona Koloni ngokuqinisekileyo. Uyavuma?**

Sekumzuzu sitetha "ngo-Day Zero", kuba sijonge ukusetyenziswa kwamanzi kaMasipala waseKapa. Icandelo lezolimo lafika ku-Day Zero kweyoMdumba kowama-2018, kuba iifama azivumelekanga ukuba zisebenzise amanzi kwimithombo emikhulu yokunkcenkceshela. Sinexhala.

Amanzi aza kwabelwa axhomekeke kwimvula yeminyaka emi-2 ukuya kwemi-3 ezayo. Okwangoku, amanzi abelwe icandelo lezolimo angathatha iminyaka emi-4 phambi kokuba izithintelo zamanzi zinyuswe. Kwickesha elizayo, siza kuwasebenzisa ngcono amanzi.

**Icandelo lezolimo liza kusinda kwaye iifama ziza kutshintsha iindlela zokwenza izinto. Uyavumelana nalo mbono?**

Ndiyavumelana nawo. Iifama zibonisile ukuba ziyakwazi ukwenza utshintsho. Isiphumo sesithintelo esiphezulu samanzi sibe nempembelelo enku ekwenzeni iziqhamo.

Nangona kunjalo, asiyiyo lempembelelo ibilindelwe. Olu luhawu lokuba eli candelo lenza utshintsho kwiinkqubo, lisebenzisa ubuchwepheshe bokusebenzisa amanzi ngcono kwaye abalimi bomelele xa bejongene nobunzima.

Lisekhona ithuba lokuphucula ngokusebenzisa isixhobo sethu esingamanzi ngcono kwaye kumacandelo amaninzi, lisekhona ithuba lokonga amanzi.

**Isiqukumbelo**

Umceli mngeni ofana nembalela unyanzela utshintsho, kodwa sibonile ukuba kukho utshintsho kwindlela yokucinga kwicandelo

lezolimo. Amanzi sisixhobo esidingekayo kwaye ukufumaneka kwavo kufuneka singakuthatheli phantsi.





# UBUCHWEPHESHA LWEMOZULU KUNYE NAMASHISHINI KWIMEKO YOKUTSHINTSHA KWEMOZULU

U-DR MIKE WALLACE  
U-FC BASSON

**Kuthiwa kukho uguqoko lobuchwepheshe olwenzekayo kwicandelo lezolimo. Amafama kwezi ntsuku, ngakumbi ngenxa yokutshintsha kwemozulu, axhomekeka kakhulu kubuchwephesha ukuphila kwaye kuthathwe amanyathelo amakhulu malunga noku.**

Senze udiwanondlebe noGqr Mike Wallace, iNzululwazi eKhethekileyo, kune noFC Basson, uchwepheshe weeNkubo zeeNkukacha zeJografi, bobabini basuka kwiSebe lezoLimo leNtshona Koloni, malunga nendima enkuIlu eddalwa bubuchwephesha kwicandelo lezolimo.

**Nizingcali kwikhondo lokutolika ulwazi lwendawo. Yintoni kwaye kutheni le nto ibaluleke kangaka kwimeko yezolimo?**

Izinto zemo esingqongileyo eziphembelela ezolimo zahluke ngokwengingqi nengingqi umz. imozulu, umhlaba, ukuthambeka, ukukhula kwezityalo, inkcazo mphandle, njl. njl. liNkubo zeeNkukacha zeJografi (i-GIS)

kunye nohlalutyo Iwesithuba zisivumela ukuba sithathe lonke olu lwazi lwendawo, kunye nezinye iintlobo zedatha, ezinje ngemifanekiso ye-satellite kune nemodeli yesityalo, kwaye siyidibanise kwinkqubo enye.

**I-GIS-phakathi kwezinye ibandakanya i-GPS (Inkqubo yokuBekwa kwiHlabathi), u-Google Earth kune neeMephu zika-Google-sekulithuba elide zikhona ngoku kwaye zibandakanyiwe kwiSicwangciso soPhuhliso seSizwe sikarhulumente. Ingaba onke amafama ayafikelela koku kwaye ayisebenzia ngempumelelo?**

Ukuya kwinqanaba elithile, ewe. Namphi na umfama onofikelelo olufanelekileyo kwi-intanethi unokusebenzia ubuchwephesha. Uninzi Iwamafama aqhelene no-Google Earth, abamsebenzisayo ukujonga iifama zabo kune nemida yeefama zabo.

**Kuthwani ngamafama ahlala kwiindawo ezisemaphandleni kwaye abangenakho**

## ukufikelela kobu buchwephesha?

Kwiimeko ezinjalo, amafama angatyelela abacebisi bezolimo kwisebe labo ukuze bafumane inkaso kune nokufikelela kobu buchwephesha.

## Ingaba iyimfuneko kwezi ntsuku kwicandelo lezolimo (kwaye kutheni...)?

Akukho "ukulinganwa bubukhulu obufanayo sonke", kodwa zonke zinegalelo ngendlela yazo ekuthathweni kwezigqibo ezingcono neziqiqiweyo. Baninzi ababoneleli beenkonzo abafuna ukuthengisa obu buchwephesha, ngoko kubalulekile ukuba umfama azi ukuba kuqhubeka ntoni ukuze enze isigqibo esifanelekileyo malunga nenkonzo okanye imveliso afuna ukuyithenga.

## Ingaba ubuchwephesha, umzekelo, kule minyaka ilishumi idlulileyo sele butshintshe ezolimo kakhulu? (kwaye njani ...)?

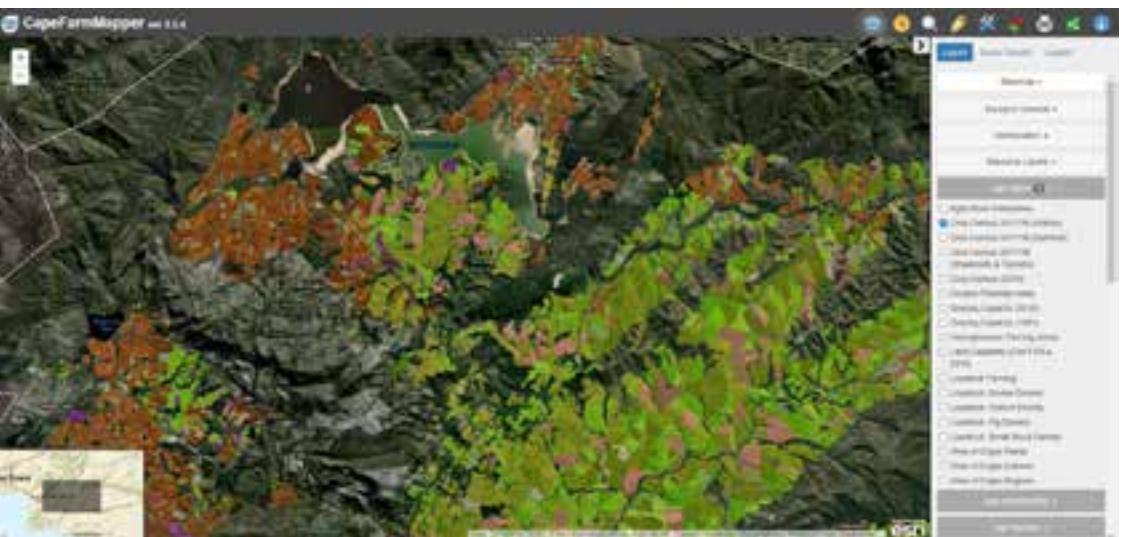
Itshintshe kakhulu ngokubhekiselele kufikelelo. Ibiza ngokuba "kukudubula kolwazi." Amafama anolwazi kwiwebhu, oonomyayi kune nee-app zonomyayi kune

nolwazi lwe-satellite, abanokukuthenga okanye bafikelele kuko - ezinye zisimahla kwi-intanethi. Kukho ukhetho lokusebenzia esona sithuba sokwenyani sokongamela isityalo. Siva malunga neefama eziphucukileyo, apha yonke into kwifama iqhagamshelene ngaphandle kwentambo kwenye. Iba yinxalenyne yale "intanethi yezinto" apha yonke into iqhagamshelwe kwaye imelwe kukunceda umfama ukuba aphathe oku kudubula okukhulu kwedatha.

Asiboni mafama maninzi amkela olo hlolo Iwesicelo olunamandla- luyinto eyintloko. Ke amafama ayakwamkela kancinci ngexesha kwaye ngokuthe ncembe akhule asebenzise ubuchwephesha.

## Ingaba iintsuku zidlule apha amafama anokulima ngaphandle kobuchwephesha?

Ngamaxesa anamhlanje andicingi ukuba umntu angabutyeshela ubuchwephesha. Ubuchwephesha kufuneka bubonwe njengomhlobo womfama. Kukho isixa esikhulu solwazi olufanelekileyo, izixhobo kunye nokusetyenziswa. Ngokukodwa kwixesha langoku apha abantu kufuneka



benze izigqibo zolawulo ezifanelekileyo malunga, umz. Ukushintsha kwemozulu.

### Kuthwani ukuba ubuchwepheshha bophuke bazingceba - iinkqubo ezitshonileyo?

Ngokuqinisekileyo ayizukuma. Kukho ubuchwepheshha obahlukeneyo esandleni somfama umz. li-sensors ze-drones kune nee-satellite ukuze zenze umsebenzi kumaqonga ahlukileyo.

Xa kuziwa kubukrelekrele obenziweyo kune nokusetyenziswa kwayo, umntu kufuneka athethe malunga neerobhotti, nokuba awuyongcali ye-“sci-fi” okanye i-“techie.”

### Ngaba iirobhothi sele zisetyenzisiwe apha eMzantsi Afrika? (Iya kuthi ibe nempembelelo enjani ekudaleni imisebenzi?)

Kukho inani elincinci leerobhotti kwicandelo lezolimo. Cinga ngemveliso yobisi kune nendlela oomatshini bokusenga abangene ngayo kushishino kule minyaka ingama-50 idlulileyo.

Bayinxaleny ebalulekileyo yeli shishini kwaye babanceda ukuba bahambele phambili. Umzi-mveliso wobisi uxhasa abantu abaninzi ngoku kwaye usebenzisa/ udinga abasebenzi abangakumbi kunangaphambili.

### Ingaba oko akuthethi ukuba ubuchwepheshha buya kuthatha imisebenzi?

Yimeko yokuxhotyiswa kwakhona ngezakhona nokumiselwa kwakhona kwabasebenzi kwaye oko kuya kwenzeka ngokuhamba kwexesha. Asiyonto yokoyikwa. Ukuba ishishini liphumelela, liya kuvula amathuba.

### Ingaba uyalibona ikamva elilungiselelw imveliso yezolimo?

Imisebenzi iya kutshintsha ukusuka kwimisebenzi yezandla iye kwizinto zobugcisa ezingakumbi. Umlimi uya kuba

nakho ukulawula ifama yakhe eseofisini yakhe.

### Sonke siyayazi indima enkulu eddalwa yimeko yemozulu kwicandelo lezolimo-kukwinqanaba elingakanani aphi ubuchwepheshha buneda amafama ukuba afumane uqikelelo lwemozulu echanelekileyo?

Ndicinga ukuba uqikelelo lwemozulu njengoko sisazi lubalulekile. Oku kwahluka kwimisebenzi yemihla ngemihla ukuze umfama akwazi ukucwangcisa into aza kuyenza ngosuku oluthile kwizigqibo ezicwangcisiweyo, ezinokuthi zithathe iveki- ngaba uza kutyala kule veki okanye ayiyekela kude kubekho imvula eninzi? Nokuba sele ecwangcisel ixesha elide kune nezigqibo - ukucwangcisa kwamaxesha - ukuba uza kutyala esiphi isityalo ngeli xesha lonyaka, ingaba uza kuba nakho ukutyala yonke ifama yam okanye aliyeke elinye icala? Uninzi Iwezigqibo zobuchule zixomekeke ngokupheleleyo kulwazi lwemozulu elungileyo.

### I-Cape Farm Mapper iluncedo - phantse ndifuna ukutsho, inkqubo yotshintsho lolwazi, enikezela ngolwazi oluxabisekileyo kumafama ingakumbi kwabo baseNtshona Koloni. Yintoni? (Zikhona izicwangciso zokuyikhuphela kwilizwe lonke?)

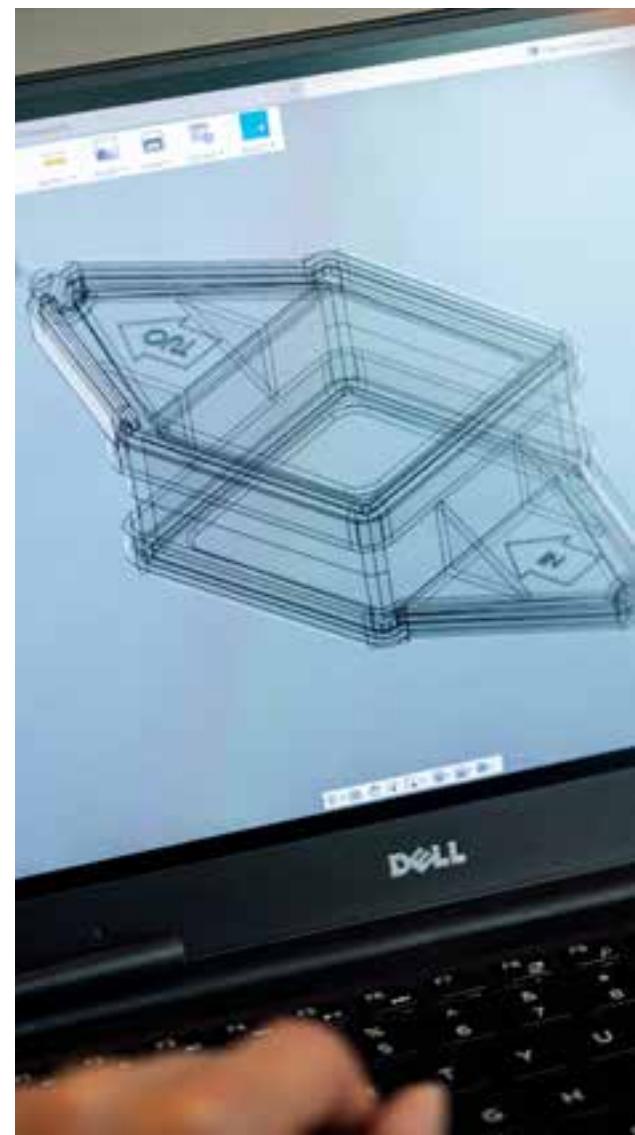
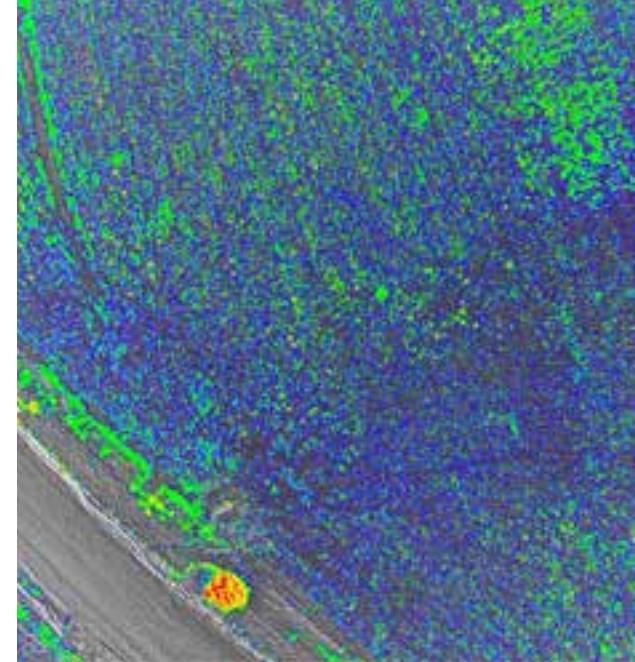
Sisihobo se-intanethi esithe sasiqulunqa ngokwethu kwisebe. Zonke iiseti zedatha yendawo esikuyo, ziyafumaneka kweli qonga libonakalayo lemeph. Isimahlanabani na onakho ukufikelela kuyo. Kukho ukhetho olukhulu lweeseti zedatha ezsuka kumhlabu kune neentlobo zokukhula kwezityalo ukuya kwixabiso lexesha elide lokufumana imvula-umntu unokufumana idatha yemozulu ngexesha elifanelekileyo, athelekise kwaye ubone ukuba zeyiphi izinto ezingekho mgaqwensi ezivela kwindlela yenqubo yemozulu. Kukho izixhobo zokucwangcisa ifama kune nokuphuhlisa iimephu ezininzi njengoko ufuna.

### Ingaba singajonga phambili kulo naluphi na uphuhliso lobuchwepheshha oluya kusothusa?

Kuya kubakho ukwanda kokufumaneka kwedatha ye-satellite sensor. Lonke olu lwazi luyafumaneka kumntu esitalatweni. Kum ziprinta ze-3D. Kuthiwa kwilixa elizayo siza kukwazi ukushicilela ukutya kune nezinto ezifana nokufakelwa kwamazinyo kune namayeza- kuya kwenza izinto ezinje zifikeleleke.

### Isiqukumbelo

Siyabona ukuba kubaluleke kangakanani na ubuchwepheshha kubalimi kwaye okukhoyo kusisiqalo nje, ngokukodwa ukutshintsha kwemozulu kusenza umqela kwako okwandayo. Ingaba ubuchwepheshha buza kuba yinxaleny ebalulekileyo yohlu lwawo onke amafama? Ubuchwepheshha akufanele kuge kokokuphila nempumelelo; kufanele ukuba kudibanise abantu.



# UTSHINTSHO LWEMOZULU KUNYE NAMASHISHINI EZIQHAMO EZIKHULA KWIMITHI EVUTHULUKAYO EBUSIKA (iziqhamo)



U-ANTON RABE

**lingcali ziyavuma: ukuze abalimi basinde kolu tshintsho mozulu kuza kufuneka badibane ngolwazi baze basebenzise ulwazi abanalo. Ubushushu bukazwe lonke ngenxa yotshintsho Iwemozulu kuza kubayindlela esiphila ngayo kwaye ngonyaka wama-2080, kulindeleke ukuba amaqondo obushushu anyuke ngamaqondo ama-4.5 ecaleni konxweme, nangamaqondo ama-6 kwezinye iindawo ezikude enxwemeni.**

Namhlanje sithetha noMlawuli oyiNtloko wase-Hortgro, u-Anton Rabe, ngeziphumo zotshintsho Iwemozulu kumashishini eziqhamo ezikhula kwimithi evuthulukayo ebusika. I-Hortgo inqwenela ukwenza indawo yokulingana, yozinzo, yengeniso kunye neyentsebenziswano.

**Ngamashishi eziqhamo aseNtshona Koloni awona achanekayo ngenxa yembalela?**

Hayi, kule minyaka mibini mithathu idlulileyo, abekhona amaxesha okushotelwa ngamanzi kumaphondo angentla, umz. iFreyistati, iLimpopo kunye neMpumalanga. Kodwa kuba la mashishini emaninzi eNtshona Koloni, yeyona ichaphazelekayo. ENtshona Koloni sixhomekeke kumanzi asebusika agcinwa emadameni kunye namanzi angaphantsi komhlaba

agcinwa kwizitsala-manzi. Eyona ngxaki yinkqubo yokunkcenkceshela, ngakumbi e-Theewaterskloof, e-Berg River Valley nase-Olfants River, Kuyohluka kwindingqi nganye - kwezinye kubakho iingxaki ezinkulu, kwezinye ezincinci, kwezinye azibikho.

**Oyena nobangela wale meko lutshintsho Iwemozulu?**

Utshintsho Iwemozulu lndlala indima enkulu kule mbalela, ngokuqinisekileyo. Ngaphambili, kwakukho iindlela zenkqubo zeembalela - le sikuyo ngoku, yindlela yenqubo ephinda emva kweminyaka eli-100 kwaye siyathemba ukuba ubusika obulandelayo kuza kuyiphelisa. Ezi ziganeko sizibona ngeloo xesha, kodwa ndicinga ukuba kwixesha elizayo, kufuneka silindele iimbalela eziza kuqhubekeka amaxesha

amade zize zipheliswe zizikhukula. Ukufika kwamanzi, kufuneka silungiselele ukuwagcina.

Kufuneka sisebenze ngcono nangokuhlakaniphileyo ngamanzi esinawo, siphuhlise ezinye izixhobo. Kwindingqi kaMasipala waseKapa sekuphandwe imithombo yamanzi efana nokucocwa kwamanzi ngokuwabilisa, ukusetyenziswa kwamanzi kwakhona, nokusetyenziswa kwamanzi angaphantsi komhlaba.

**Seniqalile ukucwangcisela ixesha elizayo?**

Njengashishini, kwiminyaka eli-15 ukuya kwiminyaka engama-20, siye saqala uphando ngezityalo, ngeengcambu nangezinto zokulima ezizakuphila ngamanzi amancinci. Sijongene neendlela zobuchule zokulima, ukusetyenziswa kweenethi,



ukusetyenziswa kwe-mulch ukugcina umhlaba ufumile, iinkqubo ezintsha zokunkcenkceshela kunye neenkqubo ze-satelite eziza kusinceda sinkcenkceshela ngamaxesha afanelekileyo. Eyona nto iphambile kukuba siyakwazi ukusebenzisa amanzi amancinci kodwa asikwazi ukungawasebenzisi.

**Kuthiwa ukuba abalimi beziqhamo ezikhula emithini evuthulukayo ebusika baza kusinda ukuba baqalise basebenzise izinto zokulima ezintsha nezifanele le meko - yinyani le/ ingaba kuyenzeka oku?**

Ewe, kodwa hayi. Hayi kuba sihleli nje sikwinkqubo yokuphuhlisa. Silishishini lexesha elide kwaye simisa ii-orchard ezintsha ezi-2 – 4% nyaka ngamnye. Izityalo ezisimisayo ibazezona zithandwayo. Sikwajonga utshintsho olungahelekanga kwizityalo, izityalo ezineembewu eziphilileyo ezangaphinda zityalwe, ukuvunwa, ibala kunye nobungakanani beziqhamo. Yinkqubo eqhubeketayo into yokulima ii-orchard. Kufuneka sizilime ixesha elide kwaye oku kuyazenzekela ngenxa yobume beshishini.

**Oku kuthetha ukuba siza kudibana neziqhamo “ezintsha”?**

I-apile liza kuhlala lili-apile. Mhlawumbi kungohluka imbewu kuba ilinywe ngolunye uhlobo lobuchwepheshe. Izilimo zesiqhelo zona ziza kuhlala zikhona ukuyo kutsho kwiminyaka engama-20 – 30. Izilimo ezevezinye ziqale ukuvela kwiminyaka eli-10 – 15 kwaye zisanda, umz. libheri, iitsheri, ii-pomegrante kunye nomkhiwane. Amashishini ezilimo eziqhelekileyo, umz. I-fynbos, i-rooibos kunye ne-honeybush nawo ayachuma ngoku. Abalimi baqhubekeka ngokuphuhlisa indlela yokwenza izinto ukuze bakhawulelanelane nale meko intsha yeendlela zenqubo ezitshintshayo zemozulu.

**Kwangowama-2016, ubuqikelele ulahleko Iwama-R720 ezigidi kumashishini ezi ziqhamo ngenxa yembalela. Luthini ulahleko ukuzokuthi ga ngoku?**

Sikunyaka wesithathu ngoku wokushokoxeka kwaamanzi. Siqikelela ukuba okwangoku ulahleko luyi-R1.5 yezigidi gidi. Kunyaka odlulileyo, ulahleko belungama-R700 – R800 izigidi. Amanani ayenyuka kodwa ngoku. Ingeniso lalamashishini iphakathi kwe-R10 – R11 yezigidi gidi ngonyaka.

Ulahleko li-15% ngenxa yokunqongophala kwestiyalo. Belikhona ithuba lokuba kube kubi nakunoku. Amanzi akhoyo abekelwe izityalo ezikhula ixesha elide, ngakumbi iziqhamo zemithi evuthulukayo ebusika, endaweni yezityalo ezingenisa imali, njengeetapile, itswele, kunye neetumato.

**Ingaba isizathu sesokuba ezi ziqhamo zinexabiso eliphezulu ngaphesheya? Kutheni ezinye izityalo zibalulekile kunezinye?**

Yenye yezizathu, kodwa kuba isisityalo sexesha elide, umthi kufuneka ugcinwe uphila. Abalimi abaninzi baphela beziyeka izilimo ezinexabiso eliphantsi, endaweni yazo balime izilimo ezinexabiso eliphezulu. Ukuba siphinde safumana iindlela zenqubo zemvula eziqhelekileyo, lamashishini akulungele ukuphinda avune ngokwesiqhelo

**Siza kuhinda sibeneendlela zenqubo zemozulu eziqhelekileyo?**

Ndiyakholwa ukuba siza kuhinda sibenayo imvula. Xa sijonga imvula yexesha elizayo kunye nedatha yemozulu, kukho indlela yenqubo yamaxesha omileyo alandelwa ngamaxesha emvula kunye nezikhukula. Ngoku sikkimbalela engade iphele. Siza kuhinda siyifumane imvula kwaye kufuneka siyamkele ngamadama amakhulu ukuqinisekisa ukuba siza kugcina amanzi ixesha elide.



**Zinqabile iziqhamo ezivenkileni? Umgangatho weziqhamo wehlile?**

Umgangatho weziqhamo awuchaphazelekanga, kodwa zinqabile zona. Ukuthengiswa kweziqhamo kwiimarike ezithile kuchaphazelekile. Kwidinyaka edlulileyo, bekukho ukulingana okuthile Phakathi kweziqhamo ezithengiswa phesheya kunye neziqhamo ezithengiswa apha. Iziqhamo zinqabile. Oko kunyusa ixabiso lazo nangona zona zikhona ezivenkileni.

Kwinqaku elilula: uneendaba ezimnandi malunge nokubuya “kwenzala” ye-apile lokuqala elavunwa e-Cape of Good Hope.

Elinye lamalungu ethu, kwiqela le-Tru-Cape lenze uphando nge-apile lokuqala elalinywa eKapa, emva kokuba kufike uVan Riebeeck, waze wafumana isityalo salo. Okwangoku sisavalelw. Igama lalo eli apile “yiWittewijn Appel”. Singxamele ukulima eli apile ukuphuma kwalo kuvalelo. Imithi yalo siza kuyilima kwiindawo ngeendawo, umz. e-Botanical Gardens, aphi wawumi khona kwakuqala. Ndinomdla wokubona ukuba le projekthi iza kupuhla njani kule minyaka mi-2 – 3 izayo.

**Isiqukumbelo**

U-Albert Einstein wathi, “itafile, isitulo, isitya seziqhamo kunye nefidyoli – yintoni enye umntu ayidingayo ukuze onwabe?”

Amashishini ethu ezi ziqhamo mawangasindi kuphela, mawachume.



U-DR JOHANN STRAUSS



**Ulondolozo Iwezolimo ngumxholo omtsha kwezolimo zaseMzantsi Afrika, apho inani lamafama ababona ukuxhamla koku lenyukayo – ngakumbi ngoku kukho ulwazi olutsha malunga notshintsho lwemozulu.**

Njengokuba amafama eza kuvuma, umhlaba okumgangatho ophezulu sisitshixo sozinzo kwicandelo lezolimo kwaye le yeyona nto kugxilwe kuyo kwezolimo. Sighuba udliwanondlebe noGqirha uJohan Strauss, isazinzulu sezolimo esingumlawuli kwiSebe lezoLimo eNtshona Koloni.

**Yintoni ulondolozo Iwezolimo?**

Luhlengahlengiso olwenziwe kwiminyaka embalwa edlulileyo – ukusukela kwiminyaka ye-1970. Amafama aqala indlela engenye yokulima akuqonda ukuba alahlekelwe ngumhlabo omninzi ngenxa yokukhukhuliseka komhlabo. Ulondolozo Iwezolimo luyinciphisile le ngxaki. Le ndlela yokulima yaqala yathandwa eMzantsi Amerika, yaze yasetyenziwa ngokubanzi ukusukela apho. Iyabhekela kumbono wokulima umhlaba phambi kokuba utyale, kuba oko kunyusa amathuba okhukhuliseko-mhlabo kanye nolahleko Iwezityalo. Ukungalimi (ukungachukumisi mhlabo) kunyusa umgangatho womhlaba kwaye kubakho imveliso ephezulu. Ekuhambeni kwexesha, yongeza uzinzo. Isekwe kule migaqo mithathu:

- Ukungawuchukumisi umhlaba – ukungatyali, kodwa ulime
- Ukutyala izityalo ezahlukileyo – ukungahlakuleli udidi olunye Iwesityalo kumhlabo omnye nyaka ngamnye.
- Ukugqunywa komhlabo kusekho intsalela yesivuno okanye izityalo ezsaphilayo emhlabeni – njengokuba nabantu benolusu lokubakhusela elangeni nakwezinye izinto, umhlaba nawo ukhuselwa “lulusu”.

**Ingaba kubuya indlela eqhelekileyo yamandulo yokulima?**

Ngokuqinisekileyo, kuphambi kokuba kubekho umatshini wokulima. Uze nezinto ezintle kwicandelo lezolimo, kodwa uyibulele impilo ibisekho emhlabeni. Inani lokugqibela lokhukuliseko-mhlabo eMzantsi Afrika ziitoni ezi-3 zomhlabo ongaphezulu kwitoni nganye yombona ehlakulelwayo kwaye olu lukhukuliseko-mhlabo lwamanzi kuphela.

**Loluphi uhlobo lomlimi olunokusebenzisa oku?**

Abalimi beenkozo ngabona abanokuzuza kule nto. Umgaqo ufikelela ngaphaya kwezolimo zonyaka omnye njengengqolowa. Noluphi na udidi Iwezolimo lungayisebenzisa le migaqo.

**Abalimi badinga izixhobo ezinjani?**

Badinga izixhobo ezijongene ngqo nalo msebenzi, ngakumbi kwizityalo. Kukho umatshini okhethekileyo wokufaka iimbewu kune nesichumisi emhlabeni kwaye akukho sdingo sokuba abasebenzi bazityale baziqume iimbewu. Ngethamsanqa, esi sixhobo sifumaneka naphi na – eNtshona Koloni kukho abathengisi abane besi sixhobo. Oku kunciphisa iindleko zokusithenga ngaphesheya. Ekuqaleni, olu tshintsho luyabiza, kodwa ekuhambeni kwexesha luyazihlawulela.

**Ngokweepesenti, bangaphi abalimi beenkozo abangalondoloza ezolimo eMzantsi Afrika?**

ENTshona Koloni, baninzi abantu abalamkeleyo olu tshintsho. Aylandelwa yonke ngokupheleleyo imigaqo, kodwa ukuba sjonga ukuphazamiseka komhlabo kuphela, abalimi abangama-80% abazisebenzisi izixhobo zokulima. Kwezinye KwaZulu-Natal (ngabokuqala ukusebenzisa le migao phambi kweNTshona Koloni) kwaye axhaswa yi-Grain SA.

**Ukuba umlimi ufuna ukutshintselo kulondolozo Iwezolimo, uqala phi kwaye angaya kubani ukufumana inkxaso?**

Nawuphi na umntu angeza kwiSebe lezoLimo eNtshona Koloni, e-Grain SA okanye kwiKwaZulu-Natal No-till Club. Kubalulekile ukuqala kancinci. Thatha inkampu ibenye ngexesha de uyiqhele. Akunyanzelekanga ukuba usebenzise le migao kwifama yakho yonke ngexesha elinye. Yinto ethatha ixesha kwaye abalimi akufunekanga bancame emva konyaka omnye kuphela. Yiba nomonde, uza kuzibona iziphumo.

**Kuthatha ixesha elide ukuvuna isiqhamo?**

Sisigqibo ekufuneka usithathile, kwaye uhlale kuso mhla wasithatha. Oku sikubona ngakumbi kuphando lwethu. Olona phando ludala luneminyaka engama-26 kwaye akuyonto oza kuvuka seyenzekile.

Ubuncinci kuthatha imiyaka emi-5 ukuze uyimise inkqubo; neminyaka engama-20 ukuze inkqubo isebeenze ngaphandle kwamagingxigingxi. Ngokuqinisekileyo, iziphumo zale nkqubo sizibona kuphando lwethu emva kweminyaka engama-20. Kukho ezinye iinginqi apho le nkqubo isebeenza ngesatya esiphezulu. ENTshona Koloni asinazo iimvula zasehlotyeni. Oku kwenza ukuba kubenzima ukuhlakulela ngokukhawuleza. Uphando lubonisa ukuba isilahle siyabuya kwaye izivuno ziya zizinza ekuhambeni kwexesha.

## **Ingaba ulondolozo Iwezolimo lungakwazi ukuphelisa utshintsho lwemozulu?**

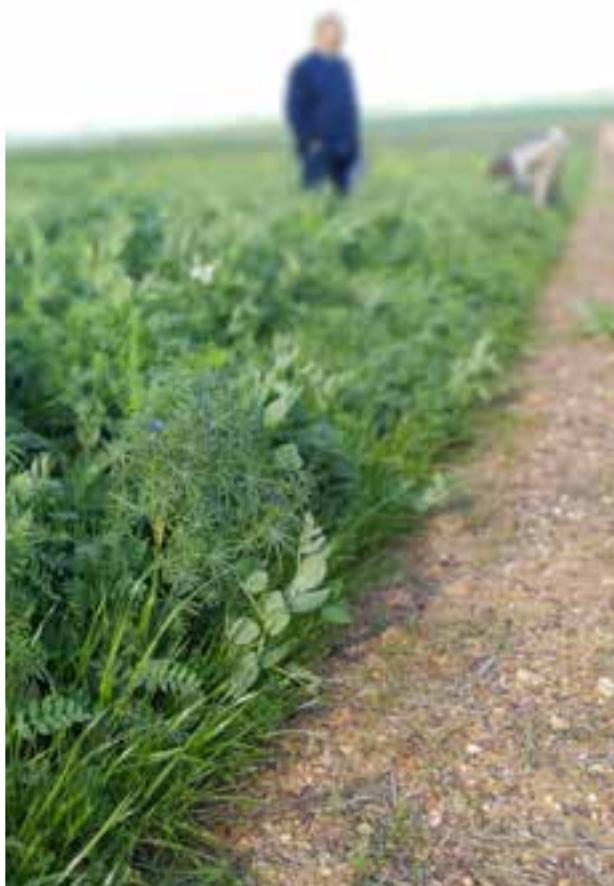
Lungasebenza ukuba izityalo uzigcina phezu komhlaba kangangoko ukwazi ukuze zikhuseleke kwaye ziphole – oku kunciphisa ukuphakama kwamanzi. Ungawonga ngcono amanzi ukuba umhlaba ugqunyiwe. Umhlaba ongahlakulwanga unemmingxunya emincinci nemikhulu egcina amanzi ngaphantsi kwavo. Le nkqubo iseberga njengesinki yesilahle ekuhambeni kwexesha; yongeza koko ukungadingi mbane omnzinzi kunye nokuncitshisa kwegalelo eliza kwenza isilahle. Konke oku kuneziphumo kutshintsho lwemozulu.

## **Abahlali baseKapa bazithembile iimvula zangowama-2018. Ingaba oku kuthetha ukuba asisekho ngakini?**

Nadicinga ukuba kusafuneka silinde nokuba yiminyaka emi-2 okanye emi-3 ukugcwalisu amadama kwaye siwagcine egcwele. Wonke umntu kufuneka enze isiggibo sokusebenzisa amanzi angaphantsi kwalla bawasebenzisayo, Sifikelela kubantu abaninzi eNtshona Koloni – kufuneka songe amanzi.

### **Isiqukumbelo**

Ngokweengcinga zikaGqirha Strauss, ulondolozo Iwezolimo likamva lecandelo lezolimo, ngakumbi xa kujongwa notshintsho lwemozulu. Aluzukubayindlela yesiqhelo yokulima ngobusuku obunye, kodwa ngomonde luza kuvuna imivozo kwixesha elizayo.



# **UTSHINTSHO LWEMOZULU KUNYE NOTSHINTSHO LWESINE KWIMIZI-MVELISO**



**U-DR DIRK TROSKIE  
U-DR ALBERT STREVER**

**“Aluzange libekho ixesha elinesithembiso esikhulu okanye ingozi.” Kutsho umseki nosihlalo oyintloko we-World Economic Forum, u-Klaus Schwab, ebhekisa kuTshintsho IweSine kwiMizi-mveliso (okanye kwi-4IR).**

Utshintsho lokuqala kwimizi-mveliso lalikwiminyaka ye-1800, ngexesha aphozazimbalwa izinto ezenzwa ngezandla – zisenziwa ngoomatshini. Le-4IR sizibona sikuyo yahluka kakhulu kweyokuqala, eyayibizwa “utshintsho kwimizi-mveliso”.

Kuphando olwaluxhaswe liSebe IezoLimo leNtshona Koloni (WCDoA), luqhutywa siSikolo soShishio seYunivesithi yaseStellenbosch, malunga nekamva lecandelo lezolimo kumxholo we-4IR. Kuthiwa ukuba umonakalo ungaphaya kwezixhobo zobuchwepheshe, oomatshini kunye neenkubo. I-4IR inenjongo yokudibana amacandelo abonakalayo, obuchwepheshe kunye nawebhayoloji.

**Kodwa oku kuthetha ukuthini kwicandelo lezolimo ngakumbi malunga notshintsho lwemozulu?**

Sineengxoxo kunye noGqirha Dirk Troskie, uMlawuli woCwangciso nokuCetyiswa kwaMashishini e-WCDaO kunye noGqirha Albert Strever osuka kwiSebe le-Viticulture ne-Oenology nakwiZiko lobuChwepheshe kwisiSelo seeDiliya (i-Wayini) laseYunivesithi yaseStellenbosch, owayeyinxalenye yeSikolo soShishino esasisenza olu phando.

**Dirk, yintoni eyanyanzela uphando Iwecandelo lezolimo kwi-4IR?**

I-4IR ayinxulumananga nobuchwepheshe kupheda. Inayo nendawo yobuntu. Kwezi ntsuku, ininzi intetho ngolutsha nale nxalenye yoluntu Iwethu enezidingo ezithile. Kwelinje icala, kukho upuhliso olutsha kwezobuchwepheshe. Kwelinje icala kupuhliseka ukudibana kwabantu. Ukudibana kwezi zinto zimbini kwenza amathuba obudlelwane esingazange sanawo ngaphambile.

**Albert, i-4IR iza kulichaphazela njani icandelo lezolimo?**

Esona siphumo sikhulu kukudibana kwezobuchwepheshe neenkubo ze-

intanethi kune nokubandakanyeka kokuhlakanipha kweekhompyuta.

Bonke obu buchwepheshe bunxulumene nezolimo. Ngaphambili, sithethe ngezelimo ezichanekileyo kwaye oku kubandakanya oomatshini abazenzelayo. Ngoku sijonga ukubandakanya ukuhlakanipha kweekhompyuta kune neenkubo zokulawula ezolimo. Konke oku kubandakanye nobuchwepheshe obunxulumene nebhayoloji.

### **Dirk, ingaba bonke abalimi baza kuzuza koku okanye kuza kuzuza aba bane-intanethi kuphela?**

Uninzi lobu buchwepheshe busebenza ngaphandle kwe-intanethi. Kukho nophuhliso lwemfuzo engasetyenziwa ngabo bonke abalimi.

Kukho ithuba lokuba kubekho utshintsho olubalulekileyo kuqoqosho lezolimo. Okwangoku, sihleli phezu kwezihobo ezingohlulekiyo, njengetrektara kune nesihobo sokuvuna.

Ubungakanani betrektara buchaphazela nomntu oza kuyiqhuba. Kunjalonje, kufuneka sisondele kwicala lobuchwepheshe obuncinci nobukhaphukhaphu. Ungasebeniza umgaqo wezihobo ezincinci ezangaphuma zingena phakathi kwezilimo.

### **Ukususwa kwabantu akuzuchaphazela imisebenzi kweli cadelo?**

Kufuneka samkele ukuba ikhona imisebenzi engadingekiyo. Ukuifika kwemoto kutshintshe amathuba empangelo. Abasekho abantu abacholachola umgquba wamahashe ezindleleni.

Abaqeqliki bamahashe abasekho kokunjalo. Kodwa kuye kwakho amathuba abantu bokwakha iindlela kune nabantu bokulgisa iimoto. Masingagxili kalahlelo lwemisebenzi, kodwa masicinge ngamathuba emisebenzi emitsha.

### **Albert, i-4IR izi kubanceda njani abalimi nabenzi bewayini? (Icandelo elitsala nzima ngenxa yotshintsho lwemozulu.)**

Abalimi bewayini eNtshona Koloni bagqiba kuphuma kwimbalela ende kwaye kubalulekile ukuba ubuchwepheshe bokunkcenkceshela buphuculwe.

Ngaphezulu, ulwazi malunga nedatha yemozulu luhucukile. Oko kusivumela sithathe izigqibo ezingcono. Ngoku sinezitishi zemozulu ezilixabiso eliphantsi kune nezitishi ezinkulu zemozulu eziza kusinika ulwazi oluhucukileyo. Kukho nobuchwepheshe obutsha malunga nemfuzo yezilimo kune neengcambu esingalusebenzia.

### **Dirk, yintoni indima karhulumente kwi-4IR?**

Xa abantu besiva ngorhulumente, bacinga ngemali. Ngokuqinisekileyo, inkxaso-mali yobuchwepheshe be-4IR asiyiyo indima karhulumente. Indima karhulumente kukuyila imeko yokusebenza nokuchuma kwamashishini; kukwenza ithuba lokuba ulutsha lenze indawo yolonwabo lokusebeniza ubuchwepheshe obutsha obuza kuzuzisa noluntu.

### **Siza kulahlekelwa lunxibelewano nabanye abantu?**

Ukuba ngumntu akukwazi ukuthathelwa indawo ngoomatshini. Ngumbono wokuba ngumntu nowokunxibelelana. Iza kusoloko ikhona indima eza kudlalwa ngumntu.

Enye yeempawu zolimo zezokuba umlimi angachitha ixesha elincinci kwimisebenzi enziwa ngoomatshini. Izigqibo zingathathwa ekhompyutheni, ukuze abalimi bachithe ixesha nabaqeshwa. Kwakhona, ukutshintsha okugxilwe kuko kuthetha ukuba ixesha labelwa eminye imisebenzi kune nonxibelewano lwabantu kwimarike nasefama.

Mininzi imiba kwezolimo, njengokubuyiswa komhlaba, amanzi nozinzo kungalungiswa

bubuchwepheshe. linkqubo zenkxaso-mali njengenkxaso-mali esuka kwiqela labantu ngumba owonwabisayo.

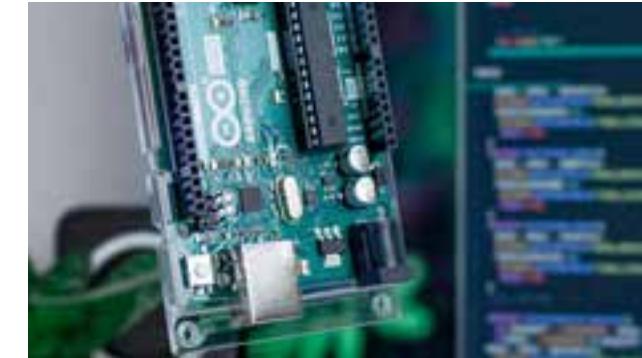
Nalento yokuba akunyanzelekanga ukuba umhlaba ubenomnikazi ukuze usetyenzwe ubesisixhobo sotyalo-mali ngokusebenzia unxibelewano lwe-intanethi.

Kukho ithuba lwenqwaba leeprojekthi zophuhliso, kodwa into eyonwabisayo yeyokuba upuhhliso lungasisondeza. Umlimi ngamnye unako ukusebenzia ibali lakhe ukubhengeza izilimo zakhe. Oku kungasondeza umlimi kune nomthengi.

### **Ixiqukumbelo**

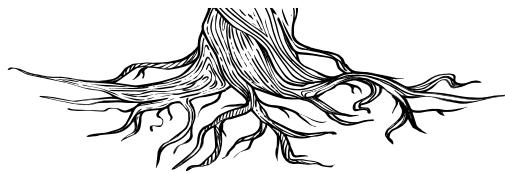
Ixesha lotshintsho lwezolimo luya luqheleka – akukho kubuya mva. Kubalulekile ukuba ubuchwepheshe obutsha bubandakanywe kube kungachukunyiswanga nto iyenye, ukuqinisekisa ukuqhubekeka komsebenzi kune nozinzo.

Akukho kuthandabuza – ubuchwepheshe businika amaphiko. Thina kufuneka siqinisekise ukuba amaphiko awenziwanga ngekhaphela kune neentsiba.



# UTSHINTSHO LWEMOZULU

## KUNYE NEZITYALO



U-RUDOLPH RÖSCHER  
U-BRAHAM VAN ZYL

**Siqhelile ukuziva ezi ntetho zithi "izityalo zasemzini", ingozi eziyiyo kubantu nakwindalo kwaye kufuneka zitshatyalaliswe. Imizekelo yazo yiPort Jackson kune neBlack Wattle. Isityalo siba sesasemzini xa silinywe ngumntu kwindawo okanye kwiningqi esingazange sakho kuyo ngaphambili ngokwendalo.**

Izityalo zasemzini zingumceli mngeni omkhulu kwicandelo lezolimo. Ukuchaza isizathu kune nokwenziwayo ngoko, siqube udliwanondlebe neengcali ezimbini, uRudolph Röscher ongumphathi waseLandCare kwisithili seWinelands, kune noBraham van Zyl, umfundi we-PhD okwanguye nomnikazi womhlaba eSwellendam.

**Kutheni kubalulekile ukuba izityalo zasemzini zitshatyalaliswe? Buthini obona bungozi?**

Izityalo zasemzini zenza iingxaki ezininzi kubanikazi bomhlaba:

- Zisebenzisa amanzi amaninzi;
- Zisemngciphekweni ophezulu wokutshiswa ngumlilo; kwaye
- Ukuphuphumala kweenqubo

zemilambo kungatshintsha ubume bamanzi omlambo kwaye oku kungenza:  
• Ukhukuliseko;  
• Intlenja kune neziqithi zomhlaba ezingadalwanga;  
• libhlorho zingemka namanzi; kwaye  
• Izakhiwo zolimo ziyamoshakala.

**Khawusixelete ngakumbi ngenqubo enamanyathelo ama-5 yeLandCare. Ibandakanya ntoni?**

i-LandCare imiswe kwimigaqo ethile. Xa kwenziwe umsebenzi kwiifama, kufuneka bonke abanikazi bomhlaba bavumelane ukuze isicwangciso sibandakanye ingingqi yonke. Ayibandakanyi fama inye kuphela. Sijonga uluntu lonke size silubuze ngemiceli mngeni yezixhobo zendalo engingqini. Sijonga izinto ezininzi ezibandakanya ukhukuliseko, umngcipheko womlilo, iimbalela kune nezikhukhula. Xa uyilo lugqityiwe, siya kwifama nganye senzi izicwangciso, sichonge izinto eziphambili kune nomnikazi wefama. Emva koko, iprojekthi iyaqala.



**Yintoni into edibana utshintsho lwemozulu kune nezityalo zasemzini?**

Ukukhula kwezityalo zasemzini kwanda xa amaqondo obushushu enyukile. Oku kwenza ukuba zisebenzise amanzi amaninzi. Uninzi lwezityalo zethu zendalo ziyatshabalala ngenxa yezityalo zasemzini, kuba zoyisa iingingqi ezithile ngokwamanzi. Oku kunxulumene ngqo neendlela zenqubo zokukhula kwezityalo esizibona ngenxa yotshintsho lwemozulu.

E-Cape Winelands imvula yana kamva kwixesha lonyaka lemvula kwaye ina kakhulu kwixesha elifutshane. Ezi ndlela zenqubo zemvula kune nezityalo zasemzini ezithinthela iinkqubo zethu zemilambo zenza umonakalo wezikhukula.

**Braham, unolwazi malunga nomonakalo owenziwa zizityalo zasemzini. Umhlabo wakho uchaphazeleka njani?**

Izikhukula ezimbini ngowama-2004 nangowama-2006. Isiqwenga esikhulu somhlaba wam eSwellendam simke namanzi ngenxa yomlambo obugcwele yi-Black Wattle. Kwanyanzeleka ukuba ndenze icebo. Ndisebenzisene nenqubo yeSebe lezoLimo leNtshona Koloni i-LandCare. Simise inkampani engenzi ngeniso waze wonke umntu wasebenziana ukususa le Black Wattle emlanjeni.

**Uthetha "ngemincili yomhlaba ovuselelwego". Umhlabo "ovuselelwego" unjani?**



ESwellendam, umlimi onguHenry Barry undikhuthaze ukuba ndizisuse zonke izityalo zasemzini emhlabeni wam. Uthethe ngenzondelelo ngendalela entle ngayo intaba yakhe emva kokuba esuse izityalo zasemzini.

Ndiye ndaqala ukucoa umhlabu wam. Iziphumo zoko ndibone ngoko. Xa kukho izityalo zasemzini kubakho udidi olunye lezityalo esilawulayo. Indawo ekhula izityalo ngokwendalo ibaneendidi ezinanzi zezityalo - ezincinci, ezinkulu, nezinemibala eyahlukileyo. Ndiva kamnandi ngoku xa ndihamba emhlabeni wam ndibone ukuba iindidi ezahlukileyo zezityalo zikhula hlolo luni. Ndinombulelo.

Ukutshabalalisa izityalo zasemzini ngumsebenzi omninzi, ngakumbi xa sezizinzie. Akufunekanga abantu bazisuse zisencinci?

Ndikholelwa ukuba abanikazi bomhlabu abawucoci umhlabu wabo. Bayonqena kwaye abakhathali. Ukuze uphumelele, kufuneka uzikhuphe zisavela. Ngumsebenzi onzima, kodwa uneziphumo ezininzi.

### Rudolph, kubaluleke kangakanani ukuba uluntu luthathe inxaxheba kunye noxanduva?

Kubaluleke kakhulu. Abanikazi bomhlabu kufuneka babandakanyeke ukusuka kusuku lokuqala lweprojekthi ka-LandCare. Injongo kukucela abanikazi ukuba

bachonge umngcipheko onxulumene notshintsho lwemozulu kune nezixhobo zendalo abazidingayo ukwenza ezi zinto bafuna ukuzenza. Esi sicwangiso asenziwa nabanikazi bomhlabu kuphela.

Sisebenzisana neqela lamasebe kuRhulumente weNtshona Koloni size sinike uluntu iinkonzo zethu, iingcali zethu zobuchwepeshe kune nezixhobo zethu zemali. Simise iqonga leqela lamasebe ali-19 ahlukaneyo kune nemibutho engenangeniso, Sidibana kabini ngonyaka. Apha sabelana ngolwazi, ngohlahlo-lwabiwo mali kune neengcali zethu, size siqinisekise ukuba iiprojekthi zethu ziyathungelana. Isiphumo yiMemorandum yeSivumelwano phakathi kwabanikazi bomhlabu, iibhodi zokunkcenkceshela okanye nemibutho yokulima. Kwesi sivumelwano, kwensiwa ukuba kubekho imali yeprojekthi kwaye abanikazi bemihlabu balindelekile nabo ukuba benze igalelo ngokwemali.

Kumabali empumelelo, eloMlambo iBreede, oziikhilomitha ezingama-75 ukusuka eCeres ukudlula eMitchell's Pass, eWolseley naseWorcester, ususe izityalo zasemzini ezingama-95%. Oku kubandakanya iihektare ezingama-600 zomhlabu omanzi i-Papenkui, esona sityalo sasemzini sasisikhulu. Wonke umnikazi womhlabu ohlala kule ngingqi ufake isandla kwimali yale projekthi. Emva kweminyaka emihlanu, baphuhlise umkhwa wokugcina imali yokuhlawula izityalo zasemzini kuba belibona ixabiso lokwenza loo nto. Emva kweminyaka emihlanu, izityalo zendalo ziayabuyela kule milambo kwaye umhlabu omanzi ulingiselelwa ukwenza eyona nto ubudalelw yona.

### Niye naqalisu ukuvuselela amashishini amancinci?

Ngokunjalo. Asikwazi ukuvela sitshabalalise izityalo zasemzini siphinde sishiye iintsalela zazo emlanjeni. Nakunokuzitshisa ezi-asethi zeplanga, sikhethu ukuxhasa ukuphuhliswa

kwee-SMME ngeendlela ezahlukileyo. Ezi ndlela zibandakanya ukwenziwa kweenkuni kune nokwenziwa kwe-mulch yezitiya zeziqhamo.

### Braham, unomdla ngeeprojekthi zoluntu kwaye ufunu ukusasaza umyalezo wokuba izityalo zasemzini azisokolisi. Uza kwenza njani oko?

Abona bantu endifuna ukufikelela kubo ngabanikazi bomhlabu. Ukuba ndingasasaza umdla wam kwaye ndibonise oku sendiphumelele kuko, ndiyakholwa ukuba ndiza kufumana abaxhasi.

### Isiqukumbelo

Siyayazi ngoku ukuba izityalo zasemzini zingenza umonakalo omkhulu. Sikwabonile neziphumo zabantu abasebenzisanayo nabavisisanayo. Ukucwangcisa, ukunxibelelana kune nokusebenzisana zizitshixo zempumelelo.



# IZIPHUMO ZOTSHINTSHO LWEMOZULU KWIZINAMBUZANE, KUBHUBHANE NAKWIINYOSI

U-DR GERHARD VERDOORN



**Elingcali zithi kwimfazwe yotshintsho lwemozulu, kuza kumphumelela into ibenye – izinambuzane, ngaphandle kweenyosi. Ukunyuka kwamaqondo obushushu kuza kwenza ukuba izinambuzane zizale ngokukhawuleza. Oko kuza kwenza ukuba zilambe kakhulu. Iziphumo zingaphaya kokuqonda. Kwicandelo lezolimo le nto itsho ukuthi kuza kubakho izinambuzane ezintsha kanye noobhubhane abatsha.**

Sighuba udliwanondlebe nomlawuli weZiko lolwazi i-Griffon Poison, okwanguye nomlawuli wemiSebenzi e-Croplife SA, uGqirha Gerhard Verdoorn. Unengcinga yokuba kwezolimo, ingqolowa, umbona kanye nerayisi iza kuba zizo esiphulukana nazo kulo mlo wethu nezinambuzane noobhubhane.

**Uyavuma ukuma njengokuba utshintsho lwemozulu luqhubekeka, izinambuzane ziyingozi – kuluntu nakwindalo?**

Oku funeka sikujonge kumacala amabini: 1) impembelelo ebantwini kanye 2) nempembelelo kwindalo.

Siyabona kwilizwe jikelele ukuba utshintsho lwemozulu kanye nobushushu bukazwe lonke kubangele izinambuzane ezinanzi zande, zifudu ke okanye zitshabalale. linyosi zobusi ngumzekelo omhle obonisa isinambuzane esichatshazelwego lutshintsho lwemozulu. Akuphelelanga ekwanden i nasekusasazekeni kwezinambuzane, kubandakanya ukutshabalala kwezinambuzane ngenxa yobushushushu bukazwe lonke.

## Zithini izizathu zokwanda kwezinambuzane?

Xa kungekho ngqelesi isikayo, ikhephu okanye iqabaka, izinambuzane ziphila ngcono. UMzantsi Afrika, umzekelo, unohlobo olude kanye nobusika obufudumeleyo. Sinqatylewe bubusika obubandayo, ngaphandle kwalo nyaka udlulileyo.

Umzekelo oqhelekileyo, ngumsundululu waseKwindla owahlasela uMzantsi Afrika ngowama-2017. Kwiinginqi ezifudumeleyo, lo msundululu uyachuma kwaye ukwanda kwawo akulawuleki, kwiindawo ezifana neLimpopo.

Ukuba ibibusika besiqhelo, ukwanda ngokulawuleka, kodwa ngoku indalo ayisasiniki sandla ekulawuleni izinambuzane. Njengemikhala eyayikade ilawulwa yingqelesi kodwa ngoku akubandi ngokwaneleyo ebusika ukuyilawula.

## Sithini isizathu sokucutheka kweenyosi zobusi?

Amaqondo obushushu aphezulu athetha ukuthi izityalo ezithile ziyoysakala. Akukho malunga nokutshabalala kweenyosi, kodwa kumalunga nemithobo yazo yokutya echaphazeleka ngqo. Ukunqaba kokutya kuthetha ukuthi iinyosi azikwazi ukuzala okutsha.

## Ziintoni ezhlelwa phantsi kwezinambuzane nphantshi koobhubhane?

Nokuba yeyiphi into ephilayo, nokuba sisityalo okanye sisilwanyana okanye sisinambuzane okanye i-fungus eza kuba nempembelelo embi ebantwini. Xa umntu ethetha “ngokungqonge umntu”, kukho iindidi ezimbini: icandelo lezolimo (izilwanyana kanye nezityalo) okanye icandelo lezempilo loluntu.

Sesiya ukuba iingcongconi zeMalariya zaseLowveld (kwicala lasempuma) zifudukela kwicala laseHighveld. Uphawu lotshintsho lwemozulu zizinambuzane ezsuka kwikhaya lazo ziyokuhlala kwindawo ezingazange zihlale kuyo ngaphambili.

## Izifo ezizalana nezinambuzane ziyanda, njengeZika neSifo iLyme – ezibangelwa ziingcongconi kanye nekhalane.

Ewe, siyabona ukuba iMalariya iyanda, kwicala lasempuma kwiindawo ezifana naKwazulu-Natal naseLowveld. Isasazeke nakwicala lasentshona, eBushveld ecaleni kweVaalwater. Kuyoyikisa, kuba iVaalwater ibisaziwa njengendawo engenazifo. Izifo zezilwanyana nazo zandiswa ngoobhubhane bezinambuzane ezifana nekhalane.

## Izilwanyana ezifana neentaka, eziphila ngezinambuzane, ziza kuchuma nazo?

Hayi. Njengokuba kutshintsha izinambuzane ngenxa yotshintsho lwemozulu, iintaka ziza kunyaenzeleka ukuba zitshintshe nazo. Iintaka ziyakwazi ukutshintsha kwaye xa sijonga i-Atlas yeeNtaka, siqaphela ukuba nazo iintaka zimane zifuduka ngenxa yotshintsho lwemozulu.

Iintaka zingangachaphazeleki kakhulu. Ixhala likwizilwanyana ezincinci ezingakwazi ukubhabha okanye ukufudukela kude. lingxaki ziza kubakho kwizinambuzane ezhhlala emhlaben kanye nezilwanyana ezhixomekeke kuzo. Akukuhlanga.

Ngokubanzi, utshinstho lwemozulu kune nobushushu bukazwelone zingozi kuyo yonke into ephilayo nephefumlayo.

**Kuqikelelwa ukuba izityalo zamazimba eMelika naseYurophu zingalindela umonakalo wezinambuzane we-10% ukuya kuma-25% ngenxa yokwenyuka kwamaqondo obushushu. NaseMzantsi Afrika sikule meko?**

Ngokungathandabuzi, kunjalo. limbalela zeminyaka edlulileyo kune nezhukula zeminyaka edlulileyo zibeke uxinzelelo oluninzi kubalimi bamazimba. Utshintsho lwemozulu luza kubangela umonakalo kwihiabathi lonke.

lingxelo zeendaba zithi ukuba amaqondo obushushu aza konyuka ngamaqondo ama-3 ngenkulungwane nganye, hayi ngeqondo eli-1.5 ebelaqikelelwe.

**Xa sithetha ngezityalo zengqolowa – zeziphi ezona zinambuzane ziza kudala owona monakalo?**

Zonke izinambuzane ezifana namanundu ezenza imisundululu ezityalweni zengqolowa, umz. Umsundululu waseKwindla kune neendidi ze-bollworm. Ngaphantsi komhlaba, eyona misundululu ibangela umonakalo omkhulu yi-false wireworm kune nee-weevil.

**Kukho izisombululo ezifana nokutshintsha izilimo okanye izixhobo zokubulala izinambuzane. Aziyongxaki kuba ezikhemikhali zokubulala izinambuzane zdala umonakalo kwimozulu, kabantu nakwizilwanyana?**

Ukuba abantu basebenzisa izixhobo zokubulala izinambuzane ngokwemiyalelo yazo, amathuba okuba kubekho into engahambi kakuhle awekho, kodwa ixesha elininzi abantu abayifundi imiyalelo.

Asikwazi ukuzihoya iimpawu zotshintsho lwemozulu singakhange sizihoje izizathu

zeempawu. Abantu kufuneka bayeke ukutshisa amalahle. EMzantsi Afrika kufuneka kuyekwe ukwakhiwa kwezitishi zombane ezixhomekeke emalahleni.

**Uthini ngolawulo Iwezinambuzane eziqhelekileyo – singazilawula njani?**

Xa ndibona indlela ezanda ngayo iimbovane, amaphela, izinambuzane zasebhedini kune neentubi, ndibona iingxaki ezininzi emakhayeni. Ukuqaphela kubalulekile.

Kufuneka izinambuzane uzibonele icebo ngalo mzuzu uzibona ngawo, ungalindi de kubekho ubhubhane. Xa zifika kwizinga lokuba ngubhubhane, awukwazi ukuzilawula. Fundani imiyalelo nizisebenzise kakuhle izixhobo zokubulala izinambuzane.

**Uyakholelwa ukuba yindima yethu nelungelo lethu ukuphazamisa iinkqubo zendalo?**

Ewe, yindima yethu. Ukuba sifuna abantu baphile kwiminyaka engamawaka ezayo, kufuneka siphazamise sikwazi ukubona ukuba zeziphi iindawu eziza kuphinda zizilungele. Kufuneka sisuse ifuthe labantu – amalahle atshiswayo; ukugawula imithi; neendlela ezingalunganga zokulima.

**Isiqukumbelo**

Izinambuzane zingumzekelo wotshintsho kubomi apha kweli hlabathi. Zilelona qela likhulu kwizilwanyana. lingcali ziqlikelela ukuba iindidi zezinambuzane zingaphaya kwesigidi. Zisinceda ekuvuseleleni izityalo zethu zokutya. Zisinika imikhondo yokunyanga umhlaza nokusombulula ulwaphulo-mthetho.

Utshintsho lwemozulu lutshintsha iinkqubo zendalo zehlabathi esiphila kulo. Ekugqibeleni wonke umntu uza kubandezeleka ngenxa yoku–abantu, izilwanyana kune nezityalo. Kufuneka sihoje ingcambu yengxaki, singenelele ngokufanekileyo.



# FRUITLOOK

U-DR CAREN JARMAIN

Iqela labantu abanolwazi oluphangaleleyo linika amafama eziqhamo aseNtshona Koloni ngolwazi olusekelezelwe kwezinye iindawo ikakhulu malunga nolwazi lokutshintsha kwemozuluokunegalelo nokusetyenziswa kakhulu kwamanzi ngendlela. I-FruitLook ([www.fruitlook.co.za](http://www.fruitlook.co.za)) ngumnyango wewebhu yoluntu eyenza amafama aqwala sele ukukhula kwezityalo zawo.

Senza udlliwanondlebe nomphathi weprojekthi uGqirha Caren Jamain ukuze sifunde lukhulu nge-Fruitlook.

## Loluphi ulwazi neenkonzo ezinikwa yi-Fruitlook?

I-FruitLook yinkonzo yasimahla enkulu yenqubo yedata equlethe ulwazi. Inika amafama nabacebisi ulwazi olusiseko rhoqo ngeveki malunga nokuba mangakanani amanzi abawasebenzisayo nokuba kungakanani ukukhula okuhubekayo ngexesha elinikeziwego. Senza noqequesho ukuze amafama nabacebisi bazi ukuba i-FruitLook imalunga nantoni nokuba ulwazi lusetyenziswa njani ngokulungileyo.

I-FruitLook linyathelo lokuqala lama-Dutch elimiliselwe liSebe lezolimo laseNtshona Koloni. Kutheni bekukhona imfuneko yale nkonzo?



Ama-Dutch, ngenkampani ebizwa ngokuba yi-e-Leaf, asabandakanyeka kwaye bangabanikezi beenqubo zedata. Akwaziinkokheli zelizwe jikelele kwelicandelo. Ekuqaleni i-WCDoA belifuna ukuqalisia idata ukuze abavelisi basebenzise amanzi abo kakuhle ngendlela. Akukho mtu unako ukuvele abeke into yokuva umhlaba ofumileyo okanye imitha yamanzi kwiblokhi nganye. Lendlela yajongwa ukuze iqingqae ukusetyenziswa kwamanzi ngexesha lonyaka kune nendlela enako nokuhulisa.

**Ukusetyenziswa ngendlela kwamanzi ngoku kufumana ukubaluleka okukhulu kule mbalelo nokunqongophala kwamanzi.**

Amafama abone ukuba kufanele onyuse ingqwalasela kwaye aqonde into ayaziyo nangayaziyo. I-FruitLook yeyona ndlela imangalisayo yokuwanceda baconde kakuhle into eghubekayo ezifama ngokwemigaqo yokusetyenziswa kwamanzi. Ikwanceda ekucwangciseleli kakuhle ixesha elizayo lonyaka.

## Loluphi uluhlu lenqubo yakho ye-satellite?

I-FruitLook yinkubo kwi webhusayithi yaye isebebenzisa idata ye-satellite. Kwelixeha lonyaka siza kuniqa ulwazi kwihekta eziyi 9.5 zeNtshona Koloni. Lento ithetha ukuthi i-pixel okanye iblokhi ezizimitha eziyi 20x20 kumfanekiso we-satellite kuzakubakhona ulwazi olufumanekayo. Yindawo enkulu kakhulu equka isiqhamo esikhulu kune

neendawo zolimo ezibalulekileyo. Iquka iindawo ze-fynbos kune nazo zonke iindawo ezibalulekileyo zokubambisa nezisenzela amanzi.

Ngoku kukhona i-database yeminyaka elithoba ekhoyo kwiwebhusayithi. Lonto ithi akulolwazi nje lelixesha lonyaka langoku lokuba amafama aqwalasele iveki neveki kodwa bangajonga nasemva kwimbali yeblokhi yawo kwiminyaka elithoba egqithileyo.

Enye yezihamlo zenqubo yolwazi kukuba umntu angajonga kwi-data yonyaka ogqithileyo kwaye ingakunika ukuqonda ukuba imveliso yakho izakuba njani konyaka okuwo. Kwlizwe jikelele ayikho enye inkqubo ekhoyo eluluhlu oluphangaleleyo ngokwemigaqo equka i-data.

### **Ingaba amafama esikali esincinane angaxhamla kulento?**

Ngokuqinisekileyo. Kukhona amafama orhwebo nawesikali esincinci asebenzisa lenqubo. Abacebisi abanikeza inkonzo kumafama ngokwemigaqo yokucebisa angayisebenzisa lenqubo.

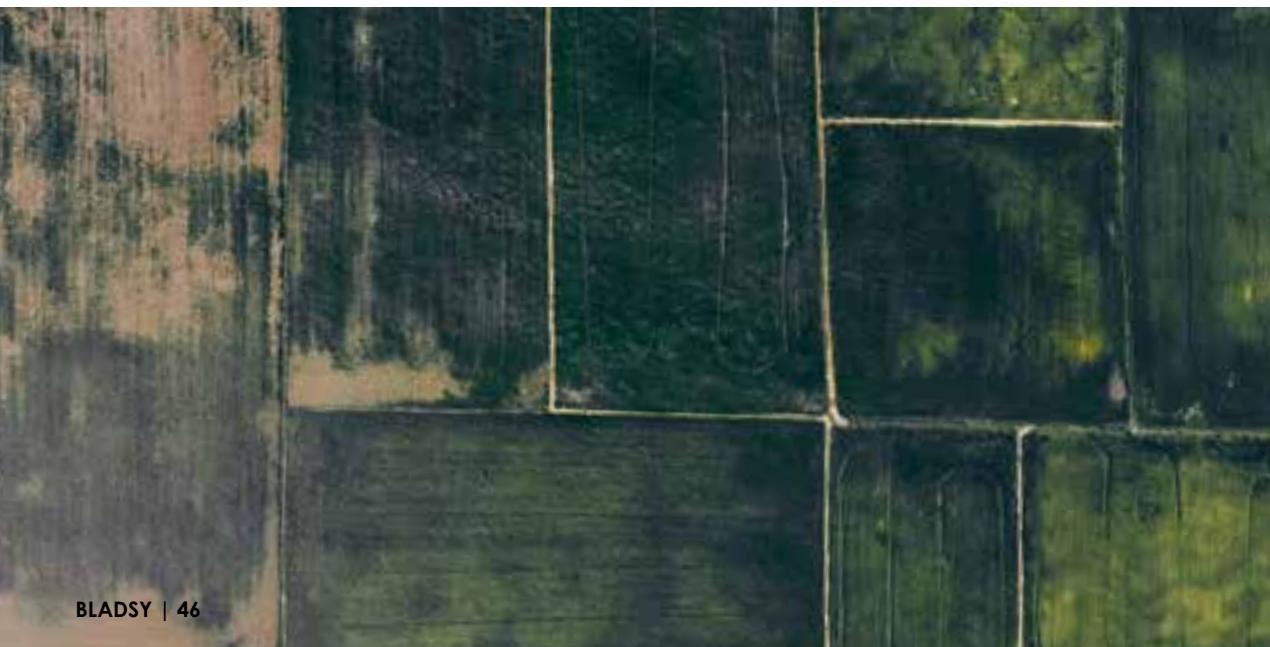
### **Ngaphandle kweNtshona Koloni, ingaba i-Fruitlook ikhona kwenye indawo eMzantsi Afrika?**

Ngenxa yenyano yokuba i-WCDoA linika inkxaso-mali kwiprojekthi, ulwazi ngelishwa alukho kwiindawo ezingaphandle kwePhondo. Sifumana inani yemibuzzo kakhulu esuka eMpuma Koloni nase Mntla Ntshona engathi idibanise nokuthi nabo banecandelo elibaluleke kakhulu lesiqhamo kune okanye nesityalo esiphantsi konkencceshelo.

### **Mangaphi amafama eNtshona Koloni ayisebenzisayo lenqubo?**

Kwixesha lonyaka ku 2018/2019 bekukhona malunga nabavelisi nabacebisi abayi 750. Singaqwalasela ukuba bayisebenzisa kangakanani na. zonke ibhlokhi zokunkencceshelo ezibukhulu bugqitha iketare enye zingaqwalaselwa kwaye ifama ezinkulu ziyaqwalaselwa.

Ngonyaka ka 2010 sikhethe amafama angama-40 ukusebenzisa lenqubo kwaye namhlanje sinabasebenzisi balenkqubo abasondele ku-750. Kukhona abavelisi abaninzi eNtshona Koloni ekufanele nesifuna ukufikelela kuwo ukuze nabo baxhamle kulenqubo.



### **Ithini ingxelo oyifumene kumafama ukuzotsho ngoku? Ingaba yingxelo elungileyo? Ingaba iyakunceda ukuze ubaleke ubongozi obufihlakeleyo?**

Ukuba umntu uthi onge ixesha ngokusebenzisa inkqubo yolwazi yaye uqiye ixabiso loko ngoko ke uya kuqhubeleka usebenzisa i-FruitLook. Sifumana ingxelo elungileyo. Ekupheleni kwexesha lonyaka elidlulileyo siye saba nohlolo la-online ukuze abasebenzisi balenkqubo balugcwali. Ngaphezulu kweephesenti ezingama70 zabasebenzisi babonakalise ukuba i-FruitLook ngokuqinisekileyo ibancedile ngokulawula amanzi baze abamalunga nephesenti ezingama-30 babonisa ukuba ibancede ngokusombulula iingxaki nokuelisa. Njengokuba abavelisi besiya beqonda ukuba i-FruitLook imalunga nantoni nokubakhona kwiseshoni zoqequesho bayo kufumana ixabiso kuyo.

### **Unikeza ulwazi amafama angangeke akwazi ukuzifumanela ngokwawo?**

I-Satellitezithabatha imifanekiso yezinto esingenako ukuzibona ngeliso lenyama. Ngokulinganayo nomfama obaleka kwifama yakhe iveki neveki. Nangona amafama esazi ukuba kuqhubecka ntoni kwiifama zawo i-FruitLook inika indlela enomahluko ibonise izinto umntu angangeke aziqwalasele ngeliso lenyama.

### **Olu lwazi ngokwemvelo luya lubaluleka kakhulu ngokunetha kwemvula yethu engaqikeleleyo.**

Elona nqaku nge-FruitLook kukuba umntu angakwazi ukuqwalasela abone intshukumo yesityalo sakhe kwiimeko zemozulu. Umzekelo, ukuba kukhona ukuhlasela kobushushu ungakwazi ukubona intshukumo yesityalo sakho ukuba injani ngokwemigaqo yokudodobala kokukhula noxinzelelo olumannla. Yinkqubo yokuqwalasela emangalisayo yaye

imbali yedata inexabiso elingalinganiseki. Ngaphandle kokuba umzekelo ufumana iimeko ezingalawuleki zemozulu, ungajonga ukuba kuqhubeke ntoni konyaka odlulileyo, ngaphandle kokuba iimeko zigqithisile, unawo umbono wokuba ungalindela ntoni utsho ujonte izinto zokuqala onokuzenza. Ukuba unesibalo esincinane samanzi ungabona ukuba afuneka kakhulu phi nokuba unganciphisa ukunkcenkceshela phi.

### **Nceda usinike iinkcukacha zewebhusayithiaza kuthi amafama ayindwendwele okanye angene kuyo?**

Idilesi ithi [www.fruitlook.co.za](http://www.fruitlook.co.za), idilesi yenxibelewano ye-imeyile ithi [info@fruitlook.co.za](mailto:info@fruitlook.co.za). Oko ngeveki yesibini sibamba iseshoni yolwazi kwiSebe leZolimo eNtshona Koloni e-Elsenburg. Ngesicelo singakwazi ukucwangcisa senze iiseshoni zoqequesho kwiindawo ezithile.

### **Isiqukumbelo**

Umntu othile kafutshane ubenalengqondo exhiboleyo malunga ne-FruitLook: "amafama aseNtshona Koloni eziqhamo nediliya afumana uncedo ngasentla. Le-satellite ayishiyinto kwaye ayinazinjongo zifihlakeleyo."

njengoGirha wamachiza wase-Melika uSarah Parcak owathi: "A picture is worth a thousand words; a satellite image is worth a million dollars." (oko kukuthi umfanekiso ufana namagama aliwaka; umfanekiso we-satellite ulixabiso lezigidi zedola)

Ukufumana iinkcukacha ezingaphezulu malunga nesicwangciso se-AgriSmart, izinto zokuphonononga kune neenkukacha zengqingqi, ndwendwela: <https://www.elsenburg.com/drought/>

# UQIKELELO LWAMVA NJE MALUNGA NOKUTSHINTSHA KWEMOZULU (ingxelo ye-IPCC)



U-PROF FRANCOIS ENGELBRECHT

**"Ukunciphisa ubushushu bukazwe lonke ngeqondo lobushushu eli-1.5, kuza kudinga utshintsho olukhawulezileyo, olufikelela kwiindawo zonke nolungathandabuziyo kuwo onke amacandelo oluntu."** Lawo ngamazwi atshayeleta ushwankathelo loxwebhu le-Intergovernmental Panel on Climate Change (okanye i-IPCC), ebidibene ngeyeDwarha kowama-2018 eKorea. Iphaneli iqhubekaka ngelithi ukuba ngasekupheleni kwenkulungwane, uMzantsi Afrika ungalindela ukunyuka kwamaqondo obushushu ngamaqondo asi-8. Oku kuza kubaneziphumo ezinkulu kubantu nakwindalo.

Siqhuba udliwanondlebe noNjing. Francois Engelbrecht, oyinkokheli yeQela IoTshintsho Iwemozulu kwiCSIR (Council for Scientific and Industrial Research), nokwanguye umbali ophambili kulo mba.

**Kwingqungquthela yotshintsho Iwemozulu ibisanda kubakho ePoland, uSir David Attenborough uthe ukuba isiphelo sendalo njongokuba siyazi sisondele. Uyavumelana noko?**

Ngelishwa, ininzi inyani efihlwe kula mazwi. Kwlizwe lonke, kuthi eAfrika, kodwa kakhulu eMzantsi eAfrika. Ngenxa yotshintsho Iwemozulu, sisendleleni eya kuMzantsi Afrika aza kubalilizwe elahlukileyo kweli silaziyo xa sifika kwisiqingatha sesibini senkulungwane.

Kuqikelelwa ukunyuka kwamaqondo obushushu ngamaqondo asi-6 nangaphezulu kwiningqi ngeenginqi ngenxa yotshintsho Iwemozulu. Oku kuthetha ukuthi ezi zinto ziqhele ukulinywa okanye zaluswa eAfrika, njengombona neenkomu zenyama akusayi phinda kwenzeke. Kwlizwe elifana neBotswana, aphi i70% yabahlali ixhomekeke kwiinkomo, ukwalusa iiinkomo kungangenzeki. Kuseza kuphindia kubekho iingxaki zamanzi nokushota kwamanzi ngokubanzi. AmaZantsi eAfrika asendleleni eya kwilizwe elishushu nelomileyo. Kuyinyani ukuthi ukuba abantu baqhubekekka ngokufaka ii-greenhouse gases emoyeni ngesi santya siphezulu, sisendleleni eya kwilizwe elahlukileyo kweli silihelileyo.

## Zithini ezona iziphumo eziphambili kwingxelo ye-IPCC?

Iziphumo zengxelo zingashwankathelwa ngokweziqukumbelo ezimbini:

1. Ifuthe elinamandla ngenxa yotshintsho Iwemozulu, ngakumbi eAfrika. Ingingqi yaseMzantsi eAfrika ichongwe njengenye yeengingqi ezsengozini, kuba ihleli ifudumele kwaye yomile. Ukunyuka kwamaqondo obushushu kule ngingqi kuphindene kabini kunamanye amazwe.
2. Kusenokwenzeka ukuba uluntu lunciphise ukunyuka kwamaqondo obushushu kuphele kwi-1.5. Imfuneko yokuqala ebalulekileyo kukunciphisa amanani onyaka wama-2010 okuphuma komoya omdaka (i-carbon dioxide) ngama-45%, ngonyaka wama-2030. Oku kuthetha utshintsho olubonakalayo kwindela esenza ngayo amandla. Kufuneka siyeke ukusebenzisa amalahle ne-oyile njengezixhobo zethu. Athi efika owama-2050, kufuneka kungabikho moyo umdaka (i-carbon dioxide) ukhutshwayo. Kufuneka utshintsho lubelukhulu ngolu hlobo.

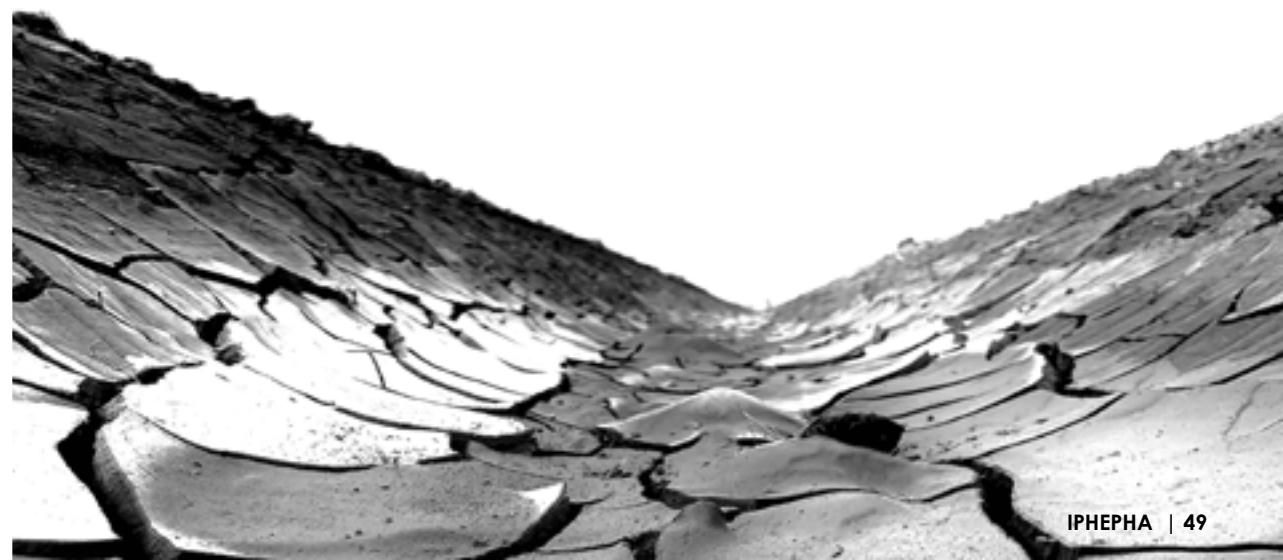
## Kufuneka kutshintshe/ kwenziwe ntoni?

Kukho imithombo emibini yamandla ahlaziyekayo ekua kufuneka siysebenzise ngakumbi; amandla omoya namandla elanga. Okwangoku, amandla ahlaziyekayo okwenza olu tshintsho awonelanga. Kufuneka kongezwe amandla enyukliya enziwa kwilizwe jikelele.

Okokugqibela, kufuneka siphuhlise ezobuchwepheshe eziza kususa umoya omdaka (i-carbon dioxide) ekhoyo emoyeni. Obobuchwepheshe kuza kufuneka busetyenziwe ngokubanzi abukabikho. Ngoko ke, sinemiceli mingeni malunga nophuhliso benzululwazi. Kodwa ngokubalulekileyo nangokungxamisekileyo, sidinga imigaqo-nkqubo eyomeleleyo kwilizwe jikelele eza kunciphisa ukusetyenzwa kwamalahla neoyile.

## Isiqukumbelo

Isiphumo sotshintsho Iwemozulu siyaxhalabiso, kodwa ngokukaNjing. Engelbrecht, intlekele inokuthintelwa ngongenelelo loluntu kune namandla okwenza.



# UQIKELELO LWAMVA NJE MALUNGA NOKUTSHINTSHA KWEMOZULU

(ingxelo ye-IPCC) Isahluko sesi-2

U-PROF FRANCOIS ENGELBRECHT

Siqhubekaka ngengxoxo yethu noNjing. Francois Engelbrecht, oyinkokheli yeQela loTshintsho Iwemozulu kwi-CSIR (IBhunga loPhando IwezeNzululwazi kune neMizimveliso), nokwanguye umbali ophambili kwingsxelo yeIPCC.

Sigxila kwizinto ezilindelwe licandelo lezolimo kune nendima karhulumente malunga notshintsho Iwemozulu. Le ngxelo kubhekiswa kuyo izobe umfanekiso omfiliba malunga nokunyka kwamaqondo obushushu, ngakumbi eMazantsi eAfrika

**Ingaba i-Paris Climate Accord yenzo izibonelelo zale nto ilindeleke eMazantsi eAfrika malunga notshintsho Iwemozulu?**

Kweli nqanaba, ngokuqinisekileyo, sisenawo amandla okuthintela unyuko Iwamaqondo obushushu olulindelikileyo. Ukuba siza kumisa inkubo eyiParis Climate Accord

ngokuphumelelayo, siza kujongana nonyuko Iwamaqondo obushushu aphakathi kweqondo eli-1.5 namaqondo ama-2. Kodwa kwaMazantsi eAfrika oku kuthetha amaqondo ama-3 nangaphezelu. Oku konke kuthetha aMazantsi eAfrika omileyo.

Abalimi baseMzantsi Afrika banamava okuqhubekeka ngomsebenzi kwifama zabo ngamaxesha otshintsha-tshintsho Iwemozulu. Baziqhelile iimbalela ezifuka ziphinde zihambe. Eyona miceli mnjeni ekuza kufuneka sjongene nayo ngamaza obushushu anamandla kunalawa siwaqhelileyo kune neembalela ezinini kunya ka ngamnye. Kusenokulimeka kunya ka omnye okanye emibini yembalela, kodwa ukuba iqhubekke phakathi kwiminyaka emithathu nemihlanu, kuza kubanzima ukulima ngendlela ezinzileyo. Onke amashishini kwicandelo lezolimo

kufuneka ajonge ngononophelo nangesazela utshintsho Iwemozulu oluqikelelwayo kwiindawo zelizwe lethu ezibalulekileyo kwezolimo. Kufuneka sizame kangangoko ukuhlengahlengisa nokwenza ukulima kwethu kumelane nempembelelo yotshintsho Iwemozulu.

Kwezolimo nakukhusaleko lokuya ziseninzi izinto esingazenza. Kuza kufuneka sibenoyilo malunga neendawo esilima kuzo namalunga neendlela esithengisa ngazo ukuya eMzantsi Afrika. Kuqikelelwa ukuba aMazantsi eAfrika aza koma ngelix aMpuma Afrika kuza kubamanzi. Kunjalonne, kuza kufuneka sicinge ukuba umsebenzi wethu wezolimo uza kubaphi eAfrika.

Kwilixa elizayo, kuza kufuneka siphucule indlela yokushishina ngokutya, ngombane nangamanzi. Kunokwenzeka ukuba siza kungenisa umbane waseMozambique ngokubanzi. Sisenako nokungenisa amanzi oMfula iZambezi. Oku kuthetha utsyalomali oluninzi ngokwezakhiwo, kodwa siza kucinga ngoku ukuba siyabufuna ubomu obuzinzileyo kolu tshinstho Iwemozulu.

**Ingaba oku kuthetha utshintsho lobomu olukhulu nakwindoda ezihambla esitratweni?**

Kufuneka siphile ngeyona ndlela ibonisa ubuntu kwizinto zendalo. Abo bakwaziyo, kufuneka bayeku ukusebenzia amandla amalahla, basebenzise amandla elanga – bashenxele kude kwigridi ngokutsho. Kufuneka sigcine amandla kangangoko.

Wonke umntu kufuneka adlale indima yakhe ukulwa utshintsho Iwemozulu. Enye into emayiqatshelwle kukuba uMzantsi Afrika eyedwa akanako ukuyilwa eyedwa imfazwe yotshintsho Iwemozulu. Imfazwe elwa utshintsho Iwemozulu neyokunciphisa iigreenhouse gases emoyeni yingxaki yelizwe jikelele. Ngokuthe ngqo, sidinga i-USA neChina zithathe olonda xanduva kule nkubo.



## **Thina eMzantsi Afrika singathatha awaphi amanyathelo?**

Ukuba sifuna ukwenza igalelo elinentsingiselo, kufuneka simise imizamo yokuba isizwe sonke siyeke ukusebenzisa amalahla njengomthombo wamandla, sisebenzise Amandla elanga namandla omoya. Ngaphandle kolu tshintsho, ayikho eminye imizamo eza kwenza umahluko.

## **Kukhona okwenzekayo kurhulumente ukwenza umahluko?**

EMzantsi Afrika, kukho izinto ezimbini ezenzekayo malunga nophuhliso kwiminyaka embalwa edlulileyo ezingaziwayo kakuhle ngabantu:

1. ISebe leSizwe leMicimbi yeNdalo liyinkokheli kwilizwe lonke kwimfazwe yotshintsho lwemozulu eAfrika. Enyanisweni, kwiminyaka embalwa edlulileyo, eli sebe lidlale indima ekhokelayo kwiingxoxo zotshintsho lwemozulu kwiUnited Nations. Kunjalonje, uMzantsi Afrika ubenempembelelo ethe ngqo kwisivumelwano sotshintsho lwemozulu saseParis. i-Afrika noMzantsi Afrika zidlale indima ebalulekileyo ekuthobeni ithagethi yamaqondo obushushu ama-2 ibeliqondo eli-1.5.
2. Ingxelo (iWhitepaper) yaseMzantsi Afrika esesikweni malunga notshinstho lwemozulu inenjongo yokunciphisa ukupuma kweegreenhouse gases

emoyeni. UKusukela apho, uphumo lweegreenhouse gas kufuneka lucutheke. Umgao-nkqubo sowulungile kodwa kusafuneka emisiwe.

## **Isiqukumbelo**

Ngamafutshane, uzinzo luza kufikeleka ngotyalomali kwizakhiwo zokulwa utshintsho lwemozulu. Lemfazwe ngumceli mngeni welizwe jikelele, kodwa wonke umntu anganagalelo ngokusebenzisa Amandla ahlaziyekayo.

Ngamazwi kaNobhala weZizwe eziManyeneyo ongasekhoyo, uBan Ki-moon: "Sisisizukulwana sokuqala esinethuba

lokuphelisa indlala kwaye sisisizukulwana sokugqibela esikwaziyo ukuthathha amanyathelo afunekayo ukuphepha iziphumo zotshintsho lwemozulu. Isizukulwano esizayo siza kusigweba kabukhali ukuba asizilufezelekisi uxanduva lwethu lokuziphatha kakuhle nolwembali."



# UKUTSH INTSHA KWEMOZULU NOKHULA

U-PROF CHARLIE REINHARDT

Bathi "ukhula lunenkani" kwaye kubonakala ingathi kunesizathu esihle seliqliko, kakhulu xa kusiziwa kwezolimo, isityalo esichazwa ngokuba "isityalo esingalunganga endaweni engalunganga" singabangela umonakalo omkhulu kwaye ukutshintsha kwemozulu akuncedi, kungenjalo ukhula lukhohlakala kakhulu kunokuba lukhohlakele kakade.

Sithetha noNjingalwazi ophume izandla kuNzululwazi yoKhula kwiYunivesithi yase Stellenbosch (owayeyiNtloko yabafundi e-Villa Academy) noNjingalwazi kuLwazi ngoMhlaba kwiYunivesithi yaseMantla-Ntshona, uNjingalwazi Charlie Reinhardt kwicandelo lezolimo nokuzamazamana nezi zityalo zineenkani.

**Sesikubalulile ukuba ukhula ludumile ngokubangela umonakalo xa luthe lakhula kwindawo engalunganga. Zizityalo ezihlelw zabizwa ngokuba "lukhula" ngokwenyaniso zizityalo nje eziqhelekileyo ezifumana zikwindawo engalunganga?**

Kunjalo zezona zityalo ezizinza kakuhle kwindawo ezifumaneka kuyo. Oku kuthetha ukuthi zikhla kakuhle kakhulu nezityalo esizibona zinqweneleka njengesivuno sentyatyambo egadini yakho. Xa ezi zityalo zizenye zither zagqiba zibonwa njengeziyingxaki.

**Sohlula kanjani phakathi kokhula olulungileyo nolungalunganga?**

Ukhula lungalunga luhinde lungalungi. Nentsangu sistyalo esilungileyo kubantu abayisebenzisayo ngezizathu zamayeza onyango kodwa kwelinje icala bagqibile sebeseluvalelwani bebanjwa nayo.

**Kukhona abanye abaphandi abakholelwukubasikho isityalo esineziphumo eziomonakolo kakhulu kwisivuno solimo njengokhula, ingaba uyavumelana noko/ukuba kunjalo kutheni?**

Kungenxa yokuba ukhula luzinza kakuhle kakhuly kwiimeko zendawo nokuluhlu oluphangaleleyo leendawo. Isivuno sezityalo zibufana nomdyarho wamahashe, zenza kakuhle ebaleni lomdyarho kanti xa uwakhuphela ngaphandle ebaleni lomdyarho awenzi kakuhle konke konke, njengokuba ukhula luzinza kuluhlu oluphangaleleyo lweemeko.

**Ukhula lubangela umonakalo ngqo nomonakalo ungekho ngqo- unganikeza inkcazel emfutshane?**

Iziphumo ezingungqo kuxa ukhula luhula kune nesityalo luze lwebe amanzi izondlo kune nokuhanya obobunokuseytenziswa sisityalo. Xa kakhona okudingekayo kwezinye zezinto zokukhulisa isityala sidla ngokubulaleka.

**Kungakokuphi ukuphuncuka okukhulu xa kusiziwa kwicandelo lezolimo?**

Namhlanje kwicandelo lezolimo sinenxaki ekhethekileyo ibuncinane kwinkqubo yesityalo. Ukweliwsa komkhwa wokulima kuneenjongo ezelungileyo njengokugcinwa kakuhle komhlaba ufumile kodwa ikwayiyo nendawo eyiyo yokhula oluthatha ixesha elide ukuthabatha ingcambu. Ngaphantsi kokuguqlwa komhlaba wokulima ungfumana ukhula lonyaka. Ukulawulwa kokhula kuba yingxaki ngaphandle kokulima njengendlela yokulawula. Iyimeko ye catch 22 kufanele sikhumbule ukuba nayiphi na intshukumo kwindalo yenza kubekhona into eyenzekayo okanye izinto ezinanzi

ezenzekayo kwaye enye yezinto ezenzekayo liluhula olusokolisyayo.

**Kukhona ngoku isigrogriso esitsha -umhlaseli wase-Melika?**

Kunjalo. Ukhula lokuqala lase-Melika kumqaphu, kwimbotyi zesoya, emboneni nakwezinye izityalo zeenkozo. Iqhube amafama ase-Melika ukuba angabinamali. Ibiza ngokuba yi-Palmer amaranth (Amaranthus palmeri) nefunyaniswe kweyoMdumba ku 2018 eMzantsi Afrika. Enye yeenkcazel eziyingcingane yokuba ifike kanjani apha kukuba imbewu yaziswa apha ngokungaqondi kumiliselo lezinto esezebenzile zolimo. Le nkcazel nginga kungenzeka ukuba isunguleke ekubeni ubunyaniso kukuba yeyona ndlela ingundoqo yokusabalala kokhula e-USA.

EMzantsi-Ntshona e-Melika sisityalo semveli esasisaya kusetyenziswa njengesiqholo sokutya amawaka eminyaka zi-Incas nee Mayans. Luyalunga kwiimeko ezomileyo, nezishushu kwaye kulapho kuthe kwavakala khona kwaye ihlasele eMzantsi Afrika. E-Melika iyandlondlobala inwenwa kwiminyaka elishumi ukuya kwelishumi elinesihlanu leminyaka. EMzantsi Afrika sisensa kancinci ukulwa esisigrogriso sitsha. EBrazil basebenzisa iindlela zokunxwema nokusiphula nengcambu ngengenjongo ezezipumo ezelungileyo. Asikwazi ukusebenzisa ukunxwema kuba asinawisomthetho lokwenza oko yayo ingaba yinto embi kakhulu kubalimi abanolukhula. URhulumente necandelo kufanele benze konke okusemandleni abo ukuthambisa olukhula olukwimbewu (inqanaba).

**Zeziphi iziphumo zokutshintsha kwemozulu kakhula? Ingaba ivumela ukhula ukuba lichume?**

Ngokuya iqondo lobushushu linyuka kube kunqongophele imvula enokuthenjwa enethayo, ukhula oluthile olukhulayo kwezomeko njenge- Palmer amaranth,

liyakuchuma. Izitalo ezingalungiselelwanga ukukhula ebushushwini, kweimeko ezomileyo ziya kubulaleka. "ii-Genetically modified" (GM crops) ziligama elisisiqalekiso kwezinye iindawo kodwa yeyona ndlela ikhawulezayo kuthi ukuzinzisa izitalo zethu kwiimeko zemozulu etshintshatshintshaylo nokuzinika ithuba lokuzilwela kuhula.

### **Ingaba ukhula lunendle engakholeleki yokukhula? Weeds have thus an unbelievable survival mechanism?**

Ewe linejenetiki ezahlukenyero. Libali lenyulu nomdyarho wamahashe. Iluvumela ukuba luzinze ngokukhawuleza kwimeko eziphangaleleyo nezahlukenyero sibe sona isitalo (nabantu bakoluluhlu) singakwazi ukuzinza ngokukhawuleza okwaneleyo.

### **Ukhula ingaba linezinye izinto ezilungileyo?**

Ewe, njengoko bekutshiwo ngaphambili, i-Palmer amaranth yayisisiqholo sokutya

kumawaka eminyaka kwi-Incas nee Mayan. Nanamhlanje sisavuna izipayisi ze-Amaranthus sezityalo zokutya. Kuze kubekhona iinkalo zezinga lamachiza nokutya kwezilwanyana eziphilayo. Olunye lokhula olubaluleke kakhulu olubonakala lusuka e-Cape to Cairo, yi-hairy fleabane (*Conyza bonariensis*) kwaye lusisondlo esingcono kune- lucerne.

### **Singenza kanjani singeyizizo ingcaphephe ukuba siyazi ukuba sisiphula ntoni siyeke ntoni?**

Lena yeyona enzima. Egadini yakho kulula. Ungasusa nantoni na engeyiyo intyantyambo . kwelinje icala kwa esisityalo usikhuphayo singakhupha amachiza agcina ukukhunta nezinambuzane kude kwintyatyambo zakho. Tsala ususe into engeyiyo intyantyambo egadini yakho ukuba ufuno ukucalucalula phakathi kwezityalo. Iqatshelwe ngabaninzi ukuba akuzinzanga

ukuvele ulime umbona emhabeni. Kufanele uwukhulise nenye into kungenjalo kubakhona ukungangqwamani kwendalo. Imfihlo kukuba uldibanisa kanjani ukuze uvelise ukutya okwaneleyo ngaxeshanye ufumane kwakhona ucazululo lwezithwala mfaza.

### **Yeyiphi indlela elula yokususa ukhula?**

Egadini yakho lutsale ngesandla sakho. Funa iingcebiso zolwazi ukuba usebenzisa iimvekiso zamachiza (ii-herbicide) ukuze wazi ukuba yeyiphi imveliso elungileyo nekhuselekileyo. Ukusetyenziswa kakubi nokusetyenziswa okugqithisileyo kwemveliso ii-herbicide kudla ngokuba yingxaki. Funda imiyalelo, usebenzise imveliso ngendlela ibiveliselwe yona uze ulandelo imiyalelo njengoko.

### **Isiqukumbelo**

Namhlanje siva ngoNjingalwazi uReinhardt ukuba ukhula "ingcambu" ziyinto ekhoyo yaye zibububi kuba zikhuphisana nezityalo eziphangaleleyo ngelanga, ngamanzi kunye nezondlo. Kodwa ingaba lonke ukhula alulunganga; akunjalo konke kakhulu aphi zingaphazamisani neminqweno yabantu.

Phezu komhlaba zikhuphisana nezityalo eziphangaleleyo ngelanga, ngaphantsi komhlaba zikhuphisana ngamanzi nezondlo, kumaxesha amaninzi ukhula ludibana lumphumelele kumlo. Intatheli yeendaba yase-Melika yake yathi "ukhula lufunde zzonke izicwangciso ezingakhona zokuphila ngaphandle kokukhula ngomgca"





# IIDONKI KUNYE NOTSHINTSHO LWEMOZULU

U-ANNEMARIE VAN ZIJL

**Umonde, unyanzelo, ululamo ... Lowo ngumfanekiso oza engqondweni yam kwaye mhlawumbi nabanye abantu xa becinga ngeedonki ...**

Kuqikelelwa ukuba iidonki "bejisasebenza" eluntwini ubuncinci iminyaka engama-5000 kwaye kwizigidi zabantu baseAfrika (nakwezinye iindawo) "iNdlebe eziNkulu" zibalulekile ukuze ziphile.

Senza udliwanondlebe no-Annemarie van Zijl ovela kwi-Eseltjiesrus Donkey Sanctuary, ngaphandle kwase-McGregor eNtshona Koloni, malunga noku kusebenza nzima, kodwa sisilwanyana esijongelwe phantsi nesixhatshazwayo, nendlela utshintsho lwemozulu oluchaphazela ngayo iidonki zelizwekazi.

Okwangoku iidonki zisemngciphekweni weyona nntlekele inkulu yokusinda- azixhelwa nje ngenxa yesikhumba sazo, kodwa imozulu eggithileyo ngakumbi amaqondo obushushu anyukayo axakekile ebeka uxinzelelo olukhulu lokusinda kwala "mahashe okusebenza" ahluyleyo.

**Xa abantu besiva igama elithi "idonki" abaninzi bacinga kwangoko: sisilwanyana esisidenge... kodwa ungabalisa elinye ibali?**

Iidonki zikrelekrele kakhulu, eneneni zingaphezu kwamahashe. Ziyazihlalutya iimeko, kwaye emva koko ziziphathenokwendlela elungileyo yokusinda. Ngeentsuku xa kwakusina imvula kakuhle e-Eseltjiesrus, kwakukho umsinga phakathi kweenkampu ezimbini kwaye iidonki zazisonqena ukuhamba ngayo - yayingaziwa, kwaye ngubani owaziyo ukuba yintoni elele ngaphantsi kwamanzi. Kwakuye kufuneke ukhethe ibenye eyona wayenobugagu kunezinye, uhambe nayo emva koko ezinye zilandele.

Ukuba ufunu ukwenza uthelkiso namahashe- unokulifundisa ihashe ukuba litsibe ngaphezulu kwemiqobo emikhulu, kodwa idonki iyakujonga ithi hayi, akukhuselekanga. Zinokuqiqa ngakumbi kunamahashe.

Xa sifumana iindwendwe e-Eseltjiesrus, siye safumanisa ukuba iidonki zinomdla kakhulu. Ziyakhawuleza ukuqwalasela ukuba umtu uneengxaki, okanye ukuba banentlizyo ebuhlungu okanye bafuna uncedo. Idonki iya kulo mntu kwaye "icele" ukumanga. Sele sinabantu abambalwa abathi baphalale iinyembezi xa bedibana needonki ezinje. Idonki ziyanqonda ukubandzeleka kwaye ziyanqonda ukubandzeleka kwaye ziyakuwalasela ebantwini.

**Kukho ingqikelelo yezigidi ezingama-40 zeedonki ehlabathini - zisetyenziswa kakhulu njengezilwanyana zokupakisha nokuyila?**

Kuqikelelwa ukuba iipesenti ezingama-80 zeedonki (zenza) zisebenzela abantu. Zisebenza ukuthwala amanzi (umsebenzi onzima kakhulu), ukulima, ukuthutha imbewu, ukuthutha isivuno, ukuya emarikeni kune nokuthutha abantu. Sonke siyazazi iinqwelo zedonki. Zithatha umakhulu zimse ekliniki kwaye zise abantwana esikolweni. Ziyi "bhaki", ilori kune netrektara zabanini bazo.

**I-Afrika isemngciphekweni omkhulu wokutshintsha kwemozulu kwaye iidonki ziqhele ukusetyenziswa njengezilwanyana zokupakisha nokuyila. Ubushushu behlabathi buza kuzichaphazela njani iidonki/ ayisele isenzeka?**

Sele isenzeka. Iidonki zizilwanyana ezinobuntlango obungaphelelanga eneneri kwaye zivelu kwiindawo ezomileyo zasemntla mpuma Afrika. Zilungiswe kakuhle ukuze ziphile kwizityalo uninzi lwezilwanyana ezingenakuphila kuzo, kodwa kulo lonke elase Afrika zisebenzela ukwenza ukuba umnini wazo aphile kwezona meko ziphambili nezingumngeni. Zonke izinto ezichaphazela ukulima ngokutya, ziya kuchaphazela iidonki.

**Unothungelwano olukhulu - sele uzifumene iingxelo zedonki ezsokoliswa ngamaqondo anyukayo?**

Ngokwenyani sisipumo esilandeelanayo. Ilali yaseSamochima eBotswana ngumzekelo oqaqambileyo. Inani leentlanzi kumlanjana we-Okavango linciphile ngokubonakalayo. Ngenxa yoko, iingwenya zafudukela kwiindawo apho khona izilwanyana ezinjengebhadi, iidonki kune neenkomozisela khona. Izilwanyana ngoku kufuneka zihambele phambili kwaye nzulu ukusela kwaye zibanjwa ngokulula ziingwenya. Ukuphulukana nedonki kukubuyela umva okurhabaxa kumniniyo. ENigeria iidonki zihlupheka ngeendlela ezininzi ngenxa yokutshintsha kwemozulu. Zisokola ngokufikelela kukutya okwaneleyo kune namanzi. Kuya kufuneke zihambe ngakumbi ukuya kwimithombo yamanzi, edla ngokuba ngamaqula, yabanini bazo. Inqanaba lamanzi amaqla lehlile, ngenxa yoko kuye kufuneke basebenze nzima ukufumana amanzi aye phezulu kwaye ke bawathuthe. Oku, ngaphandle kokuhamba nokuphuculwa kwentlalontle yabo. Baphumla kancinci, bayadinwa kwaye babuthathaka ngenxa

yokungondleki kwaye babe ngamaxhoba alula kwizilwanyana ezinjengeengonyama, izinja zasendle, iingcuka njalo njalo.

### **Unobudlelwane obuninzi, phakathi kwabanye eBritani: ingaba utshintsho lwemozulu luphezulu kwi-ajenda yakho?**

Iprojekthi yethu yeqela ijonge ukuqequesha abanini (bomhlaba) ukuba basebenzise ezinye iindlela zokulima. Sigxinisa kulondolozo lwezolimo umz. eMpuma Koloni bekukho iprojekthi esebezisa iinkomo ukulima. lidonki zathatha indawo yazo. Okokuqala babopha iidonki ezintandathu ukuya kwezisibhozo ngamajokojini ukutsala ikhuba elinzima. Yayingacacanga ngokupheleleyo kwezoqoqosho kuwo onke amanqanaba. Izhixobo ezelula zaphuhliswa; lidyokhwe zalungiselwa kune nempahla yonke yokubophelela ihashenqwelani lwenzelwe idonki enye ukuba isebenze ngokulula kune nezihobo ezelula, eziguqliwego. Abanini bayakhuthazwa ukuba bangalimi nzulu kakhulu, kodwa basebenzise iindlela zolondolozo-ukuguqulwa komhlaba okuncinci kwaye basebenzise imihlaba yomquba kune nokukhula kwesityalo.

### **Bomelele kangakanani ubudlelwane bakho basekuhlalen?**

Sisebenzisana ngokusondeleyo nenani elininzi lemibutho ekhuthaza intlalontle yedonki. Sabelana ngolwazi lwethu kwaye sibhekise imibuzo komnye nomnye ukue umntu osondeleyo, akwazi ukunceda.

### **Yintoni enokwenziwa, ukuba ikhona, ukunceda iidonki?**

Yazi ngendima ebalulekileyo edlalwa ziidonki, ngakumbi kwiindawo ezikude. Ziintlobo ezingabonakaliyo, ezinesimo esisezantsi kwaye zifanelwe kukuhlonitshwa kakhulu. Xhasa imibutho ekhathalela intlalontle yeedonki. Xela izehlo ezikwenza uziwe ungakhululekanga kwi-SPCA ekufutshane (Umbutho woThintelo kweNkohlakalo

kwizilwanyana) okanye kuthi, kwaye siya kuyilandelela.

### **Ingaba akhona amaphulo, ngokukodwa eMzantsi Afrika kune nakumazantsi e-Afrika asele eqalisive ukuthintela iziphumo zotshintsho lwemozulu kwiidonki ezisebenzayo?**

Ngokuqinisekileyo. Ngokukodwa ngokubhekisele emsebenzini eziwenzayo. Abanini bazo baqequesha ukuba bakhathalele ngcono iidonki zabo ngendawo yokuhlala efanelekileyo, amanzi awaneleyo, ixesha lokutya kune nexesha lokuphumla. Iminyaka yokuphila yedonki esebezayo yiminyaka eli-10 ukuya kweli-12, kodwa ukuba zikhathalelwae kakuhle, zinokusebenza de zibe neminyaka engama-20 nangaphezulu. Bobabini umnini kune nedonki bayaxhamla ukuba isilwanyana sikhimeko elungileyo.

### **Ingaba ikhona into eyenziwayo ukwenza abahlali basemaphandleni abaqhela ukusebezisa iidonki njengezilwanyana zokupakisha bazi ngakumbi?**

Kukho iprojekthi ezininzi kwi-Afrika iphela ejzijolise kwimfundu yabanini. Kubalulekile ukuqequesha abahlali bendawo ukuze iprojekthi iqhubekwa kwaye iphunyezwe ngokuzimeleyo ukuze ingaphasalaki xa abakuquzeleli beqhubela phambili.

### **Uthumela rhoqo incwadana yeendaba kwinethiwekhi ebanzi-khawusixelete yintoni injongo yoku?**

"I-Donkeys for Africa" yenza unxibelewano phakathi kwemibutho ejongene nentlalontle yedonki yase-Afrika. Inethiwekhi yethu yolula ngaphezu kwamazwe ali-18 ase-Afrika kwaye iyasasazeka. Ngokwabelana ngolwazi, impumelelo kune nokudandatheka sonke sisebenza ngakumbi. Ikwayindlela ebalulekileyo yokuqonda kwaye inike ukhuthazo kubantu ababekelwe bucala kwaye baziva belityelwe, ukubakhumbuza ukuba uninzi lwethu silwa nemiceli mngeni

efanayo.

### **Yintoni enokwenziwa luluntu ukunceda ukukhusela iidonki?**

Yazi indima esadlalwa zidonki. Jongisia umtsalane wabakhenkethi kwiidonki. Ukukhwela iinqwelo zedonki ngumzekelo-iidonki kufuneka zibe nexesha lokuphumla, akufuneki ukuba zibe nezilonda ezivela kuburhabaxa kwaye nenqwelo kufuneka ingabi nzima kakhulu. Jonga ikakhulu kwindawo ebizwa ngokuba yi "petting zoos" - kufuneka zibe ntle kwaye zicoceke zibe neendawo ezifanelekileyo zokuphumla, amanzi acoekileyo, amadlelo kune nesondlo kwaye akufuneki zizale nje ukuze zibe namankonyane ekuboniswa ngawo. lidonki zizilwanyana ezinobuntu. Idonki enye inqwenela ubukho bohlobo lwayo. Ukuba uziva ungonwabanga malunga nento, xela isihlo kuthi okanye kwi-SPCA.

### **Singanegalelo njani ekutshintsheni umfanekiso wedonki kune nokuphelisa ukubekwa ibala njenge "rhamncwa elisisimumu" kune "nedonki esebezayo"?**

Qonda ukuba zizilwanyana ezithobekileyo nezinomonde ezicingayo. Enza njengommeli wedonki. Ndwendwela iwebhusayithi yethu okanye ezinye kwaye ufunde ngakumbi ngezi zilwanyana ezsabaluleke kakhulu. Gxinisa ixabiso ledonki njengesilwanyana esisebezayo. Idonki lilungu leqela bonke ubomi bayo enegalelo kukhuseleko losapho lwayo lwabantu kwaye isebenza nzima kunaso nasiphi na esinye isilwanyana. lidonki ayizizo izilwanyana zangaphambili, kodwa ngokuqinisekileyo ziluhlobo lwexa elizayo kwaye ke kufuneka zixatysiswe?

### **Isiqukumbelo**

U-Annemarie van Zijl kune nomnyeni wakhe abasuka kwi-Eseltjiesrus Donkey Sanctuary ngabantu abakhethekileyo abalawula indawo ekhethekileyo - indawo ekhuselekileyo yeedonki eziphethwe kakubi, ezingakhathalelwanga kune

"nezilahliwego". Umsebenzi we-Eseltjiesrus okunene mkhulu kakhulu kwaye imiceli mngeni iyanda njengoko amaqondo obushushu enyuka. Ndiyathemba ukuba namhlanje sonke siya kujonga iidonki ngokuxabiseka okukhulu- ngokuba ewe, idonki yinto entle!!



