



# INGEDE

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## OKUQUKETHWE



**UMGOGODLA EKULIMENI UMOBA:-**  
Izinhlobo zomoba ozitshalayo uma kungezihambelana nendawo zaphathwa kahle zingakuzuzisa iminyaka (*ikhasi 3-4*).



**IMITHI YEZOLIMO:-**  
Kubaluleke kakhulu ukuqikelela ezokuphepha lapho ugcina khona ophoyizeni (*ikhasi 7-8*).



**I-REFRACTOMETER NEPUREST®:-**  
Yethembekile yini imiphumela yokuhlola amazinga obushukela (RV) emasimini? (*ikhasi 9-10*).

### ASENZE SINGAPHOQIWE:-

Izinguquko ezenzeka kwizimakethe ezahlukahlukene zingagcina ziphoqa abalimi bomoba ukuthi balandele indlela yokulima enconywa u-SUSFARMS© (*ikhasi 11*).



# Amasu Asemqoka: Ukulima okunenqubekela phambili



**Ibhalwe: nguThulani Masondo** (*Umpathi wabeluleki bama-SSG nama-LRG*)

Ithi ingaba nkulu ingabe isazekeka balimi!! Ngiyazi izinyanga ezintathu ezedlule kusukela kuNhlangulana (June) kuya kuNcwaba (August) bezinzima kakhulu kubalimi ngenxa yemililo. Ukukhala akusasizi, manje isikhathi sokuthi sisebenze nesisele nakho. Ukuze ngokuzayo abalimi bazame ukubhekana nesimo esifana nalesi, nakhu okubaluleki okumele bakwenze.

## Umoba omfishane ongeke ugayeke:

- Uma umoba umfishane kakhulu futhi kungekho ugoqo olubonakalayo, wuyeke uzohluma kwisinde.
- Uma umoba usunalo ugoqo kodwa umufishane ungeke uthumeleke esigayweni, kumele uhlahlelwe phansi bese uphathwa njengehlumela.
- Umangabe ubusuwufake umanyolo umoba omncane, thatha isampula lamaqabunga uma usuphinde wakhula, ukubheka ukuthi yimiphi imisoco okumele uyongeze.

## Uzowugawula kanjani:

Izindawo ezinkulu ezinomoba oshile ongeke uthunyelwe esigayweni zinga sikwa kusetshenziswa i-mulcher. Uma ingekho i-mulcher, ukugawula ngesandla nakho kulungile. Ungasebenzisa -gyro-mower kodwa imimese yayo kumele ibe bukhali: imimese ebuthuntu ingahlakaza isinde, amahlumela ngabe esaba mahle. **Qaphela:** uMbasha ungabhebhetheka uma kusetshenziswa lamathuluzi, awahlanzeke.

## Umoba onezingoqo ezingagayeka:

- Wuhlale uwuthumele esigayweni **NGOKUSHESHA**.
- Umoba oshile onezingoqo ezingagayeka ongahlahliwe, washiywa umile kuze kube isizini ezayo uzohlela kwihlumela elilandelayo elingelihle. Leso sitshalo sizobe sinezingoqo ezindala ezifile okuzoba nomthelela omubi kubuhle bomoba.

## Ukuwohloka:

- Umoba oshile wagawulwa ngokushesha uwohloka ngokushesha okukhulu, kulahleka amapheseni e-RV okungenani abalelwa ku-1 kuya ku-2 ngosuku, kodwa
- Umoba oshile washiywa umile uwohloka kakhulu kunalokhu. **AWUGAWULWE NGOKUSHESHA!**
- Qala ngomoba ovuthwe kunawo wonke, ulandele ngomoba omncane.



Umangabe insimu enomoba omncane inesihlava, hhala itashi nezingoqo ezimfishane wenze olayini emva kokuwugawula, bese uyawushisa. Umangabe isihlava besingeyona inkinga umoba ungakashi, ungawushisi okwesibili, kodwa cela abakwa P&D bazokuhlola insimu uma umoba usukhulile futhi wabanezingoqo ezincane, usungenza izinqumo ngokufutha uma usuthole imiphumela yokuhlola.

**Okubalulekile** – umoba oshile mawugawulwe ngokushesha, noma ngabe awuyi esigayweni somoba, ukuwushiya umile kuzohlela kumahlumela angemahle.

### MANDULO / SEPTEMBER

- Qala ukufaka isikhuthazi emasimini asehlahliwe.
- Faka izibulala-khula ezivimba ukhula isikhathi eside.
- Qala ukutshala kwakho kwaseNtwasahlobo.
- Hlola amasimu anohlobo lomoba oluzwelayo kwisifo isiwumba (SMUT) bese ukhipha izixhanti esezihlaselekile.



### MFUMFU / OCTOBER

- Futha ngophoyizeni umoba omdala kulawo masimu azotshalwa ngohlelo lokutshala ungalimanga (minimum till).
- Hlola amasimu abefakwe izibulala-khula ngenyanga edlule ukuthi ukhula lufa kahle yini.
- Qala ukutshala kwakho kwasehlobo ngokugcwele.
- Bheka amasimu anokhula oluyinkinga bese ulwa nalo.
- Qhubeka nokuhlola amasimu anohlobo lomoba oluzwelayo kwisifo Isiwumba (SMUT) bese ukhipha izixhanti esezihlaselekile.
- Maphakathi nezwe – qala ukufaka umanyolo.



### LWEZI / NOVEMBER

- Futha ngophoyizeni umoba omdala kulawomasimu azotshalwa ngohlelo lokutshala ungalimanga (minimum till).
- Hlola amasimu anohlobo lomoba oluzwelayo kwizifo Isiwumba (SMUT) kanye noMabalabala (MOSAIC) bese ukhipha izixhanti esezihlaselekile.
- Ezindaweni ezinencinga yesifo uMabalabala, ungalokothi utshale kusukela ekuqaleni kuka Lwezi (November) kuya ekuqaleni kuka Nhlolanja (February).
- Gunda/sika amabhande nonqenqema.



### ZIBANDLELA / DECEMBER

- Bheka ukhula olungafanga noma oluqubuke kamuva emasimini bese ulwa nalo kanjalo nalolo oluyinkinga
- Hlola ukuthi umoba omdala obufuthiwe usha noma ufa kahle ngaphambi kokuthi abasebenzi baye emaholidini kancibijane.
- Phothula ukutshala kwakho maphakathi nenyanga.
- Hlola amasimu anohlobo lomoba oluzwelayo kwizifo Isiwumba (SMUT) noMabalabala (MOSAIC) bese ukhipha izixhanti esezihlaselekile
- Qhubeka nokulwa nokhula oluyinkinga



# Ukuqonda kabanzi ngezini



**Ibhalwe: ngu-Dr Marvellous Zhou**

(usosayensi omkhulu kwezokukhiqizwa kwezinhlobo zomoba)



Ngesinye isikhathi abalimi bayakuveza ukuthi *“izincomo ngezinhlobo zomoba azicacanga futhi azishayi emhloeni”*. Okumele abalimi bakuqonde ukuthi izincomo ngezinhlobo zomoba azikwazi ukufana yonke indawo. Izincomo zibhekelela izinto ezahlukahlukene ezingeke zifane ngokwezifunda, ngokwamapulazi, nangokwehlukana kwamasimu epulazini elilodwa. Ngakho-ke izincomo ngezinhlobo zomoba kumele zihambelane nezimo ezithile, ngokubheka lokhu okulandelayo:

## **Uhlobo lomhlabathi**

Uhlobo lomhlabathi lubhekelelwe kakhulu uma kwenziwa izincomo ngezinhlobo zomoba. Izinhlabo zomoba eziningi zingakhiqiza isivuno esiphezulu emhlabathini onothile, kodwa ingcosana ikhiqiza isivuno esiphezulu emhlabathini oyisihlabathi, ongajulile nongemuhle. Ukukhetha uhlobo lomoba olungakhiqiza isivuno esiphezulu ezimweni ezimbi zokukhula kuzoqinisekisa isivuno esiphezulu somoba noshukela kanye namahlumela amaningi. Izinhlabo zomoba ezingakwazi ukumelelana nalezimo zokukhula ezimbi zivamise ukuba namahlumela amancane enza inzuzo kulezimo zokukhula.

## **Isikhathi sokuhlaha**

Kubalulekile ukuthi kubekwe emqondweni ukuthi umoba usukhule kangakanani (ngokwezinyanga) ngesikhathi sokuhlaha uma kwenziwa izincomo ngezinhlobo zomoba. Ngokuvamile, ezindaweni ezinezimo zokukhula ezingezinhle umoba isikhathi sokuhlahlwa komoba siyalulwa ukuze kuzanywe ukukhuphula isivuno, kanti ukulula isikhathi sokuhlaha ezimweni zokukhula ezinhle umoba ungagcina ngokulala, ubanezixhanti, noma ube nezinye izinto ezingathandeki uma usukhule kakhulu. Zonke lezinto ezingathandiseki ezingavela zehlisa isivuno kanye noshukela (RV%).



# como zezinhlobo zomoba

## **Isivuno esingatholakala**

Isivuno umlimi ahlose ukusithola okunye okumele kubekwe emqondweni uma kwenziwa izincomo ngezinhlobo zomoba. Uma ulindele isivuno esiphezulu, kuyaphoqa ukuthi ukhethe izinhlobo zomoba ezingakhiqiza isivuno esiphezulu ukuze kufezeke inhloso yakho. Ezindaweni ezikhiqiza isivuno esiphansi ngenxa yezimo ezingezinhle noma izinsiza ezincane kumele kukhethwe izinhlobo zomoba ezimelelana nalesimo, futhi ezikwazi ukukhiqiza isivuno njalo njalo ngaphansi kwesimo esinzima. Uhlobo lomoba u-N58 luyisibonelo kwizifunda ezisogwini: u-N58 ukhiqiza isivuno esiphezulu emhlabathini ongemuhle, oyisihlabathi nanoma kunesomiso.

## **Inkathi yokuhlala**

Inkathi yokuhlala enye yezinto okumele zibekwe emqondweni, ikakhulukazi emobeni ohlahlwa usunonyaka owodwa, lapho ukuqala, imaphakathi kanye nokuvala kwesizini kuhlukile. Ukukhetha izinhlobo zomoba ezisheshayo noma eziphuzayo ukuvuthwa kuwukhiye futhi kumele kumataniswe/kuhambelane nobudala bomoba kanye nesikhathi okuhloswe ukuhlala ngaso.

Ezinye izinhlobo zomoba zikhiqiza ubushukela obuhle kakhulu masinyane kunezinye. Izinhlobo zomoba ezizohlalwa uma isigaywa sivulwa, ngoNdasa, kumele kube ezivuthwa kusavulwa isigayo, zikhiqize ubushukela obuphezulu zibe izimo zokukhula zingakukhuthazi ukugcinwa koshukela ogoqweni. Uma ukuvuthiswa komoba kuyingxenywe yokuphathwa komoba, izinhlobo zomoba ezinobushukela (RV%) obuphansi zinganconywa ukuthi zihlahlwe uma kuvulwa isigayo. Izinhlobo eziningi zomoba zijwayele ukuvuthwa maphakathi nesizini lapho isimo sezulu sipholile futhi komile okuphoqa ukuvuthwa komoba ngokwemvelo.

Uma isizini isizovala kunezinqinamba ezibakhona ngoba ukukhula komoba kusuke kuqondene nesimo sezulu esibandayo futhi umoba usuke ukhula kancane. Ngakho-ke izinhlobo zomoba kumele zimelelana nalesi simo zikhule ngokushesha ukuze kugcineke isivuno esizongenisa imali kube kubanda futhi umoba ukhula kancane. Lezinhlobo kumele futhi zikwazi ukumelelana nesihlava ngoba azimi ukukhula nesivuno siyanyuka.

## **Izifo kanye nezinambuzane**


Izifo nezinambuzane enye yezinto ezibaluleke kakhulu kumele zibekwe emqondweni uma kwenziwa izincomo ngezinhlobo zomoba. Isibonelo, izinhlobo zomoba ezikwazi kakhulu ukumelelana nesihlava zinconywa ukuthi zitshalwe kwizifunda zasogwini kuthi ezikwazi ukumelelana nesiwumba kumele zibhekelwe izifunda la kuchelelwa khona ngoba ukutheleleka ngesiwumba kuyinkinga kakhulu kulezozifunda. Yingakho izinhlobo zomoba ezitshalwa maphakathi nesifundazwe kunganconywa ukuthi zitshalwe kwizifunda lapho kuchelelwa khona.



**Isithombe 2: Ososayensi bokukhiqizwa kwezinhlobo zomoba, abacwaningi nabalimi epulazini lakwa-SASRI eGingindlovu**



# Asikhuthaze izinambuzane eziwusizo kwezolimo

 **Ibhalwe: ngu-Iona Basdew** (uSosayensi wezokuqikelela ukuvikeleka kwezolimo)

Indlela umoba olinywa ngayo kuphindelelwa isikuholele kwimiphumela eyahlukahlukene, okubalwa kuyo ukuncipha kwemisoco emhlabathini kuya ekuncipheni kwezinhlobonhlobo zezilwanyana kanye nezimbali, konke lokhu kunomthelela omubi kwimpilo yesitshalo kanye nenqubekela phambili ngokuhamba kwesikhathi. Lokhu invamisa kubonakala ngokukhula kwezigameko zokuhlasela kwezinambuzane kanye nokuncipha komthelela wezitha zemvelo. Inzuzo ngezomnotho yokusebenzisa izibulala-zinambuzane iyehliswa ukungazisebenzisi ngendlela, ukwanda kwezindleko zemithi, kanye nokujinjwa ngokushesha kokusetshenziswa kwemithi ethile kube ukukhiqizwa kwemisha kuthatha isikhathi.

Indlela yokunakekela imvelo epulazini lakho ebizwa nge-**Farmscaping** ingasiza ukugqugquzela ukwanda kwezinhlobonhlobo zezilwanyana kanye nezimbali epulazini. Lendlela ibandakanya inhlanganisela ubheka ipulazi lonkana, ulawule izinambuzane ngokuhlela ipulazi utshale uthango lwezimbali, izitshalo ezinobutha umhlabathi, ulungise imigudu yamanzi kanye nezinye izinto eziheha futhi zikhuthaze ukukhula kwezilwanyana ezinomthelela omuhle, ikakhulukazi kulezo eziyizitha zemvelo zezinambuzane ezithikameza ukukhula kwesitshalo. Okunomthelela omuhle kungaba izinambuzane, izinyoni, amalulwane, izicabuzabu, izinyosi, kanye nezinye izinambuzane ezincane. Uma sesibhekisa emobeni, izitha zemvelo kungaba omanqulwane, amabhungezi angamasosha nangabaphangi, izimpukane, izithwalambiza, kanye nezinhlobo ezithile zomnyovu. Konke lokhu kudla izinambuzane njengamanje ezikhahlameza imboni yomoba, ikakhulukazi izimbungulu eziphuzi, isihlava kanye nezintwala zomoba (Isithombe 1)



**Isithombe 1.** Izitha zemvelo: a. ibhungezi lomanqulwane; b. isibungu somanqulwane; c. isibungu se-lacewing; d. isibungu sempukane; e. umkothane; f. isithwalambiza; g. ibhungezi eliyisotsha; h. ibhungezi elingumphangi.

Umqondo ophusha ukukhuthaza ukuhluka kwemvelo uyanconywa ngoba izitha zezinambuzane zemvelo zidinga ukudla kanye nendawo yokukhosela ukuze zilawule izinambuzane eziwuhlupho. Ukutshala izimbali kukhuthaza ukuzinza kwezinambuzane ezidla ezinye eziyizitha zemvelo futhi kuyasiza ekuphatheni izinambuzane. Ngesikhathi izinambuzane eziwuhlupho zingekho, izitha zemvelo ziyakwazi ukudla impova kanye nompe (ujisi wezitshalo). Lezitshalo ezigqugquzela ukudlondlobala kwezitha zemvelo kungaba ukuthi zitshalelwe lezinambuzane ezinosizo kuphela, noma, invamisa ekulimeni umoba, kungaba izindawo ezincane ezitshalwe izimbali zomdabu la kuzothukusa khona izitha zemvelo. Ukuze lendlela yokwenza isebenze, kumele kukhethwe izitshalo okuyizo, zitshalwe ezindaweni okuyizo epulazini (imihosha, ukwehlela, njalo njalo), ukuze kuheheke izitha zemvelo okuyizo/ eziwusizo.



## Izinto ezine eziyisisekelo ekugqugquzeleni izinambuzane eziwusizo:

1. **Indawo yokukhosela:** kumele kube indawo engafuthwa ngezibulala-zinambuzane, engalinywa kakhulu, nengenziwa ezinye izinto ezenziwa epulazini njengokushisa.

Izinhlelo zokulima ezihambelana ngqo nomoba kanye/noma ukutshala ulayini wezitshalo ezahlukahlukene nomoba okungaba amakinati/ubhanana/ukwatapeya nokutshala okuzohlala njalo emngceleni wensimu noma maphakathi namasimu amabili isib. maphakathi komoba namakinati. Umngcele ofana nalona ungatshalwa ukuheha izinambuzane eziwusizo uma izitshalo eziyizo zitshaliwe/zisetshenziwe. Ngokufanelekile, lezitshalo kufanele kube ezihlala zikhona njalo.

2. **Omunye uthombo wokudla:** Ngaphandle kwezinambuzane eziyinkathazo esifuna ukuzilawula.

Imvamisa, izinambuzane zivela isikhathi esincane ngenkathi kukhula isitshalo. Kodwa-lokhu akunjalo ngezimbungulu eziphuzi (YSA) kanye nesihlava, okuyizinambuzane ezihlasela isitshalo unyaka wonke, kodwa ubungako bazo buyashintshashintsha. Uma amazanga ezimbungulu eziphuzi kanye nezesihlava emancane, izitha zemvelo zalezi-zinambuzane kumele zithole izitshalo ezinompe nempova ukuze zidle kona.

3. **Indawo enezimbali eziningi:** umpe nempova ukudla okubalulekile kweminyovu, izimpukane kanye nezinye izinambuzane ezindala.

Umpe nempova kuphinde kuhlinzeke ngokudla ezinye izinambuzane. Izitshalo eziqhakaza unyaka nonyaka kanye neziqhakaza njalo njalo zingahlinzeka izinambuzane ngempova nompe.

4. **Imvelo:** enezimbali eziningi ezahlukahlukene futhi ethola izibulala-zinambuzane kancane, isib. unqenqema lwensimu, imigudu yamanzi, noma la kukhula ihlathi lendabuko.


## Khumbula:

1. Lena akusiyona indlela esheshayo.
2. Kuzomele izitshalo ezitshaliwe zinakekelwe kumasizini ambalwa ezayo (zinqunywe kususwe nokhula).
3. Kumele kutholakale imbewu.
4. Kuzodingeka abantu abazotshala.
5. Ngokuhamba kwesikhathi kukhona izitshalo okumele zisuswe ezinye zongezwe ukuze zihlukahluke.
6. Makwenzeka, izitshalo azibe olayini abahlukahlukene isib, eziqhakaza unyaka nonyaka zitshalwe maduze nezihlala neziqhakaza njalo ngezikhathi ezithile onyakeni, noma ezinephunga/ezinuka kakhulu zitshalwe maduze nalezo ezikhiqiza impova kanye nojusi.

Le ndlela ayenzelwe ukususa ezolimo, kodwa izosizana nazo ukuze kube nenqubekela phambili. Sesifinqa, ukutshalwa kwezimbali nezitshalo ezahlukahlukene emapulazini omoba kuyadingeka uma sifuna imboni imelelane nezingqinamba ezifana nezimakethe esiqophisana nazo kanye nokumelelana kwezinambuzane kwimithi, kanye nezinye izinqinamba ezingaqhamuka ngokuhamba kwesikhathi okungaba ukuvinjwa kwemithi ethile ingavunyelwa ukuthi siqhubeke siyisebenzise, ukungcola kwemingcele yamanzi kanye nokuncipha kwempilo yomhlabathi. Asiqale kancane sitshale izitshalo zomdabu ezikhuthaza ukudlondlobala kwezinambuzane ezidla ezinye ukuze sinciphise ukuthembela kakhulu kwimithi.



# Indlela ephephile yokugcina imithi yezolimo

 **Ibhalwe: ngu-Silicia Govindasamy** (umfundi othola uqeqesho ngemithi yezolimo) kanye no-**Anushka Gokul** (usosayensi ngemithi yezolimo)



Imithi yezolimo/ophoyizeni idlala indima enkulu embonini yezolimo, ngokusiza abalimi balawule izinambuzane, izifo, ukhula, ukukhulisa isivuno kanye nasekuqinisekiseni ukuvikeleka kokudla. Kodwa ke, ukusebenzisa lemithi kudinga ukuqaphelisa nokunaka ukuze kuncishiswe imiphumela engemihle kwimvelo, kwizimpilo zabantu, kanye nenhlala kahle yezilwane.

Ukubakhona kwendawo yokugcina imithi kuzosiza ekuphephiseni kuvikwe ubungozi bemithi, kugwenywe ingozi engaholela ekulimaleni kwempahla noma imvelo, futhi kukhuthaze umkhakha wezolimo onenqubekela phambili.

## **Ukwakheka kwendawo okugcinwa kuyo imithi**

Kubalulekile ukuxhumana uphinde uthole imiyalelo kwi-South African National Standard (SANS) and Regulations 10206 ngaphambi kokunquma, ukhlela noma ukwakha indawo ozogcina kuyo imithi yezolimo. Leyondawo kumele kube ukuthi:

- Ipholile, yomile, futhi ivikelekile angeke kufinyelele muntu ongavumelekile kuyo.
- Leso sakhiwo kumele siqhele okungenani ngamamitha angama-500 kwimithombo yamanzi njengengqalasizinda yokuchelela, imifula, amadamu, kanye nemigodi, futhi sibe kwindawo engagaze ibe nezikhukhula eminyakeni eyi-100.
- Khetha indawo evikelekile okufinyeleleka kuyo kalula ukuze uthumele, kulethwe, futhi kube nendawo yokuphuma uma kunesimo esiphuthumayo, iqhele kwizindawo zokuhlala, kwimitholampilo nasezikoleni.
- Emnyango kumele kuphakame ngo-200 mm ububanzi bube u-110mm ukugwema ukuvuzela ngaphandle uma kuchitheke imithi.
- Isakhiwo kumele kube ngesakhiwe ngezinto ezingaqhumi/ezingavuthi, ezimelelana nomlilo njengo khonkolo nezitini.
- Amashalofu kumele azinze odongeni, aqine, angavuzi.
- Kumele amanzi atholakale eduze, kube nendishi, kanye nendawo yokugeza ngaphandle ukuze kugezwe okuchithekile nezandla.
- Kumele kuqinisekise ukuthi kushaya umoya ophuma phandle (isib. udonga lube nezitini ezinezimbobo) kanye nemishini (isib. imishini ephephetha umoya) ukuze kugwenywe ukunqwabelana kwentuthu.
- Kukhanya kahle konke kuyabonakala.
- Isakhiwo kumele kube esinomnyango wensimbi, sikhiyeke, amawindi abe nezinsimbi, futhi zingagqezeki kalula.
- Kuqikelelwe ukuthi izinto zokulwa nomlilo zikhona futhi zisesimweni, kulandelwa imigomo yemithi ezobe igciniwe.





**Isithombe 1: Indawo okugcinwa kuyo imithi kumele iqoqeke futhi ihleleke.**

**Ukuphathwa kwendawo/kwegumbi lokugcina imithi**

Ukugcina indawo okugcinwa kuyo imithi isesimweni kubaluleke njengoku sebenzisa nokugcina imithi ngendlela ephaphile. Lokhu singakuqikelela ngoku:


- Ngasosonke isikhathi asigcine amaphakethe imithi efike ngawo ukuze sithole ulwazi olubalulekile ngokuphathwa kwawo kanye nezexwayiso.
- Akugcinwe amarekhodi akamuva akho konke okugciniwe, kungaba asemabhukwini noma kumafayela agcinwe ngogesi.
- Akubhekisiswe ukuthi imithi ayonakele futhi ayivuzi ngemva kokuyithola; ngaba ukuthatha iziqukathi ezingenawo amalebuli.
- Gcina imithi esanda kufika emva kwemithi emidala ukuqikelela ukuthi iyasetshenziswa ingakonakali.
- Imithi kumele ibekwe phezu kwamapulungwe ukuze ingathinti phansi futhi kungagcini kulimaza imvelo; iziqukathi zemithi ezincane zona zingagcinwa emashalofini aqinile/avikelekile.
- Imithi ewuketshezi ayihlukaniswe kwengamagenqele; enguketshezi ayibekwe ezansi emashalofini ukugwema ukuchithekela kwengamagenqele.
- Gwema ukutaka imithi ukuze ingadungani futhi ibulale nezitshalo.
- Valela imithi eyingozi kakhulu enobuthi besigaba sokuqala (GHS Acute Toxicity Category 1) endaweni ehlukile ekhiyekayo elebuliwe maphakathi nalapho kugcinwa khona imithi.
- Vimba/Nqaba ukugcinwa kwezinto ezivuthayo, ukudla, ukudla kwezilwane, umanyolo, nenye impahla la kugcinwa khona imithi.

Ezikhungweni lapho kugcinwa khona imithi, kubalulekile ukuqikelela ukuthi zikhona izinyathelo zokuphepha ezithathwayo. Abantu abasebenzisa imithi kumele baqonde kahle ubungozi obuhlangene nokusebenzisa imithi kanjalo nokubaluleka kokugqoka izembatho zokuvikela eziyizo. Uphoqelekile ukulandela imininingwane ebekiwe ngemithi kwipheshana lezokuphepha (Safety Data Sheet) noma kwilebuli ukuze usebenzise izembatho zokuphepha eziyizo. Okungenani umsebenzi oyedwa kumele kube ukuthi uqeqeshiwe ukwenza usizo lokuqala, kukhangiswe nemiyalelo ecacile ngokwenziwayo uma kukhona odinga usizo lokuqala. Izinto zokukhuculula okuchithekile kumele kufinyeleleke kuzo kalula ngokushesha. Kubalulekile ukuqapha kugcinwe ezokuphepha njalo njalol la kugcinwa khona imithi. Ukwenza konke lokhu akuvikeli nje kuphela abasebenzi kodwa kunciphisa nobungozi obuphathelene nokugcina kanye nokusetshenziswa kwemithi kwimvelo nakwinhlalakahle.





# Imibuzo evamile nge- Refractometer kanye ne-PurEst®

 **Ibhalwe: ngu-Dr Riekert Van Heerden** (usosayensi omkhulu: ngokukhula komoba)

Ucwaningo kwa-SASRI kusukela ngonyaka wezi-2013 kuya kowezi-2016 lwavumela ukuhlolwa kobuhle bomoba emapulazini ngenhloso yokwenza izinqumo ngokuvuthiswa kanye nokuhlela ukuhlahla. Le ndlela isebenzisa i-Refractometer encane ephathekayo kanye ne-app yomakhala ekhukhwini yakwa-SASRI ebizwa nge-PurEst®. Imigomo ngokuhlola, ngencazelo yemiphumela, kanye nokuthi isebenza kanjani, iyachazwa kwipheshana lolwazi lwakwa-SASRI eliwu-4.7 (SASRI Information sheet 4.7). Selokhu kwathulwa lindlela embonini, kunemibuzo evamise ukubuzwa abalimi. La ngenzansi siphendula eminye yalemibuzo:-



## 1. Kungani amanani e-Brix akalwe nge-refractometer ehlukile kumanani e-Brix akalwe abakwa-CTS esigayweni?

Kusetshenziswa ujusi okhanywe ezingoqweni zomoba, i-refractometer ikala ubungako boshukela oncibilikile (Brix) ngesisindo ojusini. Lokhu kuyahluka, kunokunquma ngokuhlaziya umoba ngqo (direct analysis of cane/DAC) ngabakwa-CTS esigayweni, amanani abikwayo kusuke kungamaphesenti e-Brix emobeni. Isibonelo, uma i-refractometer ithi i-Brix ingu-15% lokhu kusho ukuthi kuno-15g we-Brix oncibilike ku-100ml wojusi womoba, kuthi i-Brix% emobeni engu-15% isho ukuthi u-15% wesampula sesisindo iqukethwe ngaphandle kwe-Brix. Ngakho ke, amanani e-Brix akalwe nge-refractometer epulazini akumele aqhathaniswe nalawo aphuma kwa-CTS.



## 2. I-refractometer ingasetshenziswa yini ukulandelela ukuqhubeka kokwehla kobuhle bomoba?

Cha. I-refractometer ikala i-Brix kujusi womoba kodwa ayikwazi ukunquma ubungako boshukela kulokhu okungewona ushukela. Uma kwehla ubuhle bomoba ngenxa yezimo zemvelo (isib. isichotho, isithwathwa kanye nokuguga komoba), noma emva kokushisa nokuhlala, kungaba nokwehla koshukela ube okungewona ushukela okungagwemeki (bheka kwipheshana lolwazi eliwu-4.5). Ngenxa yokuthi i-refractometer ayikwazi ukuthola lokuhlukana kobushukela isangaveza amazanga aphezulu e-Brix ngaphezu kokuncipha okukhulu kobuhle bomoba. Ukusebenzisa i-refractometer ukulandelela ukwehla kobuhle bomoba kungaholela kwimiphumela engeyiyo.

## 3. Hlobo luni lwe-refractometer okumele ngiluthenge futhi ngabe u-SASRI uyawadayisa na?

U-SASRI awukho ebhizinisini lokudayisa amathuluzi okuhlaziya, kodwa ziningi izinkampani ezihlonishwayo ezingahlinzeka abalimi/abathengi nge-refractometer encane ephathekayo. Ama-refractometer amancane aphaathekayo ayatholakala angaba izinhlobo ezimbili, yile ozibhalela wena ngesandla kanye nale ekubhalelayo uma usuconsisele ujusti. Lezi zinhlobo zihle ukusetshenziswa epulazini noma kuzodingeka uthole uqeqesho ukuze ukale kahle ngamehlo uma usebenzisa loluhlobo ozibhalela wena kulo. Okubaluleke kakhulu ukuthi i-refractometer kumele ifake isinxephezelo sokushisa esizenzekelayo kanye nesikalo se-Brix esimaphakathi kuka-0 kuya okungenani ku-30%.

## 4. Kungani imvamisa izilinganiso zamaphesenti e-RV zibe phezulu kwi-PurEst® kunalezo ezitholwa esigayweni emva kokuhlala?

Kuyinto ejwayelekile ukuthi izilinganiso zamaphesenti e-RV ezitholakala kwi-PurEst® makuhlolwa epulazini zibe phezulu kunamaphesenti e-RV atholwa kumthwalo womoba oledwe esigayweni. Isizathu salomehluko kulula ukusichaza ngoba i-PurEst® epulazini isebenzisa izilinganiso kwizingoqo ezingashisiwe, ezisuswe lonke itashi/upayi futhi ogawulwe kwikhandla lomoba. Lezilinganiso azifaki ukulahleka kobuhle bomoba ngenxa yokuwushisa, ngokungafani la ugawulwa khona, ukubakhona kwetashi, ukuphelelwa kwamandla kogoqo, ukubakhona kwezinto ezingadingeki (isib. umhlabathi) kanye nokulibaziseka komoba okwenzeka uma kuhlalwa umoba. Empeleni, imiphumela umangabe usebenzisa i-PurEst® epulazini imele ubuhle bomoba kwisimo esihle ensimini ngaphambi kokuqala ukuhlala. Ukuhlola nge-PurEst® epulazini akukwazi ukwenziwa esikhundleni sokuhlola emalebhu agunyazelwe ukuhlola umoba oledwe esigayweni.

## 5. Ngizozuzani ngokusebenzisa i-refractometer kanye ne-Purest epulazini?

Noma ngabe ukuphi (eNingizimu Afrika noma kumazwe angaphandle), uhlobo lomoba (lwakwa-SASRI noma kwenye indawo), ukuvuthwa komoba kungahlolwa epulazini nge-refractometer, ngoba indlela i-Brix eyiyo iyafana kuwo wonke umoba. I-refractometer kanye ne-PurEst® isusa ukuqagela ekwenzeni isinqumo ngokuvuthiswa komoba ngokusebenzisa izilinganiso zobuningi bokucoliseka kogoqo lomoba uphinde uthole nezincomo ngokuvuthiswa. Ngenxa yokugugququka kokuvuthwa komoba okuqhutshwa isimo sezulu, izidingo zokuvuthiswa azifani kwisizini namaphakathi kwezinkathi zonyaka. Ukuze ukwazi ukuthatha isinqumo esiphusile ngokuvuthiswa umoba wakho kubalulekile ukuba nolwazi olwanele futhi olubanzi ngemithi engasetshenziswa. Ngokusebenzisa i-refractometer kungagwemeka ukufutha umoba osuvele uzivuthelwe ngenxa yezimo zemvelo kuphinde kuvimbe ukumosheka kwemali. Ukuvuthiswa umoba osuzivuthelwe kungaholela kumthelela ongemuhle kobuhle bomoba ngoba umoba uzoba nengcindezi kakhulu. I-refractometer iphinde isetshenziswe ukulandela isivini sokusebenza kwesivuthwisi emobeni ofuthiwe ukuze kuqinisekise ukubuya kwemali etshalwe ngokuvuthisa.

Nakuba izilinganiso zamaphesenti e-RV anikezwa yi-PurEst® ziba phezulu kunezasesigayweni uma sekuhlaliwe (ngezizathu ezibalulwe kwimpendulo yesine). Lezilinganiso zamaphesenti e-RV ziwusizo kakhulu ekwakheni uhlelo lokuhlala ngoba amazanga okuvuthwa kwamasi ayahlukahlukana ngokwamasimu, ukusebenzisa lemiphumela kulekelela umlimi ekwenzeni isinqumo ngamasimu azoqala ngawo.



# Ukubhekelela inqubekela phambili eMbonini yomoba

 **Ibhalwe:ngu-Michelle Binedell (Umphathi wolwazi)**

Uhlelo lokuphatha ipulazi ngendlela ezoqikelela ikusasa eliqhakazile ebizwa nge-**Sustainable Sugarcane Farm Management System** ngamafuphi-**SUSFARMS**® okuyinqubo eyenzelwe ukusiza abalimi bomoba ukuthi bakwazi ukwenza futhi baqaphe izindlela zokulima ezisimeme:-

- Abalimi bangawusebenzisa u-SUSFARMS ukuhlola indlela abalima ngayo, balandelele indlela abaqhuba ngayo ekufezeni abakuhlosile baphinde babone la kumele kumele benze kangcono khona. I-SUSFARMS iphinde inikeze umlimi imihlahlandlela angayilandela ukuze apha the kangcono ipulazi lakhe ebhekelela imvelo, izibopho emphakathini, kanye nezomnotho.
- Abalimi bangayisebenzisa ukuhlolisisa izindlela zokusebenza bathole la okumele benzekangcono khona.
- Inikeza abalimi ithuluzi lokuzihlola (i-Progress Tracker) babheke inqubekela phambili kwabafisa ukukufeza

U-SUSFARMS® uphinde usize imboni kashukela ekunciphiseni umthelela wokulima umoba kwimvelo; ngokukhuthaza ukuphathwa ngendlela efanele kwabasebenzi kanye nokubandakanya kwemiphakathi; kube kuqinisekiswa ukuthi amapulazi aba nenzuzo isikhathi eside.

Enye yenzuzo ngokuqinisekisa umkhiqizo ukufinyelela kwizimakethe, futhi ukulima ngendlela okuyiyo ngokulandelwa inqubo kuyaholela ekukhuleni kwenzuzo etholwa umlimi. Yilapho ke abeluleki besiKhungo sezoCwango ngoMoba (SASRI) behlanganyela nabalimi bonkana (abalima ngokuncane nabalima ngokukhulu). U-SASRI unikeza abalimi ubuchwepheshe kanye neziqondiso ekwenzeni izinto ngendlela, bagqugquzele abalimi ngezinhlelo zokusebenza ezivuselelayo futhi ezinenqubekela phambili.

Abalimi abaningi banokuthi ukuzihlola nge-SUSFARMS® kunzima; futhi bakubona kuwumthwalo ngakhoke amazinga okuzibandakanya nokuqokethwe yilohlelo aphansi kakhulukazi kwizifundamshini lapho kungakabi nomgomo wokuqinisekisa, abalimi abakhuthazekile ukuthi bazibandakanye no-SUSFARMS. Lokhu kwenza abalimi bangakwazi ukuhlomula kumathuba afana nokulungiswa kwemvelo okunomthelela ekukhulisweni komkhiqizo, ukuphathwa kwabasebenzi namanye amacebo okulima asemgangathweni.

Ngaphandle kwenzuzo kwizimakethe, abalimi bomoba bangathola lokhu okulandelayo uma bengasebenzisa lethuluzi le-SUSFARMS®:



Amakhasimende amaningi emikhiqizo yomoba afuna ukuqinisekiswa okufakazela ukuthi umoba ukhiqizwe ngendlela ebhekelela ukuziphatha kanye nemvelo. Okwamanje, u-SUSFARMS uyasetshenziswa kwezinye izifundamshini ukuhlangabezana nezidingo zamakhasimende afuna imikhiqizo ekhiqizwe ngokunakekela imvelo nabasebenzi. Kulezi

- **Inqubekela phambili: ngo-SUSFARMS**® sigqugquzela ukwenziwa kwezinto ezinomthelela omncane kwimvelo, njengokongiwa kwamanzi kanye nempilo yomhlaba. Lokhu kuqinisekisa ukusebenza kahle komhlaba kanye nokuncipha kobungozi isikhathi eside.
- **Inzuzo:** Ukwenza okuyikho invamisa kuholela ekukhuleni kwesivuno kanye nokusebenza kahle. U-SUSFARMS® usiza abalimi bandise ukusetshenziswa kwezinsiza futhi kungaholela ekuncipheni kwezindleko.
- **Ukuthobela umthetho:** u-SUSFARMS® uqikelela ukuthi abalimi bayayazi imithethonqubo efanele ngesikhathi uphinde ukhombise ngomhlahlandlela wokuthobela lemithetho ukuze bagweme inhlawulo.
- **Ukuzihlola nokwenza ngcono:** Ithuluzi le-SUSFARMS® lokuzihlola livumela abalimi ukuthi bahlonze izindawo lapho bengenxa ngcono khona futhi bakwazi ukulandelela inqubekela phambili kwabafuna ukukufeza.

zindawo, abalimi bayisebenzisa kakhulu indlela yokulima enconywa uhlelo lwe-SUSFARMS® uma ubaqhathanisa nalabo abalima ezindaweni okungeyona impoqo ukuthi benze ukuhlola okuphelele kwepulazi. Kubukeka kuzoba indlela yokusebenza lapho abalimi komele bezibandakanye no-SUSFARMS® ikakhulukazi uma imboni isiqala ukwenza eminye imikhiqizo eyahlukahlukene njengamafutha endiza.

Ngokwamukela u-SUSFARMS® abalimi bangaphatha imvelo kangcono, bathuthukise isisekelo samapulazi abo, futhi bazibeke emathubeni angcono kwizimakethe ezishintsha shintshayo nezifuna lukhulu.

## ABADIDIYELI

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Thola ama-video amafishane amayelana nomoba ngo-WhatsApp (**Kumeluleki**) naku-YouTube (**SASRI**)



Amalungelo okuqopha aqokethwe kulo mbhalo. Ayikho ingxenye yalo msebenzi engaphinda yenziwe nanganoma iyiphi indlela ngaphandle kwemvume ebhaliwe yomshicileli. Yize yenziwe yonke imizamo yokuqinisekisa ubuqotho bolwazi olushicilelwe kulo msebenzi, isiKhungo sezoCwango ngoMoba saseNingizimu Afrika (SASRI) asizukuthathelwa zinyathelo ngokulahleka noma ukulimala okungehlakalela umuntu ngenxa yokulandela ulwazi oluqokethwe lapha. Ukusetshenziswa kwamagama nezikhangisi ezinobunikazi kulomshicilelo akungathathwa njengokuqinisekisa/gqugquzela ukuthi zisetshenziswe.

