

Mondstuk van die Suid-Afrikaanse aartappelbedryf • Mouthpiece of the South African potato industry

# CHIPS

VOL 37 NO 2 • MARCH / APRIL 2023



**SIRKEL-N-LANDGOED:  
GESONDE MOERE VIR  
VOLHOUBARE AARTAPPELPRODUKSIE**

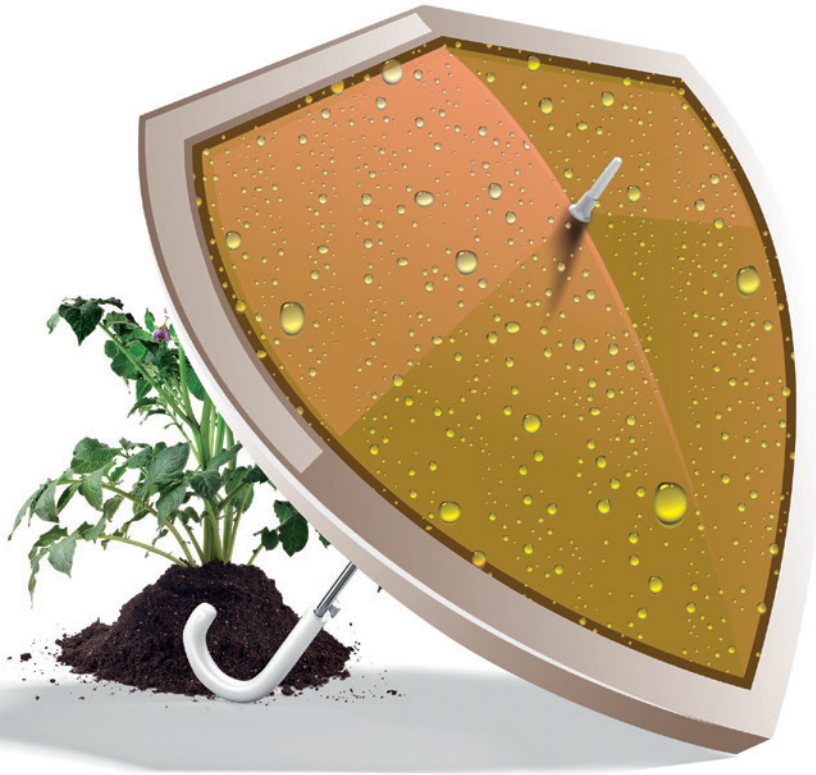
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GROWTH INDICES FOR  
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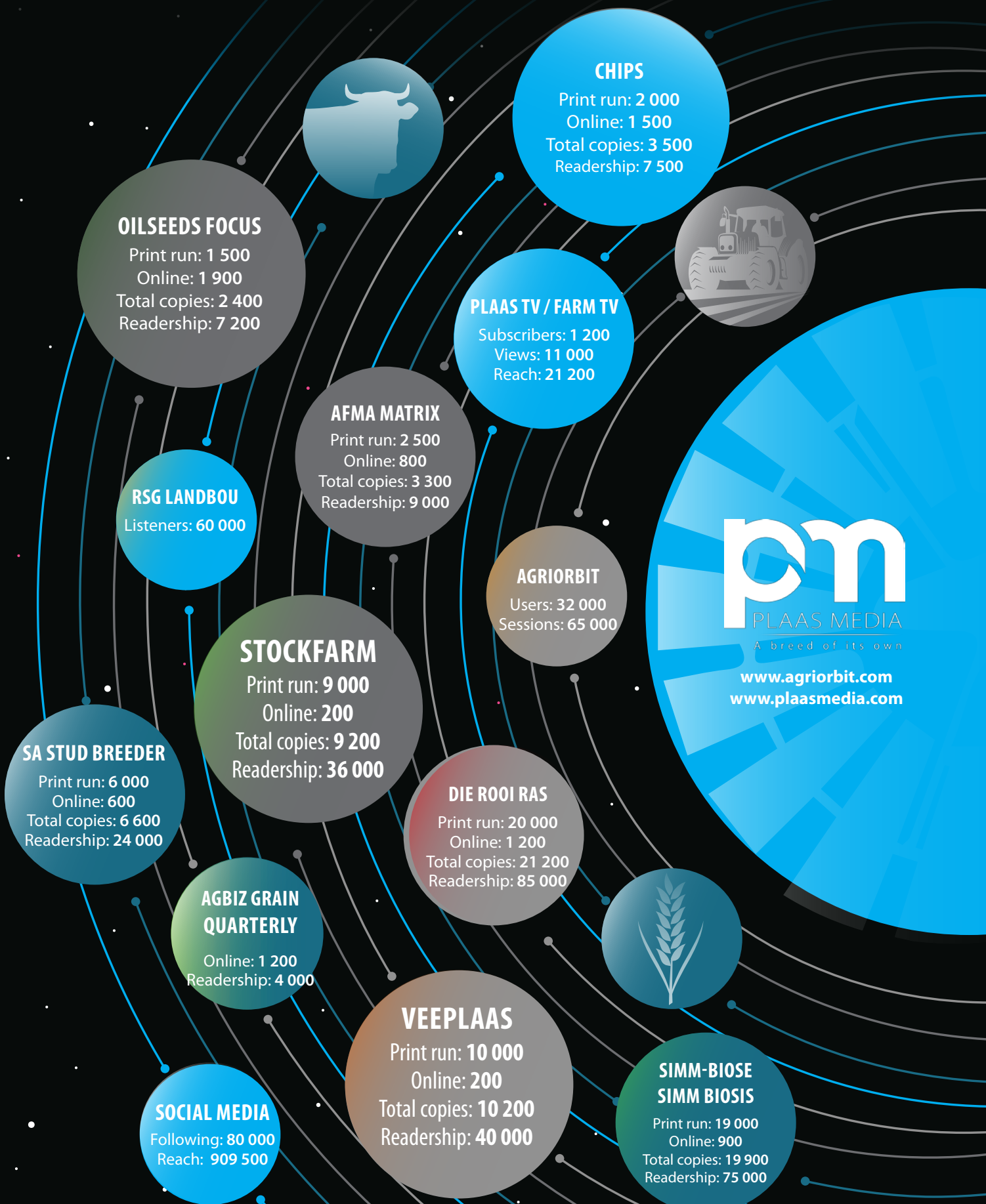


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# Balancing stocks and understanding complications

By Willie Jacobs, CEO, Potatoes SA

Do we have enough potatoes? Will we have enough potatoes? And exactly how much is 'enough'? Let's start the conversation by first looking at some viewpoints or vantage points:

If we say we have enough, I can immediately hear the plea from every irrigation farmer who will not yield enough potatoes to cover their expenses and cost of living.

If I say we don't, the hungry import wolves will pounce on the opportunity to call on government to relinquish import duties to allow them to dump more heavily discounted products on our already suffering local economy.

Then ... let us refer to the previous remark about our embattled irrigation farmers. By the time they recover from Eskom's knocks, they will have to face and compete with a market of discounted products. It doesn't take rocket science to see where this is heading.

But let's turn to the facts that illustrate the capabilities of this industry.

## We meet local demand!

The potato production industry is already down almost 3 000 hectares in production. Yet last September we managed to deliver approximately 700 000 tons of potatoes in a market space that could handle only 500 000 tons. That is almost half the import demand surplus and, take note, in a mere three months!

Moreover, this is from a single production region! So how can

we ever justify the fact that potato product imports are needed? Which gets me to the problem.

I'm not going to go through the load shedding narrative again. Yes, it is currently the biggest disability and challenge we are facing, but we also need to increase processing capacity in South Africa. Apart from the big four manufacturers, the rest of the participants in the French fry value chain are traders and food and beverage wholesalers. We need to be able to put something in place to fill the gap in the market.

“By setting up a pre-processing facility with proper grading capacity, the industry can offer these processors and traders a better selection of grades and quality, allowing for price diversification and more alternative marketing options, and ultimately increased potato sales.”

What is the gap? Generic pre-processed fries. And note – I did not say French fries. This will enable our processors to buy selected quality products for further processing or

trading, and the traders can access local products for their market. Why? Discussions with leading processors led us to the fact that they simply cannot afford to incur losses due to contaminated material. With potatoes being a product from the soil, no producer can guarantee these levels.

By setting up a pre-processing facility with proper grading capacity, the industry can offer these processors and traders a better selection of grades and quality, allowing for price diversification and more alternative marketing options, and ultimately increased potato sales.

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- More alternatives for potato producers who plant for processing.
- More alternatives for processors and traders.
- Significant opportunities for our potato producers to increase production.
- Significant improvement in accessibility to potato food alternatives for our hard-hit consumers.

Which brings me to my very last question: Who is in?

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# Hou jou oog op die bal

## EDITORIAL COMMITTEE

### Executive editor

Hanrie Greebe  
076 116 7206  
hanrie@potatoes.co.za

### Editor

Lynette Louw  
084 580 5120  
lynette@plaasmedia.co.za

### Publisher

Plaas Media (Pty) Ltd  
217 Clifton Ave, Lyttelton, Centurion  
Private Bag X2010, Lyttelton, 0140  
Tel: 012 664 4793  
www.plaasmedia.com

### Deputy editor

Jayne du Plooy  
jayne@plaasmedia.co.za

### Sub-editor

Sanet du Plessis  
sanet@plaasmedia.co.za

### Layout & design

Annemie Visser  
annemie@plaasmedia.co.za

### Sales manager & accounts

Marné Anderson  
072 639 1805  
marne@plaasmedia.co.za

### Advertising

Karin Changuion-Duffy  
082 376 6396  
karin@plaasmedia.co.za

Susan Steyn  
082 657 1262  
susan@plaasmedia.co.za

Zona Haasbroek  
082 960 7988  
zona@plaasmedia.co.za

### Subscriptions

Beauty Mthombeni  
064 890 6941  
beauty@plaasmedia.co.za

### Printed and bound by

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Potatoes SA  
012 349 1906  
6 De Havilland Crescent,  
Persequor Techno Park,  
Persequor Park, Pretoria  
www.potatoes.co.za

**S**uid-Afrikaners sit groot-oog en kyk na die Eskom-drama wat homself in die media en op die openbare verhoog afspeel. Ek weet nie hoe voel ander mense hieroor nie, maar ek bly verbaas en raak soms hartseer oor die blatante vergryping en vraatsug wat gepaard gaan met 'n blote minagting vir medeburgers. Arm, honger, werkloos, werkend, belastingbetalend – maak nie saak wie nie, ons is almal geskok deur die optrede van sogenaamde leierfigure en sogenaamde entrepreneurs.

### Tyd om te (vr)ee

'n Onlangse artikel deur die onverskrokke skrywers by *Daily Maverick*, waarin die bedrog by Eskom klinies uiteengesit word, het my weer oortuig dat ons tans in 'n land bly waar Jan Rabie se klassieke verhaaltjie, *Drie kaalkoppe eet tesame*, homself daaglik uitspeel. As jy nie die storie ken nie, gaan soek dit op Google – dis vrylik beskikbaar vir almal se leesgenot en dit gaan jou 'n kort minuut vat om die simboliek en ooreenkomste met die huidige stand van sake raak te sien.

Dis ironies dat die kaalkoppe in die Eskom-verhaal (en in soveel ander skandalige plaaslike verhale) self graag verwys na "dis ons beurt om 'n bietjie te eet". Feit is, dis nie 'n bietjie nie, en dis nie mooi nie. Ek, en ek glo miljoene ander landgenote, hoop die spul wil mekaar nou opvreet en klaarkry sodat ons weer aan ons mooi land en sy potensiaal kan bou. Soos ons aartappelprodusente en landbouers in verskeie ander vertakkings in daaglikse doen, ten spyte van die omstandighede.

Soos dinge nou staan, is dit onmoontlik om enigsins nog te hoop dat die staat of semi-staatstrukture binne die afsienbare toekoms van enige nut of hulp gaan wees. Die verval is te groot en die skade te diep. Maar die hoop beskaam nie – ons kan op onself staatmaak.

### Kry die bal aan die rol

Dit is in elkeen se belang om eerder saam te staan, eie planne te maak en self dinge gedoen te kry. Dit gebeur reeds in baie gemeenskappe waar inwoners saamspan om self paaie reg te maak, rioolwerke in stand te hou, en te sorg vir kragvoorsiening. Die wat nou nog nie verstaan dat doen-ditself die pad van die hede en toekoms is nie, gaan lank wag vir oplossings.

Hierdie uitgawe van *CHIPS* vertel die verhaal van 'n klompie produsente, kommersieel en opkomend, wat nie terugdeins vir uitdagings nie. Hulle hou nie op werk omdat die elemente teen hulle is nie. Hulle sit skouer aan die wiel, steek hand in eie boesem, maak self planne, leer by ander, vra vir hulp, plant en oes, sit kos op ander se tafels. Die wêreld van die landbouer is 'n onselfsugtige planeet waar hebsug nie 'n plek het nie, want uiteindelik was die een hand die ander, en vat die een hand die ander.

Landbou, en in hierdie geval die aartappelbedryf, bly 'n baken van hoop en 'n bron van trots. Mag ons landbouers hul oog op die bal hou terwyl die kaalkoppe hul banket geniet – niks hou tog vir altyd nie.

Lekker lees aan 'n inspirerende uitgawe van *CHIPS*.

*Lynette Louw, redakteur  
lynette@plaasmedia.co.za*

### Contributors in this issue

**Potatoes SA:** Willie Jacobs, Hanrie Greebe, Nomvula Xaba, Sibabaliwe Rulumeni, Dikgetho Mokoena, FP Coetzee, Dirk Uys, Chantel du Raan, Enrike Verster, Herman Haak, Rachichi Marokane, Rotondwa Raligidima, Rendani Murovhi

**Other:** Andries Gouws, Susan Marais, Christal-Lize Muller en Koos du Pisanie, Plaas Media, dr Gerhard Verdoorn, Croplife SA, Izak Cronjé, produsent, Theresa Siebert, LNR-Natuurlike Hulpbronne en Ingenieurswese, Rynoe Smith, PSF Wealth, Abrie Bronkhorst, LWO Werkgewersorganisasie, Etienne Booyens en Anja Swart, Prokon.



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## SA scraps frozen chip anti-dumping duties

South African consumers can likely expect to pay less for frozen French fries after provisional anti-dumping duties on certain imports have lapsed. In 2021, South Africa imported nearly 24 000 tons of frozen chips, according to *Business Insider*. In July last year, concerns were raised about higher prices and even shortages after the International Trade Administration Commission (ITAC) imposed provisional anti-dumping duties of up to 181% on such imports from Belgium, the Netherlands and Germany.

The provisional duties were imposed for six months, pending the finalisation of an investigation by the Commission. These duties have now lapsed since the Commission did not extend them beyond the six-month period. The provisional duties were meant to ensure that the local industry is protected from alleged 'injurious dumping' while the investigation is under way. Although the duties have now lapsed, the investigation continues.

Pending the outcome of the investigation, minister of trade, industry and competition, Ebrahim Patel, may still decide to impose definitive anti-dumping duties. "The Commission is ensuring that all due processes are followed to ensure the completion of the investigation, and thereafter the minister's decision will follow. Further developments will be communicated in due course," said ITAC. – ITAC

## State of disaster after flood damage

President Cyril Ramaphosa has declared a national state of disaster to enable an intensive response to widespread flooding that has affected seven of the country's nine provinces. Mpumalanga and the Eastern Cape have been most affected by the floods, which were brought on by heavy rainfall as a result of the La Niña weather phenomenon, according to a statement from the office of the presidency.

Gauteng, KwaZulu-Natal, Limpopo, the Northern Cape and North West have also experienced flooding. Invoking the *National Disaster Act* gives the government additional powers, including in the procurement and delivery of goods and services, and the ability to bypass restrictions under current law. – Reuters

## Huge increase in minimum wage

The minister of employment and labour announced the amended national minimum wage in the *Government Gazette* on 21 February 2023. The amended minimum wage will come into force on 1 March 2023.

Agri SA said it was concerned by the 9.6% increase in the minimum wage. Any increase in costs will further strain already hard-pressed farmers. As the sector battles to contain the costs associated with load shedding, crumbling infrastructure and high input costs, this increase will further undermine food security and put much-needed jobs on the line. The increase continues a trend of above-inflation increases for more than a decade.

Whereas farmers were previously in a position to absorb these increases thanks to sustained growth in a number of agricultural industries, that period is now over. The sector faces extreme headwinds, which on their own threaten food security in the coming years. Notwithstanding the challenges the sector faces, Agri SA made a submission proposing a CPI minus 2% increase in the national minimum wage. This proposal recognised the financial pressure on workers in this inflationary environment, but also addressed the reality of farmers' inability to continue to absorb above-inflation increases.

That government has ignored this balanced position is a devastating blow not only for the sector, but also for the consumers who will eventually see this increase reflected in their food expenditure. – Press release, LWO Employers Organisation and Agri SA

## Saai launches AI-platform for producers

The Southern African Agri Initiative, Saai, recently launched a WhatsApp-based artificial intelligence (AI) platform for family farmers. The chatbot, known as Hi Saai, uses various data points on the Internet to answer users' farming-related questions within minutes, said Francois Rossouw, CEO of Saai.

"There are still many issues that we need to address, and this is the second test phase that we are rolling out. However, we hope that users will help us move the platform forward by providing feedback," said Rossouw.

Dr Theo de Jager, chairperson of Saai, stated it is becoming increasingly important that new technology should remain within the reach of small- and medium-sized family-owned farms. – Susan Marais, Plaas Media

**Potato tuber moth update**

Potato tuber moth remains a concern to many potato producers in South Africa’s key production areas. This pest causes severe damage to potatoes, which results in losses to growers due to its impact on quality. The spread of this disease can be attributed to high summer temperatures.

Potato tuber moth reaches the potatoes underground through cracks in the soil and producers can reduce these cracks through irrigation. This practice is unfortunately challenged by the current intense load shedding the country faces. Infected potatoes are a source of secondary infestation, which is why they must be discarded and buried at a depth of at least 50 cm.

Potatoes SA commissioned a research study headed by Prof Hannalene du Plessis of the Unit for Environment Sciences Management at North-West University to evaluate the status of susceptibility of potato tuber moth to some of the registered insecticidal options. This study showed a shift in the sensitivity of the pest to some of the important insecticides. It is advised to rotate existing insecticides to optimise efficient insecticidal control.

– Press release, Potatoes SA

**Agriculture must prepare for El Niño**

Rain-fed agriculture in South Africa will soon be under pressure due to a predicted decline in rainfall. Despite experiencing severe rainfall in the recent past – with numerous areas across the country flooded – South Africa is expected to enter El Niño weather patterns by the end of October 2023, bringing drier conditions across the country.

South Africa has experienced four years of above-average rainfall due to La Niña climate patterns, but this is expected to end by October 2023, according to Wandile Sihlobo, chief economist at Agbiz. He expects that South Africa will have to suffer through a mild drought similar to what occurred in 2018. From a more positive angle, it won’t be as bad as the drought conditions experienced in 2015, the economist said, so agricultural activity should remain fairly smooth.

He recommended that farmers avoid tilling their land and use fallow agriculture where certain land is intentionally unplanted, as it helps retain soil moisture. He also said farmers should prepare for a slightly different cycle when purchasing inputs. – Business Tech

**Biosensor to detect soft rot in potato tubers**

Volatile organic compounds (VOCs), which are gases emitted by plants and play a role in various processes such as growth, survival, communication, signalling, and pest and disease defence, are an exciting area of research with great potential for rapid application in plant science.

Researchers have identified over 1 000 different plant VOCs and discovered differences between the VOC profiles of healthy and infected plants, with infection causing changes in the VOC profiles. Traditional approaches to VOC profiling are complicated, and the results of alternatives such as gas sensors and so-called ‘e-noses’ are inconsistent. According to researchers, biosensors are a better option for agricultural VOC profiling.

Biosensors are low-cost, easy to use in the field and allow for continuous tracking of VOC presence without sample preparation. Whole-cell bacterial sensors, for example, integrate microbes with an analytical format to measure signals, detect the target sample, and track its biological activity by observing different bacterial responses. Results are often available within one to two hours and can test for membrane/protein damage.

– Potato News Today

**Irish producers struggle with land prices**

The Irish Farmers’ Association (IFA) has warned that many farmers in Ireland are struggling with unaffordable prices and limited availability of land for planting as the planting season approaches. This situation, along with existing challenges for potato growers, is causing a decline in growers’ confidence, according to the IFA’s weekly market report.

The IFA is advising producers not to pay excessively for land to avoid jeopardising the viability of their crop. The report also indicates that recent Irish retail trade and home consumption have remained largely unchanged, with an increase in demand for processing material due to the school mid-term break. The price of peeling material remains high, and there are indications that stocks are tighter than the same period last year. – Potato News Today

# Sirkel-N-Landgoed: Gesonde moere vir volhoubare aartappelproduksie

Deur Andries Gouws

**S**uid-Afrika se Bayer moerkweker van die jaar vir 2022, Rudi Heinlein, oorkom die uitdagings van virus- en grondgedraagte siektes in die warm Limpopo-bosveld met noulettende bestuur en streng beheer oor die hele proses – van plant tot die produk wat verkoop word.

Hy boer in die omgewing van Baltimore waar hy die afgelope tien jaar onder meer aartappelmoere verbou. Die toekenning wat hy verlede jaar by Aartappels SA se kongres- en moerkwekersforum ontvang het, behoort net soveel aan sy bekwame span, wat sy vrou en drie kinders insluit, sê Rudi.

Sirkel N-boerdery produseer sitrusvrugte op 160 ha, uie op 200 tot 220 ha, tafelaartappels op 200 tot 210 ha en aartappelmoere op 100 tot 105 ha.

Daarby bedryf hulle ook 'n wild- en beesboerdery.

## Die aartappelmoer-vertakking

Die aartappelmoervertakking het tot stand gekom toe Rudi gesukkel het om aartappelmoere wat in Maartmaand plantgred is, vir sy tafelaartappelaanplanting te kry. Hy het besef dat daar 'n leemte is. In dié tyd het hy deurentyd met die Nasionale Moer Komitee geskakel en het later ook op die bestuur gedien, waar hy voortdurend gepleit het vir beter voorsiening van goeie gesertifiseerde aartappelmoere vir kommersiële kwekers in sy gebied.

Op dié manier het hy ook die ondernemings wat planttelersregte in Suid-Afrika gehad het om aartappelplantmateriaal te vermeerder, goed leer ken. Gerhard Posthumus,

hoofbestuurder van Wesgrow, moedig hom toe aan om self moere te kweek. Hy het besef hy saal 'n wilde perd op, maar dit was vir hom belangrik om moere wat talle voordele vir aartappelboere inhou, te voorsien.

## Gehalte kom eerste

Vir hom is die belangrikste voordele van gesertifiseerde aartappelmoere, die feit dat dit onder streng plantmateriaal-produksievoorskrifte gekweek word wat voldoen aan die siektetoleransies wat deur die SA Aartappelsertifiseringskema vereis word.

Streng monitering deur die hele produksieproses verseker dat variëteite suiwer gehou word en dat die boer seker is dat die variëteit wat hy plant, ook dié een gaan wees wat hy oes. Inspeksies in die landerye en verwerkingsaanlegte verseker dat die gehaltevereistes van die Sertifiseringskema nagekom en aangeteken is. Dit verseker dat die boer die gehalte moere kry waarvoor hy vra.

Talle eindverbruikers vereis spesifieke variëteite vir die produkte wat hulle vervaardig. Met 'n gewaarborgde produk wat aan die vereistes van die verbruikers voldoen, kan boere toegang kry tot nuwe markte en geleenthede.

Voedselveiligheid en naspeurbaarheid raak al hoe meer die gonswoord in landbou. Gesertifiseerde aartappelmoere maak dit net baie makliker om aan dié vereistes te voldoen en omdat die produksie van dié moere onder streng toesig en volgens vasgestelde beheermaatreëls geproduseer word, kan naspeurbaarheid as 'n bemarkingsvoordeel benut word.

Voordelige genetiese eienskappe soos 'n hoër opbrengspotensiaal, beter siekte- en droogteverdraagsaamheid, en beter weerstand teen onkruidodders, is maar net 'n paar



Rudi Heinlein het klein begin toe hy gesertifiseerde aartappelmoere begin produseer het. Vandag plant hy sowat 100 ha saadaartappels.



Die aartappels word op enkel-walletjies teen 'n plantdigtheid wat wissel tussen 40 000 en 80 000 plante/ha geplant.

voordele wat in nuwe variëteite ingebou is. Deur dié moere te gebruik, kan produsente die voordele van navorsing wat oor dekades gedoen is, na hul plase bring.

### Siektebeheer en risiko's

Rudi sê omdat die risiko's van virus- en grondgedraagde siektes groot is in hul omgewing, het hy versigtig begin en aanvanklik 14 ha moere geplant om te vermeerder. Die warm klimaat tesame met die geskiedenis van tabak, tomaties en ander groente wat op die grond verbou is, veroorsaak dat die bakteriedruk in die omgewing se grond baie hoog is.

Daarby is daar baie reëls om die kultivars suiwer te hou. Dit moet afsonderlik verbou word en die moere moet ook in die pakhuis afsonderlik hanteer word. Hy het G2-moere na G3-moere vermeerder. Die aanplanting is gedoen op 'n ander plaas waar geen aartappels verbou word nie en waar daar ook nie bure is wat aartappels plant nie.

Daarby is die siektebeheerprogram ook aangepas en dit verskil effens van die program wat hy vir tafelaartappels gebruik. In die plantvoor word 'n

effens groter dosis van die middel wat plantluis beheer, toegedien. Goeie plantluisbeheer is noodsaaklik om die oordrag van virussiektes te beperk.

Die Y- en rolblaarvirus moet goed beheer word, want dit onderdruk opbrengs. As die virus voorkom,

vestig dit in die moere en slaan dan uit in die kommersiële aanplantings waar die moere gebruik is. Net so kan grondgedraagde siektes ook met moere oorgedra word.

Om hierdie uitdagings te oorbrug, gebruik hulle 'n bewese siektebeheerprogram en nadat die aartappels uitgehaal is, rus die grond vir vier jaar. Normaalweg plant hy hawer net nadat die aartappels uitgehaal is en as die hawer af is, plant hy gras. Die hawer en gras word gesny en gebaal en gebruik vir hulle wild wat langs die Limpopo-rivier op sowat 3 000 ha loop. Daar hou hulle buffels, swart-witpense en die meeste vlaktespesies wild aan wat hulle met jag benut.

### Produksiepraktyke

'n Jaar voordat Rudi weer aartappels in die betrokke grond plant, bewerk hy dit skoon en hou dan die land skoon totdat planttyd aanbreek. Die knolle word op enkel-walletjies geplant teen 'n plantdigtheid wat wissel tussen 40 000 en 80 000 plante/ha. Die grootte van die moere en die halm-tellings van die plante bepaal hoeveel moere per hektaar geplant word.

Hy verkies om kleiner moere te gebruik vir 'n digter plantestand om sodoende kleiner moere te kan uithaal



Wanneer die moere uitgehaal word, is dit baie warm in die streek en moet die moere so vinnig as moontlik in die koelkamers kom.

sonder om die opbrengs te benadeel. Voor plant word korrelbemesting toegedien wat voedingstowwe sal aanvul soos deur grondontledings aangedui.

Met plant word middels wat plantluise, swamme, snywurms en grondgedraagde siektes sal beheer, in die plantvoor toegedien. Sodat drie weke ná plant dien hy weer korrelbemesting breedwerpig toe, en erd dan die aartappels op sodat die bemesting in die grondwal waarin die plante groei, ingemeng word.

### Inspeksies en sertifiseringsvereistes

Tydens die groeiseisoen word 'n weeklikse siektebeheerprogram gevolg. In dié tyd is 'n opgeleide span verkenneers elke dag in die land om die aartappels fyn dop te hou vir enige sieketekens of afwykings. Enige plant wat 'n sieketeken of afwyking toon, word met lowwe en knolle uitgehaal en uit die land verwyder en vernietig.

Inspekteurs van die Sertifiseringsdiens besoek die lande ook gereeld en ondersoek die plante vir enige tekens van siektes of vermenging. Dit alles saam verminder die risiko's dat



Die gesertifiseerde aartappelmoere word sorgvuldig gesorteer voordat dit só verpak en bemark word.

knolle wat siektes dra of van 'n verkeerde variëteit is, in die aanbod van moere beland.

Ná 'n groeityd van sowat 90 dae word monsters op 'n lukraak manier in die land geneem om te bepaal hoe groot die knolle is. As dit gereed is

vir uithaal, neem hy blaarmonsters deur die hele land om te verseker die voorkoms van siektes val binne die toleransievakke wat deur die Sertifiseringskema vereis word.

Rudi sê hulle het in die tyd wat hulle moere produseer nog nie een land gehad wat afgekeur is nie. Sou dit wel gebeur, kan die moerkweker die aartappels verder laat ontwikkel en dit as tafelaartappels bemark. Sodra die moere die vereiste grootte bereik het, word die plante doodgespuit. Sodat drie weke later neem 'n beempte

van die Sertifiseringsdiens ewekansige monsters van moere regdeur die land, wat in 'n laboratorium ontleed word om die moontlike voorkoms van siektes vir sertifisering te monitor.

### Oes en bemarking

Die moere haal hy dan in Oktober en November uit wanneer dit 'n baie warm tyd in die Bosveld is. Daarom moet die moere so vinnig as moontlik uit die grond en in die koelkamers kom. In die verpakingsaanleg word beskadigde moere en dié wat tekens van verrotting toon, uitgehaal. Die res sorteer hulle volgens grootte en berg dit in massa-houers in koelkamers waar die temperatuur oor 'n tydperk van sowat tien dae tot 2°C verminder word.

Die moere word vir sowat vier maande in die koelkamer geberg en dan stelselmatig oor tien dae tot op kamertemperatuur opgewarm voordat dit uit die koelkamer gehaal word. Die moere word deur Wesgrow bemark.

### Geslaagde aartappelproduksie

Rudi sê boere wat nie gesertifiseerde moere plant nie en eerder die kleiner tafelaartappels terughou en as moere gebruik, boet nie net op opbrengs in nie, maar loop die gevaar om hul grond só met siektes te besmet, dat hulle uiteindelik nie



Nadat die aartappels uitgehaal is, rus die grond vir vier jaar en word dan skoon bewerk voordat die moere weer op dié land verbou word.

meer aartappels winsgewend daarop sal kan verbou nie.

Hy plant die saadaartappels teen die einde van Junie, besproei dit met water uit boorgate en die Limpopo-rivier, en mik vir 'n opbrengs van sowat 50 ton aartappelmoere/ha wat sowat 1 500 sakkies moere van 25 kg elk lewer. Met tafelaartappels mik hy na 60 tot 65 ton/ha.

Sanette Thiar, besturende direkteur van die Aartappelsertifiseringskema, sê hulle oogmerk is om 'n leierrol te speel in die strewe na die volgehoue voorsiening van gesonde plantmateriaal aan die aartappelbedryf in Suid-Afrika. Geslaagde aartappelproduksie begin met die vermeerdering van siektevrye plantmateriaal, waarna dit 'n paar keer grootliks deur moerkwekers vermeerder word. Daar moet voortdurend met nuwe, skoon plantmateriaal begin word om aartappelproduksie volhoubaar te maak.

Die hoofdoel van die sertifiseringskemas wêreldwyd, sê sy, is om die voorkoms van siektes en plae in voortplantingsmateriaal te beperk tot onder vlakke waar die voorkoms van siektedraende organismes 'n weselike invloed op die opbrengs van die gewas het.

In Suid-Afrika speel moerkwekers 'n baie belangrike rol om dié oogmerk te verwesenlik. Die moerkweker van die jaar-toekenning is 'n getuigskrif van die feit dat aartappelmoere met groot aandag en sorg vermeerder is om aan die talle vereistes van sertifisering te voldoen. Dit is ook erkenning vir uitsonderlike diens aan die bedryf as geheel.

### Kriteria vir 'n top moerkweker

Sy sê die werklike sertifiseringsdata, wat deur die hele sertifiseringsproses van plant tot die aanbied van moere aan kommersiële kwekers deur amptenare aangeteken is, speel die hoofrol met die aanwysing van die top moerkweker. Dit sluit inspeksies van landerye, resultate van bakteriese virusmetings in die landerye, inspeksie van knolle en die egtheid van kultivars in.

Die prestasie van al die moerkwekers word gemeet aan die hand



Wanneer die gesertifiseerde aartappelmoere gesorteer word, soek die verpakkers al die moere ook sorgvuldig uit sodat moere wat beskadig is of kan sleg word, uitgehaal word.

van die geweegde afwykings van die vereistes wat deur die skema daar gestel is vir voldoening van aartappelmoere. Daarby word die finaliste beoordeel volgens kriteria soos die gebruik van moderne tegnologie en die waarde wat hulle heg aan volhoubaarheid. Die finaliste word dan aangewys op grond van die getal punte wat hulle só verdien.

Tydens plaasbesoeke word hulle ook geëvalueer met betrekking tot die verwydering van besmette plante, vrywillige toepassing van beheer, berging, higiëne, sortering, die bestuur van personeel, betrokkenheid in die bedryf, die gebruik van nuwe chemiese middels, presisieboerdery en die wisselboustelsel wat hulle gebruik.

Die span beoordelaars wat plase besoek, bestaan uit verteenwoordigers van 'n chemiese maatskappy, Aartappels SA, die Onafhanklike Sertifiseringsraad en die Aartappelsertifiseringskema.

Sanette sê dit is uiters belangrik dat die moerkweker sy vinger op die pols

van sy moerproduksie, sortering en verpakking, en dies meer moet hou om te verseker dat die produk wat gesertifiseer word, beslis aan die vereistes voldoen en dat hy nie alleen op die sertifiseringsbeampte se inspeksie moet staatmaak nie.

Die gebruik van gesertifiseerde aartappelmoere bring ekstra koste vir die aartappelprodusent mee. Dit dra egter by tot die kostedoeltreffende beheer van moergedraagte siektes en virusse omdat dié ongewenste patogene grootliks uitgeskakel word. Die bykomende koste van gesertifiseerde aartappelmoere word op die lang duur verhaal deur die volhoubare produksie van aartappels, sê sy. 🌱

Vir meer inligting, kontak  
Rudi Heinlein by 083 459 2821  
of jr@sirkel-n.co.za, en  
Sanette Thiar by 060 716 0727 of  
sanette@potatocertification.co.za

**INTEGRITY, QUALITY, INNOVATION**

# CULTIVATED CHOICES

**MANAGING DIRECTOR:**

Gerhard Posthumus - 082 375 1870 - [gerhard@wesgrow.co.za](mailto:gerhard@wesgrow.co.za)

**NATIONAL & EXPORTS:**

Marketing Manager: Charl Nel - 082 388 0522 - [cnel@wesgrow.co.za](mailto:cnel@wesgrow.co.za)

**Sandveld & Ceres:**

Van Zyl du Toit - 082 316 2839 - [vanzyltdt@wesgrow.co.za](mailto:vanzyltdt@wesgrow.co.za)  
Charl de Kock - 082 929 4591 - [cdecock@wesgrow.co.za](mailto:cdecock@wesgrow.co.za)

**KwaZulu-Natal, Eastern & North Eastern Cape:**

Ettienne Groenewald - 082 948 2821 - [ettienne@wesgrow.co.za](mailto:ettienne@wesgrow.co.za)

**Gauteng, South Western Free State & Mpumalanga:**

Eon Cordier - 082 330 5800 - [eon@wesgrow.co.za](mailto:eon@wesgrow.co.za)

**Western & Eastern Free State:**

Dirk Pretorius - 082 579 1841 - [dirk@wesgrow.co.za](mailto:dirk@wesgrow.co.za)  
Lauwrens Steyn - 083 387 7339 - [lauwrens@wesgrow.co.za](mailto:lauwrens@wesgrow.co.za)

**Limpopo:**

Chris Prinsloo - 082 572 4403 - [chris@wesgrow.co.za](mailto:chris@wesgrow.co.za)

**Northern Cape & North West:**

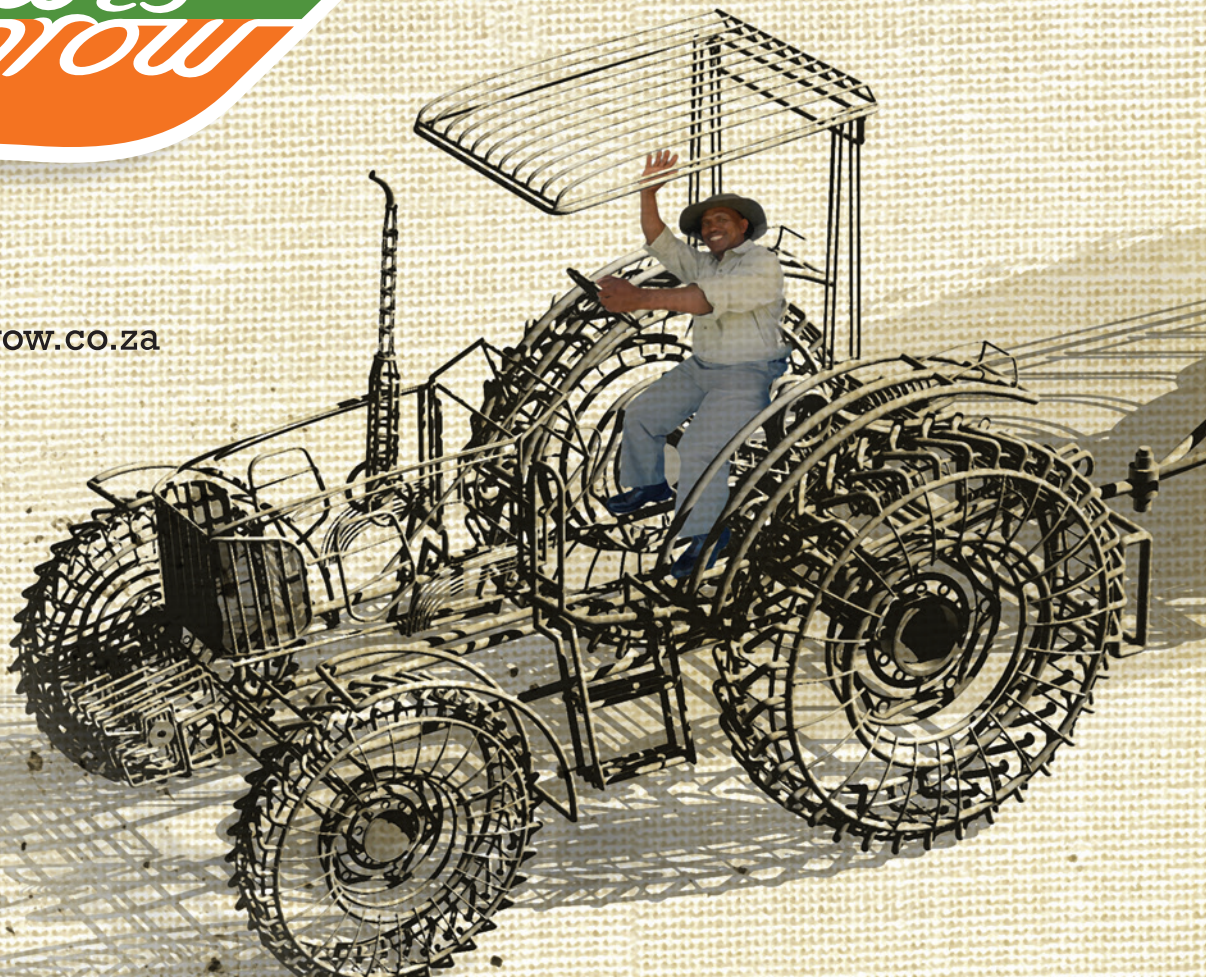
Charl Nel - 082 388 0522 - [cnel@wesgrow.co.za](mailto:cnel@wesgrow.co.za)

**Southern Cape:**

Charl de Kock - 082 929 4591 - [cdecock@wesgrow.co.za](mailto:cdecock@wesgrow.co.za)



[www.wesgrow.co.za](http://www.wesgrow.co.za)



# VARIETY of SOLUTIONS

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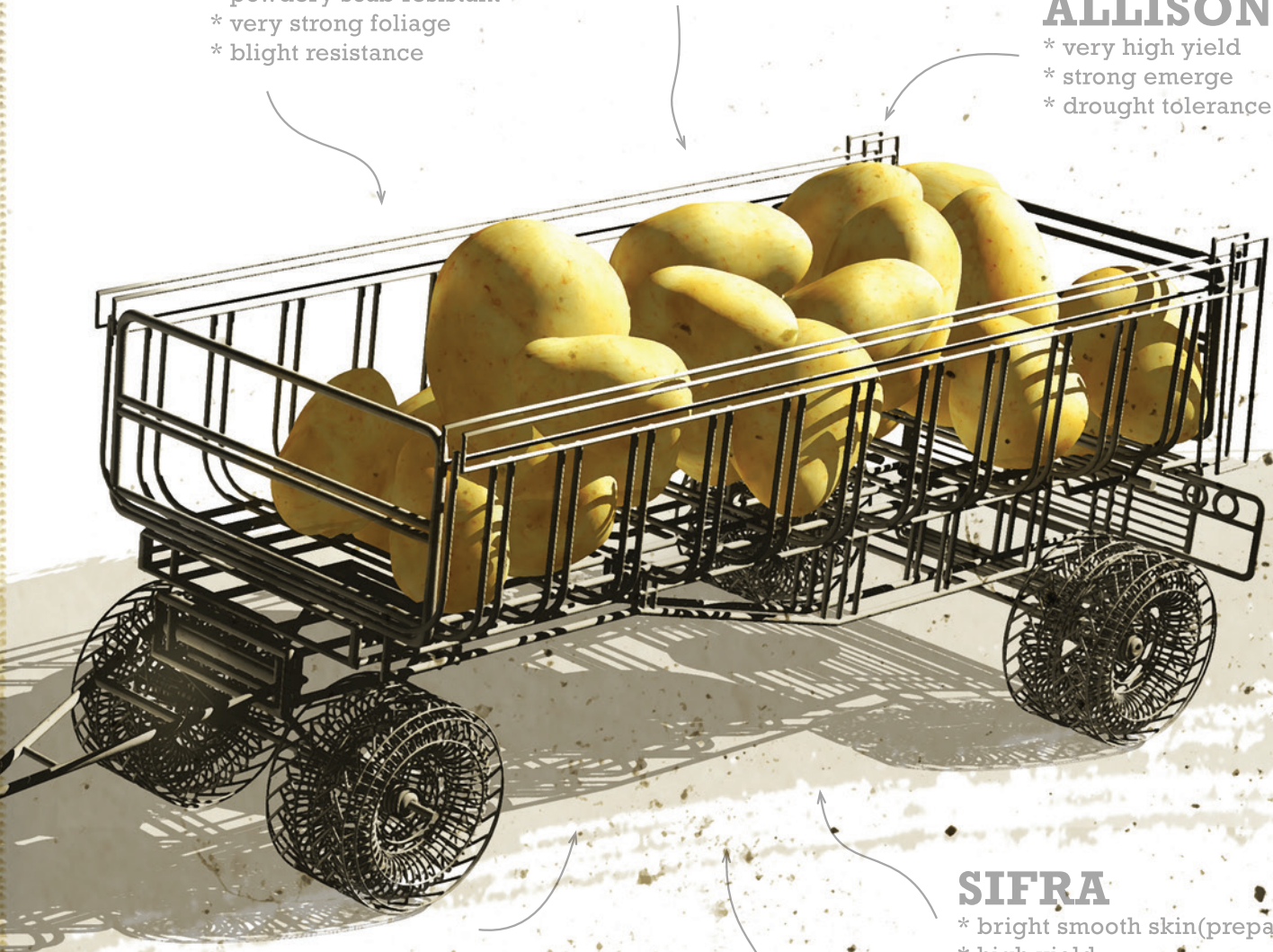
- \* big size tubers
- \* powdery scab resistant
- \* very strong foliage
- \* blight resistance

## TYSON

- \* early bulking
- \* powdery scab resistance
- \* even tuber set, big sizes

## ALLISON

- \* very high yield
- \* strong emerge
- \* drought tolerance



## PANAMERA

- \* high yield
- \* bright smooth skin
- \* blight resistance

## SIFRA

- \* bright smooth skin (prepacker)
- \* high yield
- \* high percentage first grade

## MONDIAL

- \* we still aim to supply the best quality seed all year round

# Span só alternatiewe kragbronne by jou boerdery in

Deur Susan Marais

**T**erwyl beurtkrag glo vir minstens nog twee jaar deel van Suid-Afrikaners se alledaagse lewe gaan wees, verbrand hittegolwe die land se vee, graan en ander oeste. Skielik moet alternatiewe kragplanne die hoofplan word om die spilpunte aan die draai te hou. Maar waar begin 'n mens?

## 'n Donker prentjie

Beurtkrag het vanjaar reeds 'n spoor van verwoesting agtergelaat. Beeldmateriaal van derduisende liters uitgestorte melk, die verwydering van miljoene braaikuikenkarkasse en verdorde landerye is wyd en syd op sosiale media-blaaie en in nuusberigte gedeel.

Wandile Sihlobo, hoof-ekonoom van Agbiz, het uitgelig dat twee derdes van die 873 000 mense wat tans deur die landbou in diens geneem word, moontlik werkloos kan wees as beurtkrag onverpoos voortgaan.

Wat kritiese graangewasse betref, is ongeveer 20% van die Suid-Afrikaanse mielie-oes, 15% van die sojaboonoes, 34% van die suikerrietoes en ongeveer die helfte van die koringoes onder besproeiing. Kortom is beurtkrag die direkte rede waarom ekonome soos Sihlobo reken dat Suid-Afrika se groei-koers vanjaar tot onder 'n enkele persentasiepunt gaan val. Tog glo hy dat

die land oor die korttermyn voedsel-sekerheid het. Die langtermynprentjie lyk egter ietwat donkerder indien hoë vlakke van beurtkrag sou volhou.

## 'n Plan of twee

Intussen het Kallie Kriel, uitvoerende hoof van AfriForum, ook in Januarie aangekondig dat hierdie burgerregte-organisasie besig is met 'n breë elektrisiteitsplan, Projek AfriEnergie, waarmee hulle hoop om die land se energiekrisis 'n nekslag toe te dien. Dié plan sluit nie net voortgesette hofaksies teen die Nasionale Energie-reguleerder van Suid-Afrika in nie, maar ook hulp aan dorpe, stede en gemeenskappe om hulself vry te maak van munisipale kragaankope. En oor die langtermyn word die moontlikhede van kernenergie-oplossings ondersoek.

Terwyl dié ondersoeke en planne plaasvind, staan een kwessie soos 'n paal bo water: Landbou wag vir niemand nie en kán vir niemand wag nie. Derduisende Suid-Afrikaanse produsente kan moontlik uitboer indien hul aanhou vaskleef aan Eskom as hoof-energiebron vir hul boerderye of selfs wag vir die oprigting van 'n alternatief. Daarom is dit nodig dat boerderye se kragplanne so gou en kundig as moontlik hersien word.

"Alternatiewe kragbronne soos son en wind is nie meer aanvullend

tot Eskom nie. Midde-in 'n verbrokkelende netwerk raak dit die hoofbron van 'n bedrywigheid se energie," sê Hanno Bisschoff, elektriese ingenieur by Effectual Energy Consultants (EEC) in Pretoria. "Eskom is besig om 'n tweederangse bron van krag in Suid-Afrika te raak, met son, wind en diesel wat boere dra."

So, waar begin 'n mens om jou alternatiewe stelsel in plek te sit?

## Stap 1: Bepaal die behoefte

"Die eerste stap is om te meet, want wat gemeet word, word beheer," sê Bisschoff. Indien 'n boer sou verkies om van sonkrag gebruik te maak, moet vasgestel word waar die boerdery se pieke (hoogste energieverbruik) en trôe (laagste energieverbruik) lê. "Die idee is dat die grootste energielas na son-ure verskuif kan word." Hoe beter 'n produsent die son se natuurlike krag direk (deur sonpanele) kan gebruik, hoe minder las hoef daar op kragopwekkers en batterye te wees.

Buiten dat 'n boerdery se kragritme bepaal moet word, moet boere ook hul kragverbruik monitor om te weet hoeveel krag nodig is om die boerdery aan die gang te hou. Dit bepaal die grootte van die stelsel wat nodig is.

"Sodra 'n boer weet wat sy of haar lasprofiel (*load profile*) is, kan die sonkrag-installeerder die inligting gebruik om 'n doelgemaakte stelsel te ontwerp," sê Bisschoff.

## Stap 2: Kry die regte raad

Chris Schutte, 'n direkteur van Sonfin, sê die belangrikste besluit wat 'n boer moet neem is om die regte maatskappy te identifiseer om die pad saam met die boerdery te stap. " 'n Kundige sal goeie raad kan gee in terme van of die boerdery homself heeltemal van die Eskom-net moet losmaak, gedeeltelik van alternatiewe kragbronne en kragopwekkers gebruik



Suid-Afrika se sonnige aard maak die meerderheid provinsies, soos Limpopo, uiters geskik vir sonkrag. (Foto: Verskaf deur EEC)

moet maak, en of 'n kragopwekker en battery-plan die mees geskikte opsie sal wees."

Die installasie van 'n kragnetwerk is beslis ook nie iets wat boere sommer self moet aanpak nie, waarsku Bisschoff. "Deurleefde kundigheid gaan die sleutel tot langtermynsukses wees. Ongelukkig is daar op die oomblik baie kansvatters wat alternatiewe krag installeer. Daarom moet boere sorg dat hulle van betroubare, gelisensieerde kenners gebruikmaak."

Bisschoff noem 'n paar maniere om die kaf van die koring te skei:

- Hoe lyk die persoon of instansie se gemeenskapsreputasie?
- Vind uit of die installeerder wel oor die nodige dokumentasie beskik. Die nuutste NRS 097-2-1-standaard vereis dat 'n stelsel slegs deur 'n professionele ingenieur afgeteken kan word.
- Vind uit hoe oud die betrokke firma se oudste stelsel in die veld is.
- Vind uit wat vorige kliënte van die persoon te sê het.

Bisschoff beveel ook aan dat produsente liefs 'n installeerder moet gebruik wat in die spesifieke tipe alternatiewe krag spesialiseer. "Pasop vir die plaaslike 'elektrisiën cum loodgieter cum sweiser cum sonkrag-spesialis'. Hierdie ou gaan jou heel moontlik duur te staan kom. Iets soos sonkrag is nie so 'n eenvoudige veld as wat sommige glo nie," sê Bisschoff, en voeg by dat dit selfs meer kompleks raak wanneer batterye tot die stelsel gevoeg word.

### Stap 3: Oorweeg verskeie stelsels

Boere wat na 'n son- of windkragstelsel kyk, het een van twee opsies: 'n netwerk-gekoppelde sisteem (*grid tied*) of 'n hibriede (*grid interactive*) stelsel, sê Bisschoff.

'n Netwerk-gekoppelde stelsel bestaan basies uit sonpanele (of windmeule) en 'n omsetter. In so 'n geval moet die stelsel met Eskom s'n gesinkroniseer word en dit verlaag bloot die las wat 'n produsent by Eskom gedurende son-ure trek. Hierdie hele

stelsel skakel egter af wanneer Eskom afskakel.

'n Hibriede stelsel het sonpanele, 'n omsetter en batterye. Die batterye word gelaai en op dié manier produseer die produsent self krag wat later (self saans) ingespan kan word. In so 'n geval word die sonkrag, batterye en Eskom-krag al drie met mekaar gesinkroniseer. Die batterye word dus 'n derde bron van krag.

"Indien iemand heeltemal sonder Eskom-krag wil klaarkom is batterye onontbeerlik, omdat niks daarsonder sal kan werk nie," sê Bisschoff. In alle gevalle kan 'n kragopwekker ook as alternatiewe energiebron geïntegreer word.

### Stap 4: Kry die regsprosesse reg

Schutte sê hoewel dit onwaar is dat landbougrond hersonereer moet word, is daar bepaalde wetgewing waaraan grondeienaars sal moet voldoen voordat 'n alternatiewe energieplaas opgerig mag word.

Daar is egter kostes en prosedures wat gevolg moet word indien 'n boerdery se stelsel by Eskom s'n aangesluit sal word. "Daar is twee tipes Eskom-aansluitings: 'n lae-volt en 'n medium-volt aansluiting." Terwyl die lae-volt aansluitingspunt sowat 400V van die kragverskaffer se transformator is, is die medium-volt aansluiting tussen 11 en 22kV.

Die een wetlike vereiste wat wel van belang is, is dat 'n basiese omgewingsimpakstudie op enige sonplaas wat groter as 'n hektaar is, gedoen moet word, sê Schutte.

### Stap 5: Raak ontslae van Agrilek

In die 1970's het Eskom deur die onderafdeling, Agrilek, die goedkoopste krag ter wêreld aan Suid-Afrikaanse boere voorsien. As deel van die Agrilek-program het Eskom ruimhartig aangebied om verskeie transformatorpunte op plase op te rig. So is daar individuele transformators by spilpunte, huise, pompstasies en enige ander punt waar krag benodig is, aangebring.

"Dit wat eens 'n seën was, het egter nou 'n meulsteen om die nek geword, omdat daardie transformatorpunte

tot 40% van 'n produsent se kragrekening kan uitmaak – en dit nog voordat daar enigsins krag gevloei het," sê Bisschoff.

Die interne verspreiding van krag op 'n perseel staan as 'n retikulasienetwerk bekend. Indien 'n produsent sy Eskom-retikulasienetwerk wil uitbrei, betaal hy 'n arm en 'n been vir die infrastruktuur wat deur Eskom geïnstalleer word, maar sal dit nooit besit nie.

'n Behoorlik gekwalifiseerde en gelisensieerde ingenieur kan produsente help om hul eie ontkoppelde interne retikulasienetwerke op te rig, en dan helaas hul Eskom-transformatorpunte (rekening) te kanselleer. Die voordeel is tweeledig: Daar word ontslae geraak van parasitiese aansluitingspuntkoste soos die *ancillary service charge* en die plaas is nou gereed vir een groot sentrale battery-stelsel, pleks van vier of vyf kleiner stelsels by elke transformatorpunt.

### Stap 6: Lê jou eie kraglyne

Die koste van kraglyne gaan verskil afhange van die tipe geleier wat gebruik word, die dikte van die kables en die afstand waarvoor dit moet strek.

"Ek sou produsente ten sterkste aanraai om gehalte bo prys te plaas," sê Bisschoff. Dis ook belangrik om strategies oor elke stuk tegnologie te besin. Wanneer die verkeerde tegnologie gekoop word, sal daar twee keer gekoop moet word. Dieselfde geld vir alle komponente, insluitend sonpanele, omsetters en batterye."

Suid-Afrika se elektriese netwerk is baie 'vuiler' as talle ander lande s'n en daarom sal die nodige tegnologie waarskynlik duurder wees, sê Bisschoff. Hoëfrekwensie-omsetters maak gebruik van hoë-frekwensie skakeling om die hoeveelheid koper in die omsetter se interne transformator te verminder. Hierteenoor gebruik 'n lae-frekwensie omsetter 'n groter interne transformator teen 'n laer frekwensie, omdat Faraday se wet van induksie dit noodsaak.

"Die probleem is egter dat hoë-frekwensie omsetters ontwikkel is vir die skoon elektrisiteitsnetwerke van Eerstewêreldlande."



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'n Lugfoto van 'n sonplaas wat EEC in Limpopo geïnstalleer het. (Foto's: Verskaf deur EEC)

Die voordeel van die groot transformator in 'n lae-frekwensie omsetter is dat die transformator optree as 'n filter wat die elektroniese komponente in die omsetter en in die kliënt se huis, beskerm teen hierdie ongewenste stuwings en elektriese ruis of geraas.

"Baie installeerders maak egter nie van transformator-omskakelaars gebruik nie, want hulle verstaan nie die interne verskille daarvan behoorlik nie," sê Bisschoff, en voeg by dat produsente ongelukkig dikwels van hierdie installeerders se goedkoper opsies gebruik maak. Wanneer die inverter of omkeerder dan onklaar raak, is die installeerder skoonveld en moet die kliënt self met die vervaardiger in China probeer onderhandel. Die regte kundigheid en toerusting is dus van uiterste belang."

### Hoe gemaak met befondsing?

Daar bestaan legio opsies vir finansiering. Een so 'n opsie is 'n

kragaanskaffingsooreenkoms (PPA of *power purchase agreement*). Produsente kan hierdeur die groot kapitale uitleg systap, en koop die energie by die finansierder aan.

"Produsente nader ons dikwels maar het dan nie dadelik die fondse beskikbaar om 'n alternatiewe energiestelsel te installeer nie. Dit is in so 'n geval moontlik om die stelsel deur 'n kragaanskaffingsooreenkoms te bewerkstelliging."

'n Kragkoopsooreenkoms behels kortliks 'n finansiële ooreenkoms tussen 'n finansierder (die verkoper) en 'n kliënt (die produsent) wat beide partye die geleentheid bied om hul bates te verskans teen die wisselvalligheid van elektrisiteitspryse en -besikbaarheid te beskerm. Die hernubare energiestelsel is vir 'n sekere termyn die finansierder se eiendom. Dié verkoop kWh-eenhede teen 'n winsgewende, dog goedkoper, tarief aan die produsent.

Die finansierder maak sy geld oor die langtermyn, en die boer kan sy bedrywighede voortsit en betaal minder per kWh as by Eskom. Die onafhanklike installeerder sorg dat die toerusting reg geïnstalleer word. 'n Simbiotiese ooreenkoms ontstaan indien die installeerder weet wat hy doen, en indien die finansierder nie gulsig is nie.

"Boere kan gerus navraag doen. Finansierders staan tou om sulke transaksies te bewerkstellig en te befonds. Veral Europese maatskappye

stel baie belang in hierdie tipe befondsing, onder andere omdat hulle sekere koolstofkompensasiedoelwitte het wat bereik moet word na aanleiding van die Europese Unie se Green Deal.

### Orasol, Orania se sonplaas

Die Noord-Kaapse dorp, Orania, het vir jare oorweeg om energie-onafhanklik te raak en verlede jaar is die daad by die woord gevoeg. Die Orasol-sonplaas is binne ses maande voltooi.

Joost Strydom, uitvoerende hoof van die Orania-beweging, sê op die oomblik kan Orasol op piektye 841kWp se energie produseer. "Tesame met privaat-inisiatiewe van inwoners, kan Orania tans in 'n derde van ons inwoners se kragbehoefte voorsien."

Hoewel die dorp steeds van Eskom se krag afhanklik is, hoop hulle om sover as moontlik selfvoorsienend te wees. "Ons is wel besig om planne te maak oor wat die beste finansieringsopsie sou wees. Omdat Orania geen staatsbefondsing ontvang nie, is dit belangrik dat enige projek deeglik beplan moet word, want daardie projek sal finansiële onafhanklik móét wees," sê Strydom.

Hoe word hierdie wins gegeneer? "Dis eenvoudig," vertel hy. "Orasol se sonkrag word teen Eskom-tariewe aan huiseienaars, boere en ander kragverbruikers verkoop. Aangesien Orasol krag teen goedkoper as die heersende Eskom-tarief kan opwek, toon die projek goeie wins."

Orasol is reeds ook só ontwerp om water- en rioolpompe aan te dryf, maar Strydom sê die volgende fases sal hopelik tot groter kapasiteit vir Orasol se totale kraglewering wees. Daar sal verder gefokus word om behoorlike bergingskapasiteit te skep en die Orasol-span is reeds besig om vir die batterye te begroot. 🗨️

### Bestuur jou kragrisiko

"Produsente moet deeglik bewus wees daarvan dat elke nuwe bron van energie met bykomende risiko gepaardgaan," sê Andries Wiese, hoof van landbou by Hollard Versekering. "Dis belangrik om nie oorhaastige besluite te neem nie. Enige kragopwekker wat by konvensionele kragverskaffing moet inskakel, skep onmiddellik ruimte vir chaos."

Een van die eerste besluite wat 'n boer moet neem is of die kragopwekker outomaties of met die hand aangeskakel moet word. "Wanneer die krag tussen beurtragsfases skielik sou piek of daal, kan dit tot wesenlike skade binne die sisteem lei. Wanneer die krag weggeneem word of terugkom, is daar altyd 'n risiko."

Elke tipe kragbron het ook sy eie uitdagings en kostes. Om byvoorbeeld bykomende diesel vir 'n kragopwekker aan te hou beteken groter uitgawes op 'n balansstaat, terwyl die diesel nie sonder krag gepomp kan word nie.

"Elke produsent moet hom- of haarself afvra hoe volhoubaar die saak binne sy of haar besigheid is. 'n Besproeiingsboer het beslis ander behoeftes as 'n skaapboer. En dis ook belangrik om te weet of 'n produsent se huishouding van die boerdery geskei word, want dit sal die beplanning beïnvloed."

Vir meer inligting oor alternatiewe krag-opsies, kontak Hanno Bisschoff by [hanno@energyconsult.co.za](mailto:hanno@energyconsult.co.za) of Chris Schutte by [chris@sonfin.co.za](mailto:chris@sonfin.co.za).

# Gryp die uitdagings aan, en bou aan 'n toekoms

Deur Hanrie Greebe en Christal-Lize Muller

**D**aar is baie werk wat gedoen moet word ten opsigte van die ekonomiese oorlewing van Suid-Afrikaanse aartappelprodusente wat, soos in verskeie ander bedrywe, ook swaar trek in die sukkelende ekonomie waarin volhoubaarheid 'n reuse-uitdaging is. Só meen Gert Bester, 'n gevestigde droëland aartappelprodusent van Petrus Steyn in die Oos-Vrystaat.

Gert het verlede jaar die leisels by JF van der Merwe oorgeneem as voorsitter van Aartappels SA se nasionale raad en direksie. Gert se uitgangspunt is dat waarde vir produsente ontsluit moet word met hul heffing en dat hulle op hul plase moet kan bly en optimaal produseer. Nuwe toetreders moet ook die geleentheid hê om hulself kommersieel in dié bedryf te vestig, want aartappels bly 'n hoë-potensiaal gewas.

## Groter is nie altyd beter nie

Gert het hom in 1991, nadat hy sy studies in Landbou-ingenieurswese aan die Universiteit van Pretoria voltooi het, by sy pa, Tewie, aangesluit. Die boerdery het in daardie stadium uit 'n saai- (hoofsaaklik mielies) en veekomponent bestaan. Tewie het in 1982 aartappels begin aanplant.

Tewie is 'n skrale drie maande na Gert se aankoms op die plaas aan kanker oorlede. Weens 'n groot skuld-las het Gert besluit om weg te doen met die veekomponent. Hy het slegs een plaas oorgehou waarop hy met aartappelproduksie en die saai-komponent voortgegaan het. Gert het aanvanklik 3 ha aartappels aangeplant, maar sy produksie het momentum gekry toe hy later met 'n vriend in vennootskap gegaan het.



*Gert Bester, eienaar van VOG-boerdery in die Petrus Steyn-omgewing, bemark sy aartappels onder die handelsnaam, Tarzan. Hy plant aartappels op 150 ha en lewer sowat 'n halfmiljoen sakkies aartappels per jaar, hoofsaaklik aan die varsproduktemark.*

Hulle het vir 17 jaar met groot sukses saamgeboer, waarna Gert en een van sy twee seuns, MG, kragte saamgesnoer het. Gert het vroeg besef sy vermoë om aartappels op droëland te bestuur is beperk tot 'n sekere oppervlakkigrootheid, omdat hy met minder hektare meer geld gemaak het. "Sedertdien het ek probeer om my aartappeloppervlakte so konstant as moontlik te hou op 'n vlak wat ek kan bestuur. Jy maak meer geld deur minder aartappels uitstekend te bestuur, as om baie aartappels gemiddeld te bestuur."

## 'n Duidelike en betekenisvolle visie

Navorsing lê Gert na aan die hart en hy is al vir meer as 20 jaar by Aartappels SA se werkgroep betrokke. As voorsitter wil hy hom daarop toespits om aan produsente die visie te gee dat daar wel 'n toekoms vir almal bestaan. Dit nietaenstaande die talle uitdagings wat hierdie bedryf in die gesig staar.

"As jy nie meer in die toekoms glo nie, dan doen jy dinge om te oorleef. 'n Mens boer nie om te oorleef nie – ons boer om 'n goeie lewe te maak en in die oorvloed van die Genade te leef." Volgens hom het Aartappels SA 'n rol om te speel ten opsigte van die weergee van inligting aan produsente en om hulle hoopvol te hou en te ondersteun sodat hulle weer 'n toekomsdroom kan hê.

## Stygende insetkoste

Gert verduidelik dat die situasie rondom stygende produksiekoste lank reeds aan die ontwikkel is en die oorlogssituasie in Oekraïne het dit bloot versterk. Die Suid-Afrikaanse aartappelbedryf word swaar getref hierdeur aangesien alle insette (uitsluitend saad) internasionaal gedrewe is, terwyl die prys vir die produk plaaslik ekonomies gedrewe is.

Hy sê die prys van aartappels kon eenvoudig nie byhou met die vinnige styging van insetpryse nie en



*Aartappels, mielies en suikerbone maak onderskeidelik 30% en sojabone 10% van Gert se boerderyinkomste uit.*

talle produsente moes noodgedwonge afskaal in 'n poging om 'n beter gemiddelde prys te behaal. Die kosteknyptang het die bedryf sleg vasgevang en Gert vrees dat produsente nie genoeg kos teen 'n bekostigbare prys sal kan produseer om aan die totale plaaslike vraag te voldoen nie. Die uitdaging lê juis daarin dat die bedryf nie markaan-deel verloor nie.

Hy meen ekonomiese groei is die enigste werklike langtermynoplossing. In die korttermyn moet pogings aangewend word om die aanbod so egalig as moontlik te hou, om sodoende pryskommeling te beperk. Dit is op sigself 'n uitdaging weens die tendens waar verbruikers hul aartappelaankope slegs teen maandeinde doen. Dit lei daartoe dat die aanbod verander, want die vraag is slegs vir 'n kort tydperk in die mark en dit maak dit moeilik om die prys konstant te hou.

### 'n Groot gaping

Gert sê die groot verskil tussen plaashek- en kleinhandelpryse, wat basies 'n verdubbeling van die produsent se markprys is, is ook rede tot kommer. Sekere kleinhandelaars voer aan die enigste manier hoe hulle hul produk konstant teen 'n sekere tempo kan verhandel, is om hul prys redelik

stabil te hou. Hulle maak voorsiening vir prysstygings, maar die prys word nie afgebring met 'n prysdaling nie omdat hulle kliënte gewoon is aan daardie prys.

Volgens Gert is die gevaar hierin dat potensiële kliënte wat die vraag sou kon stimuleer, nie werklik toegang

tot die produk het nie. Dit is benewens die informele sektor wat sowat 60% van verkope op varsproduktemarkte uitmaak. Dié sogenaamde 'bakkieskopers' verskuif groter volumes teen bekostigbare pryse en is daarom 'n goeie bondgenoot van die bedryf. Kettingroepe wat in die meeste gevalle



*Aartappels SA het ses jaar gelede met 'n proefperseel op Gert se plaas begin om die invloed van verskillende gewasse op grondgesondheid vir optimale aartappelproduksie te bepaal. Dit bestaan uit 'n viergewas-rotasieprogram met sonneblom, soja, suikerbone en 'n dekgewas (sonhennep, swarhawer, radyse en sorghum). Mielies en aartappels word die ander jare in 'n vyfjaarsiklus geplant.*

direk met produsente werk, asook groentewinkels wat by die mark aankoop, speel ook 'n groot rol.

### Hoe raak dit die produsent?

Gert sê sommige aartappelprodusente word genoodsaak om hul fokus weens uitdagings soos meer insette en die prysstygings daarvan, na ander produkte te verskuif. In die Oos-Vrystaat, die enigste droëland-aartappelgebied in die land, is dit byvoorbeeld makliker om mielies eerder as aartappels op 'n winsgewende vlak te produseer. 'n Droëland-aartappelboer se produksiekoste beloop sowat R115 000 per hektaar indien oorhoofse koste saam met die koste van direkte insette bygereken word.

“Dit verg geweldige kapitaal en dan is jou marges op daardie koste tussen 8 en 10%. My aartappels moet tien keer die oorhoofse koste per hektaar betaal as wat die geval met mielies is. Om horisontaal met mielies uit te brei is maklik.”

**“Jy maak meer geld deur minder aartappels uitstekend te bestuur, as om baie aartappels gemiddeld te bestuur.”**

Gert glo egter 'n daling in die aanbod van aartappels in dié geval (minder aangeplante hektare) is onwaarskynlik, omdat aanbod gering moet daal om 'n redelike groot prysverskuiwing teweeg te bring. Die aartappelprys styg gewoonlik met 9 of 10% wanneer daar 'n 3% verlaging in aanbod is. Dit is 'n gegewe dat enkele produsente weens ekonomiese skommeling uit die bedryf gaan klim, maar die gemiddelde plaaslike aartappelprodusent in een van die land se 16 produksiestreke is nie tydelik in die bedryf nie. Hulle kapitaalbeleggings is van so 'n aard dat, tensy hulle nie heeltemal ophou boer nie, hulle nie die bedryf gaan verlaat nie, want “aartappels is soos enige slegte gewoonte: dis baie moeilik om af te leer”.



Gert is trots op die verwerkingsaanleg op sy plaas. Voorreg.

Suid-Afrikaanse aartappelprodusente is besonder vindingryke mense en hulle sal deurdruk, ondanks die uitdagings, want Suid-Afrika se gemiddelde opbrengs vergelyk steeds goed met Europa se aartappelproduksie. Die land produseer vyf keer meer op dieselfde oppervlakte as baie Afrika-lande. Die geheim is egter om nie altyd die beste te wees nie, maar eerder bo die gemiddeld te wees.

### Produksievooruitsigte

Hy sê 'n oesskatting in die aartappelbedryf is nie 'n eenvoudige proses nie, omdat inligting akkuraat is tot die oomblik dat dit verskyn en die land se 560 aartappelprodusente daarop reageer. “As 'n algemene tendens kan ek egter sê dat, weens stygende insetkoste, nie al die produsente noodwendig vir hul volle oppervlakte finansiering kry nie.”

Volgens hom is daar oor die algemeen 'n verwagting dat produsentepryse vanjaar ietwat hoër behoort te wees teenoor die vorige jaar se prys. Van die produsente kon verlede jaar

teen laer insetkoste produseer, maar weens reëntoestande het 'n slegte bottelnekkie ontstaan, wat die prys na baie laer onekonomiese vlakke gedruk het.

Produsente kon nie wag vir prysverbeterings nie en bykans die hele Limpopo-oes is binne die bestek van 'n baie kort tydperk gelewer. In sommige gevalle is spilpuntaartappels teen 'n gemiddeld van 50% van produsente se insetkoste verkoop. Veral produsente in Limpopo met 'n gemiddelde insetkoste van R250 000/ha, wat bo die land se gemiddeld is, het wesenlike ekonomiese verliese gely.

Gert verduidelik dat R10 miljoen se produksiekoste op 40 ha geweldig hoog is en om die produk teen R30 per sakkie te verkoop, is inderdaad 'n groot verlies. 🍎

Vir meer inligting,  
kontak Gert Bester  
by 082 577 3880  
of epos gert@vogboer.co.za.



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# Insights gained from the World Potato Congress

By Willie Jacobs, CEO Potatoes SA

As a close to our 2022 activities, and to align the discovery or awareness process on the activities that had an influence on shaping the view on the future of potato production, I deemed it worthwhile to reflect on the insights obtained from Potato SA's participation in the World Potato Congress (WPC) which was hosted by the Irish Potato Industry in Dublin.

With 57 exhibitors from across the globe and more than 300 attendees, this was a clear indication of the hunger for personal interaction after the gap that Covid-19 and its restrictions left in collaboration efforts. It needs to be noted that China, which was supposed to second more than 50 attendees to the WPC, was still in lockdown and thus not represented.

An added benefit for attendees was being exposed to local Irish potato production enterprises, and noteworthy was the clear drive towards vertical integration. Quite a number of farms are capacitated, through support from the Irish government, with specialised packaging and value addition such as starch processing and the like.

## Matters kept below the radar

- Economic viability was not given sufficient representation.
- Seed quality and storage took a back seat as most mentions made related to the slow progress of potato cultivar development measured against other seed crops.
- There was no real focus on actual plant improvement.
- No clear breakthroughs were alluded to that can enhance the sustainability of the industry as a whole.
- Very localised and specialised solutions, which are difficult to apply across the globe, were mentioned.

## Key elements addressed at the WPC

### **Adoption of earth-friendly principles**

- Carbon footprint.
- Chemical footprint.
- Biological farming practices.
- Precision farming practices, with a focus on mechanisation and application practices.
- Storage, sorting and packaging technology, including the use of optical instruments.

### **Adopting technology in improvement of efficiencies in the entire value chain**

- **Input use:** Improvement of accuracy of application of seed, fertiliser and chemicals.
- **Waste management:** Combined with reduced wastage of the same throughout the growing season.
- **Monitoring:** Proper monitoring of the complete process from input to sales.
- **Reporting:** In-time reporting to create proactive initiatives or automation to effect above.

## Interesting consumer trend

A major trend receiving significant airtime was the general consumer move towards processed product. A key presenter highlighted studies, supported by the European Union, stating that consumers are losing the know-how to produce meals from fresh potatoes. Even vegetables in general were cited to be difficult to convert to proper meals. It appears as though recent generations are losing the knowledge transfer gained from their parents and older generations in how to prepare meals from fresh potatoes and vegetables.

It needs to be noted that this trend is less visible in South Africa, but through the logic of understanding the dual-income household requirement for financial survival, it is clear that South Africa needs to prepare for this. A key take-out will certainly be to look at our local processing capacity and expansion plans. These actions are already in the pipeline through various conversations with industry role-players. 📍

For more information, email [willie@potatoes.co.za](mailto:willie@potatoes.co.za).

# The changing world of the potato in the spotlight at the 11th World Potato Congress

By Nomvula Xaba, transformation manager, Potatoes SA

Approximately 900 delegates from 61 different countries attended the 11th World Potato Congress (WPC) in Dublin, Ireland. Potatoes SA was represented by CEO, Willie Jacobs, transformation manager, Nomvula Xaba, JF van der Merwe, board chairperson at the time, and Rudi Heinlein, board vice-chairperson at the time.

The WPC presented delegates with an opportunity to engage with global potato stakeholders and explore new business opportunities in the seed, fresh and processed potato sectors. Potatoes SA also had an opportunity to present progress made in terms of developing new black farmers.

## A historic perspective

The congress theme “The Changing World of the Potato” emphasised the role of potatoes in combatting global hunger and serving as a sustainable and nutritious staple. Robert G Kearns gave a historical perspective on potatoes in Ireland and Canada. In Europe, the widespread adoption of the potato altered the European society dramatically. It served as the foundation of modern agriculture, while providing food security and nutrition to millions.

Kearns also mentioned that the adoption of the potato in Ireland was significant. Besides being ideally suited to the Irish climate, the potato offered Irish peasantry an efficient, productive and nutritious crop.

## Markets and supply chains

HE Qu Dongyu, director-general of the Food and Agriculture Organization (FAO) of the United Nations, spoke about the potato in a changing world, while Damien McLoughlin from Ireland discussed the global food market of the near future. His paper covered

the rapidly changing, significant and consistent global food environment. He identified five areas of consistent change, development and progress, and explored their dynamics over the coming years. These areas are digitisation, sustainability, consumer behaviour, capital and the supply chain.

Cedric Porter from World Potato Markets in the United Kingdom focussed on the dynamic global potato market. He demonstrated how potato production, processing and trade are revolving with large trading regions coming under production pressure along with increased production from other regions. He also discussed the impact of the Covid pandemic along with other major global trends such as rising production costs and climate change. His presentation also looked into marketing opportunities for potato growers, packers, processors and consumers.

Lauren Scott of the International Fresh Produce Association (IFPA) addressed global consumer trends in fresh produce. She also reviewed world events and the changing landscape driving consumer behaviour. She explored the role of food, retail and commerce, attitudes towards sustainability and how produce is linked to the health and well-being of people around the world.

## Role of research

The future of potato research and its contribution to food security and sustainability was covered by Paul Struik from the Netherlands. He referred to the important role of potatoes in the zero-hunger challenge and emphasised the critical role of research in improving productivity, efficiency and sustainability. His talk highlighted research and innovation options to produce healthy potatoes in diverse, sustainable, resource-efficient food systems, ultimately

saving water, fertiliser, agrochemicals, labour and land. Struik also mentioned that agronomic research must address yield gaps, especially in Africa. Physiological research should study tuber size dynamics, and adaptation to climate change through modelling. Pathology research, he said, should prioritise natural sprout suppressants and waste management.

Gerard Backx of HZPC in the Netherlands focussed on challenges and opportunities facing the global seed potato industry. Only a small portion of potato growers worldwide are using higher quality seed potatoes, which limits potato production. In addition, growers are growing relatively old varieties. The challenge for potato breeders is to increase the genetic gain so that potato growers will have access to improved varieties.

Nomvula Xaba shared the progress made in commercialising developing farmers in South Africa. Approximately 13.8 million people in South Africa live below the food poverty line, the highest incidence being among female-headed households. Poverty eradication and wealth creation under an ideal free-market system depend on economic growth. South Africa today has two very distinct economies in most sectors: the developed economy also referred to as the first economy, and the developing economy or second economy. This dualism cuts across all agriculture sectors, subsectors and commodities, including the potato sector. Xaba shared with delegates how high barriers of entry (input costs, infrastructure, machinery, knowledge) are preventing new participants from previously disadvantaged communities from entering the potato production sector. 

For more information email [nomvula@potatoes.co.za](mailto:nomvula@potatoes.co.za).

# Market monitor: The first five weeks of 2023 at fresh produce markets

By Sibabaliwe Rulumeni, Dikgetho Mokoena and FP Coetzee, Potatoes SA

The average weekly price for potatoes on fresh produce markets (FPMs) had been following an upward trend since week 48 of 2022 but has since been suppressed from week two of 2023, and started to follow a downward trend until a linear trend became evident, returning to an upward trend from weeks three to five.

### Weekly averages and stock levels

Figure 1 indicates the weekly average price on all markets for all classes and sizes. By the end of week

five, the average weekly price was R55.41 per 10 kg bag, which represented a 6% decrease week on week. Figure 2 indicates the daily average stock levels and the daily average price. For several reasons – good rains in key regions being one – it can be clearly seen that towards the end of January, stock levels started to decrease resulting in an increase in the daily price.

Figure 3 indicates the average stock levels of each month against the same month a year ago. Daily stock levels decreased since November 2022, when it averaged

around 800 000 bags, and 600 000 bags in December. January 2023 showed an increase of 21 000 bags compared to December; however, it was lower compared to the same time last year (approximately 200 000 bags fewer). The average inventory trend supported the price trend and the price experienced upward pressure from November.

### Decrease in sales

During the first five weeks of 2023, sales on the FPMs decreased by 10% from 2022's corresponding figure, according to Figure 4. The

Figure 1: Weekly daily average price on all fresh produce markets (FPMs).

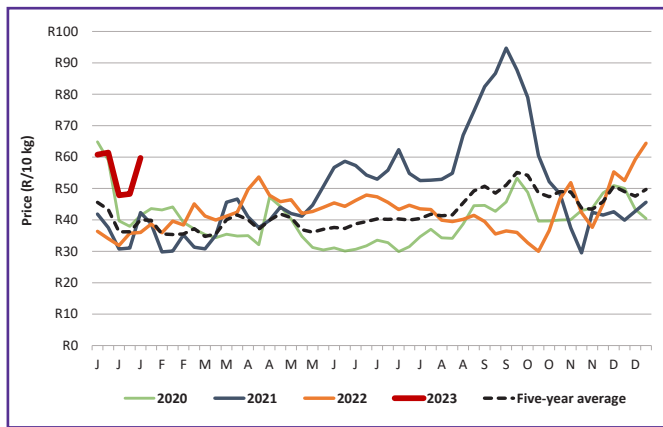


Figure 2: Daily average stock levels compared to the daily average price (all sizes and all classes).

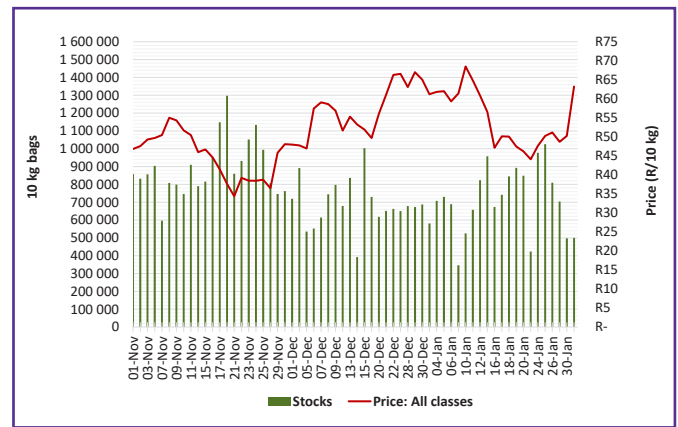


Figure 3: Average daily stock levels per month in 2021 versus 2022.

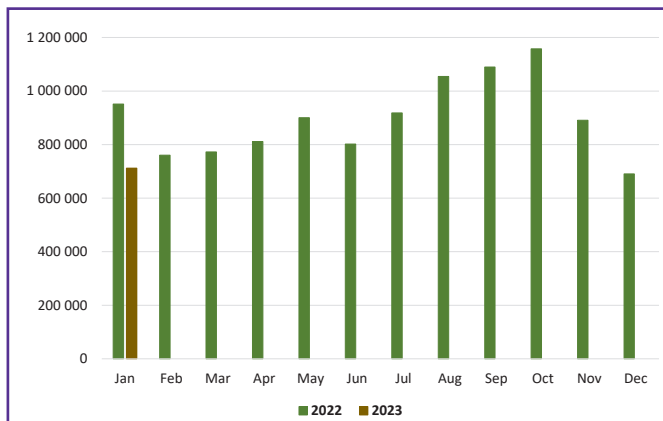


Figure 4: Cumulative number of 10 kg bags sold on FPMs until week five of each year.

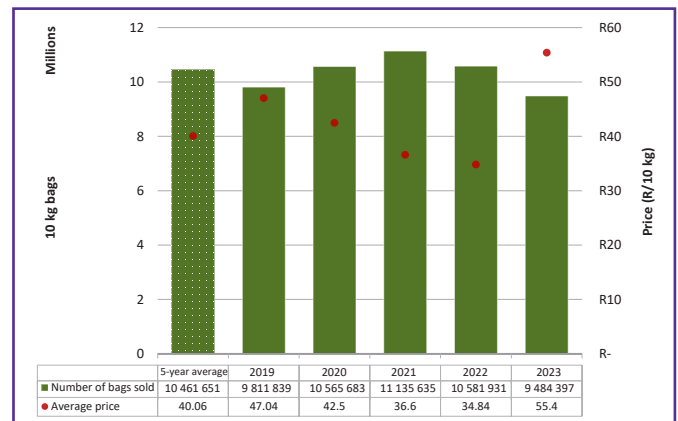


Table 1: Sales on FPMs until week five of 2023.

Market	Number of bags 10 kg	% of total	Avg price (R/10 kg)	Percentage of sales on FPMs			
				Class 1	Class 2	Class 3 & 4	Class 1 M
Johannesburg Market	3 839 556	40.5%	53.67	82%	13%	5%	20%
Tshwane Market	1 827 204	19.3%	53.65	72%	19%	9%	17%
Durban Market	885 825	9.3%	53.91	86%	8%	6%	24%
Cape Town Market	774 256	8.2%	72.94	79%	18%	3%	28%
Springs Market	512 697	5.4%	48.16	68%	21%	12%	14%
Bloemfontein Market	268 878	2.8%	57.27	61%	24%	16%	15%
East London Market	259 458	2.7%	59.47	76%	17%	7%	22%
Klerksdorp Market	249 056	2.6%	53.99	71%	17%	12%	16%
Welkom Market	227 946	2.4%	55.42	53%	33%	14%	11%
Port Elizabeth Market	222 863	2.4%	61.12	77%	16%	7%	21%
Pietermaritzburg Market	198 151	2.1%	47.47	71%	23%	7%	17%
Vereeniging Market	73 664	0.8%	54.41	74%	13%	13%	9%
Witbank Market	41 395	0.4%	56.22	81%	9%	10%	17%
Kimberley Market	36 081	0.4%	56.3	72%	18%	11%	23%
Nelspruit Market	35 257	0.4%	64.91	83%	7%	10%	12%
George Market	31 182	0.3%	59.77	76%	23%	1%	23%
Kei Market (Umtata)	–	0%	0	0%	0%	0%	0%
<b>Total</b>	<b>9 483 469</b>	<b>100%</b>	<b>55,41</b>	<b>77%</b>	<b>16%</b>	<b>7%</b>	<b>19%</b>

average price for the first five weeks is also depicted in Figure 4 where 2023's average price is at its highest compared to the previous five years. Sales at FPMs after the first five weeks of the year are 977 000 10 kg bags fewer than the five-year average.

Figure 5 illustrates the monthly sales on FPMs from 2020. For the first five weeks of 2023, sales were above the eight million 10 kg bag mark, and sales have decreased since last year around the same time.

During December sales dropped to 7.2 million 10 kg bags, compared to the November sales of 9.9 million 10 kg bags. Sales increased slightly in January 2023 but remained below the nine million mark compared to January 2022's nine million 10 kg bags.

**Top five markets**

Table 1 contains the number of bags sold by the various markets during the first five weeks of 2023. The five

major markets during this period were collectively responsible for 82.7% of the country's sales. The average price (all classes and sizes) for each market also appears in Table 1. Of the five biggest markets, Springs market's average price was R7.25 lower than the country's average price of R55.41. The Johannesburg and Durban market's total sales consisted of 82 and 86% Class 1 bags respectively, the highest of the top five markets.

Figure 5: Monthly sales on FPMs from 2019 to 2021 (all packaging converted to 10 kg bags).

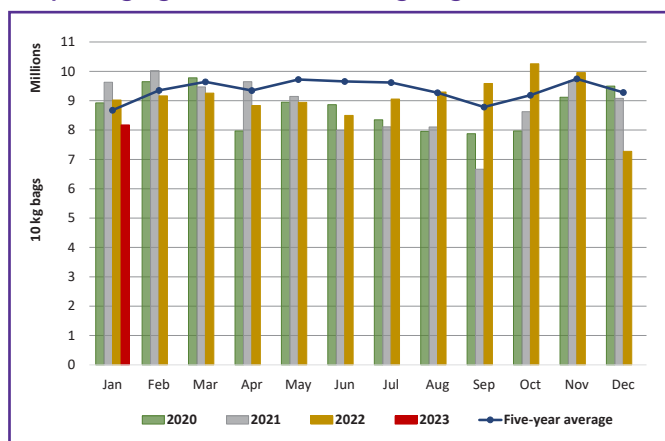
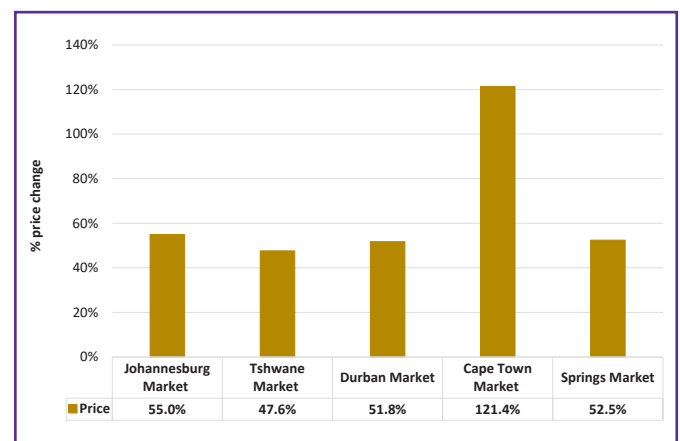


Figure 6: Year-on-year price change in top five markets.





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**\*Minimum order quantities and Ts & Cs Apply**

Table 2: Sales per region on FPMs until week five of 2023.

Region	Number of bags 10 kg	% of total	Avg price (R/10 kg)	Percentage of sales on FPMs			
				Class 1	Class 2	Class 3 & 4	Class 1 M
Southwestern Free State	1 995 736	21%	62.1	82%	9%	8%	21%
North West	1 594 140	17%	59.84	79%	12%	9%	13%
KwaZulu-Natal	1 240 501	13%	53.98	75%	21%	4%	16%
Limpopo	1 237 027	13%	47.77	78%	20%	3%	25%
Gauteng	1 002 616	11%	50.43	87%	9%	4%	23%
Eastern Free State	639 050	7%	52.79	66%	18%	16%	12%
Sandveld	593 904	6%	71.39	80%	18%	2%	27%
Western Free State	466 797	5%	48.42	77%	18%	5%	26%
Other regions	254 558	3%	32.95	36%	52%	12%	13%
Mpumalanga	246 408	3%	44.05	69%	22%	9%	17%
Northeastern Cape	185 700	2%	54.09	72%	19%	9%	21%
Eastern Cape	19 527	0%	53.61	86%	10%	5%	18%
Southern Cape	6 475	0.07%	65.85	92%	6%	2%	43%
Northern Cape	681	0.01%	16.59	99%	0%	1%	82%
Southwestern Cape	349	0.00%	29.4	0%	0%	100%	0%
Ceres	0	0.00%	0	0%	0%	0%	0%
<b>Total</b>	<b>9 483 469</b>	<b>100%</b>	<b>55.41</b>	<b>77%</b>	<b>16%</b>	<b>7%</b>	<b>19%</b>

Figure 7: Number of 10 kg bags sold per region during the first five weeks of 2023.

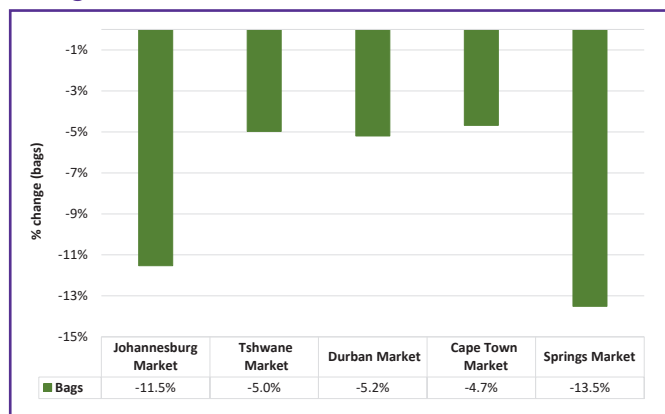
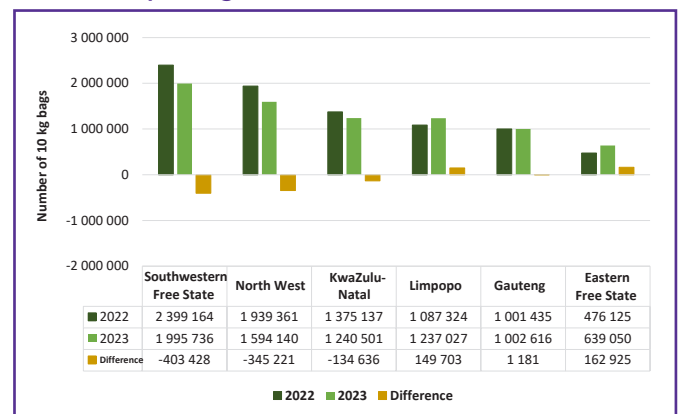


Figure 6 indicates the year-on-year price change for the top five markets. All top five markets' prices showed an increase. The Cape Town market's price showed the largest percentage expansion with a 121% increase. The volumes sold at the Cape Town market decreased by 4.7% year on year, as shown in Figure 7, which supported the price increase.

**Regional performance**

Comparing the six largest regions' sales for 2023 to 2022, figures show

Figure 8: Number of 10 kg bags sold during the first five weeks per region – 2021 versus 2022.



that only three regions sold fewer 10 kg bags and the others sold more than the previous year during the first five weeks, according to Figure 8.

The three largest regions that were in the market during this period (first five weeks) sold 51% of the potatoes on markets according to Table 2. Table 2 also illustrates the percentage composition of each region's Class 1, 2, 3 and 4 potatoes supplied during this period. Five of the production regions, namely

Limpopo, North West, southwestern Free State, Gauteng, and KwaZulu-Natal, had a percentage of Class 1 sales above 70%. The region with the highest percentage of Class 1 is Gauteng on 87%. 📍

For more information, send an email to [fpcoetzee@potatoes.co.za](mailto:fpcoetzee@potatoes.co.za).

# Satellite-derived crop growth indices for management of potato crops

By Prof Martin Steyn and Alex Mukiibi, University of Pretoria, and Fanie Ferreira, GeoTerraImage

The value of satellite images in precision farming applications is well-known. Satellite images can be used to identify problem areas in crop fields, such as stressed or diseased plants, as well as poor plant growth.

Images can also be overlaid with other GIS-linked maps, such as yield maps, or soil nutrient status grid-sample maps, in order to identify and address problem areas in crop fields. For example, areas with low yields may correlate with low soil pH, or deficiency of a specific nutrient in the soil. The value and uses of satellite imagery are therefore endless.

## Uses of satellite image information

Potatoes SA has in recent years taken hands with GeoTerraImage, which created the GeoFarmer platform ([www.linkedin.com/showcase/geoterraimage-geofarmer](http://www.linkedin.com/showcase/geoterraimage-geofarmer)), to access satellite technology for the benefit of the potato industry. The initial focus was to use satellite technology on a

macro scale to develop intelligence that can help with crop identification. This can for example be useful to estimate the areas planted to a specific crop, and the planting times in each production region.

Satellite image information can also be used to assess the extent and impact of severe climatic events (e.g. cold, frost, hail damage) on crops in a specific region. The primary aim is thus to develop management information that can benefit the industry as a whole. Ultimately, satellite image information in combination with other variables, such as weather data, may potentially be used to make early yield estimations for a region.

Nowadays, satellite images are more freely available and affordable to end users. For example, the revisit interval of the two Sentinel satellites used by GeoFarmer is once every five days, which means images are now more readily available and therefore could possibly be used for in-season potato management decisions.

A further development in satellite imagery is the calculation of various crop growth index (indicator) values for each pixel of a field. The most commonly known crop indicator is the Normalised Difference Vegetation Index (NDVI). However, various other indicators can be derived from the acquired time-series Sentinel-2 spectral images. For example, apart from NDVI, four other crop growth indicators are calculated and available on the GeoFarmer platform, which could possibly provide useful in-season management information to growers on a micro scale.

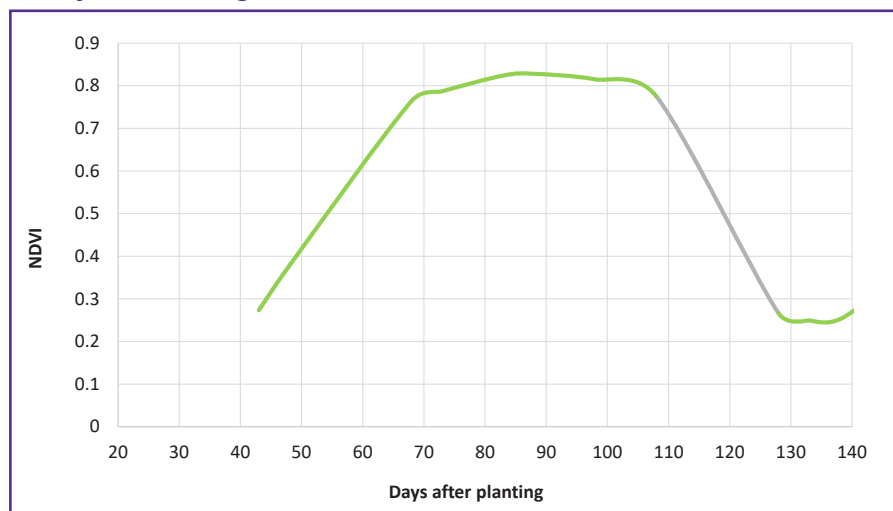
The general trend of an indicator is important and relates to a crop's growth stage. The trend is an indication of whether crop growth during the season is progressing as expected and serves as an early warning if problems arise. The five GeoFarmer plant growth indicators are now briefly explained.

## 1 Normalised difference vegetation index (NDVI)

This is an indicator of crop vigour and crop health, and is primarily defined in terms of the density of green vegetation (biomass) of a crop. This indicator is strongly influenced by the fraction of soil covered by vegetation and the chlorophyll content of leaves.

A high index value means healthy and actively growing vegetation. The index of a cropped field normally ranges between 0.20 and 0.85. Ideally, NDVI values for potatoes should increase rapidly after emergence to reach a maximum of 0.75 to 0.80 or higher within about 25 to 30 days after emergence. Maximum values should then remain at a plateau above 0.75 for as long as possible ( $\geq 40$  days) before starting to drop at the onset of plant senescence (Figure 1).

**Figure 1: NDVI values for potatoes should increase rapidly after emergence to reach maximum values of 0.75 or higher within about 25 to 30 days after emergence.**



The index is affected by all vegetation growing on a field, including weeds and potatoes. It is important to note that crop colour, and therefore also index values, can be influenced by weather conditions such as heat waves, cold spells and frost. NDVI values are also known to have a high correlation with crop yield, meaning that NDVI can potentially be used as a tool for estimating crop productivity and predicting final yields.

## 2 Leaf area indicator (LAIInd)

This index gives an indication of the amount of green leaf coverage of the crop per unit area of the ground surface. It is therefore similar to the leaf area index (LAI) that can be determined through ground measurements. LAIInd gives an indication of the total area of leaves per unit ground area and is directly related to the amount of light that can be intercepted by the leaves. The LAIInd is thus a measure of the 'factory size' where assimilates are produced. The LAIInd graph of a well-performing crop usually follows a smooth sigmoidal curve (Figure 2).

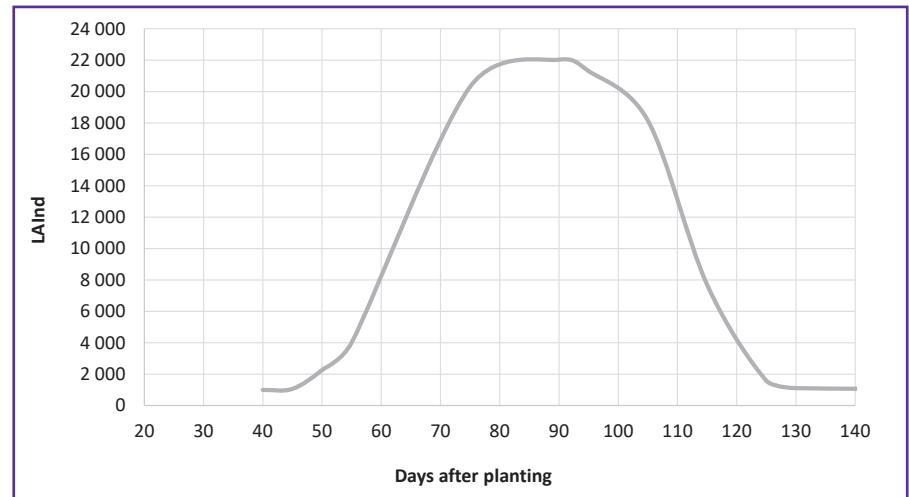
LAIInd values are negatively influenced by adverse weather conditions such as heat waves, cold spells or frost. The index usually decreases when plants are stressed or if there is an early onset of senescence. Since healthy green leaves are essential for photosynthesis to produce assimilates and biomass, the LAIInd of a crop will also influence the final yield.

For optimal production, LAIInd values should increase rapidly after emergence to reach maximum values of at least 14 000 (up to >20 000) within 25 to 35 days after emergence and remain above 14 000 for as long as possible ( $\geq 35$  days) before starting to decline at the onset of senescence.

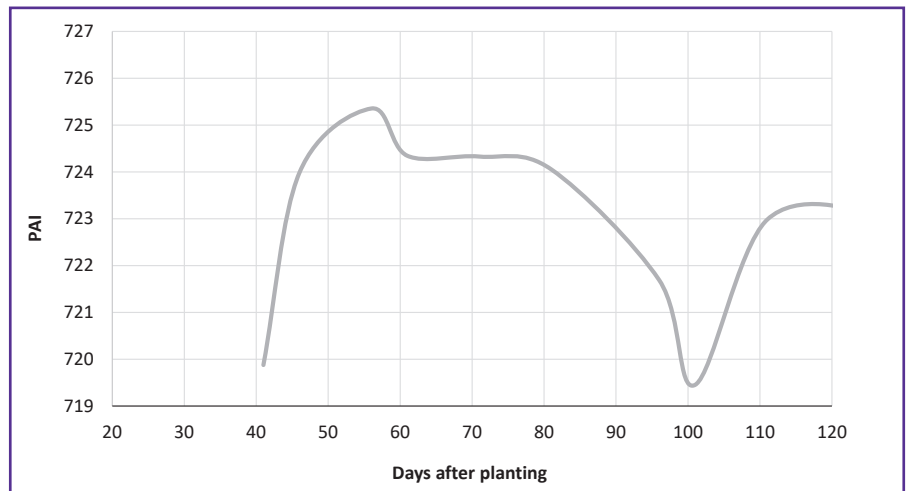
## 3 Photosynthetic activity index (PAI)

This index is an indicator of chlorophyll content (greenness) of the crop, which may be seen as an indirect measure of leaf nutrition status, especially nitrogen. PAI is also very sensitive to stress conditions (other than

**Figure 2: The LAIInd graph of a well-performing potato crop should follow a smooth sigmoidal curve and reach maximum values of at least 14 000 within 25 to 35 days after emergence.**



**Figure 3: PAI values usually reach maximum values just after full canopy cover and decline as plants get older. PAI values are only reliable from the period of full canopy cover until the onset of plant senescence.**



nutrition) that may affect the colour of vegetation, like environmental changes (hot and cold cycles, frost and drought conditions), or crop yellowing due to e.g. herbicide damage. It is important to note that PAI values are only reliable from the period of full canopy cover (NDVI > 0.7) until the onset of senescence.

PAI values usually reach maximum values just after full canopy cover and decline as plants get older (Figure 3). During this period, maximum PAI values of around 722 to 726 seem to be desirable for potatoes and indicate healthy green plants. Decline in the PAI graph over time should preferably be gradual and only drop below 720 after about 100 days after planting

(DAP) for short- to medium-growing season length cultivars.

It is suggested that PAI values may relate to SPAD colour meter readings, which is an instrument that measures leaf chlorophyll content in situ, and therefore holds potential as a tool to manage nitrogen during the growing season.

## 4 Moisture stress indicator (MSI)

The MSI is an indicator of crop stress due to a lack of soil moisture required for normal crop functioning. The indicator is sensitive to plant water content, which is usually also related to soil water content, although other factors that affect plant water status (e.g. diseases) may also affect the MSI.

# REGISTERED FRESH PRODUCE AGENCIES

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Modise Market Agency  
RSA Bloemfontein Market Agency  
Subtropico Bloemfontein Market Agency  
Vrystaat Market Agency

## CAPE TOWN FRESH PRODUCE MARKET

Boland Market Agency  
Fine Bros Market Agency  
Rhoda's Market Agency  
RSA Cape Town Market Agency  
Subtropico/Spes Bona Market Agency

## DURBAN FRESH PRODUCE MARKET

Delta Market Agency  
Hanly Market Agency  
Port Natal Market Agency  
RSA Coastlands Market Agency

## EAST LONDON FRESH PRODUCE MARKET

AA Market Agency  
Border Farmers Market Agency  
Martin & Scheepers Market Agency  
Subtropico East London Market Agency

## GEORGE MUNICIPALITY

RSA Southern Cape Market Agency

## JOBURG FRESH PRODUCE MARKET

Botha Roodt Johannesburg Market Agency  
CA-TU Fresh Market Agency  
C L de Villiers Market Agency  
Citi Deep Waatlemoen Market Agency  
Citifresh Market Agency  
Dapper Market Agency  
DW Fresh Produce Johannesburg Market Agency  
Exec-U-Fruit Market Agency  
Marco Market Agency  
Matla Market Agency  
Metro Market Agency  
RSA Johannesburg Market Agency  
Subtropico Johannesburg Market Agency  
Swartberg Market Agency  
Uni Dev Market Agency  
Wenpro Johannesburg Market Agency

## KEI FRESH PRODUCE MARKET

Farmers Direct Market Agency

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RSA Eastern Cape Market Agency

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Kimberley Market Agency  
Subtropico Kimberly Market Agency

## KLERKSDORP FRESH PRODUCE MARKET

Garfield Market Agency  
J Frances & Son Market Agency  
Matlosana Market Agency  
Subtropico Klerksdorp Market Agency  
W.L. Ochse & Kie Market Agency

## LIMPOPO PROVINCE

RSA Limpopo Market Agency  
RSA Mooketsi Market Agency

## NELSPRUIT MUNICIPALITY

Fresh Pro Market Agency  
RSA Nelspruit Market Agency  
Whoopi Up Nelspruit Market Agency

## NOORDEINDE FRESH PRODUCE MARKET

Noordeinde Market Agency

## PIETERMARITZBURG FRESH PRODUCE MARKET

G.W. Poole Market Agency  
Natalia Market Agency  
Nkosi Market Agency  
Peter & Co Market Agency  
Subtropico Pietermaritzburg Market Agency

## PORT ELIZABETH FRESH PRODUCE MARKET

African Market Agency  
Algoabaai Market Agency  
Gouws & Co Market Agency  
Lansdell Market Agency  
W Finlayson & Co Market Agency

## SPRINGS FRESH PRODUCE MARKET

AM Meyer Market Agency  
New Africa Market Agency  
RSA Springs Market Agency  
Springs Vegetable Market Agency  
Subtropico Springs Market Agency

## TSHWANE FRESH PRODUCE MARKET

Botha Roodt Pretoria Market Agency  
Du Plessis & Wolmarans Market Agency  
DW Fresh Produce Tshwane Market Agency  
Farmers Trust Market Agency  
Fresh Way Market Agency  
Mabeka Market Agency  
Noordvaal Market Agency  
Prinsloo & Venter Market Agency  
RSA Tshwane Market Agency  
Subtropico/Protea Market Agency  
Tshwane Green Market Agency

## VAAL MUNICIPALITY

RSA Vaal Market Agency

## VEREENIGING FRESH PRODUCE MARKET

Subtropico Vereeniging Market Agency

## WELKOM FRESH PRODUCE MARKET

Botha & Roodt Welkom Market Agency  
Opkoms Market Agency  
Subtropico Welkom Market Agency

## WITBANK FRESH PRODUCE MARKET

Subtropico Witbank Market Agency  
Witbank Market Agency

## OTHER

Agri Empire Market Agency  
Comfy Fresh  
Core Fruit  
Farm Fresh Direct  
Farm Market  
Federated Farmers  
Fruitways  
Green Network  
HL Hall & Sons  
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Similar to PAI, MSI values are only reliable from the period of full canopy cover (NDVI > 0.7) until the onset of plant senescence.

When irrigation is managed well, the graph starts high after planting (usually >1.0) and shows a declining trend until full canopy cover is reached, whereafter it stabilises at a low value (Figure 4). Low MSI values in the range 0.3 to 0.4 (but not higher than 0.5) for at least 30 to 35 days during the period of full canopy cover are desirable and indicate healthy growing plants.

If there is an upward trend during the mid-season full canopy cover period, it is a warning sign that the soil may be drying out and the crop

is suffering from water stress. When senescence sets in, it is normal for the MSI curve to start increasing (>0.5) and thereafter the index is no longer a reliable moisture stress indicator.


### 5 Senescence onset indicator (SOI)

Senescence onset is related to the timing of the crop starting to 'die off' as a result of natural ageing and ripening at the end of the growing season, or due to external stress-induced factors. One of the first tissues in plant leaves to degrade during senescence is the energy-converting green pigment, chlorophyll. SOI is based on the ratio between the chlorophyll and carotene (orange-yellow) pigment contents in leaves.

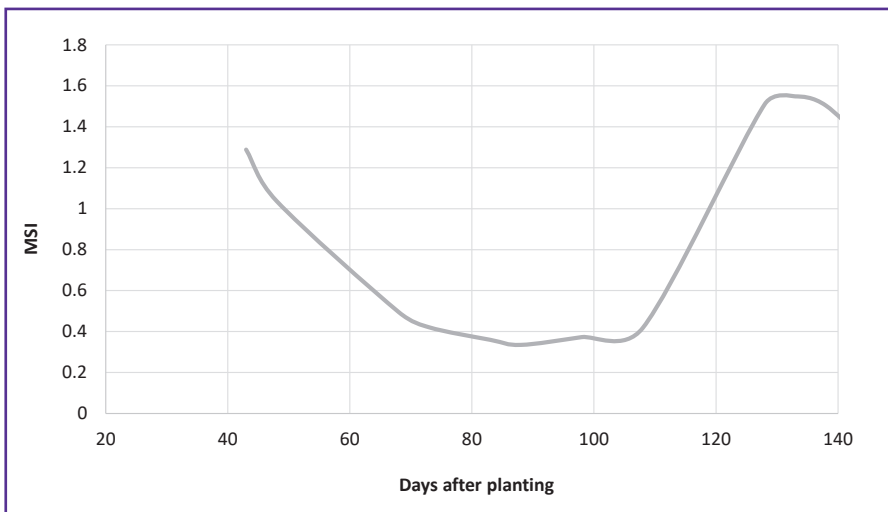
The senescence onset growth curve starts at a high value (usually >0.3) and then decreases as leaf area increases until full canopy cover is reached (Figure 5). SOI values are therefore also only useful during the period of full canopy cover. During full canopy cover (NDVI > 0.7), low SOI values of about -0.15 to -0.3 for at least 25 to 30 days are desirable and indicate healthy green plants. If the senescence onset curve starts increasing or shows an upward trend during the middle of the growing season, it is an indication of crop stress and early induced senescence.

### Field evaluation of indicator values

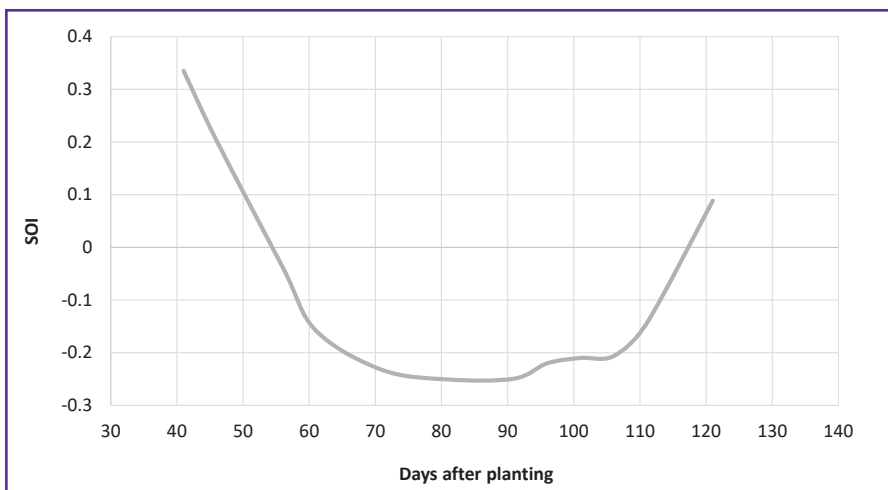
For the application of satellite indicators at farm level, reliable norms for the acceptable ranges of the different indicators should be known. The preliminary norms given are based on early grower feedback and experience to date. These broad norms at this stage mostly apply to the cultivars Sifra and Mondial, for which most experience was gained. Threshold values must thus also be updated for other important cultivars as we gain more experience.

One of the challenges with this technology is that very little information is currently available and intelligence (norms, limits) for each index should be developed over time. Research work was therefore initiated to conduct ground truthing by comparing satellite indicator values with in-field measurements on grower fields. We also started case studies in the southwestern Free State, western Free State, Limpopo and the Sandveld regions to analyse the indicator graphs for specific fields in an effort to better understand changes in indicator values over time in response to plant growth, management practices and environmental variables. Progress on these findings will be reported in a follow-up article in *CHIPS*. 

**Figure 4: The MSI graph starts high after planting (usually >1.0) and shows a declining trend to full canopy cover, whereafter it stabilises at a low value.**



**Figure 5: The SOI growth curve starts at a high value (usually >0.3) and then decreases as leaf area increases to reach a minimum when full canopy cover is reached.**



For more information, contact  
Prof Martin Steyn at email  
[martin.steyn@up.ac.za](mailto:martin.steyn@up.ac.za).

# New farming entrants left exposed to frozen chip dumping



By Susan Marais

**P**otato producers supplying large frozen chip factories have been exposed to international predatory trade practices after anti-dumping tariffs on frozen potato chips lapsed at the start of the year. Willie Jacobs, CEO of Potatoes SA, says while trade is important for thriving regional and global markets and economies, it is also important to remember that South Africa's agricultural and manufacturing industries should also be a priority.

"For industry role-players to provide the country with good quality, locally produced food, it is imperative that we prioritise our growers, our supply chain and the expansion of the agricultural economy. In reality, cheap and below-cost potatoes entering the market will ultimately be detrimental to South African producers and the sector as a whole, and could cause a surge in illicit trading activities," Jacobs adds.

## Buy and support local

"South Africans should buy and support local producers and help to rebuild the economy. What citizens decide to put on their dinner tables could very well determine what South African producers put on theirs."

Jacobs says while most potatoes (80%) are consumed fresh, frozen

potato chips are often where new entrants are able to enter the market. These producers are not yet able to buy expensive equipment such as washing and packaging machinery.

## Government initiative

In July 2022 Ebrahim Patel, minister of trade, industry and competition, announced preliminary tariffs on frozen potato chips originating in or imported from Belgium, Germany and the Netherlands. Patel's decision was based on a report written by the International Trade and Administration Commission of South Africa (ITAC) after the trade administrator launched its own investigation based on its suspicions that countries might be dumping frozen potato chips on the South African market.

After investigating various European countries, ITAC found that some or all producers and/or exporters from Germany, Belgium and the Netherlands were exporting frozen potato fries to Southern Africa at a dumping margin of between 10 and 190%.

The report also showed that local frozen potato chip producers' profits and employment declined over the past three financial years (2018 to 2021). Furthermore, the market share of both local manufacturers as well

as countries that did not import fries through predatory practices declined, while only those employing predatory practices were able to expand their market share.

Subsequently, temporary anti-dumping tariffs were introduced as this type of predatory trade goes against international trade rules as set out by the World Trade Organization (WTO). However, the term for these tariffs have lapsed and consequently the industry is holding its breath to see if this will lead to increased dumping.

## Alternatives for new farming entrants

Dawie Roodt, chief economist at the Efficient Group, says it wasn't necessarily a bad thing if other countries wanted to subsidise South Africa with cheap food. "If they want to dump, let them. Any type of tariff skews the free market system."

He says it is more important that the South African government should create an enabling environment, which would make it easier for entrepreneurs to enter and exit a market when it was more or less lucrative. "Our producers need to be able to make business decisions quicker. This can be done with less bureaucratic red tape, labour issues and taxes. It will also enable emerging farmers to stand on their own feet as soon as possible."

**Table 1: Distribution of fresh and frozen potato sales between South African households based on household income. (Source: Dr Hester Vermeulen, Bureau for Food and Agricultural Policy)**

	Low income (least affluent 30% of households, expenditure deciles 4 to 6)	Lower middle income (30% of households, expenditure deciles 4 to 6)	Upper middle income (20% of households, expenditure deciles 7 to 8)	Affluent (most affluent 20% of households, expenditure deciles 9 to 10)
	<b>Estimated market share of socio-economic sub-group</b>			
Potatoes (fresh)	22%	34%	23%	21%
Potato chips frozen	2%	8%	25%	65%

Roodt adds that governmental inefficiencies, such as high electricity prices and failing road infrastructure, are hampering South African producers' abilities to produce food at competitive prices.

Francois Knowles, registrar of the Agricultural Produce Agents Council (APAC), says producers who are new to the industry should consider selling their products at fresh produce markets rather than supplying major frozen potato chip manufacturers.

"Farmers should do a bit of market research because there is a possibility that they can start managing the prices they would like to earn for their produce, even if the potatoes are unwashed. I'm certain they could possibly find a buyer for their produce."

**Consumer protection**

In February *Moneyweb* reported that food inflation was very high and that this anti-dumping tariff did not benefit

struggling consumers. "We need to do everything in our power to bring prices down, which includes doing away with unnecessarily heavy duties," Fred Hume, managing director of Hume International told *Moneyweb* at the time.

However, Jacobs says it is important to note that frozen French fries are included in the basic food basket used by government to determine food inflation. "The escalation in the frozen French fry retail price as a result of load shedding creates a distortion to the actual fresh potato inflation in South Africa. The latter was significantly lower than general consumer price inflation. In short: Fresh potatoes are increasingly becoming an inflation counter – offering a safe haven for consumers."

Dr Hester Vermeulen, head of Consumer Economics at the Bureau for Food and Agricultural Policy (BFAP), says it is also inaccurate to

assume that frozen French fries had an impact on the affordability of lower income groupings. According to her, only 10% of frozen potatoes are consumed by low and lower middle-income groupings (LSM 1 to 6), which make up about 60% of South Africa's households. Most frozen potato chips (65%) are bought by affluent households (LSM 9 and 10) and the remaining 25% by the upper middle-income households (LSM 7 and 8).

"With regard to fresh potatoes, the expenditure-based market shares are distributed across the socio-economic spectrum. However, for frozen potato chips (purchased from retailers) the market is dominated by affluent consumers, followed by upper middle-income consumers," Vermeulen says. "It should, however, be noted that frozen potato chips for the fast food industry are consumed by a wider range of socio-economic segments." ©

For more information, email Willie Jacobs at [willie@potatoes.co.za](mailto:willie@potatoes.co.za), Dr Hester Vermeulen at [hester.v@bfap.co.za](mailto:hester.v@bfap.co.za), or Francois Knowles at [francois@apacouncil.co.za](mailto:francois@apacouncil.co.za).

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# Count every drop and make every drop count

By Susan Marais

In coming years, the energy-water-food nexus will continue to suffocate the bottom line of potato and seed potato producers with a careless attitude towards their water management strategies.

Although several climate change models have indicated that the expected warmer, more arid climate that regions such as the Western Cape's Sandveld can expect towards 2050 will benefit potato producers, one inescapable reality remains: South Africa will remain a water scarce country, while its inhabitants' need for fresh, clean water will keep increasing.

In fact, water scarcity remains one of the planet's biggest problems of the 21st century, says Felix Reinders, a South African agricultural engineer and chairperson of the Food and Agriculture Organization of the United Nations' (UN) Global Framework on Water Scarcity in Agriculture. "Only 3% of all water is freshwater and of that 3% about two thirds are trapped at the North and South Poles. So, in effect we only have about 1% of the world's water that can be used by humanity, and this needs to be divided between irrigation (agriculture), households, industries and mining."

## Local water usage

While water is of global concern, it should be especially close to South Africans' hearts, as the tip of Africa is regarded as the thirtieth driest country on earth, Reinders says. In South Africa, the average rainfall is about 495 mm/year. In volume terms this translates into 110 billion m<sup>3</sup>/year and of that about 60 billion m<sup>3</sup> evaporates. This means that 50 billion m<sup>3</sup> of the rain will end up in our rivers and dams, as well as groundwater,

as a result of rain or runoff. In total, about 32 billion m<sup>3</sup> is captured in the country's dams and is then distributed among the various industries.

"South Africans use about 18 billion m<sup>3</sup> of water in total per year. One might say it doesn't sound too bad, but we must remember our water is in places where there are no people or development. Therefore, we still need to make plans to move the water from where it is stored to where it must be used," Reinders says.

“Equipment should be tested using measuring instruments to establish how even the water is distributed and whether the system is operating at the correct pressure.”

Reinders says population growth is compounding the problem. "If the production volumes trajectory from 1960 continues to 2050, we anticipate a deficit of between 50 and 65% of our global staple foods (such as maize, potatoes and rice)."

The reason for this growing gap is that water volumes and primary agricultural production cannot keep up with population growth. "Locally, South Africa expects that it won't be able to meet 17% of the population's water demand by 2030. While this is still seven years away, we've already tasted a little bit of this a few years

ago during the Cape Town's day zero concerns."

## The water-energy-food nexus

Water, energy and food are intertwined and interdependent, says Reinders. "If something happens to one, it has an impact on one or both of the others." For example, the impact of load shedding or power outages directly affects producers' ability to irrigate crops, which in turn has an impact on the crop's yield.

"To irrigate 1 mm of water takes about 2,5 kWh of energy [electricity] and at a cost of R2.50/kWh, it will cost R6.25/mm per hectare. For a 10 mm crop water requirement per day, it means R62.50/ha and for a 100 hectare irrigation system it is R6 250 per day. For a season in which the requirement is 600 mm the cost will be R375 000. In the case of diesel the cost will be five to seven times higher. This is precisely why South Africa's irrigation farmers are so meticulous in how they approach irrigation. Power has become the biggest expense."

Reinders says producers need to make full use of all available climatic data tools to optimise their irrigation strategy. "An irrigation system needs to be able to meet the peak water needs of the plants. South Africa is fortunate to have a computer program, SAPWAT (South African Procedure for Water Requirements), which can determine the peak crop water requirements of any crop."

While centre pivots are used with great success to irrigate potatoes, Reinders says efficiencies could be improved and losses can be limited significantly by lowering the sprinklers. (Photograph: Felix Reinders)



An agricultural engineer or designer uses this information to design a system that addresses the needs of a specific crop at a specific location. Normally an irrigation system is designed with the peak crop water requirements to irrigate 22 to 24 hours per day. "If you have energy problems (load shedding) for two or four or six hours, the producer won't be able to meet the needs of the crop for 10, 15 or 20% of the time."

From a yield perspective, a maize plant that does not receive 10% of its water requirements will have a yield loss of 20%. "In short, energy problems impact future yields."

### Alternative energy

Does this mean solar panels and generators are the answer? "Not necessarily, apart from the capital

layout, the operational cost of alternative energy such as a generator is five to seven times more than conventional power." Generators and solar panels can play a crucial role, but one should ensure that the basics are right," says Reinders. This will save producers unnecessary expenses.

Before producers consider alternative energy sources, they should first ensure that good planning has been done regarding the scheduling of irrigation. "This means that you should know [based on weather data] how much water your crop needs and when."

It could also be a good idea to make sure and get advice regarding the optimal functioning of your irrigation equipment. Equipment should be tested using measuring

instruments to establish how even the water is distributed and whether the system is operating at the correct pressure.

However, running costs are what currently impacts on our producers. During the month of January, crops' water requirements skyrocketed due to heat waves and producers had to watch their crops wither, because they simply could not meet the plants' water requirements due to energy not being available. Reinders says while alternative plans are important, they should not be implemented hastily and carelessly.

### Good management practices

As South Africa heads towards a drier agricultural cycle, Reinders says that good management practices need to be in place. "Rain cycles of so-called



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wet years and dry years occur and vary between seven and eleven years. Risk analysis must be done to make the successful cultivation of potatoes sustainable over time.”

It is critically important to make use of available technology such as

weather information, groundwater sensors and determining the right amount of water to be applied evenly at the right time. As already mentioned, the irrigation system’s functional performance must also be up to standard.

### State of our dams

South Africa is a water scarce country – an irrefutable fact that won’t change. Another fact that is set in stone is that primary water use (household use) takes precedence, so producers often have to stand second in line when it comes to water allocations. This begs the question: Shouldn’t we simply build more dams?

“South Africans are really utilising our water very efficiently,” says Reinders. “We currently have 4 500 dams with a combined carrying capacity of 32 billion m<sup>3</sup>. Most dam sites have already been identified and dams have been built there. I’m not saying there isn’t still opportunity for more dams, but there aren’t many untapped possibilities.”

Currently, a last amount of water for South Africa’s domestic users is distributed by the Lesotho Highlands Water Project from the Katse and Mohale dams. Phase 1 of the scheme has been operational since 1997 and supplies water to the larger Gauteng region.

The second phase of this project focusses on the Polihali dam and pumping stations, to further supplement water from Lesotho to South Africa. The project will provide secure and sustainable water sources to the population living in the Gauteng region, covering five provinces (Gauteng, Free State, Mpumalanga, North West and Northern Cape) of South Africa with a combined population of 26 million and 60% of South Africa’s economy.

### Global water strategies

Water shortages is a growing international concern and is directly encapsulated by six of the 17 Sustainable Development Goals (SDGs) or Global Goals of the UN. The UN aims to achieve most of these goals by 2030 and believes that these goals are a shared blueprint for peace and prosperity for people and the planet, now and in the future.

The six goals that will be addressed if water scarcity is addressed are:

- SDG 1 – the eradication of poverty.
- SDG 2 – ensuring zero hunger.
- SDG 6 – clean drinking water and sanitation for all.
- SDG 13 – taking positive action with regard to climate.
- SDG 15 – life on land.
- SDG 17 – partnerships to help achieve the SDG goals.

The last goal has to do with issues such as creating awareness and working together to try and find alternative solutions, such as desalination, says Reinders. “About 97% of the planet’s water is salty. This is a massive resource. Furthermore, we also need to work together to utilise freshwater runoff beneficially.”

“Conservation tillage can help producers to successfully increase soil’s infiltration capacity and retain water on the fields. In the Sandveld, centre pivots are used successfully to irrigate, but by lowering the sprinkler close to the canopy of the crop, losses are limited considerably,” Reinders says, adding that drip irrigation is also successfully applied where the soil’s lateral spreading ability is good. Drip irrigation, however, requires more managerial skills.


### The future of irrigation

Reinders believes in future irrigation will be done with increasingly more precision. “Precision application will be achieved with the help of soil sensor monitoring.”

Globally over 1,53 billion hectares of land are used for crop production. Of this only 300 million hectares are irrigated. The majority of the irrigated land utilises flood irrigation (80%), followed by 13% under sprinkler systems (pivot and sprinkler) and the remaining 7% are watered by micro systems (drip and micro spray).

“Currently, micro irrigation is the fastest growing method being used,” says Reinders. In South Africa, 1.4 million hectares are irrigated. Here, 14% of the irrigated lands make use of a flood irrigation system, 31% are under sprinkler systems, a total of 26% are under micro systems (drip and micro spray) and 29% are irrigated using mechanised systems (pivot, lateral and travelling gun systems).

“Globally, the trend is towards mechanised and drip irrigation,” says Reinders.

The water delivered and transferred to the Vaal River system will ensure water availability for domestic consumption, irrigation, industries and mining. 

For more information, contact Felix Reinders at [reindersfb@gmail.com](mailto:reindersfb@gmail.com) or 082 495 0332.



# Beskerm só jou aartappels teen LEPIDOPTERA- PESTE

*Die Orde Lepidoptera is daarvoor bekend dat dit van die belangrike peste (snywurm, Afrika-bolwurm en aartappelmot) op aartappels insluit. Hierdie insekspesies kan groot opbrengsverliese in aartappellande regoor Suid-Afrika veroorsaak indien dit nie beheer word nie. Ander larwes soos die tamatie-valslandmeter, kool-valslandmeter, klein kommandowurm en die tamatieblaarmyner mag ook voorkom. Die korrekte insekdoderprogram is die sleutel tot die beveiliging van jou aartappelgewasse hierdie seisoen.*



# BULLETIN

## Hoe om Lepidoptera-pestete beheer

Geïntegreerde beheer van die aartappelmot is krities om getalle onder die ekonomiese drempel te hou, asook insetkoste te beperk. Daar is 'n verskeidenheid natuurlike vyande in Suid-Afrika en die keuse van insekdoder is dus belangrik om die impak op hulle te verlaag. Operd is noodsaaklik om die blootstelling van knolle aan larwes te verminder. Chemiese beheer moet met die nodige omsigtigheid toegedien word om die maksimum impak op die pes te hê met die minste impak op die omgewing.

Maak gebruik van die verskillende chemiese groepe om 'n volledige spuitprogram saam te stel. **Bayer** het piretroïedes (**Decis® Forte** en **Bulldock® 125 SC**) en die diamied (**Belt®**) wat gebruik kan word in 'n spuitprogram. Indien die piretroïedes aan die begin en einde van die groeiseisoen gebruik word, behoort dit die minste effek op die omgewing te hê met die hoogste impak op aartappelmotlarwes.

Piretroïedes is steeds van die beste groep produkte vir snywurmbeheer. Gebruik **Decis® Forte** of **Bulldock® 123 SC** om snywurm tydens die plantproses te beheer. Omdat hierdie 'n relatiewe harde groep chemikalieë is, sal 'n vroeë toediening die effek op voordelige insekte minimaliseer. **Decis® Forte** het net een isomeer en daarom sal dit die minste beïnvloed word deur ongunstige omgewingstoestande (warm, droë grond). Die struktuur verseker ook 'n egalige verspreiding wat die opname en effektiwiteit verbeter. Die spesifieke formulering verseker ook vinnige uitklopaksie, wat die potensiële negatiewe impak minimaliseer.

**Belt®** behoort aan die diamiede groep en is bekend vir sy uitstekende uitwerking op Lepidoptera-pestete. Na die inname van **Belt®** (flubendiamied) hou die larwe op voed, raak verlam en gaan dood. **Belt®** het 'n translaminêre translokasie en daarom is die produk in staat om deur die blaar te beweeg al is dit net aan een kant aangewend.

Om jou aartappeloes te beskerm, vereis 'n geïntegreerde gewasbeskermingsprogram wat die spesifieke omstandighede en behoeftes van jou plaas aanspreek.

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## Wat om in gedagte te hou tydens die beplanning van 'n pesbeheerprogram

Die eerste ding wat jy in gedagte moet hou as jy 'n pesbeheerprogram beplan, is om 'n duidelike tydlyn op te stel wat aandui wanneer die pes teenwoordig gaan wees om te verseker dat toediening op die regte tyd plaasvind. Dit is nie net belangrik om 'n pesbeheerprogram vir individuele gewasse op te stel nie, maar om ook die beweging van peste na aangrensende lande in berekening te bring. Verder is dit ook belangrik om van plaaslik-geregistreerde produkte gebruik te maak, volgens die venster-benadering, en om chemiese middels met verskillende metodes van werking te gebruik om die opbou van weerstand te verhoed. Dit is ook belangrik om die aanbevelings van die vervaardiger te verstaan en te volg om die effektiwiteit van die produkte te verseker.

Die beplanning van 'n effektiewe pesbeheerprogram begin vandag! Maak **Bayer** jou nommer een keuse vir gewasbeskermingsprodukte om jou aartappellande veilig te hou.

Vir meer inligting oor hoe ons produkte jou boerdery kan baat, besoek [www.cropscience.bayer.co.za](http://www.cropscience.bayer.co.za).

**Belt®** Reg. Nr. L8860. Bevat Flubendiamied (Versigtig).  
**Bulldock®** Reg. Nr. L4540. Bevat Beta-siflutrin (piretroïed) (Skadelik).  
**Decis® Forte** Reg. Nr. L6563. **Decis® Forte** bevat Deltametrien (Skadelik).  
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## Limpopo-kultivarproef onder besproeiing op Dendron in 2022

Deur Chantel du Raan, Aartappels SA

**D**ie Limpopo-aartappel-produksiegebied produseer sowat 22% (2019-oesjaar) van die totale aartappelproduksie in Suid-Afrika – die hoogste van die land se aartappelproduksie-areas. Hierdie streek plant onder besproeiing met die oog op die produksie

van tafelaartappels en verwerking. Die hoofkultivars vir tafelaartappelverbouing sluit in Mondial, Valor en Sifra.

Proewe word uitgevoer op Dendron, 'n klein Bosveld-dorpie geleë op die R521, ongeveer 61 km noordwes van Polokwane. Dendron is 'n tropiese somerreënvalgebied met

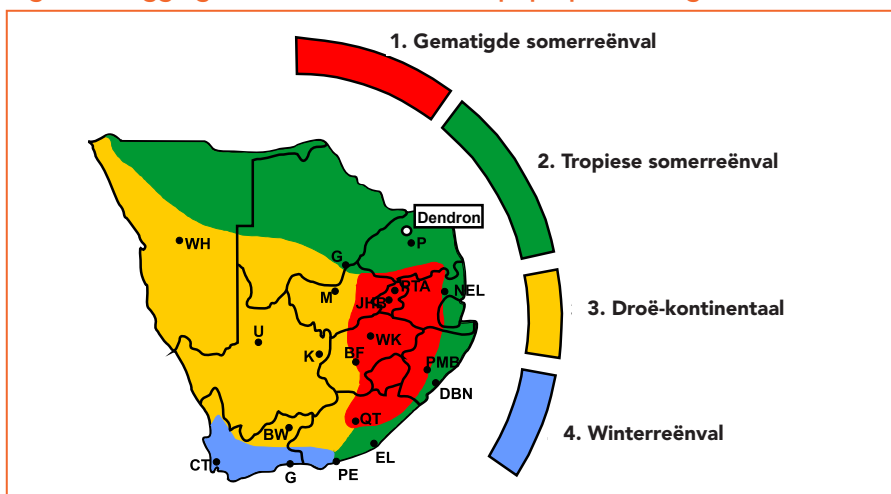
'n jaarlikse gemiddelde reënval van 403 mm/jaar (*Figuur 1*).

Die gebied word gekenmerk deur baie lang, warm en gedeeltelik bewolkte somers, terwyl die winters weer kort, koel en droog is. Een van die redes waarom hierdie streek so 'n groot bydrae tot die bedryf kan maak, is omdat die streek twee seisoene het. Dit sluit in 'n vroeë aanplanting wat gedurende Januarie tot Maart geplant word en die hoofaanplanting wat vanaf April tot en met Julie geplant word.

Die 2022-proef is in 'n ewekansige blokontwerp uitgevoer in sandleemgrond, met drie herhalings. Verdere tegniese inligting rakende die proefperseel en uitleg is in *Tabel 1* opgesom.

Dit is belangrik om daarop te let dat groeitydperke kultivaropbrengs kan beïnvloed. Groeitydperk word omskryf as die aantal dae vanaf opkoms tot natuurlike loofafsterwe, afhangend van die seisoen.

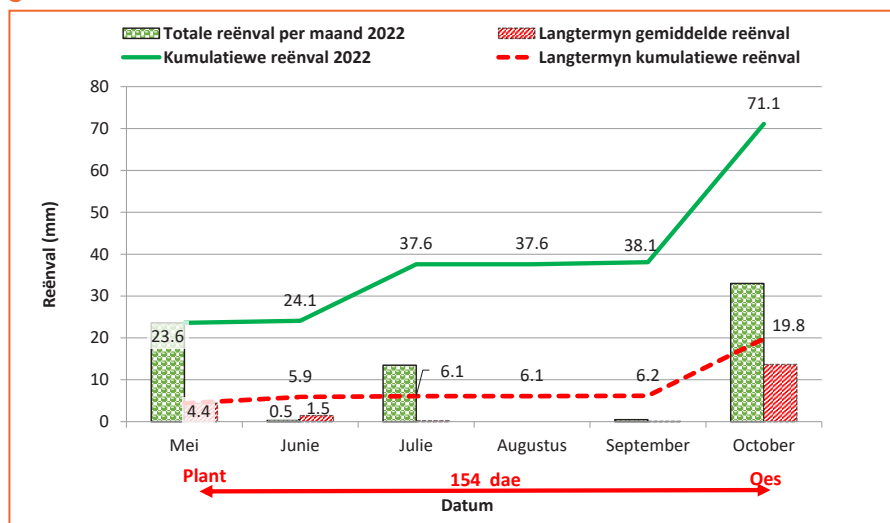
**Figuur 1: Ligging van Dendron in die Limpopo-produksiegebied.**



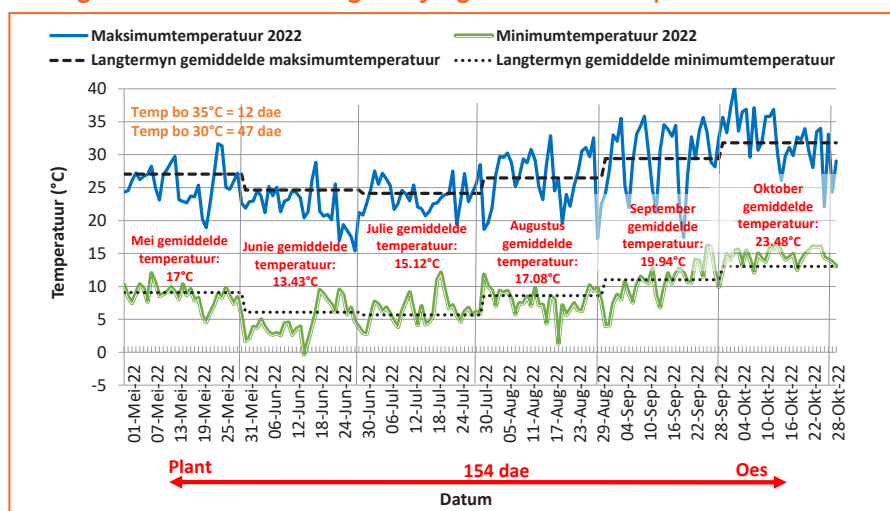
Tabel 1: Opsomming van tegniese inligting rakende proefperseel en uitleg.

Plaas	Zandput Boerdery
Boer	Mossie Jongbloed
Plantdatum	11 Mei 2021
Oesdatum	30 September 2021
Besproeiing/droëland	Besproeiing
Dubbel- of enkelrye	Twee enkelrye per kultivar
Loofafsterwe	Natuurlik
Tussenry-spasiëring	0.75 m
Inry-spasiëring	0.30 m
Proefperseel per eenheid	18 m <sup>2</sup>
Plantestand	44 444 plante/ha

Figuur 2: Reënval gedurende die 2022-groeiseisoen asook die langtermyn gemiddelde reënval.



Figuur 3: Minimum- en maksimumtemperatuur (°C) gedurende die 2022-groeiseisoen asook langtermyn gemiddelde temperature.



Die presiese tydsberekening van die vier groeifases hang af van die omgewing en bestuurspraktyke wat wissel tussen lokaliteite asook kultivars, onder andere as gevolg van verskillende groeiperiodes. Die kultivars, plantgereedheid van moere, stand (%) en halmteeling van hierdie proef word in Tabel 2 aangedui.

**Faktore wat gehalte beïnvloed**

Temperatuur, dagliglengte en water is die belangrikste abiotiese faktore wat die groeipatroon, opbrengs en gehalte van aartappels beïnvloed. Om te bepaal wat die aanpassingsvermoë van nuwe kultivars in die Dendron-omgewing is, is dit belangrik om hierdie faktore in aanmerking te neem wanneer die prestasie van verskillende kultivars geëvalueer word.

Dit is ook belangrik dat die kultivars vir 'n aantal seisoene geëvalueer word, omdat klimaat van seisoen tot seisoen verskil. Daaglikse asook langtermynweerd data (laaste vyf jaar) is vanaf die Zandput-stasie op die proefperseel verkry. Ondergemiddelde reënval is regdeur die groeiseisoen van 2022 aangeteken. Kumulatiewe reënval vir die groeiseisoen (71.1 mm) was hoër as die gemiddelde kumulatiewe langtermynreënval van 19.8 mm (Figuur 2).

Die maksimum- asook minimumtemperatuur (Figuur 3) was regdeur die 2022-groeiseisoen baie wisselvallig. Gedurende Junie was beide die maksimum- en minimumtemperatuur heelwat laer in vergelyking met vorige jare (langtermyn data). Lae temperature is ook gedurende Mei (4.57°C), Junie (-0.38°C) asook Augustus (1.3°C) ondervind. Wat die maksimumtemperatuur betref, was die temperatuur gedurende die groeiseisoen vir 'n tydperk van 12 dae bo 35°C en vir 47 dae bo 30°C.

Hitte-eenhede is ook 'n belangrike faktor om in ag te neem, aangesien die ontwikkeling van die plant hoofsaaklik gebaseer is op die versameling van hitte-eenhede. Daar word dus aanvaar dat die plant 'n sekere aantal hitte-eenhede moet versamel om 'n ontwikkelingsfase te voltooi. Die hitte-eenhede van die

Tabel 2: Karaktereienskappe rakende groeiperiode, plantgereedheid, stand (%) en halmtellings vir elke kultivar in 2022.

Agent	Kultivar	Groeitydperk (Dae) <sup>1</sup>	Plant-gereedheid <sup>2</sup>	Stand (%)	Halms per plant	Halms per ha
	Belmonda	Kort	2	61.8	4.1	112 612
	Connect	Medium tot lank	1.5	85.3	1.9	72 030
JAARTEPPELVAAR BEIRIS POTATO SEED EXCHANGE	Foxy	Kort tot medium	4	88.2	5.2	203 838
	Lanorma	Kort	3	85.3	3.4	128 896
	Mondial	Medium tot lank	4	79.4	3.2	112 923
	Panamera	Lank	3	100	2.5	111 110
	Sababa	Medium tot lank	3	88.2	1.8	70 559
	Sifra	Kort tot medium	1	82.4	2.1	76 906
	Sound	Medium	5	79.4	6.6	232 904
	Tyson	Kort tot medium	2	82.4	2.1	76 906

<sup>1</sup>Algemene riglyne en kategorieë (dae vanaf opkoms tot natuurlike loofafsterwe, afhangend van die seisoen): Kort: 70 tot 90 dae; kort tot medium: 80 tot 100 dae; medium: 90 tot 110 dae; medium tot lank: 90 tot 120 dae; lank: 90 tot 140 dae.

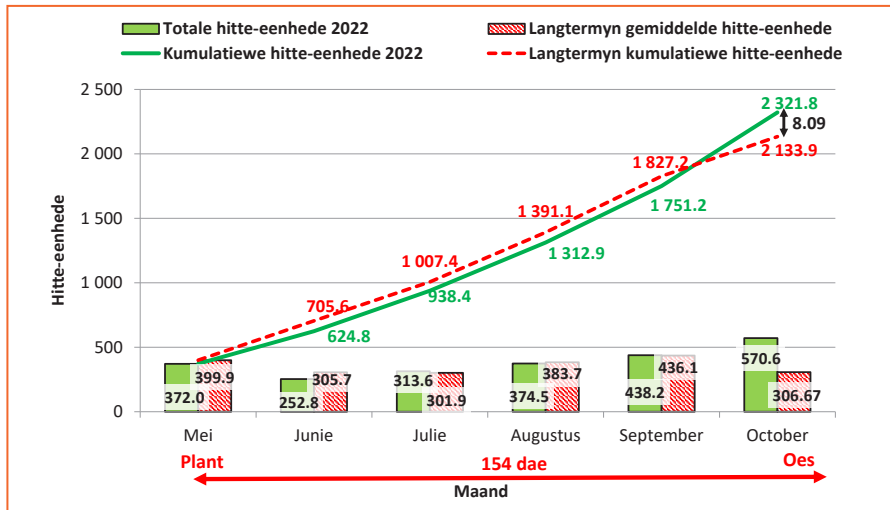
<sup>2</sup>Plantgereedheid van moere: 1 - vars, 2 - effens vars, 3 - plantgereed, 4 - effens oud, 5 - oud.

Tabel 3: Hoofredes vir afgradering tydens die 2022 Dendron-oes.

Kultivar	Duimnaelkrake	Groeikrake	Insekskade	Meganiese beskadiging	Misvorming	Motskade	Nerflos	Rhizoctonia	Growweskil	Sandspleet	Silwerskurf en swartspikkel	Vergroening	Vrot	Waterpuisies
Belmonda						X								
Connect				X							X	X		
Foxy											X	X		
Lanorma						X					X			
Mondial					X		X		X		X			
Panamera		X				X	X				X	X		
Sababa					X	X				X				X
Sifra						X						X		
Sound	X										X			
Tyson						X							X	

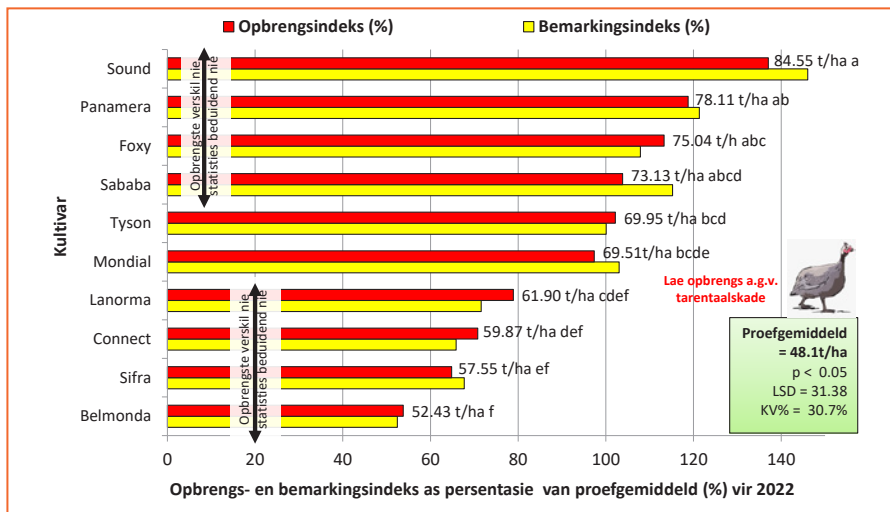
<5% insidensie 5 tot 15% insidensie >15% insidensie

**Figuur 4: Hitte-eenhede gedurende die 2022-groeienseisoen asook langtermyn gemiddelde hitte-eenhede.**



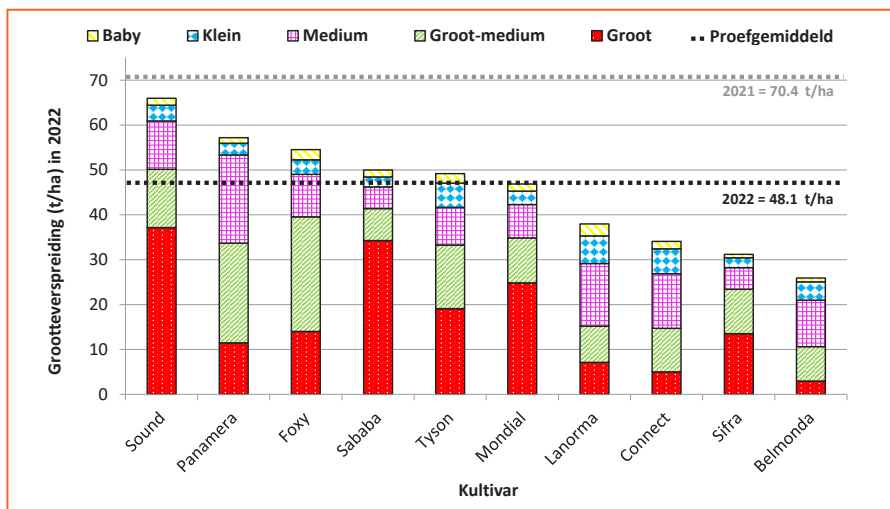
\*Totale hitte-eenhede spesifiek bepaal vir aartappels (drumpeltemperatuur = 5°C) as gewas bereken vanaf uurlikse data.

**Figuur 5: Totale opbrengs en bemarkingsindeks per kultivar as 'n persentasie van die proefgemiddeld.**



\*Waardes gevolg deur dieselfde letter is nie beduidend verskillend van mekaar nie.

**Figuur 6: Groottegroepverspreiding van elke kultivar gedurende finale oes.**



2022-groeienseisoen het dieselfde tendense getoon as langtermyn data, met die uitsondering van Oktober (Figuur 4). Aan die einde van die seisoen was die 2022-groeienseisoen se kumulatiewe hitte-eenhede 8.09% laer as die kumulatiewe langtermyn hitte-eenhede.

**Kultivarprestasie en opbrengste**

Die opbrengsdata is statisties verwerk met behulp van die GenStat®-program en die gemiddelde was geskei deur gebruik te maak van die Tukey KBV-toets. Die kultivareffek gedurende die 2022-proewe (Figuur 5) was statisties beduidend ( $p < 0.05$ ) ten opsigte van opbrengs, terwyl die koëffisiënt aanvaarbaar (30.7%) was. Dit dui dus daarop dat die proewe goed uitgevoer is en die resultate betroubaar is.

Die gemiddelde opbrengs vir die 2022-seisoen se kultivarproef was 48.1 t/ha. Dit is baie laer as in vorige jare as gevolg van tarentaalskade. Gedurende die 2022-proewe (Figuur 5) het die kultivars Sound, Panamera, Foxy, Sababa en Tyson die hoogste opbrengste gelewer. Sound, Panamera, Foxy, Sababa en Tyson het 'n hoër opbrengste as die proefgemiddeld (48.1 t/ha) gelewer.

Ten einde kultivars se prestasie in terme van opbrengs en gehalte te bepaal, is die opbrengs, grootteverspreiding en klas gebruik om 'n bemarkingsindeks teen die gemiddelde markprys vir die betrokke dag te bereken. Die opbrengs, vermenigvuldig met die heersende prys wat bepaal word deur die grootteverspreiding en gradering, lewer die bemarkingsindeks (Figuur 5).

Sound het die hoogste bemarkingsindeks behaal; dit kan toegeskryf word aan 'n kombinasie van 'n hoë persentasie groot knolle (Figuur 6) en 'n hoë persentasie Klas 1 (Figuur 7) wat die kultivar gelewer het. Grootteverspreiding en gradering is dus ook faktore wat gebruik word om aartappels te klas. Daarom is dit belangrike faktore om in ag te neem ten einde 'n optimale, ekonomiese, bemerkbare opbrengs te verseker. In Figuur 6 word die grootteverspreiding, in Figuur 7 die

Tabel 4: Prosesseringseienskappe en interne kwaliteit vir 2022. (Uitgevoer deur LNR-Roodeplaat)

Kultivar	SG <sup>1</sup>	Droëmateriaal (%) <sup>2</sup>	Holhart	Bruinvlek
Belmonda	1.077	19.61	–	–
Connect	1.075	19.12	–	–
Foxy	1.061	16.17	–	–
Lanorma	1.076	19.44	–	–
Mondial	1.073	18.77	–	–
Panamera	1.065	17.00	–	–
Sababa	1.076	19.43	–	–
Sifra	1.071	18.41	–	–
Sound	1.079	19.99	–	–
Tyson	1.064	16.93	–	–
≥ Norm (Aanvaarbaar vir prosessering)		< Norm (Onaanvaarbaar vir prosessering)		

<sup>1</sup>Soortlike gewig van >1.075 is aanvaarbaar vir die prosesseringsbedryf.

<sup>2</sup>Die persentasie droëmateriaal is 'n berekende waarde:  $DM\% = 24.182 + 211.04 * (SG - 1.0988)$ . Die werklike persentasiewaarde sal effens verskil tussen kultivars uit hierdie berekeningswaarde.

opbrengsgradering, en in Tabel 3 die hoofredes vir afkeuring van die onderskeie kultivars aangetoon.

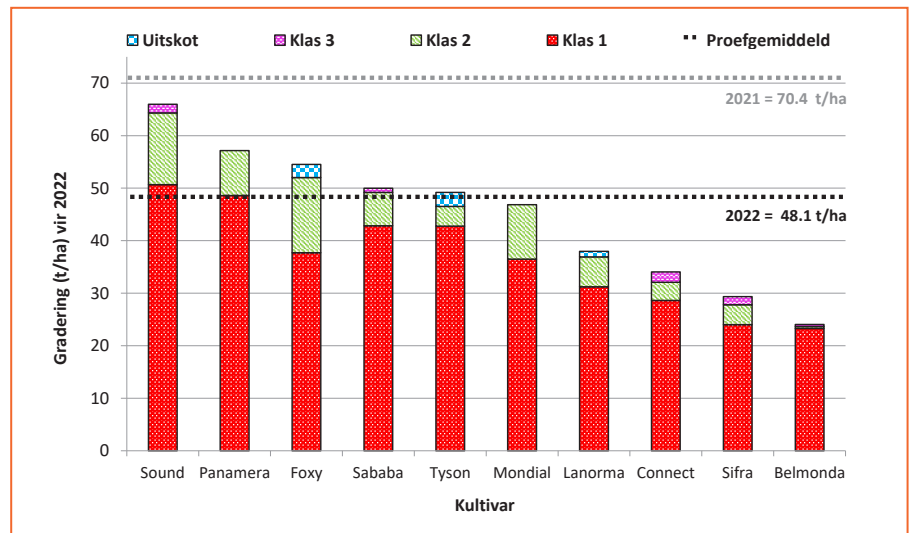
**Kultivarprestasie**

Dit is belangrik om te let op die kultivars se vermoë om konsekwent te presteer, ten spyte van klimaatwisseling oor tyd. Figuur 8 toon die drie-jaar data vir die kultivarproewe in die Dendron produksie-area. Die koëffisiënt van variasie tussen die drie jaar word boaan elke kultivar aangedui. Dit blyk dat Panamera en Sound die minste variasie toon vir die Dendron-area.

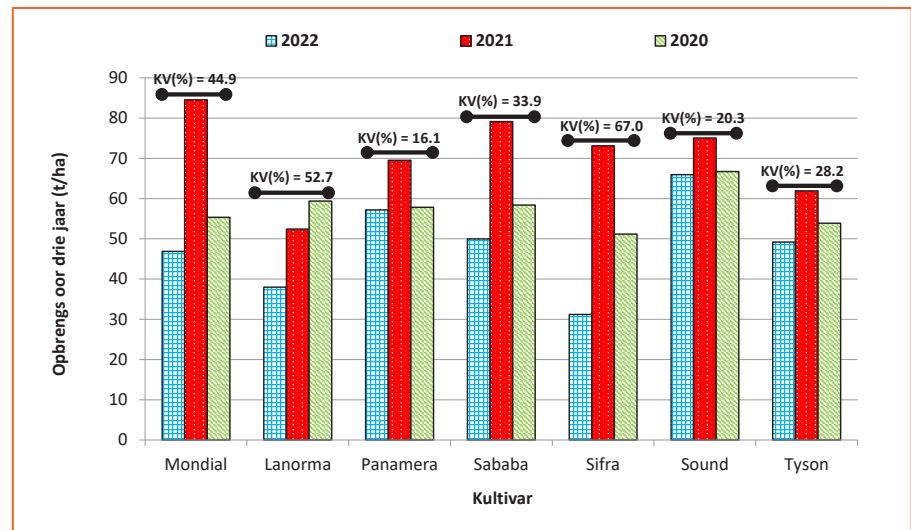
Verder is dit ook belangrik om op die interne kwaliteit van die produk te fokus ten einde ekonomiese, optimale, bemerkbare opbrengs en dus winsgewendheid te verseker. Dit sluit belangrike faktore in soos die prosesseringseienskappe, soortlike gewig (SG) asook inwendige defekte (holhart en bruinvlek) wat in Tabel 4 en 5 opgesom word.

Gedurende die 2022-groeiseisoen kon die Landbounavorsingsraad (LNR) weens tegniese probleme nie die skyfiekleurresultate verskaf nie. Wat betref die SG het Belmonda, Connect, Lanorma, Mondial, Sababa en Sound aan die norm van ≥1.075 voldoen vir prosessering. Wat inwendige defekte betref, het holhart en bruinvlek by geen kultivar voorgekom nie (Tabel 5). 📍







Figuur 7: Gradering van elke kultivar gedurende finale oes.



Figuur 8: Prestasie van kultivars oor drie jaar uitgedruk as 'n persentasie van die proefgemiddeld.



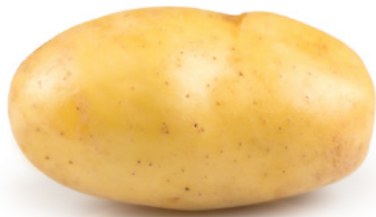
Tabel 5: Vleeskleur en interne kwaliteit van opbrengs vir Dendron in 2022.

				
<b>Belmonda</b>	<b>Connect</b>	<b>Foxy</b>	<b>Lanorma</b>	<b>Mondial</b>
				
<b>Panamera</b>	<b>Sababa</b>	<b>Sifra</b>	<b>Sound</b>	<b>Tyson</b>

Baie dankie aan ons medewerkers: Mossie Jongbloed, produsent, Schalk Grobbelaar, werkgroepvoorsitter, Jeanine van Jaarsveld, FPD, Chris Prinsloo, Wesgrow, Michelle Lombard, RSA Saadbeurs, en Renier Fourie, GWK. Vir meer inligting, kontak Dirk Uys van Aartappels SA by [dirk@potatoes.co.za](mailto:dirk@potatoes.co.za).



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PLANT HEALTH

# Nature is always one step ahead

By Dirk Uys, Potatoes SA

As nature changes, we see the emergence of new pests and diseases while older ones adapt to survive. This is evident in the current challenges we are facing in controlling pests such as potato tuber moth and tomato leaf miner (*Tuta absoluta*) due to a sensitivity shift as reported in *CHIPS* November/December 2022.

To make matters worse, there are challenges set by regulatory authorities, including the European Union (EU) Green Deal as well as local amendments to local crop protection products which are also facing non-renewal under the *Fertilizers, Farm Feeds, Seeds and Remedies Act, 1947 (Act 36 of 1947)* which regulates the use of crop protection remedies.

During the past season, the potato industry was hard hit by the devastation caused by potato tuber moth as reported in *CHIPS* January/February 2023. This commissioned study by researchers from the North-West University indicates that trusted insecticides including the organophosphates, pyrethroids and inhibitors of chitin biosynthesis are showing a sensitivity shift resulting in weaker control. To make matters worse, higher temperatures combined with the impact of load shedding tends to favour the population increase of the potato tuber moth complex, causing havoc in many production regions.

A similar study reported in *CHIPS* March/April 2021 shows that *Alternaria* diseases are also presenting a sensitivity shift against trusted fungicides with different modes of action. To aggravate this state of affairs, widely used fungicides such as mancozeb are also facing the challenge of non-renewal in the EU. New crop protection solutions are expensive to develop and take many years to approve.

An article in *CHIPS* September/October 2022 also highlighted

how the EU Green Deal will impact agriculture with the bold ambitions to:

- Reduce the overall use and risk of chemical pesticides by 50% by 2030.
- Reduce nutrient losses by 50%.
- Reduce fertiliser use by at least 20%.

## Crop protection efforts

In South Africa, potatoes are one of the most expensive crops when it comes to protection against pests and diseases. Potato crop protection is costing the industry approximately R1.4 billion every year, which amounts to potato producers paying an average of R27 000/ha to keep their crops pest- and disease-free. This means that at least 10% of a grower's input costs is linked to crop protection. Keeping this in mind, we need to continue to grow potatoes efficiently and affordably to provide our consumers with a good quality large-sized potato without blemishes and that has a long shelf life.

Fortunately, South African producers are solution driven. As the saying goes, " 'n Boer maak 'n plan!" To adapt to these market challenges the research team at Potatoes SA is promoting collaboration between research centres including the Agricultural Research Council (ARC), the Western Cape Department of Agriculture, and our leading agricultural research universities.

Fortunately, many diseases and pests can be efficiently predicted and managed based on their environmental condition requirements. This is highlighted

in the disease triangle (*Figure 1*) which shows that a disease can only develop in the presence of a causing organism, the right environment and a susceptible host.

As a result, more focus should be placed on the modelling and prediction of pest and disease risks.

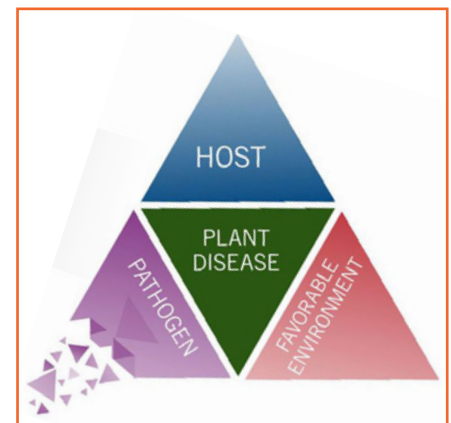
The following must be a priority:

- Climatic modelling to predict incidences.
- Monitoring of pests and diseases through trapping.
- Avoiding diseases through prevention which is the priority of the Potato Certification Scheme.
- The incorporation of biologics.
- Optimising crop health.

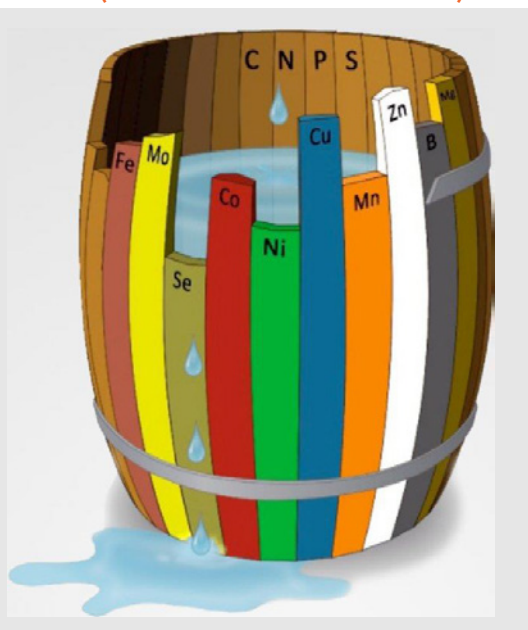
## Prediction and modelling

Great effort has gone into problem prediction. In the case of insects such as potato tuber moth and tomato leaf miner, pheromone traps are available to estimate the presence of male moths. The same goes for late blight

**Figure 1: The disease triangle.**  
(Source: [www.growingproduce.com](http://www.growingproduce.com))



**Figure 2: Von Liebig's law of the minimum states that the potential of a plant is restricted by the nutrient that is most deficient. (Source: Fernando G Feroso)**



which can be predicted based on humidity and temperature.

The use of spore traps is also successful in creating early disease awareness. This is a tool used in the

citrus industry to monitor citrus black spot.

**Biologicals**

Until very recently, biologicals were classified as 'snake oils'. Fortunately, this perception is changing. The EU Green Deal is also committing to funding the development of new biologicals. These products are also easier to approve.

These biological compounds can complement traditional crop protection products. In cases where sensitivity shifts occur such as what we are seeing in potato tuber moth, *Alternaria* and late blight, we find that populations do carry a fitness penalty. This means that they are easier to control with biological compounds if correctly positioned in a programme at the right time of the potato's growth and the pest or disease's life cycle. For this to be effective, each pest or disease needs to be very well understood.

**Crop health**

A healthy crop is less prone to develop diseases or be attacked by

insects. Therefore we must understand the interaction between nutrients. Two important laws come into play:

- The law of the minimum, coined by the German scientist Justus von Liebig, which concludes that if only one nutrient is deficient, it will restrict the growth potential of a plant (Figure 2). This becomes even more relevant when fertiliser processes are increased. Von Liebig's law recommends looking at the complete picture. It may be that N-P-K is in abundance, but the potato's potential is restricted by a deficiency of a micro-element such as Se, for example.
- This should be looked at in combination with the work defined by Mulder (Figure 3) which shows how these nutrients interact with each other, resulting in antagonism and synergism.

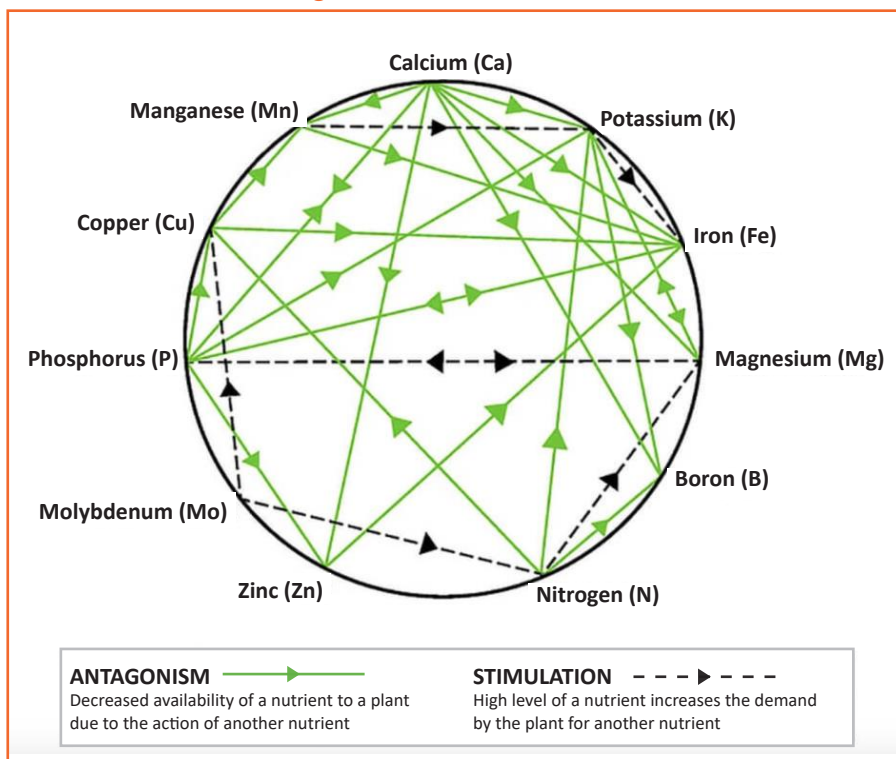
**The way forward**

The EU Green Deal and amendments to the *Fertilizers, Farm Feeds, Seeds and Remedies Act* has triggered us to think in new ways. Biologicals should be better understood and incorporated in crop protection strategies. Plant growth enhancers will also contribute to enabling potatoes to manage the onslaught of environmental challenges more efficiently.

It is valuable to go back to the basics by understanding the disease triangle, Von Liebig's law, and Mulder's chart.

As an industry, we should review blanket programmes which are often associated with marketing tools such as combination deals. In the coming season, much emphasis will be placed on working with the potato industry to support growers to optimise efficiency by promoting the more efficient application of products, and reducing pesticide and fertiliser waste associated with a product not reaching its target. 🍅

**Figure 3: Mulders chart highlights the interaction between minerals in soils. (Source: [www.nutriag.com/mulderschart/](http://www.nutriag.com/mulderschart/))**



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# In-voor toedienings gee jou aartappels 'n stewige wegspring

Deur dr Anneli Heyns, projek- en kommunikasiebestuurder, Nutrico

**M**et die groeiseisoen om die draai is dit nou die tyd om gedagte te gee aan veranderinge wat jy kan aanbring om gewasproduksie te optimaliseer. Aartappelmoerbehandeling en bestuurspraktyke wat voedingstofdoeltreffendheid optimaliseer, is uitstekende maniere om opbrengste met die volgende oes te maksimeer.

## Plasing van voedingstowwe

Die beste voedingsprogram en die ideale plasingmetode hang onder andere af van die gewastipe, wortelstruktuur en voedingstofinhoud van die grond.

Dit is welbekend dat wanneer stikstof (N) in of op die grond toegedien word, twee groot transformasies met die ammonium gebeur wat veroorsaak dat dit buite die plant se bereik bly en verlore gaan: vervlugtiging en loging. Ander voedingstowwe soos fosfor (P) kan in minerale-strukture vasgelê word, wat lei tot lae beskikbaarheid.

Albei hierdie voorbeelde toon 'n verlies aan voedingstowwe by die plant en 'n verlaagde opbrengs op jou voedingstof-toedieningsbelegging. Deur gewasse te voorsien van die voeding wat hulle van meet af benodig, kan jy gesonder plante en beter opbrengste realiseer.

## In-voor toedienings

Voedingstowwe wat tydens plant by die saad of aartappelmoer geplaas word, word in-voor voeding genoem. Sodra ontkieming plaasvind, is die nodige voedingstowwe reeds binne bereik van die gewas se wortels; dit is in teenstelling met breedwerpige uitstrooi van saad waar die wortels

aansienlik moet groei om die vereiste voedingstowwe in die grond te bereik. Sodoende word baie energie vermors wat eerder gebruik kon word om die saailing te help om uit die grond te kom en kragtiger te begin groei.

Dus kan aartappelmoere noodsaaklike voedingstowwe baie vroeër absorbeer en is daar meer geleentheid om die maksimum opbrengspotensiaal te bereik. Dit skep ook die geleentheid om mikrovoedingstekorte so vroeg as moontlik aan te spreek, selfs voordat blaarbespuitings 'n opsie raak.

In-voor toedienings lewer voedingstowwe direk in die wortelsone en stimuleer sodoende vroeë ontkieming, en verbeter wortelontwikkeling en plantegroei. Die onderstaande is 'n lys van geskikte toestande vir die in-voor toediening van voedingstowwe tydens plant:

- Growwe grondtekstuur of lae vlakke van organiese materiaal in die grond.
- Swak-gedreineerde of koue grond.
- Grond met lae P- en K-toetswaardes.
- Nodale wortelstelsels wat herhaaldelik deur uitdagende groeitoestande belemmer word.
- Grond-pH wat buitengewoon hoog of laag is.
- Aansienlike verwagte droogtestres.

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geregistreer vir in-voor toedienings om voedingstoftekorte proaktief aan te spreek.

Die vloeibare formaat fasiliteer die toediening van mikrovoedingstowwe deur 'n planter en besproeiingstelsels, en skakel dus die gebruik van bykomende toerusting uit. Die voedingstowwe in die LIQUI-formulasies is ten volle geheleer om opname te verbeter deur 'n oplosbare voedingsvorm te handhaaf en die loging van voedingstowwe te verminder. Die reeks bevat ook 'n spesifieke stadige-vrystellingsfunktionaliteit wat saad- en wortelbrand verhoed, en dus vinnige en eweredige opkoms bevorder.

Die unieke reeks bestaan uit agt produkte wat elk in 'n vloeibare see-wierekstrak gekombineer is. Daarom bevorder in-voor toedienings van die LIQUI-reeks die beskikbaarheid van voedingstowwe soos sink (Zn), mangaan (Mn), boor (B), koper (Cu) en yster (Fe) vanaf die aanvanklike plantstadium, om die gewas 'n sterk begin te gee.

Deur middel van grondontledings, blaarontledings en 'n pasmaak voedingsprogram wat deur 'n ervare landboukundige opgestel is, sal Nutrico jou help om die beste in-voor program vir jou plaas te ontwikkel. Nutrico vier met trots 20 jaar van groeiende uitnemendheid in produkontwikkeling, vervaardiging en verskaffing van innoverende en volhoubare plantvoedings- en gewasbeskermingsprodukte.

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# Die leë plaagdoderhouer: Wie moet wat doen?

Deur Dr Gerhard H Verdoorn, CropLife SA

**S**uid-Afrika staan op die rand van 'n afvalfiasko. Papier, plastieksakke, voedselverpakking, koeldrankbottels en bourommel is besig om die land in 'n puinhoop te verander. Dit is asof inwoners daarop uit is om hulle lewensomgewing soos die spreekwoordelike varkhok te laat lyk. Asof die sig daarvan nie genoeg is nie, is die gevaar van onpure karakters soos bruinrotte al 'n gegewe, omdat vaste afval en rommel die ideale lewensruimte vir dié diersies skep.

Die voormalige Departement van Bosbou, Vissery en Omgewing (DBVO) het so vroeg as 2003 al ernstig begin debat voer oor die geweldige uitdagings wat afval en rommel vir die land, sy mense en die omgewing skep. Jare se dinkwerk en hande vat met die samelewing en bedryf het uiteindelik die *Nasionale Omgewingsbestuur: Afvalbestuurswet, 2008 (Wet 59 van 2008)* gelewer om die bestuur van afval sinvol aan te spreek.

Die grondbeginsels van die wet en sy ondersteunende regulasies fokus op vermindering, herwin en hergebruik, veral vir stowwe soos polimere wat verskeie kere se herprosessering kan oorleef voor dit finaal afgeskryf moet word.

## Afvalhantering op die plaas

Enige plaas, soos enige huis of bedryf, skep uit die aard van sy aktiwiteite

afval. Daar is egter 'n baie groot deel van hierdie afval wat herwin en hergebruik kan word, soos verpakkingsmateriaal waarin plaagdoders verpak word. Dit sluit onder andere in die hoëdigtheid poliëtileen (HDPE)-houers, polipropileen (PP)-houers en -sakke, lae-digtheid poliëtileen (LDPE)-sakke, papiersakke en foelie-sakke wat meestal uit polipropileen vervaardig word.

Voor 2005 is sulke verpakkings meestal verbrand, begrawe of bloot net so op plase gelaat om by te dra tot ernstige omgewingsbesoedeling. Individue en maatskappye wat in die herwinningsbedryf opereer, het sedert 2006 begin om leë HDPE-plaagdoderhouers in te samel en te herverwerk na ander kommoditeite soos vullissakke, besproeiingspype, en dies meer. Hierdie maatskappye het oor die jare ook uitgediende besproeiingspype, skadunet, grondbedekkingsplastiek en ander plastiek materiaal begin insamel.

CropLife SA het in 2008 'n poging geloods om leë plaagdoderhouers ordentlik te laat skoonmaak op plaasvlak, en dit dan te laat insamel en verwerk om ander kommoditeite van die materiaal te maak. Dit het erg gesukkel om aanvanklik vastrapplek te kry, maar teen die einde 2022 was daar reeds 165 CropLife SA gesertifiseerde verwerkers, wat met meer as 200 individue dienste aan die landbousektor verskaf om leë plaagdoderhouers in

te samel en plase dienooreenkomstig vry van enige plaagdoderverpakkings te hou.

Slegs enkele afgeleë areas moet nog versamel punte onder die vaandel van die CropLife SA-sertifisering kry en dan is daar geen verskoning vir sulke materiaal en houers om op plase rond te lê nie.

## Rolspelers se verantwoordelikhede

Nuwe regulasies oor die sinvolle bestuur van leë verpakkingsmateriaal is deur die DBVO geskep om 'n baie groot verantwoordelikheid vir die bestuur van leë verpakkingsmateriaal op die verskaffers van kommoditeite, soos onder andere plaagdoders, te plaas. Dit staan as die Uitgebreide Vervaardigersverantwoordelikhedsregulasies (UUV-regulasies) bekend.

Onder dié regulasies word verskillende kennisgewings uitgereik, soos vir algemene voedselgraadplastiek wat vir voedsel en drinkbare vloeistowwe gebruik word. Die kennisgewings spel gewoonlik die operasionele doelwitte vir vervaardigers uit, onder andere teikens vir die herwinning en verwerking van verpakking. Een van die beste voorbeelde van die suksesvolle implementering van so 'n stelsel, is dié van die poliëtileentertalataat (PET)-bottels wat vir koeldrank gebruik word en waarin nuwe koeldrankbottels alreeds amper uit 100% herwonne materiaal vervaardig word.



Gesertifiseerde diensverskaffers is reeds sedert 2022 besig om leë plaagdoderhouers in te samel en van plase te verwyder.

Plagdoderverpakking is uitgesluit van die algemene papier- en plastiek-kennisgewings omdat dit gevaarhou-dende stowwe (plagdoders) bevat en nie met verpakings van ander tipes kommoditeite gemeng mag word nie. 'n Kennisgewing vir die plagdoder-bedryf word binnekort in die *Staatskoerant* verwag en sal aan CropLife SA 'n stewige mandaat gee om seker te maak dat alle plagdoderverpakking wel op die regte wyse ingesamel en verwerk word.

Daar bestaan 'n ernstige wanper-sepsie by produsente en verbruikers dat die verskaffers van plagdoders leë plagdoderverpakking van plase af moet verwyder; dit is beslis nie die geval nie. Wat wel korrek is, is dat vervaardigers 'n stelsel en infrastruk-tuur moet skep sodat verbruikers en boere wettig en op die regte wyse van leë verpakking ontslae kan raak. Alle rolspelers in die waardeketting is egter gebonde aan die vereistes vir afvalbestuur, soos omskryf in die *Afvalbestuurswet*.

### Vervaardiger verantwoordelijkheid

Vervaardigers of verskaffers van plag-doders staan onder verpligting van die *Afvalbestuurswet* en die verwagte kennisgewing oor die plagdoder-bedryf se verpakking, om aan 'n vervaardiger-verwante verantwoorde-likheidsorganisasie (VVO) te behoort wat die bestuur van leë plagdoder-verpakking namens lede behartig. So 'n VVO moet die finansiële model ontwikkel om fooie by lede te hef, infrastruktuur te skep vir die insame-ling en verwerking van verpakings-materiaal, en jaarliks verslag aan die DBVO lewer oor vordering met die oog op bereiking van doelwitte.

CropLife SA, wat die oorgrote meerderheid van die plagdoder-bedryf verteenwoordig, het alreeds die infrastruktuur geskep vir die insameling van leë plagdoder-verpakking. Dit is gebaseer op die sertifisering van individue en maatskappye wat plagdoderverpakking insamel en verwerk. Die CropLife

SA gesertifiseerde verwerkers (ons gebruik een term vir insameling en verwerking) bestaan uit 70% onafhanklike besighede en 30% CropLife SA geakkrediteerde gewasadviseurs wat almal onder die vaandel van CropLife SA, die leë verpakings-materiaal insamel en verwerk.

Verwerkers beskik oor fasiliteite om skoon, leë verpakingsmateriaal soos plastiekdromme in ontvangs te neem en is deur CropLife SA gemagtig om 'n verklaring (byvoorbeeld Griffon Recyclers se Hiresh Ramanand) van verantwoordelike herwinning aan boere uit te reik.

Elke verwerker ontvang jaarliks 'n CropLife SA-sertifikaat (byvoorbeeld Griffon Recyclers se sertifisering). Verwerkers mag slegs nominaal skoon verpakingsmateriaal in ontvangs neem, anders moet hulle geregistreer wees vir die hantering van gevaarlike afval.

### Produsent verantwoordelijkheid

Produsente wat plagdoders gebruik het die verantwoordelijkheid om leë houers drie maal te spoel en daardie spoelwater in die spuitens oor te giet, daarna gate in die houers te kap, en dan die houers aan een van die CropLife SA gesertifiseerde verwerkers te oorhandig. Sommige van die verwerkers sal wel sulke leë houers op plase oplaai, maar hulle is onder geen verpligting om rond te ry en leë houers op te laai nie. Dit is basies 'n gratis diens wat hulle aan boere lewer.

Produsente moet daarop aandrang om die verwerkers se CropLife SA-sertifisering te sien, anders sal hulle nie die vereiste CropLife SA-verklaring ontvang nie.

### Die dinge wat haak en pla

Daar is 'n onaanvaarbare persentasie leë plagdoderhouers wat nie drie keer gespoel word nie. Dit veroorsaak dat die CropLife SA gesertifiseerde verwerkers se voertuie met plagdoder-residu besoedel word, dat werkers wat met die leë houers werk aangetas word, en dat plastiek wat daaruit vervaardig word steeds plagdoderresidu bevat.




*Daar is geen rede waarom landbouers met leë plagdoderhouers op hulle plase moet sit nie. Hier is 'n klomp houers wat op een dag deur Johan Foley verwyder is.*

CropLife SA het onlangs 'n monster van verwerkte plastiek laat analiseer en gevind dat daar swamdoders, insekdoders en onkruidodders in die plastiek was. Dit bewys dat sommige produsente nie die leë houers volgens riglyne spoel nie en dus 'n gevaar vir almal in die waardeketting skep.

Ongelukkig verneem CropLife SA steeds van gevalle waar leë houers verbrand of begrawe word. Nie alleen is sulke wanpraktyke onwettig nie, maar dit veroorsaak gevaarlike omgewingsbesoedeling en skep 'n bitter swak beeld van die landbousektor. Die DBVO se Groen Skerpioene gaan vanjaar rondry en oortreders soek. Die strafmaatreëls is ernstig, met boetes wat in die miljoene mag wees. Alternatiewelik mag so 'n persoon verplig word om so 'n besoedelde plek teen 'n koste van etlike miljoene rande op te ruim.

### Oplossings wat CropLife SA bied

CropLife SA glo dat die meeste produsente die regte ding wil en sal doen om leë houers deeglik te spoel en te laat herwin. Daar is riglyne beskikbaar vir die skoonmaak van leë houers en die lys van CropLife SA gesertifiseerde verwerkers is op die webtuiste beskikbaar by [croplife.co.za/Collectors\\_Recyclers](http://croplife.co.za/Collectors_Recyclers).

Daar is feitlik geen streke in Suid-Afrika wat nie gesertifiseerde verwerkers het nie. Produsente moet eenvoudig kontak maak met die naaste verwerker en reël vir die oplaai van drie-maal gespoelde leë houers. Spoel drie maal, kap gate in en laat herwin; dis die regte ding om te doen! 

Vir meer inligting, besoek [www.croplife.co.za](http://www.croplife.co.za) of kontak die outeur by 082 446 8946 of [gerhard@croplife.co.za](mailto:gerhard@croplife.co.za).

# Wes-Vrystaatse kultivarproef onder besproeiing op Bultfontein in 2022

Deur Enrike Verster en Herman Haak, Aartappels SA, en Izak Cronjé, produsent

Die Wes-Vrystaat is 'n groot aartappelproduksiestreek met 30 produsente wat aartappels op ongeveer 6 756 ha produseer. Die mees prominente kultivars wat hier geproduseer word (ongeveer 72% moere en 28% tafelaartappels, meestal onder besproeiing) is Sifra (34%), Panamera (31%) en Mondial (17%).

Bultfontein val in Suid-Afrika se somerreënvalgebied (Figuur 1) en het vir die afgelope 18 jaar 'n gemiddelde jaarlikse reënval van ongeveer 525 mm ontvang. Die matige klimaat van die streek sluit baie warm somers (warmste in Desember/Januarie) tot koue winters in, met ryp wat vanaf April tot Augustusmaand kan voorkom.

## Kultivartoestande en uitleg

Die kultivarproef by Bultfontein is uitgevoer in sandleemgrond en die proef is uitgelê in 'n ewekansige blokontwerp met drie herhalings per kultivar. In Tabel 1 word relevante tegniese inligting rakende die proef verskaf.

Ingesluit in die kultivarproef is kultivars met kort tot lang groeitydperke en derhalwe kan groeiperiodes die uiteindelijke opbrengs van sekere kultivars beïnvloed. Die lengte van groeiperiodes is onderhewig aan die aard van die seisoen, maar word gesien as die hoeveelheid tyd wat verloop vanaf opkoms tot natuurlike loofafsterwe. Tabel 2 sit uiteen hoe groeiperiodes van kultivar tot kultivar verskil. Omgewingsfaktore en bestuurspraktyke beïnvloed ook die verskillende groeifases en wanneer dit in aanvang neem.

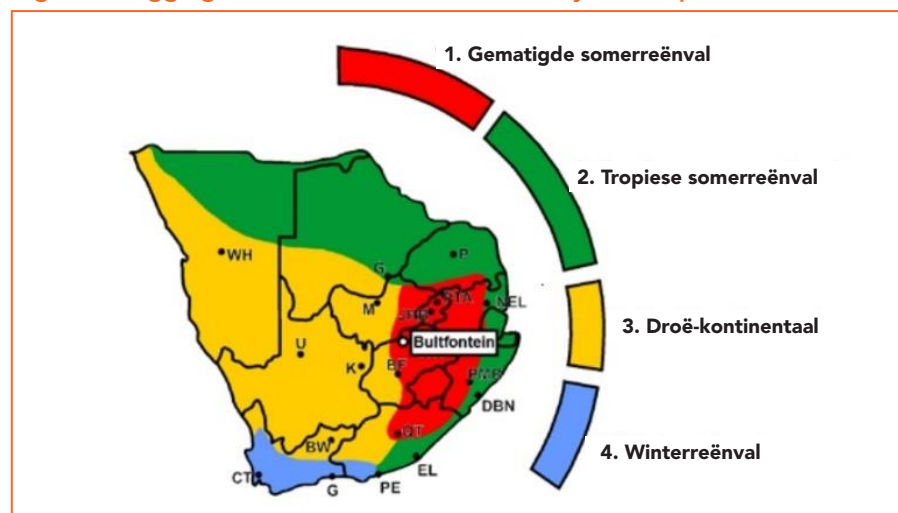
Stand en aantal halms per moer beïnvloed knolgrootte en opbrengs. Die aantal ogies per knol is kultivarafhanklik en bepaal die hoeveelheid spruite wat per knol voortgebring kan word. Plantgereedheid van moere is baie belangrik in hierdie verband, aangesien moere wat plantgereed is, gewoonlik daartoe lei dat moere beter spruit en, per kultivar, die ideale aantal stamme per spruit voortbring as knolle wat nog nie plantgereed is nie.

Moere wat te oud is, maak baie stingels en vorm klein knolle.



*Kultivars met kort tot lang groeitydperke is by die proef ingesluit en groeiperiodes het dus die uiteindelijke opbrengs van sekere kultivars beïnvloed.*

**Figuur 1: Ligging van Bultfontein in die Wes-Vrystaatse produksiestreek.**



Plantgereedheid van moere ten tyde van die plant van die proef, sowel as standpersentasie en halmtelling wat later in die groeiperiode waargeneem is, word in Tabel 2 aangedui. Verteenwoordigende grondmonsters is voor plant geneem en ontleed om te grondvoedingstatus van die proefperseel te bepaal (Tabel 3).

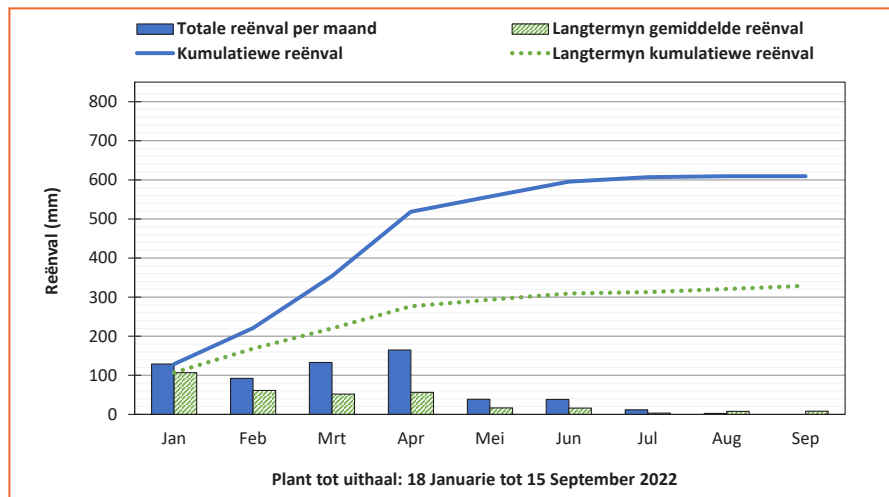
## Klassering en sortering

Die evaluering van kultivars soos in die Bultfontein-kultivarproef verskaf onder meer resultate rakende opbrengs- en bemarkingsindeks. Die bemarkingsindeks van die betrokke kultivars word bereken deur elke

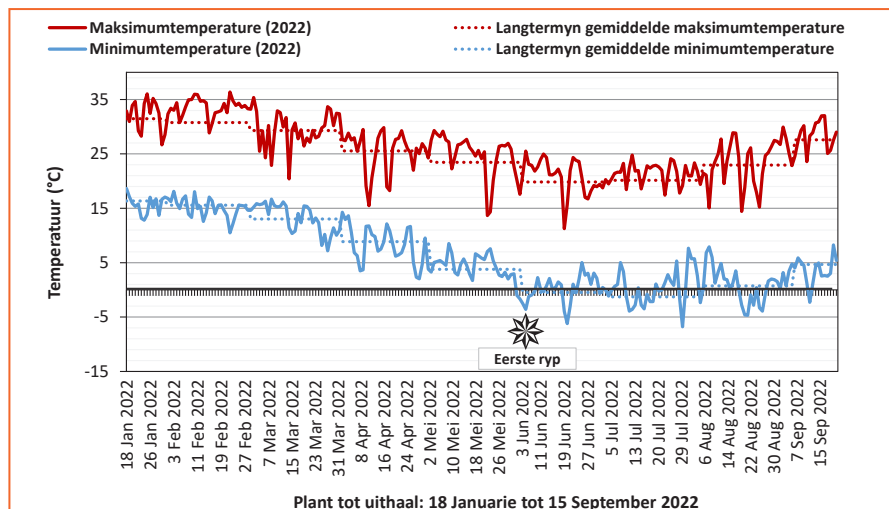
Tabel 1: Opsomming van tegniese inligting rakende proefperseel en -uitleg.

Plaas	Oasis					
Boer	Izak Cronjé					
Plantdatum	18 Januarie 2022					
Oesdatum	15 September 2022					
Besproeiing/droëland	Besproeiing					
Dubbel- of enkelrye	Dubbelry in een wal					
Loofafsterwe	Natuurlik					
Tussenry-spasiëring	1.00 m					
Inry-spasiëring	37 cm					
Proefperseel	20 m <sup>2</sup>					
Plantestand	27 000 plante/ha					
<b>Bemestingsprogram</b>						
<b>Voedingswaarde</b>						
	N (kg/ha)	P (kg/ha)	K (kg/ha)	Ca (kg/ha)	Mg (kg/ha)	S (kg/ha)
<b>Totaal</b>	<b>296.1</b>	<b>103.9</b>	<b>186.9</b>	<b>114.1</b>	<b>43.0</b>	<b>86.6</b>

Figuur 2: Reënval gedurende die 2022-seisoen en langtermyn gemiddelde reënval.



Figuur 3: Minimum- en maksimumtemperature gedurende die 2022-seisoen sowel as langtermyn temperature.



kultivar te klas en sorteer volgens kwaliteit en groottegroepe, byvoorbeeld Klas 1 Groot of Klas 2 Groot-medium.

In hierdie proef is al drie herhalings bymekaargegooi en deur die pakstoor geklas en sorteer. Dienooreenkomstige prysvergelings is dan gemaak met markpryse soos verkry ten tyde van oes. Die prestasie van nuwe kultivars kan nie net op die resultate van een bepaalde seisoen geskoei word nie, omdat klimaat van een jaar na 'n volgende wissel. Juis daarom word die kultivars verkieslik oor 'n aantal seisoene getoets.

**Omgewings- en weerstoestand**

Soos met enige gewas is temperature, beskikbaarheid van water (hetsy goeie besproeiingskedulering of reënval), sowel as hitte-eenhede belangrike faktore wat 'n wesenlike invloed uitoefen gedurende die aartappelplant se groeitydperk. Hierdie faktore word dus in aanmerking geneem wanneer die prestasie van kultivars geëvalueer word. Toepaslike daaglikse- en langtermynweerdata is vanaf die naaste LNR-weerstasie verkry.

Voordat die seisoen afgeskop het, het reënval in Desember (in die maand voor plant) gesorg vir 'n goed-versadigde grondprofiel. 'n Bietjie meer as 200 mm reënval is vir Desember aangeteken in vergelyking met die langtermyn gemiddelde reënval (Figuur 2). Die res van die aktiewe groeitydperk was ook gekenmerk deur deurgaans bogemiddelde reënval met gereelde buie wat gesorg het vir deurgaans nat toestande.

Veral gedurende Maart en April (knolvulling en volwassenheid) kan die ver-bogemiddelde reënval (ook in die wintermaande na afsterwe) waarskynlik pa staan vir kwaliteitsprobleme en gevolglike laer opbrengs. So ook is bogemiddelde laatroes sedert middel Maart, in die aktiewe groeitydperk, weens toestande 'n groot rede vir die laer opbrengs.

Minimum- en maksimumtemperatuur word in Figuur 3 uiteengesit. Groot fluktuasies is deurgaans in veral maksimumtemperatuur aange-teken. Temperature onder vriespunt

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**Tabel 2: Karaktoreienskappe rakende groeiperiode, plantgereedheid, stand (%) en halmtellings vir betrokke kultivars.**

Kultivar	Groeitydperk (Dae) <sup>1</sup>		Plant-gereedheid <sup>2</sup>	Stand (%)	Halms per plant	Halms per ha
Adato	Medium tot lank	(120)	3	80	3.8	82 080
Allison	Medium tot lank	(120)	3	89	3.8	91 314
Belmonda	Medium	(100-110)	3	80	3.4	73 440
Connect	Lank	(120)	3	80	5.0	108 000
Foxy	Kort tot medium	(90-100)	3	83	3.8	85 158
Lanorma	Kort	(80-90)	3	83	2.8	62 748
Mondial	Medium tot lank	(110-115)	3	78	4.6	96 876
Panamera	Medium	(90-110)	3	83	4.0	89 640
Sababa	Medium tot lank	(110-115)	3	75	5.8	117 450
Sifra	Kort tot medium	(90-100)	3	78	6.2	103 572
Sound	Medium	(110)	3	78	4.2	88 452
Tyson	Kort tot medium	(90-100)	3	78	3.4	71 604

<sup>1</sup>Algemene riglyne en kategorieë (dae vanaf opkoms tot natuurlike loofafsterwe, afhangend van die seisoen): Kort = 70-90 dae; Kort tot medium = 80-100 dae; Medium = 90-110 dae; Medium tot lank = 90-120; Lank = 90-140 dae.

<sup>2</sup>Plantgereedheid van moere: 1 = Vars; 2 = Effens vars; 3 = Plantgereed; 4 = Effens oud; 5 = Oud.

\*Standpersentasie is bepaal op een herhaling van elke kultivar wat bestaan uit 18 plante/ry/10 m en dus uitwerk op 36 plante per plot (dubbely).

**Tabel 3: Grondvoedingstatus van proefperseel voor plant.**

pH (KCl)	P (P-Bray I)	K	Ca	Mg	Na
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
7.0	20	200	400	120	60



Die kultivarproef by Bultfontein is uitgevoer in sandleemgrond en die proef is uitgelê in 'n ewekansige blokontwerp met drie herhalings per kultivar.

# Increase elemental nutrient uptake and efficiency with Cosmocel

By Wilhelm Schultz, technical co-ordinator, Cosmocel SA



The collective global understanding of plant nutrition has changed significantly in the past decade. This can be attributed to ground-breaking new research indicating that the nutritional requirements of plants can be almost completely fulfilled through healthy soil and, most importantly, the interactions between the plant, soil and the microbiome. The latter refers to the bacteria and fungi living in symbiosis within the plant as well as the rhizosphere.

## Boost resistance and soil health

The overindulgent use of chemical fertilisers desensitises the activity and reactivity of the plant as well as the microbiome. Much like the human

microbiome, the plants' interactions with natural living organisms dictate key reactions and effects on overall health. By enhancing the natural functions of plants, producers can increase natural resistance to diseases and pests and improve soil health, all while reducing financial and labour inputs.

Cosmocel's strategy for potato production aims to increase carbon nutrition while supplying the plant with accessible nutrients and energy. Increased carbon nutrition initiates the plant's resistance to stress and amplifies energy levels.

When supplying highly active carbon fractions to the plant and soil environment, bacterial activity is elevated. This stimulates the release and uptake of elements and

metabolites from the bacteria to the plant.

## Invest in higher-yielding crops

Cosmocel's flagship products, H-85<sup>®</sup> and Biocel<sup>®</sup>, increase the plant- and soil-available carbon with specific carbon metabolites and plant phytohormones. Mainstay Ca<sup>®</sup>, Mainstay Mg<sup>®</sup> and Cosmoroot<sup>®</sup> use unique technology to increase the uptake and efficiency of elemental nutrients, even in limiting conditions.

Complementing elemental nutrients with organic compounds, these products increase the uptake, movement, assimilation and metabolism within the plant, resulting in higher-yielding crops with improved quality.

To find out more, contact Wilhelm Schultz of Cosmocel SA at 061 902 0139 or wschultz@cosmocel.co.za.

## POTATO

### SOIL APPLIED (Pivot or high volume boom spray)

Weeks after emergence	PLANTING	1	3	5	7	9	11	13	TOTAL KG/L PER HA
 <b>BIOCEL</b>	1 L/Ha								1 L/Ha
 <b>COSMOROOT</b>	4 Kg/Ha								4 Kg/Ha
 <b>BARRIKAT</b>	2 L/Ha								2 L/Ha
 <b>H-85</b>	1 Kg/Ha	1 Kg/Ha	1 Kg/Ha	1 Kg/Ha	1 Kg/Ha	1 Kg/Ha	1 Kg/Ha	1 Kg/Ha	7 Kg/Ha
 <b>MAINSTAY CALCIO</b>	4 L/Ha	4 L/Ha	4 L/Ha	4 L/Ha	4 L/Ha	4 L/Ha	4 L/Ha	4 L/Ha	28 L/Ha
 <b>MAINSTAY MAGNESIO</b>	2 L/Ha	2 L/Ha	2 L/Ha	2 L/Ha	2 L/Ha	2 L/Ha	2 L/Ha	2 L/Ha	14 L/Ha

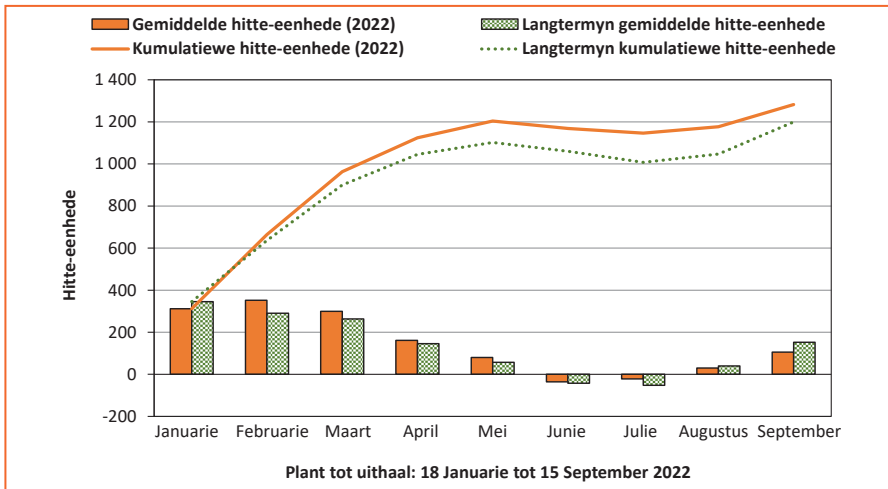


## NUTRITIONAL PROGRAM BENEFITS:

1. Increase yield potential by increasing stems and tubers
2. Promotes root development and strong growth
3. Depending on soil conditions and season, this program can supply the majority of the plants Ca and Mg requirements
4. Increases soil health and stimulates microbial activity and soil aggregation
5. Increases quality and shelf life of potatoes

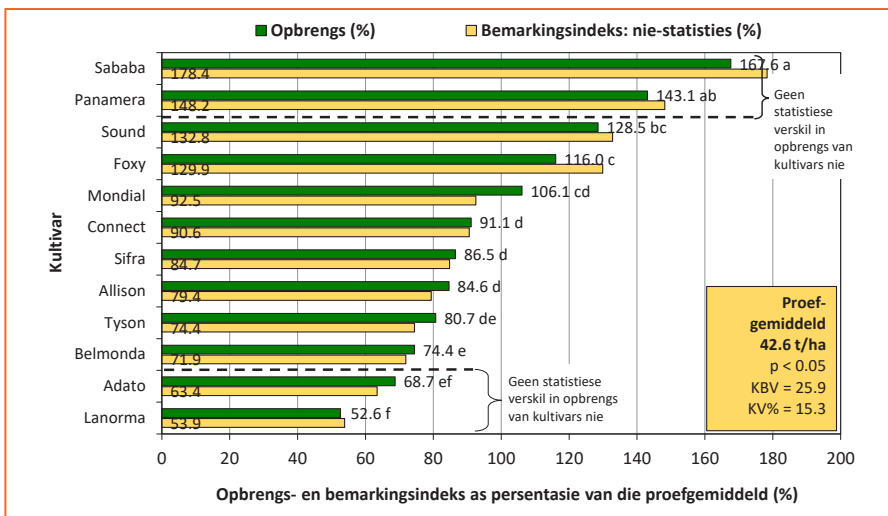
For more information regarding this program, please visit our website [www.cosmocel.co.za](http://www.cosmocel.co.za) and get in touch with one of our representatives

**Figuur 4: Hitte-eenhede gedurende die 2022-seisoen asook langtermyn gemiddelde hitte-eenhede.**



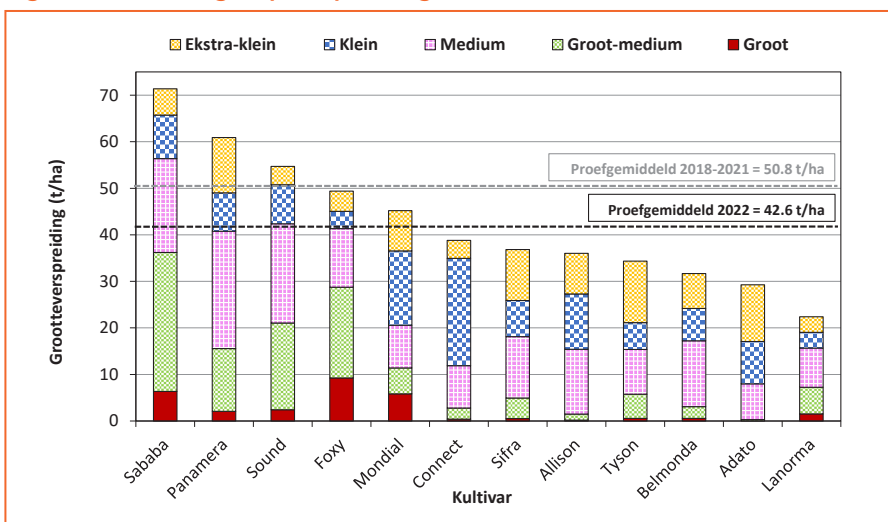
\*Totale hitte-eenhede spesifiek bepaal vir aartappels as gewas (drumpeltemperatuur = 5°C). Bereken vanaf uurlikse data.

**Figuur 5: Totale opbrengs en bemarkingsindeks per kultivar as persentasie van die proefgemiddeld.**



\*Waardes gevolg deur dieselfde letter verskil nie beduidend van mekaar nie.

**Figuur 6: Groottegroepverspreiding van elke betrokke kultivar.**



Stand en aantal halm per moer beïnvloed knolgrootte en opbrengs.

het in 2022 nader aan einde Mei begin voorkom en daarmee saam natuurlike loofafsterwe.

**Rol van hitte-eenhede**

Die versameling van hitte-eenhede gedurende 'n groeitydperk is 'n belangrike faktor in die ontwikkeling van 'n plant. Die tendens van hitte-eenhede beskikbaar vir die kultivarproef van die betrokke seisoen, blyk redelik ver bo die langtermyn data-tendens vir die seisoen as geheel te wees (Figuur 4).

**Uitvoering van proef**

Opbrengsdata versamel tydens oesdag word onderwerp aan statistiese verwerking met behulp van die GenStat®-program. Die Tukey-toets van kleinste betekenisvolle verskille (KBV) is gebruik om die gemiddelde te skei. Die kultivareffek gedurende die betrokke proef (Figuur 5) was statisties beduidend (p<0.05) en die koëffisiënt van variasie was laag (15.3%).

Hierdie faktore dui daarop dat die proef goed uitgevoer is en die

Tabel 4: Hoofredes vir afgradering.

Kultivar	Sandspleet	Silwerskurf/ swartspikkel	Antraknose	Mot	Sagtevrrot	Stingel-endvrrot	Vergroening	Misvorming	Insek
Adato		x		x			x		
Allison				x	x				
Belmonda		x		x					x
Connect			x	x		x			
Foxy		x		x			x		x
Lanorma		x							x
Mondial	x	x		x	x		x		
Panamera				x			x		
Sababa				x			x	x	x
Sifra		x		x					x
Sound	x			x	x		x		
Tyson				x			x	x	x

Tabel 5: Kook- en prosesseringseienskappe van kultivars. (Uitgevoer deur LNR-Roodeplaat)

Kultivar	Skyfiekleur <sup>1</sup>	DM <sup>2</sup>	SG <sup>3</sup>
Adato	63	17.68	1.068
Allison	50	17.70	1.068
Belmonda	53	17.15	1.066
Connect	46	17.28	1.066
Foxy	50	16.23	1.061
Lanorma	59	15.93	1.060
Mondial	54	16.12	1.061
Panamera	53	18.21	1.071
Sababa	48	15.78	1.059
Sifra	57	15.23	1.056
Sound	50	16.54	1.063
Tyson	58	16.08	1.060

<sup>1</sup>Skyfiekleur met waarde >50 en sonder defekte is aanvaarbaar vir die droëskyfiebedryf.

<sup>2</sup>Die persentasie droëmateriaal is 'n berekende waarde:  $DM\% = 24.182 + 211.04 * (SG - 1.0988)$ . Die werklike persentasiewaarde sal effens verskil tussen variëteite uit hierdie berekeningswaarde.

<sup>3</sup>Soortlike gewig van  $\geq 1.075$  is aanvaarbaar vir die prosesseringsbedryf.

resultate derhalwe betroubaar is. Die opbrengs van elke kultivar word deur die proefgemiddeld gedeel (die proefgemiddeld van al die kultivars word as 100% geneem). Hierdeur word 'n opbrengsindeks geskep en word elke kultivar se prestasie in

terme van opbrengs, as 'n persentasie van die proefgemiddeld gelees.

### Proefopbrengs

Die gemiddelde opbrengs van die proef vir die 2022 seisoen is 42.6 tot 8.2 t/ha laer as die afgelope vyf

Die gemiddelde opbrengs van die proef vir die 2022 seisoen is 42.6 tot 8.2 t/ha laer as die afgelope vyf seisoene se gemiddelde opbrengs van 50.8t/ha.



seisoene se gemiddelde opbrengs van 50.8t/ha.

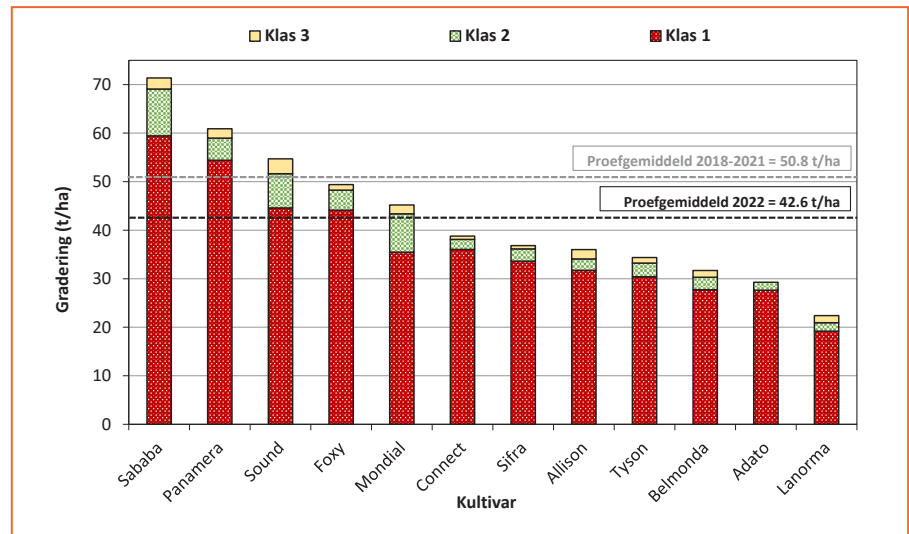
Die kultivars Sababa en Panamera het die hoogste opbrengs gelewer. Die ondergemiddelde opbrengs van die proef vir die betrokke seisoen kan, soos vroeër genoem, moontlik toegeskryf word aan konstante nat toestande en laatroes. Al die gemelde faktore het gelei tot aansienlik minder groot aartappels en meer klein en ekstra-klein aartappels as in die vorige seisoen.

Sababa, Panamera, Sound en Foxy het die hoogste bemarkingsindeks behaal – dit kan toegeskryf word aan baie goeie opbrengs in Groot- en Klas 1-knolle (Figure 5, 6 en 7). Grootte-groepverspreiding en gradering is onontbeerlike evaluasies wanneer daar gekyk word na 'n kultivar se bemarkbaarheid.

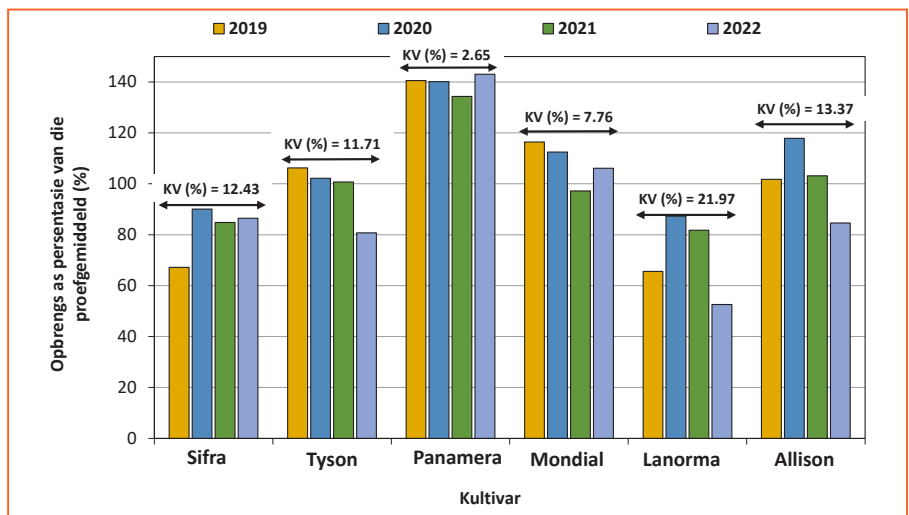
Die hoofredes vir afgradering van elke kultivar (Tabel 4) asook interne kwaliteit is alles belangrike faktore en moet dus ook geëvalueer word. Motskade en relatiewe lae soortlike gewig (SG) soos aangeteken in hierdie proef is probleme wat kan intree wanneer knolle so lank onder die grond lê voor dit uitgehaal word.



Figuur 7: Gradering van elke betrokke kultivar.



Figuur 8: Prestasie van kultivars wat vir drie jaar in die proef ingesluit was, uitgedruk as 'n persentasie van die proefgemiddeld.



Volgens die beskikbare weerdata is meer hitte-eenhede aangeteken oor die wintermaande as die langtermyn-gemiddeld, wat moontlik bygedra het tot 'n hoër motdruk op die aartappels wat onder die grond lê. Geen interne defekte soos bruinvlek en holhart is aangeteken in enige van die kultivars nie.

Soos die aard van seisoene is, fluktureer die prestasie van kultivars van seisoen tot seisoen. Dit is omdat klimaat van een seisoen na 'n volgende eenvoudig nooit eenders is nie. Derhalwe is dit belangrik om konsekwente prestasie van kultivars oor 'n aantal seisoene in ag te neem. Panamera en Mondial toon tans die minste variasie vir die Bultfontein-area van 2019 tot 2022 (Figuur 8).

Laastens, wanneer daar gekyk word na die interne kwaliteit van aartappels, kan kook- en prosesse-ringseienskappe ook geëvalueer word. Om te voldoen aan proseseringsvereistes, moet kultivars aan 'n skyfiekleurnorm van >50 en 'n SG van ≥1.075 voldoen. Baie kultivars het voldoen aan die voorgeskrewe skyfiekleur, maar geen kultivars het voldoen aan die voorgeskrewe SG nie (Tabel 5). **G**

Vir meer inligting, kontak  
Enrike Verster by  
enrike@potatoes.co.za of  
Herman Haak by  
herman@potatoes.co.za.

# Tapping into enterprise development under dryland production conditions

By Rachichi Marokane, national transformation co-ordinator, Potatoes SA

The Eastern Free State is renowned for its efficient production of potatoes under dryland conditions. Compared to farmers who produce under irrigation, dryland producers are able to eliminate the adverse impacts of load shedding from their enterprise's budgets.

One of the key barriers to dryland production is that you must produce at a higher scale of at least 40 ha per annum compared to irrigation. Developing potato producers in this arena are limited mainly in respect of land.

## Dryland production

Mavuso Qenehelo Vincent became a participant in Potatoes SA's Enterprise Development Programme (EDP) in 2022. He is a member of the MCV Agriacomologitic Co-operative that comprises of five co-operative members.

Production activities are conducted on a 90 ha portion of land leased in Phuthaditjhaba in the Free State. The enterprise focusses mainly on 10 ha of potato production under dryland conditions. Following an application

process, the applicant received a seed grant from Potatoes SA for planting in mid-November 2022.

The farm rents all the required machinery from the Makgolokong Farmer Production Support Unit (FPSU) located approximately 30 km from the farm. Through the FPSU, the co-operative also enjoys access to a sorting and washing facility, allowing them to target the in-land fresh produce markets.

## Overcoming challenges

Initially, the co-operative aimed to plant in the first week of November. However, due to excessive rainfall in the area, planting was postponed. As often advised by their assigned mentor, Gert Bester, who is also chairperson of the Potatoes SA



Mentors from the commercial potato production industry assist Mavuso (centre) with information such as ideal planting times, potato diseases and fertiliser application.

national council, planting at precise moisture content levels is vital to production success. Avoiding tuber rot, leaching of fertilisers and fungicides has also been emphasised at length.

Although the impact of load shedding is not the main concern among dryland producers, the increase in fuel prices of almost 34% in 2022 had a major impact on operational costs during planting. Yet these producers still have high hopes and they are anticipating better prices in April 2023 when they commence with harvesting. With around 30 to 35 t/ha projected for this dryland field in which rows are spaced 1.6 m apart, the aim is now to expand production to 40 ha in the coming four years, as part of the EDP. 🍅



Mavuso is a member of the MCV Agriacomologitic Co-operative which produces potatoes on 10 ha under dryland conditions.

For more information,  
contact the author at  
[rachichi@potatoes.co.za](mailto:rachichi@potatoes.co.za).

# The rise of Nelisiwe Masilela through the Potatoes SA bursary programme

By Rotondwa Raligidima, Potatoes SA

**T**he Potatoes SA bursary programme was established to assist students who are interested in pursuing a career in agriculture. Each year, this programme provides financial assistance to tertiary students at different institutions. One of these bursary recipients is Nelisiwe Masilela, a young lady who hails from the small town of Pienaar near Nelspruit in Mpumalanga.

Nelisiwe is the second of three children in her family. As she grew older, she became increasingly interested in agriculture, especially as a result of her family's more than two-decade long involvement in farming.

## A new door opens

After matriculating, Nelisiwe decided to pursue her studies in agriculture and enrolled at the University of Mpumalanga for a National Diploma in Agriculture. She stumbled upon a Potatoes SA bursary advertisement on the internet while researching bursaries that could help fund her studies, and successfully applied for it.

She was awarded the bursary in 2020 during her second year of

study. The bursary helped to pay for her tuition fees, accommodation, study materials and meals. Nelisiwe mentioned that her receiving this bursary positively affected her since she did not have to stress about her university expenses, and it allowed her to focus on her studies. Funded by the bursary, Nelisiwe was able to complete her studies in record time and passed her exams with flying colours.

## Practical experience

In order to graduate, she was required to complete a mandatory one-year work-integrated learning experience (WIL). Potatoes SA played a significant role in finding Nelisiwe a farm where she could complete the WIL, while paying her a stipend throughout the WIL period. During this time, she learned about seed potato production, including soil preparation, planting, weed control, harvesting, sorting, and packaging.

After completion of her diploma, Potatoes SA gave Nelisiwe the opportunity to work as an intern at the Nelspruit Fresh Produce Market under Prokon, where she gained valuable insight into how fruit and vegetable inspections work.

Among her highlights as a Potatoes SA bursary recipient was taking part in the induction programme at the start of the bursary period. She visited several interesting locations, including a potato farm, where she learned first-hand how potatoes are produced. In addition, she was able to attend a prestigious industry symposium which was also a valuable experience. Nelisiwe says she found these visits and events to be highly informative, educational and helpful, and says it gave her more confidence in the field of agriculture. She believes that she has gained a better understanding

of both the potato industry and agriculture as a whole as a result of these experiences.

## Promoting agriculture

Potatoes SA, says Nelisiwe, is one of the best things that has ever happened to her; it nourished her career, and she is now reaping the benefits. She is currently employed by the Department of Agriculture, Land Reform and Rural Development (DALRRD) in Pretoria as an agricultural practitioner. Her responsibilities include assisting in the promotion of sustainable agricultural production and providing advice to farmers.

She is overjoyed that things are looking up for her and she is starting to accomplish her life's objectives and goals. She aspires to be an entrepreneur one day and believes that with all of the knowledge and experience she gained through Potatoes SA, she will be able to do so quickly.

Nelisiwe is grateful for the financial assistance she received from Potatoes SA, the industry exposure she received and, most importantly, the manner in which Potatoes SA assisted in cultivating her career. She would like to encourage other students who are facing financial difficulties to apply for the Potatoes SA bursary programme.

"The Potatoes SA bursary certainly is one of the best bursaries in South Africa available to disadvantaged students who are passionate about agriculture and need exposure to the agricultural environment," she concludes. 🍅



Nelisiwe Masilela.

For more information about the Potatoes SA bursary programme, email [nomvula@potatoes.co.za](mailto:nomvula@potatoes.co.za).

# KwaZulu-Natal small growers enjoy information packed farmers' day

By Rendani Murovhi, Potatoes SA

In its quest to fulfil its transformation goals geared towards increasing potato production among producers of colour, and to create awareness regarding potato production technologies, food security and rural transformation, Potatoes SA has partnered with various provincial agricultural departments to ensure the smooth implementation of its small-grower programme (SGP).

After a successful production cycle completed in four projects planted in September 2022 in Mooi River, Applebosch, Swayimane and Ixopo (Magaula Village) in Kwazulu-Natal (KZN), the month of February 2023 marked the planned harvesting season for these small-grower projects. In order to promote technology transfer, share growers' milestones and showcase cultivar performance, a farmers' information day was held to showcase all four projects.

## A great presentation line-up

Growers gathered on 8 February 2023 at Highflats Farm of Mbhekiseni Duma in Magaula Village. The theme of the



Mr Mkhithi, deputy director of KZN-DARD, gave a departmental overview and explained the partnerships they have entered into.

event was "Promotion of sustainable potato production to improve food security". The event welcomed a variety of attendees including local potato and vegetable producers, community members, Willie Jacobs and Nomvula Xaba of Potatoes SA, Etienne Groenewald of Wesgro, the research team from Cedara, and various officials of the KZN Department of Agriculture and Rural Development (KZN-DARD).

The programme consisted of presentations and practical demonstrations regarding potato production, cultivar evaluations and seed exhibitions. Willie Jacobs, CEO of Potatoes SA, gave an overview of the organisation, its core businesses, and the importance of ensuring sustainable potato production in the country.

Potatoes SA transformation manager, Nomvula Xaba, unpacked the criteria required for the organisation's various transformation programmes which include its enterprise development programme (EDP), small-grower programme (SGP), mentorship/training and bursary scheme. During her presentation, she discussed the importance of transformation and explained that the SGP is a progressive project aimed not only at addressing food security



An aerial view of the farmers' information day at Magaula Village. (Photograph: DARD)

at household level, but also creating awareness of potato production techniques in order to increase the number of farmers with the potential to achieve commercial status.

## Practical demonstration

Literature has proven that learning through practical demonstrations while participating not only accommodates a wide variety of beneficiaries and age groups, but increases farmers' acceptance and adoption of innovation and change. Taslos Magubane and the research team from Cedara conducted a

Table 1: KwaZulu-Natal small-grower project outcomes.

Cultivars	Magaula/Ixopo	Mooi River	Swayimani
Sababa	35t/ha	63t/ha	22t/ha
Mondial	56t/ha	38t/ha	44t/ha
Panamera	26t/ha	41t/ha	25t/ha
Electra	52t/ha	48t/ha	58t/ha

### Project challenges

- Excessive rainfall resulting in growth cracks.
- Blackleg occurrence on Sababa, Panamera and Mondial resulting in reduced yield in three projects.
- Common scab detected in Magaula Village crop.

practical demonstration illustrating potato harvesting, grading, sprayer calibration and a sensory test involving different potato dishes. Wesgro provided information on seed quality, certification and varieties for various uses.

**Farmer’s testimony**

The host, Mbhekiseni Duma, emphasised that being part of the SGP not only assisted in correcting his own production techniques, but impacted the overall spirit of co-operation, unity and participation in Magaula Village. He said: “My greatest wish is that this community will increase its scale of production so as to be able to harness profit and become part of the EDP in the near future.”

**Impact driven partnership**

The deputy director of KZN-DARD, Mr Mkhithi, commended the partnership and the involvement of the various potato industry stakeholders who



Willie Jacobs, CEO of Potatoes SA, and Nomvula Xaba, transformation manager at Potatoes SA, gave presentations at the information day.

are working tirelessly to achieve the ultimate goal of developing potatoes as a commodity in the province.

He further mentioned that, without a doubt, the multiple stakeholder approach adopted by Potatoes SA, which utilises the expertise of research establishments such as Cedara, as well as extension and advisory services, is one that can be replicated across

South Africa to ensure sustainability of these programmes.

**Key improvement areas**

Despite the challenges faced by most of these rural farming communities, which include availability of and access to mechanisation, water infrastructure and sufficient productive land, there certainly is light at the end of the tunnel. Traditional authorities, municipalities and KZN-DARD now acknowledges the role potato production can play in addressing underlying issues of job creation and food security.

KZN-DARD has pledged to develop a provincial database of potato growers which can be used to identify potential EDP and SGP participants, and to help with structuring funding models aimed at developing the commodity in the province. The department also hopes to strengthen its existing partnership and support Potatoes SA with its transformation goals.

The department recognises that there is a need for enhancing farm-based potato research aimed at cost-effective rotational systems that will improve soil health, alternative production inputs, pest and disease management, and climate adaptable production systems for both the SGP and EDP. 🌱



Attendees during the farmers’ day sessions.



Mbhekiseni Duma (left) and local farmers during testimonials and a question and answer session.

For more information, email the author at [rendani@potatoes.co.za](mailto:rendani@potatoes.co.za).

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# Suid-Afrikaanse aartappels groei saam met die tye

Deur Koos du Pisanie

Skrywers en denkers het oor die jare probeer agterkom waarom sekere dinge of produkte weners is wat oor tyd in gewildheid toeneem en waarom ander dinge 'n blote gier is wat vinniger oorwaai as wat dit gekom het.

Een van die eienskappe van dinge wat immergroen bly en die toets van die tyd deurstaan, is gehalte en die vermoë om by verandering aan te pas.

Charles Darwin, die bekende wetenskaplike, het by geleentheid gesê: "In the struggle for survival, the fittest win at the expense of their rivals, because they succeed in adapting themselves best to their environment."

In die aartappelbedryf is dit inderdaad die geval. Die bedryf bied 'n produk wat gewild is vir die verbruiker, en aan die produksiekant het dit aangepas tot 'n uiters winsgewende boerderyvertakking. Daar word vertel dat daar reeds in 1770 melding gemaak is van die kweek van aartappels in Suid-Afrika. Vandag is die per kapita-verbruik van aartappels in Suid-Afrika sowat 43 kg per persoon per jaar.

## 'n Bedryf wat voortdurend groei

Aartappelverbruik in Suid-Afrika groei elke jaar en dit kan aan verskillende faktore toegeskryf word, onder andere bevolkingsgroei asook die hoër middelklas wat jaarliks groter

word. Aartappels bly 'n bekostigbare en voedsame bron van voedsel. Daar is meer geleentheid vir die uitvoer en verwerking van die produk, en boonop het die Suid-Afrikaanse aartappel al sy merk in die internasionale mark gemaak.

Volgens Aartappels SA-rekords is daar in 2002 sowat 1.4 miljoen ton aartappels geproduseer teenoor 2 miljoen ton in 2012. Volgens Jaco Koekemoer, waarnemende bemarkingsbestuurder van Aartappels SA, produseer die sowat 550 produsente in die land gemiddeld 2.6 miljoen ton aartappels per jaar en daar is nog heelwat geleentheid vir groei.

"Dit is veral die uitvoermark wat vir ons 'n geleentheid bied. Suid-Afrika voer reeds na buurlande uit, maar daar wag 'n blink toekoms vir ons aartappelboere aangesien ons besig is om nog meer markte te ontwikkel," gesels hy.

'n Interessante tendens in die aartappelbedryf is dat die produksie van aartappels oor die afgelope twee dekades feitlik verdubbel het, maar die hektare wat aangeplant is het minder geword.

## Markverwante navorsing

Dit laat jou wonder hoe aartappelprodusente dit reggekry het om soveel meer op 'n kleiner area te produseer? Die antwoord lê in gefokusde navorsing.

Dirk Uys, navorsingsbestuurder van Aartappels SA, sê daar is 'n uitstekende navorsingsdatabasis waarop

hulle kan werk. Dit bied 'n basis vir die optimalisering van gehalte en rakleef tyd. Vir hom is dit belangrik om saam met die waardeketting betrokke te wees in die innovasiedryf en om by die behoeftes van beide die verbruiker en produsent aan te pas.

Dié uitgangspunt laat jou dink aan die nyweraar en filantroop, Andrew Carnegie, wat by geleentheid gesê het: "And while the law of competition may be sometimes hard on the individual, it is best for the race, because it ensures the survival of the fittest in every department."

In die aartappelbedryf is dit juis die geval, omdat daar op verskeie gebiede navorsing gedoen word om voortdurend deel van die vooruitgang te wees. Dit sluit in kultivarevaluasie in verskillende produksiegebiede, grondgesondheid, natuurlike hulpbronbewaring, gehalte van moere en aartappels in die mark, virus- en insekbeheer, waterverbruik en -gehalte, verbouing, bemesting, en die bestuur van grondgedraagde siektes.

## Navorsing lewer resultate

Dirk sê dat die aartappelbedryf oor die jare in voeling gebly het met die mark, die verbruiker én die produsent se behoeftes. In Suid-Afrika het die verbruik van aartappels van 25 kg per persoon per jaar verhoog na 43 kg per persoon per jaar oor die afgelope 50 jaar. Dit bewys dat aartappels steeds 'n gesogte komponent van Suid-Afrikaners se daaglikse dieet is.



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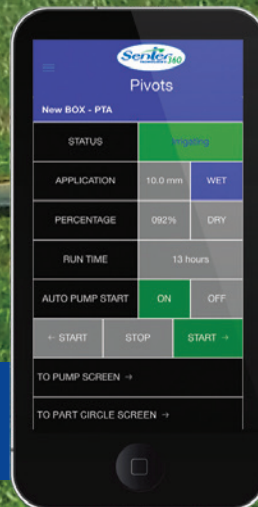


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Internasionaal het 'n groeiende behoefte in die verbruikersmark ontstaan om aartappels in verwerkte vorm, soos aartappelskifies en ander voorafvervaardigde geregte, te koop. Dit is deel van die navorsing wat gedoen word om steeds 'n sleutelspeler in die kosmark te bly.

Aan die produsentekant was daar baie veranderinge. Die land se produksie-areas het vanaf 1990 tot vandag van 62 000 ha na 52 355 ha verminder, maar die oes per hektaar het in dieselfde tyd van 20 ton/ha na bykans 50 ton/ha verbeter. Dit is moontlik gemaak danksy meer doeltreffende praktyke soos besproeiing, innovasie in bemesting, plantbeskerming en bewerking asook toegang tot goeie genetika.

Nuwe variëteite word deur Suid-Afrikaanse agente ingevoer en moerkwekers pas uiterste dissipline toe, tesame met verbeterde produksiepraktyke wat beter opbrengste lewer.

Om in die internasionale spel te bly, verduidelik Dirk, fokus navorsers op aspekte soos hoër produksie met beskikbare bronne, die vergroting van die behoefte aan aartappels deur nuwe gebruike te ontwikkel, die verlenging van aartappels se raklewe, en begrip vir en optrede rakende kliënte en verbruikers se behoeftes.

### Kwaliteit is koning

Om deel te wees van enige wêreldmark geld een ongeskrewe reël: Daar is geen genade vir enigiemand nie. Jy moet onder die beste kan tel, anders gaan jy dit nie maak nie en die opposisie gaan jou bloot uit-skuif. Suid-Afrika het reeds sy merk in die internasionale aartappelbedryf gemaak en die instandhouding van daardie posisie stel hoë vereistes.

Sanette Thiar, besturende direkteur van die Aartappelsertifiseringsdiens (ASD), sê hulle taak is om toe te sien dat gesertifiseerde aartappelmoere aan al die standaarde van die Suid-Afrikaanse Aartappelmoersertifiseringskema (die Skema) voldoen, sodat goeie gehalte aartappels op die rakke beskikbaar is.

Die Skema se vertrekpunt is weefselkultuurmateriaal wat negatief toets

vir enige infeksies weens patogene en algemene mikrobiële organismes, en wat ook variëteit-eg is. Hierdie materiaal word geproduseer in fasiliteite wat deur die Onafhanklike Sertifiseringsraad vir Aartappelmoere (OSRA) goedgekeur is. Talle prosesse moet voltooi word om uiteindelik siektevrye materiaal aan die produsent beskikbaar te stel.

“Deur te meet weet jy wat in die aartappelmoer voorkom. ASD sien hulself as vennote van ons moerkwekers in die daarstel van goeie gehalte plantmateriaal aan die bedryf. Ek is van mening dat die plant van gesertifiseerde aartappelmoere en die streng standaarde van die Skema, sentraal staan in die voorsiening van goeie gehalte plantmateriaal en gevolglik die goeie gehalte aartappels wat geproduseer word. Voeg daarby die goeie genetika wat voortdurend ingevoer word en die goeie dissipline en praktyke wat die moerkwekers van Suid-Afrika handhaaf, en jy het 'n wenresep.”

Sy vertel dat Suid-Afrika se opbrengs per hektaar vir beide reën-gevoede sowel as besproeide lande gemiddeld op ongeveer 50 ton/ha staan teenoor die gemiddeld van minder as 15 ton/ha in ander dele van Afrika.

### Internasionale standaarde

Om seker te maak dat die aartappelbedryf op die regte pad is en in lyn is met hul internasionale konkurrente, neem ASD jaarliks aan sessies van die Verenigde Nasies se 'Specialized Section of Standardization of Seed Potatoes' deel.

Sodoende kan Suid-Afrika gereeld op hoë vlak met hul eweknieë in die wêreldwye aartappelmoersertifiseringsbedryf skouers skuur en in die prentjie bly.

“Deelname aan hierdie wêreldwye platform gee ons die geleentheid om ons Skema met ander lande se skemas te vergelyk. Ek is elke keer trots op ons fokus op fitosanitêre aspekte sowel as variëteit-egtheid. Dit is in baie opsigte aansienlik streng as ander skemas. So slaag ons aartappelbedryf daarin om sy produk

op 'n baie hoë standaard te hou,” sê Sanette.

### Nog meer vereistes

Jaco stem saam. Hy verduidelik dat die gehalte van aartappels 'n hoë prioriteit by handelaars is. “Die gehalte van aartappels wat op die winkelrakke beland, moet voldoen aan kwaliteitsvereistes wat hoofsaaklik deur die kettingwinkels self bepaal word. Die kettingwinkels het metodes in plek wat hul risiko's beperk en vermorsing verminder.”

Hy meen dat die verbruiker oor die algemeen tevrede is met die gehalte van aartappels, maar daar is altyd plek vir verbetering. Aartappels SA gaan vanjaar moontlikhede ondersoek om aartappels wat esteties nie geskik is vir kettingwinkels nie, aan die laer LSM-inwoners van Suid-Afrika te begin bemark.

### Die pad vorentoe

Aartappels SA se toekomsplan is om produsente beter te bedien deur meer markgeleenthede te skep, meer uitvoergeleenthede te verseker en beter toegang tot aartappels vir alle Suid-Afrikaners te bewerkstellig. Dit sal beteken dat produsente meer aartappels kan produseer. Volgens Jaco is daar ruimte vir groter produksie en boonop is die markte reeds beskikbaar.

Hy beklemtoon dat alles moontlik gedoen word om die gehalte van Suid-Afrikaanse aartappels so hoog as moontlik te hou en produsente te ondersteun om die bes moontlike oes in te bring. Hulle hou derhalwe verbruikersbehoefes en -tendense op die nasionale én internasionale markte dop om voorbereid te wees om enige veranderinge in die mark te omskep in 'n verbetering vir die nasionale aartappelbedryf. 🍎

Vir verder inligting, kontak  
Jaco Koekemoer by  
012 349 1906 of 074 063 2090,  
Dirk Uys by 012 349 1906 of  
066 185 9549 of Sanette Thiar  
by 082 927 7752.

# The magical versatility of potatoes in agro-processing

By Theresa Siebert, ARC-Natural Resources and Engineering

In Southern Africa, only approximately 10% of the potato crop is processed. Of this 10%, about 85% is intended for the potato crisp market and 10% for frozen potato products.

By comparison, the United States processes 50% of its potato crop while Europe is currently processing 30% of its crop. Given South Africa's annual import of 66 000 tons of starch products annually, the question arises whether this is not perhaps an underutilised opportunity for South African producers and processors alike.

## A variety of processing options

For the production of **dehydrated potato pieces**, the raw product is peeled, diced, cooked, and then dehydrated. Dehydration is performed in a cabinet, tunnel, or belt dryer.

**Frozen diced potatoes** are used for the preparation of hash browns or for inclusion in stews and casseroles. For dicing, the tubers should be large, with smooth shoulders, and free from contours. A creamy white flesh colour is preferred.

**Frozen French fries** are made from potato strips that are partially or completely fried prior to freezing. Deep-frozen completely fried French fries require only heating in either an oven or oil, before eating. Deep-frozen partially fried French fries require deep-oil frying before eating since only the first stage of frying was completed during processing. The product should have a light golden colour without any black spots or discoloration.

Fresh-cut produce is any fresh fruit or vegetable that has been physically altered from its original form but remains fresh. It has been trimmed, peeled, washed (and cut) to make a product that is 100% usable, with no wastage, and with the product being packaged for consumer convenience. **Fresh-cut, peeled potatoes** fall into this category and have become very popular with consumers. Young or so-called baby potatoes are used for fresh-cut peeled potatoes. The yield for fresh-cut potatoes varies between 74 to 82% depending on the quality of the potatoes used, the peeling method, and the pre-treatments applied.



**Frozen potato croquettes** are an extruded product made from mashed potato that is blended with optional ingredients and seasoning. The seasoned mash is extruded into any desirable shape, deep-fat fried, and frozen. This product is usually produced from offcuts or small, irregularly shaped tubers.



Mashed or whipped potatoes can be shaped into various shapes and sizes and frozen as such. The product can then be used as a casing for other products such as sauces or fillings. As with frozen hash browns and frozen potato croquettes, **frozen mashed potatoes** are seldom made from fresh, whole potatoes. Instead, this is another product that can be made from offcuts or potatoes otherwise unsuitable for other processing options.



**Potato flour** is produced through the dehydration of cooked mashed potato on drum dryers. Flour is used in the baking industry to enhance the keeping quality of baked products. It may also be re-hydrated to produce instant mashed potato by the addition of boiling water and/or milk.

**Potato starch** is extracted from pulped potatoes through a washing process. The starch slurry is then dehydrated. Potato starch is widely used in the food industry in its native or modified form. With the production of potato starch, nothing goes to waste during the process, as the steam used can be redirected to process other products and the peel and pulp can be utilised as animal feed.



**Diced potatoes** are usually used in the preparation of hash browns, but this product may also be used for potato salad and in other ways.

Potatoes best suited for the production of **canned potatoes** should be small new potatoes with smooth shoulders and free from contours with a creamy-white flesh colour. Potatoes can be canned in several styles including whole, diced, sliced, strips, and julienne. Potatoes can also be canned as cubes in mixtures with other vegetables, curries, or meat dishes. This said, whole potatoes, usually smaller than 38 mm in diameter, make up the largest portion of the potatoes that are canned.



**Frozen hash browns** are made from grated potato that is blended with complementary ingredients. The mixture is shaped and fried prior to freezing and packaging. Hash browns are typically produced from offcuts or potatoes that are too small or have irregular shapes or that have been trimmed too much to be used for other products like chips.

**Potato chips (crisps)** are thinly sliced pieces of potato that are fried, flavoured and eaten as a snack. An average yield of 65 to 70% can be expected.



### Conclusion

The humble spud, as with crops like wheat and rice, is particularly useful in the everyday diet because of its nutritional versatility. Furthermore, the possibilities of potatoes in the processing industry are absolutely incredible, with the processing options, preparation methods, and cooking options for the consumer being almost endless. 🍟

For more information email [siebertt@arc.agric.za](mailto:siebertt@arc.agric.za).

# Rentekoerse en inflasie 101

Deur Rynoe Smith

Ons ervaar tans 'n tydperk waarin rentekoerse dramaties styg. Vir baie is dit onduidelik waarom rentekoerse op sekere tye ewe skielik die hoogte inskiet en op ander tye baie laag is. Wat belangrik is om te verstaan, is dat rentekoerse en inflasie hand-aan-hand gaan. Hoër rentekoerse sal normaalweg op hoë inflasie volg.

Kom ons kyk eers wat inflasie is. Inflasie is 'n volgehoue styging in die algemene pryspeil. Dit word gemeet deur 'n prysindeks (gewoonlik die VPI of verbruikersprysindeks) as 'n maatstaf van die styging in die prysvlak te gebruik. Die doel is om te meet hoe 'n sekere 'mandjie' goedere se prys van een datum tot 'n volgende verskil.

Dit kan byvoorbeeld gemeet word deur een maand met dieselfde maand van die vorige jaar, of een maand met die vorige maand te vergelyk, teen 'n jaarkeers. In leketaal is dit eenvoudig die prysstyging oor die tydperk tussen twee datums.

## Faktore wat prys bepaal

Om dit te verstaan, moet 'n mens kyk na die faktore wat prys bepaal. Daar is twee primêre faktore wat prys bepaal, naamlik vraag en aanbod (Figuur 1).

As die vraag toeneem, sal die prys outomaties styg en as die aanbod

afneem, sal die prys ook styg (as alle ander faktore dieselfde bly). Kom ons gebruik 'n veiling as voorbeeld. As daar op 'n veiling baie belangstellende kopers (vraag) is en min goedere wat opgeveil word (aanbod), sal pryse hoog wees, en andersom. Hierby moet ingereken word dat kredietskulde ook vraag kan verhoog, aangesien dit die verbruiker se bestedingsvermoë kunsmatig verhoog.

Die gevolg is dat inflasie styg (prysstyging). Die Suid-Afrikaanse Reserwebank (SARB) se primêre funksie is om inflasie onder beheer te hou. Daarom pas hulle rentekoerse gewoonlik aan wanneer inflasie styg. Wanneer rentekoerse styg, word dit duurder om skuld terug te betaal of aan te gaan, wat bestedingsvermoë onder druk plaas. Gevolglik neem vraag dan af.

## Waarom die onlangse styging?

Nou kan die vraag gevra word: Hoekom het inflasie die afgelope ses maande so skerp gestyg? Eerstens, soos julle kan onthou, is die wêreld-ekonomieë 'kunsmatig' gestimuleer tydens die Covid-19-pandemie. In die USA is tjeks byvoorbeeld aan landburgers uitgestuur en in SA is rentekoerse verlaag. Dit het tot gevolg gehad dat vraag toegeneem het, met 'n gevolglike styging in inflasie (klassieke voorbeeld).

Tweedens het die Rusland/Oekraïne-oorlog die aanbod- of produksiekant van die vraag-en-aanbod-kromme onder druk geplaas. Die aanbod (besikbaarheid) van baie produkte – bv. olie, gas en verskeie landbouprodukte afkomstig

van Rusland en Oekraïne – is daardeur verminder, wat weereens 'n prysstyging (en natuurlik hoër inflasie) tot gevolg het.

Hierdie gebeure noep die sentrale banke van die wêreld om rentekoerse te verhoog. Hoër rentekoerse laat kontant- en rentedraende beleggings weer aantrekliker lyk, terwyl aandelebeleggings se winste dikwels afneem as gevolg van laer verkope namate vraag onder druk kom. Die onsekerhede van die oorlog het ook in wêreldmarkte en onder beleggers onsekerheid en ongemak veroorsaak.

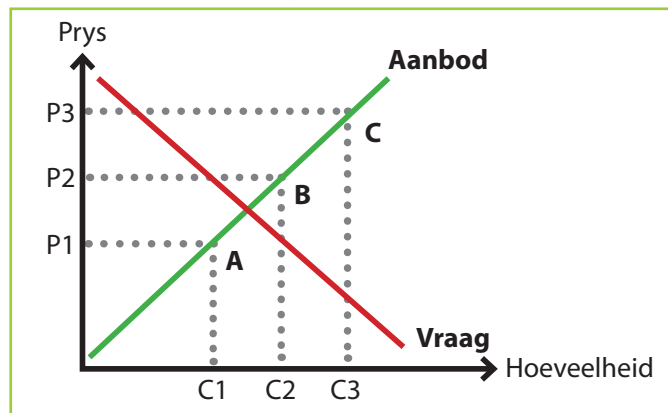
## Hou voet by stuk

So, wat staan beleggers nou te doen? My aanbeveling is bloot om by jou langtermyn beleggingsdoelwitte te bly en met jou finansiële adviseur te gesels om seker te maak jy is op die regte pad. Hierdie soort gebeurtenisse het al telkemale in die verlede afgespeel, en die mark het elke keer herstel. 🟢

Die inligting in hierdie artikel is nie finansiële, belasting-, regs- of beleggings-advies nie en die maatskappye in die PSG Konsult Groep waarborg nie die geskiktheid of potensieële waarde daarvan nie. Aangesien individuele behoeftes en risiko-profiel verskil, stel ons voor dat jy 'n gekwalifiseerde finansiële adviseur raadpleeg indien nodig. PSG Wealth Financial Planning (Edms) Bpk is 'n gemagtigde finansiële diensteverskaffer.

Vir meer inligting, kontak Rynoe Smith van PSG Wealth Preller Walk by 082 453 3320 of [rynoe.smith@psg.co.za](mailto:rynoe.smith@psg.co.za).

Figuur 1: Wet van vraag en aanbod.



# Vyf algemene foute met afleggings

Deur Abrie Bronkhorst

**Gevalllestudie:** Jou besigheid toon die laaste agt maande nie finansiële groei nie en stygende brandstofpryse bemoeilik sake verder. Jy besluit dat afleggings die enigste oplossing is en rig 'n skrywe aan jou werknemers, waarin jy hulle inlig van die situasie. Die skrywe dui aan dat jy nie anders kan as om vier werknemers af te lê nie. Jy rig 'n verdere skrywe aan die vier werknemers om hulle in kennis te stel dat hulle dienste beëindig sal word. Hulle laaste werksdag sal die einde van die maand wees. Jy ontvang egter 'n KVBA-verwysing wat jou in kennis stel dat die aflegging onbillik is. Hoe nou gemaak?

Voldoening aan Suid-Afrika se arbeidsomgewing verg spesialiskennis, en werkgewers maak dikwels talle foute met betrekking tot afleggings (personeelvermindering). Hulle glo dikwels in goeie trou dat hulle korrek optree, terwyl hulle eintlik hul besigheid op risiko plaas.

Afleggings is 'n geen-fout afdanking, aangesien die werknemer niks verkeerd gedoen het nie en die afdanking in lyn is met operasionele vereistes. Soos met alle afdankings, moet die proses substantief en prosedureel billik wees. Die risiko vir die werkgewer indien die proses nie

reg gevolg word nie, is 'n KVBA-verwysing (Kommissie vir Versoening, Bemiddeling en Arbitrasie) wat kan lei tot 'n bevel teen die werkgewer en 'n finansiële uitbetaling aan die werknemer en/of herindiensname behels.

Hier is vyf algemene foute met afleggings wat werkgewers moet vermy.

## Geen voorafbesluite

Wanneer die werkgewer afleggings oorweeg, moet daar teen gewaak word om vooraf werknemers vir aflegging te identifiseer – hierdie is een van die algemeenste foute en kan lei tot outomatiese, onbillike ontslag. Arbeidswetgewing vereis dat 'n spesifieke proses gevolg word waarvan die eerste stap is om met alle werknemers te konsulteer ten einde alternatiewe tot afleggings te ondersoek, tydlyne op te stel en die negatiewe impak van afleggings te beperk.

## 'n Billike rede vir aflegging

'n Billike rede ten opsigte van operasionele vereistes moet bestaan voordat afleggings oorweeg kan word. Die werkgewer moet daarteen waak om nie bymotiewe te hê om sommige werknemers se diensooreenkomste te beëindig onder die vaandel van afleggings nie, byvoorbeeld in die plek van ontslag vir wangedrag, swak werksprestasie of onbevoegdheid. Die drie basiese redes wat kan lei tot afleggings is ekonomiese, tegnologiese, en strukturele redes.

## Konsulteer met ál die partye


Wanneer die werkgewer afleggings oorweeg, moet alle werknemers wat moontlik hierdeur geraak word in kennis gestel word – waar van toepassing, ook vakbonde.

## Keuringskriteria

Ingevolge Artikel 189(7) van die *Wet op Arbeidsverhoudinge* is daar twee tipes erkende kriteria wat 'n werkgewer kan gebruik om te bepaal watter werknemers afgelê word, naamlik:

- Een waarop ooreengekom word tussen die konsulterende partye.
- Een wat regverdig en objektief is, indien daar nie op kriteria ooreengestem kan word nie – die werkgewer moet egter kan bewys dat die kriteria regverdig en objektief is, sonder enige bymotiewe.

## Finale vergoedingsuitbetaling

Hierdie betaling bestaan uit die loon/salaris, jaarlikse verlofuitbetaling, statutêre kennistydperkuitbetaling, en skeidingspakket. Die skeidingspakket is alleenlik betaalbaar met afleggings en bestaan uit een week se loon/salaris vir elke voltooide jaar van diens. Die kennistydperk moet steeds uitbetaal word aan die werknemer, selfs al word nie van die werknemer vereis om dit te werk nie. 



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During December 2022 and January 2023, a total of 13 potato producing regions as well as non-producing suppliers delivered potatoes nationally to fresh produce markets.

Average percentage downgraded: **9.35%.**

Total number of bags delivered from 13 regions and non-producing suppliers and inspected on the fresh produce markets: **12 642 230.**

Figure 1: Classes inspected during December 2022/January 2023 at all fresh produce markets.

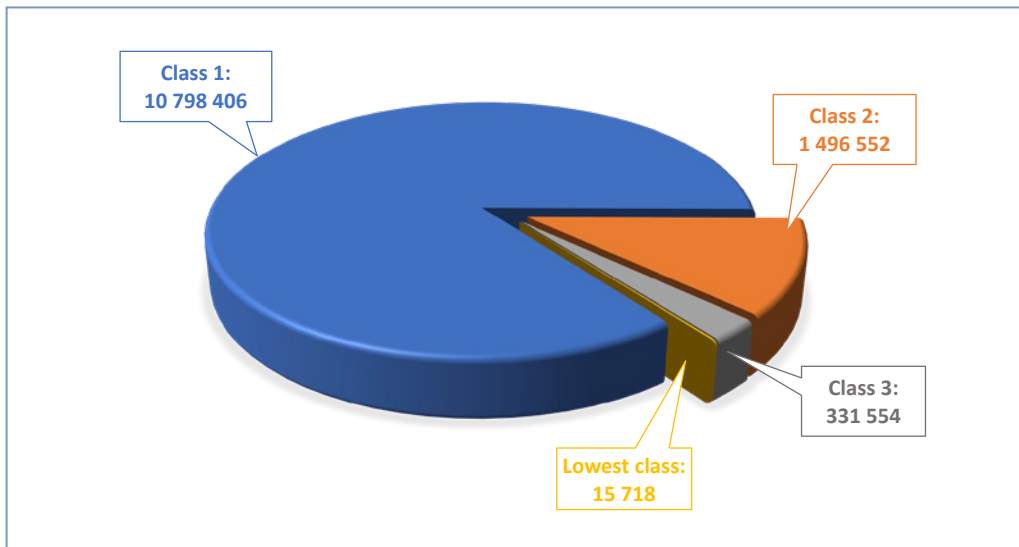


Figure 2: Classes of potato bags downgraded (total 1 182 473) at all fresh produce markets during December 2022/January 2023.

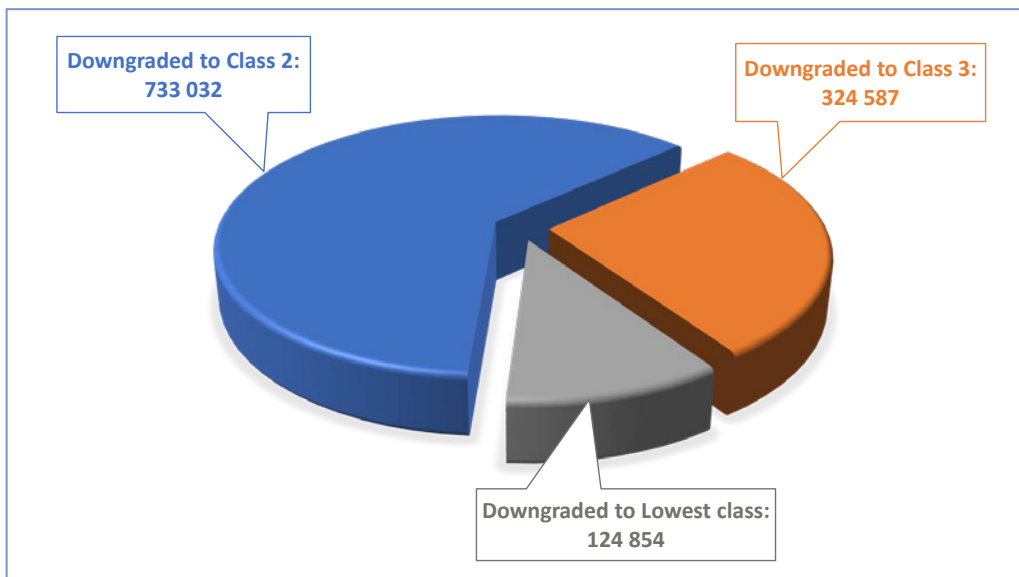


Figure 3: Potatoes downgraded (%) per region at all fresh produce markets during December 2022/January 2023.

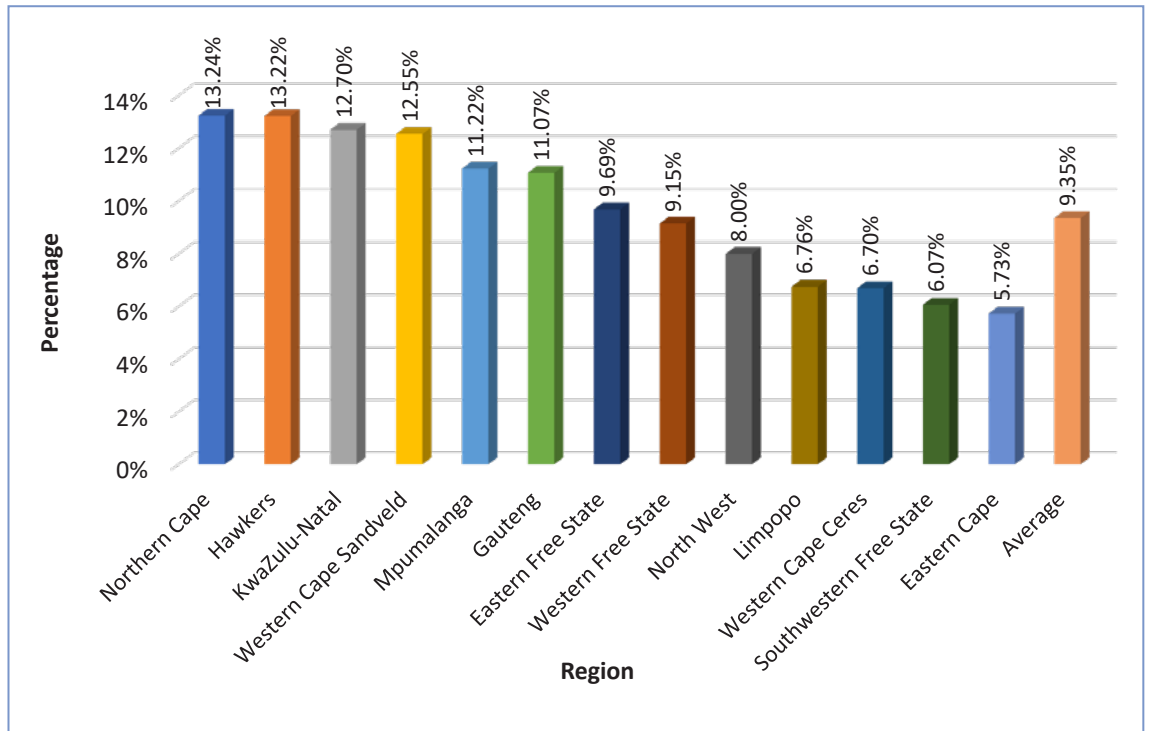
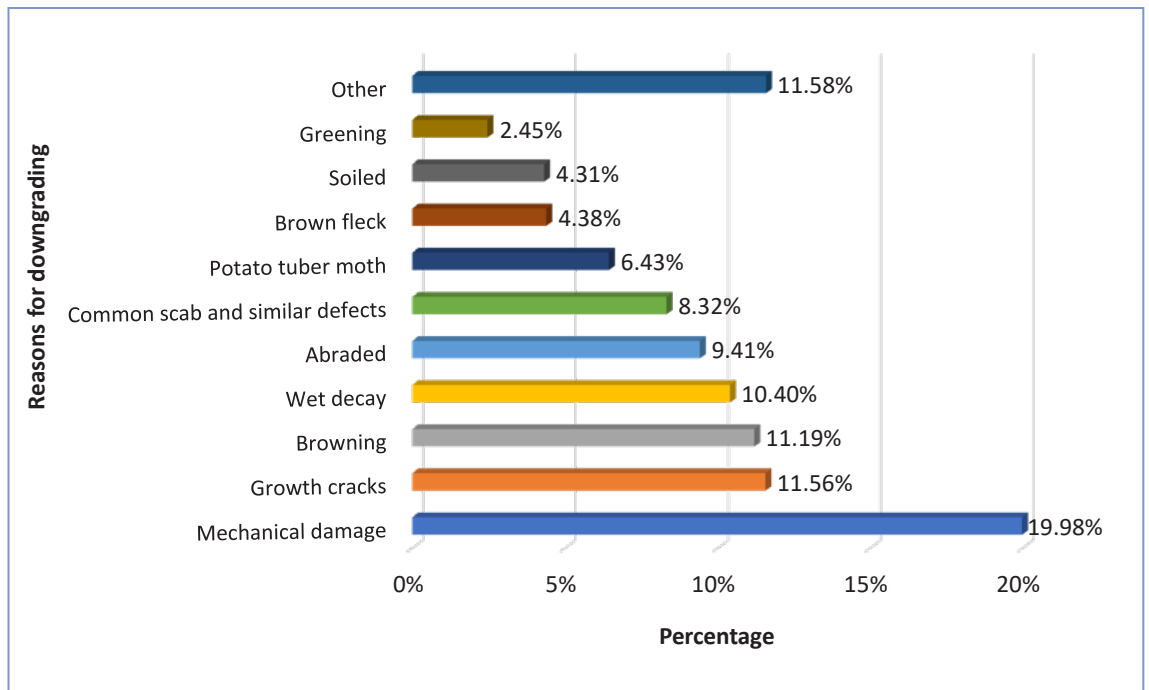
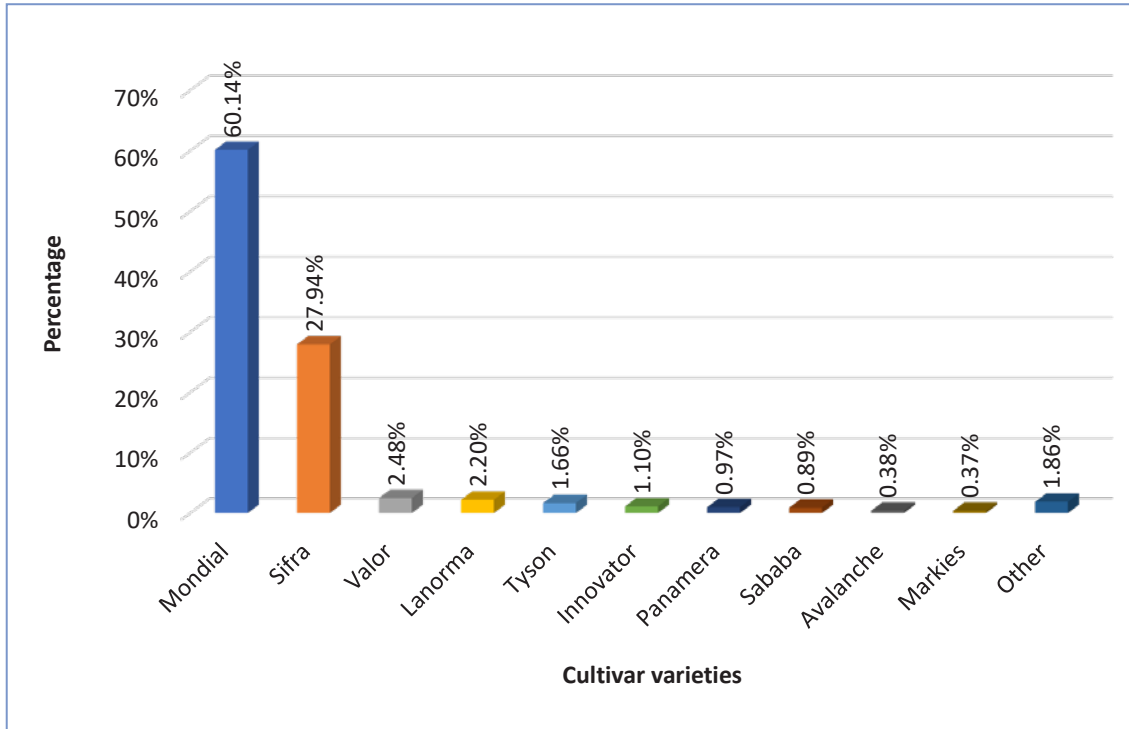


Figure 4: Main reasons for downgrading at all fresh produce markets during December 2022/January 2023.



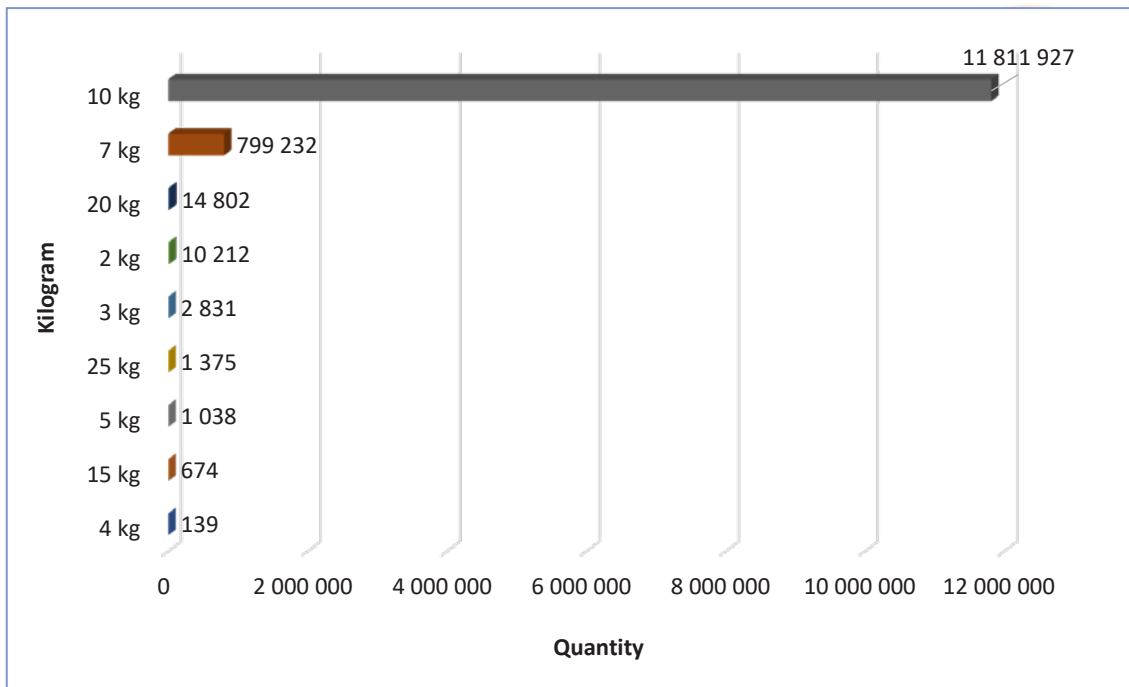
**Other include:** Too small, too big, eelworm, hollow heart, skin eelworm, malformed, insect damage, broken and cut tubers, wilt, heat damage, wet by decayed tubers, watergrass damage (ext), dry stem-end, sprouts, soiled decay, watergrass, damage (int), soiled by decayed tubers, collectively too big & small.

Figure 5: Cultivar varieties inspected at all fresh produce markets during December 2022/ January 2023.



**Other include:** Hertha, Up-to-date, El Mundo, Nicola, Taisiya, Mondeo, Connect, Apache (Poww), Taurus.

Figure 6: Volumes inspected on all fresh produce markets during December 2022/ January 2023.



**EDITOR: LYNETTE LOUW**  
084 580 5120 | lynette@plaasmedia.co.za

**SALES MANAGER: MARNÉ ANDERSON**  
072 639 1805 | marne@plaasmedia.co.za

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## ADVERTISING

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[www.agriorbit.com](http://www.agriorbit.com) • [digimags.agriorbit.com](http://digimags.agriorbit.com)

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2 December 2022	22 February 2023	26 April 2023	19 June 2023	18 August 2023	18 October 2023	4 December 2023
12 December 2022	28 February 2023	3 May 2023	27 June 2023	25 August 2023	24 October 2023	11 December 2023



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