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CHIPS

VOL 38 NO 5 • SEPTEMBER / OCTOBER 2024

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Potatoes SA Congress 2024: Mission accomplished, now for the work!

By Willie Jacobs, CEO, Potatoes SA

After what felt like a year of planning, pleading, begging and promoting, it is suddenly all over. The 2024 Potatoes SA Congress and Seed Potato Growers' Forum certainly was one for the record books. Held in Cape Town, the event had a substantial budget and it took maximum effort from Dirk Uys, Hanrie Greebe, and the organising team to source financial support to deliver an effective congress. And did they perform!

We had to accommodate more than 80 additional attendees, which required us to reconfigure the seating for the gala event at the last minute. Our sponsors stepped up spectacularly, helping us to break even – something we've never achieved until now.

Working towards a goal

What excites me most is not only the quality produced by our team and partners, but the fact that we have a mission and a purpose. While the congress might be over, the work now has to start at an accelerated pace. Our goal is to get South Africa and our potential markets to EAT MORE SOUTH AFRICAN POTATOES!

Through the intense dialogue at this event we now have a clear understanding of how to give the Potatoes SA support model forward momentum. Here are just some of the ways:

- Protect our producers from losing critical inputs, and promote and support the adoption of new solutions at improved rates.
- Demystify new technology in biological pest and disease control to the extent that it can be safely incorporated into existing integrated pest management systems, along with real financial benefits for the producer.
- Serve as an intermediary between data and system providers to mitigate the overwhelming influx of agricultural applications.
- Distilling market-proposed opportunities to identify those that truly make a difference, add value, and reduce effort.
- Connect producers with the end users of their product by tracking the product throughout the value chain and investigating opportunities at each level.
- Launching sales campaigns to determine opportunities and the scale of possible impact, and sharing the results with our producers.
- Keep all value chain participants informed of product volumes and flow so as to reduce volatility for retailers, stabilise offerings for consumers, and drive increased sales volumes to benefit producer profitability.
- Continuously seek alternative uses and export opportunities through our partner support.

During this year's congress we delved into greater detail regarding specific identified opportunities. As we enter the planning phase for next year's budget, we will take this journey to our regional meetings as well as organise a board strategy session.

Our goal is to develop a systematic programme that addresses the action list by exploring the proposed solutions discussed at the congress. Your involvement in this journey is crucial.

To subscribe
CHIPS is the official magazine of Potatoes SA. It aims to address issues that are relevant to the potato industry.
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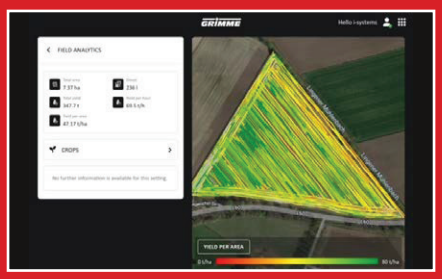

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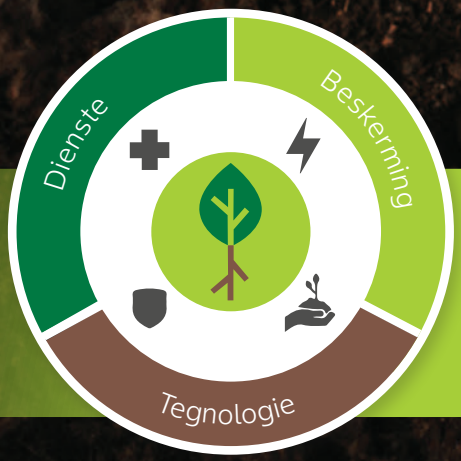

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A nervous time for the world at large

With deadlines dictating our daily lives, finding time to reflect on statements or ideas expressed by opinion leaders at the numerous conferences and events we attend can be challenging. Recently, while editing an article about one such event, a speaker's statement resonated with me. He said that while the world may think we are globalising, we are actually in a state of de-globalisation, which could be very beneficial for Africa.

De-globalisation basically refers to a process of diminishing interdependence and integration, typically between countries. It entails a period during which economic trade and investment between countries start to decline. I found this statement very interesting, as countries and the industry are constantly forging relationships with their international counterparts, to specifically stimulate economic trade, growth, and investment. So why is this happening?

From global to hyper to slow

According to a recent report by the World Economic Forum, a series of successive global shocks are responsible for this situation. It started with the 2008 financial crisis and concerns over countries' over-reliance on trade with single partners. The phenomena of globalisation gained momentum after 1945 (post World War II) and continued for the next 60 years, with a hyper-globalisation period from 1990 to 2005.

The process slowed after 2005, entering a period of 'slowbalisation' which was exacerbated by the 2008 financial crisis, followed by major disruptions such as Covid-19, the war in Ukraine, the effects of climate change, and much more. As with most world processes, de-globalisation is driven by sentiment. Currently, the sentiment entails reconsidering external dependency and looking closer to home for growth and, ultimately, self-sufficiency.

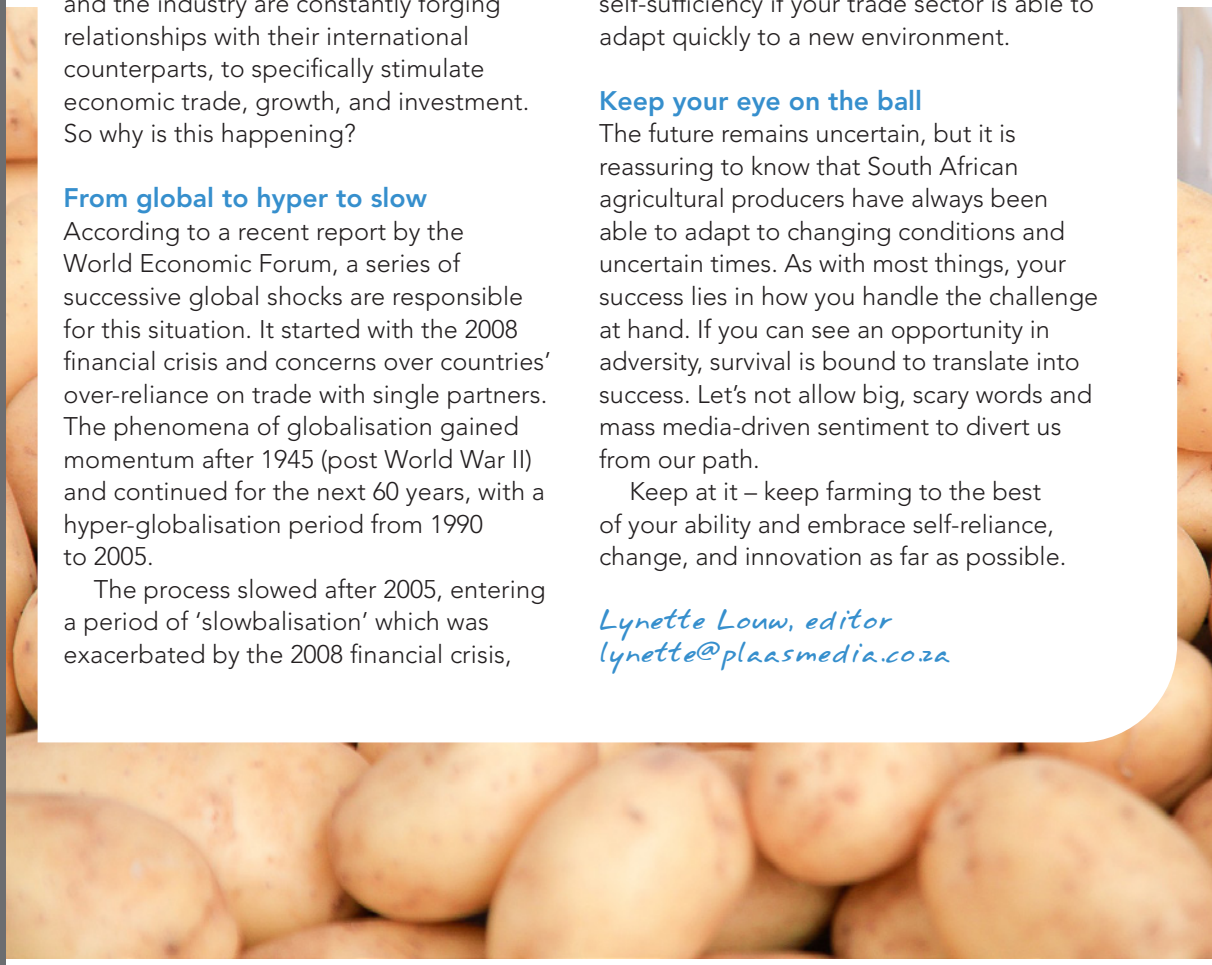
What does this mean for business and especially agriculture in South Africa? The answer is not simple, as there are so many aspects to consider – from politics and climate change to existing trade partnerships and, of course, consumer sentiment. In addition, de-globalisation is not a uniform process and is more pronounced in some countries than others. On a broad scale, de-globalisation can have serious implications for most companies. However, it can also lead to good levels of self-sufficiency if your trade sector is able to adapt quickly to a new environment.

Keep your eye on the ball

The future remains uncertain, but it is reassuring to know that South African agricultural producers have always been able to adapt to changing conditions and uncertain times. As with most things, your success lies in how you handle the challenge at hand. If you can see an opportunity in adversity, survival is bound to translate into success. Let's not allow big, scary words and mass media-driven sentiment to divert us from our path.

Keep at it – keep farming to the best of your ability and embrace self-reliance, change, and innovation as far as possible.

Lynette Louw, editor
lynette@plaasmedia.co.za



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New Zealand expects good volumes

In the 2022/23 season, New Zealand's potato production reached 419 200 tonnes, marking an 8.1% decrease from the previous year and a 20.5% decline from the 2018/19 figures, according to Potatoes New Zealand. The country had 176 commercial potato growers who cultivated 8 424 ha, with the production's total value estimated at NZ$931.3 million. This production encompasses 234 194 tonnes for processing, 168 855 tonnes for table consumption, and the remainder for seeding purposes.

Despite the decline in production volume, New Zealand achieved the highest potato yields globally in 2022, with an average of 50.9 t/ha, surpassing the United States and Denmark, according to the Food and Agriculture Organization of the United Nations.

However, the 2023/24 season's production figures remain undisclosed, though there is an indication of increased potato volume due to reported lower prices this season. – *Fresh Plaza*

Frozen potato market expanding

ResearchAndMarkets.com has announced the publication of its latest comprehensive report on the global frozen potato market. According to the report, the market, valued at US$67.27 billion in 2023, is anticipated to reach US$89.51 billion by 2029, growing at a compound annual growth rate of approximately 5% during the forecast period. The global frozen potato market is set for significant growth, driven by several factors.

Expansion of the food service industry: The ongoing expansion of the food service industry, including restaurants, cafes, and catering services, is a major driver. The trend towards the westernisation of diets in developing countries is also supporting market growth, as potatoes are a staple in many Western dishes.

Marketing and promotional activities: Increased investments in marketing and promotional activities by major players in the industry are likely to enhance product visibility and consumer engagement, driving sales.

E-commerce and online grocery shopping: The rise of e-commerce and online grocery shopping is making it easier for consumers to purchase frozen potato products, further boosting market growth.
– *Potato News Today*

Rising prices across South America

The countries of South America are in the enviable position to typically be fully self-sufficient in terms of potato supply. This, however, also makes them extremely susceptible to price fluctuations, and recently, prices have tended to rise. This year, the Pacific Ocean currents reversed their dynamics, and the El Niño phenomenon became the prevailing force in the southern continent.

In Brazil, for example, the rains in Rio Grande do Sul caused the most terrible floods the country has ever seen, resulting in dozens of deaths, thousands of displaced people, and millions in structural and agricultural damage. The rains, both in the south where they were devastating and in the more central regions, had a considerable impact on the availability and prices of potatoes, which remained above US$20 per 25 kg bag throughout almost the entire year.

In Argentina, the incidence of one of the coldest winters in the last 60 years had a similar effect on crops and, by extension, prices. Severe and unexpected frost damaged much of the fields in the southeast of Buenos Aires, a key productive region, leading to an exponential increase in prices since the beginning of the year.

Uruguay was no exception and suffered both – living up to its middle ground between Argentina and Brazil – with abundant rains and terrible frosts. As a result, harvests were delayed and affected, and combined with the low availability of seed, prices soared, reaching highs of US$46 per 25 kg bag in the central market.
– *Potato Pro*

Nigeria launches new potato strategy

The National Potato Strategy for Nigeria was recently launched to usher in a new era for Nigeria's potato industry capable of delivering sustainable food and nutrition security, fostering trade surplus, and boosting incomes.

At its core, the strategy recognises that the potato value chain in Nigeria faces a complex of challenges. To overcome these hurdles and unlock the sector's full potential, the strategy combines key players, harmonises their efforts, and harnesses their collective strengths. At the launch event, distinguished speakers amplified the call for action.

The National Potato Strategy is poised to drive deliberate change, incentivise stakeholders, and foster innovation in a commercially oriented potato sector.
– *International Potato Centre*

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Strong demand for Irish potatoes

The latest potato market report issued by the Irish Farmers' Association, highlights a positive demand at both consumer and retail levels. As new season varieties become more available, they are aiding supply amid tightening stocks.

The main season crops are progressing well, thanks to the higher temperatures experienced. However, the recent weather conditions have also been conducive to blight, raising concerns among farmers about potential impacts on crop health.

Reports from Scotland indicate a slight increase in the planted acreage of seed potatoes this year. The area entered for planting this year stands at 10 256ha, compared to 10 066ha last year. This increase of 190ha, or 2%, reflects a positive trend in seed potato production.

In the United Kingdom, the demand for old season crops remains strong, mirroring the situation in Ireland. However, stocks of these old season crops are nearly depleted. Salad crops are being lifted as they become ready, with very little or no free buy available. This tight supply situation is a significant factor in the market.

Regarding new maincrop potatoes, the Marfona variety has been burnt off in the East, but skin set has been slow. If growth rates do not improve, continuity of supply could become an issue, potentially affecting market stability. – *Potato News Today*

Uptick in European Union potato production

In 2023, 48.3 million tonnes of potatoes were harvested in the European Union (EU), a slight increase compared with 2022 when 47.5 million tonnes were harvested. However, there has been a long-term decline in the harvested production of potatoes; the level of production in 2023 was 27.9 million tonnes less than in 2000, equivalent to a fall of 36.7%.

This information comes from a detailed *Statistics Explained* article published by Eurostat, which looks at those EU farms producing potatoes, the production of and prices for potatoes, as well as trade-in potatoes.

At the country level, Germany was the largest producer of potatoes in the EU in 2023 (11.6 million tonnes, 24% of the EU total), followed by France (17.9%) and the Netherlands (13.4%). Together, these three EU countries accounted for a majority (55.4%) of the harvested production of potatoes in the EU in 2023. – *Euroreporter*

Yara to provide green fertilisers

PepsiCo has agreed to use hydrogen-derived fertilisers supplied by Yara to grow potatoes at around 1 000 farms across Europe. Under the agreement, Yara will deliver 165 000 tonnes of fertilisers per year to PepsiCo, which is expected to cover around 25% of their crop fertiliser needs in the continent by 2030.

The delivery will include fertilisers produced from either renewable ammonia in Herøya, Norway, or low-carbon ammonia via carbon capture and storage from its site currently under construction in Yara Sluiskil, anticipated for 2025/26.

By 2030, the aim is for all of the 165 000 tonnes to be Yara Climate Choice fertilisers. Initially, the supply will also include Yara's standard premium nitrate-based mineral fertilisers produced using natural gas, which the Norwegian company has said is "around 50% lower than most non EU-fertilisers."

Fertilisers currently make up most of PepsiCo's carbon footprint, but the company targets a 40% reduction in emissions by 2030. PepsiCo's product portfolio includes Doritos, Walkers, Ruffles and Lay's. – *H2 View*

PepsiCo's US$160 million green factory

PepsiCo has announced a US$160 million investment to open a new green snack factory with sustainable principles and locally sourced ingredients for environmental, social, and governance (ESG) goals. PepsiCo products are consumed over a billion times a day, and crop production for human food makes up 21% of global food production emissions.

Overall, food production accounts for more than a quarter of global greenhouse gas emissions through agriculture, processing, packaging, and transportation. The company has been making strides towards sustainability with its PepsiCo Positive (pep+) ESG strategy, aiming to reach net zero emissions by 2040.

The new snacks manufacturing facility, set to open in 2026, will adhere to 'sustainable operations from start' principles. The plant is set to become the largest of its kind in Central Asia, producing 21 000 tonnes of salty snacks in 2027, including Lay's potato chips. – *Sustainability Magazine*

Successful 2024 congress paves the way for 2025

By Hugo Lochner, Plaas Media

Murray Thompson was elected as chairperson of Potatoes SA. Thompson was the 2022 Syngenta National Potato Producer of the Year.

This year's Potatoes SA Congress and Seed Potato Growers' Forum held at Century City in Cape Town, was well-attended and the discussions and presentations offered excellent food for thought. This year's theme, "2050 is now", was tackled from various angles ranging from technology and risk management, to hands-on production issues and embracing innovation.

The first session on 16 July started with a parallel session for input suppliers with an official welcome extended by Gert Bester, the chairperson of Potatoes SA. In his opening he referred to the fact that farming conditions have become more difficult for producers and that support is needed in order for them to continue producing.

Gerhard Posthumus, forum chairperson, opened the Seed Potato Growers' Forum for delegates and producers, which was held simultaneously in another hall.

Data makes the world go round

In his address during the parallel industry session, Willie Jacobs, chief executive officer of Potatoes SA, said it is crucial that role-players in the potato value chain work together. "Let's get to a point where we are comfortable that data sharing is the next information base, the next power base. We have to be able to work with the information that we have," Jacobs added.

Some 46% of South African potatoes are traded via the fresh produce markets, said FP Coetzee, manager of industry information at Potatoes SA. Coetzee provided industry insights during the parallel session and, among others, mentioned that the highest price fetched for potatoes is based on these potatoes going directly to the market.

Efficiency and profitability are musts in order for the local potato industry to grow, stated Dirk Uys, manager of research and innovation at Potatoes SA. To keep producers on their farms they have to produce more than 48.5 tonne/ha to break even. "We need access to global innovation, and we need to share and use data," he said.

Loffie Brandt, head of sales enablement at Absa Agribusiness, emphasised that the use of data partnerships is becoming very important.

From the left are Pieter Möller, motivational speaker and programme director of the congress, Loffie Brandt, head of sales enablement at Absa Agribusiness, and Dirk Uys, manager of research and innovation at Potatoes SA.

From the left are Gert Bester, outgoing chairperson of Potatoes SA, Willie Jacobs, chief executive officer of Potatoes SA, and Gerhard Posthumus, chairperson of the Seed Potato Growers' Forum.

From the left are Janco Cloete, technical marketing specialist of crop protection at InteliGro, Janet Lawless, technical and national marketing manager at InteliGro, and Willie Jacobs, chief executive officer of Potatoes SA.

William Sears, chief commercial officer at DP World SA, addressed some of the macro trends producers have to consider when planning for the future.

Martin Steyn, professor of agronomy in the Department of Plant and Soil Sciences at the University of Pretoria. Prof Steyn discussed the issue of agronomic efficiency.

Bernhardt du Toit, chairperson of the risk and audit committee at Potatoes SA, presented the audit committee report as part of the formalities of the congress.

Pieter Geldenhuys, director of the Institute for Technology Strategy and Innovation, spoke about factors that drive innovation.

All producers generate data and it is important for them to own that data. Brandt added that integrating the captured data into a bank's system would, however, be quite a challenge.

Martin Steyn, professor of agronomy in the Department of Plant and Soil Sciences at the University of Pretoria, said that carbon dioxide (CO_2) has a positive effect on potato yields. Higher temperatures will cause more heat stress and suppress yields, yet the combined effect of elevated temperature plus CO_2 will result in better potato growth and yields.

Mitigating risk

The second session started with a talk by Bernhardt du Toit, chairperson of Potatoes SA's risk and audit committee. Du Toit said that the risks involving potato production requires an in-depth look, which is one of the tasks of the audit committee. "For me, one of the biggest risks is the survival of Potatoes SA. The value that the organisation brings to the potato industry must be retained. We'll have to think out of the box," he added.

William Sears, chief commercial officer of DP World SA, one of the sponsors of the congress, said the future is causing a lot of uncertainty and anxiety but that producers are quite familiar with this. When one looks to the future, there are certain key macro trends that producers have to consider. These trends include the rise of artificial intelligence or AI, changes in population demographics, climate change, green logistics, and green solutions to problems that were previously ignored.

Setting the table

The first day of the congress concluded with a panel discussion focussed on forward-thinking topics and solutions for the potato industry and beyond. Janet Lawless, technical and national marketing manager at InteliGro and the facilitator of the session, introduced the speakers and indicated that the discussion would address topics such as technology advancement, crop protection, new breeding technologies, and global predictions. The panel discussion served as a scene setter for the panel discussions on day two of the congress.

Pieter Geldenhuys, director of the Institute for Technology Strategy and Innovation and one of the panel

Bernhardt du Toit, chairperson of the risk and audit committee at Potatoes SA, and Pieter Brink, manager of agricultural services and research at Yara South Africa.

Chris Pienaar, head of Global Fruit and Vegetable Incubator – Digital Farming Solutions at Bayer, emphasised the importance of adopting technology at farm level.

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Sanette Thiart, former managing director of the Potato Certification Service, was awarded the Solanum Tuberosum Meritum Award. (Photograph: Silver Dune Photography)

The Syngenta National Potato Farmer of the Year 2024 is Pierré Smit of HP Smit en Seuns of Taaiboskraal near Piketberg in the Western Cape. From the left are Louw and Louise Maré Smit, Christel and Pierré Smit, and Mariaan and Johan Smit. (Photograph: Silver Dune Photography)

members, said the three things driving innovation are scarcity, a sense of urgency, and a shift in perspective. "We need to think of new ways to solve our problems. Waiting is not an option. We live in an era of urgency. We have to use new technologies to harvest the wonderful opportunities that exist out there."

William Sears, chief commercial officer of DP World SA, said that we rely on food security to be a functional society. "This is something that we should not underestimate. At the same time, producers shouldn't underestimate how technology could change their world."

Chris Pienaar, head of the Global Fruit and Vegetable Incubator – Digital Farming Solutions at Bayer Crop Science, said that given our vision of regenerative agriculture, technology will continue to speed up. "The biggest challenge is adopting those technologies on the farm. It's not about the technology, but about the change producers are prepared to drive in their operations."

The future is already here

Dr Hennie Groenewald, CEO of Biosafety Africa, said development in the potato industry is based on DNA and genetics. It is the blueprint of the industry. "We need to invest in innovation, and create an environment that enables innovation. When innovation presents itself, you should be prepared to embrace it," he said.

The Bayer Seed Potato Grower of the Year 2024 is Rudi Heinlein of Sirkel-N-Landgoed near Baltimore in Limpopo. Heinlein's sons, Gerhard and Nikus, accepted the award on his behalf. From the left are Theresa and Gerhard Heinlein, Nikus and Melisa Heinlein, Gerhard Posthumus, chairperson of the Seed Potato Growers' Forum, Murray Thompson, newly elected chairperson of Potatoes SA, Willie Jacobs, chief executive officer of Potatoes SA, and Wilbri Vorster, Horticulture Go-to Market (GTM) lead for Africa, Bayer Crop Science. (Photograph: Silver Dune Photography)

Murray Thompson, a seed and commercial potato grower, 2022 Syngenta National Potato Producer of the Year, and newly elected chairperson of Potatoes SA, said the future is already here. Every production area within South Africa is a leader in a specific aspect of potato farming. "What we need to do to live in the future and to adopt all these great new technologies, is to talk to each other in order to share information, ideas, and strategies," he concluded.

Wesgrow was awarded the 2024 Seed Potato Supplier of the Year Award. From the left are Ettienne Groenewald, marketer KwaZulu-Natal/Eastern Cape, Walter Nel, production manager, Dirk Pretorius, marketer Western and Eastern Free State, Llewellyn Tiller, coldroom manager, Riaan van Rooyen, financial manager, Chris Prinsloo, marketer Limpopo, Charl Nel, marketing national and exports, Gerhard Posthumus, managing director, David Steyn, operational director, and Heindrich Steyn, chemicals expert.

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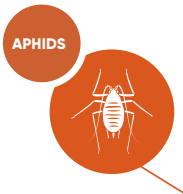

Aphids damage potatoes primarily by spreading plant diseases. Occasionally, aphids become so abundant that their feeding weakens the plants.

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Early blight on potatoes is caused by a fungal pathogen (*Alternaria solani*). This disease negatively affects the leaves, stems and tubers of the potato plant - reducing yield, tuber size and impacting the overall health of your crop.

Hit® 500 SC (Reg. No. L7575) is a suspension concentrate fungicide for the control of early blight (*Alternaria solani*) on potatoes that is rainfast after just 2 hours of application.

Curzate® 600 WG
FUNGICIDE

TANOS®
FUNGICIDE

ZORVEC®
Encantia® 330 SE
FUNGICIDE

Late blight (*Phytophthora infestans*) is a destructive fungal disease of potatoes which results in dry brown rot of the tubers.

Curzate® 600 WG (Reg. No. L10150) is a water dispersible granule fungicide, which is locally systemic and offers both preventative and curative control of late blight (*Phytophthora infestans*) on potatoes - affecting crops at this time of year.

Tanos® (Reg. No. L6564) is a water dispersible granule fungicide for the control of late blight (*Phytophthora infestans*) and early blight (*Alternaria solani*) on potatoes. It is highly effective as it consists of two unrelated highly active ingredients with unique modes of action namely: Cymoxanil (*ethyl urea*), a locally systemic fungicide with preventive and curative action as well as Famoxadone (*oxazolidinedione*), a preventive, residual fungicide active on spore formation and germination.

Zorvec® Encantia® 330 SE (Reg. No. L11227) was added to the Corteva Crop Protection offering - to specifically targets late blight (*Phytophthora infestans*) a detrimental pathogen known to compromise local potato growth.

OUR CROP PROTECTION PRODUCTS ARE AT THE HEART OF AGRICULTURE

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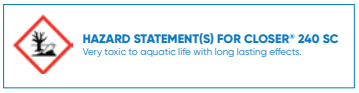

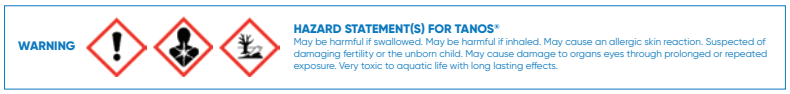

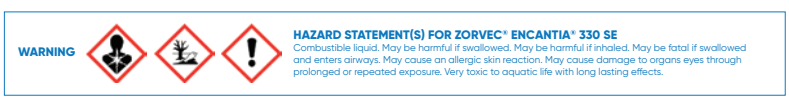

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Wouter van Amstel (left) receiving the Solanum Tuberosum Meritum Award from Murray Thompson and Willie Jacobs. (Photograph: Silver Dune Photography)

Rudi Heinlein received the Solanum Tuberosum Meritum Award for excellent performance. Here are Nikus and Gerhard Heinlein with the award. (Photograph: Silver Dune Photography)

Production efficiency is key

The second day of the Potatoes SA Congress and Seed Potato Growers' Forum shined the spotlight on efficiency in potato production. A panel of speakers discussed soil, climate, and fertiliser related matters.

The facilitator of the panel discussion, independent communication specialist Lindi Botha, opened the discussion by stating that potatoes have the lowest water footprint of all staple foods in the world, especially compared to rice, wheat, and maize. Hence, there should be a bigger drive to increase potato production and generate valuable information when approaching government for assistance.

Prof Martin Steyn emphasised the fact that producers should take care not to over-fertilise their potato fields. Plants can absorb only so many nutrients from fertilisers. In addition, the absorption efficiency of specific nutrients differ quite a lot for potatoes. For example, nitrogen absorption is 60 to 70%, while phosphorus absorption is 30 to 40%.

Prof Stephanie Midgley, a specialist scientist in the Western Cape Department of Agriculture's Climate Change division, said the drive for efficiency must go hand-in-hand with data-keeping and databases to refer to. "Know and understand what happens beneath the soil and in your region's climate. Integrate those aspects into your farm data system, but also as a region. That will drive efficiency," she said.

Manage the manageable aspects

Alan Bender, technical commercial co-ordinator for sub-Sahara Africa at Cosmocel, said producers must understand what limiting factors are involved before planting a crop. "If we are able to manage stress in plants, we can manage better production. We have to increase efficiency and prime the plant to better tolerate these limiting factors," he said.

Dr André Meiring, a potato producer from the Free State, said there are a number of manageable factors on a potato farm; however, there are also factors beyond the producer's control that they tend to handle in a reactive manner. "We have to look at the overall risk management strategy for the farm in order to manage all factors so as to improve efficiency," Dr Meiring said.

Sponsors and exhibitors

The sponsors of this year's congress and forum were: DP World (main sponsor), Syngenta (National Potato Farmer of the Year), Bayer (Seed Potato Grower of the Year), Absa, Corteva Agriscience, Villa, and InteliGro (all platinum sponsors), Wesgrow (double-gold sponsor), AECI, GWK, SQM, and the Western Cape Government (all gold sponsors).

The session sponsors were Adama, Cosmocel, Corteva Biologicals, InteliGro, PepsiCo South Africa, and RSA Group. Participating sponsors were Africa Transport Solutions (ATS), CHEP, FMC, FPD Seed Potatoes, Grow, and SF.

Exhibitors at this year's event included AECI, Andermatt Madumbi, Cosmocel, DC Geomatics, DP World, Dux Agri, GWK, Metos, Netafim, New Holland, SQM, Syngenta, Valley, Villa, Patho Solutions, and Yara.

Various other panel sessions focussed on important issues such as logistics, customer/consumer issues, biosecurity and sustainability. To watch these sessions, visit *www.potatoes.co.za/multimedia/*.

Top producers honoured

The Potatoes SA Congress and Seed Potato Growers' Forum concluded with a gala function during which the Bayer Seed Potato Grower of the Year 2024 and the Syngenta National Potato Farmer of the Year 2024 were announced. This year, the honours went to Rudi Heinlein of Sirkel-N-Landgoed near Baltimore in Limpopo and Pierré Smit of HP Smit en Seuns of Taaiboskraal near Piketberg in the Western Cape, respectively. Read our article on these exceptional producers in this issue of *CHIPS*.

Various other awards were also made. Wesgrow was awarded seed potato supplier of the year, and Solanum Tuberosum Meritum Awards for excellence were made to Sanette Thiart, Rudi Heinlein, and Wouter van Amstel. This award is conferred on individuals or organisations who, by means of their excellent performance, make an exceptional contribution to the success of the potato industry in striving to play a leadership role in sustainable potato production in South Africa. The recipients were honoured by the potato industry for their sustained performance and devotion in the interest of all role-players.

For more information on this year's and future events, email hanrie@potatoes.co.za.

Top aartappel- en moerkwekers inspireer

Deur Susan Marais, Plaas Media

Beide Aartappels SA se boer van die jaar én die aartappelmoerkweker van die jaar beskik oor baie kundigheid waarby die aartappelbedryf as geheel kan baat vind, volgens Willie Jacobs, uitvoerende hoof van Aartappels SA. "Ons is reeds besig om te ondersoek hoe Aartappels SA produsente kan bystaan om by hierdie twee boerderye te leer. Aartappelboere hoef werklik nie in kompetisie met mekaar te wees nie, want die mark is groot genoeg vir almal."

Die feit dat Rudi Heinlein vanjaar vir 'n tweede keer as die land se top moerkweker aangewys is, daarop dui dat hierdie boerdery kop en skouers bo die res uitstaan. "Wat hierdie prestasie selfs meer uitmuntend maak, is dat Sirkel-N-Landgoed aartappelmoere verbou in 'n omgewing wat nie geskiedkundig as aartappelmoerwêreld bekend staan nie."

Pierre Smit van HP Smit en Seuns Boerdery is as die 2024 Syngenta Nasionale Aartappelboer van die Jaar aangewys. "As ek so na die beoordelaars luister, was dit 'n kop-aan-kop stryd in hierdie kategorie," sê Jacobs en voeg by dat hy dink die Smitte se boerdery is 'n fantastiese voorbeeld vir ander produsente. "Wat veral uitstaan is hoe die boerdery tegnologie inspan om vooruit te gaan. Hierdie plaas gaan op 'n uiters professionele manier te werk."

Sandveld-voorvatter vat raak

Goeie medeboere, 'n goeie personeelkorps, verskaffers en kliënte het almal bygedra tot die suksesverhaal van HP Smit en Seuns Boerdery van Riviera, Piketberg in die Wes-Kaap. So sê Pierre Smit, 'n vierde-generasie produsent.

Die Smitte boer al sedert 1905 op die familiegrond in die Sandveld toe Pierre se oupagrootjie die grond verkry het. Die grond is onderverdeel en sy oupa, AL Smit het 'n gedeelte daarvan gekry. Dit is hier waar Pierre se pa, ook AL Smit, in 1951 begin aartappels plant het. "Hy het geleidelik al hoe meer aartappels begin plant, ten koste van ons voorouers se veeboerdery."

In 1983 het Pierre amptelik by die boerdery aangesluit nadat hy by die Elsenburg Landboukollege afgestudeer het. Op daardie stadium het hulle sowat 15 ha aartappels per jaar geplant. Teen 1998 het die aanplantings uitgebrei tot waar hulle 120 ha per jaar plant. "In 2009 het ons 'n plaas met 'n koeler seeklimaat gehuur vir someraanplantings."

Só het die boerdery uitgebrei en vandag boer die Smitte in die Sandveld op verskeie persele tussen Dwarskersbos, Elandsbaai en Piketberg. Aartappels maak 97% van die boerdery uit.

In 2012 het Pierre se seuns, Louw en Johan, by die boerdery aangesluit. "Ons boer steeds met aartappels, want vyf geslagte Smitte het al die proses van aartappelproduksie verfyn. Die Sandveld se grond en klimaat is ideaal om dwarsdeur die jaar met aartappels te boer," sê Pierre en voeg by dat hulle deesdae daagliks oes.

Baltimore-boer seëvier weer

Rudi Heinlein van die Sirkel-N-Landgoed naby Baltimore in Limpopo, is vir die tweede jaar aangewys as Aartappels SA se Moerkweker van die Jaar. Hy boer saam met sy vrou, Jeany, sy twee seuns, Gerhard en Nickus, sy dogter Sorentia, ses produksiebestuurders, administratiewe personeel, werkswinkelpersoneel en 'n arbeidsmag van 1 200.

In 2004 het Heinlein begin om aartappelmoere vir Wesgrow te produseer op 110 ha en vandag lewer hulle elke seisoen tussen 100 000 en 130 000 gesertifiseerde 25 kg moersakke. Heinlein sê 98% van die moersakke wat deur die Aartappelsertifiseringsdiens gesertifiseer word, word as elite-moere gesertifiseer.

Volgens Heinlein is die boerdery se grootste uitdagings klimaatsverandering, droogte en toenemende weerstandigheid onder peste en plae. Die boerdery se sukses lê egter in hul positiewe aanslag. "Passie maak 'n verskil en goeie beplanning is baie belangrik om vorentoe te beweeg." Passie beteken egter nie dat hy oorhaastige besluite neem nie. Langtermynbeplanning is noodsaaklik is om die regte besluite te neem en risiko's te bestuur.

Om die beste moontlike gehalte gesertifiseerde moere te produseer, geniet die volgende bestuursmaatreëls veral baie aandag:

- 'n Kernspan verkenners maak die lande behoorlik skoon om te sorg dat virusse en problematiese plante uit die weg geruim word.
- Die verkoeling van die aartappelmoere op die plaas word baie streng en noukeurig gemonitor.

Heinlein sê die kennis, eerlikheid en integriteit van die sertifiseringsbeamptes dra by tot konstante gehaltebeheer. "Hul insette en behulpsaamheid tydens land- en knolinspeksies is beslis 'n aanwins. Die besluit om in gehalte moere te belê, is deurslaggewend om goeie opbrengs, gehalte en weerstand teen plae en siektes te verseker."

Lees in die volgende uitgawe van *CHIPS* meer oor HP Smit en Seuns Boerdery.

Saadbedryf-baanbreker bly gefokus op die toekoms

Deur Christal-Lize Muller

Wesgrow, Suid-Afrika se mees gevestigde aartappelsaad-maatskappy met 'n markaandeel van meer as 50%, is deurentyd toekomsgerig. Gerhard Posthumus, besturende direkteur van Wesgrow, sê die maatskappy wat in 1964 gestig is, is sinoniem met gehalte, integriteit en innovasie.

Wesgrow se mikpunt is om deurlopend antwoorde aan aartappelprodusente te bied deur middel van nuwe variëteite en weerstandbiedendheid teen belangrike siektes. Die aartappelbedryf verander voortdurend met veral stygende insetkoste wat aan die orde van die dag is, sê hy. Waar 'n opbrengs van 40 t/ha 20 jaar gelede goed was, is die norm nou 70 t/ha onder besproeiing. Dit is grotendeels te danke aan die maatskappy se verbeterde saadproduksiestelsels en -praktyke, asook die invoer van nuwe variëteite met beter genetiese eienskappe wat goed aanpas by Suid-Afrikaanse omstandighede.

Sodoende verseker die maatskappy dat sy 22 aandeelhouers, almal moerkwekers in die Christiana-omgewing, hul produksie voortdurend kan verbeter.

Uitstekende uitvoerpotensiaal

Wesgrow se moerkwekers verbou jaarliks 5 000 ha se aartappelsaad uit 'n totale 6 500 ha, met die balans wat deur kontrakkwekers geproduseer word. Hierdie saadaartappels word aan plaaslike en internasionale tafelprodusente gelewer. Daar is goeie vordering met uitvoere na die Suider-Afrikaanse Ontwikkelingsgemeenskap (SAOG)-lande asook Kuwait, Katar en Dubai. 'n Uitdaging in Afrika is egter dat aartappelkwekers dikwels skenkergeld ontvang onderhewig daaraan dat saad by Europese verskaffers aangekoop moet word.

Wesgrow kan nie daarmee meeding nie, maar sien tog 'n belowende geleentheid in die venstertydperk van September en Oktober, aangesien Europa se saad dan nog te vars is. Die fokus is om konstant meer saad in hierdie tydgleuf te lewer.

'n Goeie produksiestelsel

Wesgrow verkoop slegs gesertifiseerde saad en beskou die begrip 'ongesertifiseerde saad' as misleidend vir kliënte. Dit is na sy mening bloot gewone tafelaartappels in 'n saadsak. Wesgrow verkoop slegs saad wat ingevolge die Aartappelverbeteringskema van Suid-Afrika geproduseer is, deur die Aartappelsertifiseringsdiens (ASD) gesertifiseer is, en aan Wesgrow se standaarde voldoen. Daarom bestaan daar 'n baie sterk produksiestelsel met 'n doelgerigte span wat dit uitvoer en monitor.

Wesgrow se produk word slegs drie tot vier keer vermeerder voordat dit bemark word. Vandag word 98% gesertifiseer danksy die Wesgrow-produksiestelsel. So word moerkwekers dan ook ondersteun om die regte variëteite en bronne op die regte tyd te plant. Hulle landerye word besoek en bystand word verleen om siek plante te verwyder (*rogue*). Chemiese en ander produksiebystand word ook gelewer en dra by tot 'n stabiele handelsmerk met uitstekende integriteit.

Ondersteuning word verskaf om hierdie saad betyds te produseer wanneer kwekers of kliënte dit benodig, aangesien daar 'n dormansietydperk is wat bestuur moet word. Posthumus sê vars moere wat te vroeg aangeplant word, is apikaal dominant en lewer nie optimale opbrengs nie. Hulle poog ook om die tyd tussen lewering en aanplanting so kort as moontlik te hou, om moontlike foute te verminder.

Bemarkingsvoordele

"Dit is belangrik aangesien kliënte soms nie die infrastruktuur het om moere behoorlik op te pas nie. Ons verskaf die groeitydperke van die variëteite en bring die 'doodmaakdatum' op elke sakkie saad aan." In die verlede moes kliënte self probeer bepaal wanneer saad plantgereed is en hoe dit behandel moes word.

Wesgrow het 32 koelkamers waar sowat 750 000 sakkies moere geberg kan word.

Links is Gerhard Posthumus, besturende direkteur, en Llewellyn Tiller, koelkamerbestuurder by Wesgrow.

Wesgrow se span van 12 kundige bemarkers regoor Suid-Afrika is hiervoor verantwoordelik.

Die bemarkingspan help met ontledings oor watter variëteite en plantgereed saad in verskillende gebiede benodig word en wanneer. Wesgrow se bemarkingseisoen maak dit boonop moontlik om vir 12 maande van die jaar uitgeloopte saad aan sy kliënte te verskaf. Kontrakkwekers word hiervoor ingespan – drie in die Oos-Vrystaat, twee in onderskeidelik Limpopo en die Oos-Kaap, en een in KwaZulu-Natal.

Wesgrow se bemarkingseisoen het voorheen uit twee tydperke bestaan, maar dit is nou verbeter na drie periodes van vier maande elk. Seisoen een sluit slegs die kontrakkwekers in, wat vanaf Februarie tot einde Mei lewer. Produsente in die Christiana-distrik lewer dan vanaf April tot September vir seisoen twee, en seisoen drie strek van daar tot en met lewering einde Januarie.

Links is Desh Joshi, produksiebestuurder van die Rascal-kweekhuise en regs is Dawie Ras, hoofuitvoerende beampte van Rascal, met 'n sakkie mini-knolle in 'n insekvrye kweekhuis waarin klimaat beheer word.

Nuwe variëteite-protokol

Wat die vestiging van variëteite in Suid-Afrika betref, sluit die maatskappy se portefeulje Mondial, 'n oop kommersiële variteit wat voorheen aan Wesgrow behoort het, Sifra, Panamera, Tyson, Innovator, Taurus, Sababa, Electra, Alverstone Russet en Allisson in. Variëteite wat in die volgende paar jaar verwag kan word, is Invictus, Cayman, Buffalo en Commando. Genetika word vanaf HZPC in Nederland en Irish Potato Marketing (IPM) in Ierland verkry.

Wesgrow voer jaarliks meer as tien variëteite in, en elkeen word plaaslik ontwikkel en deeglik in proewe in die produksiestreke getoets. Eienskappe waarna gelet word sluit siekteweerstand, skilkleur en opbrengsvermoë in. Die toetsproses is duur en die meeste variëteite word weens swak prestasie, siektevatbaarheid, swak opbrengste of substandaard gehalte uitgeskakel. Posthumus sê Wesgrow se sukseskoers oor 20 jaar wat die invoer van nuwe variëteite betref, is maar 1%. Dis egter noodsaaklik.

Met sy visier op Afrika-uitvoere, fokus Wesgrow op variëteite wat in beide markte kan aanpas. Die maatskappy se miniknolvermeerderingsaanleg en laboratorium is in Christiana by die Rascal-fasiliteit geleë. Nuwe ingevoerde plantjies gaan eers na die kwarantynfasiliteit en word dan deur die Departement van Landbou getoets vir eksotiese siektes. Daarna word hulle by Plantovita vir virusse en bakterieë getoets. 'n Nul-toleransie geld in hierdie opsig.

Dan word die plantjies onder steriele omstandighede gekloon. Hulle word in aeroponiese kweekhuise oorgeplant om siektevrye miniknolle te produseer. Miniknolle word daagliks geoes en in rypmaakkamers geplaas om te vergroen en vir tussen ses en 12 maande in koelkamers teen 4°C geberg. Wesgrow vermeerder sy mini-knolle in 'n afgeleë gebied met lae siektedruk. Hul miniknolopbrengs het in die laaste 20 jaar van 25 tot 50 t/ha verbeter.

Gevolglik bemark hulle nou generasie drie aan kommersiële produsente, iets wat nie 20 jaar gelede moontlik was nie. 'n Korter vermeerderingstelsel verseker kliënte van plante met minder siektes en groter viriliteit.

Bestuur van uitdagings

Die uitdaging vir elke moerkweker in Suid-Afrika, sê hy, is om saadaartappels aan te plant en hulle vir drie tot vier siklusse vry te hou van grond-, virus- en bakteriese siektes. Dit is 'n langtermyn, duur proses en dit kan vyf tot ses jaar neem vandat die produsent miniknolle bestel tot en met die finale verkoop van saad aan die kommersiële boer. Indien nuwe variëteite geproef word, neem dit 'n ekstra vier tot ses jaar.

Kommersiële saad van moerkwekers word vir tussen twee tot ses maande by Wesgrow in koelkamers geberg. Saad wat in die wintermaande uit koelkamers kom, word onder komberse gepak om beter uitloop te bestuur.

Die Aartappelverbeteringskema gebruik 'n tweeledige afgraderings- en uitfasseringsproses. Die een is die generasieproses wat een generasie per jaar beteken, en die ander is virus- en knolsiekte-toleransie. Indien miniknolle 'n grondsiekte opdoen of besmet raak met 'n virus, word dit na 'n laer generasie afgegradeer. Dit kan groot verliese beteken indien miniknolle na generasie agt afgegradeer word.

Vir meer inligting, kontak Gerhard Posthumus by gerhard@wesgrow.co.za.

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World Potato Congress: Lessons from Down Under

By Dirk Uys and Willie Jacobs, Potatoes SA

South African potato production compares very well with that of leading potato-producing countries in the world. Using yield as a benchmark, the national South African average was 48.5t/ha in 2023 which compares well with Australia, New Zealand, and the United States.

In June this year, during the World Potato Congress held in Adelaide, Australia, a delegation of South African producers and agronomists joined Potatoes SA on a grower tour across key potato production regions in Victoria, and Western and Southern Australia.

The Australian potato industry

The Australian potato industry is co-ordinated by AUSVEG, which supports Australian vegetable producers, including potato growers. Their mandate is to support research and development, advocacy, consumer awareness, and market information.

Research, being a focus area in Australia, is funded through a levy system managed by AUSVEG and administrated by Hort Innovation. This levy, set at AU$0.60/t (R7.2/t), generates AU$1.5 million (R18 million). The federal government matches this investment to enable innovation within the potato industry.

The International Potato Partnership programme was initiated during the World Potato Congress in a bid to address pressure on research resources. This initiative involves collaboration between South Africa and countries such as Australia, New Zealand, the Netherlands, the United Kingdom, and Germany, the aim being to share research priorities. Common challenges include soil health, potato tuber moth, powdery scab, and bacterial and virus diseases. This affords the opportunity to share resources and expertise.

A major challenge for Australian growers is labour cost. Backpackers are recruited as seasonal labour mainly from European countries such as France, Germany, and Ireland to assist with tasks such as potato sorting.

Soil health

Australia benefits from vast areas containing 'virgin' soils. Despite this advantage, the primary soilborne challenge is powdery scab (*Spongospora subterranea* f. sp. *subterranea*). Interestingly, nematode damage is limited to potato cyst nematodes that are rigorously monitored by their certification scheme.

Unlike South Africa, nematicides are not widely used in Australia. This can be attributed to their rotation systems, which typically include *Brassica* crops followed by green manure crops. Rotating with maize and soya, known nematode hosts, is uncommon.

The secret to healthy soils lies in the accumulation of organic material due to the continuous presence of living roots, which maintain soil biology. *Brassica* crops are also known to reduce *Verticillium* early dying complex.

A strong livestock element is included in grazed pastures, promoting root development. Animals are integrated for at least two seasons before potato planting commences, resulting in improved soils and increased root biomass. Ideally, the soil should remain covered as living roots will maintain its biological population. Spring cereals or *Brassica* crops are planted ahead of potatoes, with winter cereals cultivated after the potato cycle. It is important to emphasise that improving soil health takes time.

Insect control

As in South Africa, potato tuber moth is a concern in Australia, with notable damage having occurred in recent years. Successful crop protection strategies have been achieved by integrating beneficial insects and avoiding broad-spectrum crop protection products that may harm these beneficials. This strategy requires tremendous courage but has proven effective. At least five species have been identified as predators of the potato tuber moth in areas with softer insecticidal programmes.

Additional control strategies include planting border crops to support beneficial habitats. Typical Australian programmes still rely on the diamide insecticide group, which specifically targets tuber moths and has a minimal impact on beneficial insects. Softer and targeted alternatives, including biologicals,

Table 1: South African potato production compared to Australian production.

	Australia	South Africa
Total production	1.4 million tonnes	2.4 million tonnes
Potato production area (ha)	26 381 ha	49 841 ha
Producers	490	495
Per capita consumption (kg)	54	35
Average yield (t/ha)	53 tonnes	48 tonnes
Average farm size (ha)	54	100
Varieties	>400	141

The South African delegation at Durkin Produce in Thorpdale, Victoria in Australia.

offer alternative modes of action to prevent insecticidal resistance. This is supported by cropping systems that minimise soil cracks through irrigation and ridging, along with the timely lifting of potatoes to minimise tuber infection in soils after haulm decay.

Another closely managed concern is zebra chip, transmitted by leafhoppers, which is also well controlled by predators.

Global consumer trends

During the congress, attention was given to marketing and consumer trends, with some worrying but also exciting trends emerging.

Fresh potato consumption has stagnated globally and is declining in regions such as Europe, particularly among younger consumers. Conversely, the processing segment, especially in respect of crisps, is increasing globally. Various new trends in the processing segment include new categories in prepared meals, such as basic recipes including prepared mashed potatoes.

There is a global drive to promote the potato as a good carbohydrate which is critical for health and performance due to their good nutrients and fibre content. Global trends include:

- Increased use of air fryers for preparation.
- Consumers wanting to understand the purpose of their potatoes.
- Increased processing, particularly in the snacking segment.
- Greater trust in producers that can be leveraged to promote potatoes.
- Decreasing potato consumption among the younger generation (Gen Z).
- A decrease in the use of unwashed potatoes in Australia due to the demand for convenience.

Australian baby potatoes positioned as microwave potatoes.

The Australian market

In contrast to South Africa, where 20% of potatoes are processed, approximately 65% of Australian potatoes are processed, 32% consumed fresh and 3% exported. This is attributed to higher spending power and convenience, hence the shift to processing. Consequently, the Australian potato industry is showing a growing trend in respect of processing varieties.

In the fresh potato category, consumers are spoilt for choice with value propositions such as microwaveable baby potatoes and low-carb options.

Unlike South Africa, where fresh produce markets (FPMs) play an important role in price determination, Australian prices are negotiated annually based on supply agreements between retailers and producers. Some retailers also put their requirements out for tender.

While unwashed potatoes were once common in Australian produce markets, this trend is declining as consumers now prefer washed potatoes, which also carry a premium at the retail level.

Value propositions are widely promoted, such as:

- One or two potatoes = one vegetable serving.
- Lower in carbs (Spud Lite).
- Microwaveable.

This is often supported in diets when potatoes are prepared with their skin on and there is a preference for baby potatoes.

The congress delivered some interesting take-home messages:

Agronomic innovation

- The integration of biological crop protection products and crop enhancers in future crop protection programmes is here to stay.
- Soil health is crucial for reducing nematodes and diseases, and has the potential to shorten rotation cycles.
- Tuber moth control strategies should integrate beneficial insects rather than broad-spectrum insecticides.
- Crop protection programmes should be designed based on disease risk, avoiding 'just in case' spray applications.

Marketing

- An opportunity exists to differentiate potatoes based on consumer benefits rather than cultivars.
- Processing is increasing specifically in the snacking segment.
- A global trend is emerging to position potatoes as a healthy food that fuels performance, a good source of carbohydrates and fibre, and that pose a low allergen risk.
- Our FPM system remains an effective price-forming mechanism that also supports smaller producers.

For more information, contact Dirk Uys at dirk@potatoes.co.za.

Die 2024 Oos-Vrystaat Groentoer

Deur Anjé Venter, Aartappels SA

Oos-Vrystaatse aartappelprodusente het op 8 Februarie vanjaar bymekaargekom vir die jaarlikse aartappelgroentoer wat deur die OVS-aartappelwerkgroep aangebied word. Teenwoordiges was gretig om die jongste vooruitgang te sien en strategieë te bespreek om voort te bou op bestaande landboupraktyke in die streek.

Die geleentheid het by Lavender Hill Country Estate afgeskop en proefdeelnemers het inligting uitgeruil, ervarings gedeel en lekker gesels oor die toekoms van aartappelproduksie in die streek. Drie deurslaggewende proewe in die Bethlehem-omtrek, is as deel van die program besoek.

Kultivarproef by Lizziesdale

Die eerste stop was 'n kultivarproef onder besproeiing net buite Bethlehem op Wessel du Randt se plaas, Lizziesdale. Hier het landbou-maatskappye soos GWK, FPD en RSA Aartappelsaad Saad Beurs hul kultivars ten toon gestel. Produsente het die proefpersele aandagtig bestudeer en faktore soos opbrengspotensiaal, siekteweerstand en aanpasbaarheid by plaaslike grond en klimaat beoordeel.

Die kultivarproef het waardevolle insigte ten opsigte van opkomende landboutendense verskaf en produsente toegerus met die vermoë om ingeligte kultivarkeuses vir optimale produktiwiteit te maak.

'n Dekgewasproef

Die volgende stop was 'n dekgewasproef in die Petrus Steyn-distrik op Gert Bester se plaas. Die proef is in 2015 geloods om die impak van verskillende wisselboustelsels op oes-opbrengs, grondgesondheid en winsgewendheid te evalueer. Die proef het met aartappels op al die proefpersele begin. Vier rotasiestelsels wat elk oor 'n vyfjaarsiklus strek en gewasse soos mielies, tef, suikerbone, sojabone en sonneblom insluit, is afgewissel met 'n jaar van braak-lê.

'n Beduidende verskuiwing het in die sewende jaar plaasgevind toe tef vervang is met 'n somerdekgewasmengsel wat tot verbeterde mikrobiese aktiwiteit gelei het. Vanjaar is noemenswaardige verskille in mielieprestasie aangeteken, met gevolglike planne om persele volgende jaar in die helfte te deel om die oorspronklike rotasies te vergelyk met dié wat dekgewasse insluit.

Hierdie deurlopende proef bied nie net insigte in die optimalisering van boerderypraktyke nie, maar beklemtoon ook die belangrikheid van aanpasbaarheid en innovasie in volhoubare landbou.

Innovasie en praktyk

Die laaste been van die Groentoerroete was by 'n proefterrein van Asearch Agri-Tech buite Bethlehem, waar gefokus word op landbouprodukte en innovasies. Talle bedryfsleiers, insluitend Andermatt Madumbi, Hygrotech, AECI, en vele ander het hul produkte hier ten toon gestel – van kunsmis en plaagdoders tot biostimulante en gewasbeskermingsoplossings.

Die deelname van bekende maatskappye soos Corteva, Bayer, Syngenta en Adama, om maar 'n paar te noem, het die samewerkende gees wat landbou-innovasie in die Oos-Vrystaat dryf, beklemtoon. Die tentoonstelling het 'n magdom instrumente bevat wat optimale produktiwiteit, minimale omgewingsimpak, en aanpassing by veranderende markvereistes moontlik maak.

Deelnemers het die toer met 'n hernude sin vir doelgerigtheid en 'n magdom nuutgevonde kennis verlaat. Die Oos-Vrystaatse Groentoer dien telkens as 'n bewys van die veerkragtigheid, vindingrykheid en kollektiewe pogings van boere en belanghebbendes om aartappelproduksie te bevorder.

Die Asearch Agri-Tech terrein waar hul produkproef geplant is.

Boere besigtig die kultivarproef onder besproeiing op die plaas, Lizziesdale.

Vir meer inligting, stuur 'n epos aan anje@potatoes.co.za.

VKB/Reitz hou weer suksesvolle 2024-rugbyweek

Deur Santa Bronkhorst, Aartappels SA

Teenwoordiges by 'n Vrystaat-platteland bestuursvergadering in 1997 is tydens die vergadering ingelig dat provinsiale skolerugbyspanne in die toekoms nie meer aan die Nasionale Cravenweek kon deelneem nie. Die besluit is daar en dan geneem dat Vrystaat-platteland sou poog om self 'n nasionale week vir plattelandse rugbyspanne aan te bied.

Chris Swanepoel van Noord-Oos Vrystaat-platteland, het landbou-maatskappy, VKB, versoek om as borg by so 'n week betrokke te raak. VKB het ingestem en tree sedertdien as hoofborg op. Die eerste suksesvolle VKB/Reitz Rugbyweek is tydens die Junie skoolvakansie in 1998 op Reitz aangebied. Die Griekwaland-Wes rugbyskeidsregtersvereniging het vir talle jare skeidsregters vir die geleentheid voorsien.

2024-hoogtepunte

Tien spanne het in die stedelike been van die kompetisie deelgeneem. Die Vrystaat Arende, Griffons Platteland, Griffons o/17 A-liga, Barbarians (Bloemfontein), Wes-Kaap Noordelike Streek Disas Akademie, Griekwas, KwaZulu-Natal o/18, KZN Wildebeest en Zululand het mekaar vanjaar die stryd aangesê.

Tydens die tweede week, die sogenaamde platteland-week, het 12 spanne deelgeneem. Hulle was Oos-Vrystaat, Pumas, Sandveld, Suid KwaZulu-Natal, Noord KwaZulu-Natal o/19, Barbarians, Reitz Uitnodigingspan, Griekwas, Luiperds, Rooikatte, Vrystaat Kiewiete en Vrystaat Kiewiete XV-tal.

Beide vyftien-man en sewes-rugby is gespeel en na afloop van die rugbyweek is die beste speler in elke posisie aangewys. 'n Span is ook gekies om aan die einde van die jaar in Frankryk deel te neem, terwyl 'n sewes-span gekies is vir deelname in Dubai.

Aartappels SA doen sy deel

Die organiseerders en Hoërskool Reitz het hulle waardering teenoor Aartappels SA uitgespreek vir die borggeldbydrae en betrokkenheid. Die OVS Werkgroep het gimnasium-handdoeke waarop hul eie en Aartappels SA se logo's verskyn, aan elke wenner in die eindstryd oorhandig. Die borggeld vorm deel van Aartappels SA se veldtog om in die gemeenskap te belê.

Alfred Ntombela, alombekend as Shorty, het Aartappels SA op die finale dag van die rugbyweek verteenwoordig en het 'n afkoelhanddoek aan elke seun wat in die finaal gespeel het, oorhandig. Hier is Alfred saam met die skeidsregters wat tydens die week opgetree het.

Die seuns is op die finale dag verras deur 'n besoek van Alfred Ntombela, alombekend as Shorty, Aartappels SA se handelsmerk-ambassadeur. Ntombela het trofees en afkoel-handdoeke aan die beste spelers van elke wedstryd oorhandig.

Vir meer inligting, kontak Santa Bronkhorst by santa@potatoes.co.za.

REGISTERED FRESH PRODUCE AGENCIES

BLOEMFONTEIN FRESH PRODUCE MARKET

Bloemfontein Market Agency
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

Hanly Market Agency
Port Natal Market Agency
RSA Coastlands Market Agency
Subtropico Durban 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

KING WILLIAM'S TOWN FRESH PRODUCE MARKET

RSA Eastern Cape Market Agency

KIMBERLEY FRESH PRODUCE MARKET

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

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 Vegtable 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
Federated Farmers
Fruitways
GrapeHub
Green Network
HL Hall & Sons
Multiflora
RSA Beyond
Stargrow
Subtropico Online
Subtropico Online DC
United Exports
Westfalia Marketing

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Market monitor: The first 30 weeks of 2024 at fresh produce markets

By Dikgetho Mokoena and Anjé Venter, Potatoes SA

The average weekly price of potatoes in the first 30 weeks of 2024 reflected an overall downward trend for most of the period, unlike the same period in 2023. However, price increases were observed in weeks 15, 18, 19, 21, 22, 23, 26, 28, and 30. The average weekly price in week 30 was R7.85 lower than during the same period in 2023. *Figure 1* indicates the weekly average price at all markets for all classes and sizes.

By the end of week 30, the average weekly price was R72.09 per 10 kg bag, representing a 23% increase week on week. This steep increase was mostly due to low volumes of fresh produce received at the fresh produce markets (FPMs) during that week. The lower volumes may possibly be attributed to frost damage experienced across large parts of Limpopo in July this year.

Lower stock levels

Figure 2 reflects daily average stock levels and the daily average price. It clearly indicates that stock levels decreased to a large extent compared to June 2024, and confirms the decrease in stock levels towards the end of July, resulting in the higher daily prices achieved during week 30. In order for daily prices to remain high, producers must ensure stable delivery patterns, especially in times of high demand, and the supply of good quality products to FPMs at all times.

Figure 3 indicates the average stock levels in each month as opposed to levels during the same month a year ago. June and July 2024 reflect an increase of 109 387 and 282 234 10kg bags respectively, compared to June and July 2023. A comparison of sales in June to that in July this year,

Figure 1: Weekly average prices of all classes and sizes at all FPMs. (Source: RSA file)

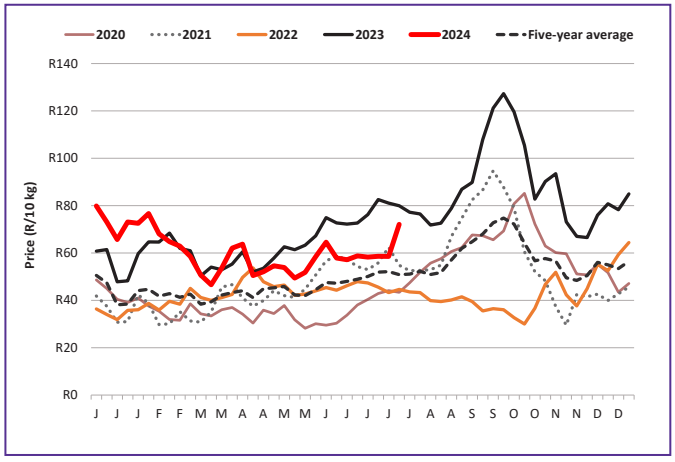


Figure 2: Daily average stock levels compared to the daily average price of all classes and sizes.

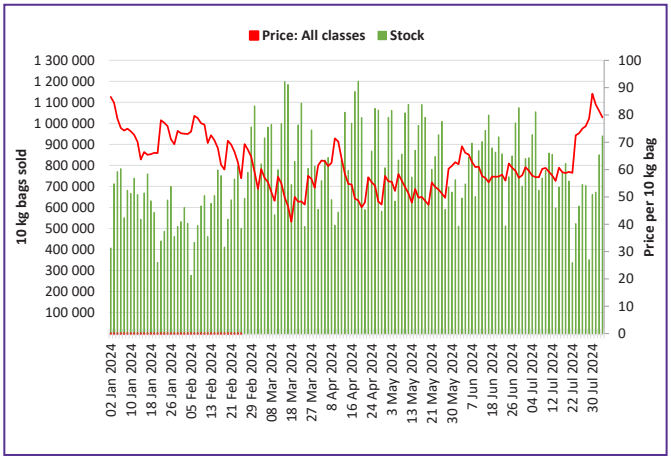


Figure 3: Average daily stock levels per month in 2023 versus 2024.

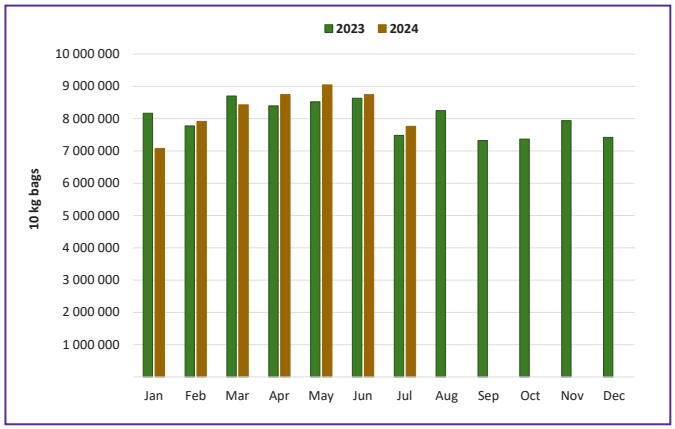
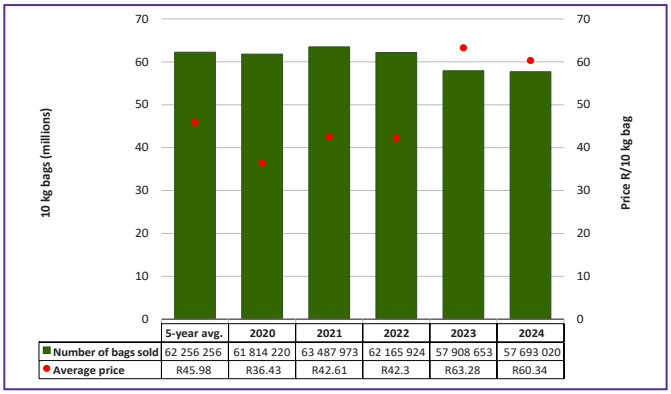


Figure 4: Cumulative number of 10 kg bags sold at FPMs until week 30 of every year (average price). (Source: RSA file)



	5-year avg.	2020	2021	2022	2023	2024
Number of bags sold	62 256 256	61 814 220	63 487 973	62 165 924	57 908 653	57 693 020
Average price	R45.98	R36.43	R42.61	R42.3	R63.28	R60.34

Figure 5: Monthly sales at FPMs from 2020 to 2024 (all packaging converted to 10 kg bags).

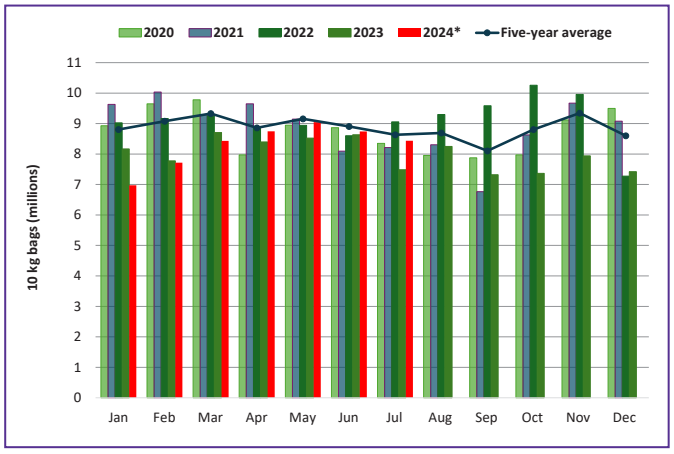


Figure 6: Year-on-year change at the top five markets from 2023 to 2024.

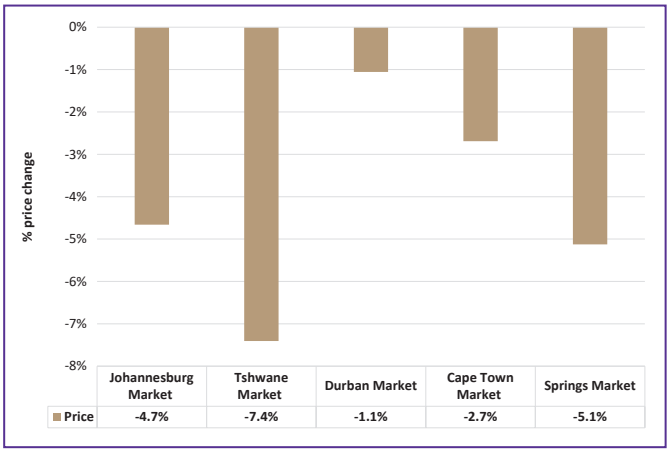


Figure 7: Top five markets' year-on-year changes in bag sales.

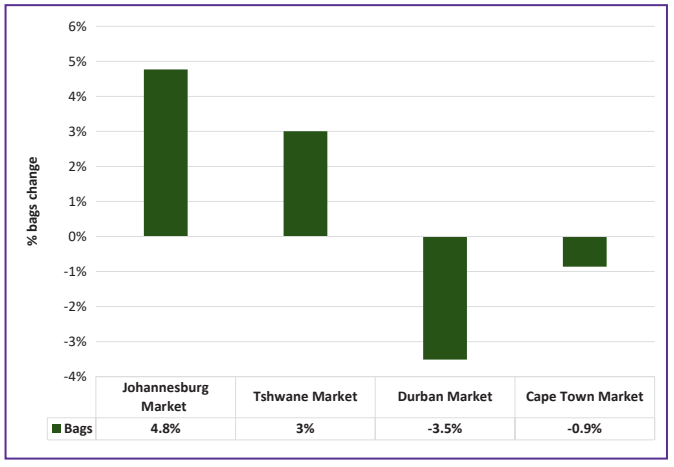


Figure 8: Sales performance across regions during the first 30 weeks of 2023 compared to 2024.

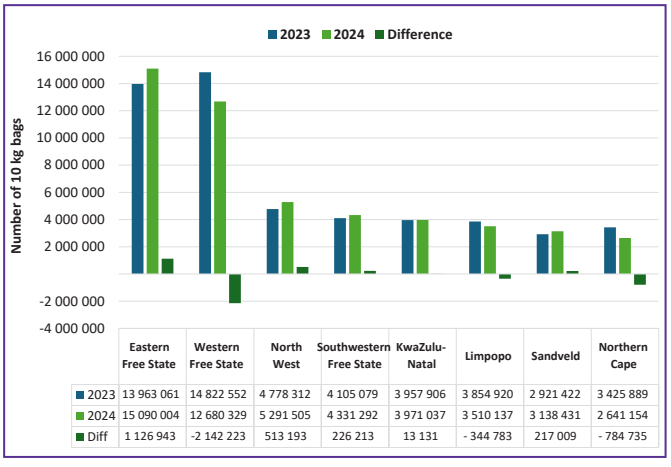


Table 1: Sales at FPMs up until week 30 of 2024.

				Percentage of sales at FPMs			
Market	Number of bags 10 kg	% of total	Avg price (R/10 kg)	Class 1	Class 2	Class 3 & 4	Class 1 M
Johannesburg	24 007 428	41.6%	60.16	75%	16%	9%	17%
Tshwane	11 027 144	19.1%	59.00	63%	23%	13%	15%
Durban	5 402 665	9.4%	60.87	73%	17%	9%	24%
Cape Town	4 714 644	8.2%	68.39	70%	25%	5%	21%
Springs	3 039 096	5.3%	56.08	60%	23%	17%	13%
Bloemfontein	1 520 912	2.6%	60.69	55%	29%	15%	14%
East London	1 604 580	2.8%	63.26	68%	22%	10%	21%
Klerksdorp	1 496 922	2.6%	56.29	64%	22%	13%	16%
Welkom	1 358 638	2.4%	56.69	50%	31%	19%	10%
Port Elizabeth	1 406 227	2.4%	61.59	67%	23%	10%	24%
Pietermaritzburg	1 228 138	2.1%	55.67	62%	23%	15%	15%
Vereeniging	318 292	0.6%	55.83	66%	24%	10%	14%
Witbank	321 027	0.6%	59.83	63%	22%	14%	13%
Nelspruit	233 155	0.4%	72.13	72%	20%	8%	9%
Kei (Mthatha)	12 954	0%	–	26%	42%	32%	17%
Total	**57 691 822**	**100%**	**–**	**69%**	**20%**	**11%**	**17%**

Table 2: Sales per region at FPMs until week 30 of 2024.

				Percentage of sales at FPMs			
Region	Number of bags 10 kg	% of total	Avg price (R/10 kg)	Class 1	Class 2	Class 3 & 4	Class 1 M
Eastern Free State	15 090 004	26%	55.35	61%	23%	**16%**	13%
Western Free State	12 680 329	22%	58.45	70%	20%	10%	21%
North West	5 291 505	9%	66.56	79%	14%	7%	16%
Southwestern Free State	4 331 292	8%	69.14	76%	14%	10%	21%
KwaZulu-Natal	3 971 037	7%	64.55	73%	20%	6%	12%
Limpopo	3 510 137	6%	66.24	85%	12%	3%	20%
Sandveld	3 138 431	5%	67.05	71%	27%	3%	21%
Northern Cape	2 641 154	5%	54.56	55%	20%	25%	13%
Gauteng	2 551 114	4%	60.6	85%	11%	4%	24%
Northeastern Cape	1 537 839	3%	56.71	57%	33%	11%	19%
Other regions	1 431 406	2%	45.75	47%	38%	15%	13%
Ceres	659 430	1%	71.63	0%	0%	0%	0%
Mpumalanga	613 789	1.06%	66.92	80%	16%	4%	18%
Eastern Cape	243 957	0.42%	58.1	60%	31%	8%	19%
Southern Cape	397	0%	56.85	76%	24%	0%	0%
Southwestern Cape	1	0%	120	0%	0%	100%	0%
Total	**57 691 822**	**100%**	–	**69%**	**20%**	**11%**	**17%**

shows that 976 211 fewer bags were sold in July.

Weekly and monthly sales

According to *Figure 4*, sales at the FPMs during the first 30 weeks of 2024 decreased by 0.37% (approximately 215 633 10kg bags) since 2023's corresponding figure. Sales in the first 30 weeks of this year exceeded the 57 million 10 kg bag mark. However, 4.56 million 10kg fewer bags were sold than the five-year average of the same period. The average price for the first 30 weeks is also depicted in *Figure 4*, with 2024's average price of R14.36 being higher than the five-year average price.

Figure 5 illustrates monthly sales at the FPMs since 2020. In June, sales decreased to 8.74 million 10 kg bags, compared to May's sales of 9.04 million 10 kg bags. In July 2024 sales further decreased to only 7.76 million 10kg bags, representing a decrease of 11% compared to sales in June this year.

Top bag sales

Table 1 contains the number of bags sold at the various FPMs during the first 30 weeks of 2024. The five biggest markets during this period were collectively responsible for 83.5% of the country's sales. The average price (all classes and sizes) for each market also appears in *Table 1*.

In terms of the top average price per 10 kg bag received at the markets during the first 30 weeks, Nelspruit Market was in first place with R72.13 per 10 kg bag followed by Cape Town with R68.39 per 10 kg bag, and East London with R63.26 per 10 kg bag. In terms of Class 1 (all sizes) sales, Johannesburg and Durban Markets' total sales consisted of 75 and 73% Class 1 bags, respectively – the highest of the top five markets. These two markets are also in top position in terms of Class 1 Medium bag sales.

Price changes

Figure 6 reflects the year-on-year price change at the top five markets for the first 30 weeks of 2024, with prices at all five markets reflecting a decrease. Tshwane Market's price showed the greatest decline with a decrease of 7.4%. The volumes sold at this market increased by 3% year-on-year, as is shown in *Figure 7*. The volumes sold at Johannesburg Market increased by 4.8% year-on-year.

Figure 8 contains a comparison of the seven biggest regions' sales during 2024 and 2023. The Western Free State, Limpopo, and Northern Cape regions sold fewer 10 kg bags with the other regions all selling more 10 kg bags during this period than in the previous year.

Class 1 sales

The three biggest regions in the market sold 57% of the potatoes available at FPMs (*Table 2*) during the first 30 weeks of 2024. *Table 2* also illustrates the percentage composition of each region's Class 1, 2, 3, and 4 potatoes supplied during this period. Nine of the 16 regions recorded a percentage of Class 1 sales above 60% from January to July this year. The top six regions in terms of Class 1 sales include Gauteng and Limpopo at 85% each, Mpumalanga at 80%, North West at 79%, and Southwestern Free State and Southern Cape at 76% each.

For more information, email Dikgetho Mokoena at dikgetho@potatoes.co.za or Anjé Venter at anje@potatoes.co.za.

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Nile opens Mahikeng Hub

Producers can now directly access informal buyers and cross-border traders via Nile Hub Mahikeng. Nile.ag recently opened its first regional hub in Mahikeng, the capital of North West province. This hub aligns with Nile's strategy to link producers to buyers across all market segments, thereby providing offtakes for all grades of produce. Transactions are facilitated through Nile's online system, offering producers unparalleled transparency and payment security.

Strategic location

Mahikeng, located near the Botswana border, offers cross-border traders direct access to produce from South Africa's leading agricultural regions. With a large underserved rural population, Mahikeng has a significant demand for fresh produce, mostly through independent retailers and informal vendors. High-demand produce categories include potatoes, bananas, tomatoes, butternut, pumpkin, and cabbage.

Following the initial success of the hub, Nile is investing further in expanding and modernising the facilities, to ensure that the hub has enough capacity to supply the growing demand. Nile Hub Mahikeng is managed by Pieter Maré, whose family produce vegetables in Limpopo.

Flexible logistics

Producers can either deliver directly to Mahikeng or transship their produce via Nile's main hub in Centurion. Nile Hub Centurion serves as the company's main operation centre, with the capacity to handle 1 500 pallets of fresh produce per day.

From here produce is transshipped to other provinces and exported cross-border daily. The hub is strategically located next to the N1 highway, offering 24-hour operations and quick loading procedures. It is equipped with state-of-the-art warehousing equipment and cold rooms.

Role of physical infrastructure

For e-commerce or online trading to be effective, a comprehensive logistical network is essential. Leading e-commerce companies such as Amazon have hundreds of fulfilment centres located strategically across regions. Similarly, Takealot has numerous fulfilment centres spread out across all major urban areas. This logistical network enables e-commerce companies to optimise logistics, thereby reducing costs and lead times. A key function of these hubs or cross-dock facilities is to provide an aggregation point, allowing smaller loads to be consolidated.

For fresh produce, the benefit is a 'just in time' system where produce reaches the end consumer with the least number of intermediaries and in the shortest time possible. This reduces quality degradation and ensures that producers can achieve higher returns on average. Ensuring that the cold chain is maintained remains vital to the success of online produce trading. Hubs also serve as inspection points for the Perishable Products Export Control Board, facilitating cross-border transactions.

Similar to other e-commerce companies, Nile has developed a holistic network of hubs and third-party freight providers, enabling producers to reach commercial buyers of fresh produce in more than 100 towns and cities across three continents. Nile's system digitises the entire supply chain, ensuring that there is full visibility from packhouse to point of consumption, with real-time updates provided throughout the process. It has been specifically developed with producers in mind, understanding the limitations around minimum order quantities, lead times to different destinations, freight cost differentials, and order cut-off times.

Producers interested in accessing buyers in Mahikeng through Nile's online marketplace can contact Lizbé du Preez at lizbe@nile.ag or on 065 735 7618.

Fresh produce markets: Competition Commission suggestions

By Susan Marais, Plaas Media

The Competition Commission's Fresh Produce Market Inquiry (FPMI) has identified specific companies and bureaucratic systems that need to change in order to ensure fairer and more accessible markets for all role-players.

Early in the inquiry, it was found that South Africa has two distinct supply models: one operating on a wholesale basis through national fresh produce markets (NFPMs) and another through formal retail channels. The formal retail channel poses no significant threat to the wholesale model used by NFPMs.

The commission discovered that NFPMs remain the epicentre of fresh produce trading, particularly because formal retail role-players, among others, consider NFPM prices when negotiating with their contracted producers.

Dilapidated markets

The commission found that the overall condition of NFPMs is poor and deteriorating, mainly due to funding issues. The inquiry team also noted that most NFPMs are run inefficiently.

It was suggested that municipalities, in collaboration with the South African Local Government Agency, Salga, revise the operating and governance models for NFPMs. Willie Jacobs, CEO of Potatoes SA, supports this proposal but believes it needs to be escalated to the national government for governance and to organised commerce for business management.

It was also recommended that municipalities ringfence profits earned from the market to fund capital expenditure and, where feasible, increase budget allocations for NFPMs from municipal budgets, beyond the revenue generated by the NFPMs.

"It is interesting that this point actually came up as advice because it should have been the principle of operation," says Jacobs, adding that the market levy should be more than sufficient to allow for this and for profit for the municipality.

Small-scale and HDP producers

The inquiry team found that small-scale producers and historically disadvantaged persons (HDPs) have limited access to NFPMs. According to the Council for Black Market Agents (CBMA), the contribution of small-scale and HDP growers accounts for less than 1% of NFPM proceeds, despite seemingly low barriers to access.

To address this, the inquiry team suggested that all NFPMs set targets to increase the annual sales of small-scale and HDP producers to at least 10%, with these targets increased annually. Jacobs doubts whether this is possible. "Currently, sales in most markets are dwindling due to poor management. How can the share of HDPs be promoted in a dwindling environment without taking it away from existing traders?"

In terms of bylaws, the inquiry team found discrepancies between the individual markets, which could hinder players from switching between markets, thus limiting their access. Jacobs agrees that harmonisation is needed. "Not only should it be harmonised, but there should also be accountability for contravening these bylaws and rules, enforced by an institution capable of imposing proper penalties and remedies."

Market agents

Despite having preferential floor space on the market trading floors, HDP market agents struggle to participate effectively in the market. This is because large, established producers have longstanding relationships with their preferred market agents, making it difficult for HDP agents to access produce such as potatoes, tomatoes, onions, and bananas.

The inquiry team suggested that large and established producers (with a turnover of more than R35 million in the previous financial year and over 250 full-time employees) implement programmes to introduce new HDP market agents and ensure they have access to highly traded produce.

Jacobs questions the feasibility of this proposal, posing the question: "How will prospective market agents and these producers be introduced? Are we expecting these producers to conduct recruitment drives? What happens once they are introduced but there is no product to sell?

"Access to traded produce is not created on the market floor. Market agents source the product by interacting with producers at farm level. The best approach is for an entity to facilitate introductions between aspiring traders and producers at social or business events, where they can market their skills directly."

Developing salespeople

The inquiry team recommended that the Agricultural Produce Agents Council (APAC) develops a quantifiable HDP salesperson development programme, prioritising existing salespersons from HDP market agencies. Jacobs points out that this falls outside APAC's jurisdiction as its mandate is to protect sellers, buyers, and market agents from business that will cause losses.

Another provisional recommendation was for dominant market agents, either by product line or overall market share per major NFPM (such as RSA Group, Subtropico, the Grow Group, Dapper Market Agents, and Prinsloo & Venter Market Agents), to enter into management agreements with small and medium enterprises or HDP market agents for skills transfer and training in managing the fresh produce market agency business. The commission said in its report that this remedy was previously voluntarily adopted with success by certain market agents.

Jacobs believes this is feasible. "Market agents can start by simply developing an internship model to introduce candidates to the environment."

The FPMI proposed that the Department of Agriculture amends the *Agricultural Produce Agents Act, 1992 (Act 12 of 1992)* to allow APAC to regulate market agencies' HDP ownership and participation. However, this would require a new skillset and funding regime for APAC.

Agent commission fees

While examining market agents' commission structures, the FPMI found that there was little to no variation among them. These commission structures were regulated by control boards until 1997, when APAC assumed regulatory responsibilities.

The commission recommended that the Department of Agriculture amends legislation to regulate the maximum commission fees that market agents could charge. Furthermore, costs associated with transport, palletising, and packaging should be negotiated or set outside of the commission fee structure.

"That might be achievable, but authorities need to consider possible bypasses and alternative models," Jacobs says, highlighting that logistics, palletising, and packaging are not things that could necessarily be regulated.

The inquiry team recommended that APAC and NFPMs' management use advocacy measures to educate producers regarding their ability to negotiate with market agents.

Lack of transformation

The FPMI observed a conflict of interest within the APAC council. This council, which oversees the Registrar, includes the very market agents the Registrar must discipline if they violate rules. Moreover, the fresh produce industry is exclusively represented by the largest market agencies, with positions rotating among them, effectively excluding smaller and HDP market agents.

The FPMI suggested that the council's composition, particularly in respect of fresh produce, creates a conflict of interest by allowing market participants to oversee the sector regulator's executive officials. In addition, the lack of adequate rotation among council members has excluded adequate SME and HDP representation.

The commission therefore recommends that the Department of Agriculture reviews the APAC council's composition to minimise conflicts of interest. However, Jacobs questions whether this would have a positive impact. "The purpose of APAC is for agents to keep each other credible," he says, "so it is unclear how this recommendation should work in practical terms."

Structural distortions

The FPMI expressed concerns regarding a number of market agencies operating as subsidiaries of parent companies, particularly the three largest market agencies: RSA Group, the Grow Group, and Subtropico.

A significant issue cited is that African Rainbow Capital (ARC) holds a majority stake in RSA Group and a significant minority stake in Subtropico. The FPMI suggested that ARC's cross-shareholding in Subtropico and RSA Group is distorting competition by eroding the incentive for these companies to compete with each other.

Consequently, the FPMI recommended that ARC divest its shares in either Subtropico or RSA Group, with the preferred buyer being a broad-based black economic empowerment company. However, Jacobs says ARC, a fully black-owned company, was established in 2015 with the aim of providing HDPs access to investment opportunities in the industry. Therefore, the comments regarding disinvesting do not seem logical.

Retailers

The FPMI made several observations regarding retail prices, mark-ups, and margins for the retailers it observed. While this matter requires further investigation, the FPMI provisionally found that retailers – specifically Woolworths, Shoprite, Spar, Food Lover's Market, and Pick n Pay – should display both a per unit price as well as a per gram or per kilogram price on various fresh produce.

Additionally, the FPMI noted that the national retail market is highly

concentrated among the top four retailers. Therefore, it recommends that the Department of Trade, Industry and Competition (DTIC) establishes a fund to assist new entrants in the retailing of fresh fruits and vegetables in shopping centres.

Input market dynamics

The FPMI also focussed on fertilisers, seed, and agrochemicals. Regarding fertiliser, the FPMI confirmed that South Africa is a net importer, making disruptions in the global supply chain particularly harmful to fresh food producers. Although it can take four to six months for South African prices to adjust, the country clearly follows international fertiliser trends.

The FPMI therefore recommended that the DTIC implements measures to support the local fertiliser industry where domestic capability does exist. Jacobs says the industry will welcome such a move with open arms.

In terms of agrochemicals, the team found that Bayer's distribution agreements distorted competition. The FPMI suggested that Bayer removes the territorial limitation clauses from their distribution agreements.

The FPMI observed that the markups for seeds supplied by Starke Ayres, particularly cabbage, tomatoes and spinach, are high. These are commodities in which Starke Ayers holds a relatively high market share. The commission suggested that Starke Ayers reduces the markups on its cabbage, spinach, and tomato seeds to align with the average markups of its entire seeds category.

Government institutions

Several industry organisations have withdrawn funding from the Agricultural Research Council's (ARC) gene banks, which concerns the FPMI. The gene banks are essential for conserving and managing genes or plant genotypes for current and future use. Over time this funding withdrawal will impact the ARC's ability to deliver on its mandate. Therefore, the FPMI recommended that the Department of Agriculture ensures funding for the ARC to maintain its gene bank.

"We fully support the idea that the department should support the ARC in terms of funding and collaboration in this regard," says Jacobs.

Expired plant breeders rights

The FPMI examined the usage of plant breeders' rights (PBR) in respect of Simba, a subsidiary of PepsiCo. The FPMI noted an apparent strategy by Simba, which develops its own varieties, to discontinue the use of a closed variety before the expiry of its PBR.

However, Simba denied this when the commission confronted it. The FPMI considered Simba's submission but remains unconvinced, particularly because there is no access to this cultivar even if producers try to obtain it.

Therefore, the FPMI suggested that Simba makes its potato variety FL2006 gene material available to the ARC for preservation and ensure that it is available to any member of the public. Furthermore, the Department of Agriculture should consider measures to open access to this potato variety.

Quality standards as barriers

The inquiry team observed numerous quality and food safety standards that apply to fresh produce producers. These standards range from legislated to voluntary and mandatory requirements set by retailers. Some of these standards, which are widely adopted by large producers, are difficult and expensive to comply with, raising concerns regarding market access, particularly for SME and HDP producers.

The FPMI compared the various standards, focussing on good agricultural practices (GAP standards). They noted that formal retailers apply the top two tiers of the GAP standards: the intermediate level (with 128 requirements) and Global GAP (with 190 requirements) as supply requirements.

However, the FPMI found that the mandatory use of Global GAP distorts competition for SME and HDP producers by raising and enforcing barriers to entry. This finding does not imply that the FPMI opposes high food safety standards and good agricultural practices, but rather that such standards should be applied judiciously, considering SME and HDP producers.

The commission therefore suggested that retailers expand their existing supplier development programmes, which already focus on allowing SME/HDP access in line with the commitments of the Agriculture and Agro-processing Master Plan.

Access to finance

The FPMI expressed concern regarding the financial challenges experienced by the Land Bank and how the gap in agricultural funding is being filled by the commercial banks. After examining several aspects of funding, the FPMI suggested that the Department of Agriculture, Land Bank and commercial banks collaborate to fast-track and accelerate the implementation of the blended finance scheme.

Access to water

The FPMI noted the tension between water being a scarce resource in South Africa, requiring strict regulation, and the resultant challenges in accessing water resources. They reviewed the regulatory requirements and process to obtain a water license, noting that a technical assessment study is required for certain applications. This requirement makes it more challenging for SME and HDP producers to secure water licenses due to the cost of these assessments.

The FPMI emphasised the importance of the Department of Water and Sanitation (DWS) continuing its efforts to streamline the licensing regime, including during the pre-application phase. Jacobs wholeheartedly agrees with this statement. "Yes, please DWS! This will be of great help to the industry."

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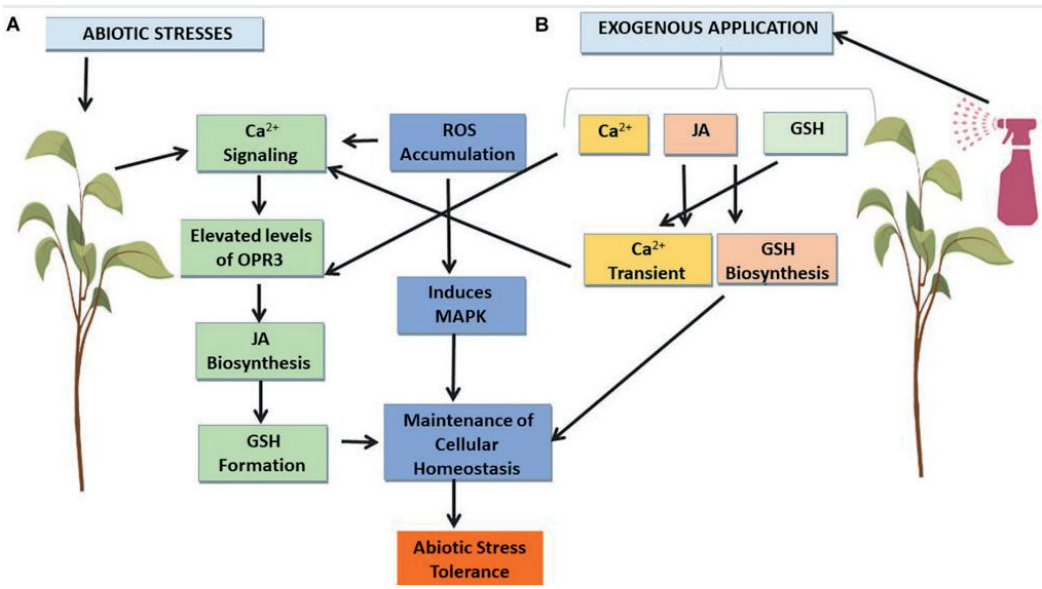

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Sandveld water use: Industry prepares for potato price hike

By Koos du Pisanie, Plaas Media

South Africans should brace themselves for a potato price increase in the coming year. Last year, load shedding was responsible for a shocking 173% price hike, with an average long-term price increase from R42.87 to R72.92 for a 10 kg bag. FP Coetzee, Potatoes SA's manager of information and regional services, says this was the knock-on effect of a drastic reduction in potato production, with producers planting 1 600 fewer ha of potatoes last year due to load shedding.

Less water, fewer potatoes

The Department of Water and Sanitation (DWS) decided to reduce water use reserves in the Sandveld of the Western Cape by 30% to ensure sufficient water for the population and environment. Producers will therefore have 30% less water available for the cultivation of potatoes, vegetables and citrus.

A total of 57 potato producers currently cultivate 6 000 ha in the Sandveld. Dirk Uys, Potato SA's research and innovation manager, warned during a recent *Plaas/Farm TV* news bulletin that this decision by the department will cause havoc in the potato industry. With 30% less water, producers will likely plant 30% fewer potatoes, reducing the area planted to potatoes by approximately 2 100 ha. This reduction will lead to significant price increases for consumers, as was illustrated by the load shedding crisis.

Impact on the economy

Uys asserts that the actions of the DWS will have a big impact on local towns' economy and the socio-economic well-being of the residents in the area. The Sandveld is one of the few areas where potatoes are grown year-round. Producers plant an average of 6 000 ha annually and employ 6 000 workers. This decision will result in the loss of many jobs and lead to a reduction in the average household income.

Potatoes SA anticipates that the local government will lose tax and VAT revenue estimated at R300 million per year. Uys says that the DWS's claim that agriculture uses excessive water is also not scientifically substantiated. The drought from 2015 to 2002 contributed greatly to the decrease in water. While it is true that agriculture consumes a lot of water, it is essential for food production, and producers have always been responsible for their water usage, according to Uys.

Farming activity in the Sandveld has come under pressure since the 2015 drought, with unfounded allegations that water used for agriculture was the reason the Verlorenvlei, a Ramsar site, ran dry. Hydrogeologists within the DWS, however, showed that it was a natural consequence of the drought. The Verlorenvlei's water levels have recovered since 2022.

In a recent press release issued by Potatoes SA, Monique Vlok, chairperson of the Sandveld Potato Producers Association, said the outcry over the Verlorenvlei running dry was borne out of a perception that producers mine the earth and its resources. "We are as much concerned about unsustainable water use as anyone else. We therefore focus on sustainable practices that maximise water use efficiency."

Lowest water footprint

According to Willie Jacobs, CEO of Potatoes SA, data from the Water Footprint Calculator indicates that potatoes have the lowest water footprint among staple crops. They require 34 ℓ per 113 g portion, compared to 276 ℓ for the same amount of rice, 144 ℓ for maize and 182 ℓ for a portion of bread. In other words, potatoes present a sustainable option for water allocation, making the best use of resources to ensure food security.

Jacobs suggests that DWS should instead focus on more effective water management strategies, integrated water resource management, and provide training and capacity building for those involved in water management on potato farms. "These measures can achieve the desired ecological outcomes without the adverse effects on the potato industry and the broader community."

For more information, send an email to Dirk Uys at dirk@potatoes.co.za or FP Coetzee at fpcoetzee@potatoes.co.za.

Potato waste: Quantity, value, and causes

By Dr Hester Vermeulen and Jodie Hattingh, Bureau for Food and Agricultural Policy

Potatoes are the dominant vegetable-based, starch-rich staple food in South Africa, accounting for approximately 10% of consumer spending on starch-rich staples. They are valued for their versatility and nutritional benefits.

In a world with limited and decreasing natural resources for food production, food losses/waste are growing concerns, highlighted in the United Nations' *Sustainable Development Goal 12*, which aims to "ensure sustainable consumption and production patterns". According to the World Wildlife Fund for Nature, roughly a third of all food in South Africa is wasted, with the most waste occurring in the fruits and vegetables category.

In South Africa, little is known about losses or waste in the potato value chain. As part of the Technology Innovation Agency (TIA) funded project of Potatoes SA titled the "Feasibility study of a new value chain for lower grade potatoes in the agro-processing industry", the Bureau for Food and Agricultural Policy (BFAP) explored the nature, quantity and monetary value of potatoes that are wasted, lost, or downgraded at various levels in the South African potato value chain. This study focussed on primary producers, fresh produce markets, processors and retailers.

In collaboration with Potatoes SA, questionnaires were developed for the various value chain nodes and completed through a combination of self-completion (via an online platform) and one-on-one facilitated interviews. The sample of value chain role-players represented approximately 16% of total potato tonnes at producer level, including all major production regions, market agents in Pretoria and Cape Town, two major retailers, and a processor.

Definition of losses/waste

Potato losses/waste are generally considered to be those potatoes deemed unsuitable for their intended purpose within the value chain. More specifically, these losses/waste can be divided according to role-players in the value chain:

- **Primary producers:** Potatoes that do not meet formal market standards, typically with a quality grading above three.
- **Fresh produce markets (FPMs):** Potatoes that cannot be sold on the market floor due to quality issues.
- **Processors:** Potatoes with internal or external defects, as well as processing losses.
- **Retailers:** Potatoes that are not sold to consumers before the sell-by date.

Table 1: Causes of potato losses/waste.

	Weather (especially excessive heat and rain before harvesting).
	Insects or pests.
	Plant diseases.
	Mechanical damage (especially during harvesting, but also post-harvest).
	Delays in the movement of potatoes through the value chain, including an extensive amount of time at FPMs and on retail floors before being sold.

Table 2: Potato losses/waste among producers, market agents and retailers in South Africa. (Source: Survey results)

	Producers	Market agents	Retailers
Waste %	5%	0.75%	1%
Waste % range	Typically ranging from 4 to 8%	Typically ranging from 0.50 to 1%, but 10% also mentioned	0.03 to 2%
Average annual waste quantity in South Africa	Approximately 140 000 tonnes	Approximately 8 700 tonnes	Approximately 3 400 tonnes
Estimated annual value of waste potatoes in South Africa*	Approximately R759 million (valued @ FPM prices)	Approximately R47.2 million (valued @ FPM prices)	Approximately R71.7 million (valued @ FPM prices)

**The estimated annual value of waste potatoes refers to losses/waste not suitable for the original intended market and does not take into account the value of repurposed volumes mentioned in this article.*

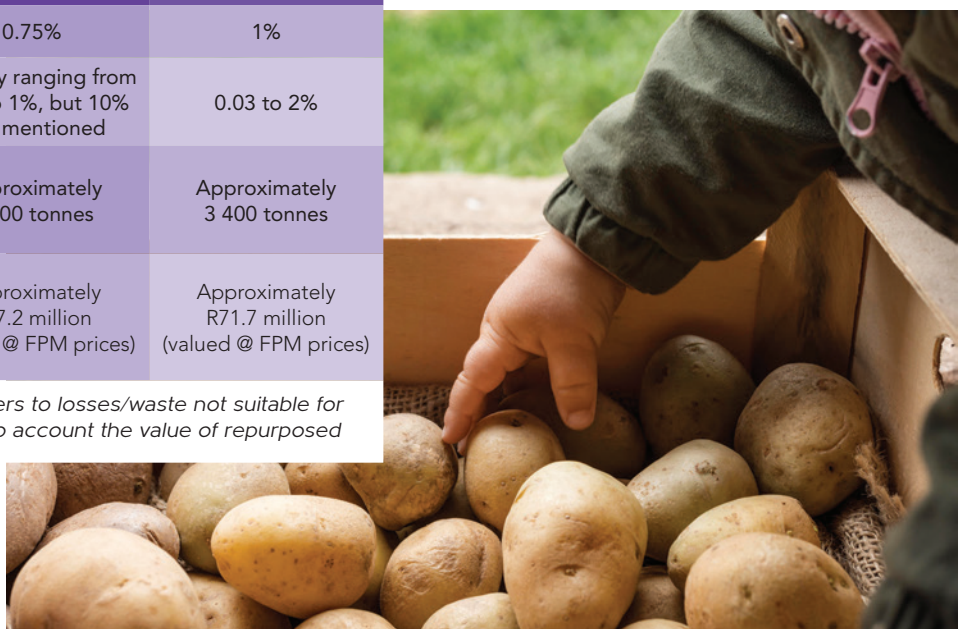

Table 3: Losses or waste within the overall potato value chain.

Around 40% of waste potatoes are allocated to human consumption through donations or sales, especially among retailers. 	Around 60% of waste potatoes are allocated to animal feed, followed (sadly) by discarding as refuse, especially among producers, followed by market agents. 

Quantifying losses/waste

To quantify and cost potato losses/waste across various value chain nodes for 2023, the following calculations were made: Volumes produced or handled per value chain node and prices (FPMs and retail prices for April 2024) were applied to the loss/waste percentages reported by the respondents to develop estimations.

Among producers, market agents and retailers, producers were the largest contributors to potato waste, generating around 140 000 tonnes, valued at R759 million in 2023. Market agents followed with 8 700 tonnes valued at R47.2 million and retailers with around 3 400 tonnes valued at R71.7 million. *Table 2* presents the survey results quantifying potato losses/waste among market agents and retailers. It is important to note that the estimated annual value of 'waste potatoes' refers to losses/waste not suitable for the original intended market and does not consider the value of repurposed volumes mentioned in this article.

The survey included only one processor who was willing to participate, reporting a waste percentage of approximately 4%. However, data from a larger and more representative sample will be needed to draw conclusions regarding potato losses/waste among processors. Potato waste/loss during processing can be significant at the processor level, primarily due to stringent grading processes aimed at meeting food safety standards. These grading processes typically involve identifying and removing potatoes with internal and external defects, among other quality criteria.

Provincial losses/waste

At the primary production level, the Western Free State and Mpumalanga reported the highest share of potatoes lost or wasted (8%), followed by KwaZulu-Natal (7%). In terms of total quantities of waste potatoes, the following regions dominated:

- Western Free State: 28%.
- Eastern Free State: 14%.
- Limpopo: 13%.
- Sandveld: 10%.
- KwaZulu-Natal: 8%.

The nature of potato losses/waste

Seasonality: Potato losses or waste tend to peak during the warmer months of the year, from spring (September or October) to early autumn (March or April). There are some variances within these warmer months between production regions due to climatic variability. For example, the seasonal window for the most potato losses/waste is:

- Limpopo producers: October to December.
- Western Free State producers: March to August.
- Sandveld producers: October to February.
- Retailers: January to April.

Cultivars: Potato losses/waste also vary among cultivars, the highest losses having been observed in Mondial, Lanorma, Panamera, Valor, and Sifra.

Size: Larger potatoes tend to suffer more losses than smaller ones.

Uptake practices

Surprisingly, not all discarded potatoes go to waste. Many are repurposed, either donated or sold at lower prices for animal feed, or donated or sold for human consumption such as the informal trade.

At the primary producer level, the following practices occur most in the various regions:

- Sale (e.g. to 'bakkie traders'): Sandveld, Western Free State, Limpopo.
- Fed to livestock: Sandveld, Limpopo, Eastern Free State.
- Donated as animal feed: Sandveld, Limpopo, Western Free State.
- Donated for human consumption: Western Free State, Sandveld, Eastern Free State.
- Throw away or discard: Western Free State, Sandveld, Eastern Free State.

At FPMs, the major uptake practices for these potatoes include donation (for human or animal consumption), selling into the informal market, and discarding. Interestingly, some cases were observed where bags of rotten potatoes were opened, sorted, and repacked to salvage the good quality potatoes for the market.

Challenges and recommendations

The study faced challenges during data collection, with many stakeholders reluctant to participate and share data. Moving forward, researchers suggest expanding the study to include more market agents in various geographical locations and retailers, processors, and role-players in the informal trade.

The informal sector plays a significant yet largely unquantified role in the country's potato industry. Specific role-players of interest could include informal traders purchasing both market quality and lower quality potatoes at the fresh produce markets, informal bakkie traders buying loads of low-quality potatoes directly from producers, and street vendors selling potatoes. This could present a clearer picture of how potatoes move through the less formal parts of South Africa's agricultural landscape.

For more information, contact Dr Hester Vermeulen at hester.v@bfap.co.za or Jodie Hattingh at jodie@bfap.co.za.

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Physiological disorders in potato tubers

By André Murray, certification official, Potato Certification Service

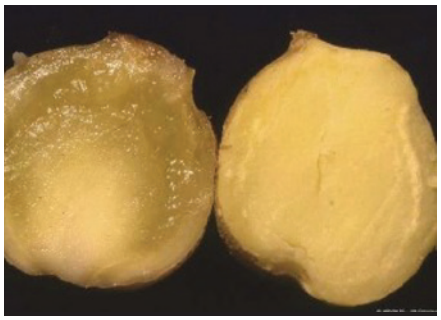
Secondary growth and glassiness are common physiological disorders in potato tubers that can significantly affect their quality and marketability. Secondary growth occurs when tubers develop irregular shapes and additional small tubers due to fluctuating soil moisture or nutrient availability.

Glassiness, also known as glassy end, is characterised by translucent, water-soaked tissues within the tuber, often leading to a loss in texture and quality. Glassiness is expressed in the appearance of translucent areas inside the flesh. These are caused by the partial or total disappearance of the starch grains in the tissues concerned. In the case of seed potatoes, severely affected tubers germinate badly and can result in stunted plants.

Conductive conditions

During a routine tuber inspection a few years ago on a potato farm in the Eastern Free State, I encountered seed potatoes exhibiting pronounced glassy symptoms. Intrigued by these observations, I did research to understand the underlying causes. It became evident that both environmental conditions and improper harvesting and storage practices played crucial roles in the development of these disorders.

Environmental factors play a critical role in the onset of glassiness in potato tubers. High soil temperatures, coupled with rapid soil moisture changes, can cause tubers to accumulate excessive water in their cells, leading to a glassy appearance (Struik and Wiersema, 1999). Poor soil aeration and compaction exacerbate this condition, further stressing the plants and impeding proper tuber development (Hooker, 1981).



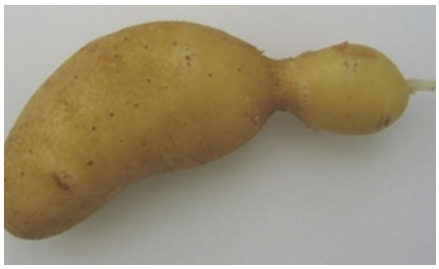
Glassiness is expressed in the appearance of translucent areas inside the flesh. (Source: French National Research Institute for Agriculture, Food and Environment)

Harvesting conditions also significantly impact the incidence of glassiness. Tubers harvested during wet conditions or after a sudden drop in temperature are more prone to glassiness. The inspection revealed that harvesting took place shortly after heavy rains, likely contributing to the observed glassy symptoms. In addition, rapid cooling of the tubers post-harvest can cause internal cellular damage, leading to glassiness (Stevenson, 1993).

Storage conditions are equally critical in the prevention of glassiness. To prevent condensation and water accumulation, tubers should be stored under well-ventilated conditions at consistent temperatures. The farm in question stored the seed potatoes in an open-walled shed, potentially leading to daytime highs and nighttime lows as well as wind passing through the shed, which could have intensified the glassy symptoms.

Mitigation tactics

To mitigate these issues, producers should focus on maintaining consistent soil moisture levels, avoiding harvesting during adverse weather conditions, and ensuring proper storage conditions. Implementing these practices can significantly reduce the occurrence of secondary growth and glassiness, thereby improving the quality and marketability of potato tubers.



Secondary growth occurs when tubers develop irregular shapes and additional small tubers due to fluctuating soil moisture or nutrient availability. (Source: French National Research Institute for Agriculture, Food and Environment)

We closely linked the glassy symptoms observed in the seed potatoes from the Eastern Free State farm to environmental and harvesting conditions known to cause glassiness. Proper management of these conditions is essential for producing high-quality potato tubers.

For more information, email André Murray at andre@potatocertification.co.za or visit *www.potatocertification.co.za.*

Die proef is uitgevoer op die plaas Rietfontein in die Aurora-omgewing, aan die voet van die westelike kant van Piketberg.

Sandveld-kultivarproef onder besproeiing op Aurora in 2023/24

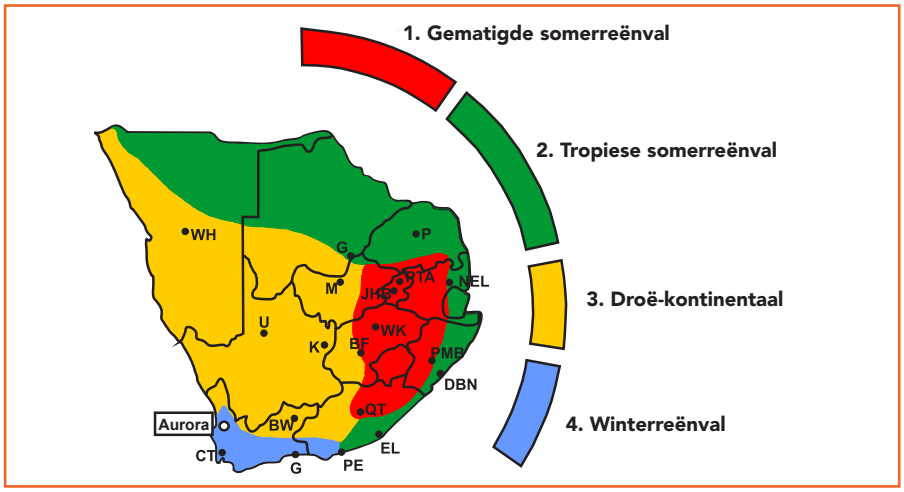
Deur Enrike Verster en Laryssa van der Merwe, Aartappels SA, Piet Brink, Sandveld-werkgroep en Albert de Villiers, produsent

Die Sandveld-produksiestreek produseer sowat 13% (2023-oesjaar) van die totale aartappeloes in Suid-Afrika op ongeveer 6 487 ha in somer- en winteraanplantings. Hierdie streek voorsien aartappels aan die totale voorsieningsketting – uitvoer, moere, tafel- en verwerkingsaartappels. Tafelaartappels word hoofsaaklik na Angola en moere na Mosambiek uitgevoer. Die hoof tafel- en verwerkingskultivars is Mondial, Sifra, FL2108 en Valor.

Die proef is uitgevoer op die plaas Rietfontein in die Aurora-omgewing, aan die voet van die westelike kant van Piketberg. Die gebied val in Suid-Afrika se winterreënvalstreek (*Figuur 1*) en ontvang die afgelope 21 jaar 'n gemiddelde jaarlikse reënval van ongeveer 395 mm, aldus die Landbounavorsingsraad (LNR)-weerstasie. Tussen 2018 en 2023 is 295 mm per jaar aangeteken by die Rietfontein-stasie op die plaas.

Die gebied geniet 'n Mediterreense klimaat met warm somers, terwyl die winters koud en nat is. Die aanplantingstyd in die produksiegebied is uniek, aangesien aartappels

Figuur 1: Ligging van Aurora in die Sandveld produksiegebied.



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

Plaas	**Fisantevlug, Rietfontein**
Produsent	Albert de Villiers
Plantdatum	26 September 2023
Oesdatum	20 Februarie 2024
Besproeiing/droëland	Besproeiing
Dubbel- of enkelrye	Dubbelrye
Tussenry-spasiëring	0.75 m
Inry-spasiëring	0.30 m
Plantestand	41 666 plante/ha

Tabel 2: Bemestingsprogram.

	Voedingswaarde					
	N (kg/ha)	**P (kg/ha)**	**K (kg/ha)**	**Ca (kg/ha)**	**Mg (kg/ha)**	**S (kg/ha)**
Voor plant	48.75	69.1	66.78	105.4	17.8	83.4
Week 1	26.39	4.14	27.43	0	1.55	0
Week 2	26.39	4.14	27.43	0	1.55	0
Week 3	26.39	4.14	27.43	0	1.55	0
Week 4	27.79	4.48	26.88	18.1	1.34	0
Week 5	18.19	6.27	37.63	0	1.88	0
Week 6	27.79	4.48	26.88	18.1	1.34	0
Week 7	18.19	6.27	37.63	0	1.88	0
Week 8	27.79	4.48	26.88	18.1	1.34	0
Week 9	14.62	5.04	30.24	0	1.51	0
Week 10	14.62	5.04	30.24	0	1.51	0
Week 11	14.62	5.04	30.24	0	1.51	0
Week 12	14.62	5.04	30.24	0	1.51	0
Totaal	**306.15**	**127.66**	**425.93**	**159.7**	**36.27**	**83.4**
Twee tot drie ton gips/ha						

Tabel 3: Grondvoedingstatus van proefperseel voor plant.

pH (KCl)	Digtheid (g/cm³)	UIT H+ cmol (+)/kg	P Bray I (mg/kg)	K (mg/kg)	Na (mg/kg)	Ca (mg/kg)	Mg (mg/kg)	Ca (%)	Mg (%)	K (%)	Na (%)	KUK[1]
4.8	1.525	0.265	40.5	21	12.5	101	29	45.05	21.25	4.75	4.95	1.1

[1]*KUK = katioon-uitruilkapasiteit.*

regdeur die jaar geplant kan word. Die meeste aartappels word egter in Februarie en Junie geplant.

Die kultivarproef is uitgevoer in sandgrond en in 'n ewekansige blokontwerp met drie herhalings per kultivar uitgelê. *Tabel 1* verskaf bykomende tegniese inligting rakende die proef. *Tabel 2* bevat die bemestingsprogram vir die afgelope seisoen. Grondmonsters is voor plant geneem om die grondvoedingstatus van die proefperseel te bepaal (*Tabel 3*). Regstellings op die spilpunt is op 'n wisselende basis gedoen.

Karaktereienskappe van kultivars

Die kultivarproef sluit kultivars met kort en lang groeitydperke in. Derhalwe kan groeitydperke die uiteindelike opbrengs van sekere kultivars beïnvloed. Die lengte van 'n groeitydperk is onderhewig aan die aard van die seisoen, maar word beskou as die hoeveelheid tyd wat verloop vanaf opkoms tot natuurlike loofafsterwe.

Tabel 4 illustreer hoe hierdie groeitydperke van kultivar tot kultivar verskil. Die plantgereedheid van moere ten tyde van die plant van die proef, sowel as standpersentasie en halmtelling wat later in die groeitydperk waargeneem is, word in *Tabel 4* aangedui.

Die evaluering van nuwe kultivars, soos in die Aurora-kultivarproef, verskaf resultate rakende, onder andere, opbrengs- en bemarkingsindeks sowel as bakgehalte en prosesseringseienskappe. Die bemarkingsindeks van die betrokke kultivars word bereken deur elke kultivar volgens kwaliteit en groottegroepe (byvoorbeeld: Klas 1 Groot of Klas 2 Groot tot Medium) te klas en sorteer.

Dienooreenkomstige prysvergelykings word dan getref 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, aangesien klimaat van een jaar na 'n volgende kan wissel. Juis daarom word die kultivars verkieslik oor 'n aantal seisoene geëvalueer.

Seisoenale aspekte

Soos met enige gewas is temperatuur, straling, beskikbaarheid van water (hetsy goeie besproeiingskedulering of reënval), sowel as hitte-eenhede belangrike faktore wat 'n wesenlike invloed gedurende die aartappelplant se groeitydperk het. Hierdie faktore word dus in aanmerking geneem wanneer die prestasie van kultivars geëvalueer word. Toepaslike weerdata word verkry vanaf 'n weerstasie wat naby die proefperseel geleë is.

Die 2023/24-seisoen (*Figuur 2*) het oor die algemeen ondergemiddelde reënval ervaar, ten spyte daarvan dat Aurora in die winterreënvalgebied geleë is. 'n Uitsondering was in September toe uitermatige hoë reënval voor die plantdatum vanaf 1 tot 26 September aangeteken is.

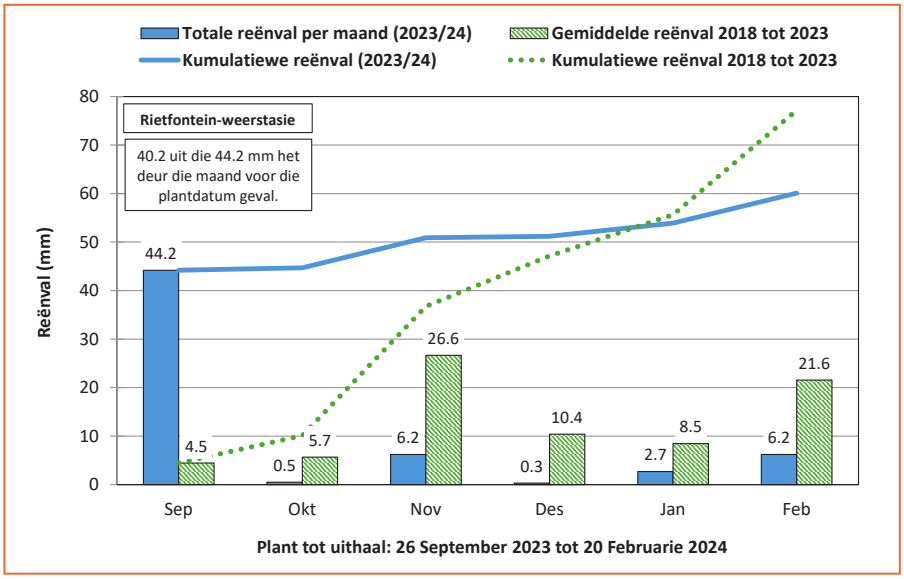
Minimum- en maksimumtemperatuur word in *Figuur 3* uiteengesit.

Tabel 4: Karaktereienskappe rakende groeitydperk, plantgereedheid, stand (%) en halmtellings vir betrokke kultivars.

Agent	Kultivar	Groeitydperk (dae)[1]		Plant-gereedheid[2]	Stand (%)	Halms per plant	Halms per ha
GWK	**11Z55A5**	Medium tot lank	(100 – 120)	1	85	3	106 248
GWK	**Amany**	Medium tot lank	(110)	2	96	2.9	115 998
WEF grow	**Cayman**	Medium	(100 – 110)	2	90	3.1	116 248
RSA	**Foxy**	Kort tot medium	(90 – 100)	3	91	4.1	155 456
First Potato Dynamics	**Lady Alicia**	Medium	(95 – 100)	1	97	2.9	177 206
First Potato Dynamics	**Lady Luce**	Medium	(110)	0	93	2.5	96 873
GWK	**Lanorma**	Kort	(80 – 90)	1	87	3.2	115 998
GWK	**Lilly**	Medium	(100)	2	90	4.3	161 247
WEF grow	**Mondial**	Medium tot lank	(110 – 115)	0	96	3.3	131 998
WEF grow	**Norman**	Medium	(90 – 100)	1	84	3.2	111 998
GWK	**Noya**	Medium	(90 – 110)	2	87	2.2	79 749
PEPSICO	**P1**	Medium tot lank	(110)	2	88	3.5	128 331
First Potato Dynamics	**Palace**	Lank	(110 – 115)	1	99	3.2	131 998
WEF grow	**Panamera**	Medium	(90 – 110)	1	99	2.7	111 373
First Potato Dynamics	**Prince**	Lank	(110 – 115)	0	97	3.3	133 373
WEF grow	**Sababa**	Medium tot lank	(110 –115)	1	96	2.9	115 998
WEF grow	**Sifra**	Kort tot medium	(90 – 100)	1	94	3.2	125 331
First Potato Dynamics	**Sound**	Medium	(100)	0	94	3.9	152 748
WEF grow	**Tyson**	Kort tot medium	(90 – 100)	2	96	2.6	103 998
RSA	**Valor**	Medium	(100)	2	84	3.4	118 998

[1]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; lank: 90 tot 140 dae.
[2]Plantgereedheid van moere: 0 - baie vars; 1 - vars; 2 - effens vars; 3 - plantgereed; 4 - effens oud; 5 - oud.

Figuur 2: Reënval (2023/24-seisoen) en gemiddelde reënval tydens die vorige ses seisoene.



Die betrokke seisoen het met tye groot wisseling in maksimumtemperature ervaar. Altesaam 77 dae van temperature bo 30°C, 23 dae bo 35°C en drie dae bo 40°C is gedurende die groeitydperk aangeteken; dit is heelwat meer as in die vorige seisoen. Veral gedurende die begin en nader aan die einde van die groeitydperk was temperature byna konstant hoog – gemiddeld 0.7°C hoër as in die vorige drie seisoene.

Die versameling van hitte-eenhede gedurende 'n groeitydperk is 'n belangrike faktor in die ontwikkeling van 'n aartappelplant. Die tendens van hitte-eenhede beskikbaar vir die kultivarproef op Aurora, toon dat die huidige seisoen se hitte-eenhede baie naby aan die

Tabel 5: Hoofredes vir afgradering.

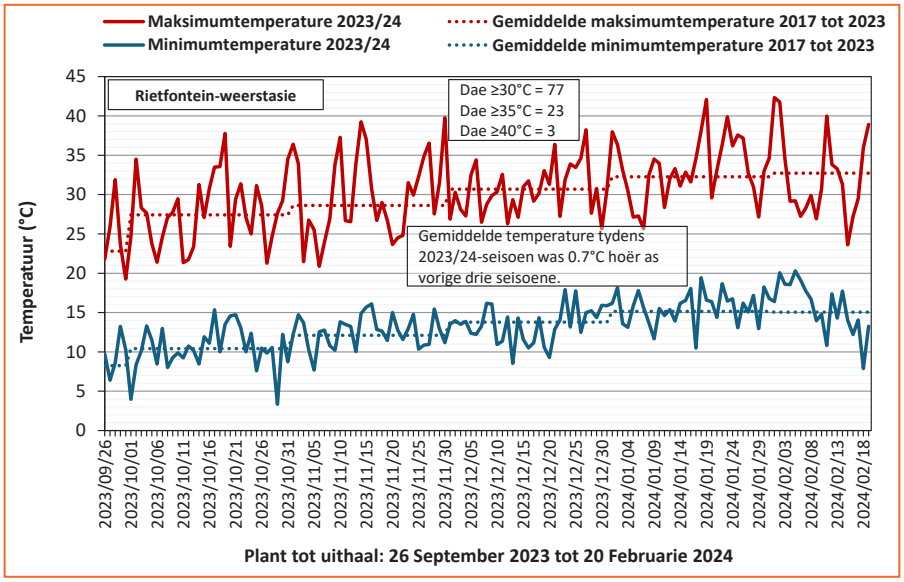
Kultivar	Los skil	Aalwurm	Poeierskurf	Sekondêre groei	Vrot (bederf)	Sandspleet	Misvorming	Vergroening	Bruinskurf	Mot
11Z55A5	x				x	x				
Amany				x	x		x	x		x
Cayman	x				x	x				
Foxy					x					
Lady Alicia	x		x		x					
Lady Luce	x		x							
Lanorma	x				x					
Lilly	x	x	x		x					
Mondial	x				x	x				
Norman	x				x				x	
Noya	x		x		x					
P1	x									
Palace			x							
Panamera	x		x		x					
Prince	x	x	x						x	
Sababa	x	x			x					
Sifra	x	x	x		x					
Sound			x							
Tyson	x				x					
Valor	x									
<5% voorkoms				5-15% voorkoms				>15% voorkoms		

langtermyndata-tendens is (*Figuur 4*). Dit is egter belangrik om te meld dat dit nogtans hoër as die afgelope paar seisoene was.

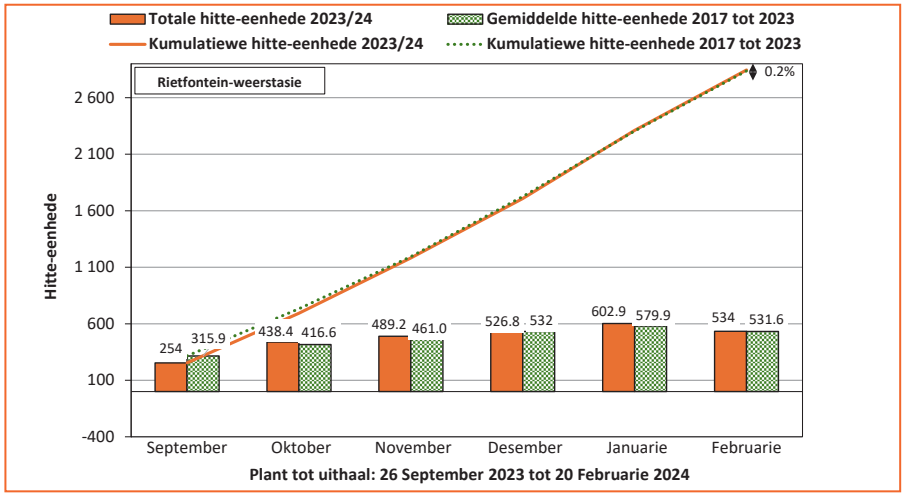
Straling en opbrengsdata

Nog 'n belangrike faktor om in ag te neem, is die hoeveelheid daaglikse straling (*Figuur 5*). Dit is 'n meting van die hoeveelheid sonlig-energie wat 'n horisontale oppervlakte tref. Dus, hoe meer straling, hoe meer fotosintese sal gedurende die groeitydperk plaasvind. Die gemiddelde daaglikse straling wat aangeteken is in hierdie afgelope seisoen (en selfs verlede seisoen), verklaar ten minste gedeeltelik die swakker opbrengste van die afgelope twee seisoene. Straling gedurende die 2020/21- en

Figuur 3: Minimum- en maksimumtemperature (2023/24-seisoen) sowel as temperature tydens die vorige ses seisoene.

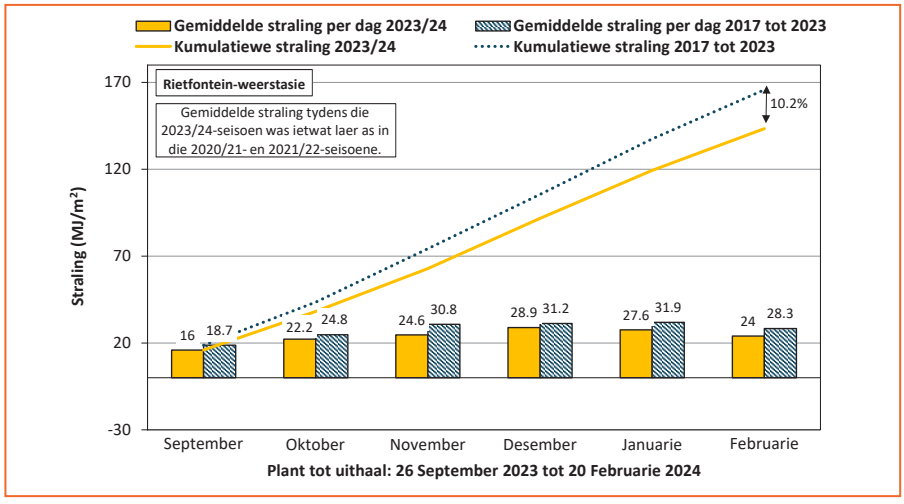


Figuur 4: Hitte-eenhede (2023/24-seisoen) asook gemiddelde hitte-eenhede tydens die vorige ses seisoene.

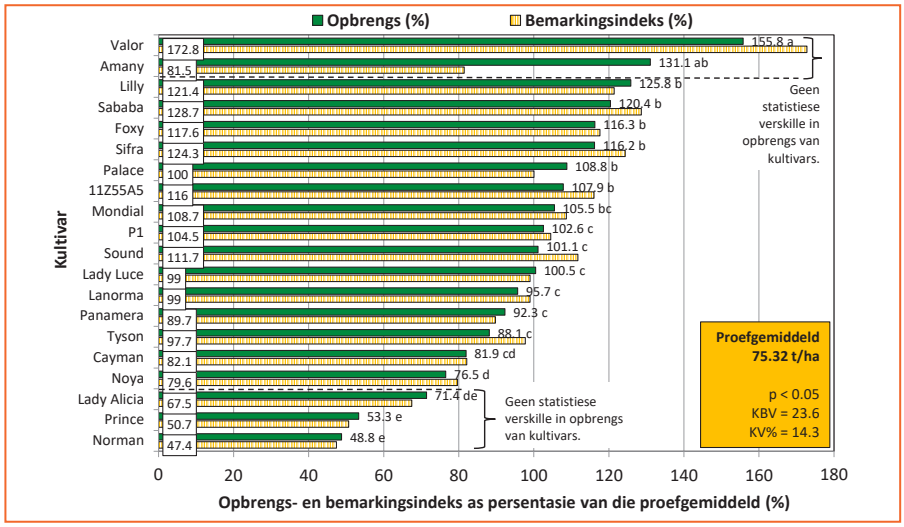


**Totale hitte-eenhede spesifiek bepaal vir aartappels as gewas (drumpeltemperatuur = 5°C). Bereken vanaf uurlikse data.*

Figuur 5: Gemiddelde daaglikse straling (2023/24-seisoen) asook gemiddelde straling in die vorige ses seisoene.



Figuur 6: Totale opbrengs per kultivar as persentasie van die proefgemiddeld.



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

Die 2023/24-seisoen het oor die algemeen ondergemiddelde reënval ontvang, al is Aurora in die winterreënvalgebied, met die uitsondering van September toe daar vanaf 1 tot 26 September uitermatige hoë reënval voor die plantdatum aangeteken is.

2021/22-seisoene was ietwat meer as die afgelope twee seisoene.

As langer-termyn data in ag geneem word, was die akkumulasie van straling per dag sowat 10.2% laer in 2023/24 as van 2017 tot 2023. Veral vanaf November tot aan die einde van die seisoen (ongeveer in die tyd van knolinisiasie tot volwassenheid), was straling (en dus effektiewelik fotosintese en uiteindelike opbrengs) minder as in vorige seisoene.

Betroubaarheid 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 hierdie betrokke proef (*Figuur 6*) was statisties beduidend ($p<0.05$) en die koëffisiënt van variasie was wel binne perke (14.3%). Hierdie faktore dui daarop dat die proef baie goed uitgevoer is en die resultate derhalwe betroubaar is.

Die opbrengs van elk van die kultivars word deur die proefgemiddeld gedeel (die proefgemiddeld van al die kultivars word as 100% geneem). Hierdeur word 'n opbrengsindeks bepaal en word elke kultivar se prestasie in

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

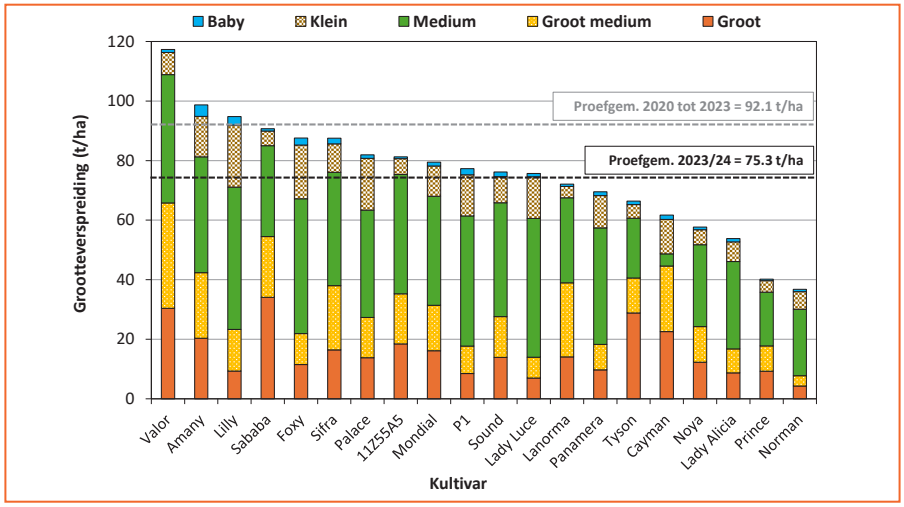
Bemarkingsindeks en prestasie

Die gemiddelde opbrengs van die proef vir die 2023/24-seisoen was 75.32 t/ha – aansienlik laer as die vorige vier seisoene se gemiddeld van 92.1 t/ha. Nog 'n interessante opmerking is dat LINTUL-simulasies van die laaste vier seisoene getoon het dat Mondial in hierdie streek 'n opbrengspotensiaal van gemiddeld 129.8 t/ha het, maar die afgelope seisoen 'n werklike opbrengs van slegs 79.5 t/ha behaal het.

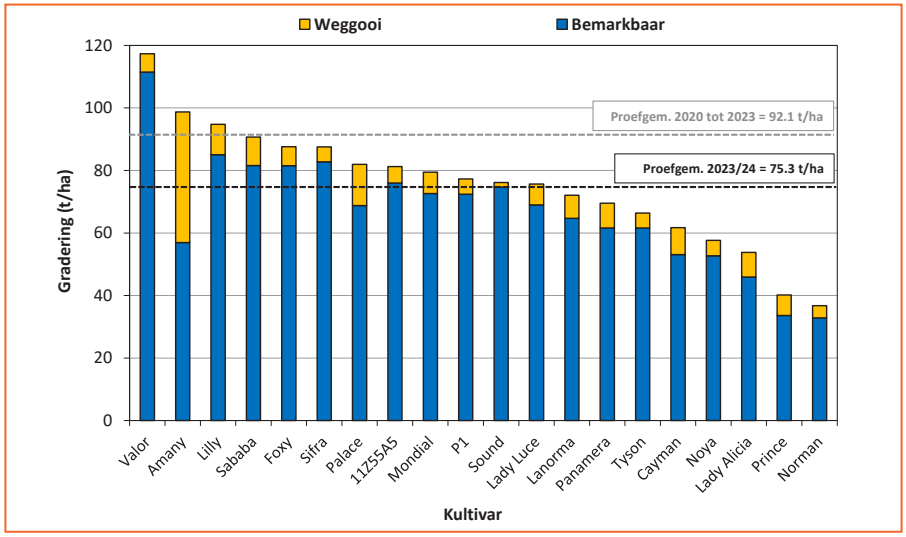
Valor en Amany het die beste opbrengs gelewer met geen statistiese verskil in opbrengs nie, maar dit is belangrik om te merk dat die verhouding van bemarkbare teenoor onbemarkbare aartappels by Amany, nie wenslik was nie. Valor, Sababa en Sifra het die beste bemarkingsindeks behaal. 'n Hoë bemarkingsindeks word toegeskryf aan 'n hoër opbrengs van Groot- en Klas 1-aartappels. 'n Groot persentasie onbemarkbare aartappels sal 'n bemarkingsindeks byvoorbeeld negatief beïnvloed.

Groottegroepverspreiding en gradering is dus onontbeerlike evaluasies wanneer gekyk word na 'n kultivar se bemarkbaarheid (*Figure 7* en *8*).

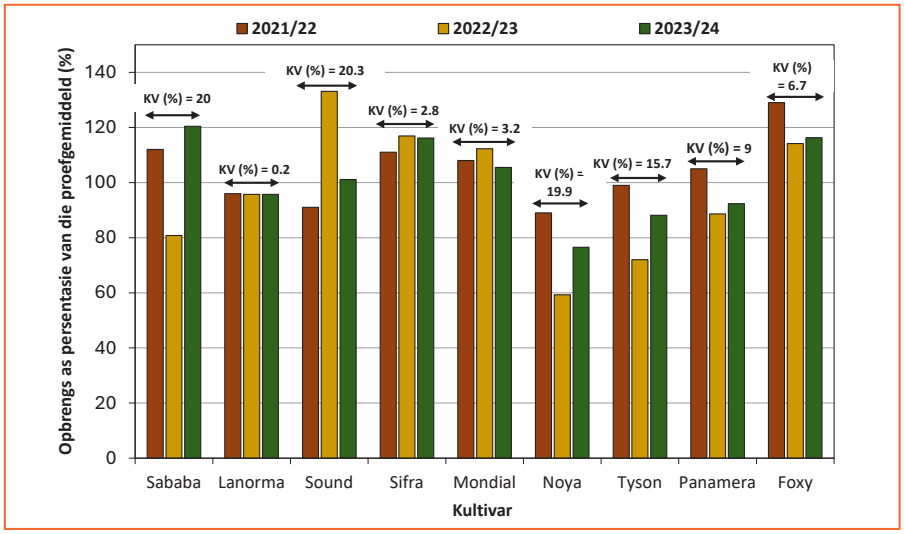
Figuur 7: Groottegroepverspreiding van elke betrokke kultivar.



Figuur 8: Gradering van elke betrokke kultivar.



Figuur 9: Prestasie van kultivars wat vir die afgelope drie jaar in die proef ingesluit was (uitgedruk as persentasie van die proefgemiddeld).



Koeffisiënt van variasie (KV %) is ingesluit op die grafiek: 'n Waarde wat in essensie die mate van verskil in prestasie in die spesifieke kultivar oor die aantal jare, voorstel. Hoe groter die KV%-waarde, hoe meer wissel die kultivar se prestasie oor die aantal jare op die grafiek aangedui.

Tabel 6: Houvermoë van kultivars soos waargeneem ses weke na oes.

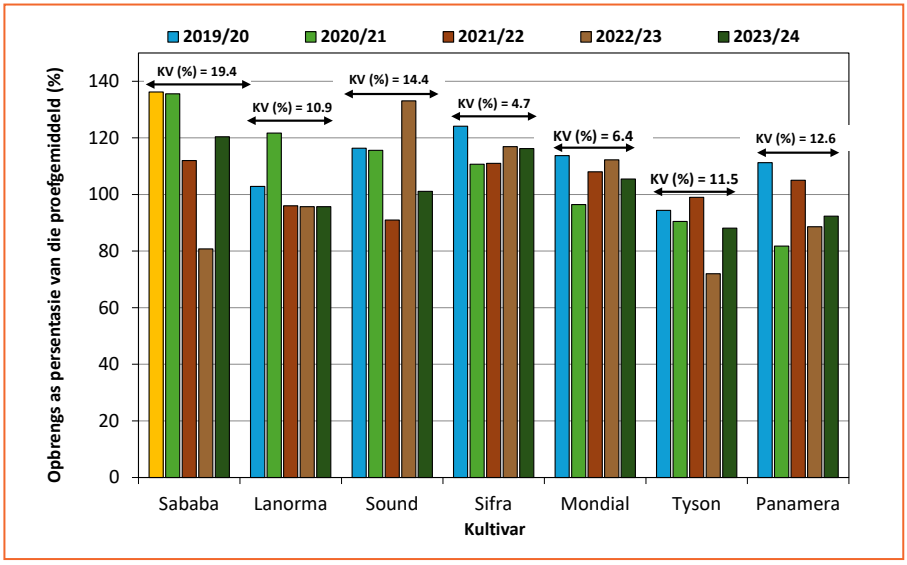
Kultivar	Toestand na ses weke	Waarnemings
11Z55A5	Medium tot swak	15% sagte vrot maar ander is ferm. Silwerskurf teenwoordig.
Amany	Goed	Ferm met 'n paar uitgeloopte knolle.
Cayman	Medium tot swak	15% sagtevrot maar ander is ferm. Begin uitloop.
Foxy	Goed	Een of twee effe verlep met uitloopsel.
Lady Alicia	Medium	5% sagtevrot maar ander is ferm. Begin uitloop.
Lady Luce	Medium tot swak	15% sagtevrot maar ander is ferm. Begin uitloop.
Lanorma	Swak	30% en meer sagtevrot.
Lilly	Medium tot swak	15% sagtevrot, maar ander is ferm.
Mondial	Medium tot swak	10% sagtevrot, maar ander is ferm. Begin uitloop.
Norman	Medium	5% sagtevrot, maar ander is ferm. Begin uitloop.
Noya	Swak	30% sagtevrot. Ander begin uitloop en verlep.
P1	Goed	Baie goeie toestand.
Palace	Swak	30% sagtevrot. Ander begin uitloop en verlep.
Panamera	Medium	Ferm met 'n paar verlepte knolle.
Prince	Medium tot swak	15% sagtevrot, maar ander is ferm. Begin uitloop.
Sababa	Swak	50% sagtevrot. Baie swak toestand.
Sifra	Medium tot swak	15% sagtevrot, maar ander is ferm.
Sound	Goed	Een of twee effe verlepte knolle met uitloopsel.
Tyson	Goed	Een of twee effe verlepte knolle.
Valor	Medium tot swak	15% sagtevrot, maar ander is ferm. Begin uitloop.

Tabel 7: Verwerkingseienskappe van kultivars (uitgevoer deur LNR-Roodeplaat).

Kultivar	Skyfiekleur[1]	SG[2]	DM[3]
11Z55A5	45	1.064	17
Amany	45	1.070	18
Cayman	45	1.082	21
Foxy	35	1.061	16
Lady Alicia	54	1.077	20
Lady Luce	51	1.076	19
Lanorma	50	1.067	18
Lilly	44	1.058	16
Mondial	51	1.065	17
Norman	45	1.080	20
Noya	42	1.077	20
P1	47	1.079	20
Palace	45	1.071	18
Panamera	43	1.075	19
Prince	47	1.071	18
Sababa	44	1.065	17
Sifra	37	1.074	19
Sound	47	1.064	17
Tyson	45	1.065	17
Valor	39	1.075	19

[1]Skyfiekleur met waarde >50 en sonder defekte is aanvaarbaar vir die droëskyfiebedryf.
[2]Soortlike gewig van ≥1.075 is aanvaarbaar vir die prosesseringsbedryf.
*[3]Die persentasie droëmateriaal (DM) is 'n berekende waarde: DM% = 24.182 + 211.04 * (SG-1.0988).*
Die werklike persentasiewaarde sal effens verskil tussen variëteite uit hierdie berekeningswaarde.

Figuur 10: Prestasie van kultivars wat die afgelope vyf jaar in die proef ingesluit was (uitgedruk as 'n persentasie van die proefgemiddeld).



Koeffisiënt van variasie (KV %) is ingesluit op die grafiek: 'n Waarde wat in essensie die mate van verskil in prestasie in die spesifieke kultivar oor die aantal jare, voorstel. Hoe groter die KV%-waarde, hoe meer wissel die kultivar se prestasie oor die aantal jare aangedui op die grafiek.

In hierdie proef was slegs geklas vir bemarkbaar teenoor onbemarkbaar (weggooi).

Soos die aard van seisoene is, wissel die prestasie van kultivars van seisoen tot seisoen, bloot omdat klimaat van een seisoen na 'n volgende nooit eenders is nie. Derhalwe is dit belangrik om konsekwente kultivarprestasie oor 'n aantal seisoene in ag te neem. Kultivar-variasie oor die afgelope drie en vyf seisoene word in *Figure 9* en *10* aangedui. Tans toon Sifra en Mondial oor vyf jaar die meeste stabiliteit in hierdie proef, met Lanorma wat oor die afgelope drie seisoene uiters konsekwent presteer het.

Afgradering en interne gehalte

Die hoofredes vir afgradering word in *Tabel 5* aangedui. Los skil, vrot (bederf)

Tabel 8: Vleeskleur en interne gehalte van die 2023/24-opbrengs in Aurora.

11z55A5

Amany

Cayman

Foxy

Lady Alicia

Lady Luce

Lanorma

Lilly

Mondial

Norman

Noya

P1

Palace

Panamera

Prince

Sababa

Sifra

Sound

Tyson

Valor

en poeierskurf was die grootste redes vir die afgradering van aartappels van bemarkbaar na weggooi. Houvermoë is ook informeel geëvalueer vyf weke ná oes en die kommentaar op die kultivars se toestand is in *Tabel 6* uiteengesit. Sagtevrot het 'n wesenlike rol gespeel.

Laastens, wanneer gekyk word na die interne gehalte van aartappels, kan prosesseringseienskappe ook geëvalueer word. Om te voldoen aan prosesseringsvereistes moet kultivars aan 'n soortlike gewig (SG) van ≥1.075 en 'n skyfiekleurnorm van >50 voldoen (*Tabel 7*). Volgens die ontleding het geen kultivars die gewenste skyfiekleur behaal nie, maar Cayman, Lady Alicia, Lady Luce, Norman, Noya, P1, Panamera en Valor het almal aan die SG-vereiste voldoen. *Tabel 8* toon die betrokke kultivar se vleeskleur, rou en gebraai, na oes.

Spesiale dank aan die Sandveld-werkgroep, alle proefdeelnemers en betrokke Aartappels SA-personeel. Vir meer inligting, stuur 'n epos aan Enrike Verster by enrike@potatoes.co.za.

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Herfskommandowurm
(Spodoptera frugiperda)
Afrika-bolwurm
(Helicoverpa armigera)

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Dosage rate: 300 g/ha

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Potato tuber moth

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IRAC: 5
Dosage rate: 30 mℓ/100ℓ water
Pests:
Potato leaf miner
Potato tuber moth larvae

InCide 300 WG

IRAC: 22
Dosage rate: 125 g/ha
Pests:
Potato tuber moth
Fall armyworm
African/American bollworm
Potato leaf miner

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How climate change is reshaping potato cultivation globally

By Lukie Pieterse, editor and publisher, Potato News Today

The potato industry faces unprecedented challenges as climate change continues to alter global weather patterns. Potatoes, a staple crop for millions worldwide, are particularly vulnerable to the shifting climate. This article explores the multifaceted impact of climate change on potato cultivation and the broader potato industry, highlighting the efforts and initiatives of researchers and industry leaders to mitigate these adverse effects.

Vulnerability of potatoes

Potatoes are highly sensitive to environmental changes, with optimal growth occurring in temperate climates. Changes in temperature, precipitation patterns, and the frequency of extreme weather events have direct and indirect impacts on potato yields, quality, and disease susceptibility.

Potato is a temperate crop that thrives between 16 and 22°C; however, when the temperature exceeds 30°C for prolonged periods of time, it can cause slow tuber initiation and development and physical damage to the tubers. Higher temperatures can lead to heat stress, reducing tuber formation and increasing the risk of diseases such as late blight. Heat also accelerates the degradation of soil organic matter, affecting soil health and productivity.

Higher temperatures can disrupt the physiological processes of potato plants, leading to reduced yields and lower-quality tubers. For instance, temperatures above 30°C can impair photosynthesis and tuber development, resulting in smaller and malformed potatoes. Heat stress can also cause tubers to sprout prematurely, reducing their market value.

Increased temperatures can exacerbate the volatilisation of nitrogen fertilisers, reducing their efficiency and leading to higher input costs. Furthermore, higher temperatures can increase the respiration rate of tubers during storage, leading to greater losses and reduced shelf life.

Water stress

Altered precipitation patterns and increased frequency of droughts are major concerns. Potatoes require consistent moisture levels for optimal growth. Water stress during critical growth phases can lead to reduced yields and poor-quality tubers. Conversely, excessive rainfall can cause waterlogging, leading to root diseases and rot.

Water stress can severely impact potato yields, especially during tuber initiation and bulking stages. Drought conditions can cause tuber dehydration, reducing their size and marketability. On the other hand, excessive rainfall can lead to waterlogged soils, reducing oxygen availability to roots and promoting the development of fungal diseases such as *Phytophthora infestans*, which causes late blight.

Changing precipitation patterns also pose a challenge for irrigation management. Producers may need to invest in more efficient irrigation systems, such as drip or sprinkler irrigation, to ensure optimal water use. Additionally, the increased frequency of droughts may necessitate the development of drought-tolerant potato varieties to ensure food security in water-scarce regions.

Pest and disease pressure

Climate change can expand the range and activity period of pests and diseases. Warmer temperatures and higher humidity levels can increase the prevalence of pests such as the Colorado potato beetle and diseases such as late blight and blackleg.

The changing climate can also alter the distribution and behaviour of pests and diseases. For example, pathogens previously confined to warmer regions may expand their range to temperate areas, creating new challenges. This in turn will lead to higher pesticide use, raising environmental and health concerns.

Climate-resilient varieties

A primary research strategy is developing potato varieties that are more resilient to climate change. Researchers are focussing on breeding varieties that can withstand higher temperatures, drought, and diseases. The International Potato Centre (CIP) has been at the forefront of developing heat-tolerant and drought-resistant potato varieties.

These varieties are bred to maintain high yields and quality under adverse conditions. For instance, researchers are incorporating traits such as heat tolerance, and drought and disease resistance into new potato varieties. In addition to traditional breeding methods, modern techniques such as marker-assisted selection and genetic engineering are being employed

to accelerate the development of climate-resilient varieties.

Improved agronomic practices

Enhancing farming practices is crucial for adapting to changing climates. This includes optimising irrigation techniques, such as drip and sprinkler systems, to ensure efficient water use. Practices such as crop rotation and intercropping can also improve soil health, and reduce pest and disease pressure while helping producers maintain high yields and quality under changing climatic conditions.

By rotating crops and planting diverse species, pest and disease cycles can be broken, soil fertility improved, and biodiversity enhanced.

Integrated pest management (IPM) strategies are being promoted to manage pest and disease threats effectively. This includes using resistant varieties, biological control methods, and timely application of pesticides. Monitoring and forecasting tools are also being developed to predict pest and disease outbreaks, allowing for timely interventions.

IPM combines various approaches to manage pests and diseases in an environmentally sustainable manner. By using resistant varieties, biological control agents, and cultural practices, producers can reduce their reliance on chemical pesticides and minimise their environmental impact. Biological control methods, such as the use of natural predators and parasitoids, can also play a crucial role in IPM.

Soil health management

Maintaining soil health is vital for sustainable potato cultivation. Initiatives to improve soil organic matter through composting, cover cropping, and reduced tillage are gaining traction. These practices enhance soil structure, water retention, and nutrient availability, making crops more resilient to climatic stresses.

Composting and cover cropping can increase soil organic matter and improve soil fertility, while reduced tillage can help conserve soil moisture and reduce erosion. These practices can lead to healthier soils and more sustainable potato production systems, ensuring long-term productivity and resilience.

Climate-smart agriculture

Climate-smart agriculture or CSA integrates sustainable farming techniques with climate adaptation strategies. This includes precision farming, which uses data and technology to optimise inputs such as water, fertilisers, and pesticides.

Diversifying income sources is key aspect of CSA. By promoting alternative income-generating activities, such as agroforestry, livestock farming, and value-added processing, CSA can help reduce the economic impact of crop failures due to climate events. This can enhance the resilience of farming communities and ensure food security in the face of climate change.

Several regions and organisations have implemented successful strategies to combat the effects of climate change on potato cultivation. These case studies and success stories provide valuable insights into how different parts of the world are addressing these challenges through innovation and resilience.

Peru's Andean highlands

In the Andean highlands, potato farming is a way of life, deeply intertwined with cultural traditions and local economies. However, rising temperatures and unpredictable weather patterns have threatened this heritage. The CIP has responded by developing and introducing potato varieties that can withstand higher temperatures and varying precipitation. These new varieties have not only maintained their yield but have also shown greater resistance to pests and diseases, which have become more prevalent due to the changing climate.

The success of these climate-resilient varieties has demonstrated the potential of breeding programmes to address the challenges posed by climate change. Producers in the region have reported improved crop stability and better economic returns, ensuring that their livelihoods are protected against climatic variability.

Netherlands' precision agriculture

The Netherlands, known for its innovative agricultural sector, has been a leader in implementing precision agriculture. Dutch potato producers utilise satellite imaging to monitor crop health and growth stages, allowing them to apply fertilisers and pesticides more precisely. Soil sensors provide real-time data on moisture levels, enabling efficient irrigation management. Data analytics integrate all these inputs to provide actionable insights, optimising every aspect of potato cultivation.

These technologies have not only increased yields but also reduced the environmental impact of potato farming. By using resources more efficiently, Dutch producers have decreased their carbon footprint and made their operations more sustainable. This approach has proven particularly effective in adapting to

the unpredictable weather patterns associated with climate change.

India's drought-resistant varieties

India faces significant water scarcity issues, exacerbated by climate change. To address this, researchers have focussed on developing potato varieties that require less water and can survive longer periods of drought. These drought-resistant varieties have been a game-changer for producers in arid regions such as Gujarat and Maharashtra.

Adopting these new varieties has led to substantial improvements in crop yields and quality, even under challenging conditions. Producers have reported higher incomes and greater food security, as they are now able to produce reliable potato crops despite limited water availability.

North America's IPM

In North America, IPM practices have been widely adopted to combat the increasing pest and disease pressures resulting from climate change. For instance, in the Pacific Northwest, potato producers have been dealing with increased infestations of the Colorado potato beetle and late blight due to warmer temperatures and higher humidity levels. By implementing IPM strategies, these producers have significantly reduced their reliance on chemical pesticides, thereby lowering costs and minimising environmental impacts.

Biological control methods, such as introducing natural predators of the Colorado potato beetle, have proven particularly effective. The use of disease-resistant potato varieties has also helped mitigate the impact of late blight. Monitoring and forecasting tools developed by agricultural universities and extension services provide producers with timely information on pest and disease outbreaks, allowing for prompt and effective interventions.

Kenya's climate-smart villages

In Kenya, the climate-smart villages (CSV) initiative, led by the CGIAR Research Programme on Climate Change, Agriculture and Food Security, has been instrumental in helping potato producers adapt to climate change. The CSV approach integrates various climate-smart agricultural practices to enhance resilience and productivity.

Producers in these villages receive training on practices such as water conservation, soil health management, and the use of improved, climate-resilient potato varieties. The initiative also promotes diversified farming systems, which include intercropping potatoes with other crops to improve soil fertility and reduce pest and disease pressure. The CSV initiative has led to noticeable improvements in potato yields and farmer incomes.

China's digital agriculture

China has embraced digital agriculture to combat the effects of climate change on potato farming. The use of big data, artificial intelligence (AI), and Internet of Things (IoT) technologies has revolutionised potato cultivation in several regions.

In the Inner Mongolia Autonomous Region, for example, potato producers use IoT devices to monitor soil moisture, temperature, and other critical parameters in real-time. Artificial intelligence algorithms analyse this data to provide precise recommendations for irrigation, fertilisation, and pest control. This technology-driven approach has led to significant increases in yield and reductions in input costs.

Moreover, digital platforms facilitate better market access for producers, allowing them to sell their produce at better prices.

Scotland's collaborative research

In Scotland, collaborative research initiatives between universities, research institutions, and producers are addressing the challenges of climate change on potato production. The Scottish government, through its ClimateXChange initiative, supports research on developing climate-resilient potato varieties and sustainable farming practices.

The James Hutton Institute, for example, is conducting research on breeding potato varieties that can withstand extreme weather conditions, such as heavy rainfall and frost. The institute also works on soil health management practices, including the use of cover crops and organic amendments, to improve soil structure and fertility.

Potato producers are actively involved in these research projects, providing valuable insights and feedback. This collaborative approach ensures that the research is relevant and directly applicable to real-world farming conditions. The results have been promising, with producers reporting improved crop performance and resilience to climate variability.

Australia's water-saving techniques

In Australia, where water scarcity is a significant issue, innovative water-saving techniques are being implemented to support potato cultivation. The country's potato producers are adopting advanced irrigation systems, such as subsurface drip irrigation, to optimise water use and minimise waste.

Subsurface drip irrigation delivers water directly to the root zone of the potato plants, reducing evaporation and ensuring that the plants receive the right amount of water. This technique has proven highly effective in improving water use efficiency and maintaining crop yields under drought conditions.

Australian researchers are also exploring the use of treated wastewater for irrigation, providing an alternative water source for potato production.

For more information, email the author at lukie@potatonewstoday.com or visit *www.potatonewstoday.com* for more news on potato developments abroad.

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Polysulphate: Unieke aartappelbemesting

Deur dr Patricia Imas, landboukundige, ICL

Aartappels (*Solanum tuberosum*) is die derde-belangrikste voedselgewas vir menslike gebruik ter wêreld. Aartappels word oor die algemeen verbou in sanderige grond, wat gewoonlik laag in vrugbaarheid is. Om 'n goeie oes en goeie gehalte knolle te lewer, moet aartappels dus besproei word aangesien voldoende plantvoeding noodsaaklik is.

Polysulphate is 'n natuurlike multi-voedingstof wat deur ICL in die Verenigde Koninkryk gemyn word. Polysulphate bevat vier voedingstowwe: swael (S), magnesium (M), kalium (K), en kalsium (Ca). Die samestelling daarvan is swael (48% SO_3), kalium (14% K_2O), magnesium (6% MgO) en kalsium (17% CaO) – alles in sulfaatvorm (SO_4). Polysulphate los geleidelik in die grond op en stel voortdurend voedingstowwe aan die plant beskikbaar.

'n Goeie aartappeloes kan ongeveer 300 kg/ha kalium (K_2O), 110 kg/ha swael (SO_3), en 20 kg/ha van beide kalsium (CaO) en magnesium (MgO) gebruik.

Natuurlike voeding vir aartappels

Polysulphate word in sy natuurlike kristalvorm (polihaliet) gemyn en het 'n lae koolstofvoetspoor. Dit word as organies geklassifiseer.

Dit het 'n unieke oplossingspatroon wat voedingstowwe geleidelik na toediening vrystel. 'n Langer vrystellingsperiode beteken dat al vier elemente deurlopend vir die aartappelplant beskikbaar is. Die vrystelling van polysulphate verminder die risiko van swaelverlies deur besproeiing. Dit het 'n lae chloorinhoud en soutindeks met 'n natuurlike pH wat nie die grond-pH affekteer nie.

Polysulphate-toediening verseker nie net verhoogde oesopbrengs nie, maar lewer ook verhoogde droëmateriaal en styselinhoud.

Die antwoord vir aartappels

Polysulphate is veral geskik vir aartappels. Die produk verskaf voldoende en gebalanseerde voeding van vier essensiële voedingstowwe – S, K, Mg, en Ca – in een toediening. Die verlengde vrystellingsperiode verseker dat die aartappelplant deurlopend 'n bron van voedingstowwe beskikbaar het. Kalsium is noodsaaklik vir goeie skilgehalte in aartappels. Polysulphate-toediening verseker nie net verhoogde oesopbrengs nie, maar lewer ook verhoogde droëmateriaal en styselinhoud.

Proewe wêreldwyd bewys dat aartappelprodusente wat hul lande met polysulphate bemes, uitstekende resultate kry. Goeie opbrengste en gehalte verseker dus dat produsente polysulphate as noodsaaklik beskou.

Kontak Sanet de Klerk, ICL verkoopsbestuurder vir Suid-Afrika, by sanet.deklerk@icl-group.com of 079 686 3096, of Derek Rosmarin van JR Chemicals by derek@jrchemicals.com of 083 595 3676.

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Webinar informs about pests, payments, and other problems

By Susan Marais, Plaas Media

Earlier this year several key issues facing the primary potato industry were addressed during a webinar hosted by CropLife SA and Potatoes SA.

During the webinar Dirk Uys, Potatoes SA's research and innovation manager, said the dream was to increase South Africa's current per capita potato consumption from 36 to 50 kg per year. This would involve increasing production from 2.5 million tonnes on 52 000 ha to 3.23 million tonnes on 55 000 ha. "If we can get every person to eat one additional potato per week, we will already have increased demand by 630 tonnes per year, making this dream possible."

However, this increase needs to occur in an environment where the industry is reducing the use of active ingredients due to challenges such as the banning of certain ingredients and the development of disease resistance against others.

PepRSV

Dr Lindy Esterhuizen, a senior researcher at the ARC Vegetable, Industrial and Medicinal Plants campus at Roodeplaat, shared insights regarding a research study the Agricultural Research Council (ARC) has been conducting since 2022 on potatoes and pepper ringspot virus (PepRSV). PepRSV is transmitted by a nematode vector known as *Nanidorus minor* (previously classified as *Paratrichodorus minor*). "This nematode has quite a large host range and in South Africa, it has been reported in vegetables, grain crops, deciduous and tropical fruit and uncultivated areas, which includes fynbos and indigenous forest," Dr Esterhuizen said, adding that the nematode prefers sandy soils because it moves in the water film within the soil.

PepRSV belongs to the *Tobravirus* genus, which also includes the tobacco rattle virus (TRV) and the pea early browning virus (PEBV). PepRSV has only been identified in two places: Brazil (1966) and South Africa (2020). TRV is found in the United Kingdom, Europe, Russia, Japan, Ethiopia, America and the Middle East. Both PepRSV and TRV are problematic because they cause corky spots on tubers, rendering the vegetables unmarketable.

"PepRSV was first identified in *Bidens* species (weeds) in Brazil. It has also been found in peppers, tomatoes, various weeds, peas, and beans. The most important aspect of understanding its distribution is knowing the vector involved," Dr Esterhuizen noted. TRV is vectored by 12 different nematode species, while a single nematode species – *Nanidorus minor* – transfers it.

Discovery and distribution

PepRSV was first discovered during the potato certification process in a commercial planting in the Northern Cape in 2019. Since 2021, incidences of PepRSV have increased countrywide. Between June 2023 and May 2024, the ARC monitored produce at the Johannesburg Fresh Produce Market. This data revealed that PepRSV-infected tubers were present in at least seven of South Africa's provinces (*Table 1*).

The cultivars in which the virus has been identified include Mondial, Panamera, Sifra, Up to Date, Allison, Avalanche, and Lanorma. While the signs can be seen on the plant leaves, Dr Esterhuizen said it does not look the same on all the cultivars. "It is difficult to see the difference between different viruses just by looking at the leaves."

Because PepRSV has not been extensively researched, its full host range remains unknown. However, the known weed hosts are *Chenopodium amaranticolor, Chenopodium murale quinoa, Nicotiana clevelandii, Nicotiana benthamiana, Datura stramonium, Gomphrena globosa, Bidens* species, *Eustoma grandiflorum, Gerbera jamesonii, Gloxinia sylvatica, Pogostenom patchouli, Solanum violifolium* and *Phaseolus pubescens*.

The crops identified as hosts for the virus include beans, faba beans, peas, pepper, potato, artichoke, tobacco, and sunflower. "We are currently conducting a pot trial at the ARC with 26 different plants to determine if they are also hosts of PepRSV."

For management purposes, Dr Esterhuizen advised producers to use virus-free seed. "PepRSV is mechanically transmissible, so pruning tools or knives should be decontaminated." Producers should

also think twice before moving soil from one area to another, as well as be aware of what is in their soil. This will help them control the vector/nematode. "Have your soil tested to determine the presence and number of stubby-root nematodes in your soil," she recommended.

Sustainable production

Prof Martin Steyn, an agronomist from the Department of Plant and Soil Sciences at the University of Pretoria, discussed resource efficiencies, a challenge that will only intensify as global demand for resources rises and climate change escalates.

He focussed on the two most precious non-renewable resources: water and soil.

"Although potatoes are a resource-intensive crop, they are one of the most water-efficient food crops," Prof Steyn noted (*Table 2*). Given that South Africa is located in a water-scarce region, it is crucial to use this already-stressed resource optimally. "The problem will only worsen over time."

In 2016, Prof Steyn was part of a research team that examined the water use efficiencies of 100 potato producers across the country. "While the average South African potato producer uses water very efficiently, some individual producers do not perform nearly as well. It is our job as researchers to help these producers improve their efficiencies." Lower water use efficiencies are usually due to low yields, over irrigation or high rainfall. Large-scale drainage after rains is also a concern that needs to be addressed.

Table 2: Water footprints of food products. (Source: *www.waterfootprint.org*)

Product	Water use
150 g potato (one average-sized potato)	43.5 ℓ (South African irrigation producers use 19 ℓ/150 g of potato)*
150 g orange	80 ℓ
150 g peach	140 ℓ
60 g egg (one egg)	196 ℓ

**Fact added by Prof Martin Steyn.*

Table 1: Detection of PepRSV according to an ARC Survey from 2023 to 2024. (Source: ARC)

Provinces	Areas	Commercial producers	Seed producers
Free State	Bethlehem	23	8
	Bloemhof		
	Brandhof		
	Bultfontein		
	Christiana		
	Harrismith		
	Hertzogville		
	Kroonstad		
	Petersburg		
	Reitz		
	Theunissen		
	Vryburg		
	Warden		
Limpopo	Bendor	6	1
	Dendron		
	Polokwane		
	Vivo		
North West	Bloemhof	5	1
	Skeerpoort		
	Stella		
KwaZulu-Natal	Bergville	5	2
	Mooirivier		
	Winterton		
Northern Cape	Douglas	4	1
	Kimberley		
Mpumalanga	Middelburg	1	
Gauteng	El Sparks	3	
	Tarlton		
	Petit		

Managing soil

Regarding soil and nutrient efficiency, significant nutrient leaching is occurring across the country, particularly in respect of calcium, sulphur, nitrogen and, to a lesser extent, potassium. Adding more nutrients would only increase leaching, while lower levels would result in yield losses. Therefore, producers need to consider nutrients remaining in the soil after potato harvests when planning crop rotations.

Ultimately, farm management is the most crucial factor in minimising unproductive losses, Prof Steyn emphasised. "Improvements must start at the management level." Producers can immediately improve their operations by identifying non-sustainable farming practices and exploring alternative options to improve their farming efficiency."

For more information, email Dr Lindy Esterhuizen at esterhuizenl@arc.agric.za or Prof Martin Steyn at martin.steyn@up.ac.za.

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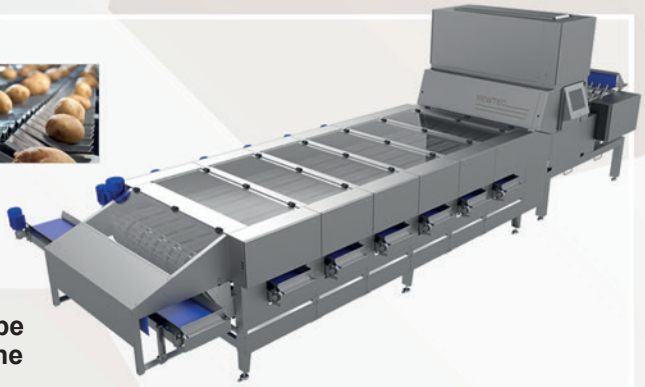

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Akkumulasie van droëmateriaal op aartappels

Deur Johan Fick, agronoom, SQM

Fotosintese is een van die noodsaaklikste prosesse op aarde. Nie net is ons afhanklik van die proses vir die aarde se voorbestaan nie, maar ook vir oorlewing. Maar wat is fotosintese en hoekom is dit so belangrik?

Fotosintese is 'n ingewikkelde reaksie wat hoofsaaklik in die blare van plante plaasvind. Die blare gebruik sonenergie, koolstofdioksied en lig om plantsuikers en suurstof te produseer. Hierdie plantsuikers verskaf weer energie wat nodig is vir groei. Plante ontwikkel in samewerking met nutriënte, water en suurstof, en vervaardig komplekse koolhidrate wat gevolglik meer droëmateriaal (DM)-produksie bewerkstellig.

Die faktore wat fotosintese en gevolglik DM-produksie affekteer, behels:

- Doeltreffende sonlig wat deur die blaaroppervlakte onderskep word.
- Dagliglengte.
- Gesonde plantmateriaal (aartappelmoergehalte).
- Blaargesondheid, vry van siektes en insekte.
- 'n Gebalanseerde bemestingsprogram.
- Waterbeskikbaarheid en -gehalte.
- Fenologie van die plant en kultivareienskappe.
- Plantdatum.
- Wortelgesondheid.
- ... en nog vele meer!

Van DM tot voedsel tot energie

Plante kan dus fotosintese gebruik om hul eie 'voedsel' te produseer. Droë-materiaal is eenvoudig die voedsel wat na energie omgeskakel word. Die DM-akkumulasie (DMA) verskil tydens verskillende stadiums van die plant se groei. In aartappels vind DMA in elke deel van die plant plaas, maar die aartappelknolle is van die grootste belang.

Aan die begin is die DMA in die blare en knolle dieselfde, maar aan die einde van die aartappelsiklus vind meer groei in die knolle plaas. Kultivars verskil wat tyd van knolvulling betref. Sekere kultivars sal die knolvullingstadium vroeër as ander binnegaan. Dit is dus belangrik om te weet wanneer die grooste DMA sal plaasvind, sodat jou bemesting vir optimale doeltreffendheid aangepas kan word.

Die belangrikheid van bemesting

Gebalanseerde bemesting is uiters belangrik en die goue reëls is:

- Regte plek (kunsmisplasing).
- Regte tyd (van toediening).
- Regte bron (van kunsmis).
- Regte toediening (hoeveelheid kunsmis).

Vir optimale DMA moet 'n kunsmistoediening prakties uitvoerbaar wees en op die regte tyd van die groeistadium plaasvind. Wanneer gekyk word na stikstofbemesting, is die NH_4^+ tot NO_3^- (ammonium-tot-nitraat)-verhouding 'n faktor wat in ag geneem moet word. Nitraat sal die opname van belangrike katione fasiliteer en sinergisties met K^+,Ca^{2+} en Mg^{2+} (kalium, kalsium en magnesium) saamwerk.

Ammonium word gesien as 'n mededingende katioon en het 'n negatiewe uitwerking op die opname van K, Ca en Mg. Nitraatbemesting bevorder DMA na die knolle en is meer energiedoeltreffend tydens die produksie van DMA. Ammonium, daarenteen, is minder energiedoeltreffend en het 'n laer DMA tot gevolg. Hoë chloriedtoedienings sal ook nitraatopname onderdruk.

Stikstof en K word in die grootste hoeveelhede deur die aartappelplant opgeneem en is verseker die doeltreffendste bron van N. Kaliumnitraat moet daarom 'n instelling wees by aartappelbemesting. Qrop K* en Ultrasol K Plus** is SQM se kaliumnitraat wat in wateroplosbare en korrelvorm beskikbaar is. Die gewas se behoefte kan derhalwe in kritieke tye van N en K voorsien word.

**Reg nr K5021 Wet 36/1947. Registrasiehouer Sociedad Quimica y Minera (Africa) (Edms) Bpk.*
***Reg nr K5020 Wet 36/1947. Registrasiehouer Sociedad Quimica y Minera (Africa) (Edms) Bpk.*

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Southwestern Free State cultivar trial under irrigation at Petrusburg in 2023

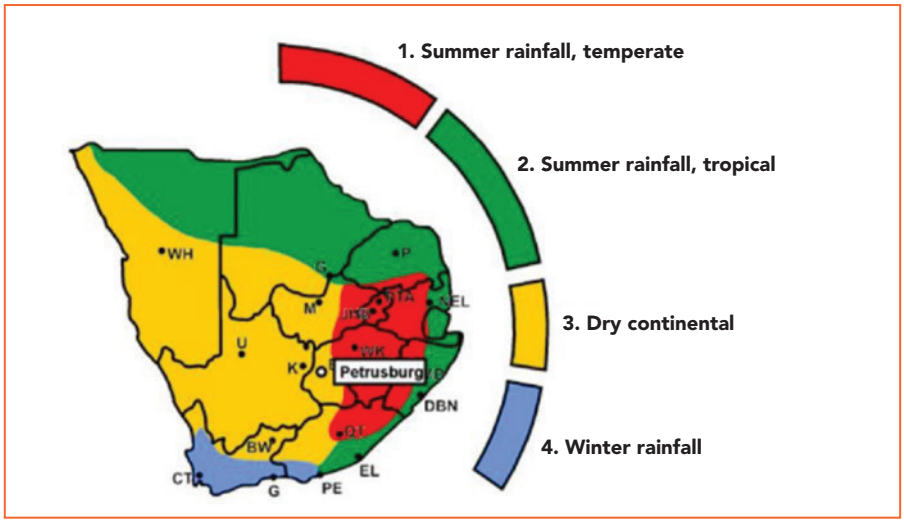
By Enrike Verster and Laryssa van der Merwe, Potatoes SA, and Johan Odendal, producer

Approximately 1.7% of South Africa's commercial potatoes are produced on 954 ha (2023/24 harvest year) located in the Southwestern Free State potato production region.

The main cultivars produced for commercial consumption (table and processing) are the region's main harvest of Sifra (89%) followed by Mondial, Panamera, and Innovator.

Petrusburg is located in South Africa's dry continental area (*Figure 1*).

Figure 1: Location of Petrusburg in the Southwestern Free State production region.



The farm on which the trial was planted has recorded an annual average rainfall of 570 mm over the last 24 years. This region is characterised by very hot summers and cold winters, with frost occurring from June to August. The region even recorded frost in November 2017.

The cultivar trial at Petrusburg was laid out in a randomised block design with three replications per cultivar. Relevant technical information relating to the trial is summarised in *Table 1*. Soil samples were collected before planting to determine the soil nutrient status of the trial site (*Table 2*).

Cultivars with short and long growth periods were included in the cultivar trial. As a result, growth periods could affect the yield of certain cultivars. The length of growth periods is subject to the nature of a given season but is regarded as the time that passes from emergence to natural leaf senescence.

Table 1: Summary of technical information regarding the trial site and layout.

Farm	**Lushof Farm, Theronskop**				
Producer	Johan Odendal				
Planting date	25 August 2023				
Harvesting date	25 January 2024				
Irrigation/dryland	Irrigation				
Double or single rows	Double rows				
Leaf senescence	Chemical				
Interrow spacing	0.75 m				
In-row spacing	28 cm				
Plant density	39 685 plants/ha				
Fertiliser programme	**Nutritional value**				
	N (kg/ha)	P (kg/ha)	K (kg/ha)	Ca (kg/ha)	S (kg/ha)
Total	**284.75**	**137**	**143.5**	**222.75**	**166.5**

Figure 2: Rainfall during the 2023/24 season as well as the long-term average rainfall.

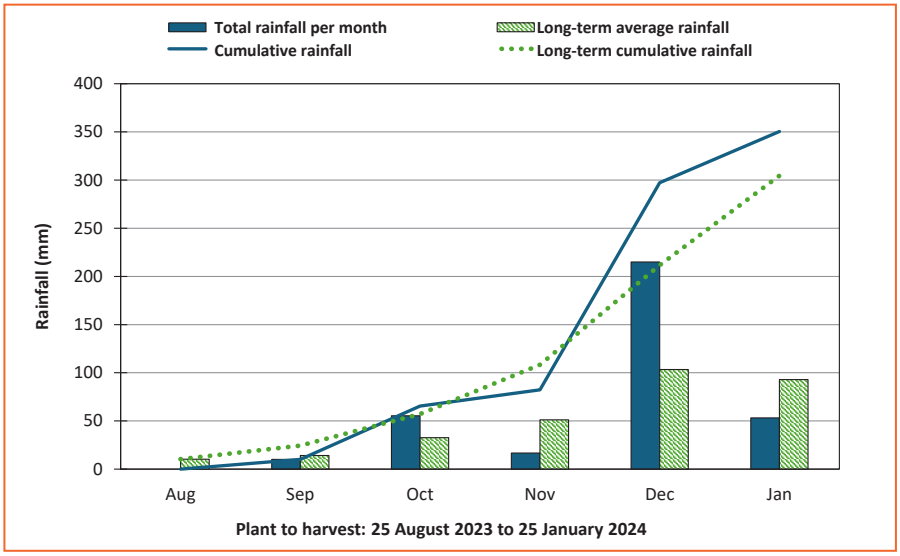


Figure 3: Minimum and maximum temperatures during the 2023/24 season as well as the long-term average temperatures.

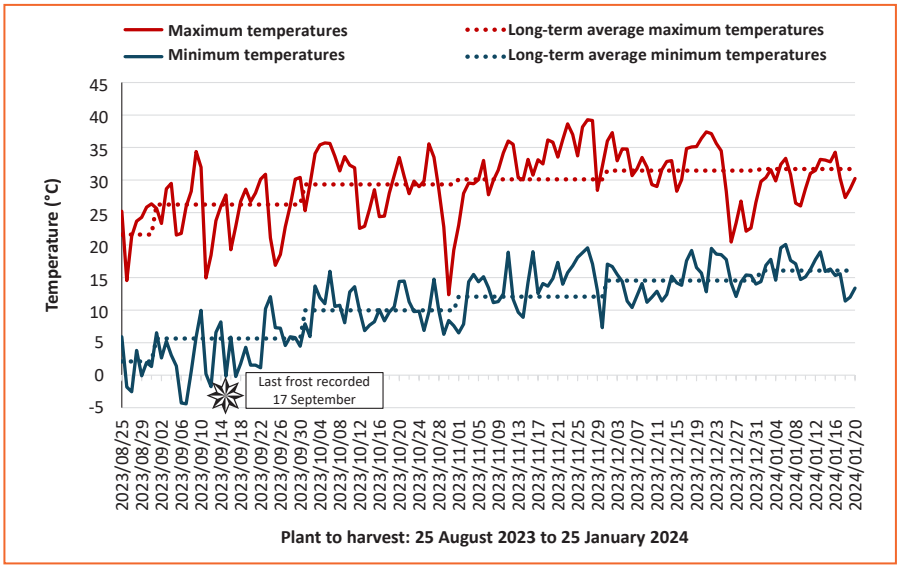


Table 3 outlines how these growth periods vary from cultivar to cultivar. The plant readiness of seed potatoes at the time of the trial, as well as plant density (%) and haulm count observed later on in the growth period, are indicated in *Table 3*.

Marketing indices

The evaluation of new cultivars in the Petrusburg cultivar trial delivered results regarding, among others, yield and marketing index. The marketing indices of the relevant cultivars are calculated by classing and sorting each cultivar according to quality and size distribution, for example, Class 1 Large or Class 2 Large-medium. All three replications from this trial were combined, washed, and sorted by the packing store. Prices were then compared to market prices at harvest time.

The performance of new cultivars cannot be based on the results of one particular season only, since climate and seed potato quality can vary from one year to the next. It is for this very reason that cultivars are preferably tested across several seasons.

Weather data

As with any crop, temperature, availability of water (good irrigation scheduling or rainfall), as well as heat units are important factors with a significant influence on the potato plant's growth period. These factors are therefore taken into account when

Table 2: Soil nutrient status of the trial site.

Gross density (kg.m^{-3})	pH (KCl)						% CEC[1]			
		P (P-Bray I)	K	Ca	Mg	Na	K	Ca	Mg	Na
		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	%	%	%	%
1 210	4.7	9	191	265	88	6	19	52	28	1

[1]CEC: cation exchange capacity.

The cultivar trial at Petrusburg was laid out in a randomised block design with three replications per cultivar.

Tabel 3: Characteristics relating to growth period, plant readiness, population density (%) and haulm count for relevant cultivars.

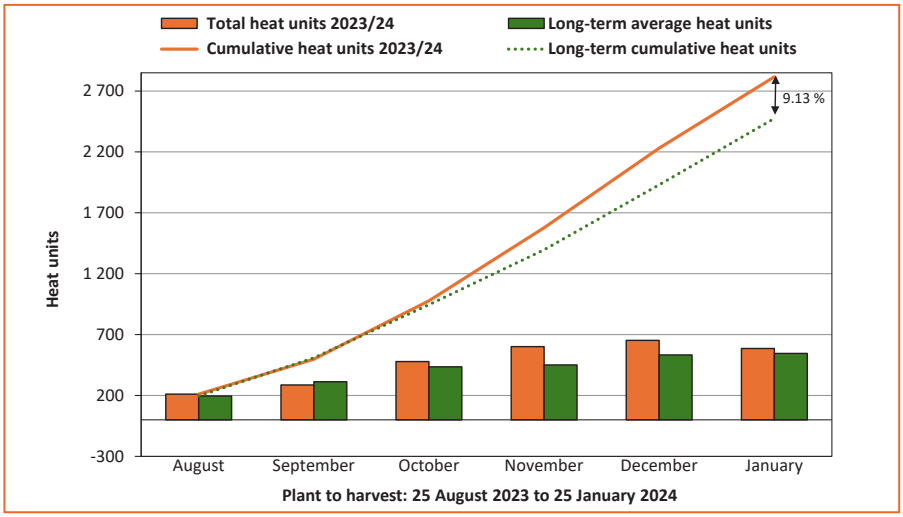
Cultivar	Growth period (days)[1]		Plant readiness[2]	Population density (%)[3]	Haulms per plant	Haulms per ha
11Z49A1	Medium	(100)	1	94	3	111 912
11Z55A5	Medium	(100)	1	83	1.4	46 114
Amany	Medium tot lank	(110)	2	94	2.3	85 799
Cayman	Medium	(100 – 110)	3	85	7	236 126
Connect	Medium tot lank	(120)	2	94	3.3	123 103
Foxy	Kort tot medium	(90 – 100)	3	94	6	223 823
Lanorma	Kort	(80 – 90)	3	99	4.4	172 868
Lilly	Medium	(100)	1	94	3.2	119 372
Mondial	Medium tot lank	(110 –115)	1	91	2.4	86 672
Noya	Medium	(90 –110)	1	90	1.8	64 290
Panamera	Medium	(90 – 110)	3	92	3.7	135 088
Sababa	Medium tot lank	(110 – 115)	3	92	5	182 551
Sifra	Kort tot medium	(90 – 100)	3	96	3.1	118 103
Sound	Medium	(110)	2	94	2.6	96 990
Tyson	Kort tot medium	(90 – 100)	2	96	2.2	83 815

[1]General guidelines and categories (days from emergence to leaf senescence depending on the season): short: 70 to 90 days; short to medium: 80 to 100 days; medium: 90 to 110 days; medium to long: 90 to 120; long: 90 to 140 days.
[2]Plant readiness of seed potatoes: 1 - fresh; 2 - slightly fresh; 3 - ready for planting; 4 - slightly old; 5 - old.
[3]Plant density (%) is determined by looking at the repetition of each cultivar which comprises of 36 plants per 10 m row per plot.

Table 4: Main reasons for downgrading.

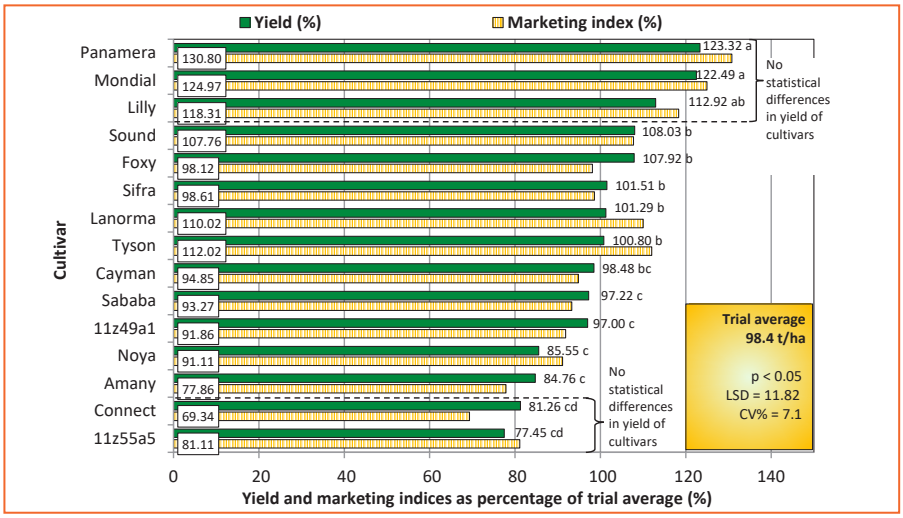
Cultivar	Moth damage	Greening	Stem-end rot	Common scab	Soft rot	Porcupine damage	Hollow heart	Brown spot
11Z49A1	x	x			x			
11Z55A5	x	x			x			
Amany	x		x	x				x
Cayman	x	x	x					
Connect	x	x	x	x				
Foxy	x	x	x				x	
Lanorma	x	x	x			x		x
Lilly	x				x			
Mondial			x					
Noya	x	x	x					
Panamera	x			x	x			
Sababa	x	x	x					
Sifra	x				x	x		
Sound	x		x					
Tyson	x	x	x					

Figure 4: Heat units recorded during the 2023/24 season as well as long-term average heat units



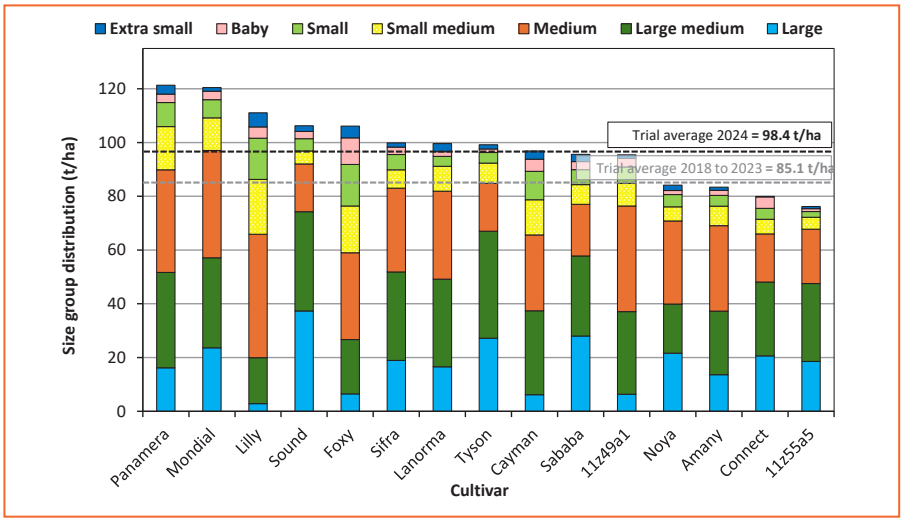
**Total heat units determined specifically for potatoes as a crop (temperature threshold = 5°C). Calculated using hourly data.*

Figure 5: Total yield and marketing indices per cultivar as a percentage of the trial average.



**Values followed by the same letter do not differ significantly.*

Figure 6: Size group distribution of all cultivars in the trial.



evaluating cultivar performance. In the case of this trial, relevant daily data regarding the season in question was obtained from a Hortec weather station on the farm where the trial site is located. The Agricultural Research Council's (ARC) weather station from which the long-term data was obtained, is located 9 km from the trial site.

The rainfall trend for the 2022/23 season (*Figure 2*) delivered significantly higher cumulative rainfall figures than the long-term average rainfall. More than double the long-term average rainfall was recorded in December, following a dryer November month.

Figure 3 illustrates minimum and maximum temperatures. The last burst of frost was recorded on 17 September. Earlier in the same month, severe frost was recorded with minimum temperatures lower than -4°C for two consecutive days. In November and December, 44 days of temperatures above 30°C were recorded and 18 days with maximum temperatures higher than 35°C.

Heat units are another important factor to consider, as the development of the plant is based mainly on the collection of heat units during a growth period. The trend of available heat units for this cultivar trial was significantly more compared to the cumulative long-term data of heat units (*Figure 4*). This can be attributed to the season's above-average number of warm days, especially during November and December, which led to the accumulation of more heat units.

Yield indices

Yield data collected during harvest day is statistically processed using the GenStat® program. The mean was separated using the Tukey test of least significant differences (LSD). The cultivar effect during this trial (*Figure 5*) was statistically significant ($p<0.05$) while the coefficient of variation (CV) was low (7.1%). These factors indicate that the trial was well executed, and the results are therefore reliable.

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The average yield of the cultivar trial for the 2023/24 season was 98.4 t/ha.

Figure 7: Grading of all cultivars in the trial.

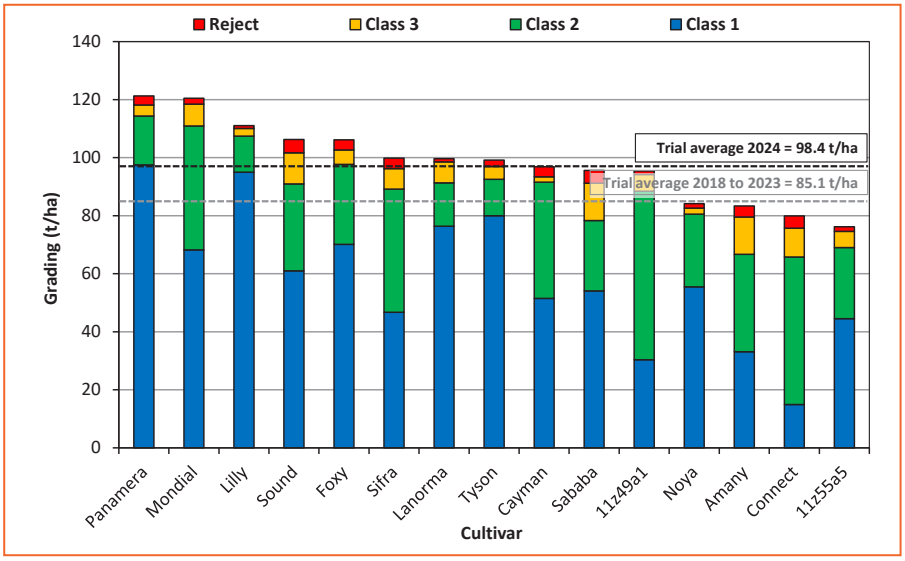
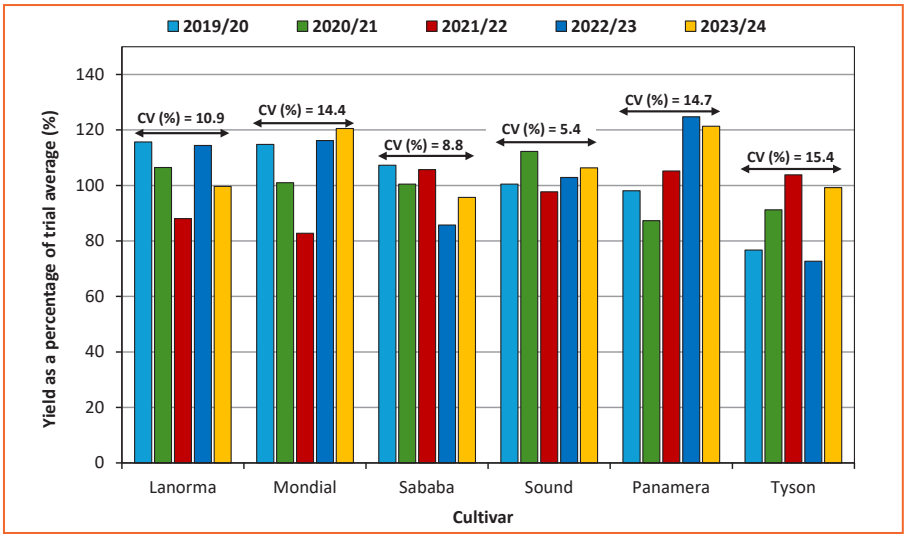


Figure 8: Performance of cultivars included in the trial for five years (indicated as % of the trial average).



Coefficient of variation (CV%) is included on the graph: A value that essentially depicts the margin of difference in the specific cultivar's performance over the years indicated on the graph. The greater the CV % value, the greater the cultivar's performance variance over the number of years indicated on the graph.

The yield of each cultivar is divided by the trial average (the average of all the cultivars is accepted as 100%). This creates a yield index and each cultivar's performance in terms of yield is read as a percentage of the trial average.

The average yield of the cultivar trial for the 2023/24 season was 98.4 t/ha. This is higher than the trial averages of the previous five cultivar trials (85.1 t/ha) conducted at Petrusburg (2018 to 2023). Optimal irrigation scheduling and water quality can be listed as factors contributing to good yields.

Quality and downgrading

Statistically, the cultivars Panamera, Mondial, and Lilly delivered the highest yield (*Figure 5*). The same cultivars achieved the highest marketing index, which can be attributed to the higher yield of Large tubers as well as good-quality potatoes.

Size distribution and grading are indispensable evaluations when studying a cultivar's marketability (*Figures 6* and *7*). Reasons for downgrading are taken into consideration when the potatoes are classed (*Table 4*). The main reasons for downgrading were moths and stem-end rot. This led to a larger number of Class 2 and 3 potatoes. Brown spot and hollow heart were detected in a few cultivars.

Just as seasons tend to fluctuate, so does the performance of cultivars from one season to the next. This is simply because the climate is never

Table 5: Processing characteristics of cultivars. (Carried out by ARC-Roodeplaat.)

Cultivar	Chip colour[1]	SG[2]	DM[3]
11Z49A1	49	1.072	18.6
11Z55A5	47	1.064	16.8
Amany	56	1.077	19.7
Cayman	52	1.082	20.5
Connect	43	1.066	17.3
Foxy	41	1.058	15.5
Lanorma	47	1.070	18
Lilly	48	1.060	16.1
Mondial	50	1.063	16.5
Noya	43	1.071	18.3
Panamera	41	1.073	18.7
Sababa	43	1.071	18.4
Sifra	40	1.068	17.6
Sound	44	1.063	16.5
Tyson	43	1.066	17.3

[1]Chip colour with a value >50 and without defects is acceptable for the dry chip industry.
[2]Specific gravity (SG) of ≥1.075 is acceptable to the processing industry.
*[3]The percentage of dry matter (DM) is a calculated value: DM% = 24.182 + 211.04 * (SG-1.0988). Based on this calculation value, the actual percentage value will differ slightly among cultivars.*

the same from one season to the next. Therefore, it is important to consider consistent cultivar performance across seasons instead of making decisions based on just one season's good performance. Sound currently exhibits the least variation throughout 2020 to 2024 in the Petrusburg cultivar trial (*Figure 8*).

Finally, processing characteristics can also be evaluated when observing the internal quality of potatoes. To comply with processing requirements, cultivars have to comply with a chip colour norm of >50 and a specific gravity (SG) of ≥1.075 (*Table 5*). Amany and Cayman met the chip colour and SG requirements, but unfortunately brown spot was detected in Amany.

Special thanks to the co-worker, Lushof Farm, the Southwestern Free State working group, participating seed suppliers (FPD, GWK, RSA and Wesgrow), and Anjé Venter and Laryssa van der Merwe of Potatoes SA. For enquiries, contact Enrike Verster at enrike@potatoes.co.za or Laryssa van der Merwe at laryssa@potatoes.co.za.

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Let's talk about drip on potato

Although drip irrigation is not yet widely practised in potato production, its adoption is steadily increasing along with knowledge of its successful application. Netafim is driving this process, which is why the company's business units worldwide have been actively involved in potato drip irrigation trials for some time.

In order to support potato producers in their drive for increased sustainability, it is necessary that all role-players acquire extensive knowledge regarding product application, irrigation, fertigation management, and many other relevant aspects. This includes knowledge regarding the use of machinery for the layout and retrieval of driplines, and recycling solutions for used driplines.

Transforming potato production

Our team had the privilege of attending the 2024 Potatoes SA Congress and Seed Potato Grower's Forum. "It was an excellent experience, and I was especially inspired by the high level of research being conducted in the industry," said Charl van Reenen, agronomy manager at Netafim South Africa. "We were welcomed into discussions and immediately encouraged by the industry's willingness to engage in conversation. I realised just how dynamic the potato industry is."

The industry has made significant progress in adapting to current conditions and increasing sustainability. However, there is considerable room for improvement regarding the water and energy efficiency of commercial potato production in South Africa. Challenges such as increased heat stress due to erratic climate conditions, greater disease pressure, and water scarcity need to be addressed. Drip irrigation can serve as a bridge to help producers navigate these challenges.

A good investment

While the high initial cost of drip irrigation is a concern, experience and user feedback indicate that the initial investment, though substantial, is quickly offset by long-term savings from reduced water and fertiliser usage, increased yields, and lower disease incidence, making it a profitable investment.

Drip irrigation offers more than just reduced water usage. By prioritising efficiency and precision, it has the potential to transform potato production into a sustainable and profitable enterprise, ensuring that potato producers meet growing demand while advancing sustainability efforts.

We encourage the industry to consult with our experts to learn more about the potential impact that drip irrigation can have on your farm.

Charl van Reenen, agronomy manager at Netafim SA, and Jovan Erasmus, agronomist at Netafim SA, at the Netafim stand at the 2024 Potatoes SA Congress and Seed Potato Grower's Forum.

Black frost devastates Limpopo crops

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

The agricultural sector in Limpopo, particularly in the Capricorn and Waterberg districts, recently experienced significant setbacks due to an unusual cold front resulting in black frost. This rare weather phenomenon has severely affected many developing producers, including those participating in support programmes facilitated by Potatoes SA and the Department of Land Reform and Rural Development under the Community Economic Development (CED) programme.

Impact on the EDM

The enterprise development model (EDM) provides crucial support to developing producers, especially in terms of potato seed, fertilisers, and chemicals. This model aims to sustain and expand the agricultural activities of these producers. Potatoes SA, in partnership with the Department of Land Reform and Rural Development through its CED programme, funded 16 projects in the Molemole and Blouberg municipalities within the Capricorn district.

This funding covered essential inputs and utilised different irrigation systems such as drip and pivot irrigation. However, the cold conditions forced producers to plant late in July and early August, which is relatively late for this area. This affected funding as producers suffered other cash crop losses as well that would have assisted in covering working capital costs such as fuel, electricity, labour, machinery hire, and packaging materials for potatoes.

A crop affected by black frost on a farm in the Blouberg municipal region.

Impact of black frost

The cold front and subsequent black frost during the last two weeks of June and the first two weeks of July caused unprecedented damage to crops in the region. Such conditions are rare for these areas, which typically do not experience severe frost. The impact was particularly significant for producers who planted between March and July, as the frost coincided with critical growth stages for many crops.

Producers in the Blouberg municipal region were on the verge of harvesting when frost struck, almost wiping out their crops. In Molemole, a second-year participant in the EDP saw his almost-ready crops partially affected. Cecilia Mamabolo, a new producer in the Radium area of the Waterberg district, faced challenges with frozen irrigation systems but managed to mitigate significant losses through external support.

Meanwhile, other developing producers planting on relatively smaller scales of 1 to 3ha expressed concerns regarding continuing potato production due to the recent black frost impact. In the Vhembe district, Walter Mathidi of Vivo lost his entire 17ha crop and is considering cutting labour costs to maintain liquidity.

Assessment and mitigation

A preliminary assessment confirmed the extensive damage caused by the frost, which affected especially producers who planted in mid-May. However, support systems and timely interventions helped mitigate the overall impact. On 19 July, a member of the executive council, Nakedi Kekana, visited Blouberg to monitor the effects of the frost and engage with severely affected producers. The visit underscored the importance of government involvement in assessing and addressing the impact of such adverse weather conditions on the agricultural community.

The recent conditions have highlighted the vulnerabilities of the agricultural sector in Limpopo. While the enterprise development model and support from the Department and Potatoes SA have provided a safety net, the unusual weather patterns nevertheless underscore the need for adaptive strategies and robust risk management practices.

Continuous support, timely planting advisories, and investment in resilient agricultural practices is essential for safeguarding the livelihoods of developing producers in the region. It is crucial to conduct a thorough assessment of losses to present a realistic picture rather than a hybrid one. Understanding the market impact caused by such frost and calculating the losses accurately are imperative for future planning and support strategies.

For more information, email the author at rachichi@potatoes.co.za.

Training of emerging producers in Limpopo

By Rotondwa Raligidima, Potatoes SA

Important information regarding the July planting season was conveyed to 16 emerging producers during a training session held at the Cornerstone Boutique Hotel in Mogwadi, Limpopo on 4 and 5 July this year. Potatoes SA was appointed by the Department of Agriculture to implement these projects. The Agricultural Research Council (ARC) conducted the training, which the Department funded under its Cooperative and Enterprise Development (CED) programme.

For the past two years, Potatoes SA has collaborated with the former Department of Agriculture, Land Reform and Rural Development, now the Department of Agriculture, to support emerging potato producers in Limpopo. This support includes providing production inputs, and assistance in respect of mechanisation, mentorship, and training. Sixteen projects benefited from this support during the planting season.

During day two of training. Sidwell Tjale from the ARC explained to producers the importance of soil preparation.

The two-day training offered both theoretical and practical insights into potato farming. On the first day, ARC experts presented detailed information regarding various aspects of potato production including an introduction to potato production and husbandry, and post-harvest handling.

This comprehensive session was aimed at laying a strong foundation for the producers, ensuring that they understand the scientific principles and best practices behind successful potato farming. Following the training, producers gave positive feedback and expressed their appreciation for the valuable knowledge and practical advice they received.

Practical application skills

The second day of the training focussed on practical aspects. Producers had the opportunity to apply the knowledge gained from the previous day in a hands-on environment. This session included demonstrations regarding soil preparation, fertiliser application, planting methods, and ridging. Producers showcased their understanding by practically demonstrating various techniques, such as land preparation and planting with attention to depth and spacing. By engaging in these activities, producers were able to better grasp the practicalities of potato farming and learn how to implement these practices on their farms.

The ARC commended the producers for their active participation during the training, highlighting their knowledge and passion for potato production. They also recommended that producers form study groups to share challenges and support each other in overcoming them.

This training is a vital step towards increasing the productivity and profitability of emerging producers in the potato industry. By providing both theoretical and practical knowledge, Potatoes SA and the Department, with the support of ARC, are helping to build a sustainable future for these producers. The skills and techniques learned during this training will not only improve their current farming practices, but also contribute to the overall growth and development of the potato industry in the region.

Long-term investment

The success of this training underscores the importance of ongoing education and support for emerging producers. As Potatoes SA advances with project implementation, the groundwork done during this training will be pivotal for achieving long-term success and sustainability in potato production. It is hoped that the impact of this training will be evident in the producers' fields, as they will possess the knowledge to manage their crops from planting to harvest. Best wishes are extended to the producers for a bountiful crop and a successful harvest.

The Department of Agriculture's invaluable support and funding through the CED programme, which made this training possible, is greatly appreciated. Their commitment to the development of emerging producers and the agricultural sector will have a lasting impact on the community.

For more information, email the author at rotondwa@potatoes.co.za.

Potatoes for a healthy heart: Nutritional insights and tips

By Sheila Makgato, Potatoes SA

Every September, we celebrate Heart Awareness Month. This month is dedicated to raising awareness regarding cardiovascular disease in South Africa, culminating on World Heart Day on 29 September. The campaign serves to emphasise the importance of heart health and a healthy lifestyle.

Potatoes are a heart-healthy and tummy-satisfying addition to any diet. They are packed with essential nutrients such as vitamins C and B6, potassium, magnesium, folate, iron, and fibre, making them a nutrient-dense option.

Potassium and fibre benefits

Potassium helps counteract and balance sodium in the body, which is the main cause of hypertension. It does this by excreting sodium through urine. As a heart-healthy nutrient, potassium reduces the risk of hypertension, which can lead to heart disease. Consuming potassium-rich foods such as potatoes can lower the chances of developing heart disease.

Fibre is well known for its benefits to gut health, but it also plays a crucial role in promoting heart health. It helps reduce cholesterol and stabilise blood sugar levels, contributing to a healthy heart. Foods such as potatoes, especially with the skin on, are high in fibre. Most of the fibre is found in the potato skin, which contains approximately half of the dietary fibre. Interestingly, baby potatoes have a higher fibre ratio, making them a smart choice for diets.

Good carbohydrates

According to the food-based dietary guidelines (FBDG) for South Africa, carbohydrates should be part of most balanced meals. The FBDG aims to promote the intake of sufficient dietary carbohydrates from minimally processed, traditional and indigenous foods rich in starch, such as some root vegetables including potatoes, whole grains, cereal products, and legumes. Good carbohydrates do not raise blood glucose levels quickly, unlike bad carbs such as biscuits and sugary sodas, which cause rapid spikes.

South Africa's diverse culture extends to its cooking, allowing for versatile meal preparations. Making potatoes the star and base of home-cooked meals, when prepared healthily, can increase nutrient intake and positively impact heart health, not forgetting that they are tasty too.

According to the Heart and Stroke Foundation South Africa, 80% of heart diseases occurring before the age of 65 can be prevented by eating well, staying active, and not smoking. Potatoes have long been an important, cost-effective source of energy, nutrition, and satiety in the South African diet. As the most important vegetable crop in South Africa and one of the world's most recognised staple foods, potatoes continue to play an important role in diets, health, and well-being.

For more information, contact the author at sheila@potatoes.co.za and be sure to visit *www.potatonation.co.za* for delicious recipes and information regarding potatoes.

Belastingskok by die beëindiging van vruggebruik

Deur Rynoe Smith

Kleinjan erf 'n plaas by sy pa, Piet, onderhewig daaraan dat sy ma, tannie Annie, lewenslange vruggebruik geniet. Kleinjan boer voort en betaal aan tannie Annie 'n maandelikse inkomste of haar huur in die aftreeoord. Almal is tevrede (behalwe miskien klein Annie) tot tannie Annie sterf en die Ontvanger sy deel opeis.

Neem aannames in ag

Klein Annie erf tannie Annie se boedel om te vergoed vir die plaas wat Kleinjan geërf het. Tannie Annie het beleggings van R2 miljoen, wat bestaan uit erfgeld van haar man en geld wat sy self bymekaargemaak het. Kleinjan het destyds by oom Piet se afsterwe R1 miljoen se boerderybates (vee en implemente) geërf.

Ons gebruik die volgende aannames:

- Tannie Annie se ouderdom toe oom Piet oorlede is: 62 jaar volgende verjaarsdag (vv).
- Tannie Annie se ouderdom by haar afsterwe: 82 jaar vv.
- Kleinjan se ouderdom by tannie Annie se afsterwe: 56 jaar vv.
- Waarde van plaas by oom Piet se dood: R2 500 000.
- Waarde van plaas by tannie Annie se dood: R7 000 000.
- Tannie Annie se maandelikse inkomste wat deur Kleinjan betaal is: R15 000.

Artikel 3(2)(a) van die *Boedelbelastingwet, 1955 (Wet 45 van 1955)* bepaal dat enige vruggebruik (en ander soortgelyke regte) wat 'n persoon by sy/haar dood geniet het, 'n bate sal wees in sy/haar boedel. Artikel 5(1)(b) bepaal hoe die waarde van so 'n reg (in dié geval, vruggebruik) bereken moet word.

Die artikel bepaal dat die beëindigingswaarde van die vruggebruik bereken word deur die markwaarde van die eiendom waaroor die vruggebruik geniet is, te kapitaliseer teen 12% oor 'n faktor wat die lewensverwagting van die eienaar (Kleinjan) of 'n korter tydperk verteenwoordig. In hierdie geval is dit R7 000 000 x 12% x 7.14414 = R6 001 077. Hierdie waarde mag egter nie die markwaarde (R7 000 000) minus die eienaarswaarde (toe die reg by oom Piet se dood geskep is) oorskry nie.

'n Laer persentasie belasting

Die vruggebruikswaarde by oom Piet se dood was R2 500 000 x 12% x 7.16020 = R2 148 060. Die eienaarswaarde was R2 500 000 – R2 148 060 = R351 940. En R7 000 000 – R351 940 = R6 648 060. Ons gebruik dus die kleinste van R6 001 077 en R6 648 060 vir ons berekening – met ander woorde R6 001 077 – as die waarde vir boedelbelasting.

Die Kommissaris van Inkomste laat jou toe om 'n laer persentasie as 12% te gebruik indien jy hom kan oortuig dat die bate 'n laer opbrengs gelewer het. Kleinjan kan moontlik wegkom met 2.6% (maandelikse inkomste van R15 000 per maand wat hy aan tannie Annie betaal het as 'n persentasie van die kapitaal, naamlik R7 miljoen). Enige verbeterings wat hy aan die eiendom aangebring het, is ook aftrekbaar van die waarde.

Gebaseer op bogenoemde, sal tannie Annie se belasbare boedel as volg lyk:

• Eie bates	R2 000 000
• Beëindigingswaarde van vruggebruik	R6 001 077
• Totaal	R8 001 077
• Korting (Artikel 4A)	R5 648 060*
• Belasbare boedel	R2 353 017
• Boedelbelasting @ 20%	R470 603

Artikel 11 van die *Boedelbelastingwet* bepaal verder dat die persoon wat die voordeel ontvang, proporsioneel verantwoordelik sal wees vir die boedelbelasting daarop. Dus sal Kleinjan verantwoordelik wees vir 75% van die boedelbelasting en die boedel vir 25%.

Verkoop eerder vruggebruik

Indien Kleinjan die plaas sou verkoop of aan iemand anders as sy gade laat vererf, sal daar 'n kapitaalwinsimplikasie wees. BTW kan ook 'n probleem wees met vruggebruik, afhangend van die omstandighede.

Dit kan vir 'n vruggebruiker voordelig wees om eerder die vruggebruik gedurende sy/haar leeftyd aan die eienaar te verkoop, as om dit te laat vererf of dit te skenk (met gevolglike skenkingsbelasting).

** 'n Gedeelte van die artikel 4A-korting is reeds by oom Piet se dood gebruik. In ons voorbeeld word geen verdere kortings in ag geneem nie.*

Vir meer inligting, kontak Rynoe Smith, welvaartbestuurder: PSG Wealth, Preller Walk, by rynoe.smith@psg.co.za of 082 453 3320.

Employee versus independent contractor

By Anneline Scriven, legal advisor, LWO Employers Organisation

Independent contractors are appointed to perform work or provide a specific service to another person or business. They are not employees of the employer as they perform the work under their own business and is regarded as a service provider. Furthermore, the independent contractor is not obligated to perform the work him- or herself and may make use of assistants or employees to assist or perform the work.

An employee, on the other hand, is defined in the *Basic Conditions of Employment Act, 1997 (Act 75 of 1997)* as any person, excluding an independent contractor, who works for another person or for the state and who receives, or is entitled to receive, any remuneration; and any other person who in any manner assists in carrying on or conducting the business of an employer.

Labour law governs the employment relationship, protecting the employee and not the independent contractor. Independent contractors need to approach the civil courts if there is a dispute regarding the contract/agreement, work done, payment, etc.

What does the law say?

The *Labour Relations Act, 1995 (Act 66 of 1995)* sets out that, until the contrary is proven, a person who works for or renders services to any other person is presumed, regardless of the form of the contract, to be an employee if any one or more of the following factors are present:

- The manner in which the person works is subject to the control or direction of another person.
- The person's hours of work are subject to the control or direction of another person.
- In the case of a person who works for an organisation, the person forms part of that organisation.
- The person has worked for that other person for an average of at least 40 hours per month over the last three months.
- The person is economically dependent on the other person for whom he or she works or renders services.
- The person is provided with tools of trade or work equipment by the other person.
- The person only works for or renders services to one person.

Earning threshold aligned

This is not applicable if the person earns in excess of the earning threshold (currently set at R254 317.67 per annum). If any one of the aforementioned factors are present, the employer has the duty to rebut the presumption and prove that the person is not an employee but rather an independent contractor.

If the work arrangement involves persons who earn amounts equal to or below the earning threshold, any of the contracting parties may approach the Commission for Conciliation, Mediation and Arbitration to make an advisory award on whether the person involved in the arrangement is an employee.

Have a contact in place

While the wording of the employment contract is important, the true nature of the relationship between the parties is even more so. Employers are urged to ensure the terms of employment contracts are correctly worded. Equally as important is having a written independent contractor's agreement in place with the service provider when using independent contractors.

For more information, send an email to anneline@lwo.co.za or info@lwo.co.za, or visit *www.lwo.co.za*.

During June and July 2024, a total of 15 potato producing regions as well as non-producing suppliers delivered potatoes nationally to fresh produce markets.

Average percentage downgraded: **7.87%.**

Total number of bags delivered from 15 regions and non-producing suppliers and inspected at the fresh produce markets: **12 938 668.**

Figure 1: Classes of potato bags inspected during Jun/Jul 2024 at all fresh produce markets.

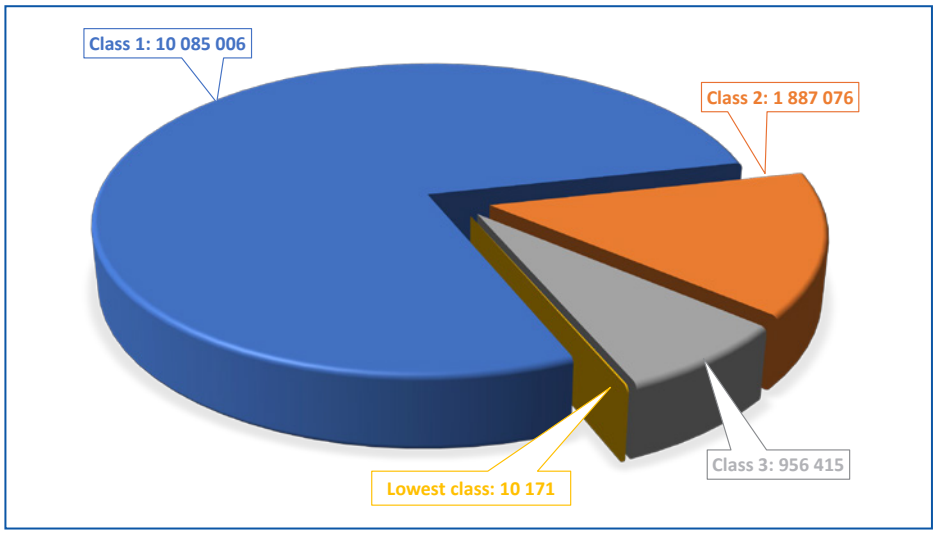


Figure 2: Classes of potato bags downgraded (total 1 018 227) at all fresh produce markets during Jun/Jul 2024.

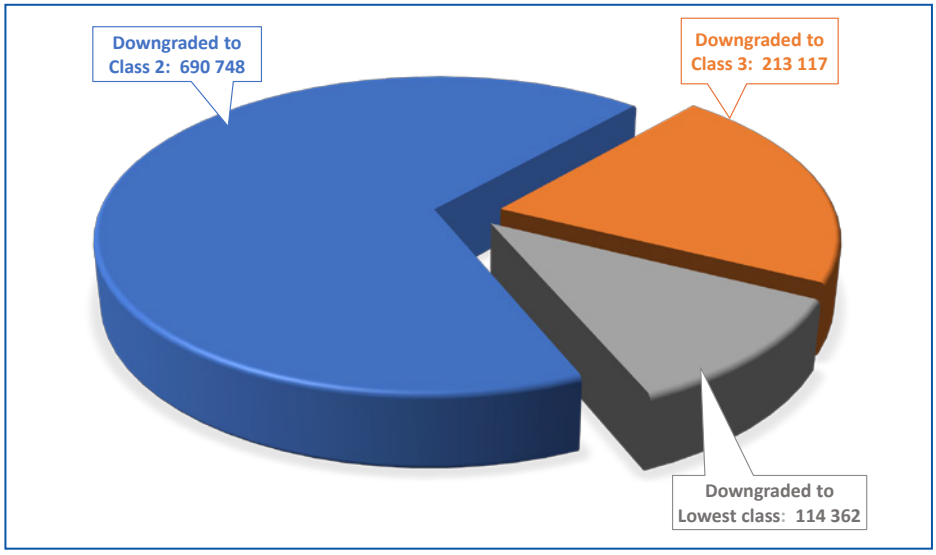


Figure 3: Potato bags downgraded (%) per region at all fresh produce markets during Jun/Jul 2024.

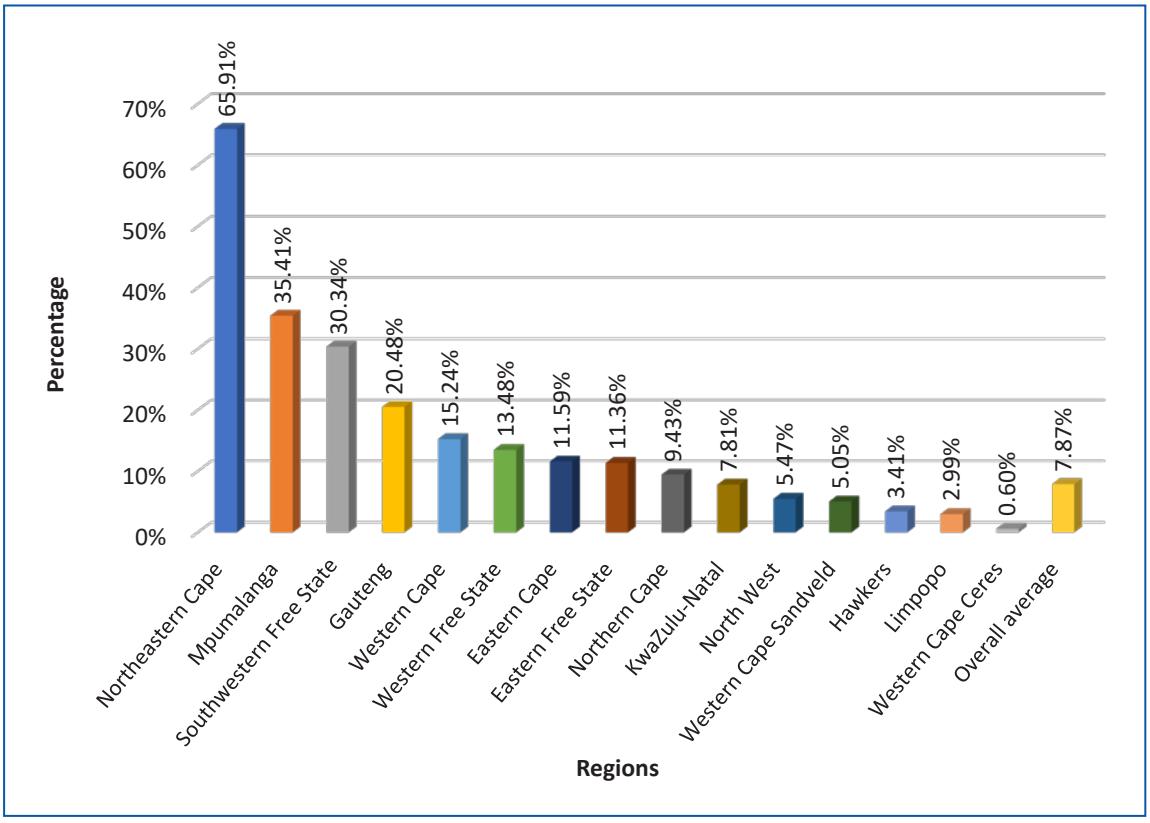
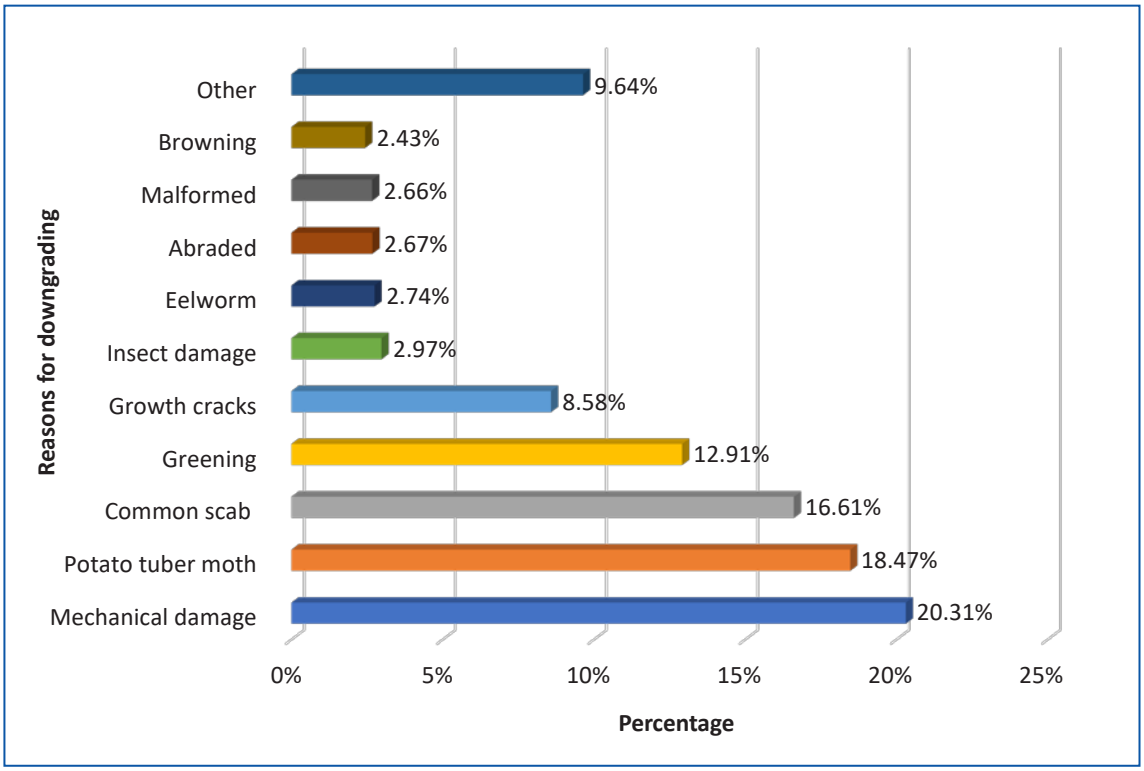
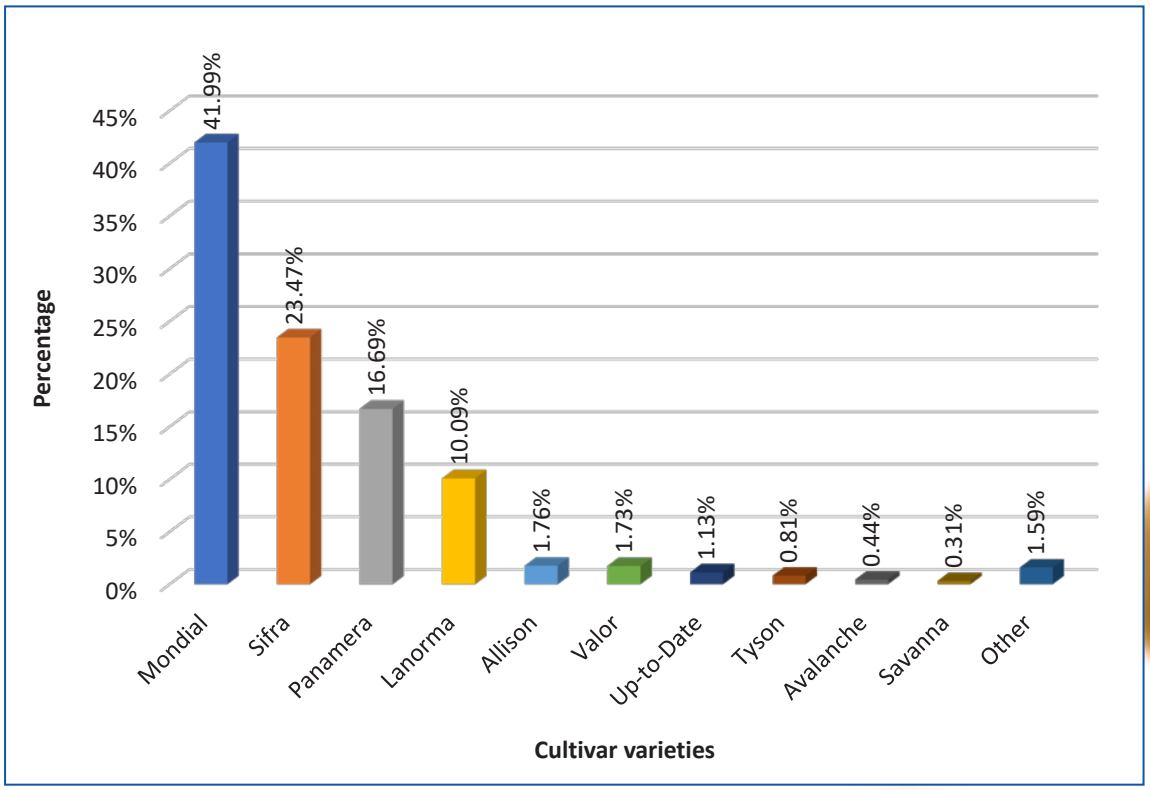


Figure 4: Main reasons for downgrading at all fresh produce markets during Jun/Jul 2024.



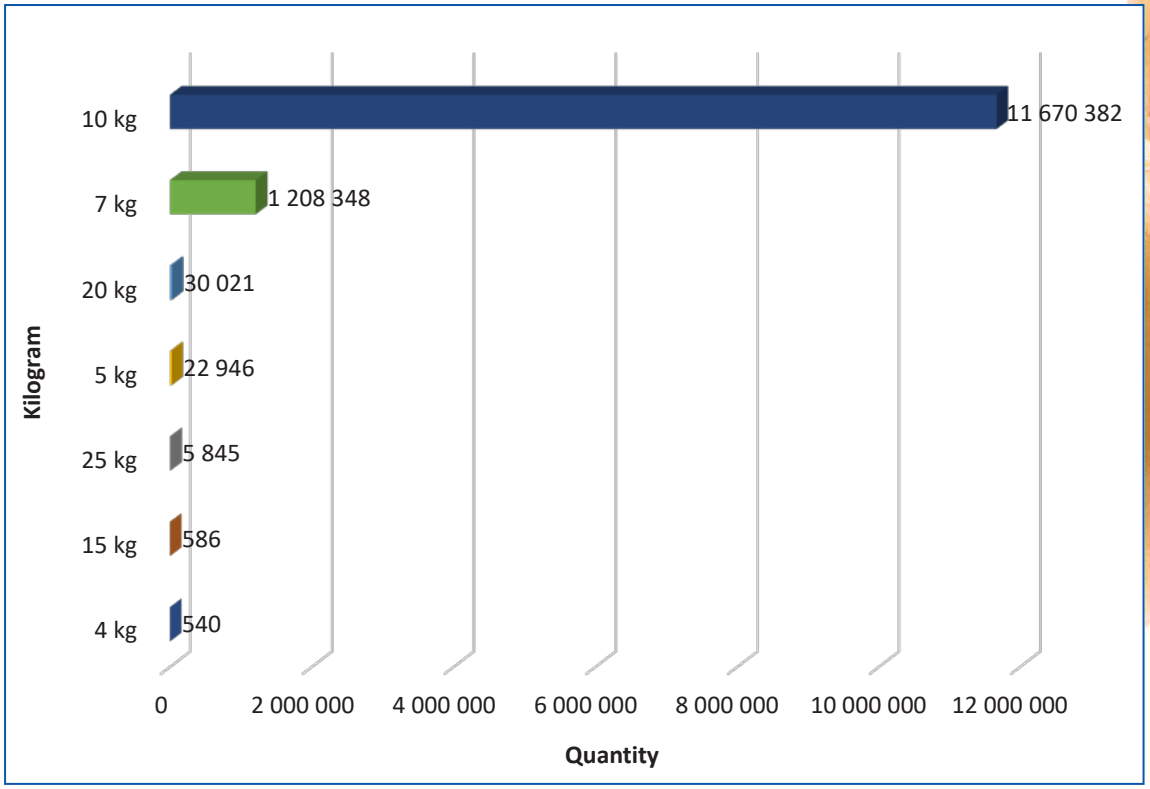
Other includes: *Hollow heart, dry stem-end, too small, brown fleck, skin eelworm, wet decay, wilt, broken and cut tubers, glassiness/watery, soiled, watergrass, damage (ext.), vascular browning, cold damage, collectively too big and small, wet by decayed tubers, sprouts, soiled by decayed tubers.*

Figure 5: Cultivar varieties inspected at all fresh produce markets during Jun/Jul 2024.



Other includes: *Hertha, BP1, King Russet, Markies, Sound, Innovator, Noya, Connect, Russet Burbank, Nicola, Taisiya, Taurus, Fianna, Abby, Lady Rosetta, and Fabula.*

Figure 6: Volumes of different potato bags inspected at all fresh produce markets during Jun/Jul 2024.

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