Potatoes SA Seed Growers' Forum and Congress: Moving towards 2050 production goals

By Phillip Crafford, Plaas Media

The potato industry is an important segment of the agricultural landscape and is facing a big challenge – producing sufficient amounts of potatoes to meet 2050 production targets. With an ever-growing global population, the potato industry must investigate methods to keep up with increasing demand.

Potatoes SA recently hosted its annual Seed Potato Growers' Forum and Congress to find plausible solutions to these questions, and to give recognition to the country's best potato and seed potato producers. Gerhard Posthumus, chairperson of the Seed Potato Growers' Forum, opened the forum which was held on 21 September 2022. He shared interesting potato production statistics, stating that potato production has increased at a constant pace but will have to continue to increase significantly to meet the 2050 production goals.

Reports and new members

Adv Les Kugel, chairperson of the Independent Certification Council for Seed Potatoes (ICCSP), presented the chairperson's report. He stated that one of the biggest accomplishments for the industry over the past three years was the publication of the amended *South African Seed Potato Certification Scheme* in 2021.

This concluded a process which started in 2016 with various sessions with stakeholders and industry role-players. Adv Kugel added that in the amended scheme, greater emphasis was placed on the seed potato grower and his/her responsibilities.

Posthumus reported that the company, Potato Certification Service (PCS), is financially stable and able to continue with its work, despite the effects of Covid-19. He thanked seed potato growers who still adhered to the scheme's regulations and registration process, as this allows the organisation to continue providing quality services to the industry.

Posthumus concluded that the Department of Agriculture, Land Reform and Rural Development (DALRRD) also audits PCS activities and data to ensure adherence to the department's requirements.

Gavin Hill, chairperson of Potato Laboratory Services at Plantovita, said the pandemic highlighted the importance of potato seed certification. The ICCSP has contracted Plantovita as the official control laboratory for the industry. Plantovita is audited by third parties in order to guarantee the transparency and impartiality of its testing methods.

Following the chairpersons' reports, Posthumus was re-elected as chairperson. He, along with Sanette Thiart, managing director of the Potato Certification Service (PCS), awarded certificates to certification officials who fully qualified on all aspects of certification in the reporting period. The recipients were Ngwedi Legodu, HW Coen and Tristan Pillay.

Certification scheme is world-class

Dr Nigel Crump, general manager and principal scientist of the Australian Seed Potato Industry Certification Authority (AuSPICA), spoke about the scheme from an outsider's point of view. Dr Crump said the Australian scheme is similar to South Africa's, yet the Australian production market is far smaller than ours.

The Australian scheme is limited to five generations and their database includes GPS tracking on the fields. Dr Crump highlighted that no matter which technologies are used, the most important factor will always be the quality of the seed potatoes used in production.

Sanette Thiart, managing director of the Potato Certification Service.

Charles Miller, commercial director of Solynta – Hybrid Potato Breeding.

He believes that a good certification scheme consists of four pillars – regulation, research, education and support. A certification scheme's

Gerhard Posthumus, chairperson of the Potatoes SA Seed Potato Growers' Forum, with Ngwedi Legodu of the Potato Certification Service. Legodu was awarded a certificate for her authorisation as a fully qualified certification official. (Photograph: Potatoes SA)

Gerhard Posthumus, with HW Coen of the Potato Certification Service (PCS). Coen was awarded a certificate for his authorisation as a fully qualified certification official. (Photograph: Potatoes SA)

Gerhard Posthumus, with Tristan Pillay of the PCS. Pillay received a certificate for his authorisation as a fully qualified certification official. (Photograph: Potatoes SA)

success, he said, also depends on the co-operation and support it receives from commercial growers, and whether it is relevant to the seed potato growers and end users.

He said the scheme is modern (e.g. includes provision for true potato seed or TPS), is technologically advanced and supported by strong diagnostics, current and comparable to other schemes globally. He concluded by saying the South African scheme is a world standard seed certification scheme. The entire industry should celebrate the value certification it provides as it directly ensures commercial quality for planting, and indirectly manages the significance of pests and diseases. He added that people make it happen and quality is not an act – it is a habit!

New bio-treatments for soil health

Albert Schirring, strategy lead of vegetables and potatoes at Bayer Crop Science, discussed the importance of soil health, not only in respect of seed potato cultivation, but for commercial general potato production as well. Schirring said soil health can be defined as the continued capacity to function as a vital and living ecosystem that sustains plants, humans and animals.

Soil health consists of three indicators, namely physical, such as soil structure and water holding capacity, biological, such as the presence of micro- and macro-fauna, and chemical, such as the pH balance of the soil.

Innovation in cultivar development

Charles Miller, commercial director of Solynta – Hybrid Potato Breeding, discussed the pioneering of hybrid true potato seed (HTPS) as a method of food production in Africa. Miller added that the potato industry is under constant pressure to produce seed potatoes with reduced water requirements, which can mitigate climate change and produce more in order to meet the 2050 production goals.

He said hybrid potato breeding offers tremendous genetic potential compared to traditional potato breeding. Hybrid breeding creates TPS, and true variant seeds are genetically safer than hybrids and speed up the innovation process for growers.

New cultivar breeding technologies

Genetically modified material (GMO) remains a heated topic in agriculture as it has gained a negative reputation due to incorrect application thereof. Andrew Bennett, chief executive officer (CEO) of the South African Cultivar and Technology Agency (Sacta), spoke about gene editing, a form of GMO technology.

Bennett explained that, when one looks at the United Nations' Sustainable Development Goals (SDGs), zero hunger and good health are what the agricultural sector has to continuously work towards, especially in light of the 2050 production goals of producing nutrient-dense food for an ever-increasing population with ever-decreasing agricultural land. New plant-breeding technologies, such as site-directed nuclease technology (SDN), can assist with catching up on SDGs.

He added that with SDN certain characteristics can be removed or deleted from the genetic makeup of potatoes and CRISPR-Cas-9 technology can offer solutions to meet future demands.

The proceedings concluded with a panel discussion by the day's speakers. Pieter Geldenhuys, futurist and director of the Institute for Technology Strategy and Innovation, led the panel. Members discussed the plausibility of being able to meet the 2050 production goals set for the potato industry.

Potatoes SA chair and CEO reports

JF van der Merwe, the outgoing chairperson of Potatoes SA, presented his report during the Potatoes SA Congress held on 22 September 2022. The price of potatoes on national markets still beats inflation,

as measured by the consumer price index, he said. The importance of making prices and volumes available to the industry is valuable as it ensures a balance in the industry. Van der Merwe stated that the number of producers, however, is declining due to economies of scale, increased corporate governance, and units of production becoming larger.

While presenting his report, Willie Jacobs, CEO of Potatoes SA, referred to the continuously rising input costs producers have to contend with, and pressure on consumers' purchasing patterns. This was fuelled by the Covid-19 pandemic as well as the conflict in Ukraine.

Jacobs added that since his appointment, there has been a drive to implement as many as possible newly tested techniques, methods and systems in order to establish fixed costs as optimally and cost-effectively as possible. He said the use of technology and digital communication has assisted Potatoes SA in reviewing its communication channels and circulating valuable information to industry role-players and producers. Transformation also didn't stand still, with 16 commercial projects running successfully over the past three years.

After the proceedings, it was announced that Van der Merwe was retiring as chairperson and Gert Bester was elected as the new chairperson of Potatoes SA.

Potatoes on the global market

Porter discussed the world potato markets and changes over the past few decades. He is the editor of the weekly *World Potato Markets*. South Africa, he said, is an important and large potato producer, with production having increased by 24% in the last decade. Porter added that Africa as a whole has the potential to plant multi-crops in season. If South Africa continues at this pace, it will be able to meet the 2050 production goals.

In Europe there is an over-reliance on Germany, France, Belgium and the Netherlands to produce potatoes. He believes, however, that there aren't enough crop rotation systems in these countries, the long-term consequence being potato price increases.

Where will technology lead us?

Technology is playing an increasing role in modern agriculture and can assist industry with sustainable development. Pieter Geldenhuys discussed what shape the future could take with technologies that are currently available and those that are yet to come. Current technologies assist in enhancing soil health, which is a vital element to potato production. Geldenhuys added that demand is outstripping supply as the global population has increased by one billion people over the last decade.

Technology is important as it can identify current consumer demands and trends and create new applications accordingly. Epigenetics can assist with identifying DNA strains that cause certain diseases and can ultimately eliminate any material in potatoes that is harmful to humans.

Value of AI in potato production

The development of artificial intelligence (AI) is currently at a pace that will erase 50% of known jobs today, said Simcha Shore, founder and CEO of AgroScout. Shore said AI has created the next revolution in agriculture with robotics, but unlike the previous industrial revolution, it won't create jobs. The focus is on technologies that will increase yields. Agricultural supply, he said, would have to increase by 60% in order to meet 2050 production goals.

Shore said AI can be categorised in three types, namely machines that are taught algorithms for human-like problem solving; machine learning, where the ability to identify patterns in data is taught; and deep learning, where machines are taught to imitate human thinking with deep thinking and logical solutions. These technologies can assist agriculture with collecting data, identifying issues and solutions, and disease management.

Pieter Geldenhuys, director at the Institute for Technology Strategy and Innovation, facilitated a panel discussion with speakers Pieter Burger, digital agricultural services lead at Syngenta, Bruce McKenzie, portfolio lead at Syngenta, Cedric Porter, director at Supply Intelligence, and Simcha Shore, founder and CEO of AgroScout.

Willie Jacobs, CEO of Potatoes SA. (Photograph: Potatoes SA)

Protecting crops for 2050

Bruce McKenzie, portfolio lead at Syngenta in Africa and the Middle East, stated that the South African potato industry's regulations are used by other countries as a template for their own. These regulations will aid in shaping the future of the potato industry since 2050 is around the corner and there are high expectations that have to be met.

McKenzie added that recent global events have added additional challenges to industry's drive to increase yields. Increasing water issues and the rising global population add additional stress on to the industry to produce more than what calculated predictions

indicate, which is that food demand will likely increase by 70% by 2050.

The potato's adaptability, yield potential and nutritional contribution, he said, makes it a particularly good crop for diversified, sustainable future cropping systems.

Agriculture's best friend

Pieter Burger, digital agricultural services lead at Syngenta, said there is a need for technology to be more accessible at farm level, which will aid greater yields. He referred to the various stages of how agricultural technology originated namely human and animal power, followed by machinery and crop protection, then information technology followed by AI and lastly, stage five with machine learning and alternative energy sources.

Burger added that the technologies of stage five must be easily accessible in order for it to be successfully used in agriculture. Furthermore, methods such as next generation weed control, automation of farm implements, and drone swarming will be some of the available technologies in the near future. However, AI isn't the only method of meeting higher future demands and alternative protein sources and crop cultivar development will soon play a bigger role.

As 2050 nears, crop consumption is on the increase and production must match demand and continue to stimulate it. During the course of the congress, soil health was identified as vital to this endeavour and was front and centre during a panel discussion involving the speakers.

Solanum Tuberosum Meritum Awards

The Solanum Tuberosum Meritum Awards are highest accolades to be conferred in the South African potato industry and these awards were handed over at a special function. Jacobs explained that these awards are made to individuals or organisations who, with their excellent performance, have made a significant contribution to the success of the potato industry and strive to take the lead in sustainable potato production in South Africa.

The recipients are recognised by the industry for their continued performance and commitment to the interests of the industry. Recipients of this year's Solanum Tuberosum Meritum Awards are:

- Faan Muller, former potato producer. The award was awarded posthumously, and André Coetzee received it on his behalf.
- Dr Fienie Niederwieser, Potatoes SA (retired).
- Jan van Zyl, Potatoes SA.
- JF van der Merwe, outgoing chairperson of Potatoes SA.

Gert Bester, new chairperson of Potatoes SA, with JF van der Merwe, former chairperson of Potatoes SA.

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