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QUARTERLY



Falling number in wheat grading

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Generic passport system: Yay or nay?

Understanding JSE grain storage rates

Workplace noise monitoring and surveys



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EDITORIAL COMMITTEE

Editor

Wessel Lemmer
071 354 2948
wessel@agbizgrain.co.za

Agbiz Grain Steering Committee

012 807 3002
annelien@agbizgrain.co.za

Publisher

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

Chief executive officer

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

Deputy editor

Jayne du Plooy
jayne@plaasmedia.co.za

Subeditor

Nanette Botha
nanette@plaasmedia.co.za

Layout & design

Inge Gieros
inge@plaasmedia.co.za

Sales manager & accounts

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

Advertisement sales

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

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

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

Subscriptions

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

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Published on behalf of

Agbiz Grain
012 807 3002
1st floor, Grain Building,
477 Witherite Road,
The Willows, Pretoria
Email: annelien@agbizgrain.co.za
www.agbizgrain.co.za

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Making history today

By Wessel Lemmer, general manager, Agbiz Grain

Robert Bruner, former dean of the Darden School of Business, said that business history builds the capacity to assess any context. It broadens business leaders' frame of reference, provides insight into the evolution of industry structures, and sheds light on government-business relations, corporate culture and business ethics. It also strengthens the ability to anticipate what might lie ahead. History provides an identity and frame of reference for leaders to understand the world.

During the 2021 Agbiz Grain Symposium, Prof Johann Kirsten, director of the Bureau for Economic Research at Stellenbosch University, said the handling and storage sector is not well-known. Yet Agbiz Grain and its predecessors have played a significant role in the grain and oilseeds economy since 1910 as one of the oldest formal structures in organised agriculture.

The legacy of storage operators and their personnel spans 114 years since the establishment of the Sentrale Agentskap vir Koöperatiewe Verenigings, the introduction of the Uniegraan Koöperatiewe Maatskappy Beperk in 1935, and the establishment of the Grain Silo Industry (Pty) Ltd (GSI) in 1998, as well as Agbiz Grain at the end of November 2014. Significant contributions have been made over more than a century.

Early exports

After the establishment of a significant number of co-operatives in the Transvaal in 1909, following a maize surplus that exceeded demand in Johannesburg, the government and the Landbank van Transvaal set up the Sentrale Agentskap vir Koöperatiewe Verenigings which was soon taken over by the same co-operatives in Transvaal. This entity acted as a distribution and marketing agent for their members.

In 1933, Colonel Williams, the manager of the agency, signed contracts for export

prices that were too low and unacceptable to the co-operatives. They refused to supply the agency with maize. As a result, the agency was liquidated in 1934 and Uniegraan Koöperatiewe Maatskappy Beperk was established in 1935.

Uniegraan initially issued 6 000 shares to the De Centraal Westelike Cooperatiewe Landbou Vereniging in Klerksdorp and the Oostelike Transvaalse Landbou-Koöperatiewe Vereniging in Bethal on 4 June 1935. The Reitz Koöperatiewe Landbouvereniging joined in 1936 and the Lichtenburg Koöperatiewe Landbouvereniging in 1938.

Control boards intervene

The intervention of the control boards in the 1944/45 season meant that Uniegraan could not manage the sale of maize on behalf of member associations. Uniegraan acted as the mouthpiece of these associations, stating that it was essential to do everything possible to organise the co-operative movement as a single body. Only then would it be possible to force the government to lift the control measures on the maize industry and leave the distribution of maize to the co-operative movement.

The government control boards were a major threat and the board decided to invite non-affiliated associations to become members of Uniegraan. From 1945 an additional 21 co-operatives had joined Uniegraan, with a number of them merging with existing members. Over the next 15 years, Uniegraan gained 15 additional members (up until 1960) and another five members between 1971 and 1974. The last share certificate was issued in 1978 to the Vrede Koöperatiewe Landboumaatskappy, which merged with Vrystaat Koöperasie Beperk.

Market mechanisms

Uniegraan made a significant contribution towards developing the market for bulk storage and handling in South Africa,

and supported free-market principles in agriculture and the deregulation of marketing schemes. Any government intervention should have the least possible distortion in the marketplace.

Uniegraan supported the development of market mechanisms such as silo certificates (spot market), South African Futures Exchange (Safex) silo certificates (futures market), Agmex (spot markets) at the time, Safex (futures market), South African Grain Information Service (Sagis), Southern African Grain Laboratory (SAGL), standard contracts for trading and arbitration rules, and standard regulations for the grading of grain and oilseeds.

In 1997, Uniegraan strongly opposed the concept of statutory government intervention in the grain silo industry as proposed by the Land and Agricultural Policy Centre at the University of the Witwatersrand. If accepted, the proposals would have impaired the purpose and essence of the *Marketing of Agricultural Products Act, 1996 (Act 47 of 1996)*.

The silo industry and Agbiz Grain

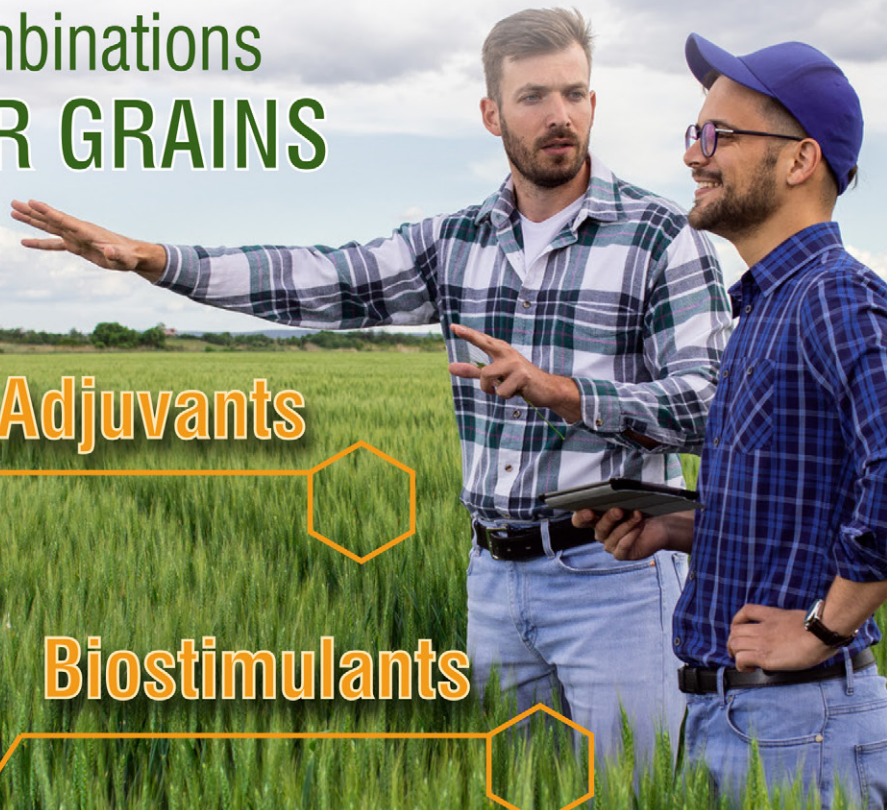
The GSI was established the same year that the government unveiled the *Competition Act, 1998 (Act 89 of 1998)* to govern the structure and conduct of corporate power. After 16 years the GSI was voluntarily liquidated after which Agbiz Grain was established in 2014.

Together, the 12 Agbiz Grain members own 98% of Johannesburg Stock Exchange registered sites, and handle and store approximately 70% of the grain and oilseeds produced in South Africa. This is an average of 13,6 million tonnes handled and stored annually.

Henry Ford said: "The only history that is worth a tinker's damn is the history that we make today." In anticipation of 2024 and what it may bring, let's make a conscious decision to make history together.^a

Send an email to Wessel Lemmer at wessel@agbizgrain.co.za for enquiries.

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Silo unavailability platform more accessible

The Johannesburg Stock Exchange (JSE) recently announced an improved silo unavailability platform, which allows members to see which silos are unable to outload JSE stock for specified reasons. This means that the JSE will no longer be responsible for updating its website, but storage operators will. Mechanisms have been put in place to ensure that the JSE monitors the updates in real-time. The platform can be accessed via the JSE's Client Portal webpage, under the reports section, or by clicking [here](#). – *JSE Market Communications*

Proposed grading regulations disputed

Grain SA, the South African Grain Farmers Association (SAGRA) and the National Chamber of Milling were unable to reach consensus in 2023 on proposed changes to the maize grading regulations. The Agbiz Grain Quality Working Group's final submission to the DALRRD was compiled in the interest of the sector.

DALRRD finalised the proposed changes by Grain SA and the SAGRA, and submit them to the World Trade Organization (WTO) for comment. Agbiz Grain's position was that a consensus should be reached between producers and processors before any changes could be implemented.

Agbiz Grain's query related to which act mandates DALRRD to prioritise one industry over another. We expect that the proposed changes to the maize grading regulations will remain in dispute in 2024. The DALRRD submitted the regulations to the WTO for comments on 23 October 2023. The deadline for comments was 22 December 2023. – *Agbiz Grain*

Peritum accredited to present depot manager course

The Quality Council for Trades and Occupations (QCTO) has set policies in accordance with which it accredits skills development providers (SDPs). This process ensures that education and training in occupations and trades offered in the country are credible and valid, and presented in accordance with the *Skills Development Act, 1998 (Act 97 of 1998)* and the *Continuing Education and Training Act, 2006 (Act 16 of 2006)*.

The QCTO recently accredited Peritum Agri Institute to offer the Occupational Certificate: Grain Depot Manager, for a period of five years (15 January 2024 until 14 January 2029). The accreditation process included a site inspection of Peritum Agri Institute's premises. The course is presented at NQF level 5 and the minimum credit requirement is set at 235. – *Peritum Agri Institute*

Learning modules available soon

Lizelle Jacobs, director of Mind Alive, has been contracted by Agbiz Grain to collaborate with experts to finalise the curriculum question bank for each learning module of the Grain Depot Manager and Grain Grader curricula in 2024.

Completion of the online question bank workshop is expected early this year. Students will be able to enrol through QCTO accredited provider, Agri Peritum Agri Institute, to offer the Occupational Certificate: Grain Depot Manager (NQF level 5) for a period of five years starting 15 January 2024. In the meantime, Agbiz Grain has qualified for financial support on behalf of interested students through the Agricultural Sector Education and Training Authority (AgriSETA). Agbiz Grain members who wish to register their training facilities for student assessment must arrange an inspection with AgriSETA or the Quality Council for Trades and Occupations. Contact annelien@agbizgrain.co.za for more information. – *Agbiz Grain*

Future SHEQ workshops

The Agbiz Grain Safety, Health, Environment and Quality (SHEQ) Committee has identified relevant topics to be addressed each quarter in an online workshop format. As in previous years, this initiative will be led by experts. Santam Agriculture accredits these workshops for continuous professional development (CPD) points – remind your SHEQ manager and staff to register and attend.

In addition, members have identified the need for an in-person mini symposium for Agbiz Grain members in order to network on SHEQ issues. SHEQ matters and legislation in the grain handling and storage sector will be discussed. During a meeting held on 22 January, the requirements were set for the mini symposium which is being planned for September 2024. – *Agbiz Grain*

Possible self-audits in the pipeline

The Agbiz Grain Steering Committee accepted the recommendation of the Agbiz Grain SHEQ Working Group to investigate the possibility of a self-audit of members by a third-party service provider. The goal is to assess compliance with SHEQ-related matters that are important to the insurance and financial sector.

Implementing the self-audit process will be an attempt to curb the escalating cost of insurance and demonstrate the insurability of the handling and storage sector. NWK first raised the issue of the escalating cost of insurance and remedies needed to address it.

The Agbiz Grain SHEQ Working Group, the Aggregate and Sand Producers Association of Southern Africa (Aspasa), and representatives from the insurance and financial sectors will meet at the Grain Building in Pretoria on 14 and 15 March 2024. Agbiz Grain members who have already confirmed their attendance are Kaap Agri, AFGRI, TWK Agri, GWK, VKB, OVK, BKB GrainCo and Overberg Agri.

It is important that the grain handling and storage sector, in collaboration with the financial sector, decides which issues need to be prioritised and addressed. Aspasa will share and facilitate the two-day working session based on its experience and success in open-cast mining. – *Agbiz Grain*

Crime and fraud prevention discussed

The Agbiz Grain Crime Prevention Working Group met online on 18 January 2024. The aim of this working group is to discuss best practices in the prevention of crime and fraud in the grain handling and storage business environment. The outcome of the first meeting already provided strong guidance on the latest and most effective measures to prevent financial losses due to crime and possible future interventions.

Wimpie Nel, an investigator specialising in crimes targeting the grain storage sector, explained the importance of sufficient evidence to secure successful convictions. Wesco Forensic Services, which employs forensic science and legal consultants, also contributed to the discussion. – *Agbiz Grain*

JSE daily storage rate probed

‘In 2011, the Competition Commission (CC) found the Grain Silo Industry (GSI (Pty) Ltd) guilty of breaching the *Competition Act, 1998 (Act 89 of 1998)* by fixing the JSE’s maximum daily storage rate of the South African Futures Exchange (Safex). Since 2008, when the CC investigation started, the JSE has not received input from the GSI to assist in determining the JSE maximum daily storage rate.

In 2011, an independent consultancy was appointed to evaluate the base storage rate for 2012 to determine whether it reflected the actual cost of storage. Since 2012, the basic storage rate has been adjusted annually in line with the producer price index (PPI) of final manufactured goods. The consultancy’s evaluation of the base rate was the result of a survey of the entire industry, not just GSI members. Agbiz Grain has stressed the importance of the JSE assessing the base rate by capturing the relevant actual cost items that contribute to the cost of storage.

The Bureau for Food and Agricultural Policy’s report, *Grain Storage Cost Definitions*, is an attempt to highlight the importance of getting the JSE daily storage rate right. Agbiz Grain strongly recommends that the JSE also acquire the Nel and Schoeman (1991) research report carried out for the Maize Board. – *Agbiz Grain*

Costly inspection services raise concern

The resurrection of the DALRRD plan to introduce inspection services in 2024 is causing concern within the South African grain and oilseeds industry. Stakeholders led by Agbiz Grain argue that these mandated inspection services will impose unnecessary costs on the food value chain. The *Agricultural Product Standards Act, 1990 (Act 119 of 1990)* or *APS Act* is seen as facilitating trade rather than ensuring food safety, and the industry has voluntarily complied with grading regulations for almost 30 years.

Following the deregulation of single-channel commodity boards in the late 1990s, industry forums and trusts were established and a conscious decision was taken not to introduce the inspection services performed by the respective boards, but to introduce SAGL and SAGIS to perform the functions required in a deregulated free market environment. However, the DALRRD appointed Leaf Services as an assignee for inspection services in 2016, disregarding industry advice. Agbiz Grain highlights concerns regarding transparency and lack of industry involvement in the assignee appointment.

Despite an initial lack of co-operation, the DALRRD extended the comment period on Leaf Services’ methodology and fees until 22 January 2024. Agbiz Grain in its comments contends that Leaf Services’ fee structure, set without industry consultation, imposes a financial burden on the industry. Additionally, ambiguities in the *APS Act* could lead to costly legal disputes. Agbiz Grain emphasises the need for fair and transparent discussions to avoid unnecessary expenses for the industry. – *Agbiz Grain*

Didion Milling pleads guilty

Didion Milling Inc of Cambria in Wisconsin in the United States (US), pleaded guilty to two federal criminal charges and agreed to pay millions in restitution for a 2017 explosion at its Cambria mill that killed five workers and injured others, according to the US Department of Justice (DOJ).

Didion Milling and six of its managers and superintendents were charged in May 2022 in a nine-count criminal indictment for its alleged role in failing to ensure work was done to safely handle combustible maize dust and keeping deliberate false records before the explosion on 31 May 2017.

According to court documents, Didion Milling was required to operate 'baghouses', equipment designed to prevent particulate matter, such as maize dust, from being released into the environment from the maize mill. From at least 2015 to May 2017, Didion Milling employees, including shift workers and shift superintendents, made false entries in the mill's 'baghouse logs', disguising data meant to monitor and document whether the mill's baghouse equipment was working properly to filter particulates from the air. – *WORLD-GRAIN.com*

White wheat success for the US

US based Star of the West Milling Co's investment in an agronomy business has not only provided diversification, but also played a crucial role in sustaining white wheat production in Michigan, according to Michael Fassezke, the president of the milling company. Historically, Michigan, along with Ontario and New York, was a significant producer of soft white winter wheat. Today, New York and Ontario contribute very little, but Michigan maintains a 50/50 ratio of white and red wheat.

Star of the West's influence, combined with their relationships with producers, has kept white wheat prominent, especially in the Thumb Region and Saginaw Valley. Fassezke emphasised that their unique market niche relies on soft white wheat's essential qualities for bran and speciality products.

Growers in the region shifted to soft red due to perceived risks such as *Fusarium* head blight and sprout damage. Fassezke clarified that soft white is not more susceptible to *Fusarium* but acknowledged its vulnerability to sprouting. Star of the West addresses this by encouraging early harvesting and offering free drying services.

Despite challenges, Michigan millers, supported by Star of the West, have successfully maintained white wheat plantings. – *WORLD-GRAIN.com*

Quality vs yield: US strikes a balance

Wheat experts gathered at the Wheat Quality Council's annual meeting in Kansas City in the US to emphasise the critical balance between high yields and quality in wheat production. Traditionally, producers prioritised yield, but concerns arise as higher yields may compromise wheat quality.

Steve Wirsching, vice president of US Wheat Associates, stressed the need for the US to enhance wheat quality to maintain its global market standing, especially amid rising geopolitical tensions affecting major exporters such as Russia and Ukraine. Quality, particularly protein content, is vital, yet higher-yielding wheat often exhibits lower protein levels, impacting its suitability for baking.

Adverse environmental conditions, including extreme drought, have challenged wheat cultivation, with 85 to 90% of hard red winter wheat facing drought in Kansas. Despite these challenges, the surviving high-quality winter wheat suggests that plant breeders' investments have been worthwhile.

Various programmes, including the National Wheat Yield Contest and the Kansas Wheat Rx programme, aim to help producers achieve both high quality and yields. By focussing on modern plant breeding and identifying optimal varieties, these initiatives aim to ensure wheat's crucial role in feeding future generations. – *WORLD-GRAIN.com*

Agbiz Grain fumigation workshop: 5 March 2024

The Agbiz Grain Fumigation Working Group is planning a workshop to address pressing concerns regarding regulations and the quality of training for fumigators. These concerns affect fumigation in the grain handling and storage environments. The workshop will be held on 5 March 2024 at Nampo Park in Bothaville, and will include presentations by Dr Gerhard Verdoorn of the Griffon Poison Information Centre and CropLife SA, and Leonard Henning, member of the South African Pest Control Association Board.

Dr Verdoorn will present his views on the range of products available for fumigation, the classification of hazards and risks associated with classes of different fumigants. Henning will present his views on a renewed competence framework for pest control operators, industry self-regulation and CPD. Contact annelien@agbizgrain.co.za for more information. – *Agbiz Grain*

Don't miss the 2024 Agbiz Congress

Emerging from the Covid pandemic in 2020, expectations for a prolonged period of global stability were quickly shattered as the reality of a war in the Black Sea region set in. We have since seen increased conflict around the world, leading to shifts in the geopolitical environment. This has prompted countries to re-examine measures that disrupt global trade, such as export and pricing controls that disrupt global supply chains. Likewise, the global community is battling to contain key plant and animal diseases while the threat of climate change looms.

However, business must go on and businesses must adapt to the changing

global landscape. To reinforce Charles Darwin's theory: It is not the strongest of the species that survives, but the ones that are most adaptable to change.

With this as background, the theme of the 2024 Agbiz Congress deliberately acknowledges the changing global landscape, shifting the focus towards sustaining growth in this uncertain environment. We will start the congress off with a networking golf day on 5 June before delving deeper into the challenges the agricultural sector faces and a way to overcome them.

A relevant congress

On day one attendees can look forward to expert speakers who will share their

insights on how to mitigate and adapt to the challenges posed by geopolitical, climatic, and social instability. There will be parallel panel discussions on trade risks, emerging narratives that impact agricultural policies, and opportunities in agro-processing.

On day two we will unpack environmental, social, and corporate governance and how to create value beyond compliance. The congress will end on a positive note with a panel discussion on finding opportunities in this uncertain environment by speaking to role-players who still see value in investing in South Africa. In line with the Agbiz culture, the congress aims to find solutions that will drive the sector towards prosperity.^a

For more information, visit www.agbiz.co.za or send an email to Liezl Esterhuizen at liezl@agbiz.co.za.

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Agbiz 2023 media day: Spotlight on grain storage challenges in 2024

By Susan Marais, Plaas Media

Several issues under discussion within the grain fraternity can influence the outlook for the entire grain value chain in 2024. Among them are the introduction of government-mandated inspection services and the implementation of a generic grain passport system that could derail the sector. Furthermore, if the Johannesburg Stock Exchange (JSE) storage tariff is not reassessed, it could have a devastating effect on the grain storage industry.

Wessel Lemmer, general manager of Agbiz Grain, discussed these concerns during Agbiz's annual media day held in December last year. While these issues might seem straightforward, the devil truly lies in the details. These challenges should ideally be resolved so as to positively contribute to a thriving grain handling and storage sector over the long term.

Grain passport system

"For the sake of the free market, Agbiz Grain will not support the idea of a single, generic grain passport system," Lemmer said. One of the reasons for this stance is that transaction risks in the value chain will be shifted down to the grain handling and storage sector.

The passport system aims to provide traceability and proof of compliance from the producer to the end consumer. Agbiz Grain members have implemented a food safety code of conduct to meet the latter requirement.

"The generic passport system is anti-competitive and the silo industry would be opening itself up for lawsuits," Lemmer explained, adding that the Competition Commission's buyer power guidelines prohibit the exploitation of suppliers, including producers and storage operators. Therefore, any producer without a passport and a turnover of less than R35 million would be able to take legal action against a storage operator that refuses the producer's grain, simply because there is no passport.

Before rejecting the passport idea, Agbiz Grain discussed it with David Meder,

a director of the French co-operative, EMC2, Prof Charles Hurburgh from Iowa State University, as well as Paul Adams from Pepsico in the UK. In the United States, the probability of achieving full traceability from the end consumer to the producer is below 70%.

Traceability challenges

While full traceability has been established in the French grain system, the industry is subsidised by the government to implement and sustain it. Furthermore, French producers are only allowed to sell grain if they are registered with co-operatives that trade their produce on their behalf. "That is not the type of free-market system and government support we have in South Africa," Lemmer said.

In most bulk storage systems, such as cement silos, grain is co-mingled. This poses a challenge to universal traceability. One bin can hold the stock of several producers, making it impossible to trace the commodity back to a single owner. If the buyer rejects a bin because of one producer's consignment, that producer is either responsible for the loss of all other producers or all producers suffer heavy losses because of one producer.

"Instead of a generic passport system, Agbiz Grain encourages companies in the grain value chain to negotiate with one another on an individual, vertical basis to realise benefits and mitigate costs where traceability is required. The guidelines of competition law must be closely followed, with sufficient incentives to achieve its objectives," Lemmer said.

Similar contractual systems that comply with competition law already exist between producers, storage operators and processors. In these cases, all parties share in the benefits.

Readers interested in a discussion on the issue can watch a video of the 2023 Agbiz Grain Symposium [here](#).

Inspection services

"The resurrection of the Department of Agriculture, Land Reform and Rural Development's (DALRRD) ambition to implement inspection services in 2024 could add unnecessary costs to the grain and oilseeds value chain," Lemmer stressed. "The value chain is opposed to these government-mandated inspection services." Ultimately, the end consumer will pay more for staple foods because of an inspection service that does not justify the means.

The *Agricultural Product Standards Act, 1990 (Act 119 of 1990)* or *APS Act* facilitates trade, not food safety. Since deregulation almost 30 years ago, the industry has complied with the grading regulations and inspected the grades supplied at each first point of delivery or sale. The *APS Act* does not make inspection services mandatory but empowers the minister to introduce inspection services upon request. To date, DALRRD has not stated if the minister has received such a request.

Following the deregulation of the single-channel commodity boards in the early 1990s, stakeholders in the grain and oilseeds industry formed agricultural



Agbiz hosted its annual media day in December last year. At the back from the left are Temba Msiza, Agbiz communication officer, Wessel Lemmer, general manager of Agbiz Grain, Theo Boshoff, CEO of Agbiz, and Wolfe Braude, manager of Agbiz Fruit. Wandile Sihlobo, Agbiz’s chief economist, is in front.

forums and industry trusts. The Southern African Grain Laboratory (SAGL) and South African Grain Information Service (Sagis) were also established. Private companies as well as the Agricultural Research Council (ARC) and DALRRD conducted research.

“At that time the industry decided, in agreement with government, to not introduce inspection services similar to those provided by the respective control boards,” said Lemmer. This function and the inspection staff were not transferred to the government inspection services, but were terminated.

However, the APS Act stipulates that assignees may provide inspection services on behalf of DALRRD. Leaf Services was appointed as an agent in 2016, despite numerous agricultural forums advising government against the introduction of inspection services. “DALRRD simply ignored this advice.”

Concerns over transparency

Lemmer added that apart from the fact that the industry was not involved in the appointment of an assignee, the lack of transparency throughout the process was worrying.

“In 2021, DALRRD did not follow the correct legal process and in 2023 they again failed to honour the agreement with industry which stipulates that consensus must be reached on the services the assignee renders prior to the industry and assignee engaging in consultation. At the end of November, the assignee, Leaf Services, published the methodology and fees for comment without the required government and industry discussion having taken place.”

After publication, the industry had 30 days to comment – the deadline was 5 January 2024. “We asked for an extension until 22 January, because most decision-makers were on holiday when the methodology and fees were published. This extension was granted and for the first time DALRRD seems to be open to the idea of discussing the matter with the industry.”

However, one of Agbiz Grain’s main concerns is that Leaf Services has an incentive to profit from their services. “Their current fee structure – which was set without consulting the industry – is R43 per inspected tonne or part of a tonne. The owner of the grain must pay

the duty,” Lemmer said, adding that this will be a great expense for the industry in the long run.

There are several different interpretations of the APS Act, and legal fees alone could amount to more than R800 000 if a judge has to rule on areas of dispute. This is an unnecessary expense.

Reassessment of storage tariffs

The setting of the JSE storage rate will have a significant influence on the country’s storage sector if its impact is not sufficiently verified in 2024.

The JSE storage rate is adjusted annually based on the producer price index (PPI). “However, the year-on-year increases in the PPI seemingly do not reflect the actual storage costs incurred by a storage operator, as storage costs have outpaced the PPI in recent years,” Lemmer said. The ensuing pressure caused by this misalignment has resultingly inhibited the storage industry to grow and invest. “This is why we question the rationale for basing the JSE storage costs on the PPI.”

This has led to under-investment in quality long-term storage space compared to

investment in more lucrative business opportunities. The growth rate of the PPI should be compared with advances in agricultural technology, the increase in harvesting speed of the latest combines and the need for diversified storage.

The PPI has become a benchmark. Statistics South Africa (or Stats SA) receives figures from the manufacturing industry to determine the PPI, which the JSE then uses to determine its storage rate. The storage rate reflects the average annual growth in manufacturing, which is significantly lower than the average growth of the grain and oilseeds sector. The adjustment to the JSE storage rate is therefore equal to the average growth rate of the manufacturing sector.

Storage rate conundrum

Companies in the storage sector cannot adjust their rates sufficiently to keep up with the increases in storage costs. If their annual storage rate adjustment is not in line with the JSE storage rate adjustment, the producer will request that their product be stored at the lower JSE storage rate by

requesting JSE storage receipts. It is not only the annual adjustment that needs to be checked. There is a need to verify that the JSE daily storage rate (R/tonne) does in fact reflect the industry's actual storage costs (R/tonne).

The 2023 Agbiz Grain Symposium devoted a day to this issue. "At the symposium, we persuaded the JSE to look at the storage rate and the impact on the industry, as well as the fact that the annual adjustment is derived from the PPI. The Bureau for Food and Agricultural Policy's (BFAP) study on the composition of storage costs was intended to assist the JSE in estimating whether the storage rate reflected the reality of storage costs and annual cost increases."

Lemmer explained that the solution to this problem would probably be a unique index to determine the JSE storage rate.

From 2001 to 2023 the long-term trend for storage costs as a percentage of the maize price indicated that storage costs had levelled off. The price of white maize

increased, but the storage cost rate levelled off, so it fell behind. "This is one of the reasons why we are not seeing adequate investment and reinvestment in the storage sector."

Lemmer compared the JSE with the Chicago Mercantile Exchange (CME) and found that the daily storage rate in 2018 was 76c/tonne/day at the JSE and 5c/bushel/day at the CME. "At that time the cost of storage as a percentage of the maize price was 1,28% on the CME and 1,27% at the JSE. The JSE and CME were on par."

However, when the same calculation was made in 2023, the CME stood at 1,12%, but the JSE's figure fell to 0,89%. "South Africa has fallen behind. If we were at the CME level, we would have seen a daily storage rate of R1,34/tonne, but instead, we are seeing R1,07/tonne." ^a

For more information, send an email to
Wessel Lemmer at
wessel@agbizgrain.co.za.

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Photograph courtesy of AFGRI.

30 years into democracy: How has South Africa's agricultural sector performed?

By Wandile Sihlobo, chief economist, Agbiz

There are divergent views regarding the effectiveness and extent to which South Africa's agricultural policies have been implemented. Regardless of how experts feel about the capacity of the state and the policy stance of the South African government since the dawn of democracy, the one undeniable fact is that the sector has grown tremendously (Figure 1). Data from the Department of Agriculture, Land Reform and Rural Development (DALRRD) shows that domestic agricultural output in 2022/23 was twice as much as in 1993/94.

Whether this growth has been inclusive and transformative is a question I will come back to. For now, it is important to emphasise the growth of the industry and the drivers of its expansion. Significantly, this expansion was driven by several

sectors including livestock, horticulture and field crops which have all seen strong growth over this period.

Of course, the production of some crops, most notably wheat and sorghum, has declined over time. This, however, had a lot to do with changes in agro-ecological conditions and **falling demand** in the case of sorghum, not policies.

These higher production levels have been underpinned mainly by adopting new production technologies, better farming skills, growing demand (locally and globally) and progressive trade policy. The private sector has played a major role in this progress.

Trading agreements

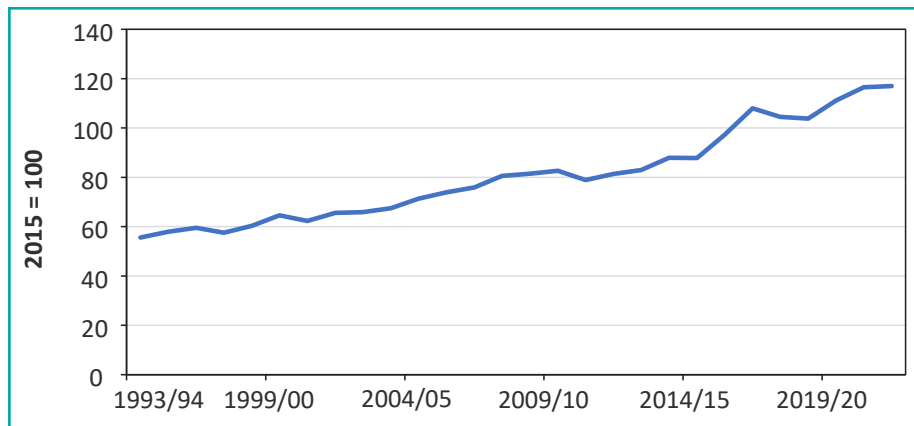
I use the words 'progressive trade policy' solely to highlight South Africa's standing

in global agriculture. South Africa was ranked 32nd on the list of the world's largest agricultural exporters in 2022 – the only African country within the top 40 agricultural exporters in value terms. This is according to data from [Trade Map](#).

This was made possible by a range of trading agreements the South African government secured over the past decades, the most important ones being with countries in Africa, Europe, the Americas and Asia. The African continent and Europe now account for approximately two thirds of South Africa's agricultural exports. Asia is also an important market for South Africa.

The agricultural subsectors that have primarily enjoyed these signs of progress in exports are horticulture, wine and grains. South Africa now exports roughly

Figure 1: South Africa's agricultural journey from 1994 (volumes of production of all agricultural subsectors). (Source: DALRRD and Agbiz research)



half its agricultural products in value terms. In 2022, the country's agricultural exports reached a record US\$12,8 billion.

Aside from exports

The increase in agricultural output is why South Africa is now ranked 59th out of 113 countries in the [Global Food Security Index](#), making it the most food-secure country in sub-Saharan Africa. I recognise that boasting about this ranking when millions of South Africans go to bed hungry every day, may ring hollow. However, it is essential to note that the lack of access to food that most South Africans face is due to the income poverty challenge rather than lack of availability due to low agricultural output, as is the case in other parts of Africa. In essence, we need to ensure that there is employment and that households have a sufficient income.

We must remember that the Global Food Safety Initiative balances the four elements (affordability, availability, quality and safety) to arrive at a rating and covers matters on a broad national level. In this regard, South Africa produces enough food to fill supermarket shelves with high-quality products, but still has a long way to go in addressing household food insecurity. Many households cannot afford the food that is available in a way that meets their nutritional demands. This is a topic for another day.

Transformation

Earlier on I noted that the consensus on agricultural growth is at variance with diversity and sometimes polarising

views regarding the extent to which this growth is sustainable, inclusive and transformative. To my admission, the gains we have seen in agricultural production over the past two decades have not been equitably distributed across the agricultural industry. Specifically, the growth in the agricultural sector has been mainly restricted to organised commercial agriculture, sometimes at the expense of a distinct but heterogeneous cohort of producers in South Africa.

As I argued in my recent book, *A country of two agricultures*: "Nearly three decades after the dawn of democracy, South Africa has remained a country of 'two agricultures'. On the one hand, we have a subsistence, primarily non-commercial and black farming segment; on the other, we have predominantly commercial and white producers."

The book adds that "the democratic government's corrective policies and programmes to unify the sector and build an inclusive agricultural economy have suffered failures since 1994. The private sector has also not provided many successful partnership programmes to foster the inclusion of black producers in commercial production at scale.

"It is no surprise that institutions such as the National Agricultural Marketing Council estimate that black producers account for less than 10%, on average, of commercial agricultural production in South Africa. This lacklustre performance by black producers in commercial

agriculture cannot be blamed solely on historical legacies."

While this paints a bleak picture of transformation in the agricultural sector, what we can also not ignore is the anecdotal evidence pointing to a rise in black producers in some corners of South Africa. We see this in field crops, horticulture and livestock in provinces such as the Free State, Western Cape, Eastern Cape and other regions.

Employment

Even with the adoption of technology that catalyses agricultural productivity improvements, employment in South Africa's agricultural sector has remained robust. For example, an estimated 922 000 people were employed in South Africa's agriculture industry in 1994, according to data from [Statistics South Africa](#). This includes both seasonal and permanent labour. While the share of seasonal and regular labour changed over time, the broad employed conditions remained vibrant. In the third quarter of 2023, approximately 956 000 people were working in primary agriculture, up 4% from 1994.

Concluding remarks

As South Africa moves forward, let us always be mindful of the progress that has been made in boosting our agricultural fortunes, as is reflected in *Figure 1*. And in the quest to grow and be more inclusive, be forever vigilant of the unintended consequences of the policies we seek to implement. Equally, we must never be complacent regarding the dualism we continue seeing in South Africa's agricultural sector.

The task then, is how to grow South Africa's agricultural sector more inclusively and transformatively. In my opinion this will need both the private sector (organised agriculture and agribusinesses, etc.) and the government to craft a common vision for the sector with clear rules of engagement and monitoring systems. This can build on the work of the National Development Plan (specifically chapter 6), the Agriculture and Agro-processing Master Plan, the Land Reform Agency (yet to be launched by the government), and other progressive programmes and policies available to the nation. [a](#)

For more information, email Wandile Sihlobo at wandile@agbiz.co.za.



The economic outlook for 2024

By Wessel Lemmer, general manager, Agbiz Grain

The current economic situation promises to improve in 2024 as the global economy adjusts to the fundamental factors that hit countries hard in 2022/23. However, there is growing concern regarding commodity prices that are rising unexpectedly rather than falling significantly.

Economic commodity conditions

Crude oil prices are around US\$80 per barrel, well below the peak of approximately US\$160/barrel in 2022. In Europe, gas prices are close to their lowest levels in two years, while grain and metal commodity prices are also comparatively low. Current commodity price levels are expected to remain at these levels this year.

Since the early 2020s, markets have adjusted to higher prices by reducing demand through lower consumption. Higher prices have led to increased production and trade flows have adjusted. The world is expected to be more resilient now than in 2022.

Geopolitical factors that could fuel commodity markets in 2024 include

renewed tensions and conflict in the Black Sea region, the American campaign against the Houthis, and increased conflict involving Iran and other Gulf states. Roughly 80% of Russia's food exports are channelled via the Black Sea. An increase in tensions in the region could therefore lead to higher commodity prices. Yemen's Houthi rebels are attacking oil installations in the Red Sea – 10% of the world's seaborne oil is exported through the Red Sea. United States (US) forces are doing their best to prevent drone attacks on these facilities.

Commodity calming factors

Among the geopolitical factors that could calm commodity markets in 2024 are an increase in production by the Organization of the Petroleum Exporting Countries (OPEC) and international pressure to protect food shipments. In 2023, countries outside OPEC managed to increase production to meet increased demand. This forced the OPEC alliance to cut production to keep prices stable. An oversupply of crude oil is expected in the first four months of this year.

The mild winter in Europe and the purchase of sufficient gas stocks to keep

gas inventories well above the five-year average contribute to the current calm. Gas inventories are ample and should keep gas prices low. Lithium and nickel supplies are currently sufficient to keep green metal prices low as well.

Increased global plantings of grains and oilseeds (excluding Ukraine) and good weather conditions lead to expectations that production will reach record levels in 2024/25. The average stocks-to-use ratio in food exporting countries is expected to rise to levels last seen in 2018/19. Supplies are expected to be abundant in the first half of this year.

Global economic growth is expected to be slow, implying modest growth in demand for commodities, while inflation is also expected to rise modestly, reducing the demand for commodities as a hedge against inflation.

The US is experiencing robust economic growth and easing inflation. This could allow the US Federal Reserve to cut interest rates in the near future. The rate cuts would support economic growth in the US, but would also lead to renewed inflation. As a result, some argue that the

expectation of interest rate cuts in the US is premature. If the US Federal Reserve were to cut interest rates, the South African Reserve Bank's (SARB) Monetary Policy Committee (MPC) may be open to recommending the same.

Economic outlook for South Africa

South Africa's economic growth rate is expected to be generally better this year, with an average growth rate of 1,4% compared to 0,7% in 2023. Despite the improved economic outlook, this does not necessarily mean that the inflation rate will increase to the same level in 2024 as last year. Inflation is expected to fall to an average of 4,8% in 2024 and even lower in the fourth quarter. Hence, chances are good that the SARB will cut interest rates in the second half of this year.

“Geopolitical factors that could fuel commodity markets in 2024 include renewed tensions and conflict in the Black Sea region, the American campaign against the Houthis, and increased conflict involving Iran and other Gulf states.”

The possibility of lower interest rates should support our economic growth rate. The current outlook for Brent crude oil prices and the R/US\$ exchange rate are for stable to slightly lower prices. Compared to last year, the rand is expected to remain strong, and the global oil price is expected to remain at relatively similar levels to last year. The expectation that South Africa's inflation rate will rise as quickly as the US's once interest rates are lowered, is therefore low.

Pressure on the consumer

The South African consumer remains under pressure and although inflation is trending lower, it is still above the SARB's target rate of 4,5%. Although food price increases will be comparatively lower than last year, they will remain at a very high level year-on-year, averaging 6,9%

Table 1: Key market indicators. (Source: Absa research)

	Week 1 2024	One year change	High in 2023	Low in 2023
USD/ZAR	18,68	9,2%	19,81	16,77
EUR/ZAR	20,43	13,5%	21,22	18,15
Gold	2 045,50	11,6%	2 077,16	1 810,81
Brent	78.38	-3,7%	98,36	71,71

Table 2: Historic and forecasted market indicators (period average). (Source: Absa research)

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual 2024
USD/ZAR 2024	17,92	17,60	17,32	17,31	17,54
CPI 2022 (%y/y)	5,8	6,6	7,7	7,4	6,9
CPI 2023 (%y/y)	7	6,2	5	5,5	5,9
CPI 2024 (%y/y)	5,2	5	4,9	4,2	4,8
Food CPI 2022 (%y/y)	6,1	7,4	10,9	12,3	9,2
Food CPI 2023 (%y/y)	13,6	12,2	8,7	8,9	10,8
Food CPI 2024 (%y/y)	7,6	7,1	7,1	5,7	6,9
PPI 2022 (5y/y)	10,8	14,7	17	14,8	14,4
PPI 2023 (%y/y)	11,8	6,9	4	4,9	6,8
PPI 2024 (%y/y)	4,9	5,5	5,4	4,6	5,1
Brent US\$/bbl 2022	100,2	113,3	100,8	88,6	100,7
Brent US\$/bbl 2023	81,3	78,4	86,6	83,6	82,5
Brent US\$/bbl 2024	90,5	89,6	88,4	87,3	88,9
Real GDP 2022(%y/y)	2,5	0,2	4,1	0,8	1,9
Real GDP 2023(%y/y)	0,2	1,5	-0,7	1,3	0,7
Real GDP 2024(%y/y)	1,2	1,1	1,5	1,7	1,4
Current account (% of GDP)					
Current account 2022	2,5	-1,7	-0,2	-2,3	-0,5
Current account 2023	-0,9	-2,7	-0,3	-2,4	-1,6
Current account 2024	-2,6	-2,8	-3	-3,2	-2,9
Prime rate, % eop 2022	7,75	8,25	9,75	10,5	10,50
Prime rate, % eop 2023	11,25	11,75	11,75	11,75	11,75
Prime rate, % eop 2024	11,75	11,75	11,25	11	11

Consumer price index (CPI); producer price index (PPI); barrel of crude oil (bbl); gross domestic product (GDP); end of period (EOP).

and more. Our high unemployment rate of 31,9% is a stark reminder that food price increases are still putting pressure on our lower-income consumers who consume staple foods.

The producer price index (PPI) is expected to fall from an average of 6,8% in 2023 to an average of 5,1% in 2024. The average PPI for the first quarter of 2024 is estimated at 4,9%, compared to 11,8% in 2023. This implies that the expected upward adjustment in the Johannesburg Stock Exchange storage rate for the

maize marketing year will be significantly less compared to the previous year, and probably out of line with general storage cost increases in the market.

Ultimately, because of South Africa's open economy, we remain exposed to the fundamental factors that affect the value of the US dollar and, in particular, the geopolitical factors that determine the value of crude oil. Keep an eye on developments in the Black Sea region, Yemen and global weather conditions. [a](#)

For more information and references, send an email to Wessel Lemmer at wessel@agbizgrain.co.za.



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Transformation entails more than land ownership



Transforming the agricultural sector is not a simple case of handing over a piece of land and telling the beneficiaries to start farming. It involves a complex interconnection of numerous critical success factors, without which enterprises are likely to fail.

To this end, Nedbank Agriculture collaborated with Partners in Agri Land Solutions (PALS) in September 2022 and the alliance has grown in leaps and bounds since then.

Support through PALS projects

PALS is a non-profit organisation developed by farmers and the local community in Ceres to provide emerging black farmers with the support, insights and expertise they need to thrive as commercial farmers.

Lennox Plaatjies, national liaison manager for PALS, says that the organisation, whose work represents a fundamental departure from post-land reform models, has identified eight characteristics for an agricultural enterprise to be considered as a PALS project.

“While the security of tenure to land is a vital component, it is not more important than the other seven, which include a feasible, bankable business plan, knowledge transfer and mentorship, a legal entity with structure and agreements to protect all partners, socio-economic upliftment of the people who work the land, capital or financing, access to markets, and ‘skin in the game’. We believe so firmly in all these factors that we have

created a special PALS framework, which is a registered trademark and has become our holy grail,” says Plaatjies.

This approach is working, with 47 successful projects implemented over the past nine years. All projects are profitable, and many are exporting fruit to international markets, which is testimony to the quality of their produce.

“PALS is not helping people to become subsistence farmers. We aim to establish successful commercial farmers who can achieve sustainable growth. This will uplift their families and communities, provide profits for shareholders, and empower future generations to continue with a successful enterprise. That is why having a vested interest and land ownership are essential. Generational wealth is not created in one generation – it is a long-term game, and we hope that the PALS approach will improve the lives of many generations to come.”

Land reform progress

According to Wandile Sihlobo, chief economist at Agbiz, South Africa has made more progress on land reform than is perceived.

“Based on numbers extracted from official sources, it is estimated that 24% of all farmland has been redistributed and that land rights have been restored. However, it is not as simple as replacing white farmers with black farmers. We need to grow the agricultural pie in South Africa to support all farmers, and that requires collaboration, commitment and combined effort from all stakeholders,” says Sihlobo.

Future of financial assistance

Cobus de Bruyn, head of Client Value Propositions for Agriculture at Nedbank Commercial Banking, says that while PALS has been highly successful, all stakeholders are frustrated by the limited access to finance for this sector.

“Banks are all looking for innovative ways to approach transformation funding.



Cobus de Bruyn, head of Client Value Propositions for Agriculture at Nedbank Commercial Banking.

For example, Nedbank has a special transformation solution that offers both financial and non-financial components. In collaboration with PALS, transformation credit applications are approached differently from traditional lending parameters. Nedbank has also partnered with Hortfin and signed a cooperation agreement to co-fund transformation transactions in the fruit sector, which will enable easy access to finance.

“A real game changer, however, will be the Blended Finance Scheme, which will essentially blend grant funding and commercial debt for black farmers or partnerships. The minister of agriculture, land reform and rural development launched a R3,2 billion Blended Finance Scheme with the Land Bank in 2022, but the scheme needs to be rolled out to all commercial banks for change to happen at scale. Nedbank Commercial Banking confirmed its participation in the Scheme several years ago and awaits confirmation to proceed,” says De Bruyn.

Think bigger. Think Nedbank Commercial Banking.

For more information, contact
Nedbank at email
agriculture@nedbank.co.za.



A generic grain passport system: Yay or nay?

By Susan Marais, *Plaas Media*

After careful consideration at the end of 2023, Agbiz Grain decided to reject the grain industry’s plan to introduce a singular passport system for grain and oilseeds.

“Traceability is becoming increasingly important in agriculture. However, several issues need to be resolved before a passport system for grain and oilseeds can be introduced in South Africa,” said Wessel Lemmer, general manager of Agbiz Grain.

These issues were highlighted during the Agbiz Grain and Oilseeds Value Chain Symposium held in September last year. The session, facilitated by Jannie de Villiers, former CEO of the National Chamber of Milling and Grain SA, featured a panel of experts from the United States (US), United Kingdom, France and South Africa. The purpose of the discussion was to investigate the applicability of a generic passport system in South Africa’s free-market environment.

Agbiz Grain spent in the vicinity of R115 000 to present this session.

This included translation services and translation equipment so as to ensure that the discussion was understandable for all participants.

More sales?

Prof Charles Hurburgh from Iowa State University in the US explained that a passport system consisting of a set of documents passed from producers to storage operators upstream in the value chain to the processor or buyer, was difficult to justify.

In the US, for example, the industry will only be willing to implement traceability aspects if end users are willing to pay for it. “It is surprising that producers would want to do this unless they were convinced by buyers that it would mean more sales. They would also need some assurance that the marketing system would bear the cost until there is some sort of liability claim where the various original suppliers could theoretically be identified in a pool that shares liability.”

Legal compliance

One of the main topics discussed was the concept of a voluntary South African passport system as it would not be legally enforceable.

To comply with the requirements of the *Competition Act, 1998 (Act 89 of 1998)* and traceability, the buyer or processor should communicate its passport requirement to the contracted storage operator and producers in return for an incentive for the primary industry to supply the required product.

“The buyer or processor determines what the traceability requirements should be in terms of acceptable mycotoxin levels and minimum residue levels for registered pesticides and fumigants, not the producer,” Lemmer said. “In other words, the direction of traceability is downstream from the processor or consumer to the producer in the value chain, not upstream.”

Passport system vs free market

This begs the following question: Do the principles of South Africa’s free market for grain and oilseeds support the introduction of a single generic passport system, with identical requirements for all stakeholders in the value chain? According to Agbiz Grain, the answer to this question is no.

This conclusion was based on the following:

- The comingling of grains and oilseeds in bulk storage makes full

traceability impossible. Hurburgh pointed out that the probability of accurately identifying the producer responsible for a product being taken off the shelf is 70% at best. On top of that, identifying the product that caused the issue is futile. In the US, which has a free and derivatives market like South Africa's, the producer and the storage operator are exempt from the traceability requirement.

- The Competition Commission's buyer power guidelines prohibit the exploitation of suppliers, producers and storage operators with a turnover of R35 million or less. "Under the legislation, small and medium-sized suppliers cannot be denied access to the market if they do not have passport documents to submit," Lemmer pointed out. However, the *Competition Act* allows buyers and processors to pay a premium to suppliers meeting the requirements the buyer or processor sets for their products.
- The Commission's buyer power guidelines support the free market in South Africa. This prevents the industry from regressing to controlled marketing and moving away from the free market, as is the case in France. Unlike France, South Africa cannot rely on government subsidies.
- According to David Meder, director of the French co-operative EMC2, the country has one of the best grain traceability systems in the world. However, producers in France must be registered with a co-operative that sells their product on their behalf. Producers register and receive subsidies. The French government subsidises traceability in the French grain value chain to meet the minimum requirements of current legislation. If a buyer sets more stringent requirements than the minimum legal standards, the parties involved must enter into agreements, and incentives must be offered to encourage interested parties to supply products of higher quality. Lemmer said South African producers are in favour of maintaining a free market, like the US. "There is far too much grain production that will quickly move in to fill the gaps created by forced cost increases."

- With the random allocation of stocks on silo certificates, there is also limited to no traceability of stocks on Johannesburg Stock Exchange certificates.

Good for the goose and gander

Lemmer said that if the various sectors applied pressure for the introduction of a passport system and want it to become legal, then everyone would have to meet the same requirements. "This will require all producers to prepare their documentation, and this will be bad news for our free-market system. The additional costs for administration and requirements will be passed down the value chain."

So, for the sake of the free market, Agbiz Grain believes there should be no support for a single, inclusive, generic passport system with no differentiation at national level. Instead, Agbiz Grain encourages market participants to negotiate among themselves on an individual, vertical basis to realise benefits and mitigate costs within the guidelines of the *Competition Act*. The negotiation should include sufficient incentives to achieve these objectives.

Noteworthy is that similar contractual systems already exist between producers, storage operators and processors that enable them to share costs and benefits. The canola passport system serves as a successful example.

Passport system for canola

Zander Spammer, agricultural resource manager at Southern Oil (SOILL), said his company has been collecting relevant data from producers for 11 years. The data contains details on producer spraying records, cultivar varieties and how many hectares of these cultivars have been planted.

While this means additional administrative work for producers and others in the industry, Spammer said this information must be recorded as thoroughly and comprehensively as possible before producers deliver their canola to any SOILL depot.

"SOILL is hazard analysis critical control point (HACCP) certified and one of the requirements of this food safety system is

that we have to prove that the pesticide residue on the incoming seed is minimal or absent."

Producers are provided with a list of registered agrochemicals, and they will be required to apply these products only. Canola is still classified as a 'minor crop', so if the need arises to use an unregistered agrochemical, SOILL and Grain SA will jointly submit the information to the registrar of the *Fertilizers, Farm Feeds, Seeds and Remedies Act, 1947 (Act 36 of 1947)*, said Spammer.

Protecting the value chain

In addition, the second phase of the *Consumer Protection Act, 2008 (Act 68 of 2008)* or CPA came into effect on 31 March 2011. "This compels all parties in the food production chain – from farm to fork – to comply with all legal requirements to control and/or minimise the risk of prosecution," Spammer explained. "The passport system plays an invaluable role in meeting the stringent requirements of HACCPs and the CPA, and in protecting the entire canola value chain."

In the US, for example, the industry will only be willing to implement traceability aspects if end users are willing to pay for it.

Once the producer's forms (reflecting all the sprays applied during the different growth stages of canola) have been completed in full, this document must accompany the product to its destination. This form is the canola passport and must be approved by several agronomists before the entire crop is accepted.

Spammer said that the submitted forms have already unlocked valuable information, which can be taken back to the industry to add further value to the canola sector. "For example, we can determine with greater accuracy how much of which cultivar variety has been planted in a particular area." The data can also be used to create standard spraying programmes for budgeting purposes.^a



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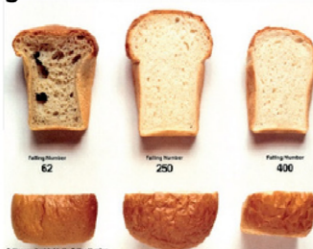
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AACC International Method 56-81.03

Under headline Apparatus is written: "1. Perten FN apparatus, including". This specific reference was added in the 2014 version, and is not present in previous versions of the standard. To comply with the AACCI method you actually have to use a Perten Falling Number instrument.



THE FALLING NUMBER METHOD IS THE INTERNATIONAL STANDARD FOR DETERMINATION OF SPROUT DAMAGE IN GRAIN AND FLOUR.

ICC standard no. 107/1

This method specifically states "The apparatus is obtainable from Perten Instruments AB.....or from a regional agency of Perten Instruments respectively....".

To comply with the ICC method you actually have to use a Perten Falling Number instrument.

ISO 3093:2009

The ISO method refers to Perten Instruments as a supplier of Falling Number instruments. The ring test that is the basis for the ISO method was run by Perten Instruments and included only Perten Instruments Falling Number instruments.

Only Perten Instruments have proven that they have instruments performing the tests in accordance with the ISO standard 3093.

Perten
INSTRUMENTS

Falling number in the grading of wheat

By Dr Sierk Ybema, managing director, Sierk Ybema Grain Services

South Africa was one of the first countries to introduce falling number as a grading factor for wheat. There was a great deal of negativity following the introduction of falling number. To the processing industry it made perfect sense.

A low falling number has a detrimental effect on bread quality as large bubbles are formed during the baking process, thus undermining the structure of the bread and discolouring it.

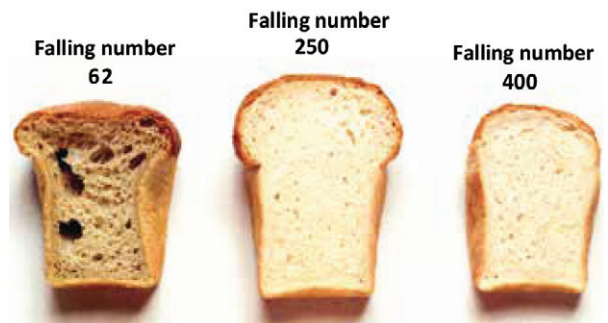
Falling number and germination

A low falling number is associated with high α -amylase activity. α -Amylase is the enzyme responsible for breaking down starch into sugars during the germination process of wheat kernels. If prolonged periods of rain occur when the wheat on the field is already mature, the seed starts to germinate, and α -amylase is produced by the germ and aleuronic layer in the kernel to break down the starch to provide energy to the seedling for growth.

We do not want this to happen. The germinated kernels end up in the consignment of wheat from the farm and yield a low falling number when tested. The germinated kernels also count as damaged wheat when it is graded.

Deviation tolerance

Falling number testing uses the Hagberg-Perten method or rapid visco analyser, which tests the falling number in seconds. In practice, the minimum falling number for Super Grade, Grade 1, Grade 2 and Grade 3 is 220 seconds. According to



A low falling number has a detrimental effect on bread quality as large bubbles are formed during the baking process, thus undermining the structure of the bread and discolouring it. (Photograph: PerkinElmer)

Regulation 6(3)(a) under the *Agricultural Product Standards Act, 1990 (Act 119 of 1990)*, the minimum falling number value for these grades shall be no less than 250 seconds.

Regulation 6(3)(d) under the same Act clearly states that “notwithstanding the provision of paragraph (a), wheat shall be deemed to comply with the requirements of the paragraph concerned if it deviates with not more than 30 seconds lower than the minimum prescribed for Super Grade, Grade 1, Grade 2 and Grade 3”. The (d) part of the regulation is often misread or misunderstood and leads to unnecessary disputes.

The 30-second tolerance was deemed necessary due to the wide variation in results. The sprouted kernels are responsible for lowering the falling number. It is mostly only a few kernels in the 300g ground sample that are responsible for lower falling numbers. A few kernels can make a significant difference. [a](#)



For more information, send an email to Dr Sierk Ybema at zirk.ybema@gmail.com.

Malting barley: A risky business

By Johan Lusse, general manager of Grain and Agri Services at Overberg Agri, and Wessel Lemmer, general manager of Agbiz Grain

The majority of South African beer brewers obtain their malting barley from South African producers. Barley production is an integral and important agricultural activity in the Southern and Western Cape. However, producing and storing barley are not as straightforward as it is for other crops such as wheat and maize. This is mainly due to stringent quality requirements and higher costs.

Agbiz Grain estimates the losses incurred by storage operators over the last six marketing years at R286 million, excluding the current marketing year. As a result, Agbiz Grain has initiated two South African Winter Cereal Industry Trust (SAWCIT)-funded projects in collaboration with Cengen and Dr Idelet Meijering to learn more about the storage requirements of grain varieties. This is in the interest of the entire value chain. In addition, the sector needs a storage protocol that outlines the minimum storage requirements to ensure the competitiveness of the storage sector. At present, competitiveness is being affected because the number of storage operators willing to manage the risk are decreasing and leaving the sector, thereby affecting the competitiveness of the sector and the ability of producers to grow crops.

Unlike other parts of the world where barley destined for animal feed is produced in large quantities and barley suitable for malting is selected from stored barley during outloading, South African barley is produced mainly for malting purposes.

So, if malting barley fails to meet local malting requirements and is rejected, it is then sold as feed barley at a price derived from the maize price, which is significantly lower than the price of malting barley. The main reasons for rejecting malting barley in the recent past, include a too low germination percentage, too high or low nitrogen (N) content, and broken or ruptured grain kernels.



Barley is mainly produced for malting purposes in South Africa. (Photograph: freepik.com)

The storage costs associated with barley are higher than that of other grains. This is due to more intense physical handling and additional storage practices to meet processors' specifications and maintain the germination of barley at the storage complex. Barley is also associated with more storage risks.

Why the risk and higher costs?

In a free-market everything possible is done to keep production costs as low

as possible. However, barley storage is associated with additional costs due to:

- Different cultivars having to be stored.
- Barley being stored at two different nitrogen bands.
- The crop must be dried at a low temperature and then cooled down to maintain germination capacity and energy.
- Barley has a higher sieve content which results in higher cleaning costs than other grains.

- The grain must be transferred from one bin to another before it can be outloaded for a processor.
- Samples must be taken of every 40 tonnes of barley for analyses.
- Barley samples are analysed for 32 grading specifications, among which are N content, germination capacity and germination energy.

Storage infrastructure

Sizable investments have been made over time in silos that store barley given the stricter quality requirements and risks associated with storage.

While alternative structures such as bunkers and silo bags may cost less, these structures have their own unique challenges that increase especially the risks pertaining to malting barley storage. This could lead to greater operational losses than in the case of concrete silos. Although silo bags meet storage requirements, they are more susceptible to damage and moisture penetration. In turn, it would appear that storing barley in bunkers poses greater risks than storing barley in silo bags; it is safer to store barley in a concrete silo where it can be easily fumigated, aerated and circulated.

Processors are of the opinion that bunkers in other countries, specifically Australia, are well suited for storing barley and that, in the case of South Africa, the cost will also be lower. However, the local experience with risks associated with storing barley in bunkers does not support this opinion. It should, however, be borne in mind that those countries produce barley in bulk for the animal feed market, and that the unit cost for storage will therefore be lower. In South Africa we produce maize on a large scale for the animal feed market. Our growers specialise in producing malting barley and processors are not able to select a consignment of malting barley from a large consignment of feed barley that meets malting barley requirements.

Rejections

To malt barley in order to brew beer the grain must undergo proper germination during the malting process. This requires keeping the barley 'alive' from harvesting through to malting. This is the greatest fundamental difference between the storage of malting barley and other grains. In short, the malting industry requires barley that meets the required germination

process upon outloading, otherwise the malt will be ineffective for use in the brewing process.

The *Agricultural Product Standards Act, 1990 (Act 119 of 1990)* determines the grading requirements for malting barley during producer delivery. Processors must also meet germination percentage as a grading requirement, but this cannot be determined upon intake as it must undergo a time-consuming laboratory process.

While barley is graded upon intake, it isn't possible to test for germination. Hence there is no guarantee that it will meet the requirements when it is taken in for malting. The problem is not so much that malting barley does not meet the grading requirements, but rather that it isn't possible to determine all grading specifications upon crop intake.

The storage operator must be able to guarantee the processor of the malting barley that the product will meet the standards of the Act upon outloading. All in all, it is entirely possible to meet all of the requirements except for the germination percentage. It is simply not possible for the storage operator to know before outloading that the barley will meet the buyer's germination requirements.

Germination energy and capacity are two aspects of malting barley that must be retained by way of exceptional silo management – from the time that the producer delivers it until it is outloaded. This requires additional silo management inputs which necessarily brings about additional costs. Keeping malting barley 'alive' to retain its germination capacity requires more intensive management than any other grain.

Greater storage risk

As already stated, the risks associated with storing malting barley is greater than that of grains such as wheat and maize. It is also one of the reasons why silos earmarked for storing and handling malting barley have been specially adapted for this purpose, at additional cost.

There is a direct link between the germination capacity of any seed, and the moisture content and temperature at which it is stored. For this reason, the temperature of malting barley destined for silo storage must be lowered to an acceptable level as soon as it is offloaded. This requires

proper moisture content and temperature management by way of good aeration and temperature control throughout the storage period. This period can range from four months to a year and even longer.

Morphological composition

The morphological composition of malting barley differs from that of wheat, which increases the costs associated with the handling and storage of malting barley. The relative density of barley is different to that of grains such as wheat, meaning fewer tonnes can be stored per cubic metre. This translates into a further increase in storage costs.

Quality standards

Other factors that contribute to higher costs are the quality standards stipulated in the buyer's grading specifications. Barley cultivars must be stored separately and in accordance with their respective N bands.

Reasons for rejection

Various aspects have a direct or an indirect influence on rejections:

Stricter quality requirements

The biggest reason for barley rejection is the stricter quality requirements, specifically germination energy and capacity.

Cultivation practices and seasonal factors

The second biggest reason for rejection has to do with quality aspects linked to cultivation practices and seasonal climate factors. Of these, too high or too low N levels, pre-germination, germination and split kernels are probably the biggest contributors to malting barley not meeting grading specifications.

During the different growth stages of the crop, rainfall, drought and temperature all play a major role in the final N content of barley produced for malting. The N content of malting barley is tested upon intake, thus posing less of a risk for storage operators. Rainfall during the harvesting period also poses a risk for barley storage. It can affect germination negatively, depending on the amount of rain and how long the barley remains wet during and after the rain.

Natural variation

The natural variation in the product sometimes leads to deviations in N, especially within the range of a minimum of 1,5% and a maximum of 2%. Losses due to too low or too high N are for the storage operator's account. For the most part, this



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loss is covered by the risk margin but once above-normal rejections start taking place, the risk margin will be too small to make up for the losses.

Pressure from processors

Producers and storage operators are under continuing pressure from processors. Processors' intake requirements are becoming stricter by the day and along with increased costs and possible losses, everything eventually trickles down to the producer. These days we see a lot more malting barley being rejected, resulting in potentially more and greater losses for the storage operator.

High N levels and germination

Raised N levels are ascribed to dry conditions during production, especially at the end of the season. A lack of moisture during maturation means the kernel's protein content, and hence the N, will increase. In dry seasons such as 2018/19, the N content of the barley was on the higher side above 1,85% which caused challenges for malting and brewing. The low N levels of barley in the 2020 and 2021 crop seasons also posed some challenges for malting and brewing. It appears that a high N content has a negative impact on the germination percentage; this is derived from the fact that a lot less barley was rejected due to low germination percentages in previous years.

Risk margin

The reason for the existence of a risk margin in the barley industry is to compensate the storage owner for the risk posed by the fact that barley germination cannot be measured at intake and, like any seed, can lose its germination potential over time.

As already mentioned, there are times when malting barley fails to meet the buyer's grading requirements upon outloading at the storage complex. The storage operator must bear this risk. Malting barley that is rejected is downgraded to feed barley. The buyer has already paid the producer a malting barley price, and the storage operator must then buy back the rejected malting barley and sell it as feed barley. The difference between the price of

malting and feed barley is for the storage operator's account.

To mitigate the risk of losses due to the rejection of a crop, a risk margin is paid to the storage operator. The history and frequency of rejections serve as basis for determining the risk margin. A lot more malting barley has been rejected in recent years, and the current risk margin is not sufficient to cover risk.

No agricultural insurer is willing to insure this risk, leaving storage operators with the burden of determining potential long-term losses and suitable risk margins to cover these potential losses. The risk margin is usually recovered from the producer price of malting barley.

Insufficient risk margin

An adjusted risk margin did cover losses to a great extent in the past but over the last five years, storage operators have suffered huge financial losses due to barley being rejected, mainly due to low germination and the risk margin not being sufficient to cover losses.

The risk margin is an additional cost added on top of the normal costs of grading, handling and storage of barley – there is no risk margin for other grains.

Despite the increase in risk due to rejections and the increase in the producer price of barley, the risk margin remained the same and wasn't amended accordingly. Some storage operators required an additional risk margin from their clients, while others did not. Those who did not were discouraged from storing malting barley and might choose not to do so in future.

Risk margin adjustment required

The only option to mitigate the risk of losses due to low germination, is to adjust the risk margin upward. As a service provider, storage operators cannot recover these losses from the processor; they can only recover it from their clients who entrust them with storing their barley until the processor needs it.

It is necessary to distinguish between storage risks due to storage practices and the intrinsic risks associated with barley

due to N levels, pre-germination or other kernel properties which is not measurable at intake.

Where financial losses incurred by storage operators, who store barley, exceed the income from storage tariffs and the risk margin, storage operators tend to exit the barley storage industry.

Co-operation and trust

The entire value chain – from producer and storage operator to processor – must foster a relationship based on co-operation and trust, which will optimise the cultivation, storage and processing of malting barley. This will allow each role-player in the value chain to realise a return and remain sustainable.

Competition is growing fiercer by the day, and role-players in the value chain are compelled to increase their productivity and cost-efficiency. Buyers are imposing stricter quality standards and measures to ensure food safety, and this also contributes to higher costs.

Given all the aforementioned, storage operators are becoming less inclined to store malting barley. There are other crops cultivated inland that are more suitable for storage, but producers and storage owners in the Western Cape are limited in terms of crops suitable for storage.

In conclusion

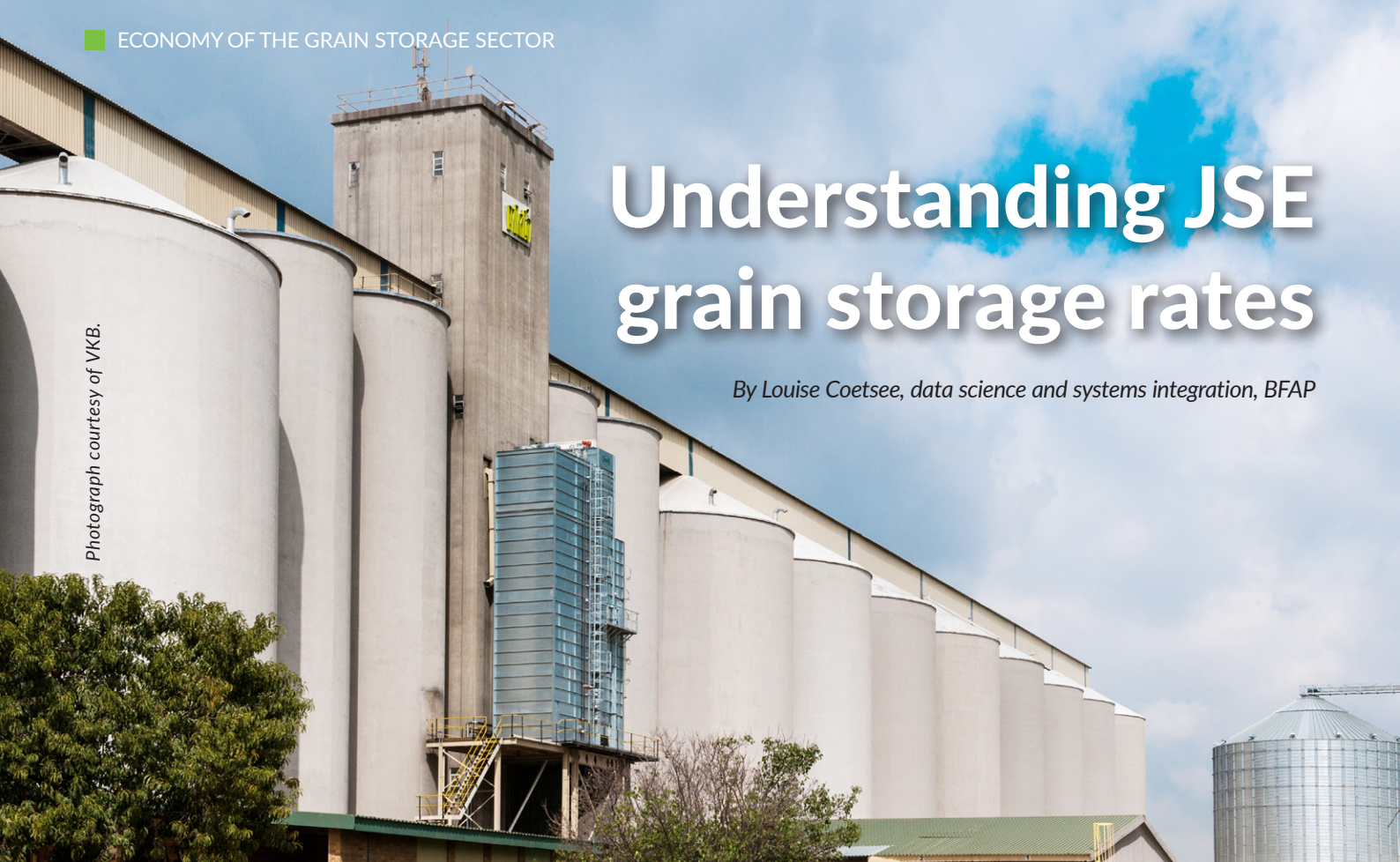
Storing malting barley poses significantly more risks than other grains. In addition, malting barley storage is also more expensive, given that the barely has to be kept alive for between four to 12 months. It does not seem fair that the storage operator has to take responsibility for the quality risks that arise due to issues with production practices or the climate during production. The storage operator's responsibility should start and end with risks that arise due to storage practices.

Given the large number of rejections over the last five years, the risk margin is clearly not sufficient to cover the storage risks associated with barley storage. The storage cost of barley will always be higher than that of wheat and oats due to the additional operating inputs required to store barley. ^a

This article was originally published in SA *Graan/Grain*. For more information, send an email to Johan Lusse at johanl@overbergagri.co.za or Wessel Lemmer at wessel@agbizgrain.co.za.

Understanding JSE grain storage rates

By Louise Coetsee, data science and systems integration, BFAP



Photograph courtesy of VKB.

The Johannesburg Stock Exchange (JSE) annually releases a daily JSE maximum outstanding storage rate (R/tonne/day) for grain delivered through a JSE silo receipt. According to Agbiz Grain, this can have the unintended but significant effect of acting as a benchmark for storage companies' non-Safex rates.

When the JSE's daily maximum outstanding storage rate (JSE storage rate) is more favourable than a company's non-JSE daily rate, clients request that storage operators issue JSE storage certificates to benefit from the JSE storage rate.

Agbiz Grain members are concerned that the current JSE storage rate might be disadvantaging storage companies. The JSE storage rate is adjusted annually using the monthly producer price index (PPI) of final manufactured goods for the four months before the start of the relevant marketing year. It is believed that the actual change in costs observed at silo level is higher than what is reflected by the PPI (Lemmer, 2021).

In addition, concerns have been raised regarding the methodology used to

determine the base year or initial JSE storage rate (R/tonne/day), including its current accuracy in representing costs, activities, and volumes reflected in storage costs. Essentially, the base storage rate was established at a specific point in time (year zero), functioning as the benchmark for subsequent years, as the JSE storage rate for subsequent years is determined by adjusting the base year JSE storage rate (R/tonne/day) using the PPI.

Initial investigations

Initial investigations into the accuracy of the movement of the JSE storage rate were conducted by the Bureau for Economic Research (BER). The BER developed a grain storage cost index (GSCI) based on the International Labour Organization basket methodology (ILO, 2020), and compared it to the PPI. The BER assessed the year-on-

year (y/y) percentage change of the GSCI against the y/y percentage change in the PPI. From 2012 to 2020, the GSCI proxy increased by an average of 49%, compared to the 50% average increase of the PPI.

The investigation results revealed that the GSCI was less volatile than the PPI and it tracked the PPI index very closely (BER, 2020). Noteworthy is the fact that the JSE employs a monthly PPI for price adjustments four months before each marketing year. Therefore, an investigation into the impact of a monthly storage cost index before each marketing year could be warranted.

The basket methodology used considers a basket of weighted services adjusted with specific price trackers for each item, to calculate a weighted average index.

Subsequently, the BER GSCI was calculated by determining the weighting of each cost item based on a 2020 actual costs survey and adjusting the index according to the relevant tracker per cost item to determine the index in the subsequent years. Participants were asked to ascribe a percentage of each cost to storage, based on their understanding of the cost and its relation to storage and handling.

Basket methodology constraints

Fixing contribution weights of costs based on a year’s survey could miss critical changes within the industry. As an example, load shedding incidence and expenditure on fuel for alternative electricity generation have increased drastically over the past few years – 884 hours in 2020 to 1 153 hours in 2021 (30,4% increase), 3 776 hours in 2022 (282% increase from 2020) and 6 672 plus hours in 2023 (655% increase from 2020) (Janse van Rensburg and Morema, 2023).

At the time of the 2020 study, fuel contributed to 1% of the basket prices, and electricity 7% of the total cost. Changes in weightings would have occurred in more recent years as companies mitigated the effect of load shedding with alternative electricity sources and fuels.

In addition to the principle of change in cost weightings, certain items have occasionally increased more drastically than the PPI. In theory, if not weighted correctly in the PPI proportionately to

other cost items, this could lead to the JSE storage rate not accurately representing actual changes in costs.

The movement in the December PPI for final manufactured goods was compared to the movement in three other cost items, namely minimum wage, electricity, and fuel (Figure 1). Fuel costs, a 1% contribution in the BER GSCI, increased more aggressively in 2021 and 2022 than the PPI for final manufactured goods. Electricity, with a weight of 7% in the BER GSCI, has been increasing at a slightly higher rate than the PPI over the past few years, except in 2022. Furthermore, the minimum wage, part of the 22% contribution of personnel costs in the BER GSCI, also saw a more drastic increase in 2021, compared to the PPI.

However, the 2021 to 2022 y/y change in minimum wage and electricity costs were lower than the PPI. Therefore, should one of these costs carry a greater weight in actual storage costs than represented in the December PPI, considering that cost item weights are constantly shifting, the PPI as an adjustment can potentially misrepresent the true movement in costs, whether an over or under-representation. These concepts are demonstrated in principle; however, an analysis of actual costs is required to reveal whether the JSE storage rate accurately accounts for actual changes in costs for storage.

Actual cost of storage

To account for the constraints of the basket methodology described, an index

based on the movement of actual storage costs over time could give a better representation of the true difference between the movement of storage costs compared to the relevant PPI as it will account for changes in weight contributions. An investigation is required to test whether an annual actual cost index deviates significantly from a basket methodology index.

To ensure accurate indexing by any independent service provider based on a survey of actual storage costs, a definitions workshop was held on 8 August 2023 to define the following:

- Differentiation between storage and handling activities and their inclusion in an index.
- The cost items definition and inclusion criteria.

Definitions workshop outcomes

The stakeholders who attended the workshop standardised the definitions and the inclusion of cost items under these definitions as follows:

Storage: The act of holding grains and maintaining the quality thereof within a storage structure. Storage costs include any cost incurred from the moment grains and oilseeds enter a storage structure (e.g. silo bin, bag, bunker, etc.), as well as all costs required to preserve quality (aeration, fumigation, climate control, and bin rotation).

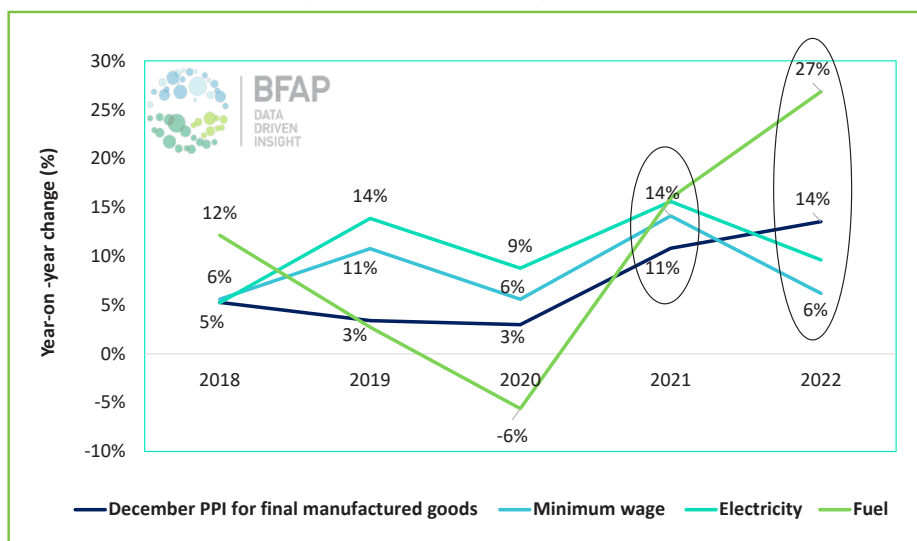
Handling: Handling includes all processes conducted to move grain into and out of the correct storage structure (according to grade), as well as processes required to improve the state of grain entering storage (drying, sifting, and grading).

The purpose of understanding the items contributing to handling and storage costs is to understand how and which costs contribute to a storage cost index.

An initial approach to indexing to track the actual movement of costs was discussed by the attendees of the workshop. Two viable approaches are available to determine the contribution of storage-specific activities to an index, namely an activity-based approach or an accounting approach.

While the activity-based approach stands out for its comprehensive and precise estimation of the genuine contribution to

Figure 1: Movement in the December PPI compared to movement in other selected cost indicators. (Source: BFAP 2023)



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storage costs, it necessitates substantial investments in time, resources, and data. On the other hand, the accounting approach, while more practical in its requirements, falls short in precision when estimating the proportion of costs attributed to storage or handling.

For the accounting approach, the contribution of storage to the cost item is applied proportionally (weighted approach, expressed as a percentage contribution). The percentage contribution was estimated individually per agribusiness based on the type of storage and management practices.

To track the movement of storage costs over time, it was discussed that certain cost items should be considered as potential costs to exclude from the final list of items contributing to the index. This is based on the requirements that cost items must contribute to the index annually and must reflect the cost of storage without being influenced by business strategies. Therefore, depreciation, interest, capital costs and rent were preliminarily excluded based on the aforementioned criteria.

The purpose of understanding the items contributing to handling and storage costs is to understand how and which costs contribute to a storage cost index.

However, there is merit in comparing an index including the cost items to one excluding them to determine the impact of the exclusion. Furthermore, these costs should not necessarily be discarded when calculating the actual cost of storage. More research is needed to determine the best approach for a survey to determine how to remunerate the actual cost of storage.

It is important to note that this methodology applies to a relative cost index to track the movement of actual storage costs on an annual basis.

Table 1: Cost items and definitions outlined for the accounting approach during the definitions workshop.

Cost item	Definition
Remuneration of employees	Remuneration of all employees on-site.
Utilities	Electricity for aeration and temperature monitoring, water (bin cleaning) and sanitation, and garbage disposal.
Fuel	Fuel for the energy required during storage (aeration).
Chemicals	Fumigation chemicals.
Consumables	Cleaning supplies, paper, etc. excluding bag costs. Mostly used in handling.
Bag costs	Silobags (plastic).
Repairs and maintenance	Maintenance and repairs to storage structures. Handling equipment is excluded but makes up most of the maintenance costs.
Insurance	Grain and oilseed insurance, and structure insurance.
Security	On-site security.
Head office (administration)	Managers (general) and contractors, administration and inventory management, auditors, and security officers.
Rates and taxes	Property tax, auditing (inspection), safety registration and software rates.

This cost index could be an alternative index to the PPI to adjust the JSE day storage rate annually.

Cost survey constraints

In 2011 the Competition Tribunal concluded that the Grain Silo Industry (Pty) Ltd, through their participation, had contravened the Act by fixing the daily grain storage tariffs for Safex. Consequently, it is essential that any survey is conducted in strictest compliance with the requirements of the Commission.

According to Khumalo and Le Grange (2023), the Commission's general guidelines for trade associations include:

- The nature and type of information shared should be considered on a case-by-case basis; however, information shared between industry representatives should not include prices, volumes or commercial strategies.
- Generally, depending on market circumstances, the guidelines do not find problems if the information shared is historical and nationally aggregated.

Agbiz Grain will be consulting with the Competition Commission before pursuing efforts that require members to exchange information with independent third-party service providers or consultants. Unfortunately, these complexities slow down the survey process for third-party investigators.

What is next?

It is the prerogative of the JSE to choose the methods for calculating the JSE storage rates and the effect of changing the rates. All nodes within the commodity value chains, including producers, silo operators, manufacturers and traders, should be taken into account.

However, given the continued work done in this regard, it is advised that the JSE conducts a comprehensive examination of the JSE storage rate, including scrutiny of the methodology employed in determining the initial storage rate (R/tonne/day), as well as the index driving adjustments to the JSE storage rate. Such a critical assessment will be instrumental in ensuring the effectiveness and long-term sustainability of the storage industry and related business endeavours. [2](#)

For more information and references, send an email to Louise Coetsee at louise@bfap.co.za.

Fumigation training in South Africa

By Koos du Pisanie, Plaas Media

Exporting is an ideal that many aspire to in South Africa, but to achieve this it is necessary to adhere to certain global standards. In the grain industry, standard practice dictates that no product may be exported unless it is fumigated, and the shipment accompanied by a fumigation certificate.

Insects do tend to make an appearance somewhere along the value chain, especially if the grain was not correctly fumigated. Because of the difficulty identifying the guilty party in such instances, traceability is crucial. And given the large amount of money and sizable volumes involved, a company places itself at risk if the grain it offers the market is not of the highest standard.

Trained fumigation officers

Hendrik van Aswegen, general manager at the Grain Training Institute (GTI), explains that only people with the necessary training and certification may fumigate grain, as specified in the *Fertilizers, Farm Feeds, Seeds and Remedies Act, 1947 (Act 36 of 1947)*.

Several factors influence the quality of grain. For instance, climatic conditions might lead to issues at storage facilities.

Furthermore, the fumigation officer must act responsibly, and his or her operating and management procedures must be duly documented.

Abide by the law

To keep insect pests at bay, storage facilities must be fumigated correctly. This is no easy task. However, there are industry standards that not only streamline the process but also guarantee that it is done correctly.

Although killing adult insects and removing them from the grain is a straightforward task, the same cannot be said for the eggs and pupae. This is where fumigation comes into play. According to Van Aswegen, *Act 36* and the South African Bureau of Standards (SABS) set

out certain requirements for the proper application of fumigation.

Over the last few decades training has suffered because of the cheaper, fast-tracked training that some institutes offer. Trainers often lack the knowledge required and independent supervision by inspectors as specified in *Act 36* has completely disappeared.

“Going forward, qualified trainers and inspectors will also have to complete refresher courses every three years to make sure everyone in the industry is on the same page.”

While above-board institutes do their best to provide quality training and ensure they meet the standards that are set, others are not as honest (think forged certificates and unqualified people providing training).

Training in the spotlight

The death of some people last year due to the ignorance of individuals who had no grasp of what safe fumigation entailed, thrust the training of fumigation officers to the fore. This includes the safety of the person applying the agent, people in the vicinity where the agent is applied, as well as the protection of the end consumer and environment.

Grain industry leaders believe that a national standard should be implemented. This includes farm silos. According to Van Aswegen, these silos are often ill equipped to keep insects from taking up residence and laying their eggs

in the grain. It is these eggs and pupae that cause a headache for the role-player further down the value chain.

The only way to ensure the success of such a national effort is to get as many suppliers and service providers involved in fumigation, to collaborate in addressing the issues and to comply with the set standards. Furthermore, fumigation officers must be properly trained in application techniques and follow the correct standards while inspectors must enforce the standards that must be met.

Unfortunately, the number of inspectors who are supposed to enforce these standards have dwindled over the years. When he joined the industry, says Van Aswegen, there were approximately seven inspectors. Today there are none.

Continual training

According to Van Aswegen, fumigation officers must be re-evaluated regularly (every three years at least). Only then should their certificates be renewed. Among the management system aspects that need considering are:

- Internal or external changes relevant to the scope of this standard.
- Adequacy of operating and management procedures.
- Outcomes of internal audits, audits for this standard and any other external or third-party.

Achieving industry goals

The industry has a gap to fill. In a bid to align the South African grain industry with world standards, various role-players should come together to establish an organisation or platform which will set a high national standard for fumigation officers.

“The purpose of such an organisation or platform will be to ensure that the person providing the training is accredited, that training material is up to standard, and that forged certificates are removed from the system,” says Van Aswegen.

“Going forward, qualified trainers and inspectors should complete refresher courses every three years to make sure everyone in the industry is on the same page.”

Legislation used to contain a ‘grandfather clause’ which stated that any person who has been in the employ of a pest control company for five years or more, can obtain a letter from his or her manager stating that the person is competent and then take this letter to obtain a fumigation certificate. However, legislation no longer contains this concession.

The organisation should also aim to ensure that candidates stay up to date, with fumigation officers having to earn 25 continuing professional development

(CPD) points annually to renew their fumigation license.

International level training

Van Aswegen says GTI currently offers a basic course for beginner officers. This is a two-week theoretical course followed by a practical evaluation. They can then apply to become pest control officers. If they fail the practical evaluation, they need to repeat the course. The theoretical course can also be completed online.

The refresher course reviews the latest techniques, permitted agents and legal aspects.

Proper training has several benefits: it promotes safety; an officer will know which agents at which dose to use and the relevant application procedure; and knowledge relating to insects’ resistance to certain chemicals and the application of preventative strategies are acquired.

There are many job opportunities for young people in this field. Therefore,

people should take advantage of affordable training that is of an international standard.

Benefits of good training

According to Van Aswegen, fumigation standards always used to be excellent so as to promote safe and correct application of fumigation in grain storage structures in South Africa. These were in line with the international Grain and Feed Trade Association (GAFTA) provisions, but seems to have been neglected for a few decades now. These standards cover the management and operational procedures of the fumigation officer and his or her trained representatives.

“The grain industry in South Africa must continue complying with GAFTA provisions, especially if it wants to exploit additional export markets. Ideally all training institutes should make use of these provisions so that we can maintain the high standards set. Not only that, but commercial and farm silos ought to make use of this training opportunity.”^a

For more information, contact Hendrik van Aswegen on 083 227 8161 or at hendrik@gtinstitute.co.za.



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Potential application of hyperspectral imaging in food grain quality inspection, evaluation and control during bulk storage

By Ndubisi A Aviara, University of Maiduguri, Nigeria; Jacob Tizhe Liberty, McGill University, Canada; and Ojo S Olatunbosun, Habib A Shoyombo and Samuel K Oyeniyi, University of Ibadan, Nigeria

Hyperspectral imaging, otherwise referred to as spectral imaging or chemical imaging, is an innovative technique which combines both spatial (imagery) and spectral information concurrently from a tested object. Hyperspectral imaging is a non-destructive tool designed with the integration of digital imaging technology, radiometry and optical spectrometry principles.

Hyperspectral imaging advantages

The advantages of using hyperspectral imaging for quality assessment of foods and agricultural materials are as follows:

- It is a non-destructive, non-contact and non-invasive tool and technology, which therefore ensures the safety and quality of food materials.
- Safe for the environment as no chemicals are used in the experiment.
- It gives a better understanding of the chemical elements of the food materials and is commonly termed chemical imaging.

- It saves time compared to the traditional or chemical method of food grain storage control and quality evaluation.
- It gives a proper selection of the area of critical interest for image analysis.
- It attains spectral and spatial information simultaneously to give more accurate and appropriate data regarding the sample chemical constituents from the platform of interest and provides a chance to refine the data and perform further experiments.

Limitations

Despite its advantages, hyperspectral imaging also has some limitations:

- A hyperspectral imaging system is highly priced in comparison to other image processing techniques.
- Due to the large data size of hyperspectral imaging, there is a need for huge capacity drives for data storage and high-speed computers for data processing.
- During image acquisition, the signals could be influenced by the ambient environment such as illumination, scattering, etc., hence producing a poor signal-to-noise ratio.

scattering, etc., hence producing a poor signal-to-noise ratio.

- Identification and detection of various items within the same image using spectral data is usually difficult, except the diverse objects have different absorption features.

Survey applications

Quality is a crucial factor for the modern food grain industry because high quality is the basis of market demand and food security. At the post-harvest level of grains, quality evaluation and control are still performed using traditional and manual methods such as microbiological and chemical tests, which are tedious, costly, time consuming, and could be inconsistent due to human imperfection. Therefore, grain quality inspection needs non-destructive, fast, precise, and efficient analytical tools to ensure quality and safety.

Due to the rapid advancement in instrumentation, software and algorithmic developments as well as chemometrics, hyperspectral imaging has the potential

Figure 1: Diagram of the main components of the hyperspectral imaging system.

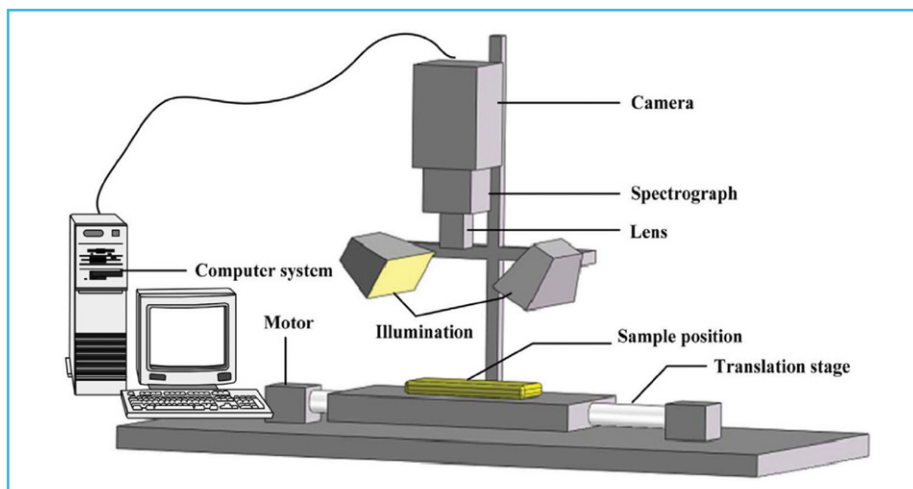
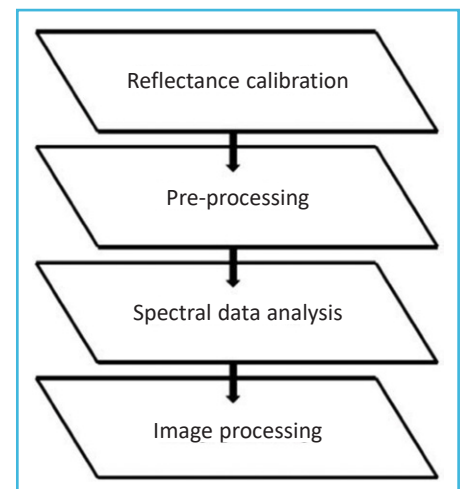


Figure 2: Flow diagram of hyperspectral data analysis process.



to make an ever-increasing contribution to food quality and safety assessment, especially in the grain field industry. It can play a vital role in the colour classification of grains, identification of healthy and insect-damaged wheat kernels, prediction of the chemical composition of grains, and classification of grain contaminants.

Similarly, a hyperspectral imaging system in 700 to 1 000nm was combined with colour imaging to identify healthy and insect-damaged wheat kernels. The potentiality of short-wave near-infrared (NIR) hyperspectral imaging (700 to 1 000nm) for sensing midge-damaged wheat kernels was also assessed and a high accuracy of 95,3 to 99,3% in classifying healthy and midge-damaged wheat kernels was obtained.

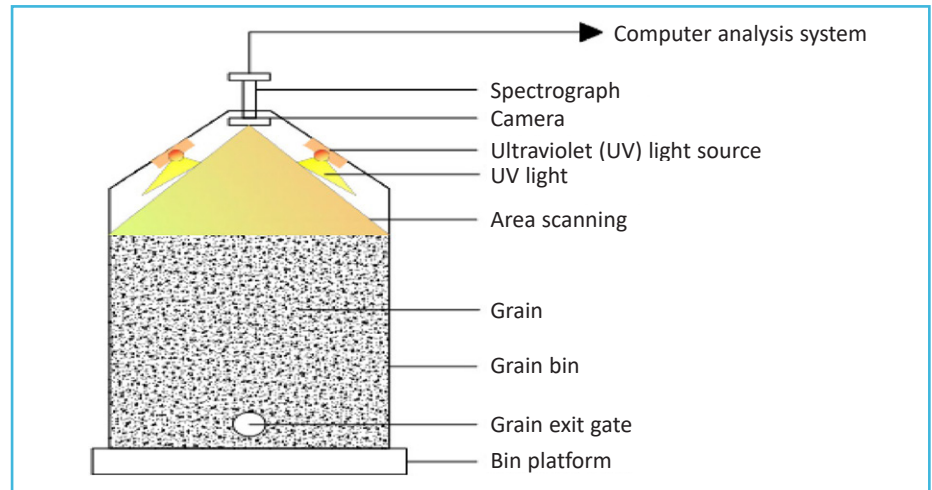
Furthermore, the problem involving undesired sprouting of grains is a major challenge in the grain industry because it reduces process efficacy and economic benefit. This untimely sprouting of mature cereal grains, often referred to as pre-germination, causes a reduction in the viability of a grain sample. Rapid, non-destructive, including accurate detection of unviable grain, is needed to minimise losses related to pre-germination. NIR hyperspectral imaging has been indicated to be a useful tool for exploring the viability of barley, wheat and sorghum grains.

Study results showed that oil content was estimated with a root mean square error of prediction (RMSEP) of 0,7% and oleic acid content with an RMSEP of 14% for a given maize kernel. Furthermore, hyperspectral imaging systems have been effectively applied to indirectly detect *Fusarium* damage in maize and wheat, and also to investigate fungal development.

In addition to *Fusarium*, the damage of other toxigenic fungi, such as *Aspergillus flavus*, *Aspergillus parasiticus*, and *Aspergillus niger* on maize and wheat has likewise been detected by examining the hyperspectral images in 400 to 1 000nm or the combination of hyperspectral images in 700 to 1 100nm and colour images.

One of the challenges in the grain industry involves the need for an approach to quantitative evaluation of mycotoxin contamination. Accordingly, it has been found that hyperspectral imaging is a potentially useful technique for predicting

Figure 3: Area scanning configuration of hyperspectral imaging for acquiring hyperspectral data in bin storage.



milled maize *Fumonisin* contamination produced by *Fusarium* spp. and estimating *Aflatoxin* concentration in maize kernels inoculated with *A. flavus* spores.

Potential applications

Hyperspectral imaging has become a potential novel technique in agricultural post-harvest unit processes such as bruise recognition, identification of foreign bodies in food, sorting, grading, and prediction of the chemical composition of agro products. Nevertheless, hyperspectral imaging will play a unique role in bulk grain storage in the detection of sprout-deteriorated seed coat and kernel, sensing of foreign bodies in grain bins, detection of insects inside grain bins, and detection of fungal infection in stored grains.

Detection of insect infestation

Preventing insect infestations is easier, safer and less expensive than to treat them. In addition, direct feeding damage caused by pests decreases the overall grain quality attributes such as weight, nutritional value as well as germination. Similarly, insect infestations likewise impinge unpleasant characteristics resulting in unpleasant odour, mould and heat damage problems that could greatly reduce the quality of the grain and may make it unfit for processing into food for humans or animals.

NIR hyperspectral imaging has shown to be potentially effective in detecting wheat kernels that were damaged by insects.

Detection of fungal infection

Fungi (moulds) are considered the principal causative agents of grain spoilage. They feed and live on

stored products. Losses triggered by fungi in food grains are interrelated to a reduction in sprouting, staining of the seed, heating and mouldiness, biochemical evolutions and possible production of mycotoxins, a naturally occurring fungal product, which are poisonous. All these changes may occur without the mould becoming visible to the naked eye.

During storage at low moisture levels, fungi are typically inactive but active when the moisture is higher, as in tough, damp or accidentally wetted grain. Fungal spores are mainly caused by *Aspergillus* spp. and *Penicillium* spp.

However, the matured fungus and insects or sometimes the stored grain respire, producing heat which leads to a localised high-temperature zone in bulk grain called a hot spot, which initiates the spoilage of grain especially in areas where most fungi and insects are located within the grain bin.

Usually, fungal identification in warehoused grain is conducted by the plate agar method. The challenge with this method is that it often requires a long incubation period and can only sense limited species of fungal strains.

Other approaches utilised for detecting the presence of fungi in stored grains include high-performance liquid chromatography (HPLC), gas chromatography and mass spectroscopy (GC-MS), sensory analysis and electronic noses. These techniques employ the volatiles formed by the fungus to detect fungal activities which require a long observation period. Hence, a hyperspectral imaging system, a non-

destructive tool, is found to possess the capability and can be used to scan bulk grains to detect the growth of mould and seed discolouration early without making surface contact.

Detection of foreign materials

Generally, foreign bodies are considered as any undesirable materials (dirt, stones, dead insects, rat excreta and other contaminants) which exist in food grains. When grain bins are filled, foreign and light materials tend to form dense pockets in the centre of the bin. They may form a core of material from top to bottom and the 'core' may sometimes be so tightly packed that aeration or drying air goes around it, passing through the looser, cleaner grain so that this zone may not properly dry, which provides an excellent environment for mould and insect growth.

Conventional methods like visual inspection for detecting the level of foreign materials in the bin are time-consuming and laborious. The preferred procedure is to use a hyperspectral imaging system which merges imaging and spectroscopy for improved non-destructive assessment of materials. It can be applied for the prediction of concentration and distribution of multiple components in a sample.

A study investigated the use of NIR hyperspectral imaging for foreign body detection involving a relatively uniform sample of white rice grains and a mixed variety grain sample (containing a variety of dehydrated grain legumes). It was stated that one key benefit of hyperspectral imaging over other methods of foreign body detection is the ability to detect, as well as classify, foreign items based on their spectral characteristics.

Conclusion

Hyperspectral imaging provides innovative opportunities to scientists and manufacturers in food and agricultural science. By integrating the novel technology of spectral and spatial imaging with radiometry, this device may be used for mapping both extrinsic and intrinsic dispersal of ingredients over the surface of a sample.

Future enhancements in precision, accuracy and speed in hyperspectral imaging might prospectively emerge with better illumination systems, advanced quality photometric sensors and quicker hardware. As hyperspectral imaging remains a promising technique for food quality and safety analysis, and with innovative systems offering much swifter

image acquisition and processing times than ever before, the potential role of this technology in the monitoring and quality control of bulk grain storage seems very certain.

Based on existing studies available in the literature, hyperspectral imaging analysis could be a great tool for separating contaminated and deteriorating grains from uncontaminated and healthy ones, which would help to considerably reduce the presence of contaminating materials from the food chain.

Considering the enormous potential the technique presents for grain quality inspection, more studies are needed especially for other grains aside from wheat. This would help in providing useful information for the optimisation of the quality assessment processes.

This open source article has been condensed for publication in *Agbiz Grain Quarterly*. For enquiries, email Ndubisi Aviara at nddyaviara@yahoo.com or visit www.sciencedirect.com/science/article/pii/S2666154322000217 to read the full article.



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Noise monitoring and surveys in the workplace

By Christal-Lize Muller, Plaas Media

Occupational hygiene in the workplace, particularly when it comes to measurements and risk assessments, is essential and mandated by legislation. It serves as a strong pillar for occupational health and is linked to various aspects of risk management.



Fanie Strauss, CEO of Ebenaeser Environmental Consultants, zeroed in on relevant legislative requirements and regulations during the seventh virtual safety, health, environment and quality (SHEQ) workshop hosted by Agbiz and Agbiz Grain late in 2023. Strauss focussed on relevant requirements set by the Association of Inspection Authorities for conducting hygiene surveys, highlighting a typical approach to such surveys. His presentation aimed to provide detailed insights into the reports generated after conducting occupational surveys and addressed diverse concerns.

A specific focus of the workshop was noise being one of the hazards to the health or safety of individuals in the workplace.

Noise as a hazard

According to Strauss, Section 8 of the *Occupational Health and Safety Act, 1993 (Act 85 of 1993)* places an obligation on every employer to establish and maintain a working environment that is both safe and free from health risks for employees. Employer duties extend to the provision and upkeep of safe systems, with a specific focus on having an on-site system in place.

For instance, if a risk, such as a noise zone exceeding 85 decibels (dB), is identified, a system should be implemented to demarcate the area, display appropriate signs, and ensure consistent maintenance.

Employers are strongly encouraged to proactively eliminate or mitigate any hazards or potential threats to the safety and health of employees, emphasising a preference for other preventive measures than simply resorting to personal protective equipment (PPE). Employers must identify and understand the associated hazards of any task, determining precautionary measures for the protection of individuals' health and safety. Information, instructions, training and supervision are pivotal aspects of this process.

The employer should ensure that work is conducted under the general supervision of an individual trained to understand hazards and who possesses the authority to enforce precautionary measures.

Noise monitoring

Strauss highlighted the significance of noise as a measured hazard on-site,

emphasising the relevance of *Noise-Induced Hearing Loss Regulations, 2003 (GNR 307 of 1993)*. When an assessment indicates potential exposure of any employee to noise at or above the noise-rating limit, employers must initiate a noise exposure measurement programme that complies with these regulations.

This process requires collaboration with relevant health and safety representatives or committees, ensuring a reasonable period for comments. A safety representative should accompany the surveyor during these surveys, conducted by an approved inspection authority (AIA), accredited by the South African National Accreditation System (SANAS) and approved by the Department of Employment and Labour.

SANAS, as the single national accreditation body, encourages and promotes the accreditation of testing by an AIA and verification laboratories. Strauss explained that the survey must accurately reflect employees' noise exposure, including measurements of the eight-hour time-weighted average to establish their exposure during a shift.

During extended work hours, exposure should be adjusted to an eight-hour equivalent. In addition, the employer must ensure that in cases where multiple employees work in an area with approximately equal noise levels, provision is made for the selection of not fewer than three locations representative of the positions occupied by employees. Measurements should then be taken at each of these positions. He said the measurement programme must also account for taking measurements at the appropriate position of the ear of a person who receives the higher noise level.

Noise measurements should be carried out at least every 24 months. Surveys should also be repeated after operational changes such as introducing new machinery to ensure noise levels remain below 85dB. This approach ensures effective hearing conservation in the workplace.

Control of noise exposure

Regulation 10 under the *Noise-Induced Hearing Loss Regulations* addresses the control of noise exposure. It mandates employers to prevent or adequately control an individual's exposure to noise where reasonably practicable. Adequate control is defined as exposure remaining below the noise-rating limit of 85dB. In instances where exposure surpasses this limit, and the cause is identified,

employers must take corrective action through methods beyond using hearing protection devices (HPDs).

This proactive approach ensures that exposure is effectively reduced, preventing it from exceeding the prescribed noise-rating limit. Furthermore, employers are obligated to document the results of measurements in the records mandated by *Regulation 11*, fostering a comprehensive and accountable approach to managing noise exposure in the workplace.

Record-keeping

Regulation 11 stipulates rigorous record-keeping obligations for employers. Strauss emphasised that these records must cover the outcomes of all assessments, noise monitoring, and medical surveillance reports, in addition to documenting the maintenance records of required control measures.

Accessible for inspection by an authorised inspector, these records are also available to any person seeking information relevant to a specific employee, contingent upon the formal written consent of the employee. Furthermore, records of all assessments and noise monitoring are to be accessible for review by the relevant health and safety representative or committee, with a mandatory retention period of 40 years.

This extensive duration also applies to medical surveillance records, including the baseline audiogram of each employee. In the event of business cessation, these records are to be handed over or sent by registered post to the relevant provincial director. Strauss underscored the significance of maintaining records of employee training for as long as they remain employed in environments exposing them to noise.

Hygiene survey approach

He outlined the key objectives of noise assessments focussing on a comprehensive hygiene survey approach:

- Identifying all employees likely to be exposed to noise at or above the noise-rating limit for hearing conservation.
- Gathering information on noise sources and work practices to determine measures for noise reduction. In this regard, the AIA, having conducted numerous surveys, provides easily followable recommendations with the active involvement of managers and safety representatives.
- Utilising the AIA guide for the selection of equipment and the layout of workplaces to reduce noise exposure.
- Verifying the effectiveness of measures taken to reduce noise exposure.
- Guiding the selection of appropriate hearing protection equipment and demarcating noise zones.

Table 1: dB(A) – weighted scale for judging loudness that corresponds to the hearing threshold of the human ear. (Source: Fanie Strauss)

L _{Aeq} /8h dB(A) level	Occupational health risk	Risk factor	Significance of risk to NIHL	Action required
≤70-82	-	0	Insignificant	No action
83-85	C	1	Potential risk of NIHL	Occupational health monitoring of exposure levels
86-90	B	2	Moderate risk of NIHL	Intervene and re-evaluation of risk
91-95	B	3	Significant risk of NIHL	Priority intervention followed by a re-evaluation of risk
96-105	B	4	Unacceptable level of risk	Immediate intervention and re-evaluation of risk
≥106	A	5	Definite and extreme risk of NIHL	Urgent intervention and ongoing re-evaluation of risk

Strauss underscored the legal imperative governing the issuance of PPE, especially concerning HPDs for employees. The process entails a meticulous selection of the type, quality, and required noise reduction rating for hearing protectors. Workers are mandated to conduct tests on the equipment. Integral to this process is the determination of the equivalent continuous rating level, emphasising the need for sound level meter configuration to align with the accuracy requirements for a type two instrument.

A windscreen, specifically designated by the manufacturers as suitable for the

particular microphone and exhibiting no detectable influence on the meter's accuracy under ambient conditions, is indispensable. Sound calibration must also adhere to the prescribed requirements for a type-two calibrator.

Information on reports

Reports on noise measurements must contain crucial information. This includes the purpose of the measurements, a description of the measured environment, and a dimensioned drawing indicating measuring points and noise zone boundaries.

The report should also include the eight-hour rating level for each noise zone and specific areas, such as operator positions. A comprehensive description of the noise sources and operating conditions, including non-operational sources and machinery, should be included, along with estimated effects during operation.

Furthermore, the report needs to detail the measuring equipment, including serial

numbers, calibration dates, the test date, the name of the test officer, and the site's address.

The hygiene survey itself

Noise exposure for each risk category is contained in *Table 1*. It is crucial to note, said Strauss, that in a risk assessment, noise levels below 70 to 82 A-weighted decibels, or dB(A), are deemed insignificant to occupational noise-induced hearing loss (NIHL) and require no action. On the other hand, noise levels exceeding 106dB(A) are categorised as A with a high-risk factor of five.

In such cases, urgent intervention and ongoing re-evaluation of risk are necessary. Providing employees with proper hearing protectors is recommended when the noise level ranges from 83 to 85dB(A).

Noise reduction rating (NRR)

According to Strauss, the quality of an HPD is consistently denoted in the NRR column within a hygiene noise assessment results table. In the selection

of appropriate HPDs for designated areas, a comprehensive understanding of reduction rates is pivotal to ascertaining their suitability for employees. The NRR signifies the maximum sound reduction capacity of an HPD.

Precision in evaluating protection, measured in dB(A), involves subtracting seven from the NRR value and dividing it by two. For example, an NRR rating of 25 corresponds to a protection factor of 9dB(A). Furthermore, standardised NRR labelling is obligatory for all hearing protectors distributed in South Africa.

Thorough testing before issuance is paramount, ensuring comfort, cleanliness and effective noise reduction to suitable levels. The meticulous selection of hearing protection is important, as the appropriateness directly impacts employee adherence. Following the compilation of a report, a Health Risk Assessment Medical Linkage is issued that delineates exposures based on employees' occupations. [a](#)

For more information, phone Fanie Strauss on 082 802 9398 or email faniesnr@eecoh.co.za.



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The Freight Logistics Roadmap promises to usher in a new era for rail transport in South Africa. (Photograph: freepik.com)

Freight Logistics Roadmap lays the tracks for renewal

By Theo Boshoff, CEO, Agbiz

Late last year, cabinet approved the so-called *Freight Logistics Roadmap* for publication. It promises to usher in a new era for rail transport in South Africa, but it requires significant work to be done in 2024.

The presidency also appointed a group of independent logistics experts last year to formulate a strategy that can arrest the decline in South Africa's freight logistics network. Agbiz contributed inputs to the plan that was finally published at the end of 2023.

Aside from its relative silence on port operations, the plan makes bold, positive proposals to radically alter the rail landscape in South Africa through institutional reform and a level playing field for the private sector. As we look towards 2024, four major changes are on the cards.

Infrastructure manager

To date, Transnet Freight Rail (TFR) has held a monopoly over freight rail transport in South Africa as it owns and operates most infrastructure and rolling stock in the country. From a financial point of view, it is fair to say that TFR has been an Achilles heel for the Transnet group as vast parts of the network have fallen into disrepair and service has significantly

declined as it struggled to keep its fleet in operation.

The roadmap recommends that TFR be segmented into semi-autonomous companies responsible for the infrastructure, operations and leasing of its current rolling stock. The priority issue that has already commenced is to create the infrastructure manager under the roadmap. The rail infrastructure will largely remain the property of the state but will be managed independently from operations. The infrastructure manager will therefore receive an income from operators (including private operators) and have the sole objective to ensure that the physical network is safe and fit for operation.

Right-sizing the rail network

The infrastructure manager can only be successful if it focusses on the operational lines and is of strategic importance. South Africa once had a vast rail network, but it is generally accepted that densities on some lines are too low to be economically viable. These lines were highly subsidised in the past to promote rural development. While it was successful in doing so, the same model cannot work in the absence of significant subsidies and the state is simply not in a fiscal position to do so.

Instead, the Pareto principle will likely be applied to focus on the 20% of lines that can account for 80% of the traffic. This includes the main corridors for general freight passing between coastal cities and Gauteng, dedicated lines for exporting minerals such as coal, iron ore and manganese, as well as the main branch lines that service bulk agricultural sectors such as grain, sugar and forestry.

These lines are naturally the most important for our sector, but it is also extremely difficult to accurately evaluate their feasibility as many were historically subsidised. The information collected by Agbiz Grain members throughout last year will be key to determining which branch lines and consolidation points should remain a priority as the network is right-sized. Conversely, agribusinesses should realise some savings as many currently maintain dormant lines in the hope that they will run again one day.

Once the network has been right-sized, the industry will have clarity on which lines to maintain versus those that are no longer part of the long-term plans.

A level playing field

Private sector participation in rail is not unprecedented in South Africa (think

Rovos Rail) but the playing field has never been level for freight rail. In the past year, Transnet advertised slots on rail for the private sector, but the conditions set by Transnet were largely unpalatable for the private sector. The unrealistic short period for concessions (two years) is enough to scare away more investors.

The roadmap encourages private sector participation but there is a fundamental difference in its proposals. Firstly, operating licences will not be awarded by Transnet, as it is a potential conflict of interest, but rather by an independent rail regulator. Likewise, the conditions will not be subject to approval by a potential competitor but rather prescribed in a network access statement. Put simply, the conditions of access will be prescribed by an independent regulator and applied across the board.

The National Logistics Crisis Committee will need to play a vital role in the realisation of these changes. An interim rail regulator is currently being established

until a permanent regulator can be put in place. The network access statement is perhaps the most important priority for 2024 and inputs must be made to ensure that conditions will be attractive for private sector companies operating in the rest of Africa and able to bring modern rolling stock to South Africa.

While the building blocks must still be put in place, these proposals hold great potential for companies in agricultural value chains. It is common knowledge that Transnet has insufficient working locomotives to service the agricultural sector, but it does have a large fleet of railway trucks designed to haul bulk agricultural commodities.

The roadmap proposes the establishment of a rolling stock leasing company, or ROSCO, whereby Transnet can lease portions of its unused fleet to private sector operators. This could significantly lower the barriers of entry for agribusiness or traders to operate on the rail while also turning dead capital into a source of revenue for Transnet that

can be reinvested into infrastructure and maintenance.

Fee structures

Finally, the roadmap contains proposals to encourage the maintenance of branch lines by private companies by offsetting these costs against licencing fees. Where an agribusiness spends money on rail infrastructure, and many do, these companies could qualify for discounted rail access fees should they apply for permits to operate on the same lines.

As one would gather, a significant amount of work is still required to establish these new institutions and draft the detailed access conditions. However, the building blocks recommended by the roadmap are sound and could be a game-changer for agribusinesses that are currently looking for a cost-effective alternative to road transport. Agbiz and its members will continue to provide inputs at each opportunity to pave the way for an improved operating environment. ^a

For more information, send an email to Theo Boshoff at theo@agbiz.co.za.

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Competition Act buyer power guidelines: Applicability to storage operators and producers

By Annelize Crosby, head of legal intelligence, Agbiz

The Competition Commission in May 2020 issued guidelines regarding the enforcement of buyer power in terms of section 79(1) of the *Competition Act, 1998 (Act 89 of 1998)*. A new section 8(4)(a) was added to the Act in 2020 and prohibits a dominant undertaking as a buyer in specified sectors from requiring or imposing unfair prices or trading conditions on small and medium-sized enterprises (SMEs) or enterprises controlled or owned by historically disadvantaged persons (HDPs).

These guidelines set out the principles leading the Commission when assessing whether alleged conduct contravenes section 8(4) of the Act.

Legal provisions

Section 8(4) of the *Competition Act* reads as follows:

(4) (a) It is prohibited for a dominant firm in a sector designated by the minister in terms of paragraph (d) to, directly or indirectly, require from or impose on a supplier that is a small and medium business or a firm controlled or owned by historically disadvantaged persons, unfair (i) prices; or (ii) other trading conditions.

(b) It is prohibited for a dominant firm in a sector designated by the minister in terms of paragraph (d) to avoid purchasing, or refuse to purchase, goods or services from a supplier that is a small and medium business, or a firm controlled or owned by historically disadvantaged persons in order to circumvent the operation of paragraph (a).

(c) If there is a *prima facie* case of a contravention of paragraph (a) or (b), the dominant firm alleged to be in contravention must show that (i) in the case of paragraph (a), the price or other trading condition is not unfair; and (ii) in the case of paragraph (b), it has not avoided purchasing, or refused to purchase, goods or services from a supplier referred to in paragraph (b) in order to circumvent the operation of paragraph (a).

(d) The minister must, in terms of section 78, make regulations (i) designating the sectors, and in respect of firms owned or controlled by historically disadvantaged persons, the benchmarks for determining the firms, to which this subsection will apply; and (ii) setting out the relevant factors and benchmarks in those sectors for determining whether prices and

other trading conditions contemplated in paragraph (a) are unfair.

Sectors designated by the minister include the agro-processing, grocery wholesale, retail, e-commerce and online services sectors. The buyer power regulations apply to a supplier which supplies less than 20% of the purchases of the dominant buyer.

In terms of section 59(1)(a), a firm which contravenes the buyer power provisions will face an administrative penalty of up to 10% of its turnover value if it is a first-time offender, and up to 25% if it is a repeat offender.

Contravention of Section 8(4)

To establish whether Section 8(4)(1) of the Act was contravened or not, the Competition Commission will consider:

- Whether the buyer operates in a designated sector.
- Whether the supplier is an SME or HDP firm.
- Whether the buyer is a dominant buyer. Assessment of dominance will include both market share thresholds and buyer power. In terms of Section 7 of the Act, there is a rebuttable

presumption of dominance for market shares above 35%. The Commission will consider whether there are indicators of buyer power where firms have less than 35% buyer market share but still a material of at least 15%.

- Whether an unfair price or trading condition was imposed on the supplier by the buyer. The Commission will investigate when there are differences of more than 3% in price. Trading conditions may be deemed to be unfair if it:
 - Unreasonably transfers risk or costs onto an SME or HDP firm.
 - Is one-sided, onerous or disproportionate to the objective of the clause.
 - Bears no reasonable relation to the objective of the supply agreement.

Applicability to role-players

The agro-processing sector has been designated in terms of Section 78 of the Act. The Department of Trade, Industry and Competition views agro-processing as “the sub-sector of manufacturing that beneficiates primary materials and intermediate goods from agricultural, fisheries and forestry-based sectors.”

Dominant buyers need to review their procurement policies and interactions with SME and HDP suppliers.

The Western Cape government uses the following definition of agro-processing by Pienaar and Partridge: “All post-harvest activities applied to products that originate from primary agriculture, forestry and fisheries which involve the transformation, preservation and preparation of products for intermediary and final consumption to make them usable as food, feed, fibre or industrial raw materials. This includes waste and waste products.”

Dominant buyers need to review their procurement policies and interactions with SME and HDP suppliers. This raises the question: Is a storage operator a dominant buyer? Buyer power and market share need to be considered here.

If grain storage can indeed be considered part of agro-processing and the silo is a dominant buyer, then the next question is whether the supplier is either an SME or HDP person or company?

When is a person an HDP?

An HDP firm or firms is controlled and owned by HDPs implied by the meaning of Section 3(2) of the Act and within the benchmarks determined by the minister in the buyer power regulations. Section 3(2) of the Act specifies that for all purposes of this Act, a person is an HDP if that person:

- (a) Is one of a category of individuals who, before the *Constitution of the Republic of South Africa, 1993 (Act 200 of 1993)*, came into operation, were disadvantaged by unfair discrimination on the basis of race.
- (b) Is an association, a majority of whose members are individuals referred to in paragraph (a).
- (c) Is a juristic person other than an association, and individuals referred to in paragraph (a) own and control a majority of its issued share capital or members' interest and are able to control a majority of its votes.
- (d) Is a juristic person or association, and persons referred to in paragraphs (a), (b) or (c) own and control a majority of its issued share capital or members' interest and are able to control a majority of its votes.

In terms of the regulations on SMEs promulgated in terms of the *Competition Act*, a small enterprise employs between 11 to 50 persons full-time and has a turnover of less than R17 million. A medium enterprise employs between 51 to 250 persons, and the turnover is less than R35 million.

Considerations

The applicability of these guidelines to storage operators (silos), producers or suppliers can be determined by

establishing whether the grain storage facility charged an unfair price or imposed an unfair trading condition on the supplier.

The Commission will consider the prices paid to other producers or suppliers, whether price reductions are required from the supplier, and whether costs are imposed. If there is a significant difference in the price paid compared to suppliers outside the designated class, the Commission will determine whether there is an objective justification for the difference.

In the case of storage operators, the question will be whether they apply an unfair trading condition, for example, to not accept a delivery from an SME or HDP supplier who does not provide certain documents (for example to comply with a countrywide generic passport system) that are not legally required for the delivery. A trading condition may be deemed unfair if it falls under the provisional list of unfair trading conditions in agro-processing specified in the guidelines.²

For more information and references, send an email to Annelize Crosby at annelize@agbiz.co.za.



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OUR LOCATION
The Grain Building, Agri-Hub Office Park
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CONTACT US
Tel: +27 (0)12 807 4019
Fax: +27 (0)86 216 7672



+27 11 063 8000
jerry.maritz@afgri.co.za
www.afgri.co.za



+27 21 807 8936
casper.schmidt@bkbgs.co.za
www.bkb.co.za



innovate agriculture
+27 53 298 8200
tomm@gwk.co.za
www.gwk.co.za



+27 22 931 8205
akriel@kaapagri.co.za
www.kalgroup.co.za



+27 18 633 1000
jdurand@nwk.co.za
www.nwk.co.za



+27 28 214 3854
johanl@overbergagri.co.za
www.overbergagri.co.za



+27 51 923 4500
rudolphvw@ovk.co.za
www.ovk.co.za



+27 18 464 7800
Wikus.Grobler@senwes.co.za
www.senwes.co.za



+27 57 391 1900
cassie@silostrat.com
www.silostrat.com



+27 28 514 8600
Pieter.Malan@ssk.co.za
www.ssk.co.za



+27 17 824 1005
aduenage@twkagri.com
www.twkagri.com



+27 58 863 8111
francoisf@vkb.co.za
www.vkb.co.za



+27 13 665 7700
brent@witklip.co.za
www.schoemangroup.co.za



Malcolm Holman
malcolmh@aelab.co.za
www.AELab.co.za



Paul Burke
paul.burke@adpsa.co.za
www.adpsa.co.za



Taryn Browne
taryn.browne@buhlergroup.com
www.buhlergroup.com



Chantelle Henning
chantelle@henchem.co.za
www.henchem.co.za



Philip van der Merwe
philip@rhineruhr.net
www.rhineruhr.net



Munro van der Westhuizen
munro@thisisronin.com
www.thisisronin.com



Hanlie Kroese
hanlie.kroese@santam.co.za
www.santam.co.za



Gianluca Della Riccia
gianluca.dellariccia@wamgroup.com
www.wamgroup.co.za

Points to ponder

By Jannie de Villiers



To follow and to unfollow in 2024

Although I'm not a big fan of social media, I have nevertheless learned some of the terminology over the years. This includes the terms 'follow' and 'unfollow'. At the end of last year, I decided to study what it would mean to be a follower of Jesus in 2024 – social media users are very familiar with the term 'follower'. I listed relevant references from scripture and then grouped them together. I also read commentaries and listened to a few sermons on followership. However, it was the word 'unfollow' that drew my attention.

From follower to unfollower

Peter became a follower of Jesus, but at a certain stage he unfollowed Him. When the pressure increased after Jesus was arrested and his view of the outcome became a reality, he decided to rather unfollow Him. Peter later had a change of heart and became a leader in the church. Similarly, Judas was also a follower who later unfollowed Jesus, but unlike Peter he could never undo his actions by becoming a follower again.

I then asked myself who or what am I going to follow in 2024 and what was on my unfollow list. The things you need to do and stop doing in 2024 are your business, but I would like to share some points to ponder on what I found.

To follow Him:

- You must spend time listening when it is quiet. Listen to God and your

mentors on how to follow. That will not just enrich your own life, but also that of others.

- Expect to be inconvenienced at times and to make sacrifices during your following.
- Your walk of faith is going to challenge you to do some new things.
- You will have to leave some things behind in your old life.

Incremental unfollowing

Unfollowing someone or something is a subtle process. You might find yourself in a new environment or at a new job where you are not necessarily surrounded by other followers. As the new one, you might consider not showing all your cards from the get-go. For instance, spare a thought for first-year students arriving on campus where following Jesus is not so cool.

“God plans to take you places this year where only your faith in Him will enable you to keep going.”

When things get tough in 2024 and you do not get an answer on all your prayers to God, or not the answer that you prayed for, a subtle unfollowing might be triggered. You might start to skip your

quiet time with God, or you might not attend church or cell group meetings as often. You might be torn between what God says about your life and what the crowd says.

Leaving is not an option

In John 6:60 to 69 some of Jesus' followers consider deserting (or unfollowing) Him. Before you think about unfollowing Him in 2024 because the price is too high, it is too challenging or the majority of the people are not following anyway, reread this part in John 6. Jesus did not force anyone to follow Him. His question to his disciples after several followers had already left was: "You do not want to leave too, do you?" You should seriously contemplate Peter's answer: "Lord, to whom shall we go? You have the words of eternal life." He basically said he would rather die for something than live for nothing.

God plans to take you places this year where only your faith in Him will enable you to keep going. It is the safest place to be. The benefits are overwhelming and eternal life means everything. Hang in there, and follow Him, especially to the extent that forces your faith to grow. He will love that!

Blessings for 2024. [a](#)

For enquiries, send an email to
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