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SCRIPTURE

Now this I say...

He who sows sparingly
will also reap sparingly,
He who sows bountifully
will also reap bountifully
2 Corinthiers 9:6

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The year started with abundant rains which really continued since late last year. But now a larger area is covered, albeit with severe storms and losses of homes, livestock, crops and lives in some areas. It seems this is a world-wide situation at the moment but, as we are in the beginning of a new year, let us look at positive outcomes and positive actions we as farmers and agriculturists can put in place to overcome the obstacles we, and more so our customers, the consumers of meat and fresh products and retailers can put in place. Our crops generally looks good, outlook on beef and sheep farming looks good, if we can collectively work on government to re-instate services at harbours and air-freight, our exports can once more rise. At street level, consumers are perplexed about many well-known stores with shelves containing really poor quality greens and sometimes meat packages, but all these at much inflated prices. The farmer, amidst all former mentioned obstacles and more, receive less for his produce per item, is curbed by inflated input costs while retailers slap on mark-ups because of unsold perishables that are ditched and, I am convinced, fewer sales. Answer; Be alert to smaller markets, direct to public sales, maintain good service and keep up your quality!
Best for 2025.

A KZN citrus orchard.

CITRUS PRODUCTION – SMALL FARMERS EXPERIENCE PROGRESS

The discussion about land in South Africa is intensifying with looming changes to article 25 of the country's constitution being debated.

As a result, various sectors of the fresh produce business are reporting great progress when it comes to creating new opportunities for black growers.

An example of this is the announcement by the country's citrus growers' association, CGA, with its Grower Development Company (GDC), that black citrus producers increased their production by 40 per cent during 2020.

CGA reports growth

"Several farms and black growers have increased output by over 40,000 cartons – with one black grower increasing production by 99,000 cartons in just one year," the CGA stated.

CGA GDC general manager Lukhanyo Nkombisa said harvest records revealed South African black citrus growers had increased output to domestic markets by 55 per cent since 2019.

Last year, black citrus growers provided over 400,000 cartons of fruit to South African grocery stores and supermarkets. In addition, more than 75 per cent of black citrus growers in South Africa exported their produce to global markets.

Lukhanyo Nkombisa

Great progress

The announcement boosts the argument in agricultural circles that there is no need for constitutional changes in terms of land ownership, rather that effective use of government resources and allocation of land to black farmers is enough to effect major transformation.

While this news is unlikely to change people's minds, it nevertheless shows that over time great progress has been made in creating new opportunities for black growers and transformation generally in the country.

Land issue

The issue of land is unlikely to become less emotive, even if the proposed changes to the constitution are made. These changes, if implemented, are likely to be contested for years to come.

It is therefore worth focusing on the significant successes quietly achieved by the fruit sector. Nkombisa said that the successes in citrus were testament to the groundwork laid over the last decade.

"The citrus industry has spent over ten years creating structures such as the GDC to assist, guide and advise the CGA-GDC on the needs of black citrus growers, so that it may provide them with the support they need to thrive,' Nkombisa noted. 'The CGDC is run by black producers who ensure that the citrus industry is committed to supporting the initiatives that will result in the establishment of an inclusive citrus industry, with a sound transformation agenda.'

The CGA statement revealed that the transformation initiatives were partly made possible by the new statutory export citrus levy, gazetted In December last year by minister Thoko Didiza.

Statutory levy

"The levy will be funded by 1,250 citrus growers over the next four years with 20 per cent of the new levy being allocated to the development of black citrus growers,' the CGA added. 'This funding will be invested in the CGA's recently finalised four-year Transformation Plan, which will be implemented in 2021 through the CGA-GDC and Citrus Academy."

Smallholder citrus farmers in South Africa, especially in regions like Limpopo, Eastern Cape, and Mpumalanga, play a significant role in the country's citrus industry, with many selling to both local and export markets, and facing challenges like market access and profitability. Significance and Distribution:

Citrus is a key fruit category in South Africa's fruit industry, and smallholder growers contribute to both local and export markets.

The majority of small- and medium-sized citrus growers sell their produce to fruit processing companies or venture into small fruit-processing operations.

Key regions: Limpopo, Eastern Cape (particularly near Port Elizabeth), Western Cape, and Mpumalanga.

Provincial Distribution: Limpopo accounts for 50% of total orange area, followed by Eastern Cape (24%) and Western Cape (15%).

Citrus orchards are found primarily in the Limpopo, Eastern Cape (particularly near Port Elizabeth), Western Cape and Mpumalanga provinces, but can also be found in the KwaZulu-Natal, Northern Cape and Free State provinces.

South Africa's ability to supply fresh citrus fruits during the off-season in places such as Europe, the U.S. and Japan, when local growers cannot, has transformed South Africa into an indispensable part of the global citrus fruit market.

Pests and Diseases

South African citrus orchards are particularly vulnerable to citrus mealybug infestation due to several factors, including climate.

BioBee's approach to IPM is multifaceted, employing multiple strategies to achieve the optimal result. In addition to the gradual release of host-specific beneficial insects, BioBee recommends that growers use selective "soft" chemical pesticides.

This strategy helps growers transition from using "harsh" chemicals, which are dangerous to the human population and the environment and have long-lasting residues. It has also been proven to increase marketable crop yield, and as a result, increases profits.

With BioBee, growers meet the strict legislation in Europe, the U.S., Japan and other countries regarding MRLs (maximum residue levels), as well as GAP (Good Agricultural Practices) requirements, including GLOBALGAP (a voluntary standard required by many supermarket chains in Europe). Produce grown with BioBee requires minimal pesticide use.

BioBee's staff is extensively trained in the IPM method, and works directly with growers to produce a tailor-made IPM program to meet his or her individual needs. This customized program is successfully implemented with the ongoing oversight and guidance of BioBee's staff.

African cooperative thrives as a citrus producer

A South African citrus cooperative has defied the odds to grow from supplying local markets to exporting lemons, mandarins, and oranges around the world. Their success lies in a commitment to quality, investment in training, and an embrace of new technology. The cooperative is a powerful example of how innovation can transform the agricultural sector.

Batlhako Temo Services, an agricultural cooperative, has emerged as a key player in South Africa's citrus industry. Made up of five dedicated members, Batlhako specializes in fresh lemons, mandarins and oranges.

The cooperative supplies their high-quality fruit products to local markets, and has expanded globally to markets in Taiwan, the Middle East, the USA, Russia, the Philippines, China, and Singapore.

Batlhako's mission combines a commitment to job creation and staff development through in-service training, with a dedication to reliably growing and delivering the freshest fruit. From its 61.5 hectares farm, in the North West province of South Africa, Batlhako has become a customer-focused supplier, while actively championing food safety.

A workforce collaboration with Solidaridad

Farming is labour intensive. For small-scale farmers lacking the resources to invest in mechanization, there is a pressing need to find appropriate staffing to ensure their continued viability and future expansion.

At Batlhako, the team has implemented a diversified workforce strategy, which includes a blend of: 15 permanent workers, 30 contract workers, 81 seasonal workers and 18 in-service training students

The cooperative is making strong contributions to job creation and skills development in South Africa's agricultural sector thanks to support from the country's Social Employment Fund (SEF) project. Solidaridad is an implementing partner and has collaborated with Batlhako to incorporate an additional nineteen contract workers into their workforce.

The benefits of this strategic partnership are many: it addresses the immediate labor needs of the farm, while aligning with Solidaridad's broader initiatives to enhance sustainable employment, professional development, and community development in the agricultural landscape.

Batlhako Temo Services celebrates their citrus success.

Batlhako Temo Services future

Established in 2010 with support from the Small Enterprise Development Agency (SEDA) and the Department of Rural Development and Land Reform, Batlhako cultivates citrus on land secured with a 30-year lease from the Department of Agriculture and Land Reform.

The team at Batlhako Temo Services emphasizes staff accountability and empowerment supported by strong leaders in the workplace.

The cooperative fosters a culture of responsible leadership and ethical decision-making, and members are encouraged to take decisions that align with the cooperative's mission and vision. This approach encourages innovation and personal initiative, while ensuring alignment with organizational goals.

Supply to markets

The cooperative continues to supply citrus to the markets, as well as to Magalies Juicing, a popular South African consumer brand.

Accessing global markets has pushed Batlhako to embrace precision technology and recruit local agricultural-minded graduates who understand the latest and most effective agronomic approaches to efficient irrigation and plant nutrition.

This adaptability and openness to collaboration has propelled their production from just under 500 tonnes of fruit to a staggering 1500 tonnes per season.

Diversification

Looking ahead, Batlhako envisions a future of diversification, cutting-edge technology, and deeper community engagement. Their story isn't just about farming; it's about making a positive impact. Beyond the fields, their dedication to ethical practices, community growth, and sustainable agriculture paints a picture of success that goes beyond yields — it's about creating a better tomorrow for South Africa.

Solidaridad and South Africa's Social Employment Fund

The Social Employment Fund project is a South African government initiative to address the country's unemployment crisis. It leverages the agriculture sector to create jobs and promote economic recovery. Solidaridad has partnered with the Industrial Development Corporation of South Africa and the Department of Trade, Industry and Competition to implement SEF in three provinces: Gauteng, Eastern Cape, and the North West.

The project aligns with three separates but interlinked Solidaridad thematic areas – food and nutrition, sustainability and the environment, and digital inclusion.

Source: CGA-GDC

Visitors from Solidaridad tour the citrus groves at Batlhako Temo Services.

TECHNOLOGY AND STEWARDSHIP: A MUTUAL NECESSITY

A crop that can protect itself against pests and herbicides sounds like a winning recipe – and it is, provided that the technology that makes it possible is managed with care and caution.

Agriculture is an industry that relies on limited, shared resources, which means that farmers are by definition stewards who can never lose sight of the next generation (and those after). "We do not farm for ourselves; the decisions made on your farm today will determine the course of your children's story," says De Bruyn Myburgh, Lead Agronomist for Pannar Seed®. "This has always been the case, which is why farmers are the original and best stewards of the land and natural resources."

However, in the era of modern agriculture, with its advancements in research, development, and technology, our 'original stewards' now bear additional responsibilities.

Many inputs and practices – from pest control to soil health and resistance management – rely on technologies that are often biological in nature. This includes biotechnology traits, which refers to specific characteristics or features of plants, animals, or microorganisms that have been altered through biotechnological methods. These traits are typically introduced to boost agricultural productivity, protect against pests and diseases, withstand environmental stresses, or enhance nutritional value. These technologies have been immensely beneficial to farmers and the environment, decreasing the reliance on insecticides, allowing the use of reduced-risk herbicides that break down more quickly in soil, and increased the productivity of their farms.

"Although biotechnology has provided significant benefits to farmers, it also has an inherent dynamic that must be actively managed and directed to ensure the sustainability of products," says Myburgh. "These technologies undergo a lengthy and costly journey to market, often taking 10 to 15 years and costing millions of Rands. Once their efficacy diminishes, these biotechnology traits are difficult to replace in the market, adversely affecting both the technology companies that develop them and the farmers who rely on them."

The stewardship of biotechnology traits is a shared responsibility between seed companies and the farmers they serve. Effective stewardship doesn't begin on the farm; it must be integrated throughout the entire product life cycle. This stewardship starts with research, continues through the regulatory process, and extends into the commercial life of the product.

Stewardship through the product life cycle

At Pannar and their parent company, Corteva AgriscienceTM, the product stewardship journey begins in the research & development phase. "We invest heavily in R&D to create innovative seed technologies that enhance the resilience of our crops against insect pests and herbicides, thereby protecting

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Pannar's widely adapted white maize package is well known for its agronomic balance. Our white maize stands out with its robust seedling vigor, early plant establishment, and consistent performance, even under challenging conditions. As JJ Jansen van Rensburg attests, **"Despite enduring very dry spells during the season, the maize remained resilient and thrived."** Join the ranks of successful farmers who trust our white maize for superior grain and milling quality. Connect with our expert team today and discover how our white maize can boost your farm's productivity and profitability.

FARMER: Jan Jansen van Rensburg

FARMING ENTITY: Kromdraai Boerdery

AREA: Potchefstroom

CROPS:	**PANNAR HYBRID USED:**
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farmer outputs and the environment," says Myburgh. "Our scientists work tirelessly to develop products that are not only effective but also sustainable. We understand that the future of agriculture depends on our ability to innovate responsibly."

Once biotechnology agricultural products are developed, they undergo thorough testing and regulatory scrutiny. Seed companies are required to meet rigorous regulatory requirements to ensure the safety and efficacy of the products they bring to market. "Our stewardship program ensures that we adhere to the highest standards of safety and transparency. We work closely with regulatory bodies to ensure that our products are safe for farmers, consumers, and the environment," explains Myburgh.
Once the product has passed the regulatory process, it can enter the commercial market. At this stage, farmers play a crucial role in the responsible management of the "winning recipe" – enhanced seed products. Louisa Segooa, Stewardship Lead for Africa and the Middle East at Corteva Agriscience, explains, "Our stewardship program is designed to educate and support farmers in managing their farm operations responsibly. We offer farmer-focused programs and information resources that guide farmers on how to use the seed technologies sustainably." Segooa continues, "When our farmers partner with us as joint product stewards, it is a win-win situation. Together, we can achieve healthy crops leading to improved yields while protecting the environment and maintaining the long-term efficacy of these technologies."

The responsibility of farmers

The stewardship requirements for farmers are outlined in the Technology Use Agreements (TUA) signed prior to the use of biotechnology seeds. "Grain producers can only grow hybrids with biotechnology traits if they sign a valid TUA, which contains the conditions for planting biotech seeds," explains Segooa. "These conditions include planting suitable refuge areas for insect-resistant hybrids as well as adhering to herbicide dosage and application timing for herbicide-tolerant hybrids. Farmers can also find detailed guidelines on managing these biotech hybrids in Pannar's biotech product user guidelines on our website or in the product catalogue."

The TUA and user guidelines also include important information on co-existence of biotech and conventional farming operations, as well as important information on the requirements for movement of biotechnology seeds. "Biotech crops and materials can only be transported, used, processed, or sold according to various country biosafety laws and regulatory approvals," explains Segooa. "Moving biotech materials across borders into areas where they are not approved is illegal under national and international laws. Growers should consult with their buyers or grain handlers to understand their stance on the products being purchased."

Stewardship in the context of biotechnology is an essential obligation that can only be fulfilled through collaboration. "We work with a shared resource," says Myburgh. "Seed companies and farmers must work together to protect the technology in the interest of food security and a profitable, sustainable agricultural sector. It is thanks to the willingness of the vast majority of farmers to comply with all the requirements that we can continue to use the technology we have. Their cooperation lays the foundation for future technologies and products and is invaluable."

www.pannar.com

FREE RANGE EGGS – VERIFIED CAGE-FREE CAMPAIGN LAUNCHED

A new campaign in South Africa's food industry is empowering consumers to make more ethical food choices while encouraging businesses to commit to higher animal welfare standards. The Verified Cage-Free Campaign, launched by the South African Faith Communities' Environment Institute (SAFCEI), recognises businesses that publicly declare their commitment to sourcing only cage-free eggs including free-range, barn, organic, and pasture-raised.

By signing the Verified Cage-Free commitment, businesses make a transparent, public pledge to phase out battery-cage eggs from their supply chains. This campaign also seeks to educate consumers about sustainable and ethical food choices and encourage them to support businesses that align with their values.

Zwelisha Shobede, SAFCEI's Cage-Free Coordinator, highlighted the significance of this movement: "Faiths teach us to care for all of creation, and that includes the animals in our food system." But it is also about human thriving, says Shobede, "the campaign aims to also help small-scale farmers and other free range and organic producers to access their market and compete effectively with the battery egg producers. This will sustain livelihoods and wellbeing."

"Consumers want to make ethical choices, and businesses want to meet that demand," said Janneke Blake, Lead Advocate for the Verified Cage-Free Campaign. "This campaign gives them a clear way to do that—helping consumers identify responsible businesses while celebrating those making the transition."

The cage-free movement has already gained momentum, with well-known South African brands like Nando's, Famous Brands, The Vineyard Hotel, The President Hotel, and City Lodge Hotel Group having made cage-free commitments already. Internationally, companies such as Spur Corporation, McDonald's, and Nestlé have already committed to sourcing only cage-free eggs, setting a strong precedent for others to follow.

Under the Verified Cage-Free Campaign, a growing number of South African brands and independent businesses are also joining the cage-free movement, including Bootlegger Coffee Company, Butter All Day Breakfast Café, Spirit Cafe and Vondi's Holistic Pet Nutrition.

Why Cage-Free?

Hens kept in battery cages spend their entire lives in cramped, unnatural conditions, unable to spread their wings or engage in basic behaviours. Research shows that cage-free systems improve hen welfare and produce healthier eggs, while also reducing risks associated with intensive factory farming.

SAFCEI Executive Director, Francesca de Gasparis said, "This campaign is not just about the welfare of hens, our aim is for all South Africans to have access to, and to eat healthy, nutritional food that is free from harm. We are inviting businesses to get behind this campaign to show that South Africa can be 100% cage-free, whilst still ensuring every person can afford healthy and nutritious food."

Chad Cupido, Executive Officer of Beauty Without Cruelty, emphasised the urgency of the transition: "The science is clear—cage-free is better for animals, people, and the planet. The question isn't whether businesses should transition; it's how fast they can do it."

A Symbol of Change

One of the most powerful reminders of the campaign's message came in the form of Kuku the hen, a rescued chicken who sat on her companion John's lap during the gathering. Her presence reinforced the reality that behind every egg is a living being. "She reminded us all—chickens aren't commodities. They deserve dignity," said Blake.

Get Involved!

Consumers are encouraged to support businesses that have made the Verified Cage-Free commitment and ask their favourite restaurants and retailers to make the pledge.

Source: Southern African Faith Communities' Environment Institute (SAFCEI)

Free range poultry. Picture: Polly Sadler

WHAT IS GHS? - GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS

The Globally Harmonized System of Classification and Labelling of Chemicals, developed by the United Nations and commonly referred to as the "GHS", is an internationally harmonized approach to classifying and labelling of chemicals, and conveys the hazards associated with a chemical in a standardized way.

The need for GHS arose because of the global trade of chemicals, which often cross boundaries into areas with different languages and varying levels of literacy, thereby creating challenges when communicating safe and responsible usage instructions of the products. It is hoped that such an approach will contribute to the safe use, transport and disposal of chemicals, and assist countries in developing the appropriate infrastructure to control chemical exposures and ultimately protect people and the environment.

The most noticeable changes brought by GHS is the way in which the chemical is classified and how this information is conveyed to the user, resulting in changes to the labels and safety data sheets (SDS's) of chemicals. It is important to note that even though the label and SDS of a chemical has changed, the hazards associated with the product did not change, only the way in which these hazards are communicated. In South Africa, GHS became a legal requirement for all hazardous chemicals from September 2022 with the promulgation of "The Regulations for Hazardous Chemical Agents" No. R280 under the Occupational Health and Safety Act, 1993, on 29 March 2021. An extension for implementation was later provided to 30 September 2023, with these changes still being phased in.

The requirement for GHS for agricultural remedies specifically, is also included in the "Regulations relating to agricultural remedies" promulgated on 25 August 2023 under the Fertilizer, Farm Feeds, Agricultural Remedies and Stock Remedies Act (Act 36 of 1947).

HOW DOES IT WORK?

It is very important for farmers, farmworkers and anyone handling a chemical to understand how GHS works, because the hazards associated with a particular chemical, their nature and severity, are communicated through several elements, such as hazard statements, pictograms and signal words on both the label and the safety data sheet of the product. It is only when we understand the hazards associated with a chemical that we can effectively mitigate the risks.

First, let's have a look at the classification criteria of these hazards. According to the GHS, the nature of a hazard is assigned according to a hazard class, of which there are currently 29. Seventeen (17) of these are physical hazard classes, such as oxidizing liquids, 10 are health hazard classes such as skin corrosion/irritation, and two are environmental hazard classes, namely hazardous to the aquatic environment or hazardous to the ozone layer. Not all of these hazard classes will be commonly associated with agricultural remedies, however.

Within these classes, the severity of the hazard is then allocated in terms of a hazard category expressed as a number, for instance category 1 would be the most severe. Category 2 would be less severe than category 1 but more severe than category 3, and so forth. Some of these categories are further sub-divided into divisions, which are expressed as a letter, i.e. A, B, C, etc.

The GHS also uses hazard statements, pictograms and signal words to communicate the hazard of the chemical, as well as precautionary statements to mitigate any potential risks. These are all linked to the hazards that have been identified.

Table 1: Hazard classes covered under the GHS

Physical hazards	Health hazards	Environmental hazards
Explosives	Acute toxicity	Hazardous to the aquatic environment
Flammable gases	Skin corrosion/irritation	Hazardous to the ozone layer
Aerosols and chemicals under pressure	Serious eye damage/eye irritation	
Oxidizing gases	Respiratory or skin sensitization	
Gases under pressure	Germ cell mutagenicity	
Flammable liquids	Carcinogenicity	
Flammable solids	Reproductive toxicity	
Self-reactive substances and mixtures	Specific target organ toxicity – single exposure	
Pyrophoric liquids	Specific target organ toxicity – repeated exposure	
Pyrophoric solids	Aspiration hazard	
Self-heating substances and mixtures		
Substances and mixtures which in contact with water emit flammable gases		
Oxidizing liquids		
Oxidizing solids		
Organic peroxides		
Corrosive to metals		
Desensitized explosives		

For example, when considering the health hazard "carcinogenicity", category 1 is a "known or presumed human carcinogen", whereas category 2 is a "suspected human carcinogen". Category 1 is however further divided into category 1A and category 1B; the former being known to have carcinogenic potential for humans and is largely based on human evidence, whereas the latter is presumed to have carcinogenic potential for humans and is largely based on animal evidence.

Hazard statements

Hazard statements are phrases that describe the hazard/s as determined by the hazard classification. They start with the letter H followed by three numbers. For physical hazards, the statement will start with H2 (followed by two additional numbers), health hazards start with H3 and environmental hazards with H4, for example H300: Fatal if swallowed. These hazard statements appear both on the label as well as the safety data sheet, however the code (i.e. Hxxx) only needs to appear on the safety data sheet and not on the label.

For example, for the health hazard "Carcinogenicity", the hazard statement for a category 1A or category 1B carcinogen is "H350: May cause cancer". For a category 2 carcinogen, the hazard statement is "H351: Suspected of causing cancer".

Precautionary statements

Precautionary statements are linked to the hazard statements and are used to explain how to handle these substances, as well as which precautions to take to ensure any risk associated with handling the product is mitigated.

The precautionary statements are preceded by the letter P and three numbers that are also categorized according to type, similar to the hazard statements.

For instance, general statements will start with P1 followed by two numbers, prevention statements with P2, response statements P3, storage statements P4 and disposal statements with P5, e.g P264: Wash hands thoroughly after handling.

These statements appear on the product label and the safety data sheet. As with the hazard statements, the codes (i.e. Pxxx) are only required on the safety data sheet and not the label.

For example, for the health hazard "Carcinogenicity", the following precautionary statements should be included on the product label and SDS:

• Prevention

- P203: Obtain, read and follow all safety instructions before use.
- P280: Wear protective gloves/protective clothing/ eye protection/face protection (whichever applicable based on usage instructions).

• Response

- P318: IF exposed or concerned, get medical advice.

• Storage

- P405: Store locked up.

• Disposal

- P501: Dispose of contents/container in accordance with local regulations.

Signal word

Based on the hazards identified and the corresponding categories and thus severity thereof, a signal word is used to describe the hazard. The signal word "Danger" is used to describe more severe hazards, and the signal word "Warning" is used to describe less severe hazards.

A chemical will only include one signal word which will be the most severe signal word flagged during the hazard classification.

For example, if a mixture is classified as a category 1A carcinogen, the resulting signal word on the label should be "Danger". The same mixture is also classified as being a category 1A skin sensitizer, for which the signal word "Warning" must be used. Because "Danger" is the most severe signal word flagged for the hazards associated with the chemical, "Danger" will be the final signal word included on the label.

Pictograms

A pictogram is a graphical representation of the hazards associated with the chemical and is associated witha specific hazard class and category.

All pictograms prescribed by the GHS have a black symbol on a white background with a red frame. Except for the exclamation mark, all pictograms flagged by the hazard classification must always be included on the label and SDS of the chemical.

For example, if a chemical is classified as a category 1A carcinogen and a category 1A skin sensitizer, the health hazard pictogram is flagged by the former and the exclamation mark pictogram by the latter. Both the health hazard and exclamation mark pictograms will be included on the label and SDS. However, if the chemical was classified as a category 1 respiratory sensitizer, flagging the health hazard pictogram, and a category 1A skin sensitizer flagging the exclamation mark pictogram, the exclamation mark pictogram that was flagged for skin sensitization will not be included on the label and SDS, only the health hazard pictogram. Both these hazards relate to sensitization and the health hazard pictogram indicates a more severe sensitization hazard than the exclamation mark.

Table 2: Pictograms used by the GHS to indicate physical, health and environmental hazards.

WHAT CHANGED ON THE LABEL?

In the past, agricultural remedies were classified and labelled according to the World Health Organization (WHO) recommended classification of pesticides by hazard. This system classified the remedy based on the acute oral and dermal toxicity of the active ingredient(s), which was reflected in the colour band at the bottom of the front panel of the label. Pictograms on the colour band provided information on the personal protective equipment required and general precautions to take when storing, handling, or applying the remedy. A corresponding word based on the severity of the toxicity was included on the colour band (Caution, Harmful or Toxic). With the implementation of the GHS, the most noticeable change to the label of an agricultural remedy is the removal of the colour band and corresponding pictograms, and the inclusion of the GHS hazard pictograms, hazard statements and precautionary statements. The GHS covers more hazards than the previous WHO system and classifies the remedy based on physical, health and environmental hazards, not just acute toxicity, and considers the active ingredient(s) as well as the inert ingredients in the formulation. Consequently, the GHS is a lot more comprehensive in terms of hazard classification and communication than the WHO system. As mentioned, it is important to note that even though the label and SDS of a chemical have changed, the hazards associated with the product did not change, only the way in which these hazards are communicated.

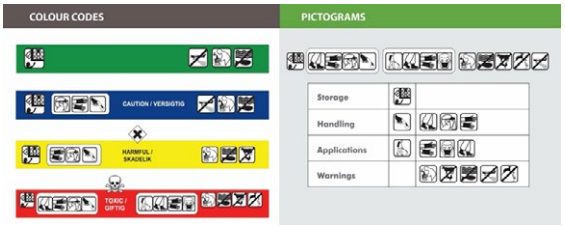


Figure 2: Example of the colour bands and pictograms used on agricultural remedy labels when using the WHO recommended classification of pesticides by hazard.

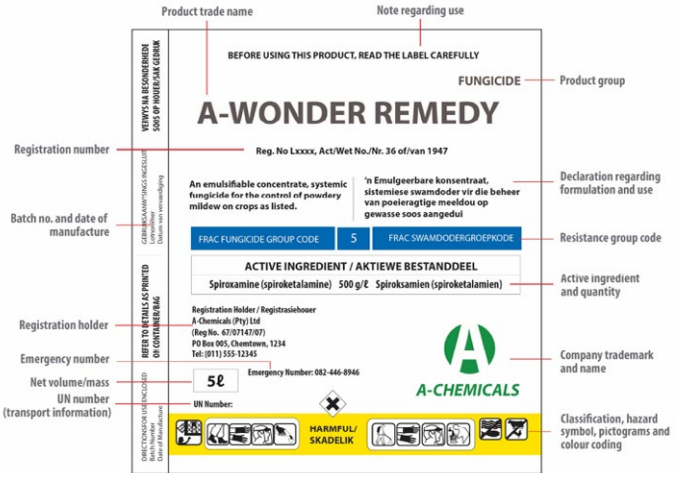


Figure 1: Example of an agricultural remedy label where the remedy has been classified and labelled according to the WHO recommended classification of pesticides by hazard.

>>> to page 12

<<< WHAT IS GHS? from page 11

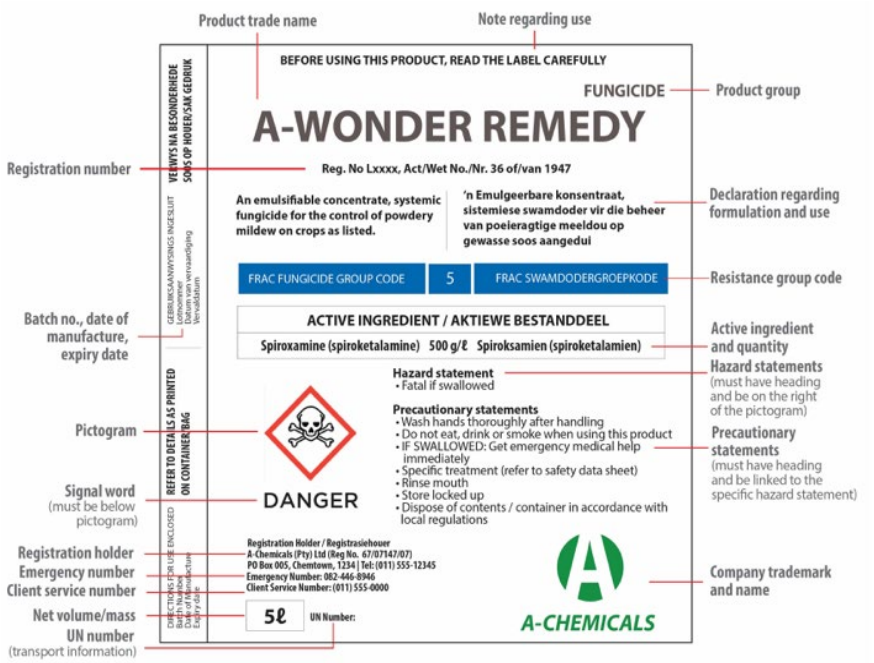


Figure 3: Example of an agricultural remedy label where the remedy has been classified and labelled according to the GHS.

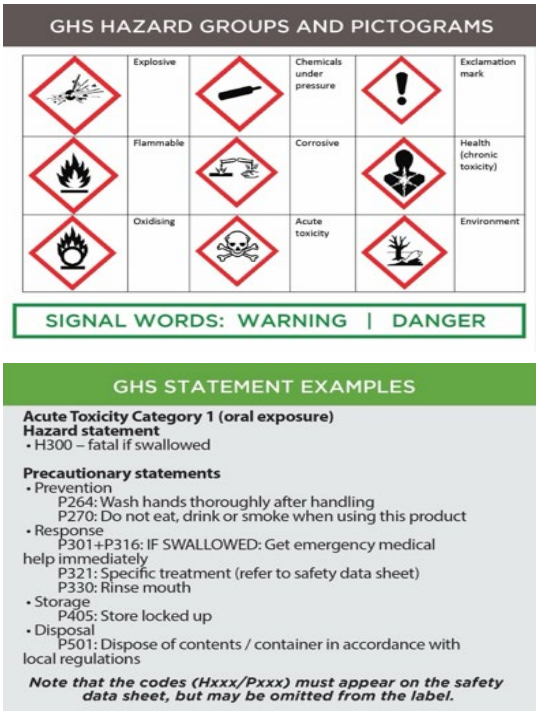


Figure 4: Example of the hazard pictograms, hazard statements and precautionary statem ents used when classifying and labelling an agricultural remedy according to GHS.

WHO recommended classification of pesticides by hazard	GHS
The acute toxicity of the active ingredient(s) is used to classify the remedy.	All ingredients in the formulation are used to classify the remedy.
Only acute toxicity is considered.	Acute toxicity is considered along with chronic toxicity, as well as other health hazards, physical hazards and environmental hazards.
Only oral and dermal exposure is considered for acute toxicity.	Apart from oral and dermal exposure, exposure by inhalation is also considered for acute toxicity.
A colour band with precautionary pictograms and a word describing the acute toxicity of the product is included on the front panel of the label to communicate the potential hazards associated with the remedy.	Hazard pictograms, hazard statements, precautionary statements and a signal word is used to communicate the potential hazards associated with the remedy.

CHANGES TO THE SAFETY DATA SHEET

Safety Data Sheets are produced for all substances and mixtures which meet the harmonized criteria for physical, health or environmental hazards under the GHS and for all mixtures which contain ingredients that meet the criteria for specific chronic hazards in concentrations exceeding the cut-off limits provided in the GHS. These documents are no longer referred to as Material Safety Data Sheets (MSDS), but merely as Safety Data Sheets (SDS). Safety Data Sheets as composed under the GHS has a standard format, providing information on the chemical under 16 headings:

1. Identification
2. Hazard(s) identification
3. Composition/information on ingredients
4. First-aid measures
5. Fire-fighting measures
6. Accidental release measures
7. Handling and storage
8. Exposure controls/personal protection
9. Physical and chemical properties
10. Stability and reactivity
11. Toxicological information
12. Ecological information
13. Disposal considerations
14. Transport information
15. Regulatory information
16. Other information

It is important to read and understand all the information provided in the SDS before using a hazardous chemical.

HAZARD VS RISK

The degree of a chemical's capacity to harm depends on its intrinsic properties, i.e. its capacity to interfere with normal biological processes, and its capacity to burn, explode, corrode, etc.

The concept of risk or the likelihood of harm occurring, and subsequently communication of that information, is introduced when exposure is considered in conjunction with the data regarding potential hazards. The basic approach to risk assessment is characterized by the simple formula:

hazard x exposure = risk

Thus, if you can minimize either hazard or exposure, you minimize the risk or likelihood of harm occurring.

The GHS's aim is to communicate the inherent hazards of the chemical, and because of these hazards, there are certain risks involved with working with the product, but these are mitigated if the label instructions are followed.

Just because a product is hazardous, does not mean it cannot be applied safely. A vehicle, for instance, can also be a hazard if you consider the number of accidents on the road, but we don't just ban vehicles altogether because of this.

Instead, we mitigate the risk by wearing a safety belt, adhering to the speed limit and following other road safety regulations. The same logic applies when working with hazardous chemicals, which is why understanding the product label and safety data sheet is so important.

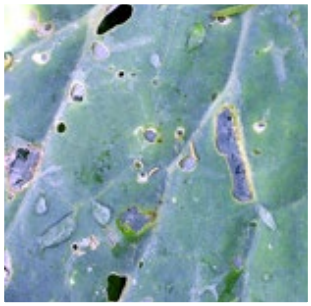
And remember, any application of a crop protection product in any manner other than the label instructions is a contravention of the law, so do the right thing and make sure you, and any person working with you, know exactly how to use these products safely and responsibly.

Source: www.croplife.co.za | info@croplife.co.za | +27(0)87 940 4168

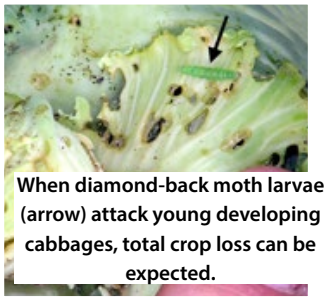
CABBAGE PRODUCERS: DIAMOND-BACK MOTH MULTIPLIES RAPIDLY

Early detection will avoid such enormous losses!

A diamond-back moth larva, characteristically feeding on the lower leaf surface. The skin on the upper leaf surface is usually not eaten.



Typical symptoms exhibit a combination of holes and "windows".



When diamond-back moth larvae (arrow) attack young developing cabbages, total crop loss can be expected.

Various insect pests, including the bagrada bug, diamond-back moth, greater cabbage moth, cabbage webworm, bollworm, and aphids, attack cabbage crops. The diamond-back moth is the most important of these; it is a serious pest affecting most members of the cabbage family (Brassicaceae).

Although this pest originated in Europe, it is prevalent across the world today. The moth multiplies rapidly, and it easily covers long distances by using the wind, as a result plantings in remote areas are easily infested.

Adult diamond-back moths are small and greyish moths of about 6 - 8 mm in length. Typical identifying characteristics are their antennae which always face forward when at rest, and the diamond pattern appearing on the upper side of their folded wings. The moths live for approximately two weeks. During this time, they lay up to 300 eggs in pockets that contains two to eight eggs each.

The eggs are smaller than half a millimetre and first stage larvae are 2 mm in length. Fully grown larvae are approximately 12 mm in length. Larvae can complete their life cycle within nine days; where after pupae in silk cocoons are attached to the underside of leaves, or in leaf debris on the ground. In the summer months a complete life cycle (from egg to moth) is completed within two to three weeks. This takes much longer during the winter months.

Symptoms and damage

Damage is only done by the larvae. Sometimes the small first stage larvae tunnels between the upper and lower leaf surfaces. The damage wrought in this way is almost invisible and infected cabbage plants may serve as a source of new infestations in fields.

From the second stage (after the first moulting) they feed only on the lower leaf surface. The damage is very distinctive: the thin upper surface layer (skin) of the leaf is usually not eaten. This gives the devoured area a window-like appearance. As a result, the skin breaks as the plant grows and the resulting damage is a mixture of "windows" and holes.

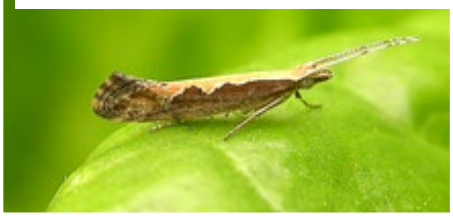
If the larvae appear in cabbage fields once the cabbage heads have formed and established, damage is less extensive. Diamond-back moth larvae usually do not tunnel into already established cabbage heads. Young plants are the most vulnerable and can be badly damaged if the larvae reach the developing cabbage heads.

Only two or three larvae per developing cabbage head can lead to a plant not producing a yield at all. Diamond-back moths also inflict severe damage on other crops, including broccoli, Brussels sprouts, Chinese cabbage, kale, collards, mustard, and radishes.

Control

- In SA there are almost 30 insecticides registered for use against the diamond-back moth (consult www.croplife.co.za).
- Most brassicas have a waxy layer on the leaf surface. Ensure that the product to be used has the necessary sticking power. If not, the appropriate additives should be used to enable the product to stick to the leaves of the plant.
- Control must focus on the protection of young plants. It is essential that seedlings are inspected for larvae and if any are discovered, the whole consignment must be sprayed with an insecticide.
- Many insecticides are no longer effective against diamond-back moth. In such instances alternative methods of control should be adopted.
- The use of 'softer' insecticides may lure natural enemies (study the label of all insecticides - if the product is not detrimental to natural enemies (soft), it will be indicated on the label).
- Overhead irrigation at night substantially decreases diamond-back moth numbers.
- As the diamond-back moth multiplies so quickly and aggressively, insecticides are currently the only control mechanism which provides effective control. A variety of new insecticides have recently been registered against diamond-back moth. These do not fall into the older categories. While these are more expensive than older products, the chance of resistance is substantially lower.

The diamond-back moth is approximately seven millimetres in length and has a distinctive diamond pattern on the top of its folded wings.



Remember; early and continued inspection of your crop saves you losses!

By: Diedrich Visser, ARC-Vegetable and Ornamental Plants Institute (ARC-VOPI)

GAME CHANGERS: INVESTING IN THE FUTURE OF S A DAIRY INDUSTRY

Say "Cheese!" The judging of the 192nd SA Dairy Championships, presented from 19 to 21 February at Eensgezind, Durbanville, by Agri-Expo: From left, judge Sunett Gerber, sensory specialist at Mane, Breyton Milford, General Manager of Agri-Expo, the organiser of the championships, judge and celebrity chef Zola Nene, judge Anika van der Mescht, head of food development at Shoprite Checkers, and chief judge Graham Sutherland. Photo: A Gorman Photography

Clement October (34), head cheesemaker at Klein River Cheese in Stanford and inaugural recipient of the Hollard Game Changer Award, was awarded a cash prize of R50 000 at the 2024 South African Dairy Awards. From left, Andries Wiese, National Business Development Manager of Hollard, Clement October, and Breyton Milford, General Manager of Agri-Expo.

"The Game Changer Award was established to recognise and inspire young achievers who have already made significant strides in the dairy industry," says Breyton Milford, General Manager of Agri-Expo.

Agri-Expo has hosted the South African Dairy Championships, Africa's oldest and biggest dairy competition, since 1834.

Each year, more than 1 000 dairy products compete for the prestigious titles of SA Champion, the Qualité Mark of Excellence, and Product of the Year. The 2025 Hollard Game Changer Award recipient will be announced at the South African Dairy Awards on 8 April, receiving a cash prize of R50 000, sponsored by Hollard.

"Progress and development are essential for any industry," says Andries Wiese, Hollard's National Business Development Manager. "With the Hollard Game Changer award, we believe we get to tap into the energy and skill of these incredibly diverse and talented young individuals and create a better future for the dairy industry as a whole. Encouraging these young voices and acknowledging their contribution to the dairy industry is key to a sustainable future."

Agri-Expo invites nominations for individuals under the age of 40 years who are actively contributing to the South African dairy industry. To submit a nomination, complete the form. The deadline for nominations is 5 March 2025. For enquiries, contact Charlotte Sandenbergh.

The SA Dairy Championships is supported by platinum partners IMCD and dsm-firmenich, along with other industry partners.

UNPARALELLED NUMBER OF DAIRY PRODUCTS JUDGED

The judging of Africa's largest and oldest dairy competition, the 192nd South African Dairy Championships, began on Wednesday 19 February 2025 at Eensgezind outside Durbanville and will continue over three days until Friday 22 February. This year, a record 103 judges evaluated an unparalleled 1 110 dairy products submitted by 77 manufacturers.

Breyton Milford, General Manager of Agri-Expo, which has hosted the championships since 1834, said the association is privileged to showcase excellence in the dairy industry through this prestigious competition. "We again attracted record entries, and this year's event was highly anticipated by both entrants and judges as we introduced several changes to enhance the championships' impact," Milford said.

Chief judge Graham Sutherland emphasised that innovation fosters participation. "The complexity of this competition requires that preparation commence a year in advance, in conjunction with the organisers and experts on the dairy advisory panel," Sutherland said. "This year's championships introduced several new initiatives.

"Firstly, we added various new product classes, resulting in increased entries. Secondly, we invited additional technical judges and implemented an improved score sheet to capture 5 550 scores more effectively. Thirdly, we extended the judging to an additional day to accommodate ice cream products better."

Chris Fourie, President of Agri-Expo, highlighted the industry's enthusiasm for this year's championships. Judges praised not only the high-quality entries but also the valuable networking opportunities and the role of expert feedback in driving continuous product innovation.

QUALITÉ – THE DAIRY INDUSTRY'S SOLE MARK OF EXCELLENCE

The SA Dairy Championships includes 150 different classes for cheese, yoghurt, milk, cream, ice cream, butter, and other dairy products. Class winners are awarded the title of SA Champion. Products of exceptional quality that achieve a minimum international score can earn the prestigious Qualité Mark of Excellence – the dairy industry's highest accolade. The product with the highest overall score is crowned Product of the Year. Winners will be announced at the SA Dairy Awards on 8 April.

Milford expressed gratitude to the thirteen industry partners supporting the SA Dairy Championships. "We sincerely appreciate the support of our platinum partners IMCD and DSM-Firmenich, our diamond partners Novonesis and SIG, our gold partners Woolworths, Synercore, Condio, Hollard, Checkers, IFF, Orchem, and the Western Cape Department of Agriculture, as well as our silver partners Pick n Pay and Mane." **https://agriexpo.co.za**

RED MEAT INDUSTRY WINS WITH ZERO-RATED VAT APPLICATION

Red meat industry scores a six for the consumer

Poverty, unemployment, and poor living conditions are part and parcel of many South Africans' daily existence, which is the reason for a list of basic food items taxed at a zero value-added tax (VAT) rate. During the recent budget speech, a hike in the country's VAT rate was announced. In a bid to mitigate the impact it will have on poor and marginal consumers, the list of food items with a zero VAT rate was also expanded to include, among other things, offal products from various animal species.

This announcement has been welcomed in red meat circles and is the culmination of co-ordinated collaboration between several red meat industry role-players. It follows a recent application by the poultry industry for certain individually quick frozen (IQF) chicken products to be declared VAT exempt, the motivation being that chicken meat is one of the protein sources most often purchased and consumed by low-income groups.

Challenges of chicken at zero % VAT

The Red Meat Producers' Organisation (RPO) responded by way of a press release, pointing out a number of reasons why such a request cannot be met, among them that IQF chicken in South Africa should be classified as a luxury product on the grounds of demand elasticity.

According to Dr Frikkie Maré, CEO of the RPO, a quick summary of meat product shelf prices reveals that IQF chicken carries the second-lowest shelf price after beef liver, but once the bones and brine in chicken meat are excluded from the calculation, this product is in fact one of the most expensive protein items on the shelf.

Another reason is that taxing the meat of one species at a zero VAT rate will have major consequences for the meat market as a whole, with a resultant negative impact on South Africa's red meat producers.

The RPO expressly stated that they were in favour of adding animal protein to the list, but that consideration should be given to the cheaper products obtained from all animal species that are widely purchased by poor and marginal consumers. It was therefore proposed that several types of offal products be considered.

A joint effort

The RPO and various other organisations collaborated to this effect and a joint formal request was submitted to government in October 2024, requesting it consideration to include red meat offal products in the list of essential food items taxed at 0%.

The organisations involved in the application were the South African Meat Processors Association (SAMPA), the South African Pork Producers' Organisation (SAPPO), Red Meat Industry Services (RMIS) and the Red Meat Abattoir Association (RMAA).

The application drew government's attention to the fact that products such as tripe, feet and red offal (lungs, heart, liver, and kidneys) can be excellent sources of protein for low-income consumers, as they are affordable and fit the profile of basic foods.

On 12 March this year, this plea bore fruit when the minister of finance, Mr Enoch Godongwana, announced during the budget speech that the Value-added Tax Act, 1991 (Act 89 of 1991) would be amended to expand the list of zero-VAT foods. The amendment officially comes into effect on 1 May this year.

The amendment to Schedule 2 of the Act involves the inclusion of edible beef, sheep and goat offal products, including liver, heart, kidneys, soup and marrow bones, tail, ears, tongue, tripe, cleaned offal, heads and feet. As for chicken, the products included on the list entail heads, feet, offal (livers, kidneys, gizzards and hearts) as well as cleaned offal. IQF chicken pieces are, much to the red meat industry's relief, not included in the amended list of products.

The red meat industry's request and success is a victory for the industry. Plummeting product prices and input cost hikes have increased pressure on red meat producers over the last two years, says Dr Maré. If government were to make IQF chicken cheaper, the product will be much cheaper than red meat which would lead to a sharp drop in the demand for and price of red meat, forcing red meat producers out of the market.

Impact on the consumer's wallet

Although the financial benefit the average citizen will derive from 0% VAT rated red meat offal is yet to be calculated, Dr Maré made a few assumptions to explain the value and benefits of this breakthrough.

"If the system functions as it is supposed to and no fraud occurs, consumers should be able to buy these products at a significantly reduced price. The inevitable consequence, however, is that demand will increase and with it the price of these products. However, it is highly unlikely that it will increase by the entire 15% and should therefore remain an excellent and more affordable source of protein."

Should the demand for red meat offal products increase, everyone in the red meat value chain will benefit. The fifth quarter, he explains, is supposed to cover abattoir slaughter costs and generate a profit.

However, this is not always the case and abattoirs are therefore compelled to charge a slaughter fee. "If these offal products were to have a higher value, it might be possible for abattoirs to reduce or do away with the slaughter fee. A reduced slaughter fee will also benefit the producer."

These benefits not only apply to red meat producers – retailers and the primary consumer will also benefit in the long run.

Application of 0% VAT

Unfortunately, policing the application of VAT-free regulations is sporadic at best, leaving the door open for fraud. For example, it is near impossible to prevent retailers from adding an extra margin or keeping prices the same after having removed the VAT on a product.

The government has a duty to ensure that such transactions do not occur, but there are no formal provisions in this regard.

There are regulations affording the South African Meat Industry Company (SAMIC) the power to check meat product labels and ensure that offal products are not sold at a price that includes VAT and other products not labelled as offal.

Meanwhile, the industry is pleased with the announcement and the fact that it can bring relief to consumers who cannot otherwise afford to purchase healthy sources of protein.

At the same time, it gives the red meat value chain the opportunity to establish offal products as a staple on store shelves. The RPO thanks all the organisations that were collectively involved in this effort.

Collaboration is the key to unlocking advantages for both the industry and the consumer.

www.rpo.co.za

BEAT HEAT STRESS AND IMPROVE PRODUCTION IN BEEF CATTLE WITH NUTRITIONAL STRATEGIES

The Gauteng Department of agriculture and Rural Development (GDARD) in collaboration with the ARC-Animal Production Institute entered into a contractual agreement back in 2013 to investigate nutritional strategies which can improve food intake and meat production in beef cattle.

The motivation behind the study was the growing concerns in global warming which directly affects feed intake and market weight of beef cattle in a feedlot system.

When the temperatures are very high cattle decrease feed intake to balance body heat production which lead to poor feed intake. High energy diets are a major cause of rapid heat production in an animal body. Different sources of energy; carbohydrates and fats were examined to determine the extent of food consumption between the two sources when cattle were exposed to high temperatures.

Both temperature and dietary effects were studied on three different breeds regularly used in local feedlot environments.

A study on three breeds (Brahman, Nguni and Bonsmara) of beef cattle was carried out to determine the effect of both breed and diet types on performance of beef cattle exposed to high temperature conditions and related stress.

It was found that high temperatures raise the concern of heat stress on beef cattle; In ambient temperature above 25ºC cattle may suffer from heat stress.

Still relevant today, is the fact that livestock performance is affected by heat stress because animals that are having difficulty in losing body heat

Cattle resort to decreasing their body heat by lowering feed intake, hence average daily gain (DG) and carcass weight falls, fat thickness drops and an increase in disease incidence can occur

For the beef farmer, the long-term objective should be to maintain high production of cattle in hot temperatures through ration/dietary adjustments. But in the short term, he needs to determine adequate energy and protein supplementation levels for optimum feed intake, growth rate, and feed conversion ratio in beef cattle under heat stress.

Also, it is important to determine the effect of dietary energy level on feed intake, digestibility, growth rate, feed conversion ratio and live weight for growing different breeds of cattle. Determine dietary energy levels for optimal feed intake, digestibility, growth rate, feed conversion ratio and live weight different breeds of cattle under high ambient temperature. Determine the effect of dietary energy level on physiological body temperature and cortisol level of growing cattle under high ambient temperature.

Results after several exercises in the nutrition versus heat stress, there was generally no difference in feed efficiency of cattle, but their Average Daily Gain and Average Feed Intake was statistically significant with Bonsmara showing higher values than those of Nguni.

Results indicated that dietary compositions have an impact on feed intake, growth rate and FCR of growing beef cattle under high ambient temperatures. Dietary energy level had a significantly effect on feed efficiency under high ambient temperatures. These differences in performance variables were expected on different dietary compositions

The similarity in FCR of the two breeds might be indicating that on a metabolic live weight basis, the two are the same. Since this was done in the ambient temperature range, which is within the comfort zone for cattle, it was ideal to serve as a reference point for high temperature conditions.

Conclusions afterwards revealed that the effect of high temperature on dietary ME appears to be controversial. Intake had no impact on the performance of an animal but the efficiency of the feed differs with breed. This concludes that, there is genetic variation in feed efficiency.

Other research indicated that under unfavourable ambient temperatures either cold or hot lead to an increased heat production by an animal and therefore, more energy is lost resulting in less energy available for production at the same level of energy intake and efficiency of energy utilization deteriorates.

Source: ARC Beef production

TLU SA YOUNG FARMER CONFERENCE

The TLU SA Young Farmer Conference 2025 took place in March, at Future Africa, University of Pretoria. This dynamic event brought together more than 120 young farmers for a packed programme focusing on this year's conference theme: The Mindset of the Modern Farmer.

Speakers such as Wian Süllwald (TLU SA's Young Farmer of the Year 2024), Jaco Cilliers (from ProAgri), Johann Pretorius (CEO of Farming Portal and Agri News Net), Pieter Kleingeld (from NWK), Phile van Zyl (from ZZ2), Laurika du Bois (from Agri Skills Transfer), and Mega Farmer George Barnard all shared insightful thoughts on The Mindset of the Modern Farmer.

Jaco Cilliers from ProAgri took the stage to discuss the importance of getting involved with TLU SA and organised agriculture.

According to Cilliers, it is essential to actively participate, get involved in structures, raise your hand, serve on committees, and share expertise. "Join, become a member, and participate in forums, workshops, and committees. Farming is not just a profession; it's a calling," he emphasised.

Johann Pretorius, CEO of Farming Portal and Agri News Net, shared his perspectives on the topic "Women's Voice in Agriculture," while Phile van Zyl from ZZ2 challenged young farmers to think outside the box and consider alternative markets.

Clemens Senekal, chairperson of the TLU SA Young Farmer Committee, said the Young Farmer Conference is the perfect opportunity for young farmers to come together and discuss the mindset of the modern farmer and the road ahead.

Photo: Young Farmer Committee 2025 | Photo: Plaas Media

The TLU SA Young Farmers' prospects for the year include the annual golf day for the TLU SA Trauma Fund, TLU SA's Congress, Kragdag, Goliat van Gat Pumpkin Festival, and the Young Farmer of the Year competition, says Senekal.

Wian Süllwald, TLU SA's Young Farmer of the Year 2024, shared his success story with the audience, focusing on the topic: Mindset for Success. He encouraged young farmers to participate in this year's competition and set their minds on success.

Farmer George Barnard spoke to conference attendees about "Mindset for Growth," ending with Proverbs 4:23. "Guard your heart above all else, for it is the source of life."

"Our emotions change our thinking, which leads to our actions. Our actions become habits, which ultimately shape our character."

Clemens Senekal was also re-elected as the Young Farmer Committee chairperson during the conference. Wian Süllwald was elected as vice-chairperson, and his wife, Irmarie Süllwald, was appointed as secretary.

Source: TLU

WANTING TO PLANT BEETROOT? IT IS A POPULAR VEGETABLE

Farming with beetroot is a good choice; it is easy to grow and produces a good yield. Beetroot is a close relative of Swiss chard and sugar beet and has many health benefits.

Beetroots' young leaves are tasty, a good source of vitamin A and can be prepared in the same way as Swiss Chard. The beets are rich in vitamin C. Beetroot is a cool weather crop, but the hybrid (F1) cultivars available for summer production offer many advantages.

The seed is expensive, but these beets are worth growing because they are of a better quality, more adaptable to extreme high temperatures and so are more uniform in shape, produce greater yields and have better internal colour.

Hybrids also taste better, especially out of season.

Cultivar list

Spring and summer: Crimson Globe, Detroit Dark Red, Star 1105, Merlin, Globe Dark Red. Summer and winter: Osprey. Winter: Early Wonder.

Climate

Beetroot is usually grown in cool regions or during the cooler seasons in warm areas. The growing period varies from eight to 11weeks in favourable climatic conditions. In hot weather the quality is adversely affected, which is shown by the alternate white and red rings when the beets are sliced. High-quality beets are characterised by a high sugar content and dark internal colour.

The best planting times for beetroot are spring and autumn, but the vegetables also do well during summer on South Africa's Highveld and winter in the Lowveld. The optimum temperature for growth is between 15°C and 20°C. Beets are not particularly sensitive to heat, if there is enough moisture in the soil. Although tolerant to cold, they grow extremely slowly in winter.

Leaves may be damaged, and growth retarded if there is frost before harvesting. Cold weather might delay maturity, and the tops tend to be smaller. Direct sowing can result in good germination at temperatures between 6°C and 24ºC.

On hot sunny days, high temperatures that develop at, or just below, the soil surface might injure young plants badly or kill them. High temperatures for long periods may not only retard growth and depress yield, but could also cause an undesirable strong flavour, concentric rings and a coarse texture.

Soil requirements

Sandy to deep, well-drained sandy loam or silt loam, high in organic matter, is recommended. Cloddy, stony, poor or very shallow soils are not suitable. Uniform soil moisture is essential for good quality. If the soil is compacted or the clay content is very high, roots are likely to be deformed and to develop a tough texture that reduces quality.

Crops thrive in deep, rich sandy loam, with a pH of between 6 and 6,5 (but not below).

Raised beds

Raised beds can increase the effective depth of soil, allowing it to drain better, concentrate topsoil around the root zone, and provide more oxygen for healthy root development. Aeration is better, and disease, infection and the incidence of damping off are all reduced. Raised beds are truly beneficial if soil is heavy and/or poorly drained. Harvesting is also easier.

Raised beds should be 1 — 1,2m wide with 50cm between them. If making them by hand, mark the area with twine, then use a spade and a rake to make the beds. Large-scale farmers obviously use special equipment to make beds.

If you have 1,2m wide beds, six rows or furrows that are 2cm deep would be good spacing. Start the furrows 10cm from the side of the seedbed and allow 20cm between rows. Sow the seed 2 — 3cm apart and cover the furrows firmly with the soil from the furrows.

Direct sowing

It is essential that farmers buy quality seed that has a good germination percentage. It is very important to establish a fine, level seedbed when sowing the seed

and to irrigate lightly a day before sowing. If done by hand, try to sow the seed evenly in the furrow about 3 — 4cm apart. Do not sow too densely – that makes later thinning of the plants uncomfortable. Thin plants to 5 — 9cm apart in the rows, depending on the size of beets needed for a specific market. If possible, sow seeds when the weather is cloudy. Hand sow beetroot seeds 2 — 3cm apart in rows 3 — 4cm from each other.

Transplanting

More than 90% of beetroot producers sow the seed directly in the soil, but seed can also be sown in seedbeds and transplanted. Seed trays or other containers can also be used to raise seedlings but this is expensive because of the high cost (about 450 000 plants are needed to establish 1ha).

Mulching

Mulching can protect emerging seed from burning and keep the top soil layer moist and cool. Mulching materials include straw, corn cobs, sawdust, sunflower seeds, peanut shells, grass, grass clippings, newspapers and household waste. Good mulch must be inexpensive, available and easy to handle. It must also be stable, so that it will not easily wash or blow away.

Remember that it's the temperature of the soil, not of the air, that controls seed germination, so it is best to wait for soil temperature to rise before sowing seed. In summer, mulch has a cooling effect on the root system. A good layer of mulch can reduce evaporation from the soil surface by as much as 70%.

Fertilising

A soil analysis or test is the most accurate guide to fertilizer requirements. Recommended soil sampling procedures should be followed in order to estimate fertiliser needs, and good management practices are very important if optimum fertiliser responses to beets are to be realised. Top or side dressings of nitrogen should be applied at about 100kg/ha or (10g/m2) at the three-leaf stage, about three weeks after emergence, and 100kg/ha three weeks later. Potassium levels should be kept fairly high. The second top dressing can be 1:0:1 or potassium nitrate if K levels are low.

Irrigating

Always irrigate carefully and, early in the season, take care not to irrigate too much. Waterlogging can turn leaves red, and plants may stop growing for a while. As a general guide, apply 300 — 350mm water throughout the growing season, starting off with 20mm in the first week and 40mm every week thereafter.

Irrigation is especially important in the early stages of plant development and during root development. When sowing beetroot, keep the soil damp, lightly irrigating often to keep the surface cool, especially in warm weather.

The growth points of emerging seed are very sensitive to hot soil conditions, so during long spells of hot, sunny weather, give 8mm water per day. On cold winter days, about 2mm of water is needed. It is critical to irrigate the field in the last half of the growing season.

Harvesting

Soil should be slightly moist before cutting or pulling beets. If the soil is too dry, roots may be difficult to clean and the rate of top breakage may be too high. For best flavour and tenderness, harvesting should begin when roots are 3 — 4cm in diameter. Most beets grown commercially, however, are harvested when they are fully mature to obtain the highest yields. Handle beets carefully after harvesting to avoid damaging the roots. Damage reduces shelf life and increases the chances of decay and disease. Fresh market beets can be stored for 10 —14 days, at 0°C and 98% to 100% relative humidity.

Leaf spot on beetroot.

Diseases and pests

Beetroot is firstly infected with Cercospora leaf spot, or Downy mildew when young leaves are thickened, and turn downwards at the edges. A grey fungus growth is visible on the underside of the leaves. The infected parts turn brown later.

Always remember; the disease is seedborne — use good quality seed. Don't overwater.

Source: ARC -VOPI Roodeplaat







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