

LAEVELD AGROCHEM

GREI



Uitgawe 30: 2025 Somer

GEWASBESKERMING

Protecting & healing
after hail damage

Chemiese beheer van
Fusarium-baarskroei

Gewasgroei met
Endo-mikorisa

PLANTVOEDING

Foliar calcium for fruit crops
with CALCINATOR™

SUGAR RUSH™: Not all
sugars are equal

Boosting soybeans with
5 inoculants and a fungicide

TEGNOLOGIE

Mid-row ripper
technology

Kelp innovation
for fruit crops



Saam boer ons vooruit



GEWASBESKERMING | PLANTVOEDING | PRESISIEDIENSTE

www.laeveld.co.za



WOW DEALS

handpicked, unique, just for you,
delivered to your doorstep!



WOW SALE

SAVE UP TO 25%
ON ALL ZULULAND PRODUCTS

USE COUPON CODE: PINE29

VALID TILL 31 OKTOBER 2025



www.wowbuy.co.za



Laeveld



[company/laeveld-agrochem](https://company.laeveld-agrochem)



agrochemlaeveld



Laeveld Agrochem



www.laeveld.co.za



Laeveld Agrochem (Edms.) Bpk. Rigellaan 410, Erasmusrand, Pretoria, Suid-Afrika.

Reg. nr. 1991/004865/07. T: 012 940 4398, E: info@laeveld.co.za.

LAEVELD AGROCHEM GROEI 30

Inhoudsopgawe

- 2 Welkom by Laeveld Agrochem
- 3 Groete van Corné Liebenberg
- 4 CALCINATOR™: Foliar calcium for fruit crops
- 8 Protecting and healing plants after hail damage
- 12 Endo-mikorisa, 'n wenner as deel van gewasproduksie
- 14 SUGAR RUSH™: Not all sugar products are equal
- 16 Chemiese beheer van Fusarium-aarskroei
- 20 Five inoculant technologies and a biological fungicide for enhanced soybean production
- 24 Redefining Kelp: The science behind KELPURA™ in fruit crop phenology
- 26 Tiny flies, big headaches
- 30 Word produsente en landbouwetenskaplikes aan hul neuse gelei?
- 34 The revolutionary mid-row ripper with Vibrosoiler® technology
- 37 Genesis: hoë-proteïen, gebalanseerde maaltye
- 38 Strategiese produktoepassing vir geïntegreerde gewas-energiebestuur
- 42 Join the FARMSURE aghub
- 43 Revolutionise your farm
- 44 AgriSkills: Landbouvaardighede vir die toekoms
- 46 Westbury: Die seisoen draai en fosfaat kom eerste
- 49 Wen teen bosindringin: Terravusa
- 50 Sunshine Leisure
- 52 Gooi Mielies: Spesialiteits-toere
- 53 AgricultSURE veggie seedpacks

OKTOBER 2025

VRYWARING: GROEI is saamgestel deur Laeveld Agrochem (LAC) met artikels ontvang van verskillende verskaffers in die industrie. LAC kan nie verantwoordelikheid neem vir die tegniese inhoud van die artikels nie.



© **Kopiereg.** Die publikasie en artikels bly die eiendom van Laeveld Agrochem en die maatskappy se verskaffers. Alle regte voorbehou. Alle publikasie navrae kan gerig word aan info@laeveld.co.za.

Die inligting in die tydskrif word in goeder trou na die beste van ons vermoë verskaf, maar die bedoeling is om inligting te deel en nie om aanbevelings te maak nie – enige klient moet altyd steeds sy/haar naaste Laeveld Agrochem-agent raadpleeg vir advies of aanbevelings.

WELKOM BY LAEVELD AGROCHEM

Nuwe LAC-agente & Bestuurder



Celeste Scheepers
MENSLIKE
KAPITAALBESTUURDER

Celeste het 'n BA Honneurs met in Industriële Maatskaplike Werk en meer as 26 jaar ervaring in menslikehulpbronbestuur. Haar fokusareas sluit in o.a. spanintervensies, mentorskap, talentbestuur en kultuuroopname, interpersoonlike ontwikkeling die volle spektrum van HR verwante funksies.

Haar passie is om mense te help groei en hulle in staat te stel om hul volle potensiaal te bereik.

Sy is verantwoordelik vir Laevel Agrochem, Kickstart Capital en LAC Logistics.



Tiaan Stroebel
082 446 5574
GAMTOOSVALLEI



Koerie Swart
082 494 8157
MAREETSANE



Deon Claassens
076 752 4664
JAN KEMPDORP

Laevel Agrochem wil 'n blywende impak maak. Vir produsente beteken dit dat hulle nie net 'n verskaffer kry nie, maar 'n toegewyde vennoot wat saam met hulle werk om hul boerderye volhoubaar en winsgewend te maak.

Met 'n groot tegniese span en gesoute landboukundiges met jare se ervaring, gedryf deur innovasie en 'n passie vir landbou, is Laevel Agrochem hier om te bly – en om die Kaap se landboubedryf van krag tot krag te laat groei.



Skandeer en
vind jou naaste
LAC-agent

www.laevel.co.za/agent

GROETE VAN

Corné Liebenberg

Direkteur: Markontwikkeling en Innovasie



Liewe Vriende

Dit is ongelooflik om te dink dat Lentedag alweer gekom en gegaan het; en ons het nog net die ander dag Kersfees gevier en groot planne vir die jaar gemaak.

Dit was 'n jaar van hoogte- en laagtepunte vir ons land en vir landbou. Die weer het meestal saamgewerk, insetkoste het redelik bekostigbaar gebly, en ten spyte van wat in die VSA gebeur het, het uitvoerders meestal goed gevaar, veral die sitrusbedryf.

Ons kan slegs namens ons eie produsente praat, maar daar word steeds jaar na jaar groter en meer winsgewende oeste behaal. Dit is te danke aan meer gevorderde tegnologie, presisiedienste en verbeterde toegang tot data en proefresultate. Ons bied ook 'n groter keuse van oesbeskermingsprodukte wat deur ons kundige landboukundiges, wat hulself voortdurend inskerp en hul waardeproposisie versterk, aanbeveel word.

Ons het pas geskiedenis gemaak met die aanbieding van die grootste Afrikaanse musiekfees in die wêreld, waar 50 000 trotse Afrikaanse musiek liefhebbers Afrikaans se 100^{ste} bestaansjaar in die Groenpunt-stadion in Kaapstad, gevier het. Terselfdertyd is van die legende Laurika Rauch afskeid geneem met haar uittrede uit die musiekbedryf.

Elk glo nie daar is na dese nog iemand in die Kaap wat dink Laevel Agrochem is slegs in die ou Laevel-provinsie nie.

Hierdie uitgawe is weereens propvol handige wenke, meestal geskryf deur kundiges wat nie met teorie jou seël nie, maar uit praktiese ervaring wat hulle oor baie jare in die bedryf opgedoen het. Die reën kan opdroog en dalk selfs jou geld, maar as dit by planne maak kom, sal ons idees nooit opraak nie.

Toets dus gerus gereeld jou Laevel Agrochem- of Agri Technovation-spesialis se kennis. Moenie die fout maak om te dink dat raad wat jy verniet kry, nie goud werd is nie!

Landbou in Suid-Afrika floreer ten spyte van al die uitdagings. Dit bly die anker van ons ekonomie in tye van onsekerheid, want die wêreld moet eet. Ons gaan nou reeds ons 35^{ste} jaar van besigheid in, en hoop om soveel as moontlik van ons florerende produsente wat dieselfde waardes as ons het, saam te neem op hierdie bitter interessante reis.

Sterkte vir die laaste paar maande van 2025!



CALCINATOR™: Foliar calcium for fruit crops



Photo: Hennie du Plessis

Calcium is vital for maintaining cell-wall structure, where it cross-links pectins in the middle lamella, as well as for membrane integrity and signalling processes. However, when applied foliarly, Ca faces several physiological and physical bottlenecks.

As Ca is transported predominantly via the xylem and has very limited phloem mobility (White, 2001), developing fruit – which often have weak transpiration streams – are poorly supplied. After entry, Ca^{2+} strongly binds within the apoplast, limiting redistribution and movement into deeper tissues (Hocking *et al.*, 2016).

Furthermore, the cuticle and epidermis present substantial barriers to penetration, especially given that ionic solutes like Ca^{2+} require extended surface hydration and specific polar pathways to diffuse effectively (Fernández & Brown, 2013). These limitations explain why the efficacy of foliar Ca sprays often depends on repeated applications, direct fruit coverage and favourable environmental conditions that prolong droplet wetness.



Dr. Jakkie Stander, Commercial Head of Products &
Rochelle Thuynsma, Head of Products: Technical



Pathways for foliar calcium uptake

The entry of Ca into leaves and fruit is governed by droplet retention, hydration time and cuticular microstructure. Prolonged droplet wetness promotes diffusion of ions through hydrophilic domains of the cuticle and epidermal cell walls. Stomatal uptake may contribute in leaves but is of limited relevance in fruit skins, where stomata become non-functional as development progresses (Eichert & Goldbach, 2008).

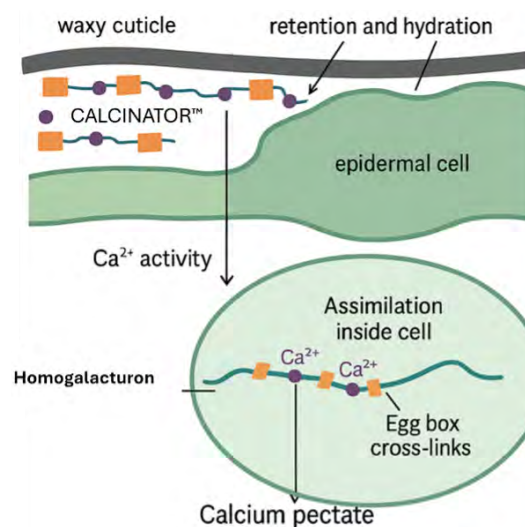
In fruit, uptake occurs primarily through polar micro-domains, surface microcracks and the pedicel-fruit junction, all of which have been identified as Ca absorption hotspots (Winkler *et al.*, 2021; Hurtado *et al.*, 2025).

These findings emphasise that direct sprays onto fruit surfaces, particularly at sensitive entry points, are critical for effective Ca delivery.

Mechanistic rationale for a calcium-pectate formulation

A calcium-carbohydrate complexed formulation such as CALCINATOR™ is designed to overcome many of the shortcomings of conventional calcium sprays (Fig. 1). In this system, Ca^{2+} ions are complexed with low-molecular-weight carboxylates, producing a buffered and hydrophilic complex with distinctive physico-chemical properties. The gel-forming nature of pectic ligands increases droplet viscosity and humectancy, which enhances adhesion to the fruit skin, reduces droplet rebound and prolongs hydration time (Blanco *et al.*, 2010).

This extended wetness improves the window for cuticular penetration. The ligand also buffers free Ca^{2+} activity, reducing the tendency of calcium to bind immediately and irreversibly to negative charges on the fruit surface (Fernández & Brown, 2013).



By moderating ionic activity at the interface, more Ca can diffuse into the apoplast before becoming immobilised. Once inside, Ca^{2+} is gradually released from the complex and incorporated into endogenous homogalacturonan chains within the middle lamella, forming calcium-pectate cross-links known as the “egg box” structure. These cross-links strengthen the cell wall, reduce membrane leakage and slow down pectin solubilisation, thereby improving fruit firmness and reducing physiological disorders (Huang *et al.*, 2023).

Compared with highly soluble salts like CaCl_2 , which deliver high osmotic loads, the CALCINATOR™ formulation delivers Ca more gently, reduces salt burn risk and offers broader compatibility in tank mixes (Wójcik *et al.*, 2014). >>

Figure 1: Uptake and incorporation of CALCINATOR™ into fruit cell wall.

CALCINATOR™: Foliar calcium for fruit crops

from previous page

For more information contact Agri Technovation
or your Laevelt Agrochem agent



Comparison with other calcium sources

Non-complexed calcium salts such as CaCl_2 and $\text{Ca}(\text{NO}_3)_2$ are effective at increasing fruit Ca content when applied under favourable conditions. However, they are associated with significant limitations, including high phytotoxicity risk, particularly under warm, slow-drying conditions, and frequent incompatibility in tank mixes due to precipitation with phosphates and sulphates (Autio & Schupp, 2001; Wójcik et al., 2014).

While they may deliver high amounts of Ca quickly, their performance is inconsistent and highly dependent on environmental conditions.

Suspension concentrates (SCs) of sparingly soluble Ca sources such as CaCO_3 act differently. These formulations deposit particles on the leaf or fruit surface, where gradual dissolution releases Ca over time.

While SCs can provide reflective and protective benefits that indirectly support fruit physiology, their nutritional contribution is limited by the slow dissolution rates of these compounds under field conditions (Pimentel et al., 2023). In contrast, CALCINATOR™ provides both rapid and biochemically relevant assimilation of Ca into fruit tissues, prioritising direct nutritional effects over surface conditioning.

Uptake, translocation and assimilation of calcium-pectate

The uptake process of CALCINATOR™ begins with the deposition of droplets that adhere strongly to the fruit surface and remain hydrated for extended periods. Within these droplets, buffered Ca^{2+} complexes diffuse through polar cuticular pathways and microcracks. Once inside the epidermis and apoplast, translocation occurs primarily over short distances, as Ca remains largely immobile in the symplast and phloem (White, 2001).

This local distribution underscores the importance of repeated direct fruit sprays. The assimilation step is critical: As the Ca^{2+} ions dissociate from the ligand, they bind to homogalacturonan blocks in the cell wall, forming calcium-pectate cross-links that increase firmness and resistance to breakdown (Huang et al., 2023).

Conclusion

Calcium-pectate foliar formulations such as CALCINATOR™ represent a scientifically rational approach to addressing the persistent challenges of foliar calcium nutrition in fruit crops. By coupling prolonged droplet retention and buffered ionic activity with targeted assimilation into cell-wall pectins, these formulations improve efficacy while reducing salt burn risk and broadening compatibility.

Compared with non-complexed salts, they deliver Ca more gently and reliably, while offering stronger nutritional benefits than suspension concentrates. Ultimately, success still depends on repeated direct fruit coverage and favourable environmental timing, but calcium-pectate formulations represent a meaningful advancement in optimising fruit Ca status and reducing calcium-related disorders.



CALCINATOR™ Fertiliser Group 2 | Reg. number B5022 | Act 36 of 1947

References:

1. Autio W, Schupp J (2001/2012). *Foliar calcium sprays for apples (F-119R)*. Univ. of Massachusetts / Univ. of Vermont.
2. Blanco A, et al. (2010). *Improving the performance of calcium-containing spray formulations*. *Scientia Horticulturae* 125.
3. Eichert T, Goldbach HE (2008). *Equivalent pore radii of hydrophilic foliar uptake routes*. *Plant, Cell & Environment* 31:1299–1309.
4. Fernández V, Brown PH (2013). *From plant surface to plant metabolism*. *Frontiers in Plant Science* 4:289.
5. Hocking B, Tyerman SD, Burton RA, Gilliam M (2016). *Fruit calcium: transport and physiology*. *Frontiers in Plant Science* 7:569.
6. Huang W, et al. (2023). *Calcium-mediated homogalacturonan complexation contributes to firmness in loquat*. *Journal of Advanced Research* 49:47–62.
7. Hurtado G, et al. (2025). *Pathways and factors in calcium uptake through strawberry skins*. *Scientific Reports* 15.
8. Hu Y, et al. (2023). *Editorial: Factors affecting the efficacy of foliar fertilizers*. *Frontiers in Plant Science* 14:1121806.
9. Pimentel C, et al. (2023). *Mineral particles in foliar fertilizer formulations*. *Plants* 12.
10. White PJ (2001). *The pathways of calcium movement to the xylem*. *Journal of Experimental Botany* 52:891–899.
11. Winkler A, et al. (2021). *Calcium uptake through skins of sweet cherry fruit*. *Scientia Horticulturae* 283:110059.
12. Wójcik P, et al. (2014). *Preharvest CaCl_2 sprays on apple quality and leaf injury*. *Scientia Horticulturae* 171:46–51.
13. Yamane T (2014). *Foliar calcium applications in deciduous fruit trees: an overview*. *JARQ* 48(1):25–31.

Protecting and healing plants after hail damage

Dr. Chantal Scholtz

MBFi
Leaders in Science, Partners in Growth.



Hailstorms can strike without warning, leaving behind a trail of destruction that devastates crops. From shredded leaves and broken stems to bruised fruits and compromised plant health, the impact of hail can severely affect plant productivity and recovery.

At MBFi, we understand the urgency of post-hail recovery. Our MBFi Hail Solution is a precision-engineered recovery package that combines crop nutrition and targeted disease protection to help plants rebound faster, restore energy production, and defend against secondary infections.

Hail damage often strips away a significant portion of the leaf canopy, and since the leaves serve as the primary site for capturing sunlight and producing energy, any damage to this “photosynthetic factory” leads to a significant drop in energy production and places the plant under considerable stress. In response, the plant activates “repair mode,” redirecting nutrients and vital metabolites from surrounding areas to damaged sites.

This internal redistribution helps fortify remaining healthy tissues and supports recovery.

Plants also activate their natural defence mechanism known as Systemic Acquired Resistance (SAR). When irreparable leaf tissue is present, the plant redirects metabolites and nutrients away from these irreparable areas toward healthier tissues.

This strategic relocation not only supports recovery but also limits the availability of nutrients in compromised tissue, making it less hospitable for invading pathogens and insects.

These combined processes place additional metabolic burden on the plant which creates an urgent need for nutrients to support the regrowth and recovery process. Additionally, the imbalance between a relatively large, intact root system and a drastically reduced canopy can disrupt the plant’s hormonal equilibrium, further stressing the plant.

Then there is the problem of wounds and bruises caused by the hail, which not only impairs plant tissue but also increases the risk of disease, as wounds give unrestricted access to pathogens. These wounds need to be sealed by means of a fungicide and bactericide application, which makes timely and targeted intervention essential for plant recovery.

In order to assist plants in their recovery, a multi-faceted approach is required such as the MBFi Hail Solution, a three-part recovery system designed for immediate application post-hail containing X-Press Functional Extra, Copperman and Agri-Cure SP.



Figure 1: Photo showing significant defoliation as a result of hail damage.

X-Press Functional Extra – The nutrient booster

X-Press Functional Extra is a multi-functional foliar feed specifically designed to support plant recovery after stress events such as hail damage. Formulated with chelated micro-nutrients and an alkaline pH for compatibility with Copperman and Agri-Cure SP, it delivers a critical blend of micro-nutrients – manganese, zinc, boron, and molybdenum – along with our Genetic Expression Technology (GET), that stimulates vigorous vegetative regrowth.

The inclusion of boron aids in wound sealing and reinforces cell wall structure, while manganese activates the plant’s defence systems. Zinc enhances chlorophyll and auxin production, promoting faster recovery and new tissue development. This balanced formulation encourages root flush, boosts ATP production, and activates the plant’s immune system, ultimately helping crops restore energy and growth momentum following physical damage. >>



Figure 2: Graphic illustration showing how Genetic Expression Technology (GET) can help the plant recover.

Protecting and healing plants after hail damage from previous page

For more information contact MBFi or
your Laevel Agrochem agent



Copperman – Wound defence

Copperman is a copper-containing suspension concentrate fungicide and bactericide. When applied to plants, the copper hydroxide in Copperman forms a protective film on the surface of leaves, fruits, and stems, creating a physical barrier that prevents fungal spores and bacteria from penetrating plant tissues.

This preventive action helps stop infections before they start. In the presence of moisture like dew or rain, copper hydroxide also slowly releases copper ions (Cu^{2+}), which then penetrate the cell walls of pathogens. These ions bind to proteins and enzymes within the pathogens, disrupting crucial cellular functions such as energy production and DNA replication.

This disruption ultimately leads to the death of the pathogen and prevents the disease from spreading further.

Copperman has been specially formulated to release copper ions gradually, extending protection and reducing the risk of plant tissue damage that can occur with the rapid release seen in traditional copper fungicides.

The formulation also includes dispersants that ensure even distribution of copper particles throughout the solution, preventing clumping and settling. This results in a more consistent application and enhanced overall effectiveness.

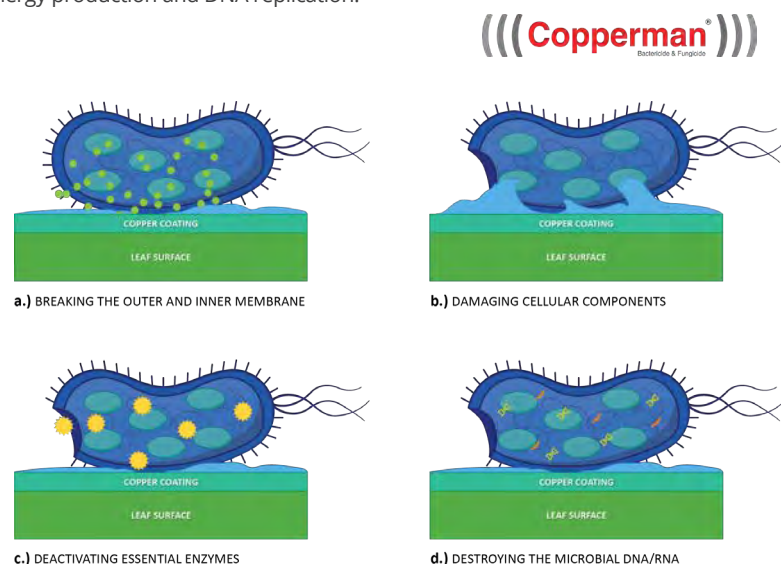


Figure 3: Graphic illustration showing the action of copper on pathogens such as bacteria.

Agri-Cure SP – Pathogen disruptor

Agri-Cure SP is a water-soluble, foliar-applied contact fungicide combining potassium bicarbonate salts and specially selected surfactants. It acts through multiple mechanisms, offering both fungicidal and fungistatic effects. The high concentration of potassium bicarbonate creates a hypertonic environment that dehydrates fungal cells upon contact, causing cell death.

Additionally, the osmotic gradient disrupts water balance in fungal hyphae, inhibiting growth. Its alkaline nature collapses the hydrogen ion gradient vital for fungal energy production, further contributing to its fungistatic action.

The surfactants in Agri-Cure SP enhance wetting, spreading, and penetration, while also disrupting pathogen bi-lipid membranes, leading to leakage and cell instability.

These surfactants also interact with the leaf's epicuticular wax to form the Methyl Carbonate barrier. This barrier not only extends the fungicidal activity but also improves the rainfastness of the product. Together, these features enable Agri-Cure SP to provide effective and reliable protection against a broad range of fungal pathogens.

Agri-Cure®
Soluble Powder Fungicide



Figure 4: Photos showing crops after hail damage 5 days after the hail (25 November 2024, left and middle) and on 10 January 2025 (right) after treatment with the MBFi Hail Solution.

X-PRESS FUNCTIONAL EXTRA Reg. no. B 5298 Act no. 36 of 1947 with active ingredients, Nitrogen 64.9 g/L, Sulfur 19.9 g/L, Boron 6.5 g/L, Manganese 34.1 g/L, Molybdenum 3.9 g/L, Zinc 52.6 g/L.
COPPERMAN Reg. no: L 10962 Act no. 36 of 1947 with active ingredient Copper Hydroxide 180 g/L
Agri-Cure SP Reg. no: L 8549 Act no. 36 of 1947 with active ingredient Potassium Bicarbonate 850 g/kg.

Registration holder: N Laboratories (Pty) Ltd. Marketed and Distributed by MBFi (Pty) Ltd.

Endo-mikorisa, 'n wenner as deel van gewasproduksie

Jaco Marais
Kommersiële en bemerkingsbestuurder, Noorde



Mikro-organismes speel 'n noemenswaardige rol in grondgesondheid en kan die meeste biogeologiese prosesse in grond fasiliteer.¹ Verskeie grondverwante funksies word deur mikro-organismes ondersteun insluitend nutriëntverwerking en -retensie, afbreek van afvalstowwe, siekteonderdrukking asook die ontbinding en stabilisering van gronddeeltjies.¹

Mikorisa-swamme is voordelige grond-mikrobes en ontwikkel 'n simbiotiese verhouding met gasheerplante d.m.v. die wortelsisteem.^{2,3,4} Gasheerplante verskaf koolstofryke nutriënte aan die swam terwyl hulpbronne en nutriënte terug aan die plant gegee word.¹ Mikorisa speel 'n ondersteunende rol aan gasheerplante wanneer abiotiese stresfaktore (bv. hitte-stres) ervaar word.³

Endo-mikorisa is een van die belangrikste tipe mikorisa-swamme om in die andbou benut te word en kan met meeste plantspesies assosieer.

Die swam verleng vanaf die plant se wortelstelsel en bied toegang tot nutriënte en vog wat fisies buite bereik van die wortels sou wees. Die assosiasie tussen die swam en die gasheerplant vind binne die korteksselle van wortels plaas en vorm stoororgane om hulpbronne te stoor. Daarmee saam word ook die uitruiling van nutriënte en vog tussen die swam en die gasheerplant gefasiliteer.

Philagro SA bied toegang tot **MycoApply EndoMaxx®**, 'n seleksie van vier endo-mikorisa spesies in 'n benatbare poeierformulasie afkomstig vanaf *Mycorrhizal Applications LLC* uit die Verenigde State van Amerika.

Elke spesie bring sy eie genetiese potensiaal na die produk en dra by tot werking onder verskillende kondisies.

MycoApply EndoMaxx® kan prakties saam met verskeie tipes produkte toegedien word insluitend sekere tipes konvensionele chemie, biostimulante en biokunsmisstowwe.

MycoApply EndoMaxx® is in Suid-Afrika geregi-streer vir die gebruik op somergrane, peulgewasse, sonneblomme, pampoengewasse en aartappels. MycoApply EndoMaxx® word tydens plant aangewend vir optimale werking.



Vir meer inligting rakende
MycoApply EndoMaxx®, kontak
jou naaste Philagro-deskundige.

Besoek www.philagro.co.za vir meer inligting.

LEES DIE ETIKET VOOR GEBRUIK. | **MYCOAPPLY ENDOMAXX®** | Reg. nr. M200, Wet nr. 36 van 1947 | *Rhizophagus irregularis* (5 625 propagules/g), *Claroideoglomus luteum* (5 625 propagules/g), *Claroideoglomus claroideum* (5 625 propagules/g), *Claroideoglomus etunicatum* (5 625 propagules/g) | Hierdie produk is nie klassifiseerbaar in terme van GHS nie. Philagro SA (Edms.) Bpk. | Reg. nr. 1998/010658/07 | Postnet Suite #378, Privaatsak X025, Lynnwoodrif, 0040. Tel: 012 348 8808 | EndoMaxx® is 'n geregistreerde handelsmerk van Mycorrhizal Applications LLC, Grants Pass, OR, USA.

Verwysings:

1. AWALE, R., MACHADO, S., GHIMIRE, R. and BISTA, P. 2017. Soil health. In: G. Yorgey and C. Kruger, ed. 2017. *Advances in Dryland Farming in the Inland Pacific Northwest*. Washington: Washington State University. pp. 47-98.
2. DUNN, B., LECKIE, R. and SINGH, H. 2017. Mycorrhizal fungi. Date of access: 12 May 2021. <https://extension.okstate.edu/fact-sheets/print-publications/hla/mycorrhizal-fungi-hla-6449.pdf>.
3. FREY-KLETT, P., GARBAYE, J. and TARKKA, M. 2007. The mycorrhiza helper bacteria revisited. *New Phytologist*, 176:22-36.
4. KOKKORISID, V., HAMEL, C. and HART, M.M. 2019. Mycorrhizal response in crop versus wild plants. *PLoS ONE*, 14(8):1-16pp.

Not all sugar products are equal

Effective pest management with stomach-action insecticides does not only depend on the active ingredient, but also on how well it is ingested by the pest. This is why phagostimulants – the compounds that encourage feeding - are crucial in ensuring optimal uptake of the relevant thripicides.

While many products in the market position themselves as sugar-based feeding stimulants, not all are created equally. SUGAR RUSH™ is a premium formulation which maximises feeding stimulation activity through its carefully designed formulation and specific sugar composition.

Feeding stimulant activity of various sugars

The chemical class of sugars consists of many different types of sugar molecules, simple or complex. Simple sugars, which are the type of sugars discussed in this article, include both monosaccharides (single sugar units) and disaccharides (two sugar units bonded together). Commonly known “refined white sugar” is a pure form of sucrose, a disaccharide sugar consisting of the monosaccharide sugars glucose and fructose, bonded together (Figure 1).

It is important to understand that not all sugars have the same effect on insect feeding stimulation. Some sugars result in a much greater insect response. Research has consistently shown that sucrose is one of the most potent feeding stimulants for plant-feeding insects, eliciting strong responses in their receptors that regulate feeding behaviour^{1,2}.

Studies across a range of insect species have demonstrated that sucrose consistently



triggers stronger and more reliable feeding responses than other sugars, highlighting sucrose as the most important sugar for stimulating ingestion. Glucose, for example, has been shown to be 30 – 50 % less effective than sucrose. The stimulatory effect of other naturally occurring sugars such as fructose at specific (lower) concentrations within these product formulations should however not be overlooked.

Sugar inversion process

Certain products that are positioned as sugar-based feeding stimulants in the market are prepared using inverted sugar syrups, which are produced through the breaking down of sucrose into glucose and fructose through heat and acid treatment. In the food industry, inverted sugar syrups are widely preferred over sucrose solutions due to their increased

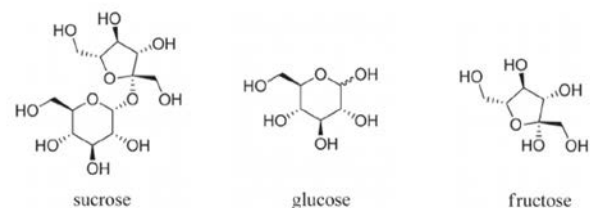


Figure 1: Chemical structures of sucrose (disaccharide) and its monosaccharide sugar components, glucose and fructose.

Allan Huysamen
Business Development Manager – Adjuvants



sweetness, lower viscosity (greater flowability), resistance to crystallisation and their moisture retention properties. Furthermore, as these syrups are often produced from unrefined sugarcane extract and supplied in bulk, it generally results in a cost reduction.

As a feeding stimulant for use in agriculture, inverted sugars present significant limitations. Firstly, their composition is dominated by glucose and fructose, both of which are less effective phagostimulants, therefore less suitable for enhancing the ingestion of stomach-action insecticides. Another potential risk relates to the interpretation of insecticide product labels that recommend the addition of sucrose for bait spray applications. If producers add inverted sugars to the mixture (which would be less effective), the recommendation is strictly and technically speaking not complied with, leaving producers potentially exposed when the efficacy of the product is challenged or questioned.

In sugar syrups, the “degree of inversion” refers to the degree to which the sucrose has been broken down. For example, a 75 % inverted syrup means that 75 % of the sucrose has been degraded into glucose and fructose. This translates into a 75 % decrease in concentration of the sugar which has the most potent insect feeding stimulant effect.

How to identify inverted sugar products

It is possible to distinguish between inverted sugar products and high-quality, sucrose-rich stimulants through several technical and practical indicators. Product SDS documents of inverted sugar products may indicate the degree of inversion of the sugar syrups, or may indicate glucose and fructose as major components. If such information is not provided on product SDS documents, inverted sugar

products can be discerned by their lower viscosity, or increased “runniness”. Furthermore, inverted sugar products are often presented at a significantly lower price point in the market due to their bulk supply, less refined raw materials and less intensive production processes.

Why SUGAR RUSH™ is different

The SUGAR RUSH™ formulation is the result of intense research and developed specifically to maximise feeding stimulation of target insects through its high sucrose content and additional sugar components present at specific concentrations. The use of high-purity, refined sugars as raw materials differentiates SUGAR RUSH™ from products produced through inversion, ensuring consistency and reliability. Unlike inverted sugar products, SUGAR RUSH™ complies with insecticide label recommendations which specify sucrose for bait spray applications, giving producers confidence in both performance and compliance. In addition, the product is fully miscible and compatible with Agri Technovation foliar feeds and other relevant agricultural remedies, making it a versatile and effective tool for use in crop protection programmes.

Conclusion

Not all sugar-based products offer equal value when it comes to stimulating insect feeding. Products relying on inverted sugars with significantly lower sucrose content, may result in cost savings but through their use, efficacy, compliance and, ultimately, effective pest control are compromised. By contrast, SUGAR RUSH™ is a premium sucrose-rich solution, formulated with precision to ensure superior feeding stimulation, compliance and optimal return on investment.

References:

1. R. F. Chapman, *Annu. Rev. Entomol.*, 2003, 48, 455-484.
2. E. Merivee, A. Must, E. Tooming, I. Williams, I. Sibul, *Physiol. Entomol.*, 2012, 37, 369-378.

Chemiese beheer van Fusarium-aarskroei



Fusarium-aarskroei is die mees verwoestende siekte van kleingrane wêreldwyd. Die siekte word hoofsaaklik deur die swam Fusarium graminearum veroorsaak, wat grasgewasse soos koring, gars en mielies affekteer, maar ongelukkig ook sojabone. Dit veroorsaak drievoudige skade vir produsente nl. verlaagde opbrengs, verlaagde graankwaliteit, en besmetting van graan met toksiese sekondêre metaboliete genaamd mikotoksiese soo deoksinivalenol (DON).

In die VSA alleen het die siekte amper \$3 biljoen se skade tydens 1998 – 2000 veroorsaak. In vandag se geldwaarde is dit meer as \$5,8 biljoen, net a.g.v. een siekte op koring alleen. In China het Fusarium-aarskroei epidemies feitlik jaarliks voorgekom vanaf 2015 tot vandag, met erg geaffekteerde streke wat verliese tussen 50 – 80% gelyk het.

In SA is Fusarium-aarskroei meer sporadies van aard vanweë die klimaat. Dit beteken nie die siekte is minder gevaarlik nie. Vir siekte om te ontwikkel moet drie faktore ter gelyke tyd in plek wees, nl. 'n vatbare gasheer, 'n virulente patogeen, en bevorderlike omgewingstoestande. Siende die eerste twee reeds in plek is, hang siekteontwikkeling in SA grootliks van 'n gunstige klimaat af. Wanneer dit wel die geval is, kan dit ongelukkig katastrofiese gevolge inhou (sien voorbeelde).

Daar bestaan geen enkele benadering om Fusarium-aarskroei te beheer nie. Die grootste sukses word behaal wanneer 'n geïntegreerde bestuursprogram gevolg word wat bestaan uit:

- Korrekte agronomiese praktyke, naamlik wisselbou met breëblaargewasse soos kanola of lusern, en effektiewe grondbewering om die hoeveelheid stoppels op die lande beduidend te verminder.
- Die gebruik van meer weerstandige kultivars. Let op dat geen hoogs weerstandige kultivars bestaan nie.
- Effektiewe chemiese beheer, wat uit drie aspekte bestaan:
 - (a) Keuse van swamdoder;
 - (b) tydskedering; en
 - (c) effektiewe toediening.

Tabel 1: Fusarium-aarskroei-beheer verkry deur toediening van swamdoders by verskillende groeistadiums.

% BEHEER RELATIEF TOT F. GRAMINEARUM-GEÏNOKULEERDE KONTROLE (% BESMETTE BLOMPAKKIES/AAR)			
SWAMDODER	AARVERSKYNING	50% BLOM	5 – 7 DAE NA BLOM
Protiokonasool + Tebukonasool	<33%	51,5%	41,3%
Metkonasool	<33%	52,2%	45,9%

Bron: Paul et al. (2018)

Ter illustrasie van geïntegreerde beheer het 'n omvattende studie in die VSA oor twee jaar gewys dat swamdodertoediening beter resultate verskaf by matig weerstandige kultivars vergeleke met matig vatbare of hoogs vatbare kultivars (Tabel 1). Meer daaroor in volgende artikels. In hierdie artikel word gekyk na effektiewe chemiese beheer.

Chemiese swamdoders

Daar is tans geen chemiese swamdoders geregistreer teen Fusarium-aarskroei in Suid-Afrika nie, gevolglik kan geen middel wettiglik aanbeveel word nie. Daar is egter al heelwat navorsing – plaaslik en internasionaal – op chemiese beheer van Fusarium-aarskroei gedoen, wat op die volgende bladsy bespreek word. >>



Foto 1: Besmette koringaar (Foto: GJ van Coller).



Chemiese beheer van Fusarium-aarskroei

vanaf vorige bladsy

Vir meer inligting, kontak gerus ICA International Chemicals
Dr. Gert van Coller 083 629 9289, Lodewyk van Staden 082 926 3450
of Braam van Niekerk 082 303 4972



Foto 2: Gesonde vs. Fusarium-besmette korrels (Foto: GJ van Coller).

Keuse van swamdoder

Wêreldwyd word die beste resultate met die triasool-groep swamdoders verkry. 'n Omvattende studie in die VSA van meer as 100 veldproewe oor 11 jaar in 14 state het bevestig dat 'n mengsel van Protiokonasool + Tebukonasool die beste beheer van Fusarium-aarskroei en gepaardgaande verlaging in DON teweeg bring. Die strobiluriene is egter nie 'n goeie keuse vir chemiese beheer van Fusarium-aarskroei nie. 'n Omvattende studie in die VSA het duidelik getoon dat strobiluriene die DON-inhoud van graan verhoog. Selfs mengsels van triasole en strobiluriene presteer swakker as die triasole alleen.

Veldproewe deur hierdie outeur en mede-werkers het bevestig dat Protiokonasool + Tebukonasool die persentasie besmette are beduidend meer verlaag as twee triasool + strobiluriene-mengsels (Epoksikonasool + Piraklostrobien en Siprokonasool + Asoksistrobien) en die opbrengs beduidend meer verhoog. Al drie middels het DON beduidend verlaag. In 'n meer onlangse veldproef in die Standerton-omgewing onder besproeiing het Protiokonasool + Tebukonasool, Aktief A alleen, Aktief B + Aktief C, en Aktief D + Aktief E + Aktief F die persentasie besmette are en DON-inhoud beduidend meer verlaag as Aktief G + Aktief H of Aktief I alleen.

Tabel 2: Persentasie aarskroei-beheer verkry deur integrasie van kultivarweerstand met chemiese beheer (Protiokonasool + Tebukonasool).

PERSENTASIE BEHEER RELATIEF TOT F. GRAMINEARUM-GEÏNOKULEERDE KONTROLE				
KULTIVARWEERSTAND	% BESMETTE ARE	BESMETTE BLOMPAKKIES	FUSARIUM-BESKADIGDE KORRELS	DON
Matige weerstand	60% – 69%	71% – 76%	66% – 72%	60% – 64%
Matig vatbaar	56% – 62%	68% – 72%	66% – 68%	58% – 61%
Hoogs vatbaar	<45%	<45%	<45%	<45%

Bron: Paul et al. (2018)

Tydsberekening

Aangesien koring tydens blomfase op sy vatbaarste is, is toediening in hierdie periode van kardinale belang. 'n Omvattende studie in die VSA het gewys dat toediening met Protiokonasool + Tebukonasool of Metkonasool (aktief nie in SA beskikbaar nie) die mees effektiewe resultate lewer wanneer ten minste 50% van die are in die vroeë blomfase is (Feekes 10.5.1, Zadoks 61) (Tabel 2).

Soos in Tabel 2 aangetoon, is toediening voor of na blomfase beduidend minder effektief. Toediening na blom kan wel DON-vlakke verlaag, maar kan nie die skade deur Fusarium-aarskroei aangerig ongedaan maak nie.

Effektiewe toediening

Aangesien *F. graminearum* die are direk infekteer, is goeie bedekking van die are nodig om die siekte te beheer.

Afwaartse bespuiting (90° teenoor die grondoppervlak) is dus oneffektief, aangesien die are vertikaal is en baie min van die are se oppervlakte daardeur bedek word. Internasionale studies het gewys dat spuitpunte (nozzles), wat beide vorentoe en terugwaarts spuit met 'n medium – growwe druppelgrootte beduidend beter siektebeheer verskaf (Foto 3).

Onthou dat tydsberekening en keuse van swamdoder ook deurslaggewend is.



In 'n oorsese studie oor spuitpunte is 'n byna 50%-verlaging in sigbare Fusarium-aarskroei-simptome verkry met 'n gemodifiseerde Turbo Teejet Duo-spuitpunt vergeleke met die standaard Teejet XR-spuitpunte.

'n Plaaslike studie deur hierdie outeur het ook bevestig dat beduidend beter deposisie op die are verkry word met Turbo TwinJet vs. Turbo Teejet spuitpunte.

Foto 3: Meer effektiewe bedekking van are word verkry deur sywaartse bespuiting (Foto: Á Mesterházy).

LEES DIE ETIKET VOOR GEBRUIK.

TebuCure 250 EW (tebuconazole 250 g/L) Reg. no. L7992 (Act 36/1947) Danger. H314, H318, H361, H410. TebuCure Prime 250 EC (prothioconazole 125 g/L & tebuconazole 125 g/L) Reg. No. L10808 (Act 36/1947). Warning. H315, H319, H335, H361, H410. Prothocol 480 SC (prothioconazole 480 g/L) Reg. no. 11462 (Act 36/1947) Warning. H400, H410. Hazard phrases: H314 Causes severe skin burns and eye damage, H315 Causes skin irritation, H318 Causes serious eye damage, H319 Causes serious eye irritation, H335. May cause respiratory irritation, H361 Suspected of damaging fertility or the unborn child, H400 Very toxic to aquatic life, H410 Very toxic to aquatic life with long lasting effects.

Five inoculant technologies and a biological fungicide for enhanced soybean production

Nadine Loubser

MBFi
Leaders in Science. Partners in Growth.



Introduction

In modern soybean cultivation, maximising nodulation efficiency and ensuring rhizobial survival are essential for achieving high yields and sustainable nitrogen fixation. MBFi has developed a suite of advanced inoculant technologies that go beyond conventional formulations, enabling *Bradyrhizobium japonicum* to survive, thrive, and effectively nodulate soybean roots under diverse and often challenging on-farm conditions.

These innovations, OSMO Protection™, EXO Activation™, Signal Generation™, Membrane Protection™, and Hydrolock® Technology, are each designed to address critical performance challenges, from maintaining viability during storage to safeguarding on-seed populations in the presence of certain agrochemicals.

OSMO Protection™ technology (Rizo-liq® and Rizogen® products)

Osmotic stress is one of the leading causes of reduced performance in microbial inoculants, as it can rapidly dehydrate cells and compromise their viability. OSMO Protection™ safeguards the cell's internal environment by maintaining cytoplasmic hydration and reinforcing membrane integrity, ensuring that rhizobia remain active and functional.

This technology significantly enhances survival during both storage and on-seed application, by improving tolerance to challenging conditions such as salinity and drought, conditions under which unprotected cells often fail to adapt and quickly lose viability. The technology allows a 21-day pre-treatment on seed with Bio-Shield XT®.

Signal generation™ (Signum® product)

Effective nodulation begins with precise molecular communication between the soybean root and *Bradyrhizobium*. Signal Generation™ technology amplifies this exchange, enhancing flavonoid-nod factor signalling to accelerate nodule initiation. By ensuring faster recognition and activation of the nodulation pathway, it reduces the time to nodule formation, a critical advantage under stress conditions such as suboptimal pH, elevated salinity, or drought, where signalling can be delayed.

This early nodulation supports stronger nitrogen fixation during the crop's most crucial growth stages. The technology allows a 21-day pre-treatment on seed with Bio-Shield XT®.

Membrane Protection™ technology (Elite® product)

Seed-applied agrochemicals and environmental stressors can damage rhizobial cell membranes, compromising viability before planting.

Membrane Protection™ technology integrates specialised stabilisers into the formulation to shield cell membranes from chemical and oxidative damage.

This protection extends bacterial viability on treated seed for at least 45 days, far exceeding the performance of standard inoculants. By preserving high populations of active *Bradyrhizobium* until planting and supporting early root colonisation, it safeguards nodulation potential even in the presence of common fungicide and insecticide seed treatments.

EXO Activation™ technology (Rizogen® product)

Beyond survival, rhizobia must actively colonise the root and initiate nodulation. EXO Activation™ Technology stimulates the production of extracellular polysaccharides (EPS), sticky sugar-based polymers that form a protective matrix around the cells.

Scanning Electron Microscopy images of *B. japonicum* treated with EXO Activation™ show dense EPS networks bridging cells together. This not only protects bacteria from environmental fluctuations but also plays a role in biofilm formation on root surfaces, enhancing adhesion and colonisation efficiency.

Petri dish comparisons reveal that strains with EXO Activation™ produce significantly more extracellular material than untreated counterparts, visually confirming the technology's impact on metabolic activity and EPS synthesis. The technology allows a 21-day pre-treatment on seed with Bio-Shield XT®. >>



Figure 1: Images showing differences in *Bradyrhizobium* with and without EXO activation™ technology.

Five inoculant technologies and a biological fungicide from previous page

Hydrolock® Technology (Bio-Shield XT® product)

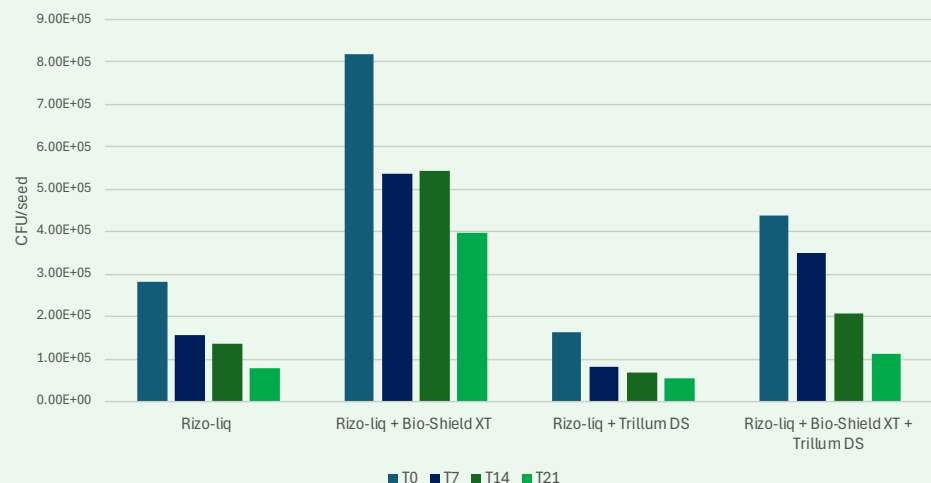
While OSMO Protection™, Signal Generation™, Membrane Protection™ and EXO activation™ focus on the inoculant itself, Hydrolock® protects rhizobia once applied to the seed.

Acting as a moisture barrier and binding agent, Hydrolock® reduces desiccation stress and prevents rapid population decline post-treatment. Trials demonstrate that combining Rizo-liq® with Bio-Shield XT® maintains significantly higher viable counts during the critical pre-planting window compared to untreated or unprotected seed applications.

Biological fungicide - Trillum DS®

Trillum DS®, powered by the fast-growing beneficial fungus *Trichoderma asperellum*, represents MBFi's commitment to sustainable agriculture and a shift away from sole reliance on chemical fungicides for managing persistent soil-borne diseases such as *Fusarium*, *Pythium*, and *Rhizoctonia* (Figure 2).

Leveraging advanced innovations like a chitinase catalyst and protein defence technology, *T. asperellum* protects crops by rapidly colonising the rhizosphere, outcompeting pathogens for space and resources, and directly attacking them through mycoparasitism, penetrating and consuming harmful fungi at infection sites.



Graph 1: Effect of Bio-Shield XT on *Bradyrhizobium* survival in seed treatments. Treatments containing Bio-Shield XT consistently maintained higher CFU/seed counts over 21 days compared to formulations without Bio-Shield XT, demonstrating its protective effect during on-seed storage.

Nitro-liq Soybean®: Premium Rhizobium liquid™, Reg. no. L8986 Act 36 of 1947. Active ingredient: Live legume bacteria for soybeans (*Bradyrhizobium japonicum*), minimum 2×10^9 CFU/mL.
Rizo-liq Soybean®: OSMO Protection™, Reg. no. L8738 Act 36 of 1947. Active Ingredient: Live legume bacteria for soybeans (*Bradyrhizobium japonicum*), minimum 6.5×10^9 CFU/mL.
Signum Soybean®: OSMO Protection™ + Signal generation™, Reg. no. L8988 Act 36 of 1947. Active ingredient: Live legume bacteria for soybeans (*Bradyrhizobium japonicum*), minimum 6.5×10^9 CFU/mL.



For more information contact MBFi or
your Laevelt Agrochem agent



Figure 2: Multifunctional disease protection offered by Trillum DS® is powered by *Trichoderma asperellum* with chitinase catalyst and protein defence technology, targeting key soybean pathogens including *Fusarium*, *Rhizoctonia*, and *Pythium*.

It further suppresses disease via antibiosis, producing antifungal metabolites, while simultaneously priming plant immunity through induced systemic resistance to enhance resilience against a wide range of stresses. This combination of competitive exclusion, direct pathogen destruction, metabolite production, and immune activation makes Trillum DS® a safe, effective, and environmentally responsible solution for modern crop protection.

Conclusion

By integrating multiple layers of microbial protection, osmotic stabilisation, EPS enhancement, moisture-locking coatings, MBFi has set a new standard for rhizobial inoculant performance. These technologies not only ensure higher viable counts at planting but also promote more effective root colonisation and consistent nodulation.

For farmers, this translates to improved nitrogen fixation, healthier plants, and ultimately, higher yields with reduced dependence on synthetic nitrogen fertilisers.

Complementing these inoculant innovations, Trillum DS® offers a biological, environmentally responsible solution to soil-borne diseases by combining competitive exclusion, direct pathogen attack, metabolite production, and immune system activation.

Together, these technologies give growers an integrated approach to both promoting root health and protecting crops, securing productivity in modern sustainable agriculture.

Registration holder: N Laboratories (Pty) Ltd. Marketed and Distributed by MBFi (Pty) Ltd.

Elite Soybean Inoculant®: Membrane Protection™, Reg. no. L8925 Act 36 of 1947. Active ingredient: Live legume bacteria for soybeans (*Bradyrhizobium japonicum*), minimum 1×10^{10} CFU/mL.
Rizogen® Soybean: OSMO Protection™ + EXO activation™, Reg. no. L10801. Active ingredient: Live legume bacteria for soybeans (*Bradyrhizobium japonicum*), minimum 6.5×10^9 CFU/mL.
Trillum DS®: Chitinase catalyst + Protein defense technology, Reg. no. L 10241 Act 36 of 1947. Active ingredient: *Trichoderma asperellum*, 2×10^9 spores/mL.

Redefining kelp: The science behind KELPURA™ in fruit crop phenology

KELPURA™ is a pure liquid kelp-based plant biostimulant derived from the South African kelp species *Ecklonia maxima*. It is produced using a proprietary room-temperature extraction technology that preserves the integrity of the kelp's natural bioactive compounds, including phytohormones, phenolic acids, amino acids and polysaccharides.

This preservation is critical, as bioactive molecules are easily degraded by thermal processing, yet they play a key role in plant reproductive physiology (Stirk & van Staden, 2014). By retaining these compounds in their native state, KELPURA™ delivers a multi-component biostimulant system that supports crop resilience and reproductive efficiency during critical phenological stages.



Rochelle Thuynsma
Head of Products: Technical



KELPURA™ mode of action

A distinctive feature of KELPURA™ is its complex bioactive content, which counteracts the negative influence of stress-induced abscisic acid (ABA) and ethylene. Elevated ABA and ethylene during flowering and fruit initiation often result in flower abortion, reduced pollen viability and premature fruit drop under abiotic stress conditions such as drought and heat (Sharma et al., 2013).

The bioactive of KELPURA™ enhances flower retention, promotes cell division and facilitates calcium uptake by modulating calcium transporter gene expression and enhancing sink strength tissues (Khan et al., 2015). KELPURA™ also provides high levels of precursors for supporting the phenylpropanoid pathway that supports both cytokinin biosynthesis.

The cytokinin-like activity of KELPURA™ is particularly significant during reproductive phenology of fruit crops. Exogenous cytokinins and cytokinin-like compounds have been shown to increase mitotic activity in ovary and endosperm tissues, resulting in higher initial cell numbers and larger potential fruit size (Werner et al., 2003).

Furthermore, by strengthening sink activity, cytokinins enhance phloem unloading of sugars and mineral nutrients, particularly calcium, into flowers and developing fruits (Kuiper et al., 1990).

Product positioning

The positioning of KELPURA™ within reproductive phenology highlights the precision design of Agri Technovation's crop solutions,

which target specific physiological demands during flowering and fruit set. Agri Technovation produces a range of engineered products that focus on supporting specific reproductive phenological stages.

Reproductive phenology in fruiting crops progresses through induction, fruit set and cell division, with each stage offering a critical opportunity for targeted intervention.

During induction, products such as TRY ME™ strengthen floral sink activity by supporting carbohydrate reserves, ensuring meristems commit effectively to flowering. In the subsequent phase of rapid cell division, the combined synergy of KELPURA™ and CALCINATOR™ sustains cell division and cell wall integrity by improving calcium uptake.

Conclusion

KELPURA™ represents an advanced, engineered biostimulant designed to address the complex physiological challenges of reproductive phenology in fruit crop production.

By harnessing the full spectrum of bioactive compounds derived from *Ecklonia maxima*, KELPURA™ integrates phytohormone balances and enhanced nutrient uptake to support the most sensitive stages of reproductive phenology.

TRY ME™ Fertilizer group 1, Reg. no. K9552 | Act 36 of 1947. KELPURA™ Fertilizer group 3, Reg. no. M442, Act 36 of 1947. CALCINATOR™ Fertilizer group 2, Reg. no. B5022, Act 36 of 1947.

References

- Almeida, J. & Oliveira, M. (2010). *Hormonal regulation of fruit set and development in tomato: interaction between auxin and gibberellins*. Plant Growth Regulation, 62, 63–70.
- Khan, W., Rayirath, U.P., Subramanian, S., Jithesh, M.N., Rayorath, P., Hodges, D.M., Critchley, A.T., Craigie, J.S., Norrie, J. & Prithiviraj, B. (2009). *Seaweed extracts as biostimulants of plant growth and development*. Journal of Plant Growth Regulation, 28(4), 386–399.
- Kuiper, D., Schuit, J. & Kuiper, P.J.C. (1990). *Actual cytokinin concentrations in plant tissues as an indicator of sink/source relationships*. Plant and Cell Physiology, 31(4), 565–573.
- Mandzhieva, S.S., Minkina, T.M., Sushkova, S.N., Chaplygin, V.A. & Burachevskaya, M.V. (2022). *Benzoic acid in plant metabolism: physiological roles and stress responses*. Environmental Science and Pollution Research, 29, 65702–65714.
- Santi, C., Zamboni, A., Varanini, Z. & Pandolfini, T. (2017). *Growth stimulatory effects and transcriptome changes induced by protein hydrolysates in maize seedlings*. Frontiers in Plant Science, 8, 433.
- Sharma, P., Jha, A.B., Dubey, R.S. & Pessarakli, M. (2013). *Reactive oxygen species, oxidative damage, and antioxidative defense mechanism in plants under stressful conditions*. Journal of Botany, 2012, 1–26.
- Stirk, W.A. & van Staden, J. (2014). *Seaweed products as biostimulants in agriculture*. In: du Jardin, P. (ed.), The Science of Plant Biostimulants. EU Commission Report, Brussels, pp. 31–55.
- Vardhini, B.V. & Rao, S.S.R. (2012). *Brassinosteroids – a class of phytohormones: their role in stress tolerance of plants*. In: Ahmad, P. & Prasad, M.N.V. (eds.), Abiotic Stress Responses in Plants. Springer, New York, pp. 297–323.
- Werner, T., Motyka, V., Laucou, V., Smets, R., Van Onckelen, H. & Schmülling, T. (2003). *Cytokinin-deficient transgenic Arabidopsis plants show multiple developmental alterations indicating opposite functions of cytokinins in the regulation of shoot and root meristem activity*. Plant Cell, 15, 2532–2550.
- White, P.J. & Broadley, M.R. (2003). *Calcium in plants*. Annals of Botany, 92(4), 487–511.
- Zhang, K., Novak, O., Wei, Z., Gou, M. & He, K. (2021). *Endogenous cytokinin biosynthesis and signalling are required for ovary survival and fruit set in Arabidopsis*. Plant Cell Physiology, 62(4), 644–657.

Tiny flies, big headaches

Fruit fly threats to pome fruit: helping farmers stay ahead

Dr. Elleunorah Allsopp, Entomologist &
Dr. Jeanne de Waal, Business Manager - Laevelt Agrochem



Fruit flies remain one of the most serious threats to pome fruit production in South Africa. These tiny pests can quickly build up in orchards, leading to crop losses, rejected consignments, and blocked export opportunities. Effective management is therefore essential to protect both yields and market access.

In this article, we look at the main fruit fly species affecting pome fruit, the damage they cause, and the best approaches to monitor and control them effectively.

Which fruit flies matter most?

Mediterranean fruit fly (*Ceratitis capitata*), the main culprit in pome fruit production, widespread across South Africa.

Cape fruit fly (*Ceratitis quilicii*), common but less damaging; found in most provinces.

Oriental fruit fly* (*Bactrocera dorsalis*), a dangerous invader fly under strict surveillance; any detection must be reported.

Spotted wing Drosophila* (*Drosophila suzukii*), another invasive pest, attacking soft-skinned fruit such as berries and stone fruit.

Vinegar fly (*Drosophila melanogaster*), not a direct pest; only attracted to fruit that is already damaged or rotting.

***Important:** Oriental fruit fly and spotted wing Drosophila are regulated pests. If detected, report it immediately to the Department of Agriculture for eradication protocols.

Why fruit flies are a big problem

Direct damage: Females pierce fruit skins to lay eggs. Larvae tunnel inside the flesh, causing internal breakdown.

Secondary rot: Wounds from egg-laying allow fungi and bacteria to infect fruit.

Market access risk: Many countries reject infested fruit. Even one contaminated fruit in a consignment can block exports.

Yield losses: In unmanaged orchards, damage can even reach 100%.

For exporters especially, fruit fly management is critical to staying in business.



The fruit fly life cycle

Understanding how fruit flies breed helps farmers time their control measures:

Eggs: Laid under fruit skin; hatch in 1 to 3 days.

Larvae: Feed inside fruit for 6 to 30 days, causing hidden damage.

Pupae: Mature larvae drop to the soil and pupate.

Adults: Live from 2 weeks to 6 months. Females lay up to 300 eggs.

Populations build quickly in warm conditions (10 °C to 30 °C). In summer, a full cycle can finish in just 3 weeks.

Numbers peak in late summer and autumn. Fruit flies overwinter as adults on evergreen plants with dense foliage if no fruit (such as guavas or other winter fruit) is available around the orchards.

Spotting the damage

- Small puncture marks on fruit skin (egg-laying sites).
- Internal tunnels where larvae feed, often invisible until cutting fruit open.
- Soft spots and rotting flesh from secondary infection.
- Higher presence of vinegar flies around rotting fruit. >>



The Mediterranean fruit fly.
Photo: Prof A P Malan, Stellenbosch University.

Tiny flies, big headaches

from previous page

Contact Agri Technovation or
Laeveld Agrochem for more information.

Monitoring: your first line of defence

Continuous monitoring is the foundation of effective fruit fly management.

- **Traps:** Delta traps (sticky cards with lures), and Bucket/McPhail traps (contain lures plus killing agents).
- **Lures:** Different species require specific attractants. Consult your local pest control advisor.

- **Routine checks:** Service traps weekly, year-round.
- **Fruit sampling:** Cut open suspect fruit to confirm that larvae inside are fruit fly and not other pests like codling moth.

Export orchards must comply with monitoring requirements for Oriental fruit fly and spotted wing Drosophila.



Control measures

Fruit fly control must start early in the season and continue after harvest. A combination of methods works best.

1. Bait sprays

- Contain a food source plus insecticide.
- Sprayed as coarse droplets onto foliage.
- Highly effective against fruit flies while sparing beneficial insects.
- Available for ground and aerial application.

2. Orchard sanitation

- Collect fallen fruit from the orchard floor.
- Remove & destroy leftover fruit after harvest.
- Alternatively, fallen and leftover fruit can be crushed in the work row.
- Prevents flies and other pests like codling moth from breeding in unmanaged fruit.

3. Bait stations

- Small containers with bait and insecticide.
- Hung in orchards or gardens.
- Especially useful in winter, when flies hide in evergreen plants.

4. Area-wide control

- Most effective when growers work together.
- Co-ordinated bait applications across farms reduce fly populations.
- For Mediterranean fruit fly, the Sterile Insect Technique (SIT) is an option, sterile males are released to reduce reproduction.

Seasonal tips for growers

- Spring:** Begin monitoring traps; apply bait sprays as soon as flies appear.
- Summer:** Keep up weekly monitoring and frequent bait applications; practice strict orchard sanitation.
- Autumn:** Watch for population peaks; continue sanitation and control.
- Winter:** Apply bait sprays/stations once a month in evergreen host plants to reduce overwintering populations.



The bottom line

Fruit flies are one of the biggest threats to pome fruit growers in South Africa. But with early monitoring, timely use of bait sprays or bait stations, strict orchard sanitation, and regional collaboration, they can be managed successfully.

A proactive approach not only protects yields but also keeps markets open, ensuring South African fruit remains competitive on the global stage.

Word produsente en landbouwetenskaplikes aan hul neuse gelei?

Pieter Raath & Kobus Louw
Departement Wingerd-en Wynkunde
Stellenbosch Universiteit



Tydens 'n ontspanne gesprek met 'n welbekende lid van die tafeldruifbedryf word die volgende aanmerking teenoor my gemaak:

"n Mens kan vinnig baie geld uit die tafeldruifbedryf maak. Jy moet net nie te veel gepla wees oor jou reputasie nie en ook nie hoop om daarna weer besigheid in die bedryf te doen nie."

astronomiese oes- en gehalteverbeterings en redenasies wat my aan my eie kundigheid laat twyfel?

Die feit bly staan dat dit verstommend is hoe min mense werklik hul omgewing krities evalueer en gevolglik te maklik die opdisings van agente en insetverskaffers of die media vir soetkoek opeet. Florerende besighede het al in die landbou tot stand gekom wat gebaseer is op die verskynsel van pseudowetenskap. Miljoene rande word jaarliks gestort in die sakke van kreatiewe uitvindings wat produsente en landbouwetenskaplikes op sleeptou neem met die beloftes van kitsoplossings vir tafeldruifprodusente se probleme.

Die woord "pseudo" beteken "vals", afgelei van die Griekse woord *pseudein* – "om te lieg". Die beoefening van pseudowetenskap behels dus om wetenskaplike aansprake te maak wat gebaseer is op valse aannames, ondersoekpraktieke of bloot opdisings van resultate.

Om wetenskaplike kennis te besit, beteken nie om bloot wetenskaplike feite te ken soos die optimale N-inhoud van wingerdblare, die waterhou vermoë van 'n kleigrond of die fisiologie van kleurontwikkeling in die vrug nie.

Dit behels 'n kennis van die aard van wetenskap – die kriteria waarop bewyse rus, die ontwerp van betekenisvolle eksperimente, die talle aspekte van wetenskaplike metodes wat dit moontlik maak om betroubare afleidings te maak, ens.

Te veel agente en insetverskaffers bombardeer produsente met onsin. Daarom is dit nuttig om na die kenmerke van pseudowetenskap te kyk.

Hier volg 'n paar voorbeelde van tipiese kenmerke waarvoor produsente en landbouwetenskaplikes op hul hoede moet wees:

• **Slordige "navorsingsresultate"** wat gebaseer is op hoorsê-getuigenis, voorgeslagte se manier van doen en "wyshede", knipsels uit koerante, antieke godsdienste (waarvan die huidige populêre bioklimatiese boerdery-benadering 'n mooi voorbeeld is deurdat hulle graag na die ou Druide verwys), of bronne uit oudsher. Selde word onafhanklike ondersoeke gedoen om hul bronne/aansprake te bevestig.

• **Pseudowetenskap begin met 'n hipotese** – gewoonlik een wat 'n kritiese probleem vir 'n produsent kan oplos – en soek dan items of wetenskaplike redenasies wat lyk of dit die aansprake ondersteun.

• **Pseudowetenskap beroep op valse outoriteite**, emosies, sentiment en twyfel in bestaande feite. 'n Mediese dokter gee homself uit as kundige in plantvoeding en grondbestuur. Hy doen 'n beroep op mense se emosies en: "as dit reg voel, dan moet dit reg wees." Pseudowetenskaplikes is dol oor denkbeeldige komplotte waar die maghebbers en ander instellings se oogmerke bevestigteken word, soos byvoorbeeld aansprake dat die landbouchemiese maatskappye dikteer wat in die landbouwêreld gebeur en o.a. die blaam dra dat hedendaagse voedsel kwansuis minder voedsaam is as in die verlede.

"Hulle weerhou die algemene produsent ook van insigte in ware volhoubare boerderypraktieke tot hul eie voordeel", word ook gereeld beweer – net om produsente se emosies so 'n bietjie op te werk.

• **Pseudowetenskap staan onverskillig teen kriteria** van werklike bewyse. Die klem word verskuif van betekenisvolle gekontroleerde, herhaalbare wetenskaplike eksperimente na onverifieerbare ooggetuieverslae (of foto's), stories, anekdotes en gerugte (herken ons nie almal een of meer van bogenoemde nie?).

Ware wetenskaplike literatuur word óf geïgnoreer, óf verkeerd geïnterpreteer tot voordeel van die boodskap wat oorgedra wil word. Pseudowetenskaplikes gebruik o.a. ook die "Galileo-argument". Dit behels dat hy homself met Galileo vergelyk: "Net soos die pseudowetenskaplike as verkeerd beskou word, is Galileo ook deur sy tydgenote as verkeerd beskou en daarom moet die pseudo-wetenskaplike reg wees, net soos Galileo reg was."

Wat die pseudowetenskaplike verswyg, is dat dit nie Galileo se wetenskaplike tydgenote was wat sy bevindinge in twyfel getrek het nie, maar die hoofde van die Rooms-Katolieke Kerk – ook 'n klomp pseudowetenskaplikes van hul tyd? >>



Word produsente en landbouwetenskaplikes aan hul neuse gelei? vanaf vorige bladsy

• **Pseudowetenskap skep ook hul eie woorde-skat** as handelsmerk. Sommige is veelsinnig of nie duidelik gedefinieer nie. Voorbeelde van nuwe terme wat die laaste jare te voorskyn gekom het, is: “soil food web”, “kompostee”, “lug- en waterwortels” – al die woorde is nou algemene terme in die tafeldruifbedryf en word sterk met individue geassosieer.

• **Pseudowetenskap vermy om aansprake te onderwerp** aan ’n betekenisvolle toets (die beste manier om die geloofwaardigheid van ’n produk en sy agent vas te stel, is om aan te bied om die produk eers kosteloos vir ’n seisoen uit te toets om die aansprake te bevestig – dis verbasend hoe vinnig ’n mens onwelkome besoekers van jou rug afkry). In kontras met wetenskap, waar deurslaggewende eksperimente wêreldwyd deur wetenskaplikes herhaal word met toenemende noukeurigheid, sal pseudowetenskaplikes wat wel aanspraak maak op ’n voltooië eksperiment met ’n uitsonderlike uitslag dit nie herhaal om die resultaat of prosedure te kontroleer nie.

• **Pseudowetenskap skep doelbewus misterie** (soos in die hedendaagse ophef wat oor grondbiologie gemaak word, waar die ongelooflike kompleksiteit van grond-ekosisteme as ’n misterie voorgelê word wat net deur sommige “uitverkorenes” verstaan word), terwyl deurslaggewende of belangrike detail uitgelaat word.

• **Pseudowetenskap groei nie en toon nie progressie nie** (daar word eerder na “my oupa se wysheid” terugverwys). Pseudowetenskap volg eerder gieri na en skakel van die een na die ander oor, maar maak nooit vooruitgang tot groter kennis nie. Want hoe ouer ’n idee, hoe meer respek word dit betoon. Die pseudowetenskaplike sal dit egter opdis asof niemand nog voorheen, behalwe hyself, die eintlike volle waarde van die “ou waarheid” ontdek het nie. In werklikheid raak pseudowetenskaplikes byna altyd betrokke by verskynsels wat welbekend is met wetenskaplikes, maar waarvan die publiek of produsente nie altyd weet nie – sodat hulle alles sluk waarop

die pseudowetenskaplike aanspraak maak. Voorbeelde is waar kamtig innoverende metodes van komposmaak “ontdek” word wat gebaseer is op ’n voorvader se manier van doen (terwyl die produsent self welbekend is met sy eie oupa se metode), of aansprake van “diepgaande” kennis oor die gebruik van onkruid as aanduiding van die fisiese en chemiese toestand van landbougrond (en dit terwyl die produsent reeds ’n grondondersoek se verslag in sy lessenaar se laai het, maar dit nooit gebruik het nie...).

Hoe moet ons as produsente en landbouwetenskaplikes reageer teenoor pseudowetenskap? Navorsers en landbouwetenskaplikes beskou pseudowetenskap en sy uitvloeisels/produkte dikwels as vergesog en onsin, gevolglik sien hulle dit as humoristies eerder as gevaarlik. Ongelukkig kan pseudowetenskap baie gevaarlik wees vir ’n brose tafeldruifbedryf.

In die woorde van oorlede prof. Theron van Stellenbosch Universiteit se Wingerdbou-departement: *“n Boer vrek oor ’n nuwe ding, al is dit ’n nuwe siekte...”* In ’n soeke na oorlewing en dus meer effektiewe boerderyresultate, laat produsente hulself ongelukkig oop vir “nuwe oplossings” vir hul alledaagse praktiese uitdagings.



In die huidige ekonomiese klimaat, waar die bedrywe wat ons van brood en botter voorsien onder erge druk verkeer, kan produsente en landbouwetenskaplikes nie swig voor die versoekinge van pseudowetenskaplike aansprake nie. Te veel produsente het al hul finale ondergang bewerk deur hul laaste hulpbronne op ongefundeerde praktyke en produkte te bestee – soms met die ondersteuning van “geïnteresseerde” wetenskaplikes. Dikwels word sulke produsente se plase op ’n uiters onverantwoordelike manier deur pseudowetenskaplikes gebruik om hul produk te “bewys”, sonder om enige sinvolle kontroles in te bou om die resultate mee te beoordeel. Die produsent word ook nie voldoende bewus gemaak van die risiko’s verbonde aan die gebruik van die “wonderproduk” nie.

Ter selfherinnering, en as hulp aan ons kollegas in die tafeldruif- en ander landboubedrywe, stel ons die volgende kriteria voor waarvolgens bestuurs- en ander insette geëvalueer moet word:

1. Let op na die karakter van pseudowetenskap, soos hierbo uitgespel, en vermy om toe te gee aan die tipe denkwysse wat gevolg word.

2. Besef dat wetenskaplikes verkeerd kan wees, maar dat ware wetenskaplikes dit sal erken en vinnig bereid sal wees om verder na antwoorde te soek.

3. Ware wetenskap lewer herhaalbare resultate waarvan die metodes presies uitgespel word en gedupliseer kan word met identiese of verbeterde resultate. Daar is gewoonlik redes waarom die proefresultate van sekere produkte ’n geheim is, of nie opgespoor kan word nie, of deur obskure instellings uitgevoer is. Dring aan op resultate van erkende instellings.

4. Ware wetenskaplike bevindinge word primêr in wetenskaplike joernale bekend gemaak wat aan ewekniebeoordeling onderwerp is en streng standaarde van eerlikheid en akkuraatheid in stand hou. Eers daarna word dit in populêre formaat aan die bedryf bekend gemaak vir implementering.



5. Wees baie versigtig vir oënskynlik onskuldige produkte wat “die plant se groei verbeter” maar nie vir so iets geregistreer is nie. ’n Enkele oorskryding van ’n MRL deur so ’n middel kan die produsent (of die bedryf) miljoene kos, en ’n produk met ’n obskure herkoms kan ’n baie negatiewe beeld van die bedryf veroorsaak as dit skielik in die pers verskyn. Alle soorte ekstrakte word deesdae sonder meer gespuut. Weet ons altyd waaruit die ekstrakte bestaan?

Ter afsluiting: As landbouwetenskaplikes en tafeldruifprodusente kan ons die bedryf en onself ’n groot guns bewys deur altyd seker te maak dat ons denke, perspektiewe en praktyke gebaseer is op suiwer, ware wetenskap. Dan kan ons verseker wees ons mors nie ons tyd, energie en hulpbronne nie, en sal ons as bedryf vooruitgaan. Ons moet ook ons plaaslike, geloofwaardige navorsingsinstansies ondersteun en nie “gekoopte” resultate van ander instansies sonder meer aanvaar nie.

Hierdie artikel is gebaseer op ’n artikel getiteld “Oogklappe van kwasiwetenskappe en gepaardgaande perke” deur George Claassen wat in Die Burger (2001) verskyn het. Met George se toestemming is die artikel verwerk en ’n sterk landbou-geurtjie gegee. Met dank wil ons dus erkenning gee aan die oorspronklike werk van George Claassen.

The revolutionary mid-row ripper with Vibrosoiler® technology

Marnus Ferreira
Technical Head of Soil Science and ITEST™ SOIL



The challenge of established orchards

The improvement or correction of soil-related limitations in existing orchards has presented many a challenge to producers in the past. Up to now, using available technologies, it has been very difficult to fix the impact of mistakes made or shortcuts taken during orchard development, in established orchards.

A revolutionary game changer

We are now excited to introduce a game-changing tool, the Agri Technovation Schmeiser Mid-Row Ripper with Vibrosoiler® technology (Figure 1).

It is a single bar, width- and depth-adjustable, vibrating wing mid-row ripper and is specifically designed for use in existing orchards.

For this capability, the Schmeiser Mid-Row Ripper is regarded a revolutionary development, providing solutions to a host of soil-related limitations. It enables growers to improve the root zone through mechanical cultivation in existing orchards, which, up to now, could not have been done as effectively by any other technology.

Photo: The Schmeiser Mid-Row Ripper in action in an orchard in California. Photo courtesy of Thomas Mahnecke, Agri Technovation Soil Scientist, California, USA.



Figure 1: The Schmeiser Mid-Row Ripper with Vibrosoiler® technology. (www.tgschmeiser.com/products/mid-row-ripper.html).

Why is it different?

Ordinary mid-row ripping in its current form is only good for managing water ponding in the wheel-path. It does not influence the most important part of an orchard: the root zone. Using the ordinary rippers will reduce the compaction directly below the wheels-path, but will not be able to sufficiently break the soil either side of the tine, therefore leaving the root zone compaction undisturbed and intact.

The Schmeiser ripper enables the operator to shatter the soil up to ~40 cm on both sides of the ripping tine, which means that the tine can be placed at a safe distance from the tree trunk (and irrigation lines) and still be able to affect the crucial irrigated root zone. This is why the engineering of the Schmeiser ripper is ingenious.

Although it was originally designed to address wheel-path compaction, producers all around the globe experiencing a variety of soil-related challenges will now benefit greatly from what this revolutionary tool has to offer.

Key mechanical features & tine options

Mechanical features

- Adjustable parabolic curved ripper with 20 cm vibrating winged keel.
- Maximum ripping depth of 60 cm:
The following is recommended by the dealer to achieve maximum ripping depth:
 - o Requires the tractor to have hydraulics at a working pressure of 1400 to 1800 PSI. Flow rate of 15-35 l/m depending on model used.
 - o Vineyards: 125 HP tractor recommended if tractor has 4 x 4; 135-150 HP if tractor is 2 x 4.
 - o Orchards: 135-150 HP tractor recommended with 4 x 4.
- Three (3) depth positions for tines (30 - 60cm).
- Optional wing sizes (15 - 25 cm).
- Ring rollers (60 cm wide).
- Adjustable to fit various row widths (1.8 - 4.6 m in orchards; 0.9 - 1.5 m in vineyards).

Current tine options

Currently, tine options are limited to an adjustable parabolic shank with 20 cm vibrating winged keel, but we are working closely with Schmeiser® Farm Equipment to improve and widen the service offering by including alternative types of tines to target specific soil constraints.

The vineyard ripper is fixed at 1,2cm with no roller, while the orchard ripper is adjustable up to 3,5m with rollers. >>



Left: A severely compacted apple orchard - an ideal candidate for the Schmeiser Mid-Row Ripper. Note the complete lack of roots below the upper metal part of the soil pick (total length of pick about 30 cm).

The revolutionary mid-row ripper from previous page

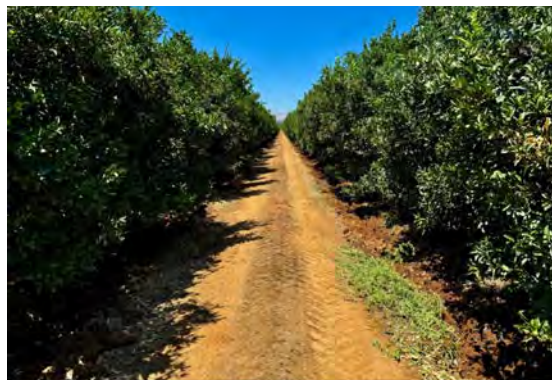
Success factors and key solutions

Key success factors

- ~40 cm-wide shattering effect either side of the ripping line.
- Versatility: adjustable width and tine depth to enable use in multiple row-widths and soil types with a single tool.
- The correct application of this tool (timing of ripping, ripping depth, spacing, oscillating wing depth and post cultivation action plan).
- The proximity to the irrigation zone – enabling the improvement of soil limitations in or near the root/irrigation zone.

Solutions offered

- Decompaction of soils
- Leaching of salts
- Increasing rooting depth
- Improved infiltration
- Improved drainage
- Shattering of limiting layers
- Can have mixing effect when parabolic tines are used
- Results in new root formation



A citrus orchard post-cultivation using the Schmeiser Mid-Row Ripper. Note the newly ripped lines under the edge of the canopy.



A 60 cm deep profile pit in the rip line. It shows 45 cm breakout after the first pass. Sometimes more than one pass is required to break stubborn limiting layers.

Important recipe for use

When it comes to soil preparation, attempts to take shortcuts or save costs could, and usually do, come at a huge price. As soil preparation directly influences the biggest factor in long-term sustainable production namely *irrigation* - it certainly calls for an approach that will yield long-term optimal results. Ironically, the opposite is often observed and experienced all over the world. Optimum time to use the Mid-row Ripper is growth phase.

Fortunately, now for the first time there is a tool available that will change the game and remedy some of these problems post-establishment. However, to achieve maximum benefit from using the Schmeiser ripper, a recipe must be followed, which can only be determined by determining what the actual soil conditions are.

Therefore, first and foremost, an in-depth soil physical study must be performed – noting certain key physical properties is vital to a successful mechanical action. (This is also applicable to new developments where many mistakes are often made).

Contact your local LAC Agent or Agri Technovation agronomist for more information.



HOË-PROTEÏEN, GEBALANSEERDE MAALTYD VIR ALMAL

'n GESONDE
MAALTYD
Vinnig, maklik
en geen
voorbereiding
is nodig nie!

Alles wat jou
liggaam benodig
vanaf R3 per
maaltyd!

STANDAARD PAP

6 g proteïene
1,5 g vesel
1 vitamien teen 30% NRV
1 anti-oksident

PER 100 g PORSIE

PROTEÏENE
VESEL
VOEDINGSTOWWE
ANTI-OKSIDANTE

GENESIS MAALTYD

18 g proteïene
6 g vesel
13 vitamien teen 100% NRV
5 anti-oksidente en minerale

GENESIS bevat 3 keer
meer proteïene en
vesel, asook 13 keer
meer vitamien as
'n standaard pap.

BESTEL AANLYN: www.genesisnutrition.co.za

of kontak vir Michelle 082 579 5517 | michelle@genesisnutrition.co.za

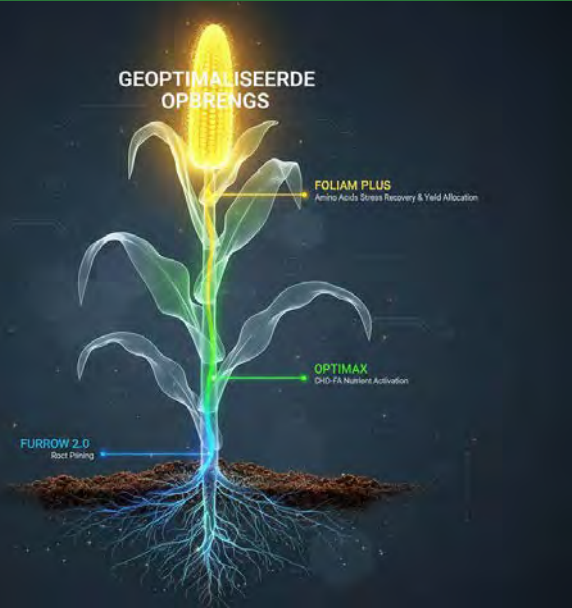
Strategiese produktoepassing vir geïntegreerde gewas-energiebestuur

Janneman Cornelius
Senior Agronoom en Direkteur
van Navorsing en Ontwikkeling



Voortbouend op die beginsels van plant-energie dinamika (Artikel 1) en die meganismes van sleutel-biostimulant-kategorieë (Artikel 2), verskaf hierdie artikel 'n tegniese-gefokusde raamwerk vir die strategieë ontplooiing van Bioco Crops se spesifieke produkte – Exceed, Optimax, Furrow, Foliam Plus.

Hierdie produkte word benut om gewasenergie deur die hele groeiseisoen effektief te bestuur, en sodoende veerkragtigheid en produktiwiteit te verseker.



1. Die energie-fundament: Optimalisering van ontkieming en vestiging

Effektiewe energiebestuur begin met die beperking van die plant se aanvanklike metabolismiese inspanning tydens kritieke fases van seldeling en opname.

Produk(te)	Sleutelkomponente & kategorieë	Rasionaal (energiekoppeling)
Exceed & Optimax	Gepatenteerde <i>carbohydrate derived fulvic acid</i> (CHD-FA)-tegnologie (Humusstowwe)	CHD-FA cheleer mineraalvoedingstowwe, wat die plant se energiebesteding aan voedingstof-en wateropname direk verminder. Dit stimuleer ensieme verantwoordelik vir die hidrolise van adenosien trifosfaat (ATP), wat veroorsaak dat voedings-elemente beter opgeneem word, en vinniger vervoer word.
Furrow	Ammonium ortofosfaat (Proteïenhidrolisaat/ Aminosure); CHD-FA Flavonoïede Organiese sure	Furrow verskaf 'n gekonsentreerde “aanvangs-energiepakket.” Ortofosfaat dien as 'n geredelik beskikbare bron vir ATP-sintese (Plaxton & Tran, 2011). Die unieke kombinasie van boustene bespaar kritieke energie benodig tydens die stresvolle vestigingsfase (Colla et al., 2017). Die Flavonoïede dien as vroeë antioksidante en seinmolekules, wat sellulêre integriteit beskerm en die plant se energieverbruik vir verdediging beperk.

Produk(te)	Sleutelkomponente & kategorieë	Rasionaal (energiekoppeling)
Tyds-berekening	Met plant of vroeë na-opkoms (grondtoediening)	Die doel is om vinnig 'n groot, metabolisme-doel-treffende wortelstelsel te vestig, wat toekomstige energie- en voedingstof verbruik maksimeer.

2. Maksimum energie-omskakeling: Vegetatiewe groeifase na reprodutiewe fase

Die prioriteit is om die bruto energie-opbrengs deur die proses van fotosintese te optimaliseer, terwyl energiedreinerings deur stres beperk word.

Produk(te)	Sleutelkomponente & kategorieë	Rasionaal (energiekoppeling)
Foliam Plus	Ortofosfaat; Silikon (Orto-Silisiësuur); CHD-FA; Aminosure; Flavonoïede en organiese sure	Foliam Plus lewer essensiële komponente direk aan die blare. Die gekombineerde Silikon en osmolyte (bv. betaine) bied 'n basislyn vir stres-weerstand, wat die plant help om fotosintetiese produktiwiteit te handhaaf en energie-afleiding na verdediging te verminder (Liang et al., 2015; Battacharyya et al., 2015). Die ortofosfaat en hoë vlakke aminosure in Foliam Plus fasiliteer 'n hoër metabolisme aktiwiteit en ensiemproduksie wat noodsaaklik is vir fotosintese (ligenergie omskakeling na biomassa).
Tyds-berekening	Gereelde blaartoe-dienings ('n konstante toediening elke 14 dae word aanbeveel om deurlopende metabolisme ondersteuning te verseker)	Ondersteun deurlopende hoë fotosintese-tempo's en die doeltreffende produksie van biomassa, wat die “Bruto Energie”-doelwit van hierdie fase optimaliseer. >>



3. Gerigte energie-allokasie: Die reprodutiewe fase

Die reprodutiewe fase, wat lei tot pit- of boontjiedigheid, is die mees energie-intensiewe periode, wat 'n verskuiwing in allokasie vereis om die opbrengskomponente te vul ("sink"-sterkte).

Gedurende hierdie kritieke tydperk, waar die plant se totale energievraag op sy hoogste is, verseker die deurlopende gebruik van Foliam Plus spesifieke metaboliese ondersteuning:

Produk(te)	Sleutelkomponente & kategorieë	Rasionaal (energiekoppeling)
Foliam Plus	Ortofosfaat; Aminosure; CHD-FA; Silikon	Die Ortofosfaat bied 'n gereedlik beskikbare energie-bron vir vinnige ATP-sintese (Plaxton & Tran, 2011), wat noodsaaklik is vir die aktiewe vervoer van koolhidrate (suikers) vanaf die blare na die ontwikkelende graan of bone (sinkpunte). Die Aminosure dien as maklike boustone vir proteïen-sintese, wat die plant se energie bespaar om dit te produseer. Dit is krities vir die finale proteïen- en olie-akkumulasie in soja-bone, en die vorming van ensieme wat stysel in mielie-pitte verpak. Hierdie gerigte toediening ondersteun die handhawing van selturgordruk in selle, asook optimale fotosintese tempo, selfs tydens matige planstremming. Dit sal plante in staat stel om steeds relatief hoë opbrengste met goeie kwaliteit te lewer.



Verwysings:

1. Battacharyya, D., Babgohari, M. Z., Rathor, P., & Prithiviraj, B. (2015). *Seaweed extracts as biostimulants in horticulture*. Scientia Horticulturae, 196, 39-48.
2. Canellas, L. P., Olivares, F. L., Aguiar, N. O., Jones, D. L., Nebbioso, A., Mazzei, P., & Piccolo, A. (2015). *Humic and fulvic acids as biostimulants in horticulture*. Scientia Horticulturae, 196, 15-27.
3. Colla, G., Nardi, S., Cardarelli, M., Ertani, A., Lucini, L., Canaguier, R., & Rouphael, Y. (2017). *Protein hydrolysates as biostimulants in horticulture*. Scientia Horticulturae, 213, 266-284.

4. Energie-krisisbestuur: Buffer teen akute stres

Wanneer akute stres (soos skielike droogte of hitte) intree, moet die plant onmiddellik van "groeï" na "verdediging" oorgaan (Artikel 1). Hierdie intervensie dien as 'n "metaboliese noodhulpstel".

'n Onmiddellike blaartoediening van Foliam Plus dien as hierdie "metaboliese noodhulpstel". Die gereedlike beskikbare aminosure, soos prolien, dien as osmoliete om die waterbalans in selle (selturgor) te handhaaf.

Dit dien ook as alternatiewe energiesubstrate vir metabolisme (Colla et al., 2017). Die Flavonoïede en Silikon buffer die plant teen die skade wat deur reaktiewe suurstofspesies (ROS) veroorsaak word, en verminder sodoende die energie wat vir herstel benodig word (Mittler, 2002).

Die gereedlike beskikbare aminosure, soos prolien, dien as osmoliete om die waterbalans in selle (selturgor) te handhaaf.

Gevolgtrekking: Die geïntegreerde Bioco-strategie

Die Bioco-portefeulje se krag lê in die geïntegreerde, sikliese benadering tot energiebestuur. Deur die CHD-FA-tegnologie en komplekse formules van die ander produkte te gebruik om 'n sterk, energie-doeltreffende fondament te vestig, en dan op te volg met die metaboliese en strukturele ondersteuning om energie-opvang en -allokasie gedurende die kritieke fases te beheer, bied Bioco Crops 'n omvattende stelsel.

Hierdie stelsel stel die gewas in staat om die uitdagings van die "energiekrisis" te oorkom, metaboliese doeltreffendheid te handhaaf, en uiteindelik verhoogde toleransie tot abiotiese stres te verbeter.

Dit is nie die individuele komponente wat die werking skep nie, maar die presiese, navorsingsgedrewe sinergie tussen hulle in elke produk. Hierdie is nie bloot produkte nie; dit is 'n geïntegreerde bloudruk om jou plant se energie-ekonomie te versterk, wat lei tot 'n meer veerkragtige en winsgewende oes.

Ons verkoop nie net bestanddele nie, ons bied 'n volledige energiebestuur-strategie wat deur die hele seisoen werk.

Verder poog Bioco Crops om die daaglikse abiotiese stres, wat in veral marginale areas voorkom, tydig aan te spreek en/of te verlig.

Exceed Fulvimed: Reg. nr: M161 Wet 36 van 1947.
Furrow: Reg. nr: M380 Wet 36 van 1947.

Foliam Plus: Reg. nr: B6576 Wet 36 van 1947.
Optimax: Reg. nr: M160 Wet 36 van 1947.

Distributor & Manufacturer: BioCo Crops (Pty) Ltd | Reg. No. 2018/331683/07. BioCo Agri-Park, 7 Noord Street, Bloemhof, North West, 2660. Tel: 051 007 0669 / 073 431 3442.

4. Liang, Y., Nikolic, M., Bélanger, R., Gong, H., & Song, A. (2015). *Silicon in agriculture: From theory to practice*. Springer.
5. Mittler, R. (2002). *Oxidative stress, antioxidants and stress tolerance*. Trends in Plant Science, 7(9), 405-410.
6. Plaxton, W. J., & Tran, H. T. (2011). *Metabolic adaptations to phosphate deficiency*. Plant Physiology, 156(3), 1055-1065.
7. Zandonadi, D. B., Santos, M. P., Busato, J. G., Peres, L. E. P., & Façanha, A. R. (2007). *Plant plasma membrane H⁺-ATPase: the significance of humic substances*. Soil Biology and Biochemistry, 39(11), 2167-2175.



Your digital agronomist in your pocket



JOIN THE FARMSURE AGHUB

Revolutionise your farm

Agr^{Food for good}**cultSURE**

In the dynamic world of agriculture, small-scale farmers often face significant challenges, from limited access to resources and information to difficulties in reaching profitable markets. The FarmSURE aghub is a powerful new AI (artificial intelligence) programme designed to meet these challenges head-on, empowering you to farm more optimally and sustainably.

Our platform operates on a tiered structure, ensuring that you receive the exact level of support you need at every stage of your farming journey. The **Open Platform** provides a free entry point, offering foundational access to essential products like home garden packs and drip irrigation systems, along with general industry news.

For farmers ready to optimise their operations, the **Primary Platform** offers a suite of specialised services. By paying a nominal annual fee, you unlock tools for **precision soil analysis**, comprehensive farm **resource assessments**, and templates for managing **enterprise budgets**.

These resources are designed to help you make informed, data-driven decisions that can significantly boost your yields and efficiency. For those aiming to scale their business and secure their future, the **Secondary Platform** is the ultimate solution.

In addition to all the benefits of the lower tiers, this platform provides exclusive marketing opportunities. We facilitate **off-taker linkages** to connect you directly with buyers and offer templates for **standard off-taker agreements**, ensuring your hard work translates into secure, profitable transactions.

With the FarmSURE aghub, you're not just planting seeds; you're cultivating a more resilient and prosperous future for your farm. **Join us and start your journey towards more optimal farming today.**



Ready to take control of your farm's potential? Register on the FarmSURE aghub to start your journey towards more optimal farming today!




**JOIN NOW
SCAN HERE**

Agr^{Food for good}**cultSURE**



Landbouvaardighede vir die toekoms

Die volgende generasie boere moet anders dink en doen!

Gereed om Landbou te Studeer?

Skakel met die baanbrekers van landbou-opleiding in Suid-Afrika. Registreer nou vir jou Nasionale Diploma in Diere- of Plantproduksie. Ons is die enigste landbou-instelling waar studente 365 dae van die jaar boer, en praktiese ervaring opdoen in 'n werklike landbou-omgewing.

3 Studieformaat Keuses:

- **Cullinan Plaas:** Geniet 'n unieke kans om te bly, te boer en te leer op ons praktiese boerdery-fasiliteite.
- **Afstandsonderrig:** Ons afstandsonderrig bring kwaliteit landbouopleiding en vaardigheidsontwikkeling na jou, ongeag waar jy is.
- **Groenkloof City Campus in Pretoria:** Hier bied ons kontak- en in-persoon opleiding aan. Studente kry klas in Afrikaans of Engels vir 5 weke, en in week 6 praktiese opleiding op ons Cullinan Plaas.

Inskrywings vir 2026 is NOU OOP.

Ons bied ook 'n wye verskeidenheid kortkursusse aan.

Skandeer die
QR-kode om
meer te leer



Webwerf
agriskills.net



Telefoon
012 002 3723



E-pos
admin@agriskills.net

Namate die landboubedryf voortdurend verander, is die vraag na 'n nuwe generasie boere met innoverende vaardighede en tegnologiese fokus groter as ooit. Klimaatsverandering, markvluktuasies en tegnologiese vooruitgang vereis aanpasbare, volhoubare benaderings om voedselveiligheid te verseker. Die vraag is: Is jy gereed om deel te wees van die landbou-revolusie?

Toekomstgerigte landboutegniese

Die bedryf staan uitdagings in die gesig, van klimaatsverandering tot die druk vir volhoubaarheid. Jong boere moet praktiese vaardighede aanleer soos gewasrotasie, organiese boerdery en agro-ekologie, tegnieke wat die omgewing beskerm, grondgesondheid verbeter en biodiversiteit ondersteun. Sô ontwikkel hulle 'n beter begrip van ekosisteme en hulpbronbestuur.

Landboubesigheidvaardighede

'n Boer is ook 'n besigheidsbestuurder. Finansiële geletterdheid, bemerking en netwerkvorming is deurslaggewend vir sukses. Agri Skills Transfer se kursusse help om vaardighede te ontwikkel wat 'n mededingende boerdery laat floreer.



Gemeenskap en samewerking

Landbou is nie net individueel nie, maar berus op mentorskap en kennisdeling. Dit versterk jong boere se vaardighede en bou 'n veerkragtige gemeenskap wat saam uitdagings aanpak.

Agri Skills Transfer

Met 'n bewese rekord van sukses, bied Agri Skills Transfer praktiese opleiding en digitale leerplatforms wat tradisionele kennis met moderne tegnologie balanseer. Dit verhoog produktiwiteit en verseker volhoubaarheid.

"Deur op hierdie noodsaaklike vaardighede te fokus, kan toekomstige boere die uitdagings van 'n veranderende bedryf aanpak en 'n mededingende toekoms verseker," sê Shaun Welmans, COO van Agri Skills Transfer.



Digitale landbou

Tegnologie hervorm die sektor vinnig. Slim- en presisieboerdery en data-ontleding verhoog produktiwiteit en optimaliseer hulpbronne. Jong boere moet digitale vaardighede bemeester om markneigings te voorspel en strategiese besluite te neem. Agri Skills Transfer se programme sluit digitale geletterdheid in om tegnologie doelgerig in bedrywighede te gebruik.

Kom aan boord!

Vir meer inligting oor opleidingsprogramme, besoek **www.agriskills.net**.



Die seisoen draai en fosfaat kom eerste

www.westburysa.co.za



Hoewel die winter amptelik verby is, het baie weiding nog nie voldoende herstel nie en dis hier waar Westbury Supplement Feeds se someraanvullings 'n belangrike rol speel.

Hoewel diere in die somer op natuurlike weidings wei, bevredig selfs groen gras nie altyd alle voedingstofbehoefte nie – veral nie wat minerale aanbetref nie.

Fosfaat is een van die mees kritieke voedingstowwe tydens die somermaande, en 'n tekort daaraan kan verreikende gevolge hê vir diere se gesondheid, groei, reprodusie vermoë en lewensduur.

Daarom bied Westbury nie net P6- en P8-fosfaatlekkies van topgehalte nie, maar ook 'n reeks herkouer-blokke vir herkouters, skape en beeste, asook kruipvoer vir jong kalwers wat nog sukkel met die oorgang van winter na somer.

Waarom fosfaat so belangrik is in die somer

Fosfaat speel 'n sentrale rol in verskeie metaboliese prosesse in 'n herkouer se liggaam, van energie-oordrag tot beengroei en voortplanting. In die somermaande, wanneer gras vinnig groei, maar dikwels 'n lae fosfaatinhoud het, loop beeste en skape 'n verhoogde risiko vir tekorte. Simptome van 'n fosfaattekort sluit in swak groei, swak melkproduksie, lae speenmassas en selfs seisoenale onvrugbaarheid.

Hierdie probleme kan egter maklik voorkom word met die regte fosfaat-aanvulling – en dit is waar Westbury Supplement Feeds se P6- en P8-lekkies, asook ons fosfaatblokke, 'n koste-effektiewe oplossing bied.



WESTBURY P6 – vir groenweidings en optimale gesondheid

Die Westbury P6-blok is 'n hoëgehalte, volledig gemengde fosfaatlekkie vir beeste en skape wat tydens die groen maande gevoer word om minerale- en spoor-minerale-behoefte te bevredig.

Die formulering is gebaseer op die nuutste navorsing en voorsien in alle ontbrekende voedingstofbehoefte wat op natuurlike weidings ontstaan.

Wat maak P6 uniek?

- Bevat 'n korrekte balans van makro-minerale soos fosfaat, en mikro-minerale soos sink, koper, mangaan en selenium vir u area geformuleer.
- Verbeter produksie en reprodusie deur optimale minerale beskikbaarheid.
- Ondersteun goeie beengroei en melkproduksie in lakterende diere.
- Ideaal vir beide bees- en skaap-produksie, ongeag jou streek.

Diere wat P6 ontvang, toon nie net verbeterde liggaamstoestand nie, maar presteer ook beter in terme van vrugbaarheid, wat dit 'n belangrike belegging maak vir enige produsent wat langtermyn sukses nastreef.

WESTBURY P8: Die kragtige alternatief

Soos P6, is die P8 ook 'n hoë kwaliteit fosfaatlekkie, maar met 'n effens hoër fosfaatinhoud – ideaal vir gebiede waar gras uiters laag in fosfaat is of waar diere reeds tekorte toon.

Waarom P8 oorweeg?

- Spesiaal geformuleer om intensiewe fosfaataanvulling te bied.
- Voorsien 'n volledige spektrum van minerale en spoorminerale.
- Bevorder vinnige herstel van fosfaatvlakke in beeste en skape.
- Ideaal vir gebruik in gebiede met 'n bekende hoë voorkoms van fosfaattekorte.

P8 is dus perfek vir boere wat hul somer-voedingstrategie 'n goeie hupstoot wil gee.

Westbury fosfaatblokke: Prakties, doeltreffend en gebalanseerd

Benewens P6 en P8 bied Westbury ook ander blokke wat maklik in die veld gebruik kan word – ideaal vir ekstensiewe stelsels en vir produsente wat gerief nastreef.

Westbury Herkouer Fosfaat blok/lek:

Ontwikkel vir alle soorte herkouters, ideaal vir gemengde troppe wat beeste, skape en bokke verteenwoordig.

Westbury Skaap Fosfaat blok/lek:

Spesifiek aangepas vir skape en bokke se fisiologiese behoeftes en kleiner inname per dag.

Westbury Bees Fosfaat blok/lek:

Geformuleer om aan die hoër behoeftes van beeste te voldoen, veral in reprodusiefases.

Hierdie blokke is ontwerp om selfregulerende inname te bevorder, en word area-spesifiek geformuleer, dit is dus reeds aangepas volgens tekortkominge wat in u gebied mag voorkom. >>

Die seisoen draai en fosfaat kom eerste vanaf vorige bladsy

Kruipvoer: 'n Somerstrategie vir jong kalwers

Omdat baie weidings nog nie heeltemal herstel het na die winter nie, kan jong kalwers, wat afhanklik is van hul moeders én beperkte beskikbare weiding, maklik agter raak in groeipotensiaal. Westbury Supplement Feeds stel daarom ook kruipvoeropsies beskikbaar – spesiaal geformuleerde voer wat beskikbaar gestel word aan kalwers.

Voordele van kruipvoer:

- Vroeë ontwikkeling van die rumen.
- Verbeterde speengewigte.
- Vinniger aanpassing na speen.
- Minder stres op die moederkoei.

Deur kruipvoer tydig in te stel, kan kalwers hul groeipotensiaal begin bereik lank voor die weiding weer op sy beste is. Dit beteken 'n besparing vir die boer omdat die tyd verkort wat dit die dier neem om 'n goeie gewig te bereik, en gevolglik verbeter dit boere se produksiemarge per jaar.



KONTAK

T: 082 450 6196 E: info@westburysa.co.za
www.westburysa.co.za.

**Voer slim. Voer vir sukses.
Voer met Westbury Supplement Feeds.**



Westbury
Supplement Feeds
is beskikbaar by
Laeveld Agrochem

Samevatting: Voorsien nou vir beter resultate later

Die draai van die seisoen na somer vra vir 'n proaktiewe voedingstrategie. Fosfaataanvulling is nie 'n luuksheid nie, dis 'n noodsaaklikheid. Met Westbury se P6- en P8-fosfaatlekkies, asook hul praktiese blokreeks en kruipvoeropsies, het produsente toegang tot wetenskap-gesteunde, praktykbewese produkte wat regte resultate lewer.

Met Westbury Supplement Feeds ervaar boere kostedoeltreffendheid én produksieverbetering, wat 'n direkte invloed op hul bruto- en nettomarge.

Kontak gerus een van Westbury Supplement Feeds se voedingskundiges of jou naaste Laeveld Agrochem tak wat sal help om 'n strategie saam te stel wat aangepas is vir jou streek, jou diere en jou produksiedoelwitte.

Wen teen bosindringing

Met Sendero® 336 SL



Sendero® is uiters doeltreffend om teikenspesies soos Sekelbos te beheer. Terselfdertyd het dit geen nadelige impak op gevestigde of ontkiemende grasse nie. Ander voordelige boom- en struikspesies word nie beskadig nie.

PRODUKEIENSKAPPE

- Sendero® 336 SL is doeltreffend d.m.v. lugbespuiting oor groter areas of rugsakbespuiting vir kolbehandelings.
- Sendero® 336 SL kan in kombinasie met ander produkte ook 'n wyer spektrum van spesies soos Soetdoring, Prosopis en Swarthaak beheer.
- Die produk is veilig vir mens en dier, en vee of wild hoef nie voor behandeling geskuif te word nie.

Die Terravusa-span is spesialiste in die bestuur van verdigte bome en struie in natuurlike weidings. Ons gebruik ons kundigheid en unieke reeks produkte om die regte aanbeveling vir 'n boer op sy plaas te maak.

Só kry die boer die optimale weiding en produktiwiteit uit elke hektaar.

Sendero®
336 SL
HERBICIDE

Gebruik altyd volgens die aanwysings op die produkietiket.
Sendero® 336 SL bevat aminopirallied en klopirallied. Reg. nr. L10569, Wet nr. 36 van 1947. Registrasiehouer: Corteva Agriscience RSA (Edms.) Bpk. Reg. nr. 1991/003030/07. Lakefield Office Park, Weslaan 272, Centurion, 0157, Suid-Afrika.



Die aktiewe bestanddele is nie skadelik vir wild, vee, voëls of enige ander boslewe nie.



Nuwe weidinggras keer terug na die Sendero®-toediening.

NAVRAE & BESTELLINGS

Stephan Jooste
Malcolm Vermeulen

T: 072 275 7160 / E: stephan@terravusa.com
T: 066 297 5055 / E: malcolm@terravusa.com

www.terravusa.com

Time Matters

Come enjoy life where it feels like time stands still

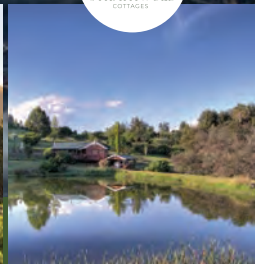
The Sunshine Leisure portfolio is a carefully curated collection of exceptional destinations.
Contact us for your next getaway.

BOOKINGS, MORE INFO & VIDEOS
www.SunshineLeisure.co.za

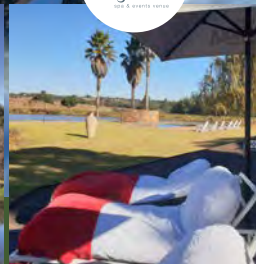
Agri BONUS
Pay with your points.



Banhoek Lodge
Unspoiled views over the vineyards of the Western Cape. Enjoy wine tastings, a spa & serene surroundings.



Strathwold Cottages
Enjoy fly-fishing, stunning dam views, and complete seclusion in a peaceful, tranquil setting.



Ingaadi Spa & Events
A unique spa experience, half- and full-day packages & meals at a peaceful retreat outside of town.



Legôla Wildlife Estate
Enjoy hunting, bonfires & game drives on a vast estate. Experience Africa's wildlife & immerse yourself in nature.



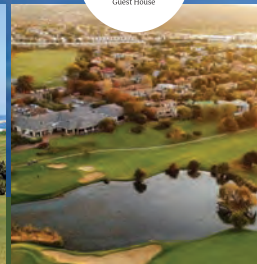
Matumi Golf Lodge
A stunning golf estate offering safety, open views & golf, located close to the Kruger National Park.



Oluchi Lodge
Stunning views, tranquillity, bird life & small game. Just a short drive from the Kruger National Park.



Pennington Waves
Sunny days on the South Coast, with a variety of golf courses and relaxation options nearby.



The Woodpecker Inn
Near the airport & Pretoria-East hospital. Enjoy this 5-star guest house on a beautiful golf estate.



Rugbytoere & Pasmaak reise

BESTEMMINGS & BYEENKOMSTE

Ons kan help met enige bestemming wêreldwyd, en is nie eksklusief tot die Laeveld Agrochem-familie verbind nie.

RUGBYTOERE

Maart 2026 begeleide toer – Hong Kong 7's

Enige sportbyeenkomste



SPESIALITEITS-TOERE

Beskikbaar regdeur die jaar

Thailights toer

4 aande Phuket
4 aande Phi Phi island
4 aande Krabi / Railay bay

Chobe visvangtoer

Enige binne/buitelandse toer
Privaat, insentiewe, groepe of familie-besprekings

Kort wegbreek toere

Enige pasmaak reis/toere



KONTAK: Wouter Liebenberg
082 603 8010 wouter@laeveld.co.za

Food for good
AgricultSURE

Help build our country. One seed pack at a time!

PAY IT FORWARD. Buy a Veggie Seed Pack for someone and introduce them to a home garden of fresh vegetables.

R300
per seed
pack



One seed pack can produce up to 100 kg vegetables and provides quality nutrients as a supplement for a family of 6 for 6 weeks.

Veggie
garden size:
3 m x 5 m.

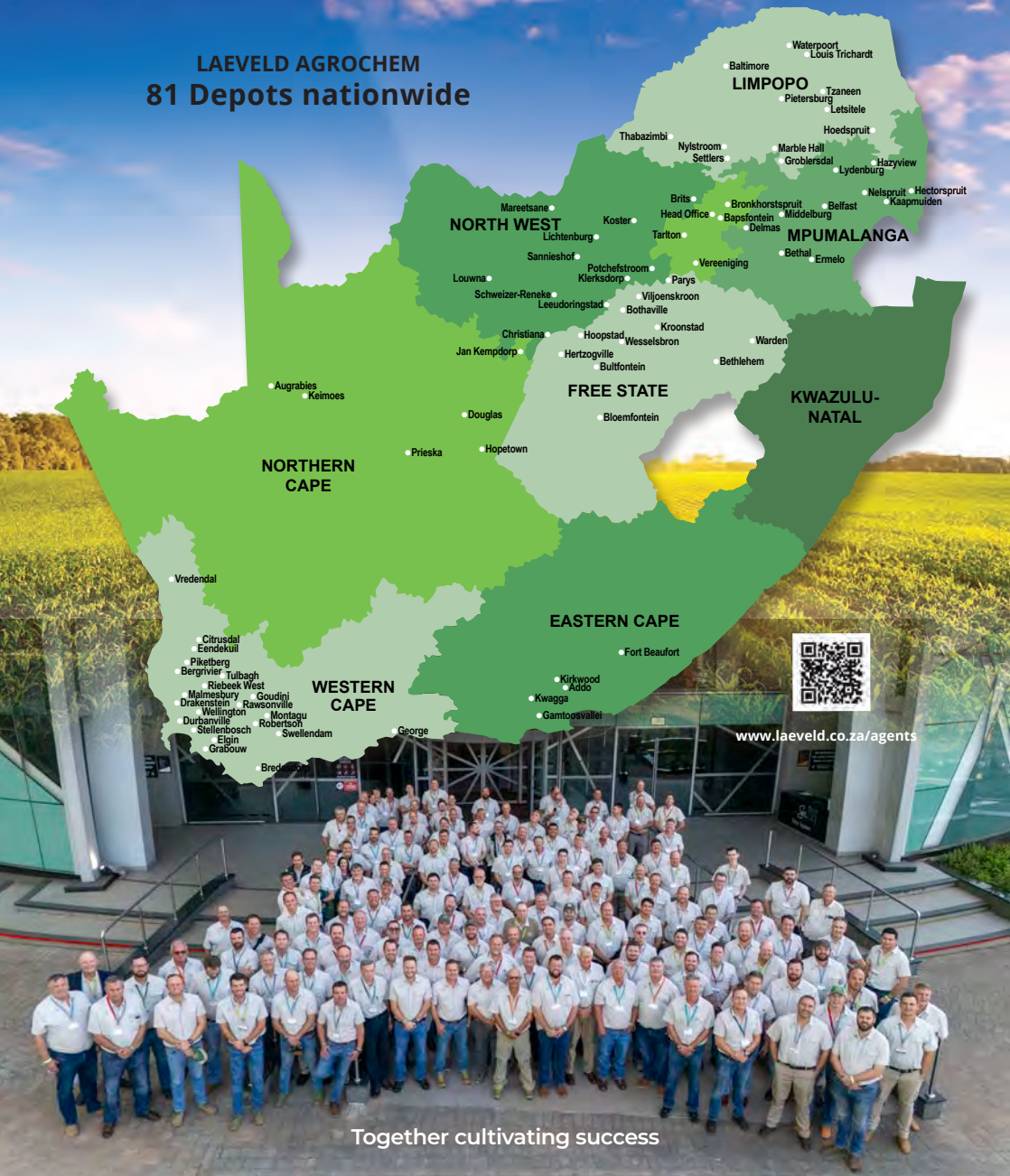
Contents of each Veggie Seed Pack

- 8 Vegetable varieties (seasonal).
- Illustrated instruction manual.
- Fertiliser, soil health products.
- Integrated pest management products.
- Utensils to measure plant spacing.



T: 066 103 8716 | E: info@agricultSURE.co.za | www.agricultSURE.co.za

LAEVELD AGROCHEM 81 Depots nationwide



www.laeveld.co.za/agents

Together cultivating success



Nationwide: 012 940 4398
www.laeveld.co.za
www.agritechnovation.co.za

