

LAEVELD AGROCHEM

GR EI

Uitgawe 33: 2026 Somer

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Makadamia-kombinasiepak
Biologiese produkregistrasie
Protecting mango orchards
Sukses met Biolchim-produkte
Chloroflux technology enhances
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LAEVELD AGROCHEM GROEI 33

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OKTOBER 2026

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BOODSKAP VAN

Kobus Meintjes

Hoof-Uitvoerende Beampte



'n Boer maak 'n plan. Maar 'n plan maak nog nie 'n oes nie. Die ware toets kom wanneer die beplanning van die lessenaar na die land beweeg. Met die nuwe seisoen in volle swang, is dit nou die noukeurige uitvoering van maande se voorbereiding wat die verskil moet maak. Sukses lê nie net in wat ons beplan nie, maar in hoe goed en hoe betyds ons dit doen.

Wanneer weerstoestande uitdagings bring, word die geleentheid om die regte aksie op die regte tyd te neem nóg belangriker. Die natuur bied nie altyd 'n tweede kans nie. Wanneer 'n geleentheid hom voordoen, moet ons gereed wees om dit ten volle te benut.

Dit bring ons terug na die basiese beginsels van suksesvolle boerdery. Meet om te weet, sodat besluite op feite eerder as aannames gegrond is. Gebruik kennis en tegnologie om meer presies op te tree. Maak seker dat toerusting behoorlik gekalibreer is en dat elke toediening akkuraat en doeltreffend geskied. Vermyn onnodige risiko's met produkte of mengsels wat nie behoorlik getoets en bewys is nie. In 'n seisoen waarin elke geleentheid tel, kan klein afwykings groot gevolge hê.



Kobus maak 'n draai by die NisBoere-ateljee saam met Corné.

Vorige episodes kan gratis op www.nisboere.co.za gekyk word.

GROETE VAN

Corné Liebenberg

Direkteur: Markontwikkeling en Innovasie



Beste Laeveld-familie

Om te groei, moet jy slimmer boer

Die somer is hier. Op baie plekke het die reën op presies die regte tyd gekom, die lande kry weer kleur en daar is 'n tasbare gevoel van optimisme in die landbou. 'n Nuwe seisoen bring nuwe hoop, nuwe geleenthede, maar ook nuwe uitdagings.

Suid-Afrikaanse boere ding nie net met hul buurman mee nie. Ons kompeteer met produsente regoor die wêreld vir dieselfde verbruiker se beursie. En ons doen dit met uitdagings wat baie van ons internasionale mededingers nie ken nie: swak paaie, duur logistiek, hawens wat nie altyd funksioneer soos dit moet nie, en duisende kilometers tussen ons en belangrike uitvoermarkte.

Daarom kan ons nie net harder boer nie. Ons moet slimmer boer.

Die landboulandskap verander vinnig. Groot boerderye word groter, terwyl kleiner produsente sonder skaal toenemend onder druk kom. Om nie net te oorleef nie, maar te groei, moet elke hektaar harder werk en elke besluit beter wees.

Ervaring, instink en die wysheid wat ons by ons pa's en oupas geleer het, bly kosbaar.

Maar dit alleen is nie meer genoeg nie. Vandag moet tegnologie jou vriend wees. Data moet iets beteken. Satellietbeelde, presisieboerdery, plantvoeding, gewasbeskerming en kundige interpretasies moet saamwerk om beter besluite te kan neem.

By Laeveld Agrochem glo ons nie 'n boer kan homself ryk spaar nie. As jou enigste maatstaf die goedkoopste produk is, kan jy dit waarskynlik elders koop.

Ons wil eerder saamwerk met produsente wat verstaan dat volhoubare sukses nie net daarvoor gaan om geld te spaar nie, maar om geld te maak, deur groter en beter oeste, slimmer insette, laer risiko en gewasse van uitsonderlike gehalte.

Die telbord jok nie. Daar is 'n rede waarom Laeveld Agrochem reeds 35 jaar agtereenvolgens groei. Ons groei wanneer ons kliënte groei.

Hierdie uitgawe van Groei bevat 'n skatkie van kennis, saamgestel deur van die beste mense in ons bedryf, kennis wat nie oornag ontstaan het nie, maar oor dekades gegeneer is deur harde werk, foute, suksesse, en grond onder die naels, verdien is.

Moet daarom nie die gratis tydskrif onderskat nie. Ons betaal elke keer 'n duur prys daarvoor, deur sweet, swoeg en honderde kosbare man-ure, maar ons bied dit gratis aan omdat ons omgee vir julle. Gebruik dit. Pas die inligting toe. Boer slimmer. Want in landbou behoort groei nooit toevallig te wees nie.



Heel links: Seun en Pa 1: Corné en Nick sluit NisBoere Seisoen 10 saam af.

Links: Seun en Pa 2: Morné en Corné in die nuwe TV-reeks: Padel in die Bloed. Lees meer hieroor op bl. 20.

Biologiese produkte

Waarom registrasie belangrik is

Biologiese produkte is middels van natuurlike herkoms en kan aangewend word as plaagbeheer, om plant- en opbrengspotensiaal te ondersteun of om grondgesondheid te verbeter. Met 'n toenemende dryf na meer volhoubare gewasproduksiepraktyk, word biologiese produkte al hoe meer in die landbou gebruik. Soos met enige ander landbou-insetmiddel vir gebruik in Suid-Afrika, word biologiese produkte vir aanwending op gewasse gereguleer.

Maar wat behels die registrasie van biologiese produkte en waarom is dit belangrik?

Wetgewing in Suid-Afrika

Bykomend tot veevoere en remedieë, word Landbou-insetprodukte wat vir gewasproduksie gebruik word, in Suid-Afrika onder Wet 36 van 1947 gereguleer.

Daar is twee kategorieë waarin produkte geregistreer word en kan misstof- of remedie-registrasies behels. Beide kategorieë van

produkte benodig uiteenlopende data-vereistes waaraan voldoen moet word voordat die registrateur dit produkaansoeke goedkeur.

Biologiese produkte kan in beide kategorieë geregistreer word afhangend van die aard en funksie van die produk. Dit sluit in Groep 3 misstowwe met aansprake op plant- en grondverbetering en biologiese remedie as plaagbeheermiddels.

Tabel 1. Vergelyking tussen verskillende tipes produkregistrasies.

Misstofregistrasies (K-, B- of M-nommers)

Word deur die kunsmisafdeling van die registrateur se kantoor behartig.

Registrasies kan in drie groeperings uitgereik word na gelang van tipe:

- **Groep 1 misstof (K-nommer):**
'n Kunsmis wat 'n totale hoeveelheid van 100 g/kg of meer aan N, P of K, of enige kombinasie daarvan, bevat.
- **Groep 2 misstof (B-nommer):**
'n Kunsmis wat 'n totaal van minder as 100 g/kg N, P of K, of enige kombinasie daarvan, bevat of enige ander erkende plantvoedingstowwe in aanvaarbare hoeveelhede.
- **Groep 3 misstof (M-nommer):**
'n Natuurlike of sintetiese stof of organismes wat die groei of opbrengs van plante, of die fisiese, chemiese of biologiese toestand van die grond, verbeter. Dit sluit bio-kunsmis, biostimulante en grond-kondisioneerders in.

Landbou remedieregistrasies (L-nommers)

Word deur die remedie afdeling van die registrateur se kantoor behartig.

Enige chemiese stof of biologiese middel, of enige mengsel of kombinasie van enige stof of middel wat bedoel is of aangebied word om gebruik te word:

- vir die vernietiging, beheer, afweer, aantrekking of voorkoming van enige ongewenste mikrobe, alg, nematode, swam, insek, plant, gewerwelde, ongewerwelde dier, of enige produk daarvan.
- plantgroeireguleerders, ontblaarmiddels, droogmiddels of peulplant inokulante.



Jaco Marais

Besigheidsbestuurder: Plantvoeding, Laevelt Agrochem



Waarom om te kyk rakende biologiese produkregistrasies.

Let op na die volgende aspekte wanneer 'n biologiese produk gebruik gaan word.

Tabel 2. Vereistes wat op die geregistreeerde etiket moet verskyn

Geregistreeerde etikette van biologiese produkte moet die volgende inligting bevat:

GHS-klasifikasie

Kyk uit vir: Gevaarstellings, noodhulp-advies en veiligheidsimbole, bv. uitroepteken, omgewingsimbool, skedel, ens.

Rede: Beskryf risiko's of gevare wat met die gebruik van die produk verband hou.

Let wel: Indien die produk nie as gevaarlik geklassifiseer is nie, moet die etiket vermeld: "Nie klassifiseerbaar ingevolge GHS nie".

Verklaring van aktiewe bestanddeel

Kyk uit vir:

- Naam van aktiewe bestanddeel.
- Konsentrasie van 'n nie-lewende aktiewe bestanddeel: g/kg, mg/kg, g/L, mg/L of ml/L.
- Vir lewende biologiese middels: genus, spesie, stam.
- KVE/g of KVE/ml (kolonievormende eenhede), lewensvatbare spore of propagules per gram of milliliter. In Engels: CFU (Colony-Forming Units).

Rede: Dit wys wat werklik in die produk is. Nie alle spore is lewensvatbaar nie. Nie alle stamme is dieselfde nie. Dit bepaal doeltreffendheid en funksie van die produk.

Registrasienommer

Kyk uit vir: M-nommer vir Groep 3 misstowwe of L-nommer vir bio-plaagbeheermiddels.

Rede: Bewys van registrasie.

Besonderhede van registrasiehouer

Kyk uit vir:

Maatskappynaam, fisiese adres, kontakinligting.

Rede: In die geval van 'n klagte, navrae of noodgeval.

Gebruiksaanwysings van die produk

Kyk uit vir:

- Gewasse.
- Toedieningsvolume (bv. 50 ml per 100 L water of 3 kg/ha).
- Toedieningsintervalle.
- Maksimum of minimum aantal toedienings per seisoen.
- Toedieningsmetodes (bv. saad- of in-voor toediening, blaarbespuiting, deur 'n besproeiingsstelsel).
- Verenigbaarheid met ander produkte en watervolumes, waar van toepassing.

Rede: Verseker optimale en veilige gebruik.

Lotnommer en vervaardigingsdatum

Kyk uit vir:

- Lotnommer.
- Vervaardigingsdatum.
- Vervaldatum.

Rede: Verseker naspeurbaarheid en produklewensvatbaarheid.

>>

Data wat vir die registrasie van 'n produk ingedien word, moet oor die algemeen bewys lewer van die produk se veiligheid, gehalte en effektiwiteit onder Suid-Afrikaanse toestande.

Groep 1 (K)- en Groep 2 (B)-misstawwe is voorbeelde van produkte waarvoor proewe om werking te bewys, nie 'n vereiste is nie. Slegs Groep 1 en 2 misstawwe mag as voorskryfmengsels gebruik word met spesifieke terme en voorwaardes. Groep 3 misstawwe (M) en plaagbeheer (L) produkte mag nie as voorskryfmengsels bemark word nie. Met Groep 3 misstawwe en plaagbeheermiddels moet effektiwiteitsproewe uitgevoer word en die aansprake van die produk soos op die voorgestelde etiket moet met data aan die registrateur gestaaft word.



Deur ongeregistreerde produkte te gebruik, word middels aangewend op gewasse wat moontlik nie aan die minimum standarde voldoen nie. Die risiko verhoog indien 'n produk nie na wense of soos dit bemark word, werk nie. In sekere gevalle mak dit tot plantskade of opbrengsverlies lei.

Die verskaffer in so 'n geval gaan gewoonlik nie aanspreeklikheid vir die ongeregisterde produk neem nie en versekering mag in gedrang wees omdat daar geen geregistreerde etiket is nie. Dit lei tot potensiaal vir aansienlike finansiële verlies.

Beskerm jouself teen ongeregistreerde biologiese produkte

Wees waaksaam indien enige van die inligting waarna in Tabel 2 verwys word, op die etiket ontbreek of onduidelik is.

Voordat 'n produk aangeskaf word, bevestig waarom die inligting ontbreek. Lees altyd die etiket voordat die produk gebruik word en raadpleeg jou Laeveld Agrochem-gewasadviseur of die registrasiehouer indien daar enige onduidelikhede is.

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LAEVELD AGROCHEM NETWORK - 81 DEPOTS NATIONWIDE

Laeveld 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.



www.laeveld.co.za/agents

Variable rate applications: a return on investment

Marnus Ferreira – Head Soil Scientist
Agri Technovation



The application of variable rate soil amendments such as lime or gypsum, is nothing new in the agricultural industry, and the related benefits in terms of cost savings and soil fertility are widely recognised. Many producers, however, still do not make full use of their variable rate systems during fertiliser applications and planting (or sowing). This remains the case, despite the even larger benefits that could be achieved.

Why the resistance?

There are many reasons for non-use of these systems that could, to an extent, be understood. Firstly, the technology is intimidating and relatively unknown (or insufficiently supported and explained by dealers). Secondly, with the use of this technology, the fear of change raises its head, which often leads to a reluctance to implement. Eventual change happens very slowly due to the relative success achieved through the use of historic methods.

The primary reason for the apparent resistance is the uncertainty regarding what variable rate maps should be based on. Harvester yield-map data are used most often, but the question to be asked is whether this data does in fact generate the best results.

Often, data obtained through the performance of an accurate soil classification service has the strongest correlation with yield. The soil's physical (and chemical) characteristics hold the key as to why (assuming fertilisation and soil

fertility is in place) certain areas perform better than others.

Soil classification data hold the key

The significance of soil classification data with reference to yield achieved has been noted worldwide, based on millions of hectares of yield data that have been analysed and compared to soil data. The physical properties of soil must be managed and improved where possible (such as compaction and drainage, etc.) but can, in general, not be altered significantly.

The soil classification map, therefore, remains one of the most important base maps for variable rate fertilisation and seeding. The soil chemical maps (soil nutrients such as P, K, etc.) should be used to rectify soil nutrient levels using variable rate application, but that focuses purely on soil fertility and is not an ideal choice as a base map for variable application of seed and fertiliser.

Determine the physical impediments in the soil

As stated, certain soil physical characteristics can be improved or ameliorated, while others cannot. To determine the characteristics and, therefore, whether they could be improved or not, it is necessary to perform an in-depth soil classification and obtain recommendations based on scientific knowledge and experience. If the soil classification reveals a physical impediment that cannot be improved, the soil has an intrinsic upper limit to its production potential.

This impediment could be managed by applying variable rate top-dressing, for example. However, even with optimal precipitation, the impediment will always be limiting in terms of yield and production.

On the other hand, some areas may be found to have physical properties that can be improved through practices/interventions such as cultivation, drainage, soil amendments, etc. As costly as some of these practices may be, a simple return on investment (ROI) calculation can be done to weigh up the cost of implementation versus the improvement in yield. Often, it takes only one season to pay back the costs, with change, for the implementation of a strategy that has a multi-year ROI.



Data analysis: How is the data used?

During the data analysis process, the main yield-affecting drivers inside the soil are identified. Variable rate maps are then created according to these main drivers.

For example, where a field consists mainly of Avalon soil types, but numerous high- and low-yielding areas are present in the soil type, the existence of these areas is often linked to secondary or tertiary soil factors that induce such variability. These factors may be one of many possible drivers, such as water-table depth, severity of waterlogging, texture, etc.

These drivers are easily identified when looking at big data. If the driver can be easily fixed, then an action plan is put together to target and correct it. If the driver cannot be fixed and forms part of the inherent qualities of the soil, then a great opportunity exists to apply fertiliser and seed at variable rates, according to the variables identified. >>

Case study

A real-world example of a variable rate application (VRA) exercise performed over a 5-year period is discussed below.

The farm is typically planted under yellow maize and soya beans. A crop rotation system of maize-on-maize back to soya beans is followed. Based on equipment constraints, only fertiliser was historically applied at variable rate, but in the past 2 seasons variable rate seeding was also implemented. Only maize was planted with variable rate fertiliser and seed. The farm's total hectares were rounded down to 1 000 ha, for ease of comparison.

Historically, the average application of fertiliser on the farm was 250 kg/ha. It was therefore decided to split the applications into four categories with differing rates as follows: (1) the worst soils at 200 kg/ha, (2) soils slightly below average at 225 kg/ha, (3) soils above average at 275 kg/ha and (4) the best soils at 300 kg/ha.

The purpose of this strategy was to manage and spread the risk as the farm is divided into different rainfall regions. Some areas receive consistently good rain throughout the season (on average) and others are exposed to more inconsistent rain.

Results (ROI)

The results achieved are set out in table format below (Table 1). Each rate category is provided in the far left column, followed by the total number of hectares represented by each category.

The total profit for each category is provided for the variable-rate applied fields, as well as a simulated profit, had those fields been planted at a 250 kg/ha flat rate.

The financial data represents the average over a five-year period. Financial results have been adjusted for inflation and input cost variation experienced over those 5 years. It must be noted that this is not a perfect comparison, as the yield-response between a VRA field and a flat rate field cannot be measured here.

These results are driven only by actual yield and input cost (VRA), compared to actual yield and virtual input cost (at 250 kg/ha).

Table 1: Summary of the financial results of applying fertiliser at variable rates (rates given in leftmost column) according to dominant soil physical and chemical features. VRA results are compared to simulated flat-rate applications. These features were analysed and identified using the Agri Technovation MYDATA MINING™ service.

VRA	Ha	Total profit VRA	Total profit flat rate	VRA profit/ha	Flat-rate profit/ha	R/ha profit difference VRA vs. flat rate
200	200	R1 025,185	R883,780	R4 993	R4 419	R574
225	420	R3 630,691	R2 771,520	R7 457	R6 599	R858
275	250	R1 982,539	R1 870,320	R8 454	R7 481	R973
300	130	R1 389,196	R1 177,285	R10 233	R9 056	R1 177
Total	1 000	R8 027,612	R6 702,905			

Weighted average profit/ha
VRA difference

R7 574

R6 703

R871

The cells highlighted in green represent the winning category while those in orange indicate the losing category. It is interesting to note that the higher rate areas, representing approximately 40% of the farm, achieved the highest difference in profit on average. This trend of course differs between rainfall regions and soil characteristics, but the trends are always there – highlighting the massive potential financial gains by implementing relatively small changes.

Attention should be drawn to the overall weighted average profit/ha (Table 1). These averages are weighted in terms of the hectare distribution of the different categories.

Ultimately, the VRA beat the flat rate simulation by R871/ha, which, within only one year, more than pays for the soil classification service performed. Seeing as the soil classification service is a once-off service to be used for decades to come, this is an excellent ROI.



Farm Factor™ and Farm ATI™

Combined soil and yield data for optimum results

Agri Technovation creates a link between soil physical, chemical and yield data by combining MYSOIL CLASSIFICATION™ and ITEST™ SOIL obtained data with yield-maps through the MYDATA MINING™ service.

What is required for the MYDATA MINING™ service

- Soil classification data
- Precision soil chemical data
- Yield maps.

Why is data mining so powerful?

- Agronomic factors drive plant production, such as soil physical and chemical (fertility) factors.
- The power therein is to analyse large data sets with the push of a button.
- It is used to understand where and which limiting factors have the most influence on production.
- An action plan is assembled to reduce or manage the limiting factors.
- Input costs are managed optimally – long-term data suggest a saving of 16%.
- Through this production potential is improved and/or profit margins are increased.
- Combined with the soil services, it presents a very favourable ROI.

For more information, contact Agri Technovation or your Laevel Agrochem representative.

Fruit retention and the creation of new-bearing wood in citrus

How to protect the crop on the tree while building shoots to carry next season's flowers

A citrus tree is always managing two crops simultaneously: the fruit that must reach harvest this season and the new-bearing wood that will carry next season's crop. Sustainable production therefore depends on managing the tree in a way that supports both crops at the same time.

The crop we see vs. the crop we create

At harvest, producers see fruit. The potential for that crop, however, was created many months before, when new vegetative shoots developed and matured. In citrus, shoots formed during the previous growing season provide the principal sites from which flowers develop in spring. These young shoots – often five to twelve months old – are the tree's new flower-bearing units (Stander, 2018; Verreynne and Lovatt, 2009).

This should change the way we think about citrus crop management. Fruit retention cannot be managed in isolation or separately from vegetative renewal.



Figure 1: Where fruit occupy a terminal position in the current season, very few to no new flowers sprout in the following spring. It is therefore important to create more flower-bearing units in the current season, while fruit are still on the tree.

A tree may hold an excellent crop now, yet produce too little suitable bearing wood for the following season. Conversely, aggressive stimulation of vegetative growth without protecting the current fruit load may compromise the crop on the tree. The objective must always be to achieve balance and not maximum growth of one organ at the expense of another.

Why a heavy crop can weaken next season's platform

Developing fruit are powerful sinks: they attract carbohydrates, mineral nutrients and hormonal signals. New roots and new shoots are also sinks. When crop demand is high, these organs compete for a limited supply of assimilates. Heavy fruiting can therefore reduce carbon allocation to roots and developing shoots, limiting the formation of new flowering sites for the following spring (Goldschmidt and Golomb, 1982; Martínez-Alcántara et al., 2015).

Research on alternate bearing Nadorcott mandarin illustrated this clearly. In heavily bearing trees, root sugar concentration was approximately three times lower, measurable root growth was absent, and summer shoot growth was about half that of low-bearing trees (Stander, 2018). This illustration does not mean that fruit should be sacrificed indiscriminately. The lesson to be learned is that the current crop creates a physiological cost, which must be recognised and then actively managed.

The root-cytokinin-shoot connection

The creation of new-bearing wood begins below the soil surface. Citrus roots and shoots grow in coordinated flushes, and active root growth supports the development of the canopy (Bevington and Castle, 1985).

Dr. Jakkie Stander
Commercial Head of Products and Services:
Permanent Crops, Agri Technovation



New root tips do more than explore soil for water and nutrients: they are important cytokinin production sites. Cytokinins are transported from roots to shoots in the xylem and are associated with cell division, bud activity and vegetative growth (Sakakibara, 2006; Stander, 2018).

The following simple practical sequence applies:

1. Build the energy base. Roots require carbohydrates to initiate and sustain a new flush.
2. Create active new roots. A healthy root flush expands the absorbing surface and supports root-derived signalling.
3. Support a vegetative shoot flush. New shoots create the future flowering positions.
4. Mature and protect that wood. The flush must develop adequate leaf area, structure, carbohydrate status and nutrition before flower induction.

Cytokinins are not a stand-alone switch. Fruit load, auxin, abscisic acid, gibberellins, temperature, water status and carbohydrate availability interact with the response.

Applying a cytokinin can therefore not be expected to overcome every form of fruit-induced inhibition. The better strategy is to have two objectives: creating the physiological conditions to which both roots and shoots can respond (Stander, 2018).

Carbohydrates: fuel for fruit retention and renewal

The link between these two objectives is carbohydrates. During flowering and fruit set, adequate carbohydrate availability supports fruitlet retention, while low availability can increase fruitlet abscission (Ruiz et al., 2001). Later, young fruit, new roots and summer shoots compete for the same carbon supply.



Figure 2: Here Agri Technovation managed to retain a very heavy fruit set in the current season, but also created more flower-bearing units for the following season.

Young vegetative shoots are initially carbohydrate sinks and become meaningful carbohydrate sources only after they have expanded and matured (Ruan, 1993).

For this reason, carbohydrate management should not be reduced to a single spray or a single measurement. It should also include protecting the photosynthetically active leaf area, avoiding unnecessary stress, maintaining irrigation and root function, managing crop load responsibly and supporting energy production and movement during periods of peak demand.

The ITEST™ CARBOHYDRATES service makes it possible for the producer to track the carbohydrate status of the relevant organs at the relevant phenological stage, while the ITEST™ ROOT service can reveal the status of the energy reserve and root-growth engine below ground. >>

Nutrition must follow the flush – not chase it

A new shoot cannot become high-quality bearing wood if it is nutritionally constrained while being formed.

Nitrogen	Supports growth and chlorophyll
Phosphorus	Supports energy transfer
Potassium	Is central to osmotic regulation and assimilates movement
Calcium	Contributes to cell wall and membrane integrity
Micronutrients	Support enzyme systems and metabolic activity

The timing of supply is also crucial as deficiencies identified only after shoot hardening may not be effectively rectified and the full potential of that flush was not recovered.

In this instance, leaf analyses play a crucial role and results must be interpreted carefully.

Research in Nadorcott showed that changes in leaf mineral concentration could be a response to crop load rather than the primary cause of poor shoot growth (Stander, 2018). Both low and high values therefore require diagnosis and not merely reflex treatment. This can be achieved through precision measurement.

SERVICE	MEASUREMENT
ITEST™SOIL	Determine the chemical environment and likely availability of nutrients
ITEST™ROOT	Evaluate the tissue responsible for nutrient uptake
ITEST™LEAF	Measure the nutritional status of the developing canopy
ITEST™CARBOHYDRATES	Determine the energy status

Together, these measurements will make it possible to distinguish a *supply problem* from an *uptake, allocation, root-function or crop-demand* problem.

From diagnosis to a coordinated orchard programme

The crop management programme should follow tree phenology rather than the calendar alone. Where soil or root conditions are limiting, RELEASE LPH™ can be positioned to support root-zone exploration, nutrient availability and a new root flush. Once active growth is underway, appropriately timed nutrition through the PHLOEM™ product range developed by Agri Technovation, can be applied to address diagnosed deficiencies in the developing bearing wood. Where cell division and calcium utilisation are priorities, KELPURA™ and CALCINATOR™ can be integrated into the programme.

Carbohydrate-supporting interventions, such as TRY ME™, should be timed around measured energy status and periods when fruit, roots and shoots compete most strongly.

The above aiding tools are most valuable when used as part of a measured programme. Product choice, dose and timing should follow cultivar, rootstock, crop load, orchard condition, irrigation strategy, climate and analytical results.

A treatment cannot manufacture bearing wood if the tree lacks water, functional roots, adequate leaf area or a manageable crop demand.



Figure 3: Creation of new bearing wood is not the final solution to return bloom. A) When new vegetative shoot flushes are not adequately nourished, return bloom can be absent or of very low quality, or B) where it is adequately nourished with properly timed nutrition, return bloom can be of very high quality.

A practical four-stage strategy

STAGE

- 1. Retain the current crop**
Protect leaf function, water status, calcium supply and carbohydrate availability during flowering, fruit set and early fruit growth. Avoid abrupt stress that increases competition and abscission.
- 2. Prepare and stimulate root flush**
Use ITEST™SOIL, ITEST™ROOT and ITEST™CARBOHYDRATES to identify restrictions in the root zone and in root energy status. Correct the limiting factor and support active feeder-root development.
- 3. Create and monitor shoot flush**
Firstly promote a well-timed vegetative flush and then sample the new-bearing wood with ITEST™LEAF. Correct confirmed deficiencies while the tissue is still actively developing.
- 4. Mature the bearing wood**
Maintain healthy leaf area and carbohydrate production so that the shoot changes from a demanding sink into a productive source and reaches flower induction in the best possible condition.

The real target: continuity

Consistent citrus production is not achieved by choosing between fruit/harvest and vegetative growth but rather by managing the competition between them.

The current fruit must be retained and developed, but the tree must simultaneously produce active roots, a timely vegetative flush and well-nourished shoots capable of carrying the next bloom.

The most reliable approach is a continuous cycle of measure, interpretation and intervention:

- Measure the soil, roots, leaves and carbohydrates.
- Interpret the results in the context of crop load and phenology.
- Intervene early enough to influence the tissue that is currently developing.

When this is done well, the orchard is not merely finishing one crop. It is already constructing the next one.

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Protecting mango orchards from bloom through harvest

Hein Bester & Dr Chantal Scholtz
MBFI

MBFi
Leaders in Science. Partners in Growth.



The challenge: Bacterial black spot and powdery mildew in mango

Warm, humid conditions create ideal conditions for rapid pathogen build-up in mango orchards. Among the most damaging is *Xanthomonas citri* pv. *mangiferaeindicae*, the bacterium responsible for mango bacterial black spot. Infection produces lesions on leaves, stems and fruit, often leading to cracking, early fruit drop and a clear reduction in both yield and fruit quality destined for the market.

Successful control of this pathogen depends on a preventative, multi-layered strategy rather than reactive sprays alone.



Rapid contact action: Agri-Cure SP®

Agri-Cure SP® is a water-soluble foliar fungicide based on potassium bicarbonate salts formulated with a specialised surfactant. Its performance rests on several concurrent modes of action:

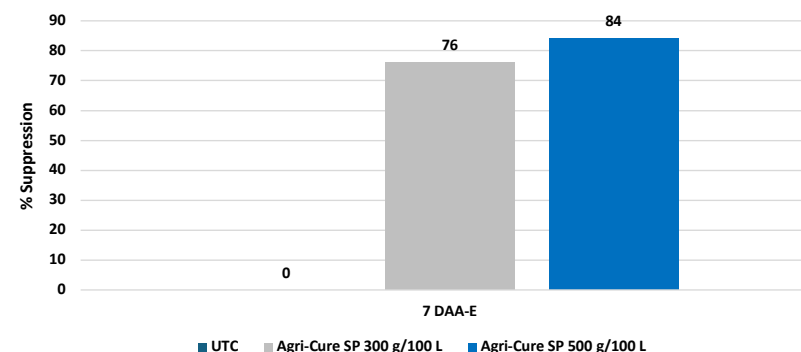
- **Hypertonic stress** – High concentrations of potassium bicarbonate draw water from pathogen cells, collapsing turgor and causing rapid dehydration.
- **Alkaline disruption** – The elevated pH interferes with proton gradients required for energy metabolism, enzyme function and membrane stability.

- **Surfactant-enhanced coverage** – Improved wetting and deposition ensure thorough contact with the leaf surface and pathogen structures.
- **Membrane permeabilisation** – Surfactants increase cell-membrane permeability, promoting leakage of vital cellular contents.
- **Methyl carbonate barrier** – Interaction with the leaf's epicuticular wax forms a protective barrier that extends residual activity and improves rainfastness.

Collectively these mechanisms deliver reliable control of *Xanthomonas citri* pv. *mangiferaeindicae* as well as suppression of powdery mildew (*Oidium mangiferae*) in mango.



Average efficacy of Agri-Cure SP® across 3 climate zones for suppression of powdery mildew in mangoes



Graph 1: Average efficacy of Agri-Cure SP® against powdery mildew (*Oidium mangiferae*) across three climate zones (Cwa, BSh, Cfa), assessed seven days after the end of the spray programme. Both evaluated rates markedly reduced disease relative to the untreated control.

Powdery mildew suppression with Agri-Cure SP®

Graph 1 features separate multi-region trials that examined Agri-Cure SP® applied alone against powdery mildew.

Sprays started at the onset of flowering and were repeated at seven-day intervals until mid-October. Both the 300 g/100 L and 500 g/100 L rates provided substantial suppression of the disease. >>



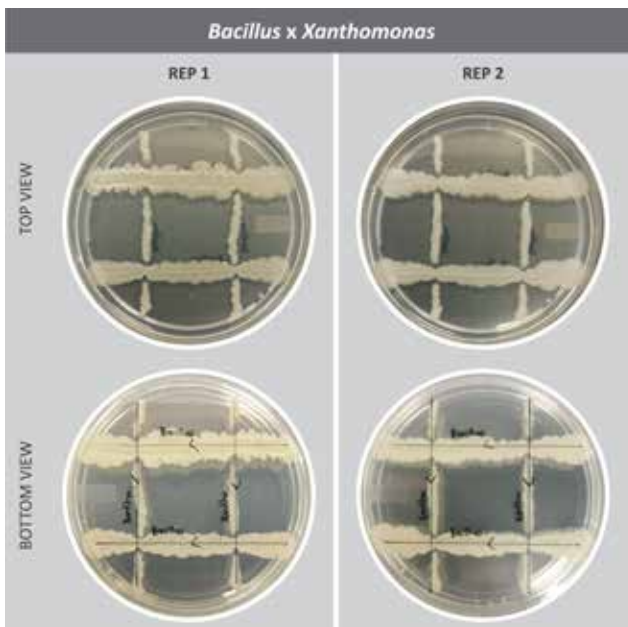


Figure 1: Laboratory demonstration of antagonistic activity: Clear zones of inhibition surround *Bacillus methylotrophicus*, indicating suppressed growth of *Xanthomonas campestris* in close proximity.



Biological suppression with Incite®

Bacillus methylotrophicus, the active organism in Incite®, helps suppress *Xanthomonas campestris* by releasing specialised antimicrobial metabolites. Key compounds include bacilysin and macrolactin, both of which show activity against Gram-negative bacteria. Additional bacteriocin-like substances and other secondary metabolites further limit pathogen growth on plant surfaces.

Laboratory assays confirm this interaction: clear inhibition zones form around *B. methylotrophicus* where *X. campestris* is unable to grow. This visual evidence underlines the production of active antimicrobial compounds and supports the role of Incite® in disease suppression.

Compatibility of different actives is critical. *Bacillus methylotrophicus* is Gram-positive and possesses a robust cell wall that confers tolerance to selected chemical partners. *Xanthomonas campestris*, being Gram-negative, is more vulnerable to antimicrobial agents.

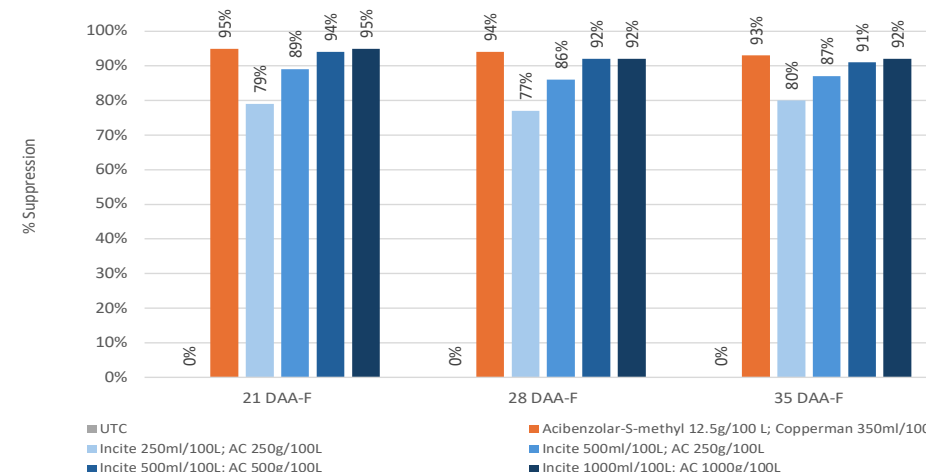
This difference makes it possible to tank-mix Incite® with Agri-Cure SP®: the chemical component rapidly lowers pathogen load while the Incite® colonises the plant surface and maintains ongoing protection.

Complementary timing and residual activity Used together, the two products reinforce each other. Agri-Cure SP® provides a fast knockdown of existing inoculum, while Incite® establishes a living microbial shield that continues to suppress pathogen recovery on fruit and foliage. Trial data demonstrate both strong early efficacy and durable residual control against bacterial black spot.

Field performance against bacterial black spot

Graph 2 features trials conducted across three climatic regions evaluated several rate combinations of Incite® and Agri-Cure SP®. Applications began at bud-break, continued at the end of flowering, and were repeated every 14 days through mid-October. Results showed consistent, high levels of suppression relative to the untreated control and comparable performance to a conventional chemical standard.

Average efficacy of the combination of Agri-cure SP® & Incite® across 3 climate zones for the control of *Xanthomonas citri* pv. *Mangiferaeindicae*



Graph 2: Mean percent disease suppression of *Xanthomonas citri* pv. *mangiferaeindicae* achieved by Incite® + Agri-Cure SP® programmes across three climatic zones (Cwa, BSh, Cfa) at 21, 28 and 35 days after final application. Higher rates delivered sustained efficacy comparable to the chemical reference treatment.

A preventative strategy for the whole season

Preventative management remains the foundation of sustainable mango production. Whether applied alone or in combination with Incite®, Agri-Cure SP® offers a science-backed option for protecting orchards against both powdery mildew and bacterial black spot. The Agri-Cure SP® interrupts infection at the earliest stages; the Incite® reinforces the plant's surface defences and supplies longer-lasting microbial protection. Together the products form part of the disease management strategy, protects potential yield and ensures sustained orchard productivity.

Growers move from reactive firefighting to proactive, season-long disease management - resulting in stronger trees, higher marketable yields and better fruit quality.

We acknowledge the taxonomic reclassification of *Xanthomonas campestris* pv. *mangiferaeindicae* and recognise the currently accepted nomenclature, *Xanthomonas citri* pv. *mangiferaeindicae*. It is important to note that this represents a nomenclatural change only and does not reflect a change in the organism itself. The associated label amendment was submitted to DAFF in March 2026, and MBFi is currently awaiting regulatory approval before the updated nomenclature can be reflected on the product label.

Incite® Reg. no.: L 10965 Act no. 36 of 1947 | A.I.: *Bacillus methylotrophicus* 2×10^9 CFU/ml. Incite® is a registered trademark of MBFi (PTY) LTD. GHS hazard statement: Not classified as hazardous.

Agri-Cure SP® Reg. no.: L 8549 Act no. 36 of 1947 | A.I.: Potassium Bicarbonate 850 g/kg. Agri-Cure SP® is a registered trademark of MBFi (PTY) LTD. GHS hazard statement: Not classified as hazardous.

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

Padel in die Bloed

Padel in die Bloed - Kyk Sondae om 20:00 op VIA TV (DStv-kanaal 147)
en DStv Stream. Heruitsendings: Di 19:30 | Do 22:00 | Sa 09:00.



'n Pa. 'n Seun. 'n Land. 'n Reis.

Nege provinsies, die langpad roep,
pa en seun vorm hulle eie groep.
Raket in die hand, 'n droom vir ons land,
die twee gaan reis van hoek tot kant.
Van stad tot dorp, van baan tot baan,
deur hierdie mooi land sal ons saam bly gaan.
Oor berge en vlaktes, deur reën en deur wind,
op soek na die waarheid wat mense saambind.

Morné bring talent, die spoed en die vuur,
Corné bring kalmte en wysheid, uur na uur.
Die seun jaag sy droom met sy oë op die toekoms,
die pa ploeg terug, en sien hoe dra sy seun die vrug.
Die seun kan smash, die pa bring vernuf,
Al voel hy die jare se pyn in sy rug
Want sestien en sestig speel saam op 'n baan,
al is jou kop nog jonk, sal jou lyf bly gaan.

**Maar padel is net waar ons storie begin,
want die grootste wedstryd speel elkeen binne-in.
Die lewe hou telling, maar anders as sport;
wys die telbord nie altyd wat jy regtig kort.
Speel jy met eer, met respek en integriteit,
wen jy iets groter, iets wat hou vir altyd.
Want wen is nie als; met verloor is jy nie klaar,
Die toets vir 'n mens lê veel dieper as daar.
Het jy als gegee toe jou kragte wou kwyn?
Het jy weer opgestaan toe jou energie verdwyn?**

Werk nog harder wanneer ander rus.
Hou aan wanneer ander se wilskrag taan.
Wanneer die wêreld sê "genoeg",
lig jy jou kop op en begin nog harder swoeg.
Want harde werk dra vrug, al neem dit soms tyd,
en 'n mens word gevorm deur die storms en die stryd.
**Ons ry deur Suid-Afrika, so wyd en so mooi,
waar elke nuwe draai weer 'n landskap ontplooi.**

Van plaasgrond tot kuslyn, van Karoo tot see,
ontdek ons die mense wat hul harte vir ons gee.
Want hierdie land het meer as net prag om te wys;
dis sy mense wat kleur gee aan elke lang reis.
Maar die belangrikste paaie wat ons saam sal ry,
is soms nie op kaarte of Waze te kry.
Dit gebeur in die motor, net pa en seun alleen,
waar stilte soms 'n antwoord oor moeilike sake verleen.



"Pa, wat is sukses? En hoeveel is genoeg?
Hoekom breek huwelike op? Wat doen ek as jy wegval te vroeg?
Hoe kies ek 'n vrou? Hoe maak ek 'n kind groot?
Hoe lyk die lewe na die dood?
Hoe bou mens 'n besigheid? Hoe hanteer jy geld?
Hoe staan jy weer op as jy geslaan word onder die belt?
Hoe oorleef ons hier? Hoe hanteer ons vrees?
En Pa... hoe weet ek wie ek móét wees?"
Dan word die motor vir 'n oomblik stil,
en wonder beide pa en seun wat presies is God se wil.
Lewenslesse kom deur die jare, deur vreugde en pyn,
deur foute en vreugdes, wetende more sal die son weer skyn.
Ons deel ons geheime, ons drome en vrese,
beide dink hulle weet eintlik die meeste.
Ons praat oor gesondheid en dae van nood,
ondervinding het ons geleer geen droom is te groot.

*Gister is geskiedenis, more is 'n droom,
So vandag is al wat ons het, daarom leef ons volstoom!*

**Iewers op die langpad gebeur iets onverwags:
Die pa wou sy seun van die lewe kom leer,
maar ontdek by sy seun leer hyself veel meer.**

Twee generasies. Een geloof. Een droom.
Die appel val duidelik nie ver van die boom.
En 'n band tussen pa en seun ontstaan,
wat sterker word met elke hou geslaan op die baan.
Dalk is 'n pa se grootste oorwinning dié:
Om eendag bloot terug te staan,
en sy seun toe te laat om verder as hyself te gaan.
Wat ook al op hierdie reis gebeur...
Opgee is nie 'n opsie nie, ons sal aanhou probeer.
Want ouderdom is net 'n nommer; jou ingesteldheid
bepaal die res,
jou keuses en jou dissipline slaan uitdagings vir 'n ses.

**Die vraag aan die einde van hierdie reis bly bloot:
Het ons met eer gespeel en ons kennis gedeel?
Het ons ander hoop gegee vir daai eerste nuwe tree?
Het ons onvoorwaardelik liefgehad en niemand geskaad?
Het ons families geleer om weer met mekaar te praat?**

Het ons lesse geleer en die doemprofete gekeer,
om ons drome vir ons land toe te probeer smeer.
Want veel langer as wat enige trofee sal oorleef,
Moet hierdie langpad padel-reis vir ander die pad aanwys!

Tem stinkbesies met die Makademia-kombinasiepak

Suid-Afrika se makadamiabedryf het 'n wêreldklas reputasie opgebou vir die produksie van die beste neut te wêreld. Tog staan produsente elke seisoen voor 'n onverbiddele uitdaging wat winsgewendheid stilweg kan ondermyn lank voordat die eerste neut geoes word: stinkbesies. Onder die komplekse groep spesies wat in boorde voorkom, bly die tweekolstinkbesie (*Bathycoelia distincta*) en kokosneutbesie (*Pseudotheraptus wayi*) twee van die ekonomies belangrikste plae waarmee produsente vandag te doen het.

'n Gesonde boord, uitstekende blom en sterk neutset beteken min indien stinkbesies kans kry om momentum op te bou. Al hoe meer produsente besef dat moderne plaagbeheer nie daaroor gaan om op skade te reageer nie, maar om een tree voor die plaag te bly.

Hardnekkige uitdagings vereis nuwe benaderings

Navorsing deur dr. Schalk Schoeman het getoon dat stinkbesie-aktiwiteit hoofsaaklik in die boonste deel van die boomkroon voorkom. In die geval van kokosneutbesies is gevind dat voedingskade betekenisvol hoër was in neutte wat uit die boonste derde van die boom versamel is, in vergelyking met neutte uit die onderste derde.

Baie makadamiaboarde produseer 'n groot gedeelte van hul oes in die boonste 30% van die boomkroon waar ligpenetrasie optimaal is. Ironies genoeg is dit presies waar stinkbesies verkies om te voed.

Vir jare het baie produsente staat gemaak op grondtoegediende sistemiese insekdoders en blaartoegediende kontakprodukte as deel van hul stinkbesiebeheerprogramme. Hoewel hierdie produkte steeds 'n belangrike rol speel, is grondtoedienings afhanklik van wortelopname en die daaropvolgende beweging van die aktiewe bestanddeel deur die boom voordat dit die boomkroon bereik. Hierdie proses neem tyd. Stinkbesies wag egter nie. Terwyl 'n grondtoediening nog besig is om opwaarts deur die boom te beweeg, kan stinkbesies reeds in die boonste kroon voed en skade aanrig.

Dit is juis hier waar die Makademia-kombinasiepak, wat Samurai® 20 SC en Sumi-Alpha® 200 EW kombineer, 'n praktiese voordeel bied.

Die krag van 'n bewese kombinasie

Samurai® 20 SC en Sumi-Alpha 200 EW is ontwikkel deur Sumitomo Chemicals en word deur Philagro Suid-Afrika bemark. Samurai® 20 SC bevat klotianidien (200 g/L), 'n sistemiese neonikotinoïed-insekdoder met translaminêre en plantmobiele eienskappe. Wanneer dit as 'n blaarbespuiting toegedien word, word die aktiewe bestanddeel direk geplaas waar stinkbesies leef en voed – in die boomkroon. Dit beteken dat die produk onmiddellik in die teikenarea beskikbaar is sonder om eers deur die wortels opgeneem te word.

Aanvullend tot hierdie wenresep is Sumi-Alpha 200 EW wat esfenvaleraat (200 g/L) bevat. Dit is 'n hoëgehalte-piretroïed wat in hierdie kombinasie 'n bydrae deur 'n uitklopaksie lewer aan enige plaag waaraan die gewas blootgestel is. Vir vandag se produsent gaan dit oor spoed, akkuraatheid en doelgerigte plaagbeheer. Deur hierdie aktiewe bestanddele direk in die blaarkroon te plaas waar die plaag voorkom, word die wagtyd tussen toediening en beheer van die plaag aansienlik verkort.

Die Makademia-kombinasiepak bevat Samurai® 20 SC wat geregistreer is teen 5 ml per 100 L water, in 'n tenkmengsel met Sumi-Alpha® 200 EW teen slegs 2 ml per 100 L water met 'n gekombineerde vooroes-wagtydperk van slegs 56 dae! Hierdie lae dosisvereistes kan die program besonder koste-effektief maak in vergelyking met sommige alternatiewe

Johan Marais
Produkbestuurder biorasionele produkte, Philagro



behandelings, terwyl die kort onthoudingsperiode 'n boer meer buigsaamheid kan gee met bespuitings gedurende die seisoen.

Hoewel spuittyd altyd deur monitering en plaagwaarnemings ondersteun behoort te word, begin toedienings tipies gedurende November opgevolg in Desember, óf Desember opgevolg in Januarie. Die produk is geregistreer vir twee opeenvolgende toedienings met ongeveer vier weke tussen behandelings.

Dekking bly die sleutel tot sukses

Geen produk kan beheer wat dit nie bereik nie. Navorsing toon duidelik dat stinkbesies in die boonste gedeelte van die boom voorkom. Daarom behoort produsente gereeld hul spuittoerusting en spuitvolume te evalueer om seker te maak dat die boonste derde van die boom voldoende bedek word. Die vraag behoort nie te wees: "Hoeveel water moet ek spuit?" nie. Die vraag behoort te wees: "Bereik die spuitnewel die teiken?" Wanneer uitstekende dekking gekombineer word met die sistemiese werking van Samurai® 20 SC en die uitklopaksie van Sumi-Alpha® 200 EW, word die potensiaal van die program optimaal benut.

Rentmeesterskap maak saak

Volhoubare boerderye vereis verantwoordelike produktegebruik. Klotianidien en esfenvaleraat is albei giftig vir heuningbye. Toedienings moet daarom slegs ná blom plaasvind wanneer bye nie meer aktief is nie en wanneer geen onkruid blom in of rondom die boord nie. Produsente word verder aangemoedig om die CropLife SA Bestuier-rentmeesterskapprogram te volg en alle etiketaanbevelings na te kom.

LEES DIE ETIKET VOOR GEBRUIK. | SAMURAI® 20 SC | Reg. nr. L10384, Wet nr. 36 van 1947 | Klotianidien (Neonikotinoïed) (200 g/L) | GEVAAR | Vermoede dat dit vrugbaarheid of die ongebore kind beskadig. | Veroorsaak skade aan organe (Sentrale senuweestelsel). | Baie giftig vir waterlewende organismes met langdurige gevolge. SUMI-ALPHA® 200 EW | Reg. nr. L8821, Wet nr. 36 van 1947 | Esfenvaleraat (Piretroïed) (200 g/L) | GEVAAR | Brandbare vloeistof. | Skadelik indien ingesluk of ingesam. | Veroorsaak velirritasie, ernstige oogirritasie en/of skade aan organe. | Mag allergiese velreaksie veroorsaak. | Baie giftig vir waterlewende organismes met langdurige gevolge.

Philagro SA (Edms) Bpk. | Reg. nr. 1998/010658/07 | Postnet Suite #378, Privaat sak X025, Lynnwoodrif, 0040 | Tel: 012 348 8808.

Die voorsprong vir vandag se produsent

Die moderne makadamiabedryf vereis meer as bloot goeie produkte. Dit vereis beter besluite, beter tydsberekening en beter uitvoering. Die Makademia-kombinasiepak bied produsente 'n moderne benadering tot stinkbesie-beheer deur sistemiese en kontakwerking te kombineer in 'n program wat direk in die boomkroon geplaas word waar die plaag voorkom.

Want wanneer dit by stinkbesies kom, word sukses nie gemeet aan hoeveel gespuut word nie, dit word gemeet aan hoe vinnig, hoe akkuraat en hoe effektief die oplossing die teiken bereik.



Philagro Neutprodukte



CropLife Suid-Afrika Bestuier-rentmeesterskapprogram QR-kode.

SET TECHNOVATION™: Wetenskaplike dryfveer agter presisie-knolinisiasie in aartappels

Janneman Cornelius - Globale Kommersiële & Tegniese Hoof: Grane, Industriële Gewasse en Aartappels (Produkte en Dienste), Agri Technovation



In die intensiewe wêreld van aartappelproduksie word sukses nie aan die einde van die seisoen bepaal nie, maar in die eerste 30 dae na opkoms. Vir die moderne produsent en landboukundige is knolinisiasie die mees kritieke plantfase in terme van goeie besluitneming. Hierdie vensterperiode moet nie bloot as 'n voedingsgeleentheid beskou word nie, maar eerder as 'n geleentheid om daadwerklik in te gryp. Sodanige ingryping is nou beskikbaar aan produsente deur 'n nuwe strategie wat SET TECHNOVATION™ genoem word.

Die SET TECHNOVATION™-strategie berus op 'n raamwerk wat ontwerp is om die plant se interne metabolisme weë te manipuleer om 'n maksimum oesindeks (Harvest Index) te verseker, 'n konsep wat deur Haverkort & Struik (2007) geïdentifiseer is as die sleutel tot die optimalisering van stralingsenergiebenutting en finale opbrengstabiliteit.

Biochemiese sneller: Oorsakeling van blare na knolle

Die oorgang vanaf die vegetatiewe na die reprodutiewe fase word beheer deur 'n komplekse molekulêre seinstelsel. Die deurslaggewendefaktor is die proteïene StSP6A, wat as 'n tuberigeen- of knolvormingsein optree. Hierdie proteïene word in die blare gegenereer en beweeg na die stolonpunte om die morfologiese transformasie na knolvorming te aktiveer (Navarro et al., 2011).

Die uitdaging vir die produsent is dat hierdie sein baie swak is en maklik onderdruk word deur 'n oormaat vrye stikstof wat gibberelliene stimuleer en loofgroei bo knolset prioritiseer. Binne die SET TECHNOVATION™-strategie word POTATO-TO-GROW™ (K9642) gebruik as deel van 'n gebalanseerde voedingsprogram om optimale voedings toestande gedurende die kritieke fase te ondersteun. Die spesifieke insluiting van molibdeen (Mo) in die formule-ring versnel nitraat-reduktaseaktiwiteit, wat nitrate vinnig in proteïene omskakel. Dit verlaag die vegetatiewe druk op die plant en skep 'n fisiologiese omgewing waarbinne die StSP6A-sein kan domineer, wat lei tot 'n meer eenvormige en vroeë knolset.

Brandstof vir die "haak-fase"

Sodra die biologiese sein gestuur is, betree die plant 'n fase van intense energieverbruik.

Die transformasie van 'n stolonpunt in 'n swellende knolletjie vereis 'n onmiddellike en massiewe toestroming van adenosientrifosfaat (ATP). Navorsing oor P-sorpsiekinetika toon egter dat die beskikbaarheid van fosfor (P) in die risosfeer (die direkte omgewing rondom die jong wortel) op hierdie presiese oomblik dikwels die grootste beperkende faktor is, vanweë lae diffusietempo's in die grondoplossing (Sanyal & De Datta, 1991).

GATSKOP™ (B5023) bevat ortofosfaat (60 g/L P), 'n plantbeskikbare vorm van fosfor(P), en wanneer dit as 'n blaarvoeding toegedien word, funksioneer dit as 'n direkte energie-inspuiting om hierdie grondfisiese beperkings te omseil. Deur GATSKOP™ gedurende die vroeë knolinisiasiefase (die sogenaamde "haak-fase") toe te dien, word verseker dat die selverdelingsproses nie staak vanweë 'n tekort aan chemiese energie nie. Dit maksimeer die aantal stolons wat suksesvol in knolle ontwikkel, wat die genetiese plafon vir die res van die seisoen vestig.

Rol van mikro-elemente in suikertransport

Gedurende knolinisiasie word nie net die finale aantal knolle vasgelê nie, maar begin die jong knolle reeds met vroeë seluitletting en die akkumulering van stysel. Hierdie vroeë ontwikkeling bepaal die potensiaal vir daaropvolgende knolvulling en uiteindelijke opbrengs. Hier speel boor (B) 'n deurslaggewende rol as 'n fasiliteerder vir die vervoer van suikers (fotoassimilate) vanaf die blare na die nuwe ondergrondse "sink"-organe (Brown et al., 2002). Sonder voldoende boor bly die suikers in die blare vasgevang, wat nie net knolontwikkeling vertraag nie, maar ook die risiko van siektes verhoog.



POTATO-TO-GROW™ (K9642), 'n multi-elementformulasie, bevat boor (B) en sink (Zn) in 'n presiese verhouding wat aangepas is vir 'n aartappel se spesifieke reprodutiewe behoeftes. Hierdie mikro-voedingstofintegriteit verseker dat elke nuut geïnisieerde knol onmiddellik begin met die akkumulering van droë materiaal, wat eenvormigheid in die oes bevorder, 'n faktor wat deurslaggewend is vir premie-markwaarde en verwerkingskwaliteit.

Stresmitigasie: Beskerming teen termiese aborsie

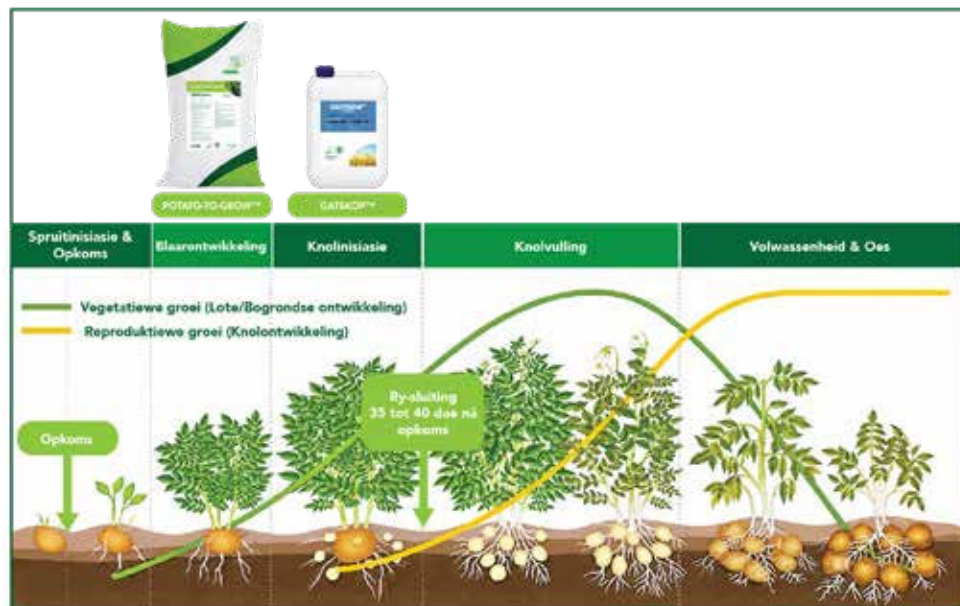
Abiotiese stres, veral hitte bo 25 °C tydens inisiasie, is die grootste vyand van opbrengs. Onder termiese druk word die ophoping van die StSP6A-proteïene dramaties verlaag, wat dikwels lei tot knolherabsorpsie of aborsie (Ryckaczewska, 2013).

Terwyl hoë temperature die tuberigeensein onderdruk, bou die SET TECHNOVATION™-strategie aktiewe veerkragtigheid in die gewas deur die sinergie van swael (S) en magnesium (Mg) te prioritiseer. Hierdie kombinasie dien as die biochemiese katalisator vir die produksie van glutatioon, wat die fotosintetiese apparaat stabiliseer selfs wanneer termiese toestande ongunstig raak. Deur die plant se interne verdedigings meganismes te versterk, word verseker dat die knolinisiasieproses voortgaan, selfs onder suboptimale omgewingstoestande.

Kommersiële implementering en opbrengs op belegging (OOB)

Vanuit 'n ekonomiese perspektief is die grootste risiko in aartappelproduksie die verlies aan potensiële opbrengs tydens die kritieke 14-dae knolinisiasievenster.

Die strategiese plasing van SET TECHNOVATION™-produkte lewer 'n hoër opbrengs op belegging deur die vestiging van 'n hoër aantal knolle per hektaar en verbeterde grootteverspreiding. >>



Figuur 1: SET TECHNOVATION™-protokol by aartappels.

Die SET TECHNOVATION™-protokol (Figuur 1)

1. POTATO-TO-GROW™: Fisiologiese voorbereiding (10-14 dae na opkoms): Teen 4-5 kg/ha as blaarbespuiting om plante metabolies voor te berei, stikstofbalans te reguleer en reprodutiewe sinkrag te aktiveer.

2. GATSKOP™: Energiedryf vir aktiewe knolvergroting (21-28 dae na opkoms): Teen 1-1,5 L/ha as blaarbespuiting om die inisiasievenster met beskikbare ortofosfaat te oorstroom.

Gevolgtrekking

Die wetenskaplike kundigheid agter SET TECHNOVATION™ verander algemene praktyk in aartappelvoeding na 'n presisie-ingryping. Die kragtige kombinasie van die nuutste insigte in plantfisiologie en grondchemie bied aan die moderne produsent die gereedskap om die plant se reprodutiewe sukses te bestuur en so die volle potensiaal van elke hektaar te ontsluit.

Verwysings:

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4. Rykaczewska, K. (2013). *The impact of high temperature during growing season on potato cultivars with different response to environmental stresses*. Plant, Soil and Environment, 59(2), 55-60.
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Sukses met Biolchim-produkte op bone

Johann van der Vyver
Miller Chemical Tegniese Bemerkingsdirekteur



Biolchim is 'n Italiaanse maatskappy wat onder meer spesialiseer in die vervaardiging van biostimulante. In 2025 was Biolchim in die internasionale top 10-lys van maatskappye wat biostimulante vervaardig en versprei. Biolchim-produkte word in Suid-Afrika deur Hygrotech ingevoer en eksklusief versprei deur Laeveld Agrochem. Twee Biolchim-produkte is onlangs in samewerking met Laeveld Agrochem op verskillende boontipes suksesvol toegedien in die Groblersdal-omgewing.

Die produkte wat toegedien is, is **Folicist**® (Reg. nr. M93 van Wet 36 van 1947) en **Cremalga**® (Reg. nr. M100 van Wet 36 van 1947). Beide produkte word gekenmerk deur etikette met 'n uitgebreide lys van gewasregistrasies wat insluit:

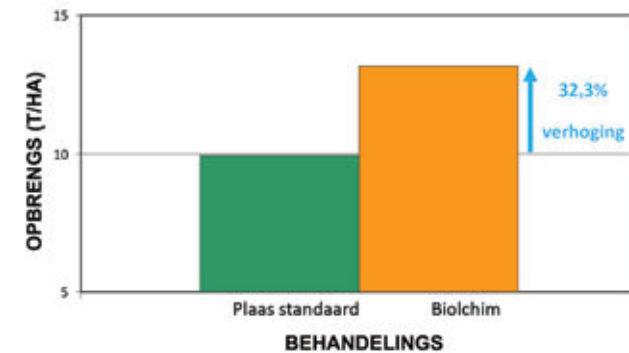
- 6 soorte rankgewasse;
- 6 soorte peulgewasse;
- klawer en alfalfa;
- sitrus;
- tamaties, soetrissies;
- paprika en brandrissies;
- aartappels;
- 5 soorte steenvrugte;
- 5 soorte neut; en
- tafel- en wyndruiwe.

Beide produkte se formulasies bevat seewier-ekstrakte. Folicist bevat *Macrocytis integrifolia*. Cremalga bevat 'n gekonsentreerde roomformulasie van *Ascophyllum nodosum* en *Ecklonia maxima*. Die oogmerk van beide produkte is om, deur die insluiting in gewasprogramme, opbrengs van gewasse te ondersteun en te bevorder. Folicist® is veral geskik vir kritiese fases van reproduksie soos tydens blom en vrugset. Cremalga® bevorder vrugset en vruggroei. Dit ondersteun ook die gewas tydens abiotiese stresomstandighede.

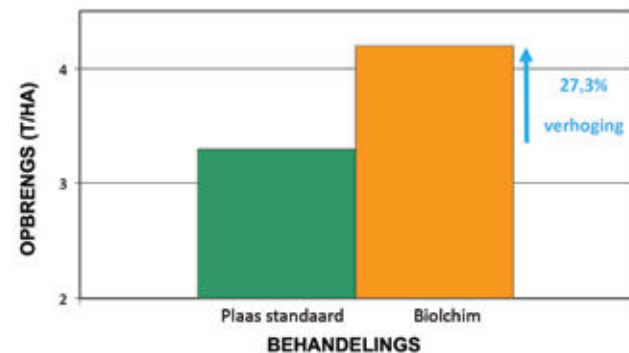
Twee kommersiële ondersoeke is in die Groblersdal-omgewing gedoen deur Folicist®

en Cremalga® in te sluit by Laeveld Agrochem-spuitprogramme. Een ondersoek is gedoen met groenbone en die ander met klein witbone. In beide ondersoeke is Folicist® ingesluit as 'n bespuiting tydens 80% blom.

Dit is opgevolg deur 'n Cremalga®-bespuiting tydens peulvul. Kommersiële oesprosesse aan die einde van die seisoen het getoon dat die bemarkbare opbrengs van die groenbone met 3,2 T/ha verhoog is (Figuur 1) en die bemarkbare opbrengs van die klein witbone met 900 kg/ha (Figuur 2). Die gevolg was 'n verhoogte inkomste van R16 000/ha en R18 000/ha vir die groenbone en klein witbone onderskeidelik.



Figuur 1: Kommersiële opbrengs vir groenbone vir verskillende behandelings.



Figuur 2: Kommersiële opbrengs vir klein witbone vir verskillende behandelings.

Hierdie ondersoeke het nie net registrasiedata bevestig nie, maar ook die finansiële voordeel daarvan om Folicist® en Cremalga® in te sluit tydens die produksie van bone. Beide produkte is beskikbaar vanaf jou naaste Laeveld Agrochem-depot of -agent.

Biolchim
A Huber AgroSolutions Company

VOLG ALTYD DIE VOORSKRIFTE OP DIE ETIKETTE VAN DIE PRODUKTE. FOLICIST®, Reg. nr. M93, Wet 36 van 1947, NIE GEKLASSIFISEER AS GEVAARLIK VOLGENS GHS. CREMALGA®, Reg. nr. M100, Wet 36 van 1947, NIE GEKLASSIFISEER AS GEVAARLIK VOLGENS GHS. Vervaardiger en geregistreerde handelsmerkhouer van beide produkte: Biolchim, Bologna, Italië. Registrasiehouer van beide produkte: Miller® Chemical SA (Edms.) Bpk., Jack Hindonstraat 217, Pretoria Noord, 0182. Invoerder en prinsipale verskaffer van beide produkte: Hygrotech SA (Edms) Bpk., Tel. +27 12 545 8000, Gerard Braakstraat 1, Pyramid, 0120.

Managing the challenge of bush encroachment

www.terravusa.com


Bush encroachment and invasive plant species remain a significant challenge for landowners across Southern Africa. Left unmanaged, these plants can reduce grazing capacity, impact biodiversity and place increasing pressure on valuable agricultural land.

Effective vegetation management requires more than simply applying a product. Accurate identification, careful planning, correct application and ongoing follow-up are important to achieving lasting results. This is where Terravusa provides a complete, practical solution.

Established to address the need for expert technical support and on-the-ground solutions, Terravusa specialises in managing indigenous bush encroachment and invasive alien plant species. The company combines specialised products, technical expertise and practical services to help landowners manage vegetation challenges effectively.

Terravusa works with landowners, farm or project managers to develop site-specific vegetation management strategies. Every property presents different challenges, with terrain, vegetation density, species composition, accessibility and land-use objectives influencing the most appropriate control strategy. Terravusa then provides tailored recommendations and planning support.

Leading solutions

Terravusa is the exclusive distributor of selected products from Corteva Agriscience and other strategic supply partners, providing access to industry-leading vegetation management solutions backed by global research and innovation. These products are combined with local technical knowledge to provide recommendations suited to Southern African conditions.

Local support, regional reach

Terravusa established a network of carefully selected and extensively trained distributors strategically positioned throughout Southern Africa. This provides professional guidance and reliable service close to where clients operate, while maintaining consistent technical standards.



Prosopis spp. before (left) and after (right) herbicide application in Calvinia, Northern Cape.

Services and offerings

A key strength of Terravusa is its ability to support clients throughout the complete process.

Site assessments: On-farm and site visits determine the extent of bush encroachment or invasive plant infestations and identify the client's specific requirements.

Planning: Terravusa assists with developing a practical strategy and determining the appropriate next steps.

Application support: Where required, Terravusa connects landowners with experienced aerial applicators and ground-application teams and assists with application planning to help ensure treatments are carried out correctly.

Post-application monitoring: Monitoring can be provided to assess treatment results and identify any further management requirements.

Three-year follow-up planning: Because effective vegetation management is an on-going process, Terravusa provides guidance on follow-up actions to maintain results and manage regrowth or reinfestation.

Free product training: Training is available to help clients and application teams understand products and their correct use.

Solutions for indigenous encroacher and invasive alien plant species

Indigenous encroacher plant species include:

Sicklebush	(<i>Dichrostachys cinerea</i>),
Sweet Thorn	(<i>Vachellia karroo</i>),
Black Thorn	(<i>Senegalia mellifera</i>),
Mopane	(<i>Colophospermum mopane</i>),
Bankrupt Bush	(<i>Seriphium plumosum</i>),
Vaalboom	(<i>Terminalia sericea</i>),
Driedoring	(<i>Rhigozum trichotomum</i>)
Vaalbos	(<i>Tarchonanthus camphoratus</i>).

Invasive plant species include:

Prosopis spp.	(<i>Honey mesquite & several hybrid species</i>)
Lantana	(<i>Lantana camara</i>)
Siam Weed	(<i>Chromolaena odorata</i>)
Demonia Weed	(<i>Parthenium hysterophorus</i>)
Opuntia spp.	(<i>O. ficus-indica</i> , <i>O. aurantiaca</i> etc.)

Because different plant species and conditions require different approaches, correct identification and appropriate treatment planning are essential.

A long-term partner for land and pasture management

Effective bush control is not simply about removing unwanted vegetation. Long-term success depends on choosing the right strategy, applying solutions correctly and following up to manage regrowth and reinfestation.

With access to leading products, technical expertise, trained distributors and practical field support, Terravusa offers landowners a comprehensive approach to bush encroachment and invasive plant management.

For more information or to book a farm visit, please contact:

Stephan Jooste

072 275 7160

stephan@terravusa.com

www.terravusa.com

ENTRAZONE 400 WG – Fast action where weed control matters

Robby Pienaar
Head of Technical & Product Development

enviro[™]
bio-chem



Weeds do not need much time to become expensive. Whether competing with a young wheat crop or establishing beneath an orchard, broadleaf weeds intercept light, consume water and nutrients, and draw on resources that should ultimately contribute towards yield and quality.

The challenge becomes even greater when difficult broadleaf weeds survive the initial weed-control programme. A few scattered plants can quickly develop into established populations, replenish the soil seedbank and create a recurring problem for future seasons.

For farmers, effective weed management is therefore about much more than keeping fields looking clean. It is about protecting crop potential early, preventing weeds from gaining a competitive advantage and stopping difficult species before they become tomorrow's problem.

This is where ENTRAZONE 400 WG provides a valuable additional tool.

1. ENTRAZONE 400 WG – targeted broadleaf weed control

ENTRAZONE 400 WG is a water-dispersible granule herbicide containing 400 g/kg carfentrazone-ethyl, a triazolinone herbicide. It is registered for the post-emergence control of broadleaf weeds in wheat and barley in the Western, Southern and Eastern Cape, as well as for directed weed control applications in perennial crops including deciduous fruit (apples, pears, peaches, plums and nectarines), table and wine grapes, citrus and macadamias.

What makes ENTRAZONE 400 WG particularly useful is its rapid contact action.

Unlike systemic herbicides that must move extensively through the weed before symptoms develop, ENTRAZONE 400 WG acts directly on the plant tissue contacted by the spray.

The result is the characteristic rapid burn-down of susceptible broadleaf weeds following application. ***But what actually happens inside the weed?***

1.1 Mode of action: disrupting the weed's cell membranes

Carfentrazone-ethyl is a PPO-inhibiting herbicide. ENTRAZONE 400 WG controls susceptible weeds through membrane disruption initiated by inhibition of the enzyme protoporphyrinogen oxidase (PPO).

Once this process is disrupted, susceptible plant tissue is rapidly damaged. The visible result is fast necrosis and burn-down of the foliage contacted by the spray.

1.2 Coverage matters

This speed is one of ENTRAZONE 400 WG's most noticeable characteristics in the field – but it also highlights an important principle: Because ENTRAZONE 400 WG works only where spray reaches the plant, coverage is critical. In wheat and barley, the label specifies ground application using a correctly calibrated boom sprayer delivering 200–400 L/ha, at 100–200 kPa, to obtain even distribution.

In orchards and vineyards, approximately 200 L/ha of spray mixture should be applied with equipment and nozzle selection aimed at achieving thorough weed coverage while minimising drift. Applications should not be made when wind speed exceeds 10 km/h.

1.3 Broadleaf weeds in wheat: hit them while they are young

Early weed competition can compromise the establishment of a cereal crop before the full effects become visible. Allowing broadleaf weeds to develop alongside wheat means that moisture, nutrients, light and physical growing space are being shared during an important period of crop development.

ENTRAZONE 400 WG provides farmers with a post-emergence option for tackling this competition. The registered weed spectrum includes important species such as wild radish (*Raphanus raphanistrum*), spiny emex (*Emex australis*), musk heron's bill (*Erodium moschatum*) and pimpernel (*Anagallis arvensis*), among others.

Timing remains critical. ENTRAZONE 400 WG should be applied while weeds are young, actively growing and not under stress. Weeds subjected to unfavourable growing conditions may be less susceptible, while applications made to young weeds provide a better opportunity to achieve thorough coverage before plants become large and difficult to control.

1.4 Not only for cereals – strengthening orchard weed control

Weed management beneath perennial crops presents a different challenge.

Orchard weeds have less direct competition from a dense crop canopy and may therefore establish substantial biomass. >>



Flax-leaf fleabane (Conyza bonariensis).

Difficult broadleaf species can also survive conventional knockdown programmes, forcing growers to make repeat applications or use additional control measures.

ENTRAZONE 400 WG can be used as part of a directed orchard weed-control programme in deciduous fruit, vines, citrus and macadamias. It is aimed particularly at difficult weeds such as small mallow (*Malva parviflora*), flax-leaf fleabane (*Conyza bonariensis*) and stinging nettle (*Urtica dioica*), with the ideal treatment stage being actively growing weeds approximately 10 cm high.

2. Stewardship protects tomorrow's weed-control options

Every effective herbicide should be treated as a resource. Repeated reliance on the same mode of action places selection pressure on weed populations and increases the risk of resistant biotypes becoming dominant.

ENTRAZONE 400 WG should therefore form part of a broader resistance-management programme in which herbicides with different modes of action are rotated or appropriately combined. Fields should also be monitored regularly so that suspected resistance can be identified early.



Flax-leaf fleabane (*Conyza bonariensis*).



3. Fast action and proven performance – a valuable partner in weed management

Good weed control is rarely the result of a single decision. It comes from identifying the problem early, selecting the right product, applying it at the correct growth stage and ensuring that the spray reaches its intended target.

ENTRAZONE 400 WG combines rapid PPO-inhibiting contact activity with proven local field performance, giving farmers a valuable tool for the control of difficult broadleaf weeds in cereals and perennial crops.

When applied at the right time with good coverage and as part of a responsible weed-management programme, ENTRAZONE 400 WG delivers fast, reliable control where it matters most – protecting the crop and its yield potential.

ENTRAZONE 400 WG – hit difficult broadleaf weeds where it counts.

ENTRAZONE 400 WG – South Africa Reg. no. L11761, Act no. 36 of 1947.
Active ingredient: Carfentrazone-ethyl (Triazolinone) – 400 g/kg. HRAC Herbicide Group Code: 14 / E.
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Chloroflux technology: How Incite® enhances chlorophyll and crop vitality

Hein Bester
MBFi

MBFi
Leaders in Science. Partners in Growth.



In modern agriculture, disease control alone is no longer enough. Today's growers need solutions that protect crops while helping them maintain photosynthetic efficiency, remain greener for longer, and convert more sunlight into productive biomass.



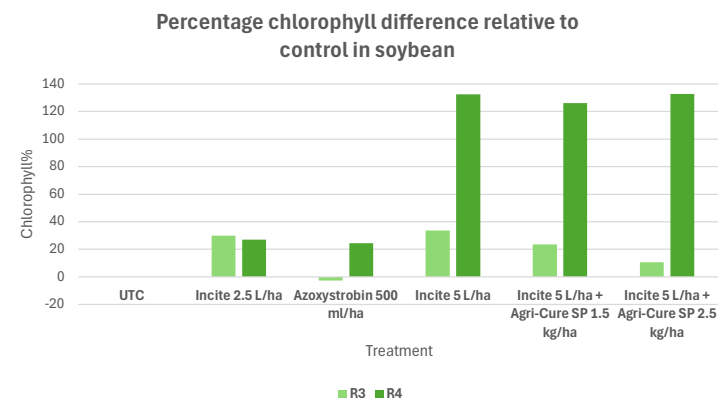
Incite® is a Green-Chemistry fungicide and plant health enhancer containing *Bacillus methylotrophicus*. Through its combination of endospore stability, lipopeptide defence, and chloroflux technology, Incite® delivers both microbial protection and plant-performance benefits. While endospore stability and lipopeptide defence help suppress harmful microorganisms, chloroflux technology focuses on maintaining a physiologically active crop capable of sustaining photosynthetic activity during critical growth stages.

Chloroflux technology describes the measurable chlorophyll response observed following Incite® application. Chlorophyll is the engine of photosynthesis, capturing sunlight and

converting it into the energy required for growth, reproduction, and yield development. Incite® produces plant growth-promoting compounds that can influence plant physiology, nutrient use efficiency, stress resilience, and overall plant vigour.

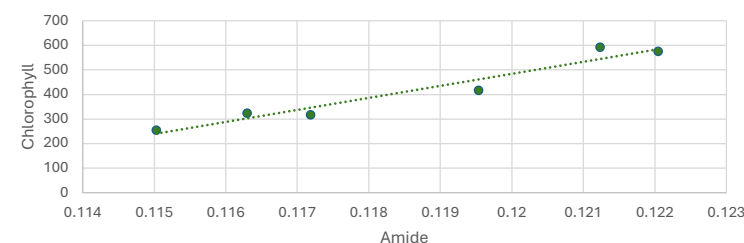
These interactions can contribute to healthier chloroplast function and maintenance of green leaf area, helping crops remain photosynthetically active for longer during the season.

More chlorophyll means greater potential for photosynthetic activity, improved energy capture, and a stronger physiological platform from which yield can be built.



Graph 1: Chlorophyll concentrations at R3 & R4 differ across different treatments of Incite (2.5, 5L/ha with and without Agri-Cure SP®) and Azoxystrobin competitor. One application of the products was made at R1 stage.

Soybean amide and chlorophyll content positive correlation



Graph 2: Relationship between chlorophyll concentration and amide-associated FTIR signals.

The chloroflux response can be measured

To determine whether chloroflux technology could be quantified under field conditions, soybean plants were treated with a single application of Incite® at the R1 growth stage using different application rates and combinations.

Chlorophyll responses were subsequently evaluated during the R3 and R4 reproductive stages (Graph 1). The results demonstrated

a clear chlorophyll advantage for Incite® compared with both untreated controls and the azoxystrobin standard.

Incite® 2.5 L/ha recorded higher chlorophyll levels than both controls. Incite® 5 L/ha produced the strongest chlorophyll response. At R4 stage, Incite® 5 L/ha recorded 132.5% higher chlorophyll compared with the untreated control and 87.1% higher chlorophyll compared with azoxystrobin. >>

Chlorophyll was accompanied by increased metabolic activity

The chlorophyll response was further investigated using FTIR analysis of soybean leaf tissue.

Interestingly, treatments associated with higher chlorophyll concentrations also tended to exhibit higher amide-associated FTIR signals. A positive relationship was observed between chlorophyll concentration and amide content, indicating that increases in chlorophyll occurred alongside increases in protein-associated leaf compounds.

Amide bands are commonly associated with proteins and nitrogen-containing compounds within plant tissues. This relationship suggests that enhanced photosynthetic status was accompanied by greater metabolic activity within the leaf.

Photosynthetically active leaves require substantial protein investment. Many of the proteins involved in photosynthesis, including rubisco and chloroplast-associated proteins, are closely linked to nitrogen metabolism. The positive relationship observed between amide content and chlorophyll therefore suggests that chloroflux technology may be associated with broader improvements in leaf physiological activity and photosynthetic capacity.



Chloroflux technology is designed to help growers maintain a crop that continues capturing sunlight, generating energy, and supporting reproductive development throughout critical growth stages.

The soybean data demonstrate that Incite® can produce measurable increases in chlorophyll relative to both untreated and conventional greening benchmarks. Combined with the observed relationship between chlorophyll and amide-associated metabolic indicators, these results support chloroflux technology as an important component of the Incite® technology platform.

Because stronger photosynthetic machinery creates the foundation for yield, chloroflux technology represents more than greener leaves. It represents greener leaves that remain biologically active and capable of supporting crop productivity when it matters most.

Incite® Reg. no.: L 10965 Act no. 36 of 1947 | A.I.: *Bacillus methylotrophicus* 2×10^9 CFU/ml. Incite® is a registered trademark of MBFi (PTY) LTD. GHS hazard statement: Not classified as hazardous.

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Padel for a Purpose - Laeveld Agrochem supported the 2026 Good Morning Angels Padel Tournament, an initiative to raise funds to help change lives for good. Two of our Laeveld Agrochem teams reached the semi-finals, with Corné and Wouter Liebenberg going on to win the tournament and bring the trophy home!



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Dr. Phillip Venter, ons Hoof van Plantvoeding, gesels op ontbytSAKE oor Laeveld Agrochem se rol in volhoubare plantvoeding.



LAC-agent 2047 op pad!
Baie geluk met die geboorte van julle seuntjie Wihann!



OntbytSAKE Toekennings 2026 - Laeveld Agrochem is tydens die glansryke ontbytSAKE toekennings as wenner in die kategorie Top Adverteerder aangewys! Hierdie erkenning weerspieël 'n waardevolle vennootskap wat ons help om die verhare, mense en ondernemings wat Suid-Afrika se landbousektor vorentoe neem, te ondersteun en te inspireer.



Die dames van Laeveld Agrochem Marble Hall het die lente in kleur verwelkom, gereed vir die nuwe seisoen!



Francois Nel, Laeveld Agrochem's Environmental Health & Safety Manager, joined our Business Manager, Dr. Jeanne de Waal, to present safe-handling training to clients of LAC Rawsonville and LAC Drakenstein.

CRI Conference 2026 - The annual conference was held in the Drakensberg. Laeveld Agrochem is proud to be part of this event, supporting and promoting the citrus industry.



SAAm

BOER ONS VOORUIT



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