

CROP CIRCULAR

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2020

CropLife

SOUTH AFRICA SUID-AFRIKA



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CONTRIBUTE

We are always looking for news, photographs or event updates from our members.

Please forward your contributions to elriza@croplife.co.za

WELCOME

It is a sad fact that I have written the welcome note to all the 2020 issues of the CropLife SA Crop Circular whilst our country has been under some form of Covid-19 National Lockdown. Thankfully, the agricultural industry was, for the most part, designated as an 'essential service' during the toughest lockdown periods, so our members were able to maintain their operations, thereby continuing to supply farmers with plant protection solutions, albeit under strict lockdown rules.

The fact that our specific industry was able to operate during lockdown was critical to the preservation of the harvest potential of field and horticultural crops alike. Combined with large parts of the country starting to slowly recover from the effects of years of extended drought, the result has been a much-improved financial situation for many farmers; this can only be positive for CropLife SA member companies.

In an AgBiz article published 8 September 2020, the AgBiz chief economist, Wandile Sihlobo, reported that the country's agricultural economy was expected to show a remarkable 10% year-on-year growth in gross 'value-added' performance, on the back of a 6.9% contraction in 2019. As mentioned, this recovery comes after improved climatic conditions with the national grain harvest heading for near-record levels, sugarcane production improving since 2019 and the availability of export supplies of citrus and deciduous fruits being significantly up since the previous season.

The impact of the Covid-19 pandemic is for sure going to be with us all for a while yet. All CropLife SA member companies have had to implement strict pandemic mitigation measures, as well as changing the way in which they operate. We have seen a huge increase in the number of virtual meetings that our members have asked us to attend and we have even had member companies conducting product launches as virtual events. As your industry association, CropLife SA has also had to change its behaviour and the use of virtual meetings is now the norm. A wonderful benefit of holding many CropLife SA activities as virtual meetings is that participation in all such activities by staff from member companies has increased dramatically – virtual meetings give every person in our member companies the opportunity to participate in CropLife SA activities; such increased participation can be only good for the association and our industry.

The challenges our members face with the local regulatory environment unfortunately continue, despite the huge focus CropLife SA staff bring to the problem. The office of the Registrar (Act 36 of 1947) continues to be plagued with staffing issues and the serious backlog in the processing of registration applications is not being reduced. Sporadic Covid-19 cases in the various Department of Agriculture buildings continue to result in entire buildings being closed from time to time for days of deep cleaning; this is obviously not helping with efforts to improve the turn-around time for registration application processing. Nonetheless, the CropLife SA team continues to strive for both short and long-term solutions for the ongoing challenges.

Any Agri-Intel users reading this newsletter will know that the association has communicated the intention to initiate a process of charging users for accessing Agri-Intel. This decision to introduce a subscription fee for users who are not CropLife SA members was not taken lightly and was thoroughly debated by your Executive Council before the final decision was taken. The bottom line is that the association could just not afford to maintain the high levels of value of the Agri-Intel database without some form of income being generated to support the costs of Agri-Intel staff salaries, ongoing maintenance and the addition of new features for the Agri-Intel database.

The CropLife SA team continues to work remotely with staggered attendance in the Centurion office in accordance with 'Covid-19 Workplace Plan' that we created. We continue to be extremely proud of the fact that we have maintained an uninterrupted service and activities for all member companies during this lockdown period. Stay safe.



Rod Bell
Chief Executive Officer
CropLife South Africa

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Agri-Intel Subscriptions

Chana-Lee White
Agri-Intel Manager

Agri-Intel will be moving over to a user pay system from 5 October 2020. CropLife SA member companies will still be able to access the website free of charge for the time being.

International members and non-CropLife SA members residing in South Africa, will be able to access either the label database and/or the residue management sections of the website at a nominal annual fee. As CropLife SA is a not for profit organisation, these fees will assist in ongoing website developments.

The different membership types will include two packages to choose from (indicated prices are annual fees per user):

	Access to label database and residue management	Access to residue management only
CropLife SA members	Free	Free
Non-CropLife SA members (RSA residents)	R1 800	R1 000
International users	\$500 or €400	\$300 or €250

We are exploring options to accommodate non-CropLife SA member companies who have three or more users and further details will be communicated in due course.

From 5 October 2020, users will be able to register on the website and payment details will subsequently be emailed to them. Payment can then be made via EFT, credit card or other means such as SnapScan. Access will be granted for 1 year from date of registration, so users are welcome to register at any time.

For any further queries, please contact admin@agri-intel.co.za or info@croplife.co.za.

GMOs: Food for Thought

Contrary to popular belief, farmers have been altering the genetics of organisms for 10 000 plus years while they domesticated plants and animals. The more traditional methods of crop improvement involved saving seeds from the best-looking plants for succeeding growing seasons and eventually selectively breeding the most desirable parents to produce offspring with superior characteristics. The limitations with traditional methods are that the exchange of genetic material allows both desirable and undesirable genetics to be transferred to offspring, and breeding is restricted to related species.

Chantel Arendse
Lead: Plant
Biotechnology

The inclusion of genetic modification in the plant breeding toolbox has led to the development and commercialisation of genetically modified (GM) crops. A GMO is an organism whose genetics have been altered by the transfer of selected individual genes from an unrelated donor organism to introduce useful traits such as disease or pest resistance. Foods produced from, or using GM organisms, are often referred to as GM foods.

What about safety?

Within the GMO public discourse, food safety concerns almost always feature prominently. It is an emotional issue that stirs up lots of questions because of our close relationship with food as a source of nutrition for our health and wellbeing. While consumer scepticism lingers, here are some documented narratives on GMO health and safety that you need to know.

Since 1992, GMOs have been subjected to rigorous safety assessments by government regulatory agencies across the globe before being approved for food, feed and cultivation. Regulatory assessments of GMOs involve evaluating potential risks posed to both human health and the environment. For GM food, this includes reviewing data on allergens, toxicity, nutritional composition and animal feeding studies.

After overwhelming regulatory reviews, as well as consensus amongst independent scientists and global organisations, the bottom line is that GM foods are as safe as their non-GMO counterparts. This safety declaration has also been endorsed by the World Health Organization (WHO), the Organisation for Economic Cooperation and Development (OECD), the European Food Safety Authority (EFSA), the International Seed Federation (ISF) and various other scientific associations.

Conventionally produced foods (with a historic record of safe use for consumption) are used as a comparator during GMO food safety assessments. From a health and safety perspective, there is no difference between GMOs and their non-GMO counterparts as various safety assessment studies have demonstrated equivalence on the basis of nutritional composition, allergenicity, toxicity or unintended health effects resulting from the introduced GM trait.

It is important to remember that GMOs are the most highly regulated and tested foods in the world. After more than 20+ years of GM food consumption by humans and animals, there has been no evidence of adverse health risks or food safety incidents due to GMOs.

GMOs in SA

Commercial Crop Approvals: 23

Crops: Maize, Soybean and Cotton

GM adoption rates: Maize 87%, Soybean 95% and Cotton 100%

GM Traits: Insect resistance, herbicide resistance, drought tolerance

Regulation: Genetically Modified Organisms Act, 1997 provides regulatory oversight of GMOs, ensuring rigorous safety assessment of applications by an advisory panel of independent scientists to minimise potential risks to human health, animal health as well as the environment.

Additional safety considerations and benefits

A recently published report looking at environmental impacts has shown that GM seed technology has helped farmers be more efficient with their application of crop protection products, contributing significantly to a reduction in environmental impact associated with insecticide and herbicide use on GM crops.

This further supports the health and safety associated with GM crops, not only in terms of reduced pesticide exposure for farmers but also reduced pesticide residues for consumers.

CELEBRATING 25 YEARS OF BIOTECH



It has been 25 years since biotech crops were first planted. Since then, GM crops and biotechnology have not just transformed agriculture and improved life for farmers and rural communities, but have helped improve the health of the planet, making us healthier too.

Biotech is great for the environment and provides an important tool for tackling climate change. This is thanks to...

Reduced CO2 and pesticide applications



Biotech crops require fewer passes by tractors, which has helped to prevent the release of

24 BILLION KG of CO2 since they first came to market – equivalent to removing **16.7 million cars** from the road



Over the past 25 years, biotech crops, such as those that are insect-resistant, have reduced pesticide applications by

619 MILLION KG a global **reduction of 8.1%**



Thanks to this reduction, the agriculture industry has cut its fuel use by an estimated

12,799 LITERS



Because biotech crops allow for no-till farming, more carbon remains in the soil. In 2018, the environmental gains were equivalent to removing

13.6 MILLION cars from the road



Biotech #FoodHeroes

PG Economics: “From 1996 to 2018, crop biotechnology reduced the application of crop protection products by 776 million kilograms, a global reduction of 8.6 percent. This is equal to more than 1.6 times China’s total crop protection product use each year. As a result, farmers who grow GM crops have reduced the environmental impact associated with their crop protection practices by 19 percent.”

One of the many useful applications of genetic modification is biofortification – the process of improving the nutritional value and quality of staple food crops through modification. **“Golden Rice” is the first case of genetically modified biofortification** – a GMO rice crop enhanced with vitamin A to help combat irreversible childhood blindness. Despite many years of testing and regulatory scrutiny, its approval for commercialisation was only recently granted in the Philippines.

The arrival of golden rice paved the way for a new area of research to address global health challenges such as vitamin deficiency and micronutrient malnutrition in developing countries. Examples of research collaborations on GM biofortification of crops in Africa include the Bio-Cassava Plus Project focusing on increasing micronutrient deficiencies in cassava, the Banana21 initiative developing a GM cooking banana with increased micronutrients and vitamin A levels, and the Africa Biofortified Sorghum Project (ABS) developing sorghum varieties with improved vitamin A and micronutrient availability.

Biotech crops have an added food safety benefit that is often overlooked, namely reducing the levels of naturally occurring mycotoxins in crops. How is this achieved? Studies have shown that reduced pest damage by insect resistant maize results in less penetration of the mycotoxin producing fungus on maize plants, which in turn reduces mycotoxin contamination in field or in storage.

In Africa, where maize is an important staple food, high rates of mycotoxin exposure in addition to an already malnourished population spells bad news. The low rate of adoption of plant biotech by African countries means that the continent is yet to take advantage of the health and economic benefits relating to reduced mycotoxin contamination conferred by insect resistant maize.

Looking ahead

The next generation of plant breeding technologies has already arrived in the form of genome editing tools that enable precise, efficient and targeted changes to be made at the genomic level. This dynamic field of genome edited crop research has the potential to make an even greater contribution to agricultural food production by helping to improve crop yields, resistance to emerging pests and diseases, climate resilience, nutritional quality, agrobiodiversity and much, much more.

While modern breeding techniques are not a panacea for addressing the world’s food problems, its importance cannot be ignored in view of the growing world population and the challenge of having to produce enough food for everyone. Faced with additional threats from extreme climate change events such as extended droughts, flooding and severe storms, agricultural production needs to change its trajectory, as traditional breeding methods alone cannot deliver on the scale and scope required.

It is therefore important to consider all available breeding tools that modern biotechnology offers and their potential to contribute to food security and sustainable agricultural development.

THE BIOTECH SOLUTION TO MYCOTOXINS

CropLife
INTERNATIONAL 

1

Mycotoxins are naturally occurring toxic substances which can be produced by fungi and quickly infect crops with pest damage. **Biotech corn is resistant to insects and any damage they might cause** - reducing damage and the chance of mycotoxin contamination.

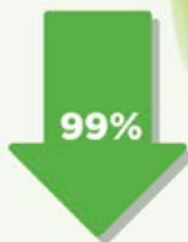


2

Biotech corn can reduce mycotoxins by up to 99%.

In a sample, the genetically modified corn contained 10 times fewer mycotoxins than conventional corn. This means a healthier and safer crop!

99%



Biotech corn provides a better income and improves the livelihoods for the farmers who grow it. With its ability to reduce mycotoxins alone, **annual benefits of \$23 million in the U.S. have resulted.**



\$23m



3

4

Not only can biotech corn make **a big difference for food security in developing countries**, it can also help to solve food safety issues in Africa where there is a major mycotoxin problem.



To Operate a Poison Information Centre

Dr Gerhard H Verdoorn
Operations and
Stewardship Manager

The idea of operating a one-man poison information centre started in 2003 when there were only a few facilities left in South Africa that offered a 24-hour service for assisting with poisoning incidents.

Tygerberg Poison Information Centre and Red Cross Children's Hospital were fully operational, but similar information centres at other large hospitals slowly toned down. There was a need to operate a fulltime service for wildlife poisoning and I took up the challenge. Overnight the Griffon Poison Information Centre flew into the public domain. Little did I know what I let myself in for!

Poisoning incidents are rife in South Africa. People, young and old, wildlife, habitats, domestic livestock and companion animals fall victim to the blatant and murderous intent of criminals to poison them while irresponsibility, carelessness and arrogance lead to "accidental poisoning". A friend always compared misusing a pesticide to a blind dog: it bites without seeing what is bitten. People blame pesticides for these unfortunate and unnecessary incidents, but pesticides and poisons are inanimate objects that are lifeless and cannot do harm to living organisms on their own. It is once these toxins are in the hands of people, that their potential harm is brought to life.

Operating a poison information centre is like living on the edge – the edge of nervous breakdowns, losing your sanity, losing all respect for humankind and losing hope for the future of wildlife. Every call raises your hackles because one never knows when "that" call arrives on the emergency number. Many people call for advice on managing pests and safe use of pesticides, and blessings to those who do so before making a fatal or near-fatal mistake, but when "that" call arrives, all hell breaks loose. A family member drank a bottle filled with a pesticide mixture. No one knows what it is. You instruct the hysterical caller to calm down and find out from the patient what happened. You hear the talking, shouting and crying in the background. No one can find the original container. Time drags on and the situation is spiralling out of control. Eventually someone responds with the information: it was a home garden pyrethroid. Phew! Crisis over, the patient will survive. But then the real work starts: the family wants to do home remediation. Milk is almost ALWAYS given to patients, despite it being contra-indicated for pesticide ingestion. To get the patient to a hospital or clinic is a mission because such facilities may not be within reach, or the family refuses to take the patient to a hospital. It is unfathomable why people consult a doctor for a bout of the flu but believe they can treat a poisoned patient themselves.

Worst is when the call comes from people attending to a person who ingested a highly toxic substance like a rodenticide concentrate or paraquat. By the time of the consultation, most patients that accidentally or deliberately ingested such substances are in grave danger. The chills run down your spine: the patient drank 250 ml liquid rodenticide on Tuesday morning, and this is Thursday late afternoon. There are no ambulances available, the people in attendance have no transport of their own, the hospital is over 200 km away and the patient is already totally lethargic with very shallow breathing. You talk the family through the situation, try and get hold of a medical doctor, but to no avail. Twenty five minutes later while still talking to the family, the patient expires. It feels as if the devil himself grabs you by the neck. You feel ice cold, nausea overcomes you and black spots blur your vision. It was just too late for this patient. Same goes for the person who tried to commit suicide by drinking paraquat. How does one tell the family that the prognosis is extremely poor? A day to never forget. June 2006, Saturday morning eleven o'clock. I was walking in the covered parking area to the shops. A call came in from a farm in KwaZulu-Natal. A farm worker drank a litre paraquat. He was experiencing terrible abdominal pain, was nauseas and vomited several times. I instructed the owner to evacuate the patient to the hospital immediately and made contact with the hospital.

Sat against a stone-cold concrete pillar in the parking lot, talking them all the way to the hospital which took about 45 minutes. He was admitted very quickly and I waited there against the pillar. The call came about an hour later. Patient was gone.

The dog owners are not always the easiest to deal with. "My dog ate your poison!". My response is that I do not own any pesticide nor poison, and that my number is on all containers for emergencies.

That message seems to fly right through the cranial cavity without touching sides and the debate heats up. "Then why is your number on the box"? Response: it is an emergency number for poisoning incidents. "So, what can you do for my dog that you poisoned?".

Calm response is that it is not my product, that I did not poison the dog and that the dog must be taken for a consultation to a veterinarian immediately. Explosion: "Are you going to pay for the vet?". Calm, though highly irate response from my side is "No, it is not my animal, it is yours and the costs are for you to bear".

Nuclear explosion: "I am going to sue you!!" Calm request is to please supply full names, identity number, home address and email address so that I can assist, which the caller rapidly gives. Killer part of the call is when the caller is informed that it is a criminal offense to not use a rodenticide in a bait station and that the police will be instructed to investigate, confiscate all evidence and probably take the offender in for questioning. End of call.

All rodenticide labels state clearly that a bait station must be used and that baits shall be placed out of reach of children and pets. That part of the print seems to be a waste of effort and money.

Sad is when a dog owner calls after the crime syndicates struck with aldicarb, carbofuran or terbufos.

Very few dogs survive, and the trauma for such people is intense. I normally call back the next day mostly to hear that not even the veterinarian could save the animal.

Even worse is that the police mostly refuse to investigate the crime and in most cases the dog owners are hit with car theft, armed robberies or burglaries after their dogs were poisoned.

Hundreds of dogs are poisoned every week. This pandemic of dog poisoning has been going on since the late 1990s and there is no end in sight. Law enforcement is simply totally lacking.



Accidental dog poisonings also number in the hundreds (about 90 to 130 per month). People leave rodenticides, snail baits, termite baits and other pesticides unattended or sprinkle the entire container ant bait out onto the paving.

Dogs simply eat all these things and poisoning is guaranteed. Some people admit their mistakes while others question the reasons for supplying such toxic pesticides to the market! Imagine asking car manufacturers why they market things that kill people and dogs every day.

In many incidents children and dogs share the pesticide and that is when I feel like wringing necks. Leaving a container full of termite bait on the kitchen counter is blatantly irresponsible, but it happens every day.

There are also the crank callers that really tap one's energy. It is usually late at night or Sunday afternoon and mostly individuals who are intoxicated. Such calls are easy to identify because the malignant and humorous undertones are simple to catch on the call.

These calls are matched by individuals with psychological disorders who firmly believe they are poisoned. One handles such calls with great care and try to convince the person to consult a psychologist or psychiatrist.

Many medical practitioners and veterinarians also call in for advice and support. Such calls are mostly wonderful because they are well informed but are sometimes confronted with patients that present with symptoms that they are not familiar with.

Talking a doctor or a veterinarian through a diagnosis and treatment protocol is very satisfactory and leaves one assured the patient is in good hands.

Calls, WhatsApp messages and text messages arrive any time, day or night. It is the ones after midnight that are normally the scariest of all because that is the "danger zone time" when people try and commit suicide, when dogs are poisoned or when family members have finally exhausted all their home remedies in search of a cure for a patient.

It is also the time of night when people do stupid things like taking a swig of pesticide instead of cough medicine.

Why do consumers store a pesticide in a bathroom locker with medicines? On top of that they simply open the bottle and drink from it.

The most rewarding calls are from the farmers who seek advice on the correct use of pesticides and most of them are small farmers.

I wish the industry and government officials could listen in on such calls. It is inspiring to say the least. No arrogance, no attitude, just very courteous and appreciative of the little advice one can offer them.

Calls about pharmaceuticals are patched through to the Western Cape Poison Information Helpline immediately. Overdose on narcotics rarely reach the Griffon Poison Information Centre (thankfully) and exposure to industrial chemicals are rare. Intoxication by poisonous plants and dogs that lick or eat toads are also quite common.

Toads produce *bufadienolides* in their occipital glands and those natural toxins can kill a small dog.

The call ratio is unpredictable. Some days go by with only three emergency calls while others may produce 10 to 12 calls.

A call may be as short as five minutes but may also stretch to half an hour. If it is a very serious incident, consultation with the medical doctors and veterinarians may last a few days. Calls for advice (direct calls or WhatsApps) are far more (thankfully).

The one big advantage is that one can identify trends with poisoning. A very worrying trend is that crime syndicates are moving from aldicarb to terbufos to kill dogs and wildlife. Methomyl is also used increasingly by crime syndicates and poachers to kill dogs and wildlife. Carbofuran is on the rebound with dogs and wildlife. At the consumer level, dog poisoning and child poisoning with home garden pesticides and rodenticides are also of grave concern.

The information is shared with CropLife SA's stewardship and small pack forums to address these issues. Sooner or later we will overcome these issues!

Empty Pesticide Container Management

As you will read further on in this newsletter, Gerhard Verdoorn, operations and stewardship manager for CropLife SA, continues his tireless, and frankly sometimes thankless, efforts to promote the collection and

Rod Bell
Chief Executive Officer

recycling of empty, triple-rinsed pesticide containers by CropLife SA member companies. Not only is this the right thing to do for our environment and the image of our industry, but new legislation is soon going to compel all players in our industry to take the management of waste generated by our industry as a serious matter, rather than such efforts just being an irritation or an additional cost to doing business.



Therefore, I am always extremely impressed when individuals associated with our member companies take the initiative to do the right thing for our industry, the environment and their farmer customers when it comes to the collection and recycling of empty and triple-rinsed pesticide containers. This is why I am starting to visit such individuals when I get the opportunity to travel to meet our members (not too much of that during lockdown!) and starting with this issue of the CropLife SA newsletter, I will record what I see on my travels.

Lelani Boshoff is an accredited crop adviser working under the Novon Retail Company banner based in Ohrigstad in the Limpopo province, close to the Mpumalanga provincial boundary. Lelani contacted Gerhard and requested guidance on how to establish a collection point for empty, triple-rinsed plastic pesticide containers at her depot in Ohrigstad.

As a result, Lelani has now established a process for collecting such empty containers from her customers in her area of operation, namely farmers involved with the production of crops such as citrus, maize, soybeans and various vegetable crops, to name a few.

If any individuals from member companies, or member companies themselves, have established collection points for the recovery of empty, triple-rinsed pesticide containers with the aim of handing them on to recyclers, please send us details of your efforts so that we can brag on your behalf about what you have done. In addition, I challenge all crop advisers and CropLife SA member companies that have not become involved with empty pesticide container management yet, to look at the efforts of

others in our association, such as Lelani Boshoff and other valued CropLife SA members that have already started to educate their farmer customers on triple-rinsing and recycling of empty pesticide containers, to 'do the right thing' for your yourself, your farmers, the environment and our industry at large.

I extend my sincere thanks to all who support the CropLife SA empty pesticide container management efforts.



Container Warriors

Military commanders over the ages waged war against adversaries by using one unique but common element, namely warriors. A poor military strategy can succeed if a commander has good warriors, but even if he has a brilliant strategy, his attack will fail if his warriors are not well trained and motivated. The same goes for the global war on plastic pollution. Many lobby groups have strategies, media campaigns and fundraising efforts to address plastic pollution, but their efforts are in vain because they lack legions of warriors.

CropLife SA is privileged to have a network of plastic recyclers, namely our “container warriors” who collect and process triple-rinsed empty plastic pesticide containers throughout South Africa. This legion face lots of challenges just like real military warriors, only in their day-to-day operations. Challenges like unrinsed containers, unwillingness of some farmers to participate in the container management process, containers being burned on farms and unscrupulous operators who collect or buy unrinsed containers from farmers, do not impede their progress in the war against plastic pollution. The Covid-19 pandemic forced our container warriors to the trenches for the better part of three months in which they could not operate and generate income. Yet, despite the challenges, the CropLife SA certified plastic recyclers are charging ahead in full force again, recovering thousands of containers from farms and making sure these products do not end up as environmental pollutants or are used as containers for food and drinks.

As an industry association, CropLife SA is extremely grateful for the services rendered by the container warriors to our industry and the agricultural sector. Twenty one of the 73 recyclers are affiliated to CropLife SA as distribution members or crop advisers, while the others are independent operators. Recent entrants that service the profession and pest control sector namely Ensystex, Coopers Environmental Science and Pathogen and Environmental Science (PES), bring an exciting new strategy to CropLife SA’s endeavour to have as many containers as possible recovered and recycled. The pest control industry is proudly serviced by these three companies with ten collection points in the main business centres of South Africa, thanks to the commitment of David Faber (Coopers), Reon Hillebrand (PES), and Ross and Tanya Clark (Ensystex), and their respective branches.

Around the country we strive to have collection points for all farmers, no matter how big or small they may be. Nkhetheni Belemu of NDB recyclers now services small farmers in the region of Thohoyandou up to Musina, while new recyclers who are also CropLife SA certified crop advisers joined the legion of container warriors recently. Laevelt Agrochem, Novon Retail Company, Wenkem, Nexus AG, Shiman, Silvix Forestry, Remitto, Inteligro, Viking Marketing and Die Koöperasie are CropLife SA members with any number from one to six (six in the case of Laevelt Agrochem) crop advisers or branches that manage container collection projects.

Ladies are growing in number by the day; 32 of them are fully engaged in the war on plastic pollution. Meagan Leach of Enviro Waste Recyclers leaves no piece of plastic untouched in Welkom with her own group of plastic waste collectors, while in many other companies the male partners rely heavily on their female partners, or often spouses, to drive the plastic recycling businesses. Meagan is a quiet and unassuming person but a real force in recycling who helps others to sustain themselves through plastic recycling.

It is wonderful to talk to people like Koot Human of DromMonster Hoofkantoor, Louis and Erika Stemmet of Winelands Plastics, and Walter Jordaan and Johann Conradie of MyPlas to experience their total commitment in the war on plastics.

Smaller operators like Mr Boxman (Martinet Els and Andrew Outram) is so far away from a mobile phone network that it is difficult to reach them, but that does not stop them from steaming ahead with recycling of plastic and paper.

Tjasse Biewenga manages a huge plastic recovery operation in Limpopo and Mpumalanga and uses member companies like AECl Plant Health to assist with container collection.

A recent surprise came in the form of Mariaan Ras of the AECl Plant Health depot in Levubu who collects containers for Tjasse. To the west, Franci Roodt of Novon RC is fulfilling her role as container warrior, while Potch Plastics Recycling (Schalk Mans) covers the grain farmers in a very large part of Northwest and the Free State.

Rod Bell met Lelani Boshoff and Sonja du Plessis (Novon RC) in Ohrigstad who were recently certified by CropLife SA as recyclers. Liesbet Dreyer and husband Danie manage Dealco Herwinning from Bellville and are about as senior in experience in recycling as it can be hoped for. Try and hand over an unrinsed container to Danie and see what happens!

Farmers in the Western Cape were conditioned by container warriors like Danie, Phillip du Plessis of DromMasjien Boland, Kobus van Wyk of Breederiver Recycling, Aubrey de Villiers of ChopChop Recyclers, Atlantic Plastic Recycling (Steven and Fred Cheetham) and Mike Eager and Rodney Alexander of SupaPlas in Bellville about triple-rinsing.

Walter Jordaan enlightened a group of visitors from all over Africa last year on how to deal with triple-rinsing; simply send the farmer back to the farm twice with his unrinsed containers and the third time he arrives with every single container mint clean and punctured.

The estimated compliance with triple-rinsing protocol in the Western Cape is over 90% (applause for the Western Cape container warriors please!).

Con Neethling of Viking Marketing in Bredasdorp recently became a CropLife SA certified plastic recycler. As tough as nails when it comes to triple-rinsing!

The Swartland area has Swaco Organies with Kobus and Elishia Drotschie and Renier van Dyk doing the right thing with empty container recycling and not too far from them is Jacques Boshoff of Winterberge Recycling in Prince Alfred Hamlet. Apple farmers in Grabouw rely on TWK Recycling which is operated by Marchelle le Roux and Carol Jacobs.

A very warm feeling comes over one's mind when you think of Drakenstein Association for People with Disabilities in Simondium who also participate in container collection. Well done folks, in particular to Mayzille Pienaar and De Waal van der Ross who drive the collection; nothing can keep you down if you have a positive mindset.

Bennie van Rhyn took on recycling in Mossel Bay after the owner of Southern Cape Recyclers, Ferdi Muller, sadly passed away. Even Caltizdorp Kelders became involved with container recycling; cheers Fanie Geyser and your team of vintners!



The Western Cape even has a company that can take in and recycle steel drums; Ekapa Drum Reconditioners is there to assist with steel and plastic drums. The container warriors have two “gawe outjies” also: Gawie Breytenbach Recycling in Heidelberg and Gawie Steyn Transport in Redelinghuys.

On the Orange River in the Northern Cape, Raymond Collett (Siyanda Recycling and E-Waste) and Hannes van der Merwe (VDM Recycling) hold the fort with Martin and Marida van Zyl of M&M Plastiek in Keimoes who are doing their duty to relieve the grape and fruit farmers of empty containers. Thankfully, Pierre Nel of Laeveld Agrochem came on board in Douglas because the area was ridden with unattended empty containers. Great progress in the Northern Cape at the hands of the container warriors.

There are so many container warriors that one must be careful to not forget the excellent services rendered by all of them. Anton Bredell and his team (Cornelia Veldtman and Mariaan Pretorius) of Laeveld Agrochem in Marble Hall, Ernest Davey (Limpopo Landboudienste) of Modimolle, Hill van Schalkwyk of Laeveld Agrochem in Polokwane (Hill is one of the most senior crop advisers in South Africa),

Meyer Jacobs of Vendeco Trading in Tzaneen and Rip Chem MM BK in Marble Hall (Reg and Mariana Barkley) pop up as container warriors that do their part. Fanie and Stefan van Wyk of Laeveld Agrochem in Hoedspruit are not new to container recycling and Jurie van Wyk of FreshPro Agri in Groblersdal is always on standby to collect and recycle triple-rinsed empty containers.

Imagine their frustration when these container warriors drive around the Loskop Valley and come across a bonfire of empty pesticide containers! Koos Dercksen of JD Scrap Metals in Louis Trichardt collects containers in the Soutpansberg region and far to the west we have DJ du Plessis of Laeveld Agrochem as our container warrior in Baltimore.

There is hope in Hoopstad in the Free State with Johan Foley snr of Hoopstad Herwinning collecting empty containers for recycling.

Agsol BK (Christo Prinsloo, Stefan Bothma and Schalk Streicher) is another Laeveld Agrochem agency that recently joined the container warriors in one of most important maize areas of the Highveld (Middelburg in Mpumalanga) while Francois van den Berg of Aziwell in Piet Retief further south is battling in the war against plastic pollution in that part of the world. A youngster of InteliGro, Hentie Louw, operates in Lydenburg area and Novon Retail Company's Drikus Prins and Mauritz Smit cover the Lowveld region around Nelspruit.

CropLife SA always tries to link the container warriors to each other so that no one ends up without a market for the recovered plastic. DromMonster Noordwes's Alwyn Barnard and Dirk Ferreira of Drommasjien Oos-Kaap assist others in their areas (very much like Koot Human does in a large part of South Africa), and Silvix Forestry's Chrisleen Naidoo in Pietermaritzburg works with the timber industry to recycle their plastic containers. KwaZulu-natal is still begging for a few more container warriors but thankfully Kevin Gotte (Wenkem) and David Street of KD Recycling in Pietermaritzburg, Khanya Buthelezi of HAZ Clean Environmental (also Pietermaritzburg) and Peter Bannock of Ecosystems in Empaneni are all operational to collect containers from farmers. Hopefully, this province's container warriors will spur others to join their ranks in the war on plastic pollution.

Some recyclers that also play in the plant science arena, are not necessarily linked to CropLife SA, like Stevie and Jackie Opperman of BioAgri Solutions of Jacobsdal in the Free State; they nevertheless heard the CropLife SA call for container management and became involved recently. One needs to acknowledge that the CropLife SA accredited crop advisers that were already mentioned, and others like Tinkie Muller of Nexus AG in Patensie, knock a huge dent in the empty container numbers in their respective areas. Louis Kritzinger of Wenkem Langkloof even remanufactures plastic furniture for his community in the Langkloof.



Jessie Naidoo of Master Waste Management in Joubertina recently hosted a community outreach project with the support of many sponsors; you cannot stop these container warriors from being productive and full of ideas! Louterwater where Louis is based also has Nico Olivier and Annabé Gerber of FanNic Plastic scouting for empty containers, and with the container warriors that are available to collect and recycle triple-rinsed empty containers, there is really no reason why any containers should not enter the system.

Companies like Rhino Manufacturing in Port Elizabeth do lots of good things with plastic, so why do people not recycle?

Johan du Plessis and Ute Jacobs of Shiman service their own farmer clients around the Gauteng and Mpumalanga provinces and sadly we had to say farewell to Roger Bell of Italian Plastics in Herriotdale. Roger was a staunch container warrior.

The container warriors are champions in their own right and deserve a bear hug of gratitude from thousands of farmers and CropLife South Africa. Triple-rinsed empty HDPE, plastic irrigation pipes, plastic harvesting crates, plastic sheeting and shade cloth, and most recently also polypropylene seed bags are taken out of the pollution cycle by the container warriors into the recycling network. Over 5,000 tonnes of empty pesticide containers were collected and recycled in 2019, and we hope for an even better performance during 2020. Not only did the CropLife SA certified plastic recyclers recover all that valuable HDPE plastic, but some of the larger players like MyPlas also assisted CropLife SA (more like lobbied with us) to prevent the manufacturing of new containers with nylon linings which would have been a recycling disaster. Such containers are not fit for recycling. CropLife SA is also putting pressure on suppliers to move away totally from PET containers for pesticides because the PET pesticide containers wreak havoc with recycling.

Lastly, a final word of acknowledgement to all the CropLife SA certified plastic recyclers. It is a group of individuals and companies with a vision to have a world free of plastic pollutants. Well done to all and good luck with your operations.

The Science of Science Communication

Elriza Theron
Marketing and
Communications Manager

The rapid developments of scientific fields such as biotechnology and chemistry in both health and agriculture hold incredible benefits for society, however, in the last decade, it has become clear that these benefits are fruitless if the science is not communicated effectively.

Conspiracy theories, such as the GMO debacle, anti-science campaigns such as the anti-vaccination movement, and the “go natural” trends, whether it is organic farming or alternative medicines, gain exceptional momentum as communication technology has made it possible to disseminate messages in real-time to a broad audience. The problem, however, is that these are very complex subjects. In addition, they are very emotional as both health and agriculture (food) form part of our basic human needs.

It appears that the advancements in these scientific fields have surpassed the communication thereof, leaving the public or the general media to interpret the findings themselves. This has created a plethora of misinformation and data that has been interpreted out of context to circulate the internet.

The outcries from the public through the media have subsequently influenced the regulatory framework, often to the detriment of other players in the value chain. Take for example the recent protests by farmers in countries such as Ireland, Germany and Belgium against the strict regulations, that do not always have scientific merit, imposed on them.

How then, do we proactively and comprehensively communicate innovations in science to the public so as to not repeat past mistakes?

The concept of science communication is not new, and researchers have been working on this dilemma since the mid-1980s.

The challenge, however, is that along with the rapid development of the science itself, communication platforms and audience reception of messages are continuously changing. Whereas previously the credibility of the content was judged according to the reputation of the source or journal, today, scientists are communicating with the public directly, and that may not always be beneficial. Redford (2018) states that communication science is made distinctive by the fact that science's "way of knowing" places constraints on communication that is not present in the same way in other forms of communication. Today, scientists communicate their findings directly on websites and in scholarly publications available to almost anyone, but their messages can easily be framed or prioritised by the media or political leaders according to the narrative they need to promote. And, as has been evident in various instances, scientists are not necessarily equipped to deal with the dynamics and potential risks of such engagement.



These scientific messages are then interpreted by the public through a wide range of human prejudices, which can significantly distort the messages and its meaning.

Speaking of biases, let us not forget the almighty internet algorithms that purely exist to keep our attention on the screen. These algorithms are not designed to show "truth", they are designed to show you information that fits into your already established framework.

Therefore, if you are anti-science, you will continue seeing more and more anti-science posts, articles, videos, news clips, you name it.

It seems then, like we are sitting with a conundrum. Not only are scientists able to push their messages directly to the public in a way that promotes their findings, the public is now also able to consume only the facts that confirm their predetermined opinions without putting it into context.

In addition, due to scientific findings that can be published instantly without intense scrutiny, there has been a significant increase in the amount of retracted papers, with as much as a 1000% rising in the last 10 years. It must be mentioned that not all scientific findings are created equal. If the objective of the science was only to prove a hypothesis without testing the findings in field conditions, then those untested findings can be published as "fact" and are nearly impossible to completely erase, the damage has been done. This leads to an intense distrust of science.

So not only are we facing a public that does not trust the science, they also do not have the background, education or ability to understand it. Davies & Horst describes it as "people not having a solid connection with the basis upon which many of the decisions are made in a knowledge society, which hampers the possibility of them contribution to the decision-making process. This connection not only refers to the understanding or ability to explain scientific facts, rather it suggests that the public should know how scientific knowledge is produced, its limitations and its consequences".

They also argue that science should be debated by the public in order to prevent a polarised society of those who understand, use and make decisions about science and those who do not. Even Facebook founder, Mark Zuckerberg warns of the importance of preventing this social polarisation, pointing out, however, that exposing people to different opinions will not necessarily bridge these divides because showing people an article from the opposite perspective actually deepens polarisation by framing other perspectives as foreign. This might seem like an argument that strengthens the already set objectives of the mighty algorithms, but it has merit when it comes to human behaviour.

It would appear then, that our challenge as a scientific industry is not merely to relay the facts and expect the public to fall in line. It has clearly not worked in the past and is not likely to change in the future. As an industry it is becoming imperative to start working together with all spheres of scientific institutions and consult with each other before just releasing data out into the public. We need to work together to place any findings into a specific context, to make it understandable, and to refrain from getting caught up in the “who released it first” scientific contest. In short, we need to start humanising science to benefit all of humanity.

Perhaps as a starting point, we should stop referring to the agricultural “value chain” as some abstract concept that starts with the scientists on one end and ends with the consumers on the other, thereby furthering the polarisation narrative. We are all consumers, right throughout the value chain. There is not some special food aisle where the scientists, manufacturers and producers do their grocery shopping. We all eat the same food, we all have the same health concerns for our families and we are all subjected to some form of anxiety when it comes to the continuation of our existence.

CropLife SA at Nampo Virtual

As Covid-19 wreaked havoc on the majority of planned events this year, the traditional Nampo Harvest Day, which has been bringing agriculture together for almost six decades, was no exception. However, the organisers managed to make the best of the situation and hosted a remarkable virtual event with extended hours from 9 to 12 September 2020.



CropLife SA is extremely proud to have participated in Nampo on two occasions this year.

On 10 September, Chantel Arendse (Lead for Plant Biotechnology), chatted to host and well-known Landbouweekliks presenter, Gerrit Bezuidenhout, about the importance of stewardship in plant biotechnology.

She touched on issues such as concerns about resistance specific to the cultivation of biotech crops and stewardship practices that are available to minimise resistance development.

She also gave a brief overview of refugia management and how it relates to resistance, concluding with an overview of what can be done to improve compliance with biotech stewardship.

On the crop protection side of things, dr. Gerhard Verdoorn, who needs no introduction at this stage, participated in a panel alongside host and Landbouweekblad editor, Chris Burgess, Thilivhali Nepfumbada from Bayer, dr. Koos Coetzer from the University of Pretoria and dr. Louis Boag from Elanco about biosecurity throughout the agriculture value chain.



The discussion focused on the responsible use of agrochemicals and why it is paramount for the safety of producers and their workers, as well as the consumer. In addition, the various biosecurity measures in place throughout the agricultural value chain and how to address any shortcomings, was unpacked in this informative discussion.

The partnership with Grain SA is an extremely valuable one for CropLife SA and we would like to congratulate the Nampo team for an excellent, well-organised event.

InteliGro en Meridian Agritech Bied Tegniese Vrugtevlieg Werkswinkel Aan

Niel Kruger
Bemarkingsdirekteur
InteliGro

Vrugtevliegbeheer is 'n groot uitdaging en hou massiewe risiko in indien dit nie reg bestuur word nie. Vrugtevlieë is 'n fitosanitêre plaag en kan 'n negatiewe impak hê op marktoegang van verskillende uitvoer gewasse.

Bactrocera dorsalis is ook 'n realiteit in Suid-Afrika en kom al in verskeie areas in voor. Vrugtevlieë het 'n wye gasheer spektrum en is nie tot 'n enkele gewas of produksiegebied beperk nie. Dit beklemtoon dus die belangrikheid vir 'n industrie-wye vrugtevlieg beheerstrategie, aangesien dit kern belangrik vir ons uitvoer gewasse is.

Die doel van die tegniese werkswinkel was om verskeie industrie rolspelers, op een platform bymekaar te kry en insette te bied rondom die belangrikheid en uitdagings vanuit 'n spesifieke industrie oogpunt. Covid-19 het natuurlik 'n fisiese geleentheid gekniehalter, maar die feit dat dit in die vorm van 'n aanlyn webinar formaat aangebied is, het weer die geleentheid geskep om aansienlik meer mense blootstelling aan hierdie relevante onderwerp te gee.



Industry-wide technical online workshop

FRUIT FLIES

Die belangrikheid van 'n geïntegreerde vrugtevlug beheerstrategie is sterk beklemtoon en tydens die eerste sessie is die prentjie geskets rondom die impak van vrugtevlug in Suid-Afrika, die rol van area-wye vrugtevlug beheerprogramme, die verspreiding van *Bactrocera dorsalis* in Suid-Afrika en dan ook die belangrikheid van effektiewe monitering as deel van effektiewe vrugtevlug beheer.

'n Belangrike kwessie wat in die tweede sessie bespreek was, is die rol van vrugtevlug seisoenlange populasiebestuur as deel van 'n geïntegreerde vrugtevlug benadering. Daar is ideale produkte op die mark beskikbaar om deel uit te maak van so 'n populasie beheerstrategie.

Tans is daar verskeie beheer opsies in Suid-Afrika geregistreer en dit is positief dat daar hulpmiddels beskikbaar is vir produsente om te gebruik as deel van die sogenaamde "IPM Toolbox".



Soos genoem beïnvloed vrugtevlug verskeie industrieë en tydens die derde sessie het SATI, Hortgro, die LNR en CRI 'n kort oorsig gegee rondom die impak van vrugtevlug in onder andere tafeldruwe, sagtevrugte, subtropiese vrugte en sitrus.

Die webinar is afgesluit met 'n paneelbespreking waartydens relevante punte vir huidige, asook toekomstige vrugtevlug beheer bespreek is.

Ons bedank al die deelnemende sprekers wat betrokke was om die webinar 'n groot sukses te maak, asook almal wat ingeskakel het by die oopgestelde webinar.

Ons glo dit baan die weg vir meer sulke interaktiewe en industrie-wye gespreksessies in die toekoms, tot voordeel van die hele waardeketting, en ondersteunend tot die belangrike rol wat ons produsente in Suid-Afrika beklee.



Photo: Nikola Rahmé



Photo: Vimal Warnooyaporn

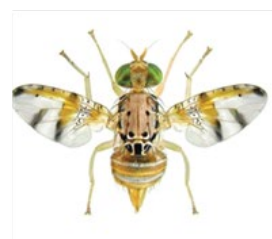


Photo: International Institute of Tropical Agriculture



Photo: Picker & Griffiths

Why Container Management Matters

Dr. Gerhard Verdoorn
AgriAbout
July 2020

The concerns about plastics

Plastic polymers such as high-density polyethylene (HDPE) are extremely valuable as packaging materials for a wide range of commodities because they are light (in mass), very strong, durable

(does not perish like steel), and can withstand a lot of punishment. It is unfortunately these attributes that are of concern because plastics like HDPE that become waste take very, very long to decompose. Some plastics fragment up into micro-particles that end up in the food chain with dire consequences for marine organisms and birds. Humankind must still unravel the risks that these micro-plastics pose and maybe only once we have come to the bottom of that, will we be more circumspect in the way we treat plastic products. Due to the reticulation of natural water via rivers and streams, a very large percentage of land-based plastic waste end up in the oceans, and that is reason for grave concern. The agricultural sector has a duty to not allow its plastic materials to become environmental pollutants and CropLife South Africa has taken plastic container management on as a major pollution prevention programme in the country.

Plastic waste: From scourge to valuable commodity

The plastic recycling industry in South Africa is one of the largest of its kind in the world. Collectively it offers employment and income for thousands of people who collect, sort, transport and recycle the different plastic waste streams. Apart from the jobs created by the plastic recycling sector, it also absorbs a vast amount of plastic waste and transforms that into other valuable items. The pesticide containers which are mostly HDPE are highly sought after by the recycling sector because it is very good quality plastic and can be used for many other things. The market demand for HDPE waste is nearly 200,000 tonnes per annum while the demand for polypropylene (PP) that comes from seed bags and some pesticide bags is over 75,000 tonnes per annum.

Products manufactured from recycled HDPE and PP include refuse bags, livestock feed bins, drinking troughs, very sturdy pallets, crates, decking, garden furniture, plastic toys like mini-scooters, irrigation pipes, vineyard supports, fencing materials, sheep pens and concrete fillers (large spheres to fill volume rather than fill the entire volume with concrete). Some decking materials (made from PP with 10% HDPE blended in) that were inspected by CropLife SA showed no signs of fatigue after fifteen years in the blazing sun, while irrigation pipes and conduits for optic fibres were tested by laboratories and found to be even stronger than pipes made from virgin plastic. It is even possible to manufacture a new pesticide container using at least 30% recycled HDPE materials.

Empty containers arrive at a recycler where they are checked for pesticide residues (yes, we do make sure all containers are triple-rinsed). Once satisfied that they are nominally clean, the containers go through an industrial scale shredder which chops the plastic up into small pieces or shreds. Next is a high temperature cleaning process to remove all residues of anything not plastic. Then the shreds go into a hopper that feeds the shreds into an extruder that melts the plastic and extrudes it into long plastic "spaghetti". At the end of the extruder awaits a sharp blade that cuts the "spaghetti" into small plastic chips. These chips may be used by the recycler to manufacture plastic commodities or supplied to other manufacturers for plastic bags for example.

Chemical analysis of commodities that are manufactured from the recycled HDPE containers proves that no detectable traces of pesticide residues are present in such items. It is thus perfectly safe.

There is no reason for empty pesticide containers to not be recycled. It is a pity that some farmers still bury and burn these empty containers while the recycling industry is begging for it. While it is illegal to bury or burn containers, it is also unethical because it leaves a legacy of soil pollution that will last for ages and pollutes the air with noxious fumes. Every citizen has a duty to prevent his or her negative impact on the environment and the least the generators of empty containers should do is to cleanse them properly and recycle them.



When is a container clean?

The HDPE pesticide containers are either neat HDPE or fluorinated inside to prevent chemicals penetrating the plastic. Soluble liquid formulations are usually packed in non-fluorinated containers while suspension concentrates, emulsion oil in water formulations and emulsifiable concentrates are packed in fluorinated containers. Whatever the container material is, is immaterial in terms of cleansing. CropLife SA follows the international guidelines for triple-rinsing because that protocol guarantees that 99.995% of the pesticide is rinsed from the container.

It is even true for PP seed bags; a simple but thorough rinse removes the pesticide residues very effectively so that the bag can be recycled.

Naturally though, an unrinsed container of whatever nature is a serious health risk for people and the environment. There are just too many incidents of people being poisoned when using an “empty” pesticide container for food or beverages. This does not mean that triple rinsed empty containers can be used for food or beverages.

The rationale is simple: it is bound to happen that amongst a batch of triple-rinsed empty containers, one may not be properly rinsed and it may just be the one that carries enough pesticide to poison and kill a family who uses it for their drinking water. It is simply not worth taking the risk.

The triple rinse protocol for HDPE containers is available on the CropLife SA website <https://croplife.co.za/TRPoster> and a similar protocol for PP seed and pesticide bags is available at <https://croplife.co.za/CleaningPolypropyleneBags>. Entering empty containers into the recycle chain

All the CropLife SA approved recyclers are listed under https://croplife.co.za/Collectors_Recyclers. Farmers can avail themselves of the service providers closest to their farms and contact them to arrange for triple-rinsed empty containers to be taken to their depots. Each load of triple-rinsed empty containers results in a certificate of adequate disposal being issued to the farmer so that it can be used by farmers for certification purposes like GlobalGAP audits or inspections by environmental authorities. The service rendered by the recyclers is free of charge; if farmers had to pay for disposing of the containers it would have cost them at least R22,000 per tonne.

Farmers can be assured that the CropLife SA approved recyclers do the right thing, follow the letter of the law, and transform the empty containers into other plastic products. Any farmer sending his or her triple-rinsed empty containers to the recyclers can claim to be a “good environmental citizen”.

Conclusions

The vast human population is slowly devouring the natural resources of the earth and spews out millions of tonnes of waste and pollutants every year. The least we can do from the agricultural sector is to turn some of our useable waste into valuable commodities. CropLife SA and its team of plastic recyclers develop a very effective and cost-effective system to collect and recycle triple-rinsed empty pesticide containers. Are you onboard?

Follow these instructions to a T

Dr. Gerhard Verdoorn
SA Grain
July 2020

There is a common misunderstanding about the directions for use of pesticides. Although they are often interpreted to be recommendations, they are instructions. This means that users must adhere to whatever is stated on the label.

All pesticide labels must conform to a particular format. A label consists of four main sections, namely the main panel or sales panel, warnings, precautions and directions for use. No one section is more important than the other, hence the user of the pesticide must fully read and understand all the sections.

Main or sales panel

This part of the label displays all the regulatory and technical details of the pesticide. It must include the following information:

- The trade name at the top of the main panel, printed in bold.
- Every product has a trade name. It sometimes reflects the active ingredient (such as Glyphosate 360SL) or it can simply be a name with no reference to the active ingredient (such as WeedForce 480SC).
- The registration number, which is a capital L followed by four digits and Act No. 36 of 1947. L refers to landbou as in landboumiddel, the Afrikaans name for an agricultural remedy. Every pesticide has a unique number, but it is possible for a registration holder to split a pesticide into a few different brands based on the targets. Such pesticides will then all have the same registration number with very similar trade names, such as WeedForce for Bluegums, WeedForce for Wattles and WeedForce for Lantana. In such cases the pesticide has one registration for one formulation and different targets. The registration holder is allowed to use the slightly different trade names after approval by the Registrar of Act No. 36 of 1947.
- The general purpose or description of the pesticide is just below the registration details, such as 'A suspension concentrate insecticide for the control of thrips in citrus and various other crops as described'.
- A resistance group code is given as a guide to managing the resistance of the pests, pathogens or weeds against the active ingredient(s) in the formulation.
- Thereafter the contents are displayed, meaning the active ingredients, their chemical or biological category and their concentrations in the formulation.
- The name, address and telephone number of the registration holder must be displayed prominently. This is often accompanied by the details of the marketing partner. The trademark (insignia of the registration holder or marketing partner) is also printed close to the registration holder's details.
- Emergency telephone numbers and technical advice numbers are usually placed below the registration holder details.
- The UN number of the product is just above the colour band. This number is a classification code required for the marine and land shipment (transport) of hazardous substances and is used by transporters (conveyors) to determine load quantities and combinations.
- Pack size (quantity in terms of mass or volume) is printed close to the bottom of the main panel.
- The hazard classification according to the World Health Organisation's criteria (colour band and hazard symbol, if any) and safety pictograms are at the bottom of the label. Pictograms are included in the colour band.
- Other information may also be displayed on the main panel, for example organic certification.
- Artwork is not a necessity, but is often included as part of the main panel to draw the user's attention to the crops or the pest that may be controlled by the pesticide.
- The date of manufacture (or expiry date if required) and batch number must also be displayed, but on most containers this information is printed separately on the bottom of the container or on a sticker affixed to the main panel of the label.

Side panels

The side panels are divided into two sections – one that contains the compulsory warnings and precautions and the other that offers all the directions for use.

Warnings

All labels carry safety warnings that must be adhered to. These include:

- Safe storage behind lock and key and keeping pesticides out of reach of children and animals.
- Toxicity for mammals, birds, bees and aquatic organisms.
- Possible health effects like eye irritation, dermal irritation or very toxic if swallowed.
- Disclaimer about the product's efficacy and compatibility with crops. This disclaimer is required because the registration holder has no control over the end-point application. If the pesticide is not applied strictly according to the label instructions, the registration holder is exempted from any claims that may arise from poor performance, harmful effects or crop damage.
- Withholding periods (preharvest intervals). One of the critical parts of warnings for crop producers is the subsection of withholding periods or preharvest intervals. It lists every crop for which the product is registered and the withholding period for such crops.
- Re-entry period. The label will offer guidance on when it is safe for people to enter the treated area and what safety precautions need to be implemented as such.

Precautions

Precautions include many different themes, namely:

- Personal protective clothing and equipment that may be required when working with or applying the pesticide.
- Notes on personal protection such as avoiding inhaling spray mist or dermal contact.
- Personal sanitation after use, like washing the hands and face or showering.
- Prevention of crop damage or environmental pollution by spray drift.
- Advice in the event of exposure that includes guidance to medical specialists for treatment of patients that were exposed to the pesticide.
- Disposal of empty containers that includes guidance on triple-rinsing, puncturing, recycling and refraining from burning or burying empty containers.
- Special mixing instructions that guide the user on how to prepare the spray mixture. This is often required for pesticides that must be mixed with other pesticides, such as mancozeb with a strobilurin for citrus black spot or a special adjuvant that is required for the optimal functioning of the pesticide. It may also provide guidance on the pH of the water that is used for mixing.
- Resistance management is a very important piece of information that is too often ignored. It provides guidance on the maximum number of applications per season, spray intervals and switching to other modes of action to prevent resistance progression.
- Aerial application instructions that may only be on the label if the pesticide is registered for aerial application. These instructions are not only for the producer, but also for the aerial applicator (pilot). It gives parameters under which the aerial application must be done as well as guidance on droplet size, maximum wind speed and avoiding temperature inversions.
- Prohibition notices are applicable to certain pesticides that may not be applied in certain areas. For example, 2,4-D esters may not be applied in certain provinces.

Directions for use or application instructions

Regulation No. R1716 of 26 July 1991 stipulates that label instructions must be adhered to. A pesticide may only be used for the purpose and in the manner instructed (not recommended) by the label.

Directions for use may have special instructions for some crops, followed by the table that lists the targets (plant pests, diseases or weeds), the dosage and associated mixing and application instructions.

Dosage is a challenge for some people because the instructions for pesticides used at farm level are mostly a quantity per hectare instead of a quantity per volume of spray water. This means that some calculations are required to determine how much of the pesticide must go into the spray tank and what surface area can be treated with the volume of spray mixture. In some cases, the directions for use will instruct the user to use a minimum volume of spray water per hectare; this will obviously be used in calculating the quantity of pesticide that goes into the spray tank.

Compatibility

Most pesticide labels have concluding statements about the compatibility of the pesticide with other pesticides. The registration holder cannot guarantee that the pesticide will function as expected if it is mixed with other pesticides.

Conclusion

The pesticide label is the only legal document of the product. No other information offered verbally, electronically or in writing overrides the label. Adhere to label instructions in order to get the best out of any pesticide.

Beter Chemie met Rekenaars

Kunsmatige intelligensie (KI) is vandag meer as net wetenskapsfiksie. Dit het 'n kragtige bondgenoot in die ontwikkeling van landboutegnologie geword, waarvan landbouchemikalieë geen uitsondering is nie.

Elriza Theron
SA Graan
Augustus 2020

KI is reeds sedert die 1950's 'n navorsingsonderwerp en alhoewel daar nog nie heeltemal tot by selfdenkende robotte gevorder is nie, het ongelooflike ontwikkeling in hierdie veld plaasgevind. Om te weet hoe dié tegnologie die gewasbeskermingsbedryf help, moet 'n mens verstaan hoe nuwe produkte ontstaan.

Vir nuwe aktiewe bestanddele en formulerings om die mark te tref, is 'n ongelooflik komplekse proses. Om 'n aktiewe bestanddeel te ontwikkel, verg dat die molekule – of groep molekules – presies vir 'n spesifieke doel ontwerp moet word. Dit word dus selde, indien ooit, per toeval ontdek.

Daarbenewens moet dit só geformuleer word dat die aktiewe bestanddeel se doeltreffendheid en veiligheid verbeter word en die gewasbeskermingsproduk se toksisiteit of onbestendigheid verminder word. Dit is nie net 'n baie lang proses nie, maar ook besonder duur. Dit kos die gewasbeskermingsbedryf ongeveer \$50 per minuut vir tot elf jaar net om 'n nuwe plaagdoder op die mark te bring.

Plaagdoderontwikkeling kry hupstoot

Rekenaars kan help om die tyd en koste van plaagdoderontwikkeling te verminder, asook om plaagdoeders veiliger te maak. Oor die jare het wetenskaplikes daarin geslaag om die hoeveelheid plaagdoder wat nodig is om 'n spesifieke probleem op te los, dramaties te verminder – van meer as 10 kg/ha in die 1960's tot minder as 10 g/ha in sekere gevalle. Rekenaars kan nog verder hiermee help deur honderde duisende chemiese strukture wat 'n moontlike gewasbeskermingsproduk kan opmaak met haarfyn akkuraatheid te ontwerp, waarna organiese chemici sulke molekules sintetiseer en aan laboratoriumproewe onderwerp.

In die verlede moes wetenskaplikes molekules met plastiekmodelle bou en deur 'n tydrowende proses probeer bepaal hoe elke molekule met 'n teikenproteïen gaan reageer. Deesdae kan chemici egter rekenaars en KI gebruik om 'n reeks simulاسies uit te voer.

Tien jaar gelede was slegs 40 miljard strukture in totaliteit gesimuleer, maar danksy rekenaars het hierdie getal tot 140 miljard toegeneem, soos wat wetenskaplikes vir optimale strukture soek.

Hierdie simulاسies gee navorsers insig in hoe 'n plaagdoder met teiken- of nieteikenpeste gaan reageer en hoe dit die omgewing kan beïnvloed.

Reusespronge vooruit

Onthou hoe verbaas die wêreld in 1996 was toe 'n rekenaar, genaamd Deep Blue, die wêreld-skaakkampioen, Garry Kasparov, in 'n spel gewen het? Deep Blue kon dit regkry as gevolg van sy vermoë om honderde duisende moontlike kombinasies te bereken en te analiseer om so-doende die beste skuif te kies.

Die gebruik van rekenaars vir chemie volg 'n soortgelyke proses. Die skaakspelvoorval het reeds 24 jaar gelede plaasgevind – dink net wat vandag bereik kan word! Rekenaars is aansienlik meer akkuraat daarmee om te let op dinge wat andersins in proewe of deur die menslike oog gemis kan word. En soos wat die tegnologie vooruitgaan, word die moontlikhede vir vordering ook meer.

Sommige van hierdie verbeterings sluit 'n verdere vermindering in van die hoeveelheid en toksisiteit van aktiewe bestanddele wat benodig word, sowel as die bekamping van weerstand en die sekerheid dat die ontwerp van die plaagdoderinteraksie so akkuraat en doeltreffend as moontlik is.

Hierdie is net een voorbeeld van hoe die gewasbeskermingsbedryf innovering gebruik om produsente te help met die toenemende druk van gewasplae en terselfdertyd sosiale verwagtinge tegemoet kom deur veilige produkte vir menslike gesondheid en die omgewing te verseker.

Dr. Gerhard Verdoorn
Pula Mvula
September 2020

Guidelines for Setting Up and Managing Pesticide Stores on Farms

Every farm in South Africa uses pesticides, be they synthetic, natural, biological or even organic. These products, known as agricultural remedies in the Fertilisers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act no 36 of 1947), are products that may pose a certain hazard to people and the environment. However, it is possible to manage the risk posed by pesticides by putting the correct management measures in place.

Fruit and vegetable export producers are already subject to the requirements of the certification agency GlobalGAP, not only for the responsible use of pesticides, but also for their safe storage on the farm. Although few grain producers export directly, it is sensible to follow certain guidelines for safely storing pesticides in order to ultimately reduce the risk.

Location

It is advisable to build the pesticide store far away from any water sources like streams, rivers, dams, pans and boreholes. It should also be away from any dwellings, milking parlours, kraals or pens.

A good place is next to the shed where the implements and tractors are kept. Build the pesticide store on the eastern side of the tractor shed, so that the afternoon sun is blocked. This will keep the store reasonably cool.

Construction

Use strong bricks or concrete when building the store, with a sealed roof that does not cause the store to overheat.

Construction material should preferably not be flammable. The building should be well ventilated – extraction fans are therefore important and should preferably be mounted in the ceiling. Floors should be poured from concrete (at least 75 mm thick), levelled and finished smoothly to prevent any spilt pesticides from running into grooves or being absorbed by the concrete.

Doors and window frames should be made of steel and there should be a sturdy, steel security gate at the entrance. A building protected like this will also curb theft.

A concrete driveway, approximately 5 m wide, will facilitate access. It is advisable to pour a 500 mm wide concrete path around the store and to finish it off with a two-brick high retaining wall. In the event of large spillages, it will be contained by the wall.

Warnings

A large warning sign of at least 750 mm x 750 mm should be fixed next to the door of the store and should include the following items:

- Skull with crossbones in red, together with the word Hazardous in thick red letters.
- Access only for authorised persons in thick black letters.
- Pesticide store in thick red letters.
- Smoking, eating and drinking prohibited in thick black letters.
- Protective clothing in thick black letters, followed by the items required, like rubber boots, rubber gloves, full overall, face mask and head cover.
- Emergency numbers in thick red letters, followed by:
 - Farm owner's name and telephone number
 - Manager's name and telephone number
 - Fire department's name and telephone number
 - Police station's name and phone number
 - Hospital's name and telephone number
 - Poison information centre's name and telephone number
- This sign should also be posted on one other outside wall.

Emergency equipment and clean-up equipment for spillages

Emergency equipment

Sufficient firefighting equipment, namely dry-material fire extinguishers and sand, should be available. There should also be a standard first aid kit in the store, preferably stored in an airtight plastic case, to prevent contamination by the pesticide fumes.

An eye rinse bowl with clean water should be available. It can be a normal plastic drum with a soft plastic bottle to spray water in the eyes.

Clean-up equipment for spillages

A 210 ℓ open-mouthed plastic drum with a lid, large plastic bags, a plastic or stainless-steel spade, dustpan, plastic broom, vermiculite and sawdust are necessary to clean up spillages.

The vermiculite or sawdust is sprinkled over the spilled material and left for half an hour to absorb it, after which it is picked up with the broom, spade and dustpan and disposed of in a plastic bag.

Seal the bag with strong tape and store it until it can be removed by a company specialising in the management of hazardous waste to be destroyed.

See www.croplife.co.za under Waste Management for the contact details of these companies.

Warning signage

The following signage should be put up inside the store:

- Fire equipment
- Protective clothing to be worn
- Escape routes
- Eye rinse bowl
- Eating, drinking and smoking prohibited
- These types of signs are available at co-operatives and hardware stores.



Clear warning signs should be visible at the pesticide store.

Insecticides and fungicides should be stored above herbicides. All red-band products should be stored behind lock and key. Flammable products should be separated from non-flammable products and stored separately. Ensure that the labels on containers are not damaged and always keep an updated file with a copy of the label of every product.

Clean water should be available at the store and a safety shower should preferably be built outside. All protective clothing, including the respirators and filters used, should be kept in an airtight plastic trunk in the store – it can be the same one as for the first aid kit. The store should always be locked and the key kept by only one responsible person.

Record-keeping

A stock book should be maintained and all incoming stock must be documented, and the stock used should be indicated. Follow the principle of using the oldest stock first and only use the newest products once the old stock has been finished.

Virtual Responsible Use Training

When the national lockdown was introduced in South Africa due to the Covid-19 pandemic, the CropLife SA team had to rethink how they were able to service their members and the agricultural community without any physical interaction.

Elriza Theron
CLAME Newsletter
August 2020

It became apparent that there were various ways to do this, which was sometimes even better than the traditional way. The team observed a significant increase in the attendance of industry meetings and forums, which prompted them to investigate remote training opportunities, specifically for the responsible use of pesticides. With the assistance of some members, these opportunities were quickly identified and turned out to be very successful.

One example was the online training provided by CropLife SA in conjunction with Nexus Ag and UPL to over 350 attendees comprising of farm workers, spray operators, farm managers and storage managers of export farmers from the lower Orange River region.

The training was provided in two sessions and covered topics such as the dangers and risks associated with pesticides, the importance of personal protective clothing, safe and correct handling and application of pesticides, legal requirements for pesticide stores on farms, triple rinsing and recycling of empty pesticide containers, the safe transport of hazardous chemicals and the correct protocol to follow in case of spillage.

In another instance, training was provided to approximately 20 crop advisers from Inteligro about the importance of stewardship and covered topics ranging from container management, regulatory requirements, label instructions and responsible use, to the safe transport and storage of hazardous chemicals.

Another session for Inteligro involved training for approximately 35 farmers in managing Red-billed Quelea as well as an overview of the importance of container management.

Other sessions included training for the technical team of Meridian Agritech in stewardship and the regulatory environment, as well as a presentation to approximately 200 members of the South African Association for Food Science and Technology about food safety in relation to pesticides, which was very well received.

These sessions are an example of the industry's commitment to promoting practices that encourage the responsible, safe and efficient use of its products and although the restrictions imposed by the lockdown might have initially slowed things down, it certainly didn't stop the CropLife SA team from delivering its services to the agricultural community.

Aktiewes: Van A, B, C tot 1, 2, 3

Elbie Hugo
Voorsitter: HRAC
SA Graan September 2020

Die Herbicide Resistance Action Committee (HRAC SA) bestaan uit verteenwoordigers van alle chemiese maatskappye in Suid-Afrika en skakel in onder HRAC-Global.

Die oorkoepelende doelwit van HRAC-Global is om opbrengste en kwaliteit van alle gewasse te beskerm teen die opbou van onkruid-doderweerstand.

HRAC-SA werk nou saam met CropLife SA om onkruid-doderweerstand in Suid-Afrika te monitor, aan te meld en te bestuur. HRAC-SA en verskeie rolspelers het byvoorbeeld onlangs daadwerklik opgetree om die situasie met die gevreesde onkruid, Palmer amarant (*Amaranthus palmeri*), in die Noord-Kaap te takel, beheerprogramme te ondersoek en die gemeenskap te ondersteun.

Onkruid-doderweerstand is egter 'n voortdurende probleem wat dopgehou en bestuur moet word. Dit is noodsaaklik dat alle relevante rolspelers betrokke raak by 'n organisasie soos HRAC-SA.

Daar is geweldig baie inligting beskikbaar op die HRAC-Global webtuiste (www.hracglobal.com) oor die voorkoming en bestuur van weerstandbiedende onkruid. 'n Selfoontoep (app) met al die nodige inligting oor die verskillende onkruid-dodergroepe kan van Play Store of iStore afgelaai word.

Om bewus te wees van hierdie inligting kan produsente en agente help om onkruid-dodergroepe af te wissel en sodoende nie elke jaar dieselfde onkruid-dodergroep op dieselfde land te spuit nie. Net soos wisselbou voordelig is vir gewasproduksie, is die afwisseling van onkruid-dodergroepe ook noodsaaklik om die opbou van weerstand deur sekere onkruid te vertraag.

Die bekende plakkaat, wat meganisme van werking (Mode of Action of MoA) aandui, is laas in 2010 hersien en dit was nodig om die groeperings van sekere groepe te herklassifiseer en nuwe aktiewe bestanddele by te sit.

Dit het 'n werkgroep bestaande uit verskeie tegniese spesialiste in onkruidonderchemie, onkruidwetenskaplikes, plantfisioloë en biochemici, amper twee jaar geneem om die taak te voltooi. Die mees betekenisvolle verandering wat aan die 2010-plakkaat gemaak is, is die volgende (Figuur 1):

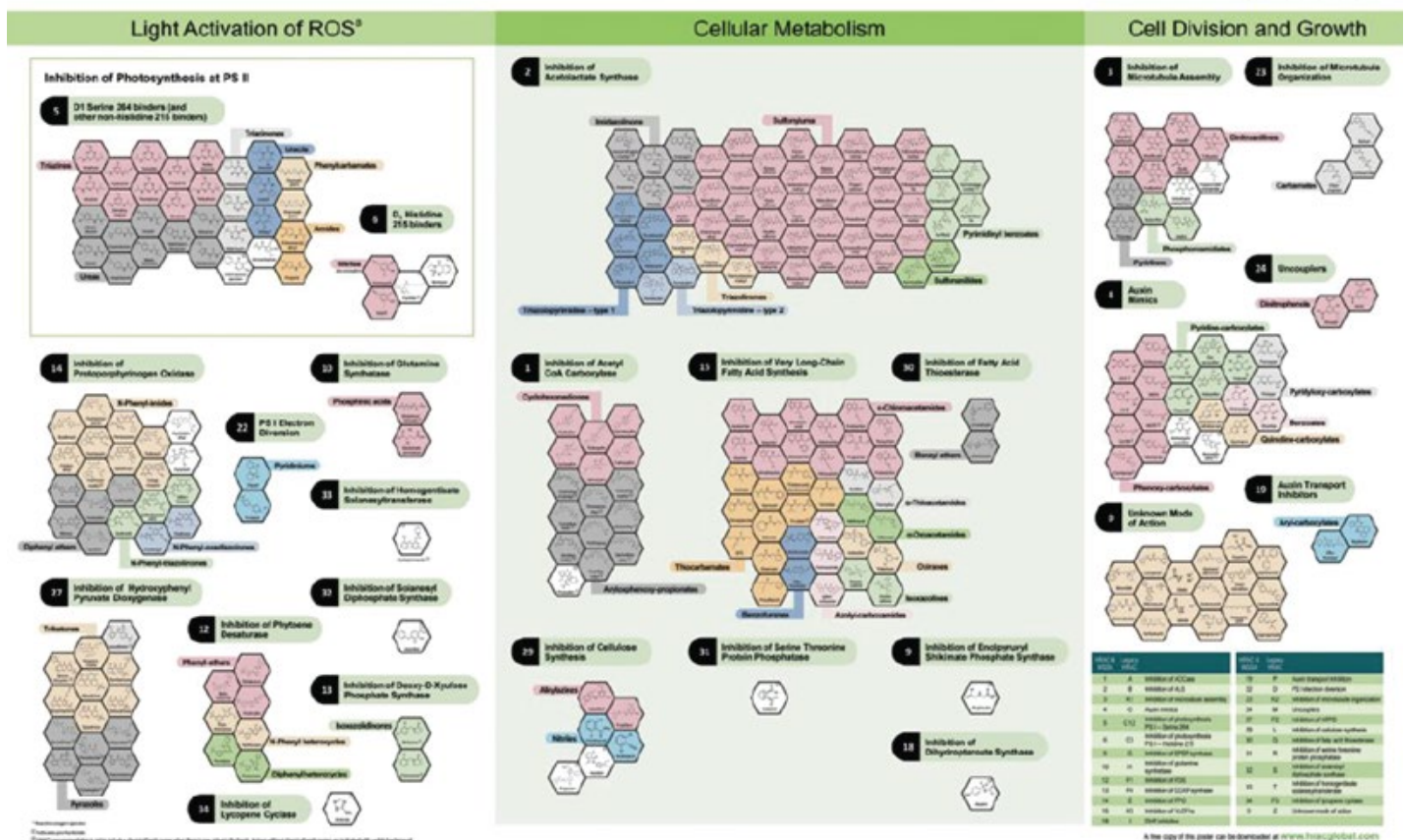
- Daar is oorgeskakel vanaf 'n alfabetiese groepering na 'n numeriese groepering.
- Vier nuwe of hergeklassifiseerde groepe is bygevoeg.
- 14 nuwe aktiewe bestanddele is bygevoeg.

Volledige inligting oor al die veranderinge is verkrygbaar op HRAC-Global se webtuiste. HRAC-SA gaan met die hulp en samewerking van CropLife SA met 'n bewusmakingsveldtog rakende die nuwe MoA plakkaat begin.

Die komitee sal ook in gesprek tree met die relevante agrochemiese maatskappye asook die Registrateur se kantoor (Departement van Landbou, Grondhervorming en Landelike Ontwikkeling) om die oorskakeling van alfabetiese letters na nommers te akkommodeer op alle onkruidonderetikette.

Hierdie is 'n proses wat oor tyd ingefaseer gaan word om ook internasionaal in ooreenstemming te kom met alle onkruidondergroepe (MoA) en die korrekte groepering van aktiewe bestanddele.

HRAC Mode of Action Classification 2020



Figuur 1: Die nuwe, hersiende plakkaat wat meganisme van werking van onkruidodders aandui.

Gratitude for Committed Service to HRAC

Rod Bell
Chief Executive Officer
CropLife SA

After a few years of serving as chairperson of the CropLife SA Herbicide Resistance Action Committee, Elbe Hugo of Syngenta has announced that due to her work commitments, she will no

longer be able to dedicate the required amount of time to being the HRAC chairperson and will be stepping down from the role. During the HRAC virtual meeting on Friday 18 September 2020, the HRAC acknowledged the great part Elbe has played in getting the HRAC to where it is today.

On behalf of the CropLife SA team and all CropLife SA members, I would like to extend our sincere thanks to Elbe for her dedication to HRAC these past few years; it has been Elbe's commitment that has created the momentum the HRAC currently enjoys.

Elbe's replacement will be announced in the next newsletter.

We're here to help

If you require assistance, would like to become a member, or if you have general feedback, we would love to hear from you. Please contact any member of our team:

CropLife SA	Office	+27 (0)87 980 5163	info@croplife.co.za
Rodney Bell	Chief Executive Officer	+27 (0)66 273 6027	rod@croplife.co.za
Gerhard Verdoorn	Operations and Stewardship Manager	+27 (0)82 446 8946	gerhard@croplife.co.za
Fikile Nzuza	Regulatory and Government Liaison	+27 (0)71 383 2391	fikile@croplife.co.za
Elriza Theron	Marketing and Communications Manager	+27 (0)72 443 3067	elriza@croplife.co.za
Nadia van Niekerk	Financial Administrator	+27 (0)72 940 5591	nadia@croplife.co.za
Chana-Lee White	Agri-Intel Manager	+27 (0)72 298 9389	chana@croplife.co.za
Luigia Steyn	Agri-Intel MRL Consultant	+27 (0)60 508 6369	luigia@croplife.co.za
Chantel Arendse	Lead: Plant Biotechnology	+27 (0)82 992 0952	chantel@croplife.co.za
Susan Ramaila	Office Assistant	+27 (0)76 063 6629	susan@croplife.co.za

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