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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

As we get towards the end of 2019, a festive welcome to all readers of the CropLife SA Crop Circular.

The unpredictable climatic conditions we have been experiencing in our country these past months have created some uncertainty and anxiety in the agricultural sector of late.

The crippling drought continues to have devastating impacts on humans, livestock, wildlife and the environment. Our thoughts are with all those struggling under these terrible conditions at this time.



Rod Bell
Chief Executive Officer
CropLife South Africa

Data published by the Agricultural Business Chamber (AgBiz) vividly reflects the huge impact the drought has had on agricultural production and the export of agricultural commodities in 2019. During the 2018/19 growing season, the major summer crops of soybeans, sunflower and maize saw a production reduction of 24%, 21 % & 10% respectively year-on-year. Lower exports of wine, fresh fruits and wool resulted in an 8% year-on-year decline in agricultural exports for the first 3 quarters of 2019 alone.

However, as the year draws to an end, it is worth noting that the vast majority of CropLife SA members continue to be positive about the prospects for the rest of the growing season in the summer rainfall region, and are looking forward to what is hoped is a 'normal' season for the winter rainfall region.

We have seen a number of new member companies applying to join the CropLife SA family in recent months and we welcome our new members and look forward to working with you, in conjunction with our legacy members, in 2020.

I look forward to receiving your continued feedback on how your association is serving your needs, whether it be constructive criticism or compliments. This is your association and the CropLife SA Team is here to assist your business activities. Sincere thanks to you all for your support of the association during 2019.

On behalf of CropLife SA, I extend to you and your families our very best wishes for a safe festive period and a healthy and successful 2020 for you all.

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2019 Winners of the Agricultural Writers SA Awards



South Africa's top contributors to agriculture were recognised at the Agricultural Writers SA Awards on 15 November in Pretoria. The event gives recognition to the work of those that seek to elevate food security and rural economies. In addition, members of the Agricultural Writers SA were honoured for their role in communicating issues of interest to the agricultural sector and aiding in responsible communication of the sector.

CropLife South Africa is proud to be the sponsor of the first-time award for best crop protection article. Lloyd Phillips won the award with his article *How to win the fight against the eldana sugar cane pest* published in Farmer's Weekly.

"It's an honour to be a part of this prestigious event and to be associated with the Agricultural Writers of South Africa. Our associations have something very significant in common, namely responsibility, which is why this award is so important to us. As we strive to ensure the responsible use of crop protection products in our industry, so we would like to applaud those journalists who go above and beyond to ensure that factual, relevant and valuable information is communicated responsibly to their respective audiences", says CropLife SA CEO, Rod Bell.

Other journalistic and communicator award winners included:

FNB Communicator of the Year Award: Werner Scholtz

BKB Agricultural Photographer of the Year: Charl van Rooyen

BKB Agricultural Photo of the Year: Johan Norval

Bayer Technical Article Award: Petru Fourie

Santam Agriculture Farmer of the Year Best Coverage Award: Johan van der Merwe

Nick Serfontein from the Free State was named Farmer of the Year, Buks Nel from the Western Cape as Agriculturalist of the Year and Dirk Louw from the Northern Cape the New Entrant to Commercial Agriculture Award winner.

In addition, Agbiz CEO John Purchase received a special award for Agricultural Personality of the Year, a well-deserved accolade for his dedication and service to the agricultural sector.

Speaking at the gala event, Agricultural Writers SA chairperson Liza Bohlmann congratulated the winners and said that the award recipients were not only recognised for excellence in their respective fields, but for their outstanding leadership in agriculture. "We are proud to be associated with you and thank you for your dedication to this higher calling that is agriculture."

Minister Didiza Requests Time to Deal with Labour Matters in the Department

**Released by DAFF
7 December 219**

The Minister of Agriculture, Land Reform and Rural Development, Ms Thokozile Didiza has in the past few weeks been inundated with a lot of media inquiries and interest on some of the labour matters within the Department of Agriculture, Land Reform and Rural Development.

The Minister has noted with grave concern that some of the reports have been quoted or referenced in the line of questioning by those who are interested in these labour matters. It may be important to remember that some of these issues that are being raised are legacies of the fifth administration and some of the investigations have not been concluded and continued through the sixth administration.

Some of these matters are being investigated by multiple agencies of State at the same time and have still not yet been finalised. The Minister and the Department are appealing to the media community to allow them time and space to address these matters outside the media as they involve various people and their respective families. Once all these processes have been concluded, the Minister will make pronouncements at the appropriate time.

Die Kooperasie Humansdorp, a Bright Light in the Eastern Cape Agricultural Development

The Cooperative, better known as Die Kooperasie Humansdorp, recently hosted two events in Jeffreys Bay and East London to flag their agricultural development initiatives in the Eastern Cape. The events were attended by a variety of farmers from all walks of life and different cultural groups.

**By Gerhard Verdoorn
Operations and Stewardship
Manager - CropLife SA**

What struck me were the sheer numbers: 74 development projects with literally thousands of beneficiaries, and the beauty of it is that none of the projects were handouts. They were all capacity building, skills transfer, financial backing, infrastructure development and business skills development to unlock the vast agriculture potential of the Eastern Cape.

Community leaders presented their business cases and the golden thread throughout was that they all cherished the support of Die Kooperasie. It was to be expected that business for these development projects was not always rosy and presenters were very honest about the challenges they faced, as well as the hurdles they had to overcome. Yet, the general trend was very positive with growth in agricultural production and income to the projects.

Unfortunately, the lack of support from government was mentioned by most of the presenters. Another thing that struck me was the synergy between different cultural groups working together with very strong partnerships to boost the province's agricultural sector. It is seldom that one gets such a "high" from an event, especially in the current economic and political turmoil, but the event was uplifting and encouraging.

The Eastern Cape not only has agricultural land that is waiting to be utilised, it has a vast number of people that are enthusiastic and keen to develop the agricultural potential and Die Kooperasie as the main catalyst to drive this development.

During the tea break I spoke to a couple of the farmers and also eavesdropped on some conversations. I heard English, Afrikaans, IsiXhosa and some of the San dialects amongst the people who shared their passion for agriculture. The vibe was positive, if not excited, and made me think that the Eastern Cape is bound to have an agriculture explosion of note in the next few years. Well done Die Kooperasie for taking agriculture forward in the Eastern Cape.

Why People Believe the Craziest Things About Food

CropLife SA attended a talk hosted by the South African Association for Food Science and Technology (SAAFoST) on 6 December in Johannesburg. For those who don't know SAAFoST, they are a national association consisting of approximately 2 000 members who are concerned with advancing knowledge about food science and technology. The talk, by popular columnist of The Daily Maverick, Ivo Vegter, exposed some of the many misconceptions about food, including organic food, sugar and sugar taxes, the war on salt, veganism and genetic engineering, and delved into some of the ideological underpinnings that make these myths so hard to shift.

These relevant topics significantly affect our industry and it was refreshing to see someone who is not directly involved in agriculture take such a rational, logical stance based on facts. The issue of food is very emotional. As a primary need, it evokes fear when there is mention of a possible shortage, or if you don't understand the process from farm to table and what gets "done" to your food. The mere mention of the word "carcinogenic" is enough to make some people run at a speed of 120km/h to catch up with the proverbial bandwagon while the context is often ignored or misunderstood.

The challenge, however, remains to get the correct message to the general consumer who is not qualified nor interested in trying to make sense of pages and pages of scientific data, and they shouldn't be expected to either. Therefore, the actual challenge, and opportunity for that matter, is to move information from the domain of traditional science into the humanities, and that would be real, meaningful transparency.



"We calculate that 99.99% (by weight) of the pesticides in diet are chemicals that plants produce to defend themselves."

"Natural and synthetic chemicals are equally likely to be positive in animal cancer tests."

~ Dr. Bruce Ames, professor of Biochemistry and Molecular Biology Emeritus at the University of California, Berkeley, and a senior scientist at Children's Hospital Oakland Research Institute (CHORI)

Save the Date: PSCA Essential Elements Workshops

The Plant Science Consultants Association (PSCA) is planning to host various workshops covering elements relating to submissions for registration. The objective of these short workshops is to give insight into the components of each topic and to gauge the interest in specific aspects. Based on the response, the intention is to hold more detailed workshops that will address the specific needs of individuals and companies. If you are interested, kindly register your details on the PSCA website.

FIRST NOTICE

ESSENTIAL ELEMENTS WORKSHOPS

A series of targeted workshops focused on
important topics related to registration
submissions under Act 36 of 1947

27 FEB 2020

THE ESSENTIAL ELEMENTS OF: **RESIDUES**

Topics

- Protocols
- Field Trials
- Sampling
- Laboratory
- MRL's

26 MAR 2020

THE ESSENTIAL ELEMENTS OF: **GLP**

Topics

- Organization
- SOP's
- Procedures
- QA

28 MAY 2020

THE ESSENTIAL ELEMENTS OF: **QUALITY**

Topics

- Protocols
- Reports
- Dossiers

**WORKSHOP LOCATIONS: CENTURION & WESTERN CAPE
WORKSHOP TIMES: 1PM-3:30PM**

To register please visit
www.plantsconsultants.co.za

Enquiries: admin@plantconsultants.co.za



Gerbil Management Update

By Gerhard Verdoorn
Operations and Stewardship
Manager - CropLife SA

The gerbil population is never totally dormant. Just when farmers thought that the drought hammered the gerbils, the critters unleashed their legions in the Western Cape and some parts of the Gauteng and Mpumalanga highveld. Farmers are often unaware of the presence of these damaging rodents and realise too late that they have an infestation.

CropLife SA has the *Gerbil Management Plan* on its website under pest management and it offers farmers an integrated management programme with mechanical means, acute and chronic rodenticides, owls, raptors, trap crops, cultivation practices and water drum traps to get on top of the gerbil challenges. The plan lists all the registered rodenticides and how to apply them safely without posing a risk to non-target species.

Unfortunately, we learnt of unlawful manufacturing of rodent baits with concentrates and had to hand it over to the regulatory authorities. Specialist advice on gerbils is available from Gerhard Verdoorn on 082 446 8946.

Did you know?

CropLife SA donated previous versions of the AVCASA compendiums to DAFF in an effort to assist them with their extension programmes.

JHB Metro Tackles Aldicarb

Aldicarb, also known as “Two Step” on the streets of the metros like Johannesburg, Durban and Pretoria, is a real menace to society. The Registrar of Act No. 36 of 1947 banned the possession of this substance in 2016 in an attempt to prevent the unwanted poisoning of dogs by syndicates and street sales of small packets of aldicarb by vendors.

It is very toxic and dog owners can testify to the extreme risk this substance poses if syndicates target watch dogs with aldicarb laced baits. Murder and suicides are also fairly common with aldicarb. A recent exposé on Carte Blanche on the aldicarb crisis prompted Margo Weimers of the JHB metro to tackle the aldicarb issue. She drafted a Standard Operating Procedure for law enforcement officials like the police, metro police and health inspectors and requested input from Mr Maganye Masenya of the Directorate of Agriculture Inputs Control inspectorate and CropLife SA. Mr Masenya also offered training to JHB metro officials about the principles of Act No. 36 of 1947. Margo visited the CropLife SA head office in November to discuss a working relationship between her department and CropLife SA.

It was agreed that CropLife SA will collaborate with Margo and her team on the aldicarb issue and participate in their awareness campaign, offer training, offer registered small pack rodenticides in lieu of aldicarb sold as a rodenticides and assist wherever we can with this commendable effort on the part of the Johannesburg Metro. CropLife SA will make the safe and registered rodenticide campaign part of the Small Pack Forum’s mission for 2020.

CropLife SA Container Management Programme

This year was a challenge in the sense of expanding our network of approved container collectors and recyclers to cover all corners of the country and sadly, we failed. Provinces like Limpopo, North West, KwaZulu-Natal, Free State and some parts of the Northern Cape are without any collection points.

By Gerhard Verdoorn
Operations and Stewardship
Manager - CropLife SA



The number of collection points and recyclers for the end of November is 50 with 11 of those being operated by CropLife SA members namely Die Kooperasie (3), Laeveld Agrochem (2), InteliGro (1), Nexus (1), Silvix Forestry (1), Shiman (1), Wenkem (1) and Novon Retail (1). These CropLife SA members did very well with their collection and provided their clients with an essential service.

The estimated quantity of container material recovered this year is expected to be lower than in 2018 due to the drought. An attempt by CropLife SA to establish collection points at rural cooperative outlets has not been successful, but it is not off the books as yet.

The objective for 2020 is to expand the collection network to cover the entire country.

A positive development is that we will have at least five collection sites for pest control operators serviced by supplier companies. One of the biggest challenges we face is the burning of containers on farms, followed by our number two challenge of not triple rinsing the containers. CropLife SA has a few options to address this issue and will hopefully deploy mitigation measures for these challenges in 2020.

Basic Crop Protection Course

Another successful round of the Basic Crop Protection course concluded on 20 November, with 178 students enrolled for the course.

Registrations for the first course of 2020 will open on 6 January on the CropLife SA website and the course will commence on 3 February 2020. The fees for next year are R7 200 ex VAT per learner.

Please contact Nadia van Niekerk nadia@croplife.co.za for more information or visit the website www.croplife.co.za to download the training brochure.

How are Agricultural Remedy Labels Determined?

When reading an agricultural remedy label, one always sees the do's and don'ts of how to use it, but have you ever wondered how long it took or what had to be done to get the label to that point?

By Gerrit Badenhorst
Director: Marketing and Sales
Rolfes Agri

Firstly, what is the purpose of having a label: the main purpose of having a label is to know how the product can legally be used and also how it must not be used!

There are various guidelines set out in the regulations relating to agricultural remedies (Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act No.36 of 1947) on what needs to be on a label. The directions of use are where the actual uses are explained in detail.

These directions of use or label instructions may have certain information which can lead to a product working 100% or not at all. All these instructions have been determined by actual trials (registration, experimental or commercial) by the registration holder. It also comes from research and development of the active ingredient. This data, that is used to determine the label instructions, have been gathered and determined:

- over many years (2+)
- in varies climatic conditions
- at different levels of pest(s)/disease pressure
- on all the crops that it has been registered on

But these factors are only a few of the main factors that were used to get the effective control which contributes to the label instructions.

Label instructions include information such as:

- The site where the product can be used: Where the product has been tested and if the results were effective enough for control. For instance, open fields for grains, tunnels, greenhouses, orchards or nurseries.
- The pest(s) the product can control: On what pest, disease or weed was the product effective? At what lifecycle (stage) of the pest did it work? How big, high or at which growth stage must the weed be before it does not provide control anymore. If at any stage the product is not effective anymore, it must be listed on the instructions for use of the product. And this must be clear and unambiguous, "This product will only control until 6-leaf stage for herbicides" for example.
- The application method to be used: What method provided the control? Arial spray, tractor applications or backpack spray for instance. What water volume gave the best control? The instructions must give clear indications on these details.
- How much pesticide can be applied (rate of application) and how frequently: Of all the trials conducted, which rate gave the best control and how often must the product be applied? The maximum rate of application per year and per use must be listed.
- Are there any restrictions on the use of the product? Any factors that may influence the control must be listed and given in the instructions of use on the label. For example, climatic conditions, time of day or non-target pests or weeds.

- Restricted entry intervals after application must be listed: Determined after the trials and on the available active ingredient information.
- Pre-harvest intervals (PHIs) must be listed: This will be determined during the registration process of the active ingredient and residue trials.
- Any other safe, effective use of the product: Is there specific practices that must be followed before use? For example, is it necessary to premix the product with water before applying to the spray tank?

All this information must be contained on the label and all the information must be displayed in such a way that any person who is going to apply or use the product can understand the instructions and follow it easily without going for product use training.

Innovation in Agriculture

By Quintin Cross
Managing Director
Nulandis

Agriculture still has some way to go in achieving the UN's Sustainable Development Goals for 2030, which requires food systems that are inclusive, sustainable, efficient, nutritious and healthy.

The World Economic Forum^[1] suggests that in order to meet these targets, transformation of the food supply chain requires a holistic approach, one that engages all stakeholders and impacts on multiple facets of the market including improved policy making, increased investment, expanded infrastructure, farmer capacity-building, consumer behaviour change and improved resource management.

The pressures of climate change, an extra two billion people to feed by 2050, dwindling resources such as land and water, global poverty and youth unemployment, make for a market that is ripe for innovation.

The FOA defines agricultural innovation as “the process whereby individuals or organizations bring new or existing products, processes or ways of organization into use for the first time in a specific context in order to increase effectiveness, competitiveness, resilience to shocks or environmental sustainability and thereby contribute to food security and nutrition, economic development or sustainable natural resource management”^[1]

It is important to recognise that innovation should not be a fixation on digital technologies (the Fourth Industrial Revolution). Rather, it is a focus on identifying current practices throughout the agricultural supply chain that may need to change in order to improve efficiencies, assist in better farming practices and reduce the negative impact on the planet and its inhabitants. In this regard, innovation involves finding the best possible solution for any “struggles” that have been identified. Because of its power, we will often, however turn to digital disruptors as an enabler to the innovation initiative.

Technologies driven by the Fourth Industrial Revolution are disrupting many industries, bringing rapid and large-scale change^[2]. Agriculture and the food supply chain is not immune to these changes.

Our contention is that the key drivers for change in agriculture can be attributed to the following factors:

- Convergence of disparate scientific disciplines
- Greater consumer pressure and awareness
- Climate change and resource pressure
- Accessibility of information
- Introduction of digital technologies
- Increased legislation
- Increased global competition

The focus is now on sustainability

The first revolution in agriculture, came about 10,000 year ago with the domestication of plants and animals. With the second revolution of mechanisation in the 17th and 18th centuries, the hectares planted to crops increased greatly, increasing productivity and freeing up labour to support other emerging industries ^[3]. The green revolution of the mid-20th century increased crop yields and productivity further and created the impression of invincibility and control over nature. The focus is now turning towards sustainability, responsible use of precious resources and managing information to drive better decision making. Agriculture is once again experiencing an exponential growth in knowledge and innovation.

This drive for sustainability in agriculture stems from multiple causes, including:

- Concerns for the environment and unpredictability of the climate;
- Farming practices which have contributed to soil degradation, deforestation, pollution of our waterways and greenhouse gas emissions;
- A growing view, whether factual or otherwise, of dread diseases being linked to chemicals in our environment;
- The realisation that resources such as land and water are finite and yet population growth continues unabated;
- A plateauing of yields and commoditisation of crops as a result of increased production and the resultant margin squeeze, making farming less profitable.

Innovation is being driven by a knowledge explosion

University curricula, reinforced by industry structure, have tended to ignore the fact that growing crops involves an integrated, dynamic and biologically balanced system. Our industry, and our thinking has often been compartmentalised into the faculties of our teaching schools such as soil sciences, inorganic fertilisation, crop protection, plant physiology or soil biology. As a result, we increase the risk of overlooking the interdependencies and conflicts between these faculties that exist in nature. It can be argued that this is contributing to the “reactive treadmill” that agriculture often finds itself in.

Fortunately, knowledge and information are now much more freely accessible to everyone. This has increased the level of understanding amongst growers and consumers and has allowed them to challenge conventional wisdom held in the past. Every grower, consumer or small business is now able to conduct research, innovate and becoming more involved in the decision-making process.

According to Wikipedia ^[4], innovation can be viewed as the application of better solutions that meet new requirements, unarticulated needs, or existing market needs. Innovation, as discussed above, can be as simple as access to information resulting in better decision making, or as complex as deciphering the genetics which give certain plants disease or drought tolerance.

Wherever we look in the food supply chain today, we are seeing an exponential growth in new ideas and services which is unprecedented in the history of the industry, which Forbes_[5] likens to the internet explosion of the late 20th century.

The common denominator to this innovation explosion is our ability to process and store vast amounts of information – big data. The ability to manipulate data is starting to trump traditional expertise thus allowing other disciplines, industries and entrepreneurs to play a meaningful role in agriculture.

What are the unfulfilled needs of growers and consumers spurring innovation?

Most growers make decisions such as how much fertiliser to apply based on industry guidelines, soil analyses, experience and consultants. Similarly, chemical spray programmes are worked out in advance of the season based on historical pest pressure or as a response to a specific problem. Once a course of action is implemented the results are normally not seen until harvest time, by which time it could be too late to make corrections. This reactive, and sometimes outdated, approach is being challenged by growers who are striving for better productivity and margins while facing the pressure from consumers who are concerned about the long-term impact on the environment and food safety. How can information be better utilised to be more proactive and specific to the needs of the crops throughout the growing season?

Digital agriculture, according to the United Nations Global Compact_[6], is the use of new and advanced technologies, integrated into one system, to enable farmers and other stakeholders within the value chain to improve food production. Digital agriculture systems gather data more frequently and accurately, often combined with external sources so that real time data can be analysed and interpreted, allowing for timeous and informed decision making. These decisions can then be implemented with greater accuracy through robotics and advanced machinery, and farmers can get real-time feedback on the impact their actions. Technologies used include sensors, communication networks, unmanned aviation systems (UAS), artificial intelligence (AI), robotics and other advanced machinery and often draws on the principles of the Internet of Things_[6].

Walter et.al._[7], considers these developments to be the fourth revolution in agriculture and calls it smart farming. Smart farming, according to him, has the potential to:

- reduce the ecological footprint of farming through minimised or target-specific application of inputs, such as fertilizers and pesticides, minimising leaching problems as well as the emission of greenhouse gases;
- make agriculture more profitable for the farmer by decreasing resource inputs which saves the farmer money and labour;
- allow for cultivation of crops in an optimal way with site-specific weather forecasts, yield projections, and probability maps for diseases and disasters based on a dense network of weather and climate data;
- boost consumer acceptance by providing full traceability and confidence that the crops and livestock are cultivated in a responsible manner thereby bringing the grower into closer contact with the consumer;
- increase product quality (e.g. higher amounts of antioxidants and other secondary metabolites) and increasing the value of the produce.

In January 2018, the World Economic Forum presented a report in which they identified 12 emerging technologies that have the potential to improve many aspects of the food supply chain^[2]. These could change the demand for food through alternative proteins and personalised nutrition; promote efficiencies along the food value chain through mobile service delivery, big data, the Internet of Things and blockchain-enabled traceability; or create effective production systems, through water sensors, gene-editing and other scientific advances that could make agriculture more precise and high-yielding.

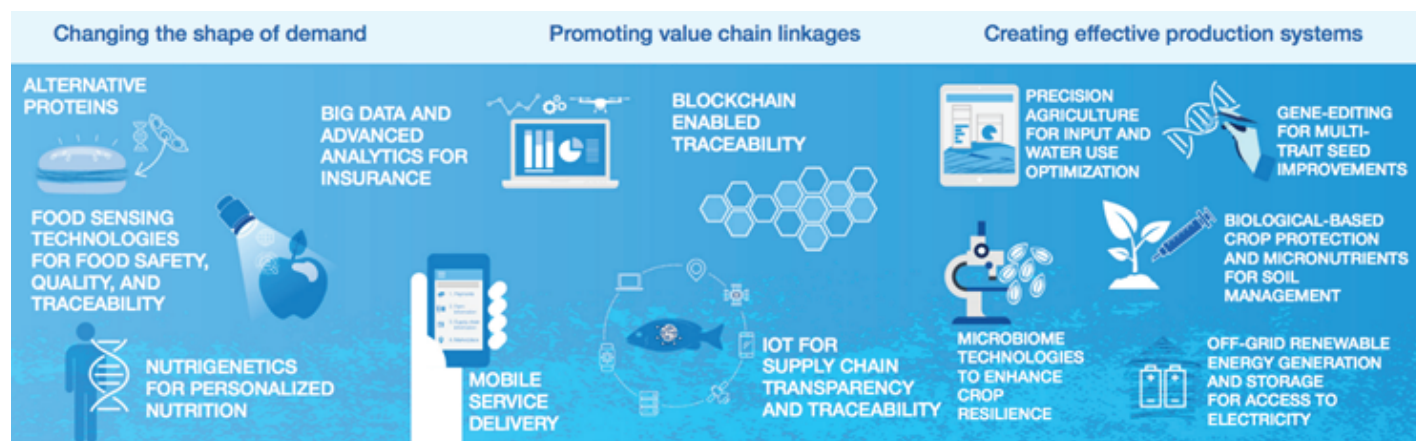


Image: The World Economic Forum ^[1].

Despite the growth in adoption of technology, the WEF^[2] found that there had only been \$14 billion in investments from 1,000 food systems-focused start-ups since 2010, whereas the healthcare sector had attracted \$145 billion in investment in 18,000 start-ups during the same time period.

Potential obstacles to digital transformation

Digital agriculture has the potential to make agriculture more productive, more consistent and to use time and resources more efficiently. This brings critical advantages for farmers and wider social benefits around the world. So, what are some of the factors holding us back in the rate of adoption? We present three potential factors, including culture; ownership of IP and cost as potential obstacles to rapid adoption which must be addressed early in the adoption cycle.

Digitalisation has changed the business environment profoundly. Agility, flexibility and the ability to change the culture and structure of organisations is important^[8]. Disruption happens only when someone is able to leverage technology to their advantage. Agile organisations make decisions with sufficient speed to stay ahead of the competition. It requires solid management practices which can align people and the corporate culture towards common goals. It is for this reason that acquiring tech start-ups or entrepreneurial businesses is sometimes more difficult than initially thought.

The more collaborative the sharing of information, the greater the potential benefit to all parties and societies in general^[6]. This however, is a double-edged sword as the benefits need to be weighed up against the questions that typically get asked such as who owns the data, how secure is the data and who carries the cost. Does the grower always want someone else to own his data even if it helps for better decision making?

A purely digital future (if not properly integrated), could also reinforce social and technological inequalities, creating economic barriers that prevent competition and potentially stop the benefits being available to developing markets. Ensuring that information is used in a positive way will be a challenge in an area that is not yet widely understood ^[6].

The third aspect is the cost of development and the initial capital outlay for the grower. Despite falling costs, the initial outlays could be seen as prohibitive, especially when case studies showing the long-term economic benefits are not readily available ^[6]. Building this data will take time and may discourage usage and investment when the return on investment is measured in social benefits rather than monetary terms.

Conclusions

Some basic rules for implementing innovation

With so much hype around innovation and digital transformation, we can easily fall prey to grasping at every idea and trying to be all things to all people. Perhaps a simple method of developing a relevant and effective innovation strategy involves the following steps:

1. Understand your purpose and the role you wish to play in the industry.
2. Clearly evaluate the customer's or grower's activity cycle and identify the key struggles or pain points they are experiencing.
3. Establish your capabilities to address these pain points.
4. Determine if the innovation can be monetised or to serve as an enabler thereto.
5. Develop a customer centric innovation solution through collaboration, investment or internal resourcing.

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Please take note of the following changes that have taken place in some of our forums over the last couple of months. Fanie van der Merwe (Corteva) has decided to hand over the reins to Margaret Reinecke (Bayer) to chair the Cape Forum. In addition, the Complementary Forum has newly elected Hannelie Marais (Regulatory Aspects) as chairperson and Hans Klink (Agro-Organics) as vice-chairperson. The Insecticide Resistance Action Committee elected Roleen la Grange (Villa Crop Protection) to take over from Des van Heerden (Syngenta) as chairperson and Tia Ferreira (Syngenta) to take over as secretary from Wilbri Vorster (Bayer). Congratulations on your new positions and a sincere thank you from CropLife SA to the predecessors for their hard work and commitment to the industry.

Guidelines Update

By Fikile Nzuza

Chairperson: Regulatory Forum

The following guidelines are currently under review with the Guidelines Revision Working Group:

Data and document requirements for registration of agricultural remedies: The working group is finalising the draft revision document which will be circulated to CropLife SA members for comments. This will take place by the end of December and comments will be accepted until the end of January. Thereafter, the document will be finalised for presentation to the Registrar, which we expect to take place around February 2020.

Residue study requirements for registration of agricultural remedies: The working group completed the draft revision of the guidelines which were circulated to CropLife SA members for comment. By the end of January 2020, the working group will finalise the document, considering the comments received, and this will be presented to the Registrar for approval and publication.

Next, the working group plans to work on the guidelines for herbicide trials, minor crops and the emergency registration protocol.

Seed Treatment

By Simon Lowe

Chairperson: Seed Treatment Forum

The seed treatment forum, or working group as it was known, had one primary objective. And this was to finalise and publish the seed treatment registration guidelines. The guidelines had been in a draft version for a number of years and it became pertinent for it to be finalised.

After numerous consultations with officials from Act 36, as well as various role players within the seed industry, a workable version was finalised and published in May 2019. A special thanks to SANSOR members, SABO members, seed treatment product manufacturers, as well as Mr. Thilivhali Nepfumbada who provided invaluable insights during the writing of the guidelines.

In an attempt to promote effective product development, good scientific and logical thought processes were employed during the robust discussion. This resulted in a guideline which hopefully provides clarity and concise guidance on the efficacy and residue data required for a successful seed treatment registration.

As seed treatment forms part of the whole agricultural product range, the key aspect is to always read this guideline in conjunction with all other relevant guidelines and never in isolation.

The deadline for the phasing out of inert ingredients of toxicological concern is 1 August 2020. Members are reminded to amend their registered products accordingly.

IRAC SA

By Roleen le Grange
Chairperson: IRAC SA

2019 was a busy year for IRAC South Africa with local conditions conducive to exceptional pest pressures and potential resistance issues.

Since its introduction into the country in early 2017, the fall armyworm (FAW) has been keeping stakeholders on their toes with most implemented measures not achieving the desired control. In collaboration with North West University, several research projects were initiated to investigate potential resistance of the pest to a variety of active ingredients, formulations, application methods and even Bt maize cultivars, which were presented to members via the respective student investigators during the last meeting of the year. Further, IRAC drafted a resistance management programme for the control of FAW in conventional maize, with a similar document envisaged for sweetcorn, and provided regional training to growers in other African countries.

IRAC also held several information campaigns and training platforms, as well as for growers and workers in the fast-growing macadamia industry which is experiencing ineffective control of pests due to bad agricultural practices (e.g. misuse of pyrethroids, large trees resulting in ineffective coverage, off-label aerial applications). Furthermore, new pests on macadamias, the macadamia felted coccid and the polyphagous shot hole borer, for which no chemical products are yet registered, are foreseen to become problematic pests in the future, the latter also for other similar crops such as avocados and pecan nuts.

Further pest issues discussed and addressed by IRAC SA during 2019 include whiteflies on potatoes and tomatoes, potato tuber moths and aphid transmitted

viruses on potatoes, poor cutworm control with pyrethroids in row crops, yellow sugarcane aphid population explosions, thrips on avocados and macadamias and semi looper infestations on Acacia trees.

New IRAC SA collaborations include working closely with the malaria vector control subcommittee, who is experiencing problems with limited chemicals at their disposal and poor application procedures.

More than 20 different entities were represented at the three IRAC SA meetings held in 2019, including representatives from chemical manufacturers and distributors, grower groups, government groups and universities.

Pesticide Application

By Gerrit Jansen van Vuuren
Chairperson: Pesticide Application Forum

The Pesticide Application Forum met on the 16th of April this year, which unfortunately, was the only meeting for the year. The chairperson undertakes to convene at least three meetings during 2020.

The following points of note were discussed in 2019 and will be addressed further in 2020:

Ground application

More complete instructions for ground application with possible recommendations regarding droplet size spectrum and nozzle type(s) to be used (or not to be used). With GHS labelling in the pipeline for South Africa, this will have to be addressed more properly.

Aerial application

- There are still many companies (especially generic) that copy and paste the wrong aerial application parameters for the type of application (e.g. copy contact action fungicide parameters onto a herbicide label).

- SANS Code 10118 for aerial application was reviewed with the final working document awaiting approval. Attempts by environmental parties without any knowledge or understanding of aerial application, or the agrichemical industry in general, to include totally non-practical precautions or requirements were thankfully not included in the final document.
- Drones: This is still a hot topic. The first commercial drone application operations started this year. It is the view of this committee that there is a place for such application, but under the same requirements as per current “big aircraft” requirements, as contained in earlier CropLife SA press releases. This will remain one of the main topics on the Pesticide Application Forum’s agenda for at least the short to medium term.

General

- The previous set of Reduced Volume Application Guidelines must be reviewed.
- Changes in agricultural practices, such as tree shapes and application technology (e.g. pulse width modulation), must be identified in time and addressed as early as possible on labels.
- “Cocktail” recommendations are an ongoing concern. Distributors “saving” the client the expense of multiple applications.... but at what cost?
- Client, applicator and distributor awareness and stewardship regarding applications in sensitive areas, not limited to sensitive crops, but including applications in the vicinity of towns, schools, roads, the public, livestock, etc. – a more broad-minded view to the environment as a whole.

The abovementioned is just a summary of the more important aspects addressed. The current forum agenda includes many more points and new items will be added if required. We invite any person who wants to be part of this forum to contact CropLife SA to be added to the mailing list. Also, if any person feels he/she wants any application-related subject to be addressed by the forum, please contact the chairperson or CropLife SA.

FRAC SA

By Willem van de Pypekamp
Chairperson: FRAC SA

The 2019 agricultural season was, as always, full of excitement and challenges. The impact of the recent drought, especially in the southern and far northern parts of the country, will continue well into 2020. Good winter rains in parts of the Western Cape offered a welcome relief. However, late rains and other factors in the north, especially the Tzaneen/Letsitele-area, will unfortunately have a significant impact on farmers and the community. The drought also impacted disease and weed pressure, affecting sales of some fungicides and herbicides.

FRAC SA had two successful meetings in 2019, discussing areas of focus as well as entrenching the cooperation with CropLife SA. The restructuring of CropLife SA was welcomed by all in the agricultural community. This cooperation addressed isolated occurrences whereby citrus black spot fungicides were incorrectly recommended and applied. This could have had a far-reaching effect on citrus exports, especially into Europe. Adriana Anthonissen from Syngenta was elected as co-chair of FRAC SA in March this year.

We welcome Adriana and the expert knowledge she brings to FRAC SA, as well as her willingness to offer up her valuable time. Adriana also compiled an information sheet on the use of Triazole in potatoes. This is an area of focus for FRAC SA, ensuring future efficacy of this valuable Mode of Action in South Africa. This will be circulated next year by CropLife SA, ensuring widespread awareness.

I wish all South Africans, especially the farmers, a blessed festive season – enjoy the time with family and loved ones. One last point, one can’t end the year without mentioning a great achievement, 3rd time Rugby World Champions!

Small Pack

By Gerhard Verdoorn

Chairperson: Small Pack Forum

Rodenticides are essential tools to control rats and mice in residential areas and on farms. Unfortunately, it is one of the most widely misused groups of pesticides in the sense that most people do not follow the instructions of putting rodenticides into bait stations. CropLife SA's Small Pack Forum drafted a rodenticide stewardship framework for its members which catalysed a high level of commitment to rodenticide safety.



Members invested in developing their own bait stations, promoting the use of a home-made bait station and some even started manufacturing the home-made stations to distribute to the public at retail outlets.

Training has also increased significantly. CropLife SA did stewardship training for AVIMA, Protek and Kombat, who took the training to the retailers and even to consumers and farmers. Other members are also doing training of pest control operators, retailers and consumers. The objective of the rodenticide stewardship campaign is to significantly reduce the number of rodenticide poisoning incidents.

Current statistics are quite alarming with as many as 95 incidents reported to the Griffon Poison Information Centre monthly; the levels at present are unacceptable and need to be addressed urgently. The CropLife SA small pack members are committed to rodenticide safety and will implement more stewardship measures in 2020.

Don't Let Your Valuable Fresh Produce be Rejected Because of MRL Woes

November 2019
DAFF News
Fresh Plaza
Agropages
AgBiz eNewsletter

Maximum residue limits (MRLs) are a globally accepted tool in the food safety basket that offers consumers a guarantee that fresh produce is safe for human consumption. The traces of pesticide found on treated products are called residues, and MRLs, which may differ per

country, set the highest legally tolerated level of these residues that will not be a concern to human health. To adhere to these limits might have been a relatively simple exercise for producers as they could merely look at their spray programmes per crop and follow the label instructions, withholding periods and pre-harvest intervals and voila, their produce is ready for the market.

In reality however, there are a variety of retailers and certification agencies that set their own, secondary MRL requirements that producers need to adhere to if they would like to export their produce accordingly. It may be, for instance, that the MRL for a particular pesticide is set at two parts per million in a destination country, but a particular retailer in that country sets its own limits at one part per million, which can be a nightmare for fresh produce farmers who play in these export markets.

In addition, MRLs are constantly changing in export destinations. Taking the European Union as a destination example, the MRL for Iprodione on grapes was 20 mg/kg, however the new limit is set at 0.1 mg/kg, a dramatic reduction which, if producers are not aware of these changes in regulations and have not adjusted their crop protection programmes accordingly, will not be able to export their fresh produce. Another example is the MRL of Fenbutatin-oxide on citrus that changed from 5 mg/kg to 0.01 mg/kg. Both grapes and citrus contribute towards the largest South African agricultural exports by value.



These are notable changes, however, sometimes the change can be minute, yet big enough to get the produce rejected, as in the case of the MRL for Penconazole on pome fruit which was 0.2 mg/kg, but new regulations have changed it to 0.15 mg/kg, a small difference with considerable implications.

This is why CropLife South Africa invested significantly into Agri-Intel, a comprehensive database that can assist farmers to find suitable, registered plant protection products, as well as invaluable MRL data for each crop, pesticide and export destination, including retailer requirements.

Producers only need to register on www.agri-intel.com with their basic information and once the registration has been approved, they will be able to access the MRL data to ensure they comply with their export destination requirements and adjust their crop protection programmes where needed. For more information, contact Chana-Lee White (Agri-Intel Manager) at chana@croplife.co.za, or Luigia Steyn (Agri-Intel MRL consultant) at luigia@croplife.co.za

Safety of Farm Workers Handling Pesticides Not Negotiable

By Gerhard Verdoorn
SA Grain
November 2019

In a country that is often compared to the most advanced farming nations in the world, farm workers are an important component of the agricultural success story.

A healthy work force is a valuable asset; producers need to ensure that workers do not face undue risks while working.

Pesticides – insecticides, fungicides, herbicides, plant growth regulants and adjuvants – are compounds that are potentially hazardous to human beings. Farm workers most often handle and apply these essential plant protection products, with varying levels of risk to themselves and the environment. The safe handling of pesticides should be gospel on farms.

Sometimes, however, there are incidents of undue exposure because of irresponsible practices – often with dire consequences to those who were exposed.

Limiting access is the starting point

Not all farm workers need to be involved with pest management on the farm, therefore producers should hand-pick those who show a high level of responsibility to work with pesticides. The pesticide store manager is the first defence against any pesticide risks. He or she is responsible not only for stock control and dispensing of plant protection products, but should also oversee and supervise the preparation of spray mixtures. It is essential to equip this valuable person with the best set of personal protective clothing that money can buy.

The store manager's most important task is access control. No one apart from the store manager and the producer must have access to the pesticide store.

Using personal protective clothing is not negotiable

Certain elements of personal protection are universal for all, such as full body cover in the form of an overall (mostly good quality cotton will suffice), butylene rubber boots and long butylene rubber gloves. A hat is highly recommended, while some form of facial cover is also required. This may be a simple eye shield to prevent spray drift from contaminating the eyes, to something more elaborate, like a chemical breather mask when working with highly toxic pesticides such as methamidophos during spray mixture preparation. It is not only required to prevent the inhaling of spray mist, but also to prevent the discomfort of the putrid odour of many organophosphate insecticides. The filter canister must be replaced regularly to ensure the breather mask functions properly.

Simple protection for spray operators

The spray operator is the one who is perhaps at greatest risk of undue exposure to pesticides, because of the nature of the work. Fortunately, the risk is generally low due to the significant dilution of the pesticide in the spray tank. However, this does not warrant a slack approach. Full body cover (overall), rubber boots, rubber gloves, a hat as well as nose and mouth covers are required to keep the worker safe. Knapsack spray operators should also wear a polyethylene apron back to front to protect the back against spray mixture dripping from the knapsack. Once the work has been completed, the worker needs to clean the personal protective clothing, wash their hands and face and take a shower to decontaminate the body. When working with tractor boom sprays, this set of clothing is adequate, but a mist blower requires total facial cover because inhaling the fine mist and contact with the eyes become real risks.

Advanced protection for spray mix preparations

Preparing spray mixtures is a risky business due to the high concentration of the active ingredients in the formulation. Here, the worker must wear full protection plus a facial cover and a splash-proof apron, especially when pouring liquid concentrates into measuring beakers or directly into the spray tank. A splash of glyphosate can at worst burn the skin, but a splash of chlorpyrifos or paraquat may cause more serious problems. Prevention is better than cure. As with spray operators, such specialist workers need to clean their personal protective clothing after work and sanitise themselves properly.

No eating, drinking or smoking

Eating, drinking or smoking are high risk activities as it offers an easy conduit for pesticides to enter the body. It is best to allow ample time for the removal of gloves and facial covers, to wash the hands and face properly and then proceed to eat or drink. Food and drinks should not be allowed anywhere near a pesticide store or in fields where pesticides are being applied.



Compromised individuals must not work with pesticides

Any person will fall ill at some time or another. Ailments such as common colds, influenza and gastroenteritis are reasons for not allowing people to work with pesticides. While the body is fighting a medical condition, it may not be able to cope with even a small exposure to pesticides. The liver is a wonderful detoxification organ, but it will battle to fend off endotoxins produced by a microbial infection as well as some pesticides that enter the body.

Re-entry after spraying crops

Pesticide labels will show what the safe pre-entering interval is under Warnings and Precautions. That is to allow the pesticide molecules to metabolise sufficiently to minimise the risk to producers and farm workers. Should farm workers have to work in treated crops for whatever reason before the re-entry time has expired, they need to wear the full set of protective clothing and decontaminate themselves and their clothing afterwards.

Farm worker family safety

Most farm workers and their families live on farms and often close to crop fields. Before any spraying commences, family members should be evacuated to safe areas until the spraying has been completed. Also warn them not to enter the treated crops for at least seven days as an additional safety measure. This is also important for their livestock, chickens and dogs – keep them out of treated areas. Instruct workers to warn passers-by to evacuate and stay away from the spray area. When applying very toxic products such as paraquat or chlorpyrifos to a crop, warning signs must be displayed to inform people that it is a high-risk area and that they may not enter or approach it.

Continued training on the safe use of pesticides

Training is a never-ending process and since these are potentially dangerous substances, farm workers need to be trained on a continuous basis to embed the principles of responsible use in their minds. Many of the CropLife SA supply and distribution members offer training, or at least assist with training, of producers and farm workers. Contact your CropLife SA accredited crop advisor and ask for assistance with farm worker training. CropLife SA members have access to a series of booklets on responsible use in eight languages that are invaluable for farm worker training. Farm workers with higher education levels may even consider enrolling for the CropLife SA Basic Crop Protection course that is an online AgriSETA accredited course. For enquiries contact CropLife SA on info@croplife.co.za or visit www.croplife.co.za.

No empty containers for farm workers

One of South Africa's worst agricultural legacies is the practice of giving empty plastic pesticide containers to farm workers. If food or beverages are stored in such containers, the outcome is a guaranteed human catastrophe.

There have been a number of incidents where farm worker families have been poisoned because they used empty containers for drinking water or cooking oil. Empty containers must be triple-rinsed and disposed of via one of the CropLife SA approved service providers who collect and recycle empty plastic pesticide containers. See the Container Management section on the CropLife SA website.

Emergency situations

Should a farm worker accidentally be exposed to or ingest any pesticide, immediately call the emergency helpline on 082 446 8946 for advice and support. Do not give the person milk, water or anything else to drink, unless strictly advised to do so by the poison information centre.

Whatever the level of exposure, it does not change the fact that such a person needs professional medical attention. The poison information centre will only advise how to stabilise the person and what the first steps after that should be. Healthy farm workers are a great asset to a farm; they should be adequately trained, properly informed and appropriately clad in protective clothing.

Farmer's Weekly

ACHIEVERS

Agricultural Writers SA announces achievers for 2019

The winner of the 2019 Agricultural Writers South Africa's Farmer of the Year is Nick Serfontein, the chairperson of the Sernick Group, a diversified agricultural business with operations near Edenville and Kroonstad in the Free State.

The farming operation includes a Bonsmara stud, a feed factory, a feedlot, and a deboning facility.

The winners were announced at the association's recent awards evening, held in Pretoria. The theme of this year's awards was 'Farming for our Future', and awards were presented in the categories of Farmer of the Year, Agriculturist of the Year, and New Entrant to Commercial Agriculture.

Dirk Louw was the winner in the New Entrant to Commercial Agriculture category. He farms in the Groblershoop district, and his farming operation consists of vineyards for dried grape production, wine grape vineyards, a pecan nut orchard, maize, lucerne, and a flock of Dorper and Meatmaster sheep.

Buks Nel, who is the new variety specialist at Tru-Cape, won the Agriculturist of the Year award. He is recognised as an expert in integrated pest management, and was awarded plant breeders' rights for the improved Gala and Fuji apple varieties, Bigbucks and Fuji Royal.

Agricultural Writers South Africa, which is affiliated to the International Federation of Agricultural Journalists, also recognised members of the association for their role in responsibly communicating issues that are of interest to the agricultural sector.

The winners were: Grain SA economist Petru Fourie: Bayer Technical Article of the Year; *Farmer's Weekly* journalist Lloyd Phillips: Crop Life SA's award for Best Article on Crop Protection and second place in the FNB Communicator of the Year; Director of Brand Republic Werner Scholtz: FNB Agricultural Communicator of the Year; and *Landbouweekblad* journalist Johan van der Merwe: Santam Agriculture Farmer of the Year Best Coverage award.

The BKB Photographer of the Year was Charl van Rooyen, and Johan Norval won the BKB Photo of the Year. Both winners are from *Landbouweekblad*. – Siyanda Sishuba

Awarding excellence

Huge congratulations to *Farmer's Weekly* journalists Lloyd Phillips and Sabrina Dean for their outstanding achievements in the field of agricultural journalism in 2019.

Phillips recently won the CropLife SA Crop Protection Article Award at the SA Agricultural Writers' national awards evening for his article, 'How to win the fight against the eldana sugar cane pest' (FW, 28 September 2018). The article focused on the use of modern integrated pest management to reduce the impact of this pest on sugar cane yields.

Dean was one of the regional winners of the Vodacom Journalist of the Year for her article, 'Face to face with the drought in the Free State' (FW, 15 March 2019). The article explored the destruction the drought has caused farmers in Bultfontein.

Here's to 108 years (and counting!) of exceptional journalism by South Africa's oldest magazine!

Span Tegnologie in vir Effektiewe Plaagbeheer

Deur Gerhard Verdoorn
AgriAbout
November 2019

Produsente is goed daarop ingestel om plantpeste, siektes en onkruid met plaagdoders te beheer wanneer sulke plae gewasse bedreig. Sulke optrede is meestal reaktief en kos gewoonlik 'n klein fortuin want dit is plaagdoders, spuittoerusting, brandstof en werkerstyd wat alles daarin belê word om plaagbeheer effektief toe te pas.

Soms vang plae produsente onkant, soos verlede jaar se Afrika bolwurms wat kanola op 'n paar plekke in die Wes-Kaap amper 'n kishou geslaan het. Ons het ook nie die herfs-kommandowurm se aanslag in 2016 vergeet nie en sluk nog swaar aan die Palmer amarant wat die Douglasomgewing ingevaar het.

Dit verg wysheid en langtermyn vooruit denke om plae goed vas te vat voordat dit epidemies raak, en 'n groot deel van die aksie is nie eers aan plaagdoders gekoppel nie. Dit is moontlik om plae te voorspel – amper soos Moses van ouds met die Egiptenare – deur van die wonderwêreld van tegnologie gebruik te maak.

Klimaat

Weersomstandighede is van groot belang by die ontwikkeling en uitbreek van insek- en mytplae terwyl dit nog meer belangrik is by plantsiekte-ontwikkeling. Algemene vogtigheid en hoë temperatuur is 'n gesamentlike katalisator vir plaagontwikkeling. In die ou dae het die waarsêers na die swaeltjies se vlugpatrone gekyk en die weer daarvolgens voorspel, maar in die era van rekenaars en internet is dit oorbodig want alles lê op 'n skinkbord vir die boer. Weertoepassings (APPs) is op selfone beskikbaar en gee redelik tot hoogs akkurate kort- en langtermyn weervoorspellings. Die Windy toepassing is 'n ongelooflike stukkie tegnologie wat ten minste 14 dae se weer voorspel met ongekeende akkuraatheid. Dit gee data oor temperatuur, reënval, wind, wolkbedekking, vogtigheid, doupunt en vele meer. Vir die boer wat met gewasse boer wat sensitief vir klimaat is, is Windy die antwoord.

Neem byvoorbeeld steenvrugte: die nagtemperatuur is bitter belangrik vir die bome omdat soos ons in boereterme sê: “Daar moet voldoende koue-eenhede wees om die bome te laat blom”, en daarmee kan Windy help met voorspellings. Dieselfde geld vir gewasse soos aartappels en tamaties wat uiters sensitief vir swamontwikkeling (soos roes) is. Dit help die produsent om voor te berei vir voorkomende swamsiektebeheer en sal mees waarskynlik baie geld spaar en 'n gesonder gewas lewer.

'n Plaag soos bruinsprinkane wat meestal die Karoo-boere se lewe vergal, is ook voorspelbaar in terme van weer. Karoomense weet dat grondvog en temperatuur net die regte waardes moet bereik om die Bybelse plaag los te laat en dus as so 'n toepassing ingespan word, kan mens voorbereid wees en planne maak om die sprinkane maklik onder beheer te hou voordat hulle begin vlieg.

Verkenning en lokmiddels vir insekplae

Om vooraf te weet as daar 'n vyand op pad plaas toe is, is strategies en takties baie belangrik, veral vir Lepidoptera plae (larwes van motte en sommige skoenlappers). Daar is 'n paar tegnieke wat produsente kan toepas waarvan verkenning die goedkoopste is.

Motte is naglewende wesens en begin laatmiddag vlieg. Dit is dus nodig dat produsente laatmiddag teen sonder hul boorde en landerye besoek en oplet vir motte wat in groot swerms begin beweeg. By die plaasopstal is daar 'n maklike manier namens die buitelig om te moniteer want die motte versamel in groot getalle en sit teen die mure. Die oomblik as die produsent sulke waarnemings maak, is die moeilikheid op pad, maar ten minste weet hy dat die plaagbeheer beplan moet word.

Verkenning kan deesdae ook met feromone gedoen word om lank voordat die “motwolke” begin saamtrek te weet van moontlike infestasies. Daar is alreeds feromone wat spesie-spesifiek is en dit maak die voorspelling van plaaginvasies nog meer akkuraat vir produsente. Sulke middels is onder Wet Nr.36 van 1947 as landboumiddels geregistreer en is betroubaar. Die verskaffers van die produkte gee gewoonlik opleiding oor die effektiewe gebruik van die tipe tegnologie en help boere met die vestiging van die netwerk van feromoonlokvalle. Mannetjiemotte haas na die feromone omdat dit die wyfies se geslagslok-middels na-aap. Wanneer daar meer as tien motte per nag in die lokval beland moet die boer vir sy geveg gereedmaak.

Infrarooi en ultravioletoptnames van gewasse

Dit klink amper soos die Koue Oorlog se dae maar daar is ook tegnologie beskikbaar waarmee boere hul gewasse en boorde kan laat karteer vir gesondheid, groei en probleme. Nuwerwetse hommeltuie met spesiale kameras fotografeer wat dan swak areas in die gewas of boord uitwys. Swak areas mag die gevolg van verskeie faktore wees naamlik droë kolle, deurdrenkte kolle, swak grondgehalte, onvoldoende bemesting, hitte-stres ensovoorts, wat aanleiding mag gee tot kwesbaarheid teenoor bepaalde insek- of mytplae of plantpatogene. Landbougewasse is baie makliker vatbaar vir swaminfeksie en plaaginvasie as dit onder stres is. Met die infrarooi en UV tegnologie kan die produsent met die nodige waterbestuur en bemesting die gewas se gesondheid herstel en sodoende plaagbeheer se nodigheid uitskakel.

Effektiewe plaagbeheer met moderne tegnologie

As daar 'n landbougewas is wat sonder plae en siektes is, moet daardie gewas nog ontdek word! Meeste landbougewasse is oor jare heen veredel met die gevolg dat weerstand teen plae en siektes in 'n groot mate ingeboet is. Produsente moet dus noodgedwonge plaagbeheer toepas die skade aan die gewas verduur en inkomste inboet. Die standaard spuit-toerusting is steeds heeltemal geskik vir aanwending maar dit verg aandag om te verseker dat die korrekte dosering toegedien word.

Kalibrasie

Spuite moet gereeld gekalibreer word; skakel met die gewasadviseur om te help met opleiding en maak seker dat die apparaat in goeie werkende toestand is. Spuitstukke moet nagegaan en vervang word as dit geërodeer is. Die nuwerwetse keramieksputkoppe is baie meer weerstandbiedend teen slyting as die ouer geelkoper-tipes en gaan die boer vir lank van goeie diens voorsien. Uitgewerkte spuitstukke skep twee probleme, naamlik onakkurate dosering en moontlik ook drywing as dit fyn newels in plaas van druppels veroorsaak.

Bevorderingsmiddels

Een manier om effektiewe deponering van die spuitmengsel op die teikenarea te verseker en drywing teen te werk is om nuwe tegnologie bevorderingsmiddels by die spuitmengsel te voeg. Daar is verskeie sulke middels beskikbaar en dit kan gevind word op www.agri-intel.com.

Die spesiale drywingsweermiddels veroorsaak dat die variasie in druppelgrootte tot 'n groot mate teëgewerk word en dat druppels makliker op die teikens deponeer. Die voordele daarvan is tweedoeilig, naamlik beter gebruik van die beskikbare spuitmengsel en voorkoming van drywing wat ander gewasse en die omgewing kan benadeel.

Hommeltuie

Soos wat tegnologie ontwikkel is daar totaal nuwe spuittegnieke wat vorendag kom. Hommeltuie is een daarvan maar daar is ernstige vrae oor die werklike effektiewe aanwending van plaagdoders met hommeltuie. Die probleem is dat verskeie operateurs klein hommeltuie gebruik wat nie die vereiste minimum spuitvolume van 30 tot 35 liter per hektaar kan toedien nie. Verder is daar weinig geregistreerde hommeltuig plaagbeheeroperateurs in Suid-Afrika wat ingevolge die burgerlugvaartowerheid en Wet Nr. 36 van 1947 geregistreer is om met hommeltuie lugbespuiting te doen. Aan die ander kant is daar alreeds groot hommeltuie wat die vereiste minimum spuitvolume per hektaar kan toedien. Hommeltuie kan beslis 'n bydrae lewer, solank sulke operateurs geregistreer is en aan die vereistes voldoen.

Kombinasie van biologiese en chemiese middels

Biologiese plaagbeheermiddels is so oud soos die mensdom, maar dit is slegs die afgelope twee dekades wat die nuwe tegnologie rondom biologiese middels behoorlik ontplof. Weereens kan lesers inligting op Agri-Intel bekom, maar praat gerus met die gewasadviseurs en bou die biologiese middels in plaagbeheerprogramme in. Die biologiese middels werk goed, veral as dit met klassieke chemie geïntegreer word. Hoe gouer ons aan biologiese middels en geïntegreerde plaagbeheer gewoond raak, hoe beter, of wil ons nog met osse ploeg?

Beperk Plaagdoderdrywing en Wen Goeie Buurmanskap

Die wêreld se bevolking eet lustig aan die voedsel wat met baie moeite en teen hoë koste deur voedselprodusente geproduseer word.

Deur Gerhard Verdoorn
SA Graan
November 2019

Dit is noodwendig dat plaagbeheer toegepas moet word om gewasse teen peste, plaes, plantsiektes en onkruide te beskerm en in die meeste gevalle is daar 'n risiko hieraan verbode. Een van die groot risiko's is dat plaagdodernewels na naburige plase, woonbuurte en ekologies-sensitiewe areas dryf waar dit skade kan veroorsaak. Daar is gedurig dispute oor sulke insidente waar byvoorbeeld heuningbye in die slag bly, sensitiewe gewasse glifosaat-skade opdoen, inwoners aangetas word of natuurlike plantegroei skade ly. Ondersoeke na hierdie insidente dui gewoonlik daarop dat veiligheidsmaatreëls nie nagekom was nie.

Hoe plaagdoderdrywing ontstaan

Die meeste mense glo dat drywing windgedrewe is, maar daar is ander weersomstandighede wat ook tot drywing aanleiding gee. Wind is beslis 'n belangrike katalisator vir plaagdoderdrywing, omdat dit die fyn druppels van teiken kan afwaai na ander plekke waar die plaagdoder nie behoort te kom nie. Iets wat ernstige drywing kan veroorsaak, is temperatuurinversie – dit is waar 'n warm luglaag bo-oor 'n koue luglaag op die aarde lê en hoogs stabiele lugtoestande veroorsaak met geen luginbeweging nie.

Wanneer plaagdoders onder inversietoestande gespuit word, hang fyn druppels in die lug en bereik dit nie die teikenarea nie, omdat daar geen luginbeweging is nie. Die fyn druppels dryf dan baie ver van die teikenarea af weg en kan tot soveel as 20 km verder gedeponeer word.

In beide die geval van wind en temperatuurinversie speel druppelgrootte 'n uiters belangrike rol. Hoe fyner die druppel, hoe groter die geneigdheid tot drywing. 'n Groter druppel deponer meer geredelik op die teiken as fyner druppels. Temperatuur is ook 'n belangrike faktor. Hoë temperature bo 30°C beteken dat verdamping die suksesvolle deponering van die spuitdruppel kan benadeel. Die druppel se volume (grootte) verminder deur verdamping, wat outomaties 'n probleem met deponering skep. Baie droë toestande saam met hoë temperature is nog erger, omdat die verdamping eweneens verhaas word.

Tegnologie speel verder 'n deurslaggewende rol in drywing. Sommige toerusting soos newelblasers maak as 'n reël 'n fyn missproei, wat onder ongunstige klimaatstoestande erge drywing tot gevolg kan hê. Daar teenoor kan ou toerusting net so problematies wees wanneer spuitstukke uitgeslyt raak, drukmeters onklaar raak of toerusting bloot ondiensbaar word.

Nadele en gevolge van drywing

Drywing hou verskeie nadele vir die produsent self in, terwyl daar ook nagevolge vir die omgewing en gemeenskap in die omtrek van die plaas kan wees.

Eerstens is daar 'n sterk moontlikheid dat die plaagdoder nie na wense sal presteer nie, aangesien die persentasie van die spuitstof wat die teiken bereik, laer is as die aanbevole dosis van die aktiewe bestanddeel per hektaar. Dit beteken noodwendig dat geld gemors word, aangesien die plaagdoder (waarvoor ten duurste betaal is) nou op 'n ander plek is waar dit geen doel dien nie.

'n Sekondêre gevolg is dat die gewas onder sy optimale opbrengs gaan presteer omdat die pes, plaag, siekte of onkruid nie volkome beheer is nie. Dan is daar die aanspreeklikheid van die produsent wat in werking tree as die plaagdoder naburige plase se gewasse beskadig, woongebiede besoedel of selfs mense benadeel. Dink byvoorbeeld aan die grootskaalse uitwissing van visse wanneer piretroïedplaagdoders oor natuurlike water dryf en daarin afsak. Visse is uiters sensitief vir piretroïede en sal op grootskaal vrek van die geringste besoedeling van water met hierdie nuttige insekdoders.

Bekamp drywing met oordeelkundige besluite en aanwending

Produsente kan drywing baie maklik bekamp deur 'n paar sinvolle maatreëls in te stel:

- Eerstens is die goue reël van verantwoordelike plaagdodergebruik om die etiketaanwysings streng na te volg en nie daarvan af te wyk nie. Meer as 95% van gevalle waar plaagdoders 'n onaanvaarbare negatiewe impak gehad het, het dit ontstaan deur die afwyking van etiketvoorskrifte.
- Tweedens moet alle spuittoerusting ordentlik gediens word. Veral spuitstukke (nozzles) wat met tyd uitgeslyt raak en dan probleme met die spuitwerk veroorsaak, moet nagegaan en vervang word as hulle nie meer diensbaar is nie. Geelkoperspuitstukke het slegs 'n beperkte leeftyd, terwyl die nuwerwetse keramiekspuitstukke 'n baie langer lewensduur het. Spuitstukke wat deels geblokkeer is, sal heel waarskynlik 'n baie fyn sproei in plaas van die korrekte druppelgrootte lewer, wat direk tot drywing sal bydra.

- Derdens moet alle spuittoerusting gereeld gekalibreer word om die korrekte dosis toe te dien. Tydens kalibrasie kan spuitstukke wat uitgeslyt is maklik geïdentifiseer word.
- Vierdens moet die spuitwerk teen die korrekte druk uitgevoer word. Dit is natuurlik afhanklik van trekkerspoed en enjinomwentelings – of in die geval van vliegtuie, direk van druk. Te hoë druk gee aanleiding tot verfyning van die druppelgrootte wat drywing bevorder. Voeg hierby die keuse van druppelgrootte en maak seker spuitstukke lewer die aanbevole druppelgrootte om effektiewe deponering op die teiken te verseker.
- Vyfdens is die keuse van geskikte weersomstandighede van uiterste belang. Hier is die produsent aangewese op sy eie weerstasie, weervoorspellings en selfs toepassings op slimfone. By lae temperature sonder enige wind is daar 'n sterk moontlikheid vir temperatuurinversie wat gevaarlike drywing kataliseer. Wag dus totdat die omgewingstemperatuur gestyg het ten einde lugbeweging te veroorsaak wat temperatuurinversie sal kanselleer.
- Moet ook nie op die warmste deel van die dag spuit wanneer verdamping op sy hoogste vlak is nie. As die wind waai, is dit tyd om bekommerd te raak; wind van meer as 15 km/uur is 'n waarborg vir drywing, terwyl glifosaat nie gespuut mag word in windsnelhede van meer as 10 km/uur nie. 'n Ligte wind tussen 5 km/uur en 10 km/uur gee gewoonlik die ideale omstandighede om te spuit, omdat die wind help met die deponering van die spuitdruppels.
- Maak van bymiddels gebruik wat drywing teenwerk deur die druppels vinniger na die teiken te laat afdaal. Soek gerus op www.agri-intel.com na geskikte middels wat die oppervlaktespanning van die spuitmengsels manipuleer om deponering te verbeter.

Effektiewe kommunikasie

Sommige plaagdoders het 'n inherent onwelriekende reuk en die oomblik wanneer mense dit ruik, is die gort gaar – alhoewel daar in die meeste gevalle geen drywing plaasgevind het nie. Organofosfaatinsekdoders en onkruidodders soos 2,4-D ruik baie sterk en die mens se reuksintuig neem dit waar teen so min as nege dele per biljoen. Teen sulke konsentrasies is daar geen risiko nie, maar dit skep steeds vrees by mense. Om konflik te voorkom, is dit sinvol om bure te laat weet dat 'n bepaalde plaagdoder toegedien gaan word wat moontlik 'n reuk kan veroorsaak en selfs effens kan dryf. Versoek mense wat sensitief is om verkieslik die gebied te verlaat wanneer sulke middels gespuut word sodat hulle nie deur die plaagdoder verontrief word nie.



'n Dag voor die tyd is gewoonlik voldoende om die publiek in te lig dat spuitaksies uitgevoer gaan word.

Let wel dat dit wetlik vereis word dat mense ten volle ingelig word wanneer lugbespuiting gaan plaasvind. Die standaard vir lugbespuiting vereis dit, maar dit skep ongelukkig die wanindruk dat drywing slegs plaasvind wanneer lugbespuiting toegepas word. Dit is beslis nie die geval nie. Gewone bespuiting met grondtoerusting kan net sulke erge drywing tot gevolg hê as die reëls nie nagekom word nie.

'n Fisiese buffer teen spuitneweldrywing

Sommige plaagdoders het 'n inherent onwelriekende reuk en die oomblik wanneer mense CropLife SA ontvang gereeld klagtes oor konflik tussen bure waar een persoon spuit en die ander benadeel word. Dit gebeur veral waar gewasboerdery en dorpsontwikkeling vanweë swak beplanning nader aan mekaar kruip en op die ou end reg langs mekaar eindig. In sulke omstandighede gaan daaglikse konflik tussen produsent en bure die norm wees. 'n Redelik eenvoudige oplossing is om 'n skerm van 80%-skadunet 10 m hoog tussen die plaas en die bure op te rig. Dit gaan noodwendig geld kos, maar dit skakel drywing van plaagdodernewels na die bure heeltemal uit en los die meeste konfliktsituasies daar en dan op.

Landbouweekblad

LBW | ONS WAS DAAR

EERBEWYSE

LANDBOUSKRYWERS VEREER BEDRYF SE VOORLOPERS

Landbouskrywers SA, 'n vrywillige, professionele vereniging sonder winsoogmerk van joernaliste en mediaskakelpersone in die landbou, het die Boer van die Jaar, Landboukundige van die Jaar en die Nuwe Toetreder tot die Kommersiële Landbou in Pretoria aangewys. Op die jaarlikse gala-aand word die weners van verskeie kompetisies vir joernaliste en fotografe vereer. *Landbouweekblad* was daar. Foto's: HELENUS KRUGER



LIGGING

Pretoria



Die drie groot weners van Landbouskrywers SA se kompetisies is mnr. Dirk Louw (links) van die Noord-Kaap wat aangewys is as die Nuwe Toetreder tot Kommersiële Landbou van die Jaar. Sy boerdery, Silver Moon Investments, is naby Groblershoop in die Noord-Kaap. Mnr. Nick Serfontein (middel) van Edenville in die Vrystaat is aangewys as die Boer van die Jaar. Hy is die voorsitter van die Sernick-groep, 'n diverse landbou-onderneming. Mnr. Buks Nel van die Wes-Kaap is die Landboukundige van die Jaar. Hy is tans die nuwe kultivarspesialis by Tru-Cape, waar hy sedert 2001 werksaam is.



Van links is mnr. Rodney Bell, uitvoerende hoof van CropLife, me. Jenny Bell en me. Elriza Theron, bemakings-en-kommunikasiebestuurder van CropLifeSA.



Me. Magda du Toit, voorsitter van die Landbouskrywers Noord, wens dr. John Purchase geluk met die spesiale eerbewys as Landboupersoonlikheid van die Jaar. Hierdie sertifikaat is deur Landbouskrywers SA aan Purchase oorhandig om sy volgehoue bydrae tot die breë landbousektor oor die jare te erken. Hy is in 2012 aangewys as die Landbouskrywers SA se Landboukundige van die Jaar en is tans uitvoerende hoof van Agbiz, die landbousakekamer.



Van links is mnr. Gert Bezuidenhout (Sanlam), mnr. Dirk Louw, Nuwe Toetreder tot die Kommersiële Landbou, me. Liza Bohlmann, voorsitter van die Landbouskrywers SA, en mnr. Niel Esterhuyse (Santam Landbou).



Voormalige weners van die Boer van die Jaar-kompetisie saam met mnr. Nick Serfontein (voor, regs). Van links is, voor: mnr. Chris Rossouw en Charl Senekal; agter: mnr. Kallie Schoeman, BP Greyling, Eddie Prinsloo, Charles Rossouw, dr. Kobus Hendriks, Rossouw Cillié (wat tot voorsitter van Pro-Agri, die vereniging vir voormalige weners, herkies is), Piet Karsten, Piet Smit, Robert Zulch (ondervoorsitter van Pro-Agri), Saag Jonker, Zander en Edrean Ernst en Pieter Graaff.

Enhancing Traceability in the Agrochemical Supply Chain

Issued by CropLife International
November 2019

For many consumers around the world, where their food comes from and how it is made are important measurements of safety and quality. The demand for transparency is further propelled by concerns over food-borne health threats, the growing global trade of counterfeit and illegal pesticides, and the globalization of the food system.

To establish and maintain a consistent, safe, and unambiguous food supply, the design and implementation of complete traceability in foods and agricultural inputs is essential.

Agrochemical traceability today

Traceability in the agrochemical supply chain has never been more important. Good traceability enables producers, distributors and consumers to track the movement of goods, but these processes are complex and span across borders. Most companies still rely on paper-based tracking systems which are time-consuming, manual and inefficient.

These antiquated and fragmented systems can result in safety issues and inconsistent data, as well as an increase in counterfeited goods – a significant problem for the agrochemical industry especially since the global market share of illegal agrochemical products has risen the last few years.

Roadmap towards global harmonization

To create and maintain complete traceability, the entire supply chain needs to understand the concepts and implications of a good system. This includes farmers, post-harvest processors, marketers, research practitioners and policy makers.

Fortunately, strong partnerships, advances in sensor technology, and better traceability standards have created momentum toward a more functional system for the agrochemical industry. With more technology to come, electronic data exchange between trading partners will be faster and more reliable.

According to a recent report from Accenture, commissioned by CropLife International, traceability innovation means we now have the tools at our disposal for a fully harmonized, end-to-end supply chain solution that can track a formulated product from conceptualization to the field. And if trading partners are to effectively meet their company's needs and exceed customer expectations, achieving this solution on a global scale must be our key objective going forward.

At CropLife International we are working towards this global, transparent approach to traceability, but we need our partners along the supply chain to join with us.

For more information, please contact Laurent Sabire, chairman of the CropLife International Traceability Project Team, on laurent.sebire@corteva.com.

PLASTIC CONTAINER MANAGEMENT: THEN, NOW, AND IN THE FUTURE

BY DR. ANDREW WARD, STEWARDSHIP DIRECTOR AT
CROPLIFE INTERNATIONAL

While plastic has many valuable uses, half of all containers and products are designed to be used only once, before being thrown away. As a result, we produce more than 300 million tons of plastic waste every year, with severe environmental consequences.

In agriculture, plastic is used for pesticide containers, fertilizer packaging, seed bags and polytunnels among many other uses. The industry has a responsibility to manage the lifecycles of those products.

CropLife International, the global federation representing pesticide manufacturers, is very aware of our responsibility to the planet. That's why we have helped establish pesticide container recycling and management programs in 58 countries across our global CropLife network. Since 2005, the network has collected close to 800,000 metric tons of plastic – this is equal to the weight of 110 Eiffel towers.

Standout programs, like those in Brazil, Canada, France and South Africa set an example for programs in other countries and remind us of the importance of plastic container management.

Brazil Leads the Way

Over the last 10 years, we have seen fantastic progress with plastic container management in regions around the world. For example, in Brazil, the inpEv container management program has disposed of more than 450,000 tons of empty pesticide packages since 2002.

They lead the world in plastic container management because of a high level of



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Innovating for Safety in Pesticide Packaging

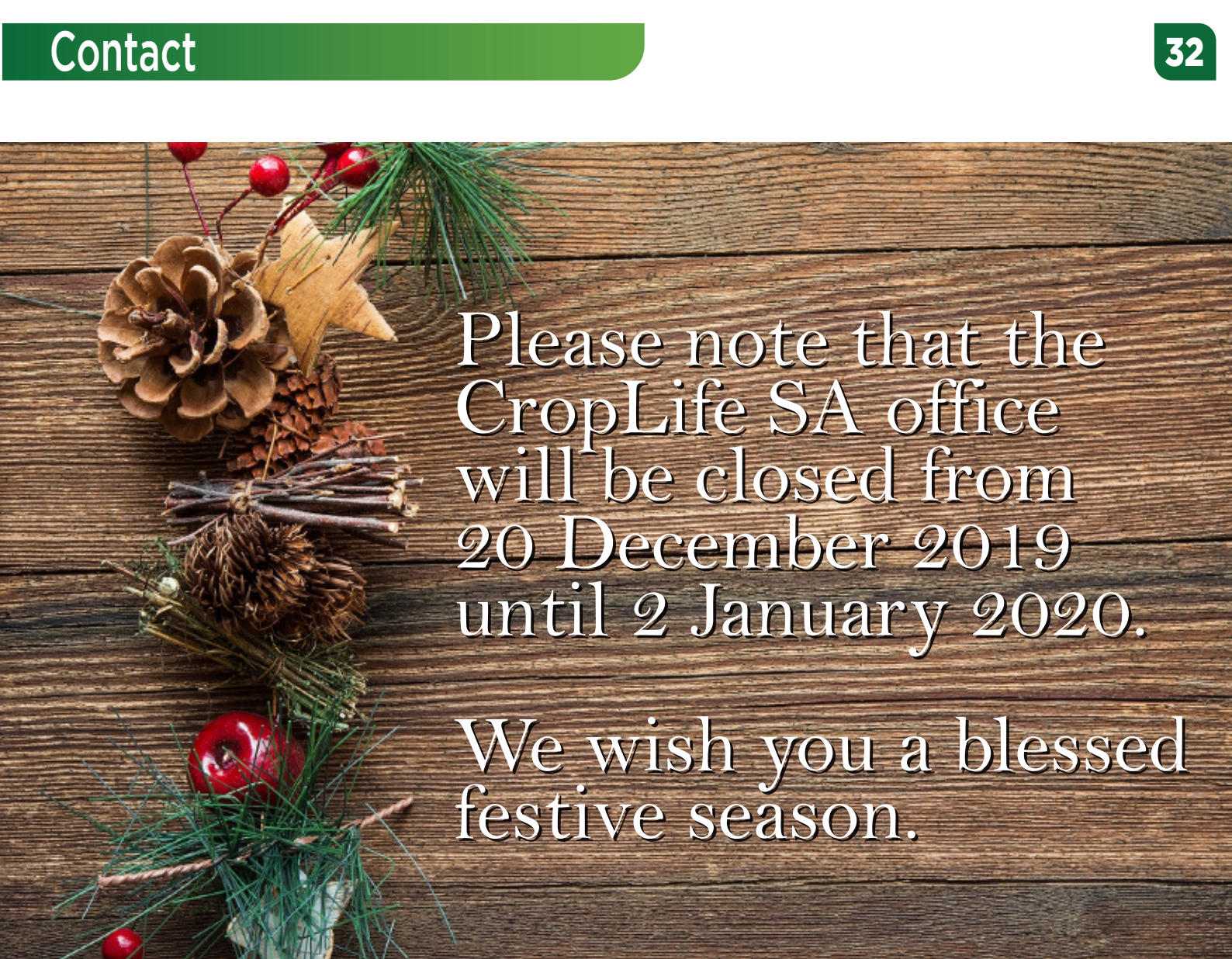
Like pesticide development, pesticide packaging is based on continuous innovation. Well-designed containers are easier and safer for farmers to use plus they protect the environment and product authenticity.

By Georg Heitmann
Head, Global Packaging Technology
Crop Science Division, Bayer AG
Stewardship in Action, Volume 2 - 2019

They withstand a minimum 2-3-year shelf life as well as rough conditions during transportation. They can also include track and trace measures to guard against counterfeiting. Here are 10 ways in which the crop protection industry innovates for safety in packaging:

- **Seal, logo and lock.** Safety seals, a manufacturer's logo engraved into the bottles and/or caps of products as well as spill-resistant and child-proof caps protect against leakage, counterfeiting and getting into the wrong hands. Caps are thermo-formed with a tamper evidence ring that breaks off to indicate an opened bottle.
- **Measure up.** Built-in measuring features minimize the risk of under- or overuse of pesticides. Like a measuring cup, there are scales on packaging so farmers don't have to use separate equipment to mix a product with water. A translucent strip on the side shows how much product is used with upside down and bottom up scales for ease of use. Gels have measured doses within their package.
- **Aerate bottle necks.** Anti-splash and anti-glug bottle necks are large enough for air to enter while pouring to prevent splashing. The mouth is wide or there's a molded in feature that allows air in.
- **Get a grip and pinch.** The handles of crop protection products are ergonomically designed for easy handling. In addition, pinched handles prevent product getting caught in this hard to reach area for better rinsing before disposal.
- **Right-size.** Easy-to-manage containers that are appropriate for farm size discourage decanting products into unlabeled, inappropriate containers. For example, in South America and the U.S., where farms are large, also containers are large. But in India and China, farms are smaller so containers match to fit.
- **Smart label.** By incorporating unique overt and covert features, such as a hologram with a company logo or invisible letters that can only be read by retailers with special equipment, crop protection manufacturers protect against counterfeiting.
- **Raise the bar (code).** QR or barcodes are another way the crop protection industry authenticates products. They are read by farmers with a smart phone app to verify product origin. If the code has already been scanned several times (empty packaging taken by a criminal and refilled), then the farmer will be warned not to use it.
- **Lighten up and get stronger.** Stronger, lighter plastics and clever designs (i.e., ribs in bottle walls) that enhance stability are being used in pesticide packaging to lessen waste and cost.
- **Layer and bulk-up.** Multiple layers (three to five depending on product properties) of different polymer resins are built into product container walls to ensure chemical compatibility or serve as migration barriers. In the U.S. and Canada, refillable, returnable bulk containers for liquid products are used to cut down on waste and cost as they last for five years.
- **Close contact.** Packaging used together with a Closed Transfer System (CTS) prevents farmers from getting into direct contact with liquid chemicals. Farmers simply put a sealed bottle onto a device that opens it, properly measures the pesticide and transfers it to the large sprayer tank. Only a small percentage of European and U.S. farmers are currently using CTS – which was designed by agricultural equipment makers – but its potential is huge, especially if authorities stipulate the use of crop protection products only in combination with a CTS.

Innovation in pesticide packaging keeps farmer and environmental protection top of mind. That's why safety is always part of the package.



Please note that the CropLife SA office will be closed from 20 December 2019 until 2 January 2020.

We wish you a blessed festive season.

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.

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