

# TECH BULLETIN

Crop Protection Development, Syngenta South Africa

EDITION 4 - December 2018

syngenta®

## SYNGENTA® Crop Protection Good and Proper

By Andreas Boon

**Farming isn't easy. There are just so many uncontrollable variables a farmer has to face on a daily basis. Imagine what it must feel like spending vast amounts of money in getting fields prepared, in fertilizers, seed and chemical costs and then hoping and praying for the best and that the rain will come.**

Then there's the markets influenced by global trends, the currencies to just name a few. Not to even mention the factors on farm that a farmer has to deal with. Managing people, managing the equipment, managing the soil, managing the weeds to just name a few. I am sure many farmers at some point admit that there just isn't enough hours in a day to get everything done properly. And with all of this there is the constant worry "what if this goes wrong, or what if that goes wrong".

This is where Syngenta comes in, Crop Protection Good and Proper. Our crop protection prod-

ucts are exactly that, protecting your crops and taking the worry of pests destroying your crops out of your worry equation. And we all know how devastating and unpredictable many pests can be, putting your valuable crop at risk. Our products aren't only the best quality you can find, we also offer the widest range of products addressing numerous problems you might encounter on your farm. Further, our products are researched and developed by the largest R&D team you will find in South Africa making sure the products are suitably adapted to local conditions.



### In this issue

- 1 AMPLIGO® the Global standard
- 2 Down with fungal diseases, Up with yield!
- 3 Safe of mind with Syngenta

Then there is our vast knowledge pool of technical expertise and experience to support and back our products in the market.

Considering the above, why would you ever risk not investing in the best crop protection offers available in the market? Why would you risk your valuable crop (and all the money and time that went into it) by not using the best crop protection solutions offered?

In this edition we focus on a few technical aspects of some of these best solutions available to you, to protect your investments:

- AMPLIGO<sup>®</sup>, and why it is such a good product.
- AMISTAR<sup>®</sup> Top, proven technology in maize.
- Herbicides ensuring your piece of mind.

# 1 AMPLIGO<sup>®</sup> A Global Standard

By Tia Ferreira

Since its introduction AMPLIGO<sup>®</sup> has become a global standard for the control of the most damaging insects such as potato tuber moths on potatoes, bollworm on soybeans and fall army worm on maize. In the arsenal of insecticide weapons available to the grower AMPLIGO<sup>®</sup> provides an unsurpassed spectrum of control, residual activity, consistency, flexibility and value.

AMPLIGO<sup>®</sup> is a combination of two active ingredients. Lambda-cyhalothrin, which is the first active ingredient, is sealed inside tiny thin-walled capsules suspended in water. The active ingredient is released only when and where it is needed. As soon as the spray deposit dries on the target pest and leaf surface it is activated and it has excellent knockdown activity. A strong UV protectant inside the capsule prolongs the activity of the product. Chlorantraniliprole is the second active ingredient. It is a diamide insecticide and provides unprecedented lepidopteran control through ryanodine receptor activation. Chlorantraniliprole has excellent efficacy and long-lasting control on a broad spectrum of lepidopteran species in nu-

merous crops. The combination of these two excellent active ingredients is what sets AMPLIGO<sup>®</sup> apart from the rest of the insecticides on the market.

Bollworm are especially threatening to soybean crops as they can often prove resilient to chemical control when they are sprayed too late. Bollworm reproduce and grow quickly causing damage as they feed on the pods. Bollworms can be identified on the plant by small black balls which are their excrement. In the later stages you will notice what is known as shotgun damage. This is small holes in the pod where the worms have eaten (see figure 1).



Figure 1: typical shothole damage on pods . Photo by Jaco Haasbroek jnr.

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AMPLIGO<sup>®</sup> contains chlorantraniliprole 100g/l and lambda-cyhalothrin 50 g/l (Reg. no. L8656, Act 36 of 1947) Harmful. AMISTAR<sup>®</sup> Top contains azoxystrobin 200g/l and difenoconazole 125 g/l (Reg. no. L7897, Act 36 of 1947) Caution.

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If the worms are left unmanaged they will also consume the leaves and flowers. These worms are physically tiny but can cause huge damage if the population numbers are high. An easy way to actually see the worms is to take a white piece of paper, pull out a plant and shake the leaves over the paper. If you look closely you will notice lots of tiny little worms. To control Bollworm you need to apply AMPLIGO® around the R1 flowering stage. Symptoms that are observed after application of AMPLIGO® includes the bollworm quickly stopping feeding, a decrease in heart beat frequency, lethargy and partial paralysis.

AMPLIGO® is quick acting and rapidly penetrates the insect cuticle. It disrupts the nerve conduction within minutes. It is incredibly rain-fast and has a

photostable formulation that provides long protection which results in fewer sprays.

AMPLIGO® is very compatible and it is easily integrated into most protection and IPM programmes. It can be safely tank mixed with a wide range of products and spray adjuvants.

It is highly potent on target species and is an excellent option as a rotational partner in insecticide resistant management programs.

All measures can be taken to try and achieve a good crop and a good yield but there will always be obstacles and challenges that we have to overcome. In order to mitigate these challenges it is critical to continually be monitoring and assessing your crops in order to act quickly.



Figure 2: AMPLIGO® was applied, only 2% damaged pods. Photo by Jaco Haasbroek jnr.



Figure 3: A generic pyrethroid was applied, 16% damaged pods. Photo by Jaco Haasbroek jnr.

## 2Down with fungal diseases, Up with yield!

By Adri Anthonissen

The use of fungicide on maize for the control of foliar diseases has become standard practise in many maize growing areas. The main diseases that can cause yield losses are Northern corn leaf blight (NCLB), Rust and Grey leaf spot (GLS). The extent and range of disease development is dependent on your location. In the more humid and warm areas in the East of the country, all three of the important disease can cause significant yield losses. In the more dry Central and Western areas of the country it is mostly Rust and NCLB that can cause losses, however disease development is not as common or severe as in the Eastern areas. The figure below shows the lesions caused by NCLB and Rust

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Northern corn leaf blight usually infects and develops lesions in temperatures between 18 and 27°C and does require high humidity or a period of leaf wetness. Rain, dew and mist can aid in the development of disease. Rust develops better in cooler temperatures between 15 and 25°C but also requires some wet periods. Grey leaf spot will develop better at higher temperatures but can be a problem at temperatures from 20 – 30°C. The disease however does require prolonged periods of high humidity to develop, longer than NCLB or Rust.

Over the past 6 years AMISTAR® Top has provided protection from the adverse effects of these fungal disease, increasing plant health as well as yields. AMISTAR® Top is a mixture of azoxystrobin and difenoconazole. The two active ingredients provides AMISTAR® Top with a broad spectrum of disease control across four fungal groups and 400 individual pathogens.

AMISTAR® Top is known to have a positive effect on yield. The graph below shows the effect of AMISTAR® Top on yields over three seasons and seventeen different trials spread across South Africa. The average yield increase recorded in these trials where 360 kg/ha.

### AMISTAR® Top vs. various Standard Programmes

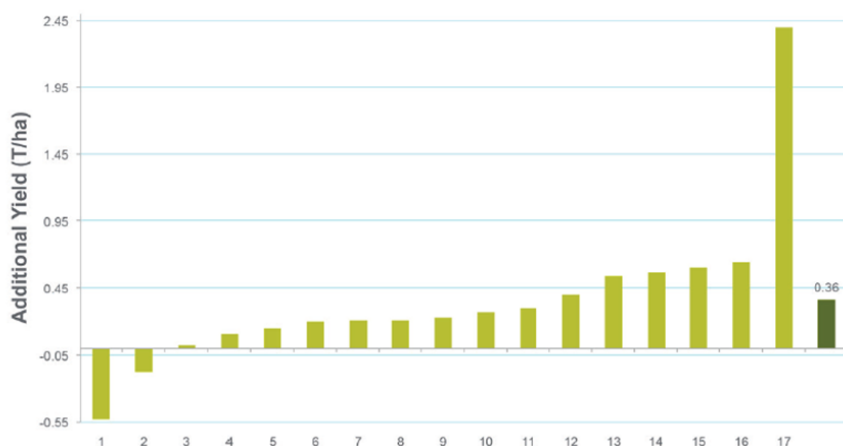


Figure 1: Northern corn leaf blight (top) and Rust (bottom).

Photos by Jo-Ann Warren



Effect of AMISTAR® Top (right) when compared to a untreated control (left).

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In the 2016 - 2017 season a trial done in Kwa-Zulu Natal showed a significant yield increase over the standard program used and the difference in the programs could be seen from afar, as seen in figure two below. The yield increase of AMISTAR® Top compared to the other program was over 2000 kg/ha. This trial was repeated in the 2017 - 2018 season and the yield increase was 1500 kg/ha over the other program sprayed. The many trials done over several growing seasons show that AMISTAR® Top is still a reliable partner in maize production.

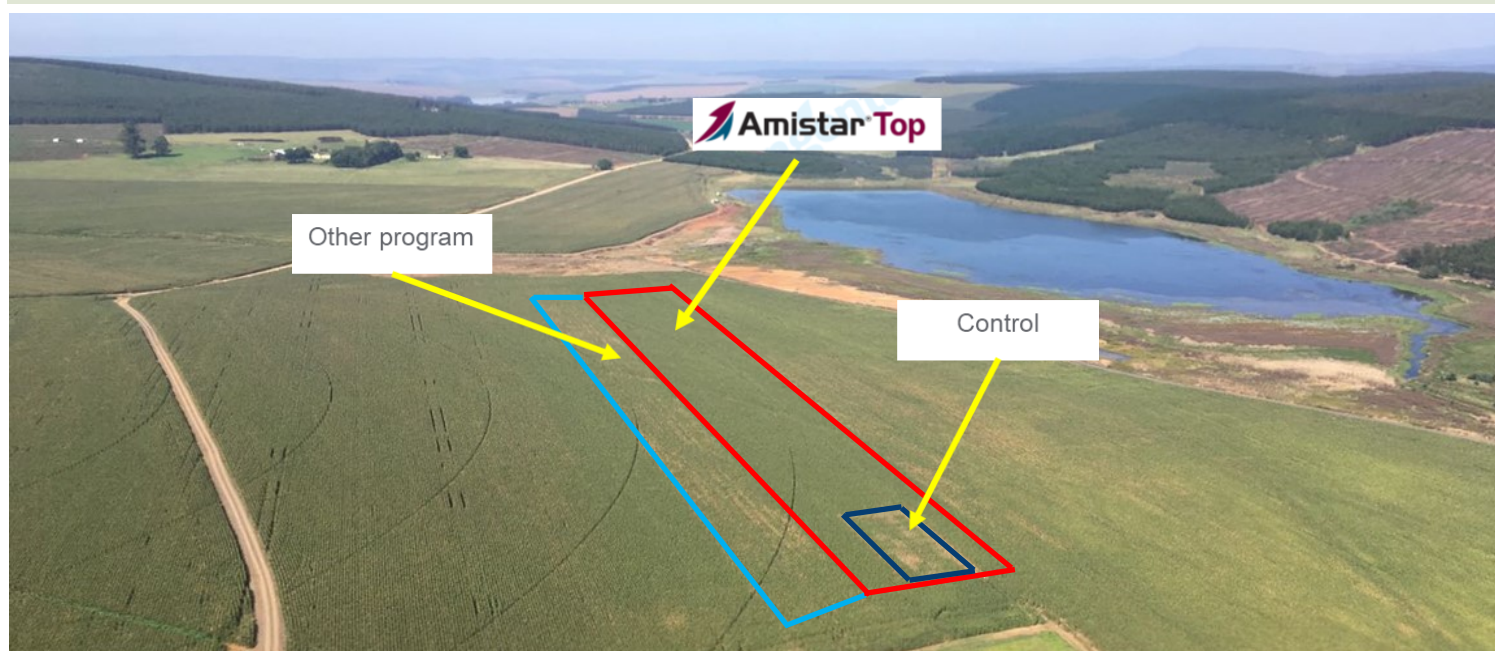


Figure 3: Maize trial from above showing effects of different treatments. Photo: Mark Garthmann.

## 3SAFE of mind with Syngenta

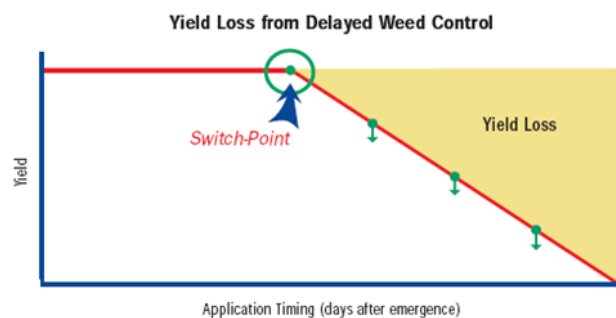
By Francois Viljoen

Due to high competition pressure in the herbicide market, demonstration trials for the 2017/2018 were designed to display the benefits of our Syngenta products and difference that still exists between the “real deal” compared with generics. Trials were divided into three categories including pre-emergence application, post-emergence application and a full program demos. All treatments were compared to that of the farmer, mainly using generic products. Trial results were conclusive in proving that the Syngenta herbicide range is still safe to use, high in efficacy and unmatched in terms of formulation technology. Below were our findings.

### Crop Safety (Pre-emergence)

It is well known that maize plants hold on to their full yield potential until they reach a particular point in development. This is referred to the switching point, and if weeds compete with the crop during this phase, there are real irretrievable yield losses that occur (Figures 1 and 2).

Crop damage during this phase can contribute to yield loss emphasizing the need to use products that are not only high in efficacy, but safe to use.



Switch-point for yield: each crop in each field has a specific point when irreversible yield loss begins.

Figure 1: Effect on yield after switching point

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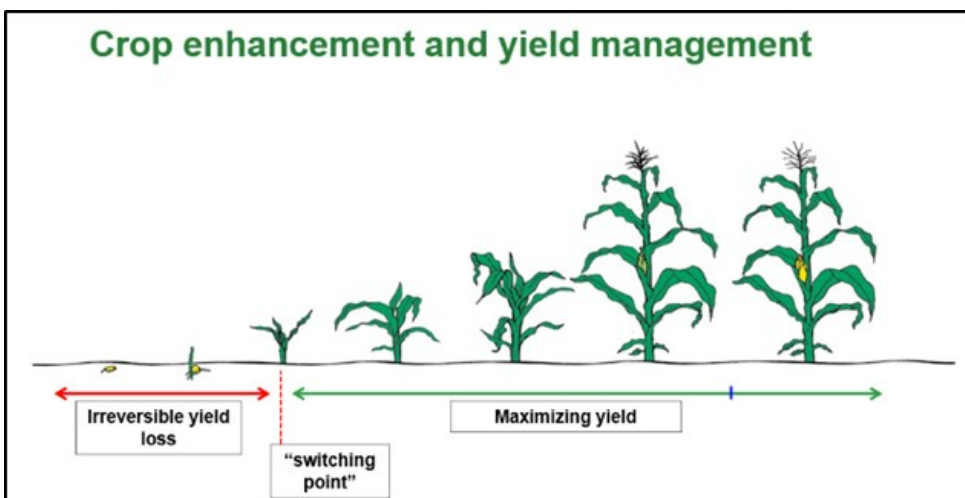
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**Figure 3: Syngenta full program on the top vs a control on the bottom.**  
Photos by Jo-Ann Warren

Trials were conducted with a CALLISTO® and PRIMAGRAM® Gold pre-emergence program was compared to the generic counterpart. Although both programmes had excellent weed control, the Syngenta program yielded on average much higher yields which lead to a higher return on investment (ROI). The average yield increase over seven trials were **0.308ton/ha** with a ROI of **R423.00/ha** achieved with only using the Syngenta pre-emergence program.



**Figure 2: Switching point and maize development.**

This can be attributed to the safety of our products during the most crucial part of a maize plant's development, and although phytotoxicity isn't always clear and visible, the effects of using products that are safe can be big.

### Synergism in a One Can solution

Synergism is defined as the interaction of elements that when combined produce a total effect that is greater than the sum of the individual elements or contributions. This statement was tested when demonstration trials were conducted using LUMAX® as a post-emergence solution compared to the farmers practices. LUMAX® contains mesotrione, S-metolachlor and terbutylazine in one solution providing both residual and knockdown control of annual broad leaf weeds and grasses. Evidence suggest that the synergy of mesotrione and terbutylazine is due to the respective modes of action supplementing each other coupled with well-matched physiology of action.

Combining these actives in a stable formulation is not easy and Syngenta has gone through great lengths to ensure the stability and effectiveness of this mixture. Few others have had the same success when attempting one can solution like products. Figure 4 indicates residual weed control of LUMAX® compared to the farmer practise. The green bar displays the average control percentage over 8 trials where the "dots" specify individual evaluation points.

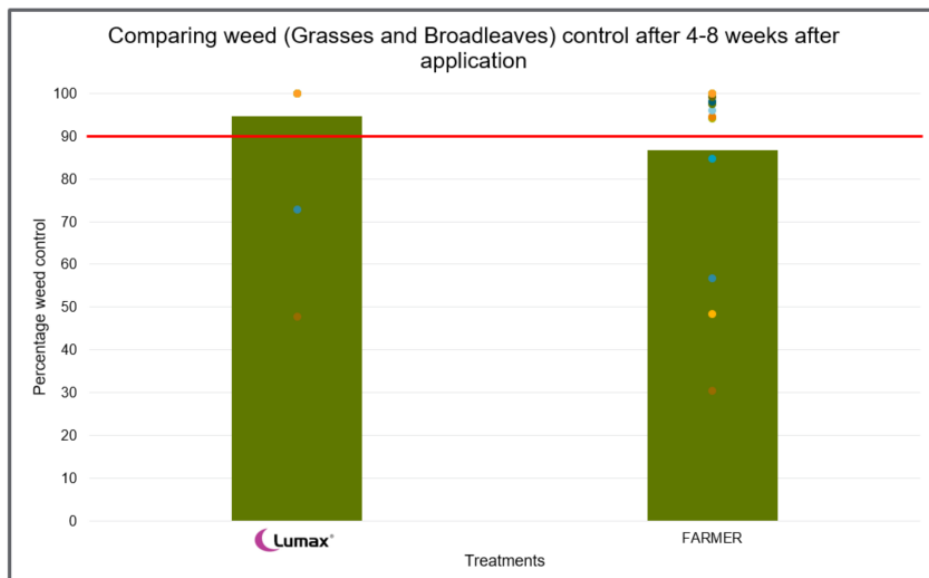
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Weed control of at least 90% is required by grower standards. It is clear that the stability of the Syngenta formulation and the subsequent synergy between actives, provides high efficacy and long lasting control compared to farmer practices. Additionally, one can solutions such as LUMAX® is easy to use as measuring is simplified reducing the risk of human error.



**Figure 4: Comparing weed control of LUMAX® vs Farmers practices over 8 trials.**

### Combining crop safety with Efficacy

Finally, trials were done with a Pre and-post emergence herbicide program, adding the fungicide AMISTAR® Top, and insecticides AMPLIGO® and AGRIMEC® Gold to demonstrate the total crop protection package. Over the seasons of 2016/17 and 2017/18, the average yield increase (18 trials) of the full Syngenta program over the farmer practise was 0.714ton/ha. Higher yields resulted again in a higher ROI. The program also provided long lasting residual weed control of difficult to control weeds, reduced fungal inoculum for the following season and controlled devastating pests such as Lepidopteras and red spider mites.

### Concluding

Syngenta provide total ease of mind in terms of crop safety. The comfort and efficacy of a one can herbicide solution with the added benefit of high efficacy proves the superiority of our formulations. Combining these two aspects together with the addition of a suitable fungicide and insecticide in a full program completes the circle for superior crop protection.



**Figure 5: Syngenta full program on the top vs a generic practice on the bottom.**

Photos by Jo-Ann Warren

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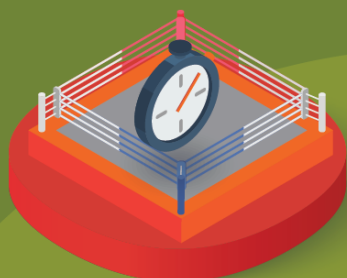
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*Lepidoptera* halt,  
check 1, 2...!



rapid knockdown stops feeding  
immediately with no further crop damage

stabilises the  
product in the spray tank

long residual  
ensures effective  
control with less  
applications

ensures  
better  
coverage

protects  
against  
degradation  
by sunlight

due to patented Zeon  
technology AMPLIGO  
is formulated as unique and  
uniform micro capsules

controls all  
life stages  
moths, eggs and larvae



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