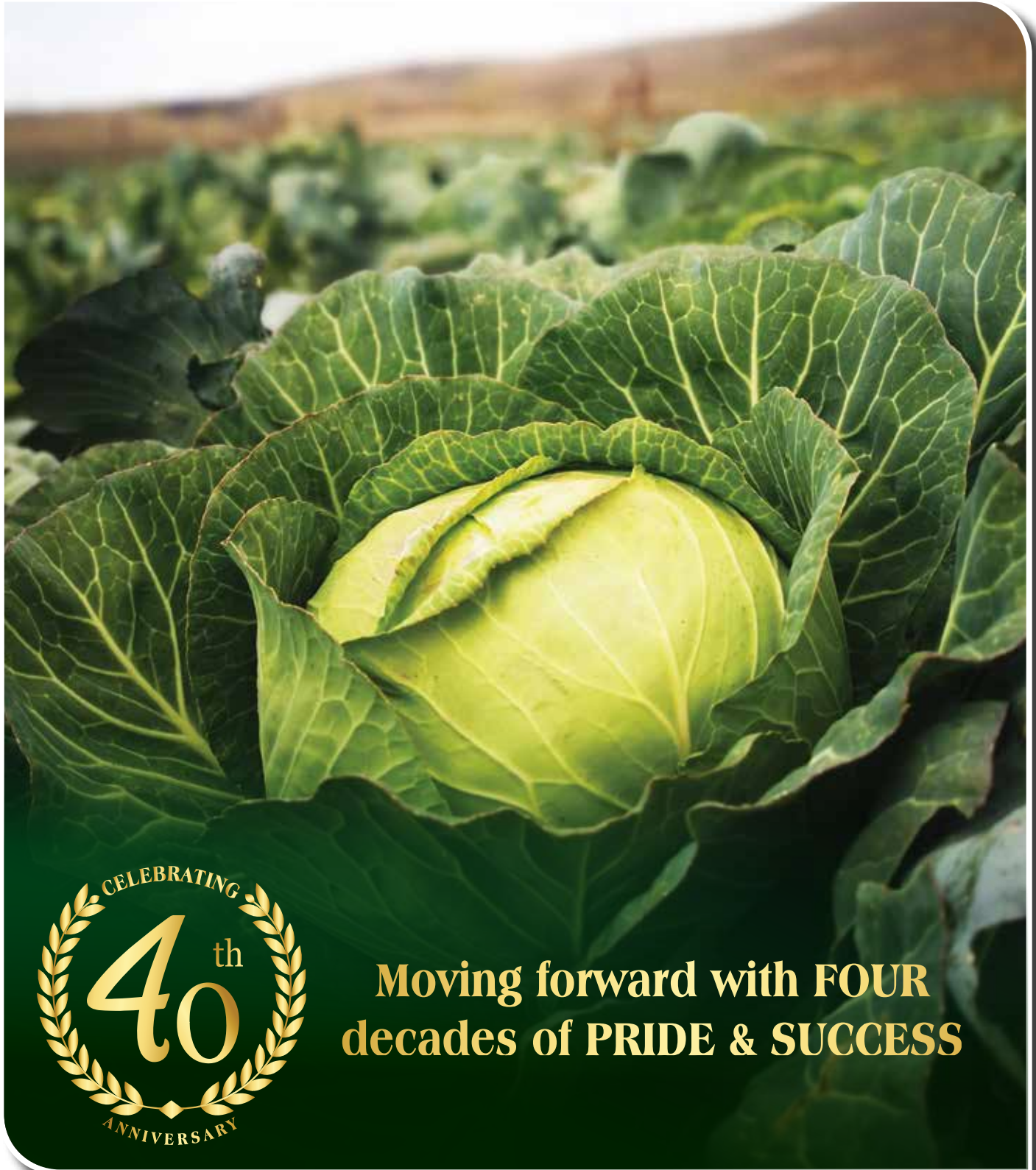


Special edition!

# the FORUM

Since 1991

Vol 1.  
2024



**Moving forward with FOUR  
decades of PRIDE & SUCCESS**

**HYGROTECH**  
SUSTAINABLE SOLUTIONS

INSIDE: Vegetable cultivars | Agri-Chemicals and fertilizers | Miscellaneous

# Nu-Film® P

Spreader Sticker

Certified by various international institutions\* to be used during ORGANIC crop production



\* Contact Hygrotech South Africa, should you require a copy of the Nu-Film® P certification by any of the above institutes.

**Nu-Film® P benefits for agricultural remedies approved for organic production:**

**Improves deposition on crop**

**Improves coverage of crop**

**Improves rain fastness**

**Reduces UV degradation**

**Reduces heat degradation**



Nu-Film® P is non-toxic to honeybees

**ALWAYS REFER AND ADHERE TO PRODUCT LABEL INFORMATION AND RATES WHEN USING THE PRODUCT**

Nu-Film® is a trademark of Miller Chemical & Fertilizer, LLC in Hanover, Pennsylvania.

Nu-Film® P contains 875 g/L Poly-1-p-Menthene. Reg. No. L2980, Act 36 of 1947

Hygrotech South Africa (Pty) Ltd is the principal supplier and registration holder of Nu-Film® P in South Africa.

Hygrotech SA contact number: +27 12 545 8000



A HUBER COMPANY





**SOUTH AFRICA**



**BUSHVELD**

Mokopane: 072 561 0572  
Louis Trichardt: 015 516 1504  
Musina: 082 729 0675

**LOWVELD**

Tzaneen: 015 307 2482  
Nelspruit: 013 753 3774

**GAUTENG**

Pretoria: 012 545 8000

**NORTH WEST**

Brits: 012 001 4944

**WESTERN CAPE**

Stellenbosch: 021 881 3830

**NORTHERN CAPE & OFS**

Kimberley: 072 561 0667  
Kroonstad: 072 058 9368  
Bloemfontein: 079 391 2556

**SOUTHERN CAPE**

Kariega (Uitenhage): 072 561 0667  
George: 072 058 9368

**SOUTHERN AFRICA**



**AFRICA DISTRIBUTORS**

Zimbabwe: +263 71 919 5196  
Zambia: +260 211 250 454  
Mozambique: +258 86 537 8966  
Namibia: +264 61 25 3322  
Swaziland: +268 2505 2728  
+268 2518 6040  
Botswana: +267 241 3906  
Kenya: +254 728 60758

# SUCCESS

**Success. We crave it. We want it. We love it.**

**W**e all desire to be successful in all aspects of our lives. Whether in our workplace or in our personal lives, it's always about achieving better and more. In my opinion a "life recipe" that should be followed to reach these long-term goals and success. You need to be serious, diligent, persistent, and disciplined and yet enjoy the small things in life.



Success is a subjective term that means different things to different people. *How is success defined? Having nice car or nice clothes?* If you think that having a great, well-paid job or a professional achievement in a big city, that is great, because it is YOUR opinion of success. Another persons' success is being family oriented, having a big house, or just making a difference in the world. Being their opinion of success. I assume it may come with getting older.... Your ideas of success will change and have changed multiple times.

*" I very much support the notion that 'success' as it has a million definitions." Joanna Cheffins*

Let's talk about a successful business.... The strive for long term goals and to meet the needs of their customers. The conduct research, goals and then offer a solution to the target market. Achievement is not just about the happy, shiny things – it is also about withstanding tough times and challenging situations.

Prolonging endeavour and hard work always pay off! In this special addition of the Forum we are celebrating the 40<sup>th</sup> Anniversary of Hygrotech. Years of hard work and determination. From a small, rented space to a well-known international business! Supplying our agricultural customers with a diverse range of products. What an achievement!

**It is our mission to keep on building the trust and loyalty of our valuable customers. Meeting their needs for many years to come!**



43



30



32

24



8



47

# CONTENTS

From the editor's pen	3
Message from the CEO	6
In Memoriam - Stuart "Stutti" Millar	54



## VEGETABLE PRODUCTION

Yellow Cantaloupe - Flavor Time	8
Excellent results for Pepper Sailfish	9
Habanero Ember F1	10
Baby Marrow BB1022	12
Summertime with Watermelon Red Heaven	14
Hygrotech supports upcoming farmers	16
Tomato F350	18
High temperature on corn pollination	21
Hygrotech Tzaneen has moved	22
Be amazed - May seeds & Hygrotech trial	24
Beetroot Scarlett F1 in the spotlight	28
Booming Brassica range!	30
Heinz - Leader in processing tomato varieties	32
Magma Collection - Green beans	34
Tomato Spero F1	38

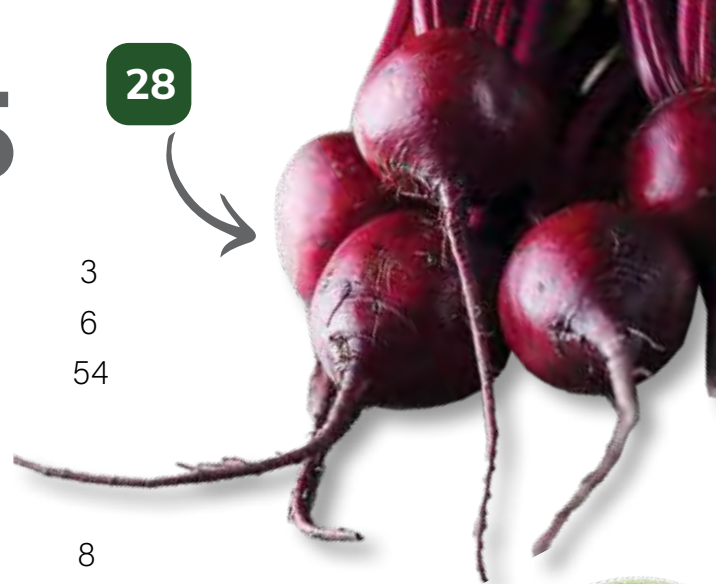


## FERT-AG-CHEM

Tomato cultivar fertigation and foliar program	40
Millerplex® trial on corn	43
Adjuvants	47



14



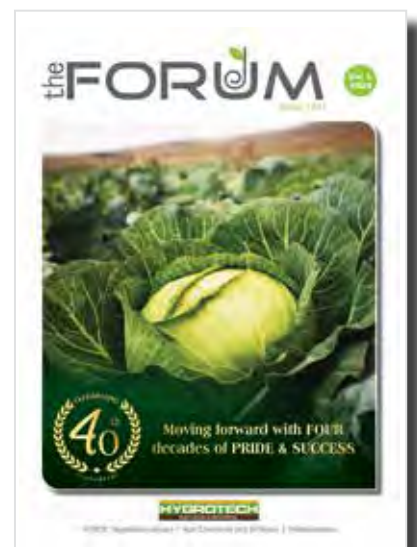
28



9



**Special edition!**  
**ON THE COVER**



Melani de Beer - Agricultural Graphic Design and Layout • melani.debeer7@gmail.com

This information is based on our observations and/or information from other sources. As crop performance depends on the interaction between the genetic potential of the seed and variety, its physiological characteristics, the environment including climate, disease pressure, water quality and quantity, management etc., we cannot give any warranty expressed or implied, for the accuracy, performance or applicability for the information, recommendations or products supplied, nor for the performance of crops or products relative to the information given, nor do we accept any liability for any loss, direct or consequential that may arise from whatsoever cause. \* These cultivars are not on the official cultivar list, but applications have been, or will be submitted.

# HYGROTECH SA CELEBRATES 40<sup>TH</sup> YEAR OF SUCCESS!



Henry van der Voort - CEO Hygrotech

**Hygrotech turned forty on the 1st of February 2024 and this concludes 40 years of excellence with many more to come! The journey started from humble beginnings as a dream that changed onto reality on the 1<sup>st</sup> of February 1984 at the Silverton offices.**

**H**abe Roode, founding member and drive behind the success of the first 25 years, continued with the same passion until his retirement from Hygrotech in 2022 to his house in the East of Pretoria, from where he stays in contact, paying the occasional visit for some tea, a chat and laugh. Many thanks to the legacy you left Habe, and the mentorship imparted to the next generation of personnel. We wish you good health and happiness in the years to come!

The world as we knew it in the eighties has changed and evolved, so has global agriculture evolved and with it, Hygrotech.

The core values of the company remain the same. The company cannot exist without its people and warm thank you to all those who have contributed to the success of the company over the past 4 decades, irrelevant of your length of employment.

**“ Many thanks to all our suppliers over the years and you continued support to Hygrotech on the Southern tip of Africa. The fruit of your seed has fed the mouths of many over the past 40 years! ”**

Hygrotech has no reason to exist if it has no client base and the fact that we do exist as a company is due to its loyal client base. Many thanks to all those over the 40 years who supported us and continue to do so. Rest assured that Hygrotech wants to continue its

*Forum 2009*



***Habe Roode established Hygrotech Seed Pty Ltd with two investors, Bertie van Zyl Pty Ltd and WL Ochse & Co, and started operating from the Silverton premises.***



partnership with you, your families, and your personnel for many more years and decades.

Hygrotech wants to thank its international partners with whom we have excellent relationships for their contribution to our success. After being purchased by a South African investment company, Zaad Holdings, Hygrotech has repositioned itself to renew its focus on Hybrid Vegetable seeds and a chemical range of products that includes the Miller Chemical range, an international renowned company.

### Vegetable Seeds

The Hygrotech strategy of sourcing superior and unique vegetable genetics globally has paid dividends. Screening these varieties on Hygrotech's trial grounds close to Pretoria and at Stellenbosch, enables Hygrotech to compare varieties from different genetic origin to find those most suited to our local conditions. Once identified these varieties are introduced to

potential growers across South Africa in trials — many thanks to you all for putting up with all the visits by Hygrotech personnel, kicking up dust with their bakkies, to the trials to measure, weigh and taste the fruit of your labour. We trust you learnt as much as we did to the benefit of both parties!

### FertAgChem

The collaboration with Miller Chemical, who have been involved with Hygrotech since February 1984, has become a success story of which many pages of this story still have to be written. Many thanks to yourselves for your continued support.

All in all, Hygrotech has kept pace with the ever-changing trends in agriculture amidst economic challenges, health scares, climate change and a host of other challenges along its journey and plans to be a key player in the Southern African market for many years into the future.



# The new “yellow cantaloupe” melon with lots of flavors



*Hugo Burger with farmer Fred du Plessis from Eikehoff Boerdery near Worcester*



There are many types of cantaloupes that are planted globally, with Eastern- and Western Shippers, and Harpers being the types of choice that have been dominating the South African landscape the past decade or so. The shelf life of these types is seen as an advantage for growers and end users alike, including the processing/fresh cut industry. But these varieties also have negative characteristics, those being a low sugar content and a lack of an attractive aroma. It is difficult to harvest these cantaloupe types at the precise stage of ripeness which has contributed to cantaloupes becoming out of favour with consumers. All those involved in the cantaloupe value chain have been looking for a new type and variety for many years and finally a variety from Seminis, named Flavour Time has been identified as the variety to put cantaloupes back on the shelves of supermarkets. This variety ticks all the right boxes with its attributes of taste, shelf life, aroma, and high sugars, giving those who at it an exceptional eating experience.

The first semi-commercial trials were conducted across the Western Cape in Worcester, Vredendal and Piketberg and in the Upington-area in the Northern Cape. All the results documented were extremely positive. Fruit sizes varied from 2.5kg-5.2, with brix varying from 15-17. Fresh cut trials were conducted to confirm of this variety was suitable for this market and it performed extremely well, with very little moisture loss while holding onto its good qualities of taste and aroma. Further confirmation of this variety’s market acceptance was obtained from reviews done by other players in the value chain.

Flavour Time has the added advantage for potential cantaloupe growers of a strong growth habit backed up by strong diseases resistances (Refer to the variety description). We strongly recommend growers who are currently planting cantaloupes to include Flavour Time in the growing program so as not to miss out on the benefits this variety will supply to the individual growers and the cantaloupe industry as a whole.





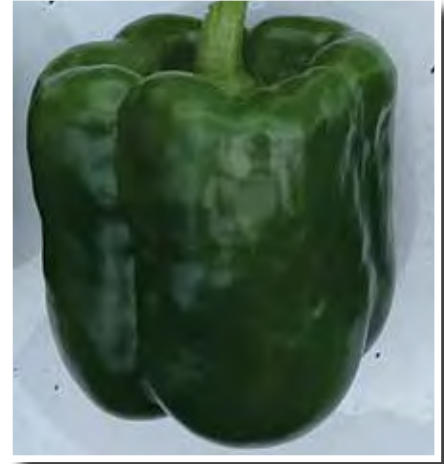


# Pepper Sailfish

## shows excellent results

Written by Francois Mostert- Nelspruit

According to data just obtained, Green Pepper Sailfish has performed exceptionally well in a screening trial in the Komatipoort area, confirming the excellent results seen in previous trials in other time slots and with other growers. This newest positive data was obtained from a trial conducted at DIP Boerdery-many thanks for diligently conducting the trial! It was observed that Sailfish has a strong growth habit, due to the variety's *Phytophthora* and Bacterial leaf spot 0-10 resistances. These attributes combined to ensure that Sailfish came into production earlier than competing varieties, giving high yields. Fruit sizes were predominately between 150-200g and of a very high quality, ensuring a high pack out percentage for the grower. Given that growing conditions were way below optimum, these results documented are so much more impressive.



Hygrotech has and is currently conducting trials across different areas to measure the adaptability of this variety and so far, all the results obtained have been very positive, including those from the Northwest. A demand for seed from growers who have trialled this variety, is an indication of its market acceptance among growers as it obviously satisfies their needs in terms of its growth habit, yield, and consumer satisfaction.

Hygrotech is positive that this Seminis variety will gain in acceptance and will become a first choice amongst growers. Seminis, in the spirit of its partnership with Hygrotech, has generously indicated its willingness to supply a larger volume of seed for interested growers to plant in larger trials. This good gesture puts Hygrotech in the position to supply Sailfish free of charge in the coming months. Please contact your Hygrotech representative to enquire timeously about participation in trialling Sailfish. We are optimistic that Sailfish will be plain sailing to success-enjoy the journey!

**Please reserve you seed of this variety well ahead of time to ensure you can share in the benefits Sailfish will add to your business.**



### Specifications

- Strong growth habit
- High yields
- Fruit size: 150-200g
- Resistance to *Phytophthora* and *Bacterial leaf spot 0-10*





## WELCOME ON BOARD

# Habanero Ember F1

Written by Theo Scholtz – Senior Field Officer, Stellenbosch, Western Cape

**This new Hybrid Habanero variety has been causing quite a stir among local Habanero producers, as it has performed extremely well across South Africa. John and Eddie Whitehead who farm in the Botriver-area are just some of the many satisfied growers.**

The Habanero Ember F1 has quickly gained a reputation as a highly productive variety with exceptional fruit-setting capacity. The fruit produced by this variety is green, turning to an orange colour as it ripens, and has a fruit size of 5x3 cm. This makes it visually appealing on store shelves and in culinary creations.

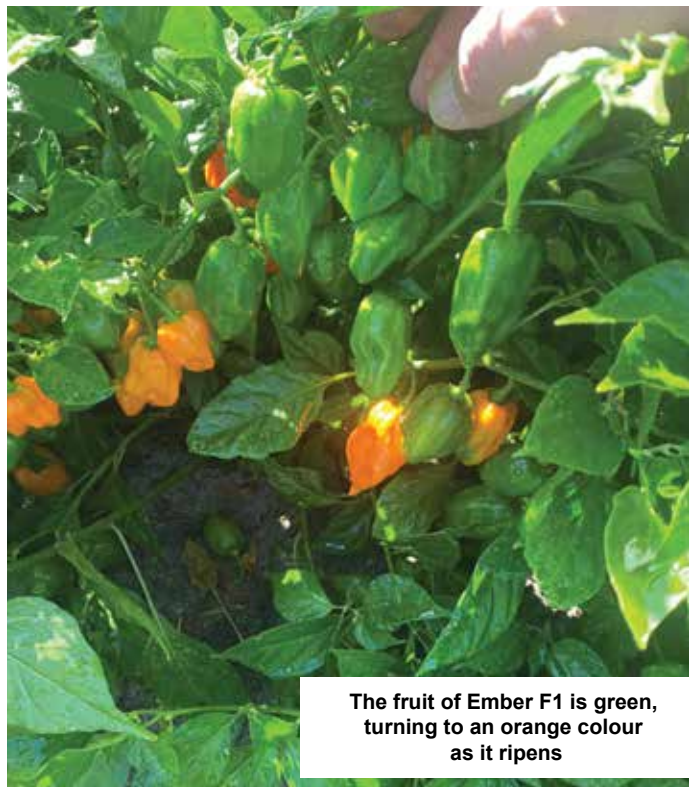
But what really sets the Ember F1 apart is its productivity according to John and Eddie. They were able to achieve yields of over 1kg of fruit per plant, a remarkable achievement for a habanero pepper variety. Obviously the focus on a good fertigation program played a positive role.

In addition to its impressive yields, the Ember F1 has good disease resistance. It has been shown to be tolerant to Cucumber mosaic virus (CMV), Tobacco streak virus (TSWV), Nematodes (N), and Potato virus Y (PVY). This makes it a valuable addition to farmers' fields, as it allows them to maximize their yields while minimizing the use of harmful pesticides.

Hygrotech is looking forward to more successes with Ember as this variety gains support amongst growers.



**Eddie Whitehead standing proud between the Habanero Ember F1 plantation**



**The fruit of Ember F1 is green, turning to an orange colour as it ripens**



**A Successful Habanero Ember F1 plantation**



## Specifications

- Fruit Colour:** Green to orange
- Fruit size:** 5x3cm
- Yield:** Very high
- Suitability:** Fresh Market

**Disease Tolerant:** *Cucumber mosaic virus (CMV)*, *Tobacco streak virus (TSWY)*, *Nematodes (N)*, and *Potato virus Y (PVY)*



# Baby Marrow BB1022

Written by Theo Scholtz – Senior Field Officer, Stellenbosch, Western Cape

South Africa’s Western Cape is home to a vibrant agricultural industry, with a diverse range of crops that thrive in its unique climate and soils. Among the latest additions to this impressive roster is BB1022 baby marrow, a new variety that has been causing a stir among local farmers.

Planted by Mark Tolmay of McGregor, the BB1022 has quickly gained a reputation as a highly productive variety with a superior quality compared to currently available baby marrows. The fruit produced by this variety is characterized by its dark green colour and cylindrical shape, making it more visually appealing on store shelves and in consumer kitchens.

But what really sets the BB1022 apart is its yield according to Tolmay. The BB1022 has been producing a lot more fruit per hectare compared to other varieties



he has planted in the past. This increased yield means more revenue for farmers and a greater supply of baby marrows for consumers.

One of the key features that contribute to the BB1022’s impressive performance is its resistance/tolerance to a range of common diseases that often plague baby marrow crops.

The variety has been shown to be resistant/tolerant to Watermelon mosaic virus (WMV), Cucumber mosaic virus (CMV), and Zucchini yellow mosaic virus (ZYMV), as well as Powdery Mildew. This makes it a valuable addition to farmers’ fields, as it allows them to maximize their yields while minimizing the use of harmful pesticides.



In addition to its disease resistance/tolerance, the BB1022 is also well-suited to the growing conditions of the Western Cape.

The variety has been shown to have a high tolerance for heat and drought, which are common challenges faced by farmers in the region. This means that farmers can plant the BB1022 with confidence, knowing that it is likely to perform well under a range of environmental conditions.

**“The BB1022 is just one example of the many exciting developments taking place”**



The response from other farmers in the region has been overwhelmingly positive. According to Tolmay, “All current farmers are very impressed by the BB1022.” The variety has been so successful that Tolmay is already planning to expand his planting of BB1022 in the coming season.



**A** A Succesfull baby marrow BB1022 plantation

**B** Perfect baby marrow BB1022 fruit ready to be distributed

**C** The baby marrow BB1022 has showed resistant to Watermelon mosaic virus (WMV), Cucumber mosaic virus (CMV), and Zucchini yellow mosaic virus (ZYMV), as well as Powdery Mildew.

Summertime is



# Red Heaven time!

Written by Renier van Rooyen - Southern Cape

Summer conjures up many thoughts synonymous with lazing on a beautiful beach, the smell of sunscreen in your nostrils and of course sharing a bright red, tasty watermelon with family and friends!

The sensation experienced when biting into a Red Heaven watermelon is guaranteed to put you on cloud nine due to its excellent taste, superior flavour, and crisp eating quality. Further attributes are its bright red internal colour and external bright attractive rind which will attract consumers in any supermarket.



## Red Heaven supplies the following advantages to growers, supermarkets, and consumers:

- Large attractive fruit. In trials fruit sizes of up to 20kg were measured.
- The spectrum of fruit sizes harvested were equally distributed across the sizing scale from small, medium, and large, thus satisfying all markets segments.
- Red Heaven has a very strong growth habit, also due to its strong level of resistance to *Fusarium*.
- The strong plant structure and high Brix contribute to the variety's excellent shelf life and capacity to travel by road.

1



### Captions

1. One of the farm workers standing proud with a large Red Heaven watermelon
2. Red Heaven are known for large attractive sweet fruit
3. Red Heaven has a excellent shelf life and perfect for the fresh market

2



3



Hygrotech strongly recommends that current and potential watermelon growers reserve Red Heaven seed with their Hygrotech representative as this Seminis watermelon is poised to ensure that a trip to the beach will include a watermelon in the cooler with all the other beach necessities.

# Hygrotech takes initiative to support upcoming farmers

Written by Martin Maboko

Hygrotech with the support of the Limpopo Department of Agriculture and Rural Development in Venda under the coordination of Ms Prudence Nenweli visited a group of farmers in Matangari village. Farmers were able to share the challenges that they face in vegetable production.

On the second visit, 25 farmers were given gift packages as a support initiative. The gift packages included hybrid seeds of high yield and quality with good disease resistance so as to observe their differences in performance compared to standard cultivars. Hygrotech was impressed by the attendance and enthusiasm farmers have in growing vegetables.



Farmers excited about the generous gift boxes supplied by Hygrotech



Farmers sharing information, ideas and concerns



Farmers attended the project in numbers, with enthusiasm and willing to learn more about vegetable farming



What a way to start! Gift boxes filled with various high quality vegetable seeds

A banner featuring a close-up of green leafy vegetables. The text 'SUSTAINABLE SOLUTIONS TO ALL FARMERS' is overlaid in large white letters. At the bottom, there is a dark green bar with the website 'WWW.HYGROTECH.CO.ZA' and the Hygrotech logo with the tagline 'SUSTAINABLE SOLUTIONS'.



FOLLOW US ON



# ONLINE STORE

SAVE 5% ON YOUR  
FIRST ORDER!



**EASY!**

FREE SHIPPING ON ORDERS OVER R500!



**WWW.HYGROTECH.CO.ZA**



# F350

## A journey to new Heights!

Written by Herman de Beer



In recent years, the focus has been on indeterminate Saladette type tomatoes by growers in the Northern parts of South Africa. This decision made sense against a backdrop of good weather conditions for a long growing season. Climate change, bringing with it high volumes of concentrated rainfall, higher disease pressure that includes the devastating effects of the Tuta Absoluta moth species, has forced tomato growers to rethink their growing strategies. The larvae of this moth can cause losses up to 100%.

The risks of Tuta Absoluta and other disease infestations increase as the crop grows over time. Many growers are opting to look at determinate varieties that can yield similar volumes in a much shorter time frame. A leading variety internationally, named F350 locally by Hygrotech, for its vigour, strength, and ability to handle adverse conditions, has been patiently waiting like an athlete in the starting blocks for its turn to make its debut in the market.

Hygrotech identified this variety many years ago as having the best potential to be the leading determinate Saladette variety in South Africa, once growers found that this would





be the best strategy to counteract the threats Tuta Absoluta would start posing. Unfortunately this threat has come to pass, but fortunately, Hygrotech having anticipated this, has now unleashed F350 into the market.

Comparative variety trials were conducted in the North-Eastern Limpopo recently which included other leading varieties. In these trials, two varieties clearly stood out: F350 and the old stalwart, HTP328. The strong vigorous growth of the F350 was impressive and the leaf health impressed until the grower deemed the season done and dusted and the irrigation was discontinued. What was noted came as no surprise as the disease package of F350 makes impressive reading; VFFF; TOMV; TYLC; TSWV and BW.

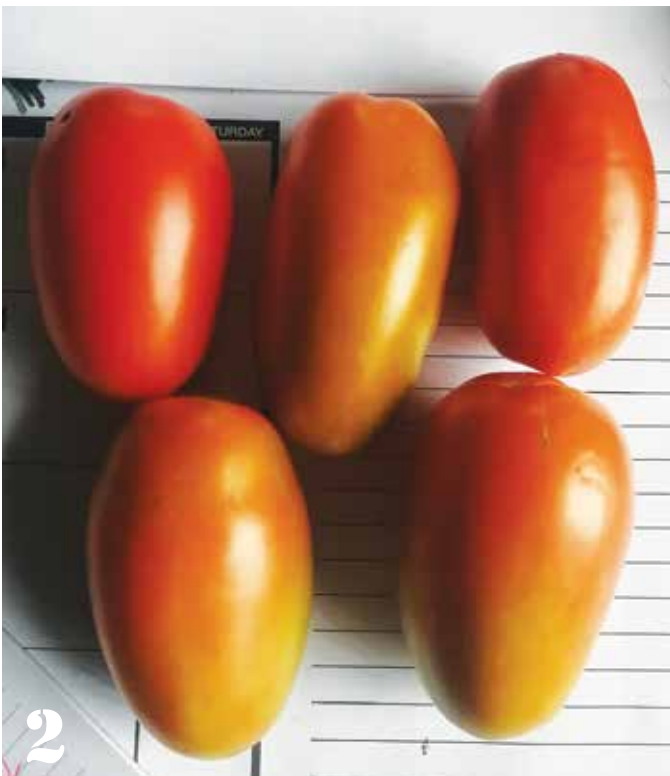
In this trial fruit size varied from 140g-180g consistent over all trusses and was easily 30g-40g heavier per fruit than fruit similar in size from the competing varieties. The thick walls of the fruit, continues flowering and fruit setting ability of F350 caught the eye of many potential clients that included processors, hawkers and those who pack tomatoes for the formal sector. The well-formed variety is extremely presentable, either packed in plastic bags or boxes.

For any grower and supplier of Saladette tomatoes, it makes sense to include F350 in your program and it will place you on the road to success, not leaving you stranded along the way!





1



2



3

- 1 Tomato F350 harvested and on its way to the crats
- 2 Saladette tomato F350 showing impressive fruit uniformity
- 3 F350 fruit size is an outstanding future of this variety
- 4 The yield of F350 and uniformity are magnificent

“A leading variety internationally, named F350 locally by Hygrotech, for its vigour, strength, and ability to handle adverse conditions. ”



4

# Effect of high temperature and stress on Sweetcorn/Corn pollination

Pollination is a critical period for development of corn and yield potential. Pollen shedding occurs normally over a two-week period. For kernel development, silks must first emerge and be fertilized by viable pollen. Silks will grow about 2,54 to 3,50 cm per day and will continue to elongate until fertilized.



Temperatures higher than 35°C with relative low humidity will remove the moisture from the silks to become complete dry. Although this will not have an impact on the silk elongation rate. Pollen is no longer viable once temperatures reach mid 30°C or higher, especially with low relative humidity. Pollen shedding usually occurs from early to mid-morning when temperatures are generally lower.

Drought stress slows silk elongation but accelerates pollen shedding. This can result in pollen shedding occurring before the silk emergence. Any stress such as to little watering, low soil fertility, or high plant population can delay silking two or more weeks. This reducing seed set if pollen is no longer available. Normally the pollen of one plant is sufficient for about 10 plants, this provides a small compensation and improves the opportunity for fertilization in stressful conditions.

## SUMMARY

High temperatures will not severely stress sweetcorn/corn pollination if the soil moisture is enough. Drought stress along with high temperatures during pollination and silking can have serious effects. If dry-hot conditions continue over the pollination period, expect to see differences in fields based on management practices and different hybrids (cultivars).

Farming practices that protect soil moisture such as reduced till will improve a crop's performance during drought. It's possible that early-season hybrids or early maturing hybrids could do better than other hybrids if pollination occurs before temperatures soar or moisture reserves are depleted. It's impossible to predict when stressful conditions will occur from year to year, but using a quicker maturing hybrid could limit some of issues mentioned above.

Hygrotech new range fits perfect into the earlier maturing hybrid segment, with Caramelo F1 maturing in 70 – 75 days. Khan F1 short on its heels maturing within 75 – 82 days. Most of the current cultivars used in South Africa average maturing of 85 – 90 days. Recommended plant population 60 – 65 000 plants per hectare, could help keep the soil moisture (Plant/leave cover) once the soaring heat units arrive. This provided enough irrigation being done. We already seeing unprecedented heatwaves as the El ninio is set to return in 2025.

# HYGROTECH TZANEEN HAS MOVED



As from 1st October 2023 Hygrotech Tzaneen occupied their new offices at 1E Kew Street, Arbor Park. Access to the premises is more convenient and closer to the taxi ranks for the walk-in clients. There is ample parking in front of the premises for the clients and collections by companies.

The premises were renovated on the inside to support spacious and accessible displays. Clients can now not only experience a display of a variety of products but also the friendly assistance from the personnel.

Technical information is given by the personnel and supported with factual documentation to all the potential buyers. This service builds lasting relationships with the walk-in clients, farmers, nurseries and professional companies.

We invite every interested person and company to visit our new premises and experience our friendly hospitality and professionalism.

**We are here to serve, because we care!**



**Contact number: 015 307 2482 / 076 971 1611**



1E Kew Street,  
Arbor Park,  
Tzaneen



# Be aMAYzed

Written by Christo Le Grange

In the previous edition of the Forum, Hygrotech proudly announced the addition of an international supplier of a sweetcorn range to its range of offering to the South African market. In the interim trials have been ongoing throughout South Africa at selected grower to collect and tabulate data. This process has been ongoing for 24 months.

After initially receiving 12 successful commercial varieties from May Seeds to trial, the Hygrotech technical team has selected the top five varieties that performed well across the country. The selection process was done at grower level and included discussions with all role players in the supply chain, from those prepacking to representatives from supermarkets. One of the many criteria used to evaluate the varieties, was to determine the days to maturity in comparison to competing varieties. We were pleasantly surprised by how quick the selected varieties were to maturity. In the challenging circumstances of load shedding, disease pressure and paired spraying costs, and irrigation costs, this is a definite benefit for growers. Another standout of the May sweetcorn range was the high incidence of single stalks in comparison to some varieties that tend to have side shoots, often referred to as "tillers" or "suckers".

“After initially receiving 12 successful commercial varieties from May Seeds to trial, the Hygrotech technical team has selected the top five varieties that performed well across the country”







With the May varieties all nutrients are used to mature the cobs set and this is not the case where side shoots are present. A further negative of side shoots is the increased foliage that is present, that is conducive to more diseases. This poses challenges to spraying for insects and diseases. After irrigation or rainfall, the crop tends to take longer to dry out, which benefits any fungal diseases. Herewith results from a summer planting in the Highfield area: The average days to maturity were +/- 75 days for all varieties in the trial.

**Table 1 Plant information**

Cultivar	Plant height	Tassel height	Ear Height	Silk	Internodes
Sherbet F1	210 cm	170 cm	500 - 700 mm	Medium	17 cm
Mirza F1	200 cm	160 cm	500 - 700 mm	Medium	20 cm
Baha F1	160 cm	130 cm	200 - 400 mm	Medium	16 cm
Carmelo F1	150 mm	120 mm	300 - 500 mm	Good	16 cm
Khan F1	200 mm	175 mm	500 - 700 mm	Medium	18 cm

What stood out in the growth patterns was the single stalks, ensuring easier spraying which was important for the control of Armyworm infestation. The crop also dried off faster because of the less foliage.

Regarding cob sizes and other attributes in this trial, the following information can be shared:

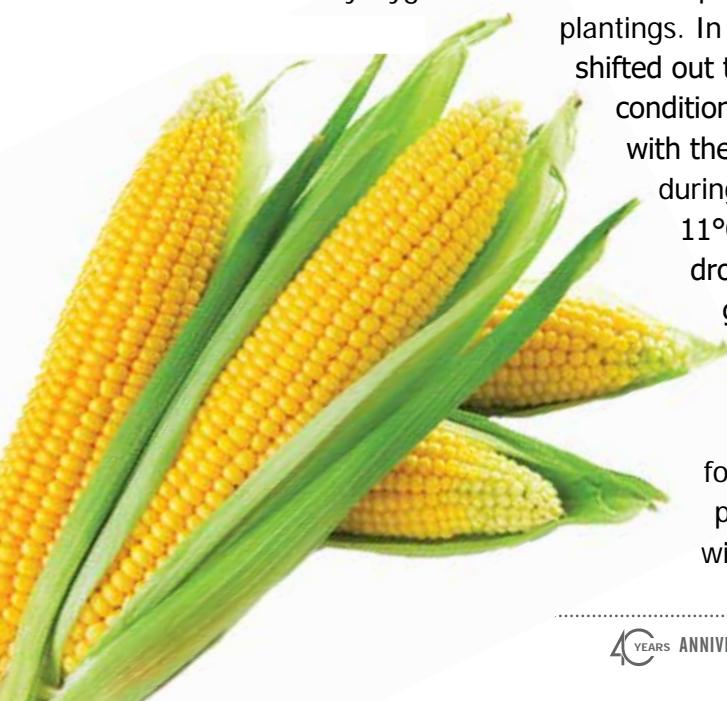
**Table 2 Ear Information**

Cultivar	Plant height	Tassel height	Ear Height	Kernels row	Kernels diameter	Ear length	Ear diameter	Tip fill
Sherbet F1	170 cm	140 cm	400 – 500 mm	33	16	17 cm	50 mm	No
Mirza F1	180cm	140 cm	400- 500 mm	47	18	28 cm	60 mm	Yes
Baha F1	160 cm	130 cm	300 - 400 mm	36	16	16 cm	50 mm	No
Carmelo F1	160 cm	110 cm	300 - 500 mm	35	16	16 cm	50 mm	Yes
Khan F1	180 cm	140 cm	400- 500 mm	44	16	25 cm	50 mm	Both

The demand in the market is for ears/cobs not wider that 50mm in diameter and at least 16cm in length. The range in the trial all met these requirements.

Winter trials were conducted in the same region and the following results were achieved. It is evident from these trials that winter conditions did not suit these varieties. Currently Hygrotech recommends spring, summer, and early autumn plantings. In this trial the average days to maturity shifted out to 105 days. Two different climate conditions were observed over the 105 days, with the first 50 days being warm at 27°C during the day with night temperatures of 11°C. from there the day temperatures dropped to 22°C with night temperatures going down even lower to 5°C.

Although Hygrotech conducted did winter trails, Hygrotech firmly believes the range is better suited for Spring, Summer and Autumn productions, and the recommendation will be not to plant in winter.





The plants were shorter in the Autumn plantings the ear sizes remain the same. Diameter average 50 mm and some lengths were shorter or longer by a couple of centimetres. Because of "stress" some plant could produce more stalks. No silk jamming spotted which is another problem during this period. Due to the quick growth and early maturity of all the cultivars, leaf diseases did not play a major role in productions. Ears already formed before the plants start to struggle.

Caramelo F1, Khan F1 and Sherbet F1 all selected for the fresh market, with Mirza F1 selected to fill the processing gap. Khan F1 is also the only cultivar in the range for a dual-purpose variety. Limpopo Autumn plantings (2023) showed extremely good results, and some of the growers are already considering changing some of the sowings to Khan and Carmelo. Mirza showed the processing potential (longer ear), and this attractive ear could become one of the fresh market options soon.



### Caramelo F1

Excellent full ear pre-packer for the fresh market. Best tasting sweetcorn by far on offer in South African. Top & Tail grower will also benefit from the length and diameter of the variety. Smaller plant structure ensures easier crop management. Excellent tip fill during summer production conditions. Recommended plant stands of 65 000 p/ha, but due to smaller plant growers can move up to 70 000 p/ha.

**Disease package:** NCLB



## Khan F1

Dual-purpose option for the fresh and processor market. Excellent Top & Tail option with good tip fill. Medium to strong plant, but still "short" enough for easier crop management.

**Good disease package:** PS, NCLB & MDMV. Plant stands of 65 000 p/ha recommended.



Please speak to one of our sales representatives  
or call Hygrotech Head office  
Tel: 012 545 8000 or email us at [info@hygrotech.co.za](mailto:info@hygrotech.co.za)

# Spotlight Scarlett F1

Pop Vriend Seeds



Long supply from storage due to highest brix in the market



Less processing cost as it is easy to peel



Repeat buying by consumers due to better taste



Scarlett has an improved quality and shape, shows a more balanced plant and grows less vigorous compared to Jolie. During spring and summer tops remain very healthy resulting in a high brix and flexible market positioning. Worth mentioning is the shorter cooking time, round shape and an easy skin release, which makes Scarlett also a winner for cooked, peeled and vacuum packing.

Pop Vriend Seeds



PART OF THE  
KWS FAMILY



# Scarlett F1

**Suitability:** Scarlett F1 is suitable for fresh market, processing and storage

**Shape:** Round beet

**Tops:** Medium strong

**Maturity:** Medium early

**Sowing period:** Spring and Summer season

**Density:** 400.000-500.000 seeds/ha

**Harvest:** Belt + top lifting

**Colour:** Very dark red

**Brix:** 11-12

**Dry matter content:** 13%

**Betanin content:** 0,65g /100g

**Features:** High quality round beet with excellent uniformity.



Pop Vriend Seeds





# Hygrotech's BRASSICA range is BOOMING!

Written by Christo Le Grange

**Hygrotech's brassica offering to the South African market is expanding into a serious contender for market share. The return of Seminis as a supplier to Hygrotech, brought it the return of familiar "friends", namely Broccoli Ironman F1 and Cabbage Menzania F1.**

**The return of these two iconic varieties to the fold is being welcomed by growers and combined with the new broccoli material from Seminis, Hygrotech can field a strong team to contend with any other genetics in the market.**



**Cabbage  
MENZANIA F1**



Cabbage Menzania F1 (Seminis) supplies a solution for growers wanting to produce large, good quality heads in the winter. The large flat round heads supported by a large frame is well known throughout South Africa, having been well trialed, tested and commercially sold for many years. Other attributes of Menzania F1 includes good field tolerance to black rot and thrips.

**Cabbage  
DEFENDER F1**

Defender F1, of Eastern origin, complements the Menzania in many aspects and can be planted from spring, through summer into autumn. Defender F1, with its large frame and flat round heads is an ideal partner for Menzania F1. Heads are quick to maturity with good field tolerance to black rot and can easily reach between 4-5kg in size under optimum circumstances.





### Broccoli IRONMAN F1



Broccoli Ironman F1 (Seminis) lives up to the first segment of its name as it is very adaptable under adverse weather conditions that adversely affect other competitive varieties. In addition, Ironman F1 performs especially well in the coastal regions, handling the threat of Alternaria very well. Ironman F1 is thus ideally suited for production in the shoulder months of the year - Autumn and Spring. **Variety security = Ironman!**



### Broccoli ABRAMS F1

Broccoli Abrams F1 (Seminis) is in many aspects like a US tank with the same name. It is a new generation variety that supplies high quality dark green heads, ably supported by a strong plant. The medium bead structure is suitable to all market demands and under optimum conditions the heads average between 350g-450g.



**Hygrotech has sourced an excellent range of cauliflower varieties from a European source that specializes in cauliflower breeding. The introduction of this material to the South African market fully complements the broccoli and cabbage ranges.**



### Cauliflower COBURG F1

Coburg F1 can be used for fresh and processed markets alike. The pedigree of this variety was confirmed in trial results by one of the largest processors in South Africa when it topped the yield charts! Its attributes include an upright leaf structure that offers protection from the sun and supplies a white dome shaped head with well-rounded curds. This variety is suited to cooler weather conditions and is recommended for mainly autumn productions. Under optimum condition very uniform heads of 400-450g are harvested.

### Cauliflower BERGEN F1

Cauliflower Bergen F1 is slightly smaller than Coburg F1, and is suited for Autumn productions, supplying uniform heads of an average of between 350-450g.



**Bergen F1**

# HEINZ

## The market leader in processing TOMATO VARIETIES!



Written by Christo Le Grange

Hygrotech has for many years been in partnership with Heinz as their exclusive distributor to the Southern African market. The uniqueness of the Southern African market has established a market amongst subsistence farmers and many consumers alike for a saladette/ processor shaped tomato that has good keeping quality, ability to travel by road and that can be planted without the effort and expense of using stakes.

This market segment and the varieties ear-marked for this market are sometimes shortly referred to as the "hawker" type market and varieties. For many years varieties imported for use by processors have been used for the "hawker" market and this has proven no different for the Heinz range of varieties introduced to the South African market over the years.

Currently and for the previous decade the leading Heinz variety is H1015.

It answers most of the questions posed by those in the processing industry. For the 'hawker' market the fruit size is slightly on the small side, but its other attributes of quality make up for this slight deficiency.

Hygrotech has for some time been trialling material from Heinz to replace the H1015 with better genetics and at the same time to find a variety that can satisfy the "hawker" market. The focus on the new genetics has been on larger fruit size, better quality, and a stronger disease package.



After many trials across South Africa, Hygrotech is proud to announce the arrival of two new Heinz game changers to the South African market:





## SUPREME F1

### Main Season cropping

New processor variety that is equally ideal for the Hawker grower, buyer, and consumer alike – truly versatile.

**Extremely good yielder, EXTENDED field storage. (EFS)**

Good Transporter

**Cultivation:** Open field

**Type:** Hawker / Processing

**Days to maturity:**

80 –90 days after transplant

**Fruit shape:** Blocky / oval

**Fruit weight:** 110 –130 grams

**Resistances:** *Verticillium, Fusarium 1 & 2, Tomato Spotted Wilt, Nematodes, Alternaria, Phytophthora, Bacterial Canker & Bacterial Spot.*

## DELUXE F1

### Main Season cropping

New processor variety that is equally ideal for the Hawker grower, buyer, and consumer alike – truly versatile. **Extremely good yielder, EXTENDED field storage. (EFS)**

Good Transporter

**Cultivation:** Open field

**Type:** Hawker / Processing

**Days to maturity:**

80 –90 days after transplant

**Fruit shape:** Blocky / oval

**Fruit weight:** 110 –130 grams

**Resistances:** *Verticillium, Fusarium 1 & 2, Tomato Spotted Wilt, Nematodes, Alternaria, Phytophthora, Bacterial Canker & Bacterial Spot.*



# The Magma Collection

## *Green Beans*

Pop Vriend is one of the leading green bean breeders in the world, demands only perfection and quality in a product range and this range are currently available from Hygrotech, the sole distributor in South Africa.

### Following words from Pop Vriend:

#### **“Leading varieties to withstand, stressful conditions**

Almost two decades ago, we started breeding specifically for challenging climate conditions and heat stress. Our first Magma Collection varieties, Sanford, Lunar, Pelican, and PV857, were introduced for the fresh market in the United States as they showed consistently high marketable yields under heat stress and other challenging conditions. We’re currently extending this collection of stress-resistant beans to other markets where the climate is becoming more extreme, like Italy.”

#### **“The perfect variety for each growing slot**

The Magma Collection offers a complete range of varieties with different maturity dates, allowing you to split your planting. The varieties PV857, Lunar, and Jaquar give you consistent, uniform, dark green pods that yield reliably in highly variable climates.”



# The Magma Collection<sup>©</sup>



Predicatable yields, also under the most stressful circumstances



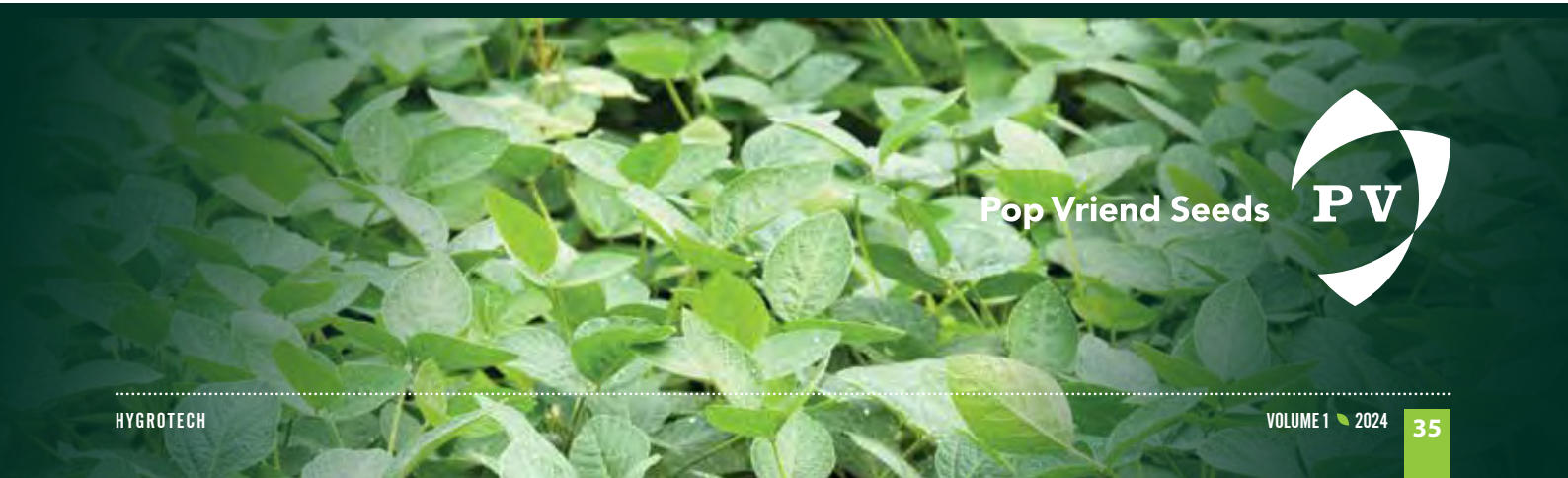
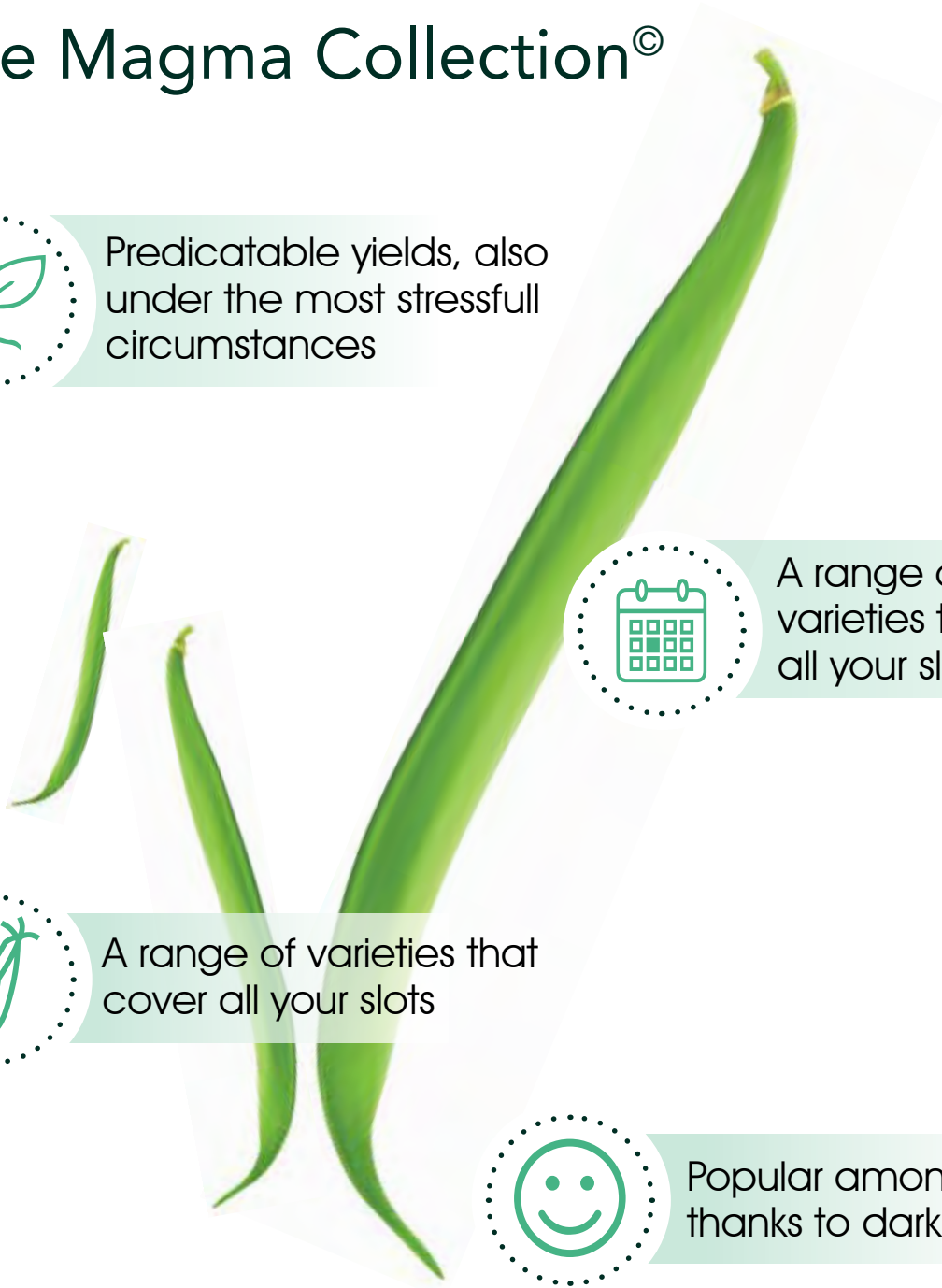
A range of varieties that cover all your slots



A range of varieties that cover all your slots



Popular among consumers thanks to dark green pods



Pop Vriend Seeds





The following 3 cultivars been selected for the South African market, supporting the already well-known Douglas



## **BEAN PV857**

### **Bush Bean**

#### **Characteristics:**

- PV857 produces dark fleshy pods with high specific weight.
- Consist high yields.
- Produces dark fleshy pods with high specific weight.

#### **Specifications:**

<b>Pods:</b>	11 – 13 cm length / 7 – 8,5 mm diameter
<b>Pod Colour:</b>	Dark/Medium green
<b>Type:</b>	Fresh / Box / Processing
<b>Days to maturity:</b>	55 – 65 days
<b>Plantstand:</b>	150 – 250 000 p/ha

#### **Disease Tolerances:**

[HR] Bean Common Mosaic Virus, Anthracnose  
[IR] Rust, Bean common Mosaic



## **BEAN LUNAR**

### **Bush Bean**

#### **Characteristics:**

- Sturdy plant, heat tolerant Sturdy erect plant with uniform dark green pods, bred for the fresh market segment under hot growing conditions.

#### **Specifications:**

<b>Pods:</b>	11 – 13 cm length / 7 – 8,5 mm diameter
<b>Pod Colour:</b>	Dark/Medium green
<b>Type:</b>	Fresh / Box / Processing
<b>Days to maturity:</b>	55 – 65 days
<b>Plantstand:</b>	150 – 250 000 p/ha

#### **Disease Tolerances:**

[HR] Bean Common Mosaic Virus, Anthracnose  
[IR] Rust, Bean common Mosaic



## BEAN JAQUAR

### Bush Bean

#### Characteristics:

- Long fleshy pods.
- Widely adaptable and heat tolerant.
- Outstanding plant type with fleshy pods and excellent shelf life.

#### Specifications:

<b>Pods:</b>	13 – 15 cm length 7 – 8,5 mm diameter
<b>Pod Colour:</b>	Dark/Medium green
<b>Type:</b>	Fresh / Box / Processing
<b>Days to maturity:</b>	55 – 65 days
<b>Plantstand:</b>	150 – 250 000 p/ha

#### Disease Tolerances:

[HR] Bean Common Mosaic Virus, Anthracnose  
[IR] Rust, Bean common Mosaic



## BEAN DOUGLAS

### Bush Bean

#### Characteristics:

- Long fleshy pods.
- Widely adaptable and heat tolerant.
- Outstanding plant type with fleshy pods and excellent shelf life.

#### Specifications:

<b>Pods:</b>	13 – 15 cm length 7 – 8,5 mm diameter
<b>Pod Colour:</b>	Dark/Medium green
<b>Type:</b>	Fresh / Box / Processing
<b>Days to maturity:</b>	55 – 65 days
<b>Plantstand:</b>	150 – 250 000 p/ha

#### Disease Tolerances:

[HR] Bean Common Mosaic Virus, Anthracnose  
[IR] Rust, Bean common Mosaic



# SPERO F1

*The answer for those facing ever changing challenges!*

Written by Francois Mostert

An exciting new variety has made its debut in South Africa, aptly named SPERO, which is the *Latin* for I HOPE...As in from a grower's perspective:

- ***I hope it rains soon,***
- ***I hope this year is better than last year and***
- ***I hope I get good yields and prices***

To name a few hopes/SPERO's many farmers have!



The first comments regarding the performance of this new variety gives Hygrotech and the growers of the first on farm trials, Spero, hope for the future! It was found that Spero, an Indeterminate Round Tomato showed great potential from transplant, having a vigorous plant combined with an excellent yield potential.

Trusses of 6-8 fruits, averaging 120 – 150 grams were recorded during the growing season, and this is one of the main reasons several growers will be adding Spero to their planting programs.

High yield is important, but a high pack out of quality fruit is crucial and what the grower expects and hope for! Spero F1 provides the best of both worlds in offering top quality fruit as well as the required yield realized.

Spero F1 is from the same breeding program as 1722 F1 and showed once again the importance of a strong genetic background of successful varieties launched from a strong breeding program.

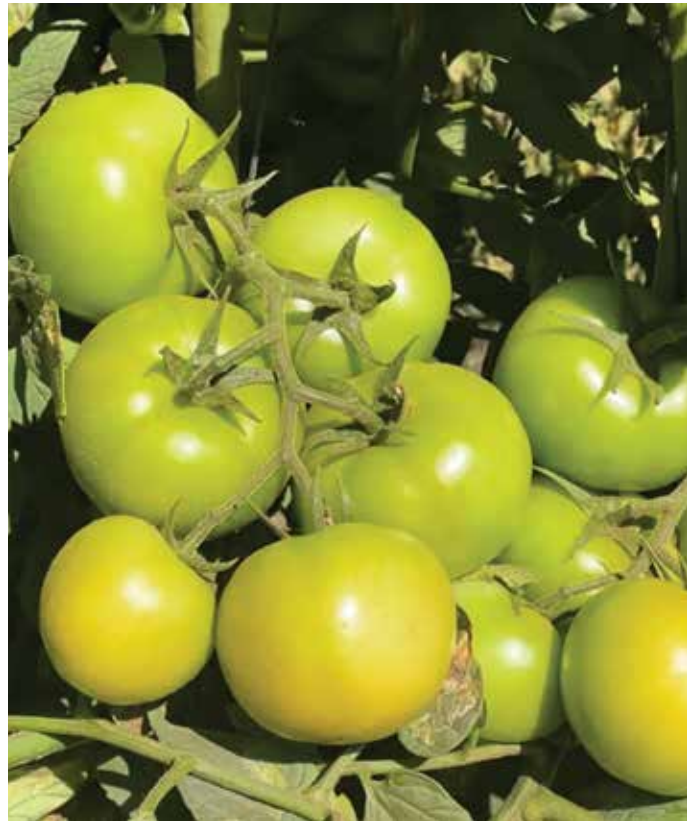


Although open-field cultivation is promoted this variety can be grown under protection, boosted by an impressive disease package: Verticillium, Fusarium: 1,2 & 3, Nematodes, Tomato Yellow Leaf Virus, Tomato Spotted Wilt & Fusarium Crown root that would be acceptable for most production areas across South Africa.

Round with slightly flattened fruit tops with average weights of 120 – 150 grams will meet most market requirements.

**Limited seed will be available first quarter of 2024, but more will be available with the official launch September 2024!!**

**Make sure you secure the seed well in advance.**



**DISEASE PACKAGE:**  
*Verticillium, Fusarium 1,2 & 3, Nematodes, Tomato Yellow Leaf Virus, Tomato Spotted Wilt & Fusarium Crown root*





# Hygrotech tomato cultivar and fertigation program in combination with Miller foliar program performs well during Greenhouse Production

Written by Marinus Enslin: Hygrotech Technical Advisor

A fertigation and foliar spray program combination of Hygrotech and Miller products were used during the production of greenhouse tomatoes in the Ermelo district in the Mpumalanga Province of South Africa. The combined treatments were allocated to a greenhouse of 300 m<sup>2</sup> and was compared with the standard treatment used in the other greenhouses. Below is a summary of the tomato variety and products used.

## TOMATO CULTIVAR INFORMATION

**Name:** HT 1722 (F1 hybrid)

**Type:** Truss/ Loose/ Pre-packer

**Days to maturity:** 80 – 90

**Fruit shape:** Medium large rounded/ slight flat top

**Fruit weight:** 150 – 170 g

### Pest and disease resistance:

*Verticillium*, *Fusarium* 1 & 2, Nematodes, Tomato yellow leaf virus and Tomato spotted wilt virus.





## PRODUCTION INFORMATION

**Growing medium:** Sawdust (drenched with Sporekill at 100 ml/ 100 L water)

**Transplant date:** 28 September 2023

**Transplant treatment:** Asco-Gro (via fertigation) at 250 ml/ greenhouse.

**Pruning method:** One stem

**Average day temperature:** 27 °C

**Average night temperature:** 12 °C

## Fertigation and foliar applications

FERTIGATION	FOLIAR APPLICATIONS
<b>Rates below are per 300 m<sup>2</sup> greenhouse with 1120 tomato plants per greenhouse.</b>	
<b>Week 1 – 4:</b> Hygroponic (1 kg/ day) CaNO <sub>3</sub> (0.35 kg/ day)	<b>Week 3:</b> Millerplex® (0.05 L)
	<b>Week 4:</b> Asco-Gro® (0.15 L) + Calmabon Liquid (1 L)
<b>Week 5 – 8 (EC = 2.2 mS/cm):</b> Hygroponic (1.25 kg/ day) CaNO <sub>3</sub> (0.5 kg/ day) KNO <sub>3</sub> (0.75 kg/ day) MgSO <sub>4</sub> (0.3 kg/ day)	<b>Week 6:</b> Millerplex ( 0.05 L)
	<b>Week 7:</b> Asco-Gro (0.15 L) + Calmabon Liquid (1 L)
	<b>Week 8:</b> Grotonic® (0.05 L) + Hygroplex Plus (100 g)
<b>Week 9 – 12 (EC = 2.4 mS/ cm):</b> Hygroponic (1.5 kg/ day) CaNO <sub>3</sub> (0.75 kg/ day) KNO <sub>3</sub> (1 kg/ day) MgSO <sub>4</sub> (0.3 kg/ day)	<b>Week 9:</b> Asco-Gro (0.15 L) + Calmabon Liquid (1 L)
	<b>Week 10:</b> Grotonic (0.05 L)
	<b>Week 11:</b> Asco-Gro (0.15 L) + Calmabon Liquid (1 L)
	<b>Week 12:</b> Grotonic (0.05 L)
<b>Week 13 – 16 (EC = 2.5 mS/ cm):</b> Hygroponic (1.75 kg/ day) CaNO <sub>3</sub> (0.75 kg/ day) KNO <sub>3</sub> (1 kg/ day) MgSO <sub>4</sub> (0.3 kg/ day)	<b>Week 13:</b> ColourUp® (0.1 L) + Sugar Express ® (0.5 kg)
	<b>Week 14:</b> Grotonic (0.05 L)
<b>Repeat week 13 -16 till the end</b>	<b>Repeat week 14 till end of harvest</b>

Hygroponic (Reg. No. K5709 of Act 36 of 1947), Hygroplex Plus (Reg. No. B5594 of Act 36 of 1947) and Calmabon Liquid (Reg. No. K5272 of Act 36 of 1947) are products of Hygrotech Properties (Pty) Ltd. Hygroponic contains N: 68 g/kg, P: 42 g/kg, K: 208 g/kg, Mg: 30 g/kg, S: 64 g/kg, Fe: 1.254 g/kg, Mn: 0.299 g/kg, Zn: 0.149 g/kg; Cu: 0.022 g/kg, B: 0.373 g/kg and Mo: 0.037 g/kg. Hygroplex Plus contains: Fe: 0.084 g/kg (EDTA), Mn: 0.02 g/kg (EDTA), Zn: 0.01 g/kg, Cu: 1.5 g/kg (EDTA), B: 25 g/kg, Mo: 3 g/kg. Calmabon Liquid contains N: 88 g/kg, Ca: 89 g/kg, Mg: 17 g/kg, B: 1.526 g/kg, Mo: 1.517 g/kg. Millerplex (Reg. No. M351 of Act 36 of 1947), Asco-Gro (Reg. No. K6714 of Act 36 of 1947), Grotonic (Reg. No. K6942 of Act 36 of 1947), ColourUp (Reg. No. B3386 of Act 36 of 1947) and Sugar Express (Reg. No. K6716 of Act 36 of 1947) are products of Miller Chemical & Fertilizer, LLC. Millerplex contains N: 30 g/kg, P: 15 g/kg, K: 25 g/kg, Seaweed (*Ascophyllum nodosum*). Asco-Gro contains N: 20 g/kg, P: 17.5 g/kg, K: 25 g/kg, Fe: 1.340 g/kg (chelated), Ca: 1.160 g/kg (chelated), Mn: 0.11 g/kg (chelated), Mo: 30 mg/kg and kelp extracts. Grotonic contains: N: 20 g/kg, P: 30 g/kg, K: 120 g/kg, Cu: 0.01 g/kg (EDTA) and Fe: 0.01 g/kg (EDTA). ColourUp contains Ca: 20 g/kg. Sugar Express contains N: 40 g/kg, P: 40 g/kg, K: 330 g/kg, Mg: 5 g/kg, S: 74 g/kg, B: 0.2 g/kg, Cu: 0.5 g/kg, Fe: 1 g/kg, Mn: 0.5 g/kg, Mo: 0.01 g/kg and Zn: 0.5 g/kg.



## YIELD INFORMATION

The average fruit weight from tomato plants treated with the Hygrotech and Miller products were 182 g vs 147 g from fruit from the standard treatment. Uniform fruit size on the individual trusses also impressed.



*Uniform fruit size per truss (left) and within different trusses (right) impressed where tomato plants were treated with the Hygrotech and Miller products.*



# Millerplex<sup>®</sup> trial on corn in the Eastern Free State

by Johann van der Vyver  
Miller Chemical Director - African Region



**MILLERPLEX** is a proprietary liquid fertilizer containing macro-nutrients and sea plant extracts from seaweed (*Ascophyllum nodosum*) for increasing plant biomass and/ or yield on crops (maize, sweetcorn, sorghum, millet, potato and sweet potato). The product is formulated by Miller<sup>®</sup> Chemical & Fertilizer, LLC in the USA. In South Africa the product is registered as a Fertilizer Group 3 (Reg. No. M351 of Act 36 of 1947) – biostimulant. Internationally crop usage also include almond, table grape, cotton, sweet pepper and nectarine. Millerplex contains Miller's Transcuticular Delivery System to secure absorption and translocation of all materials. Millerplex has proven to strengthen cell wall, plant stems and increase nutrient response, especially during periods of abiotic stress. For additional Millerplex attributes, visit Miller's webpage at: [www.millerchemical.com/](http://www.millerchemical.com/) or you nearest Hygrotech branch.

## MAIZE

Since the publication of the Hygrotech Forum article (in Volume 2 of 2021) on the successful use of Millerplex during corn seed production under centre pivot irrigation, several growers and distribution agents have been keen to investigate the effect of Millerplex for themselves. Especially when used during the production of commercial maize under dry land conditions. One of these trials and its results were as follow:

### MILLERPLEX TRIAL

- **Objective**

To determine the effect of the foliar application of Millerplex in comparison to a biostimulant used as a commercial standard during corn production.

- **Materials and Methods**

The trial was conducted near Danielsrus in the Free State Province of South Africa in a field containing sandy loam soil. A commercial maize corn variety, DKC 73-72, was used for the trial at a planting density of 36000 plants per hectare.



A 2:2:1 fertilizer was applied at plant (sowing) at 250 kg/ ha. In the corn field of 80 ha, 15 ha was treated with Millerplex and 65 ha with the standard commercial biostimulant of the farmer. Except for Millerplex and the standard bio stimulant in the tank mixtures, the rest of the tank mixture was similar, as indicated in the table below. Both tank mixtures were applied at V6 growth stage (21 December 2022) using a boom sprayer with an application volume of 200 L water/ ha.

**Table 1: Two tank mixtures compared with each other that were applied at V6 corn growth stage.**

TANK MIXTURE 1	TANK MIXTURE 2
<b>Herbicide:</b> Cyprex* (750 g/ kg halosulfuron-methyl) @ 50 g/ ha	<b>Herbicide:</b> Cyprex (750 g/ kg halosulfuron-methyl) @ 50 g/ ha
<b>Herbicide:</b> Terbuthylazine* (480 g/ L terbuthylazine + 12 g/ L other triazines) @ 1.5 L/ ha	<b>Herbicide:</b> Terbuthylazine (480 g/ L terbuthylazine + 12 g/ L other triazines) @ 1.5 L/ ha
<b>Herbicide:</b> Baseline* (960 g/ L S-metolachlor) @ 0.8 L/ ha	<b>Herbicide:</b> Baseline (960 g/ L S-metolachlor) @ 0.8 L/ ha
<b>Herbicide:</b> Voloxynil B 225 EC* (225 g/ L bromoxynil) @ 1 L/ ha	<b>Herbicide:</b> Voloxynil B 225 EC (225 g/ L bromoxynil) @ 1 L/ ha
<b>Insecticide:</b> ΔKarate (50 g/ L lambda-cyhalothrin) @ 0.075 L/ ha	<b>Insecticide:</b> Karate (50 g/ L lambda-cyhalothrin) @ 0.075 L/ ha
<b>Farmer’s Standard Biostimulant @ 2 L/ ha</b>	<b>Millerplex @ 500 ml/ ha</b>

\*Arysta LifeScience South Africa (Pty) Ltd is the registration holder of Cyprex, Terbuthylazine, Baseline and Voloxynil.  
Δ Syngenta SA (Pty) Ltd is the registration holder of Karate.

• **Assessments**

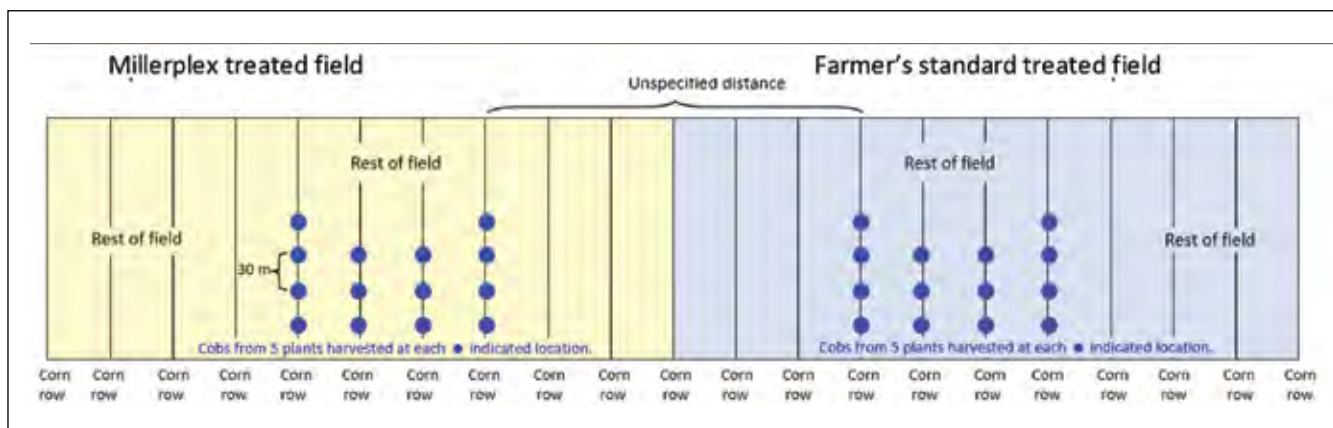
- Being a semi-commercial demonstration trial, two commercial related yield assessments were conducted.
- On 18 May 2023 paired sampling (see diagram) of corn cobs was conducted from the area treated with the farmer’s standard and Millerplex. In both treated fields 14 locations (in 4 rows and 30 meters apart) were used for assessments. At each location all the cobs from 5 plants were sampled together as a replicate. Cobs from each replicated sample were thrashed (Photos 2 and 3) on 29 June 2023 and the weight of the seed was determined.
- On 26 June 2023 yield was determined for the farmer’s standard and Millerplex treated fields through combining a 500 m strip in each field.



**Photo 1:** Tractor spray application onto maize at V6 growth stage.

**For more information regarding Hygrotech tomato cultivars, as well as fertigation and foliar program contact the nearest Hygrotech branch or Technical Advisor.**

Schematic indication of how paired sampling was conducted.



**Photo 2:** Experimental thrasher used



**Photo3:** Seed after thrashing of cobs of the various sampled plants.

## Results

**Table 1: Mean seed weight of cobs of 5 corn plants per replicate that were paired sampled from corn fields that were treated with different treatments at V6 growth stage.**

TREATMENT	Mean weight of seed from 5 plants per replicate	Plants per hectare	Mean seed weight per hectare
Farmer's standard	1.269 kg	36000	9.14 T
Millerplex	1.395 kg	36000	10.0 T

**Table 2: Seed weight from 500 m combined strip of differently treated corn fields at V6 growth stage.**

TREATMENT	Seed weight of 500 m combined strip	Seed weight per hectare
Farmer's standard	4.33 T	11.99 T
Millerplex	4.50 T	12.36 T



• **Discussion**

The results from the paired sampling evaluation indicate that corn plants treated with Millerplex had a seed weight of 10.00 T per hectare in comparison to corn plants treated with farmer's standard which had a seed weight of 9.14 T per hectare. Thus, an increase of 0.86 T per hectare. Taking into consideration the August 2023 sales price for yellow maize of R3850/ T the paired sampling evaluation calculated that Millerplex contributed R3311.00 more per hectare when compared to the farmer's standard.



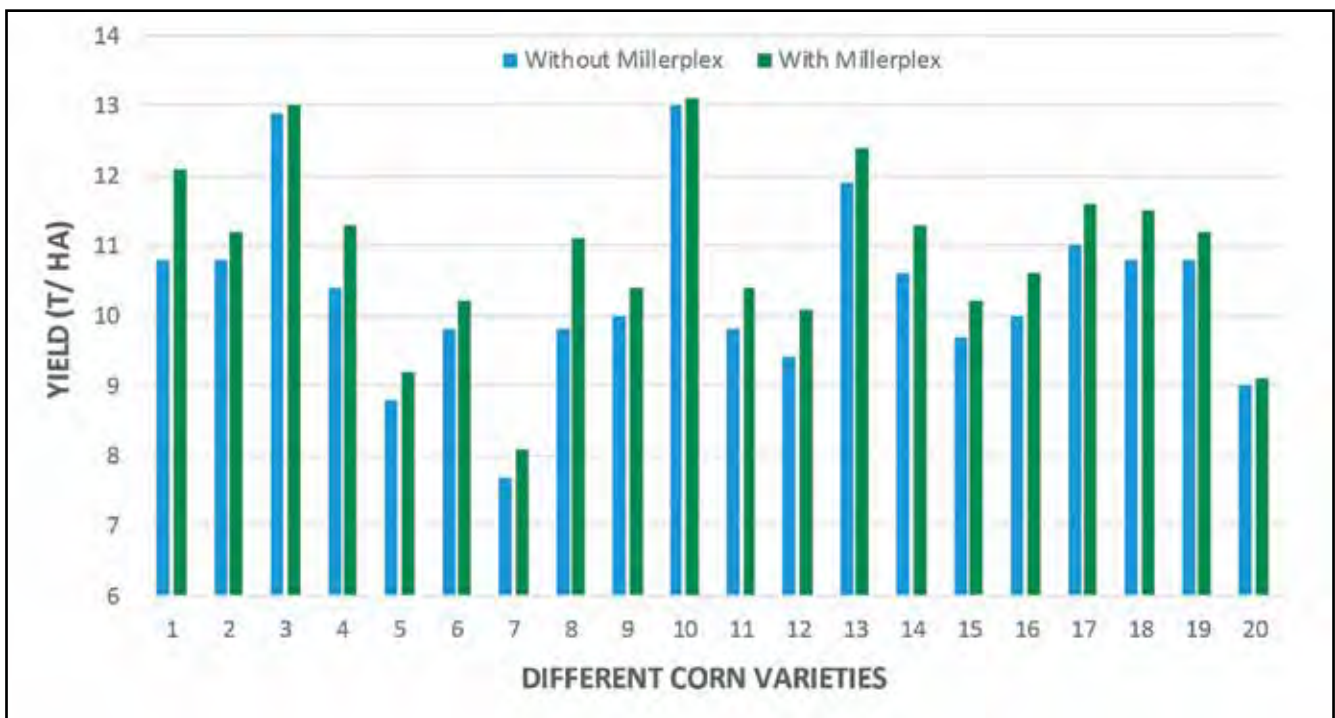
In the 500 m combined strip, seed weight from corn plants treated with Millerplex was 12.36 T per hectare in comparison to 11.99 T per hectare of seed from the corn plants treated with the farmer's standard. Thus, an increase of 0.37 T per hectare. Compared to the farmer's standard, Millerplex contributed to an increased remuneration of R1425.00 per hectare.

• **Conclusion and international results**

Although the results from the two evaluations are of indicative nature only, the tendency for both are similar in that Millerplex treated corn plants (during V6 growth stage) resulted in increased seed weight when compared to corn plants treated with the farmer's standard.

The results from this trial correspond with trials conducted in Turkey on corn plants. Millerplex was applied in corn fields at 20 locations on 20 varieties in total. The Millerplex rate was also 500 ml/ ha and the timing of applications varied between V4 and V6 growth stages. At all 20 locations where Millerplex treated corn plants were compared with untreated plants, it contributed to an increase in yield (Figure 1).

**Figure 1: The effect of a single Millerplex® application (V4 – V6 growth stage) on corn production in comparison to untreated corn plants**



**Please contact your nearest Hygrotech branch or Technical Advisor for more information regarding the use of Millerplex.**



# ADJUVANTS

## How do different adjuvants react at different spray volumes when applied with either Spirotetramat or Pyriproxyfen containing insecticides for the control of California red scale on citrus?

by Charl Kotze and Herman Walters  
(FertAgChem Division of Hygrotech South Africa)

### Introduction

It has been well documented that the South African citrus industry relies heavily on medium to high-volume cover crop sprays, especially when managing pests such as red scale and mealybug or diseases such as *Alternaria* brown spot (ABS) and Citrus black spot (CBS) (Van Zyl *et al.*, 2013). According to Beatie *et al.* (1989) a medium-volume cover spray is defined as 2000-7000 L water/ ha and a high-volume spray as more than 7000 L water/ ha. These defined volumes compare readily with the volumes of 6000 L water to an extremely high 16000 L water/ ha currently reported from South Africa (Fourie, 2013). Although these high volumes have become the market standard and are known to be effective in managing these target pests (Grout, 1997, 2003), conventional airblast sprayers and oscillating boom sprayers capable of achieving them are known to be more wasteful and costly to operate (Furness and Piczewski, 1985).

Currently the standard spraying volumes in citrus production is indiscriminately determined without taking tree characteristics into consideration (Scapin *et al.*, 2015). However, several studies over the years have focussed on the optimisation of agricultural sprays using quantifiable approaches based on tree characteristics such as tree row volume (TRV), leaf area index (LAI) and surface area index (SAI) (Bataglia, 1999). Of these, TRV has shown definite promise as spray volumes have been established in Brazil for the control of several citrus diseases such as citrus bacterial canker (Scapin *et al.*, 2015), citrus black spot (Silva Junior *et al.*, 2016) and post bloom fruit drop (Soares, 2015), as well as certain pests including the Asian citrus psyllid (Scardelato, 2013) and leprosis virus-transmitting mite (Scihieri, 2018). In which the case of citrus canker management resulted in a 73% reduction in water usage as well as a 40% in savings.

From the mentioned research it has become apparent that an improved deposition uniformity led to higher levels of control of not only citrus diseases, but also certain pests requiring medium to high-volume cover sprays as well. Unfortunately, this coincided with higher spraying volumes. Therefore, the challenge is to improve uniformity without the coinciding increase in spraying volume to eventually achieve more efficient spraying volumes without a decrease in efficacy. Previous studies by Van Zyl *et al.* (2019), found that certain adjuvants increase the deposition uniformity of spraying applications. Thus, the aim of the research was to determine if TRV, when used in conjunction with several different types of adjuvants, could realise similar levels of biological efficacy against the different target pests at lower spraying volumes compared to standard high volumes as well as the effect that different production formulations would have on this.



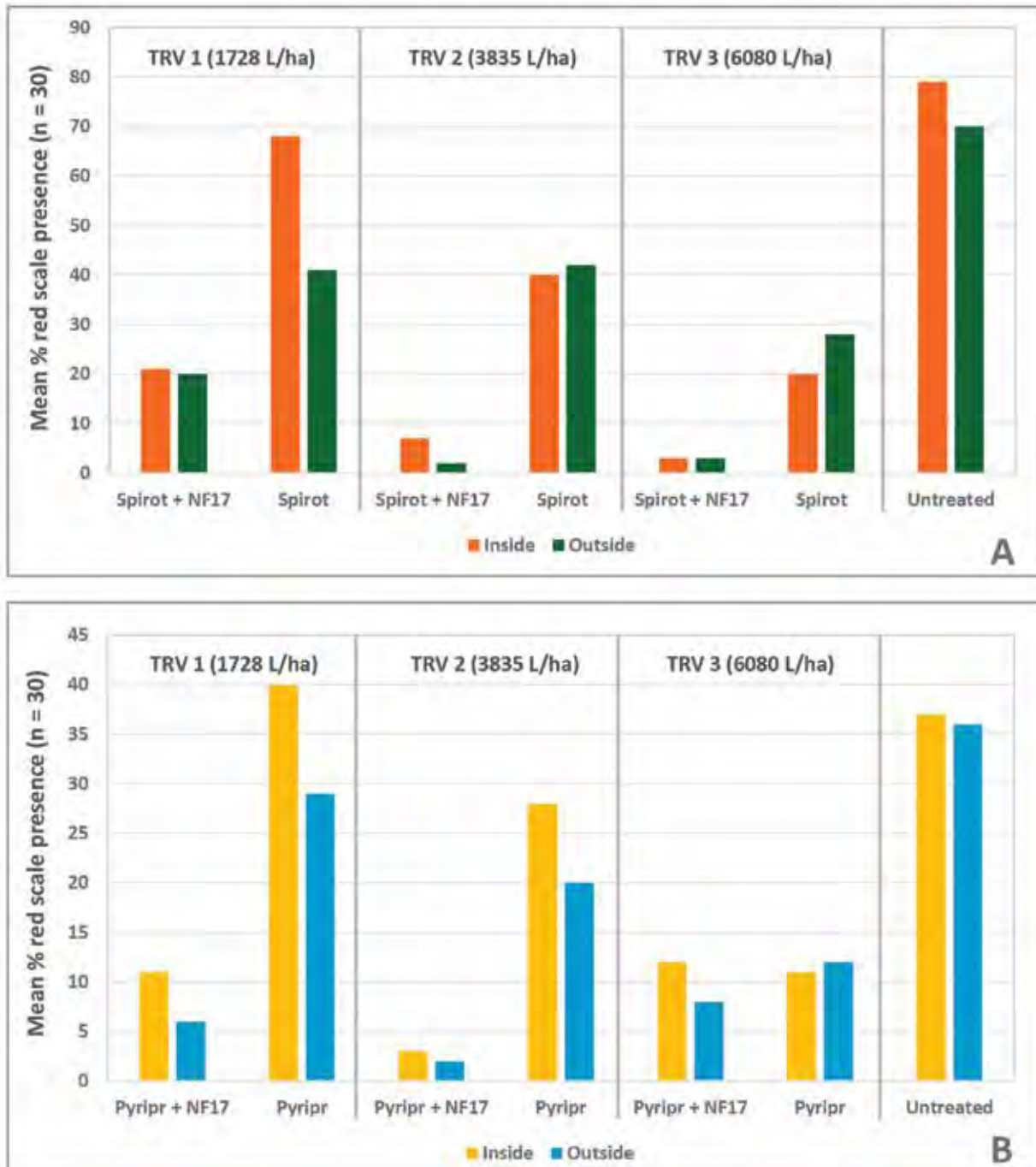
**Pictures 1 – 4 : Citrus foliage sprayed at 6080 L TRV containing various adjuvants:  
1: Nu-Film® 17; 2: Entrée™; 3: Mineral oil; 4: Super Wetter**



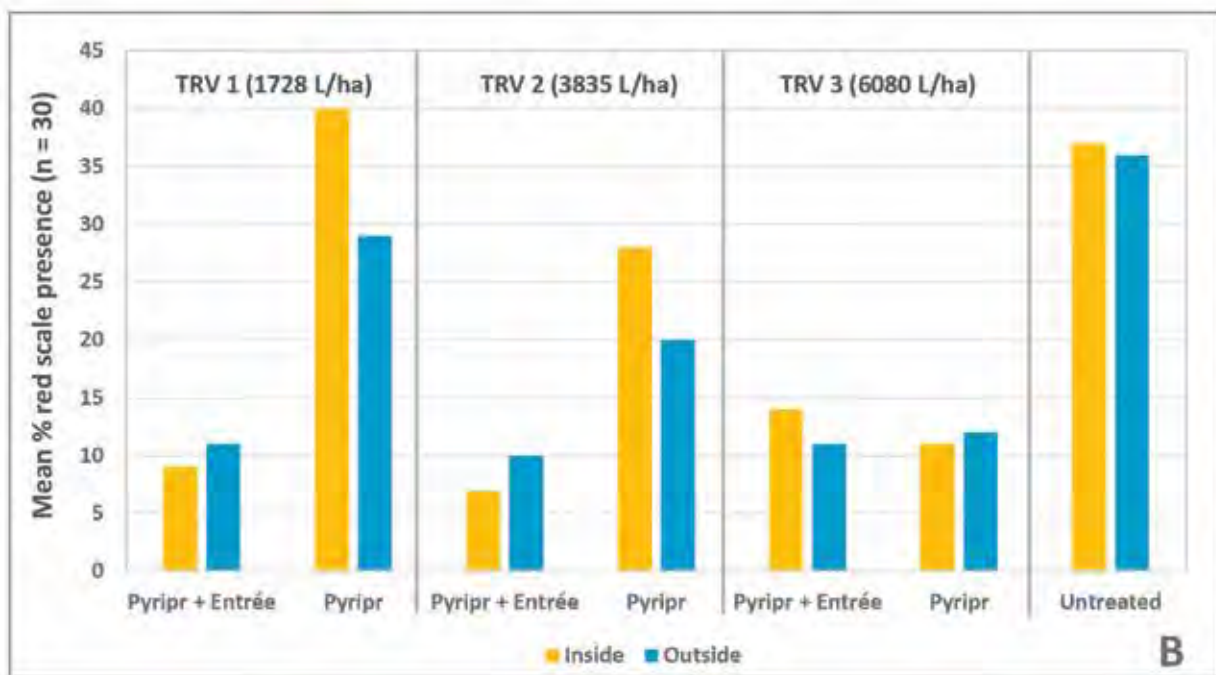
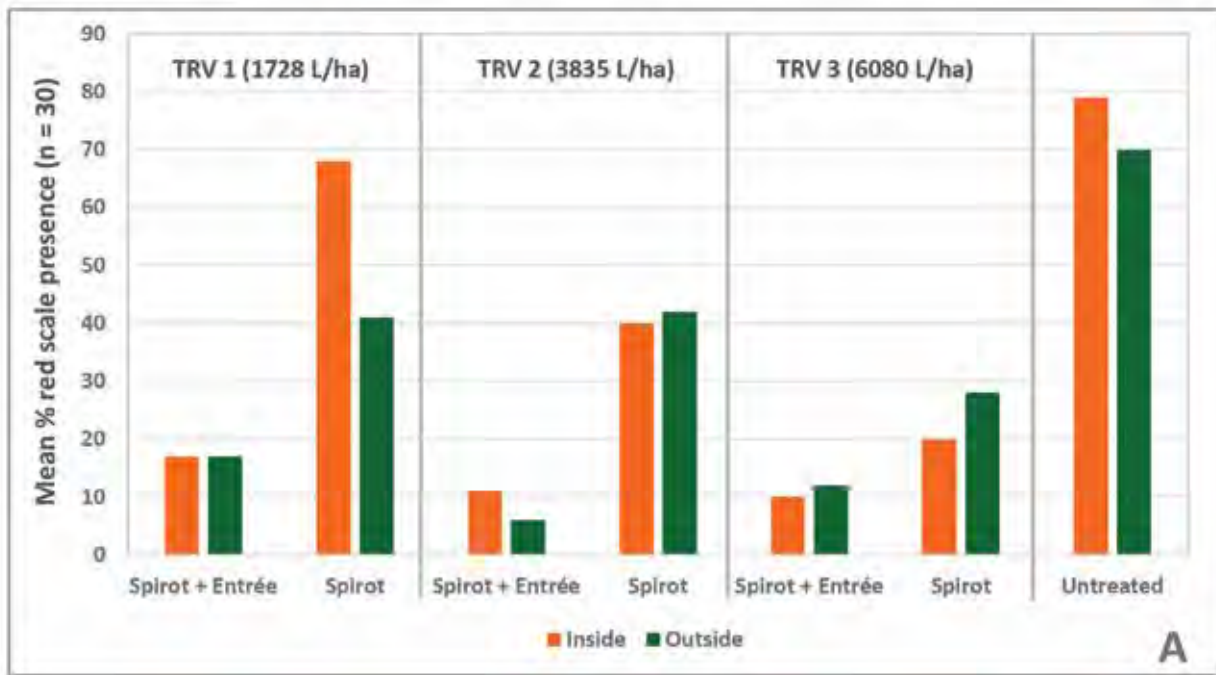
## Materials and Methods

A Nadorcott citrus cultivar on Carrizo Citrange rootstock with a history of Californian red scale infestation was selected in the Porterville area of the Western Cape Province of South Africa for the trial site. The TRV of the experimental site was estimated on two occasions. Firstly in September before any spraying occurred and then secondly, in the middle of the spraying season late November. The area of 1 ha (10 000m<sup>2</sup>) was divided by the tree spacing (2 m between trees and 6 m

between tree rows) and then multiplied by the average tree height and width in accordance with the concept developed by Sutton and Unrath (1988). The average values were calculated by measuring the width and height of 10 randomly selected trees throughout each of the experimental sites. The density factor currently standardised by the pome and stone fruit industry as indicated on several registered strobilurin fungicide labels ( $\text{t water /ha} = (\text{Tree height} \times \text{Tree width} \times 937) / \text{Row width}$ ) of 93.7 litre/1000 m<sup>3</sup> TRV was used throughout the study.



**Figure 1.** The effect of spirotetramat (Spirot) – A, and pyriproxyfen (Pyripr) – B containing insecticides in water, with and without Nu-Film 17 (NF17), at various tree row volume (TRV) applications on the percentage presence of red scale on Nadorcott citrus fruit (inside and outside the canopy) 176 days after last application.



**Figure 2.** The effect of spirotetramat (Spirot) – A, and pyriproxyfen (Pyripr) – B containing insecticides in water, with and without Entrée, at various tree row volume (TRV) applications on the percentage presence of red scale on Nadorcott citrus fruit (inside and outside the canopy) 176 days after last application.

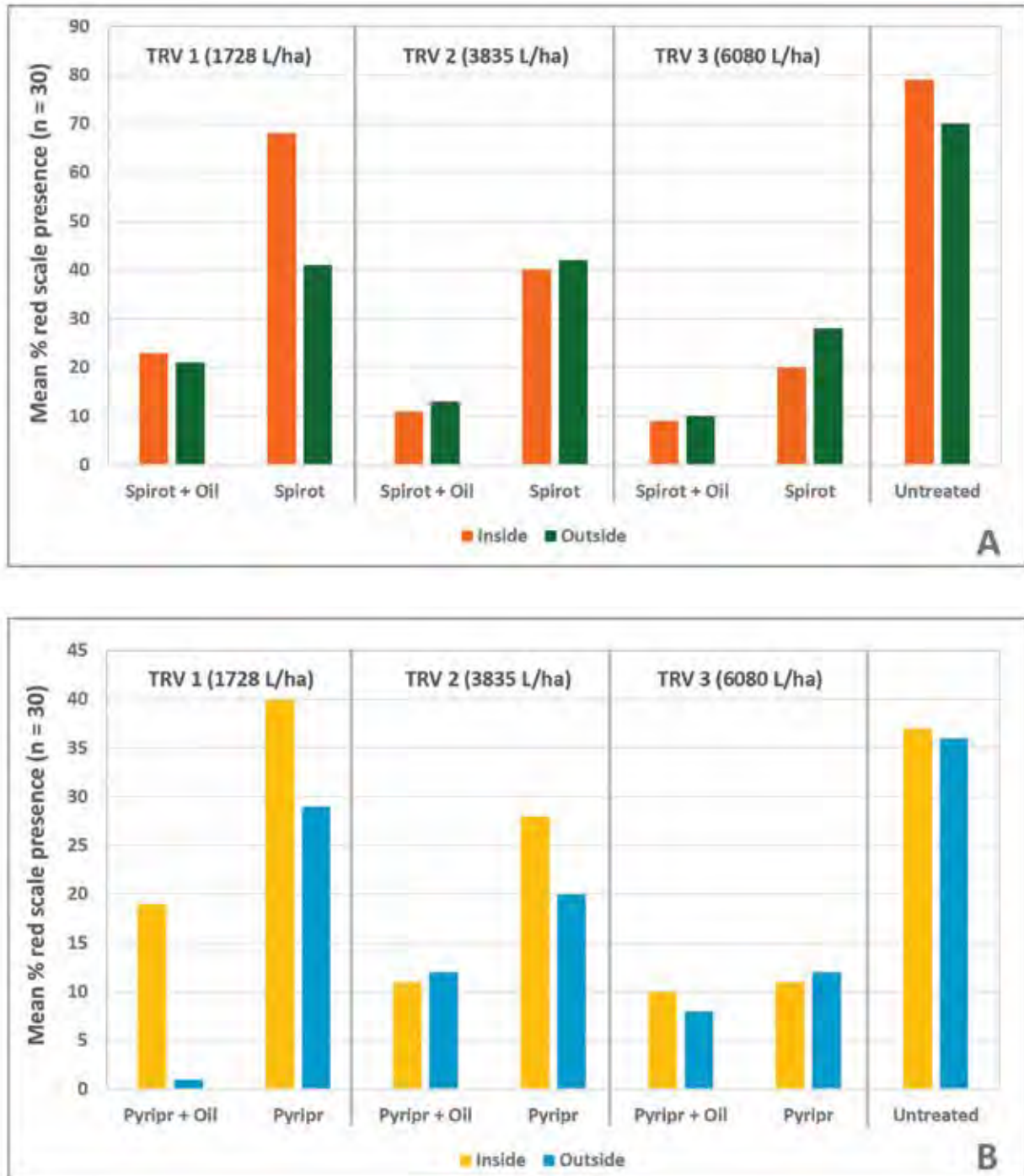
### Trial layout

At the trial site, the grower's spray equipment was calibrated using tractor speed and water pressure to achieve 1: 1728 L water/ ha, 2: 3835 L water/ ha and 3: 6080 L water/ ha calculated TRV based volumes. At the time of the investigation the commercial standard spray volume on the farm for the specific target pest was 6080 L water/ ha.

Each of the spraying volumes were used to apply either a systemic insecticide: Movento® (from Bayer (Pty) Ltd.; active ingredient: 240 g/ L spirotetramat; Reg. No. L8559 of Act 36 of 1947) at 10 ml/ 100 L water and a contact insecticide: Nemesis® 100 EC (from Philagro South Africa (Pty) Ltd.; active ingredient: 100g/ L pyriproxyfen; Reg. No. L6378 of Act 36 of 1947) at

30 ml/ 100 L water registered to control Californian red scale. Label instructions regarding the recommended programme was followed. This entailed both product programmes to start either between 80% and 100% petal fall or at the first sign of crawler movement with follow up applications of the Movento and Nemesis 100 EC programmes respectively 4 and 6 weeks later.

First sign of crawler movement ended up being the determining event to initiate sprays. Two sprays were conducted. One on 7 November 2022 and another on 12 December 2022.

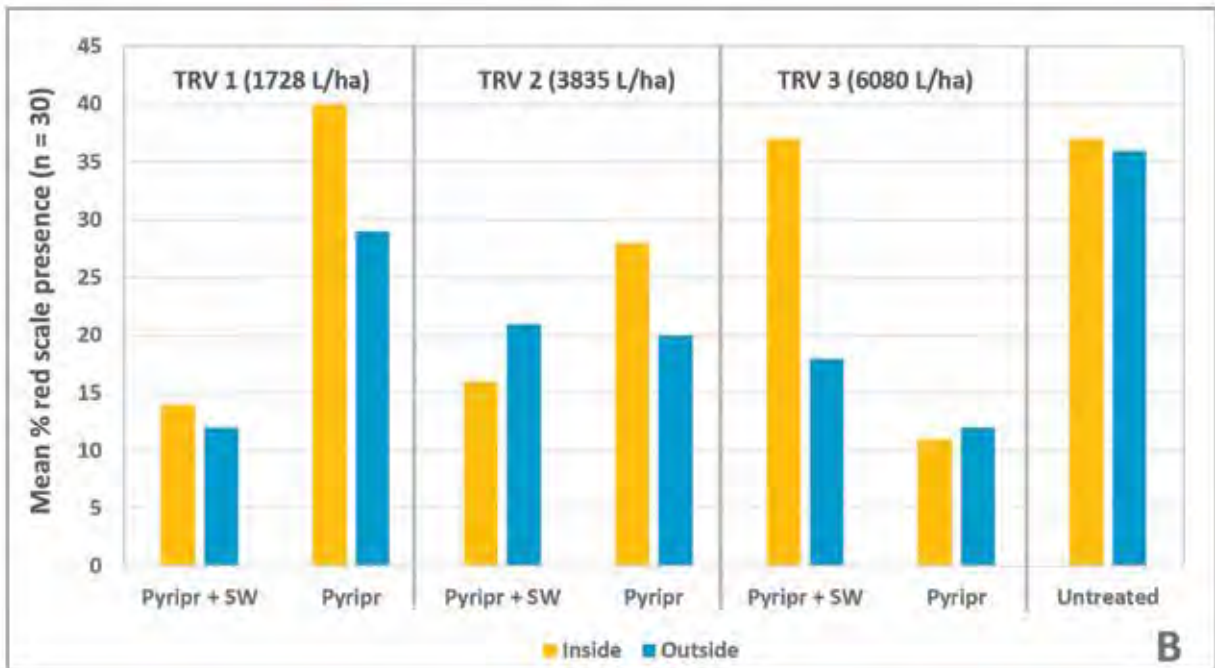
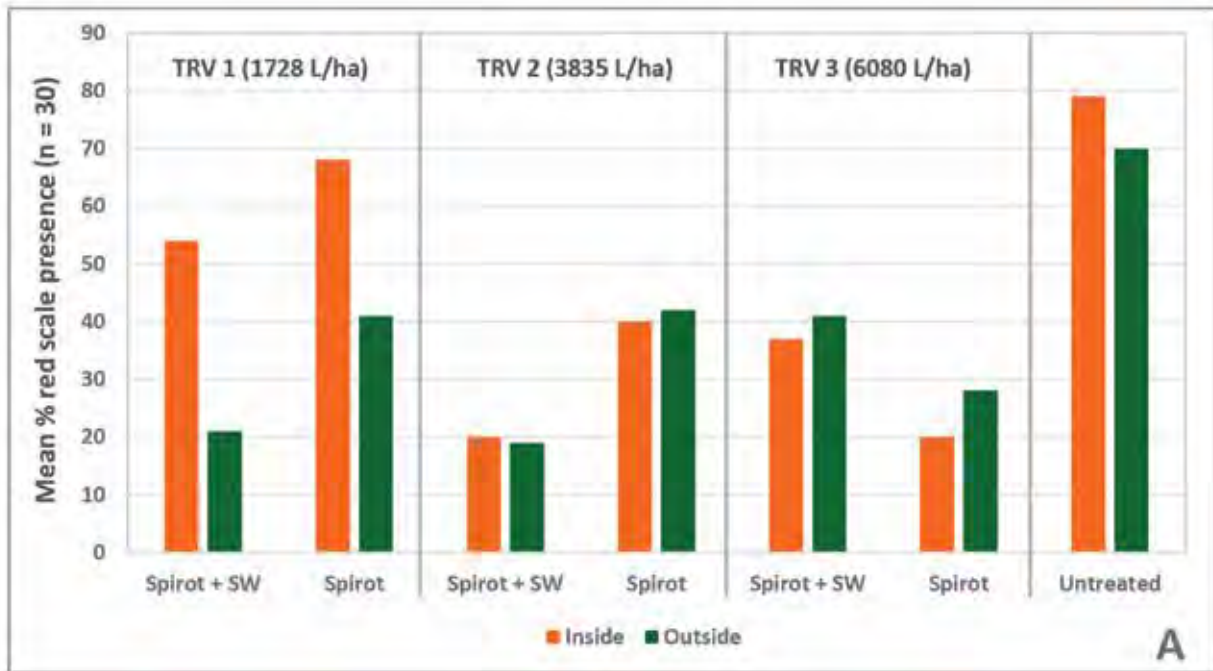


**Figure 3.** The effect of spirotetramat (Spirot) – A, and pyriproxyfen (Pyripr) – B containing insecticides in water, with and without mineral spraying oil (Oil), at various tree row volume (TRV) applications on the percentage presence of red scale on Nadorcott citrus fruit (inside and outside the canopy) 176 days after last application.



Furthermore, each of the TRV based spray volume systemic/contact insecticide combination programmes have been amended by adding one of the following Act 36 of 1947 registered adjuvants:

- Nu-Film 17 (extender sticker-spreader from Miller<sup>®</sup> Chemical & Fertilizer, LLC; active ingredient: 905 g/L di-1-p-Menthene; Reg. No. L 2981) at 600 ml/ ha,
- Entrée (non-ionic activator enhancer from Miller<sup>®</sup> Chemical & Fertilizer, LLC; active ingredient: 819 g/L vegetable oil; Reg. No. L 8055) at 1200 ml/ ha,
- Super wetter at 100 ml/ 100 L water, and
- Mineral oil at 300 ml/ 100 L water.



**Figure 4.** The effect of spirotetramat (Spirot) – A, and pyriproxyfen (Pyripr) – B containing insecticides in water, with and without a super wetter (SW), at various tree row volume (TRV) applications on the percentage presence of red scale on Nadorcott citrus fruit (inside and outside the canopy) 176 days after last application.

The objective was to determine the effect of the different adjuvants on the efficacy of the insecticides at the different Calculated TRV's. The untreated in this regard was left unsprayed while a treated control received a TRV 1, 2 and 3 TRV and 3 with a systemic or contact insecticide programme without the addition of an adjuvant (water only). Each treatment comprised of 3 randomly selected five tree plots of which the three centre trees served as data trees. An untreated buffer row was left between each treated row.

## Assessment of insect pests

On 5 June 2023 (176 days after last application) 10 fruit per tree position (inside and outside of the canopy) on each of the 3 data trees per plot were inspected for the presence of red scale according to an infestation scale of 1 being infested and 0 not infested.

## Results and Discussion

From Figures 1 to 4 it can be clearly observed that all the treatments numerically reduced the percentage of red scale infected fruit compared to the untreated control. With both Entrée and Nu-Film 17 (Fig 1b and 2b) there was an increased efficacy from the 1728L/ha volume to the 3835L/ha application when applied with the contact insecticide pyriproxyfen. There was however a slight reduction in efficacy at the highest spraying volume of 6080L/ha. This can be due to Entrée and Nu-Film 17 having a per hectare dosage. However, when in combination with the systemic insecticide, spirotetramat, the efficacy increased with an increase in spraying volume when applied with Nu-Film 17 (Fig 1a), while Entrée (Fig 2a) had a similar effect as with the pyriproxyfen. Mineral oil (Fig 3) in both cases had an increased effect on efficacy with an increase in spraying volume when applied with both insecticides. The super wetter (Fig 4) on the other hand had a reduced effect on red scale control with both registered insecticides as the spraying volume increased. This can be attributed to spray run-off. In both cases where Entrée and Nu-Film 17 were applied with either the systemic or the contact insecticide it gave numerical similar results as the market standard of mineral oil. The addition of Entrée, Nu-Film 17 and mineral oil to both insecticides in water (at all spray volumes) managed to improve control when compared to the insecticides in water only (Figures 1 to 3).

## Conclusion

The results from these investigations indicate that Entrée and Nu-Film 17 have the ability to improve the control of California Red Scale on citrus at various application volumes when applied with two

types of insecticides respectively. The results were as favourable when applying the insecticides with mineral oil. Control was however compromised when the super wetter was applied to the insecticide solutions as the application volume increased.

## References

1. Beattie, G.A.C, Broadbent, P., Baker, H. & Kaldor, C.J. 1989. *Comparison of conventional medium to high-volume sprayers with a low-volume sprayer for the control of Black Spot, Guignardia citricarpa Kiely, on Valencia orange*. Plant Protection Quarterly 4(4) 146-148.
2. Fourie, P.H., van Zyl, J.G., Schutte, G.C. & Grout, T.G. 2013. *Optimisation of spray application in South African citrus orchards: challenges and progress*. Suprofruit 2013. 54-56.
3. Grout, T.G. 1997. *Spray volumes and coverage requirements for citrus in South Africa*. Citrus Journal 31: 19e20.
4. Grout, T.G. 2003. *Use of plant protection products*. Section 2.7. In: Grout, T.G. (Ed.), Citrus Production Guidelines, Integrated Pest Management, vol. III. Citrus Research International, Nelspruit, South Africa.
5. Furness, G.O. & Pinczewski, W.V. 1985. *A comparison of the spray distribution obtained from sprayers with converging and diverging airjets with low volume air assisted spraying on citrus and grapevines*. Journal of Agricultural Engineering Research 32: 291-310.
6. Scapin, M., Behlau, F., Scardelari, L.H.M., Fernandes, R.S., Silva Junior, G.S. & Ramos, H.H. 2015. *Tree-row-volume-based sprays of copper bactericide for control of citrus canker*. Crop Protection 77: 119-126.
7. Scardelato, D. A. 2013. *Adequação do volume de calda no controle de Diaphorina citri Kuwayama (Hemiptera: Liviidae) em pomar de laranja, no município de Colômbia*. Fundo de Defesa da Citricultura - Fundecitrus, Araraquara, SP, Brazil.
8. Sichieri, C. E. 2018. *Volumes de calda acaricida para controle do ácaro da leprose dos citros (Brevipalpus yothersi) utilizando turbopulverizador convencionale eletrostático*. Fundo de Defesa da Citricultura - Fundecitrus, Araraquara, SP, Brazil.
9. Silva, G., Scapin, M., Silva, F.P., Silva, A.R.P., Behlau, F. & Ramos, H.H. 2016. *Spray volume and fungicide rates for citrus black spot control based on tree canopy volume*. Crop Protection. 85:38-45.
10. Soares, M. A. 2015. *Eficiência de volumes de calda fungicida e da adição de adjuvantes no controle da podridão floral dos citros em pomares de laranjadoce*. Fundo de Defesa da Citricultura, Araraquara, SP, Brazil.
11. Sutton, T.B. & Unrath, C.R. 1988. *Evaluation of the tree-row-volume model for full-season pesticide application on apples*. Plant Disease 72: 629-632.
12. van Zyl, J.G., Fourie, P.H., & G.C. Schutte. 2013. *Spray deposition assessment and benchmarks for control of Alternaria brown spot on mandarin leaves with copper oxychloride*. Crop Protection 46: 80-87.
13. Van Zyl, J.G. 2019. *Evaluation of adjuvants in fungicide spray application for the control of Alternaria brown spot in South African citrus orchards*. PhD thesis. University of Stellenbosch.



# Forever Remembered

## Stuart “Stutti” Millar



It was with profound sadness, that we heard of the untimely passing of Stuart “Stutti” Millar on November 18th, 2023 at his home in Gilgil, Kenya. He died from an undiagnosed heart condition. He was only 60 years old.

Stuart had been the Managing Director and shareholder of Hygrotech East Africa for more than 25 years. He also owned a flower farm in partnership with his brother, as well as a chemical and fertilizer distribution company in Arusha, Tanzania.



He was a well-loved member of the community, involving himself in various community activities from polo to flying and much more. At his memorial service, nearly 700 people attended, both locally and from overseas.

Such was the effect of his charm and character he had on people. His presence will be sorely missed by all his family, friends and business colleagues.

He is survived by his wife, Alex and his three children, Nick, Georgina and Will.



## Do's

- ✓ Always follow the label instructions and pay special attention to pollinator warnings or precautions.
- ✓ Interrogate Agri-Intel ([www.agri-intel.com](http://www.agri-intel.com)) for pesticides that are registered for the purposes required; the labels are, however, the final port of call for safety and use instructions.
- ✓ Apply directly to the target plant and ensure minimal spray drift.
- ✓ Apply early evening when bees have returned to their hives.
- ✓ Communicate with all beekeepers in the area and inform them of planned spray programmes.
- ✓ Scout the area for pollinators before applying.
- ✓ Be aware of spray residues and the amount of time they may still be toxic to bees.
- ✓ Remember that systemic insecticides have long periods of residual activity.
- ✓ Ensure that flowering plants or weeds that are attractive to bees are not in the area of application.
- ✓ Familiarise yourself with the product. Insecticides are the most hazardous to bees while fungicides and plant growth regulators have less impact.
- ✓ Ensure that equipment has been correctly calibrated for the application.
- ✓ Ensure to practise integrated pest management and only apply pesticides when absolutely necessary.

## Don'ts

- ✗ Apply directly onto flowers. If no other option exists but to apply pesticides in bloom, do not apply directly onto the flowers.
- ✗ Apply while pollinators are active in the area that needs to be treated.
- ✗ Apply at night because inversion can prevent successful deposition of pesticides onto the target and cause serious drift.
- ✗ Apply any product that is not registered for the specific crop or application method.
- ✗ Apply during windy conditions, especially if foliar application is the only available option.
- ✗ Mix pesticides with substances that could be a lure for pollinators.
- ✗ Apply pesticides to standing water bodies.

## Recommended

Plant bee attractive indigenous flora like aloes and fynbos to lure bees away from crop areas where they may be at risk.



# STRESS LESS ABOUT AGRI-SPRAYS



## BENEFITS FROM MILLER ADJUVANTS IN SPRAY PROGRAMMES:

**IMPROVE:** DEPOSITION, COVERAGE,  
RAIN FASTNESS, UPTAKE

**REDUCE:** VOLATILITY, SPRAY DRIFT,  
UV DEGRADATION,  
HEAT DEGRADATION

BRINGING QUALITY USA FORMULATED PRODUCTS TO THE FARMING COMMUNITY FOR OVER 80 YEARS



A HUBER COMPANY

MILLERCHEMICAL.COM  
PRODUCTINFO@MILLERCHEMICAL.COM



+27125458000

ALWAYS REFER AND ADHERE TO PRODUCT LABEL INFORMATION AND RATES WHEN USING THE PRODUCT. Nu-Film® P, Nu-Film® 17, Sustain®, Entrée™ and Mist-Control® are trademarks and a trademark of Miller® Chemical & Fertilizer, LLC in Hanover, Pennsylvania, USA. Nu-Film® P contains 875 g/L Poly-1-p-Menthene, Reg. No. 12080 of Act 36 of 1947, Nu-Film® 17 contains 905 g/L Di-1-p-Menthene, Reg. No. 12981 of Act 36 of 1947, Sustain® contains 875 g/L Poly-1-p-Menthene, Reg. No. 17690 of Act 36 of 1947, Entrée™ contains 819 g/L vegetable oil, Reg. No. 18055 of Act 36 of 1947, Mist-Control® contains 20 g/L Polyvinyl polymer, Reg. No. L4567 of Act 36 of 1947. HygroTech South Africa (Pty) Ltd is the principal supplier of these products in South Africa and the registration holder of Nu-Film P, Nu-Film 17 and Mist-Control, 1 Gerald Brook Street, Pyramid, 0120. Miller Chemical SA (Pty) Ltd is the registration holder of Sustain and Entrée.