HYGROTECH SUSTAINABLE SOLUTIONS

THE #1 ITALIAN RYEGRASS

Winter 2013

R19-75 VAT inclusive BTW ingesluit

BUTTERNUTS NEW EXPLOSIVE RANGE

Yas

TOMATOES PICTURESQUE SEASON

A

NO TILL ... CROP SYSTEMS (PART 2)





COMMERCIAL INTENSIVE AGRICULTURE



BUSINESS UNIT



beautiful gem broccoli



brassicas crop focus





Theo Schoonraad Justin Conradie

Dr. Mari Furter

EDITOR SUB EDITOR, DESIGN PHOTOGRAPHY SUB EDITOR



JEANNE: #1 ITALIAN RYEGRASS

Photo by: Justin Conradi

From left to right; Deon Crouse (Hygrotech), Johan Stassen (Seedcor), Robert Young (Hygrotech), Andre Barnard, Gerhard Barnard, Christo Barnard standing between ryegrass demonstration plots, George farmers day.

tomatoes picturesque season beautiful gem broccoli cucumbers stop the rot nurse your plants sustainable solutions dreamliner* dream harvest arass ours makes a difference sweetcorn challenges to deal with brassicas crop focus sweetcorn new development butternuts new explosive range sporekill® putting the record straight vinevax™ wound on ... vax off up yours fodder & pasture planning healthy aging nutrition requirements lettuce eazy leaf honey bee colony collapse disorder no till crop systems - part 2 nc32 wheat production meatco national braai competition



Written by Theo Schoonraad



*P*leasure without a conscience.....I can't help it, but this particular social sin immediately makes me think of the average male university student. A lot of them, anyway ! Maybe because me and my friends had no conscience when we were 20 years old ? As a matter of fact, any social happening was considered much more important than studying. Of course, I am much older and supposedly a bit wiser now and wouldn't

Theo Schoonraad allow my own children to waste time and money like that. (but things have changed, or so I would like to believe). By the way, today I would still go for the pleasure thing, but with a conscience.

The well-known Indian leader of yesteryear Mahatma Gandhi, came up with this 'seven social sins or temptations' and everybody reading through them will agree that one should measure or test oneself against it every day. No doubt, these sins could undermine the foundations of any society, according to Mr. Gandhi. Is there anybody who would like to argue against the fact that this is exactly the case ? Here and elsewhere ?

Mr. Gandhi hit the nail right on its head... so here they are.. those sins !

- Politics without principles
- Wealth without work or labour
- Pleasure without a conscience
- Knowledge without character
- Business and trade without morality
- Science without humanity
- Worship without making a sacrifice



Young people are quite clued-up on just about any topic today. The social feeds through Twitter, Facebook, WhatsApp, You Tube and the Internet of course, are clearly having a huge effect. Opinionated youngsters are the result.

After reading through the seven sins above, my 16 year old casually announced: " It sounds like our government "

What she must realize though, is that this is probably applicable to just about every government – old and new - across the universe. It's a power issue and I told her so. SAD BUT TRUE.

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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.

Written by : Paddy de Vries National Marketing & Technical Specialist VUP



MONET, SISLEY & MKUZE* THREE OF HYGROTECH'S PORTRAIT PERFECT **OPEN FIELD INDETERMINATE TOMATOES**

T hree of our open field tomato cultivars are named for beauty: Sisley and Monet after the PAINTERS THAT MANAGED TO PLACE BEAUTY ON CANVAS, WHILE MKUZE* WAS NAMED AFTER THE PICTURESOUE MKUZE AREA IN KZN. MONET AND SISLEY WERE PROUDLY BRED AND SELECTED IN SOUTH AFRICA FOR SOUTH AFRICA. MKUZE* WAS SELECTED IN AND FOR THE DIFFICULT KZN CLIMATE AND DISEASE PRESSURES.

 $MKUZE^{\star}$ is an open field tomato, with a wide disease package including TYLCV, TSWV(P0,IR),ToMV, Fol:0-1 and Root Knot Nematode. It has large fruit averaging around 160 to 180g, and is a great box filler.



MONET, an open field variety, produces medium sized pre-pack or box filler tomatoes, with average fruit

size of 130 - 160g. The disease package includes Root knot Nematode, Fol0-1, V and ToMV. Her fruit are very uniform in flat-round shape and size and exhibits a uniform colouring shoulder.



SISLEY, a beautiful gourmet tomato with easy setting, is ideal for supermarket pre-packing. She looks

gorgeous, dressed in good leaf cover and produces 5 to 7 nongreenback fruit per truss under normal conditions. Sisley has a full disease package including ToMV, V, Fol:0-1, TSWV(Race M,



P0). As an added benefit, Sisley was also found to be extremely strong against Bacterial Wilt (Rs) in commercial fields.

To celebrate the coming spring, there is an UNBEATABLE UNPRINTABLE SPECIAL DEAL THAT WILL TAKE YOUR BREATH AWAY! CONTACT YOUR LOCAL REPRESENTATIVE TO DISCUSS THE COMING SEASON AND THE SPECIAL DEAL ON THESE CULTIVARS.



TYLCV: Tomato Yellow Leaf Curl Virus; V: Verticillium; TSWV: Tomato Spotted Wilt Virus; M: Root knot Nema-todes; ToMV: Tomato Mosaic Virus; Rs: Bacterial wilt; Fol: Fusarium oxysporum; IR: Intermediate Resistance

Written by: Dukie Ramokgopa Product Manager: Lettuce & Brassicas

HE TERM "GEM" REFERS TO A PRECIOUS OR SEMI-PRECIOUS STONE, OR A VALUABLE JEWEL. THE BROCCOLI VARIETY GEM IS LIVING UP TO THIS DESCRIPTION AS WELL AS TO EXPECTATIONS IN THE BROCCOLI INDUSTRY.

HYGROTECHS

A very strict criteria is put in place before a broccoli is considered to be properly screened. This is done by looking at both the retailer and consumer requirements as well as being grower friendly.

Broccoli can be a sensitive crop and excessive heat or excessive cold temperatures can easily have negative effect on the head quality. II

Gem is no exception and after rigorous testing and a few years of data collection it passed all the tests with flying colours. Gem has proven to be a well adaptable variety with good field holdability, medium plant structure and

> a medium sized bead. This is a good prepack variety with a nice dome shaped head which sits well on a punnet.

Recently further trials were done with one of the

BEAUTIFUL

major processors and were viewed favorably due to its good plant structure and field holdability. Gem can yield in excess of 500 gram heads without quality being compromised. This variety is really proving to be very versatile.



MAIN BENEFITS:

- Good uniformity which reduces harvesting intervals
- Heads are positioned fairly low in the plants reducing heat damage which is highly beneficial to product quality
- Good field holdability thus harvesting can be staggered if necessary
- Versatile usage

WINTER 2013 =



One would expect that English Cucumbers, being "English", would be OK with our "African" winter! Clearly they didn't read the weather report! Weak plants, low production and stem rot eating your profit?

These all female flowering plants are different to any other fruiting crop. Even though they may be from the same species as "open field cucumbers", and even produce fruit, no seeds are produced and therefore they cannot reproduce generatively. A vegetative plant bearing fruit! Clearly, we are dealing with one very confused individual!

 ${
m T}$ ypical winter problems:

- Light-green coloured weak growth
- Thin leaves & soft vegetative growth
- Long internodes, thin stems, weak side-shoot development
- Disastrous crop eating infections such as *Didymella* sp. (Gummy Stem Blight) and *Botrytis* fruit, stem and leaf rot
- Root diseases e.g. Pythium and Fusarium
- Fruit abortion

The Greenhouse cucumber is a typical warm weather crop, preferring good light, a warm environment and a relatively high air moisture level without free water on foliage.

Many of our problems, like disease incidence, can be traced back to climate and cultural effects that can, to a large degree be controlled.

Diseases such as Didymella, Botrytis and some Bacterial infections (e.g. *Pseudomonas syringae* pv. *lacrymans*) are most prolific during periods of high humidity, extended leaf wetting periods (dew and guttation), low light and "moderate" greenhouse temperatures (20 to 28°C) -Typically those found in our greenhouses during autumn, winter and spring. These pathogens also more easily

infect weak plants.

Typically, much of the infection takes place at points of plant damage (mechanical damage like pruning and harvesting wounds, insect damage etc.).

The source of the infection is mostly right there: Dust, water, droplet splashing, infected plant debris etc.

CLIMATE CONTROL:

LIGHT: improve the light into the plant canopy by ensuring that greenhouse covers are as clean as possible. Replace old opaque covers.

FREE WATER: (dew) forms on plants (and structure surfaces) when, under sufficiently high air moisture levels) the (surface) temperature drops to below the air temperature (dew point). This happens early in the morning from before sunrise (RH level has risen during the night while the temperature has dropped = free water condensation

VENTILATION: Ventilate to bring fresh dryer air into the structure earlier rather than later. It has been found that first ventilating at 23° vs. 26°C will decrease the incidence of fruit rot by up to 3 times.

HEATING: Raise the pre-sunrise temperature to approximately 20° - 23°C (raising gradually by 1 – 1.5 °C / hour, starting from 3 hours prior to sunrise). This will prevent the "cold beer out of the fridge" effect and warm plants up and get their "systems going" before the sun is up.

NUTRITION:

Increase EC for winter irrigation and ensure that adequate Calcium is available to build strong flexible cell walls, thereby reducing the potential for infection. The higher EC, especially from sunset, will avoid high root pressure during the night, lowering the guttation potential ("dew" forming on leaf margins). High root pressure should especially be controlled for the growth-phase of stem development up to the trellis wire.



IRRIGATION:

- Watering should be reduced and stopped earlier in the late afternoon. The 1st morning irrigation should also be delayed as far as possible, especially on cloudy low light days. These two actions will "dry out" the root zone for the night and early morning, increase the EC, and further reduce root pressure. The dryer root zone (and higher EC) should also keep plants in a more generative balance.
- Carefully monitor the run-off ("over drain") under conditions of low fruit load and reduce watering if the runoff increases.
- Under low fruit loads and dull conditions, run off may only be needed from the 3rd irrigation cycles.



Cultural Practices:

Hygiene should be at a high

- Remove all plant debris from the structure
- Disinfect hands & tools as often as possible with Sporekill ° at a concentration of 5ml/L
- Reduce pathogen load by using Sporekill as an all over plant disinfectant (concentration 50-100ml/100L depending on age).

- Prune old yellow leaves and remove from the structure. Regular even leaf removal is important. No more than two leaves at a time. Do not tear leaves off, neatly cut and disinfect.
- Do not apply foliar applications too close to sunset since plants may remain wet for long enough to allow diseases to germinate.
- FRUIT BALANCE: Under the lower energy levels of winter, plants can often not sustain the fruit load on the plant, resulting in poor fruit quality, weakened plants and abortion. Reduce the fruit load to a maximum of 2 fruit per 3 nodes under lower than optimal conditions.



CORRECT CULTIVAR SELECTION:

Selecting the correct cultivars for the particular season will enable these climate adapted plants to better withstand the conditions, and result in a more balanced crop.

Varieties like Azabache and Libertine* are adapted to winter while the new and very exciting Dreamliner* is a winner for spring and summer harvest.

the battle for In control of balance, disease control and production, good growers must read the crop and adapt the management and cultural actions to best suit the current conditions. There is no easy recipe except for sufficient knowledge of the crop, "gut feel", and experience (oh yes, and some luck!)



Ontario Ministry of Agriculture and Food http://www.omafra.gov.on.ca/english/crops/facts/09-051w.htm

University of Florida IFAS Extention http://edis.ifas.ufl.edu/pp280

Cornel University Vegetable MD Online http://vegetablemdonline.ppath.cornell.edu/factsheets/Cucurbit_GSBlight.htm



Writen by: Paddy de Vries National Marketing & Technical Specialist VUP NURSEYOUR PLANT. . . .

SUSTAINABILITY: A MODERN

BUZZWORD FOR REMODELLED OLD PRACTICES.

Our farming grandfathers often had practices that had repeatedly amazing results we called "old wives tales" and luck. Slowly but surely we are understanding what they were doing, and giving complicated scientific terms to their actions, and why it actually worked!

Grandpa's farm unfortunately got cut up into many little familial blocks, becoming more and more difficult to keep healthy due to monoculture and heavy applications of "modern" products that propped the crops on thin unsustainable stilts.

The South African farmer's growing reality is one of increased disease & pest pressure, tired soil and a struggle to maintain margins due to seemingly static prices and continued increases in the cost of energy, fuel, packaging and labour etc. The pressure is certainly on.

One of the realities we have to face is that we are trying to battle a human customised soil-plant-climateeconomic balance that appears like an insurmountable wall. Diseases and pests are getting stronger and more numerous, while the environment (soil, climate and economy etc.) is at the very best remaining constant, more likely not! No single factor such as disease resistance or heavy chemical application can swing the balance back in our favour. A strategy that integrates sustainable practices (including careful use of chemicals and nutrition) can however tip this balance.

TERRA NOVA IS A WONDERFUL CATALYST FOR NATURAL PROCESSES TO OPTIMISE PLANT GROWTH, WHILE ENHANCING THE SOIL AT THE SAME TIME.

Soil FERTILITY: Due to a lack of "fresh" virgin soil, most farmland is over-used. The soil plus roots should be seen and treated as a living, breathing organism that must and can support a healthy and optimally producing plant.

- Use as long a rotation as possible before returning with a crop of the same family.
- Increase organic and Carbon-content as much as possible.
 - The use of **Bio Fumigation** crops such as the **Caliente** mustard or **Nemat** (selection of rocket) can help suppress soil pathogens, weed emergence and even nematodes, while at the same time increasing the organic content, creating an environment that can sustain good soil life (soil micro-flora).



- Hygrotech's *Terra* range of fertilizers supply needed nutrients and also increase C-content (unlike standard inorganic N:P:K fertilizers).
- Compost (or even organic mulch) applications are also an important tool in increasing soil fertility.
- The use of **soil fumigants** should be carefully planned to predict what the total effect can be. Many chemicals may cause long term damage – others, such as the multi-purpose fertilizer Ca-cyanimid (*Perlka*) can have a double positive, such as the potential

of suppressing pathogen and weed pressure, while increasing Calcium, Carbon and slow release Nitrogen content.



• Our soils are sick. Many soils are veritable deserts, containing mainly the terrorists of the microbe or pest world (due to over-fertilization, over watering, Oxygen deficiency, chemical overload etc.).

Healthy virgin soils contain a myriad of organisms in an ecological balance, large and small, good and pathogenic. Fungi, bacteria, nematodes and protozoa, some bad, many beneficial, all coexist in a healthy soil. In many cases, farmland has been denuded of beneficial organisms, leaving the plant endangering ones to party without any barriers. The further problem is that many of our irrigation water sources have the same problem, containing a witch's brew of pathogens and human diseases.

RENEW YOUR SOIL: *Mosblend* (Act 36, 1947: K8903) is a very special product, containing nutrients Nitrogen, Phosphorous, Potassium, Sulphur, Magnesium and Calcium in ratio's than enhance plant growth but also do not inhibit beneficial organisms. This unique blend of soil and plant beneficial organisms (some 37 in all), including fungi, bacteria and protozoa will aid in nursing the soil back to where "oupa" found it!

BOOST & FEED THE GOOD BUGS:

in combination with Mosblend, two products are of specific importance and benefit.

• *Vitazyme* (Act 36, 1947; B4459) contains biostimulants and biological activators for the plant and good bugs alike. The dramatic increase in the population of good organisms in the soil (like Mycorrhiza and others that live in symbiosis with the plant) and on foliage

(e.g. *Trichoderma* spp.) has been shown to potentially increase the crop's growth potential dramatically.



Hygro Mousse (Act 36, 1947; B4507), with components including earthworm tea, is an ideal foliar and soil application product, promoting

continuous root growth, plus leaf and fruit development. *Hygro Mousse* supplies the plant with the full range of macro- and micro-nutrients in an easily accessible form, ensuring the ideal ratio of applied elements. Apart from the plant nutrients, the organic components "feed" and "nurse" the soil micro flora and keep it healthy.





- **APPLY CHEMICALS** into soil or on foliage sparingly, calculated to a minimum. Chemicals, used correctly, are important weapons in the balanced strategy, but over-use will cause stressed plants, "dead" soil, and even resistant pests.
- ACCURATE AND RESPONSIBLE FERTILIZATION. Inorganic fertilization should be based on soil analyses and preferably given split over the crops' entire growth and production cycle. In general, too much fertilizer is often applied too early in the crops' cycle.
- **WATER THE SOIL** (not you conscience). Over watering will cause a cascade of negative effects.
- **PHOSPHATE** applications can, in many cases, be reduced by using nature's own Phosphate miner: Mycorrhiza (E.g. Biocult). This fungus grows in symbiosis with the root system and releases root available Phosphate (and other nutrients) to the root system "in exchange" for root exudates which Mycorrhiza uses for its own metabolism.
- USE THE BEST DISEASE RESISTANCE that you can find. However, none of the above, including disease resistance, can ever be expected to replace or supersede good farming practices. A well grown "old" variety can often perform better than a poorly treated "new full package super plant"!



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Written by Liandra von Below: Sales Representative Gauteng Area

DREAM OF A HARVEST V

WHAT A DREAM TO START HARVESTING YOUR CUCUMBERS AFTER JUST 30 DAYS. FOR THIS SPECIFIC GROWER, IT MEANT GETTING INTO THE SELLING SEASON ABOUT 15 DAYS EARLIER, UP TO A THIRD OFF THE "NORMAL" DOWN-TIME PERIOD BETWEEN CROPS! SOUNDS TOO GOOD TO BE TRUE?

Well yes, this might be an exceptional case, and it could be that the grower not only has green fingers but green blood, but it clearly shows the strength of this remarkable cultivar. The following interesting facts about Dreamliner* should help you with the next season's cultivar decision.



These are results taken from one grower, in his 6 cucumber tunnels, all using the same fertiliser programme all planted at the same date, and best of all, the results are only for 10



weeks on each plant, so the first 2.5 weeks of DREAMLINER* yield was not even taken into account. The plants all produced into 12 weeks of production, the only difference here was the cultivars and their production.



Looking at the results, Dreamliner* gave the grower an average of 2 fruit per plant more than its closest competitor and as much as 7.5 fruit per plant more than the competition variety used.

So what is your current yield per plant in your tunnel? Have you tried DREAMLIN-ER* in your production yet? If no, then why not try it in your next summer planting. If Yes, send us your data, so that we may build an even stronger database of results from all over our beautiful country.

Thanks to the many Dreamliner^{*} plantings, a Dreamy growing season it was indeed for those growers! Remember to discuss your Winter and Spring Cucumber crop planning with your local area representative or field agent. If you don't have a field officer, contact our offices for the contact details.

Dirk Le Roux, Sales Representative – Tzaneen Fielies Nieuwoudt, BEL - Laeveld



Die donkie is 'n wonderlike ding!

Mr Kaspaas Pöhl of Mooketsi is hitting expensive input costs for a six and in the process has a "clean sustainable" approach on getting rid of weeds.

Organic farming in action!

He makes effective use of the trained donkeys (of which he has a lot) on some of his farms to loosen and gather the weeds. This practice takes place on a continuous basis and proves to be very effective.



The implement in the photo is pulled by a 2 donkey powered drive train, it burns zero diesel and leaves absolutely no hazardous fumes in the air!



WHERE THERE'S A WILL. . . THERE'S A WAY!!!

Johan Oberholzer, Sales Representative – Tzaneen Fielies Nieuwoudt, BEL - Laeveld

TAKES OFF

A FTER A TRIAL PERIOD OF MORE THAN 2 YEARS OVER MANY TIME SLOTS, ASTRONAUT^{*} HAS ESTABLISHED ITSELF AS A VERY RELIABLE AND COMPLETE PRODUCT.

In the Lowveld it's currently planted over many

hectares (winter production) with huge success. The plant displays a thick stem and vigorous growth. It proved to withstand the strong wind very well.



Plants are \pm 1,7m high with cob lengths of 15 – 19cm and 4 – 5 cm in diameter. Tipfill proves to be 100 %.



Rust; Northern Corn Leaf Blight; Multi Genic Rust

Although we are only just entering the winter season, we are confident that "Silkjam" which is a huge problem in other varieties will not be a problem.



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MAKES A DIFFERENCE

HYGROTECH IS NOT ONLY A LEADING SUPPLIER OF VEGETABLE SEED, CHEMICALS, FERTILIZERS AND ADJUVANTS, BUT WE ARE ALSO THE EXCLUSIVE DISTRIBUTOR OF DLF BRANDED TURF SEED CULTIVARS AND SUMMER PERENNIALS LIKE KIKUYU, BERMUDA KWEEK, BAHIA GRASS AND OTHERS.

Gool season turf-rye grasses are a wonderful option for sowing now and ensuring that you have a quick cover of lush green grass through-out winter....and it is not affected by low temperatures, frost or even snow !

One of our colleagues and his family participated in a Horse Endurance Marathon recently at Sondela, in the Limpopo Province. The organizers of this event used some of our turf-rye seed in the 'arrival and inspection area' of the horses, and as can clearly be seen in the photograph below, this area stood out from the dry, dusty appearance of the adjacent winter Bushveld.

The photo below, Chris Pottas jr. with his horse Savanna in the veterinary inspection area.



For more information on turf-rye lawn grasses, kindly contact: Theo Schoonraad at Hygrotech : 012-545 8000 or 083 273 2624.

Sweet corn is normally a summer crop. The plants' ideal growing conditions are: soil temperatures of 16-25°C and ambient temperature at night of 18°C and days of 28°C. In some areas, the temperatures are much higher than optimum and some growers grow the crop in shoulder periods and even in winter months. This results in abnormal behavior of the plants. The plants grow for longer periods, shorter plants and cobs. The cobs are also thinner in diameter. Some of these abnormalities are discussed in the following article.

Sweet corn seeds are small and wrinkled. These seeds are very sensitive to low soil temperatures. If the soil temperature is below 15°C, the seed will germinate poorly. A planting depth of 2,5cm is recommended. At 25°C a germination of 98% can be achieved. The optimal plant density of Sweet corn is 55 000 plants/ha.

After germination and emergence from the soil the plants will grow for 65 – 85 days before the cobs are ready to be picked and sold. The life cycle can be divided into two main stages, the vegetative and reproductive growth stages. The vegetative part is the easiest, if the plants have the required nutrients and pests, diseases and water are controlled well. This stage is about 7-9 weeks and the plants have between 7-9 leaves.

The bigger challenges are from tasseling and the rest of the reproductive stage. These include silking, blister and milk stages.

During the period of tasseling and silking, it is very important that the plants do not have any water stress. This will ensure ample, viable pollen for good pollination, resulting in cobs with very good pip formation and excellent tip fill. The optimum temperature during pollen shed is 28°C. Pollen is viable for about one day and temperatures above 38°C will kill. As for the silk, temperatures of 32-34°C and low humidity may cause the silk to dry out and die. To overcome these dangers, water management during tasseling and silking is very important and need to be adjusted to the prevailing weather conditions.

Up to 10% production loss per day can occur if water is not managed correctly.

One of the other challenges is the discoloration within the cob after cutting the cobs. The plants have grown well, there are no diseases and pests present, water management were good and the picked cobs are looking good. BUT the internal cobs display a brownish discoloration in the core. This is a physiological problem, caused by environmental factors. It is a combination of day and night temperatures, day length and distorted relationship of these factors. These phenomena can occur in spring, when plants are growing from cooler, shorter days into periods of longer and warmer days. The plants are most sensitive in the tasseling and silking stages. During this last part of the plants life cycle, an enormous amount of sugars are produced. The pips cannot handle the "overdose" of sugar and some are deposited into the core of the cobs. This causes the browning in the cobs. This condition is temporary and will rectify itself as the weather gets better.

With the changing weather patterns in South Africa, we can expect to see more of these and other abnormalities on different crops in the future.

References: Postharvest Technology of Horticultural Crops Third Edition by A. Kader

> Compendium of Corn Diseases Third Edition by D. White

How a Corn plant Develops, Special report No. 48 Iowa State University of Science and Technology

Written by Dr. Mari Furter National Marketing Manager: Seed Pieter Peacock Product Development Manager: FertAgChem

BRASSICAS CROP FOCUS:

Brassicas are members of the Cruciferae or mustard family. Economically the most important members are cabbage, broccoli and cauliflower. It is assumed that cabbage originated in Western Europe and cauliflower and broccoli came from the Mediterranean region. Brassicas are quite cold tolerant and therefore well adapted to cool season production. Although young cabbage plants can withstand temperatures below 0°C, older plants are less hardy and growth rate of cabbage stops at 0°C. They grow best at 15 to 20°C. Above 25°C they stop growing again!. Due to a lot of breeding and selection modern varieties have adapted to all year round production.

Brassicas require a regular water supply during the growing season – water shortage is detrimental for head development. Cauliflower and broccoli do not handle extremes as well as cabbages. High temperatures delay maturity and increase vegetative growth (number of leaves) and cool temperatures hasten maturity and may induce bolting. Fluctuating temperatures may induce some cauliflower varieties which are heading to revert back to the vegetative phase which results in poor quality curds.

PHYSIOLOGICAL DISORDERS:

CAULIFLOWER AND BROCCOLI BUTTONING:

Buttoning is the premature formation of a head and because the head forms early in the plants life, the leaves are not large enough to nourish the curd to a marketable size.



Causes are usually due to:

- Too much hardening of seedlings
- Too little hardening of seedlings
- Low soil nitrogen
- Low soil moisture

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- Continued cold weather (4 10°C for 10 days or more)
- Disease, insects, micronutrient deficiency

LACK OF HEADS IN BROCCOLI AND CAULIFLOWER:

Plants remain vegetative during periods of extremely warm weather (days over 30°C, nights 25°C) since they do not receive enough cold for head formation.

TIPBURN OF CAULIFLOWER AND CABBAGE:

Tipburn is a breakdown of plant tissue inside the head of

cabbage and on the inner wrapper leaves of cauliflower. It is associated with an inadequate supply of calcium in the affected leaves causing a collapse of the tissue and death of the cells.



Calcium deficiency may occur where the soil calcium is low or where there is an imbalance of nutrients in the soil along with certain weather conditions. (High humidity, low soil moisture, high potassium and high nitrogen aggravate calcium availability).

HYGROTECH SOLUTION:

CALMABON LIQUID (Reg. No. K5272 for Act 36 of 1947) @ 2L / ha every 14 days from two weeks after transplant.

HOLLOW STEM IN BROCCOLI AND CAULIFLOWER:

This condition starts with gaps that develop in the tissues. These gradually enlarge to create a hollow stem. Both plant spacing and the rate of nitrogen affect the incidence of hollow stem. As the rate of nitrogen and/or plant spacing increases, hollow stem increases. An easy solution is to increase the plant population.

HYGROTECH SOLUTION:

CALMABON LIQUID (Reg. No. K5272 for Act 36 of 1947) @ 2L / ha every 14 days from two weeks after transplant.

PURPLE DISCOLOURING OF CABBAGE LEAVES IN WINTER:

Cabbage leaves show a purple discolouring in winter months due to slower transport of phosphorous in the soil.

HYGROTECH SOLUTION:

FOSFASPRAY (Reg. No. K2248 for act 36 of 1947) @ 2 kg / ha 3 – 4 times per season from two weeks after transplant.

CAULIFLOWER BLANCHING:

The market demands cauliflower which is pure white or pale cream in colour. Heads exposed to sunlight develop a yellow and/or red pigment. The easiest solution is to use self blanching varieties which gives good curd protection.

DISEASES:

DOWNEY MILDEW:

Downey mildew, caused by the fungus *Peronospora parasitica* Pers. ex Fr., is one of the most destructive diseases of cabbage, but attacks also cauliflower, broccoli and Brussels sprouts. When conditions are favourable for disease development, downy mildew first appears on the cotyledons as a white mold, usually on the lower surface.

The fungus is not noticeable particularly when the leaves are wet with dew. On true leaves, the disease appears as tiny scattered, pale green spots. The spots enlarge, turn yellow, then brown. The fungus may be evident as a white mould on the under-side of leaves. The disease is most serious during cool, damp weather. Symptoms appear more rapidly when night temperatures range between 10 and 15.5 °C for several days and plant surfaces remain wet until mid-morning.

HYGROTECH'S PREVENTATIVE SOLUTION:

Sporekill (Act29GNR529/27555/070/210) 50 – 100 ml / 100L water. First application after transplant of seedlings or 6 weeks after seeding. Apply at 10 day intervals. An application of 100 ml / 100L prior to harvest will also disinfect foliage of pathogenic organisms such as *E. Coli*. PLUS Copper Count-N (Reg. No. L2602) for act 36 of 1947) at 500 ml / 100 L – Apply under pressure until runoff. Depending on disease development, weekly sprays can be applied.

CLUBROOT:

Clubroot is a soil borne disease which affects all Brassicas. The signs of disease vary from swellings on roots to severe malformation of the root, accompanied in many cases by

wilting, and frequently death of the plant. Crop rotation is very important since the fungus causing it can remain in the soil for up to 7 years after the last Brassica crop. Maintain soil at a pH of 7-7.5 or higher by applying calcitic lime (CaCO₃).



HYGROTECH SOLUTION 1:

PERLKA (K8015) @ 500 kg / ha for soil pre-plant preparation and 10 day withholding period after thorough wetting. Subtract 70 kg N and 190 kg Ca from fertilizer programme.

HYGROTECH SOLUTION 2:

CALIENTE MUSTARD @ 10 kg / ha. Allow 60 days for growth of crop with irrigation and 120 kg Ammonium sulphate as fertilizer plus allow 30 days for fumigation and de-composting (N negative period).

BLACK ROT:

Black rot lesions first appear at margins of leaves. The tissue turns yellow and the lesion progresses towards the center of the leaf, usually



in a V-shaped area with the base of the V toward the midrib. Use tolerant varieties and practice a 4 year rotation. Black rot is usually most severe in low, wet areas of fields or along windbreaks where plants remain wet for long periods of time.

HYGROTECH'S PREVENTATIVE SOLUTION:

Sporekill (Act29GNR529/27555/070/210) 50 – 100 ml / 100L water. First application after transplant of seedlings or 6 weeks after seeding. Apply at 10 day intervals. An application of 100 ml / 100L prior to harvest will also disinfect foliage of pathogenic organisms such as *E. Coli*.

INSECTS:

Scouting fields:

The most important tool in pest management is regular scouting of fields to correctly identify pests and to determine if their numbers and potential for damage warrant treatment. Most insect pests found on Brassica crops have parasite and predator natural enemies that are often able to keep pests below damaging levels.

CABBAGE APHID:

Treat Brassicas if more than 10% of the plants are infested with aphids anytime after heads begin to form. Aphids tend to be more of a problem in fall plantings and on broccoli and Brussels sprouts.



CABBAGE LOOPER (CL) AND DIAMONDBACK MOTH (DBM):

Treat plants between the start of heading and harvest if 20% or more of the plants are infested. The most critical time to scout and apply controls is just prior to head formation. DBM has become resistant to many synthetic and microbial

insecticides. Even if you are getting excellent control of the pest with the materials presently being used, you should alternate between effective materials to retard development of resistance.



References:

Vegetable crops production guide for the Atlantic Provinces. New England Vegetable management guide. Guide to commercial cabbage production. Alabama Cooperative Extension system. ANR-1135 Plant Pathology Circular No. 127 JL McRitchie. 1973. Downey mildew.

Plant Pathology Circular No. 127. JJ McRitchie, 1973. Downey mildew of cabbage. USA Department of Agriculture and Conservation services, Division of Plant Industry.



Hygrotech's 3 New

- UNIFORM PLANT HABIT
- STRONG PLANT AND LEAF FRAME
- Weight: 4-6 Kg
- MATURITY: 90-110 DAYS



- INTERMEDIATE RESISTANCE TO BLACK ROT
- Ideal for pre-pack and processing
- Summer and moderate winter
- WEIGHT 3.5-4.5 KG
- MATURITY: 80 90 DAYS



- INTERMEDIATE RESISTANCE TO BLACK ROT
- GOOD ALL YEAR ROUND VARIETY
- GOOD FIELD HOLDABILITY
- Weight 3.5 5.5 kg
- MATURITY: 75 80 DAYS







in the Hygrotech Forum and let your business get the recognition it deserves

HYGROTECH SUSTAINABLE SOLUTIONS

A Sterio

For more information on availability and tariffs contact Justin at: seeddesign@hygrotech.co.za Theunie Snyman: Sales Representative – Louis Trichardt Herman de Beer: BEL - Bosveld

SWEETCORN DEVELOPMENT

For the sweet corn farmer it is of utmost importance that the product he delivers to the processors is of the highest quality and in the correct time slot. For the processors the recovery of product is important as well as the quality!

Hygrotech did some trials with its own cultivars being Gladiator, Galaxy*, Astronaut* and HTSP1* and 2*.



Attention was specifically given to head size, grain size, days to harvesting and quality.



The results of trials indicated that the head sizes of HTSP 1^* + 2^* were the biggest and that the same cultivars had the biggest recovery rate and were 5 – 7 days earlier than all the other cultivars.

The trials also indicated that Galaxy* and Astronaut* are just as good and can be planted with confidence.







New Explosive Hybrid Butternut Range

The South African Butternut market has been increasing tremendous the last 10 years to such an extent that it is an integral part of the average South African diet. It is more affordable than many other vegetables comparing nutritional value per Kg.

Less production risk, lower production cost, long shelf life which lengthens marketing time as well as allowing for transport during export and processing opportunities make butternut squash one of the most versatile vegetables in the world.

We have sourced the globe and came up with a very impressive range of new Hybrids and Open pollinated varieties

After taking the above into account, we have turned our focus on a butternut variety improvement plan. We have sourced the globe and came up with a very impressive range of new Hybrids and Open pollinated varieties to suit every farmers' needs around the country. We are very excited to introduce 5 brand new hybrid varieties which we decided to name after types of explosives because all of them pack a serious punch and will cause an explosion in the South African Butternut market.

An additional 3 new open pollinated varieties will be launched next year as well as the new Nutri-Nut range. (Dark green skinned butternuts with high beta-carotene and sugar content for the processing or speciality markets).

With the addition of the new range, we are proud to say that we have the most complete range of butternut varieties of any seed company in the world. We highly recommend you to be part of our plans.

Please look at their explosive technical specifications and place orders at your nearest branch or sales representative.

Seed supply is very limited because they are all new; please place them as soon as possible for summer 2013-2014.

Атом*

Atom* is perfect for winter production areas, shorter sun hours and for growing on less fertile soil. This variety is very vigorous and adaptive to difficult growing conditions. Excessive Nitrogen should be avoided where possible. Atom* is very uniform in shape and size with high yield potential. Production area 20-28 degrees below the equator.

B 52*

B52* is perfect for higher population plantings, centre pivot spacing where more compact plants are required for quick closure of the canopy to restrict weed growth. Very uniform with bright orange flesh. B52* can be planted in early and late slots below 28 degrees from the equator.

NEUTRON*

Neutron* is one of the first varieties to claim mild resistance to Zucchini Yellow Mosaic Virus, Powdery Mildew and <u>Alternaria</u>, Neutron* can now be planted later in Summer Rainfall production areas where Virus pressure is high. Perfect for the summer in Lowveld and Natal areas, Summer production areas down in the Western Cape. Long Sun hours are required for Neutron, It should be planted going into summer, not going out. Perfect for Export and 10Kg boxes.

Tnt*

TNT* is a very versatile variety that can be planted from 22 degrees down to 34 degrees from the equator. Bigger fruit can be expected of this vigorous variety, Very uniform and high production potential. TNT* shows great storage ability and deep dark orange flesh that is perfect for the processing market.

Torpedo*

Torpedo*, like Neutron*, has mild resistance to Zucchini yellow Mosaic Virus and Powdery Mildew. Medium Vigorous with high yield potential. Torpedo* is perfect for growing from 24-28 degrees below the equator. Torpedo* is perfect for planting after spring, November. Very small seed cavity and bright orange flesh. Perfect for Export and 10 Kg box packing.

> Less waste, more usable product due to longer neck to bulb ratio

Small seed cavity and thick rind that improves shrinkage in storage

More usable flesh around the seed cavity

19

New Explosive Hybrid Range								
VARIETY	Days to Maturity	Early	Mid	Late	Plant Vigour	Disease Tolerance	FRUIT Weight(Kg)	Plant slots
Атом*	90-110	х		X	Very Good		1.5-2.5	Western Cape, 1 Oct-15 Oct/ Gauteng 15 Oct-15 Nov/ Bushveld 15 Feb-15 April/
B52*	90		х		Compact		1.2-1.6	Western Cape, 15 Oct- 5 Nov/ Gauteng 15 Nov-15 Dec/
NEUTRON*	95		x		Very Good	ZYMV, PM, Alternaria	1.2-1.5	Western Cape/North Cape 5 Nov-15 Dec/ Gauteng 15 Nov-15 Dec/
Tnt*	90-110	X	x	X	Very Good		1.6-2.0	Can be planted in all slots.
Torpedo*	95		x		Very Good	ZYMV, PM	1.4-1.8	Cape areas Oct-Nov

* This variety is not on the official varieties list, but an application has been or will be submitted.

Writtten by: Johann der Vyver Product Specialist ICA International Chemicals

ue to Sporekill[®]'s popularity in South Africa, Hygrotech (exclusive SA Sporekill[®] distributor) often receives enquiries regarding the legal side of using Sporekill[®] within the South African crop production sector. ICA International Chemicals Pty (Ltd), as manufacture and registration-holder of Sporekill in SA and several countries worldwide welcomes these enquiries and therefor provide the following relevant information:

- In South Africa, Sporekill^o is legally registered as an Agricultural Disinfectant by the National Regulator for Compulsory Specifications (NRCS) Act 29 of 1993 (registration number ACT29GNR529/27555/070/210). The justification of such use will be sanitation of various areas as indicated in the "directions for use" on the label that accompanies the containers. Using Sporekill^o according to these "directions for use" is totally legal.
- Sporekill[•] is also legally registered for certain fungicide applications by the Department of Agriculture, Forestry and Fisheries (DAFF) Act 36 of 1947 (registration number: L7115). The justification of these uses is for the control of specific diseases on specific crops as indicated in the "directions for use" on the label that accompanies the

containers. Using Sporekill according to these "directions for use" is totally legal.

& CROP PRODUCTION IN SOUTH AFRICA

PUTTING THE RECORD STR

In addition to the above, Sporekill[®]'s formulation complies with SANS 1853 ("Disinfectants and Detergent-disinfectants for use in the food industry").

Using Sporekill[®] in accordance to the above during crop production in South Africa is thus totally legal. Some crops produced in South Africa are however deemed for export to various countries. For such crops the set regulations of the destination countries are relevant. These regulations include amongst other, withholding periods, MRL values etc. It is very important for growers, who export from SA, to familiarize themselves with (and abide with) these set regulations of the destination country (information available from the specific importer or exporter). ICA and Hygrotech will also gladly assist by providing specific information when Sporekill is to be used during the production of crops deemed for export. Should you require any further advice or information, please contact your nearest Hygrotech branch or johann@icaonline.co.za





Part of being COMPANY LOOKING AFTER SUSTAINABILITY AND RESPONSIBLE FARMING, Hygrotech obtained THE REGISTRATION OF VINEVAX. VINEVAX IS A PRUNING WOUND DRESSING FOR THE BIOLOGICAL CONTROL OF GRAPEVINE TRUNK DISEASES. SEVERAL FACTORS ARE IMPLICATED IN THE INCIDENCE, SEVERITY AND SPREAD OF DISEASES NAMELY VARIETY, CLIMATE AND MANAGEMENT. EARLY DETECTION IS VERY CLOSE TO IMPOSSIBLE, BECAUSE OF SLOW AND INSIDIOUS MOVEMENTS ONCE INFECTED, DRASTIC MEASURES ARE REQUIRED TO ARREST DISEASE.

" It is re-assuring to know that Vinevax is non-toxic and organic. "



Termed an "Immunizing commensal" the Vinevax activate ingredient (*Trichoderma* bio-inoculant) enters the fresh wound tissue and establishes a living barrier that simultaneously protects against and consumes invading pathogens, and continues to live beneficially within the plant.

The action of Vinevax is no secret, as it generates a "vaccine" response where it activates:

- Natural plant defence mechanisms
- Phenolic compounds phytoalexins
- Immune-like stimulation response
- Trichoderma is known to stimulate plant growth

"The yearly use of the product will effectively build up with increased benefits to vine health. "

The following organisms are no match for Vinevax:

- Black dead arm Botryosphaeria spp.
- Black goo *Phaeomoniella chlamydospora* (Petri disease)
- Black foot *Cylindrocarpon destructans*/ spp.
- Dying arm Eutypa lata
- Root rot Armillaria novae zealandae
- *Phomopsis* spp.



VINEVAX PRUNING WOUND DRESSING

= FORUM - WINTER 2013 =

VINEVAX BIO-DOWEL

Statistics show that losses of up to 100% can occur when cut wounds and wind and mechanical damage are left untreated. Hygrotech has decided to take on these statistics, only question you need to ask is: Can you and mother earth really afford not to treat your vineyard with Vinevax?

Compiled by: JJ de Klerk

WINTER IS NATURES' WAY OF SAYING... **UPYOURS** FODDER AND PASTURE PLANNING :

SURVIVING NEXT WINTER STARTS WITH PLANNING THIS WINTER

L he summer of 2013 surely was one of the harshest years FOR STOCK FARMERS IN SOUTH AFRICA IN RECENT YEARS. WITH GROSSLY INFLATED FERTILIZER, FUEL AND LABOUR COST OFFSET AGAINST RECORD LOW PRICES FOR STOCK AT AUCTION, MANY STOCK FARMERS WOULD HAVE FELT THE BRUNT OF THE TWO DRY SUMMERS WHICH MANY CALLS TO BLAME. AND WITH FUTURE FEED PRICES SET TO REACH EVEN HIGHER WITH THE USA MAIZE PROSPECTS LOOK-ING DOUBTFUL, SOUTH AFRICAN STOCK FARMERS MIGHT BE FACING A DEADLY WINTER SAYS JOHAN WILLEMSE, ECONOMIST, LANDBOU WEEKBLAD 17 MAY 2013

With this in mind we decided to give our stock farmers a helping hand in planning for next winter, no matter what the weather or the economy decides to throw their way. So grab a calculator, light the fire place and let's get cracking...

By the time this Forum reaches our farmers, mid-winter should be going strong and with it no more chances of cultivating feed in the northern and central regions, some farmers might be running on reserves after the long dry summer. Taking this into consideration, what can we as stock farmers do to ensure sufficient grass is available come this time next year?

MOISTURE PRESERVATION:

Rainfall has the greatest effect on yield with yields varying between 3.5 tons/ha with 500 mm and 8.9 tons/ha with 800 mm of rain for Smuts finger grass under the exact same conditions. As we have no control over rainfall, soil water conservation throughout the year is of primary concern. Two of the easiest ways to conserve soil water is by ensuring proper soil coverage

by preventing overgrazing (see stocking density), or mowing down closely grazed pastures to create a "mulch". Secondly adding organic matter to soils with medium to low clay content has a dual effect of fertilizing and increasing moisture retention as organic material has the greatest ability to retain soil moisture in dry periods. By managing grazing pressure, "mulching" and fertilizing pastures with organic and enriched organic fertilizers such as TERRA NOVA, TERRA BUENO or TRANSITION, plants can be fertilized optimally whilst improving moisture retention of the soil.



FERTILIZER PROGRAMME:

After water, plant nutrition has the second most limiting factor on yield. To determine the current status of soils it is advisable to take soil samples every spring of all pastures to be grazed that year. Fertilizer recommendations can then be done by one of HYGROTECHS' highly skilled agronomists, which will help you, plan for and fertilize your crops as needed. By making use of an agronomists' expertise shortages and other limiting factors can be identified and adjusted prior to the onset of the growing season. This will save you the stock farmer not only on input cost but also ensure optimal yields of pastures which in turn not only improves stocking rates but will also fill up the fodder bank for winter. Our agronomists have access to a complete range of organic and enriched organic fertilizers, foliar sprays such as HYGRO BOOST FLO to supplement all micro element deficiencies. And with an ever growing liquid fertilizer (NC 32) and biological range which includes MOSS BLEND and VITAZYME, they ensure that the plant is well fed and kept in perfect condition from root to tip.



CROP SELECTION AND CULTIVATION:

Climatic conditions and soil types will to a large extent determine what crops can be cultivated. For example a deep dry land field with low Nitrogen where a high protein crop is required, COWPEAS can be cultivated and grazed or baled for winter. Where irrigation is available and high potassium and sulphur levels are present LUCERNE could be a first option. If the same field is required for grazing RYE GRASSES can be cultivated with success. For more marginal dry land soils in low rainfall areas BLUE BUFFALO should be an option whereas RHODES or SMUTSFINGER GRASS is better adapted to higher rainfall areas. All of which can be used as summer grazing, foggage or cut and baled for winter. Other winter feed options such as silage from MAIZE or FORAGE SORGHUM can also be made during summer months.

Each of these crops have different yields, fertilizer requirements and growing cycles and should be selected accordingly. Higher yielding crops have higher fertilizer demands which must be taken into account before planting a pasture especially if it is a perennial crop. Fertilizer cost can vary between R 1000 and R 6000 per hectare depending on the soils current status and the demand of the crop. In some cases planting a lower yielding crop with a lower fertilizer demand is more efficient than fertilizing at higher rates to obtain more feed per hectare from another crop. This is often the case on dry lands and soils with very low nutritional status.

Crops must also be selected to fill in the most demanding time of the year depending on the management program. Back grounding operations require more hay and silage where stock is sold off in summer months when prices are high. Such a farm will fare better with FORAGE SORGHUM and on marginal lands SMUTSFINGER or another summer perennial grass as an example. Whereas a stud breeder calving down in summer will have completely different demands than a herd calving in winter or throughout the year.

BACK TO BASICS:

What can we as stock farmers do to ensure sufficient grass is available come this time next year? We need to conserve precious soil moisture throughout the year. Take soil samples, and by taking them, the environment and our farms demands into consideration determine which crops can be cultivated with success. By fertilizing these crops optimally and managing stock on the pastures in a responsible, efficient and sustainable manner, we can to a great extent prevent over stocking our pastures. But what advantage does this hold for the stock farmer under current conditions. Firstly there would be less pressure to sell off stock due to overgrazing. Farms can carry the number with relative comfort throughout the year which offers more liquidity to the producer to determine when he wants to send his product to market. Secondly by managing pastures more efficiently and always maintaining production at an optimum, stock farms can be run more sustainable keeping in check with HYGROTECHS' slogan SUSTAINABLE SOLUTIONS.....for the successful stock farmer. So make sure to contact your HYGROTECH representative, and show next winter an "UP YOURS"



REFERENCE: The Farming Handbook. Barry Smith. University of Kwa-Zulu Natal Press. 2006



The 20th century has marked a decrease in infant mortality and an increase in life-expectancy. 0 years ago, the life expectancy was 76.9 years for

infant mortality and an increase in life-expectancy. 10 years ago, the life expectancy was 76.9 years for the average individual and has only increased since. Increased life expectancy is due to advances in medical developments and availability, however, with longer life comes an increase in diseases such as Alzheimer's disease, influenza, pneumonia, kidney disease, and hypertention or other conditions that can affect older adults.

Aging is a normal process that begins at conceptions

and ends at death. The aging process is marked by numerous physiological changes and includes changes in body composition, sensory losses,

> impaired gastro-intestinal function, cardiovascular function, renal function, neurological function and immunocompetence.

Physiological age is different from chronological age in that it reflects health status. Physiologically, your body can either be "older" or "younger" than you really are, and this is influenced by life events, illness, genetics, socioeconomic factors, sleep, frequency of well balanced meals, physical activity level, smoking status, extend of alcohol consumption and body weight.

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It is not inevitable however, that aging is marked by a detorioration in health status, disease and disability. By implementing preventative strategies and eliminating risk factors, you can significantly influence how well you age.

SPECIAL NUTRIENT NEEDS OF OLDER ADULTS:

Each older adult has unique needs and dietary recommendations should be individualized. There are however general guidelines that all older adults should comply with.

ENERGY:

Energy requirements decrease with age because of changes in body composition, a decrease in basal metabolic rate (2% with each decade of life) and a reduction in physical activity. Although less energy is required, energy consumption in some adults are poor and insufficient. Reasons for this include changes in physiological changes in appetite and taste sensation or changes caused by medication usage. Presence of Alzheimer's and Parkinson's disease also increases the risk of malnutrition as appetite and food intake fluctuates with emotional state, agitation and confusion level.

To improve taste of food and thus ensure sufficient energy intake, season food with herbs, spices, butter flavoured seasonings, garlic maple or vanilla extract and cheese or bacon flavoured seasonings.

When other barriers to nutritional intake occur, consult a registered dietician for applicable advice.

PROTEIN:

Although energy requirements decrease, protein requirements remain the same or increase. Aging causes a loss of skeletal muscle mass, and skeletal muscle protein may be inadequate to meet the needs for protein synthesis, emphasizing importance of dietary protein intake. A protein intake of 1-1.5g/kg/d is recommended. Vary intake of protein sources such as eggs, legumes, beans, peas, lentils, beef, chicken and fish.

CARBOHYDRATES:

Adequate carbohydrates (45-65% of daily energy) are needed to keep proteins from being used as an energy source. Ensure sufficient intake of carbohydrates high in fibre, such as legumes, vegetables, whole grains and fruit. Foods high in fibre ensure protection against colon cancer amongst others. The intake of refined carbohydrates such as baked goods and sweets should be limited.

FATS:

The type of fat consumed can significantly influence risk or progression of disease. 25-30% of daily energy should come from fats, and only 7% should come from saturated fat. Omega-3 fatty acids can help alleviate dry eyes, combat inflammation, and decrease risk of Alzheimer's. Consume healthy fats every day in the form of salmon or other fatty fish, walnuts, avocado, olive oil, flax seed and olives. Switch from solid fats to vegetable oils such as cold pressed extra virgin olive oil when preparing food. If you are unable to consume fatty fish 2-3 times per week, consider a good omega 3 supplement. A proper omega 3 supplement should contain only pure omega 3 (without added omega 6 and 9) and should contain vitamin E which aids absorption.

VITAMINS:

Antioxidants act as a buffer against cell damage and can prevent cataracts, heart disease and cancer, slows brain

ageing and promotes optimal vision. Stress, smoking and some medications increases vitamin C requirements. Care should be taken however, not to overdose on vitamins as this causes beneficial anti-oxidants to convert into harmful pro-oxidants. Ingestion of vitamin C up to 1000mg/d (from food and supplements combined) is safe, but over-supplementation is not warranted. High doses of vitamin A have also been shown to be associated with hip fractures. Foods high in anti-oxidants include: Dark green, leafy vegetables, fruits and vegetables (especially grape juice, blueberries, papaya, kiwi fruit, cantaloupe, mango, apricot, broccoli, spinach, tomato, sweet potato and strawberries.



Food is the best source of nutrients and supplements should only be considered where advised by either a doctor or dietician and where there is a known deficiency or poor intake of a certain nutrient. Meals should be nutrient dense, visually appealing, and of the appropriate consistency. Older adults may need assistance with shopping, meal preparation and in ensuring adequate intake.

With the proper assistance, and by eating a balanced variety of food, older adults can age with ease!







VITH THE LABOUR COSTS THAT HAVE BEEN IMPLEMENTED A FEW MONTHS AGO FARMING IN GENERAL IS UNDER A LOT OF PRESSURE AND THE GROWERS ARE EXPECTED TO PRODUCE TO THE OPTIMUM. PRECISION FARMING HAS BECOME MORE CRITICAL IN ORDER TO STAY AFLOAT. SPECIALITY LETTUCE PRODUCTION IS NO EXCEPTION.

The Eazy leaf concept provides for a good solution to some of the challenges that are faced in the specialty (fancy) lettuce industry. They are extremely easy to cut and all the leaves are similar in size which eliminates/ reduces processing. Eazy leaf is also suitable for mechanical harvesting.

Taste is one of the main criteria during breeding and strict selection is further applied during the trialing phases to make sure that selected varieties are crunchy, smooth with a sweet taste. Eazy leaf is quiet a broad range with leaves of different shapes and texture.

Advantages for producers/growers:

- Mechanised planting and harvesting
- Good field hold ability
- A wide range of varieties to enable year round production
- Reduced labour activity
- High resistance to Downy mildew and lettuce leaf aphid



Eazy (





Easy Leaf being machine harvested

Advantages for processors:

- Good shelf life (no need to cut leaves to smaller size thus • less browning)
- Sturdy plants
- Deeply serrated well defined leaf shape High product recovery and less waste Attractive contrasting leaf colour Reduced pack house handling Can also be used as whole heads

- •
- •

Advantages for consumers:

- Good eating quality •
- Crispy and crunchy fresh leaves
- Ready to eat product

	GREEN
Ezatrix	Italian oak leaf type, compact slightly hardy and crispy
Eztela	Flat leaf, batavia look and texture
Ezabel	High yielding blond green colour, lollo bion- da leaf texture, exceptional field hold ability
Ezpinoza	Spiky, highly serrated medium to dark green leaves



Eazy 🔫 leaf [®] =



Sold Wat	RED
Ezra	Medium plant type, red 5 colour, 90% leaf colouration
Ezmina	Highly bulky lollo rossa leaf type, red 3, nice red and green contrast



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66 IF THE BEES DISAPPEAR FROM THE SURFACE OF THE EARTH, MAN WOULD HAVE NO MORE THAN FOUR YEARS TO LIVE 99

COLONY COLLAPSE DISORDER (CC

A chilling quote.... One which has been attributed to Einstein but was actually written down about 40 years after his death in 1955. Not that important who said it, the concept exist and has even received a name: Colony Collapse Disorder (CCD) and it has serious implications.

BUT SURELY ALL BEES DO IS MAKE HONEY?

They certainly do make honey, but more importantly, they are an essential agent of pollination for a vast range of plants, many of which are important human foodstuffs. Without the presence of bees, much of agriculture would be impossible.

We saw the first disturbing signs of the effect disappearing bees have this past year with serious onion seed crop losses in the Oudtshoorn area.



Research has indicated that Honeybees originated in Africa and are almost as old as flowering plants. They then spread into Europe in two ancient migrations. In the New World the introduction of the European Honeybee began in North America as early as 1622. In 1956 a subspecies from Africa was introduced into Brazil in an attempt to increase honey production. The descendents of these bees spread rapidly Northward, hybridizing with and displacing the previous European honeybee resulting in the African Killer bee. The killer bee stopped its Northward migration in 1999 as the winters were too cold.

SYMPTOMS OF CCD:

CCD is characterized by complete absence of worker bees, with no build up of dead bees in or around the colonies. CCD was first reported in Northern America late 2006 with similar phenomena in the rest of the world. Losses of up to 80% have been reported.

CAUSES:

The theorized causes were environmental changes, malnutrition, mites, viruses, pesticides, EMF's (radiation from cellular phones and other man made devices) and GMO's (Genetically modified crops).

Bee colonies have always been vulnerable to disease because they are densely packed environments through which infections can spread rapidly: a bacterial infection known as foulbrood has been known for more than a century. But in recent years the threats have grown. One of the biggest has been the varroa mite, a tiny insect that feeds off the bodily liquids of bees in the hive, especially in their larval stages. The mite, which carries a damaging virus and can wipe out whole bee colonies was first detected in the US in 1987 and has now spread to the rest of the world. It can be contained with chemicals, but increasingly, the mites are developing resistance to the chemicals used against them.

PESTICIDES ARE DRIVING BEE LOSSES IN A NUMBER OF DIFFERENT WAYS:

- Increased herbicide use (driven by RoundUp Ready GE crops) is killing off habitat that bees rely on for nutrition.
- As for older pesticides, foliar applications of any number of pesticides while bees are foraging, is still common practice.
- Bees are especially vulnerable to many insecticides: when you spray when and where they are eating, they die.



• Emerging science points to fungicides as killing off important bee "gut" microbiota – such as the bacteria that bees rely upon to turn pollen into bee bread, or the friendly bacteria that combat infection.

- Neonicotinoids (systemic insecticides used mostly on maize) are known to be highly acutely toxic to bees. What makes these neonicotinoids (neonics) suspect is that they are known to be highly toxic to bees, pervasive, long lasting and relatively new.
- Up to date nothing though has been proven to be the culprit. This might lend truth to the theory that more than one factor is involved. All of the above factors are under the microscope and regulations are slowly put into place.
- Last week the European Commission said it would impose the world's first continent wide ban on three pesticides (all from the neonic group) which environmentalists say are killing the bees that pollinate Europe's crops.



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References:

Honeybee Colony Collapse Disorder (CCD) update. B. Jackson. 2013 Why are honey bees disappearing?. MMcCarthy. 2008 Third of US bee colonies died last winter: Moneyweb report. 2013 Bee Deviled: Scientists no longer bumbling over cause of Colony Collapse Disorder. A. Spiegelman. 2012.



"THE MAN AMONGST THE BOYS"

- Jeanne can be planted in Autumn (Feb to May) and Spring (Sept tot October)
- Jeanne has the "legs" to maintain its superior potential over a very long growing season.
- Jeanne has an excellent disease resistance package and a very good standing ability.
- Jeanne is a true "100%" Italian rye grass with a high tolerance to hot and dry conditions.
- Jeanne ranks in top percentile of all listed varieties in relation to Dry Matter content
- Jeanne can be used for mechanical harvesting and grazing and has an excellent palatability with high energy and top feed quality.
- Jeanne has vigorous growth and regrowth.

CONTACT DETAILS:

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EAST LONDON Derek Nicolson: 082 881 7209

UITENHAGE Piet Bosch: 082 903 0044 Nelius van Schalkwyk: 083 4614838

Remember to look out for Hygrotechs' annual pasture day in August at Hygrotech trail grounds.



FORUM - WINTER 2013



As we discussed in a previous issue of Forum magazine, No Till is based on 3 concepts: Maximizing water efficiency, Increasing organic matter and intercepting the highest amount of sunlight to increase yields.

T his concept gave us an introductory approach on why we have to do No-Till. In this article we are going to go a little deeper in to how to do it in the most efficient way under South African conditions.

South Africa has two main weather patterns, the coastal one with rain during winter and the inland one with rains from November to May. Lastly we mustn't forget about the dessert that we have in the middle with very little rain. Thanks to the rivers that cross it we have the possibility of harvesting some good crops throughout the year.

All these different weather patterns lend them to a No Till system, however we still have to adapt our systems to doing no till.

CROP ROTATION

Crop rotation is a key element of the system as it allows us to have good soil coverage of different types of stubble, different types of root systems in the soil, break disease cycles and use different herbicide packages to attack difficult weeds.



If we go to the Swartland area with winter rains and excessively warm and dry summers, the monoculture of wheat is starting to give us some trouble with rye grass and wild oats that we can't control efficiently. Although in this area a lot of the wheat is done in no-till, the lack of rotation is taking its toll on the spread of weeds and disease pressure. A good alternative crop due to better genetics available is Canola.

In the irrigation areas we can do crops all year round, giving us the possibility of having two types of different rotations.

In the irrigation areas we can do crops all year round, giving us the possibility of having two types of different rotations. The one that gives us two crops per year and the one of four crops in three years. Usually the one of two crops per year are wheat/maize or wheat/soya. Of these two the one that is more beneficial for the system is the wheat soybeans one, however is not usually as profitable as the wheat/maize one. The wheat/maize one has the disadvantage of leaving large amounts of stubble with high C: N relation which is difficult to deal with and we usually end up burning the stubble to allow us to plant. Also diseases like *Fusarium* are harder to control and weeds like annual grasses tend to be complicated and expensive to control. In the case of wheat/ soybeans all these things are easily handled.

The four crops in three years rotation is one that includes a rest period of the soil for four months. We start with wheat/soya, then we rest the field until we plant an early maize and we change to soya after resting the field another 4 months After the soya you do a wheat/soya crop and start all over again. In the main production area of South Africa we are locked into a soybean/maize rotation as we only have rain from October onwards with dry winters. However this rotation is a very good one that achieves decent soil coverage and a good herbicide strategy to control most of the weeds together with a very different root exploration on the soil.

Another option can be the use of sorghum or other cattle feed to bale, however this practice doesn't leave us with much stubble.

DENSITY AND ROW SPACING

Another of the No Till principles is the need to capture sun radiation to reduce evaporation and promote transpiration. This can be achieved by playing around with row width trying to push the crop to canopy as soon as possible. Also we need to create a dark environment under the crop to reduce or stop the growth of the weeds. We are not able to cultivate the land between the rows as we are in no till so we need to cover the furrow as soon as possible.

52,5 cm planting is a good distance that will suit both crops for a good production 99

In South Africa row spacing of maize can vary from 91cm to 2 metres with soya it can vary from 35 cm to 45 cm row spacing depending on the type of planter.

The ideal situation will be to have 1 planter for both crops of the rotation. Unfortunately if you are doing wheat in rotation with maize or soya this is not possible and you will need two. However for soya and maize this can be achieved. 52,5 cm planting is a good distance that will suit both crops for a good production. 45 cm is a little bit too narrow for the maize cultivars we are using in South Africa. 76 cm spacing is very good for maize but you will lose some yield in soya due to poor interception of light. Make sure that if this is the case, you use a very bushy type of soya cultivar like Pan 1666 that will be able to give you soil coverage under such a wide separation.

This narrowing in the row spacing to increase the efficiency of water usage will allow us to increase our plant population. As we have more metres of furrow per hectare, we can increase the plant population giving us the possibility of capturing higher yields in good years and in not so good ones we'll get the same average. The maize hybrid to do this must be well chosen as there are still very prolific hybrids that don't adapt well to higher population and will suffer. As a rule we can add 10% - 20% population every time we narrow rows. So if you plant 45 000 plants at 91 cm spacing, you can plant 50-55 000 at 76 cm and 60 – 66.000 at 52,5 cm. Also bear in mind that the germination losses of No Till are higher so we always need to add a 3-5% plant population as a norm for all the crops.



New plant distribution rows for maize and soya in a 21-56 row pattern





Soybeans at 52,5 cm row spacing over wheat stubble



MAIZE AT 52,5 CM SPACING, "NO LIGHT, NO WEEDS"



Perfect canopy achieved at 52,5 cm spacing.

FERTILIZER STRATEGY

As we discussed in our previous article, we need a good balanced soil to start with, and then start maintaining those conditions as we progress with no till.

We have the advantage that we are leaving residue that is full of nutrients that will be decomposed and come back to our system saving in our fertilizer bill. Each crop will contribute with different amounts of nutrients as shown in the chart below. The column that shows the necessity of the crop is the total amount they need of that specific nutrient to achieve that yield. The column that shows extraction is the amount of that nutrient that will be exported with the grain. By difference we can calculate how much is left in the stubble. So we can say that for example an 8 ton maize will leave in the field 120 kilograms of K that once it's decomposed by the organic matter, they will be available for future crops.

	SOYBEAN	4000 kg*ha ^{.1}	MAIZE 8000 kg*ha ⁻¹		
NUTRIENT	NECESSITY	EXTRACTION	NECESSITY	EXTRACTION	
	kg	kg	kg	kg	
N	320	240	176	116	
Р	32	27	32	24	
К	132	78	152	32	
Са	64	12	24	2	
Mg	36	11	24	7	
S	28	19	32	14	
В	0.100	0.031	0.160	0.040	
CI	0.948	0.446	3.552	0.213	
Cu	0.100	0.053	0.104	0.030	
Fe	1.200	0.300	1.000	0.360	
Mn	0.600	0.198	1.512	0.257	
Мо	0.020	0.017	0.007	0.004	
Zn	0.240	0.168	0.424	0.212	



One of the things I will like to address is the fact that farmers believe and are told that soybeans leave Nitrogen in the soil. The biological fixation of N for the use of the plant is not enough to feed the humongous amount of N that the soya consumes, so part of the N comes also from the soil. In this graph we can see that a 4 ton soybean will require a massive 320 kg of N (640kg of Urea) and it's taking most of it in the grain. With the kind of average yields that we are getting in South Africa, some N might be fixed in the soils, but when we start exceeding two tons this amounts are almost zero.

Unfortunately applying N to soya in later stages after planting is almost useless as no correlation between application and yield performance has been found. We must let the *Rhizobium* do their work.

CONCLUSIONS

No till is a system that works on making things easier, quicker and better for the environment and the soils we work in. We need just to follow some rules like: keep it clean, rotate and generate cover and the system can take care for itself.

GOOD LUCK...







NC 32 is a revolutionary new product. It is a carbon chelated nitrogen fertiliser, consisting of 32% N and 7% C. It is a liquid plant feeding solution and has a soil or foliar application on various crops. NC 32 will supplement existing soil nutrients and add sustainable value in the form of carbon enrichment to the soil.

A laboratory experiment was conducted to test the miscibility of NC 32 with different chemical products used on wheat for disease- and pest control. Products included were the fungicides Folicur (tebuconazole), Prosaro (prothioconazole/tebuconazole) and Bumper (propiconazole), as well as the insecticide Dimet (dimethoate). A combination of Folicur and Dimet was also tested.

Method:

Bore hole water (pH 5.5 & EC 0.46 ms/cm) was used for the following mixtures :

- 1. NC 32 (8Kg N/ha)(26.6 L /150 L water/ha)
- 2. NC 32 + Folicur (750ml/150L water/ha)
- 3. NC 32 + Prosaro (400ml/150L water/ha)
- 4. NC 32 + Bumper (600ml/150L water/ha)
- 5. NC 32 + Dimet (500ml/150L water/ha)
- 6. NC 32 + Folicur + Dimet

Results:

1. pH & EC measurements were done 5 minutes after mixture settlement:

	pH	EC (ms/cm)
NC 32	7.4	1.49
NC 32 + Folicur	7.4	1.86
NC 32 + Prosaro	7.3	1.61
NC 32 + Bumper	7.6	1.97
NC 32 + Dimet	7.4	1.48
NC 32 + Folicur + Dimet	7.4	1.38

2. Photos were taken 1 minute, 5 minutes and 24 hours after settlement. Due to the dark-brown opaque color of NC 32, no visual observations for miscibility could be done at any stage.

3. Because of the opaque color of NC 32, pH and EC measurements were repeated for the respective mixtures after 24 hours to test for possible chemical sedimentation. Measurements were taken at the surface and at the bottom

of the Erlenmeyer flasks. No signs of in-miscibility or incompatibility were observed. The following readings were obtained :

	p	Н	EC		
	Surface Bottom		Surface	Bottom	
NC32 + Folicur	7.7	7.8	2.9	3.01	
NC32 + Prosaro	7.6	7.6	2.89	1.9	
NC32 + Bumper	7.8	7.8	2.93	2.96	
NC32 + Dimet	7.5	7.3	2.95	2.1	
NC32 + Folicur + Dimet	7.3	7.3	2.84	2.91	

4. Foam appeared at the surfaces of the two Folicur mixtures:



Conclusion:

Considering all the observations and values, all the combinations tested seems to be miscible, and should therefore be compatible. However, the quality of water may differ from the water used here and may have an influence on miscibility and compatibility.

The presence of foam in the Folicur mixtures can be addressed with an antifoam agent, like Foam Fighter.



The Meatco National Braai Competition, a competition in it's 32nd year, was hosted by the Stampriet Farmers' Association in Stampriet, Namibia on the 13th April 2013.

Farmers' Associations stood a chance to win N\$100 000 to host next year's braai competition and a bakkie. Social teams also took part for a 1st prize of N\$10 000 in cash!, with various other prizes in each category.



Hygrotech Distributor in Namibia

This was Agri-gro's 3rd year in participating against around 20 teams. Previously winning a 3rd place for a Starters course in 2011, they won 1st place this year in the Starch category by preparing an awesome Potato & Baby Marrow Julienne style Rosti. Winning in the right category seeing as they are experts in the Vegetable field.





The competition took place on a 'ready, steady cook!' format with ingredients only being announced the morning of the competition. Categories in the competition ranged from a raw exhibition, starters, Mains - Meat, Vegetable, Starch and Dessert, not forgetting the "Pure Plaas" theme on which stalls had to be decorated.

Throughout the day there were all sorts of things to buy including the legendary sheep meat from the South, Stampriet's very own veggies and various other farm-shop items. Braai expert and entertainer Thys die Bosveldklong and the Sarel du Toit Boereorkes entertained visitors throughout the day.

Recipes And Remedies

A member of the cabbage family and a close relative of cauliflower, broccoli packs more nutrients than any other vegetable. Broccoli contains large amounts of vitamin C and beta carotene which are important antioxidants. Consuming foods high in antioxidants can reduce the risk of some forms of cancer and heart disease. One half cup cooked broccoli contains the following nutrients as well as many other trace nutrients and phytochemicals.

NUTRITION INFORMATION:

 \bigwedge 1/2 cup cooked fresh broccoli contains...

- Calories 23
- Dietary fiber 2.4 grams
- Protein 2.3 grams
- Carbohydrates 4.3 mg
- Folic Acid 53.3 nanogramsCalcium 89 mg

• Vitamin (. 40 ma

• |ron 0.9 mg

BROCCOLI CHICKEN CASSEROLE:

PREPARATION:

NGREDIENTS:

- 1-1/2 cups water
- I package chicken stuffing mix
- 2 cups cubed cooked chicken
- I cup frozen broccoli florets, thawed
- I can condensed broccoli cheese soup, undiluted
- I cup shredded cheddar cheese

Prep: 15 MIN Bake: 30 MIN Yield: 6 Servings

 In a small saucepan, bring water to a boil. Stir in stuffing mix. Remove from the heat; cover and let stand for 5 minutes.

2. Meanwhile, layer chicken and broccoli in a greased 25 x 20 cm. baking dish. Top with soup. Fluff stuffing with a fork; spoon over soup.

Sprinkle with cheese.

3. Bake, uncovered, at 350° for 30-35 minutes or until heated through.

BLAZER

DARK GREEN, FINE BEAN WITH RUST AND ANTHRACNOSE RESISTANCE

WORLD CUP

MEDIUM GREEN, BOBBY BEAN WITH ANTHRACNOSE RESISTANCE

GOAL

DARK GREEN, EXTRA-FINE BEAN WITH RUST AND ANTHRACNOSE RESISTANCE

TAHOE

DARK GREEN, FINE-BOBBY BEAN WITH RUST RESISTANCE

CLASS ACT LATE VARIETY WITH VERY GOOD YIELD AND SHELF LIFE



THINKING...?

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