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**SAKATA: POWDERY  
MILDEW** on Cucurbits

**PANNAR SOUTH AFRICA  
SOYBEANS: The Ultimate  
Choice for High Yield**

**RIJK ZWAAN: Watermelon  
Salad with feta**

**THE IMPORTANCE OF  
BEEF CATTLE  
Record Keeping**



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# NUFARMER Africa

## Contents

- 04 SAKATA: Advantages of F1 Hybrid varieties vs. Open pollinated
- 05 SAKATA: Powdery Mildew on Cucurbits
- 07 Producing cabbage for the market
- 08 SA sugar industry relies on sustainable small-scale growers
- 10 Pannar South Africa Soybeans: The Ultimate Choice for High Yield and Premium Quality Seed
- 13 Rijk Zwaan: Watermelon Salad with feta
- 14 The Importance of Beef Cattle Record Keeping
- 16 Salmonellosis (paratyphoid) in cattle causes inflammation
- 17 Climate change in the western cape versus fruit production
- 18 Beekeeping – important facts for success
- 19 How roundworms in goats can ruin your profits



04



10



18

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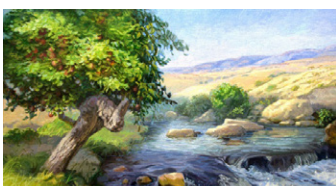
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## SCRIPTURE



But I will bless the person who puts his trust in me. He is like a tree growing near a stream and sending out roots to the water. It is not afraid when hot weather comes, because its leaves stay green; it has no worries when there is no rain; it keeps on bearing fruit. – Jeremiah 17:7-8



# ADVANTAGES OF F1 HYBRID VARIETIES VS. OPEN POLLINATED



Open pollinated butternut, Waltham (left) vs. F1 hybrid butternut, Pluto (right). Pluto's vigour and exceptional quality plants reflects the strength that a F1 hybrid can provide to the vegetable grower.

Since the beginning of plant breeding, open pollinated varieties have been bred from wild species and land races. An open pollinated variety is a plant that naturally breeds true to type offspring through natural pollination mechanisms. Open pollinated varieties were a great advancement from wild species, making crops more palatable and offering benefits such as better fruits, natural pollination, genetic stability from one generation to the next, seed saving and adaptability.

Despite these advantages, open pollinated varieties have certain drawbacks, like a lack of uniformity in size and shape, low yield potential, limited disease resistance, seed saving challenges and limited adaptation to different climatic conditions.

As time progressed and technology advanced, hybrid varieties were introduced. Hybrids are intentionally crossbred from two different plant varieties (parents) from the same species, to combine desirable traits from both varieties. Early in the 20th century, maize was the first agriculturally important crop to produce hybrid varieties. Following maize's success, almost all modern crops now have hybrid varieties. The shift from open pollinated to hybrid varieties reflects the advancements in agricultural science, breeding techniques and consumer demands.

However, it is important to note that not all crops are affected equally and some crops, like beans and lettuce,

are still primarily relying on open pollinated varieties.

**Hybrid varieties have several advantages over open pollinated varieties:**

**Hybrid vigour:** One of the biggest advantages of hybrid varieties is hybrid vigour, leading to increased vigour, higher yield potential and improved fruit quality.

**Genetic diversity:** Hybrids combine the genetic diversity of both the parents, offering traits that may not exist in one parent plant alone.

**Uniformity:** Hybrids exhibit better uniformity in seedling performance, fruit size, shape and maturity, which is an advantage for commercial growers and consumers seeking consistent quality.

**Higher yields:** Hybrid varieties have been recorded to have significantly higher yield potential than open pollinated varieties.

**Adaptability:** While open pollinated varieties are more adaptable to their local environment, hybrid varieties can adapt to a wider range of climatic conditions.

**Disease resistance:** Hybrid varieties offer better disease resistance compared to open-pollinated varieties.

**The future of agriculture is moving to F1 hybrids, to maximise productivity on available land. Factors driving this change include:**

**Population growth:** The increasing population creates a greater demand for food

**Limited agricultural land:** Only a small percentage of land is suitable for agriculture and crop cultivation.

**Food security:** Ensuring food security for a growing population is a priority.

It is essential for growers to focus on crops that perform better per square meter to ensure sustainable agriculture, optimising resource use and adapting to the challenges posed by population growth and limited agricultural land availability. This change will only be possible when people have the necessary knowledge to make informed decisions. Grow a Sakata F1 hybrid variety this season and contribute to a sustainable agricultural future.

If you would like to find out more about Sakata's F1 hybrid product range, please visit the website at [sakata.co.za](http://sakata.co.za) or contact your local area representative.

**DISCLAIMER:** 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, its physiological characteristics, and the environment, including management, we give no warranty express or implied, for the performance of crops relative to the information given nor do we accept any liability for any loss, direct or consequential, that may arise from whatsoever cause. Please read the Sakata Seed Southern Africa (Pty) Ltd Conditions of Sale before ordering seed.





# POWDERY MILDEW ON CUCURBITS



**P**owdery mildew is a fungal disease affecting all cucurbit crops, posing a significant risk to yields if not properly managed. The disease is found worldwide and is caused by two pathogens: *Podosphaera xanthii* (ex *Sphaerotheca fuliginea*) and *Golovinomyces cichoracearum* (ex *Erysiphe cichoracearum*).

The pathogens are obligate pathogens that survive on volunteer or weed host plants. Infection can occur between 10 and 32°C but the optimum temperature for development is between 20 and 27°C. High humidity (50 - 90%) facilitates infection, while low humidity promotes the spread of the disease. Spores are windblown and can form germ tubes in as little as two hours after contact with the leaves. New spores are produced within just four days of infection, allowing the disease to spread rapidly under favourable conditions.

Symptoms of the disease can be seen as white powdery spots on the leaves and stems of the infected plants. These spots can occur on both the upper and lower surfaces of the leaves. Infected leaves eventually turn yellow and can become brown and papery. While the fruit is usually not directly affected by the fungus, significant foliage loss can lead to sunburned fruit and reduced quality and yield.

To manage Powdery mildew effectively, it is important to implement a preventative fungicide spraying programme. Weed control and good sanitation practices can also assist to controlling the disease. By choosing resistant varieties is also an important strategy to control the disease.

Sakata's butternut varieties stand out for their intermediate resistance to Powdery mildew, enabling the farmer to save on their spraying costs by not having to spray for the disease as often as on susceptible varieties.

Sakata butternuts can also obtain much higher yields due to the vigorous plants that stay healthier for longer than susceptible varieties. Sakata offers a range of butternut varieties for every market requirement - from small to very large fruit.

### Pluto

Pluto F1 hybrid produces medium-sized fruit (weight of 1 to 2 kg) with excellent fruit quality. The plants are adaptable and vigorous and tend to be less susceptible to diseases. Yield potential is excellent and the fruit is not inclined to crack. Pluto has intermediate resistance to Powdery mildew (Px) (ex Sf).

### Quantum

Quantum F1 hybrid is the industry standard for warm-season productions, giving very uniform, medium-sized fruit. Fruit quality is excellent and weighs between 0.8 and 1.5 kg. The firm, deep orange flesh has an excellent flavour and high sugar content and mature fruit has an excellent shelf life. Fruit is used as traditional butternut, but with outstanding internal quality and shelf life. Quantum has intermediate resistance to Powdery mildew (Px) (ex Sf).

**For more information on Sakata's butternuts or to view their full product range, please visit the website at [www.sakata.co.za](http://www.sakata.co.za).**

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PASSI<sup>N</sup> in Seed

## Sakata Quality Butternuts



**Pluto**  
F1 Hybrid Butternut



**Quantum**  
F1 Hybrid Butternut



**Veenas**  
F1 Hybrid Butternut



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# PRODUCING CABBAGE FOR THE MARKET



Cabbage (*Brassica oleracea*) is a very popular vegetable in South Africa and belongs to the family Brassicaceae. People use cabbage in different ways, cooked and eaten with porridge, mixed with meat, added to stews or in salad. Cabbage is a good source of dietary fibre.

**C**abbage (*Brassica oleracea*) is a very popular vegetable in South Africa and belongs to the family Brassicaceae. People use cabbage in different ways, cooked and eaten with porridge, mixed with meat, added to stews or in salad. Cabbage is a good source of dietary fibre.

It is a seasonal crop, but new cultivars are extending the seasonal range in which it can be successfully grown. It is easy to grow, but one should control the pests and diseases throughout the growing period. Soil requirements

Cabbage can be grown in virtually all types of soil. The crop can be grown successfully in sandy loam to clay loam soils with high organic matter content. The soil should be well drained. A soil pH (H<sub>2</sub>O) of 6.5 to 7 is recommended.

### Climate requirements

Cabbage is a cool weather crop. It is resistant to frost and can survive temperatures as low as -3 °C without damage. Cabbage can be grown throughout the year in most areas, especially when using suitable cultivars.

When grown during hot summer months, quality and yield can be poor, and it is much more difficult to control insect pests.

Cabbage can be grown throughout the year, except on the Highveld where the crop should preferably not be sown during May to July because of the cold, and also not in the summer months in the Lowveld or any other region where the summer months are very hot and humid.

### Cultivars and sowing time

Sowing period:

- Spring and late summer: Tenacity, Conquestador.
- Late summer (Jan-Feb): Hercules, Drumhead, Grand Slam.
- African Sun (late summer; all year in mild areas).
- Late summer to autumn: Megaton (good cold tolerance; harvest in spring).

### Crop rotation

Rotate cabbages with non-related crops such as tomatoes, pumpkins, sweet potatoes, beans, peas, melons, potatoes or maize. Cabbage is a heavy feeder and must be planted after legume crops. Especially in

the case of seedbeds, do not use the same soil more than once every 3 years.

### Sowing methods

Cabbage is established from seedlings. Prepare a fine seedbed to produce seedlings. Make shallow furrows 15 cm apart and a fingernail deep (1.5 cm), and sow seed 5 cm apart in the row. After sowing, cover the seeds with light soil and press down the soil with your hand. Put dry grass on the top of the bed to prevent drying of the soil.

Water every day, twice a day during hot dry seasons. Take the grass off within 4 to 5 days after emergence. If left on too long, plants become leggy and get sunburn. The seedlings should be ready for transplanting 4-5 weeks later.

The harvesting periods can be extended by seeding different cultivars.

### Plant spacing

Planting distance depends on the cultivar. Cultivars with big heads need more space than cultivars with small heads. Small head cultivars: 30 cm in row and 50 cm between rows. Large head cultivars: 50 cm in row and 70 cm between rows.

### Transplanting seedlings

Water the bed before transplanting. Remove the seedlings from the seedbeds with soil on the roots. Make holes and transplant the seedlings in the holes. Plant the seedlings a little bit deeper than they stood in the nursery. Press down the soil around each plant but not too close to the plant stem.

### Fertilizer application

Soil samples must be taken very accurately and representatively throughout the field before planting. Soil tests are the best way of determining the soil's fertility. From the analysis results, it is possible to determine the optimum application of fertilizer for the soil to ensure high yield and a good quality crop. Cabbage reacts well to manure and compost worked into the soil before planting.

### Smallholder / gardeners

In the case of very small holder farmers where it is not possible to carry out a soil test, the following general recommendations can be followed.

Prior to planting, a dressing of 600 – 900 kg/ha (60-90g/m<sup>2</sup>) of fertilizer mix 2:3:4 (30), may be regarded as a minimum to ensure that the plants get a good start. Optimal fertilization is 1200 kg/ha (120 g/m<sup>2</sup>) of 2:3:4 (30).

The plants respond well to a side top dressing of nitrogen LAN 28% N at 14, 28 and 42 days after transplanting, especially on sandy soils or if heavy rainfalls occur. No nitrogenous fertilizer should be applied later than 6 weeks after transplanting because the head may burst open. Start with 4 g per plant and later 10 g per plant. Spread ± 20 cm around plants and water well after each application.

Take care the LAN or any other nitrogen source is not applied directly onto the leaves or growth point of the cabbage as this will cause serious damage to the plant. Cover crops (green manure) can be planted and worked into the soil 4-6 weeks before establishing the crop.

### Irrigation

It is important to supply sufficient water at critical times such as immediately after sowing or transplanting. It is also important that young plants receive enough water for vegetative growth before forming heads, since the bigger the plant at this stage, the larger the eventual head will be.

Cabbage requires approximately 35 mm per week. Too much water once the heads have formed can cause them to crack. Look out for wilting leaves during the midday. If signs of wilting leaves are visible, then irrigation should be applied.

### Harvesting

Harvesting commences 90 – 140 days after transplanting, depending on the climate and cultivar. Cabbage heads must be pressed with a thumb to test for firmness. Cut with a sharp knife when the heads are firm and hard. Harvesting may continue selectively over a period of several weeks.

Do not leave cabbage heads in the sun. Store in a cool shaded place. Keep 2 – 3 non-heading leaves for protection during transporting. Yield estimate: 300 kg/m<sup>2</sup>.

Again, management in planting, irrigation and pest control is of absolute importance to give the farmer profits and the soul for continued farming! **Source: ARC-VOPi**



# SA SUGAR INDUSTRY RELIES ON SUSTAINABLE SMALL-SCALE GROWERS



SA Canegrowers' Chairman, Higgins Mdluli.

**“W**ithout small-scale sugarcane growers, the South African sugar industry would not be able to survive,” says SA Canegrowers’ Chairman, Higgins Mdluli. Most growers are small-scale farmers

Of the just over 25,000 sugarcane growers in the country, more than 24,000 are small-scale growers. These growers help keep the rural economies of Mpumalanga and KwaZulu Natal alive.

In his recent budget speech, Minister of Agriculture John Steenhuisen committed to supporting small-scale and new farmers in South Africa on their quest to becoming self-sustainable and productive “as quickly as possible”.

He said that “funding will only flow to provinces with proper planning and accountability and payments will be made quarterly contingent on proper reporting against targets”.

### Unique industry

SA Canegrowers represents all types of growers, from large commercial growers to small-scale growers and agrees on the need for funding that is targeted and makes a measurable impact. The Board of SA

Canegrowers is democratically elected from its growers, making it a unique industry association and that has always prioritised support for small-scale growers.

The small-scale growers vary from small commercial farms to growers who farm small plots of land with the aim of keeping a family and community alive. Some have been growing sugarcane for three or four generations on the same land.

What unites these growers is that they are critical to the rural economies of KwaZulu-Natal and parts of Mpumalanga. Small-scale growers anchor these rural communities with income and employment.

### Challenges

It is no secret that small-scale growers face unique challenges, and the industry has been grappling with this for years. Growing on smaller plots means that growers operate on tighter margins and higher costs, and any price shocks or external pressures have outsized effects on their livelihoods. This makes the best use of transformation funding to develop long-term sustainability, even more essential

In the past few years, farmers in KwaZulu-Natal and Mpumalanga have had to deal with catastrophic floods, fires, and social unrest and arson. This is over and above normal threats to their crops such as animal incursions. Such events can devastate the yield of small-scale growers.

### Inflationary shocks

From 2022, there has also been a marked increase in input costs amidst global price pressures, such as fertiliser. In areas where sugarcane is under irrigation, small-scale growers

are faced with the twin risks of rising cost of electricity, and lower yields due to the inability to irrigate during periods of load shedding. Such inflationary shocks are a worry to all farmers, but small-scale growers are often not able to absorb such price shocks.

The sugar industry is aware of the scale of this challenge. In 2019, the industry committed to a transformation plan to assist growers. As part of this plan, over R1 billion was paid to developmental growers over five years, administered by the SA Sugar Association (SASA), a statutory body that regulates the industry.

### Funds to growers

According to SASA figures, over the five years R592 million was paid to small-scale black growers and R281 million to commercial black growers. Growers could use these funds as they wished based on individual needs or to invest in their operations, and to buy much needed inputs such as Seed cane or fertilizer.

The initial plan came to an end in 2023/24 season, but in this current season (2024/25) the industry associations who approve a contribution to this fund, including SA Canegrowers, committed to a renewal of transformation funding for another year.



Higgins Mdluli has grown his farm from 8,3 hectares to 85 hectares.





The funding for 2024/25 will, as in the past, mostly be allocated to directly finance developmental or small-scale growers to use as they require.

A further portion of the funds will be used to finance regional projects, in order to improve the long-term sustainability of growers.

**Addressing different needs**

Regional projects can address the development needs of small-scale growers in two ways. A regional approach can address the collective challenges that many small-scale growers in the same area might share. And different regions under sugarcane production might require different solutions, for example irrigation.

Growers in northern KwaZulu-Natal and Mpumalanga require irrigation infrastructure, as they cannot solely rely on rainfall. This is not the case for growers in southern growing areas.

Similarly, access to sugarcane seed, called Seedcane, can be addressed through region-specific interventions. Different varieties of Seedcane will flourish in different climates, and investing in the right Seedcane can dramatically increase yields.

**Targeted intervention**

SA Canegrowers believes that with such targeted, cooperative interventions, the productivity of small-scale growers can be increased dramatically with the potential to increase yields by as much as 30%.

Improved yields will lead to more sustainable growers who are less reliant on funding to survive and will be less susceptible to price shocks.

**About project reporting**

For the industry to thrive, we must spend our funds in



ways that bring the maximum benefit to small-scale growers and the industry. Project proposals can be vetted by all the associations that make up the sugar industry via SASA.

Similarly, only projects that meet certain criteria should be funded: they should have measurable impact in a region, and all small-scale growers who choose so should have equal access to the benefits.

Projects should also report back to SASA on how the funds were spent, and account against project plans.

Therefore, cane farmers can enact a long-term plan for a sustainable sugar industry. And central to the long-term plan for the sugar industry is the sustainability of small-scale growers and the rural economy.

“We agree with the new Minister of Agriculture that there is a lot of untapped potential in South Africa’s agricultural sector, and to unlock that potential, we need to build together with the eye on creating self-sustaining farmers, big and small,” Mdluli concluded.

**Source: SA Canegrowers**



Corne and Neils Oosthuizen, Soetvlei  
Boerdery, Vrystaat, Soy beans: PAN 1521R  
and PAN 1555R

# PANNAR SOUTH AFRICA SOYBEANS:

## THE ULTIMATE CHOICE FOR HIGH YIELD AND PREMIUM QUALITY SEED

### Introduction to Pannar's Superior Soybeans

**W**hen it comes to agricultural efficiency, South Africa's vast and dynamic farming landscapes demand nothing short of excellence. For farmers, choosing the right soybean cultivar can be the difference between a record-breaking harvest and an underwhelming one. Pannar has risen to the occasion, delivering soybean varieties that lead the industry in high yields, disease resistance, and top-quality seed performance.

### But what makes Pannar's soybeans stand out from the crowd?

#### Pannar Soybeans: Setting the Benchmark for South African Agriculture

As one of the oldest and most trusted seed brands in South Africa, Pannar Seed (Pty) Ltd has been at the forefront of agricultural innovation for decades. With a particular focus on genetic diversity and high-performance crop seeds, Pannar has perfected its approach to delivering superior soybean varieties. The company's soybeans are not only well-suited for the South African climate but also thrive in various soil conditions across the country.

Soybeans are becoming a key crop for many South African farmers due to the increasing global demand for protein-rich crops. But to achieve maximum yields, farmers need cultivars that are specifically tailored to local conditions and farming practices, which is where Pannar shines.

#### High Yield Potential: Achieving Maximum Profitability

Yield is one of the top concerns for any farmer. Pannar's soybean varieties are known for their high yield potential, allowing farmers to maximize their output with minimal inputs. The secret behind this success lies in Pannar's commitment to developing elite germplasm – the genetic material of their soybeans – which is specifically designed for the South African market.

#### Key Factors Contributing to Pannar's High Yields:

**Genetic advancements:** Pannar's research and development team consistently pushes the boundaries of what is possible through soybean breeding.

**Climate adaptability:** Pannar soybeans are developed to flourish in South Africa's diverse environmental conditions, ensuring optimal performance whether in high rainfall areas or regions prone to drought.

>>> Continued on p 12

"Pannar is a company that looks after the farmers and the quality of seed is consistent."



# MAKE OUR SOYBEANS A PART OF YOUR SUCCESS STORY

Offering a profitable combination of yield potential and exceptional agronomic characteristics, Pannar's soybean cultivars demonstrate stability over different yield potentials, production areas and seasons. We provide a full range of maturity classes covering almost all planting dates and densities. Jacques Botha from Castello Boerdery attests that "PAN 1521R provides the highest yield stability on our farm. It is a top performer in our own trials season after season."

<b>FARMER:</b> Jacques Botha	
<b>FARMING ENTITY:</b> Syferfontein	
<b>AREA:</b> Potchefstroom, North West	
<b>CROP:</b> Soybeans	<b>PANNAR CULTIVAR USED:</b> PAN 1521R (Soybean)
<b>PANNAR REPRESENTATIVE:</b> Stephan le Roux 078 612 4065 Potchefstroom/Vereeniging	



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<<< Pannar from p 10

**Efficient nutrient utilization:** The varieties are tested for compatibility to all the Rhizobia strains used in commercial inoculants, ensuring that nitrogen fixation in the soybean crop and the rotational benefits to the following crop are maximized.

For instance, the Pannar PAN 1521R soybean variety, which can be explored more at Pannar’s official website, is a high-yielding cultivar that demonstrates exceptional performance in various regions across South Africa. Its robust genetic makeup makes it an excellent choice for farmers looking to maximize profits.

**Top-Quality Seed: Ensuring a Successful Harvest**

Quality starts with the seed. Pannar’s soybean seeds are rigorously tested to ensure they meet the highest standards for germination, purity, and genetic integrity. Every seed is a product of years of research and field trials, ensuring that what goes into the ground has the potential to yield the best results.

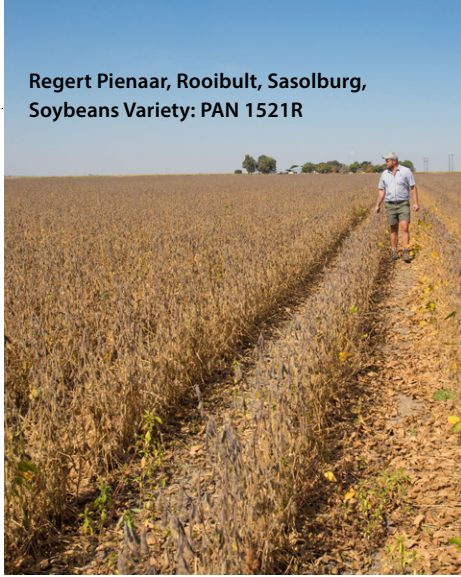
**What Sets Pannar Soybean Seeds Apart?**

**Excellent germination rates:** Pannar seeds are bred and processed to provide the highest germination rates possible, ensuring strong crop establishment.

**Uniformity:** The seed purity of Pannar certified seed ensures even maturation, which makes harvesting more efficient and timely. This means less variability in the crop, leading to better grading and marketability. These factors combined make Pannar soybeans a reliable choice for farmers seeking both yield stability and superior quality.

**Climate Change Adaptation: Pannar’s Commitment to Sustainable Farming**

Climate change poses an increasing challenge to farmers worldwide. Unpredictable weather patterns,



Regert Pienaar, Rooibult, Sasolburg, Soybeans Variety: PAN 1521R

longer droughts, and more intense rainfall are all factors that affect crop production. Fortunately, Pannar is leading the charge in developing climate-resilient soybean varieties. The strategy employed is to select for yield stability across many environments and over many seasons. This is perhaps not a new strategy, but one that has been consistently applied for the better part of 40 years. The resultant varieties that have been commercialized are widely adapted (PAN 1521R and PAN 1555R are fine examples) and tolerant sub-optimal conditions, if and when they occur. Drought stress can occur at any time during the growing season. One of Pannar’s strategies to mitigate this risk, is to offer adapted varieties of different maturity lengths. This naturally extends the planting window and spreads the risk of extreme weather affecting the crop.

**The Economic Benefits of Choosing Pannar Soybeans**

By choosing Pannar brand soybeans, farmers have the assurance that the varieties are well suited to South African farming conditions, and that the best research and development process has supported their commercialization. Pannar certifies

its seed through SANSOR, which sets standards of germination and purity. There are many agronomic benefits to planting certified seed, but from an economic perspective, it lowers the investment risk in other inputs.

Pannar continues to be the leader in soybean innovation in South Africa, setting the benchmark for quality, performance, and sustainability.

For more detailed insights on specific soybean varieties, visit Pannar’s official product website and explore the future of farming today!

The unbeatable advantages of Pannar soybeans elevate the competitive edge that farmers can gain when they choose high-quality and high-yielding seeds. Whether it’s adapting to local climates or ensuring market profitability, Pannar’s soybeans truly stand out as the ultimate choice for successful soybean farming. By: **S.O**

For more information contact Pannar on [www.pannar.com](http://www.pannar.com)



Castello Boerdery, Potchefstroom



# WATERMELON SALAD WITH FETA

2 tablespoons extra-virgin olive oil  
3 tablespoons fresh lime juice  
1/2 garlic clove, minced  
1/4 teaspoon sea salt

## FOR THE SALAD

5 cups cubed watermelon  
Heaping 1 cup diced cucumber  
1/4 cup thinly sliced red onion  
1/3 cup crumbled feta cheese  
1 avocado, cubed  
1/3 cup torn fresh mint or basil leaves  
1/2 jalapeño, thinly sliced, (optional)  
Salt

## Instructions

Make the dressing: In a small bowl, whisk together the olive oil, lime juice, garlic and salt.

Arrange the watermelon, cucumber, and red onions on a large plate or platter. Drizzle with half the dressing. Top with the feta, avocado, mint, and jalapeño pepper, if using, and drizzle with remaining dressing. Season to taste and serve.

 **RIJK ZWAAN**

[www.rijkszwaan.co.za](http://www.rijkszwaan.co.za)  
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Record keeping is a necessary element of good livestock business management.



# THE IMPORTANCE OF BEEF CATTLE RECORD KEEPING

One of the greatest challenges for livestock producers is keeping all of their records up to date. There are different types of records that can be kept for a beef operation and there is a variety of options or methods for tracking that information (manual/ electronic) e.g INTERGIS.



**Thokozani Ndonga, ARC Irene.**

**C**are should be taken to select a record keeping option that is both easy to use as well as easily accessible and that will provide the necessary information for the operation to remain sustainable and profitable.

### Why keep records

Record keeping is a necessary element of good livestock business management. With no written records, farmers have to depend on their memory while making decisions regarding their farm practices. Nevertheless, memories can become unreliable after a few days, months or years.

Thus, recording the performances of the animals can be done easily if animals have some identifications / numberings. Thus, both animal recording and identification are always required. If we know what is happening on the beef cattle farm, we need to maintain some useful farm records. Farm records are like the progress report cards students get at school.

If farmers have farm records, they can tell how well they are managing their farm in comparison to other farmers. Farmers can also see the strengths and weaknesses in their farm operations. It is also important to have accurate facts and figures when borrowing money, seeking government funding and submitting tax returns.

To succeed in beef cattle farming especially, the following factors need to be recognised and understood in aid of creating a management information system (records):

### Climate and its direct effect on the animal

Restricted breeding seasons are chosen based on climatic conditions of areas. It also determines feed supply of that region, which need to be matched with different production stages of your herd. Cows should calf when there is enough grazing of good quality, for their own maintenance and milk production.

### Health management

A good health maintenance program should be in place to ensure survival of livestock. Prevention programs keep herds healthy and productive. Animals with good disease resistance reduce the cost of production significantly, as less money is spent on medication.

### Nutrition

Fluctuating availability of feeds and specific nutrients demand better understanding of nutrition and supplementary feeding by farmers. Beef cattle

convert grass into proteins (meat) of high quality. It is important for them to get balanced ration to convert maximally.

### Reproduction and Breeding

Fertility is the most important trait in the profitability of beef cattle farming. The number of calves born in a herd directly affect the income and the expenses of the beef enterprise.

Animals should reproduce better genetic materials that will thrive on that farm. Progenies should grow faster on the same farm under the same management

### Production economics

Lastly, production economics and markets should be the underlying driving factor in the management of beef cattle farming. The market should dictate the management style of the herd.

To monitor all these aspects successfully, farmers need to keep records. Records provide the ability to control the production process. They enhance efficiency and sustainability of resource use.

Types of records to be maintained in beef farming include these following:

**Calving register:** This register maintains the records of calving that take place in the farm. It maintains dam and sire number of the calf, calf ID number, sex and its date of birth and any other remarks like type of calving (normal/abnormal).





**Calf register:** maintains the records of calf at the farm, calf ID number, sex of the calf, sire number, dam number, birth weight etc.

Individual Animal Identification: It is a given fact that seedstock producers already do this for genetic evaluation, but as mentioned, individual animal ID is becoming an imperative practice in beef industry in the country wide for biosecurity reasons.

**Biosecurity**

From a biosecurity standpoint it is important even if there is no national identification database because individual animal identification gives the ability to trace an animal.

If by chance there is an animal with Foot and Mouth Disease, it can easily be traced back to the owner.

**Growth record of young stock:** This record maintains the weight of the young stocks at different intervals or production stages.

**Livestock register:** This register records the number of the animals at the farm along with their identification number, date of birth, sire number, dam number, calf and its gender, date of calving, date of purchase, date of sale/auction/death.

**Herd health register:** This register maintains the record of the diseased animals along with history, symptoms, diagnosed disease, treatment given and name of the veterinarian who treated.

**Cattle breeding register:** This register maintains the details of breeding practices in the farm such as cow number, date of calving, date of heat and services along with the bull number, date of successful service, pregnancy diagnosis records, expected date of calving, actual date of calving, calf number etc.

**Animal History sheet:** This maintains animal number, breed, date of birth, sire and dam number,



number of lactations, date of disposal/death, cause of disposal etc.

**Benefits of record keeping in the farm**

- Records provides basis for evaluation of animals from past records hence help in selection and culling of animals.
- Helps in preparing pedigree and history record of animals.
- Helps in assessing the past records and designing better breeding plans to avoid inbreeding, selecting superior parents and helps in better replacement and culling practices.
- Helps in progeny testing of bulls.
- Helps in analysing feeding cost and benefits from animal product outputs. Hence helps to formulate economic feeding strategies for optimal productions.

**The importance of genetic improvement**

Genetic improvement ensures the efficient and economically production of quality meat as well as other farm products for consumers/ market.

The Agricultural research council assist beef

cattle farmers to improve their breeding stock and encourages all spheres in beef cattle farming to purchase stud-breeding bulls with the aim of improving beef production of their beef cattle herd.

**Summary**

There are many different methods for keeping records in a livestock operation. The key is to develop a method that is both easy to use as well as easily accessible. In beef production, it is very easy to keep records, as a farmer do not have to do it every day.

The ARC with its livestock improvement scheme helps emerging beef cattle farmers start record keeping and information interpretation.

**By: Thokozani Ndonga, Senior research technician, Beef recording improvement, AP, Irene.**

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A healthy cattle herd is proof of thorough record keeping.



# SALMONELLOSIS (PARATYPHOID) IN CATTLE CAUSES INFLAMMATION

Salmonellosis in cattle is also known as paratyphoid and it causes severe or continuous inflammation of the intestinal tract, or a septic form of blood poisoning. The bacteria, which cause calf paratyphoid, infect calves under the age of three months, especially between the ages of 3 – 12 weeks.



**A**dult animals can also contract the disease. Calf paratyphoid is a common disease of young calves exposed to stress factors like unhygienic, cold and inadequate living conditions. The disease is primarily caused by two bacteria, namely Salmonella Dublin and Salmonella typhimurium, but sometime also by Salmonella bovis-morbificans. The source of contamination is usually the environment that gets contaminated by the dung of ill or carried animals.

## Factors that influence paratyphoid

Paratyphoid is much more common among the calves of dairy cattle than those of beef cattle because they are raised under different management systems. Dairy calves are usually taken away from their mothers very soon after birth, within 1 – 3 days, and raised by hand on milk or milk replacements. Because of this practice they are being exposed to stress factors such as:

- a change of environment
- feed
- transport
- starvation
- unhygienic conditions
- over-population
- inadequate colostrums intake
- inadequate availability of water and feed
- bad weather as well as being
- kept with other calves

Added infection such as bovine virus diarrhoea (BVD) and infectious bovine rhinotracheitis (IBR) may also contribute as stress factors for paratyphoid. These stress factors contribute to suppress the immune system of the calf, which influences the beginning of the disease.

The sick animals and animals carrying the disease are seen to be the most important source of Salmonella bacterial contamination of the environment, water and feed, especially the fish, bone and soya bean meal. Animals, clinically sick from Salmonella set millions

of bacteria free in their dung. Carrier animals under stress set larger quantities of bacteria free than carrier animals without stress. Some carrier cattle may remain carriers for life and may keep on setting bacteria free in their dung, either all the time or just occasionally. The Salmonella bacteria may also be set free in urine, saliva or milk. Chicken litter fed to animals may be a source of Salmonella bacteria.

Most animals become contaminated with Salmonella while eating. Contamination is also possible by inhaling bacteria, but this is rare. In rare cases it is possible that the foetus could become contaminated in the uterus. Humans could become contaminated by eating contaminated animal products or by inhaling bacteria. Animal-derived foods such as meat, milk and eggs, remains the most important source of Salmonella contamination in humans.

## Symptoms

There are three varieties of paratyphoid: severe over a short period of time (acute) a continuous intestinal tract infection (chronic enteritis) blood poisoning (septicaemia).

Cattle may abort due to Salmonella, but this is not very common. Acute intestinal tract infection affects calves as well as older cattle. The symptoms are: loss of appetite the animal develops a fever suffers from foul smelling progressive diarrhoea with a putty-like appearance. The diarrhoea is watery at first, but later becomes slimy and bloody.

Chronic intestinal tract infection usually affects animals older than 3 months. The symptoms are: they grow poorly pass watery dung or have light diarrhoea deteriorates often develop chronic pneumonia with a continuous coughing.

Calves with the acute septic form of salmonellosis usually die before the first symptoms are observed. Those animals that do survive the acute and chronic varieties of the disease very often develop: arthritis pneumonia and /or meningitis

The diagnosis made for salmonellosis is based on the case history, symptoms, autopsy and the growing of the bacteria in the laboratory situation.

## Treatment, prevention and control

Discuss your sick animals as soon as possible with your veterinarian. Sick animals, calves, should be treated with the appropriate antibiotics given in the form of an injection or given orally. Supportive treatment like hydrating the calf, giving it electrolytes, anti-inflammatory substances, etc, and good farming methods are extremely important for any realistic chance of survival.

Sick animals should be isolated in order not to contaminate healthy animals. Factors leading to salmonellosis infection should be eliminated. Vaccinate calves once between the ages of 2 – 4 weeks with a live, weakened S. Dublin vaccine. This vaccine only provides moderate cross-immunity against S. Typhimurium infection. Do not treat calves with antibiotics within one week before and two weeks after vaccination with the live vaccine. This will lessen the development of immunity.

Pregnant cows may be vaccinated 4 – 6 weeks and again 2 – 3 weeks before calving with the weakened vaccine (S. Dublin, S. Typhimurium and S. Bovismorbificans) to ensure that their newborn calves receive passive immunity through the colostrum.

**Source: Protecting Your Farm Animals Through Immunisation: J H du Preez, J J de Beer and M S Brett**



# CLIMATE CHANGE IN THE WESTERN CAPE VERSUS FRUIT PRODUCTION



As a result of global climatic changes, the Western Cape faces a warmer future (although recent storms and cold weather prevailed). This poses serious threats to agricultural commodities in the province, including deciduous fruit.

Changes in annual rainfall as well as changes to the spatial distribution, seasonal cycles and extremes in rainfall are also likely, even if the extent and direction of these changes are still uncertain. The SmartAgri project is focusing on the planning and preparation needed in the agricultural sector to deal with this threat over the next 10–40 years.

Agricultural production is closely linked to climate and weather. These linkages are sometimes straightforward, for example seasonal total rainfall influencing crop yield. More commonly they involve far more specific influences such as dry spell duration during key fruit set phase, or rainfall during the harvesting period. Higher temperatures are often tolerated as long as rainfall and/or irrigation are sufficient.

However, temperature sensitivities can be much more complex, for example the reduction in fertilisation brought about by a heat wave during flowering. Thus, a discussion of the impacts of climate change on agricultural production requires focused attention to specific threats to specific crops and at specific times in the seasonal cycle.

In addition, local conditions such as production potential and microclimate influence the extent of the threat. The deciduous fruit production potential of the Western Cape is determined by local climate, ocean and mountain influences and soils, but is primarily limited by the need for cold winters and availability of water.

Pome fruit production (apples and pears) is concentrated in the Bokkeveld, Piketberg, the cooler areas of the Boland and the Langkloof Valley in the east. Stone fruit (peaches, nectarines, apricots, plums, prunes) are grown in the Bokkeveld, Piketberg, the warmer areas of the Boland and the Little Karoo.

In the Berg River region and parts of the Breede River region, water for irrigation is provided by the large public dams connected to the Western Cape Water

Supply System, private farm dams and the rivers and their tributaries. Other regions such as the Bokkeveld, Piketberg and Langkloof are reliant on local dams and sometimes groundwater.

An important change in the climate system involves the shifting of the rain-bringing frontal storm tracks further south during winter. Some models indicate the possibility of wetting in the eastern part of the province, including the Bo-Langkloof. Summer thunderstorms are likely to become more intense in the interior regions transitioning towards summer rainfall. However, the influence of the mountains and ocean will lead to more complex results at local level, particularly for rainfall.

In the short term, these influences could lead to increased rainfall on the windward mountain slopes, for example, or rainfall shifting into autumn and spring. Future changes in total annual rainfall will depend strongly on the strength of various system responses to the changing global climate. Since the science is not yet able to provide absolute certainty, both increased and decreased rainfall should be considered by farming communities.

Already, the weather data shows that warming has occurred (on average approximately 1.0 °C over the last 50 years), particularly in mid- to late summer. There has been a decrease in rain days during late summer–autumn (January to April) and early spring (August) but more rain days in early summer (November–December) in the western regions. It may indicate a progressively later starts and end to the seasons.

As yet there are no detectable trends in total rainfall during the winter season or annually across the deciduous fruit production areas. Future increased temperatures are almost a certainty. The greatest increases are likely to be inland and the lowest increases along the coast indicating a moderating effect from the Indian and Atlantic Oceans.

Expected increases in mean annual temperature

for mid-century are in the range of 1.5 °C to 3 °C, with the Bokkeveld and Bo-Langkloof areas tending towards the middle part of this range. Both maximum and minimum temperatures will increase leading to increased heat stress for fruit crops, but also lower risks associated with low temperatures.

The Western Cape experiences regular flooding events, droughts and heat waves, and occasional hailstorms. These events have had significant impacts on farmers. Floods are the most common problem, causing the most damage and costs for response and recovery. The Bo-Langkloof area is particularly vulnerable to damage to storage dams by heavy rainfall and flooding.

In July 2024, a powerful cold front swept through the Western Cape, bringing with it relentless heavy rainfall and flooding in some parts of the province. This climatic event had significant repercussions, particularly for the agricultural sector, affecting production, market prices, and the broader economy. The South African Weather Service (SAWS) had predicted a strong El Niño state, with higher temperatures and low rainfall to continue through the winter of 2024. Despite these predictions, the province experienced severe storms and flooding in July of 2024.

The floods have imposed long-term effects on farmers' winter planting and harvesting schedules. Much like in 2023, the floods in the Western Cape coincided with the critical harvesting periods for citrus fruits and potatoes. In 2023, the estimated agricultural losses amounted to around R1.4 billion, resulting in devastating impacts on crops, infrastructure, and the environment.

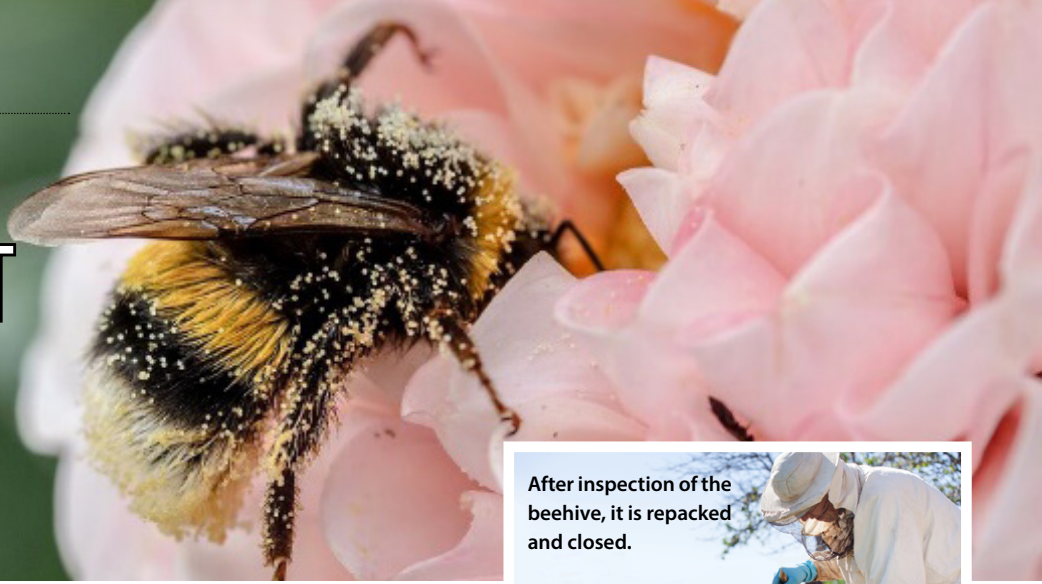
With this year's floods, it is highly possible that the agri sector will yet again be faced with production losses. Flood disruptions are expected to affect yields, delay market readiness, and potentially result in spoilage of produce.

This is no good news for consumers, as the combination of reduced yields and disrupted supply chains will have a ripple effect and drive-up product prices. **Source: GreenAgri**





# BEEKEEPING – IMPORTANT FACTS FOR SUCCESS



In South Africa, we have a dwindling number of bee colonies and beekeepers are important people in the farming and gardening societies. Particularly when it comes to proper pollination of fruit trees and vegetable plants. Management of beehives is therefore important but the handling of hives when harvesting honey, even more so.

After inspection of the beehive, it is repacked and closed. Use the occasional puff of smoke to control the bees, carefully replace the frames in the same orientation and in their original positions in the hive. Make sure that during this operation the queen is not injured and that bees are not squashed.

If it is difficult to replace the frames in the hive because of an accumulation of bees on them, the excess bees can be shaken from the frames in front of the hive. The bees outside will find their way back into their hive. If need be, they can be helped to move in faster by providing an inclined board up which they can run. If the queen was not found, the bees can be shaken off the frames onto the inclined board. The beekeeper can then look for the queen as the bees move towards the hive entrance.

With nine of the frames in the brood chamber, insert the hive tool between the brood chamber side wall and the end bar of the last frame, and force the frames together. This will provide enough space for the tenth frame, particularly when the frames are propolized. Lastly, insert the hive tool between the top bars of the two outer brood frames and their respective side walls, and centre the ten frames inside the brood chamber.

The next step is to replace the queen excluder. Smoke the bees on the top of the frames of the brood chamber to drive them downwards. Shake off any bees clustering on the queen excluder in front of the hive. Place the queen excluder diagonally on the brood chamber and turn it carefully until it is square. This is done to dislodge any bees that cluster on the top rim of the chamber, rather than squashing them.

Now the super can be replaced. Be sure to brush off any bees from the bottom of the super. Starting from the back, with a steady pressure slowly slide the super onto the queen excluder. Just before the super is in position, check the underside of the back of the super to see that it is clear of bees, and then edge the super forward until the back is sealed, i.e. until the out edge of the brood chamber and the inner edge of the super are just about touching.

Then give attention to the lower front edge of the super, clearing away the bees with smoke or by brushing them off, and then push the super home to its proper place square on the brood chamber.

A second method entails lowering the hive chamber onto the hive so that it rests diagonally across the corners. The upper chamber is then gently turned until it is in its correct position. All these actions are designed to reduce the number of bees injured.

Before replacing the inner cover, shake off all adhering bees in front of the hive and then scrape the cover clean of burr comb and propolis. It can now be replaced with a sliding action, starting at one corner. The single migratory lid can be placed diagonally across the open supers, and then turned.

## External inspection

If time constraints rule out a proper check-up of colonies, an external inspection may nevertheless be adequate. Flight activity is the most revealing indicator of colony size and thus of possible weakening due to disease or pests. Incoming pollen will indicate a queen-right colony with young brood to rear. The quick speed, with which bees enter and exit a colony, will suggest an abundance of forage.

More guard bees and little flight activity during sunny weather point to the possible presence of bee pirates. During a strong honey flow, the smell of nectar, particularly of eucalyptus, permeates the air around the colonies. The number and vigilance of the guard bees will increase when the colony expands, and more brood is reared. Afternoon play flights will signify that there are many young bees that must orientate and defecate.

Dead bees in front of the hive could imply, poisoning, robbing and resultant stinging, certain disease symptoms, or the presence of Cape laying workers. Crawling bees near the hive entrance would imply infection by Nosema, Tracheal mites or Paralysis virus.

## Precautions

All operations with bees must be carried out with the judicious application of smoke. Squashed bees give off an odour that is essentially the same as that of bee stings, which alerts bees, making them more defensive. So, try to avoid squashing bees during all operations and thus reduce stinging.

After inspection of the beehive, it is repacked and closed.



Bee hives stacked close to an area where they collect pollen.

Furthermore, an inspection upsets the organisation of the colony and, depending on the degree of the upset and the intensity of nectar flow, may mean a considerable loss of honey, in addition, inspections made in dearth periods should be avoided, or limited to as short a time as possible, because it can lead to robbing and therefore excessive stinging.

The beekeeper must make a general inspection whenever he visits his apiaries. If he suspects that something is wrong with one of the colonies, a thorough inspection must be done immediately. Other than this, thorough checks before winter, in the spring and shortly before the nectar flow are the minimum inspections that need to be carried out.

The winter check is to see that the colonies going into winter have a good chance to survive and are worth wintering. The spring check is to see how the colonies have come through the winter, to strengthen and feed weaker colonies and to make increases from the strong colonies to replace any lost during winter.

The check before the nectar flow is to see that the production colonies are all ready to produce honey. This should be timed so that, should it be necessary to re-queen, the colony will be able to benefit by this manipulation before the main nectar flow starts.

The eager beekeeper should guard against too many inspections during dearth periods, because this could lead to absconding.

Source: Beekeeping in South Africa: ARC-PPRI



# HOW ROUNDWORMS IN GOATS CAN RUIN YOUR PROFITS ANIMALS



For the novice, or beginner goat farmer it is of much importance to understand what roundworms are. Roundworms are parasites of grazing animals, such as goats, sheep and cattle.

**How do animals get roundworms?**

Goats, sheep and cattle get roundworms when they take in the immature worms while eating grass. These immature worms grow into adult worms in the animal. Young animals are most badly affected.

**What signs do you see?**

You may see bottle jaw.  
The inside of the eyelids could be pale.  
Diarrhoea may occur. But remember, diarrhoea may also have other causes (such as coccidiosis or toxic plants).  
During winter or the dry season, animals may be in poor condition.  
In animals that died from roundworms: There may be bleeding or worms on the stomach or intestinal lining.

**Treatment**

If you see these signs treat with a worm remedy.  
Instead of treating the whole flock, The Famacha system can be used to determine which animals require treatment. If you want to use the FAMACHA card ask a trained agricultural extension officer, an animal health technician or a state or private veterinarian to show you how to use it.

**Prevention**

Keep your animals in good condition.  
Give them good quality hay and a lick – they will be less likely to become ill from worms.



Source: ARC. Goatkeepers' Animal Health Care Manual

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