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PIONEER – THE BEGINNING OF THE NEXT 100 YEARS
of Agricultural Excellence in South Africa

UNPRECEDENTED LIVESTOCK THREAT GRIPS SA
Government Responds with Strategic Action

SIMPLE PLANT SCIENCE
Why do onions bolt?

BEWARE!
Army Worm Can Write off your Maize Crop

DAIRY CATTLE
Dipping facilities to control ticks

ARC NATIONAL PLATINUM
Bull Awards

WHY YOU SHOULD ATTEND THE UNDERCOVER FARMING EXPO & CONFERENCE

Why Every Grower and Industry Role-Player Should Be at the Undercover Farming Expo & Conference – 25 & 26 March 2026

In an agricultural landscape increasingly shaped by climate change, rising input costs and pressure on natural resources, farmers and agribusinesses must adapt to remain productive and profitable. The Undercover Farming Expo & Conference, taking place on 25 and 26 March 2026 at the CSIR International Convention Centre, offers a focused, practical platform for growers and industry role-players seeking solutions for a more resilient future.

Now in its 18th edition, the Undercover Farming Expo has become South Africa's leading event dedicated to protected agriculture, including greenhouses, shade nets, tunnels, hydroponics and aquaponics. These systems are no longer niche — they are increasingly essential as farmers contend with erratic rainfall, extreme temperatures and growing climate risk.

Addressing Climate Change Through Protected and Regenerative Farming

Climate volatility is impacting yields, crop quality and production consistency across the country. Protected agriculture enables growers to better manage temperature, moisture, light and water use, reducing exposure to climatic extremes while improving productivity. At the same time, the integration of regenerative farming principles within these systems is gaining momentum.

Regenerative approaches — such as improving soil health, reducing chemical dependency, increasing biological activity and using water more efficiently — align naturally with undercover farming methods. The expo and conference explore how growers can combine controlled environments with regenerative practices to achieve long-term sustainability without compromising profitability.

Practical Knowledge for Progressive Growers

Unlike broad agricultural exhibitions, Undercover Farming is highly specialised, delivering farm-ready insights for producers of vegetables, fruit, berries, flowers and seedlings. The conference programme features experienced industry specialists who address real-world challenges, including:

Climate-smart greenhouse and shade-net technologies

- Water-efficient hydroponic and aquaponic systems
- Biological and regenerative inputs
- Integrated pest and disease management
- Energy efficiency and resource optimisation
- This practical focus ensures that growers leave with knowledge they can apply immediately to improve resilience and operational efficiency.
- Innovation, Networking and Business Growth
- The exhibition floor showcases the latest technologies, inputs and services across the undercover farming value chain. Growers can compare solutions, engage directly with suppliers and explore innovations designed for South African conditions. For many, this leads to smarter investment decisions and stronger long-term partnerships.
- Equally important is the networking opportunity. The event brings together farmers, suppliers, researchers, financiers and agribusiness leaders, creating a collaborative environment where ideas are shared and relationships built.

Why Industry Role-Players Should Exhibit

For agribusinesses, exhibiting at the Undercover Farming Expo & Conference offers direct access to a highly targeted audience actively seeking climate-resilient and regenerative solutions. It positions brands at the centre of conversations shaping the future of intensive farming, while providing valuable exposure to decision-makers ready to invest.

A Call to Action

Growers looking to future-proof their operations, improve sustainability and adapt to climate change should make this event a priority.

Industry role-players offering innovative, regenerative or climate-smart solutions should secure their exhibition space now.

The Undercover Farming Expo & Conference is more than an event — it is a platform for building a resilient, productive and sustainable agricultural future. Join the leaders shaping the next chapter of undercover farming in South Africa on 25 & 26 March 2026.

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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

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The year started with abundant rains which really continued since late last year. But now a larger area is covered, albeit with severe storms and losses of homes, livestock, crops and lives in some areas. It seems this is a world-wide situation at the moment but, as we are in the beginning of a new year, let us look at positive outcomes and positive actions we as farmers and agriculturists can put in place to overcome the obstacles we, and more so our customers, the consumers of meat and fresh products and retailers can put in place. Our crops generally looks good, outlook on beef and sheep farming looks good, if we can collectively work on government to re-instate services at harbours and air-freight, our exports can once more rise. At street level, consumers are perplexed about many well-known stores with shelves containing really poor quality greens and sometimes meat packages, but all these at much inflated prices. The farmer, amidst all former mentioned obstacles and more, receive less for his produce per item, is curbed by inflated input costs while retailers slap on mark-ups because of unsold perishables that are ditched and, I am convinced, fewer sales. Answer; Be alert to smaller markets, direct to public sales, maintain good service and keep up your quality!
Best for 2026.

WHERE WE ARE AND WHAT COMES NEXT

UNPRECEDENTED LIVESTOCK THREAT GRIPS SA – GOVERNMENT RESPONDS WITH STRATEGIC ACTION

14 January 2026, Minister of Agriculture John Steenhuisen delivered a decisive briefing on the escalating Foot and Mouth Disease (FMD) outbreak sweeping multiple provinces in South Africa.

The update provided farmers with a lifeline of clarity — detailing what's been done, where the crisis stands, the roadmap to control and eradicate FMD, and crucial timelines that every producer needs to know.

This article breaks down all key points in a farmer-first language, with no jargon and plenty of facts and official sources you can verify yourself:

What is happening right now

- Why it matters for farmers and the livestock industry
- What government actions are underway
- Our Path Forward — from vaccination to FMD freedom
- Important deadlines and timelines
- Current Status of Foot and Mouth Disease in South Africa — Reality on the Ground

South Africa is facing one of the most severe Foot and Mouth Disease outbreaks in recent history. According to the Department of Agriculture:

FMD is currently active in seven provinces: North West, Free State, Mpumalanga, Gauteng, Western Cape, Limpopo and KwaZulu-Natal (KZN) — with KZN being the epicentre of the disease.

Historically FMD was contained in specific Disease Management Areas (DMA), but the virus has spread beyond those boundaries due to animal movement and other factors.

In 2025, outbreaks of both SAT1 and SAT2 FMD virus strains were confirmed — a complicating factor for control efforts.

This is real. This is serious. FMD affects cloven-hooved animals (cattle, pigs, sheep, goats), and while it does not infect humans or pose a food safety risk, it devastates livestock health, export markets, trade credentials and farm profitability.

The Government's Strategic Response — A Multi-Phase, Science-Driven Roadmap

In December 2025, Minister Steenhuisen outlined a comprehensive national strategy to confront Foot and Mouth Disease head-on. This strategy has evolved into action with today's briefing:

1. A Shift to "Foot and Mouth Disease Free With Vaccination"

Unlike past strategies that focused on containment, South Africa is now pursuing FMD freedom through mass vaccination. This approach combines:

- Mass vaccination campaigns across key provinces
- Strengthened biosecurity and traceability
- Animal movement control enforcement
- Diagnostic and surveillance expansion
- Compartmentalisation and safe trade zones
- All under the Progressive Control Pathway Framework.

This is not just reactive — it's a strategic pivot to long-term disease resilience.

Where Action Has Started — Key Milestones

Mass Vaccination Drive Begins in February 2026

Minister Steenhuisen confirmed today that nationwide vaccination will start at the beginning of February 2026 — prioritising provinces where the disease burden is highest (including KZN and Gauteng).

The vaccination rollout will follow this sequence:

- Start with KZN and Gauteng — feedlots, communal and commercial herds
- Follow with Limpopo and Mpumalanga
- Then roll into North West and Eastern Cape
- Create protection zones around currently Foot and Mouth Disease -free provinces (e.g., Northern Cape, Western Cape)
- This approach ensures vaccine doses are used where they matter most first.

VACCINES — SUPPLY AND CAPABILITY

A major challenge has been securing enough vaccine doses and building domestic capacity:

South Africa is working with:

the Botswana Vaccine Institute (BVI) to secure ~1

million vaccine doses per month starting mid-January 2026.

Argentina: One million doses are expected to arrive in South Africa by the end of January 2026, pending permits. A further five million doses have been scheduled to arrive from Argentina by March 2026.

Turkey: Five million doses in total are scheduled to arrive by March 2026, which includes a contribution from Turkey. The permit for the Dollvet vaccine from Turkey has been secured.

The Agricultural Research Council (ARC) is expanding its vaccine manufacturing capability — aiming for 20 000 doses by late 2025/26 and 150 000-200 000 doses by mid-2026/27. The Department has already vaccinated close to 950 000 animals in targeted campaigns.

This is a huge logistical and production challenge, but progress is tangible.

BIOSECURITY AND TRACEABILITY — THE BACKBONE OF CONTROL

Vaccination cannot succeed on its own. Minister Steenhuisen emphasised this morning that vaccines are not a silver bullet — they must be paired with strict biosecurity, tracking and animal movement control.

To this end:

SA is implementing a Livestock Identification and Traceability System (LITS) by mid-January 2026.

Enforcement agencies (SAPS, traffic officials) are in the process of being mobilised to help curb illegal animal movement, which remains one of the biggest drivers of FMD spread.

Awareness campaigns are being rolled out across provinces in partnership with industry.

The Plan Forward — Defined Timeframes for Action
Here's the official roadmap, with targeted timelines that all farmers and stakeholders must watch closely:

January 2026

Implementation of LITS nationwide.

February 2026

- Mass vaccination campaign begins (KZN & Gauteng priority).
- Protection zones established for FMD-free provinces.

- March–June 2026
- Continued vaccination rollout across the rest of the country.
- Diagnostic lab expansion completed at Onderstepoort and partner labs.

Mid- to Late 2026

- ARC vaccine production scales up.
- Foot and Mouth Disease outbreak containment expected to show measurable declines.
- 2027 and Beyond
- Progressive Control Pathway milestones will be met.
- Goal of Foot and Mouth Disease freedom with vaccination becomes realistic — pending compliance and resource consistency.

What This Means for Farmers, Exporters and Rural Economies

Immediate Impacts

Short-term trade restrictions remain in place.
Beef prices may remain elevated due to supply disruptions.

Producers must comply with movement restrictions or risk enforcement action.

Medium-Term Benefits

Once vaccination coverage is high and traceability is functioning, disease pressure drops significantly — restoring confidence in livestock markets.

Long-Term Gains

- Regaining export-ready status post-FMD could unlock billions in trade revenues.
- A healthier livestock population is more productive and resilient.
- What Every Farmer Needs to Know
- This is the most organised Foot and Mouth Disease response South Africa has ever seen. We now have a structured vaccine strategy, stronger enforcement plans and a roadmap with timelines. That's progress.

However, on-farm biosecurity, farmer compliance, and animal movement discipline will make or break this campaign. Vaccines won't fix everything if animals continue moving unchecked. Industry and government must work in lockstep — not in parallel.

The next 90 days (Feb–April 2026) will be mission-critical. That's when vaccination starts and the effectiveness of enforcement will be tested.

Final Takeaway — United Against Foot and Mouth Disease

South Africa is at a pivotal moment in the Foot and Mouth Disease fight. The plans are ambitious, well-structured and grounded in science. The success of this effort now hinges on vaccine rollout, compliance, and collective action from industry and farmers.

As we move into 2026, there is reason for cautious optimism — but also urgency. Let's stay informed, stay compliant, and keep working together for a healthier, stronger livestock sector. **(MO)**

THE BEGINNING OF THE NEXT 100 YEARS OF AGRICULTURAL EXCELLENCE IN SOUTH AFRICA

Pioneer, a global leader in the supply of agricultural solutions and seeds, is celebrating its hundredth year of existence. As part of this, Pioneer is highlighting their deep-rooted partnership with South African farmers.

Jaco Snyman, Business Manager of Pioneer Seed South Africa, states, "Just as Pioneer has supported farmers globally over the past century, we stand ready to tackle the next 100 years together with South African farmers".

The brand, established 100 years ago by Henry A. Wallace, is built on a legacy of innovation, perseverance, and an unwavering commitment to producers. Since developing the first hybrid maize seed, Pioneer has always been at the forefront of agricultural development.

Thanks to a profound understanding of the unique soil conditions, climate, and the challenges that South African farmers face daily, the company's story in South Africa has been deeply rooted in the local agricultural sector for decades.

Snyman notes that the Pioneer celebration is not merely about looking back; it is about celebrating millions of success stories shared with clients. At the heart of this commitment is their "Farmer First" philosophy, which means that the farmer is the centre of their business, and that every daily decision is made in the farmer's best interest.

Putting the farmer first is Pioneer's top priority, says Daneel Fourie, Agri Business Manager, Pioneer Seed South Africa. "Whether it is in-field support or the products we develop for his specific needs, we will always endeavour to enable him to farm as profitably and sustainably as possible".

Examples of this progress include drought-resistant cultivars, as well as insect and weed-resistant cultivars containing Corteva's PowerCore™ technology. They also offer digital solutions that enable farmers to farm with precision, such as the Pioneer Farmer App and gLink technology which assists with the accurate prediction of silage cutting times and more. "Pioneer Seed South Africa utilises their access to global resources and world-class technology, which is refined using local knowledge to fit South African farmers' practices perfectly", says Emile van den Berg, National Agronomy Manager from Pioneer Seed South Africa.

What distinguishes Pioneer from their competitors is continuous agronomic support. The company not only provides seed but supports it with data and solutions for precision farming with the aim of achieving better yields.

Van den Berg puts it this way: "Our field agronomists are the key between science and practice; they are the trusted advisors whom farmers can include in their farming operations with confidence.

They often live in the same communities as the farmers and offer year-round service and expert advice based on detailed cultivar knowledge and data-driven insights".

The success of the past hundred years creates confidence among producers that Pioneer will be present for another century and more. As part of the celebration, Pioneer is planning various events such as farmers' days in March, farm visits throughout the year and a strong presence at NAMPO.

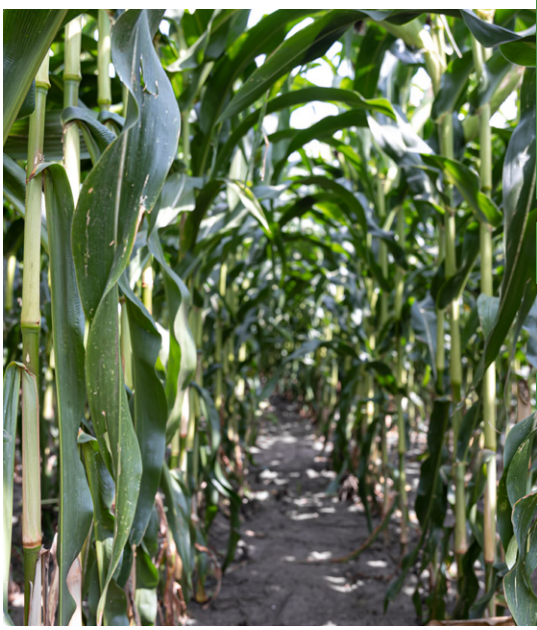
In South Africa and abroad, the company has also made a commitment to community service through 100,000 hours of voluntary work by their staff and agents, by giving them the time and encouragement to get involved in upliftment projects of their choice.

Pioneer Seed South Africa is an enthusiastic part of this movement which focuses on food security and science programmes.

Snyman concludes by saying: "We invite South African farmers, agents, and other stakeholders to be part of this milestone, which represents the first step of the next century of sustainable and profitable agriculture".

For more information regarding Pioneer South Africa's 100-year celebration, speak to your local Pioneer agent, send an e-mail to info.rsa@pioneer.com or visit their website at www.pioneer.com/za.

Also follow them on social media channels.



PIONEER®
HUNDRED YEARS

GOOD THINGS START WITH ONE.

ONE PERSON. ONE BAG OF SEED. ONE FIELD. ONE HARVEST.

For the past 100 years it has been our mission to increase yields, improve pest resistance and ensure prosperity. We strive to remain at the forefront of the technology wave for another 100 years and to always remain aware of our heritage. While our eyes are set on the future, we always cherish our century-long legacy in our hearts.

BECAUSE 100 YEARS STARTS WITH ONE.

CORTEVA™
agriscience

SIMPLE PLANT SCIENCE: WHY DO ONIONS BOLT?

Bolting onion plants

Bolting onion plants

Besides being the most important of all bulb vegetables in the world, the onion is also one of the most important vegetables grown in South Africa. Local onions are produced by using any of the three main planting systems - namely direct seeding, transplants and sets.

In the colder production areas premature bolting (flowering) can occur regardless of the planting system and often results in small bulbs with thick necks which are hard to cure and generally unusable.

Onions are biennial plants, which mean that it usually takes them two growing seasons to go from seed to seed. Normally seed planted by growers for the fresh market from bulbs during the first season when it is harvested and sold or cured and sold over the subsequent months. If these bulbs are stored, regrowth commences the following season. Roots and shoots redevelop and eventually the flower stalks are initiated.

However, given a specific physiological growth stage and a certain set of environmental conditions, premature flowering can be induced during the first growth season. This process is mainly controlled by temperature, plant development and cultivar.

Temperature is the main controlling or triggering factor of bolting in onions. Initiation of flower stalks is almost entirely induced by cool temperatures, following a favourable growing season and is not affected by day length. Exposure of the onion plant to alternating cold and warm temperatures resulting in the plant going dormant, resuming growth, going dormant and then resuming growth again can also induce premature flowering.

Healthy onions

Plant development must be up to a certain stage before the plants can perceive the bolting stimulus. The larger the plants are at the time of exposure to the cold period the higher the rate of bolting.

Early plantings, low seeding rate, as well as high fertilizer rates early in the season will produce larger plants and result in a greater bolting percentage. Elongation of the flower stalk is achieved by increasing day length and temperatures.

There also seem to be a competitive interaction between bulb formation and flower stalk growth. Bulb formation will suppress flower stalk elongation and if bulbing is delayed for any reason the stalk will grow rapidly. Similarly, if the bulb is already developed, the competition factor decline and the stalk will grow rapidly.

Certain cultivars are more susceptible to bolting than others, while long day onions are less susceptible than short day onions. The critical size as well as the actual cold period needed for the bolting stimulus, is both cultivar dependent because several other variables are involved in bolting the response of a particular cultivar is often unpredictable from year to year.

Specific factors involved in the bolting stimulus
The initiation of flowers has a definite juvenile period. As soon as the plants reach a certain size (7-10 leaves), exposure to night temperatures of less than 10°C for a period of 2-3 weeks will usually induce flowering. Longer cold exposure and larger plants will normally result in a greater percentage bolting. Temperatures higher than 10°C do not result in bolting.

Onion plants from sets less than 25mm in diameter are usually less prone to bolting in winter than plants from larger sets. Excessive early growth caused by high temperature and nitrogen fertilization can result in larger plants, more prone to bolting during winter.

In certain production areas early plantings of specific cultivars can avoid the bolting stimulus since the crop are harvested before temperatures drop low enough to induce flowering

Recommendations
While it is impossible to control the weather, several cultivation practices can limit bolting:

- Plant at the correct time for your area
- Planting too early can result in the development of multiple bulbs from side buds as well as premature bolting. Planting too late reduces the risk of bolting and multiple bulbs but because of a small leaf canopy the bulbs may be to small for marketing.
- Select the right cultivar for the specific area and season
- This is especially true for short day onions. The critical size for flower initiation is cultivar dependant and some cultivars can bolt under shorter, less intense cold periods than others.

Avoid any stress conditions
Slow bulbing could intensify the bolting stimulus because of less competition. Pests and diseases as well as weed should be controlled effectively in order to maintain an optimal bulb and leaf growth rate.

Once the onion plant has initiated a flower stalk nothing can be done to eliminate the problem. The onion bulbs will be edible but smaller and of poor quality. These bulbs should be used as soon as possible since the flower stalk, which emerge through the centre of the bulb will make storage almost impossible. **Source: ARC-VOPI, Roodeplaat**

A maize land with no weeds.

THE IMPORTANCE OF WEED MANAGEMENT

From a human perspective weeds have been problematic or offensive plants since man first domesticated wild plants and heralded in crop production.

It is safe to say that man will have to cope with weeds for as long as crops are cultivated under natural conditions. Like diseases and insect pests, the other two major groups of noxae or harmful organisms, weeds cause crop yield losses which generally necessitate implementation of control measures.

Weeds do harm to crops in ways distinctly different to the way pathogens and insects attack crop plants (parasitic weeds is an exception here). Weeds interfere with the growth and development of crops through two phenomena, namely: competition and allelopathy.

Through competition for water, light and nutrients, weeds rob the crop of essential resources for growth. Allelopathy involves the production and release into the environment of toxic compounds that can impede and prevent normal development of other plants.
Weeds not only cause reductions in crop yield but also in the quality of such products. Moreover, weeds can physically impede the harvesting of crops, and certain weeds can act as hosts of pests and disease-causing pathogens.

In a survey by Oerke et al in 1994 focusing on developed countries compared yield reductions for the world's major crops (barley, wheat, maize, rice, cotton, soyabeans) in terms of the roles of weeds, pests and disease-causing organisms, it was found that weeds, in the absence of crop protection measures in the afore-mentioned crops, caused yield reductions ranging from 21 to 36%, which on a per crop basis, nearly equalled the sum total of losses attributed to pests and diseases. This explains why the contribution of herbicides to total pesticide usage is estimated to range between 60 to 70%.

Even with the application of crop protection measures, it was reported yield losses attributable to weeds to range between 10 – 15% in the afore-mentioned crops, which is of similar magnitude to yield reductions attributed to either diseases or pests.

In sub-Saharan Africa about as many small-scale farmers attend to crops on the amount of hectares available for crop production – 170 million (Gianessi & Williams, 2011). Together, smallholder farmers contribute 70% of crop products, with the rest coming from commercial-scale enterprises. In Africa, weeds are considered the major constraint to crop production, and crop yield losses often can amount to 100% for a variety of reasons, ranging from lack of appropriate knowledge, through economics to environment.

Significant untapped potential in crop production on the African continent can be unlocked simply by adopting herbicides as an integral component of best agricultural practices.

Production potential on the continent can be boosted even further by the adoption of GM technology, which currently is lagging far behind the rest of the world – only three of 53 countries on the continent have thus far adopted GM crops, i.e. South Africa, Burkino Faso and Egypt.

The purpose of this editorial is to promote the adoption of appropriate measures for achieving effective weed control for the sake of maximising crop yield and quality. In order to achieve this goal, weed management is considered an integral part of the bigger set of crop production practices, which as a whole, constitute "Best Agricultural Practices".

Source: SAHRI-U.P.

BEWARE! ARMY WORM CAN WRITE OFF YOUR MAIZE CROP

An alarming problem with armyworm that may leave maize farmers devastated is caused by Army Worm.

Army Worm: Photo by Marlin Rice

The armyworm pest has long been known to be an occasional serious pest of small grains and maize. However, with the increase of reduced-tillage culture, armyworm damage to maize has sharply increased during the past decade in several countries.

The armyworm primarily feeds on plants in the grass family but under hunger stress will also attack some legumes and other plants. Conventionally tilled maize is seldom damaged. Problems most frequently occur in reduced-tillage maize planted in old sod, grassy fields, or small-grain cover crops.

First generation larvae can cause extensive defoliation to young maize plants. Stand losses are usually low to moderate but in some cases may be severe enough to warrant replanting.

Description

The moths are uniformly pale brown. There is a prominent white dot near the centre of the front wings, and the wing-spread is about three centimetres. The moths hide in the grass and trash during the day. Being strong flyers, they are active at night.

The eggs, white with a light greenish cast, are laid in clusters or rows on lower leaves of grass and maize plants. The grass leaf is frequently folded lengthwise, partially covering the eggs.

Newly hatched larvae are mostly pale green. During the day, they hide in the folded leaves in the whorl of the maize plant. Upon becoming about half grown (one-and-a-half to two cm) their body colour becomes basically brown with considerable colour variation among individual worms.

Full-grown worms are about three cm in length with a narrow broken white stripe down the centre of the back. There also are stripes along each side of the body. The larvae feed on the leaves at night.

The caterpillar stage lasts about 3 weeks, but the caterpillars are usually 10 to 14 days old before damage is noticed. By this time, many of the larvae will have small, white eggs stuck to their bodies just back of the head. These eggs hatch into parasite maggots which enter the body.

Those larvae that reach maturity dig into the soil to pupate. Next generation moths emerge about 15 to 18 days later.

Life History

Armyworms tend to overwinter as partially grown larvae under plant trash and in clumps of grass, and as pupae in the soil. Moths emerge from early spring.

Flights of armyworm moths can be detected with pheromone traps available from a variety of suppliers. Adult moths lay eggs on weeds and/or grasses along field margins, on leaves of maize, or on small grains.

Larvae hatch about a week later and develop over a period of approximately 3 weeks, feeding mostly at night. When eggs are not laid on maize, caterpillars move to maize when weeds or grain cover crops are killed with herbicides.

Fully grown larvae pupate in the soil and this stage lasts about 15 days with new moths emerging in February. There are two and possibly a partial third generation. Second generation larvae generally cause little damage.

Damage

Armyworm damage is observed most frequently in no-till fields that were sod the previous year or had small-grain cover crops that were not burned down with herbicides early enough in spring.

The first symptoms will be ragged feeding on the top leaves with wet, brown pellets (faeces) in the area. The culprit usually can be found hiding well down in the whorl or at ground level under clumps of grass.

Conventionally planted maize occasionally may be damaged by caterpillars that originate in a nearby small grain field, but poorly managed small grain cover crops appear to be a frequent source of caterpillars; when the cover crop is killed, armyworms will move to the maize. When armyworms are numerous, young maize plants may be completely eaten down to the midribs.

On very rare occasions, larvae of the second generation may attack maize in late February-March. These caterpillars hide under stones and clods during the day then feed on grasses and lower maize leaves at night. However, the type of damage is much different than that caused by the first generation. They seldom destroy any leaves above the ear.

Management

Maize fields likely to be attacked should be scouted every few days during the first 2 weeks January. It is also possible to monitor at-risk areas with pheromone traps to determine the size of the adult populations.

When scouting fields, look for leaf feeding and presence of caterpillars in the whorl, where they hide during the day.

Control efforts are usually not economical unless 10 percent or more of the plants are infested and control can be challenging if caterpillars are greater than two cm long.

A number of insecticide sprays and baits can be used as rescue treatments. Consult with the chemical experts at the cooperative or your favourite agri-chemical supplier for materials and dosage rates.

Warning

Pesticides are poisonous. Read and follow directions and safety precautions on labels. Handle carefully and store in original labelled containers out of the reach of children, pets, and livestock.

Dispose of empty containers right away in a safe manner and place. Do not contaminate forage, rivers, or dams.

By: Dennis Calvin.

Armyworms are common caterpillars that prefer lawn grasses over other plants in your yard. When present in large numbers they appear to march in army-like formations, migrating to areas of fresh grass. These caterpillars are about 3 cm (1 inch) long

SELECTING THE RIGHT CABBAGE VARIETY FOR THE RIGHT SEASON

Many factors can influence the success of a cabbage crop. Choosing the right variety for the right season is always the first step that cabbage producers must consider.

In the good old days, the cabbage varieties available from seed companies were limited and the disease pressure in the field was not that high. Today, temperature fluctuations pose a big risk for cabbage producers (with frost that can occur in autumn, winter and spring) and Black rot (Xanthomonas) disease pressure in the summer has become a general problem.

The fact that there is a wide range of cabbage varieties available today that can be planted in various time slots, is good news for the cabbage producer.

Sakata's extensive cabbage range makes it easy for the cabbage producer to be able to plant cabbage right through the year. The easy-to-follow guideline below will ensure that the producer can plant the right variety in the right time slot.

Optima

This market-leading cabbage variety can be transplanted in the summer months after the danger of frost has passed. Optima has intermediate resistance to Black rot and exceptional heat tolerance to give a good cut percentage in the summer season.

Powerslam

Powerslam is a new addition to the Sakata range that is ideally suited to summer growing conditions, because of its intermediate resistance to Black rot and good heat tolerance. It is a versatile cabbage that can be used for different markets and production areas.

Accord

Sakata's brand-new cabbage variety, Accord is a very good and reliable variety for the winter slot. Accord can handle the cold very well and is very slow to bolt. (Bolting in cabbages usually occurs close to spring when the temperature fluctuation is high).

Superslam

The popularity of Superslam is growing exponentially year on year because of its potential size and the fact that it grows well in cold conditions.

>>> Continued on p 13

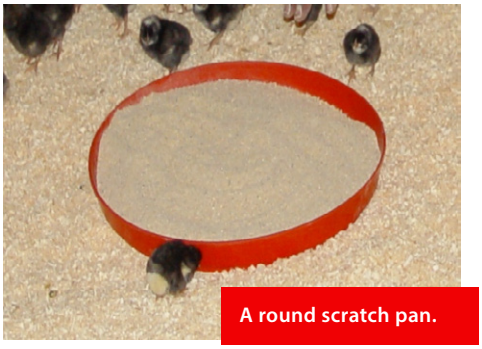
FEEDER SYSTEMS FOR BROILER OR LAYERS

There are various types of feeders available to egg producers. The type of feeder system that you will use depends on the size of the house and the number of chickens that you are rearing. If you have a small open sided house and rear less than 5000 chickens you will rear the chickens with the following types of feeders:

- Scratch pans/oval feeders.
- Tube feeders.
- Self-made feeders

How does a scratch pan/oval feeder work?
A scratch pan/oval feeder is a feeder that you will use for the first 5 – 7 days of the chickens' lives.
Scratch pans can be round or square. By using this type of feeders the day old chickens will be able to get to the feed very easily.

When you use this type of feeder you must take extreme care that the chickens do not become too old (more than 7 days) before you change to another feeding system for bigger birds. By doing this you will prevent them from scratching out the feed and therefore prevent wastage of expensive feed. See picture of a round scratch pan.



A round scratch pan.

How does a tube feeder work?
After 5 – 7 days you must replace the scratch pans or oval feeders with a tube feeder.
A tube feeder consists of a tube and a base plate that is attached to each other with a steel rod with a hook where the rope can be tied onto to suspend the feeder. A tube feeder work on the principle that you put feed into the top of the feeder.

The food will than distribute automatically to the bottom of the feeder when the chickens consume the feed. If the feeder does not hang the feed will not descend to the bottom. It is sometimes necessary to shake the feeders to make sure that the feed go to the bottom. See picture of a tube feeder.

A tube feeder.

How does a self-made feeder work?
A self-made feeder is simple to construct by yourself and can be made in any shape and size.

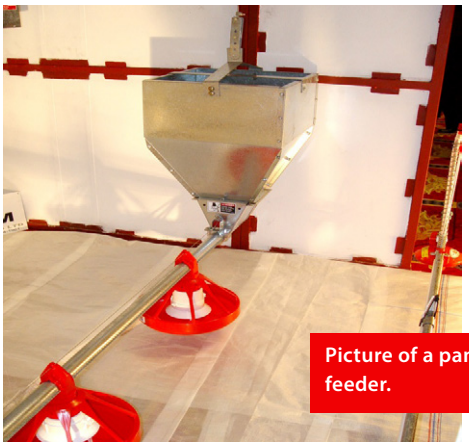
What are the requirements for a good feeder?
The requirements are as follows:
It must be easy to fill.
Easy to clean.
Must not waste feed.
Feed must be easily available.
Chickens must not be able sleep on them.
Must be easy to adjust the height.

If you have a big open-sided house and rear more than 5000 chickens you will rear the chickens with the following types of feeders.

- Pan feeders.
- Chain feeders.

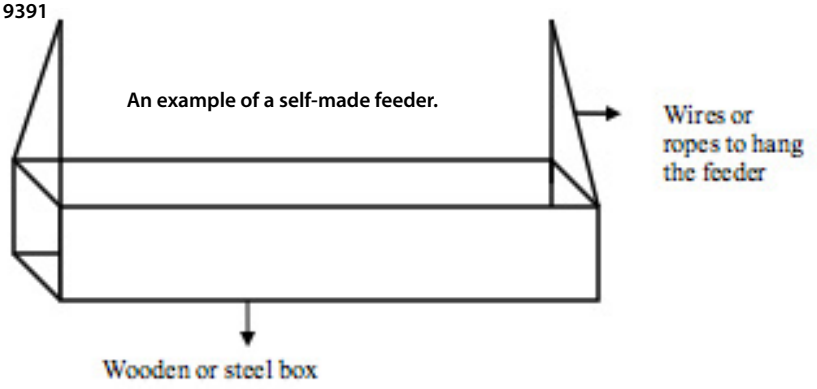
How does a pan feeder work?
When you use this type of feeding system you need to have a silo to store the feed. The feed company delivers the feed into the silo. The feed will then be moved from the silo by means of an electric motor and auger to a hopper. The hopper will then distribute the feed to the different pans in the system that is equally distributed in the house and can be set to different heights. The pans will automatically be filled when the chickens consume the feed in the pans. See the diagram showing the installation of a pan feeder.
How does a chain feeder works?

The chain feeder works the same as a pan feeder up to the hopper. The difference between the pan feeder and the chain feeder is that the feed in the chain feeder is distributed by means of a chain that is inside a fixed trough. See illustration on this page.

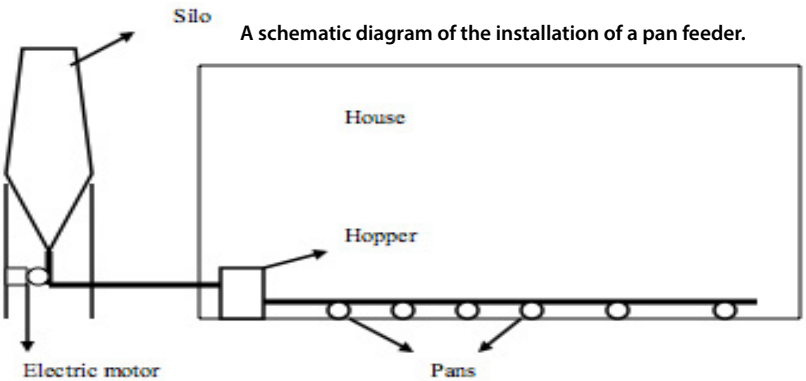


Picture of a pan feeder.

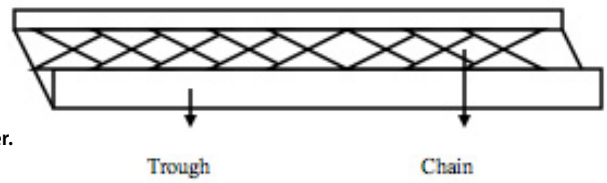
If readers require training, the Agricultural Research Council – Animal Improvement Institute is a good place to start with a poultry course; Tel: 012-672 9391



An example of a self-made feeder.



A schematic diagram of the installation of a pan feeder.



A sketch of the chain feeder.

BIOSECURITY – PIG FARMERS URGED TO COMPLY

Several outbreaks of serious diseases affecting pigs in the past have made it very clear to the pig industry that disease prevention is a vital part of farming.

The three diseases; foot and mouth disease (FMD), "Blue ear" (PRRS), and classical swine fever (hog cholera) at the time caused havoc in the industry.

They are all serious because they spread very rapidly in a confined population of pigs, and they do a great deal of damage to the herds that they infect, causing deaths, abortions and still-births on a large scale and without end.

The first outbreaks were fortunately detected in time for strong measures to be taken by the Veterinary Department, including the destruction of many pigs and the clearing out of contact farms. Classical swine fever is very difficult to eradicate.

This is always a distressing and expensive exercise, especially for the owners of apparently healthy animals that are taken away for slaughter because they may be carrying the infection. Compensation may be paid for animals that are culled by Government but not for those which have died during the acute period of the disease. As a result, some farmers seem to do well out of the system while others suffer heavy losses.

Ordinary diseases can cripple your enterprise

Producers who were not affected by the two diseases referred to are nevertheless engaged in a daily battle against the "ordinary" problems that can bankrupt any pig project if badly handled. Raising pigs as a profitable commercial pork producer is not all that easy, and biosecurity risks are a large part of the threat to our success.

Luck may have something to do with it, but mostly it is the farmer who has taken the trouble to protect the health of his or her herd that comes off best.

How can we protect our herds?

It is really a logical process.

Think of how your herd is exposed to the things that can bring infection to it.

Infective agents are viruses, bacteria and microscopic parasites, none of which are visible but all of which can be carried by people and their clothing, vehicles, other animals, birds, wind and food.

Ask yourself ten important questions about your piggery :--

Do your pigs have freedom to wander outside and mix with other pigs? If so, do the other owners have the same concerns as you do for their pigs' health?

Do you have visitors from other places who want to come and see the pigs, especially the babies, which are, after all, so cute?

Do speculators and butchers come on to the farm to buy or load your pigs when they have been to other pig units?

Do you feed swill from restaurants, compounds, hospitals etc that is brought to the farm as part of a delivery route involving many properties?

Do you have a problem with rats, mice, birds in and around the piggery?

Are your buildings suitably designed and strongly built, to keep your pigs secure and properly housed?

Do you go to auctions or other places where people and pigs from different areas come together, and do you buy unknown pigs at sales and take them home?

Do advisers such as vets, nutritionists, reps from firms,

>>> Continued on p 15

>>> Selecting the right cabbage from on p 11

It is ideal to transplant from February to April in the biggest cabbage production areas.

Conquistador II

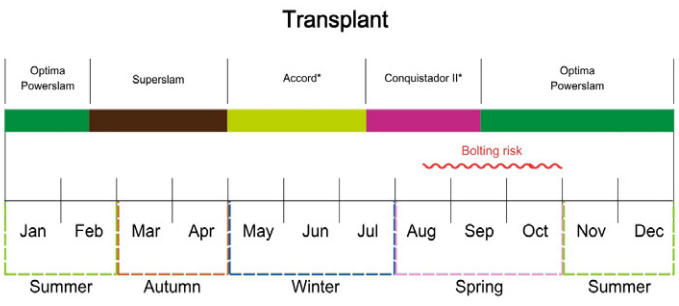
Sakata recently launched a new and improved Conquistador variety.

The well-known Conquistador has always been a reliable cabbage, ideal for transplanting in cold to hot conditions and growing in the cold.

The new Conquistador II can be planted in a variety of different seasons throughout the year and performs exceptionally well when transplanted in August and September.

It is important to note that the behaviour of the various cabbage varieties can vary in different locations. It is therefore advisable to contact your local sales representative who knows his/her area best.

Also note that the transplanting dates differ from the sowing dates – the transplanting date is approximately 6 weeks after sowing has been done by the seedling nursery.



CALF DEATHS IN NORTH WEST – HIGH NUMBERS

In the North West, numerous young calves have been dying since early in December without having showed any significant disease symptoms beforehand. Lichtenburg, Ventersdorp, Swartruggens, and Coligny are among the areas where cases have been reported. In some instances, autopsy reports have confirmed that some of the deaths could be linked to foot-and-mouth disease (FMD) which damaged the calves' heart muscle.

Stud breeder's report

Kobus Bester, a stud breeder from Ventersdorp and chairperson of the South African Stud Breeders Federation, as well as a director of the Livestock Registration Federation (LRF) says that many animals, especially calves aged three months or younger, have already died in the Ventersdorp district. While calves appear to be healthy and in good condition, their hearts suddenly fail, leading to sudden deaths. At this stage, the cause of death is still under investigation.

Speculation denied

Meanwhile, social media has been abuzz with claims that these deaths are the result of FMD vaccinations in adult animals. Dr Danie Odendaal, director of the Veterinary Network (V-Net), and Dr Shaun Morris, director of Octavoscene, have dismissed these social media claims as pure nonsense.

Both veterinarians are members of the Ministerial FMD Task Team. They disregard the rumours because government has not yet initiated vaccination programmes against the state-controlled disease in these areas.

Highest level

Bester says FMD has now reached its highest level in many years, as indicated by the number of outbreaks, the number of animals affected, and the surface area on which outbreaks are occurring. The disease is affecting animals to such extent that deaths among young calves, cows, and especially bulls, are now common. As a result, producers are suffering significant production losses. Infected bulls become infertile, which in itself has a significant negative impact on production.

While adult animals and even older calves have only exhibited minor lesions in their mouths, young calves have suddenly started succumbing to heart failure.

Vaccine delays

Bester says although the Ministerial FMD Task Team has the necessary expertise and has made the correct recommendations, industry has yet to see any tangible implementation of these recommendations. There is an urgent need for a high-quality, long-term DIVA vaccine (a vaccine that allows for immunological differentiation between infected and vaccinated animals). Such a vaccine is expected to bring the problem under control, especially if administered preventatively.

Crucial action needed

It is therefore crucial that viral material is sent to the Pirbright Institute in Britain as soon as possible. This will ensure that an analysis of South African FMD field strains can be carried out with certainty, enabling the development of effective vaccines against local strains.

Dr Odendaal says import permits for FMD vaccines are still difficult to obtain. Bureaucratic processes are the main reason for this delay. Vaccines are expected to be imported by the end of the month. He believes the slow import process is the main reason why the country is struggling to control the disease effectively. "This outbreak began four and a half years ago, and only now that the disease has increased to such an extent that it can no longer be stopped, there is light at the end of the tunnel. We will no longer be able to stop the disease; all we can do now is try to reduce production losses on individual farms through vaccination."

New FMD syndrome

Dr Odendaal has spoken with several veterinarians in the areas where calves have died. They confirmed that adult animals and even older calves had only minor lesions in their mouths, but that young calves nevertheless started dying from heart failure. Post-mortem examinations found that the virus had affected the lungs and heart muscles of the young calves, without the typical FMD symptoms, except for a few lesions in the mouth.

FMD is everywhere

Dr Morris says FMD should now be regarded as endemic throughout South Africa. However, it is nonsense to claim that there are general pathogens on the veld that can infect calves with FMD. "The infection in calves are transferred from the older animals, but because it affects the young calf's heart, sudden deaths can occur."

Contributing and supporting factors

Dr Paul Reynolds, a veterinarian at the Warden and Vrede animal hospitals, says FMD spreads faster in certain areas than others, yet the progression of the disease within a herd is relatively similar. He points to three important aspects to pay attention to: the age of the calves, the immunity of the cows, especially heifersand the animals' mineral status and condition.

According to him, deaths of between 5 and 20% have been recorded among calves younger than three months of age. Stress and handling are the biggest contributing factors.

He believes that adequate minerals and good condition are two factors that help livestock to better combat any disease, including FMD. **By: Koos du Pisanie and Christal-Lize Muller, Plaas Media**

DAIRY CATTLE: DIPPING FACILITIES TO CONTROL TICKS

Many cattle diseases are transmitted by ticks and in cases of a serious infection, it can cause anaemia. The most effective method of controlling ticks is to dip the animals regularly. In South Africa the following dipping methods and facilities, or combinations thereof, are used:
Spray dip
Immersion dipping
Pour-on remedies
Hand spray or tractor spray
Hoof dip
Draining pens

The basic requirements, to which any dip must comply, are the following:
Large enough capacity
Must not waste dipping fluids
Must wet the animal thoroughly
Must not have a slippery surface
The cattle must not be able to turn in the dip

Spray dip
A spray dip is a dip where cattle move through a passageway equipped with sprayers that apply the dip. Sprayers are affixed as such that they wet the animal thoroughly. The dip then runs off and is collected in a pit, from where it is pumped through the sprayers again. Wetting by spray dip is generally not as good as that of the immersion dip.

According to the experienced, correct installation and good management are however the determining factors of a spray dip. A fresh mixture of dip is used for each dipping session, which means that the dip concentrate is always correct at the beginning of the dipping process.

It is possible to adapt the dip mixture immediately as soon as ticks begin to build up a resistance to a certain type of dipping fluid.


Cattle jumping in a dip bath


The spray-dip tunnel.

A further advantage is that contamination in a spray dip is relatively low. As a result, the storing of proteins and the possible build-up of bacteria is not possible. Some farmers maintain that the anxiety factor of cattle in a spray dip is much less than in an immersion dip. This fact is important for feedlots and dairy complexes where anxiety has an influence on the meat production and the milk production of lactating cows.

The disadvantages of the spray dip are that conventional sprayers become blocked easily if the dipping fluid is not kept clean. Some parts of the body under the animal and the tail and ears are not wetted thoroughly. A possible solution is to hang a wet bag or canvas at the entrance of the spray dip so that the cattle do not simply walk through but move through carefully.

In this way a better and more even wetting is ensured. White painted inner walls brighten the interior of the spray dip and lessen the anxiety factor in the animals.

Animals must drink water before they are dipped to prevent die dipping fluid from dripping into the water troughs after the dipping process. This contaminates the water that other animals must drink from. Regular maintenance on the spray dip system is necessary.
Animals that are not used to the spray dip must first be taken through the dip two or three times without being wetted. Transparent roof sheets brighten up the "tunnel", improves the flow of cattle and prevent the unnecessary loss of dipping fluid.

Immersion dip
With this method, cattle are completely immersed in a dip tank. The general wetting with this system is very good because of turbulence against the animal's skin, which achieves a good penetration between the animal's hair. As in the case of a spray dip, design and management plays an important role in the level of effectiveness of an immersion dip. The immersion dip has however a few disadvantages:

The dip tank can crack and seepage of dipping fluid can occur.

The anxiety factor in cattle is reasonably high.

Gestating cows can abort if the entrance is not designed correctly.

Because of the use of a large volume of dipping fluid, it is unpractical, as well as uneconomical to make a new mixture every time dipping must be done. Good control over the concentration of the dipping fluid is therefore very important.
Beef Farmers (SA)

<<< Biosecurity – Pig farmers from p 13

feed suppliers, have free access to your pig pens without changing their outer clothes?

Do you know enough about pig diseases and how to control them with vaccines, injections, in-feed medication?

Would you recognize FMD or PRRS or any other serious infection in your herd?

If you are in an area with small pig units which cannot be isolated from each other, is there an organisation that can get you together for talks on pig problems, sharing local knowledge, looking for safe and economic ways of buying supplies, finding markets, replacing breeding stock, treating everyday diseases such as mange, scours, pneumonia, malnutrition?

Your answers to these questions will tell you whether your piggery is completely, or partly or not at all bio-secure. To make a small piggery less vulnerable to disease takes time and money, but not as much as you may think.

Here are a few simple steps that will make a huge difference to the biosecurity of your herd, big or small:--
Keep strangers and visitors away from your pigs; have a fence and a gate with a lock that you can control;

When advisers come to help on the piggery, supply a clean overall and boots which never leave your property;
Don't buy other people's troubles at auctions; get your pigs from one or two reliable breeders;

Make a structure or an arrangement for the delivery of feed and the loading of pigs that keeps vehicles outside your fence;

If swill is fed, make sure of its origin and do not regard it as an adequate food for modern pigs;

Use the assistance and advice that is available to help you farm better; every rand you invest in knowledge will be returned many times over.

What, then, is biosecurity? It is the common sense precautions that any prudent pig producer will take when we think about the health threats facing our pigs. **SAPPO**

FOOT AND MOUTH DISEASE: THE INVISIBLE THREAT UNDERMINING SOUTH AFRICA'S LIVESTOCK ECONOMY

Foot and Mouth Disease (FMD) remains one of the most significant animal health challenges in South Africa and worldwide. It affects livestock productivity, trade, and farmer livelihoods — making it a key focus area for animal health, traceability, and research under Red Meat Industry Services (RMIS).

So, which animals get Foot and Mouth Disease, how does it spread, and what is being done to control it? Let's unpack everything you need to know about this highly contagious livestock disease and the role RMIS plays in strengthening South Africa's defences against it.

What Is Foot and Mouth Disease?

Foot and Mouth Disease (FMD) is a severe, highly contagious viral infection that affects cloven-hoofed animals — animals with split hooves. It is caused by the Foot and Mouth Disease virus (Aphthovirus), which spreads quickly between herds and across borders.

The disease leads to blisters and ulcers on the mouth, tongue, teats, and hooves, causing pain, fever, and a sharp drop in milk and meat production.

Although FMD has a low mortality rate in adult animals, it causes enormous economic and trade losses due to movement restrictions and export bans.

What Causes Foot and Mouth Disease?

The FMD virus exists in seven different strains — O, A, C, Asia 1, SAT 1, SAT 2, and SAT 3. In Southern Africa, SAT (Southern African Territories) 1–3 are the most common. These strains often persist in African buffalo populations, making disease control more complex.

Transmission occurs through:

- Direct contact between infected and healthy animals
- Contaminated vehicles, feed, clothing, or equipment
- Windborne spread over short distances
- Movement of infected animals across regions or borders
- Humans – FMD can live in a person's throat (airway) up to 3 days, even if you feel fine, you could pass it to your animals just by breathing near them

This is why traceability and strict biosecurity controls are vital — both areas where RMIS plays a leading role.

Which Animals Get Foot and Mouth Disease?

The keyword question — which animals get Foot and Mouth Disease — can be answered simply: any cloven-hoofed animal is susceptible. However, some species are more vulnerable or act as long-term carriers.

Let's break it down:

Cattle

- Most susceptible hosts of the virus.
- Show clear clinical signs: fever, drooling, and blisters on the mouth, nose, and hooves.
- Reduced milk yield, weight loss, and secondary infections often follow.
- Movement bans cause major economic strain on farmers and processors.

Pigs

- Highly infectious amplifiers — they release large amounts of virus particles.
- Often show severe blisters on the snout and feet, leading to lameness and loss of appetite. FMD can devastate entire pig farms if not quickly contained.

Sheep and Goats

- May show mild or no visible symptoms, making early detection difficult.

- Despite appearing healthy, they can still spread the virus silently within flocks or to other species.

Buffalo and Wild Game
- African buffalo are natural reservoirs of the SAT strains of FMD.
- They can carry the virus for extended periods without showing symptoms.
- The wildlife - livestock connections, particularly in conservation areas, remain one of the main challenges for disease eradication in South Africa.

Animals That Don't Get Foot and Mouth Disease
Not all animals are affected by this virus. Horses, donkeys, and humans do not get Foot and Mouth Disease.

It's important to note that the human illness called "Hand, Foot and Mouth Disease" — often seen in children — is completely different. It's caused by a separate virus and has no connection to the livestock disease.

This clarification helps prevent confusion and unnecessary panic during outbreaks.

How Foot and Mouth Disease Spreads
The FMD virus is incredibly resilient and can survive in soil, clothing, and equipment for weeks under cool conditions. It spreads through:

Direct animal contact: saliva, milk, or respiratory droplets.
Contaminated materials: feed, vehicles, boots, tools, or bedding.
Airborne transmission
Cross-border livestock movement: one of the biggest challenges in Southern Africa.

This highlights the need for digital traceability — ensuring each animal can be tracked from farm to abattoir. RMIS's national traceability framework helps make this possible.

Recognising the Symptoms
Quick identification is crucial. Here's what to look for:
- High fever followed by drooling and loss of appetite
- Blisters and ulcers on the mouth, tongue, or lips
- Lameness or reluctance to walk
- Sores between hooves
- Reduced milk production in dairy cattle
- Weakness or sudden death in young animals
- Farmers should immediately report suspected cases to local state veterinarians and/or state animal health officers.

Controlling and Preventing Foot and Mouth Disease
The Minister of Agriculture appointed the Ministerial Task Team for Controlled Diseases (MTT) to strengthen national coordination in managing FMD outbreaks.

The team is focusing on six priority areas:
- Field Services & Epidemiology
- Diagnostics & Surveillance
- Vaccination
- Research
- Feedlots & Auctions
- Market Access
- South Africa maintains a zoned control system, dividing regions into:
- FMD-free zones (export-approved)
- Protection zones (buffer areas)
- Infected zones (where outbreaks have occurred)

Key prevention and control measures include:
- Vaccination campaigns: Using locally relevant SAT-strain vaccines. RMIS recently helped coordinate the procurement of 644,000 doses to strengthen national vaccine supply.
- Movement restrictions: Preventing spread between zones and provinces.
- Biosecurity protocols: Cleaning vehicles, equipment, and footwear between farms.
- Traceability Platform: Tracking livestock movements to contain outbreaks faster.
- The Future of FMD Control in South Africa
- RMIS's vision aligns with the Red Meat Industry Strategy 2030 — building a resilient, traceable, and inclusive red meat value chain.

By investing in:
- Digital traceability and animal identification systems
- Appointing a dedicated Veterinarian
- RMIS Operational Centre
- Early-warning disease surveillance
- Research through the Field to Future programme
- Collaboration with state veterinarians and farmer associations
- South Africa can reduce the frequency and severity of outbreaks — safeguarding both animal health and rural livelihoods.

Which Animals Get Foot and Mouth Disease?
So, which animals get Foot and Mouth Disease? Primarily cloven-hoofed species — cattle, pigs, sheep, goats, and buffalo — are at risk. While horses and humans remain unaffected, the broader impact on trade and community welfare makes FMD a national concern.

Want to know more about which animals get Foot and Mouth Disease and how to protect your herd? Contact RMIS today to help strengthen South Africa's animal-health and biosecurity systems.

Source: RMIS - +27 763314172

ARC NATIONAL PLATINUM BULL AWARDS

Excellence in beef genetics is never accidental. The ARC Awards' "best of the best" category recognises bulls that meet the highest standards of performance and breeding integrity. To qualify, a bull must not only achieve a Gold Merit certificate through a Phase C test conducted between 1 January and 31 December 2024, but must also be bred from an Elite cow — a rare combination that few animals attain. While several bulls across breeds may qualify each year, only a select few meet the stringent criteria that define true genetic leadership. Proudly sponsored by GMP-Leader Products SA for the past 13 consecutive years, this prestigious category has stood as a benchmark of excellence in the industry for three decades.

Continued in the next issue of Nufarmer Africa Magazine.

BONSMARA: NFS 23 0172

Sernick Bonsmaras
Edenville, Free State

Tel: 082 554 7690
Email: nick@Sernickgroup.co.za

ADG Index: 100 **FCR Index:** 115
Adjusted Scrotum circumference: 338

Dam: NFS 09 0062
Age (years): 16
Calvings: 13
Age 1st Calving (months): 29 **Avg. ICP (days):** 393

EBVs
Birth Direct: 0.61
Weaning Direct: 12.1 **Weaning Maternal:** 6.60

Nick Serfontein

BONSMARA: SNB 23 0012

Nickus Heinlein
Baltimore, Limpopo

ADG Index: 133 **FCR Index:** 119
Adjusted Scrotum circumference: 366

Dam: PCD 14 0265
Age (years): 11
Calvings: 8
Age 1st Calving (months): 35 **Avg. ICP (days):** 365

EBVs
Birth Direct: 1.10
Weaning Direct: 12.5 **Weaning Maternal:** 13.70

Nickus Heinlein

BONSMARA: SNB 23 0045

Nickus Heinlein
Baltimore, Limpopo

Tel: 073 689 9435
Email: snb.stoet@sirkel-n.co.za

ADG Index: 127 **FCR Index:** 110
Adjusted Scrotum circumference: 376

Dam: PCD 15 0192
Age (years): 10
Calvings: 7
Age 1st Calving (months): 35 **Avg. ICP (days):** 369

EBVs
Birth Direct: 1.74
Weaning Direct: 10.3 **Weaning Maternal:** 9.10

Nickus Heinlein

THE FOURTH AGRICULTURAL REVOLUTION: AI'S ROLE IN FEEDING THE FUTURE

Agriculture has always evolved through revolutions. From the dawn of organized farming, through the mechanization of the 20th century, and into today's precision irrigation and digital tools, each wave of innovation has reshaped how we grow food. Now, a fourth revolution is underway, powered by artificial intelligence (AI). This transformation comes at a pivotal moment. Farmers must feed a growing population under immense pressure: volatile weather, shrinking workforces, and rising input costs. Less than 10% of the world's workforce is now employed in agriculture, down by 90% in developed countries, yet global food demand continues to grow. AI is emerging as a critical force to bridge this gap, enabling farming systems that are more resilient, efficient, and sustainable.

Farmers as Digital Agronomists

Traditionally, farming has been a mix of hard work, intuition, and inherited knowledge. With AI, those instincts are strengthened by real-time insights. Instead of treating fields uniformly, farmers can now manage crops at the level of individual plots, or even individual plants.

In the U.S., roughly 68% of large crop farms already use digital agriculture tools such as yield monitors and soil maps. The next leap comes from AI-driven systems. Soil sensors, connected to intelligent platforms, can analyze conditions and automatically adjust irrigation and fertilization. Rather than relying on guesswork, farmers can make precise, data-driven decisions that save time, water, and inputs while safeguarding yields. Automation pushes this further. AI enables machines to prepare soil, plant seeds, detect pests, irrigate, or even harvest, freeing farmers to focus on strategy and innovation. Farming becomes less about repetitive labor and more about guiding digital systems, positioning farmers as "digital agronomists."

Unlocking New Insights

AI's true power lies in uncovering patterns humans often miss. Advanced models can reveal how irrigation timing affects pest behavior or how soil carbon shifts under different crop rotations. By running millions of "what if" simulations, AI can suggest unconventional strategies: asynchronous planting, novel intercropping, or microbial solutions to reduce fertilizer dependency.

Already, AI is being used to:

- Auto-calibrate irrigation, fertilization, and pest control at the micro-zone level
- Create digital twin farms to simulate extreme weather or disease scenarios
- Refine predictive crop insurance models
- Accelerate plant breeding with insight-driven recommendations
- The future may hold even more radical possibilities, from swarm robotics to closed-loop, zero-waste urban micro-farms.

Closing the Yield Gap

AI's benefits extend far beyond industrial agriculture. Smallholder farmers—especially in low-income countries, stand to gain significantly. Hyper-local weather forecasting, for instance, has already cut farmer debt in half by improving preparedness for climate shocks. The global stakes are enormous. According to the UN Food and Agriculture Organization, one-third of all food produced, about 1.3 billion tons annually, is lost between farm and fork. Tackling this waste at its source is one of AI's biggest opportunities.

The economic upside is clear as well. Generative AI alone has the potential to create $100 billion in agricultural value, through yield improvements, input optimization, and labor efficiency. More importantly, AI helps farmers manage multiple goals simultaneously: profitability, sustainability, and climate resilience, while ensuring food security for a growing population.

A Smarter, More Resilient Future

AI isn't replacing farmers; it's equipping them with powerful tools to succeed in an increasingly complex environment. By combining data-driven insights with automation, AI enables farming that is more productive, profitable, and sustainable.

Whether it's smallholders in rural communities or large-scale agribusinesses, AI is accelerating agriculture's transformation into a smarter, more resilient system, capable of feeding the world while safeguarding resources for future generations.

At Orbia Netafim, this is the future we are working toward: agriculture that grows more with less.

Source: Orbia Netafim

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25 & 26 March 2025

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Cell: 082 8321 604 or email: expo@undercoverfarmingexpo.com

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