

AFRICAN FARMING

ISSUE 5 | MARCH 2021

Great farmers

TIRO MONGWAKETSI

Secrets of SA's top beef farmer

HERE'S YOUR FREE COPY!

VILLAGE LIFE

More maize & cattle?
Yes, here's how!

JACK MOTHIBA

"Why I believe in Meatmaster sheep"

MBALI NWOKO

From township to top tunnels

Farmers' diaries

What 6 farmers are busy with this autumn

HOW TO

- Use vaccines properly
- Draw up an efficient business plan
- Build a cheap baler
- Sell your vegetables for maximum profit
- Access cheap financing
- Graze lucerne safely
- Select vegetables





IN IT FOR FARMERS. IN IT FOR GOOD.

We are in it to advance sustainability for farmers.

To provide tools and training for farmers to increase yield, profitability, optimise inputs, and improve climate resilience.

We deliver innovative, farmer-first solutions to maximise every hectare. Enabling farmers to get the most out of every season.

We invest with the farmer in mind: building a future for generations to come.



KEEP GROWING.

www.corteva.co.za

 CortevaZA on Facebook

 CortevaAME on Twitter

 @Corteva on Instagram

COVER PHOTO BY PETER MASHALA



EDITORIAL STAFF

Editor of African Farming
Peter Mashala

Editor of Landbouweekblad
Chris Burgess

Editor Special Projects
Jacolette Kloppers

Layout and design
Elgée Strauss (art director)
Karien van Wyk (layout artist)

Copy editors
Christine de Villiers
Aletta Pretorius-Thiart
Nan Smith

Business manager
Dirk Lamprecht

CONTACT DETAILS

Email: magazine@africanfarming.com

Web: www.africanfarming.com

Facebook: www.facebook.com/Africanfarming

Twitter: twitter.com/africanfarming

Published by Media24

Weekly Magazines, Landbouweekblad



contents

Top farming advice	6
Top farmer – Mbali Nwoko	10
Top farmer – Tiro Mongwaketsi	14
Top farmer – Jack Mothiba	18
Village life in rural KwaZulu-Natal	22
Autumn work on six farms	27
Ask the vet	30



10

Mbali Nwoko started her vegetable farm on leased land on the outskirts of the East Rand in 2016. After securing clients like Food Lover's Market, a series of hard knocks forced her to take a breather. But you can't keep a good farmer down – she's back with a bang!



14

Tiro Mongwaketsi took over the family farm from his mother at the age of 21. His success, including winning the 2020 ARC National Beef Producer of the Year, comes after many years of hard work and is underpinned by passion.



HAVE YOUR SAY

AFRICAN FARMING
#AFRICANFARMING

After the 13 episodes of the first series of *African Farming* recently came to an end on Mzansi Wethu (DStv channel 163), you now have the chance to see all the episodes again on our *African Farming* website at www.africanfarming.com. Here you will also be able to read every issue of our *African Farming* magazine, asks us any farming questions you might have, or just get some great farming advice. Thank you to all of you for the great feedback. **KEEP IT COMING!**

Also, don't forget that we're on Twitter and Facebook, and if you have access to email, why not sign up for our *African Farming* e-newsletter? That way you'll never miss anything! Remember to use **#africanfarming** and keep on posting your thoughts about the magazine, farming in general, and your own experiences in agriculture.

WE LOVE HEARING FROM YOU.



Proudly supplying

THE BEST QUALITY AGRICULTURAL LIME

in South Africa, since 1944.

PERICORUS LANDBOUW KALK

Tel. +27 (12) 342 1075 | 0861 AGLIME | 0861 245 463
Email. aglime@pistorius.co.za

www.kalk.co.za



LETTER FROM THE EDITOR

TAKE CARE OF OUR FUTURE

A few years ago I had a conversation with a colleague about the trajectory we are on as a country with regard to youth participation in mainstream agriculture. My thoughts at the time were that, despite having several state-run and private agricultural colleges in the country, there was not a significant number of visible products of these colleges in the commercial farming space, except for a few who were in government and private-sector jobs. The question I asked then was: where do these graduates end up? I have met a few graduates who, one way or another, are involved in the sector, but most of them are civil servants employed in government institutes or departments, while the rest are agri-business employees. Not many of the farmers I met came from the tertiary agricultural education system, which I believe was specially designed to address our future food challenges. By this I do not imply that they do not exist; I simply point out that there appears to be a scarcity of graduates actually farming when one takes into account the number of students graduating every year.

In this edition we feature three brilliant young farmers, two of whom are from the agricultural education system.

Tiro Mongwaketsi from Ganyesa near Vryburg is the current ARC National Commercial Beef Producer of the Year. He studied animal health at the University of South Africa. He farms 120 Bonsmara breeding cows in an arid area close to the Kgalagadi desert. This is a challenging environment, to say the least – but through

hard work and by conscientiously applying the lessons he has learnt through experience and from his mentors, Tiro makes it look easy. In fact, he makes farming in that difficult area seem like child's play.

Jack Mothiba from Ga-Molepo, Limpopo, graduated from the Tshwane University of Technology in 2005 and spent a few years abroad, working on mega farms in Australia and the US. His ability and talent impressed his host farmers, who wanted him to stay. However, thanks to divine intervention we have him back home where he belongs.

Mbali Nwoko farms peppers and spinach hydroponically in Bapsfontein outside Pretoria. Although she did not study agriculture, she has a commerce degree with an industrial psychology major from the University of Johannesburg. Mbali has proven her worth as one of the smartest young farmers in the sector. To check my judgment, just read her blogs and listen to her podcasts.

But are we doing anything to meet these young farmers, and their brothers and sisters in agriculture, halfway? Rural youth is the future of food security. Yet here and around the world very few young people see a future for themselves in agriculture or even in the rural areas. There could be many reasons for this, but it seems the system is simply not designed for them to thrive.

Tiro, who inherited the leased farm his family has occupied for almost 40 years, still battles with tenure security. He has never been able to access any funding from our so-called development finance institutions (DFI). Jack spent years abroad trying to raise the capital to buy a farm because even the land reform processes could not help him. Despite the wealth of knowledge and experience he possesses, he has not been able to secure money to buy land. He is farming from his own pocket, holding on to a full-time job to fund his dream. And Mbali, after years of

hard work and many challenges on a leased farm, managed to scrape together the cash to buy her current 2ha farm. She stalled the infrastructure development on her farm because she couldn't borrow money anywhere. Fortune smiled on her when she eventually found a generous corporate that gave her an interest-free loan.

There are many young people under 40 like Tiro, Jack and Mbali. We need to create a system that encourages the youth of our country, and an environment that promotes a thriving, vibrant and attractive agricultural sector. There must be a clear plan that will respond specifically to the unique challenges that limit young aspirant farmers' access to land, finance and information.

We need to restore our agricultural support institutions to their former glory and shape them to fit the current environment in which climate change is a major concern. The Agricultural Research Council (ARC) should be capacitated and allocated more and better resources, particularly funding, to attract new and old talent, some of which is currently in private institutions, so that it can break new ground in research and development. We deal with complex issues unique to the African continent and to our country, and we need innovation and top-tier research to rise above these challenges and still farm profitably.

The Land Bank needs to shape up and become a real development institution, rather than the current mess that has been created over the years. The government needs to make its intentions about development crystal clear. Given our history, it's just weird that we expect to run a privately funded DFI – and this applies to all DFIs. We need positive change and we need it now. – PETER MASHALA

BUILDING BUSINESS CROP AFTER CROP



LIVE THE
RANGER LIFE
Ford

FARMING CHEATS!



If you want to know more about something that appeared in the magazine or any other farming topic, why not send us an email at magazine@africanfarming.com and let us help you find a solution? From animals and plants to finance and buying a farm – if you don't know, we'll find out!

Need some advice? You've come to the right place. *African Farming* has a huge pool of skilled farmers, big and small, more than willing to share years of highly practical farming experience with you. So if there's anything you'd like help with, let us know and we'll find the answers for you. In the meantime, here's some more handy farming tips.

OPPORTUNITIES

Go Farming with FarmSol

In all our interviews with farmers, the difficulty of accessing financing always comes up. Now there a programme aimed at uplifting emerging farmers by providing interest-free input loans coupled with on-farm tailored mentorship and support from qualified agr-specialists. To date, the FarmSol's Go Farming programme has helped more than 982 smallholder farmers across South Africa with loans of more than R1 billion.

FarmSol, a subsidiary of SAB/AB Inbev, initially financed only farmers producing products within SAB's value chain, mainly barley and maize. Now it has a new model aimed at the long-term sustainability of farmers that produce sunflower and groundnuts too. Go Farming encourages the production of these crops in rotation with wheat, oats, canola and other feed and cash



crops, depending on the size of the farm, marketing opportunities and the farming system used.

To qualify, applicants need to be South African citizens and have a solid business plan that proves their ability to repay the loan. The business should be at least 51% black-owned and the applicant should be an active farmer. The programme now also works with John

Deere, exposing participants to the brand's latest technology and allowing them to experience using it. The idea is to grow the power of smallholder farmers by finding and exploiting business opportunities and help them build thriving businesses. *African Farming* wishes them all the best of luck!

Call FarmSol on 011 480 8592 or email info@farmsol.co.za/finance@farmsol.co.za

FINANCES

Draw up a business plan for your farm

Whether your farming business is new or existing, drawing up a business plan is a task that should be taken seriously. Start by thinking about who is going to read it and what you are trying to communicate.

For example, if you're presenting to a financier, you must focus on what you have as collateral, how you plan to repay the loan, your farming experience and your history of income. If you're submitting the plan to attract investors, it is best to concentrate on

growth potential, how you plan to create value and how the rates of return on the investment will increase over time.

However, what any plan should show is that the farming business is sustainable, viable and responsible (both socially and environmentally) – these factors have become important in a time when the emphasis has moved away from pure shareholder capitalism to stakeholder activism.

So remember that your plan needs to demonstrate how the farm's key natural resources like land and water will be used responsibly and remain productive over time.

The numbers in your business plan should shed light on the following key pieces of information:

- Your skills and experience as a farmer, as well as those of key personnel, must be discussed in detail to show the depth you have in your management team.
- The value of current and long-term assets, with estimated increases by way of new purchases.
- Any planned purchases of land or equipment must be detailed, and the impact of interest on financing must be discussed.

TOP ANIMAL FEED King of feeds, but be careful of bloat!

The autumn stand of lucerne pictured on the right is getting stalky as it starts to flower. With more stalk and flower, and less leaf, the protein intakes are not as high as they are when the plant is young. At this stage it is safer to graze animals on the pasture. In autumn, be aware of cooling nighttime temperatures, which can be a problem. Rather wait for the dew to burn off in the mornings.

Farmers call it the king of hay and there is nothing more beautiful than a shed filled with lucerne bales when a drought strikes. Lucerne is a legume that grows for longer than a season and fixes nitrogen in the soil. It is good for grazing or when baled as hay.

Take care, however: ruminants like sheep, cattle and goats can bloat on stands of young lucerne. While some animals, like Merinos, are less prone to bloat, the financial benefits of growing lucerne and grazing this productive legume with its good yields and high protein and mineral content make it worthwhile, even though it requires some management.

Bloat is when gas builds up in an animal's rumen. This happens especially when the lucerne plant is still growing (vegetative stage) – in other words, there's more leaf than stalk. Animals can easily eat it at this stage, as it doesn't have much fibre, but it is the high protein content that causes the rumen to release gas, leading to bloat. This type of bloat, caused by a high intake of grazed legumes (lucerne or clover), is called frothy bloat. The danger of bloat is highest during autumn and spring.

Once the lucerne plant flowers (more stalk



Lucerne is a highly productive pasture plant but it needs to be managed carefully to avoid problems with bloat. Planting chicory, plantain and perennial rye grass mixed with the pasture reduces the risk.

than leaf), the risk is greatly reduced. Keep in mind that lucerne does not cause prussic-acid poisoning.

HOW TO PREVENT BLOAT

- Don't let animals graze lush stands of young, fast-growing lucerne – wait until the lucerne flowers, then graze it.
- Wait until any moisture from dew or rain has burnt off before you put the animals onto the pasture.
- Never put hungry animals onto lucerne.
- Plant a mix of lucerne and rye grass. The more diverse the pasture, the better. Plantain is said to have anti-bloat properties.
- If you're kraaling animals at night and they graze lucerne pastures during the day, make sure they get enough decent hay in the kraal so that they don't go to the pasture hungry the next day.
- Put good-quality hay in every camp.
- Make the animals used to the lucerne by gradually increasing the time they spend on the pasture until they are used to it.

- Ensure there is enough drinking water. Dairy farmers in the Eastern Cape manage bloat by putting sweet oil in drinking water.
- Keep Bloat Guard (for cattle, sheep and goats) handy.
- Check animals regularly, especially at high-risk times of the year. Bloat will kill if left untreated, but treated animals will recover fast.

WHEN TO GRAZE LUCERNE

Grazing immature lucerne increases the chances of bloat and shortens the life span of the lucerne. If you graze it hard in late summer and autumn, you should probably rest it the following spring and early summer. Lucerne can take a lot of grazing, but it does need one good rest (40 to 50 days) in the season.

Remember, sheep and goats are selective grazers and may damage the pasture if they graze for a long time. Cattle are not as selective, but they can also affect the lifespan of the lucerne if they are allowed to graze it too short.

- Breakdown of crops per field sizes and estimated income at prevailing market prices. It is highly recommended that a stress test be done to consider the effects of any decreases in yield or in price. This is a critical exercise, especially when considering the potential effects of weather (droughts and floods), diseases and pests as well as market-price volatility.
- What is your crop-rotation plan? This is an important practice to maintain soil health and demonstrates sustainability.
- If you're a livestock farmer, give precise details of the makeup of your herds, the

breeds your farm with, as well as the animals' ages, the grazing area and any feed-lot practices you might have. Include any information that might be applicable.

- Any water-usage licences must be confirmed and proof must be included in the plan. This has a major impact on the success of an enterprise, and financiers or investors will want to know about it.
- Give details of your succession plan. What happens when you are gone? Farming is a long-term investment and back-up plans must be in place in case the current owner becomes ill or is disabled. Also mention

any training and skills transfer for your workforce.

- Details of any off-take agreements and other secured markets give the reader the assurance that you have a market for your produce.
- Lastly, always give a realistic picture of your operation. Never be too optimistic – it can cause the reader to doubt you. A good, plan that is well thought through will leave no uncertainty about the finance or investment opportunity and will lead to friendly discussions and, hopefully, a constructive long-term relationship. ▶

◀ MARKETING

Get your foot in the market door

Old farmers warn that you must make sure you have a market for your veggies before you plant. But what do you do if Covid-19 collapsed your market, or you just haven't managed to find a buyer for your crop?

If you're a smallholder farmer in KwaZulu-Natal, and especially if you're one close to Pietermaritzburg, then pick up your phone and send a WhatsApp to AgriCool Finance. This young start-up company has big plans to revolutionise agribusiness by linking small fresh-produce farmers with informal vendors and formal retailers.

Headed up by co-founder Zamokuhle Thwala, AgriCool pays farmers at the gate for fresh produce like tomatoes, potatoes, green peppers, cabbage, butternut, carrots, bananas, mangos, pineapples and maize. He then sells and delivers them to hawkers and informal markets in Durban and Pietermaritzburg, as well as distribution centres for Boxer, Save and Farm Fresh.

Zamokuhle, who has a degree in agricultural engineering, says in this way farmers can avoid the 12.5% commission charged by agents on fresh-produce markets.

"This is a lot of money for emerging farmers who also still have to pay for transport. Market prices can also always drop. Selling to street hawkers pays better and is less hassle.

"We're organising the informal market. Hawkers order ahead from us by WhatsApp and we deliver to them. It saves them waking up at 4am to get to the market, only to find there is no stock."

So prices become more feasible for all the links in the chain: the farmer, the hawker and the consumer. "The poorest consumers spend about 40% of their disposable household income on food. By solving inefficiencies in the value chain, food becomes more affordable," he says. Farmers prefer selling their crop to AgriCool rather than paying AgriCool a sales commission. "They like us to pay them on the spot, which helps improve their livelihoods and they also end up wasting less produce."

And Zamokuhle should know. He spent 18 months farming in Durban. "I was growing crops like cabbage and spinach on 3ha of leased land; but quit in 2017 to try and solve the challenges that I faced, like access to markets and financing. I was selling to locals and street hawkers, and that's how the idea of selling to the informal market came about."

Launched in July 2019, AgriCool recently won joint first place in the SAB Foundation's Social Innovation Awards. The award came with R1.3 million in grant funding.

"This funding will let us scale up and help solve our biggest bottleneck – logistics. The market is there, but we need to be able to move product."

SO WHAT SHOULD YOU GROW?

For Zamokuhle there is always a market for crops like tomatoes in the informal market.

"I love dealing with the informal market. We are prized dealers there; as opposed to the formal market, which dictates price."

AgriCool sells a minimum of 2,2 tons of tomatoes a day to the informal market. "Even now, going into March, we are desperately looking for tomatoes. This will get worse in winter. We are looking to partner with small farmers in areas like Jozini in northern KwaZulu-Natal, which has a better winter climate for summer crops." They are also looking for cucumber and butternut suppliers. These crops, however, are more difficult to source from smallholders.



Zamokuhle Thwala, founder of AgriCool.

"Products like cabbage are easy to buy from smallholders because one simply loads them. Crops like tomato, cucumber and butternut need to be prepacked; while with something like butternuts, farmer have to move heavy pallets. Until our logistics are sorted out and we have packing facilities, we have no choice but to go to more established farmers for certain crops."

AgriCool is currently working with 75 farmers in Pietermaritzburg and surrounding areas like Greytown, Richmond and Albert Falls. So don't wait until your crop is ripe before contacting them!

"I prefer being called right at the start when the crop is still a seed or seedling. Then we can plan. Don't phone me a million times when you can't find a buyer. It's too late and the produce is already spoiling!"

CONTACT

WhatsApp **076 647 6228**

with your specific farm location, produce, quantity and the anticipated harvest date, as well as pictures of your produce.

Contact Zamokuhle Thwala at **076 647 6228** or send a mail to **ZAMOKUHLE@AGRIKOO.COM**.

Check out their website at **AGRIKOO.COM** or follow them on Twitter **@AGRIKOO5**



TECHNOLOGY

Make you own baler!

Livestock farmers must make plans to keep their animals healthy and reproducing through the lean months. One way is to make hay bales. If those expensive balers one sees on farming shows are not for you, the small-scale farmers from the Mahlathini Development Foundation in Bergville might have the answer. They use a hand-operated hay baler to preserve natural grasses for winter feed. Veld grass is mowed with a brush cutter and left to dry in the sun for a few days. Once dried, it's loaded into the box baler and compacted into bales using a lever and footplate.

These farmers are making 10 to 50 bales each. These bales are especially important for farmers in the sourveld, where the value of grazing is low in winter. They feed their livestock the hay bales, as well as pre-mixed supplements and molasses. These are often the difference between life and death, and are enough to sustain up to three lactating cows throughout winter.

Box baling can also be used for stover from maize and cover crops such as cowpeas, beans, Dolichos (Lab-Lab) and teff.

The advantage of making bales is that they can be moved and stored more easily than loose grass. And if farmers stockpile more bales than they need, they can be sold or kept on hand as insurance for drought or excessively wet weather.

Making bales is time consuming and laborious – but when your livestock are hungry, you'll be grateful that you made hay while the sun was shining!

HOW TO MAKE A BOX BALER

- If you want to make your own hand-operated box baler, download a plan here: www.caringforgodsacre.org.uk/the-story-of-a-hand-hay-baler
- You can build a sturdy baling box using materials such as a large plastic crate, or planks of wood. A large box should measure about 100cm L x 50cm W x 40cm H; while a small box should be about 75cm L x 50cm W x 40cm H.
- First lay baling rope in a grid pattern across the inside of the box. Grass will require a tighter grid to secure it than material like maize stover.
- After laying the rope, fill the box with the baling material and compress it as tightly as possible. Compacting can be done by stomping on the material with your feet; or by building a lever and footplate plunger. The plunger system will achieve a firmer compaction.
- Once filled and compressed to capacity, tie the baling rope, set the box on its side, and push the bale out.

HOW TO MAKE A DRUM BALER

- Another option is to use a modified steel drum. Remove the top (or bottom) of the drum and cut the container in half down the middle, lengthwise. You should now have two equal, semi-cylindrical halves.
- Put these halves back together by welding two hinges along one of the seams.
- The open side now needs to be fitted with clamps so it can be fastened together. Cut two sets of tabs from scrap iron and weld



This hay baler was custom made by the Institute of Natural Resources (INR).

PHOTO: ERNA KRUGER

them onto the edges of the open seam. Screw clamps onto the tabs so that the facing surfaces can be clamped together.

- Make an X-shaped configuration using planks of wood or metal. This device should fit into the base of the drum. Hammer a hook or a bent nail into the outer end of all four planks.
- To use the baler, clamp the sides of the drum together. Cut two long lengths of baling rope and drape them down into the barrel and along an arm of the X. The ropes must crisscross each other in the centre of the X. Secure the string using the hooks or bent nails at the bottom of the barrel; and drape the cut ends over the side of the drum. To prevent these strings from falling into the barrel, fasten them loosely to a band of baling rope running around the outside of the barrel.
- Pack the barrel with hay and jump inside the barrel to compact the hay with your feet. Tie each length of twine to form a handle, then remove the clamps, open the barrel, and pull out your bale. **AF**



Small scale farmers from the Mahlathini Development Foundation in Bergville use a hand-operated hay baler to preserve veld grass for their livestock. Their baler was custom-made by the Institute of Natural Resources. The baling box is attached to a platform to provide stability and to balance the lever arm. Baling rope is placed inside the box prior to filling it with straw. Once the box is full and the loose straw is compacted, the bale is tied, removed from the box, and stored.



Mbali Nwoko, 33, was born and raised in Spruitview, a township on the East Rand. She matriculated from Sandringham High School in Johannesburg and graduated from the University of Johannesburg with a BCom degree in industrial psychology. PHOTOS: PETER MASHALA

LOCATION
Bapsfontein,
Gauteng

DON'T GIVE UP YOUR FARMING DREAMS

Mbali Nwoko, founder and CEO of The Green Terrace, persevered despite some serious setbacks. She says when you find something you love and are passionate about, you should not let anything stand in your way. **African Farming** caught up with her at her new farm in Bapsfontein near Pretoria.

Gauteng's 2018 Agricultural Writers' Association New Entrant into Commercial Farming winner and 702 Sage Small Business Awards finalist Mbali Nwoko could not be happier about going

back to farming after a two-year break. This follows a series of hard knocks, including the passing of her husband and the impact of Covid-19 restrictions. But Mbali, 33, owner and CEO of The Green Terrace, says she draws strength from her experiences and is upbeat about her fresh start. In late January, she planted the first crop

of spinach and peppers on her new 2ha farm in Bapsfontein, southeast of Pretoria. She bought the farm in 2019 but did not develop it immediately for several reasons.

"It took some time to finalise the purchase, and I only got the title deed in February last year. My lawyer advised me not to start anything before I got my title deed," Mbali explains. Then, just a month after she had taken title, the country went into hard lockdown.

"The next nine months was an incredibly stressful time for me. Money was really tight; investors were reluctant to lend money or else they put such heavy demands on loans that it wasn't worth borrowing."

The planned August planting date came and went, and the capital Mbali needed to put in electricity and the irrigation system was nowhere in sight.

"I was literally stuck and thought I would have to sell." But then she had a break, or as she puts it, "a godsend".

"In December, a generous corporate advanced me an interest-free loan with easy repayment conditions."

The corporate executives had looked at her history and her budget breakdown. Three weeks later they gave her the green light and she was able to put in her irrigation system. Going the hydroponic route to minimise risk, Mbali and her team are back on track with 1ha under 20 multispan tunnels, planted to 66 000 spinach plants and 33 000 pepper plants. The Green Terrace will supply a mixed clientele, because Mbali believes it is important to keep a diverse client base. "But much of this crop is earmarked for Pick n Pay," she says.

SETTING UP

Before she started farming, Mbali ran her own recruitment company hiring for South

African based multinationals and some local companies, including Eskom. Her business did well until 2015, when the South African economy took a nosedive. "Companies started freezing positions and I took a knock," Mbali says. Then her life took a new direction after she attended an entrepreneurial workshop in Johannesburg. That is where she met smallholder farmer Erick Mauwane of Oneo Farms, operating in De Deur outside Johannesburg.

"Chatting to Erick during the tea break, I quizzed him about his business. He told me he was farming cabbages and moving into pigs. He marketed his cabbages through several retailers, including Spar, in the Vaal area," recalls Mbali.

As a township girl raised in Spruitview in the East Rand, Mbali says she had a limited understanding of agriculture – but she was fascinated by Erick's story. "I thought one needed lots of money, vast tracts of land and huge machines to farm. Farming, to me, was for white people," she laughs.

Erick spoke to Mbali about smallholder farming and the possibilities of making it by starting small. "That night, I researched smallholder farming down to the finest details. I realised it was possible to make a decent living on less than five hectares." The Green Terrace was established a week later.

FINDING LAND

"I grew up on the East Rand and I've seen lots of farms travelling to and from home over the years. Searching the internet led me to Costa Farms, Plantation Farms and Gonzales Farms in Boksburg and surrounding areas," Mbali says. She approached the managers of these concerns and asked them how she could start farming and whether they knew of available land she could rent. "Although they could not help me with land, I got a few farming tips and referrals to other farmers."

The first deal she secured went sour despite her having ordered 30 000 spinach, 40 000 cabbage and 16 000 green, yellow, and red pepper seedlings. Fortunately, the second lease of a 14ha farm, which belonged to retired teacher Mama Beauty Aphane, went through. "The farm had 8ha of arable land, with 10 tunnels and shade nets taking up 2ha," explains Mbali. There was electricity, a borehole and a reservoir. At first



Mbali has made the transition from planting in soil to growing fresh produce hydroponically using sawdust as a growing medium.



In late January, Mbali and her team planted 66 000 spinach and 33 000 pepper plants earmarked mainly for Pick n Pay.



Half of the 2ha land is under 20 multispan tunnels. Mbali plans to have the remaining hectare under cover by the end of the year.

Mbali leased 2ha. "I cleared the area and started with 30 000 spinach seedlings."

This deal was a sweet one. Mama Beauty gave Mbali the use of a tractor, a plough and irrigation equipment. She also had the benefit of a skilled labour force. Before planting, Mbali arranged a soil test through the Agricultural Research Council (ARC). Spinach was one of several crops recommended by the ARC. A local fertiliser company advised her on agronomy as part of its after-care service.

"I planted my first spinach crop on 11 July 2016, followed by cabbages and peppers in August and September," Mbali recalls. Her determination and potential impressed Mama Beauty, who then offered her the use of the total farm acreage. "Mama Beauty was exceedingly kind," says Mbali. "I was happy to take over the farm, and in the process I inherited some of the crops she had already planted in the tunnels and under shade nets."

SECURING MARKETS

Mbali started attending farmer information days to broaden her knowledge and expand her network. At a farmers' day organised by

the Joburg Market, she met a senior representative of Food Lover's Market (FLM).

As a former recruiter, Mbali was used to making the effort to spend time interacting with senior managers from various companies, so it was easy for her to approach the FLM rep and tell him her story. "We exchanged contact details and the next day I followed up with an email. In no time we had arranged a farm visit from a senior buyer for the East Rand," explains Mbali.

During this visit she learnt a lot about supplier requirements, such as refrigerated trucks and packhouses, for big chains like FLM. Although she did not meet all the criteria, FLM gave Mbali her first break and contracted her to deliver 300 bunches of spinach a day. To help her meet its needs, the company introduced her to Solidaridad and the Lima Rural Development Foundation, two international enterprise-development NGOs working in South Africa. Lima provided agronomy services to The Green Terrace twice a week.

For her surplus spinach crop and the cabbage and peppers soon to be harvested, Mbali had to make another plan. She began a market search campaign. "I knocked on ▶



When Mbali bought the farm, there was no infrastructure on the land. Today it has a reservoir, electricity connections and staff quarters, and she is currently building a packhouse.



Spinach is one of the fastest growing crops. Mbali says this makes it especially useful for cash flow.

◀ every retailer's door on the East Rand, from family stores to franchises such as Spar, Shoprite and Pick n Pay," she says.

Once more, her recruitment background came in handy. "I was not afraid to walk in and ask for a senior person who could help me. What's the worst that could happen? They'll either say yes or no." By the end of 2016 Mbali was supplying a few clients, mostly processors that chop, slice and dice for the restaurant market, as well as retailers such as Spar, Pick n Pay and FLM, and hawkers.

In the meantime she made some staff changes to the business, replacing older employees with younger people. "We had some employee clashes because the pace was different. My clients were demanding the best service on schedule, so my staff had to be on the ball all the time."

THE POWER OF NETWORKING

Mbali began to attend conferences and workshops to get industry exposure. "In August 2017 I was introduced to the Produce Marketing Association (PMA) Fresh Conference by FLM, who paid for my first ticket. This is an event that no serious fresh-produce farmer should miss. I met captains of

industry, from major retailers to CEOs, buyers, input suppliers – virtually everyone you'd want to meet and connect with as a producer." At the PMA Fresh Conference Mbali met Mike Coppin, one of the founders of FLM. However, she does caution against common conference pitfalls. "Some of these events are just talk shops and time wasters."

Through farmer's days, Mbali says, she's connected with many brilliant farmers. One of them, Masedi Mohale, a commercial vegetable farmer in Limpopo, is now her mentor. Mbali also uses social media to connect with other farmers and suppliers.

"I've met Kobela Mokgohloa, a black commercial cucumber farmer in Pretoria on social media. Kobela has been giving me some cool advice since I'm now into hydroponics. South African farmers, black or white, young or old, are my heroes. The information and life lessons they are willing to share with fellow farmers are priceless," Mbali emphasises.

On her farming journey so far, Mbali has learnt some hard lessons. After two weeks of continuous rain in December 2016, she and her team had to down tools. "Then I made a huge mistake, thinking we could take a

break since it was already mid-December." When they went back to work in January, everything was destroyed. "The crops in the tunnels were heavily infested with fungi; there were whiteflies and aphids on my peppers. The spinach in the fields had black spots. My interest was mainly in sales and I did not have experience in intense crop management. I'd neglected technicalities, such as spraying, fertilising and rotation programmes."

She says she learnt the hard way that farmers don't take holidays. In January 2017 she had to start from scratch. "This time I planted baby marrows, green beans and spinach," Mbali recalls. She was doing well until February 2018, when disaster struck again and the electricity transformer blew up. Unable to irrigate for a few weeks, she suffered another crop failure. She started replanting and was putting a further 5ha of land into production when her husband fell gravely ill. He passed away in November 2018. Mbali decided to take a break for a while to mourn and recover. She wound down the operation and found a tenant to take over while she took a break in 2019. That year she bought the 2ha plot in Bapsfontein, with a view to farm it when she felt ready to start again.

MBALI'S TOP TIPS FOR STARTUP FARMERS

- Make input suppliers part of your operation. They will be happy to assist you with your planning and advise you on how to control various pests and diseases.
- Let the market determine what you farm. Plant crops that your market and your customers want to buy – at the right price and the volumes you can supply. Ask potential clients what they are short of and when. This will help you make informed

decisions on which crop to farm and use in rotation to meet your customers' needs.

- Network, network and network. Develop strong relationships with your clients, your suppliers and other farmers. Always surround yourself with individuals that are experts in their fields.
- Plan long term.
- Start with what you have; use your own capital if you need to.

FUTURE PLANS

Despite delays, income loss and personal tragedy, Mbali says she is raring to go.

"I am pleased with my hydroponic system and the level of automation we have now. It's different and it's exciting and I want it functioning optimally."

She says she doesn't regret the stressful times because she learnt valuable life and business lessons. She plans to erect more tunnels on her farm and is keen to explore export opportunities. "I'd really like to expand my reach and I'm interested in the export market. We're ideally placed for success." **AF**

The 6B - versatility at its best.

One Tractor. Multiple applications.

Versatility means more value for your money.



JOHN DEERE

Contact your nearest dealer. | Believe in greater

Available in Open Station and Cab configuration The 6B tractor features an Open Center Hydraulic system which will require an external mounted PTO pump for vacuum planters to function.

*Terms and conditions apply. (available at www.deere.com/sub-saharan)

www.deere.com/sub-saharan | africa@johndeere.com | Customer care: 0800 983 821

JohnDeereAfrica    



Tiro Mongwaketsi took over the family farm from his mother at the tender age of 21. After 13 years of hard work, he was named the 2020 ARC National Commercial Beef Farmer of the Year. PHOTOS: PETER MASHALA

LOCATION

Ganyesa,
North West



HARD WORK AND STRONG GOALS WIN THE DAY FOR CATTLE FARMER

Tiro Mongwaketsi, winner of the Agricultural Research Council's National Beef Producer of the Year and the South African Meat Industry Company's Emerging Farmer Carcass Competition last year, has an uncomplicated recipe for success.

He attributes it to a combination of hard work, patience, attention to detail and an eagerness to learn new things. Tiro shares his farming journey with **Peter Mashala**.

A passion for farming and for feeding his countrymen as well as obsessive record-keeping are the qualities that Tiro Mongwaketsi (34), from Ganyesa village in the North West, believes bagged him the prestigious ARC National Commercial Beef Producer of the Year Award last year. He knew what he wanted to do with his life from an early age.

"I've dreamt of being a commercial cattle farmer ever since I can remember. It has been a privilege to grow up on the farm and help my old lady continue my father's legacy while feeding the nation," says Tiro.

He has fond memories of his childhood.

"My friends and I used to get up to all sorts of nonsense, but when it was time to work there were no excuses. My mother made sure of that," he recalls.

Tiro's mother, Gaohediwe Mongwaketsi, handed the farm management over to him in 2008. He studied animal production at Unisa and completed an internship.

He has no clear memory of his late father, Keagile, who passed away when Tiro was only four years old. Keagile was an avid farmer who farmed cattle with his own father before Tiro was born.

"They ran Simmentalers on communal land in Ganyesa. My father then acquired the land we now farm under a lease agreement during the Bophuthatswana era, but was later evicted under dubious circumstances just before he passed away," explains Tiro. "My old lady stepped in after his death in 1990 and continued farming on communal land. But she refused to give up on the farm issue until she got it back in the mid-'90s under the new South African government through the South African Development Trust [SADT]."



Tiro uses only registered Bonsmara stud bulls from reputable breeders. He bought this fine bull from Christopher Melamu of Lamus Bonsmaras in Reivilo outside Vryburg last year.

The 1 814ha farm, North Sandford, is in the Kagisano Molopo area outside Ganyesa. Once part of land that belonged to the previous Bophuthatswana government, it was transferred to the SADT when the homelands were dissolved.

HERD TRANSFORMATION

When Gaohediwe took over the operation, she bred the Simmentaler cows to Brahman bulls, changing the composition of the herd to Simbra-type animals. Tiro took over these predominantly Simbra-type animals, but he had new plans. "While studying in Pretoria, I researched different breeds of cattle and the Bonsmara stood out for me, capturing my heart because of its origins and exceptional traits," he says. This led to yet another herd transformation from Simbra-type animals to Bonsmaras.

South African bred Bonsmara cattle, says Tiro, are highly adaptable to conditions anywhere in the country, irrespective of the climate. "We farm in an arid, sandy area of the Kalahari where you need a hardy, efficient animal to survive. Cattle should be strong, with sound feet and legs for easy walking in the sandy environment, and heat tolerant, to handle temperatures that can exceed 40°C." Bonsmaras, he says, have these traits. "The cows are highly fertile, with good mothering abilities, and they're easy to work because of their docile nature. Every farmer wants easy working cattle that grow well under extensive conditions and



Although Tiro took over a predominantly Simbra-type herd of 140 breeding animals from his mother, he eventually started breeding Bonsmara cattle because he was impressed by this breed's traits.



Calves are weaned at between six and seven months at an average weight of 200kg. Tiro says a weaning weight of between 200kg and 250kg is ideal.



There is no electricity on the farm. Tiro has replaced fuel-powered generators with a solar system to save money.

give a good return on investment," he emphasises. So Tiro sold some of the older, less productive Simbras and replaced them with Bonsmara-type cows. He also bought in Bonsmara bulls and young females to speed up the process of transforming his herd.

NAVIGATING THE CHALLENGES

To relieve grazing pressure on the veld, Tiro reduced the breeding herd from 140 to

120 cows. He says the veld in this region has an incredibly low stock-carrying capacity. "We are in a low-rainfall area, so grazing can be a big problem if you carry too many animals. The past few years, especially between 2013 and 2017, have been extremely bad because of the severe droughts we've had."

Water availability is an issue too. "We have problems with boreholes running dry ▶



Tiro keeps a flock of 40 breeding Boer goat ewes as part of his diversification strategy. He says these animals also help him manage bush encroachment.



Boreholes may run dry in the Kalahari, making it difficult to provide enough stock water. At times like these, Tiro relies on assistance from his neighbours.

◀ and sometimes we have to get help from neighbours,” he adds. These challenges, with the added burden of land-tenure problems, make it extremely difficult to farm.

“We’ve been on this farm for more than 30 years, yet we are still leasing it. Since my mother got the farm back in the 1990s, the conditions of the lease keep changing. The latest version of the lease, from three years ago, says I can only exercise my option to buy after five years. It does not take into consideration that we’ve been farming here for more than 30 years,” says Tiro, clearly frustrated.

PRODUCING MORE WITH LESS

Tiro has two breeding seasons to help cash flow, which he says is extremely important in any farming operation. The split seasons are also used to manage and improve herd conception rates.

“Cows that did not conceive in the summer are given another chance and are mated again in the winter,” he explains. This reduces herd maintenance costs, particularly the costs of pregnant animals. “Pregnant cows need special attention and a proper diet, especially in winter. Feeding 50 pregnant cows rather than 120 eases the financial burden,” he points out.

Tiro practises strict culling. “I have few resources on the farm, so I have to use them optimally,” he says. “A cow that does not calve every year is like a thief stealing your resources. I cannot have that. It’s a calf or a carcass.” The same goes for cows weaning calves at less than the required average weight of 200kg. “A cow that cannot wean a calf of more than 200kg is not a good milk producer and must be replaced. Anything between 200kg and 250kg is acceptable but nothing less,” Tiro emphasises. However, he does consider a few things before culling. “For example, if we have had an extremely

dry year or if it’s a first calver, I can be more forgiving,” he says.

He applies the same strict measures to bulls. “A bull must be well shaped and masculine enough to convince me that it will perform its duties,” he says. “It should have strong hooves and be able to walk easily in the heavy sand.”

Tiro uses only stud bulls from reputable breeders.

“I select bulls according to body weight and performance records. You don’t want to breed smaller cows – especially heifers – to large, mature bulls as this may cause calving problems with calves that are too big.”

The breeding principles on his farm are the same as those used by stud breeders.

“I select bulls based on what I want to add or improve in my herd. If I want to improve weaning weight, it is important to check the performance data of the bull and what his calves look like,” Tiro says. Calves are weaned at between six and seven months at an average weight of 200kg.

CATTLE NUTRITION AND HEALTH

Scientists from the North West University have discovered that Tiro’s farm has more than 50 grass species, dominated by Kalahari Sandkweek (*Schmidtia pappophoroides*) and other kweek species (*Cynodon*), and

Eragrostis species. The area is phosphate deficient, and cattle with a phosphate deficiency struggle to gain weight even where there is good grazing available.

“The green grass just fills their stomachs but does not provide the necessary minerals,” Tiro explains. For this reason he puts out phosphate licks from November to April before switching to energy and protein licks for the winter months. He uses a premixed summer lick, which also contains sulphur and aloe. “The sulphur helps to prevent plant poisoning from plants such as slangkop and gifblaar, while the aloe helps with tick resistance,” he says.

The winter licks he uses contain urea and sulphur to encourage the consumption of dry material and help with digestion. Protein-rich processed grain products, salt, molasses and ammonium sulphate are also included in the winter lick. In winter, the cattle browse trees to compensate for the poor-quality grass forage, so Tiro adds Virbac Browse Plus to their diet. “Browse Plus is a digestive modifier that inhibits tannins and allows grazing and browsing animals to utilise grass and leaf material that would usually be considered unpalatable,” he adds. Tannin is a chemical secreted by some plants that can be poisonous to cattle at high concentrations.

Last year Tiro and his veterinarian discovered that his farm is in an area prone to bovine viral diarrhoea (BVD), a widespread disease that causes serious economic losses to stock farmers. Animals infected with BVD suffer from diarrhoea and respiratory and reproductive problems. Infected cows may miscarry in early pregnancy, abort or deliver calves that are either stillborn or weak. Surviving calves are infected and transmit the disease. Tiro uses Hiprabovis 4, a relatively new and effective vaccine. He also vaccinates against black quarter and pulpy kidney (clostridial diseases), as well as lumpy

“I select bulls based on what I want to add or improve in my herd.”



Tiro was the proud winner of the South African Meat Industry Company's Emerging Farmer Carcass Competition in 2020.



North Sandford farm (1 814ha) is in the Kagisano Molopo area outside Ganyesa.

skin disease (a virus), just before the rainy season starts in September. "Because we use chicken litter as part of our winter-feeding programme, I also vaccinate against botulism in May," he adds.

DIVERSIFYING FOR CASH FLOW

Tiro says nobody should underestimate the importance of cash flow, and diversification is a no-brainer. His flock of just over 40 breeding Boer goat ewes serves a diversity need while also helping to manage bush encroachment. Goats are a good income generator as they are highly productive, with kidding rates that can reach 150%.

"Although the general opinion is that goats can produce at least twice a year, which is possible in a very intensive production system, ours breed once a year," explains Tiro. He says he uses an extensive system and would not want to compromise the ewes or the kids. "I hardly supplement the goats and prefer that they survive on their own from the veld. Therefore I prefer a single breeding season for them."

He markets his goats to speculators from KwaZulu-Natal who come to Ganyesa to look for animals. He says speculators, who pay market prices per kilogram, are a better market than the local auctions where goats are bought and sold cheaply.

"I market young bucks through speculators while I sell females privately to local buyers who are buying to breed."

Tiro is exploring several ways of growing his business and is already on the lookout for another farm so that he can expand his herd.

"Farming is a numbers game. To make a decent living and to create a sustainable future and legacy for my children, I need to grow and expand my business," he concludes. "I also want to venture into stud breeding one day and to achieve all this, I need more land." **AF**

UP CLOSE AND PERSONAL...

TIRO MONGWAKETSI

WHAT IS THE BEST ADVICE YOU HAVE EVER BEEN GIVEN?

Do what you love most – because when the going gets tough, it is the passion that will keep you going.

WHAT IS THE ONE THING YOU WOULD HAVE DONE DIFFERENTLY IF YOU COULD?

I would have invested in top genetics at the beginning, regardless of prices. This would have brought me closer to my goal quicker.

WHAT HAS BEEN YOUR BIGGEST ACHIEVEMENT TO DATE?

Being able to continue and make a success in this area has made me extremely proud. And, of course, having been crowned the ARC National Commercial Beef Farmer of the Year 2020 validates my point.

WHO HAS MADE THE BIGGEST CONTRIBUTION TO YOUR SUCCESS SO FAR?

My mother, who built the foundation for me and continued to be my mentor.

WAS IT A STRUGGLE TO GET FINANCING? WHAT ADVICE WOULD YOU OFFER SOMEONE WHO IS TRYING TO SECURE FUNDING?

Financing has always been a challenge. I still have not achieved everything I want to do on the farm, especially improving infrastructure, because of

a lack of money. As for advice: Diversify your revenue streams, as farming is a capital-intensive business that can deplete your reserves very quickly. And always keep records – banks will never give you money if your records are not in order.

DESCRIBE YOUR RELATIONSHIP WITH NEIGHBOURING FARMERS.

Our relationship is okay, but it can be difficult sometimes because we do not always share the same ideas and goals.

WHAT ROLE DO INPUT SUPPLIERS, LIKE ANIMAL-HEALTH COMPANIES, PLAY IN YOUR BUSINESS?

They do not play a very significant role. Our relationship is just about over-the-counter transactions, where I buy and they give me the product I want.

IF YOU COULD GIVE THE MINISTER OF AGRICULTURE SOME ADVICE, WHAT WOULD IT BE?

Farmers are there – the minister and officials should be looking for and supporting farmers and not chancers. People are given support and there will be no monitoring and evaluation afterwards to see how that support has impacted the farmer. I would also like to see the minister attending to us who farm on South African Development Trust (SADT) farms, particularly with infrastructure development, in the same way she attends to those on Proactive Land Acquisition Strategy (PLAS) farms. The conditions on these farms make it extremely difficult to farm.



A FARMING DREAM DELAYED IS NOT A DREAM DENIED

After a five-year stint working on massive farming operations in Australia and the US, Limpopo native Jack Mothiba came home to apply the learning he gained abroad. He mentors and develops emerging commercial farmers in Limpopo.

Jack talks to **Peter Mashala** about his experiences and his plans for growing his flock of Meatmaster sheep.

Emerging farmer Jack Mothiba says Meatmaster rams are muscular, fertile and adaptable, with a good meat yield. PHOTO: PETER MASHALA

LOCATION

Ga-Molepo,
Limpopo



It may have been delayed, but Jack Mothiba's dream of having his own sheep operation has not been denied. Jack, who hails from Ga-Molepo outside Polokwane, started farming Meatmaster sheep in 2018 on 20ha of leased land in Ga-Seleka, a small village near Lephalale in Limpopo's Waterberg district.

"I have worked in this area since 2014 as a Lima rural-development foundation facilitator servicing smallholder farmers in villages in the Tom Burke area – mainly in Ga-Seleka, Ga-Shongwane, Ga-Makata and all

their sub-villages," explains Jack. In the meantime he has been growing his own flock of locally bred Meatmaster sheep and is confident he will do well with them.

"I farm in one of the country's hottest and driest areas. The Meatmaster breed is known for its hardiness and excellent meat production, and is the obvious choice for this region," says Jack.

The delay in establishing his own operation was a blessing in disguise, according to him. It gave him a five-year window of opportunity to learn from some top farmers in the

Western Cape, as well as in Australia and the US, where he helped run large commercial farming operations.

A STRONG START

Jack's journey started in 2005 when he joined Nulaid in the Western Cape to complete his six-month in-service training period, which he needed to graduate. He studied for a national diploma in agriculture from the Tshwane University of Technology (TUT).

"My love of agriculture grew as I learnt various production processes, from breeding,



Initially Jack wanted to farm Bosvelders, but he changed his mind as soon as he found out about the Meatmaster breed's economically valuable traits. PHOTO: PETER MASHALA



After a five-year stint overseas, Jack worked as a facilitator for the rural-development foundation Lima, advising farmers in the Tom Burke area of Lephalale. He has since established his own farming operation. PHOTO: PETER MASHALA



Jack (second from the left) with his US host, farmer Mike Cobb (far right), and Mike's sons-in-law, Ross Galson (left) and Mike Whitmore (second from the right). Jack says he just could not bear the cold winters of Montana, so he turned down an offer to stay on longer. PHOTO: SUPPLIED

WHY MEATMASTERS?

Jack started his own sheep-farming enterprise after spending two years working on a Merino farm in Australia. He knew wool wouldn't work in Limpopo, so he needed to choose a breed for producing meat.

"Bosvelders were my first choice, but after attending a few events in Modimolle organised by Meatmaster breeders, I knew I'd found the one," Jack recalls. He says the Meatmaster is a true African sheep bred for African conditions, as proven by its performance in the hot conditions of Lephalale, Limpopo.

A cross between the indigenous Damara and the Dorper, the Meatmaster is hardy, fertile and adaptable. Jack adds that its non-selective foraging habit, disease- and tick-resistance qualities and great mothering ability make this breed ideal for emerging farmers. Its low input demand is a bonus.

Since he started with six ewes in 2018, Jack has had lambing rates of 100% and more, even in the driest seasons. He has grown the flock to 60 breeding ewes in two years without buying in any ewes.

hatching and raising layers to marketing the eggs," Jack recalls.

He grew up in a farming family and has always wanted to be a farmer. "My father had cattle and goats running on communal land back home in Ga-Molepo," he says. Once Jack finished matric, his father encouraged him to pursue a career in agriculture. "I'd wanted to do nature conservation but fate had other plans. I wasn't accepted for the course and ended up enrolling for agricultural studies after all."

After graduating, Jack landed a job at a commercial piggery in Bellville. "Then, one Saturday, I saw an advert in the newspaper for a student exchange programme with opportunities in Australia..."

WORKING ABROAD

In 2006 Jack was admitted a programme by Cultural Homestay International (CHI) and jetted off to spend a year on a 7 000ha commercial sheep farm in Beaufort, two

hours from Melbourne. His hosts, John and Metheny Blyth, produced wool from 7 000 Merino sheep on the farm Euron Bale.

"Metheny ran the farm while John tended to other businesses in the city. They made me feel welcome and comfortable. The first few months I learnt how the operation worked and the basics of sheep farming," Jack says.

It was a real eye-opener for someone whose prior experience with livestock was limited to working his father's cattle and goats on communal land. Although wool was their main enterprise, the Blyths also produced barley, oats and canola under irrigation. "These were commercial crops; surplus and low-quality crop was processed for sheep feed."

A typical day on Euron Bale started at 05:30, checking on feed and animal health. There were also fences to maintain. Jack loved his work on the farm and 12 months flew past. When the Blyths, who had grown

fond of him, offered to extend his stay for another 12 months, he was ecstatic. As their trust in him grew, they started giving him more farming responsibilities.

"I was managing all aspects of the sheep operation, from feeding to flock health, ▶



For extra income, Jack provides milling and feed-mixing services to help other farmers in the area to prepare their own supplementary feed for the winter. PHOTO: PETER MASHALA



Groundnuts, dry beans and cowpeas are milled using a hammer mill and stored in 50kg bags. PHOTO: PETER MASHALA



Jack has had lambing rates of 100% and more over the past six years. PHOTO: PETER MASHALA

◀ general maintenance and supplier liaison. I completed a wool-classing course and supervised the shearing.”

Jack says the Australians are good at making sure farmers have access to information. “There is information on every online platform and there are regular workshops and seminars. I am grateful for the opportunity I had to attend so many training courses.”

By 2006 Australia was already advanced in applying technology on farms, he says, and Euron Bale was highly automated.

“I could virtually run the operation single-handedly. For example, using one specific machine, I would erect kilometres of fencing on my own. We only hired seasonal workers during shearing season.”

According to Jack, the Aussies believe in numbers. “There you either go big or go home. Successful operators focus on quality and quantity.”

Despite wool being their primary product, the Blyths also produced meat to improve their cash flow. “We crossed the Merinos with the dual-purpose Border Leicester to produce meat,” Jack explains. The Border Leicester is a British dual-purpose breed that has been part of the Australian sheep industry for years. “The cross-breeding programme boosted the farm’s income tremendously, with two yearly incomes from wool and meat,” he says. Merino rams would be brought back into the flock when they needed replacement ewes.

Jack had fallen in love with Australia and planned to stay even longer. He was in the process of applying for citizenship with the Blyths’ support, but this wasn’t meant to be – in 2010, John ran into financial problems and his businesses were liquidated. Unfortunately the farm, even though it was profitable, did not survive the liquidation process.

“As upset as I was, I had to pack my bags and fly home as there was no more work for me in Australia,” Jack says.

Armed with knowledge and experience, he intended to start his own sheep operation once he was home. So in 2010 he began to look for a farm. “I couldn’t find an affordable farm and I could not get one through the government’s land-reform programme,” says Jack. The communal land system was not an option for him because of the model he wanted to use. “I decided to find work and save money – and the quickest way to do that was to earn foreign currency.”

He went back to CHI to check for available opportunities. To his delighted surprise, he managed to secure an opportunity in the US for 2012/2013 with the Cobb family who ran a Charolais stud in Augusta, Montana, near the Canadian border. “The owners, Mike and Sarah Cobb, run an 800-cow breeding herd on 15 000ha,” explains Jack.

During the course of his stay with them, Jack experienced their autumn and spring calving season, the haymaking season and two bull sales. He did the usual ranch work, from fixing fences and feeding out to moving cattle to mountain pastures for the summer grazing. Although he had planned a longer stay to earn more and the Cobbs invited him to stay on, Jack decided to call it a day after only one term. “That place was too cold in winter!” he explains. “I just didn’t think I

would survive another term,” he recalls. And so, at the end of 2013 Jack was homeward bound once again.

COMING HOME

His relatively short stay in the US meant that Jack still did not have the money to buy a farm. At the time, his childhood friend Pascal Chuene, who had studied with him at TUT, was working for Lima. “Pascal knew what I had been doing for five years and felt I had the knowledge and experience that would be valuable to emerging farmers in South Africa,” recalls Jack.

Pascal arranged for Jack to meet the principals at Lima and soon he was offered a job as an agricultural advisor providing mentorship and training. “I helped 200 farmers in my area and we also linked farmers to markets.”

In 2018 Jack decided to start his own enterprise and bought six Meatmaster ewes and a ram from High 5 Boerdery in Tom Burke. “I put the sheep on a friend’s farm while I looked for land,” he says.

In the following year he finally found an unfenced, bush-encroached 18ha plot to lease. “I started clearing bush and erecting fences before I moved the sheep, which had all lambed at the time,” he says. By the end of 2020 Jack had grown his flock to 60 breeding ewes.

He says the quality of the grass has influenced his fodder flow plan. “Our annual rainfall here is sometimes below 100mm. We are in a hot, dry area and the veld is not always the best quality.” Jack has established about 3ha to dry beans, cowpeas, groundnuts and sorghum to compensate for deficiencies in the natural grazing. He also grows 5ha of maize in Ga-Seleka, where his father and brother continue to farm.

“I have to produce my own feed as buying in feed does not make economic sense,” he

“The quickest way to save was to earn foreign currency.”

emphasises. Groundnuts have a 15% protein content and the highly nutritious leaves are suitable for fodder production. Cowpeas, he adds, have a slightly higher protein content of about 23%. The groundnuts, dry beans and cowpeas are milled using a hammer mill and stored in 50kg bags. "We harvest the whole plants and mill them with the dry leaves still on," explains Jack.

The sorghum is cut and piled up for a month before it, too, goes into the hammer mill. The feed is mixed with molasses to help bind it and make it less powdery. Jack has a one-ton mixer wagon in which he mixes 20 bags of sorghum, a bag of groundnuts, four bags of dry beans or maize, a 20-litre bucket of molasses and a bag of Molatek Master 20.

He keeps the sheep on this home-made feed year-round, even in summer, when the animals are grazing green grass. It's something something he learnt in Australia: the milled feed is denser than grass, keeping the animals full for longer. "Feeding like this also helps protect the sheep from getting pulpy kidney disease when they transition from green grass to dry grass in winter. In summer I give them at least 1kg each of the ration in the afternoon. Because of this, they spend less time grazing," Jack says. The less energy they use for walking around and grazing, the better they maintain their body condition. He feeds phosphate blocks with trace minerals, especially when the ewes are pregnant. "I feed the feed blocks twice a month. As an additional supplement I give them Multimin or Ovi-min."

FLOCK HEALTH

Jack vaccinates with Multivax P once a year in December and boosts it six weeks later. "The most important diseases in this area are pulpy kidney, black quarter and heartwater." He says Rift Valley fever (RVF) is not a serious threat around there. "Despite heavy rains in the past few days, it dries up so quickly in the heat that it eliminates the risk of RVF."

Jack is currently visiting production auctions on the lookout for fresh breeding material as he plans to increase his flock to more than 100 breeding ewes, and he is particularly excited about a new ram he's bought in Thabazimbi. February would be his last month working for Lima – as from March, he will be farming full time on his own steam. Not a moment too soon. **AF**



Jack has planted about 3ha to dry beans, cowpeas, groundnuts and sorghum to compensate for deficiencies in the natural grazing. PHOTO: PETER MASHALA

UP CLOSE AND PERSONAL...

JACK MOTHIBA

WHAT IS THE BEST ADVICE YOU'VE EVER BEEN GIVEN?

My parents always encouraged us to have livestock even when we were not farming full time. My father also taught me to save, which has come in handy.

IS THERE ANYTHING YOU'D HAVE DONE DIFFERENTLY IF YOU COULD?

I would have started buying livestock earlier in my life rather than waiting for the right time.

YOUR BIGGEST ACHIEVEMENT TO DATE?

Travelling and working abroad to learn how things are done in other parts of the world. Some of the ideas, knowledge and skills I apply today comes from the experience I gained in other countries.

WHO HAS MADE THE BIGGEST CONTRIBUTION TO YOUR SUCCESS SO FAR?

Firstly, my father, who spurred me on to take this path and put me through school and college. Secondly, the Blyths and the Cobbs, my mentors in Australia and the US.

WHAT KIND OF RELATIONSHIP DO YOU HAVE WITH NEIGHBOURING FARMERS AND WHAT ROLE DO THEY PLAY IN YOUR BUSINESS?

I have a particularly good relationship with my neighbours. We share a lot in terms of knowledge, skills and, at times, even resources.

These relationships are vital to successful farming.

DID YOU STRUGGLE TO GET FINANCING? WHAT ADVICE WOULD YOU OFFER OTHER EMERGING FARMERS IN A SIMILAR POSITION?

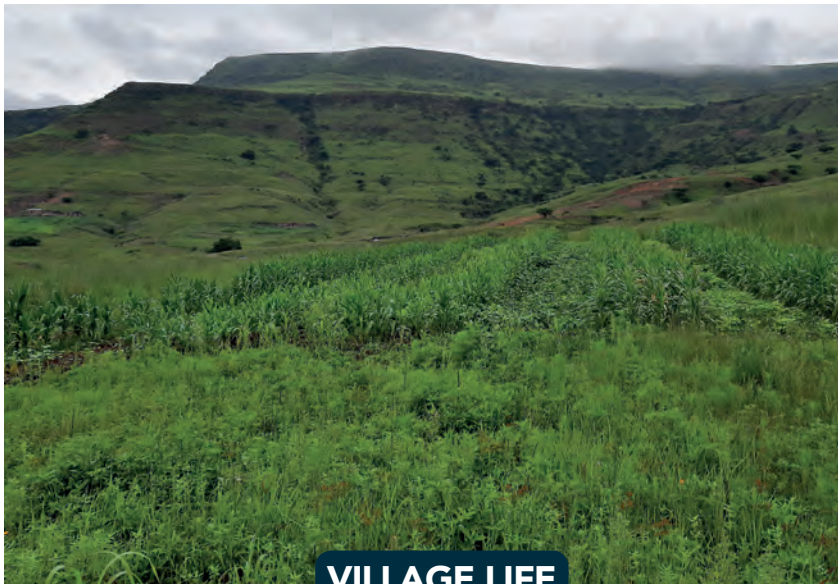
It's always a struggle. I've applied for finance everywhere, with no success. I used savings to get my current operation started. My advice, if you are employed and planning to go into farming, is to save up and invest your savings in the business while you continue to earn a salary.

DO INPUT SUPPLIERS, LIKE ANIMAL HEALTH COMPANIES, AFFECT YOUR FARMING DECISIONS?

I've learnt a lot by attending workshops, training events and farmer's days organised by input suppliers. I highly recommend that farmers attend these events so that they can learn from the experts. If you want to farm properly, you need more than the information on the bottle.

IF YOU HAD THE OPPORTUNITY TO GIVE THE MINISTER OF AGRICULTURE SOME ADVICE, WHAT WOULD YOU SAY?

Invest in communal land by developing infrastructure to empower people who can't afford to buy their own land, so that they can make optimal use of the resource. There is a lot of underutilised, fertile, arable communal land available. I would also advise her to invest heavily in young aspirant farmers, to build their skills and their capacity, and to make sufficient funding available to them.



VILLAGE LIFE

TRANSFORMING THROUGH COLLABORATION

The Mahlathini Development Foundation leads by example as its members introduce smallholder maize farmers to sustainable farming techniques. **African Farming** discovers why a collaborative approach is key to winning farmers over.

In the grassy foothills of the northern Drakensberg, hundreds of smallholder maize farmers are converting to the soil-enhancing farming methods suggested by the Mahlathini Development Foundation (MDF). The results are impressive enough to keep membership numbers ticking up.

The MDF started working with smallholder farmers in a village outside Bergville in 2013. Today 350 farmers from 18 villages in the area and 30 from the Bergville Youth Group take part in the programme. In southern KwaZulu-Natal – Highflats, Ixopo, Creighton and Umzimkhulu – 150 farmers have joined the movement, whereas 180 farmers from the region stretching from Greytown to Wartburg and Tongaat participate.

“We have seen an upsurge in interest in farming. A lot of people who lost their jobs during the Covid-19 pandemic have returned to family farms. Farming is often the only way they can provide food and generate an income – but they come unstuck when their maize doesn’t do well,” says MDF senior field officer Michael Malinga.

This is where conservation agriculture can play an important role. Practices like minimum tillage, planting cover crops and crop diversification can revive tired soils and boost maize yields.

However, convincing farmers to depart from long-held farming traditions requires a soft touch. “These people have been farming for years. They have their own ways. We are not so arrogant as to think we can ‘teach

The Mahlathini Development Foundation (MDF) works with 350 farmers in Bergville and a further 30 in the Bergville Youth Group. PHOTOS: ROBYN POWELL



MDF senior field officer Michael Malinga (right) with junior field officer Lungelo Buthelezi.

them. Instead, we try to mould conservation agriculture to suit their ways,” says Michael.

The MDF takes a collaborative approach. Funded by the Maize Trust and donors such as the Department of Agriculture and Rural Development (DARD) Landcare programme, the MDF works with groups of innovative farmers and local facilitators selected from the groups. Together they undertake on-farm research, co-create knowledge, transfer the know-how to farmers and inform communities about best practices in maize farming. Once farmers see their neighbours benefiting from conservation agriculture, they are more willing to change. Personal experience gives them an appreciation of positive differences like healthier soil, better water retention, improved nutrient content, reduced problems with pests and disease, greater yields, and using less fertiliser and other inputs.

“The idea is to get farmers to diversify cropping, extend the growing season and feed their livestock. If farmers can increase crop yields and grow livestock numbers, they can make a better living,” says Michael.

Changing to conservation agriculture is not a quick fix but once it’s up and running the benefits are exponential.

“There are a lot of challenges to address within communities – soil issues, disease problems, land issues and group dynamics. Conservation agriculture is the way forward for smallholders. It allows them to grow a wider variety of food, more sustainably, into the future,” he says.



MDF senior field officer Thabani Madondo (left) and director Erna Kruger.

THE MDF

THE BIG PICTURE IN CONSERVATION AGRICULTURE



Short season maize (PAN5A190) is grown with strips of summer cover crops like fodder sorghum, sunflower, sun hemp and cowpeas. The advantage of the early maize varieties is that farmers are able to plant again later in the season. This gives them some leeway if rainfall and tractors come later than expected. Maize is planted with an interspace of 50cm, and cowpeas, beans and cover crops with an interspace of 25cm.

Conservation agriculture is about more than no-till farming. It's like a three-legged pot – and MDF smallholders are exploring the best ways of balancing all three legs to get the most out of their land.

“Farmers often refer to conservation agriculture as ‘no-till’ but it's much more than that. In fact, no-till or minimum tillage on degraded soils has limited effect. Things can actually get worse in the short term before they slowly start improving,” says Erna Kruger, director of the MDF.

Monocropping with maize is a common cause of degraded soils. Maize is an important smallholder staple crop. It is eaten green and milled for maize meal, and provides maize stover and grain for both livestock and poultry. “Smallholders default

to planting maize crop after maize crop, which undermines the soil. They end up with unstructured soils that are very low in organic matter and nutrients,” Erna says.

The MDF introduces farmers to an alternate way of planting and working with the environment. Using the three “legs” of conservation agriculture – multicropping, providing soil cover and practising no-till – they can slowly restore soil vitality and boost productivity.

MULTICROPPING

Land preparation is one of the cornerstones of multicropping. The MDF helps farmers divide their fields into 100m² plots, commonly referred to as “10x10s” (ten by tens). Each plot has either one crop for monocropping or a combination of crops for intercropping. The plots are rotated yearly.

Popular crops among Bergville farmers are sugar beans, cowpeas, sunflower, sun hemp, millet or sorghum, teff and dolichos (lab-lab beans); winter cover crops such as saia oats, fodder rye, turnips and fodder radish; and

perennial fodder species like lespedeza (poor man's lucerne), tall fescue, Pensacola (Bahia grass), and Mooi River mix (Smutsfinger grass, Rhodes grass and *Panicum coloratum*).

“We encourage farmers to diversify. We don't get too specific about what crops they should grow in each plot, as long as the crop that follows is not the same. You don't want maize planted on the same plot every year. Theoretically, you want a three-year rotation with a legume in one season. Legumes fix nitrogen in the soil and increase the vigour of the subsequent crop.”

The MDF also helps farmers to cultivate strip crops on 1 000m² plots where four strips of maize are alternately planted with four strips of cover crops and fodder species. Common strip crops include sorghum, sunflower, sun hemp, dolichos, sugar beans, lespedeza and tall fescue.

“Once the maize is harvested, the livestock is sent in. The strips are rotated annually. Some of the strips are planted to perennial fodder species to allow for soil and water conservation,” says Erna. ▶



The two-row minimum-till planter is in demand by smallholder farmers like Nothile Zondi. A lack of access to tractors and mechanisation limits the areas farmers are able to cultivate to about 1ha per person.



Farmers use a range of open-pollinated variety (OPV) and hybrid maize seed. Genetically modified seed is not promoted, because farmers save their OPV and traditional seed, which could easily cross.

◀ SOIL COVER

Providing cover for the soil is the second leg of conservation agriculture. By leaving a canopy of growing plants on the soil and enriching the soil with crop residues, farmers create more fertile ground for crops.

“Soils should not be left uncovered and exposed to direct sun and rain. The theory is that the farmer leaves 30% of the crop behind as residue so that the soil has a bit of cover going into winter. In practice, this is hard to achieve in dry years. The cows are too hungry,” says Erna.

MINIMUM TILL

The third leg of conservation agriculture is no-till or minimum tillage. Tilling degrades the soil and ultimately kills soil life. To encourage smallholders to take up minimum tillage, the MDF provides access to hand planters and ox- and tractor-drawn two-row planters that make land preparation and planting much easier. They are in high demand, although getting access to tractors is difficult and expensive.

To plant an intercrop plot, planters are set at a tight planting space of 50cm for maize and 25cm for beans and legume cover crops like cowpeas and dolichos.

“The biggest advantage of the two-row planter is that it halves the time taken to plant intercrop plots. We do one herbicide pre-spray before planting and then plant very closely. In a good rainy season we can get canopy cover at six weeks. Once we hit canopy, weed growth is suppressed, so the farmer spends less time weeding. Both broadleaf and grass weed species have a negative impact on final yield, so it’s



Summer cover crops like sunflower are intercropped with a mixture of millet and sun hemp. PHOTO: ERNA KRUGER

important to keep them out,” says Erna. This method can reduce weeding from four times to once only. However, in dry years, the crops don’t reach canopy height as quickly and weed suppression is not as effective.

“Apart from saving labour, this method increases the humidity in the plot and improves water availability. The planter also reduces fertiliser use in comparison to broadcasting by hand.” Even though some may say cover crops have a negative impact on maize yields by competing for water, Erna insists maize yields improve quite dramatically.

“Competition is not a problem in KwaZulu-

Natal, where we get anything from 450mm to 950mm rain in summer. The benefits of no-till far outweigh competition problems. In lower rainfall areas like Limpopo, competition is a problem,” says Erna. The impact on the soil can also be significant.

“Farmers are sequestering about 0.5 tons of carbon per hectare per year in rotational, multicrop conservation agriculture systems. We are happy with this result. In the smallholder system there is a slow deterioration year after year, so it is significant to find a system that incrementally improves soil health and fertility.”



CASE STUDY 1

USING CA TO IMPROVE YIELDS AND LIVELIHOODS IN RURAL KZN

Conservation agriculture helped Nothile Zondi of Stulwane to become more adept at feeding her family and community, as well as their cattle and the soil itself.

Smallholder conservation agriculture farmer Nothile Zondi, who started with the MDF programme in 2015, has improved yields on her plot in Stulwane, Bergville, and provides winter grazing for their small herd of cattle.

“Before, I had big problems with soil erosion during heavy rains and windy periods. Now, thanks to improved soil health with good drainage, my maize can withstand bad weather better because the soil is more stable. It is alive. It holds moisture. No-till has saved my soil.”

Nothile says she provides food for her family, with surplus for the community, and her cattle benefit from grazing the maize stover. She grows lespedeza and cover crops for grazing and bales veld grass for cattle feed during winter.

Nothile and her husband run 11 cows on the grassland surrounding their farm. There

is little to no grazing during winter and it's not uncommon to lose lactating cows to malnutrition in the dry season. This year, improved fodder flow planning and the baled veld grass meant that Nothile got her animals, including three lactating cows, through the lean months.

“Last year, I made and stored about 30 hay bales. I started feeding the cows just after calving. They had lost condition and I gave them half a bale a day, sprayed with LS33 [a liquid protein mix]. My husband could not believe what I was doing. But the cows grew healthy and were back in condition in no time. Now we are supplementing the other cows.”

Nothile makes the bales using a hand-operated box baler designed and made by the MDF. The box baler can also be used to bale maize stover and cover crops like cowpeas, beans, dolichos and teff.

Nothile Zondi in a 100m² summer cover crop plot – a mixture of sun hemp, sunflower and forage sorghum. Each field is divided into 100m² blocks or strips to facilitate crop rotation, so that maize can follow after a legume or cover crop.



This hand-operated box baler is one of the MDF's low-cost innovations. It is used to bale hay, maize stover and cover crops for livestock fodder.

Another innovative MDF creation designed to make smallholder farmers' lives easier is the two-row minimum-till planter. It is a huge help at planting time. Nothile has only about 0.3ha of land and the planter helps maximise productivity. She uses it to cultivate a 1 000m² strip with rows lines of maize and four rows of legumes, for monocropping and intercropping on 10x10s. She grows sugar beans, cowpeas, sunflower, teff and dolichos, as well as winter cover crops like saia oats, fodder rye and turnips. She also plants perennial fodder species like lespedeza, tall fescue and Pensacola. “I like to plant using close spacing. It means there is less weeding. I use less land and less labour and get better yields. My livestock also has cover crops for grazing all the time.”

Nothile says using no-till has improved her yields from 480kg of maize off three fields to 700kg off one (1 000m²) field.

She says intercropping means she gets a better maize crop following a legume, like cowpeas, because of the extra nitrogen. She dreams of expanding her production of maize and sugar beans, and would like improved mechanisation on her farm to speed up planting and reduce weeding. ▶



CASE STUDY 2

NO-TILL: THE FARMER'S FRIEND

Some friends last a season and others last a lifetime. Phumelele Hlongwane, a local MDF facilitator in Ezibomvini, has no doubt that the soil is her best friend forever.

Phumelele Hlongwane's rugged 2ha farm in Ezibomvini village near Bergville is an unforgettable sight. Her conservation agriculture field is a jungle of towering maize, sunflower, sun hemp and fodder sorghum, with pumpkins, cowpeas, sugar beans and dolichos growing profusely on the ground. In her vegetable garden, healthy crops of spinach, cabbage, green peppers, potatoes, tomatoes and onions wait to be picked. Sturdy pigs grunt in their muddy pen and the cattle are out grazing in the hills.

Only 1ha of Phumelele's farm is in production, yet the harvest is way too big for her family. Since she adopted conservation agriculture practices, her maize yield has taken off and she is able to sell surplus maize and vegetables to generate valuable income.

"Before we started no-till farming, we were happy. Then, in 2014, I volunteered as a local MDF facilitator because I didn't believe I could do anything better or different. My opinion has changed big-time. We are doing much better and yields are much bigger. I have food to last until the next harvest *and* I have food to sell," says Phumelele. She would like to expand by another hectare of land, but is limited by a lack of machinery. "I need a tractor and implements, if the minister of agriculture has money," she says with a smile.

Although maize is an important staple crop, Phumelele does not rate it above her vegetable crops. "I cannot lift one above the other. Maize fills the stomach but the vegetable garden fills the pocket," she says. Under no-till, her maize harvest has tripled.

Phumelele Hlongwane's healthy stand of 10x10s, where she intercroops maize with the likes of sunflowers, pumpkins, beans, cowpeas and summer cover crops. Each 10m x10m plot is rotated to different crops in the following season.



Phumelele's vegetable blocks are an important source of income.



A 250m² strip-cropped plot of summer cover crops. Sun hemp, sunflower and sorghum are planted specifically for poultry feed. Small blocks like these are planted either by hand or using a Haraka (wheel punch) planter.

Like Nothile Zondi, she likes the practice of intercropping maize with cover crops because this cuts down on weeding, which is a tough and time-consuming chore.

Phumelele has now become a devout conservation agriculture farmer and enjoys spreading her knowledge to anyone interested in learning. Even though she uses time-saving 'cheats' like the two-row planter, she still spends countless hours working the land. It is undoubtedly a labour of love.

"I love no-till," she says. "I have lost friends because I'm always working in my garden. No-till has become my best friend. I take care of my land. I build up the soil cover. My land needs to be fed for it to feed me."

Phumelele dreams of becoming a more independent farmer and helping other small-scale farmers move up to the next level. **AF**

FARMERS' DIARIES

It's March, the days are becoming shorter and the nights and early mornings cooler. **African Farming** went to find out what our farmers are busy with at the start of autumn.



GOATS

Molefe Mahape,
Sanddrift near Brits, North West

We farm 130 breeding Boer goat ewes on 33ha and grow lucerne under irrigation. Because of the farm's size, the goat operation is intensive and we produce feed to supplement their diet. There is 10ha of bush and planted kikuyu for grazing.

At the moment we're preparing for our breeding season, which is about to start. We've just weaned the ewes that kidded in September and October last year. The norm for most goat farmers is to have two production cycles in one year, but I prefer a single breeding season. We breed the goats in March to start kidding in September or October. We aim to sync our breeding season with the natural cycles. October is when animals give birth after the first rains, when trees are in leaf. In the Tswana language it is called *diphalane* (*diphala di simolola go tsala*), the time impalas start giving birth.

We give the goats Multivax Plus to prevent diseases such as pulpy kidney, tetanus, blackleg and clostridial metritis, and we vaccinate against enzootic abortion. We also inject with Multimin or Ovi-Min, supplements that provide essential trace minerals for fertility, immunity and growth.

Their regular diet consists of SS20 (100kg), Maxiwool (100kg), molasses (100kg), maize chop (600kg) and lucerne (8 bales) to make up one ton of feed. We increase molasses and chop when we want to give the pregnant ewes more energy or when we want to fatten the animals.

We are also testing the rams now before we run them with the ewes. We have sold off our older rams and are looking out for two younger replacements. I have been going to breeders' auctions and ja... Eish, rams don't come cheap. But we must find rams so that we can put them to work immediately.



SHEEP

Mthunzi Ntutela,
Tsomo, Eastern Cape

I farm Merino sheep for wool in communal areas. At this time of year we are preparing our pregnant ewes for the lambing season in June and July. Part of this preparation is dosing for worms, particularly for tapeworm, which is prevalent here. I prefer to use broad-spectrum dewormers like Prodose Orange or Eradiworm Plus, as these products also control other internal parasites like liver fluke and nasal bots.

Because of a wetter-than-usual season, we are experiencing a bluetongue outbreak. This is also the result of many farmers not following a proper animal-health programme, which would include vaccination. We are in the communal setup and it can be exceedingly difficult for us to contain such an outbreak. Luckily, I vaccinate against bluetongue from October to December. The vaccine comes in three bottles marked A, B and C – we inject A first, then three weeks later we inject B, and three weeks after that we vaccinate with C. We give our pregnant ewes chocolate maize, which has trace elements, but we change their diet as lambing time draws closer. Then we'll feed out another lick with the main ingredients being Molatek's Master 20 (40kg), crushed maize (40kg) and salt (7kg), which works out at about 250g per day per animal. I've also started an animal-improvement programme with the help of commercial Merino breeder Marius Pienaar of Pienaar Boerdery in De Aar. Marius is sending us 10 pregnant Merino ewes in mid-March. We must constantly improve genetics in our flocks to improve our wool quality and quantity and to boost our income.



◀ PIGS

Fortune Poto, Bela-Bela, Limpopo

We have 25 pregnant sows now and are getting ready to mate another group. We are currently selecting boars and have chosen four for training and testing. We will choose two from this group. We have

selected and synchronised 10 sows to bring them on heat for the young boars to mate. From there, we will check whether they've managed to impregnate their allocated sows. We look at the way they mount, their posture and how they stand. We will check their litters and how well their offspring

grow and feed. Then we select the boars based on these results.

To bring the sows on heat for this purpose, we do ad-lib (continuous) feeding for five days. We usually feed the pigs about 2kg a day, split into 1kg in the morning and 1kg in the afternoon. On ad-lib feeding the ration is increased to 4kg to 6kg a day, fed throughout the day. But we make sure not to feed more than 8kg a day as this would cause the pigs to become overweight. Accumulated fat may end up spreading to the udder; fatty udder affects a sow's ability to provide enough milk to the piglets.

Before we start ad-lib feeding, the breeding sows are vaccinated with FarrowSure Gold B, a dead (inactivated) vaccine that helps prevent reproductive failure caused by various pathogens.

We've just renovated and expanded our sow units by building six extra pens. We've upgraded our flooring to improve drainage so that we can recycle the slurry water onto our newly planted 1ha maize field. We've recently bought an adjacent piece of land on which we plan to grow maize in order to reduce our feeding costs.

CHICKENS

Mhlobo Mbane, Sompondo, Alice, Eastern Cape

We recently took out our last batch of chickens and are getting ready for the new batch, which should be here in a week. We've cleaned and disinfected the houses using ViruKill, a disinfectant that prevents bacterial build-up. We get sawdust from the local sawmill and put it down as bedding, then we leave the house for two days before we put the chickens in. Many chicken farmers prefer to use sunflower husks as bedding, but here in the Eastern Cape we use sawdust because it's available.

The new chicks are given a stress pack (feed) for three days before we start our 32-day vaccination programme for Newcastle disease, gumboro and infectious bronchitis.

Vaccines are administered through the

drinking water. For a batch of 1 000 doses, this works out to one bottle of the vaccine in 40 litres of water. The vaccine must be used within three hours otherwise it is no longer effective.

To make sure the chickens drink the water within three hours, we switch off the water supply for two hours before we administer the vaccination. This means they are very thirsty by the time the water containing the vaccine is turned on. They drink it up quickly.

Seven days after the arrival of the day-old chicks, we vaccinate against Newcastle disease. On Day 14 we give a combined vaccine for Newcastle and gumboro. On Day 21, we do Newcastle again and then on Days 26 and 32 we vaccinate for infectious bronchitis. By then they're about four weeks old and weigh between 1,6kg and 1,9kg. We feed starter feed until they are 17 days old and then give them grower or finisher, depending on availability.





CATTLE

**Tiro Mongwaketsi,
Ganyesa, North West**

It's all quiet on the farm at the moment, because we have just taken the bulls out from the breeding cow herds.

We need to keep the bulls in good condition after three months of hard work. Depending on their condition, we will feed production licks or energy and protein licks

(if the condition has dropped off). We also carry out daily inspections of the cows to check for cows in heats. You do not want any nasty surprises come pregnancy test time in May – what if half your cows did not conceive? If you see cows cycling now, there is still a chance of getting them pregnant.

We vaccinate our cattle, including lactating cows, with Supervax to protect against anthrax, botulism and blackleg. We

hope that the calves, now between two and four months old, can get passive immunity through their mothers' milk. Calves will be vaccinated against contagious abortion (brucellosis) too.

We plan to do general infrastructure maintenance like fixing fences and repairing any infrastructure that may be broken. Otherwise our focus is on the goats, with their breeding season starting this month.

VEGETABLES

**Vincent Doku,
Jericho, Brits, North West**

We have just finished preparing our land and are ready to plant about 70 000 cabbage seedlings in the next week. We order the seedlings, which are ready for planting at six weeks, rather than plant seed directly ourselves, as delayed germination is a risk, as is possible damage to germinating plants from birds or pests.

We started soil preparation by ploughing about 0,5m deep, followed by disking and ridge-making. The ridges help with drainage, as cabbage is quite sensitive to waterlogging. We then applied about 20 tons/ha of cow manure. We plant Sakata's Optima cultivar, which we bought from Dan Man Boerdery in Brits. Optima

caters for our target market, mainly hawkers, because it produces a larger-headed cabbage that weighs between 5kg and 8kg. This is what they want: they make more money from these as they sell them at higher prices than they would sell the smaller heads. They can also cut them into halves or quarters.

The other advantage of Optima is that it has been bred to resist some of the most common cabbage diseases such as black rot. The planting space is between 60cm and 70cm to allow the heads optimum growth.

After planting the seedlings, we top-dress with Sasol's LAN. We drip-irrigate the plants for about three hours every day, which is about six litres per day per plant.

We have an ongoing maintenance programme, weeding and scouting for pests and diseases. From planting to harvest is



about 90 days, but this period may be shorter if you plant seedlings as we do. **AF**



Dr Sello Maboe

ASK THE VET

QUESTION:

What can go wrong when vaccinating animals?

The outbreak of Covid-19 has put the spotlight back on disease prevention and the protective layer a vaccine would add to the routine precautionary measures we take every day.

On the farming side, you may have been inundated with primary animal healthcare messages through various media platforms as a response to the increased risk of vector-borne diseases after recent rains, or as ongoing reminders to vaccinate your animals. You may have made the time to visit your animal-health provider, be it your veterinarian, co-op or any accredited seller of vaccines. You've set aside the money to protect your livestock through vaccination, understanding that healthy animals produce healthy, safe food, among other benefits. You've chosen the best product for the job. You may even have received a lecture about the importance of keeping the vaccine cold and protecting it from exposure to sunlight. You've done everything right until your animals are in a crush pen for the vaccination.

About two hours later you have vaccinated 100 animals with what is labelled a 100-dose vaccine, at 1ml per animal, yet there is about 30ml of vaccine left in the bottle. This means a possible 30 animals went through the crush with just a needle prick or perhaps a needle prick plus a dose of air. This happens in field scenarios, especially when automatic syringes are used. Here are some possible explanations:

■ **Inexperienced hand.** This is often the case

when the vaccinator fails to coordinate the skin penetration by the needle and the action of injecting the vaccine. It may also happen if animals are inadequately restrained and suddenly move away in response to the pain.

■ **Type of syringe used.** This is common with, but not limited to, syringes connected to the vaccine bottle via a draw-off tube. These tubes tend to trap air bubbles that may result in some animals receiving only a portion, if any at all, of the intended dose. What makes it even trickier: if this is discovered at the end of the vaccination run, there is no way you can tell with any certainty which animals got the vaccine and which ones did not. If the disease risk is high and you have checked the safety profile of the vaccine with your vet or the vaccine manufacturer, it may be a good idea to revaccinate the whole group. Missed animals would then get the vaccine and vaccinated animals would get a double dose. The latter is only a problem with vaccines that should never be repeated like the Brucella S19 vaccine (contagious abortion).

Vaccination failure for those 30 animals virtually guarantees that they will get sick when presented with a sufficient disease challenge. Considering that vaccines cannot guarantee 100% immunity across the vaccinated population, this means the number of vulnerable individual animals in the herd may be higher than 30. If 70% of vaccinated animals develop immunity, there may be at least 21 other vulnerable animals in the population.

Vaccination is defined as the administration of a vaccine in accordance with the manufacturer's instructions, when relevant, with the intention of inducing immunity in an animal, or group of animals, against one or more pathogenic agents (www.oie.int). This means our responsibility towards achieving the desired immunity does not start and end with injecting an animal. Most vaccines will specifically stipulate that you vaccinate only healthy animals. These animals ideally have a better chance of responding well to a vaccine by manufacturing protective antibodies against the disease. Please read the accompanying insert carefully before using any animal-health

product, including vaccines.

How do we prepare to achieve the best possible vaccination success?

- Always boil needles before vaccinating (and cool them down afterwards)
- Gently shake the vaccine bottle before filling the syringe
- Minimise the sharing of needles among animals (especially if you are vaccinating after the first signs of the disease have become evident)
- Use the vaccine as soon as possible after reconstitution, especially if you are using freeze-dried vaccines supplied as a powder in one bottle, and a sterile diluent ("injection water") in the other.
- Always choose the most suitable equipment. For example, the shorter the needle for subcutaneous injections (½ inch to ¾ inch), the lower the risk of bending or breaking it.
- Work as hygienically as possible. Avoid injecting soiled, wet animals.

With regard to vaccine handling and transportation, and even when using them, it is important to protect vaccines from temperature extremes and exposure to sunlight. This means one should not only worry about vaccines getting warm, but also take care not to expose them to temperatures lower than the manufacturer's storage temperature recommendations. Some vaccines can in fact lose their potency through exposure to extreme cold temperatures.

Once a vaccine loses its potency because of incorrect handling or storage, the potency cannot be regained or restored by correcting the mistake. This means that if it is then used for vaccination it may not provide the required protection to the animals. Considering the relatively low cost of most vaccine doses, it is probably not worth using once it has been mishandled or stored incorrectly. **AF**

Dr Sello Maboe is technical and marketing manager at Onderstepoort Biological Products. Email him at sello.maboe@obpvaccines.co.za

THIS IS NOT A FARM

This is the soil that sprouts food security for a nation.
It's the future of a nation, and it all starts with the
nourishing food grown by our farmers.



At **AFGRI Agri Services**, we strive towards constant progression, growth, innovation and forging our vision for food security in South Africa and the rest of the continent.

We provide comprehensive services to producers including grain handling and storage, financial support and solutions as well as inputs and hi-tech equipment, supported by a large retail footprint. We have invested in the development of emerging farmers through our Lemang Agricultural Services training programme to foster strong future farmers.



Your agricultural partner for generations
www.afgri.co.za



**TURN INFECTION
UPSIDE DOWN**



Caring for your cattle keeps both your animals and your profits healthy. Zeropar® Aerosol kills ticks and other external parasites, while preventing wound infection and keeping wounds clear for faster healing. Available in a larger 450ml can, it's designed to work upside down making it easy to get to udders and other hard-to-reach spots. In addition, Zeropar® Aerosol blue dye clearly indicates the treatment area.

Zeropar
AEROSOL
There is no Equal

Registration Holder: Bayer (Pty) Ltd. Animal Health Division, Co. Reg. No. 1968/011192/07 27 Wrench Road, Isando, 1601, South Africa, Tel: + 27 11 921 5736, Fax: + 27 11 921 5751 www.animalhealth.bayer.co.za

Zeropar® Aerosol Reg. No. G955 (Act 36 of 1947) / Namibia [NSO] Reg. No. V99/13.2/800 (Act 13 of 2003) contains: Dichlorophen 1.0 % m/v, Propetamphos 0.25% m/v, Pine oil 2.5% m/v

® Registered trade mark of Bayer AG, Germany

L.ZA.MKT.03.2020.3538