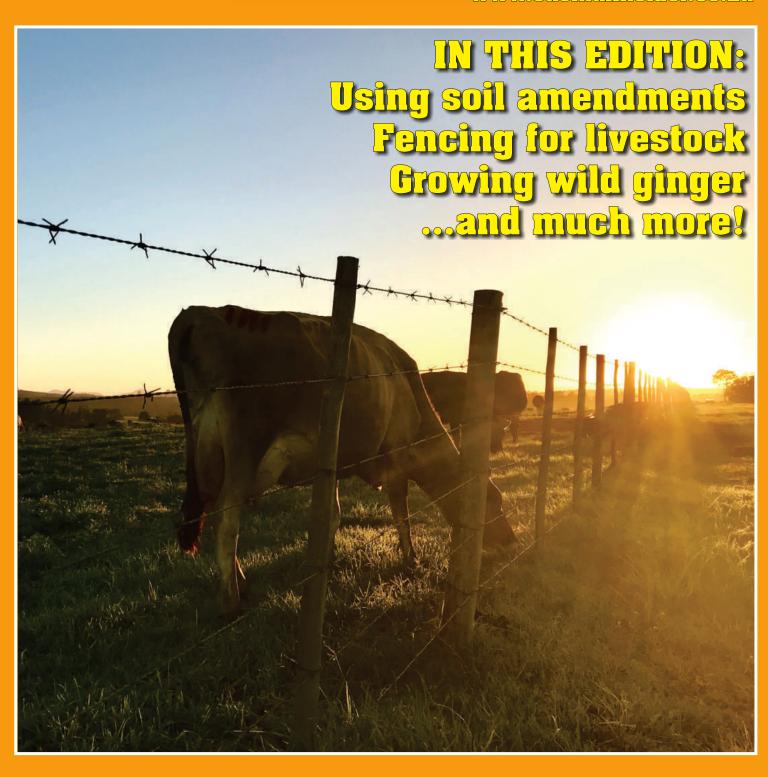
SOUTH AFRICAN SMALL FARMER NEEDS

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Frank Gover

<u>Click here</u> to read about fencing for livestock. Image: Steyn Viljoen.

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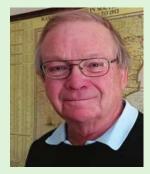
FULL RANGE OF GROUND-ENGAGING IMPLEMENTS FROM SPARES & COMPONENTS FOR ALL AGRICULTURAL MACHINERY

EDITOR'S COMMENT

KZN: Spare a thought y now, all South African are aware of closures, or

the devastation inflicted upon the people of KwaZulu-Natal by the recent torrential rain and consequent flooding. For the media, social, electronic and print alike, has been diligent in carrying alarming pictures of bridges collapsed, shipping containers floating down highways like matchboxes, houses destroyed in mudslides and untold tons of detritus washed into the sea by flooded rivers, as well as harrowing stories of personal loss and death, both of humans and animals. Commentators have been quick to point out that this devastation was wrought in far less time than the devastation caused by last July's riots and looting, from which the province, it should be said, has not yet recovered. Indeed, it will be many years, if not many decades, before the damaged infrastructure ~ roads, bridges, power and telecommunications links, housing, water pipelines and sewerage, public infrastructure such as schools, and private infrastructure such as factories and homes, is fully repaired. Not to mention the amount of money that these repairs will all cost. And, given the ANC government's execrable record in this regard, the untold opportunities for tender fraud and larceny that will arise. Quite apart from this, and the inevitable aftermath of water shortages, power outages and the like ~ and the concomitant possibility of widespread outbreaks of diseases of poverty such as cholera and typhoid, the effect on businesses in the affected areas will be devastating, even for those not directly hit by the flooding. Tourism, both nationally and internationally (still just recovering from the Covid pandemic and last year's riots) will be seriously affected. Holidaymakers, after all, are unlikely to want to spend their hard-earned savings battling to reach their destinations because of road

closures, only to find the water undrinkable, the lights off and the beaches polluted if they do.



But there's a sector of the KZN economy that commentators have said little about, namely the province's small farmers.

Spare a thought for this often forgotten sector. It faces myriad problems.

KZN has the second largest provincial population in South Africa at about 11,5 million. It has a high-profile commercial farming sector, concentrating on large-scale dairy, poultry, sugar cane production, and forestry in the northern regions. But it also has probably the largest number of smallholders of any South African province.

Many of these smallholders produce their incomes by farming small parcels of traditionally-held lands, and thus fall under the partial authority and protective umbrella of local traditional structures.

Many more, however, are simply small-scale farmers, using their holdings to the best of their abilities to produce all manner of crops and livestock with which to provide an income and feed their families.

Thus, for them, the loss of income through crop damage and livestock losses is devastating. But, equally devastating for them is their inability to access their usual markets at which to sell their wares.

This could be because they have no easy way to reach them, the roads and bridges having been destroyed, or it could be because the markets themselves have been destroyed. But even before they have anything to produce, they face drawing water from boreholes that may have been destroyed or damaged by pollution. Like the rest of the province, they face tough years ahead.

Pete Bower

Editor



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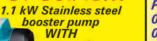


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MAILBOX

Cost of living turning us into recluses

Sir ~ Whether the monthly adjustment to the fuel price moves it up or down, at the cost of fuel at current record levels it is still more than many motorists and truckers can afford.

Added to that is the fact that many smallholders, myself included, incur considerable additional expense running generators during the periods of load-shedding, to keep our basic infrastructure going, such as incubators, freezers and cool rooms, workshops and pumps ~ in many cases items that cannot, within our budgets at least, be run by home-based solar systems or alternative technologies.

Then there is the state of the roads, made worse by the fact that this summer's heavy rains in parts of the country have resulted in a great increase in dangerous potholes. Finally, many rural roads, those used by necessity by smallholders to travel to and from their homes, become doubly dangerous at night, not only from the state of their surfaces, but also by stray cattle and wildlife wandering through cut and broken fences, and increased criminal activity.

As a result of all of this I have found myself thinking very carefully whether a car trip to anywhere \sim even the local shops \sim is absolutely necessary, and reexamining the need for trips to any recreational destination or entertainment venue. In short, I find myself becoming a recluse.

I wonder if other readers have become as reclusive as me in the current situation.

Eugene PendleburyWhite River

Ear notching in pigs on its way out

he NSPCA has had some success in its campaign against the practice of ear notching piglets after colleges under the Dept of Agriculture in Limpopo agreed to stop the practice. The NSPCA's Farm Animal Protection Unit undertook a campaign this year to stop the practice.

According to the welfare organisation, ear notching is an inhumane method of identification used on pigs whereby pieces of the ear are cut off of days-old piglets without any anesthetic. The NSCPA maintains that this practice is in contravention of the Animals Protection Act of 1962.

As ear notching is also not a recognized means of identification under the Animal Identification Act of 2002, the organisation is encouraging pig owners to

use other recognized, humane alternative methods of identification. In February, NSCPA inspectors visited a college in Limpopo to discover the pigs under the college's care were being ear notched as well as tagged and tattooed (a recognised identification practice).

Following this inspection and subsequent engagement with the department, this and other colleges in the province have agreed to stop the practice. The NSCPA has also undertaken to provide training across the colleges to ensure the staff handle the animals correctly. The organisation says it is confident this is the first win of many and has issued a warning to livestock owners partaking in the practice that it will take relevant action.







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NEWS

Slow but certain progress against bee theft

heft and vandalism of beehives in the field remains an issue for many South African beekeepers, wherever they may operate.

The good news, says the SA Bee Industry Organisation (Sabio), is that "slow but certain progress" is being made.

Sabio has approached the SA Police Service (SAPS) because the organisation believes more awareness and training needs to be given to police officers so that illegal movement of hives can be identified. Sabio is also in talks with the relevant parties to have the theft of bees seen as stock theft and therefore subject to the same convictions.

In this regard, KwaZulu-Natal beekeeper Dieter Meyer secured a conviction for honey theft. Being an ex-policeman and a specialist investigator helped, as he made sure that the correct processes were undertaken to secure a two-and-a-half-year jail sentence for the thieves.

The most important factor was that the beekeeper's DALRRD number was branded on the stolen frames. Sabio therefore urges beekeepers to ensure that all

hives, and frames, are marked with their owner's registered number.

Sabio also encourages beekeepers to report all theft and vandalism incidents to it, so that the organisation can start a central database.

At the same time it is necessary to report any incidents to the SAPS, and to obtain a case number.



Vandalised bee hives.





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NEWS

Foot & Mouth spreads to Gauteng and Free State

mallholders are urged to be alert as the Dept of Agriculture, Land Reform & Rural Development (DALRRD) confirms 56 outbreak cases of Foot & Mouth Disease (FMD) across the country. The disease has been identified in the Free State, KwaZulu-Natal, Limpopo, North West and Gauteng. In its effort to stop the spread, the department has called on livestock owners to stop illegal movements out of FMD controlled areas in Limpopo. Movement restrictions are in place for cloven-hoofed animals and their products out of FMD controlled zones in Limpopo and Mpumalanga. Only animals with express permission from the state veterinary service may be moved. Following tracing of animals out of an auction in Potchefstroom in March, the department identified cases of FMD in Gauteng and the Free State. Elsewhere, cases have been identified in the Thulamela district of Limpopo, and the Hlabisa and Jozini municipalities of KZN. As a result, there has been no change in the movement restrictions on cloven-hoofed animals, their products and genetic material out of, into, within or through the disease management areas. The department's vaccination efforts in those affected areas are still ongoing. The department has also been made aware of companies advertising FMD vaccines for sale and cautions livestock owners against this as the vaccine is strictly controlled by state veterinary services and can only be administered by authorized parties. The sale or use of vaccines outside of this programme is illegal. When buying or moving new livestock, owners must take the following measures to prevent the spread of the illness:

☐ Abide by all veterinary movement restrictions.☐ Know the health status of the animals you are

buying.

Only buy animals that originate from known and proven sources.

Insist on a veterinary health declaration before animals are brought on to your property.

☐ If in doubt, request a health attestation from the seller's veterinarian.

☐ Keep the new arrivals to your farm separate from your own animals for at least 28 days, and until you are satisfied that they are healthy.

☐ Do not move animals showing signs of disease.

☐ Do not buy animals from unknown origins.

Do not buy animals originating from known infected areas.

Improve biosecurity on your farm to protect your animals from diseases coming on to the farm and avoid nose-to-nose contact with neighbouring cattle.

Avoid buying animals from live auctions where animals have gathered from many different origins, especially if not intended for immediate slaughter Animals showing symptoms of FMD, which include salivation, blisters in the mouth, limping or foot lesions, should be reported to the nearest state vet and must not be moved under any circumstances until the vet has investigated.















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SMART SMALLHOLDERS

She's building her community with veg

ommunities can help themselves by growing their own food. This is the lesson Sbongile Mnikathi of Cosmo City wants South Africa to learn. Mnikathi is a farming mentor and entrepreneur operating in Cosmo City Extension 20, Gauteng. "I grew up in Howick, KZN. I lost my parents very young and my brother and I didn't have money for food so we started to try to grow our own. It was then that I realised we could help ourselves," Mnikathi explains.

After attending Midlands College to study vegetable production, Mnikathi moved to Gauteng in search of work. Unable to find any, and struggling financially, she started a small garden out of which she sold produce.

Through this garden, Mnikathi realised there were people in the community interested in learning how to grow their own food but with no one to teach them, and no money to seek formal training. "I saw that there were people in the community who could



Mnikathi's seedling stall was built using Connect-It fittings.



Sbongile Mnikathi of Cosmo City in front of her new seedling stall.

learn from me," she says.

Through informal training, Mnikathi assists the community of Cosmo City in learning about basic vegetable production.

In February 2022, with the assistance of Dare to Love, a church-based outreach programme, and in the spirit of "zenzele" (meaning do it yourself), Mnikathi established a seedling business, buying seedlings and reselling them to the community. "I sell them for R1 each to make sure they are affordable," she says. Currently, Mnikathi is selling cabbage, beetroot, spinach and onion seedlings. She also sells fresh produce including sweet potatoes, broccoli, cabbage and more. Her seedling store, the frame of which comprises a structure of steel square tube joined by Connect-It fittings, can hold up to 12 000 seedlings.

The seedlings are sold individually and as full trays. There are some buyers who purchase seedlings for their own commercial vegetable operations in the area, as well as those who purchase a few seedlings for their backyard gardens.





SMART SMALLHOLDERS

Mnikathi says word of mouth works best for her to market her produce and seedlings.

"I post in some community groups on social media and that helps gain me exposure, but mostly it is word of mouth."

Mnikathi also has a special relationship with the children of her community. "The children are very interested in learning how to grow their own vegetables.

"When I am busy in my garden they always end up coming to see what I am doing and then I start to teach them."

In fact, Mnikathi says a lot of her seedling business comes from the children buying one or two seedlings to take home.

"Then they come and get me and say I must come to look at their gardens," she laughs.

This interest in farming and growing their own food will set the kids up for success in their future, Mnikathi hopes.

As a natural-born helper, Mnikathi does not stop at just training and growing. "I also run a food programme on Sundays. We are sponsored by Spar and we provide bread, soup and vegetables for those in our area who are in need."



Mnikathi's sidewalk seedling stand in Cosmo City.

Mnikathi is a firm believer that South Africans should just try their hand at agriculture.

She says people must not be scared to start growing and she hopes the training she provides, as well as the access to seedlings she offers, helps people get started.

Dare to Love hopes to establish more vegetable seedling vendors in other areas, using the same design of Connect-It structures.

Mnikathi can be contacted on 083 351 4040.



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IN THE GARDEN

Growing African wild ginger

frican or wild ginger ~ gemmerhout, wildegemmer (Afrikaans), indungulo, isiphephetho (isiZulu), Serokolo (Pedi) ~ is so popular for its medicinal properties that it is almost extinct in the wild. Therefore, it might present an opportunity for smallholders to make some income from its production.

Origins

In the wild it originated in southern Malawi, Zambia, Zimbabwe and the eastern regions of South Africa. It is now listed on the Red Data List of South African plants.

It is a member of the Zingiberaceae family, which includes true ginger, turmeric and cardamom. Siphonochilus aethiopicus tastes and smells very similar to the culinary ginger, hence the name African ginger.

Traditional uses

Traditionally African ginger is used as a protection against lightning and snakes. Biochemists have identified flavonoids, phenolic acids, volatile and essential oils which can be used in treatment of a wide variety of medical conditions. The aristolochic acid is used for its anti-inflammatory, antiviral, anti-



Flower showing yellow centre.



African wild ginger.

tumour properties.

People chew fresh wild ginger to treat asthma, hysteria, influenza, colds, coughs and bronchitis. It brings relief for flatulence and other problems of the digestive tract. It causes sweating and can be used to induce vomiting. Women use it for menstrual pain and in some areas it is used to fight malaria.

Ginger oil is used in the treatment of fractures, muscle aches, rheumatism, arthritis and digestive problems.

Dried root is burned as incense which helps to repel insects. A preparation of this plant is given to horses as part of a programme to prevent horse sickness. The oil is used in cooking and also in making perfumes.

Plant structure

The leaves are light green, lance shaped and borne on the end of stem-like leaf bases. The plant grows to

Continued on page 11

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Siphonochilus aethiopicus flower.

a height of 40cms. The beautiful flowers vary in colour from bright pink, to mauve or white with a yellow centre. They grow at ground level and are delicately scented.

Underground is a light golden brown, small, bulb-shaped root with a wide, flat base (about 2-4cm in

IN THE GARDEN

diameter) and tapering top. It has slightly loose papery scales and often with dry and stringy root shoots attached to the base and the characteristic aroma of ginger.

Growing African ginger

In preparing your field for planting wild ginger, make sure that the soil is well drained. If you are tilling, do so to a depth of at least 15cm. Prepare the rows with a great deal of good compost, as the plants do well in soil rich with organic matter. Organic fertiliser will also be well received.

Planting can take place between September and February. Propagation can be done by dividing the rhizome in winter, or from seed, which can take up to a year to germinate. Tissue culture has been used successfully too.

Seeds or rhizome pieces should be planted in two or three furrows, approximately 15cm deep, with a spacing of 18cm apart. Allow 72cm between the rows.

During the growing months, wild ginger needs a great deal of watering. In the winter month, when the plant is dormant, reduce the irrigation considerably. Mulching along the rows will help with weed control.



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IN THE GARDEN

This will also protect the plants from slugs and snails. Other pests to look out for include leaf-miners, nematodes and mites.

Try to ensure that you are planting resistant varieties of plants. Insecticidal soap sprays are helpful as well. Common diseases of African ginger are damping off, leaf spot, powdery mildew and rust. Careful control of irrigation is important, as over-watering encourages disease.

The time of harvesting depends on what the product will be used for.

If the ginger is to be used fresh, harvest at five months.

If the rhizomes are used for preserved ginger, harvest between five and seven months.

For dried ginger take up at eight to nine months, when leaves start yellowing and for essential oil production eight to nine months.

When harvesting for planting material do so when the leaves are completely dried out.

To harvest, dig and remove all the roots from about 10 cm below the crown of the root.

Wash the roots thoroughly and lay them out in the sun to dry for seven to nine days.

A cross-flow drier may be used to dry sliced ginger.

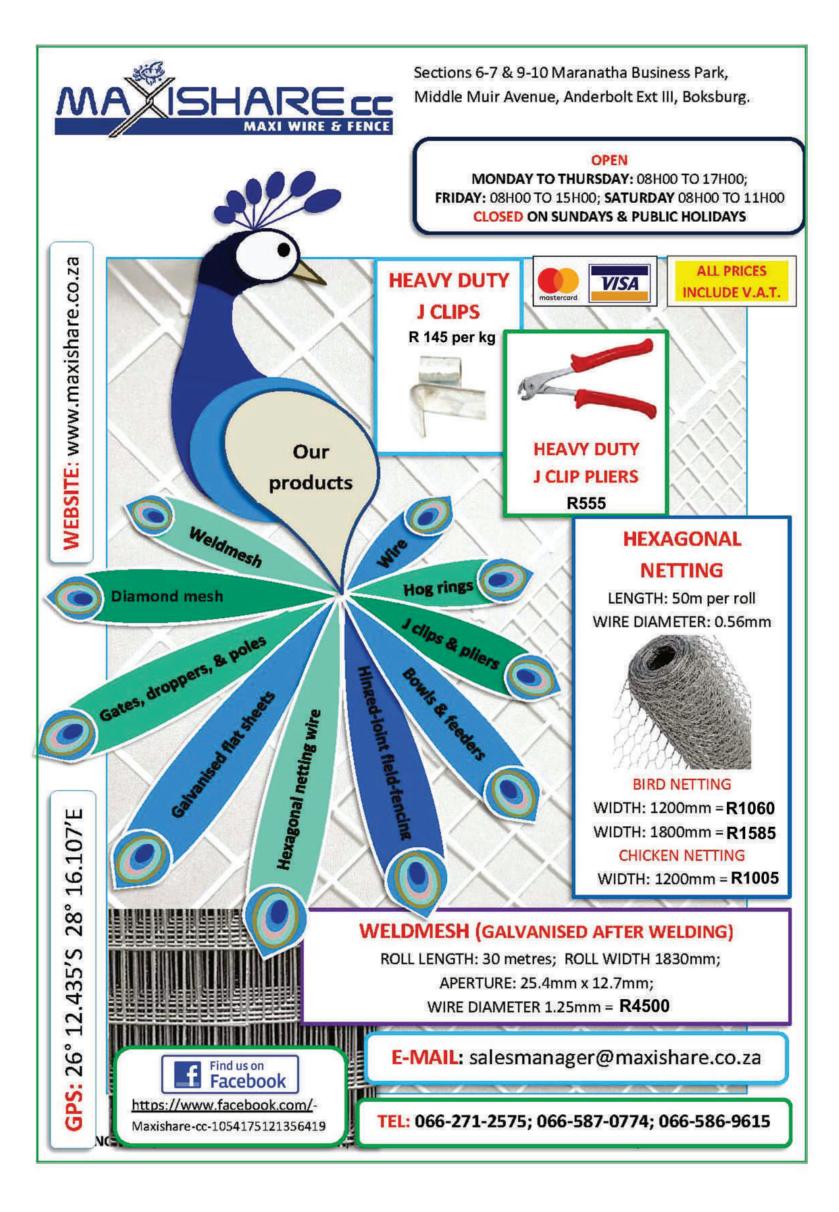
Pack the rhizomes in hessian sacks, wooden boxes or lined corrugated cardboard boxes for transporting.





Wild ginger root (top) and root powder (bottom).





FENCING

Choosing the right fence for your animals

smallholding that is home to livestock requires adequate fencing to ensure your livestock are safe and secure. This fencing must keep both your livestock in, and unwanted ~ usually criminal but also predatory ~ elements out. But, fencing is not a one-size-fits-all for livestock and will differ according the type of animal, size of the herd and size of the property.

Basic terminology for wire fences

A post is a solid wooden pole or, more commonly, a hollow steel tube, which is placed vertically into the ground. It might also be made of concrete or, in some rural areas with abundant stone, of hewn rock.

A straining post is a strong post which is used to hold

Steel corner post (centre) with a stay on either side to form a right angle.

the tension in the main horizontal wires. When it is placed at a corner it is called a corner post. They are usually 10cm in diameter.

A gate post is a strong post to which a gate will be attached.
In long fences posts

are also placed every 20m or so to provide additional strength and rigidity.

Posts are usually set in concrete foundations for added strength.

A steel post will, if properly made, have a square steel plate welded to its bottom to ensure a strong foot in the concrete, and a rounded cap welded to its top to prevent rainwater from accumulating in the post, and also to prevent the post from becoming a home to vermin.

A stay is a thinner post set at an angle to the upright corner post or straining post, to ensure that the tension in the horizontal wire does not pull the post out of the perpendicular. There is an art to setting a stay correctly in relation to the vertical pole. Set too high and its angle to the ground will be such that it is unable to perform its function properly and the whole assembly can simply pull out if the tension on the wires is sufficient. Set too low and it simply becomes a fulcrum over which the upright is pulled out of the ground.

In some cases, particularly where wooden posts are abundant, treated timber is used to manufacture a more traditional square "stay". In this construction two posts are sunk, namely the corner post and a shorter vertical about 2m away. Between the post and the shorter vertical a further horizontal post is fastened, to keep the two apart. Finally, diagonal wires are strung in the shape of an "X" between the two posts, and tightly tensioned.

A standard is an intermediate post which is used to maintain the height and rigidity of the fence. They are usually made of steel and they also go into the ground. In South Africa two common types are found, the older "Iscor" profile, which has the shape of a mini railway rail, and the newer "Y"-standards which have notches on all three arms which hold both the horizontal wires and their bindings tightly in position.

A dropper is another intermediate item which is not fastened to the ground. Its purpose is also to maintain the height and rigidity of the fence, but they are important in preventing wires from pulling apart (and leaving a gap



Y-standard showing notches.

through which humans can climb) or preventing the fence from flopping. They are thinner and can be made of steel, wood or even bamboo. See also our accompanying article on making your own from scrap wire on page 18.

Galvanized wire is wire that has been coated in zinc, which protects wire and metal products from rust.







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FENCING

Two types are used in fencing: high-tensile wire, which is oval in profile, and difficult to bend and cut and which can be tensioned to a considerable degree without snapping, and mild steel wire, which is round in profile and easier to work with, but which will snap under high-tension.

Barbed wire comes in a number of forms, and there are even collectors' clubs that amass short lengths of barbed wire from different countries, regions and historical periods.

Currently in South Africa, variations of new barbed wire are single or double strand, where the two strands are twisted around one another, and single or double barbed. Each variation has benefits in terms of strength and ease of use, and implications in terms of cost.

Cattle

When making paddocks for your cattle, identify the location where you wish your cattle to be. Once identified, you can choose the placement of your straining posts. For cattle ~ who will require large paddocks due to their size ~ straining posts should not be more than 500m apart. If your land is not flat, putting straining posts on a hill or crest and in the dips will make them easier to strain the fence over, and ensure that the strands are evenly heighted throughout. If there is no straining post in parts of your land that dip, you must ensure you fill the gap under the fence. You can use rocks for this.

Standards for cattle can be between twelve and 16m apart. If you are using 12m between standards, you will only need three droppers between standards. A minimum of 1.2m height for your fence is advised for cattle, using five strands of galvanised wire evenly spaced. You can use barbed or smooth wire. Barbed wire has a better grip on the droppers and will stop them sliding. Although cattle do not seem to be deterred by barbed wire, they can injure themselves when pushing through or against the wire, so be aware of this if rearing cattle for their leather hide.

Sheep

Fences to keep sheep constrained do not have to be as high as those for cattle. Typically, a hinged joint field fence is suitable for sheep. In South Africa, this is commonly referred to by the trade name Bonnox, or Veldspan, however there are many manufacturers of field fence mesh. This mesh comes in rolls typically of one to 1.5m heights. The mesh comprises horizontal straining wires and vertical stay wires typically 15-20cm apart. The number of horizontal strands can vary, with some fences having the lower strands very much closer together than the upper strands.

FENCING

Barbed wire is not recommended for sheep as their wool can get stuck and bunch up on the barbs, and when panicked sheep will simply crash through a



Bonnox or Veldspan.

stranded fence. But, if you choose to use barbed wire your fences should contain at least five to six wires, and preferably eight to ten closely-spaced wires with closely-spaced verticals, both

standards and especially droppers. Diamond mesh fencing can also be used for sheep. However it is more expensive so might not be financially feasible.

Goats

Because they are well-known as escape artists, fencing for goats needs to be well thought out. Eastern Cape Boergoat farmer Johann Steyn recommends a proven combination for a goat-proof fence. Over a 1,2m high eight-strand barbed wire fence he lays 90mm-high jackal fencing, burying the bottom under a line of boulders along the base of the fence. Jackal fencing is similar to common field fence, only with a thicker, stronger wire strand and smaller



Johann Steyn's tried and trusted goat fence design.

aperture. In smaller camps designed to contain small kids and their lactating mothers Steyn uses the smallest aperture jackal-fencing he can find, saying that if the aperture is too large the kids push their heads through and can't get back out.

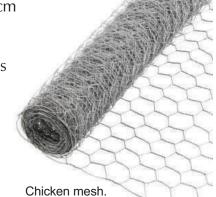
Horses

Fencing for horses should be at least 1.4m high but higher ~ up to 1.8m ~ is recommended. Your lowest strand should be at least 30cm off the ground to prevent horses putting their hooves through the fence, injuring themselves and damaging your fence. Openings between your horizontal strands should not be big enough for a horse to fit its head through. Visibility is important for horses ~ attach PVC piping along your fence or a piece of wood painted white. This will help if your horse is startled and attempts to escape. A much better alternative for equine fencing is wooden post and rail. It is more expensive, but much smarter.

Poultry and waterfowl

When building chicken coops or houses, chicken mesh will be your ultimate solution. This is a braided, hexagonal galvanised steel mesh with openings

usually ranging from 1cm to 9cm wide. Wire strand thicknesses vary in chicken mesh. This is a lightweight product and should be reinforced well with your fence frame. Thicker meshes, such as a diamond mesh or weldmesh are also



suitable for poultry but are heavier, more expensive and harder to work with. This is recommended for permanent structures, where traditional chicken mesh can be easily adjusted without much effort. When buying mesh for birds, pay close attention to the size of the opening against the size of the bird you are keeping. If you intend to breed, and therefore will have chicks, go for the smallest opening you can find ~ chicken mesh is manufactured as small as a 1.3cm width hexagonal design.





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Alternatives to steel fence posts

South Africans are well aware of the damage to public communications and transport infrastructure by the widespread theft of copper cables and steel rails. Less well-known, however, is the theft for reselling of steel fence posts.

On one level it is heartless to condemn somebody who, without work, any form of income, or food, removes a steel pole from a rural fence, to cart it off to the local scrap merchant and redeem it for the few rands it will fetch to buy a little food.

On another level, however, it is no less destructive and illegal than the theft of cables or rails.

Moreover, for the farmer the theft of fence posts is not only inconvenient and an expense that he would rather avoid, but it is also hazardous to any livestock confined behind the fence: with the fence posts removed, horses, cattle, sheep and goats can simply clamber over the downed wires and wander off, even if they are not actively rustled.

With even something as lowly as a steel fence post coveted as a thing of potential value what alternatives exist? There are at least three.

☐ Treated timber posts can be used, particularly if they are properly braced, planted and coated regu-

larly with preservative.

In certain parts of the country, lucky farmers are sometimes able to "harvest" oblong rocks of sufficient length that they, too can be dug in to a secure depth and still have enough height to be useful as fencing uprights.

A newer alternative is to use cast concrete posts. These are made in a variety of lengths of high-strength reinforced concrete, and come complete with reinforced concrete stays as well, which are bolted into the correct position using a small steel collar.

Although they contain some steel rebar this is of such low value, and so difficult to extract (you would have to chip away the concrete surrounding it), that they have no value to somebody simply looking to nick a bit of resaleable steel. Plus, they have the advantage over timber of never needing coating to prevent termite damage and rotting, and over steel of never needing to be painted to prevent rust.

They have been shown to be as strong as steel, and their small diameter means that they can simply be knocked into stone-free, soft ground in the same way that a steel Y-standard or Iscor standard is planted.



Recycle wire into droppers

f you have ever needed to replace rusty barbed wire strands in your fencing you will know that most scrap merchants are reluctant to accept wire for recycling, and you will therefore have accumulated rolls of seemingly useless rusty wire on your smallholding.

However: take heart. It's not useless, and you can keep your plot clear of rusty rolls of wire by repurposing it into droppers.

All you need is a pair of protective gloves, a sidecutter to cut the wire to the desired length, and pliers or a wire clamping tool to fasten the "bundled" lengths together.

But a here's a tip to make the job easier: lengths of high-tensile barbed wire, even when rusty, will tend to bend and curl when not under tension. Therefore, it makes your job much easier if you fashion a simple three sided "box" jig to hold the lengths together while you fasten them.

To make a dropper from wire, cut eight or ten lengths of wire to the required length and push them all into your jig, ensuring that their tops and bottoms are together.

Fasten lengths of binding wire tightly \sim the tighter the better \sim around the bundle. Do this close to the ends, and three or four times (or more depending on the length of the dropper) until all the wire is held tightly together along its entire length.

Hey presto! One dropper!

You may need to bend the dropper straight once completed, although with practice you will learn to lay the lengths in such a way that the curve of one length is counteracted by the direction of the curve of another, so that when fastened they all conspire against each other and straighten each other out. The more lengths you use the more rigid the dropper will be. It will also look more substantial, so don't be shy to add lengths before binding.

You will soon see, when you fasten your wire dropper on to your fence, the advantages of this method. Firstly, if you use enough lengths your dropper will be every bit as rigid as a conventional dropper. Secondly, it looks more substantial than a conventional dropper, so your fence looks more substantial to livestock and casual "observers".

And, thirdly, you are using material that would otherwise simply be making a mess on your plot. Finally, remember that the purpose of droppers in your fence is not to hold the fence upright. That is the role of the end posts, intermediates and standards. All the droppers (should) do is hold the horizontal strands in the same position in relation to one another, so that animals (and humans) can't force them apart to climb through. Dropper bottoms should not be sunk into the ground.

When fastening the strands to the droppers you will quickly come to appreciate the barbs remaining on the lengths of your dropper. They will act in exactly the same way as the notches on a conventional dropper in holding the binding fastening rigidly in position so that the strands can't slide up or down.



Close-up of a dropper made from scrap barbed wire, showing bindings to hold the rusty strands tightly together.







SECURITY

An end to stock theft, if you can afford it

ith stock theft an ever-increasing issue for South Africa's livestock owners, those with a few pennies to spare might be interested in some of the high-tech security measures available. While good fencing, alarm systems and security company subscriptions are considered almost standard on a smallholding, there are a few options available to those willing to spend more money to protect an animal. Although the cost to benefit ratio of these technologies might not be suitable for subsistence smallholders, those with prized breeding stock will certainly see the effectiveness.

GPS trackers

Becoming increasingly common are GPS trackers for livestock. There are a number of options, including collars or ear tags. Initially used in research to track animal behaviour, this technology has now evolved to become useful in monitoring the whereabouts and abnormal behaviour of animals.



GPS collars are popular for livestock tracking.



Ear tags with GPS trackers.

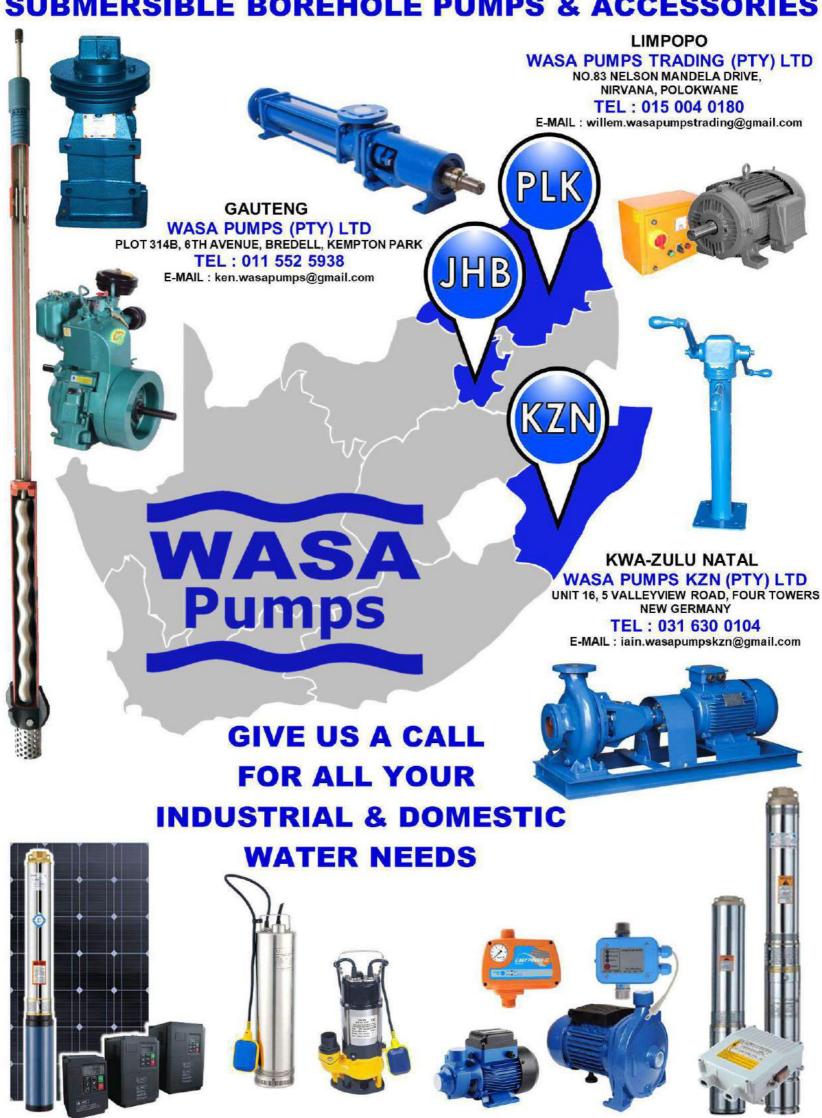
Some options, such as the popular FarmRanger system, send alerts to a cellphone phone using an automated phone call or app, when the system picks up abnormal behaviour in your herd or flock. This can help prevent stock theft and interrupt predator attacks. Systems like the FarmRanger use existing technology such as Google Maps to track your animals. These systems range in cost and effectiveness. There are various add-ons to make the products more effective such as solar batteries, titanium coverings and so on. With prices ranging from R2 000, these systems can prove useful for protection of highly valuable stock such as a breeding ram or bull.

One benefit of a GPS system is that you do not have to buy multiple collars for all your animals. One collar or tag used for a whole herd or flock is sufficient. FarmRanger, for example, recommends one collar per 450 goats or sheep, or 30 cattle. In areas where animals are kept communally, or moved around between properties, a tracking device on one member of the herd or flock could help reduce stock theft.

Continued on page 21



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SECURITY

able to identify the leader of their flock or herd and fit the GPS to that animal.

Some manufacturers also suggest the use of dummy collars on one or two extra animals in your herd as a means of confusing thieves and foiling any plans to remove the GPS device.

Microchipping

A microchip is a permanent method of electronic identification. A microchip system consists of two parts: a microchip and a scanning devise.

A tiny computer chip is encased in a smooth and



A microchip.

durable biocompatible glass.

The bioglass has a coating which allows the tissue fibres within the animal to bond and grow around the microchip, holding it

in place. The chip itself is about the size of a grain of rice and small enough to fit into a hypodermic needle.

The unique number coded on to the chip cannot be altered or removed. It is advisable that the procedure be done by a vet.

A microchip reader displays the unique code of each microchip. The microchip number is recorded on a database registry with details about the animal and owner.

As a means of identifying an animal it is far more reliable than descriptions of markings or other features. This number is unique in the world, cannot be altered, and eliminates doubt.

The SAPS, local councils and animal welfare organisations are equipped with scanners, to prove identity should your animal be lost or stolen and then recovered.



A cow being scanned for a microchip.

DNA analysis

The Gauteng Dept of Agriculture, in conjunction with the Agriculture Research Council's (ARC) Livestock Identification Catalogue (LidcatTM) is developing a database of DNA samples of cattle throughout Gauteng.

The project was piloted in 2019 in Western Gauteng (Merafong, Rietfontein, Randfontein and Johannesburg). The project permanently stores hair samples from animals along with barcoded identification cards under optimal storage conditions.

The use of DNA technology provides each animal with a unique DNA profile that does not change over time.

The DNA profile is captured in the ARC's database and in the event of stock theft, animal identification or ownership disputes, the DNA profile can be compared to that of the animal in question. In addition to this database, the ARC has been able to identify noticeable ownership trends across the province and has amassed valuable information about breeding, herd sharing and genetic variation in cattle farming in Gauteng.



IN THE WORKSHOP

Get rid of your welding machine

f, like most smallholder DIY enthusiasts, your welding "skills" are self-taught you will have learnt the hard, slow and expensive way that welding is as much an art as it is a science. And like art, it requires constant and repeated practice to become anything more than very basically proficient.

Your learning process will have been peppered with errors, waste and disappointments. For example:

- You will soon have learnt that when fashioning a right angle corner it is more difficult than it seems to cut an accurate 45° angle in two pieces of steel.
- When welding steel tube, either square or round, you will soon have discovered how easy it is to burn a hole in it, rather than actually joining it.
- With what looks like a perfect, smooth join complete you will have tapped it with your chipping hammer, only to find that the shiny smooth "weld" was, in fact, nothing more than flux from the welding rod, the steel having dropped in little hot blobs to the floor below.
- You will have discovered that, despite having completed a seemingly passable weld, that the adage "as strong as the steel it is joining" doesn't apply to

you.

And, finally, you will have become dismayed at the length of time it takes to complete even a seemingly simply construction, not to mention the cost of all the rods you have burnt through.

Fortunately, you can now sell your welder, gloves, helmet and chipping hammer because a range of strong fibre-strengthened polymer fittings is becoming more widely available which enable you to quickly construct anything you like out of square and round tube.

Named Connect-It, the fittings are simple and quick to use, and result in a join that is stronger than the steel it is joining.



Connect-It fittings come in a variety of options and sizes.





The polymer used in the fittings is UV-resistant so the fittings can be safely used outdoors, and they can be painted.

To use the Connect-It system you simply cut the tube square to the length required, fit the connector with a mallet and lock it with either a tek-screw or a dedicated Connect-It fastener to hold it permanently in position.



The fittings attach to steel or aluminium with one fastener.

There are ranges of fittings for all common square tube profiles from 19mm to 50mm, some in black or grey, and for 25mm round tube.

Fittings include straight connectors, right angles, and three-way, four-way

and five-way connectors for various corners and constructions. There are even adjustable-angle connectors which, when in place at the desired angle, are bolted tight to hold them in position. These make it possible, for example, to build sheds, greenhouses and other structures with pitched roofs. The fittings can be used with tube of various wall thicknesses. Thus, while you will have been put off using ultra-thin-walled tube because of the ease with which you have burnt holes in it when welding, you can now do so, safe in the knowledge that your construction will be as strong as necessary, saving on the weight of the finished piece, and on the cost of



Adjustable fittings enable any angle to be constructed.





IN THE WORKSHOP



Connect-It fittings can be used to make easy-assembly greenhouses and many other structures, furnishings and items.

the steel used (because in containing less steel thinner profile tube is cheaper and lighter than the heavier variety).

And, you will have shunned the wonderful possibilities of building with lightweight aluminium tube, because you will have recognised that welding such material was simply beyond your capabilities. The Connect-It system works equally as well with aluminium as it does with steel tube.

On the face of it the Connect-It system may appear relatively expensive (a 25mm four-way connector retails for about R35.45, for example).

However, when you factor in the savings you will make on the steel itself (thinner profile tube), welding rods, and time, not to mention the fact that you can now work in aluminium, the Connect-It system will prove handsomely competitive.

Having been developed in South Africa in the last decade Connect-It fittings are available through an increasingly-extensive range of hardware stores and steel dealers countrywide. Or they can be ordered off the Connect-It website and delivered by courier. The website also contains a number of plans and guides for commonly-made household and garden furniture and structures such as tables, room dividers, garden sheds, chicken coops and commercial and industrial displays, racking etc.

For more information call Herman Steynberg on 082 556 5591 or visit www.connect-it.cc



IN THE FIELD

Steel hand-baler ideal for smallholders

durable steel hand-baler is now available in South Africa for smallholders who have only a Ifew dozen bales to make a year, yet who want to be able to store their fodder in a compact, transportable form, for use later in the season, or for sale to neighbours. The device makes a standard-sized square bale that looks and feels similar to a mechanically-made bale. While designs for hand bales have been available for some time for dedicated DIYenthusiasts to build out of wood, steel design and fabrication and welding is often beyond the capabilities of many. Now, Isometric Industries, a steel fabricator in Hammanskraal, has made an innovative design that will prove popular among smallholders for whom owning their own mechanical baler, or miniround baler, or even employing a contractor for the baling season, makes no economic sense. And, being out of steel, it is less bulky, yet more durable, than one of the wooden devices. While the wooden DIY designs most often result in a device that makes a bale which, when complete, stands on its end, the Isometric Industries design lies horizontally, and produces a bale on its side. It comprises a rectangular bale-sized chamber of

sheet steel. On each of the vertical sides are two long slits through which the baling twine is handled. At the one end is a stopper plate which slides into position while the bale is being compressed, and is pulled out to let the finished bale emerge. At the other end is a plunger device attached to a long steel handle. Hay to be baled is put into the chamber through a top opening near the plunger, and pushed into the chamber. With the plunger moved backwards once more, additional hay is added and compressed until the bale is tight and full sized. Once the baling twines have been tied off the stopper plate is removed and, as more hay is added

the completed bale emerges in the same way that sausage does in a sausage-maker. The unit sells for about R6 500. For more information call Isometric Industries. 079 414 4454.



Tight square bales are possible with Isometric Industries' steel hand-baler.



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How to choose your soil amendments

soil amendment is a substance which is mixed into soil which is intended to change the chemical or physical characteristics of that soil. The goal is to improve one or more of the properties, such as the aeration, drainage, nutrient availability, permeability, structure, water infiltration or water retention of the soil.

Amendments can also improve the living conditions for the soil organisms.

A soil amendment is not a fertiliser, which provides nutrients for the plant.

The amendment needs to be carefully chosen, based strictly on the requirements of the soil.

Soil amendments need to be thoroughly mixed with the soil.

Amendments can be broadly divided into two groups: organic and inorganic.

Organic amendments come from something that was alive. They include lucerne (alfalfa) meal, biochar, bone meal, compost, grass clippings, insect frass, bat guano, manure, sphagnum peat, straw, sawdust, wood chips and wood ash.

There are inorganic amendments which are either mined or man-made, such as basalt rock dust, agricultural or dolomitic lime, diatomaceous earth, gypsum, pea gravel, perlite, tyre chunks, vermiculite and sand.

Soil texture or the way soil feels is an important means of deciding which amendment needs to be added. We talk about sandy, clay or loamy soil and each of these categories has different sizes of soil particles.

Sandy soil has larger particles, clay soil has small particles and loamy soil has a mixture of particle sizes.

Texture is important because it influences the rate of water movement through the soil, the amount of

water the soil can hold and how workable and fertile the soil is.

Gritty, sandy soil does not retain water or nutrients well. Rough organic amendments such as compost, well-rotted manure or sphagnum peat will help to improve sandy soil, as will diatomaceous earth. Biochar is made by heating biomass such as wood, mielie stalks and other plant matter under oxygen-limited conditions. It has a unique ability for attracting and holding moisture, nutrients, and agrochemicals, so it would beneficiate sandy soil.

Sticky clayey soil has poor drainage and porosity. This means that water and air do not flow easily through the soil. Amendments such as peat, leaf mould, wood chips, tree bark, green manure or straw will help to separate the particles. (Leaves that have decomposed for a year or two are considered to be leaf mould. Green manure consists of green plants that you dig back into the soil.)

Insect frass is the droppings and exoskeletons of insects. It contains high concentrations of beneficial microbial life and chitin.



Organic amendments.





IN THE GARDEN

It will also be helpful as an amendment to clayey soil. Do not add sand to clay, as this will simply turn the soil into cement.

Lucerne meal is an organic soil amendment that breaks down quickly.

It encourages beneficial bacteria and earthworms, which will help to aerate your clayey soil. It also contains a growth hormone that helps stimulate plant roots' growth.

Vermiculite and perlite both improve the soil's aeration, as well as water retention, so they can be added to either sandy or clayey soils. However in an extensive vegetable patch this could prove quite costly.

When choosing a soil amendment you also need to consider the longevity of the material.

Do you want to improve the soil quickly or do you want a long-lasting result? Well-decomposed compost and aged manure are likely to work relatively quickly in your soil, as the breaking down process has already begun. Gypsum also works quickly.

On the other hand, straw takes a long time to decompose and biochar will survive for decades in the soil.

The pH levels of the amendment - the acidity or alkalinity - also need to be considered. Soil pH



Soil amendments.



Soil with perlite (white pellets).

directly affects how plants are able to take up nutrients. The pH scale ranges from 0 to 14, with seven as neutral. Numbers less than seven indicate acidity while numbers greater than seven indicate alkalinity. Most vegetables do best in slightly acidic soils (pH 5.8 to 6.5). However, parsley, potato, raspberries, sweet potato and blueberries thrive best in acid soils (pH 5.0 to 5.5). Add sulphur to make soil acidic. Coffee grounds are highly acidic so you can dig them into your soil to lower the pH.

There is a common belief that pine needles turn soil acid. It is true that pine needles have a pH of 3.2 to 3.8 (neutral is 7.0) when they drop from a tree. So, if you were to take the freshly fallen needles (before the needles decompose) and turn them into the soil right away, you may see a slight drop in the soil pH. But as pine needles break down and are incorporated into the soil, decomposing organisms gradually neutralize them.

Prolonged use of chemical fertilisers may result in your soil becoming too acidic for many of your crops. Adding agricultural lime to acidic soil will increase microbial activity, help improve soil structure and increase the availability of nutrients.





















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BOOKSHELF

Become 'Climate Smart' with this toolkit

he Agricultural Research Council (ARC) has partnered with the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), as well as the Dept of Agriculture, Land Reform & Rural Development (DALRRD) and the Dept of Forestry, Fisheries & Environment (DFFE) to develop a useful training manual for climate smart agriculture (CSA) in all its forms.

The toolkit arises out of the support of the International Climate Initiative (IKI).

The manual is divided into the following sections:

- ☐ Introduction to Climate Change and CSA
- Agro-meteorology influencing production
- ☐ CSA Soil and Water Management
- CSA Wetlands
- ☐ CSA Beef Production
- ☐ CSA Dairy Production
- ☐ CSA Pig Production
- ☐ CSA Small Stock Production
- CSA Veld and Pasture Management
- ☐ CSA Poultry Production
- ☐ CSA Aquaponics: Fish and Vegetable Production
- ☐ CSA Summer Grains and Legume Production
- ☐ CSA Small Grains Production

☐ CSA Fruit Production

☐ CSA Vegetable Management

Smallholders can download the whole manual from the ARC website (https://www.arc.agric.za/arc-iscw/CSA-Toolbox/Pages/default.aspx) or they may simply download the sections that are of interest to them.

The information is clear and easy to read. There are useful photographs and graphics.

Small farmers will learn how to reduce the risk associated with climate change within their production system, as well as to apply adaption strategies to counteract the adverse impact of climate change.

This awareness-raising toolkit on CSA brings together information for extension practitioners and small-scale farmers in their day-to-day activities.





Images courtesy: ARC

















EVENTS

Hydroponics Vegetable Production Course

Hosted by the Agricultural Research Council (ARC) Vegetable & Ornamental Plant Institute in Roodeplaat, Pretoria East, the course covers systems and structures, growth media, crops, fertigation and irrigation, sanitation, marketing principles, scouting pest and diseases management, harvesting and grading, production planning/ planting programme, seedling production and record keeping.

Cost: R4 200pp (minimum 20 people).

Dates: 13-17 June, and 14-18 November (on

request).

Contact: evdheever@arc.agric.za.

Open Field Vegetable Production

Hosted by the ARC Vegetable & Ornamental Plant Institute in Roodeplaat, Pretoria East, this course covers classification of vegetables, winter crops, summer crops, influence of environmental factors, fertilization and irrigation, spacing, planting times, seedling production, planting programme, marketing principles, record keeping, pest and disease management and sanitation.

Cost: R3 800pp (minimum 10 people). Dates: 13-17 June, and 14-18 November.

Contact: evdheever@arc.agric.za.

VellieFees Boeredag

"Landbou fees met 'n kultuur karakter". All breeds bull auction and exhibition, drone and other machinery demonstrations, various mechanisation options for your farm, precision farming solutions to assist the farmer, lectures on sustainable power solutions, protein and feed solutions and pasture management. Live music and other entertainment.

Cost: R150 for one day, R240 for two days. Scholars R80 per day or R140 for two days. Children under 1m free. Tickets available on Computicket.

Dates: 2-4 June 2022

Location: Corner R23 to Balfour and Zuid Street, Rensberg, Heidelberg, Gauteng

Contact: info@velliefees.co.za or WhatsApp 066 214 1913.



Solar Power Systems Course

This comprehensive photovoltaic solar design and installation course was created to address the need of individuals, organisations or small businesses that require basic information on the size, rating and installation of solar systems. Where possible, the course contains practical elements eg. testing voltage and short-circuit current of solar panels, doing experiments with shade and partial shade on panels etc. Course objectives include being able to assess what equipment should potentially be of good or poor quality, distinguish how photovoltaic technologies differ from each other, know what the most appropriate energy saving technology is for a particular application, perform calculations for the design of a solar power system, and more.

This course is ideal for Do-It-Yourself enthusiasts, people with little or no electrical knowledge, as well as electricians and other craftsmen. No formal prerequisites are required to attend this course. The course is presented by Carel Ballack, who has been involved in the energy and renewable energy sector for more than 17 years.

This is the first leg of a twin course. The second leg is a separate course that deals specifically with batteries and which will soon also be presented with KragDag.

Date: 9 July 2022

Cost: R1 650, until 24 June, thereafter available at full price of R1 950 (bookings close on 7 July 2022 at 00:00).

Location: Diamond Valley Estate, Pretoria, Gauteng **Contact:** 087 231 1644 or email info@kragdag.co.za

for more info or to book.



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The maplotter's lexicon

souls into our world I have concluded that where you first became a sentient being will influence the first words you utter.

Our eldest son, now approaching 40, spent his first four years in suburban Cape Town. Not surprisingly, therefore, his first word was "ka" (accompanied by much pointing at vehicles in the street outside).

Having mastered "ka" and the other essential means of communication such as "mama" and "dada" his linguistic career really got going a bit later when he invented a word which, frankly, should be adopted by English lexicographers, namely "underthrough".

This describes the action, usually by toddlers rather than adults, of disappearing under a table or chair, and emerging on the other side. I challenge you to come up with a more descriptive term.

After suburban Cape Town our family of three became a family of four when, based on a smallholding on the East Rand, our newest addition (now in his mid-30s) mastered as his first word "hadeda", again while pointing in the direction of whatever squawking avian was pecking away on the lawn.

As is the way, frequently, with multi-offspring families, neither I nor my better-half can clearly remember the first word of our last-born, a 30-something daughter. Perhaps this was due to the general babble in our home by this time, courtesy of our two loud sons. Nevertheless, my abiding memory was of a lot of "WAAAAA" accompanied by screwed-up eyes and general "snot en trane".

The mother, more charitably, suggested wryly that her first words were probably quotes from Cicero in the original.

If the experience of plot life on our three children is

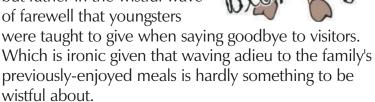
aving been half responsible for bringing three not enough to prove that one's surroundings affect one's consciousness, a cousin who grew up on a plot in Halfway House tells of how, in his family, what is more commonly known today as a honeysucker was described as a "poeftata".

Frankly, if one is looking for a proper description of

the process of emptying a septic tank and removing its contents, a poeftata is a much more accurate word than

honeysucker which to a townie could easily be confused with a pretty little bird.

This was long before multilinguialism was a fact of South African life and "tata" could be translated as "take", but rather in the wistful wave



Our three kids are now grown and gone, established in their careers and living in cities roundabout. Yet I am always amused, and dare I say flattered, when I catch them saying among themselves or to their friends, that they are going to "the farm" for a visit or a meal. It makes our plot sound so grand! Because for all it may have been as a happy stomping ground for them and their mates as kids, providing convenient stabling for their ponies and giving them the facility and space to mess around with tractors and such, to describe it as a farm is to stretch the term a bit. Just a teeny little bit.

