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#### EDITOR'S COMMENT

## **Eve of Destruction**

orget about corruption crisis. Forget about the unemployment crisis. Forget about the load shedding crisis. Forget about crime. Forget, even, about Vladimir Putin and his Ukranian war. Concentrate, rather, on the crisis of our age; the crisis which, if we don't decisively address it, is going to wipe us as a species, and most other species as well, off the face of the earth. I'm referring ~ yet again (unapologetically) ~ to the climate crisis.

If you follow the news and sensible commentary in credible international media you will have picked up that many of them now carry regular sections exclusively devoted to the climate crisis. It's all good stuff, but it's not enough.

For the fact is that the arrival of the crisis can be likened to the frog-in-hot-water story: if you put a frog in a pot and slowly heat the water it will make no attempt to jump out, even when it's too late and it becomes a cooked frog. The arrival of climate change is the same: it's happening all around us, gradually getting worse with each passing year, yet unless we're directly affected (by, for example, our houses being burnt down in runaway fires or destroyed by floods) we simply shrug our shoulders and move on. That's not good enough.

We simply can't leave humanity's response to the climate crisis in the hands of others, and certainly not those of politicians and governments, because they'll do nothing that is going to render them unpopular, perhaps by bringing hardship on their voters. We have seen this time and time again in the global political response after each COP summit. At the summit political leaders talk up a storm about the need for a vigorous climate response, sign all sorts of agreements and targets, and then fly home on their private jets to go about their business as usual. And the response that is needed now will render the

politicians unpopular, because it certainly will result in an economic, social and financial reset – globally. It simply can't be otherwise.

We have to reduce, rather than increase, our consumption – in every

respect. We have to reduce the distances we travel, and the distances goods travel to reach us. We have to reduce what we consume, and produce more of our consumption either ourselves, or at least locally. In short, to save our planet, and ourselves, we have to slow down our ways of life, and pull in our horns. Yes, our lifestyles must change - radically.

Because if we don't do it ourselves, it's going to be done to us by forces beyond our control.

We should be educating the younger generation in the skills they will need to survive: how to grow, store and prepare your own food, how to build and repair things, soil science, water conservation, how to make your own clothing and so on.

We have to adopt the mantra "reduce, recycle, repurpose," etc, to which I would now add "refuse", as in *aikona*, not as in the American word for garbage. In other words we have to start driving a change in packaging and retailing by refusing to buy items in non-returnable, non-recyclable or one-time-use packaging, as well as refusing to buy goods with short lifespans, or which can't be repaired when they break down. If enough consumers do this retailers will soon get the message as they see their sales drop, in turn persuading their suppliers to change.

So this is my message to you, dear reader. Now go to the *Daily Maverick* website to watch and listen to Anneli Kamfer's reworked version of Barry McGuire's 1965 anthem *Eve of Destruction*. And then tell me that I'm wrong to bang on about climate change.

~ **Pete Bower**, Editor

# SOUTH AFRICAN SMALLHOLDER OCTOBER 2022 EVERYTHING A SMALL FARMER NEEDS

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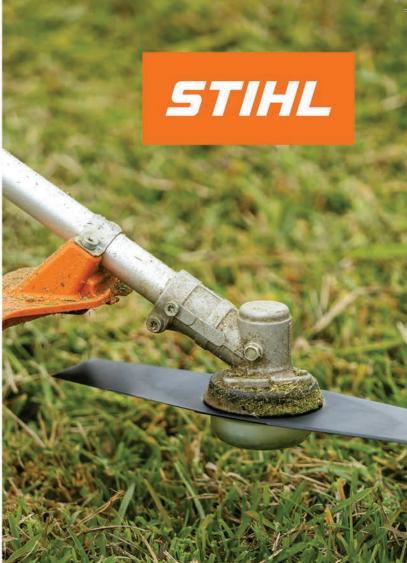
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#### **FRONT COVER**

Skilder goat and kid, courtesy of Tracey Michau of the Karoo Skilder Stud of Cradock, Eastern Cape.







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### **MAILBOX**

## Plastic crisis needs varied response

IR ~ Your comment "Plastics: ban the stuff" (Smallholder, September 2022) is admirable in sentiment, but completely quixotic. It will never happen, as plastics have become too ubiquitous in so many varied applications.

Maybe a more varied response is required to the plastics "crisis". There are certain categories of product that could well be banned outright, and in some countries already are illegal, particularly singleuse, throwaway stuff. The plastic shrinkwrap touted at South Africa's airports as a solution to theft from luggage is a case in point. Fly into Tanzania and your carefully shrinkwrapped suitcase is quickly shorn of its covering by airport officials. And many other other single-use plastics could be banned outright as well. In other cases, the use of plastics could be strongly discouraged by the imposition of swingeing taxes, with the revenue thus garnered being used to subsidise the (presumably higher cost) use of alternatives, or in clean-up efforts in rivers and dams, and on the coast. I am thinking here of plastic cooldrink bottles

which when I was young didn't exist. Rather, we bought our cooldrinks in reusable glass bottles which we returned to the shop when empty for a refund of the deposit. Disposable baby diapers are another diabolically polluting product whose use could be discouraged by taxation, but only if the alternative, namely old-fashioned cloth nappies, nappy liners and nappy pins are made more freely available, along with the large lidded buckets and nappy sterilising powder with which to keep them clean. At the end of the day it all boils down to the fact that we all ~ or at least we who are environmentally aware and concerned ~ know that we are going to have to change the way we live to save the planet. But none of us wants to make that change if it involves any form of inconvenience to our lifestyle. The fact is, however, that we can't have it both ways.

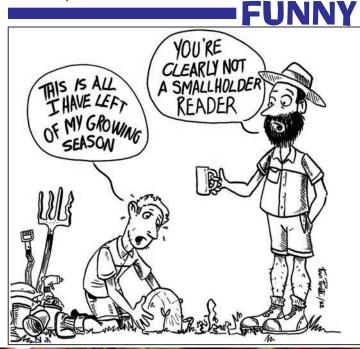
#### **Nigel Hawkeberger**

Hartbeespoort

### MAILBOX Language: It ain't easy

Sir ~ Your Back Page article The battle of the languages (*Smallholder*, September 2022) is something I experienced personally. I received a call for a bee removal from what was an obviously Afrikaans name and surname. So the phone call (requesting my service) and on arrival on site continued in Afrikaans. Until he turned and chastised his dog in English.... Needless to say we then switched to our Mother Tongue.

**Peter Standish**By WhatsApp





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#### **NEWS**

Horse Sickness vaccine shortage ~ again

for last year's dehacle with African Horse ously should be vaccinated as priority as they would

fter last year's debacle with African Horse Sickness (AHS) vaccine availability, this year got off to a more promising start when the only registered producer of the vaccine in South Africa, namely state-owned Onderstepoort Biological Products (OBP), issued a statement early in the year reassuring the equestrian industry that a full 20 000 doses of the vaccine would be available by the start of the inoculation season.

However, by the first week of October it was understood that production had ground to a halt due to a strike at OBP, and broken machinery.

As a result, at the beginning of the season only batches of the second dose were made available, and then not in the quantities required by the equestrian industry.

Latterly, a few packs of the first vaccine dose were also being supplied, but not in the quantities required.

As a result of the shortages and sporadic supply it was decreed that the deadline for completing the vaccination of horses in the endemic zone (ie most of South Africa apart from the Western Cape ~ see below) was extended to 31 December, and the National Horseracing Authority took it upon itself to issue guidelines as to how best to use what vaccines were coming available.

The NHA suggested a set of priorities to protect the most vulnerable animals first. Thus:

Horses that are under the age of three years old, or with fewer than three sets of vaccinations previ-



Horse owners are struggling to find AHS vaccines.

ously should be vaccinated as priority as they would be at highest risk of infection and disease. This is especially important for horses within the controlled area that are likely to travel, as vaccination for these horses can only occur between June and October.

Horses within the AHS controlled area that are likely to travel out of the AHS controlled area and have not been vaccinated within the last 24 months

☐ Horses in South Africa with less than six sets of vaccinations in their life and/or horses that are competing or moving regularly, therefore increasing the risk of AHS spread.

should be prioritised.

Regarding horses resident in the AHS controlled area (free zone, surveillance zone and protection zone), the legislated permitted AHS vaccination period of 1 June to 31 October 2022 remains in place unless or until DALRRD rules otherwise.

The NHA will re-evaluate its rules for horses that reside in the AHS controlled area that may be affected by the unavailability of the AHS vaccine individually and in consultation with the Boland State veterinarian.

The AHS controlled area comprises three rough arcs, the smallest being the free zone, which is essentially urban Cape Town, including the Durbanville hills and Milnerton racing complex. This is enclosed by the arc of the surveillance zone, the border of which stretches roughly from Velddrif on the west coast and includes the area around Wellington and Franschhoek and thence to the False Bay coast near Gordon's Bay. Lastly, the protection zone extends in a bigger arc from the west coast south of Klawer, and includes Touws River and Barrydale, and down to the coast at Mossel Bay. The rest of South Africa is the AHS endemic zone.

The idea behind this seemingly complicated arrangement is to enable an area from which it is safe to export animals without lengthy quarantine periods, for the purposes of competition and breeding.

"It is an offence to vaccinate horses in the AHS









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## **NEWS**

## Focus on small-scale farming, says UN

n his first week in the job, the new head of the UN's agricultural finance fund Alvaro Lario said that amid a global food crisis, which he warned could become a regular occurrence, he wants to focus on investing in the resilience of small-scale farmers so they can produce food for themselves and are not left at the mercy of external shocks. Speaking to the UK's *Guardian* news organisation he said: "Resilient means that when you have a shock to your income ~ like currently, with inflation ~ when

you have a shock coming from extreme climate, you're not going to fall from the brink of poverty into poverty or food insecurity."

The current food crisis, exacerbated by the war in Ukraine, would happen again ~ and soon ~ unless world leaders addressed decades of underinvestment in how food was grown and delivered, he warned. He said hundreds of billions of dollars needed to be directed towards small farms by investing in water Continued on page 7

-AHS

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controlled area after 31 October 2022, unless a written exemption has been granted to do so by the national director of animal health at DALRRD. Individual written and motivated applications for permission to vaccinate outside of the legal window period may be considered, under appropriate and strict vector protected conditions."

Meanwhile, it has been revealed that back in 2019 scientists in Dubai announced that they had developed a horse sickness vaccine using dead (rather than the SA-developed live) components that had performed well in tests.

It had apparently been offered to the South African market, especially after the first shortages of locally-manufactured vaccines were noted. However, it was never accepted and registered and, as one veterinarian contacted by the *Smallholder* commented, "I don't think it ever will be. After all, Onderstepoort Biological Products is a government-owned facility, and the only manufacturer of horse sickness vaccine in South Africa.

"Is the government therefore likely to allow the importation of a product in direct competition to its own (lucrative) monopoly? Hardly."



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## NEWS

## Rabies remains a concern in SA, says Govt

abies remains a concern countrywide, with outbreaks reported in all nine provinces in 2022. This has meant an increase in human rabies of cases over the last year, according to the National Institute for Communicable Disease (NICD). These human cases were reported in the Eastern Cape, KwaZulu Natal and Limpopo.

According to the Faculty of Veterinary Science at the University of Pretoria, rabid dogs are the source of 99% of human rabies deaths in South Africa.

However the, black-backed jackal, bat-eared fox and yellow mongoose also play a role in maintaining the virus in the wild-life population.

The SA Veterinary Association says that it is critically important that every pet owner has their dogs and cats vaccinated to protect both humans and animals against rabies.

The first rabies vaccine is given at twelve weeks (three months) of age, followed by a booster vaccination between one and twelve months later. Thereafter, a booster is required every three years. In high-risk areas, annual vaccination is strongly recommended.

Suspected and known rabies cases must be reported to the local State or private veterinarian, animal health technician or the police.

Animals that have rabies secrete large amounts of the virus in their saliva, so the disease is primarily passed through a bite from an infected animal. It can also be transmitted through a scratch or when infected saliva makes contact with mucous membranes or an open, fresh wound. The risk runs highest if a pet is exposed to wild animals.

Initially, a dog that has become infected may show behavioural changes such as restlessness or nervousness, both of which may present as aggression. Friendly dogs may become irritable, while normally excitable animals may become more docile. A dog may bite or snap at other animals, humans and even inanimate objects. They may constantly lick, bite and chew at the site where they were bitten. A fever may also be present.

As the virus progresses, an infected dog may become hypersensitive to touch, light and sound. They may

Continued on page 9

#### **ECONOMY**

from page 5

and soil conservation, offering low-interest loans, access to markets, and boosting productivity.

"What we're seeing is that they are currently not even able to actually produce their [own] food, many of them have to sell their assets ... because they don't have enough to feed themselves."

Lario said the impact of war in Ukraine had disrupted shipping of key crops for months and caused fertiliser prices to jump, exacerbating existing problems as 150 million people had fallen into hunger before the war. "If we do not invest right now, in terms of tens or hundreds of billions, even if we resolve the Ukraine war soon, in two to five years we will be in the same

situation," he said.

"In the short term, we've had a lot of climate shocks, droughts and flooding that have also made it much worse, but generally, the fact that we have not really paid enough attention to how food is produced, how food is distributed, how food is stored, and the creation of jobs in many of these rural areas, is at the forefront of the crisis."

"The way of actually tackling poverty, of tackling food insecurity, of tackling the financing of food systems, needs always to start with this long-term rural transformation and bringing small-scale producers to the table," he said.



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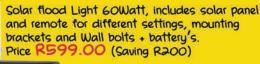
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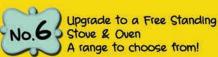


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## FMD restrictions lifted in Free State

he Foot and Mouth Disaster Management Area in the Free State has been lifted. This was the decision taken by minister of Agriculture, Land Reform & Rural Development, Thoko Didiza. The new regulations only allow for farms unaffected by FMD to continue with their business. However, farms that tested positive for FMD, or are under suspicion

for FMD, remain under quarantine.

The department continues to monitor the situation, undertaking monthly reviews to assess the spread of the outbreak in the affected provinces. The Disease Management Areas in KwaZulu-Natal and Limpopo remain in place and will be reviewed on a monthly basis. \*

from page 7

eat unusual things and hide in dark places.

Paralysis of the throat and jaw muscles may follow, resulting in the well-known symptom of foaming at the mouth. Disorientation, unco-ordination and staggering may occur, caused by paralysis of the hind legs. Other classic signs of rabies include loss of appetite, weakness, seizures and sudden death. The virus can incubate from two to eight weeks before symptoms are shown. However, transmission of the virus through saliva can happen as early as ten days before symptoms appear.

Once symptoms appear, there is no treatment or cure and the disease is fatal.

Humans that have had contact with rabies-infected



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# Growing the Lowveld Chestnut

ctober's plant has been the subject of Jason Sampson's research for a number of years and the full process and quirks of the species' seed germination has rarely, if ever, been published in print.

It is the Lowveld Chestnut, *Sterculia murex*. The Lowveld Chestnut is a fascinating species, restricted in nature to the terrain surrounding the

Blossoms of Sterculia murex appear in huge numbers in spring.

Another in our series on "orphan" and unusual crop species, by University of Pretoria horticulturist Jason Sampson

granite inselbergs in and between Nelspruit and Barberton, with some populations in the Kruger Park. In habitat they can be very common, but they are a species of restricted range

and relatively uncommon in cultivation.

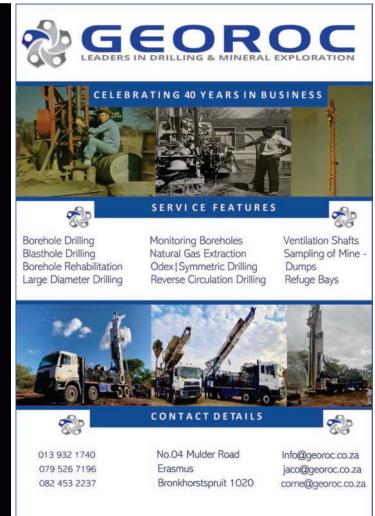
The trees are a bit reminiscent of a cabbage tree (*Cussonia sp.*) in looks, with large, five lobed leaves. The trees can get large but in their younger years are fairly slender without much spread to the crown. The roots are large and fleshy, and can be damaging to paving.

A "blossom tree", the species bears lovely yellow spotted-with-orange flowers in spring for about two weeks. If the winter has been cool and sufficiently dry the blossoms will appear on bare branches, but if the tree has had winter water it is inclined to be semi-evergreen, lessening the show.

The tree gets its name from its large, spiked fruit which look a little like those of a "true" chestnut,

Continued on page 12





#### IN THE GARDEN

Castanea sp, as well as its edible, large, sweet and oily seeds, or nuts, which are roasted for consumption in much the same was as the European winter delicacy.

Interestingly enough, the Latin species name *murex*, derives from the Latin name for a spiked war club, also referring to the fruit.

The trees can bear very heavily, and the fruit are shed in February/March over a short period which coincides with the wettest time in the plant's habitat's rainy season.

Nuts are very heavily eaten in habitat, as they are delicious both raw and cooked. They have soft, leathery shells that offer little protection against herbivores, and if roasted in a pan or over the coals of a fire, will "pop" slightly, showing the flesh of the seed.

A word of caution: the inner rim of the fruit bears short, irritating hairs which necessitates some care when harvesting the nuts.

The tree is adaptable and can be cultivated, but prefers a warm climate with good summer rain. It bears best if given a good dry season, and is adapted to long periods of drought in winter.

It does not appreciate temperatures much below 0°C

but can re-sprout from its succulent rootstock (caudex) if cut completely back by black frost as a seedling. Adult trees can take colder winters.

Very fast growing, the tree can start bearing pods in its fifth year, possibly earlier if fertilized heavily. Growing from seed can be quirky, and one needs to understand this tree's adaptations to its unique habitat to get an appreciation of why the seeds do



Young seedling showing the caudex, or storage organ, just above the roots.

what they do. When shed in Pretoria, the seed dries out and dies in hours sometimes, and that is due to the fact that the seed shell has no water holding

Continued on page 13



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#### IN THE GARDEN

ability whatsoever. In habitat the seed would have been shed in almost monsoonal rain and, if lucky, be flung between rocks by the breaking up of the falling fruit, where it will be protected from predation long enough to germinate, which it does and completes in a handful of days.

Also, Sampson adds, "when trying to propagate this species from hours-old seed in Pretoria, I almost discarded seedling trays full of empty seed shells thinking they had been eaten by rodents (which can happen), but by pure luck figured out that the seed had germinated at lightening speed and made storage organs (an enlarged rootstock or succulent caudex), and thick, fleshy roots as deep as possible in the trays. These rested a full winter before shooting the aboveground parts of the young trees."

So in habitat, these seeds are optimized to "get underground" as fast as possible to escape being eaten, and the fires and drought that follow in winter. If you are into seed saving and sharing, says Sampson, always propagate from the freshest seed possible.

If harvesting nuts for propagation, storing them in plastic or a sealed container is recommended, but they will show signs of germination very soon, and need planting in soil that is kept moist for the duration of the process.

Sampson has managed to delay germination by about a month by storing seed at 10°C, but they have no dormancy so that was probably about the maximum. Seed trays can be kept relatively dry over the plants' first winter, and caudexes can be separated and potted up in Spring.

Continued on page 15



Mature pods just starting to open, end of February





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IN THE GARDEN

Sampson has never tried to propagate this species from cuttings. It is likely to be possible but caudiciform plants will often not generate a caudex from a cutting and since this tree seems to depend heavily on this structure it may affect its performance. He has noticed some differences in performance both in habitat and cultivation, and recommends that one grow nuts from heavily bearing trees to get offspring with increased potential to bear well. The Lowveld Chestnut is admirably suited to a food forest, and may well have potential for commercialisation too.

The nuts store very well if frozen, and cultivators with an experimental turn of mind may think about the potential for nut flours, nut milks and nut oils, to name three potential areas of experimentation. Harvest the nuts as soon as possible from the moment the fruit opens.

Depending on where you live in the country they can dry out, be eaten by herbivorous animals or nut eating birds, or all of the above.

For more information on this, or other orphan crops, please contact Jason Sampson at jason.sampson@up.ac.za.



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#### INSECTS

## Know your plot's dung beetles

verybody has a mental picture of a dung beetle at work: a tough-looking creature with its back legs on an impossibly large ball of dung pushing backwards towards some unknown, unseen destination.

Not everybody knows, however, that there are about 780 different species of dung beetle in South Africa alone.

Dung beetles (*Pachylomerus femoralis*) perform a number of key ecological functions so smallholders should examine their plots to discover what they can do to encourage dung beetles to take up residence in greater numbers.

Their obvious role is to break up, disperse, eat or decompose dung of livestock or wild herbivores. Not only do they clean our pastures, they also reduce greenhouse gas emissions as the manure would produce methane if left in the field.

They eat eggs of flies and other parasites, which reduces the number of pests. They also carry mites which eat fly maggots.

They improve pasture fertility by adding organic matter and nutrients such as nitrogen, phosphorous, potassium, magnesium and calcium. They increase

soil aeration, which assists rain infiltration and reduces the need for harrowing.

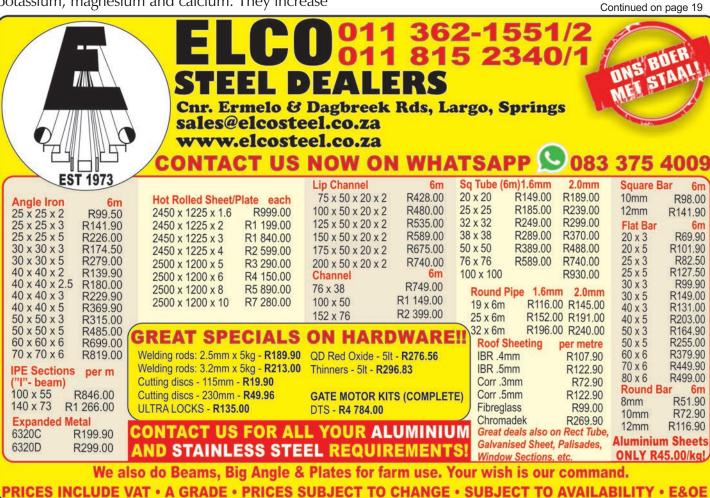
Dung beetles increase biodiversity above and below ground and their numbers on your land provide a measure of the biodiversity of your smallholding. As part of the food chain, they form a vital food

source.

Threats to dung beetles include climate change, habitat loss, habitat changes, excessive soil disturbance and persistent use of insecticides. Smallholders can help by doing what they can to cut down on greenhouse gas emissions by,



amongst other measures, using no till methods.





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## Here are SA's most popular goat breeds

mallholders interested in keeping goats have a number of indigenous breeds to choose from. Generally, indigenous breeds in South Africa are kept predominantly for meat, as opposed to milk production. Most commercial goat milk producers favour imported breeds. But, if its meat you're after indigenous breeds will stand you in good stead. Indigenous meat breeds include:

■ Boergoat ~ Developed through selective breeding over more than 70 years, the Boergoat is a hardy meat-breed. It is able to withstand arid conditions and is easily adaptable to other conditions. The breed has a high fertility rate, and the does are good mothers with sufficient milk of a high quality. Boergoat kids grow quickly, reaching around 40kg by eight months

old. Boergoats are popular all over the world and their meat is considered one of the best. It has the same protein content as beef but is less fatty than both beef and chicken.

☐ Kalahari Red Goats ~ Despite the misconception that the Kalahari Red is simply a fully red boergoat, they are in fact their own distinct breed. They were developed out of Namibian landraces and boergoats. The breed was declared sufficiently genetically distinct in the late 1990s and the first breeders club was started in 1999.

They are known for their short, glossy red or dark red coats. Occasionally an animal will have a white patch or few spots, remnants of their boergoat ancestors.

Continued on page 20

#### INSECTS



Plum dung beetle (*Anachalcos convexus*).

from page 17
Rotational grazing, as well as allowing
fields to remain fallow for a few weeks encourages
beetle activity. Multi species grazing is also good.
When it comes to the effects of chemical treatments
of livestock, there are some options that support the
dung beetle. Instead of frequently deworming the
whole herd or flock, rather check faecal egg counts

and treat only the animals that need deworming. Choose breeds of livestock that are more resistant to parasites, or selectively breed for resistance. An integrated pest management system will reduce all the chemicals used on your land. Where possible, use biological pest control by increasing the biodiversity of natural predators. Do some research on high-fibre grasses and natural anti-parasitic grass species that will grow in your area.

You can also set aside insect-protected areas on the margins of your fields or in rewilding corridors where natural ecosystems come into better balance.

Dung beetles vary in size from 5mm to 50mm. They are divided into groups according to how they dispose of the dung: tunnelers (paracoprids), dwellers (endocoprids) and rollers (telecoprids). You might also encounter kleptocoprids, which steal the rolled balls of telecoprids in which to lay their eggs. It often happens that there are many different species of dung beetles in a single pile of manure.







Boergoats. Image: Johan Steyn

The breed is popular as a meat producer as well as for its pelts.

Kids reach around 30kgs by six months. Similar to their boergoat counterparts, they are fast-growing, hardy and adaptable with low-fat flavourful meat. They are excellent roamers, with mothers raising their kids in the veld to much success. Their colouring is thought to assist as camouflage against the red soils of certain parts of South Africa.

 $\square$  Savanna White  $\sim$  The Savanna, or Savannah, is a popular meat breed. Officially dating back to a breeder in the 1950s, the Savanna was developed in the Vaal area but has origins in boergoats from much longer ago.

Cape lob ear kid. Image: Indigenous Veld Goats

They are largely drought and heat resistant. Although their coat is white, they have pigmented skins, horns and hooves which help them cope with harsh sunlight. They make excellent mothers, often

producing twins or triplets.

Their milk is nutrient rich for their kids, although not produced in sufficient enough quantities for commercial use. Their white coat makes them a popular choice for traditional ritual slaughter.

Their white coat sometimes means they are confused with Saanen goats  $\sim$  a Swiss breed popular for milk production.

☐ Indigenous Veld Goats ~ There are four eco-types within the Indigenous Veld Coat (IVG) classification. These include the Cape Speckled goat, Nguni-type goat, Cape Lob-eared goat and Kunene goat.

The Veld Goat is the basis of most other indigenous breeds and as a result they share many of the same characteristics of more recent breeds.

They are hardy and move with ease, able to travel long distances in a day. They are highly fertile, with a long breeding season and excellent mothering abilities.

The Nguni-type are the most abundant IVGs, known for their dappled or speckled coats. The Cape Lobear are thought to have originated along the dry West Coast. They are identified by their droopy ears. There are only a handful of breeders with true Lob-ears now in South Africa as many have been bred out in favour of the boergoat.

The Cape Speckled goat, also known as the skilder (pictured on the front cover of this edition), are also thought to have originated along the west coast and north-western parts of the country.

Today, they are region specific with a number of well-known breeders and herds around the country. They are identified by dappled or speckled coats with solid-coloured heads and often legs as well. They are

Finally the Kunene is found largely in the northern parts of Namibia and it thrives in dry, hot, mountainous areas.

Milk breeds common in South Africa include:

heat and sunlight tolerant.

☐ Saanen ~ The Saanen originates in Switzerland and is the most popular dairy goat in the world. All white, it can sometimes be confused with the indigenous Savanna, although it is a lot less hardy.

The Saanen's skin and coat are not as tolerant to the







Saanen goat.

African sun, and smallholders must take care to ensure their herds have access to cooler areas and plenty of shade.

A healthy Saanen can produce more than 800litres of milk a year. The animals are quite large, with fully grown males standing about 90cm tall. They are a docile breed and are often recommended for children and beginners.

☐ Toggenburg ~ Another Swiss import, the toggenburg are smaller than most other dairy breeds but produce a good yield of milk.

Their colouring ranges from light fawn to dark chocolate brown, often with white ears, legs and the underside of their tails. White markings on the face are also common.

Adult males can stand around 85cm tall.

Does can produce up to 700kg of milk a year. Their milk is lower in fat than some other breeds and so they are not always suited to the making of cheeses. They prefer cooler climates but are friendly and docile, with their smaller size being an advantage for smallholders.

 $\square$  Alpine  $\sim$  A standard British Alpine is normally black all over with white markings known as "Swiss markings". Females have a glossy coat. The breed developed out of the Swiss toggenburg and native British goats.

French Alpines are usually rich chestnut coloured with black markings along their backs, faces and legs.

However, these markings can differ within the breed. Alpines are popular for their extended lactation periods and their ability to lactate through winter. British Alpines do not like humid environments. French Alpines thrive in drier, mountainous conditions and can cope with a wide range of temperatures

☐ Bunte Deutsche Edelziege ~ Originating out of Germany in the 1920s, the BDE is a hardy animal. The breed comes in a wide variety of colours but is predominantly brown with black accent markings. BDE breeders claim this milk as the tastiest.

There are only a handful of thoroughbred BDE goats in South Africa.

Wool breeds include:

☐ Angora ~ Originally a Turkish breed, the angora is used to produce mohair. Unlike some other woolproducing animals, the angora can be shaved twice a year. It does not moult naturally.

Mohair exports out of the Eastern Cape have been successful as the angora enjoys the hot and sometimes drier conditions of the region.



Angora goat.

Gorno Altai and Saffer ~ Both cashmereproducing, these two breeds moult naturally around springtime, allowing the production of cashmere from their wool.

A project in the mid-1990s released 500 Gorno Altai into South Africa, driving cashmere production. When crossbred with indigenous veld goats, they can produce an interestingly coloured cashmere as well as good quality meat.









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## Your goats are social creatures

he domestic goat is a sociable, inquisitive and intelligent species. Although it exhibits a wide range of behaviours, the domesticated goat has been the subject of relatively few behavioural studies. If you are keeping goats, it helps to know how their social structure works, so that your management of them does not place any unnecessary strain on them. Or on you, when they get up to their mischief (as goats are wont to do).

Goats are a flocking species but they don't flock as

tightly as sheep.

Indigenous Veld Goats have a very strong herding instinct, which helps to protect them from predators, which they will fight off with their sharp and efficient horns.

A goat herd is hierarchical, usually with a head male and a herd queen. A goat herd has a "pecking order", so every goat has its place in the herd.

Goat fans are known to describe their goats as "gangsters", because hierarchy is serious business in a

goat herd. Males join harems of females in autumn but for the rest of the year they are in bachelor groups of solitary males. They sort out a social order in these groups by butting and horn wrestling. So for most of the year, an alpha female leads the group of females, who are suckling their current kids, with previous adolescent females still in the group. She's the dominant doe in the herd, and as such, she gets first choice of food, sleeping spot, and anything else considered desirable by goats. In a dairy herd, she'll want to be milked first. Every other doe in the herd has a specific status below her, and gets access to the best items based on that position.

The herd queen tends to be the most aggressive, oldest, and largest goat in the herd, but that can vary depending on herd makeup. She's the goat that will lead the herd out to pasture and determine where they should browse, and in wild herds is responsible for teaching the herd which plants are poisonous or inedible. The herd queen's kids automatically assume rank



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directly below the queen. As her kids grow, they will also defend her to make sure she retains the top spot. She will usually retain her position until she dies or becomes infirm and another doe wins the spot. Younger members of the family or tribe are submissive to higher-ranking females. It is quite common for a doe that has recently kidded (or sometimes just before she kids) will try to "upgrade" her position in the herd in order to secure a higher status for her kids.

Goats use their horns along with head butts to sort out their social status.

In farmed milking goats, you see them bunting and biting each other in the milking shed to sort out their differences. Bunting involves pushing at the other goat with the head.

Goats dislike people grabbing, holding or tugging their horns. In a group, goats use their horns to test strength and protect themselves. If you behave in this way your goat may think you are challenging or threatening them.

When mixing a new member into the herd expect disputes to occur for a few days, in the form of rearing and butting. This is whilst the new goat establishes a position amongst the herd. Normally the lower status goats will be the first to argue with the new comer. Although this can appear rough, it is just natural goat behaviour. Obviously, from a distance, keep a watch on the mix.

Another important goat habit is that of the kids  $\sim$  they love to hide. They tuck themselves away under bushes or behind objects and very often the mother will not know where they are.

It is a good idea to put very brightly coloured collars on young kids to help make them easier to find. Also, when looking for a kid, keep in mind that they can squeeze into very small places (the smaller the better as far as they are concerned).

You will find that it is not easy to push a goat. If you push them to get them out of your way, they will lean into the push. It you want them to move, pull them. It is a good idea to keep your goats busy. That is because goats are clever, curious and energetic, so when they are bored they are bound to get up to

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mischief. They love to wander around or to find stuff to head butt. They are also infamous escape artists. Goat keepers will often find that a herd moved into a fresh field will do a patrol of the boundary fence first, looking for escape routes.

Only once satisfied that they have been thwarted by properly constructed and well-maintained goat-proof fencing will they move away from the boundary to begin grazing.

However, the theory is that if the goats' pasture has

enough
entertainment,
they won't try
to escape.
Goats love to
jump, climb
and explore
obstacle
courses. Look
around your
plot to see
what you can
use for DIY

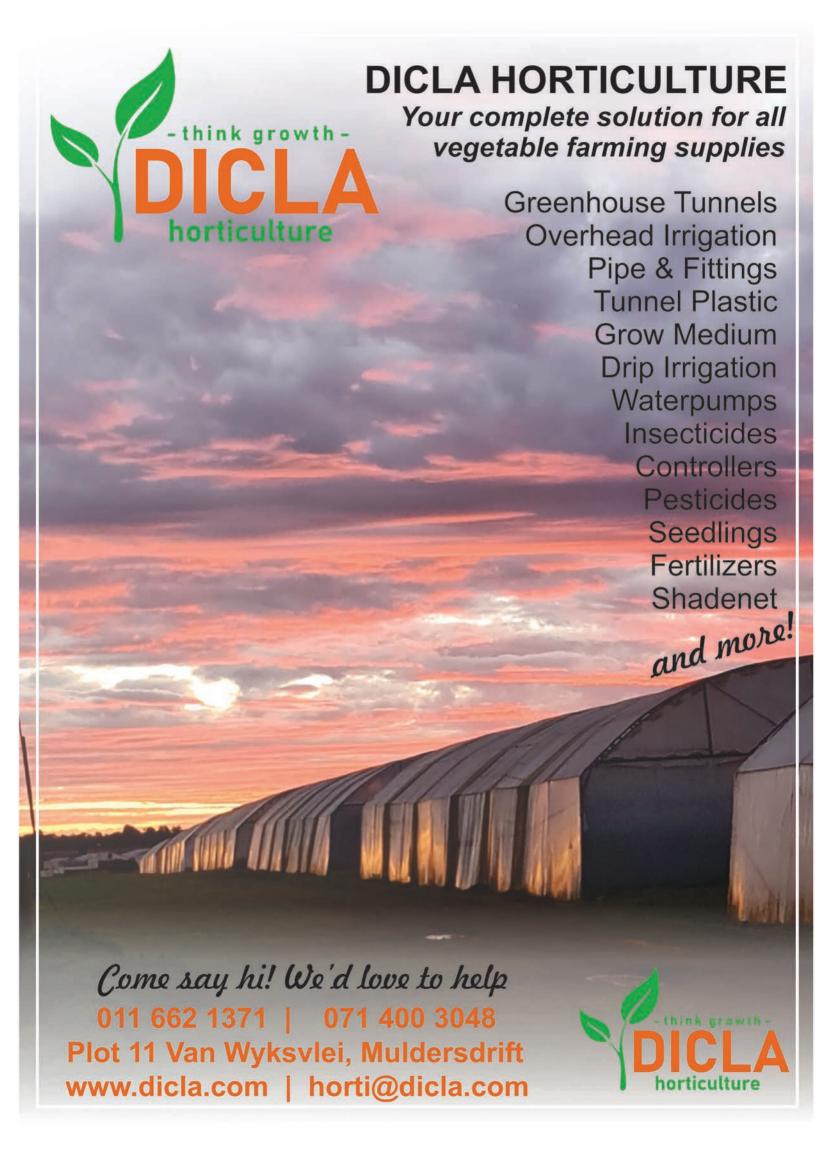


Goats enjoy climbing and jumping.

goat jungle gyms, ramps, see saws, tunnels and climbing apparatus. Blocks and logs of wood of differing sizes, pallets, big balls, big and smaller cable spools, all sorts of rocks, old water tanks, different sized tyres in stacks, even old trampolines can be creatively used to keep your goats involved and distracted.

However, make sure that these things are put in the centre of your field. Ensure that you do not put anything that goats can climb on too close to their fences, as it will create an escape route for them. They will jump from high objects to clear a fence and get out. To keep your goats amused make sure they always have plenty of hay, fresh foraging grass and branches to nibble on, and a mineral block for licking and jumping on.





#### **WATER MATTERS**

## How to manage your agricultural runoff

Protecting our water resources is a vital part of living on a smallholding. Whether this is a natural water course such as a river or stream, or your borehole, or simply rainwater runoff, smallholders must do what we can to reduce runoff to a minimum and to prevent our activities from causing contaminated runoff into our water sources. By nature of living on a smallholding, it is likely we are producing agri-chemical runoff (fertilizers and pesticides), waste water contaminated with cleaning products (such as used to clean a chicken house), grey water, and black water (sewage).

The first step to preventing runoff is to manage your use of chemicals ~ particularly after you've used them. In certain cases, such as the cleaning of equipment in a dairy or chicken house, for example, it is possible to put the used chemical-filled water in containers to prevent it soaking into your water systems. To do this, wash your equipment in a sink or basin that allows you to scoop most of the water out when you are finished.

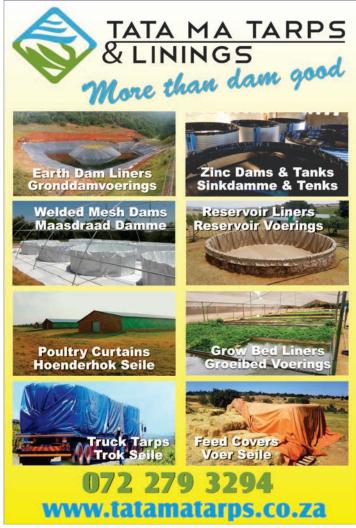
Or if it is the entire dairy, stable or chicken house that has to be cleaned, change the disinfectant system to

one that minimises the need for extensive use of rinsing water. An option in this regard is the Sagewash spray system highlighted in the *Smallholder*, September 2022.

Even so, due to the concentration of chemical pollution in some agriculture waste water, some experts suggest one tries to diffuse the pollution. This means creating ways to slow down your water runoff and spread your water around, preventing high concentrations of polluted water from entering a water source all at once, or at all. Some ways to diffuse your water pollution include:

- Planting cover crops to act as a buffer for your water. These crops slow down the movement of your water ~ often containing fertilizer or pesticides ~ allowing more to soak into the ground, rather than allowing flow at full concentration into a water source.
- ☐ Plant indigenous trees and shrubs close to your waste water source. This will help in filtering water before it enters your watercourse.
- ☐ Keep livestock away from open water sources. This prevents faecal contamination.





#### WATER MATTERS

☐ Build holding walls (properly named berms) around your manure and compost piles. This will prevent any raw manure or excess rainwater runoff from falling into any open water source.

☐ Build your manure piles away from your borehole. This prevents contaminants from raw manure seeping into your borehole water.

In crop farming, unless you are farming organically, your polluted runoff will contain mostly chemical fertilizers and pesticides. Before preventing runoff, you can better manage your crop production to prevent the use of these at all ~ or at least reduce use.

First, intercropping and companion planting using pest-repellent plants will reduce the need for pesticides. Marigolds, for example, are said to help keep certain bugs and pests away. Intercropping in general also encourages biodiversity, which will draw natural pest predators to your crops, again reducing the need for chemical pest repellents.

No-till or conservation tilling increases your ground cover, which slows down water and encourages it to soak into the soil before it runs off.

On gently sloping ground a simple contouring practice borrowed from the permaculture movement will greatly reduce water runoff and thus improve your own soil and water use.

That's the practice of building swales  $\sim$  shallow, shaped ditches along contour lines in the field. This is done by removing soil along the contour and piling it to downhill of the resulting shallow ditch. The whole thing, ie ditch and soil pile, is then smoothed and resown with pasture seed.

The result, called a swale, should not be deep, but rather a slight slope that still allows, for example, a wheeled vehicle such as a tractor or quad bike to work in the field with ease.

Like the contours of a ploughed field you can make as many swales as you wish, the choice being

dependent on the size of your field, the amount of rain you receive, soil type, and your appetite for hard work.

Any rainwater runoff collects in the ditch – or ditches - rather than running down the hill and out of the bottom of the field. In a few years' time a good minibiome will have developed in the ditch and you can then plant it with saplings of trees or forage crops such as tree lucerne.

On plots with stables or chicken houses that require regular cleaning, planting indigenous shrubs and grasses along your waterways will help diffuse pollution. But, you must take care not to overcrowd your drainage and gutter areas which will prevent any drainage and can cause flooding, and stagnant water pooling. Trees strategically planted around your chicken house, near your fans, will help both to slow your water runoff and disperse and absorb air pollution as well.

Don't keep your livestock uphill from water, whether this is a natural water course or your borehole. Make sure your livestock are downhill, which will prevent manure runoff from entering your water.

Manage your manure. Nutrient-rich manure makes very good compost and fertilizer, but when used in excess the nutrients it contains can seep into groundwater and waterways, polluting water and encouraging algal blooms that starve the water of oxygen. If you are farming for subsistence and hobby reasons, it is likely that the amount of manure your plot produces can be stored, composted and used on your crops. However if you have larger herds or flocks, you will need to implement adequate manure management. This means storing your manure to prevent it entering waterways and seeping into the ground. You can set up a small compost business, or give it to neighbours who perhaps don't have livestock ~ they can use it on their crops and in their gardens. 🗱



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#### **WATER MATTERS**

## What makes up grey water?

ith the current focus on water scarcity in southern Africa and periodic droughts, calls are often made for homeowners to use their grey water to irrigate their gardens.

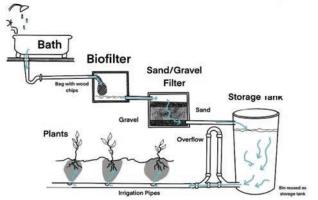
This leads to the (incorrect) belief that grey water is safe to use as a source of moisture for plants.

While this may be true in the short term, when no other water is available, water experts point out that grey water, unfiltered, contains all sorts of substances that, over time, can build up in the soil, leading to bad smells, chemical pollution in the soil, and even to sealing off the soil by the fats and oils contained in the raw fluid.

Grey water is, of course, a household's waste water from all sources other than the toilets (which is called black water).

Grey water therefore contains soap suds from kitchen detergents, washing powders, and shower and bath soaps. Soap derives its cleaning properties from the phosphates and nitrates it contains. Phosphates and nitrates are also two of the three main constituents in plant health (N, P & K) so pouring soapy water on to plants must be like irrigating with liquid fertilizer, right? The answer is yes, up to a point.

Firstly, different plants require different ratios of N, P & K to grow optimally. Pouring on an uncontrolled mix of phosphates and nitrates may not be what the plant needs. Secondly, dosing the plant regularly, ie daily, with this nutrient-rich mixture will result in a build-up, even to toxic levels, of phosphates and



Typical grey water path. This is one design. Others would have the biofilter after the sand and gravel filter.

nitrates, to the exclusion of other equally valuable nutrients.

Secondly, bath, shower and kitchen waste water will contain certain quantities of oils and grease, regardless of how carefully one wipes frying pans and oily plates before washing them.

Naturally-occurring skin oils, not to mention the oils contained in bath oil, makeup, and haircare products are also contained in grey water. These are the very first components to be filtered out when they hit the soil, and will form an ever-increasing coating on the surface of the soil, rendering it impermeable to the actual water.

With the water unable to penetrate the soil, pooling occurs, leading to bad odours, and increased insect populations.

Many prescription medicines, in the form of creams and ointments used to treat skin conditions ranging from acne to psoriasis to skin cancer, contain small quantities of compound chemicals and heavy metals that when washed off the body will, in time, enter the soil and be available for ingestion by the plants being watered. If those plants are being grown for human or animal consumption this could mean that the person eating the vegetable is ingesting small amounts of what could be, over time, a lethal accumulation.

How can one avoid these dangers? Simply by passing the raw fluid through an easily-constructed gravel, sand and bio filter, and then allowing the now-filtered fluid to be exposed to the beneficial UV-rays of the sun which will sterilise it of any remaining harmful bacteria, before use.

This process will remove any solids in the water such as hair and soap suds, along with any fats and oils, and will render it colourless and (almost) odourless. However, it will still contain those two essential ingredients of soap, namely phosphates and nitrates, although in greatly reduced quantities. As a result, if you intend to use thus-filtered grey water long term in the garden a good strategy is to deliver it to a different bed or set of beds on a regular basis.





## Dealing with your black water

he fluid from your toilet that enters a twochamber soakaway after passing through a conventional septic tank is like raw water, right?

Wrong. The fluid that enters the soakaway after passing through a two-chamber septic tank is nothing more than whatever goes down your toilet minus the solid bits.

It is then up to the magic of one's soil, and whatever bugs and microbes one has living in it, to render the fluid sterile before it seeps into the groundwater. The "digestion" that takes place aerobically and anaerobically in the two septic chambers deals with the solids so that a properly sized and properly "fed" septic tank system can continue accepting the house-



Waste water treatment. Image: Easy Water Solutions





hold's daily load, endlessly removing the solids, while the fluid passes through and into the soakaway. While conventional septic tank systems have been around for many decades, there has been a growing realisation that allowing what is in reality raw liquid sewage ~ in ever-increasing quantities as the population grows ~ to enter the groundwater system may be harmful in the future. As a result, standard septic systems are outlawed in new building developments in many jurisdictions. One's alternatives, therefore, become the construction of a concrete-lined conservancy tank, which needs to be regularly pumped out by a sewage removal service vehicle, or the installation of a factory-manufactured multi-chamber septic treatment plant that is, in effect, a miniature of a municipal sewage works.

These devices go further than the two-chamber conventional system by passing the resulting fluid through a series of additional chambers which allow further microbial action and even mechanical aeration, and which result in an effluent that can certifiably be discharged into a watercourse, or used as safe irrigation water, etc.

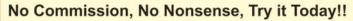




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CLASSIFIEDS

#### **EVENTS**

#### **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. 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.

No formal prerequisites are required to attend this course. This is the first leg of a twin course.

Date: 22 October 2022

Cost: R1 650, until 7 October, thereafter available at

full price of R1 950.

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

for more info or to book.

#### Organic & Natural Products Expo Africa

For growers of organic items, and manufacturers of organic and natural products, the Organic & Natural Expo Africa offers a platform from which to showcase such goods to an important and growing market sector. Exhibitors are still able to apply for a stand. Moreover, because the organisers recognise that many producers of natural products are SMMEs, they have developed budget-conscious exhibition packages, from as low as R9 410 for a fully-equipped indoor stand, or only R3 960 for a 6m² outside stand. Event categories cover Lifestyle, Health, Body & Beauty, Home, Food & Beverage, and Baby & Kids.

Date: 21-23 October 2022.

Cost: R100 per person prepaid or R150 per person

at the door.

Location: Wanderers, Corlett

Drive, Johannesburg

**Contact:** John on 082 895 2832

or john.t@satp.co.za.

# Mark your calendar

#### Cannabis Expo

The Cannabis Expo is the global marketplace for education and innovative products and businesses serving the cannabis industry and its medicinal, agricultural, financial and lifestyle aspects. The expo hall at The Cannabis Expo will feature over 100 exhibitors representing the full spectrum of the cannabis industry. Browse and enjoy cannabis-infused meals, treats and drinks. The event will also feature a vibrant outdoor festival environment hosting bands, artists and Djs Presentations around cannabis-related topics that cover health, agriculture, legislation, finance and more.

**Date:** 18-20 November 2022

Cost: R150 pre-sold or R200 at the door.

Location: Sandton Convention Centre, 161 Maude

Street, Sandton

Contact: www.cannabisexpo.co.za for more info and

to buy tickets.

#### **Open Field Vegetable Production Course**

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: 14-18 November.

**Contact:** evdheever@arc.agric.za.



## Observations on country life

have been fortunate to have lived more than half of my life in the country. During my childhood, although we were housed in a suburb, I spent every waking moment, certainly over the weekends and during school holidays, messing around with horses in the country.

While horses were a focus, attempts to snag a girlfriend (unsuccessfully, I admit) was also a motivator. And, as an adult I have lived more than 30 years on a smallholding, many of which involved messing around with horses, but also with donkeys, sheep, chickens, ducks, geese, fish and sundry quadrupeds. While the animals have come and gone, that amount of time on one patch of land has given me ample opportunity not only to shape the land according to what I want to do with it (sometimes less-thansucceessfully), but also to observe nature at work. Over 30-odd years, much has changed. Species migration has been a thing. In our early days we would see flocks of guinea fowl pass over our plot, migrating down to a stream some distance to eastwards of us in the morning, and back up to wherever they were roosting in the afternoon. That has come to a complete stop, largely, I suspect, because many of the plots round about us are enclosed with high security walls, often topped off with razor wire, thus putting a stop to easy migrations. In the flying bird category, when we moved here in the late 80s we never saw grey loeries. Now we have well-established pairs nesting in our trees, and helping themselves to our fruit when it ripens.

Likewise, we never saw common lizards (OK, correctly called agamas) when we moved here. For the past ten years we have developed a neighbourly coexistence with our lizard co-residents, with families of them scurrying up and down our rough facebrick exterior walls, and sometimes scurrying around our scullery and pantry as well.

One of the things we did about 15 years ago was to build a big, deep fish pond. And I decided that, instead of the traditional but exotic goldfish or koi we would go with an indigenous species, namely tilapia. A dozen or so tilapia fingerlings were duly bought, and placed into the pond in their oxygen-and-water-filled plastic bag, to allow the temperatures in the bag and the pond to equalise.

After an hour or so, we carefully opened the bag to release the fish – which promptly disappeared into the murky depths, never to be seen again. Not, that is, until the first cold snap of the first winter when they all promptly died, their corpses gently bobbing on the surface like the sad victims of a toxic sewage spill.

Now here's something else about ornamental fish, which is why goldfish and koi are so popular: their colouration makes them easy to see. Tilapia, in contrast, while they may have silvery scales on their sides, topside, ie along their backs, they are black, rendering them almost invisible against a backdrop of deep, dark water.

Of course, plot life is not only about animals, domestic or wild. It's also about vegetation. Shortly after we moved to our plot I thought it might be an excellent idea to plant a boundary hedge of an evergreen, hardy, thorny plant that would prevent animals from escaping and humans from entering. So I bought and planted 900 kei apple bushes, having been assured by the nursery in Cramond, a lovely warm place in KwaZulu- Natal, that they were frost resistant. The little bushes grew beautifully through the first season but, like the tilapia above, died en masse in the first frost.



JOHN DEERE A