

SOUTH AFRICAN SMALLHOLDER

JULY 2022

EVERYTHING A SMALL FARMER NEEDS

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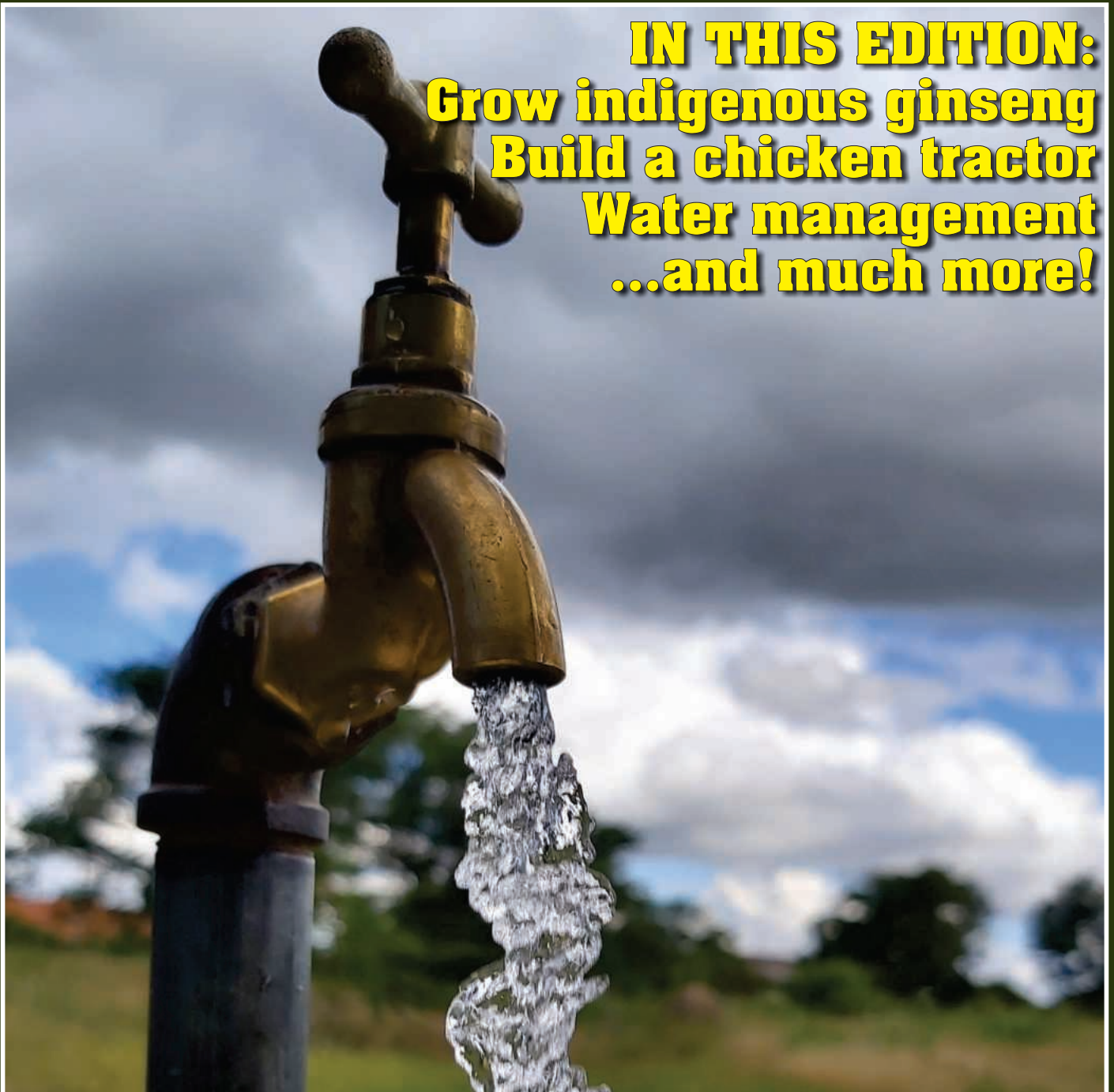
IN THIS EDITION:

Grow indigenous ginseng

Build a chicken tractor

Water management

...and much more!



When a sausage is not a sausage



You would expect that, given the inconvenience and added expense caused by the almost total collapse of South Africa's state-run electricity grid, the *SA Smallholder* would have a full-on go about government incompetence, corruption, and the devastation caused by cadre deployment.

But no. For we have found another example of government ineptitude, and one that were it not for the fact that it seems the Dept of Agriculture, Land Reform & Rural Development (Dalrrd) is deadly serious about it, would be laughable.

Dalrrd, with its infinite zeal, introduced safety legislation in 2019 for worked meat products, such as sausages, burger patties and chicken nuggets. Whether this was necessary or not, it would seem to be a perfectly reasonable expectation to have standards in place to prevent manufacturers from selling unsafe, substandard products.

However, over the years, the growing interest in vegetarianism has seen a number of manufacturers of plant-based foodstuffs bringing to market plant-based sausages, burger patties made from mushroom flesh and the like. And restaurants, too, are starting to offer more and more vegetarian options on their menus, if not actually becoming fully vegetarian in their offerings.

In many cases the combinations of ingredients are such that the plant-based versions have the look, feel and taste of their more regular meaty counterparts, but in others the combination of ingredients produces an altogether different product that apart from its shape, perhaps, looks and tastes unlike any known meat alternative.

But Dalrrd sees this as a problem because, it says, certain terms, such as "sausage", "burger patty" or "nugget" refer traditionally to items made from meat, and therefore can't be used to describe plant-based

alternatives. In a bit of technical semantics worthy of a professor of linguistics the department has chosen to name these plant-based products "meat analogues".

This of course implies that the average consumer is even more stupid than the average Dalrrd bureaucrat and may become confused and misled when confronted by packages of plant-based bratwurst, or vegetarian patties or whatever.

But, going further than merely expending energy on writing ridiculous legislation, the department has adopted a position of vigorous zealotry on the "meat analogue" industry. It started its persecution of plant-based meat substitute manufacturers by sending out a strongly-worded statement to the effect that using terms traditionally identified with meats to describe plant-based alternatives is illegal, and must be stopped. But it went further, and promised that if meat analogue manufacturers didn't rename their products (thereby rendering them unrecognisable to consumers and useless for exports) it, through agents, would carry out inspections, and confiscate and destroy incorrectly labelled products.

Coming from a government department run by the same cadre employees that have brought us the Post Office, Home Affairs, Transnet, SAA, a broken health service and inertia over the fact that children still drown in rural school pit latrines, we can't but wonder if the zeal with which Dalrrd has gone about announcing this fruitless campaign is in fact no more than the frothing at the mouth of a rabid dog a few hours before it collapses and dies.

Still, it's absolutely pathetic that taxpayers are made to contribute to such daft frolics.

Pete Bower

Editor

**SOUTH AFRICAN
SMALLHOLDER**
JULY 2022
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FRONT COVER

Read about water management on page 11.

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Foot & Mouth more widespread?

Outbreaks of Foot & Mouth Disease (FMD) in South Africa may be far more extensive than previously reported, some occurring outside the official FMD area.

By June, it is estimated that there were more than 90 outbreaks of the disease identified, occurring in the Free State, KwaZulu-Natal, Limpopo, Northwest and Gauteng.

The disease, which is notifiable, is having a devastating effect on the livestock auction industry, which is effectively curtailed as a result of movement bans, as

well as on the profitability of small producers who are attempting to serve, particularly, export markets as many countries have banned the importation of South African meat and meat products for fear of importing the disease.

And, it is not only cattle farmers who are affected. China, for example, has put a ban on South African wool imports (said to amount to some 70% of total SA wool exports), which is having a particularly devastating effect on the livelihoods of small-scale wool producers. ❁

Eskom and the smallholder economy

While we all battle intermittent load shedding in our homes and on our plots with, either, darkness, or candles, inverters, generators or solar panels, spare a thought for anybody trying to incubate poultry eggs, run a hydroponic growing unit, or spawning mushrooms in a controlled environment ~ all common activities undertaken by our readers.

For unless they have some form of (expensive)

alternative to Eskom's intermittent supply, they will be looking at massive spoilage without the ability to reliably and continually heat, light or cool their respective products.

And, given the current cost of fuel, expect the prices of anything produced under such conditions to be much more expensive in coming months, as producers attempt to recover their additional costs through price hikes. ❁






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Shows & expos to visit in Gauteng

Gauteng smallholders have a busy few months ahead, with two large outdoor and agricultural shows back in full swing for the first time in two years, and an inaugural expo of organic and natural products, first mooted for 2020, to be held in October.

Kragdag Expo

With the lifting of restrictions on gathering numbers, the first of these, the Kragdag Expo to be held at the Diamantvallei estate near Donkerhoek from 11 – 13 August promises to be a bumper affair, with some 500 exhibitors.

The show comprises two distinct exhibitions, one relating to everything to do with self-sufficiency, stretching from solar and alternative energy to home schooling solutions and everything in between. The other, organised in association with the TLU-SA, is more agriculture-related with exhibitors of agricultural machinery, hydroponic systems, irrigation, and fertilisation, as well as livestock categories.

To accommodate visitors from afar there is a camp ground adjoining the showground, and the organisers have done a deal with a nearby airfield for those who wish to fly in.

And, of course, there are plenty of refreshment stations and food outlets, as well as a beer garden, entertainment, and helicopter rides during the day.

And, if you book and pay for your three-day entrance ticket now, you pay half price, namely R50. As before, children under 18 enter free.

For more information visit www.kragdag.co.za.

Walkerville Agricultural Show

A few short weeks after Kragdag the 59th Walkerville Agricultural Show takes place over the weekend of 3 & 4 September at the well-established Walkerville Showground south of Johannesburg.

Smaller than Kragdag, this is one of the last “traditional” country fairs and features not only commercial agricultural inputs, but arts and crafts, traditional home-prepared foodstuffs and cosmetics, as well as plants, seeds, clothing, small furnishings and knickknacks.

Livestock of various species are also to be seen, including extensive poultry and rabbit displays, as well as sheep, goats, alpacas and some cattle.

Education of visitors relating to conservation is also vigorously pursued through a well-organised and staffed exhibition of wildlife and conservation-related material.

There is also an extensive food court selling a variety of styles of cooking, which may be consumed at tables under shady trees, accompanied by drinks which can be bought from the adjoining showground pub.



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Entertainments and amusements for children are also to be had, including pony rides, etc, and a sand arena hosts equestrian events, displays and demonstrations of various types.

Entrance is only R50 per car and there is ample secure parking adjoining the showgrounds.

For more information visit the Walkerville Agricultural Show's Facebook page.

Organic & Natural Expo Africa

For growers of organic items, and manufacturers of



KragDag, October 2021.

organic and natural products, the Organic & Natural Expo Africa, to be held at the Wanderers Stadium on Corlett Drive, Johannesburg from 21 to 23 October, offers a platform from which to showcase such goods to an important and growing market sector.

The organisers are confident of 10 000 to 15 000 visitors, with both local and international interest.

Because the physical show was not able to be held in 2020 as planned, an online portal was established featuring growers and manufacturers who would otherwise have exhibited.

This has continued and has grown in popularity, and part of the deal offered to all exhibitors is a free listing for a year on the portal, regardless of the size of the stand booked at the show.

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.

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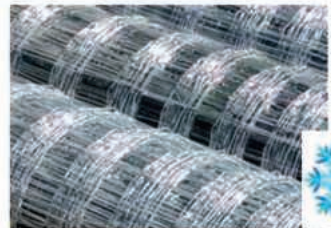
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While sheep die at sea, cattle leave from EL

June was not a good month for sheep at sea, for on the 12th a livestock carrier named *Al Badri 1* sank in a Sudanese port, causing the drowning of 15 000 sheep out of a cargo of 15 800. The 800 that survived the sinking were rescued but were not expected to survive. The *Al Badri 1*'s cargo, destined for Saudi Arabia, was not loaded in South Africa. Meanwhile, according to the National Council of Societies for the Prevention of Cruelty to Animals (NSPCA), loading cattle at East London was a 1 000 ton livestock carrier named *LSS Success*. The cattle were destined for Mauritius, and form part of a trade that has been quietly taking place for decades. The 52-year-old *LSS Success* was originally built as a small specialist heavy lift ship, designed to load heavy and awkward cargoes. She was converted to a "general cargo" ship in 1993, and some time later had cattle decks and livestock handling facilities added. At 52 she is one of the oldest working cargo ships world-wide, with the current trend being to scrap cargo ships after 20 to 30 years. According to the NSPCA, her history carrying South African cattle to Mauritius

is not without incident. Last year she encountered heavy weather which caused fatal head and leg injuries to 40 of the animals aboard, and resulted in a further three being slaughtered immediately on arrival because of their condition. And in 2020, a significant amount of drugs was found on board by Mauritian officials, says the NSPCA, highlighting another aspect of the livestock shipping industry: the smell from manure, urine, stale feed and dead animals is such as to mask the smell of drugs, making livestock carriers the ideal vessels on which to transport such material. 🌿



Ageing livestock carrier *LSS Success*. Image: Vladimir Knyaz.

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IN THE GARDEN

Growing indigenous African ginseng

Orphan and unusual crop species, food and utility plants were important to people before the simplification of the food supply that accompanied the spread of industrial agriculture. They can, and should, be important again in a more ecologically sensitive, small-scale farming community. One example is the indigenous African Ginseng (*Mondia whitei*). It is a fast growing vine that is completely undomesticated, yet it deserves a place in any food forest and has a host of potential commercial applications for someone with imagination and an adventurous turn of mind. With a range through much of sub-Saharan Africa it is heavily utilised from the wild as both food and medicine, so much so that it is considered endangered and at risk of extinction, which is entirely unnecessary as it is easily propagated and very fast growing. It is remarkably attractive as well, with large decora-

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

tive leaves and red/maroon (or rarely yellow) flowers in season.

The vine is neat and binds closely to a support, so can be used to cover gazebos or green facades with equal ease, and

requires little pruning to shape. The plant is easily propagated from seed or cuttings. It does require support and can be grown on a trellis, a fence or a suitable tree. Plants are large, but tidy. Deep, fertile soil is best as one of the usable parts of the plant is its tuberous roots, which can be harvested non-destructively, but only if the soil is easily dug and replaced.

The plant is virtually evergreen in warm climates with a short deciduous phase in late spring, but in cold climates it can be cut back by the frost to the roots, which should be mulched well to protect them from the chill.

Moderate water and fertilization needs make this species remarkably easy to cultivate. Under the right conditions it pretty much grows itself, but a good multi-nutrient fertilizer in season and some supplemental water during drought will increase growth and yields.

Seeds are produced in horned pods in November and December after spending winter on the vines.



Mondia leaves.



Mondia pods take a full year to develop.



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They have thistledown and will blow away in the wind so it pays to collect them just as they start to crack open and then dry them indoors. Plants produce a lot of seed, but you need two clones to produce them so do not plant all your stock from the cuttings of one plant. Cuttings are easy from semi-hardwood cuttings in summer, and will even root in a glass of water. The tuberous roots contain aromatic compounds that are related to vanillin, the active ingredient of vanilla. The taste can be described as ginger/vanilla with a hint of liquorish, often with cinnamon notes (very complex). They are used for a myriad different traditional purposes, from brewing a ginger beer-like drink, to medicinal uses that include heartburn to indigestion, flatulence, gonorrhea, abdominal pain and constipation, bilharzia, premature uterine contractions in pregnant women, appetite stimulant, asthma, and high blood pressure. Perhaps its best known use in South African traditional medicine is as an aphrodisiac and sperm function promoter, as well as a potent energizer. As a novel African spice this plant is of huge interest to the food production industry, and one can infuse it in a neutral spirit such as white rum for both drinking and cooking purposes. It can also be dried and powdered in a grinder. The leaves are edible, and can be cooked with butter or olive oil as a substitute for spinach, and if made into little bundles they are an almost perfect substitute for waterblommetjies in both taste and texture. Great as a fodder for domestic animals, they can also be dried and taken as a supplement. They contain the vitamins A, D, K and E, and the minerals magnesium, zinc, iron, calcium, as well protein. For more information on this, or other orphan crops, contact Sampson: jason.sampson@up.ac.za. 🌿



Mondia flowers are magenta in shade, a bit browner in full sun.



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All about pumps & pump terminology

When choosing a pump for an application on your smallholding there are certain numbers you need to be aware of if you are to avoid potential costly mistakes.

With any pump, whether it is a borehole pump, a booster pump or a high-pressure pump, there are three parameters to bear in mind. These are:



Conventional centrifugal booster pump with pressure switch atop.

☐ **Operating pressure.**

Generally, portable transfer pumps, borehole pumps and booster pumps operate at relatively low pressure of 4 to 5 bar, their main characteristic being to deliver as much water as quickly as possible. And, because this is so, irrigation systems and domestic plumbing are not designed to operate at high pressures ~ if

they are subjected to higher pressures their pipework starts to burst and joins start to leak or come apart.

By contrast, high-pressure pumps operate at 8 or more bar pressure, and are designed to deliver a small volume of water over a long distance. High-pressure pumps are typically found on portable firefighting units, sprayers etc.

Can one turn a low-pressure pump into a high-pressure one by, for example replacing a 40mm discharge pipe with a 15 or 20mm pipe? The short answer is yes, but in a very short space of time the pump will lose efficiency and need to be replaced, because of a phenomenon called cavitation.

Cavitation occurs in the impeller chamber where the pressure of the water starts to wear away the inside walls of the chamber, leading to leakage between the chamber wall and the impeller.

☐ **Head.** This is perhaps the most critical number to know in any pump choice. Head refers to the vertical distance between the bottom of the inlet pipe and the top of the outlet.

Imagine a pump on a river bank required to draw

Continued on page 13

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water from the river, and discharge it into a nearby reservoir constructed at ground level: the head would be no more than a couple of metres if the ground was relatively level.

Now contrast this with a borehole 100m deep fitted with a pump required to fill a tank up a 20m stand: the head is thus 120m.

But there's more: generally pumps are better at pushing water out than they are at sucking it in. Therefore you need to know if the pump you are choosing is capable of sucking at the depth you require, as well as at what height you want it to discharge.

❑ **Capacity.** Pumps are generally sold on the basis of how much water they can discharge, assuming both the inlet and outlet are level with the pump, ie at zero head.

This number, while it may look impressive, bears very little relationship to what you will achieve in a real setting.

The greater the head the less the discharge capacity. You will have seen the graphs that pump manufacturers include with their machines, with a usually curved

line showing an ever-decreasing discharge volume as the head increases ~ to the extent that at a certain point the head is such that the discharge capacity becomes zero.

The reason the capacity decreases with greater head is the weight of the water in the discharge pipe. The higher the head the more water there is in the pipe and thus the greater the effort the pump must expend merely to move this weight.

❑ **Motor rating:** In common domestic pumps this refers to the power of the electric motor driving the pump, and will be useful in designing your electrical system as it gives you an indication of the power drawn by the pump. Common pump motor sizes start from 0,375kW, usually fitted to very small pumps which are also called peripheral pumps. These are too small to be used in household settings, but are useful in, for example, hydroponic setups. Small booster pumps for domestic use are usually powered by 0,5kW, or 0,75kW or, for larger households, and to power small spray irrigation systems, 1.1kW. 🌿

What makes a good, long-lasting tank

What characteristics make up a good water plastic water tank? When choosing and installing a tank there are certain pointers that will help you choose a tank that will give many years of leak-free service.



Standing water tank.
Image: Rototank

The first principle is that tanks are stronger when they are made in one piece. This is possible with common round tanks, but becomes more difficult with the narrow, shaped tanks found in tight settings, often as back-up storage in limited spaces such as townhouse gardens. In such cases the tanks may need to be made in two or more

pieces and then plastic welded together.

The second principle is to realise that a litre of water weighs one kg. Thus a 5 000 litre tank needs to be strong enough to hold 5 000 kg, or 5 tons, and most of the pressure thus generated will be at the bottom of the tank, ie where the water is deepest.

But to choose a good tank it is necessary to know how rotomoulded tanks are made.

Simply, a measured amount of polymer powder, and the chosen dye for the outer colour of the tank, is added to a large mould the exact shape and size of the tank to be made. The mould is heated and is fitted inside a device that rotates it along all axes. As the polymer melts and mixes with the dye it sloshes around inside the mould which, by its random bi-axial action, flows around to evenly coat the mould.



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Next, more polymer is introduced and the process continues, building up a thicker tank wall.

Finally, an internal amount, mixed with black dye, is added, which coats the inside of the tank, rendering it impervious to light.

This ensures that when closed the tank interior is completely light free, thereby preventing the growth of algae on the sides of the tank.

Apart from the cost of the mould and the machinery required to rotate it, the major input costs of a rotomoulded tank are the polymer powder or pellets used, and the electricity used to heat and power the moulding machine.

There's not much a tank manufacturer can do about the latter, but an unscrupulous rotomoulder can save a few rands per tank (and thus offer his products cheaper than the opposition) by skimping on the amount of polymer used in the manufacture.

So when choosing a tank one might be tempted to buy the cheapest one can find: a tank is a tank, after all.

However, as in so many situations, "goedkoop is duurkoop" as a cheaply made tank will not last as many years without cracking as a well-made, possibly more expensive alternative.

But how you handle and install your tank will also affect its lifespan.

Here, the base upon which one places the tank is vital, because ultimately the maximum pressure of the contents of the tank will be applied to the base. An absolutely flat, level base, a few centimetres larger than the tank, is necessary. If throwing it in concrete make sure that there are no protruding stones on the surface.

If placing the tank up a stand, you similarly need to fashion an absolutely flat base so that the bottom of the tank has its loading spread absolutely evenly. When fastening pipework to the tank, either at the top (inlet pipes) or at the bottom (outlets), ensure that the pipes align with the openings in the tank, so that when fastened they don't exert twisting pressure on the tank wall.

Finally, there are times when your tank won't be full. If you live in a windy area this will render your tank very light, and prone to being blown away.

On most good tanks you will find four protrusions around the perimeter of the tank on the upper rim. These are there for you to fasten the tank to the stand using heavy galvanised wire, or to anchor it to its base with wire stays if at ground level. 🌿

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Making life easier: the self-priming pump

When you turn on your shower taps each morning, give a silent word of thanks to the person who invented the self-priming booster pump, as the hot and cold water gushes forth instantly and at constant pressure.

For only if you've ever had to work with an old-fashioned non-self-priming pump will you appreciate the reliability and convenience of the more modern type.

What's the difference between the two? In a word, a self-priming pump needs no intervention to start sucking water from its inlet pipe and propelling it under pressure to its outlet.

The problem, you see, is air, which is much less dense than water, and even a little bit of air renders the impeller of a non-self-priming pump unable to gain sufficient "grip" on the water it needs to pump. So the impeller simply sloshes around in the chamber, aimlessly mixing air and whatever water remains in the chamber.

Thus, a non-self-priming pump would not start pumping water unless and until its impeller chamber was full of water, and devoid of air. And the way one ensured that there was sufficient fluid in the chamber was to undo a bolt on the top of the chamber and painstakingly pour in a couple of litres of water till the chamber overflowed. Then one would replace the bolt and quickly start the pump, before one's carefully added water drained away either down the inlet pipe or down the outlet.

And should one have poured in insufficient water to fill the chamber, or if one was slow in starting the

pump after closing the bolt, one would have to repeat the process. Again. And probably again. Fortunately, non-self-priming pumps, at least in a domestic setting, are now consigned to museums and are fancied only by old die-hard antique machinery collectors, who can be seen wearing old dungarees starting and fiddling with their charges at agricultural shows and machinery exhibitions, much to the wonderment of anybody under the age of 50. 🌱



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How to build a chicken tractor

A chicken tractor is an effective way to move a small flock around your property, while still protecting the birds from predators, with the added benefit of bug control and instant fertilization wherever the tractor is situated. These tractors can be made to size, according to your flock size and requirements.

First, decide how large you want your tractor to be. This will be determined by how many chickens you have, and how or who will be moving the tractor around. A larger tractor, using heavier materials, will



Easy DIY chicken tractor.

require the use of a ride-on mower, quad bike, tractor or bakkie to tow it from place to place. A smaller option can be wheeled by hand.

A very simple tractor can be made out of PVC pipe and chicken mesh. This will be lightweight, easy to roll around and not easily rusted or damaged by rain. Using this plan, however, you could also use aluminium tube or wood.

You will need PVC pipe, connectors, chicken mesh and shade cloth. See the design on the following page for your top section and roof area with colour coded connectors explained in the text.

First, cut 34 pieces of PVC at 50cm length each. This will make up the base (22 pieces) and top and door (12 pieces). Lay out three pieces, connecting them with three-way T connectors (blue). Do the same for the back. Then, lay out eight pieces for the sides, connecting them with three-way connectors, and then join them to your assembled front and back. You should now have a rectangle of 400cm x 150cm. You can use PVC cement at the joins to strengthen it. Your corners will be three-way elbow joins (green).

Alongside your base, assemble the top.

Continued on page 19





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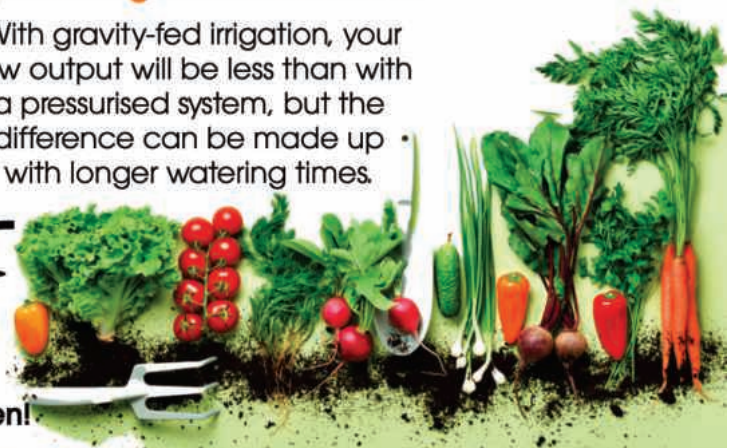
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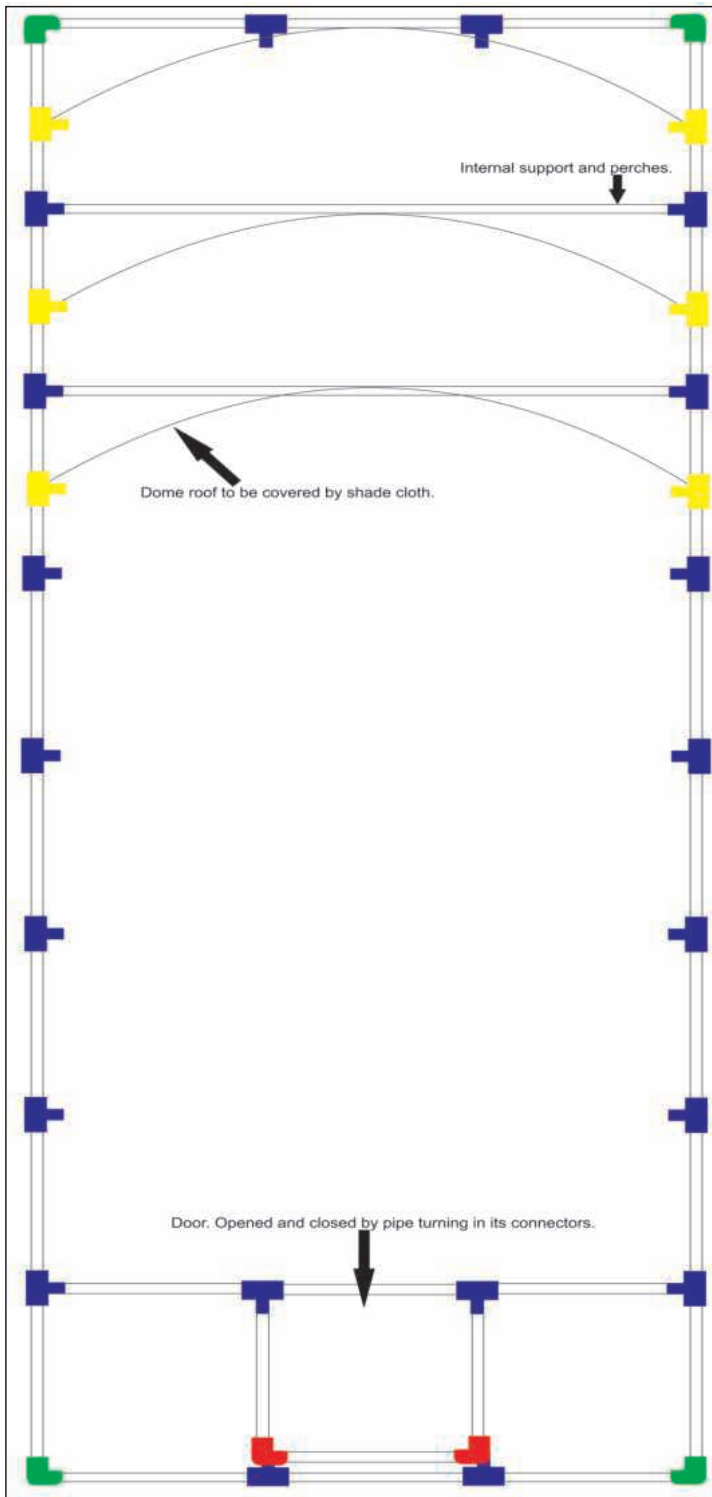


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This will be made out of four 50cm pieces on each side, followed by eight 25cm pieces (joined at the yellow connectors). The reason for this difference is to later fit the connectors that will hold up your domed or pitched covered roof.

Next, cut 14 pieces of PVC for your vertical support. Here you will need to choose your own desired length according to how high you want your tractor. This will depend on what size chickens you have. A standard Potch koekoek, for example, will enjoy something between 55cm and 60cm high. Fit these vertically to your base at your T connectors. Then fit the top section to its corresponding vertical supports.

Next, cut three 50cm pieces of PVC for your support and door. Attach these to the joins second from the end of your roof. Do not cement these as they will need to move freely when you build your door. Attach the middle of this strip using more T connectors. At each of these, attach a 50cm piece of pipe. To the ends of those two pieces, using an elbow join, attach the top of the door (red).

Fit two 150cm pieces at the opposite end to your door. These act as both horizontal support as well as internal perches for your hens.

Finally, you will assemble the shaded section. Here you can use thinner PVC, stretched to curve into your base structure at the remaining joins. Or you can build a pitched roof, at a height of your choice, using V connectors. Once this is complete, attach your shade cloth using cable ties.

Then, using more cable ties, fit your chicken mesh to the walls and top of your tractor. Do not use any of the floor area as your chickens need uninterrupted access to the grass below them. Make sure there are no sharp edges or points sticking out that could hurt you or your chickens.

If you choose to replicate this design with aluminium square or round tube pieces, you will need

Continued on page 21



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to weld the joins, or an even easier method will be to use a fitting such as the Connect-It joins designed for use on steel or aluminium. For a more natural look, you could use wooden thatching lathes wired together. This will require less cutting, and fewer joins. If you opt for wood or aluminum, you will need fewer vertical support structures as the base and top will be stronger than if you are using PVC pipe or conduit.

Your tractor will be lightweight enough to pick up and move by hand with two or three people. However, this will require some coordination to ensure you don't lift it too high, allowing your chickens to escape. Better still, fit wheels to it and this will be ideal if you plan on moving your tractor long distances around your plot. Fit two wheels at the back and a handle on the opposite end to help with pulling or towing. The smaller the wheel, the more likely your tractor could get bogged down if your ground is damp or you are rolling through loose sand. Recycled bicycle wheels work well.

Another option for mobility is to add skids, instead of wheels. These can be made out of flat bar steel, curved upwards at the end to prevent it from digging into the ground.



A more permanent tractor idea.

A more substantial tractor can be made along a similar vein using steel and thicker wire mesh. However, this will almost definitely require the use of something mechanical to move it ~ be it a quad bike, tractor or bakkie.

Of course, as with anything on a smallholding, there exist more elaborate versions. You could choose to make a more permanent structure out of wood, set on wheels that acts as both a tractor and permanent coop for your flock. 🌿

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Know the basics of growing walnuts

Often attributed to a Chinese philosopher, there's a saying "the best time to plant a tree was 20 years ago. The next best time is now." When it comes to English walnut trees, never was there a more apt statement.

If you are a young smallholder and you plan to live on your property for some decades walnuts will, after



Walnut tree.

some years, give you a good annual income and, when the time is right, a bonanza right at the end when you decide to pack it in. Plant today and start growing, begin to harvest in about seven

years, and do that every year for the rest of your life. Then cut the tree down and sell the timber for a huge profit. The wood is much prized (think Rolls-Royce dashboards). English walnuts are very large, deciduous, long lived trees, which when fully mature can grow to 16m with a spread of 35m. The roots of English walnuts, unlike black walnuts, do not exude a toxic substance so other plantings can be made between the young trees. This means that the land can be productive while waiting for the walnut trees to mature and nuts to be harvested. And the land will have increased resale value if planted to trees. A limitation on the wholesale planting of walnuts in South Africa has been a shortage of available saplings, although Gauteng has at least one tree nursery that can supply smallholders' needs. English walnuts require well-draining loamy soil as they have long tap roots. They are versatile as regards pH ~ anything 5 to 8 is fine. They require full sun and will tolerate frost, which makes them suitable for the Gauteng region. They like dry summers ~ Gauteng is on the 'dry' side.

Trees should be planted 10m apart in rows 12m apart. Include compost in planting holes. Half fill the hole with water and allow to drain. It is not necessary to put fertiliser in planting holes. Water the plants in but once established do not overwater ~ allow them to dry out between watering. Walnuts are partially self-fertile. The male flowers are arranged in long catkins on last year's wood while the female flowers develop on new shoots. The pollen is windborne. The edible part of the walnut is enclosed in a fleshy green husk which splits when the nuts are mature. A smallholder can cost-effectively harvest the nuts by simply shaking the tree. The nuts are washed, then sundried. Walnuts in the shell will keep in a dry place for a year or more while deshelled nuts must be refrigerated.

Fungal diseases are possible, especially induced by overhead watering and hot, humid conditions. These are identified as black lesions on the leaves, which eventually die but do not kill the plant. To control, remove and destroy leaves. Plants can be sprayed with a copper fungicide.

For more information contact Butch Davies in Vereeniging, 082 339 6671. 🌿



Fleshy green husk which splits when the nuts are mature

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Choose climate-smart beef cattle

Small farmers who keep cattle for beef production must acknowledge that climate change will increase their challenges. Beef cattle are also said to contribute to the problem of global warming through their production of methane. So producers need to become more climate smart.

The warnings of environmental scientists of the effects of climate change are rapidly becoming a reality. Areas of southern Africa are being subjected to more frequent dry spells and droughts. In some areas the rising temperatures are here to stay, while in other areas there is greater temperature variability than before.

Recent events in KwaZulu-Natal and other provinces bear testimony to the intensification of extreme weather patterns.

Changes in rainfall patterns have an impact on cattle. Over the last few years smallholders in summer rainfall areas have observed that the rains are starting later. So the spring grass growth will be slower. This affects the breeding programme, as the pastures must be able to support pregnant and nursing cows. The length of the rainy season is also less predictable.

Furthermore, if the rain comes in a few heavy storms the pasture will also be affected because of the runoff.

Higher temperatures affect the quantity and quality of pastures, as well as the species composition. The ability of cattle to resist pests and disease is lowered if they are nutritionally stressed. Lactating cows need 30-40% more energy than dry cows, so their nutritional requirements are higher. Calves will not grow as quickly or as healthily on poor grass.

Higher temperatures cause heat stress in the cattle, which has a marked effect in beef production. The fertility of both bulls and cows is lowered if they are heat stressed.

Climate change has also led to an increase in gastrointestinal parasites.

Climate smart beef producers need to examine the breeds of cattle that can adapt to the changing, often harsher environment. They need more climate smart



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pest and disease management and they also need to manage their pastures as efficiently as possible. When choosing a breed, it makes sense to seriously consider southern African breeds, such as Nguni, Afrikaner, Drakensberger, Tuli and Bonsmara. Indigenous cattle are hardier. This means that they can cope with higher temperatures or with variable temperatures.



Nguni cattle are hardy and can cope with variable temperatures.

They are able to make the best of poor grazing and drought conditions. This is particularly important when evaluating the cow-calf efficiency. The costs of feeding the cows are lower. The length of time between each calf is also favourable.

These breeds have developed greater immunity to local diseases and are more resistant to endemic

parasites.

Small farmers could also draw on these characteristics by crossbreeding indigenous cattle with introduced breeds.

The small farmer also needs to manage pastures in order to maximize the efficiency of veld utilisation by livestock. Careful grazing rotation is important. The farmer might investigate pasture cultivars which have high nutritive characteristics or grasses which will tolerate limiting conditions, such as low soil fertility, drought and low water availability, along with heat stress. These species should also withstand competition from other plants and weeds.

Small scale beef producers need to consider growing crops that are more drought resistant, such as sorghum, as part of the feeding programme. Another very useful plant to add to the pastures is Old Man Saltbush (*Atriplex nummularia*). This is an evergreen, frost resistant



Sorghum.



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30 x 30 x 5	R274.00	2500 x 1200 x 5	R3 359.00	175 x 50 x 20 x 2	R675.00	50 x 50	R419.10	R525.00	20 x 5	R100.70
40 x 40 x 2	R161.00	2500 x 1200 x 6	R4 095.00	200 x 50 x 20 x 2	R740.00	76 x 76	R636.00	R792.00	25 x 3	R87.50
40 x 40 x 2.5	R216.00	2500 x 1200 x 8	R6 305.00	Channel	6m	100 x 100		R1 099.00	25 x 5	R131.00
40 x 40 x 3	R236.00	2500 x 1200 x 10	R7 881.00	76 x 38	R1 002.00	Round Tube	1.6mm	2.0mm	30 x 3	R105.00
40 x 40 x 5	R373.00			100 x 50	R1 354.00	19 x 6m	R119.04	R145.00	30 x 5	R150.00
50 x 50 x 3	R352.00			152 x 76	R2 876.00	25 x 6m	R162.00	R199.00	40 x 3	R141.00
50 x 50 x 5	R576.00					32 x 6m	R205.00	R255.00	40 x 5	R199.00
60 x 60 x 6	R833.00					Roof Sheet	per metre		50 x 3	R175.00
70 x 70 x 6	R1 052.00					IBR .4mm	R114.00		50 x 5	R250.00
						IBR .5mm	R129.90		60 x 6	R475.00
						Corr .3mm	R76.90		70 x 6	R506.00
						Corr .5mm	R129.90		80 x 6	R634.00
						Fibreglass	R99.00		Round Bar	6m
						Chromadek	R270.00		8mm	R52.50
									10mm	R79.00
									12mm	R111.00

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and drought tolerant shrub.

A further advantage is that the leaves contain a natural bitter substance called chenopodium oil, which reduces internal parasites in the stock. It can be grazed throughout the year.



Old Man Saltbush (*Atriplex nummularia*)

Providing more nutritional forage leads to better feed conversions rates. It also means a decrease in methane emissions.

It is now even more important that the cattle have access to water and shade in areas where temperatures are higher and rainfall has decreased.

Herd management can often be made more efficient.

For example, weaning calves earlier, at 120 days or less, can reduce feeding costs, as the cow will need less supplementary feeding.

When conditions are particularly difficult, such as in a drought, early weaning means that the cows can be culled sooner.

Livestock movement should also be carefully planned where there is a danger of heat stress, particularly during the hottest times of the day.

It is recommended that in times of extreme heat the cattle should be fed at night. This helps reduce metabolic heat production during the hottest time of the day.

Disease management in beef cattle includes stricter observation of the health and condition of the animals, biosecurity measures and vaccination campaigns.

Climate change has made cattle more vulnerable to both external and internal parasites.

So a parasite control programme needs to be put in place.

Small farmers should network with other producers and extension officers in order to develop the best climate smart management programme for their specific area. 🌿

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How to support bees in winter

With 75% of crops and 90% of other plants needing pollinators of some sort, it is worth remembering that bees make up the largest proportion of species that pollinate.

Moreover, as pollinators, bees play a part in every aspect of the ecosystem.

They support the growth of trees, flowers, and other plants, which serve as food and shelter for creatures large and small.

Bees contribute to complex, interconnected ecosystems that allow a diverse number of different species to co-exist.

Winter, of course, tends to be a lean time, particularly in a high, dry highveld climate where frost and cold have seen to it that many plants and flowers are dry and dormant. And bees are no different.

Depending on how much honey they have sequestered in their hives for winter (and conversely how much beekeepers may have removed beforehand) bees may need a helping hand to see them through the winter.

Here are some things any bee-conscious landowner (not necessarily a beekeeper) can do to help sustain a healthy bee population.

bearing plants have finished blooming.

❑ Where you have planted a single crop, allow a border of wild plants to grow round the edges of your field, which will provide a diverse source of food.

Bees rely on a wide variety of both indigenous and exotic forage. And don't forget that flowering weeds are very important food sources for bees.

Some towns in Europe now actively plant verges of roads with flowers of all types, and have found that, apart from providing forage for the local bee population, they save a fortune in grass mowing costs as a result.

❑ Limit your use of insecticides and try to find ones that are bee friendly. Spray at night and when there is no wind. Fungicides and herbicides are also dangerous to bees.

❑ Allow a few of your vegetable plants to bolt. Leafy crops like lettuce that are left to flower give bees additional food sources.



Flowering "weeds" such as khakibos can be left to flower. Image: Sanbi

❑ Consciously grow a wide variety of trees, shrubs and plants that will provide bee food at different times of the year. We are told that they are particularly attracted to blue, violet, white and yellow flowers. They are also attracted by strong, sweet scents.

❑ Cut the grass in your fields only after the nectar-



Lettuce that has bolted.

❑ In winter put out water that has been sweetened to supplement the limited resources during cold weather.

❑ Another food source you can provide is a plateful of very finely milled mealie meal, almost mealie "dust", which the bees will devour with gusto.

Finally educate people in your family and community about the value of bees ~ we are all affected by their decline. 🌸

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EVENTS

Sakeliga Kragdag

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Date: 11, 12 & 13 August 2022. 08h00-17h00.

Cost: R100 per adult (children up to 18 free), but by registering in advance you get a 50% discount.

Register at www.kragdag.co.za/besoeker/kaartjies

Location: Diamond Valley Estate, Pretoria, Gauteng

Contact: 087 231 1644 or info@kragdag.co.za

Walkerville Agricultural Show

Traditional country fair featuring not only commercial agricultural inputs, but arts and crafts, traditional home-prepared foodstuffs and cosmetics, as well as plants, seeds, clothing, small furnishings, and nicknacks. Livestock of various species are also to be

seen, including extensive poultry and rabbit displays, as well as sheep, goats, alpacas and some cattle.

Conservation education through an exhibition of wildlife and conservation-related material.

There will also be an extensive food court selling a variety of styles of cooking, as well as the adjoining showground pub. Entertainment for children including pony rides, etc, and a sand arena holds equestrian events, displays and demonstrations of various types.

Date: 3 & 4 September 2022. 09h00-21h00 (Saturday) and 09h00-18h00 (Sunday).

Cost: R50 per car.

Location: Walkerville Showground

Contact: Ivan on 084 590 2312

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



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How the weather service works

If you rely on some form of prediction of what your weather is likely to be tomorrow, or at the weekend, or next week, you will know that formal weather reports are sometimes, well, inaccurate. The weather report says there's a 90% change of heavy rain, so you get out the wellies and broly, only to be confronted by an almost cloudless sky and a short light shower.

To be sure, laymen are told that weather reporting relies on vast amounts of scientific data that is constantly collected, and analysed by computer, to produce probabilities which form the basis of weather reports. Or does it?

I think it's somewhat more prosaic than that, as the following tale, the origins of which I can't find, will lay bare.

It concerns a young Khoi-San headman named Spaarwater Kruiper.

Rather than a traditional Khoi-San education into all things natural and supernatural, the young Spaarwater had been sent away to school to receive a "western" education that included the three R's (reading, writing and 'rithmetic).

Thus he was a bit unsure of traditional Khoi-San wisdoms and ways. He couldn't, for example, simply look at the sky like his ancestors, and predict the weather ahead.

So, one day in autumn, when his villagers gathered round and asked him if he predicted a cold winter ahead, he was unsure and simply said "very likely, probably, maybe ..." and left it at that.

However, he knew that if he got it wrong he would be subjecting his people to a winter of hardship and would lose stature in his village, so he gathered together a kaross and a few things, and an ostrich shell of water, and set off across the Kalahari to the

nearest town where he knew there was a phone.

Arriving after a five day walk he found the phone, and called the government weather service. "Will the upcoming winter be a cold one?" he asked. "Probably," said the weatherman, a bit perplexed by the question.

So Spaarwater walked back across the Kalahari to his village, where he was greeted by his people.

"Will it be a cold winter?" they asked.

"Yes," he declared, "it will probably be a cold winter, and we had better gather in as much firewood as we can."

So the villagers set about scouring the surrounding veld for wood to stockpile.

But Spaarwater still had nagging doubts, so after a few weeks he walked back to the town and telephoned the weather office again. "Does it still look like a very cold winter?" he asked. "Yes," came the reply, "it looks like it's going to be a very cold winter." Back in his village he told his people to gather even more wood as it was going to be a very cold winter. But doubt still nagged him, so after a couple of weeks he walked back to the town and phoned the weather service yet again, just to be doubly sure.

"Yes," said the weatherman "It's going to be very, very cold this winter. In fact, one of the coldest we've had."

"How can you be so sure?" asked Spaarwater.

"Because our satellite images from over the Kalahari show the Khoi-San people collecting huge amounts of firewood, and they're never wrong."



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