

# VET

July / Julie 2022

# nuus•news

The Monthly Magazine of the SOUTH AFRICAN VETERINARY ASSOCIATION  
Die Maandblad van die SUID-AFRIKAANSE VETERINÊRE VERENIGING



## FOCUS

Ruminants and Veterinary Public Health

## CPD

Cobalt Deficiency in Ruminants

**SAVA**  
South African Veterinary Association  
Suid-Afrikaanse Veterinêre Vereniging

# VET

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**VetNews** is published by the South African Veterinary Association

#### STREET ADDRESS

47 Gembok Avenue, Monument Park, Pretoria, 0181, South Africa

#### POSTAL ADDRESS

P O Box 25033, Monument Park Pretoria, 0105, South Africa

#### TELEPHONE

+27 (0)12 346-1150

#### FAX

General: +27 (0) 86 683 1839

Accounts: +27 (0) 86 509 2015

#### WEB

www.sava.co.za

#### CHANGE OF ADDRESS

Please notify the SAVA by email: debbie@sava.co.za or letter: SAVA, P O Box 25033, Monument Park, Pretoria, 0105, South Africa

#### CLASSIFIED ADVERTISEMENTS

(Text to a maximum of 80 words)

Sonja van Rooyen  
assistant@sava.co.za  
+27 (0)12 346 1150

#### DISPLAY ADVERTISEMENTS

Sonja van Rooyen  
assistant@sava.co.za  
+27 (0)12 346 1150

#### DESIGN AND LAYOUT

Sonja van Rooyen

#### PRINTED BY

UVO: +27 (0)12 423 9460

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president@sava.co.za  
md@sava.co.za/ +27 (0)12 346 1150  
vetnews@sava.co.za  
accounts@sava.co.za/+27 (0)12 346 1150  
bookkeeper@sava.co.za/+27 (0)12 346 1150  
elize@sava.co.za/ +27 (0)12 346 1150  
reception@sava.co.za/ +27 (0)12 346 1150  
marketing@sava.co.za/ +27 (0)12 346 1150  
debbie@sava.co.za/ +27 (0)12 346 1150  
debbie@sava.co.za/ +27 (0)12 346 1150  
savf@sava.co.za/ +27 (0)12 346 1150  
cvcmanager@sava.co.za/ +27 (0)63 110 7559  
corne@savetcon.co.za/ +27 (0)71 587 2950

# The farmer, the veterinarian and regeneration: A solution in waiting

James Blignaut<sup>1</sup>

## The world at risk

The world is plagued by extremes related to climate variability, biodiversity loss, a lack and loss of social cohesion, poverty, infectious diseases, environmental degradation and debt. In its 2022 Global Risks Report<sup>2</sup>, the World Economic Forum highlights these matters (Figure 1) as being the greatest threat to the global economy over the next ten years. Sadly, this is also the story of South African farmers.

Farmers need to adapt to climate extremes, losses in soil health and the associated ecosystem degradation, a failure in trust and an increase in the fragmentation of relationships, increased debt and infectious diseases. Simultaneously they must seek ways to produce affordable, high-quality food to ensure a country that has food security amid spiralling poverty and failing nutrition. As such, the farm has become a microcosm reflecting many global economic concerns.

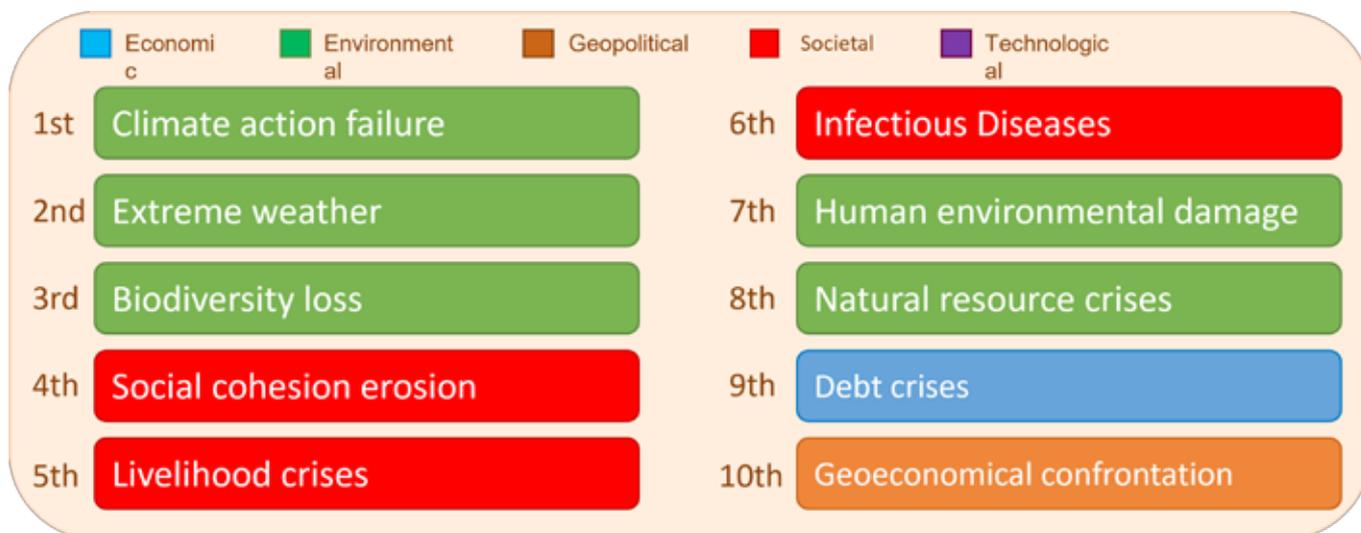
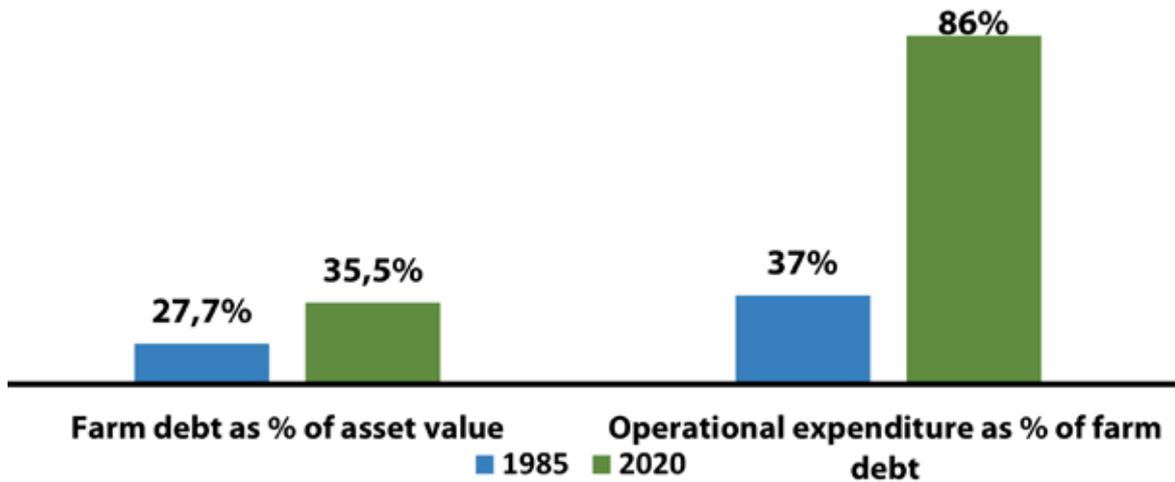
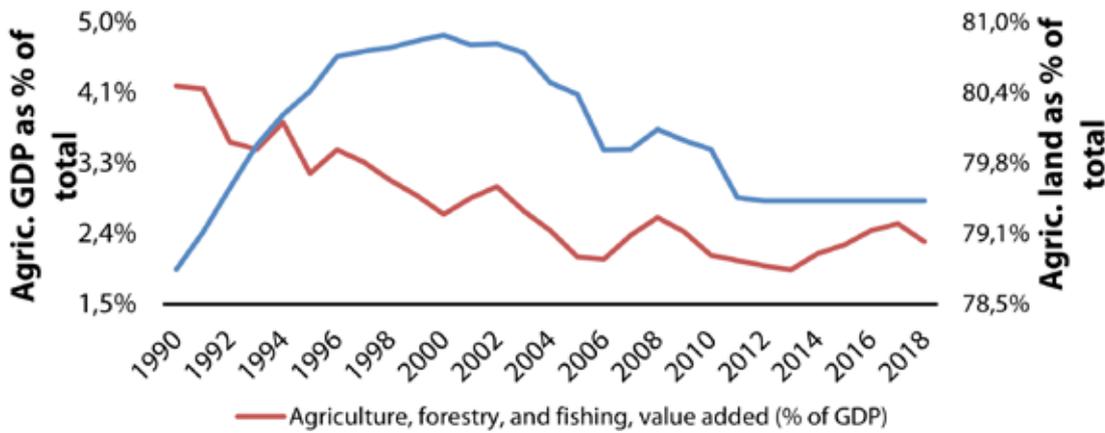


Figure 1: The most severe perceived risks to the global economy over the next ten years. Source: World Economic Forum, Global Risks Report, 2022

## The farmer to blame

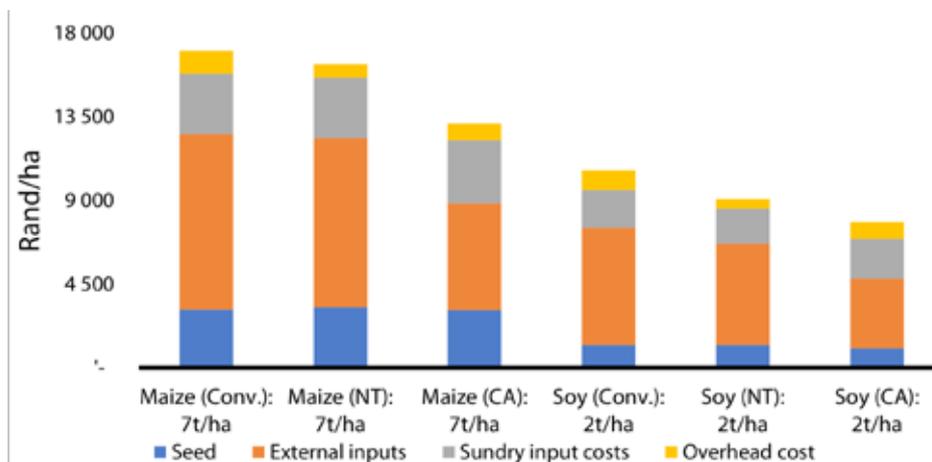
In many circles, the agricultural sector is being blamed, at least in part, for many of the challenges mentioned. Various parties are seeking the demise of the traditional family farm and the radical transformation of the sector. Instead, they want a more industrialised, controlled and technologically focused food supply system. This non-natural, animal-free, farmer-free alternative to food production and the food value chain will garner more power and money in the hands of fewer people than we can ever imagine. Currently, it is estimated that there are 608 million farms globally, of which 90% are family farms. They control 70-80% of the farmland and about 80% of the food in value terms<sup>3</sup>. Dismantling these farms and transforming the food production systems to a lab-based, industrial and technological alternative will concentrate both financial power and the ability to manipulate food provisioning, and thus food security, in the hands of a few conglomerates. The global food system will therefore be at a more significant, not less, risk. A disaggregated production system where the traditional family farm, or its close surrogate, is at the core of a well-functioning production system embraces the principles and values of diversity. In diversity lies resilience – also resilience regarding production. These family farms are therefore of the utmost importance to the future of the food production network.

Perhaps it is not the thriving, diverse and resilient family farm system that must be replaced, but the farming methods and the perceptions concerning the farms that need to be revolutionised. What if perceptions and actions can be re-aligned and farmers were not to be perceived as the villains but as the allied forces onto restoration? After all, it is the farmers who can change things for the better both at the farm and global level, which they can do relatively fast. What if farmlands can both improve the quality and the assurance of food supply while sequestering carbon and being a haven for biodiversity? What if the farm enterprise improves its profitability while improving the carbon, nutrient and water cycle? What if farmers are esteemed restoration practitioners who heal the land and, in the process, heal societies mitigating the risks listed above? How much are we, as a society, willing to assist farmers in reducing the material threats to our economy? These are pertinent questions to ask since the agriculture sector in South Africa earns only about 2,5% of GDP and is deeply in debt, yet it has the responsibility to manage more than 70% of the land (Figures 2a & b). The agricultural sector is in desperate need of support. With the proper support, it can be an effective force for the advancement of food provisioning, water security, carbon drawdown and the conservation of biodiversity. How can this be achieved?



**The regenerative farmer**

Conservation and regenerative agriculture can be defined as practices that seek to minimise soil disturbance, increase biodiversity and diversity of income streams, maintain a living root system throughout the year, rotate crops and introduce cover crops as well as livestock into crop production systems. Such practices, i.e. agriculture that focuses on rejuvenating the hydrological, nutrient and carbon cycles at a much-reduced cost and increased profitability<sup>6</sup>, have the potential to mitigate many of the threats to the global economy. While not following a fixed recipe, since the context in which the operation is taking place will determine the specific application of these principles, the broad philosophy is to maximise the diversity of different forms of life on the farm. This effort is to start in the soil and progress to other biotas whereby the ecosystem goods and services generated by the land can be increased and broadened. Conventional farming practices only value one ecosystem service: the crop, commodity or livestock produced. Regenerative agriculture farms in accordance with the principles in nature to optimise a suite of ecosystem services. That helps to reduce the cost of production. In the Mpumalanga/Eastern Highveld region, for example, conservation and regenerative agriculture's input cost is 23% and 26% lower for maize and soy production, respectively, when compared to conventional systems, and that is before accounting for the 2022 increase in fertiliser prices (Figure 3). The profitability and hence sustainability of the farming enterprise is greatly enhanced.



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Farming in accordance with nature through regenerative practices also reduces the carbon footprint of a farm. The nett emissions (i.e. emissions of the operations less those of sequestration by the plant and in the soil) of a conventional maize crop production system can be as high as 2,800kg CO<sub>2</sub>e/ha/year as is in the case of the Eastern Highveld and KZN (see Figure 4a). Under sound conservation and regenerative agriculture systems, this figure declines by a staggering 1,700kg CO<sub>2</sub>e/ha/year to only 1,150kg CO<sub>2</sub>e/ha/year. This implies a saving of 60% on the carbon budget.

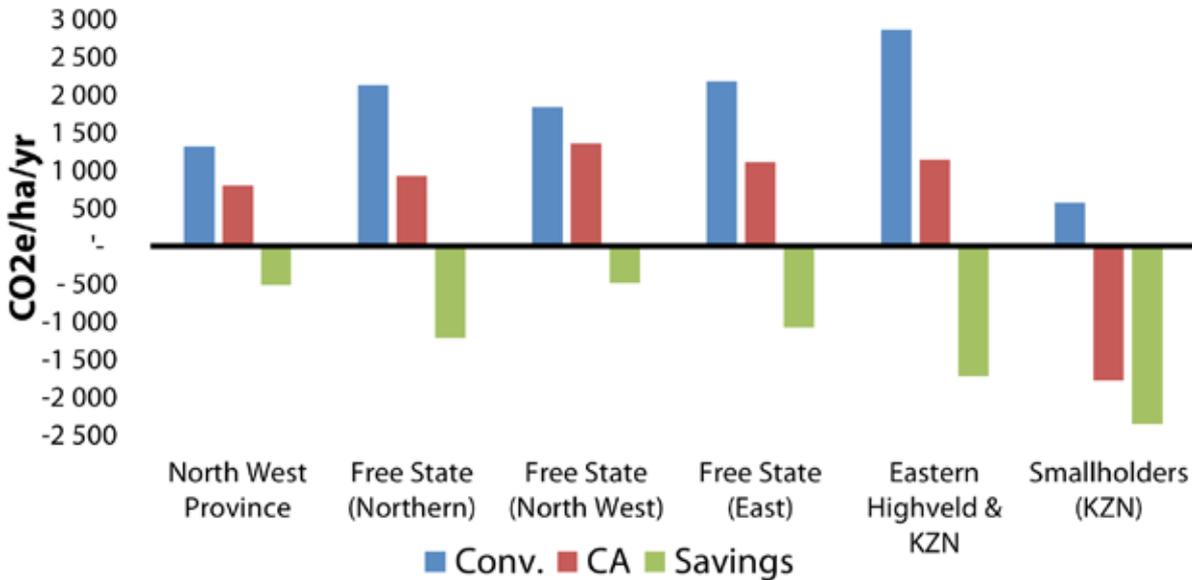


Figure 4a: Nett CO<sub>2</sub>e emissions of conventional and CA maize production systems.

Conv. = Conventional; CA = Conservation and regenerative agriculture; savings = difference between the two systems. Source: Smith et al. 2021<sup>9</sup>

Livestock farms that apply regenerative methods can also reduce the industry's carbon footprint and even act as a net sink<sup>10</sup>. Using conventional carbon accounting methods, and if only 20% of the carbon component of the manure is sequestered, then the unit emissions of a cow over her lifespan within typical South African conditions are estimated to be 19,1t CO<sub>2</sub>e/t meat produced. When considering the short lifespan of methane in the atmosphere and recently developed methods of accounting for it, and if 70% of the carbon component of the manure is sequestered, then the cow and her offspring's net emissions are -12,6t CO<sub>2</sub>e/t meat produced (Figure 4b). That implies a net sink of emissions.

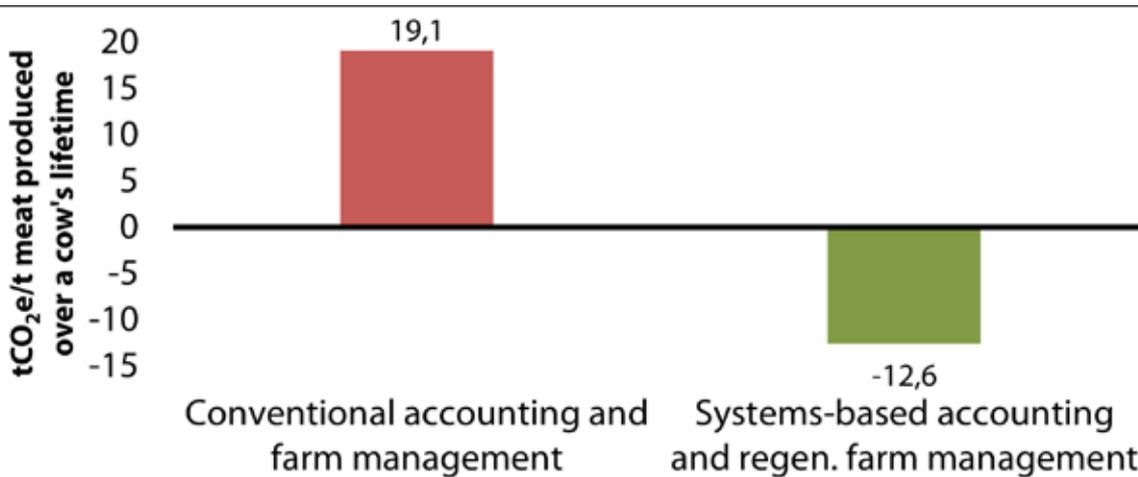


Figure 4b: Relative carbon emissions of a cow and her calves over their lifespan according to different management systems. Source: Blignaut et al. 2022<sup>11</sup>

**The farmer, the veterinarian and regeneration: A solution in waiting**

Farmers are the best people on this planet to restore and rejuvenate the soil and farm ecosystem. They know the land and the natural systems of their farms best and have a deep-seated interest in making a great success of the transformation towards regeneration.

They have the workforce, the equipment and the systems in place to implement regenerative change that rejuvenates. We can therefore imagine the revolution of the agricultural sector from farmers being deeply in debt producing a single product or commodity to being the leaders in the protection of biodiversity, stewards of water resources, masters in the drawdown of carbon and producers of healthy and affordable food while reducing debt and making a profit.



Such transformation is not far-fetched at all. The science behind it and the evidence indicating that this transformation is not a pipedream are overwhelming. This transformation to regeneration is already happening in various pockets.

Given regenerative agriculture's focus on soil, animal, plant, ecosystem and human health, among others, while promoting the farm's financial sustainability, regeneration is the on-farm operationalisation of the One Health concept. The One Health concept, which refers to an integrated approach concerning animal, human and environmental health, while complex and challenging, is essential in reducing risk in the food supply system and is thus embraced and promoted by SAVA<sup>12</sup>.

Therefore, it goes without saying that veterinarians, given their valued and influential position in farming communities, have a key role to play in implementing regeneration onto One Health. They perform this role as scientists, observers, researchers, and trusted compatriots and advisors to the farmers. With regeneration, the vet's role will morph from being reactionary crisis management to proactive prevention and care.

By the on-farm application of the principles of regeneration, the farmer, with the veterinarian as a strong ally, can address most of the challenges listed in the introduction at the local level. Collectively a regenerative farming community will mitigate the global economic risks, and such is priceless. **V**

#### References:

1. James is an environmental resource economist specialising in the economics of restoration. He is a member of the [scientific panel of the World Farmers' Organisation](#), professor extraordinaire attached to the [SPL of the Stellenbosch University](#) and [honorary research associate of SAEON](#). He is also director of [ASSET Research](#) and [Restore Africa Fund manager](#).
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