

livestock

A 30-million-year-old cure for LIVESTOCK AILMENTS

In the early 1990s, the Industrial Development Corporation discovered deposits of diatomaceous earth (DE) on seven farms near Khathu in the Northern Cape. Local farmer **Izak Maritz** and his father **Pieter** began marketing it to the mining industry as an insulation agent. A decade later they started marketing DE to farmers as an animal-health product, and by 2006 Isak was crowned the SA National Young Entrepreneur. **Mike Burgess** reports.



Olifantshoek
NORTHERN CAPE

THE MARITZ FAMILY HAD BEEN supplying diatomaceous earth (DE) – the fossilised skeletons of millions of minute water plants called diatoms – to the mining industry since the start of the new millennium.

That was until eastern Free State organic farmer James Moffett uncovered a new market for the substance.

Based on information he'd researched while studying in the US, James had been using DE to combat internal and external parasites in his livestock for years. James had contacted the Maritz family to buy DE directly from them. Intrigued, Pieter Maritz visited James in 2002 and left amazed.

DE's value in livestock production

"We saw how he used DE for internal and external parasite control in

livestock," says Pieter Maritz. "For a guy of his caliber to come out of the blue and say he substituted a big part of his chemicals with diatoms, was a huge step forward for the product."

Armed with this information, Pieter's son, Isak, went off to the University of Pretoria in 2003 to study economics.

This experience led to research of the properties and associated value of diatoms in agriculture, drawing on the expertise of academics and veterinarians.

Along with his father Pieter back on the farm, Isak managed the extraction and marketing of *Diatoms Organic Animal Health* (DOAH) products from two deposits to a growing number of interested farmers and feed companies intrigued by DE's apparent value in combating mineral deficiencies and

parasites (specifically internal parasites) when mixed in with feed. Isak says studies show that an increasing percentage of worm strains are showing resistance to conventional chemical control measures.

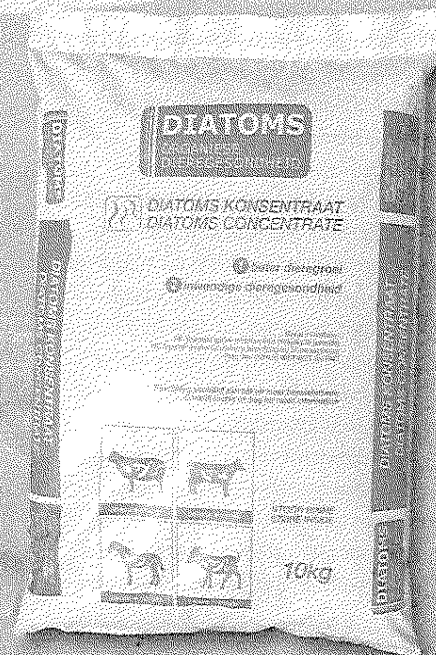
This is a worrying trend for the future

What is DE?

DE is a natural powdery product composed of the fossilised exoskeletons of microscopic unicellular water plants called diatoms that lived around 30 million years ago. DE consists of about 3% magnesium, 33% silicon, 19% calcium, 5% sodium, 2% iron and numerous other minerals including titanium, boron, manganese, copper and zirconium.

Diatoms serve as an effective natural internal and external parasite control measure for livestock and game. Research has shown that as much as 80% of sheep livers – that had been treated with DE – were approved at a particular abattoir, way above the normal approval rate of sheep livers of around 30%.

PHOTOS: ISAK MARITZ



A 10kg bag of Diatoms Concentrate.

Cattle enjoying a lick supplement – 45% salt, 25% Diatoms Concentrate, 23% molasses and 7% phosphate – on Rossville farm in the Northern Cape.



Cattle dusting in Diatoms Rolling Material that effectively combats external parasites. Animals quickly learn that it will bring relief from fleas and ticks, and will habitually roll in it.

of farming that has been recognised by more informed farmers for years now.

'A winning product that combats internal parasites, enhances natural growth and improves feed conversion.'

"We are sitting with products that are not working well now and will not work well for internal parasites in the future, so farmers need to make a mind-shift to alternative control measures," explains Isak.

Farmer interest fuels DE's success

"Based on the research we've done, we can now produce a pure DE product called Diatoms Concentrate, to cure mineral deficiencies, assist in internal parasite control and support better growth," says Isak.

The Maritzes' DOAH Diatoms Concentrate and DOAH Diatoms Game Block are now viable products. When added to

animal feed, they prove diatoms combat internal parasites. This success seems to be linked to DE's effect on the pH level in the digestive system, creating an unsuitable environment for parasites. DE also prevents parasites from obtaining nutrients from the host, explains Isak.

In terms of feed conversion, he adds, it prevents feed particles from clumping together. This means that the animal's digestive juices come in direct contact with more feed for more efficient digestive absorption.

DE is an amorphous silica, so it also acts as a buffer that improves enzyme systems and leads to better growth and a more efficient metabolism in animals. Despite minimal advertising, Isak says DE product sales, particularly of Diatoms Concentrate, grew 200% over the past few years with well over 1 000 clients,

validating the multimillion rand processing facility on the Maritz farm Rossville near Olifantshoek. A success based on farmers' increasing demand for DE products.

"Feedback from farmers around the country was exciting for me as it showed that we now had a winning product that no one could match – a powder you mix into animal's feed to combat internal parasites, enhance natural growth and improve feed conversion," he says.

Trials prove DE's worth

DE is an effective natural alternative to targeting internal parasites and boosting feed conversion while promoting growth in livestock and game.

It can also ensure better results than certain recognised chemical-

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RIGHT: Isak giving a presentation to stock farmers in Grahamstown in the Eastern Cape on the value of Diatoms Organic Animal Health products.

Mike Burgess

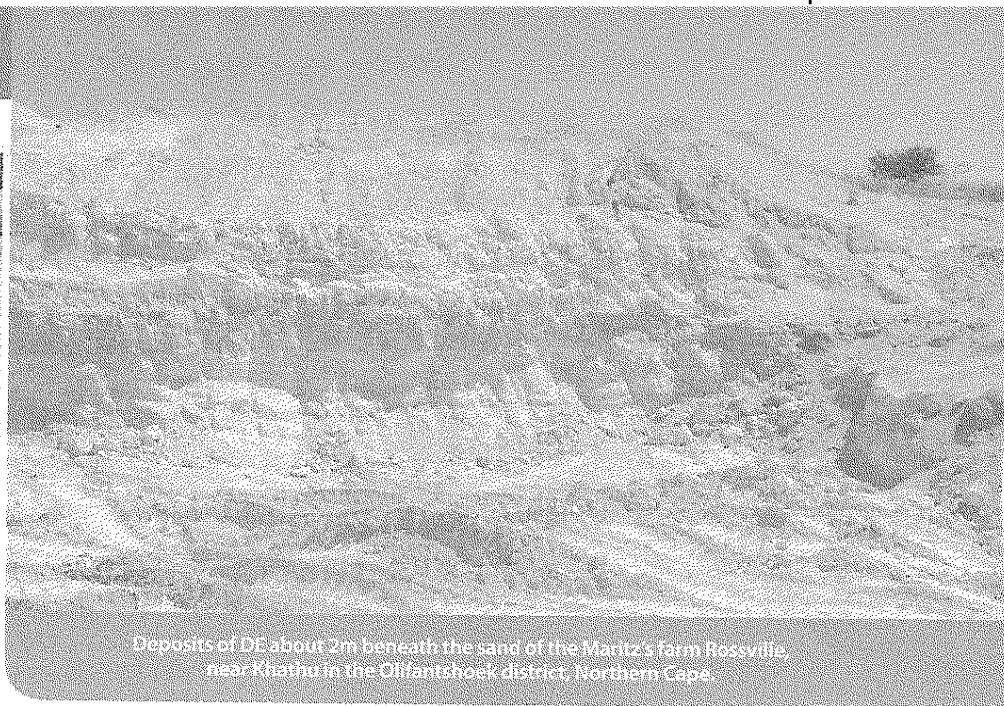
FAR RIGHT: Isak Maritz with Diatom Concentrate. "After we reached 1 000 clients, we stopped counting," he says about the success of marketing Diatoms Organic Animal Health products to farmers for the past seven years. This ensured him the SA National Young Entrepreneur award in 2006 and the Proudly South African Entrepreneur Award in the same year.



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The Diatoms Game Block is essentially a DE concentrate in a solid form, which has been treated with salt to improve efficient intake by animals.



Deposits of DE about 2m beneath the sand of the Maritz's farm Rossville, near Khathu in the Olifantshoek district, Northern Cape.

← based procedures, as proved in many trials, the four listed below being highlights for Isak:

1. Pathological examinations at Kuruman Abattoir showed approval rates of up to 80% of livers from sheep that had been treated with diatoms, a huge jump from the normal approval rate of around 30%.

'Farmers need to make a mind-shift to alternative parasite control measures.'

2. A feedlot trial in the Western Cape that compared three groups of Merino lambs in terms of growth, feed conversion and parasite loads, proved the value of diatoms.

At the start all three groups had egg counts of 1 100/g for roundworms and 1 000/g for threadworm. For *Coccidia*, a count of 45 900 oocysts/g was reported.

Group one was treated with a chemical growth stimulant and a broad-spectrum antiparasitic anthelmintic. Group two had a 1% inclusion of DE concentrate in the feed while group three had a 2% inclusion of DE concentrate in their feed.

All three groups had an adaption period of 12 days before the trial officially started. After 31 days, the roundworm egg count was 600 in the 1% DE group, 700 in the 2% DE group and 900 in the chemical/growth stimulant group.

The threadworm egg count was 500 in the 1% DE group, 700 in the 2% DE group and 900 in the chemical/growth stimulant group. Lastly the oocysts per gram count for *Coccidia* was zero in all three groups.

In terms of feed conversion, the 2% DE group had an improvement of around 9%, compared with the chemical/growth stimulant group, while the average daily weight gain per lamb over a 35-day period was 0,27kg for the 1% DE group, 0,30kg for the 2% DE group, and 0,35kg for the

chemical/growth stimulant group.

A second trial, repeated a few weeks later on the same premises, yielded similar results, as did a third trial conducted at a different locality in the Northern Cape.

3. Dairy farmers can lower somatic cell counts by including DE in their feed rations. The latest confirmation of this is a dairy in the North West Province that includes diatoms in one of their dairy herd groups and has obtained a statistical significant reduction in somatic cell counts.

4. Dr Gert Coetzee, a well-known veterinarian in Klerksdorp, did a study on the growth of horns in game.

He found that the group of game with diatoms in its feed ration had greater horn growth than the group without diatoms in its feed.

Based on this outcome, he has registered a commercially available game cube that includes DE.

• Contact Isak Maritz on 083 312 7485 or visit www.diatoms.co.za. |fw

Diatoms Rolling Compound and other products from *Diatoms Organic Animal Health*

Farmers are increasingly using DE as a natural way of combating external parasites on livestock and game, prompting the Maritzes to produce a Diatoms Rolling Compound.

Isak explains that the sharp edges of the minute diatom skeletons, of which DE is composed, rupture the exoskeletons of parasites and insects, causing death by dehydration. This is parasite control by mechanical

means, a process against which no immunity can be built. "DE has a very high absorption property and if a tick loses 5% of its moisture it dies – it's an easy way to combat external parasites," says Isak.

Diatoms Rolling Compound is used by spreading 400kg in an area of 4m x 4m (enough material for around 50 cattle with calves for six months) to attract animals to roll in the dust. "Research done at the mining

sites, where the DE deposits are very shallow, indicated that game will only roll in the diatoms because they seem to know that by doing so they'll have less irritation from ticks and fleas," explains Isak. "It's a great product for game farmers, because you can't catch game and treat them for external parasites."

Other products currently produced on Rossville include Diatoms P6 Phosphate Lick and Diatoms Dog Food.