



Plant Health
Products Pty (Ltd)

Working with nature

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Is the product registered?

With so many biological remedies being touted, how do farmers know what information to trust and which products to use? Their first question should be: Is the product registered?

The purpose of having a Registrar of agricultural remedies is two-fold: Firstly, to ensure that the product will not endanger human health and pollute the environment, and, secondly, to approve the product on the basis of its efficacy against the target pest or disease.

The registration process for biological remedies is the same as that for the harshest agrochemicals. The appropriateness and justice of this is another topic entirely, but it is important to note that the companies that do go to the trouble and expense of registering their products with the South African national authorities have to submit comprehensive efficacy data, as well as toxicity and eco-toxicity data. These companies then have to wait a restrictive 12 to 18 months for approval of their product by the Registrar.

"There is currently a plethora of largely untested biological control products being marketed to farmers," according to the report by researchers who are running the no-till maize trials in KwaZulu-Natal. This is confirmed by agents involved in agrochemical distribution.

Apart from the uncertainty of unsubstantiated trial results, unregistered remedies may not be used or sold. The "Guide for the Control of Plant Pests" has some nifty tips at the bottom of each page, including the following: "You need not experiment - the work has already been done"; "Non-chemical methods can go a long way in pest

control;" and "Steer the middle course - Work in harmony with nature".

This "Guide for the Control of Plant Pests" or the "Guide for the Control of Plant Diseases" are the publications farmers should consult when they are uncertain whether or not a biological remedy, fungicide or pesticide is registered and what crops it is registered on. It is updated every few years by the Department of Agriculture and is obtainable from the Directorate Agricultural Information Services, Private Bag X144, Pretoria, 0001.

More up to date information is obtainable on-line on the Department of Agriculture's website at www.doa.agric.za. Select "Divisions", then "Feeds, Stock Remedies, Pesticides and Fertilizers", then "Agricultural Remedies", and "List of Registered Products".

Another useful way of evaluating a product is through trial results conducted by reputable independent institutes, universities or groups of researchers, such as those conducted on behalf of the No-Till Club of KwaZulu-Natal and the Maize Trust.

At Plant Health Products, we believe in seeking registration and independent testing for each of our products. So be assured when you use Eco-T, Eco-77 or AgriSil K50 that they are registered, tested products. Registration is also pending on a new product called Eco-Bb.

*"Treat the earth well.
It was not given to you by your parents.
It was loaned to you by your children."
Kenyan Proverb*

Eco-T is registered on wheat for the control of root diseases in South Africa, Kenya and Zambia.

Potassium silicate: Giving plants new strength

The ability of potassium silicate to increase plant resistance to stress is a fairly recent discovery, but a significant one as a constant stream of positive trial results against various pests, diseases and climatic stresses flows in from across the globe.

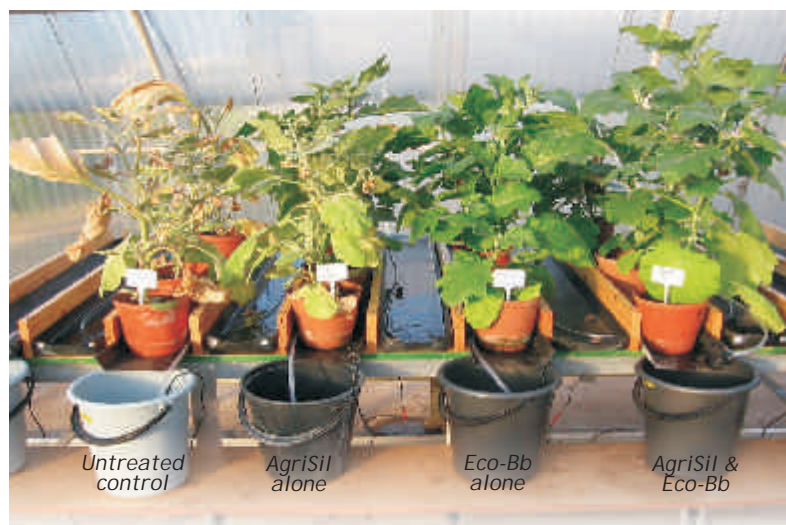
South Africa, where the Fourth International Conference on Silicon in Agriculture was held in November 2008, is at the coalface of this research. The University of KwaZulu-Natal has conducted three years of research on potassium silicate and has reported positive results on numerous crops against numerous diseases, pests and abiotic stresses. Significant among the diseases it alleviates are rust and powdery mildew on various crops. The University of Pretoria has also had some promising results on avocados against Phytophthora, a serious root rot disease, limiting production.

Plant Health Products (Pty) Ltd has been working with the University of KwaZulu-Natal throughout the years of trialing of potassium silicate and, together with PQ Corporation, have developed a product called AgriSil K50. This product comprises potassium as 33 g K per kg and silica as 96 g Si per kg.

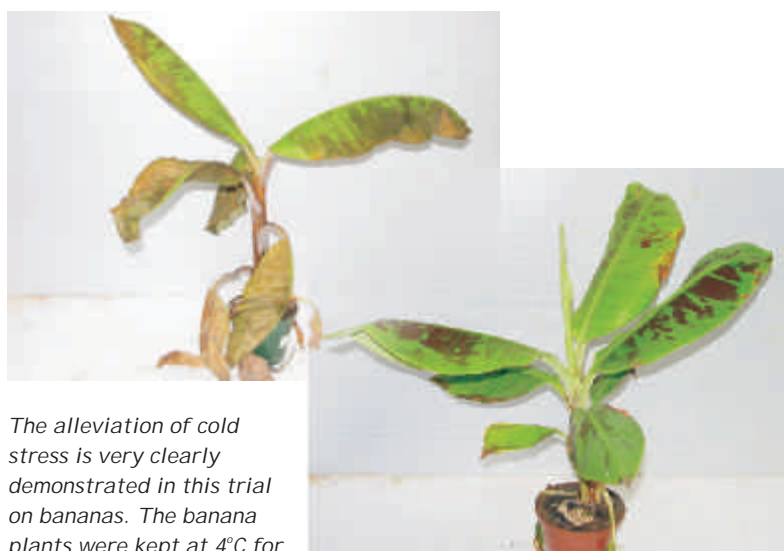
PQ Corporation is a global producer of silica-based inorganic chemicals for a wide range of applications. The company has registered similar products to AgriSil K50 in other parts of the world, including AgSil in the USA and FertiSil in Brazil. PQ Corporation is the supplier of potassium silicate and Plant Health Products conducts the marketing and distribution of AgriSil K50.

AgriSil K50 is currently registered as a Group II fertilizer but plans are afoot to register it as a fungicide and pesticide for specific applications. The product reduces pest and disease populations, leaves no insecticide residues in food or the environment, is relatively cheap, and can easily be integrated with other pest management practices including biological, chemical, and cultural practices.

It was originally thought that silica only played a physical role in plants. Now there appears to be no question that it plays a biochemical role in gene activation or de-activation. Research from Canada on gene activation showed that of a huge number of genes are switched on in silica-treated plants to defend the plant. It's a whole new field of research and a whole new way of thinking.



Potassium silicate and biocontrol agents are synergistic and complementary. Here AgriSil K50 was used in combination with the biocontrol agent Eco-Bb against red spider mite in a brinjal greenhouse trial.



The alleviation of cold stress is very clearly demonstrated in this trial on bananas. The banana plants were kept at 4°C for 4 days. The plant above received no silica, while the plant on the right received 1000 ppm AgriSil K50.

Eco-T has proven itself on wheat

From the vast wheat production lands in Kenya and Zambia, to the local Free State and KZN wheat fields, Eco-T is proving to be a top performing seed dressing on wheat.



Eco-T treated plants were better than that of the non Eco-T treated plot."

Canisius Malambo applied the Eco-T powder to seed while it was still damp after on-farm treatment with imidacloprid. He allowed the seed to dry and then planted as usual. He left an area untreated for comparison.

"We will be recommending a seed treatment of Eco-T to wheat farmers for the coming season based on the good results we saw last season," said George Allison of Aldiba Agriculture. "Whenever we dug up roots of treated and untreated plants, we could see a difference in the size of the root system."

Graeme Rae, Manager of Zambezi Ranching and Cropping in Zambia, said that he was "greatly impressed with the enhanced root growth" in his maize, and on account of this experience he was committed to treating his entire wheat crop with Eco-T.

A wheat farmer in Kenya, Paul Berthelsen treats 3,200 ha of wheat with Eco-T as he has seen a huge yield response versus the standard fungicide seed dressing, with a much bigger root system which results in improved drought tolerance and yield increase. He will use Eco-T as a standard seed dressing next year on wheat for the fifth consecutive year.

Angus Ker of Lachlan Kenya is a strong believer in the benefits of Eco-T. A trial carried out in 2008 by one of Kenya's top wheat growers in Timau with Lachlan's recommended seed dressing gave excellent yield increases. "Our farmers have been amazed by the Eco-T effects," he said.

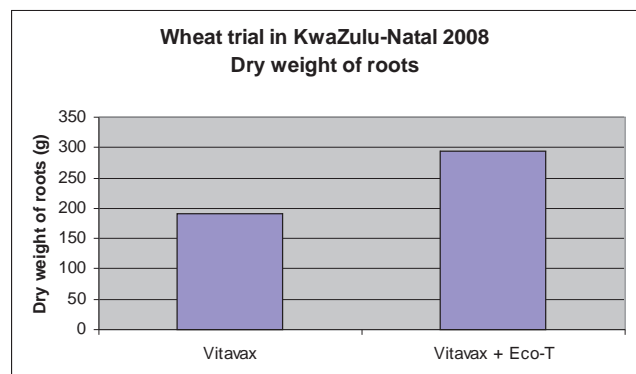
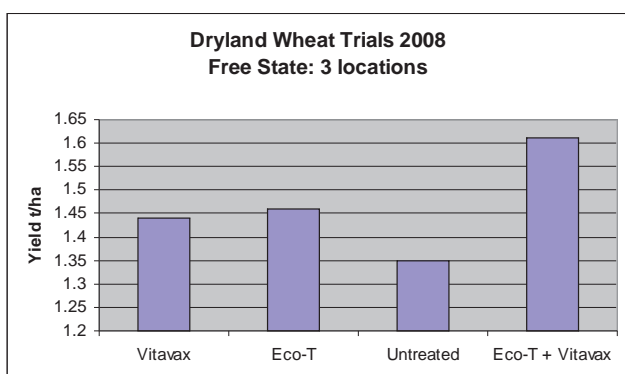
There has been a lot written of late in the agricultural press about soil degradation and enhancing soil life. "We at Plant Health Products can certainly vouch for the use of pitching good micro-organisms against bad to boost soil health," says MD and researcher Dr Mike Morris. "Eco-T contains the original good guy of all soil organisms, the vigorous-growing and aggressive pathogen-fighting *Trichoderma harzianum*."

Being an organism that occurs naturally in most healthy soils, *Trichoderma* is an environmentally-friendly way of controlling root diseases on wheat. Since *Trichoderma* does not give complete control of smut, it is recommended that farmers apply Eco-T with a fungicide for smut control, such as difenoconazole or carboxin/thiram. These chemicals are compatible with Eco-T. In fact, it is recommended that Eco-T be applied using these fungicides or an insecticide as a sticker.

In recent wheat trials carried out by an independent company at three locations in the Free State, the results indicated an increase in yield with the use of Eco-T and particularly with the combined use of Eco-T and Vitavax (see graph below). The same trend was evident in a trial conducted near Greytown in KwaZulu-Natal, with an increased root mass in the plots that were treated with Vitavax plus Eco-T (see graph on right).

In Kenya and Zambia, many wheat farmers have been using Eco-T as a seed dressing on the advice of Lachlan and Aldiba Agriculture respectively.

"Wheat seed dressed with Eco-T germinated two days earlier than the non Eco-T treated seed," said Canisius Malambo, field manager for ETC (Export Trading Company Ltd) in Zambia. "Seedling vigour and root density of the



Raise your glasses to these noble results!

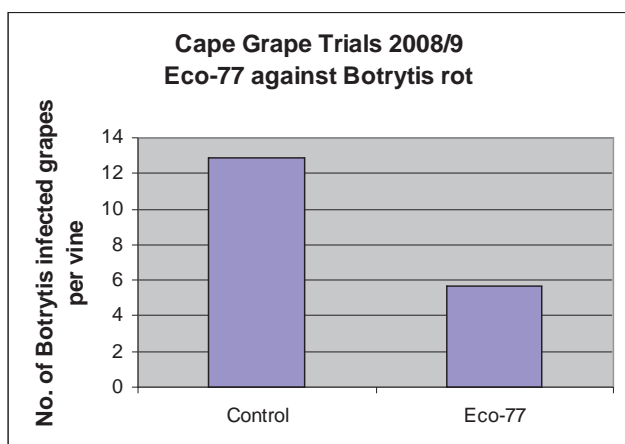
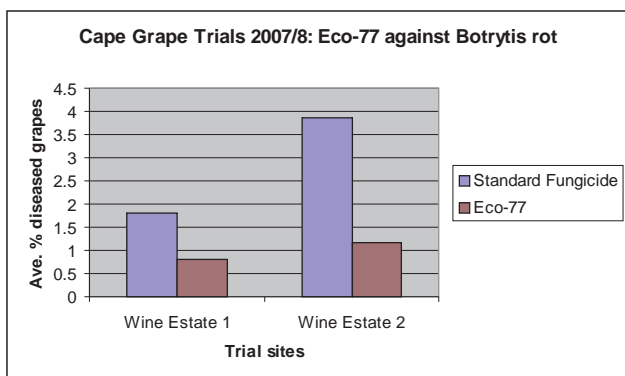
Botrytis is known as the noble rot on grapes when white grapes infected with Botrytis are used to produce a very sweet wine. But most of the time, Botrytis bunch rot is considered a serious nuisance on grapes.

Over the past two seasons, Plant Health Products has been conducting trials in the Cape together with various table grape and wine farmers to test the efficiency of the biological control agent, Eco-77 against Botrytis. The results are shown in the graphs below. These trials have shown that Eco-77 can be used as an effective biofungicide against Botrytis on grapes.

This is hardly surprising since the Trichoderma strain contained in Eco-77 was originally selected for its efficacy against Botrytis. The product is registered against Botrytis on tomatoes and cucumbers, and the manufacturers, Plant Health Products, will soon be seeking an additional registration against Botrytis on grapes. The product is in fact already registered on grapes, but for protection of pruning wounds from Eutypa.



This section of one of 2007/8 grape trials received three sprays of Eco-77 and showed a low incidence of Botrytis



Botrytis infection was evident on grapes treated with the standard chemical treatment in the trial.