

Most farmers who have changed to no-till systems are concerned with the conservation and improvement of a non-renewable resource – the soil. As custodians of their soils, they would choose eco-friendly options, avoiding the use of harsh agro-chemicals, particularly fumigants, and building up the soil with the addition of organic matter and beneficial micro-organisms.

Soilborne diseases are known to cause significant yield losses in crops such as maize and wheat and there is strong evidence indicating that this problem is exacerbated under no-till systems, particularly where there is a lack of crop rotation. Trials conducted in the Winterton district of KwaZulu-Natal in recent years have unambiguously shown the negative effects of soilborne diseases on maize yields in double cropped no-till systems.

It has long been known that the beneficial *Trichoderma* fungus can assist in the control of soilborne pathogens such as *Pythium*, *Rhizoctonia* and *Fusarium*, and can stimulate plant growth (first documented in 1934). However, its commercialisation and widespread use has only been inspired by the worldwide trend towards soil conservation and more ecologically friendly products.

Trichoderma harzianum is now registered as a biological control agent against root disease pathogens in many countries of the world. In South Africa, *Trichoderma* is available commercially as the product Eco-T, which is a grey-green powder containing the spores of the fungus in a special formulation.

Eco-T has been included as a treatment in the fore-mentioned no-till maize trials in the Winterton area conducted under the sponsorship of the Maize Trust, the No-Till Club of KZN and others. Eco-T has performed relatively well in these trials, providing a statistically significant yield benefit of 8% in last season's trial. This was despite the product being applied as a drench rather than as a seed dressing, as is recommended by the manufacturers, Plant Health Products.

"Numerous trials conducted in recent years at the University of KwaZulu-Natal have shown conclusively that a maize seed treatment with Eco-T is more effective than a top dressing," says Dr Mike Morris, the Managing Director of Plant Health Products. However, machine planting of trials with randomly located plot treatments precludes the use of treated seeds.

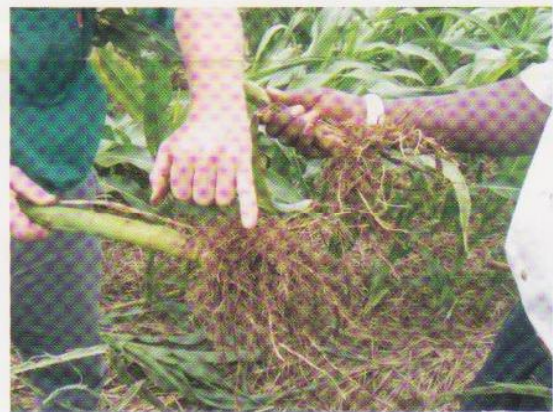
In trials at the University of KwaZulu-Natal with seed maize and seed potatoes, conducted by Nick Snaith,

a postgraduate student and farmer, Eco-T applied as a seed dressing boosted emergence, uniformity and yield. Nick found that Eco-T significantly increased profitability with both maize and seed potatoes (as reported in *Farmer's Weekly*, 22 May 2009).

When Eco-T is applied to field crop seed, the fungal spores germinate along with the seed and colonise the soil immediately surrounding the plant roots. As the *Trichoderma* fungus is fast growing, it is capable of out-competing and displacing plant pathogens. It also actively destroys various disease-causing soil fungi and forms compounds which inhibit their growth. Eco-T can also enhance or stimulate plant growth and help buffer plants from extreme conditions such as waterlogging, drought etc.

Importantly, the beneficial *Trichoderma* fungus that is the active ingredient in the product Eco-T is a micro-organism that occurs naturally in soils in low concentrations. Using this product to control root pathogens by placing the *Trichoderma* right on the seed is the most natural way to boost soil and plant health and counter the effects of soil pathogens.

Trichoderma harzianum (in the product Eco-T) is available from Plant Health Products (Pty) Ltd, Tel: 033-2666130, Email: bruce@plant-health.co.za View the website of Plant Health Products (www.plant-health.co.za) to find out more about Eco-T and other biological control products that help farmers grow crops in a more environmentally-sustainable way.



Commercial maize trial conducted in 2008. The maize plant in front is typical of those treated with *Trichoderma*, showing an enlarged root system with more fine roots and root hairs compared to the typical control plant behind.