



Questions to ask about soil biology products

There are so many new brand names and novel products on the market today it is difficult to know which ones are reliable. Advertising and slick presentation make it hard to tell a tried and tested product from something that is new and largely untested. Below are some questions you can ask to help check the usefulness of a new product.

What is wrong with my soil?

If you think there is a problem with your soil or crop don't go straight to a salesman. Try to reduce the guesswork by checking the extent of the problem, by discussion with other growers and by talking to your local advisers. These actions will enable you to narrow down the cause of the problem and canvas solutions. If a particular product is recommended, check whether it is registered.

Is the product registered?

Registered products are those which have been assessed by the Australian Pesticides and Veterinary Medicines Authority (APVMA). Any product which affects the physiology of a plant, influences pests, diseases or other agricultural chemicals should be registered before being sold in Australia.

Registration requires that sufficient scientific data has been supplied for the authority to be convinced that the product is effective, safe to use, and not an unacceptable risk to the environment or trade. If the label says registered for use in Australia then you can be sure the product is bona fide for the uses stated on the label. Some products are legitimately registered for certain uses but then promoted as having other benefits; these need to be treated with caution.

Products certified for organic use are not necessarily registered with the APVMA.

Likewise, registered products are not necessarily certified for organic use. Organic certification assures only that the product does not leave certain chemical residues in food.

Does the label carry key information?

A well prepared product carries critical information on the label. Be wary of products not supplied with the following information:

- contents or ingredients
- storage environment.
- application rates and conditions
- safety instructions
- withholding period

Some products must be stored and applied in a particular manner. Biological agents are very sensitive to heat or harsh conditions and in some cases can carry a risk of infection to the operator.

Is the product suitable?

The information that accompanies the product should mention your specific problem, eg *Sclerotinia* root rot in onions. A product that works for a problem in one crop will not automatically address a similar problem in another crop. Biological control agents such as *Trichoderma* or *Paecilomyces* are often highly specific so that some strains are only effective in certain crops.

It is also worth keeping in mind that some products are only effective in certain soils or climates. Something that benefits a sandy soil is unlikely to give the same result in clay. Biological agents often do better in moist soils with high organic matter. Products designed for European or American conditions may not perform well in Australia's hot, dry conditions.

Will the product be a long-term solution?

Many biological products promise a quick fix to a recurring problem. It is worth considering ways of addressing the source of the problem before you use these products as they are no substitute for good management. Changes in practice, such as direct drilling, green manure crops and integrated pest management are more reliable means of improvement. Only when these fundamentals are right and a problem persists is it worth considering trialling a new product.



Is the product part of a management package?

Some products are sold as part of a management package that involves changes in practices and may require a lead time of several seasons. Often these management packages incorporate sound techniques that rebuild soil health.

Over time, the soil may clearly improve but it will be difficult to tell whether this result is due to the products or the changes in management. You may become committed to a suite of products and yet be unsure of their real benefit.

Good management practices should have benefits independent of auxiliary products.

If possible, judge the management package on its own merits. The associated products then become optional and can be evaluated one by one, over time.

How can I tell if the product really works?

In the absence of reliable scientific reports, new products can be tested through onfarm trials. Detailed information on such trials is provided in the leaflet 'How to conduct your own field trials'. Any trial needs to include an untreated area otherwise the result has little value.

Be wary of products that purport to work through invisible forces, or that claim beneficial effects regardless of soil type. The more claims made for a product, the more impartial evidence you are entitled to expect.

Can I mix products?

It is never a good idea to mix sprays or applications. Mixing biological products with other products to save spraying twice can have unforeseen impacts. Biological agents are particularly sensitive in this regard.

Is the product safe for consumers?

Biological products can present risks to consumers. Foliar sprays can leave harmful residues or contaminate the crop with infectious microbes.

Fruits and vegetables should be carefully washed before being sent to market. If biological agents have been used then a sterilisation step will be required before packing.

Can I talk to other users?

Ask whether you can contact other Australian farmers who have tried the product. A ringing endorsement is a good sign but no guarantee that the product will perform. Conditions vary widely from season to season and something that is effective in mild circumstances may not give results in a severe season or infestation.

How can I find out more?

The APVMA website has detailed information on registered products at www.apvma.gov.au.

If the product is not registered, find out the active ingredient and search the internet for relevant reports published in scientific journals. Only take notice of websites that reliably report scientific field trials.

Ask your nearest NSW DPI horticulturist or agronomist to check the active ingredient on the department's internal website under 'non-conventional products'.

More information

Soil biology basics is an information series describing basic concepts in soil biology. For more detailed information we recommend the Australian book *Soil biological fertility: A key to sustainable land use in agriculture* (2003), edited by Lyn Abbott & Daniel Murphy.

NSWDPI has online soil biology information at <http://www.agric.nsw.gov.au/reader/soil-biology>.

The University of WA has online soil biology information at <http://ice.agric.uwa.edu.au/soils/soilhealth>.

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The information contained in this publication is based on knowledge and understanding at the time of writing (2005). However, because of advances in knowledge, users are reminded of the need to ensure that information on which they rely is up to date, and to check the currency of the information with the appropriate officer of NSW Department of Primary Industries or the user's independent adviser.