

# Sustainable agriculture Biologicals demystified

Biological solutions add value to market access

**B**iological solutions have a critical role to play in IPM programs. Biologicals contribute to reducing, managing and minimising crop loss due to pest damage, and are also increasingly being applied to enhance soil, root and plant health. With the new growing season in full swing, more and more growers are looking for innovative, effective solutions which can be added into their existing programs.

Biologicals have the great advantage of low to no residue levels. As market access regulations continue to be tightened on Maximum Residue Levels (MRLs), particularly on export crops, growers are recognising the value of incorporating biologicals into IPM programs sooner, rather than later.

“Biopesticides are no longer being seen or regarded as a ‘soft option’. They offer highly effective pest control options that are safe for the environment, filling the gaps created by banned chemical pesticides and contributing to reduced chemical residues,” says Michelle Lesur, Managing Director of Madumbi Sustainable Agriculture, the Hilton-based company that is spearheading biomanagement and biostimulant crop solutions.

### Biological at a glance

Biological products are derived from living organisms and fall into four categories:

- Biostimulants – Natural plant growth stimulants impacting plant growth, eg, kelp, fulvic acid
- Semiochemicals – Natural insect pheromones used as attractants for mating disruption
- Microbials – Micro-organisms with pest or disease control qualities ie. fungi, bacteria, viruses

- Macrobiols – Nature’s predators that can reduce crop pests eg. ladybirds feeding on aphids.

Microbial products used to reduce pests or diseases are more commonly known as Biopesticides. Biopesticides require the same stringent tests as chemical solutions and must be registered by the Department of Agriculture, Land Reform and Rural Development (DALRRD) before they may legally be sold or used.

### Biologicals on farm

Biologicals are used on a wide range of crops both globally and in South Africa, including fruit, vegetables, tree-nuts, row and field crops. Biologicals add great value to conventional IPM crop programs as well as to organically grown crops.

Farmers can apply biologicals with the same equipment used for chemical applications, directly onto plants, into the soil or as a seed treatment. Due to biologicals containing living organisms, they may be impacted by age, temperature, UV exposure, pH etc. Correct handling and application are critical to efficacy. Compatibility tests should always be conducted prior to tank mixing biologicals and chemicals together. Depending on the chemistry and biology involved, this may or may not be possible. Growers should always read the label and follow manufacturer recommendations.

### The key benefits of biologicals

The main difference is that biologicals are living organisms. As such, they degrade rapidly and do not linger in the environment.

Biologicals are often exempt from MRLs, a critical market barrier on export and local crops.

Biologicals have multiple modes of action, that differ from those of chemical products and offer a valuable tool in terms of pesticide resistance management. The strategic inclusion of biologicals into IPM programs provides growers with greater flexibility to implement on-farm decisions, as each season dictates.

Biologicals have minimal to no withholding periods. This allows them to be applied pre – and during harvesting, when chemical pesticides are no longer an option. Biologicals are safe, both for humans and the environment, further facilitating their use in field at this critical time

Biologicals enhance and improve crop yields and quality. This helps growers deliver healthy, nutrient-dense food to our tables.

### Biological efficacy

Significant developments in agricultural biological solutions have been made over the past 10 – 15 years and intense R&D continues in this dynamic field.

Today’s bio-pesticides are still regarded to provide lower levels of control with more variability than their chemical counterparts, particularly when pest pressure is high. This emphasizes the importance of a good IPM program, which combines the “best of both” to ensure the benefits of the biologicals are maximised without compromising crop health, yield and quality. ■

To support growers of all crops on our biological solutions the Madumbi Connect to Grow app is now available to download from the Google Play Store and Apple iStore. [www.madumbi.co.za](http://www.madumbi.co.za)

Article adapted from [CropLife.org](http://CropLife.org)

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# Madumbi

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Madumbi aims to change the way food is grown.

We believe all people should have access to healthy, nutritious food, free of chemical residues.

Madumbi continues to develop quality biological solutions. Solutions which support growers in building bio-active soils, maximising soil and plant health, and providing proven pest management solutions which have minimal impact on the environment – and everyone in it.

Join us in leading this change.

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