

# Agricultural biostimulants

## Are they bio boosters or snake oils?

### What are agricultural biostimulants?

- They are preparations of compounds, substances and microorganisms that are applied to plants or soils to improve crop vigour, yields, quality and tolerance of physical stresses.
- They include products described as biological stimulants, metabolic enhancers, plant strengtheners, positive plant growth regulators, elicitors, allelopathic preparation, plant conditioners, phytostimulators, biofertilisers, and biofertiliser/biostimulant.

### What distinguishes biostimulants from traditional crop inputs?

The European Biostimulants Industry Council claims:

- They act via different mechanisms than fertilizers, regardless of the presence of nutrients in the products.
- They differ from crop protection products as they act only on the plant's vigour and do not have direct actions against pests or disease.
- Crop biostimulation is complementary to crop nutrition and protection.



### Biostimulants commonly include:

1. Humic acids
2. Seaweed extracts
3. Hydrolysed proteins and amino acids from plant and animal sources
4. Inorganic salts
5. Living and non-living microorganisms (bacteria & fungi) and their metabolites

### Compost teas are considered to be biostimulants containing microbes.

Biostimulants are generally assumed to be biodegradable, non-toxic, nonpolluting and non-hazardous.

Commercial biostimulants manufactured from similar sources are mostly marketed as equivalent products, but can differ considerably in composition and in effects.

### How do biostimulants work?

- Many biostimulant products do not have a specified mode of action or known mechanism of action.
- Their effects may be directly on plants or soils, or indirectly through affecting the soil and plant microbiota with subsequent effects on the plant.

### Are biostimulants effective?

- Some products are simply recycled waste products sold on the basis of pseudoscience and marketing. Research on a number of these products has shown them to be ineffective or to contain inactive, unstable or inconsistent properties.
- Bogus products like these compromise the market for all products, leading to assumptions that most biostimulants are “snake oils”.
- However, rigorous independent reports show the benefits of some biostimulant formulations.

### What are crop probiotics?

- Crop probiotics are biostimulants containing living microorganisms.
- Although the probiotic concept is sound it is not a simple matter to find the right strain(s) and help them establish.
- Probiotic products can fail on their promised benefits of introducing beneficial plant and soil microorganisms.
  1. If they claim to work on large numbers of crops or in many soils, they are probably bogus.
  2. If the label or product data sheet does not list the microbe(s) in the product it is difficult to tell how useful it will be under different conditions, if it contains microbes that are beneficial for certain crops but harmful for others, or if the microbes are ones that are fit for purpose.
  3. Most microbial products for sale supply a mass of microbes that are only a tiny fraction (i.e., less than a millionth) of that contained in soil. The microbes that are applied then disappear at a rate such that few added microbes remain after a few days.
- There is anecdotal evidence of the effectiveness of compost teas on plants and soils. However, scientific testing has shown them to be of little value as foliar applications to prevent disease, and to be of no value as soil applications to stimulate plant growth, or to improve soils or soil microbial populations.

**Before you use biostimulants or probiotics to improve plant or soil health check the microbial status of your soils. You can avoid spending money on products containing either unnecessary microorganisms or which could be replaced with cheaper, equally effective stimulatory formulations.**

**CONTACT  
US**



**We provide independent testing to determine if your biostimulant treatments are meeting their claims.**