

ELICIT PLANT IMMUNE SYSTEMS

Plants have two main mechanisms for protecting itself from pathogenic bacteria and fungi, the leaf biofilm and its immune system. The leaf biofilm is a thin layer of beneficial microbes that provides a protective barrier and the immune system has the ability to produce compounds that are toxic to pathogens and strengthen cell walls.

BioStart Foliacin is powered by signal molecule technology. Foliacin contains a combination of enzymes, signal molecules, bacteriocins and secondary metabolites from the fermentation of beneficial bacteria including *Pseudomonas putida*. The elicitors mimic the presence of pathogens, priming the immune system prior to periods of disease or stress. The fermentation extracts aid in maintaining a healthy leaf biofilm.

- Primes the immune system prior to periods of disease or stress
- Aids in maintaining the leaf biofilm.
- Improves recovery from periods of environmental stress
- Increases photosynthesis

For specific crop recommendations contact your local BioStart representative. For best results avoid applying Foliacin in the heat of the day.

Foliacin is compatible with commonly used fungicides and nutritional sprays.

Pack sizes available: 5, 10 and 20 litre

Foliacin

ELICITOR OF PLANT DEFENCE MECHANISMS



DIRECTIONS FOR USE:

Crop	Timing	Application rate
All crops	From first cover spray	500ml/ha every 14-21 days
	Post periods of environmental stress (frost or heat)	2lt/ha

Foliacin is suitable for grapes, kiwifruit, pip & stonefruit, citrus, vegetables and ornamentals.



MADE IN NEW ZEALAND



The power of the plant immune system

A plant's immune system is reactive and relies on receiving the right signals in sufficient quantities in order to mobilise and defend itself from pathogenic attack. In this trial grape leaves have been exposed to various coverage rates of Foliacin while still attached to the vine and then inoculated with Botrytis. The trial demonstrated that if less than 70% of the leaf's surface area was covered with Foliacin the plant received insufficient signals to mobilise an immune response. But at 70% surface coverage and above, the plant's immune system is engaged and the plant successfully defended itself against the pathogen.



Untreated + 70% of leaf surface area inoculated with Botrytis



70% of leaf surface area treated with Foliacin + 70% of leaf surface area inoculated with Botrytis

Quicker recovery from spray stress

The application of agrochemicals is a necessary part of crop production. However the application of these chemicals can check the growth of plants, often at critical stages in their development.



Post emergence herbicide + spray oil

Here Foliacin has been added at the rate of 500ml/ha with an application of post-emergence herbicide and spray oil. The Foliacin treated plants have not been checked and maintained a healthy leaf.



Foliacin 500ml/ha + post emergence herbicide + spray oil

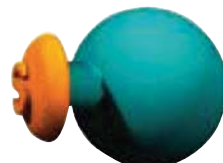
Signal molecule technology

Microbes have the ability to communicate. They can send and receive signals. This ability allows them to sense the presence of other microbes (quorum sensing) and plants and change their metabolic function. It's therefore important that the right microbes receive the right signals at the right time in order to maintain a healthy microbial biomass.

The signal molecules in Foliacin target the pre-cursors for leaf biofilm beneficial microbes, 'signalling' them to wake up and reproduce. This leads to a rapid rise in their populations and activation for a healthy leaf biofilm.



Signal molecule docks with a dormant targeted organism



Once docked the signal is received and metabolic function is changed



The signal molecule is released and the organism begins reproduction