

Improves germination, growth and fertiliser use efficiency



Soil & Seed[®]

LIQUID BIOSTIMULANT

Whether it is to complement a traditional fertiliser program, or a certified organic producer, **Soil & Seed[®]** is a formulated, balanced food source for the soil food web, supporting increased yields, and improved quality and soil properties.

Soils deliver more with BioAg Soil & Seed[®]

Soil is a complex and, particularly under cultivation, rapidly changing environment responding to physical, environmental and chemical changes.

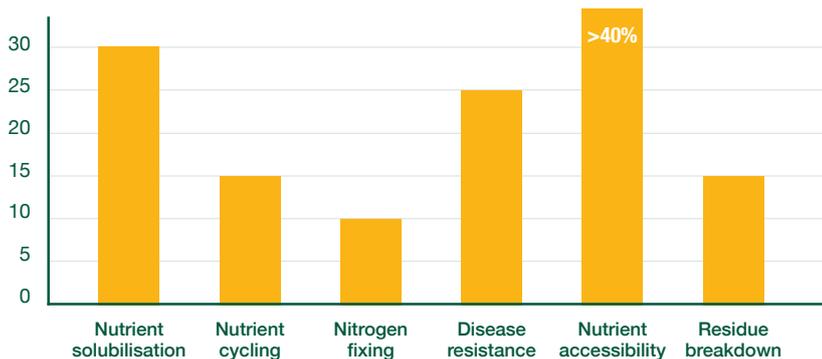
Soil is more than a substrate for growing plants, it is a source of plant nutrients and a habitat for symbiotic soil microbiology.

Common farming practices deplete the levels of beneficial organisms in the soil.

Agrochemicals, including pesticides soluble fertilisers, cultivation, and variations in soil temperature and moisture are all harmful to beneficial microbiology. Microflora and microfauna serve as a 'digestive system' for plants and are vital for improving soil properties that benefit crops.

Using **Soil & Seed** is proven to increase soil microbiome activity enhancing one or more of the following critical roles in the soil – nutrient solubilisation, nutrient cycling, nitrogen fixing, disease resistance, nutrient accessibility and residue break down.

Improvements made to a range of soils through the application of **Soil & Seed[®]** compared to standard practice:



The broad spectrum soil inoculant or seed treatment that assists:

- Nutrient accessibility
- Nutrient solubilisation
- Nutrient cycling
- Root development
- Disease and drought resistance
- Residue breakdown
- Soil aggregation



Better soils. Better crops. Better stock.

Broad spectrum food source

Soil & Seed[®] is a balanced food supply of carbohydrates, amino acids, enzymes, vitamins, essential nutrients and growth promoters, that feed both plants and beneficial micro-organisms.

Key attributes [#]	
Plant growth promoters	Source of exogenous phytohormones naturally available for plants.
L-isomer Amino Acids	His, Ser, Arg, Gly, Asp, Glu, Thr, Ala, Pro, Lys, Tyr, Met, Val, Iso, Leu, Phe, Try. The concentration of available amino acids varies by product.
Other nutrients	Macro – microminerals
Compatibility	Common tank mixes; e.g. with calcium nitrate, UAN, dissolved urea, micro-nutrients and other foliar applied products.
Application method	Fertigation, soil applied, seed-applied, boom spray.

[#]Based on analysis from Creation Innovation Agriculture and Forestry (CIAAF).

Physical properties ^{##}	
Nitrogen	0.5%
Phosphorus (P)	0.5%
Potassium	1.5%
Calcium	0.5%
Organic Carbon	10.0%
Ash	5.5%
Fat	<0.1%
Protein	3.5%
Carbohydrates	15%
Total Solids	30.0%
pH	4.0

^{##}Typical analysis wet basis. Environmental Analytical Laboratories.

Complexed food source for the soil food web

Complexed carbohydrates are one of the key ingredients of **Soil & Seed**. These are a highly effective food source for micro-organisms.

Carbohydrates stimulate microorganism activity and grow their populations, increasing their positive effects on the soil, plant emergence, plant health, plant growth, and yield potential.

The proteins in *Soil & Seed* (in the form of amino acids) feed both the plant and the micro-biology.

Amino acids are very important as they act as precursors to many metabolic functions within the plant, including (but not limited to):

- L-Glutamic Acid – A fundamental in chlorophyll production and a natural chelator of nutrients.
- L-Tryptophan – A precursor to Auxin production (a phytohormone responsible for plant cell elongation).
- L-Histidine – Enhances fruit maturity and fruit quality.



Increasing the soil's fertility is one of the key principles of BioAg programs and products.

BioAg is an Australian owned and operated manufacturer of liquid biostimulants and natural phosphate fertilisers, since 1999. Your local BioAg Area Managers are always available to discuss how the products and programs can improve your farming system or put you in contact with our distributor network.



BioAg's range of proprietary fermented liquid cultures or biostimulants **improve fertiliser usage** at each critical stage of crop or pasture development.



Suitable for all crops and pastures, BioAg's **Soil & Seed** stimulates soil biology; improving soil structure, increasing nutrient and moisture retention in the soil and reducing the amount of nutrient lost through leaching. It encourages rapid germination and early root development and helps buffer the crop against stresses such as pests, heat, drought, and disease.

Complete tailored solutions

BioAg fertility programs are available for a wide range of crop types and pastures and can be adapted for conventional and organic farming systems.

Our expert Fertcare accredited Area Managers work with farmers to provide tailored fertility programs that consider the individual block, including its history and soil type, along with soil test results and the farmer's yield and quality goals and budget. In other words, we develop a fertility program for your farm that suits you, and helps your farm meet its full productive capacity.

Overleaf we have provided a range of sample programs for information and context. For a custom program suited to your farm, we recommend contacting your local BioAg Area Manager.

Quality assurance

Soil & Seed, part of BioAg's liquid biostimulant range, is produced to stringent formulations, fermentation process and control parameters such as temperature, fermentation times, quality of raw material inputs. Throughout the process we monitor and test fermentation conditions with a final stage of stabilisation whereby products are made safe for storage and transportation. Final products contain a diverse range of bioactive compounds including enzymes, microbial foods and plant foods. Use of *Soil & Seed* is more likely to fill any gap in crop nutrient disorders as well as encouraging growth and maintenance of soil microbiome.

Organic variants

Each of BioAg's fermented liquid cultures are also available as certified inputs for organic farming systems. The liquids are complemented by BioAg's organic input certified solid fertiliser range.



Proven in trials



The comprehensive BioAg website provides independent and replicated trial results proving *Soil & Seed's* ability to rectify and condition the soil, improve fertiliser use efficiency, and enhance yield.

Typical Application Rates

Crop	Application rate (L/ha)	Comments
Broadacre Cereals, pulses, oil seeds	Non-irrigated: 2-3 Irrigated: 4-5	Apply to moist soil before seeding and incorporate within 72 hours, by seeding or other cultivation. Where applicable may be applied through irrigation to avoid the need for incorporation.
Summer crops Cotton, maize, sorghum, lucerne	Planting / Spring application: 6-10 In-crop application: 2-3	
Horticulture Potato, vines, vegetables, citrus, nut and fruit trees	Planting / Spring application: 6-10 In-crop application: 2-3	Applied as fertigation or boom spray. Can be applied with other soluble nutrients.
Pasture	Autumn application: 2-3 Spring application: 2-3	Applied to moist soil before seeding or emergence. Applied where irrigation is available or when Spring rains promote late season growth.
Rice	4-5	Dry sown – Boom spray. Drill sown – Furrow inject. Drill sown and delayed water – Boom spray.

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Soil & Seed® Application

Boom spray, Fertigation or Aerial.

Use appropriate personal protective equipment and handling equipment.

Storage

- Store out of direct sunlight and below 30°C, away from children, animals, food and feed.
- Do not store mixed product.
- Shelf life of 18 months when stored per directions.

Mixing and spraying

- Agitate contents well before use.
- Fill tank to a minimum of two thirds of water.
- Under agitation add other nutrients and chemicals as prescribed.
- Take a small sample to jar test BioAg Soil & Seed for compatibility of use. Check for physical changes.
- If compatible add BioAg Soil & Seed under agitation, bring volume up to full.
- Use within 48 hours of dilution.

Distributor Information:

 Organic variation of BioAg Soil & Seed® also available



bioag.com.au

02 6958 9911



To find out more visit our website or call a BioAg Area Manager

