

# BIOAG ORGANIC

# INCREASE ORGANIC PASTURE PRODUCTION ANNUAL PLAN



## TAILORED NUTRITIONAL STRATEGIES

BioAg works with its clients to develop tailored and sustainable nutritional strategies for their organic production systems.

Nutrition plans are formulated taking into account peak feed requirements, calving periods, feed quality requirements and available resources.

## REVIEW AND SOURCE

By incorporating a review of available and required nutrition, soil biological health, and soil carbon, we develop a program that incorporates both locally available organic inputs as well as BioAg's range of organically certified inputs.



**Better soils. Better crops. Better stock.**<sup>TM</sup>

Better soils. Better crops. Better stock.<sup>TM</sup>

# INCREASE ORGANIC PASTURE PRODUCTION



## SPRING

Use proven techniques to grow as much pasture as possible during this key pasture growing season



Sets up feed supply for hot summer months and into autumn

## SUMMER

Develop annual fertiliser plan



Caters to the nutrient requirements of annual pasture growth

## AUTUMN

Re-introduce soil biology following hot months of summer



Improves nutrient cycling and availability. Builds more resilient pasture

## WINTER

Stimulate pasture growth during the cold months



Continue to develop vegetative growth during the colder winter months to see you through to spring

## EFFLUENT

Make better use of on-farm nutrients by treating effluent ponds



Break down pond crusts and release nutrients for use as fertiliser



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# SPRING Maximise pasture growth now

For feed supply during Summer and Autumn



## RESULTS RETURN ON INVESTMENT

» **+18%**

dry matter production.

This is the average increase from pasture trials conducted across 3 Australian states.

» The success of Balance & Grow + HydraFish is due to the delivery of essential nutrients, in conjunction with natural growth promoters, vitamins, and beneficial biology.

## SPRING CHALLENGES

The effects of insufficient or restricted Spring pasture growth affects production and profit throughout the next 12 months.

- » Milk production is restricted if Spring growth is not maximised
- » Less forage will be cut for hay and silage
- » There is increased pressure to buy supplementary feed or reduce herd size

The alternatives are to accept a reduction in milk production, or purchase expensive organically certified hay or grain (price in excess of \$600/T as at Sep 2016).

## HOW BIOAG ANSWERS THESE CHALLENGES

The answer is to choose tailored solutions that have been proven to maximise plant growth and performance during Spring.

BioAg's research and trial work has identified high performing combinations of products and programs that help achieve this outcome.

Under trial, the greatest improvements have been witnessed through foliar applications of Balance & Grow + HydraFish. These supply:

- » Essential plant nutrients in combination with,
- » Vitamins, natural growth promoters, essential amino acids, and beneficial biology.

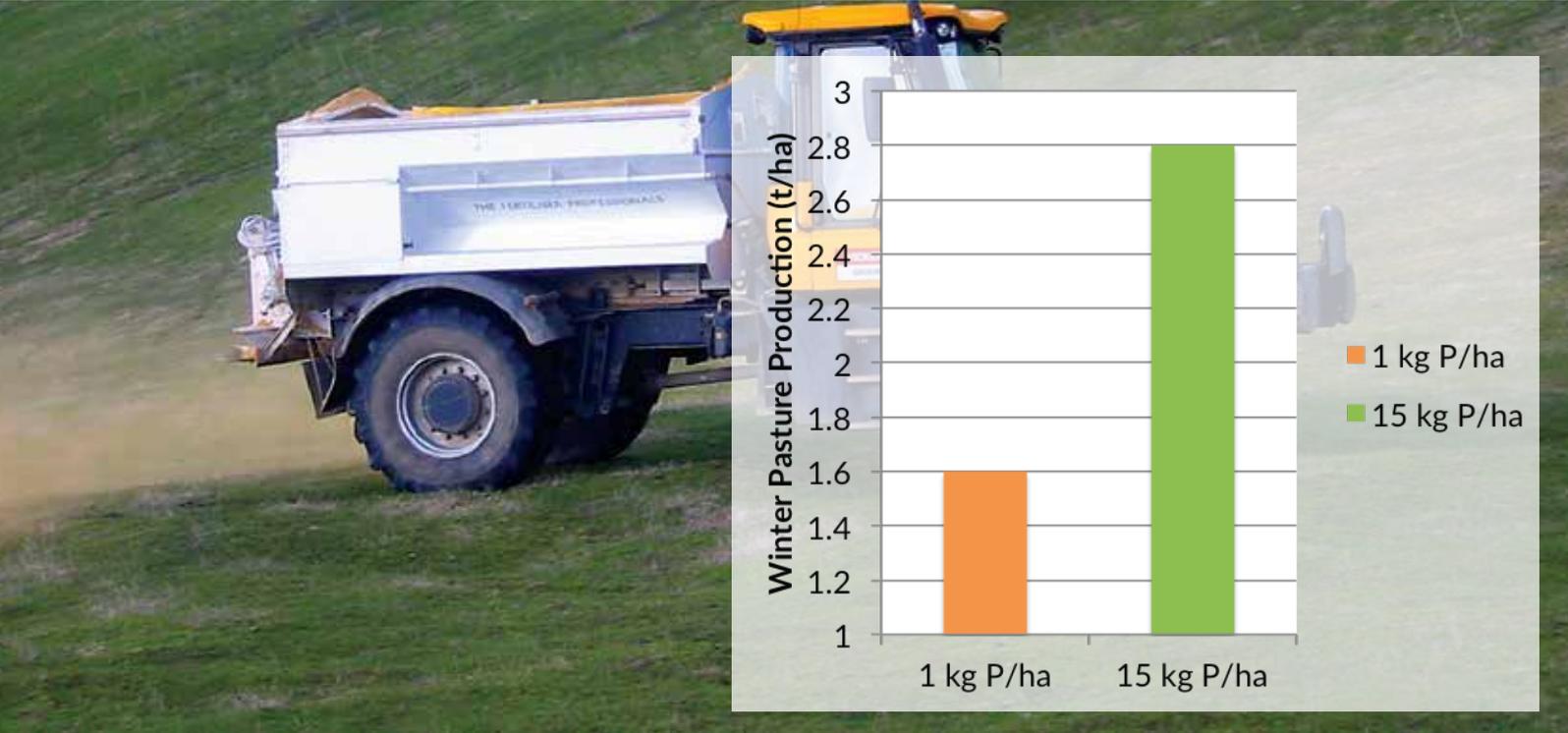
Tailored solutions using key products are important for maximising pasture production in Spring. Maximising production now sets up Summer and Autumn, and minimises the need to buy hay and grain.



# SUMMER

## Apply major nutrients

To address the annual requirements of pasture production



### SUMMER CHALLENGE

Farm profitability is impacted when the amount of nutrients available to the plant is less than what it needs.

Plant growth and quality is limited, as is total dry matter (DM) production.

Long term pasture trials in Hamilton (Vic) confirmed that insufficient supply of phosphorus and sulphur impacts DM production and forage nutritional value.

The alternative is to purchase expensive organically certified hay or grain, have reduced milk production, or reduce herd numbers.

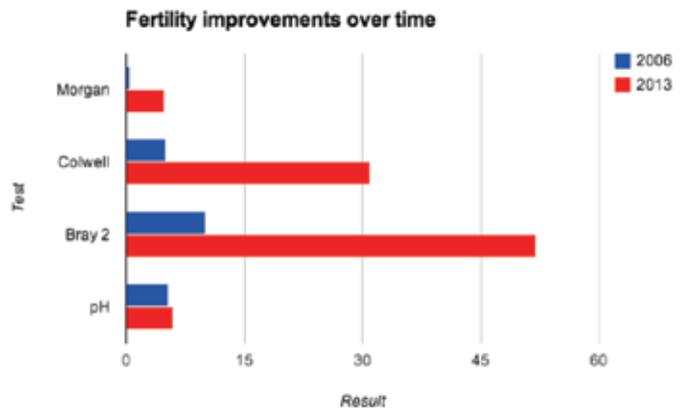
### HOW BIOAG ANSWERS THESE CHALLENGES

BioAg develop tailored applications that supply the nutrients essential to maximising plant growth and health (including P, S, Ca, K, Mg, and trace elements).

Soil samples are collected to determine deficiencies, surpluses and imbalances specific to each paddock. Results are evaluated and a tailored program that supplies the appropriate type and amount of nutrients is developed.

### RESULTS RETURN ON INVESTMENT

1. RPR trial in Tasmania highlighted that dry matter production increases where RPR and sulphur were applied to lift both P & S to the desired levels.
2. BioAg customer soil test results from 2006-2013 were analysed, revealing large and sustained increases in soil fertility using a range of testing methods. The Morgan testing method showed an 1,100% increase over 7 years. Colwell (520%). Bray 2 (420%).



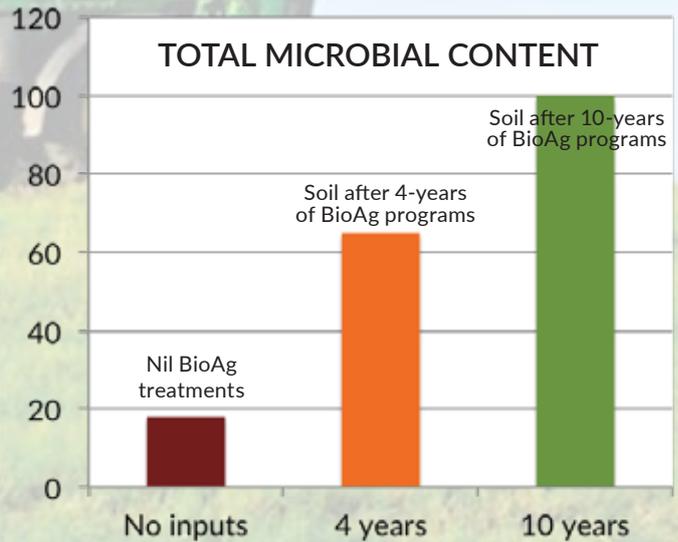
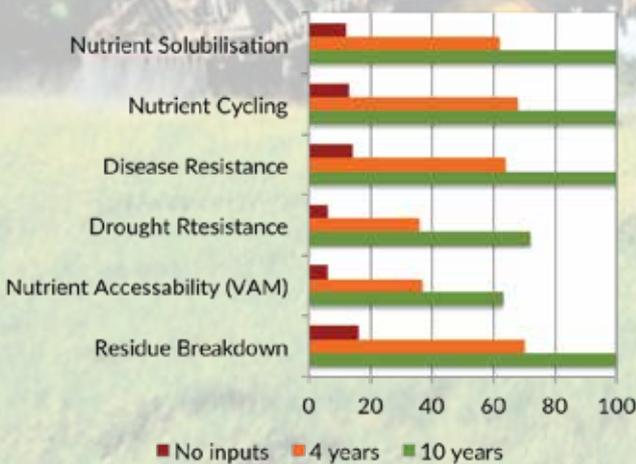
A tailored solution that addresses major nutrient requirements applied prior to the Autumn break are key to maintaining pasture production throughout the entire growing season.



# AUTUMN Improve natural nutrient cycling And dry matter production



MICROBIAL CONTENT BY TYPE



## AUTUMN CHALLENGE

Organic systems rely on efficient nutrient cycling, solubilisation and fixation.

This only occurs through a diverse and functioning population of the types of micro-organisms that perform these roles.

These populations decrease in size and variety throughout the year due to on farm activities, natural attrition and periods of dormancy over summer.

Repopulation is highly recommended during autumn in order to achieve maximum benefit to the pasture.

A depleted population results in poor nutrient cycling and fixation, reduces the pool of nutrients available to the pasture, and reduces resilience to a range of stresses.

As a consequence plant productivity and feed quality is reduced.

## HOW BIOAG ANSWERS THESE CHALLENGES

Boom spray application of Soil & Seed, combined with the necessary trace elements on a yearly basis (as determined by soil testing) results in the renewal and feeding of beneficial soil microbial populations, and their associated functions.

The microbial populations contained in Soil & Seed are all naturally occurring in healthy soils, and perform a range of roles related to:

- » The health and fertility of soils,
- » The delivery of nutrients to plants,
- » Making plants stronger and healthier, and
- » Producing natural plant growth promoters.

## RESULTS RETURN ON INVESTMENT

1. The table above shows the results of independent analysis of soils that have received:

- » No Soil & Seed
- » 4-years of Soil & Seed
- » 10-years of Soil & Seed

Performed by Microbial Laboratories Australia, the analysis shows the increase in soil fertility and resilience achieved from long term use of Soil & Seed.

2. In a separate independent study, soils were analysed for extractable (available) levels of P, K, Mg and Ca. Mean soil available levels were increased for all of the measured nutrients. (P +75%, Mg +74%, Ca +32%, K +11%).

The soil contains trillions of microbes that are highly beneficial to pasture growth and plant health. Soil & Seed enhances this asset, unlocking nutrients, increasing root and shoot growth, and plant resilience to stresses.



Better soils. Better crops. Better stock.™

# WINTER Increase pasture growth For grazing



## WINTER CHALLENGE

More than any other limiting factor, low temperatures generally restrict growth, leading to much less feed during the winter months.

Restricted pasture growth restricts milk production or increases the need to import expensive supplementary feed.

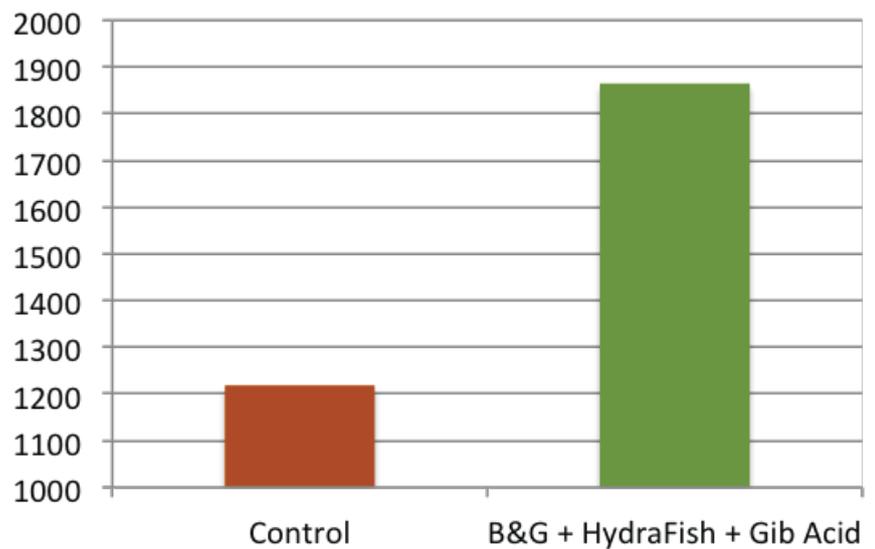
Organically certified hay or grain trades in excess of \$600/t (as at Sep 2016), with the alternative being reduced milk production.

## HOW BIOAG ADDRESSES THESE CHALLENGES

BioAg's annual pasture production plan maximises pasture production from spring through to autumn in order to develop a feed wedge that helps sustain feed supply during slower growth in winter.

However good growth can still be achieved over winter through the application of foliar applications that supply the essential plant nutrients, vitamins, natural growth promoters and beneficial biology.

## Dry Matter (kg/ha)



## RESULTS RETURN ON INVESTMENT

Pasture trials across 3 states and testing 12 combinations found the greatest dry matter production during winter was produced by Balance & Grow in combination with HydraFish and gibberellic acid.

This combination produced a 53% increase in dry matter production above the control (647 kg/ha additional dry matter).

This same combination also produced the highest feed quality.

Tailored solutions are the key to maximising pasture production in Winter, when soils and the environment are very cold. Maximising pasture production during this period minimises the need to purchase expensive certified hay or grain

# EFFLUENT

Optimise nutrient recovery and pasture growth  
Using on farm effluent



## BEFORE

UNTREATED SLURRY  
(8-days after effluent application)



## AFTER

BIOAG DIGEST-IT  
TREATED SLURRY  
(8-days after effluent application)

### CHALLENGE

Nutrients in effluent ponds are wasted if not utilised on the farm as an additional fertiliser source.

Ponds are a cost to the business when excavation is required to dig them out, or penalties/fines are incurred from incorrect effluent management.

### HOW BIOAG ADDRESSES THESE CHALLENGES

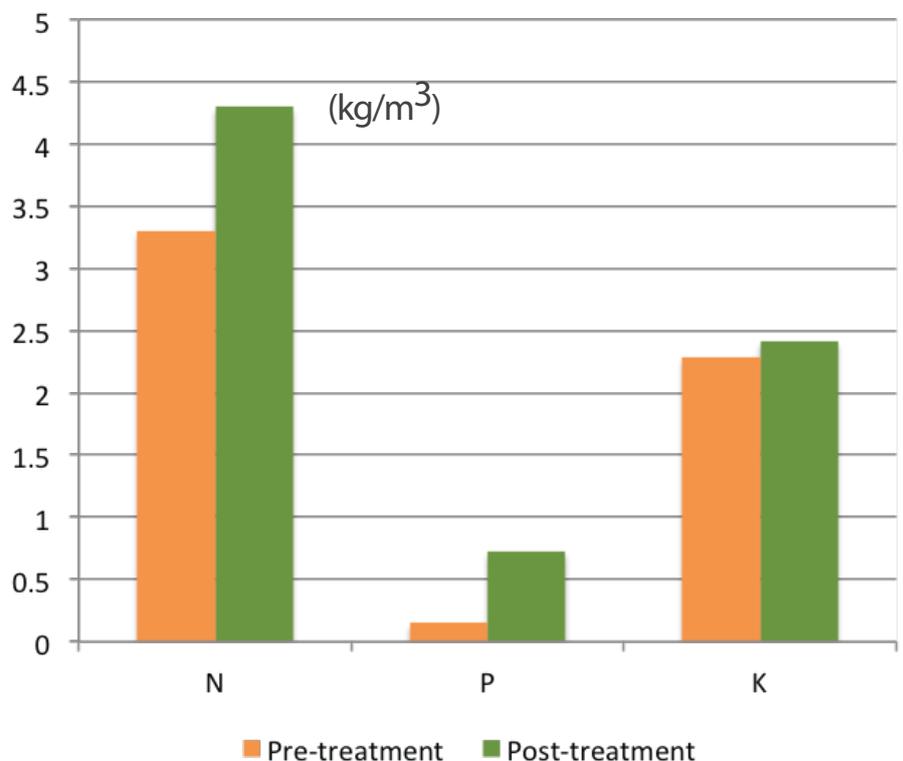
Digest-It for Effluent is a liquid product that can be added on a regular basis to ensure that the populations of beneficial anaerobic organisms are increased within the effluent pond.

When this occurs, crusts are broken down, nutrients contained in the sludge are returned to the slurry, and more of the nutrients are released for use as fertiliser.

### RESULTS

#### RETURN ON INVESTMENT

Trials utilising Digest-it for Effluent in the UK showed marked increases in available nutrients within effluent ponds inside 4 months of treatment.



Make use of the nutrients you already have available on farm, to maximise pasture production.



# THE BIOAG RANGE OF CERTIFIED ORGANIC FERTILISERS & BIOSTIMULANTS



## BIOAG CERTIFIED ORGANIC FERTILISERS

	N	P	K	S	Ca	Mg
BIOAGPHOS		13		1	35	
BIOAGPHOS S10		11		10	32	
SUPERB		9		7	31	
MAGPHOS		8		1	25	8
PASTURE PRIMO		4			39	
POTPHOS		10	10	6	27	

## BIOAG CERTIFIED ORGANIC BIOSTIMULANTS

**SOIL & SEED** Soil conditioning and soil amelioration. Build and add to beneficial soil microorganisms, and provide a broad spectrum of food sources for both the pasture and the beneficial microorganisms.

**HYDRAFISH** A natural, organic source of fish derived nutrients including N, P, K, Ca and trace elements. Feeds beneficial soil organisms, helping to promote plant growth. Naturally high in protein, which is converted to nitrogen in well functioning, healthy soils.

**BALANCE & GROW** Tailored for vegetative growth performance, Balance & Grow is a broad range of plant and microbial foods in a fast-acting, highly complexed, and highly available form. Addresses deficiencies and improves overall health of the plant.

**DIGEST-IT FOR EFFLUENT** An easy to use solution for effluent pond management. Microbes that stimulate anaerobic digestion that breaks down pond crusts and reduces odours within months; releases nutrients and increases the value of pond liquid for use as fertiliser.



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