BioAg Trial

Dadswell Bridge Perennial Pasture Trial

Dadswell Bridge, Victoria	2015 - 2016
Location	Year
BioAg	Pasture
Conducted by	Crop
Small plot replicated	
Trial Type	

Aim

To compare the efficacy under replicated field trial conditions of various fertilisers when used on a biennial (every second year) application rate and schedule. The trials main aim is to ascertain which (if any) of the fertilisers best maintains production in the second year.

Introduction

The Dadswell Bridge area is located in the Wimmera region of western Victoria (Australia).

The common practice for pasture fertilisation in this region is to apply periodically e.g. on a biennial schedule (every second year).

The aim of this trial is to mirror this practice, and test which fertilisers perform best using biennial rates and application schedules.

While a year one response is important, the trials main aim is to ascertain which (if any) of the fertilisers can best maintain production in the second year.

Fertiliser application rates for pasture in this area are typically low, which is reflected in the trial.

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Method

Trial Design

The analysis was done using small plot replicated trials with fertiliser applied in 2015 only. The table below summarises the basic trial information.

Table 1: Summary of Trial Parameters

Year	2015 – 2016
Crop	Pasture
Plot size	1 x 5m
Number of plots	5
Number of replications	3

Site Characteristics

- pH 4.5, high aluminium, high PBI
- Clover/phalaris pasture mix.
- Application rates based on an average annual spend of $28/ha (excl. freight, spreading & GST).

Products Trialled

MagPhos

BioAgPhos S10

BioAg Superb

Single superphosphate (SSP)

Results

2015

Fertiliser was applied in this year only. 2015 was a very dry season, with very low levels of dry matter produced across all plots.

The best response came from sites applied with fertiliser that contained sulphur in a sulphate form *(SSP and Superb)*.

The two sites produced similar dry matter yields. The likely reason for this is the sulphate form of sulphur in these two products requires less rain before the sulphur becomes plant available.

BioAg Superb and *SSP* produced the most dry matter, with negligible difference between the two results (3,770 and 3,802kg/ha of dry matter production respectively).

Dry matter production was low for all products on trial with 309kg/ha separating the best from the worst performance.

Low dry matter production was a result of the very dry season experienced in 2015 in this region.

2016

No additional fertiliser was applied.

2016 was wetter than average, and dry matter production was greater for all plots

compared to 2015. Also in 2016 we saw the greatest difference in dry matter production between the plots.

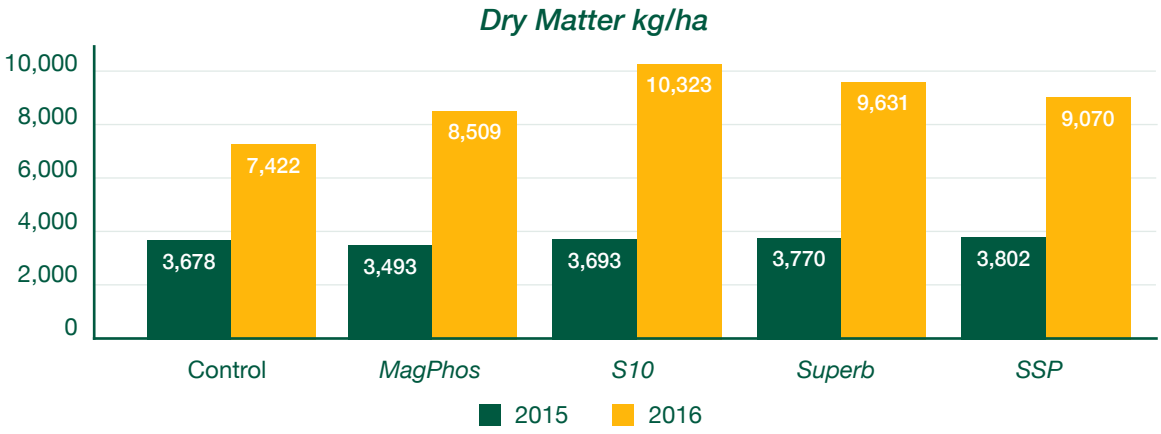
In 2016 the *BioAgPhos S10* plot delivered significantly higher dry matter than all other plots. The next best dry matter production was from the *BioAg Superb* plot, and then the *SSP* plot.

Sulphur availability again stood out as a likely factor in production, with all three applications that contained sulphur delivering highest dry matter production.

In addition, the plots applied with sulphur combined with sustained release phosphorus outperformed plots using water soluble P and S.

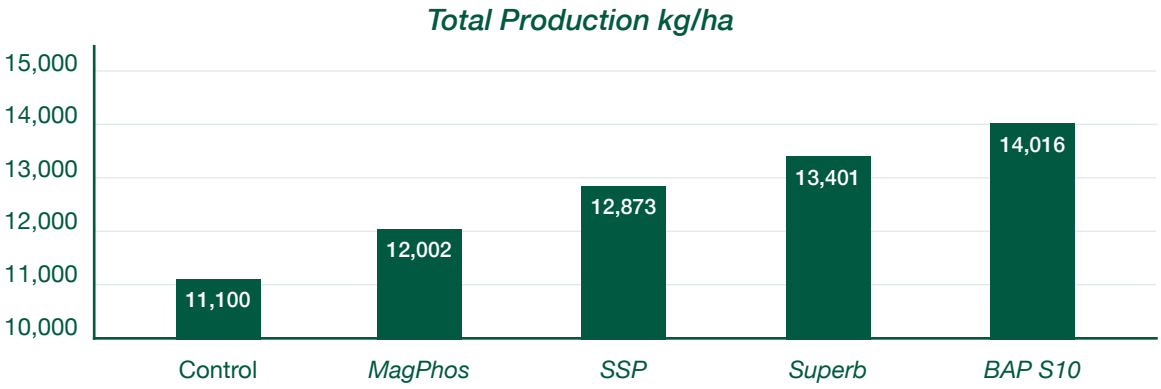
When compared to the control plot, *BioAgPhos S10* grew almost 3t/ha more dry matter.

Both *BioAgPhos S10* and *Superb* plots outperformed *SSP* in the production of dry matter. *S10* produced the most growth (10,323kg/ha), with *Superb* (9,631kg/ha) and *SSP* (9,070ka/ha). *S10* produced almost double the additional production than SSP when compared to the Control, and around 700kg/ha more than *Superb*.



Total Production

Combined production over the two years of the trial.



Conclusion

BioAgPhos S10 followed by *BioAg Superb* delivered more dry matter in both the second year, as well as in total across the two years.

While seasonal conditions impacted the overall dry matter production for every treatment, it is evident that the availability of sulphur and a sustained release form of phosphate (as delivered by *BioAgPhos S10* and *BioAg Superb*) produced greater production across two years.

Additional Background – About BioAg

BioAg is an Australian manufacturer of liquid biostimulants and natural phosphate fertilisers. BioAg's liquid biostimulant are a range of proprietary microbial cultures, specifically formulated to support different plant growth stages by improving plant and soil performance.

Each culture / product contains a:

- Balanced food supply of carbohydrates, amino acids, enzymes, vitamins, essential nutrients and growth promoters, that feed both plants and beneficial micro-organisms
- Large and diverse population of beneficial micro-organisms, including fungi, bacteria, yeast and protozoa.

Each product has been developed to:

- Stimulate soil biology and plant processes
- Feed soil biology to ensure it is active and able to interact with the plant
- Improve the balance of beneficial microorganisms in soils, and
- Provides microbial food and microorganisms into soils that are low in microbial activity or diversity due to factors such as, stress (cold, heat or water logging), lack of plant activity (fallow) and/or due to a lack of plant diversity (monoculture).

Applying the appropriate product at the requisite growth stage will support and enhance:

- Structured vegetative growth and enhance root development
- Nutrient cycling and improved plant availability of nutrients
    - Chelation of nutrients, via amino bonds
    - Conversion of in-organic nutrients into a microbial form (becomes part of the biomass)
    - Helps to unlock nutrients previously bound in soil complexes
    - Improves the flow of nutrients through the plant
- Water retention and uptake, and
- Plant vigour and tolerance to abiotic stresses.

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The benefits of biostimulants can be depleted with time. In addition, as plants develop reach their next growth stage the nutritional needs of the plant also change. Applying the appropriate biostimulant, soil inoculant or foliar application, at the right time is a key attribute of any program.

BioAg's three core biostimulant products are:

1. *Soil & Seed* is a broad-spectrum microbial inoculant that assists; nutrient accessibility, nutrient solubilisation, nutrient cycling, enhanced seed germination, root development, disease and drought resistance and residue breakdown.
2. *Balance & Grow* is a broad-spectrum source of foods and stimulants for balanced plant functions, plant health, and vegetative growth including; calcium and phosphate, vitamins, minerals, proteins, enzymes, amino acids and carbohydrates.
3. *Fruit & Balance* is formulated to increase flowering, fruit set and soil microbial activity. It delivers a rich source of plant-available phosphate when the plant is under peak load, stimulating strong fruiting and enhancing yield potential. Fruit & Balance contains a rich source of vitamins, minerals, proteins, enzymes, amino acids, carbohydrates, and growth promoters.

Each product is also available as an organic variant.

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