

## Key Findings

- ***BioAgPhos*<sup>®</sup> RPR fertiliser used in a low rainfall area (less than 600mm) has proven to be effective with significant growth and species composition responses, both on its own and when applied with the biostimulant *Soil & Seed*<sup>®</sup>**
- **Biological cultures in *Soil & Seed* increased yield on an unfertilised low fertility high country soil, demonstrating that biological cultures have improved functional availability of required plant nutrients and increased the effectiveness of the BAP RPR**
- **Use of *BioAgPhos* and *Soil & Seed* together significantly increased yield, pasture diversity and legume composition, and also reduced weeds and bare ground**
- **Stimulation of the soil microbiome is a potential tool for improving fertiliser efficiency, pasture productivity and for developing sustainable grassland agriculture**

## Trial Background

Independent trials by AgScience Research commenced in 2021 in the low rainfall, low fertility rangeland of the Mackenzie Basin near Twizel, located in the South Island of New Zealand. The trials are an extension of lowland site trials conducted in Southland and Canterbury, 2016-2018.

The trials are evaluating BioAg fertilisers both reactive phosphate rock (RPR) and biostimulants in these regions where biological fertilisers are untested but are of considerable interest to farmers.

The Twizel trials are evaluating the effectiveness of *BioAgPhos* (an RPR fertiliser) in a low rainfall environment and when used with lime. Both dryland and irrigated sites were included in the Twizel trial, with dryland results only available at this time.

## Yield (Dry Matter)

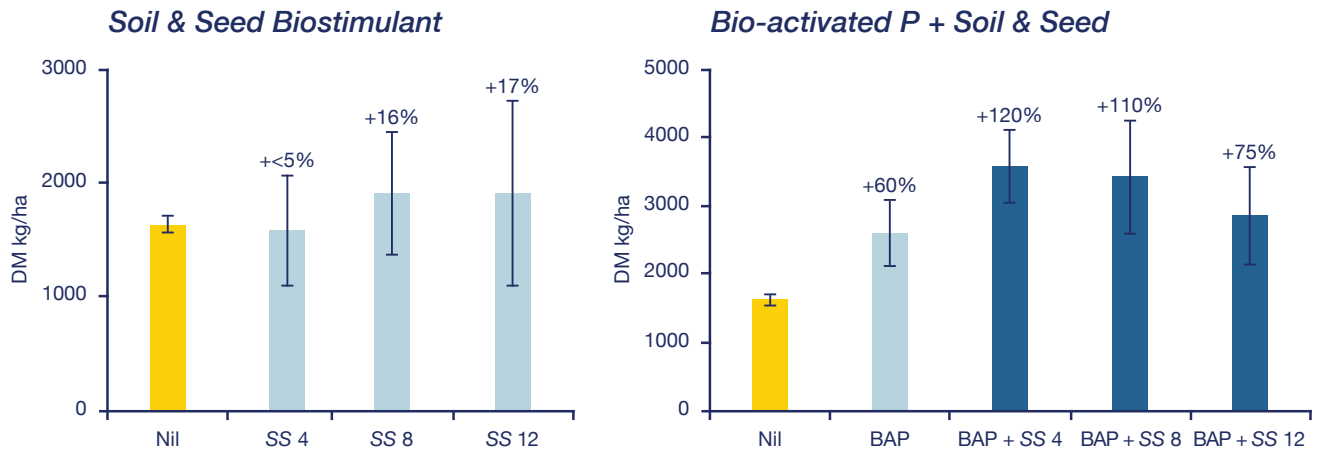
### Season 1 Dryland results – harvested 12 Jan 2022

*BioAgPhos* application significantly increased pasture yield by 60%, and *BioAgPhos* plus *Soil & Seed* biostimulant increased yield by 120%.

#### *Growth Response – increased Dry Matter yields, Jan 2022 harvest*

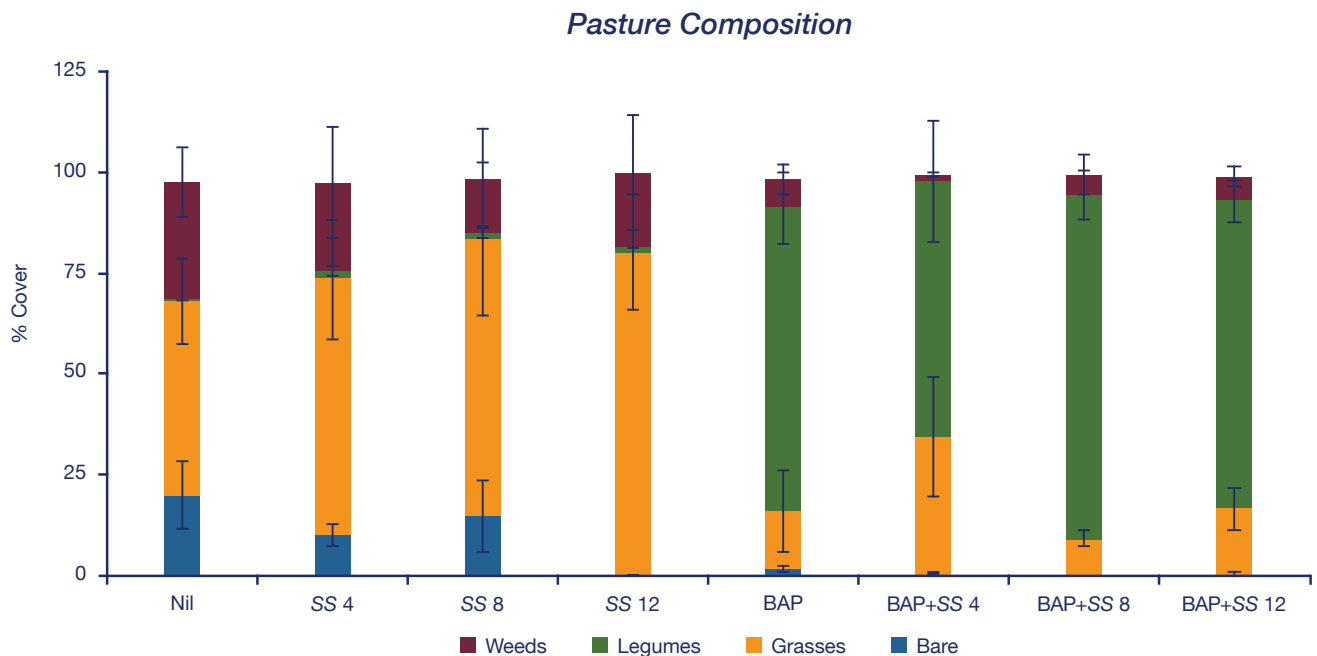
<i>BioAgPhos</i> , Elemental Sulphur & Lime Applied May 2021: BAP 250kg/ha + S 50kg/ha + lime 500kg/ha	<i>BioAg Soil &amp; Seed</i> biostimulant only Applied Nov 2021, various rates	<i>BioAgPhos</i> and <i>Soil &amp; Seed</i> Applied Nov 2021, various rates
+60%	4L/ha +<5%	4L/ha 120%
	8L/ha +16%	8L/ha 110%
	12L/ha +17%	12L/ha 75%

## Yield (Dry Matter)



## Pasture Composition

BioAg applications significantly changed pasture composition.



- *BioAgPhos* increased legume cover by up to 307 times, both applied by itself and with all combinations of *Soil & Seed*. As a result, this also reduced bare soil, resident grasses and weeds
- *Soil & Seed* applications increased grass cover by 1.5x times and legume cover by 6.7 times, progressively increasing with the application rate by 32% (4L/ha), 43% (8L/ha), and 67% (12L/ha)
- *Soil & Seed* also increased legume cover, by 4.5x to 8.5x compared with untreated grassland
- *BioAgPhos* and *Soil & Seed* combinations reduced the extent of bare ground by up to 96%-99%, and weed by up to 38% or 94%
- Sown lucerne responses almost exactly mirrored the resident dryland legumes. It strongly responded to *BioAgPhos* in both plant establishment and growth, with *Soil & Seed* having a small effect

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the Trial on  
our website

