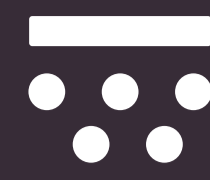




Biological stimulants improve fertiliser efficiency and pasture production



A remote rangeland that overlies a soil of inherently low fertility and receiving low rainfall (<520mm) was selected to test the effect of microbial biofertilisers on pasture production under dry conditions. The products contain reactive phosphate rock (RPR) and consortia of microorganisms with potential for biostimulation. These biostimulants are plant growth promoting (PGP) microbial culture blends. When phosphate-solubilizing microbial cultures are combined with high-grade (13% P) rock phosphate, reactive phosphate rock (RPR) is produced. In RPR, about 33% of P is immediately available to plants, while the remainder is slowly digested and becomes gradually available.

In May 2021, a trial site was established on native pasture, and soil tests confirmed the low fertility of the soil at the site. The soils in the region are generally free-draining, low in fertility with toxic subsoil aluminum levels. Two commercial biostimulant products, BioAgPhos and Soil & Seed, were applied at various rates alone or combined, in replicates, on to demarcated blocks of lands during 2021 May-November. BioAgPhos is a type of reactive rock phosphate with microbial cultures while, Soil and Seed is a liquid fermented microbial culture blend. Assessment of pasture composition and pasture biomass harvested were performed in April 2022.



Figure 1: Native pasture on the surface (L), and shallow soil profile, depth to gravel is 20 cm (R) at the trial site.

Source: bioag.com.au

#### Results:

- Pasture biomass measured as dry matter weight was increased by 60% following application of BioAgPhos alone, and by 120% when combined with Soil & Seed application, compared to application of no fertilizer or biostimulants.
- Both biostimulant products significantly improved the abundance of legumes in the emerging pasture composition, and reduced the extent of bare spots, resident grasses and weeds, in comparison to untreated blocks.
- The trial also shows that RPR could be in in low rainfall regions (< 600mm) resulting significant pasture growth and yield.



Figure 1: Pasture growth at the end of the season, BioAgPhos (L), no treatment (C), Soil and Seed (R)

Source: bioag.com.au



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