



Post-harvest the best time to replenish soil nutrients

Post-harvest is a critical period for perennial tree crops and vines and a time where you can set up for a better harvest next year.

Post-harvest is when trees and vines recover from the stresses associated with bearing fruit, replenishing nutrients and energy reserves prior to dormancy. As a result it is a perfect time to apply soil nutrients and address any nutrient deficiencies, including trace elements, and use the opportunity to apply ameliorants to improve soil structure.

Correcting nutrient deficiencies is best performed by supplying nutrients through the soil. *BioAgPhos* based blends can be formulated to provide additional Calcium, Potassium, Sulphur or Magnesium, and be blended with trace elements; for example, Boron, Iron, Manganese, Zinc, Copper, Cobalt, and or Molybdenum, to meet the needs of the crop.

BioAgPhos and its blends are compatible with other solid soil conditioners such as lime, gypsum, or compost. They can be blended on-farm and applied in a single pass. Applying solid nutrients and ameliorants in late spring or winter allows them to partially penetrate the topsoil, and enter the root zone, to be readily accessed in the following season.

Applying phosphate (P) in the form of *BioAgPhos* provides the P required during post-harvest. As it is not a traditional water-soluble P fertiliser, it will not leach, will remain in the root zone, and be available at bud burst and through the season.

In addition to nutrients, a post-harvest application of *BioAg Soil & Seed* will aid nutrient uptake and tree or vine recovery. *Soil & Seed* feeds soil biology and improves:

- Nutrient cycling - converting nutrients into plant-available forms
- Nutrient access - delivery of plant-available nutrients to roots, and
- Nutrient retention - chelating water-soluble and excess soil nutrients into stable forms, thereby reducing nutrient losses.

In addition, *Soil & Seed* will feed biology associated with the breakdown of leaf and litter in the soil, elevating soil carbon levels, and in turn providing a range of benefits to soil structure, infiltration, and water holding capacity.

Ensuring perennial trees and vines are in their best condition prior to dormancy is the best way to guarantee optimal vigour and growth at bud burst. We recommend taking advantage of the opportunity presented at post-harvest to support crop recovery and prepare your soils for the following season.



Customers interested in securing products early should contact their BioAg representative to discuss pre-payment and early contract offers.

Balance & Grow, an integral part of Winter Programs



For five years now, Angus beef farmers David and Robin McDonald have been using *Balance & Grow* on their 330ha property (pictured), near Myrtleford in Victoria.

Specifically used to boost plant health and growth during the vegetative stages of a crop or pasture, *Balance & Grow*'s unique formulation includes amino acids, proteins and enzymes, as well as a highly complex fermented microbial culture. This combination, along with carbohydrates and growth promoters, provides food to help replenish and activate the natural microflora of the plant and soil. This, in turn, increases nutrient uptake, such as calcium and phosphorous, and stimulates plant growth and stress coping mechanisms.

The McDonald's use 2L/ha of *Balance & Grow*, along with ProGibb and a small amount of nitrogen. David applies annually, particularly during the colder winter months of June and July, when pasture growth is at its slowest.

Backed by trial work, this combination proves to be an effective method for gaining extra dry matter and biomass while improving feed quality, and plant health. Independently each component has an effect but when combined, particularly *Balance & Grow* and ProGibb, the effects multiply.



It works really well and gives me that extra growth I need, particularly in the slower seasons.

David McDonald



David also uses *BioAgPhos*, which he blends with gypsum, to apply to his pastures as a natural source of phosphorous, sulphur, and calcium. The whole program helps him maintain excellent productivity and animal health.



Scan for more information on *Balance & Grow* used in pastures.

Preparing soils for your next summer crop

Delayed allocation of irrigation water in 2020 resulted in the late preparation of fields for 2020-21 summer crops. As a result, some growers missed an opportunity to address issues or yield-limiting factors.

Growers that have saved yield maps from this, and previous harvests of cotton, rice or corn crops, will likely have information that will highlight areas with underlying soil issues.

Harvest data highlights lower productivity areas which can be limited by one or more of the following; poor soil chemistry, insufficient nutrients through the growing season, issues with soil structure, or poor functioning soil biome.

Soil tests, in conjunction with leaf and tissue tests from prior crops, can identify a range of issues or limiting factors. How you prepare fields for upcoming crops can start addressing these issues.

Calcium balance and low pH are typically addressed with applications of lime and/or gypsum when preparing fields.

Incorporating *BioAgPhos* as a source of sustained-release P not only supports crops through the growing season, but with current high prices for starter fertiliser, it is a lower-cost way to supply part of your crop's phosphate needs.

BioAgPhos will supply phosphorus for up to three seasons and provides a stable form of phosphate that is released to crops as they require it. *BioAgPhos* will not leach through soils, while runoff is significantly reduced compared to conventional water-soluble fertilisers. Reducing phosphate losses is financially and environmentally better.

Contact your BioAg representative to review your yield maps and test results, and establish a plan for field preparation.



Independent Wheat Trials deliver multiple returns in consecutive seasons

For many years BioAg has worked with Dr Bruce Kirksey at the Agricenter International in Tennessee, conducting small plot independent replicated trials with BioAg's liquid biostimulant range. In recent years these trials have extended to wheat where the biostimulants were applied as follows:

- *Soil & Seed* applied at sowing
- *Balance & Grow* applied as a foliar at mid tillering, and
- *Fruit & Balance* applied as a foliar at booting.

The trials compared two different treatments to grower standard practice (GSP), being *Soil & Seed* on its own, and *Soil & Seed* plus the two foliar applications.

The results were compelling, with statistically significant yield responses in both years for both treatments. Table 4 below shows the respective yield responses and Table 5 shows the economic benefit of these biostimulant programs on GSP.

Table 4 – Yield results per treatment per year (T/Ha)

Year	T1	T2	T3	LSD (P=.05)	Std Dev
2019	2.41	2.83	3.34	0.33	0.19
2020	3.46	3.99	4.68	0.34	0.20

BioAg Tailored Programs

The recently released BioAg White Paper – *Soil Structure, Microbes and Nitrogen Efficiency*, looks at soil microbes; a potential answer to the damage from over-fertilising and nitrogen 'pool' in soils, and reducing losses. Also, how you can regenerate soil properties and minimise nutrient loss pathways with BioAg, specifically *Soil & Seed*.

Our focus is to measure and analyse soil and develop sustained, cost-effective, nutrition programs that meet soil and crop requirements, and help the grower achieve yield and quality goals.

BioAg Area Managers and distributors work directly with growers to develop fertility programs across a range of crop types. Our programs deliver improved nutrient use efficiency, utilisation, uptake, and cycling.

Talk to us about how a BioAg program could reduce your nutrient input costs, including clever use of N, and increasing your crop yields and quality for maximised profit.



Visit bioag.com.au/download/soil_structure_microbes_nitrogen/ or scan the QR code for this recently released white paper.

Table 5 – Economic benefit of biostimulant programs on GSP

	2019 T2 Soil Program	2020 T2 Soil Program	2019 T3 Full Program	2020 T3 Full Program
Cost of Biostimulant	\$21.30	\$21.30	\$45.80	\$45.80
Yield Benefit T/Ha	0.42	0.53	0.93	1.22
Yield Benefit \$/Ha	\$84.00	\$106.00	\$186.00	\$244.00
Net Return \$/Ha	\$62.70	\$84.70	\$140.20	\$198.20

#Based on a delivered cost of \$7 per litre; %based on ex farm price of \$200 per tonne.

Conclusion

The use of either *Soil & Seed* on its own, or the complete program of soil and foliar products, delivered yield responses over GSP. These responses were not only statistically significant but also provided a significant economic return.

Whilst the full program delivered the greatest yield response and benefit, the use of the foliar products provided a significant yield benefit and as a separate treatment provided a financial return. It is never too late to consider use of biostimulants to improve crop yields.

The full trial summary report is available for download at bioag.com.au/trials/usa-wheat-trial-2019-2020/

BioAg's foliar products, *Balance & Grow* and *Fruit & Balance*, are commonly applied in combination with other foliar nutrients for maximum performance.

Contact a BioAg agronomist to assist with your foliar nutrition program optimisation.

Soil Health – key at Oxhill Organics

The Eggert family of Oxhill Organics, located at Wauchope on the mid-north coast of NSW, have been using BioAg products since 2003, the year they were certified organic.

The Eggert's have been farming for four generations, with their primary business organic milk. The farm also produces grass-fed meat, chicken, beef and pork; and organic pasture ranged eggs. They also produce all their own compost from mulch, straw and sawdust laid on the dairy yard to combine with cow manure and urine.

Oxhill Organics considers soil health a core element of their business, seeing it as essential to ensure the sustainability of their farm in the long term. The business relies on quality external inputs to contribute to the soils and their biodiversity.

“We still use these products today from time to time, as they do such a great job making the soil healthy. The system almost sustains itself, so we only need to use the products periodically.

When we transition a new piece of land to organic, make silage hay, or have major climate events such as drought or floods, the BioAg products we use are a must-go-to. We are also very grateful to Anton for his practical advice over the last 20 years”, said Chris.

Learn more about Oxhill Organics at oxhillorganics.com.au or follow them on Facebook and Instagram.



BioAg was the product that really changed our farm for the better in the initial stages. The legumes just took off and the grass species followed. The *Soil & Seed* product helped balance the soil and *Balance & Grow* was used as an effective foliar. These products enabled our farm to grow great feed for the cows, without synthetic nitrogen.

Chris Eggert, 'Oxhill Organics', Wauchope



Your local BioAg Area Managers are always available to discuss how BioAg's products and programs can improve your farming system or put you in contact with our distributor network.

Maximising stocking rate to Capital 'P'

Gary Everett and his wife Dorothy operate a sheep grazing property at Drumborg in Victoria's Western District. The property is approximately 460ha with 90% grazed. The property runs 2,000 ewes and 2,800 lambs, and when there is the opportunity, cattle.

A couple of years ago, their local agronomist and BioAg Area Manager Allan Reid visited the property at Garry's request. Stocking rates were high, but the amount of phosphorous (P) being applied wasn't where it should have been.

Soil tests were carried out and a fertiliser program designed to support the stocking rate and carrying capacity of the property. The Everett's changed over to *BioAgPhos* as their source of P, and have seen no drop off in production while seeing an improvement in P levels in their soils.

At BioAg our range of natural phosphate fertilisers are based on our microbially digested reactive phosphate rock – *BioAgPhos*. Talk to us about your 'P' requirements today.



Better soils. Better crops. Better stock.

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