



‘UNPRECEDENTED’ is the new norm

Talking to farmers and advisers there are several common topics everyone wants to discuss: unprecedented farm input costs; where are prices going; and when will costs be coming down?

Economics 101

Supply and demand will always determine price and volume, no matter if it is farm produce or farm inputs. And the spread of globalisation means we are more connected and therefore subject to international events and their impact on price.

The recent spike in global fertiliser prices was driven by some of the same fundamentals as in 2007/08, but this time around there is also the overlay of supply chain disruptions from COVID. However, the conflict in Ukraine and the resulting impact on the global supply of fertilisers and grains, has taken us even deeper into unknown price/supply territory. The countries impacted (both directly and through sanctions) are significant suppliers of these globally traded commodities.

Where are prices heading?

In times of high prices, major importers and exporters will leverage to secure lower or higher prices respectively. The result is fluctuation and volatility in prices. However the fundamentals in key markets like the USA are highlighting that while fertiliser affordability has reduced, it is continuing to be offset by increases in the value of cereals and grains. This in turn supports high prices and continued volatility, which is not great news for anyone.

While the additional cost for many growers is offset by higher farm gate prices for produce, this isn't true for all, with several agricultural sectors (notably viticulture and horticulture) facing flat or lower farm gate prices.



How can growers respond?

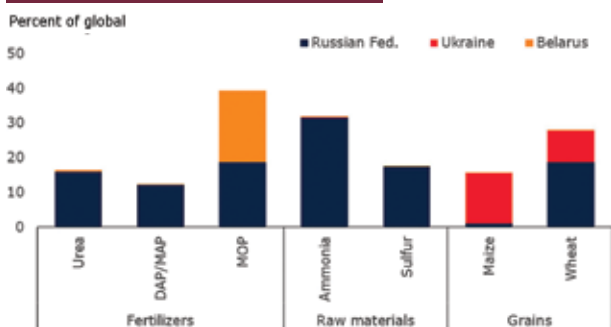
Whether it be due to input prices being too high or produce prices too low, for some growers, the only option they can see is to cut back on inputs. We saw this over the last season with a large reduction in micronutrient use. If farm returns remain low or key input costs keep rising, then further cuts are made often reducing the use of key nutrients such as phosphate and potash, with synthetic nitrogen fertilisers applied 'if things' improve or a good season occurs.

But beware! This short-term cost-cut fix of reducing critical nutrition comes with the long-term risk of degrading your soil fertility. Down the track, your soil may not be able to perform its essential role for your crops, resulting in low yield and/or reduced quality and therefore reduced returns.

What's a less risky approach?

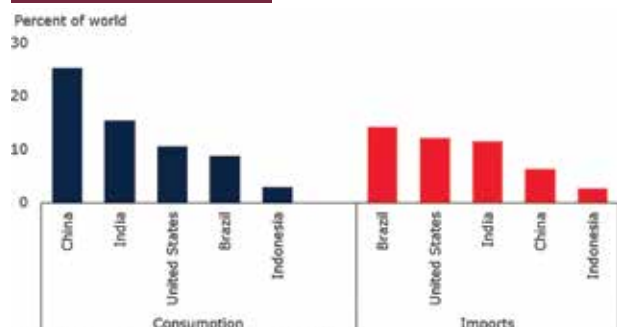
Maintaining soil fertility rather than mining your soils in the hope of better years to come has many more benefits and is less risky in the long term. Your soil is your largest and most valuable long-term asset. Soil is the backbone of every farmer's livelihood.

Belarus, Russia and Ukraine exports



Note: Data for 2019, except grains (2020).

Top fertiliser consumers



Note: Sum of all nitrogen, phosphates, and potash fertilizers. Data for 2019.

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(continued)

Healthy soil biology is essential for healthy crops and simple, cost-effective maintenance of your key asset is essential. Farmers invest in maintaining equipment so it is working at its peak when required, and soil health maintenance should be considered with the same mindset.

Healthy soils enable farmers to quickly respond with high yields and quality when the ‘good times’ return. Risks of disease and erosion are minimised as healthy strong plants can protect themselves and don’t require pesticides, and healthy soils support better water and nutrient use efficiency.

How BioAg can help

The improvement of soils for the improvement of crops, pastures and animal health is the founding principle of BioAg. We want to work with growers to help you understand the status of your soils using accredited soil, leaf, and tissue testing, identifying issues present, taking into account planned grazing or cropping, and understanding your available resources and your appetite for introducing some changes into your farming practices.

BioAg’s scientific approach to improving your soil fertility will:

- Ensure the right balance of nutrients in your soil, avoiding applying nutrients already present which is wasted money.
- Avoid nutrient imbalance which can drive nutrient losses and is a risk to crop health.
- Show you how to incorporate more sustained release fertilisers to reduce losses and reduce fertiliser costs.
- Improve soil properties to enhance water use efficiency and plant vigour, reducing the cost of irrigation and or chemicals.
- Provide a greater understanding to the risks of reducing fertility, especially in permanent plantings.

The BioAg team have the knowledge backed by 30 years of research and development in natural fertilisers and biostimulants to transform the health of your soil. The BioAg website bioag.com.au details many case studies and trials for you to review and see the results being achieved, and our sales team can link you up with customers to talk with regarding their experience in improving their soil health.

Contact your local BioAg Area Manager for a chat – we want to share our knowledge with you for *Better soils. Better crops. Better stock.*

Go the mighty Corryong Demons!

Corryong is a small town in northeast Victoria with an enormous passion for sport. The Corryong Football Netball Club has a long and proud history having been founded 130 years ago in 1892!

BioAg wanted to give something back to this mighty community given more than 20 years of continued support for BioAg’s products from growers in the Upper Murray and surrounding areas. The last few years have also been really tough for the region, having battled the double-whammy of devastating bushfires followed by the global COVID pandemic.

We’ve therefore become proud sponsors of the Corryong Demons FNC!

Peter Emerson who services the region said “We’ve had tremendous long-term support from growers which we really value. Our natural fertilisers are ideally suited to the Upper Murray soil types with leaching, runoff, and tie-up real challenges in some of the lighter and antagonistic/acidic soils.

“So it’s terrific to be able to supply a quality natural product that helps the soil retain all of the nutrients that healthy soil and plants require. The sustained release nature of *BioAgPhos* also delivers more Phosphorus for your money as it continues to deliver a steady supply over the next couple of years without the worry of nutrient loss.”

Sporting clubs are the backbone of local communities, bringing everyone together, creating community pride and allowing social interaction to help share and work through challenges life throws at us.

“I’m very proud to see BioAg’s sponsorship sign up at the oval. The growers have backed us and we’re really excited to be backing the Demons and to be part of the Corryong community for the long-term,” said Peter.



Significant New Zealand trial results



Dryland trials site January 2022 prior to harvesting (background green area is the irrigated trial plots)

Natural fertiliser proving highly effective in low rainfall zones.

Interim results from BioAg field trials undertaken in low rainfall high-country pasture in New Zealand are demonstrating the effectiveness of using natural fertilisers and biostimulants to grow pastures.

BioAgPhos in combination with lime and sulphur, to provide the P, significantly increased dryland pasture production and positively changed species composition pasture in trials undertaken in the Mackenzie Basin near Twizel, on the South Island of New Zealand.

The unfertilised basin floor soils in this region are typically free-draining and low in fertility with toxic subsoil aluminium levels. However, with irrigation, soil amendment and fertilising they are highly productive and predominantly support sheep, beef and dairy pasture operations.

January 2022 harvest results overview – increased Dry Matter yields

BioAg Soil & Seed	<i>BioAgPhos</i>	BioAg Soil & Seed & <i>BioAgPhos</i> combined
Up to 17%	60%	4L/ha increased yield 120% 8L/ha increased yield 110% 12L/ha increased yield 75%

Of considerable interest to farmers in this region is the use of biological fertilisers which previously were untested. Trial sites composed of both dry land and irrigated plots.

Trials commenced in May 2021, with the first harvest performed in January of 2022.

The results to-date are a first season progress report out of a three-year project that will include assessment of species composition changes and other valuable qualitative information.



Scan to read more detail on BioAg's NZ trials, including Reports on the Trial Establishment and First Harvest.



When Less is Best – for your crops and your hip-pocket

Case Study: The negative impacts of too much synthetic fertiliser.

Do you sometimes feel like you're going a little insane? Applying more and more synthetic fertiliser to boost yield because that's what everyone else does, yet your efforts and skyrocketing input costs result in either no yield improvement or even declining yield, and stressed crops?

Albert Einstein famously defined insanity as 'doing the same thing over and over again and expecting different results!'

A citrus grower in the NSW Riverina region reached out to BioAg to evaluate his poor-performing orchard. The trees had a sparse canopy, and leaves were stunted and off colour. The grower was familiar with BioAg having commenced using BioAg products in 2014 when he was developing a hazelnut orchard.

BioAg's Horticulturalist and Viticulturalist Stephan Logoida performed soil and tissue tests, documented treatment history, building a complete picture of the current orchard's status.

The information clearly showed that the orchard was being over-fertilised, even though historical applications were based on agronomic advice. The historical message had been 'to get more fruit, you need to apply more fertiliser.'

The soil test highlighted that the overuse of synthetic fertilisers had broken down all-important soil structures, increased nutrient loss pathways, and reduced the soil's ability to supply nutrients when the crop required it.

BioAg CEO Martin Metz explains the dilemma for growers, "The hardest thing for a grower is to be different and step into the unknown. However, at a time of extremely high fertiliser prices, reducing the nitrogen and or potassium fertiliser use by 10 to 30% for the same if not improved yield, is significantly beneficial for both your hip pocket and the crop."

The approach of applying more fertiliser to overcome the issues of poor uptake from the soil, only further reduced the orchard's soil performance and created nutrient imbalances that negatively impacted the supply of micronutrients, further damaging the trees. In fact, not only was additional nitrogen fertiliser exacerbating poor crop performance, but it also added a costly and unnecessary input expense for the grower.

"Every orchard or crop will have different opportunities and different solutions given their soils are different," explains BioAg Horticulturalist and Viticulturalist Stephan Logoida.

"We build a solution specific to the block and the farmer. Typically, the solution to many yield and quality issues is right under the farmer's feet. We simply want to help growers to understand their soils and how they can be naturally improved for peak crop performance.

"For the orchard condition, we recommended improving the soils nutrient use efficiency using our biostimulant products. For the soil – *Soil & Seed* and *HydraHume*; and for foliar treatments – *HydraSea50*, *Balance & Grow* and *Fruit & Balance*," advised Stephan.

The expectation was that it would take 2 to 3 seasons to fully rebuild the soils. It was also recommended that synthetic fertiliser applications be reduced.



Prior to the BioAg program, the orchard shows signs of poor nutrition – low density canopy, severe zinc deficiency and a high rate of fruit drop.



In comparison, the canopy density has dramatically increased during the BioAg program, with less fruit drop and better yield.

Initially the grower followed the program but, concerned that "everyone else" was still applying large amounts of fertiliser, he applied additional nitrogen. Unfortunately, this reversed the early gains and resulted in a harvest typical of prior seasons.

Following the season, Stephan and the grower discussed the negative impact on the crop of adding more chemical fertiliser. Having seen the early benefits of the program, the grower stuck with BioAg's tailored program in the second season.

The second season results saw the orchard achieve a vastly improved crop yield above the 50 tonne per hectare target, more than three times prior seasons, with 30% less nitrogen used than is typically recommended.



Irregular, chlorotic leaf spots, narrow leaves and severe die-back of twigs, related to zinc deficiency.



The zinc deficiency responded well to the BioAg program, resulting in good new growth and healthier trees.

“Healthy balanced nutrient-rich soils produce strong healthy high-yielding trees and the BioAg program certainly turned the orchard performance around. The actual cost was also cheaper than using traditional chemical fertilisers with the ongoing benefits and soil health effectively free after the initial year of application,” said the grower.

Read more about this case study on BioAg’s website, including soil parameter statistics and crop yield.



Scan for the case study on our website.

Stimulate your soil and seed, with *Soil & Seed*!

***Soil & Seed* biostimulant has long been a foundation of BioAg’s cropping and horticultural programs. We’ve been producing and selling it for 23 years, giving *Soil & Seed* a proven track record and a reputation that speaks for itself.**



The agriculture industry today offers all kinds of products designed to stimulate soil biology from fish to seaweed and humic acids and single strain microbial products.

The ingredients in BioAg’s *Soil & Seed* are generally the same, but what makes our product superior is how it is made. BioAg ferments the ingredients over a long period of time, so that they become food for the bacteria and fungi that grow and reproduce during the production process. Fermentation is key to creating the beneficial compounds that are in *Soil & Seed* such as vitamins, minerals, enzymes, amino acids, carbohydrates, and organic acids.

It is these compounds that greatly enhance the volume and diversity of microbiota found in treated soils. BioAg has a large body of replicated trial data that demonstrates higher yields, and the vastly enhanced fertiliser-use-efficiency that is achieved when *Soil & Seed* is appropriately applied (view at bioag.com.au).

As synthetic fertilisers become increasingly expensive, the benefits of enhanced fertiliser-use-efficiency are becoming increasingly important for growers to take advantage of. Avoiding unnecessary losses of soluble nutrients from the soil and wasted costs from nutrients being applied but not utilised is essential during times of rising input costs. That’s why *Soil & Seed* offers such great value for growers as both the soil and plants are getting full access to the valuable compounds that increase plant growth and resistance to water and abiotic stresses.



Your BioAg Area Manager can assist with advice on how *Soil & Seed* can enhance your productivity. Scan for contact details.

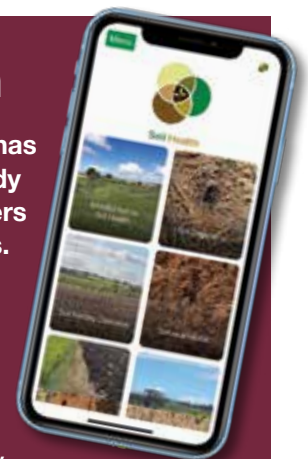
Podcasts on soil health

50 years of soil biological health research has been compacted and simplified into a handy new app called SOIL HEALTH to help farmers better understand the complexities of soils.

Informative podcasts you can conveniently listen to whilst working; short videos to watch; and an e-book on “Soils are Alive” are all freely available.

Download for **FREE** on IOS and Android phones and tablets via Apple and Google Play.

Download online and access offline out in the paddock!



BioAg has no affiliation with the app that was developed by Professor Lynette Abbott, a world leading academic and science communicator in soil science and soil biology at the University of WA School of Agriculture and Environment and The UWA Institute of Agriculture.

But we are passionate about helping farmers understand the importance of having healthy soils as the foundation to their farming enterprise success.

Switching it up, improves quality and production

Beef farmer Warren Watt's family have been fattening cattle at Tomerong on the picturesque NSW South Coast for six decades. In recent times, he's wanted to make a change to a more sustainable approach to his land, with little or no chemical use that has only ever given him short-lived results.

Warren called on Peter Emerson, BioAg's Area Manager for SE NSW and NE Victoria for advice and guidance with this change of farming approach. A soil test concluded that Warren's soil needed more available Phosphorus and Calcium, exactly what *BioAgPhos* natural fertiliser delivers.

Peter recommended applying *BioAgPhos* at 300kg/ha with the aim to rotate half the farm every year to boost soil health and nutrient levels.

"The paddocks I applied the *BioAgPhos* to have responded really well," said Warren.

"There is much better growth, colour, and plant health. There is also more productive pasture grasses and clovers that have come through compared to previous years where I have traditionally applied synthetic fertiliser."

"It's obvious with the natural fertiliser that I'm not losing any of the nutrients that have been applied. The paddocks have completely turned around, even after huge deluges of rain this season where the risk of leaching and runoff has been immense."

With *BioAgPhos* you literally get 'more bang for your buck'! By replacing water solubility with microbial digestion, BioAg has reduced the amount of nutrient susceptible to soil lock-up or leaching and provided a natural fertiliser range that can be spread at any time of the year.

It has 30% immediately plant-available P while the remainder is released over the next 1 to 2 years. It will also help build background levels of P in the soil and contribute to neutralising, due to the calcium content and natural alkalinity. So you get more P for your money as it ALL becomes available over time, saving you money in multiple synthetic applications.

"It's really rewarding helping farmers improve their land and outputs. The switch in practices has been a win for Warren and his cattle," commented Peter.

"There's also been a win for his surrounding environment as Warren has been also able to support the Clean Coastal Catchments project in his region by helping reduce the amount of nutrient and contaminant ending up in coastal waterways and catchments - so a real win-win for everyone!"



Green pastures at Warren Watt's NSW South Coast cattle property after applying BioAgPhos.



Clover and grasses making a strong comeback after using the natural fertiliser BioAgPhos.

NT success



Andrew Dalglish and his father Charlie have been customers of BioAg for some 20 years, originally in NSW's Riverina region, and these days in the Northern Territory. Andrew is the owner of Foxalicious Fruit, a Katherine based organic mango and asparagus farming operation and premium fresh produce packing company.

Andrew has been interested in the biological/organic side of farming for a long time and sees working on the health of his soil as the foundation of his business success. In 2020 he won the Territory NRM Farmers and Fishers Sustainability Award for his coordinated soil health and an organic plant nutrition program.

"If you have healthy soils, then you're going to have a healthy plant or animal, which ultimately we humans eat, so that's got to be better for us. Get your soils right, and the rewards are outstanding.

"I am all for getting the billions of living organisms underneath our feet to do all the hard work 24/7 to help me with my business," says Andrew.

He uses BioAg certified organic *PotPhos* annually as a side dress for his organic produce, and fertigates *Soil & Seed* continuously when applying nutrients through his fertigation system.

Distributor Spotlight – Dindi Ag

Dindi Ag has been supplying BioAg solid fertilisers and biostimulants to the local grazing industry for almost two decades.



With BioAgPhos we are getting a natural product that is value for money and goes hand in hand with the region's vision of growing clean and green natural produce.

Matt Helder, Agronomist and Dindi Ag partner



The business is based in Yea, 100 km north-east of Melbourne, and services customers in the Murrindindi Shire (hence the name 'Dindi' Ag), and areas of both the Goulburn and Yarra Valley regions.

Beginning in 2000 as a provider of specialised contracting services to the local pasture industry, Dindi Ag today is a 'one stop shop' to the local farming community including agronomic advice and supply, delivery and spreading services of solid fertilisers.

Nutrient Management Planning – Dairy focus

The dairy industry is amongst the highest nutrient fluxes (inflows and outflows) for any agricultural production system and therefore has relatively low nutrient use efficiencies. The ongoing intensification of the industry also means these nutrient fluxes are continuing to increase per hectare, increasing both the reliance on imported feed and Nitrogen fertiliser use.

To assist agronomists and fertiliser advisers in this industry, Agriculture Victoria and Fertcare recently delivered workshops across all the major Victorian dairy regions. The workshops stressed the importance of farmers having a nutrient management plan that is friendly and understandable, do-able, with clear guidance, benchmarked performance, and needs to be frequently updated.

Farming is a business and fertiliser use efficiency is an important parameter from both a business perspective to ensure it is used efficiently particularly given skyrocketing prices, and environmentally so as not to pollute and degrade the land or waterways.

Based on a study conducted on a range of dairy farms, average fertiliser use efficiency was Nitrogen 26%, Phosphorus 26% and Potassium 20%. Also of interest in the study was the correlation between nitrogen use efficiency and stocking rates. With an increase in stocking rates, nitrogen use efficiency decreases.



Farmers are the custodians of their soil and environment, and therefore carry the responsibility of taking care of these living assets. Fertcare provide a useful 5-Step Program to help farmers evaluate their fertiliser on-farm nutrient management program:

1. Know what to look for
2. Evaluate current practices
3. Consider the environmental context
4. Prioritise the nutrient management risks
5. Identify Best Management Practice

The BioAg team can help dairy farmers in any region prepare their nutrient management plans to improve their pastures and maximise fertiliser efficiencies whilst reducing input costs. BioAg supplies sustained release P fertilisers providing improved use efficiency and reduced losses.

Challenge accepted: Improving organic grape production

A Riverina wine producer has been seeking ways to improve their crop of organically grown grapes.

With an ever-increasing demand for organic grapes, the grower has tried several products and treatments to lift yield and quality. Typically yields are in the range of 6 to 10 tonnes per hectare, while sugar content (Baume) and colour (Anthocyanins) are around 13.0 and 1.0 respectively.

In 2021/22, BioAg accepted the opportunity, or challenge, to improve yields and quality.

The organic demonstration block of 20ha included two varieties – Shiraz and Petit Verdot.

Soil analysis and evaluation played a critical role in determining the program that would optimise returns and fit the budget. The program was designed to build capital nutrients by applying a solid blend of ameliorants and fertiliser, that would sustain the crop for a number of years.

The blend included *BioAgPhos*, Gypsum and trace elements addressing key nutrient deficiencies, mineral balance, and soil physical properties.

The program also included use of a range of BioAg biostimulants across the season, focused on increasing the numbers and diversity of beneficial soil micro-organisms, improving key properties related to soil biology (*Soil & Seed* and *HydraHume*), stimulating early vine vegetative growth (*Balance & Grow*), and improving fruit set and development (*Fruit & Balance*). Early season improvement in soil biology is of benefit as it stimulates root growth and improves nutrient cycling and availability by creating organic complexes that aid nutrient absorption.



While the program was implemented, the season was challenging and not as hoped. Cool and wet conditions hindered growth across all the grower's operations (conventional and organic). However, the wet conditions highlighted the benefit of enhanced early season vigour, as well as the benefit of supporting vines during key growth stages with foliar biostimulants.

Despite the wet and cool conditions, the grower noticed a significant improvement in crop growth throughout the season compared to prior years. The weather conditions brought with it a higher risk and increased occurrence of Downy Mildew and Botrytis across the entire vineyard. The BioAg demonstration block however, suffered fewer incidents of disease compared to all other blocks, including the chemically treated conventional blocks. By supporting early growth and key growth stages, the vines were stronger and healthier and therefore better able to combat disease and stress themselves, without the need for additional chemical treatments.

Yield results were lower than prior years but given the season, the grower was extremely pleased with the yield. Importantly, the quality of the grapes was better than prior years, even with the wetter conditions there was an improvement in Baume to an average of 13.4 and Anthocyanins to an average of 1.5.

The producer was extremely pleased with the outcome and is looking forward to assessing the benefits achieved in a better season.

Welcome to James Mwendwa

James Mwendwa is BioAg's new Area Sales Manager and agronomist for the Riverina, NSW.

With a lifetime of farming experience having grown up on the family farm in Kenya, and 10 years spent in New Zealand working in the dairy industry, James is a skilled broadacre extension agronomist and passionate agricultural researcher. He also has a PhD gaining his Doctor of Philosophy in Agricultural Science from Charles Sturt University.

James has a keen interest in biological systems, soil health and cultural weed management. He's keen to help growers improve their efficiency and yield through the correct inputs and management techniques for healthy natural soils.

Give James a call on **0459 474 550** if you are in the Riverina region to arrange an on-farm visit to discuss why a healthy soil biology is essential for healthy crops and how James can assist you.



Better soils. Better crops. Better stock.

For more information | **02 6958 9911** | bioag.com.au

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