Summer 2013

In this edition

BioAg COUNTRY

When is the best time to buy phosphate fertilisers?

BioAg's BioAgPhos being manufactured at our quarry facility in Geelong.

The correct answer is when soil tests reveal your P levels are too low.

On the supply side of the industry we see wild fluctuations in demand depending on seasonal conditions and farmers' terms of trade. The 2012-13 summer and autumn fertiliser season was a particularly bad season for Australian fertiliser suppliers for a number of reasons: Global economic uncertainty; Australian political uncertainty; declining farmers' terms of trade (with meat, wool and dairy prices all falling); a late autumn break in many areas and the list goes on.

So what will happen this coming autumn?

From a global market perspective the Australian market can expect attractive phosphate fertiliser pricing because the international market is right on the bottom of its cycle.

This has occurred for a number of reasons and relates primarily to the state of the international DAP market. Prices are depressed due to less demand from India where reduced Government subsidies, a reduction in the maximum retail pricing (set by the Indian government), and a freefall in the Indian Rupee, have all contributed to lower prices to attract Indian buying. At the same time increased capacity in Saudi Arabia, and China's need to export has driven DAP prices down close to manufactured cost levels.

In short, this means that Phosphate fertiliser prices are likely to be at their most affordable this summer and autumn.

If you are looking to build soil P and in turn fertility levels this season, you can take advantage of the low fertiliser prices by buying now.

For building P fertility there is no better P product than BioAgPhos. Our customers find the economic reasons to use BioAgPhos are increased due to its ability to continue working for years after it was applied.

BioAg has developed a comprehensive range of blends based on BioAgPhos to meet most agronomic soil needs. The list with analysis and pricing is provided below.

As has become a well received custom we are offering the combination of an early-bird incentive for prepayment in addition to a volume discount for BioAgPhos and BioAgPhos S10 (10% S as elemental sulphur).

The volume discount is 1% per 100 tonne ordered and paid for under the early bird arrangements, up to a 5% maximum discount for 500 tonne or more.

At an average price of $350 per tonne the price per kilogram of Phosphorus is $2.92. This is competitive when comparing with the P cost of water soluble fertilisers, SSP, MAP and DAP.

The key is to put the right amount of the right product in the right place at the right time to achieve short, medium and longer term production goals.

Your BioAg agronomist will assist you to develop a fertiliser strategy to maximize your short and long term production in the most cost effective package.

Once you've had BAP you don't go back.

Product	Typical analysis (%)	Price per tonne for each month of payment		
		31/12/13	28/02/14	30/04/14
BioAgPhos	P12, S1, Ca35	$345.00	$350.00	$355.00
BioAgPhos S10	P11, S10, Ca31	$383.00	$387.00	$392.00
Pasture Primo	P4, Ca39	$131.00	$132.00	$134.00
BioAg Superb	P8, S5, Ca27	$264.00	$267.00	$271.00
PotPhos	P9, K10, S5, Ca26	$507.00	$511.00	$514.00
MagPhos	P7.5, Mg7.5	$277.00	$280.00	$283.00
RPR	P12, S1, Ca35	$325.00	$330.00	$335.00

All prices are bulk ex Batesford Quarry, Geelong and exclude GST. Prices are subject to change.

Independent replicated US trials

In a series of US based replicated trials conducted by AgriCenter International in 2013, BioAg's liquid product range provided a staggering 27% yield increase above standard fertiliser practices.

Based on the current price for corn in the U.S. (19 Nov. 2013) of US$ 197.93 per tonne, the return on investment on these results would be an ROI of 8x.

Located in Tennessee, USA the five replicated trials of Dent corn provided yields of up to 13.2 tonnes/ha compared to the control yield of 10.4. Strip trials were also conducted and the BioAg strip showed a yield increase equivalent to 23.2 bu/ac (1.4 t/ha) or 14.8%.

Under the control of Dr K. Bruce Kirksey, Director of Research for AgriCenter International based in Memphis, the trials featured four protocols set up in a five-plot replication, the first protocol being the control that utilised the standard fertiliser application regime for the district.

Significance of the yield increases

Treatment	Yield [bu/ac]
Control	165.7
Control (-15%) + BA	188.0
Control (-15%) + BA2	190.7
Control + BA	210.3

Jep Gates, Technical Director at BioAg said "We are extremely happy with the results. We are conducting trials in a country recognised as world leaders in agricultural farming practices. To have independent results such as this is validation that these products richly deserve".

The significance of the BioAg yield increases can be understood when analysed by using standard statistical measurements performed as part of the trial.

Generally a 95% confidence limit measurement is the industry standard that a trial increase is more than just the result of other factors such as a beneficial growing environment or season. The BioAg results returned a result of 99%, meaning there is less than 1% chance of the result being purely due to favourable external conditions.

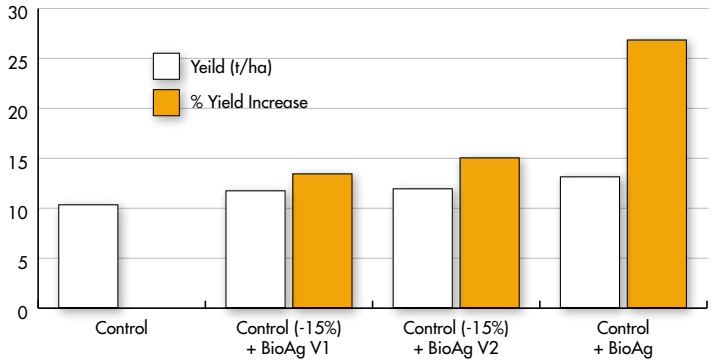
These are important results clearly showing real yield increases and benefits for corn & other crop producers not only in the highly competitive USA market but also for Australian growers who have chosen to adopt BioAg programs.

In the next two treatments the district standard was reduced by 15% and two different application rates of Soil & Seed, Balance & Grow and Fruit & Balance were then applied. These two replications differed in the ratios of Balance & Grow and Fruit & Balance applied towards the end of the growing season.

In the final treatment an optimum application of BioAg liquids was applied over the control or standard district practice.

The control regime consisted of an initial treatment of fertiliser (N20-P80-K80) followed by 150 units/acre of 32% N in a liquid form.

All the BioAg treatments gave yield increases compared to the control.



BioAg agronomist John Hill with Charlie Dalglish

DALGLISH BARLEY tells a story

Andrew and Charlie Dalglish have just finished harvesting Andrew's 210 ha paddock of Hindmarsh barley at "Panama" Ungarie, New South Wales.

The crop got off to a good start, dry sown on 7th May into a wheat stubble at 40 kg of seed and 12 inch row spacings with press wheels, with 50 MAP. Prior to planting the paddock was treated with a blend of 300 kg/ha of chook manure, 150 kg/ha of BioAgPhos and 150 kg of gypsum.

The photo taken on 11th July shows the crop to be tillering well and looking for a foliar feed to maximize yield potential and quality. In mid July a vegetative foliar mix comprising 1.6 l/ha Balance & Grow, 5.5 kg/ha Calcium Nitrate and 12 l/ha of UAN was applied.

In mid August a fruiting foliar comprising 1.4 l/ha of Fruit & Balance, 150 g/ha Zinc Sulphate Heptahydrate and 13l/ha of UAN was applied.

RIVERINA CANOLA CROP SAVED

Kerrie and Malcom Plum grow Brazzil canola at their property Burradool near Tarcutta in the Riverina, NSW.

After sowing and an initial fertiliser application occurred in April 2013, further inputs of Gran-am in June provided no visible response to the crop and the Plums concerns were growing better than their crop. By July the Canola had turned purple.

Soil and plant tests indicated there were no nutrient deficiencies, however on inspection they found the roots to be spreading sideways and running parallel with the ground surface.

Photos of the three month old Canola plants turning purple and with stunted horizontal roots.

The Plums then contacted BioAg and in late August, following inspection and testing, BioAg Fruit & Balance and UAN were applied.

By mid-September the Plums were reporting marked improvement and in November sent further photos along with their observations of the crops progress.

"The crop has completely transformed" said Kerrie.

"The crop is now quite even and stands about 5 feet high. The photos (we) attached show the over-all evenness and good recovery of the crop in spite of receiving only light rainfall. There is no sign of dead rotting material on the ground surface, so the stunted pink/purple plants apparently recovered. The original "j-roots" are now finding their way straight downwards".

The crop on 11 July 2013

Because of the significant wheat contamination in the crop and the potential for a wet harvest, on 27th October the crop was windrowed because the barley was ripe and the wheat in it was still very green. This was done to bring forward the harvest and to shrivel the wheat so as to blow as much of it as possible out the back of the header.

The crop was harvested between 5th and 9th of November producing 4.2 t/ha of F1 grade barley with hectalitre weight of 74 and 10.5% protein.

Photos of the crop taken in mid-November show the evenness and recovery of the crop.

About BioAg Fruit & Balance

Formulas of Fruit & Balance are available for broad acre horticulture as well as a formulation for organic certified production systems. The product is designed to increase flowering, fruit-set, yield and quality.

It delivers a rich source of non-leaching plant-available phosphate when the plant is under peak load and enhances fruiting and yield potential. Fruit & Balance also enhances the nutritional value and quality of fruit or grain by increasing sugar levels in the plant.

2013 crop history

2 Apr:	Crop sown @ 4kg/ha with MES 10, 12N, 17P, 10S applied @ 160kg/ha. No significant falls of rain occurred for 6 weeks post- sowing.
9-22 Jun:	Rain: 99mm June. Grazed with 1 x ewes and weaner cattle.
28 Jun:	Gran-am applied @ 100kg/ha.
Jul:	Rain: 50mm.
Aug:	Rain: 52mm.
29 Aug:	1.5L/Ha BioAg Fruit & Balance and 40L/Ha UAN.
17 Sep:	First rain for September occurred. September total rainfall: 52mm.
Oct:	Rain: 15mm.

Paddock History

2011-2012:	Oat crops grew well both years.
2010:	Albus lupins grew well.
2000-2010:	Pasture sown: phalaris, lucerne, clover, perennial rye.

Recent CSIRO trials link applied nutrients to *INCREASING SOIL ORGANIC MATTER*

Over the past five years CSIRO soil scientist Clive Kirkby and his associates have been conducting trials looking at conventional cultivation techniques where crop stubble is cultivated into the soil.

The control plots of Kirkby's trials had stubble cultivated into the soil while the test plots had nutrients (nitrogen, phosphorous and sulphur) applied when cultivating the stubble.

The trials have resulted in increases in soil organic matter when the stubble has been supplemented with added nutrients.

Kirkby says that "while conservation agriculture has been aiming at adding the minimum amount of nutrients to grow a crop, it has inadvertently led to a decrease in soil organic matter. The organic matter in plant material is actually nutrient poor. The organic matter in the dead microbe material is nutrient rich."

Kirkby suggests that the benefits of the stubble and its contribution to soil organic matter are not the dead stubble itself; rather it's the dead microbes that have spent their lives digesting the stubbles.

Mulching the stubble helps to incorporate it into the soil, and that the nutrient quantity in the stubble will degrade over time so the sooner it is incorporated into the soil the more nutrient benefit the soil will receive from the stubble.

"We have essentially got two crops" says Kirkby. "The crop that we grow above the ground and the crop of soil organic matter (below the ground). The two crops need their own set of nutrients. If you pull the nutrients out of soil organic matter…the carbon levels will go down".

The amount and type of nutrients that should be added to the stubble will vary from year-to-year and on the type of crop the stubble is derived from. Canola is usually high in sulphur so canola stubble may only need nitrogen and phosphorous added, while stubble from a crop that had a particularly good yield may need more nutrients added since so much of the previously applied nutrients were utilised in achieving that yield.

Kirkby's comments on farmers who leave their stubble standing were that they are doing the right thing if erosion were a major problem for that farmer, but "they're not doing the optimum thing to treat soil organic matter levels".

Typically BioAg cropping soil fertility programs contain a combination of quick and slow release P by way of MAP as a starter P and BioAgPhos as a source of capital P, along with a sulphur source, elemental gypsum or SOA. It is common that these programs contain more P and S than conventional fertiliser programs. When stubbles are to be incorporated generally we prescribe 10 litres of UAN or 10 kg of urea per tonne of stubble to be incorporated per hectare, in addition to Digest-it which aids in the digestion process. The important point is that once the nutrients, N, P and S are bound up in this organic material, they become non leaching and non locking. As the organic matter grows so too does the soil's natural fertility. BioAgPhos is a great source of phosphate when it comes to building soil organic matter, health and fertility.

Since inception, a key aim of the range of products and nutrition programs BioAg has developed has been to look after the health of not only the plant, but the soil as well.

BioAg's own trial work, as well as independent trials and studies such as this one by Clive Kirkby and his associates at the CSIRO mentioned above help to justify the benefits of healthy plants *and* soils.

If you wish to know more about any of BioAg's trial data and/or its range of products then visit our website at www.bioag.com.au. You can find and get in touch with your local BioAg agronomist and area manager.

More on Clive Kirkby's research on soil organic matter: www.grdc.com.au/Media-Centre/GRDC-Gallery/Video/u6OA5jDZrnM

CHRISTMAS SPECIAL

Sulphate of Ammonia (SOA) $250/tonne. Ex Port Kembla, ex GST.

December/January delivery, limited supply. Book early to avoid disappointment.

Christmas/New Year period close-down

Over the Christmas/New Year period many BioAg staff will be on leave, however you will still be able to contact someone at the Narrandera head office for sales enquiries or at the Narrandera factory to pick-up orders.

Close-down period

From: Tuesday 24 December 2013 at 2.00pm

To: Sunday 5 January 2014

We will officially reopen on Monday 6 January.

Contacts during this time are:

Sales enquiries – Anton Barton 0418 367 326

Product pick-up (Narrandera plant) – Barry Knight 0407 593 888

Product pick-up (Geelong quarry) – John Birkett 0459 592 339

We wish everyone a happy and relaxing Christmas and New Year.

Organisation FERTCARE®

BioAg®

Better soils. Better crops. Better stock.™

For more information, phone 02 6958 9911 or visit www.bioag.com.au