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BioAg COUNTRY

Action Plan for Spring

As spring approaches, and growth becomes more vigorous, there are a number of steps one can take to prepare for the season and ensure healthy crops, pastures and trees and vines. Our recommendations are to:

- **Finish your crops with Fruit & Balance**
- **Bulk up your pastures with Balance & Grow**
- **Put out our solid horticultural fertiliser blends**

Finish your crops with Fruit & Balance

Local on-farm experience shows that an application of BioAg Fruit & Balance in the spring leads to higher quality grain quality and greater yields. Fruit & Balance provides a plant available source of phosphate when the plant is under peak load at fruiting, and enhances the nutritional value and quality of the grain by increasing sugar levels in the plant.

The Dickie family has been farming at Youanmite, south of Katamatite (Vic.), for the past 45 years. The property is now managed by brothers Stephen and Andrew who crop around 2,500 acres of clay loam and run about 700 crossbred ewes on lucerne pasture. The principal crops are wheat and oats, legumes, and some 2-300 acres of canola.

"Back before 2004, as conventional farmers, we recognised that we had high inputs of fertilisers with increasing use of fungicides and insecticides, and around then we were looking at ways of improving our farming methods to decrease our consumption of crop protection chemicals" said Andrew.

"In that same year we met Jep Gates and Ivan Mitchell of BioAg, who confirmed our view of the value of stubble incorporation, so we commenced the move from direct drill seeding to minimum till sowing against prevailing wisdom at the time. We sold our drill and purchased a Valmar air spreader and a Kelly Chain and aerator, using these to prepare the paddocks and sow the crops. We also conducted a trial BioAg fertilisation program in one of the paddocks in conjunction with our stubble incorporation regime. It was sufficiently encouraging for us to switch the whole farm to BioAg fertilisation for the 2005 season.



Good vegetative growth in a crop of oats



Soil profile showing the incorporation of the stubble of a 30 bag wheat crop.

"We subsequently replaced the Kelly Chain with a Lemken disc harrow which we believe gives us better stubble incorporation and seed-soil contact," he said. "Our aim was to increase our moisture retention, improve soil structure, and reduce our usage of fungicides and insecticides. By and large we have succeeded, although we still use one insecticide for heliothis in field peas."

Asked about the seasonality of their BioAg fertilisation program, he said "We run the disc harrow over the paddocks during summer for stubble incorporation and summer weed control, and then in March-April, we apply BioAgPhos, lime and sulphate of ammonia (as needed). Just before sowing, we spray Soil & Seed with glyphosate (for knockdown).

"We inoculate the seed itself with Soil & Seed, and broadcast it with the air spreader, applying MAP and trace elements from the fertiliser box. We then run the disc harrow over again to cover the seed. This year, another benefit of disc harrowing was that we didn't have to use mouse bait, as the harrowing destroyed their nests.

"In July, as recommended by the BioAg agronomists, we spray with the foliar Balance and Grow for vegetative growth, together with a broadleaf herbicide, UAN and trace elements as determined by a leaf tissue test. In September we apply Fruit & Balance for head development, with more nitrogen if we need it.

"The spring treatment of Fruit & Balance is just the last part of our season-long program. We see the whole broad program as increasing our microbe populations and acting as a health package, curbing the conditions for the proliferation of diseases such as stripe rust.

"We use disease resistant plant varieties where possible. Apart from the heliothis treatment, we've used no insecticides during the past three years, and very little before that.

"Our Brix (sugar level) is gradually improving, there is less Rhizoctonia evident, and the root structures are much better.

"There is balance in the pastures and the incidence of worms in our sheep is quite low.

"Our yields and grain quality are similar to when we were farming conventionally, and our fertilisation costs are comparable. Last year was a bit unusual, with a late harvest and seven inches of rain just after, which meant that our stubble incorporation after a particularly heavy crop was a fair bit later than we would have liked, but we still managed OK without the need to burn."

Action Plan for Spring cont.

Bulk up your pastures with Balance & Grow

Balance & Grow increases vegetative growth, root development and soil microbial activity. Once a healthy soil is achieved, you can expect to grow more nutritious pastures that will support high volumes of beef, wool, lamb and milk production with minimal animal health problems. In time, you will see marked benefits in the production of both irrigated and dryland pastures, as well as hay and silage. Your livestock will be healthier with a lower incidence of bloat, grass tenancy and mastitis. Apply Balance & Grow with calcium nitrate in the spring, and after grazing.

Horticulture – preparing for spring

Whilst it's difficult to predict what Mother Nature will throw at us this season, we can take steps to improve the nutritional balance of our soils and plants, reducing the potential for disease and insect attack. The first step is to set up the base nutrition or soil-mineral balance.

BioAg has developed special blends of solid fertilisers containing optimum levels of nitrogen, phosphorus, potassium, sulphur, calcium and trace elements. These blends can be applied by belt spreading before budburst, or pink bud, as they contain slow release nutrients which prevent losses or "locking up".

Once the foundations for the season have been put in place, we then can concentrate on supplying the nutrients to the actively growing crop and to the soil biology. This is achieved through strategic fertigation and foliar applications, which are based on soil and tissue tests. It is at this stage that we focus on providing plant available forms of calcium and phosphorus, to enhance the balance within the plant.



Tony Cristofaro: Vineyard cleaned up for spring blend application.

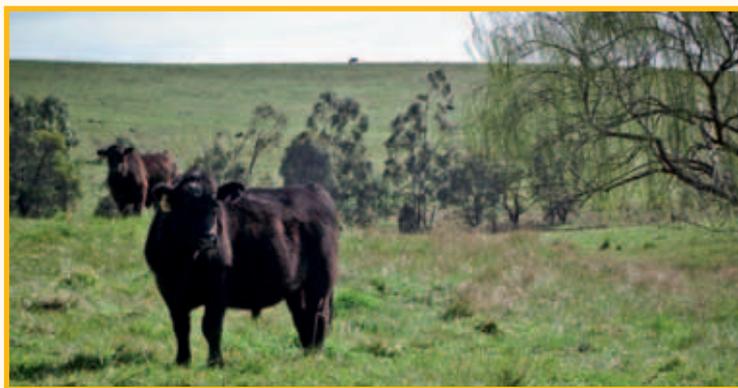
Leeton winegrape and citrus grower Tony Cristofaro

is preparing his vineyards and orchards now for the application of the winegrape and citrus blends.

"We've cleaned up the prunings from under the vines, so that the solid fertiliser will fall directly on to the soil for maximum effect. We'll have the spring blend out by the end of August," he said.

"The application of the solid blend is the commencement of our season-long grape production program. Next, we'll apply Soil & Seed by drip fertigation, and then we'll make a couple of fertigation applications of Balance & Grow during the growing season after bud-burst, followed by Soil & Seed and calcium nitrate as the fruit develops. We make a foliar application of Fruit & Balance after the onset of veraison (ripening) to assist in berry development and the ripening process, and fertigate with Soil & Seed after harvest to prepare the vines for winter.

Lex and Helen Camerer farm cereal crops, breeding cattle and sheep on their 3,500 acre property "Kilgowlah" near Tarcutta (NSW). Right now, they're locking up forage crops and pasture for hay and silage protection. "When we lock the paddocks up, we spray them with a broadleaf herbicide which gives us the opportunity to apply some Balance & Grow together with calcium nitrate and urea. If we have to go into the paddock again for insect control, we'll do the same thing again, as the application costs are quite low, and it bulks up the vegetative growth nicely," said Lex.



"We used the Balance & Grow and urea mix on our grazing pastures quite a lot during the drought years to good effect," he said, "and will use it again this year, depending on the time, economics and moisture availability."

"There's a significant visual difference in the Balance & Grow treated pasture," said Helen. "The plants are much more robust and the plants are standing up better. There's no evidence of insect pressure, and the pastures are in better condition overall, with no bald patches in the paddocks. When we bought the farm 12 years ago, the soil was burned out and quite badly infested with sorrel; that's now all gone as the soil is healthy again. Our stocking rates are higher and the cattle are doing better."

Since 2008, the Camerers have been applying BioAgPhos in the autumn, and Balance & Grow as described above to good effect.

"Our citrus program is similar, with the spring blend solid fertiliser to go out by end August. We follow this up with applications of Soil & Seed at various stages of the growth cycle, as well as foliar applications of Balance & Grow and calcium nitrate from flowering and fruit set onwards, followed by Fruit & Balance towards harvest."

When asked about the benefits of the BioAg programs, Tony said "when I was growing fruit conventionally, I could get the fruit to grow, but I couldn't get it to ripen properly. With the grapes, I'm getting better colour and baume, while maintaining the same to slightly better yields. This summer was particularly wet, promoting the growth of all kinds of fungal diseases. The BioAg foliar treatments slowed up the spread of the diseases so I was able to control them with fungicide applications. Many of my neighbours lost fruit, but I didn't.

"With the citrus, the taste and flavour and fruit quality generally are better, and I'm getting the right brix. The fruit hangs on to the trees better, so I can harvest in a controlled manner without having to rush towards the end of the season. I can also start harvesting earlier, which means cash in the bank earlier too.

"The BioAg programs are a little more intensive and time consuming, and require a bit more agronomic support, but I get that from the BioAg agronomic team. The cost is about the same as what I was spending before, and the benefits are well worth the extra effort."

Distributor Profile: Morello Gypsum & Organic Manures



BioAg Area Manager and agronomist, Marco Retamoza (left), with David Morello

Morello Gypsum & Organic Manures is a Mildura based family business, established in the early 1980s in earthmoving. In the early 1990s, it diversified into fertiliser and gypsum and supply and spreading and, according to manager David Morello, is now the leader in its region in this field, offering a wide variety of tailored organic based fertiliser blends as well as gypsum throughout the Sunraysia.

It is an impressive operation employing 25 staff and a fleet of five B-double tippers, seven delivery tippers and five fertiliser spreaders

David Morello first started working with BioAg's Sunraysia Area Manager and agronomist, Marco Retamoza in 2007. "I'd noticed that we had a few customers that were using the BioAg liquids, so I contacted Marco to introduce myself, and together we've formed a fantastic relationship.

"I was interested in broadening our bulk range to include liquids for fertigation, but hadn't found the right kind or products or organisation with which to become associated. As a result of that meeting, I realised that I'd identified a real opportunity to establish a relationship with BioAg, focusing on utilising the key strengths of each business in order to grow them both.

"In 2010, in consultation with Marco, we introduced MACROfert+, a proprietary blend combining conventional and organic fertilisers including BioAgPhos, sulphate of ammonia, gypsum, composts and manures. Marco prescribes this blend as the base for many of his BioAg nutritional programs in the Sunraysia."

In 2011, Morello became a distributor of the BioAg liquid fertiliser range after becoming convinced of its effectiveness over the previous few seasons. The business plans to become a "one stop shop" for fertilisers by including a range of products for fertigation, and also plans to expand into the Riverland region of South Australia.

For more information about Morello Gypsum & Organic Manures products and services, including BioAg blends and liquid products, call David on 03 5022 2717 or 0407 234 080.



Part of the Morello fleet

The Indian Trials: Bananas

Over the past few editions of BioAg Country, we've kept you up to date with our trials programs in Sri Lanka and India, showing how we've gone with the rice crops and various types of vegetables. By now, our Cavandish banana trials in West Bengal have been running for more than three months, and we have just received a report from our collaborators at the Centre for Strategic Studies, Kolkota on the progress over the first 100 days.

India is the largest banana producer in the world, accounting for over 20% of global production at 75 million tonne, grown on over 0.5 million ha of land. Over 90% of the

banana production is for the domestic market, however India exports approximately 15,000 tonne of fresh bananas into the Middle East, USA, Iran, UK and Canada.

Bananas are grown under wide range of climatic conditions from the tropical south to the sub-tropical north. In the past 10 years, there have been significant improvements in the sophistication of the industry with over 20% of plantings being derived from tissue cultures (there are over 100 tissue culture laboratories in India, producing 10 million plants a year), and the uptake of drip irrigation by 30% of growers. Most of the drip irrigated bananas are located in the state of Maharashtra, where the average yield is 58 tonne/ha, compared with the national average of 32.5 tonne/ha.

Observations at 90 Days After Planting

Treatment	Mean Plant Height (cm)	Mean Stem Girth (cm)
T1 (Control)	183	37
T2 (BioAg Treatment1)	194	46
T3 (BioAg Treatment2)	183	46

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BioAg hosts end-of-season horticulture function



MD Anton Barton making his address to the guests



Guests at the Yoogali Club enjoying the buffet hosted by BioAg

BioAg recently hosted a function at the Yoogali Club in Griffith to thank the citrus, wine grape, vegetable and other horticultural producers for their support during the past year. Greeting the 70 guests were agent Joe Romeo and agronomists Guna Gunawardena and Daniel Hill.

In his address after the buffet dinner BioAg Managing Director, Anton Barton, outlined the firm's historic connections with the MIA and spoke about the key events of the past 12 years of operations.

He paid tribute to the hard work of the growers in the past season of appalling weather conditions and very low prices, and said that he hoped that the better yields achieved from their BioAg nutritional programs would serve them well in the forthcoming summer.

The Indian Trials: Bananas cont.



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The initial plant establishment was faster in BioAg treated plants, although the control plants caught up by the 100 day mark. However, the stem diameter was found to be significantly higher in BioAg treated plants. Greater stem diameter has a number of benefits in banana plants, including a higher number of vascular tissues (improving nutrient and water uptake), and improved stem strength (important in windy and



Measuring the tree heights and girths at 90 days after planting

cyclonic locations, as we've experienced in northern NSW and southern Qld).

At this early stage of the trial, the researchers observe that the advantages of the BioAg treated banana plants are likely to be:

- Better plant survival rates during the tissue culture hardening phase
- Better vegetative growth (leaf area, stem growth and stem strength)



- Greater calcium uptake yielding stronger plants and better post harvest properties
- The inhibition of pathological microbes such as *Fusarium oxysporum* and *Erwinia*).

The trial will continue for another six months, with continuous measurements of growth, and assessment of the fruit yield and quality.

Vale Andrew Hacker

We were sorry to lose our cadet agronomist last month, but he was offered a position with a large corporation as a research agronomist much closer to his family home in western Queensland. Whilst we're sorry to see him go, we wish him well in his new career.



Better soils. Better crops. Better stock.™

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