

Mike Stephens and Associates Newsletter Autumn 2010



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Welcome to another Mike Stephens and Associates newsletter, the first for 2010. The start of the year has been reasonably busy around the company as we introduce three new consultants to the team. James Whale and Nathan Scott, both based at our Yendon office and Andrew Daley at our Harden office. We thought it only fair to drop them in the deep end and ask each of them to write an article for this newsletter. The results are in the following pages. We trust you find them full of useful information.

Feel free to contact Andrew, James or Nathan (their details are associated with each article) to discuss how they can assist your business in the areas of sheep and crop production, or business analysis and planning.

Mike Stephens – Managing Director

How to get the best out of Glyphosate

Andrew Daley – adaley@msanda.com.au or 0427 417 653

Andrew has a Bachelor of Agricultural Science (Hons) degree from the University of Sydney. He has recently joined MS&A following 4 years as a commercial agronomist and store manager of a large CRT outlet in a mixed cropping and livestock area.

Andrew will be providing agronomic advice and whole farm planning for MS&A clients in Southern NSW.

Andrew has also spent a considerable amount of time working on the family farm and many large properties in the Boorowa region.

Glyphosate may have been available for forty years, but it was surprising to find this summer that many farmers are not getting the most from it.

One of the most important and widely used chemicals in Australian agriculture, glyphosate has been a major contributor in the move from conventional farming to minimum till, revolutionising the agricultural industry.

Being so widely used for so long, you one would think that using it correctly would be routine, but this is often not the case.

There are five key factors which affect optimal use:

1. Water quality;
2. Boom spray setup;
3. Rate and spray timing;
4. Mixing partner; and
5. Resistance.

Water quality

The first and most common problem relates to poor water quality. Dirty water (dam water) or hard water (bore, creek and water from concrete tanks) greatly increases the likelihood of poor results.

Dirty water generally means there are a lot of free particles in the water such as clay. Glyphosate will attach to these particles prior to leaving the tank, lowering the concentration of active chemical hitting the target plants. If you can't see a 20 cent coin clearly at the bottom of a 20L bucket of the sample water, avoid using it, or condition the water with alum sulphate.

Similarly, hard water can have positively charged divalent calcium and magnesium molecules which attract and tie up glyphosate molecules. Problems associated with hard water are best corrected by adding water conditioners like technical grade ammonium sulphate (AMS). AMS knocks out the divalent cations, saving the glyphosate from a similar fate.

It's highly recommended that you have your water tested by a NATA accredited laboratory every few years, so that the appropriate quantities of water conditioners can be added – when necessary.

Some AMS formulations carry an additional registration as an adjuvant. The products carrying this label also help speed up both absorption and translocation of glyphosate. Just remember, all crystal and liquid

forms of AMS can be used as conditioners but only those with an additional label extension can be used as an adjuvant, even when they are often chemically equivalent.

Spray Setup

The second major problem results from poor boom-spray setup. Different agricultural chemicals require different droplet sizes in accordance with the information listed on their respective labels. Coarse to very coarse droplet sizes are prescribed on most labels for summer spraying and cannot be provided via a conventional flat-fan nozzle.

Droplet size can be changed by using different nozzles and water pressures. Remember - the nozzles that came with your booms are often not the right ones!

In most situations labels prescribe an AIXR or Hardie Minidrift nozzle to get a coarse to very coarse droplet. In some situations a more complicated nozzle will be needed and should be chosen with specialist support. Labels also prescribe a maximum ground speed and ideal droplet size. Ensure your speed and pressure are within range – if not adjust your machine and attitude.

Air induction nozzles slow down and flatten out the droplets increasing the target area to hit the plants. They also provide a tighter droplet spectrum with fewer fines generated and therefore less potential for drift. Water rates of between 25 - 100L can be used but remember larger droplets rely on higher water volumes for coverage.

Remember to check the label requirements of mixing partners, this is especially important with phenoxies (mostly coarse to extra coarse) or contact desiccants like Goal[®] or Hammer[®] which rely on a fine to medium droplet.

Also be aware that many chemical companies are updating their product labels and prescribing a nozzle as well as a droplet size.

Spray timing

Spray timing is also important when using glyphosate. If plants are showing excessive stress it is highly unlikely that they will take in the chemical. When spraying in summer avoid the heat of the day. If there is dew, you can often spray as long as it is a rising dew, as this will increase the amount of water you are spraying with. Always avoid spraying on a falling dew as this will cause spray to run off.

Always check and record the Delta T's and windspeed. When Delta T's are out of the range from two to eight do not spray because you are off label. The applicator is responsible for keeping the chemical in the area it is intended and by sticking to the labels you are sticking to the law.

Mixing partners

From time to time glyphosate can go gluggy in the tank; this is generally seen when using mixing partners. Always check the label for compatibility; if you are in doubt call your local agronomist or reseller and they will steer you in the right direction. Mixing order is important when using additives.

Remember the following steps when doing multiple tank mixes:

1. Fill tank to 70% with (clean) water
2. Add water conditioners (e.g. ammonium sulphate and acidifiers)
3. Add WDG products (e.g. Diuron[®] granules)
4. Add suspension concentrate products (e.g. Diuron[®] Liquid)
5. Add emulsifiable concentrate products (e.g. Triflur X[®], Goal[®])
6. Add soluble liquid products (e.g. MCPA[®])
7. Fill the tank to required water level
8. Add *glyphosate based products*
9. Add adjuvants and top up tank (e.g. BS1000[®])

You can spike glyphosate with many different partners; without going into this in detail remember not all mixes are registered so check with your agronomist on their safety. Remember when using *oxyfluorfen* (Goal[®]) always put it in before the glyphosate. Not remembering to do this is a common mistake!

Often the best spike for glyphosate is more glyphosate. Glyphosate is a very cost effective chemical with recent history showing prices ranging between \$4 - \$16 per litre, with prices currently close to the bottom of that range.

Weed resistance

Glyphosate resistance is now a problem with some weeds. This can be caused by over using glyphosate, no integrated pest management (IPM), poor application, low rates and only using a single mode of action.

To prevent resistance it is important that IPM is used. This could involve swapping glyphosate for Sprayseed[®] or Gramoxone[®], spiking with chemical from another group with a different mode of action (e.g.

LVEster 680[®] or Goal[®]), silage and tillage. Using these techniques in rotation with glyphosate will decrease the chance of resistance.

There are many different forms of glyphosate on the market: those derived from different glyphosate salts, some with dual salts, others containing water conditioners/adjuvants and in both dry and liquid forms. Some are in formulations that are compatible with amicides. The range and type of formulations exceeds some of the marketing claims, which in a way has led to the present observed confusion.

Finally, when using Roundup Ready GM canola you are obligated to use the Roundup Ready glyphosate registered for that purpose. Overall, whatever glyphosate product you use follow the label and the advice from this article and you are more likely to get the best out of glyphosate.

Ewes ain't ewes

Nathan Scott – nscott@msanda.com.au or 0409 493 346

Nathan has a background in prime lamb production and will be particularly looking to develop Precision Sheep Management (PSM) concepts and adaptation within the industry. Nathan brings experience from working within Rural Merchandise Sales, and as manager of a prime lamb enterprise.

With the declining national sheep flock, the value of breeding ewes continues to climb. But if you are considering buying more ewes to rebuild your own flock, do you know what you are buying? It's not exactly the case that a ewe is a ewe is a ewe.

The Maternal Sire Central Progeny Test (MCPT) conducted in 1997 illustrated the enormous variations within individual sires and breeds. Within Border Leicester sires alone the MCPT discovered a difference in gross margin (GM) of \$40 per ewe per year between the top and bottom performing sires. The best of the Border Leicester rams were found to produce \$20 more GM/ewe/year than the breed average. If you apply that difference to a flock of 2,500 ewes, it represents a loss of \$50,000 per year, just from purchasing average instead of top rams within the breed.

The program also discovered vast differences in other traits such as faecal egg counts within individual sires. It gets you thinking... "What am I buying?"

When purchasing first-cross ewes, unless you are a repeat buyer from a particular vendor, there is generally little information available about the sires used, previous flock performance or the amount of selection pressure applied. In fact, we really have little idea about what we are spending big dollars on.

While producers will often agonise over the purchase of terminal rams, comparing studs and individual animal ASBV's, in reality the amount spent on rams pales into insignificance in comparison to that handed over in the saleyards for young ewes. In years where replacement ewes are plentiful, buyers have a much greater opportunity to select good quality ewes with known sires and history. With the current scarcity of ewes

however, developing a self-replacing prime lamb flock is another option worth considering.

The advantages of a self-replacing flock are:

- Known genetic potential of replacements
- Reduced risk of introducing disease onto property
- Knowledge of history (eg. health, growth rates etc)
- Increases the amount of selection pressure possible within flock
- Increases the rate of genetic gain

There are three main options for setting up a self-replacing flock:

- Dual-purpose enterprise – running a flock of Merinos with a portion joined to a maternal breed eg. Border Leicesters (traditional method)
- Dual-purpose sheep – self-replacing meat/wool flock eg. Dohne, Centre Plus Merino etc. (growing trend)
- Self-replacing composite flock (commonly consisting of two or more breeds of Merino, Border Leicester, East Friesian, Finn, Texel, Coopworth, Romney etc.)

There has been huge growth in the dual-purpose sheep population within Australia, in particular breeds such as Dohne and SAMM (South African Meat Merino). While the popularity of the dual-purpose breeds has predominantly been due to their wool and meat production traits, it is their use as a self-replacing flock which appeals to many.

The self-replacing composite lamb flock is also receiving renewed interest from lamb breeders. In the minds of most producers, the word 'composite' is often associated with an animal that looks

more like a goat than a sheep. It is this reputation that has seen limited acceptance of self-replacing composites as an option for lamb producers in the past.

The significant term to focus on is 'self-replacing' rather than composite. The degree to which you wish to head down the composite path in search of the perfect dam will depend upon individual circumstances. It may just be that you reduce your need to purchase first-cross ewes from every year to every five to six years, using them as a base from which to breed replacements. Alternatively you may run a small flock of purebred animals of a particular breed, removing the need to purchase ewes entirely. Self-replacing systems can take many and varied forms in order to suit an individual enterprise.

One of the drawbacks of a self-replacing flock in the past has been the loss of production incurred through having to grow out replacements to a joining age of 18 months. In recent years producers have had considerable success lambing ewes at 13-15 months of age, reducing the need to hold ewes for a longer time before they lamb. The success within first-cross ewes and, in particular, composite ewes has been significant.

Additional management attention is required to achieve success, however this concept can greatly improve the profitability of an enterprise. Coupled with the use of more precise management techniques, self-replacing flocks find themselves in an exciting position, contributing significantly to improvements in productive performance over the coming decade.

Where might the greater selection pressure offered by self-replacing composites have us in five to ten years?

- Reduced mature ewe weights/reduced maintenance requirements
- Higher stocking rates
- Higher weaning % (>130% flock average) Target 150%
- Higher growth rates > 450 gm/day
- Aiming to wean at least the equivalent of 100% of the ewe's weight (eg. 70kg ewe, weaning two 35kg lambs at 100 days or 80 kg ewe weaning two 40 kg lambs at 100 days)

Within lamb production, there is no single formula that holds the key to long-term success and profitability. Enterprises vary greatly and it is for this reason that it is extremely important a production system is designed to best suit every component of an enterprise. While a self-replacing flock may not be the best fit for your system, understanding the significant implications of selecting replacement stock may help you to make better purchases in the future. MS&A can help you discover your best production system to keep you at the forefront of lamb production.

So where will your flock be in 5 to 10 years?

Investing in Super

James Whale – jwhale@msanda.com.au or 0428 374 046

James has a strong background in agricultural extension, where previous work with the Department of Primary Industries focussed on pasture productivity and sheep production systems. Prior to his employment with Mike Stephens and Associates, James managed a large-scale merino grazing operation in the southern tablelands of New South Wales. James has commenced a Masters Degree with the University of Melbourne with the support of the Sheep CRC. The research based Masters will investigate the biological implications of joining merino ewes to lamb at between 12 and 15 months of age and an economic analysis of the technique for commercial production systems.

James also coordinates Bestwool/Bestlamb producer groups and will also be available for one-to-one consulting, specifically in assessing pasture productivity, manipulating flock/herd structure to efficiently utilise pasture growth and managing ewe condition to meet production targets demonstrated by the national Lifetime Wool project. James is also skilled in farm budgeting and methods for prioritising on-farm investments.

The decision to fertilise

A grazing business is faced with a range of options for fertilising pastures each year. Do we need to fertilise? If we do fertilise, will this be a good investment compared with other investments we could be making this year?

Depending on individual circumstances, the answers to these questions are likely to be vastly different.

Independent of your situation, we know there is a strong relationship between plant available phosphorus and the amount of pasture that will grow on a given site each year. This is fact! In south-eastern Australia, we are fortunate in being able to rely on decades of pasture research that has determined these relationships.

The Better Fertiliser Decision Making Project was designed to compile many years of past fertiliser work and develop fertiliser recommendations based on previous field experiments for different regions across Australia. In the case of phosphorus, the project determined a formula describing the relationship between available plant phosphorus (Olsen P) and expected plant growth (% of maximum yield). Coincidentally, this single formula was found to be applicable across a wide range of geographic regions and soil types in Australia.

Individual results from previous work analysed by the project and the Olsen P/plant growth formula (depicted by the curved line) are shown in Figure 1.

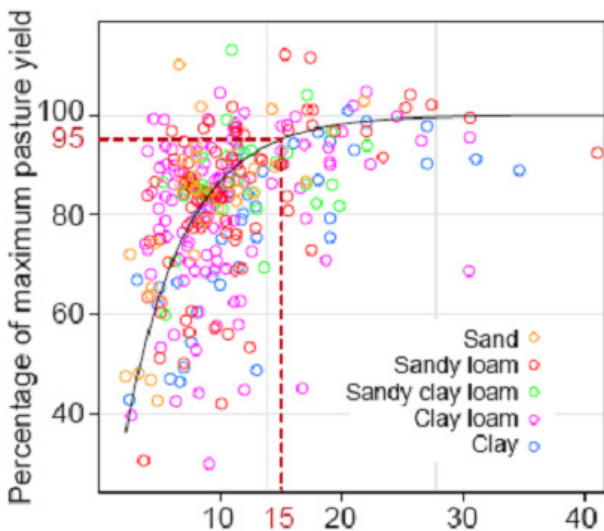


Figure 1: Regardless of soil type, the Better Fertiliser Decisions Project determined the critical Olsen P value is 15

13.8 DSE/ha $((400 \times 9) / 260)$.

If you determine that your stocking rate targets for this season are lower than you have managed in the past, you may be in a good position to forego phosphorus applications. In fact, in the situation where phosphorus applications result in extra pasture that cannot be converted into profits from additional stock, fertilising is likely to be a poor investment decision this season.

How much to fertilise?

To answer this question a grazing business needs to know the stocking rate that it intends to run during the year, i.e. the target stocking rate. The target stocking rate is often influenced by what stock are on hand. This year, numerous sheep producers may be reluctant to purchase replacement animals at today's historically high values. For this reason, intended stocking rates may be lower than usual in these businesses. In the same way, adjusting the amount of land allocated to cropping will influence target stocking rates.

Nonetheless, it is important to compare your target stocking rate with the stocking rates you have managed in the past. Many producers will have years of experience to draw on and can calculate the number of stock they feel comfortable running on a given area. If you multiply the number of stock by the DSE for that stock class, and divide this figure by the intended grazing area in hectares, this will give the target stocking rate (DSE/ha). For example, 400 nine-month-old heifers allocated to 260 grazing hectares, DSE rating of 9. The target stocking rate is

If the planned stocking rate is similar to past experience, a fertiliser rate in the order of 0.8 kg P per DSE/ha will be necessary to maintain pasture growth potential. The equivalent application rate for a range of fertiliser product options can be easily determined. For example, if you wanted to maintain a 10 DSE/ha stocking rate, you would multiply 0.8 and the stocking rate of 10, then divide this figure by the concentration of phosphorus for each product. The phosphorus concentration for some common phosphorus fertilisers and the amount of product required to maintain phosphorus levels at a 10 DSE/ha stocking rate are shown in Table 1.

Product	P concentration	P percentage	Product required (kg/h)
Single Super	0.086	8.6%	93
Triple Super	0.20	20%	40
Goldphos 20	0.16	16%	50

Table 1. Quantity of product required per annum to maintain phosphorus levels at a 10 DSE stocking rate.

Note: Product choice will depend on the need for sulphur as well as the price comparison of the above products.

For an operation intending to run higher stocking rates than previously experienced, a phosphorus fertiliser program is likely to be a high priority and capital applications above maintenance requirements may be considered.

Improving the returns from phosphorus

There is massive variation in soil fertility between paddocks. If you don't soil test it is impossible to address paddocks based on their soil phosphorus levels.

Interestingly, some of the highest producing paddocks on individual properties are well below critical soil phosphorus values. This can occur because paddocks that grow more feed and sustain higher stocking rates have a larger amount of P leaving the farm in the form of wool, lamb, beef or hay/silage. If phosphorus fertiliser programs fail to address the higher maintenance demands of more productive paddocks, available P depletes at a faster rate compared to less productive paddocks and can lead to substantial variations in P levels between paddocks over a number of years.

Paddocks which are at, or above critical P values will have no response, or very little response to additional P applications (as shown in Figure 1). In contrast, paddocks below critical P values are likely to give the best responses to phosphorus application. For this reason, an audit of soil P levels across paddocks can improve returns on phosphate fertiliser investment by targeting paddocks that will give the greatest growth response from phosphorus application and avoiding paddocks that won't.

Assessments of pasture composition and density can also be used to refine decisions on where phosphorus is best applied. Paddocks with high levels of unproductive species or low pasture densities will always give a lower return on investment when compared with more favourable paddocks. In some instances, there may be better economics in renovating these pastures instead of fertilising.

MS&A have a range of specific skills and tools that can help you compare various on-farm investment options. We can also assist in the preparation of fertiliser programs tailored to your production system for improved returns on fertiliser investment.

Skill shortages can lead to staff retention issues

There is a lot of talk in the media (again) about the shortages of skilled staff within the agricultural sector. This is not a new revelation to the industry, but it does make sense to think what this shortage means or could mean to your business moving ahead. With a reported shortage expected to add another 20,000 people (taking the amount to approx shortage to 100,000 people) required for both farm and supply chain roles. There will be a strong demand for those who are currently skilled up and available to take on positions vacant. So, although your current staff may appear satisfied and not necessarily looking over the fence, our experience over recent years has seen a lot of direct headhunting from other employers or staff, seeing the opportunity to move into a new role.

Now is the time to focus on retaining the staff valuable to your business. One of the best ways of doing this is by conducting performance reviews. These reviews need to not only focus on the performance of the staff member, but more importantly on the performance of the business as an employer. This is an opportunity to get feedback from employees on how the business can better suit their career development, job satisfaction and address any niggling issues.

MS&A Employment provides a performance review facilitation service, to ensure both the business manager/owner and employees are able to communicate the mutually important issues during the process. This service happens on the property and is followed up with appropriate documentation and recommendations for the businesses HR systems improvement. We find this process aids in addressing issues and leads to happier and more productive staff, decreasing the risk of staff leaving.

To find out more about the service or book at time for a facilitated performance review over the coming months, contact Ben Reeve on 03 5341 6100 or email breeve@msanda.com.au



Mike Stephens & Associates Pty Ltd

96 Harbours Road

Yendon Vic 3352

p (03) 5341 6100

f (03) 5341 7630

msanda@msanda.com.au