

Sheep Notes



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Welcome to the summer/autumn edition of SheepNotes. Our thanks to the Sheep and Goat Compensation Fund and Agriculture Victoria for funding this industry newsletter for the next three years. We hope this edition will bring you some useful and interesting reading. Most of the sheep producing areas in Victoria have had a good spring and, for some, quite a wet summer, which brings its own challenges. Strong prices and good pasture growth has certainly set industry up for a good start to the year.

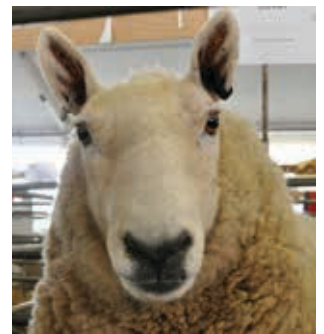
We are asking for some important feedback in this edition. Firstly, we have introduced a 'digital tip' section (thanks to our own Fiona Baker for the cartoon which will feature with each edition) and would love to hear from you, with any simple tips that you have used that others might find useful (see the article for how to) and yes, there are prizes! Secondly, we need to plan on how best to distribute and fund this newsletter into the future. We need your help so please read the box on this page and provide your feedback.

The editors

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SheepNotes – how do you want SheepNotes newsletter delivered?



We require your feedback on how best to provide this newsletter to all Victorian sheep producers. It is of course much cheaper to produce and distribute a digital newsletter, however we have been told by many readers that they prefer a hard copy. Much of the value of this newsletter is that it reaches a large and diverse audience, and we hope to continue to do so and to supply useful information, but also timely 'need to know' information relating to industry, biosecurity, welfare and requirements.

We will be looking to contact you directly and/or with a survey to obtain your feedback on how we can best distribute this newsletter into the future.

If a hardcopy newsletter is definitely your preferred option, please contact Jane Court on 0436 606 742 or jane.court@agriculture.vic.gov.au and include your PIC number so we can ensure we have the right address.



Perennial ryegrass staggers and phalaris staggers

Elle Moyle, Hamilton District Veterinary Officer, Agriculture Victoria

Perennial ryegrass staggers

The current extraordinary season of rainfall and pasture growth leading into late summer and autumn may be setting us up for a diabolical perennial ryegrass staggers (PRGS) year in many areas of the State.

PRGS is seen when sheep graze tall, dry ryegrass (*Lolium perenne*) particularly in late summer and autumn, and often following sufficient rain to stimulate limited pasture growth. We have previously seen similar years in 1986 and 2002, when PRGS was prominent.

PRGS is usually observed as temporary incoordination (hence the name 'staggers') in sheep and cattle. This occurs when endophytes (fungus) are established in older stands of perennial ryegrass pastures. The endophytes produce a toxin that protects the plant from insects and helps with establishment, but also interferes with the nervous system of sheep.

Sheep, cattle and horses are all susceptible however PRGS is usually seen more in younger animals. Weaners should be closely monitored during this time.

PRGS develops within 7–14 days of the ingestion of toxic pasture.

First signs are usually fine tremors of the head. More severe signs are seen with exercise or under stress, such as mustering. These include stiff movements and incoordination, often resulting in collapse with stiffly extended limbs. The ingested toxin can also induce high body temperatures, so sheep may try to cool themselves in dams and troughs, sometimes drowning or otherwise injuring themselves in the process.

There is no specific treatment for PRGS. It is best to remove an affected flock from the source of the problem by moving them quietly (without a dog) into another paddock. It is important to avoid stressing affected stock, as this will worsen their condition. Animals will recover once removed from the pasture for one to two weeks. Cases will cease following a significant break in the season and onset of cooler weather.

If exposure to toxin is prolonged, permanent neurological damage can occur.

PRGS could be a significant issue this season as a result of the rainfall seen across parts of Victoria in the past six months, which has led to significant pasture growth and standing feed bank going into summer. It is recommended that you **act early** to graze off your ryegrass to prevent having tall, dry ryegrass in late summer.

Perennial ryegrass staggers (PRGS)

- Great season means an increased risk of PRGS.
- Highest risk in March–April with high carryover of dry ryegrass.
- Graze ryegrass paddocks in early summer to reduce risk.
- Inspect mobs twice weekly from mid-January for signs.
- If you see signs, **immediately and quietly** remove flock from paddock (very slowly, with no dogs).



▲ Sheep with ryegrass stagger

◀ Perennial ryegrass after summer rain

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Phalaris staggers

Phalaris staggers (PS) is a common syndrome that is associated with the intake of green, actively growing phalaris at a time when it contains toxic alkaloids.

The risk of PS is associated with soil cobalt levels (marginal or deficient in cobalt), animals' access to ingestion of soil and the amount of phalaris in a pasture.

Typically, PS is of low risk in summer however it may occur at any time of the year, especially late autumn/winter. If you have had significant summer rainfall that has either led to early growth of phalaris or the rain has flattened tall grass that may reduce the level of soil ingestion (and thus dietary cobalt), then you may experience PS in your flock earlier than usual.

Clinical signs of PS may occur after 14 days of grazing green, actively growing phalaris and can occur up to five months after sheep are taken off phalaris pasture. The clinical signs include head nodding and bunny hopping with a wide hindleg-based gait. These signs are often noticed when mustering or handling.

Mildly affected animals may recover; the chance of recovery is higher the more rapid the onset of signs. If the symptoms are more severe, there is no specific treatment, and the animal should be euthanased.

PS can be prevented by cobalt supplementation: two intraruminal cobalt bullets (will prevent PS for three years) or cobalt foliar sprays (annually soon after the autumn break) are the most effective ways to prevent PS in high-risk areas.

Phalaris staggers (PS)

- Associated with grazing green phalaris for at least 14 days, combined with low cobalt intake
- Ingested soil is a major source of dietary cobalt
- La Niña increases summer risk of PS, particularly if rain events cause enough matting of dry feed to prevent soil ingestion
- Prevent with cobalt bullets every three years or annual pasture spray

Farmer tips on autumn saving

Bindi Hunter, Agriculture Victoria, Warrnambool

The Glenthompson BestWool/BestLamb group's autumn saving demonstration was presented in the summer 2019 edition of *Sheep Notes*.¹ Autumn saving involves locking up paddocks after the autumn break until feed on offer (FOO) is sufficient for lambing ewes (or other classes of stock). The host farmers found considerable benefits for pasture growth, but also identified challenges in managing sheep in containment after the break. This article provides insights from two producers on how they successfully manage autumn saving every year.

Darren and Kylie Schurmann began autumn saving 13 years ago on their 690 ha property 'Kingaroy' at Strathkellar, near Hamilton, where they manage 4500 Primeline composite ewes. They use autumn saving annually to establish a feed wedge for lambing and to help manage ewe condition in the lead-up to lambing. They use the practice for all pregnant sheep except for ewe-lambs and ewes carrying triplets.

Why do you autumn save?

Autumn saving enables us to reliably run high stocking rates year-on-year and puts us in control over ewe condition to maximise ewe reproductive potential. We condition score ewes every two weeks in containment and adjust the feed ration to manage their condition.

It allows us to protect leaf area after the break to optimise pasture growth. We also use urea to increase FOO while soil temperature and leaf area are optimal.

We spend far less time feeding stock when in containment and animal treatments are quicker and less stressful for our ewes.

Ewe management

Our ewes are joined at condition score (CS) 3.5 for a four-week joining period and go into their pens immediately after scanning, usually in early April each year. They are allocated to pens depending on whether they need to maintain, lose or increase condition and according to lambing status. The area has nine pens, ranging in size from one and a half to four and a half hectares. They are located within a few hundred metres of sheep yards and feed storage, on a stable, well-drained and sheltered site. We give our ewes as much space as possible in these pens, which works out at around one ewe per 50 square metres.

We aim to have twin-bearing ewes at CS 3–3.2 and singles at no more than CS 2.7 in the lead-up to lambing.

Being able to regulate ewe condition is key to autumn saving and nearly as important to us as the value it offers for bulking up paddock feed. You can get a lot of grief if ewes aren't in optimal condition, particularly fat composites that will run into issues with difficult and slow births. Now, when we lamb down a mob of ewes, we might only put our hands on one out of 100.

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Containment pen, March 2020

Ewe hoggets go into separate containment areas and are fed a ration with higher protein.

Twin-bearing ewes have the largest and most sheltered pens and are released no later than 14 days before lambing. Our singles are scanned for early/late lambing and are kept in containment until the due date for early-lambing ewes or when we see our first lamb.

Feeding

The ewes are fed hay on Mondays, Wednesdays and Fridays, and barley on Tuesdays, Thursdays and Saturdays. All pens have ad lib straw, and we give our mature twinners a high calcium/magnesium supplement ad lib.

We carry out all pre-lambing treatments three weeks before lambing, in small lot sizes that allow the ewes to be in and out within a few hours.

Before release into their lambing paddocks, the ewes are fed grain in the morning. They are then counted directly into their lambing paddocks. They get three more feeds on alternate days, at full ration, and then two-thirds and one-third of their ration, as they adjust to their lambing paddocks. We also provide at least one fresh bale of straw or hay, depending on the paddock size.



Lambing paddock, June 2020



Containment pen sown for hay, spring 2020

What are your top tips for autumn saving?

- We are autumn saving, not feedlotting or drought feeding, so we give the ewes as much space as we can afford to. One ewe per 50 square metres works for us.
- We feed our sheep on the ground, which can lead to some wastage if it gets wet, so it's vital to make sure the twinners, in particular, are maintaining condition and getting their required nutrition.
- Resist the temptation to let them out too early, as that will reduce potential FOO. Grass grows grass.
- Feedtest all feeds (except straw).
- Be prepared to be flexible. When severe weather is imminent, we will take twin-bearing ewes out of pens for a couple of days and run them in a few paddocks allocated to singles.
- The pens have multiple benefits. We use them for weaning, inducting lambs for a feedlot, hay production, and feeding lupins to rams and teasers before joining.
- The positives far outweigh the negatives. Most importantly, **you are in control**.

Andrew and Michelle Edgar have been autumn saving on 'Cuyuac' at Nareen for five years. Autumn saving helps to manage groundcover over late summer/autumn and build a feed wedge to ensure that FOO targets are reached for lambing through to spring when pasture growth increases.

When do sheep go into containment and in what numbers?

We take our sheep off pastures and use containment pens when groundcover reaches 1000–1200 kg dry matter/ha. The earliest that sheep have gone in is mid-February, although the average would be early March.

All our adult ewes (6000–7000 animals) go into containment, and the ewe lambs stay out. We have six containment pens around 0.7 ha (70 m × 100 m) in size, and we run 1000–1500 ewes per pen, which works out at around 4.5–7 square metres per sheep.

Why do you do it?

Autumn saving allows us to build a feed wedge to ensure adequate feed for lambing. The highest feed demand for our system is in September, when all our lambs are on the ground and starting to eat pasture. Developing this feed wedge means that we have good pasture levels all winter and into early spring. Autumn saving helps us support higher stocking rates.

We also use autumn saving to maintain good groundcover and to protect new pasture shoots.

Having ewes in containment reduces our workload because having all the sheep in one spot halves our feeding time. Time spent mustering for scanning and drenching is also much reduced. It also decreases sheep energy requirements, as less wandering saves energy.

What are your challenges and wins?

Wet conditions after the break are the most challenging situation, particularly if you are feeding on the ground. In the past, we've moved mobs to bigger sacrifice paddocks to allow containment pens to dry. We've recently built a trough system that can accommodate 1000 sheep at a time. Using rubber belting, we've made a 100 m trough for \$1200. Twinning ewes will be given ad lib access to self-feeders when pens get wet. If the trough system works well, we will build more. We will also build more pens as we move towards 10,000-plus ewes.

Sheep can be contained for long periods and remain healthy and happy. We have had sheep in containment for up to four months, with no issues. Post-break is the most difficult time, but the most important time to have sheep off pastures as pastures grow and reach our lambing target of more than 1200 kg DM/ha (green).

Water is very important in containment as 6000 ewes can potentially drink **up to** 60,000 litres in a day. We have installed a Farmbot water sensor, which sends a message to my phone if the tank is dropping rapidly or gets below a trigger point. The water system for the containment area is a 100,000 litre tank filled with an electric pressure



6,500 ewes in containment (2020)

pump from a 30 megalitre dam, which is very reliable. We also have a backup solar system on another large dam that can fill the tank if power is out or a problem occurs.

We also use our stock containment areas during scanning and shearing, and for weaning calves. The rams graze the pens when they are not in use for other purposes.

What are your feelings this year, given the great spring and wet summer? Will you still autumn save?

Definitely. At this stage, sheep will be going into containment in early March.

Further reading

Stock containment area requirements, Agriculture Victoria: <https://bit.ly/304ftEz>

Autumn saving demonstration summary: <https://bit.ly/3qbkk1A>

- 1 The demonstration was funded by Meat and Livestock Australia and Agriculture Victoria, and run by Andrew Whale.



March 2020 pasture getting a rest with sheep off this pasture and in containment



Post-containment pasture, June 2020

NEXUS project: exploring profitable, sustainable livestock businesses in an increasingly variable climate

Dr Brendan Cullen, Senior Lecturer – Grazing Systems, University of Melbourne

The NEXUS project is a collaborative project across Australia that is exploring what farmers are doing and can do in the future to affect profitability, productivity, greenhouse gas mitigation, carbon sequestration and consumer perceptions of livestock businesses. The climate of eastern Australia has changed over the past two decades – for example, increasing temperatures and heatwaves, and declining rainfall in south-eastern Australia – requiring a re-evaluation of livestock production systems.



NEXUS reference group North East Victoria

Integrated assessments of seven farm case studies from Tasmania to north Queensland will be conducted to identify systems adaptations that are profitable, environmentally sustainable and targeted towards future market opportunities. A reference group in each region, made up of local farmers and consultants, will guide the research teams to ensure that the systems and adaptation options examined are relevant and findings are robust. Two farms in Victoria are involved in this case study stage – one in North East Victoria and one in East Gippsland.

Adaptation options will explore:

- feedbase (eg improved legumes, summer active pastures, deep-rooted forages)
- animal management and genetics (eg altered management calendars)
- business models (eg enterprise mix – livestock:crop, alternative markets such as carbon)
- technology and infrastructure (eg seasonal feedlot, virtual herding, seasonal forecasts)
- landscape management (eg raising soil fertility, use of trees on-farm).

For more information, see www.piccc.org.au/research/project/NEXUS.html or contact Brendan Cullen (bcullen@unimelb.edu.au).

The NEXUS project is funded by Meat & Livestock Australia's donor company, the University of Melbourne, the University of Tasmania and CSIRO, from March 2020 to June 2023. It is a multiparty program of collaboration across the Livestock Productivity Partnership (www.mla.com.au/about-mla/what-we-do/mla-donor-company/lpp), including the funding organisations, the University of Southern Queensland and the University of New England.

2019–20 Livestock Farm Monitor Project results

Sam Henty, Agriculture Victoria, Bendigo

In 2019–20, the Livestock Farm Monitor Project (LFMP) provided 94 participating Victorian sheep, beef and cropping producers with detailed financial and production performance information. The LFMP collated the individual business performance information of all surveyed farms to provide the insights in the annual report that is now available on the Agriculture Victoria website (<https://bit.ly/2Po2wDv>).

Average farm profits increased in each region in 2019–20 after two consecutive years of decreases. Surveyed farms in South West Victoria recorded the highest average returns for the state, and farms in Gippsland and Northern Victoria had the largest annual percentage increases. Regardless of the average, each region had participant farms that recorded both high returns and negative returns (Figure 1).

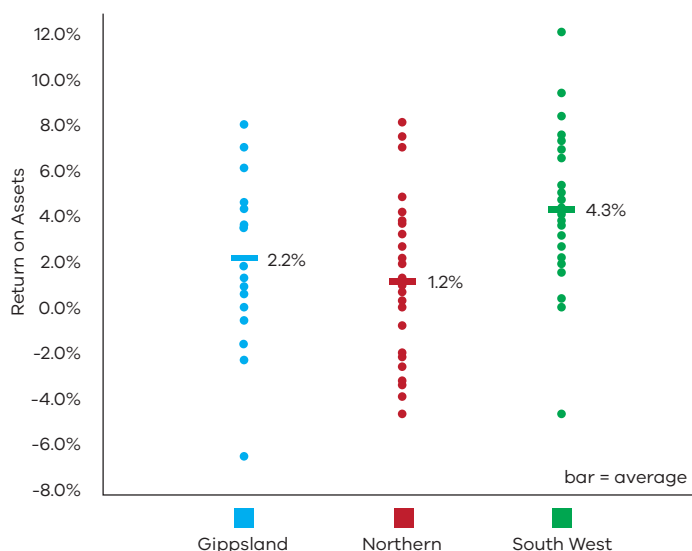
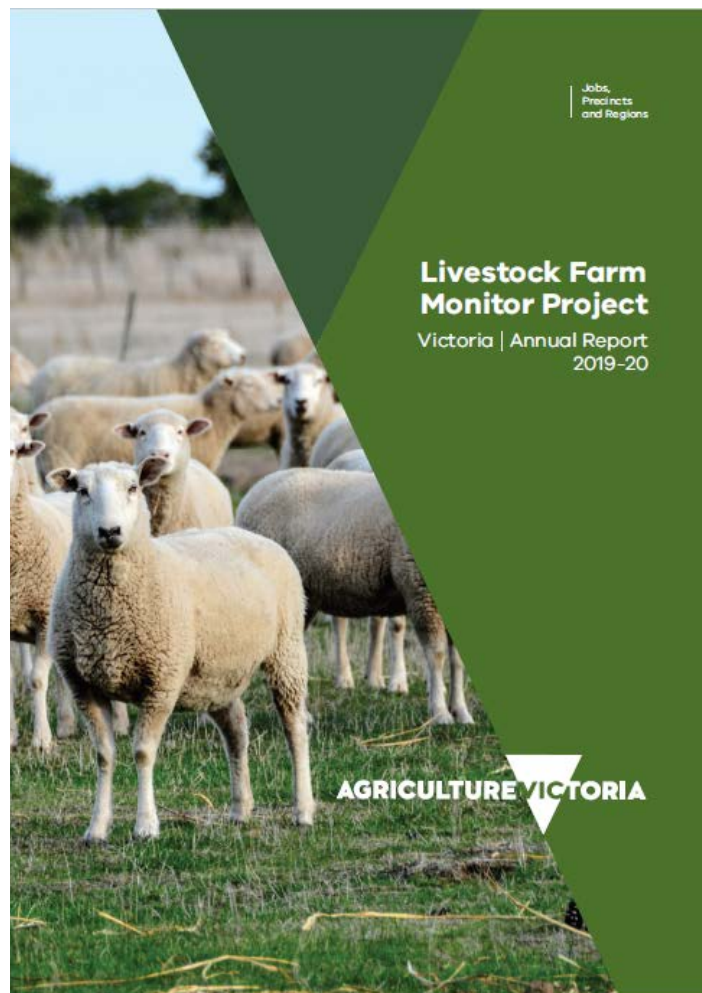


Figure 1 2019–20 Livestock Farm Monitor Project regional return on assets

Average gross farm income was well above long-term averages in each region. Strong lamb, mutton and beef prices, coupled with an increased quantity and value of stock and feed on hand, resulted in increased gross farm income in 2019–20.

For most participant farms, annual rainfall was close to average, which improved pasture growing conditions and meant that grazed pasture was the major component of livestock diets. Depleted feed reserves were bolstered across the state (as measured by positive average feed inventory gain in each region) as surplus pasture was conserved and stored as fodder. For Gippsland and South West Victoria, a reduced reliance on purchased supplementary feed, coupled with a decrease in market price of hay and grain, contributed to decreases in average variable costs. Average variable costs increased in Northern Victoria as surveyed farms were forced to purchase feed to supplement reduced pasture growth resulting from below-average spring rainfall.



Free benchmarking and profit assessment of your farm business

The LFMP estimates the economic performance of surveyed livestock and cropping farms by collecting detailed physical and financial farm information. Agriculture Victoria is offering sheep, beef and cropping farmers the opportunity to participate in this respected, rigorous and long-running benchmarking program. Positions are available for individual farms and farm discussion groups across Victoria for the 2020–21 LFMP. Participation is free, and all information is treated as highly confidential.

Each participating farm receives an annual individualised farm report with graphs and data from the reporting year, as well as all previous years of participation. A participating farm business can use their results to compare over time, and help identify the critical variables to inform and provide confidence for on-farm decision making. The report is a trusted and unbiased source of information that can assist farm businesses with conversations with the bank, consultants and industry.

The LFMP can provide group averages and tailored reports for farmer discussion groups across Victoria. If you think this is something your group would benefit from, please encourage your facilitator to get in touch.

For further information about getting involved, please contact sam.henty@agriculture.vic.gov.au.

Underperforming animals in a paddock full of feed

Nick Linden, Agriculture Victoria, Rutherglen

In many cases, the highlight of 2020 was the exceptional pasture growth from autumn all the way through to spring – coupled with high stock prices. It's been a remarkable year for agricultural production. Currently, many farms have varying amounts of carry-over dry feed or even heavy stubbles. Yet the challenge remains of how to get the best animal production from these dry feed resources.

When assessing what's driving animal performance (either good or bad) once animal health issues have been accounted for, we need to consider the suitability of the feed on offer. As with any feed budgeting question, there are initially two important considerations:

- what you have
- what your animals need.

Matching the two together becomes critical to getting the best out of your livestock.

The 'what you have' with dry feed is best described by looking at what you **don't** have – and that is essentially protein. Protein in pastures (and hay and silage, for that matter) comes from nitrogen. When a feed test calculates the crude protein percentage (CP) of a sample, it tests how much nitrogen the sample contains. The nitrogen is held in the chlorophyll of plants. Chlorophyll is what captures sunlight and converts it into the carbohydrates that build plant growth. It's also what makes pastures green – when we put nitrogen onto pastures, we are essentially boosting the chlorophyll levels, and so pastures typically become a darker shade of green following an application of nitrogen. When we see plants becoming less green, as in summer – we can safely assume that the nitrogen levels in the pasture are declining. Hence, our dry summer feeds are low in nitrogen, which equates to also being low in protein.

Now for some stock classes that's not going to matter. Dry ewes post-joining only have a low protein requirement – six to eight per cent crude protein (as per the energy and protein requirements in livestock tables from Agriculture Victoria's drought feeding books). If you have dry ewes running on dry pastures, these pastures are likely to meet the protein requirements for that class of stock. However, the energy requirements of the ewes may be a different story – especially by late summer when the digestibility of the pastures drops down to near 50%. Under these circumstances the energy requirements of the ewes may not be being met.

It's worth remembering what protein is used for – two key demands are lactation and growth. So, it's logical that the classes of stock that require higher levels of protein (nitrogen) are ewes in late pregnancy, ewes with lambs at foot and young stock (especially weaners). These stock classes require eight to 10 per cent, 12 to 14 per cent and 15 to 18 per cent crude protein respectively, in their diets to meet their protein requirements. A feed

test of the dry summer feed is likely to give a result of around seven to eight per cent crude protein. At the end of spring and the start of summer, it's likely that protein levels would have been higher – indeed, sheep are quite good at selecting out various parts of the pasture that will meet their requirements, so in early summer the crude protein levels of the diet would be higher as animals consume some clover burr and higher-quality parts of the pasture. By mid- to late summer, many of the higher protein components of the pasture will have been utilised, leaving the lower-quality materials. This decline in pasture quality can be a real issue for stock classes that have an increasing need for protein over this period. Summer rains may lead to a green pick in some paddocks, and this will be high in protein and often supply enough protein for most classes of sheep.

Although protein supplementation can help the animal utilise more of the energy in the dry feed (as cellulose), the need to supplement energy becomes more important as the amount of dry feed gets low and/or there is a green pick.

High-protein grains such as faba beans and lupins are an excellent means of supplementing protein to animals that need it. These provide a safe and cost-effective way of supplementing protein, although their availability has varied.

An additional means of supplementing dietary protein doesn't involve feeding a form of protein at all. In this case, stock are fed a concentrated form of nitrogen – the most common being urea, often referred to by ruminant nutritionists as nonprotein nitrogen. Feeding urea has some potential risks to animal health and must be undertaken with a degree of caution. Using 'dry feed blocks' that contain a certain percentage of urea (often 10 per cent of the block weight) may be a lower-risk option, but if rainwater collects in the depression of the block, this water can be highly concentrated with urea and toxic. In some cases, urea will be added directly to a grain-based ration. There are also commercially available liquid supplements that contain set percentages of urea – all aimed at increasing daily nitrogen and dry feed intakes – and other additives such as molasses to improve palatability. Whatever the form of the urea (or nonprotein nitrogen) supplement, the mechanism remains the same – they **don't** magically enable animals to squeeze more energy out of a given mouthful of feed, but they provide an energy source for the bacteria living in the animal's rumen. This enables the population of rumen bacteria to increase, ultimately increasing the volume of feed that animals are able to consume. Hence, there is little point offering a urea-based supplement if there isn't adequate feed on offer to support an increased feed intake. The increase in rumen bacteria leads to an increase in 'microbial protein' – which is the protein made available to the animal through the digestion of dead and decaying

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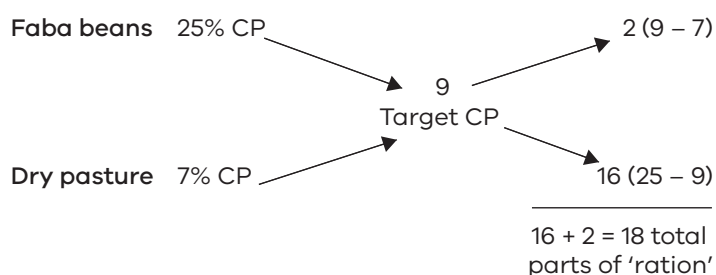
rumen bacteria, a highly important source of protein to ruminants. Research is currently looking at the value of canola meal to stock as a provider of bypass protein (protein that bypasses the rumen bacteria and can be used directly by the animal), but the implications, results and concepts of bypass protein are another story – for the next edition!

Although the use of urea blocks and liquid supplements may prove to be a convenient way of increasing nitrogen intakes of protein-deficient stock, it is always worth costing out the alternative ways this could be achieved (including canola meal, lupins and/or faba beans). Steve Cotton, from Dynamic Ag in South-West Victoria, has put together a three-page information note on the benefits of using lick blocks over summer (see the link under 'References') – for those about to load up their paddocks with blocks, it's worth a read.

Protein also plays an important role in the animal's immune function, which is tied to their ability to withstand infection from internal parasites such as black scour worms. As a late pregnant ewe prioritises her nutrient partitioning to the survival of her lambs, she potentially reduces her immune capacity, leaving herself exposed to parasitic infection. It is a similar scenario for weaners that allocate scarce resources to growth and development, at the expense of immune capacity. When deliberately infected with a known parasite load, weaner merino lambs supplemented with protein had significantly lower production losses and increased expulsion of the parasitic burden (see the second link under 'References').

The question remains for late pregnant ewes grazing on dry summer pastures: What allocation of faba beans (or other protein source) would they need to achieve the desired crude protein? A useful way to calculate this is to

use a Pearson square, which calculates the ratio of two known feeds to achieve a desired level of feed. Figure 1 provides an example where we have dry feed that is seven per cent CP and faba beans that are 25 per cent CP. We put the target protein level in the 'middle' of the square and then calculate the difference between the two (working in a diagonal line).



For every 18 units of the feed that are consumed, if two units are faba beans and 16 are dry pasture, the ewes will receive a diet that is nine per cent CP. It's easiest to express this as a percentage of each component:

- (2 units of faba beans/18 total units of feed) × 100 = 11% faba beans
- (16 units of dry feed/18 total units of feed) × 100 = 88% dry feed

That's close enough to call it as 10 per cent faba beans that will achieve the target protein percentage. Although the total amount of feed that the ewes will consume will depend on the size of the ewes, as well as the quality and quantity of feed, for ease of calculation, let's assume that the ewes are consuming 2 kg of dry feed each day – 10 per cent of the ration as faba beans would equate to 200 g/head/day. As the ewes pass the point of lambing, their protein requirement will lift – up from nine per cent CP pre-lambing to 13 per cent CP. We could use

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the same method to calculate the adjusted mix of faba beans to dry feed to give the desired level of protein in the diet. Although some people like to be able to do their own 'back of the envelope' calculations, there are some good tools to do this, such as the NSW Drought and Supplementary Feed Calculator. This is a brilliant app or web-based tool that will do the same calculations, can include more than one supplement, and includes stock requirements to estimate cost-effective rations. See the article 'Resources for assessing feed and animal requirements over summer' in this newsletter for more information on these (including the Pearson square).

Key points

- Dry feed with no green pick will be limiting in protein for any animals that are growing or reproducing.
- Deciding on the best source of protein will often come down to costing out suitable sources of protein on a per unit basis.
- Dry feed is often adequate for dry animals, and a green pick will often provide adequate protein for most sheep classes.
- Making sure that the protein levels are matched to the requirements for key stock classes such as weaners and late pregnant ewes can be a critical component of managing stock on abundant amounts of dry standing feed.
- When dry feed is limiting and/or there is access to a small amount of green pick, energy will be the prime requirement and adding excess protein would be wasted.

References

<https://bit.ly/3bZqDQy>

<https://bit.ly/3q8hSbV>

Online learning helps with on-farm decision making

Rachel Jacobson, Agriculture Victoria

Three new online courses are providing Victorian farmers with information to help them better prepare and respond to dry seasonal conditions and other emergencies. The web-based courses were developed to address some of the key challenges facing farmers during difficult times.

Three focus areas – Stock Containment Areas (SCAs), irrigation decision making and soils and groundcover – will be relevant to the grains, livestock, and irrigation industries across the state. Each course takes approximately 30 minutes to complete and includes interactive activities, links to key information and practical examples.

Access courses through the Agriculture Victoria Learning Management System online at <https://learning.agriculture.vic.gov.au/>. Participants need to register to access the system, once registered click on 'goals catalogue' to view all available courses.

The new online learning modules complement existing information about managing resources in drought and bushfire recovery on the Agriculture Victoria website.

For more information about dry seasonal conditions support or bushfire recovery call 136 186 or visit the Agriculture Victoria website.

An advertisement for pain relief for lambs. The background is a photograph of a group of sheep in a field. The text is overlaid on a dark green background. The text reads: "Do you mules your lambs? If you do, it is now a legal requirement that a pain relief product is used. For more information take a look at this article: agriculture.vic.gov.au/support-and-resources/newsletters/sheep-notes-newsletter/spring-2020/pain-relief AGRICULTURE VICTORIA". The Agriculture Victoria logo is at the bottom right.

Resources for assessing feed and animal requirements over summer

Jane Court, Agriculture Victoria

It can be quite difficult to assess the value of pastures (and crop stubbles) as they dry off and deteriorate over summer. This is especially true for sheep, because they are very good at selecting the best bits of the pasture to graze to quite low levels. Monitoring stock condition over summer is critical for assessing whether the feed is meeting their needs. Some good resources for making initial assessments of both pastures and crops can be sourced on the Feeding Livestock website (<https://www.feedinglivestock.vic.gov.au>). The *Livestock feed on offer assessment guide* is a comprehensive picture guide to the feed value and quantity of a range of crops. The Australian Wool Innovation Feed On Offer library provides a similar picture guide for some pasture types. Both can be accessed from the 'Pasture resources' page.

If you want quick access to the feed values (energy, protein and fibre) of some common supplements or the feed requirements of a range of livestock classes, these can be found as 'Useful tables' under the 'Sheep resources' and 'Beef resources' tabs.



Energy (MJ ME) and protein (CP) requirements for different classes of sheep

(Source: Drought Feeding and Management of Sheep Table 3.1 page 31)

Class of stock	Live weight (kg) and Condition Score (CS)	DSE rating	Energy requirement MJ ME/day	Approximate protein requirement CP 04
Adult dry sheep (wether or ewe dry or early stages of pregnancy)	40 kg CS 2	0.7	6	
	45 kg CS 2	0.8	6.5	
	50 kg CS 2	0.9	7	
	50 kg CS 3	1	8	6-8
	60 kg CS 3	1.1	9	

Screenshot of one of the tables showing energy and protein requirements for sheep on the Feeding Livestock website (Sheep resources > Useful tables – sheep)

Compare feeds and develop rations

If you are after some resources to help work out rations for sheep or cattle, several tools are available under the 'Beef tools and calculators' and 'Sheep tools and calculators' pages (under the 'Sheep resources' and 'Beef resources' tabs). Ones that include the pasture contribution are the Lifetime ewe tables (sheep only); GrazFeed; the NSW Drought and Supplementary Feed Calculator and the Tactical Feed Budget (beef only). Others available can help you to assess the best-value and most appropriate ration, and/or estimate the costs.

The NSW Drought and Supplementary Feed Calculator is available as an app and as a web version. It is a good, simple tool that can be used to compare feeds and develop a ration for different classes of stock.

Compare and Choose Best Feed		
Feed	Faba Beans	Lupins
Warnings	None	None
MJ per tonne 'as fed'	11250.0	12150.0
Cost cents per MJ	\$3.11	\$3.29
Cost \$/kg protein	\$1.52	\$1.39
Cost \$/tonne Dry Matter	\$388.89	\$444.44
On farm cost (\$/t)	\$350.00	\$400.00
Dry Matter (%)	90%	90%
Energy (MJ/kg DM)	12.5	13.5
Crude Protein (% DM)	26%	32%

Screenshot of an example of comparison of lupins and faba beans from the NSW Drought and Supplementary Feed Calculator

The example in the screenshot illustrates how feeds can be compared both for the cost per unit of energy and for the cost per unit of protein. So if you know what your prime need is, you can pick the cheapest source. In this example, faba beans and lupins, and their default energy and protein feed values, were selected from the drop-down menu (you can change these if you have the feed values for your feeds). For this example, faba beans were costed at \$350/t and lupins at \$400/t. Lupins are the dearest but also the highest in both energy and protein. Using these costs and feed values, faba beans are cheaper than lupins if you are after energy – \$2.67 per megajoule (MJ) for faba beans and \$3.29/MJ for lupins. Note that both are well above all livestock needs for protein. However, if you need a protein source only (see 'Underperforming animals in a paddock full of feed' in this newsletter), lupins are a cheaper source at these costs and feed values (\$1.39/kg protein for lupins and \$1.52/kg protein for faba beans). You can use this data, with or without pastures, to develop a ration for different classes of livestock in the app (the 'Underperforming animals in a paddock full of feed' article also provides a simple way to estimate this using the Pearson square calculator). If you haven't used many apps or online tools before, this would be a great one to start with, because it's user friendly and backed up by robust science. It saves on the hard work and gives you many of the answers you need to meet your animals' nutritional requirements.

You can access the web version and the Pearson square calculator (to develop a mix of two feeds to get protein and energy requirements) by going to 'Sheep tools and calculators' from the 'Sheep resources' tab. There is also a link to the Dairy Australia grain and hay reports on both the Sheep and Beef Resource pages that provide current prices for several hays and grains.

Resistance to insecticides in blowflies

Jeff Cave, District Veterinary Officer Wodonga, Agriculture Victoria

Lucilia cuprina, the Australian sheep blowfly, initiates most cases of flystrike on Australian sheep. Like all insect pests, it has the potential to develop resistance to insecticide treatments.

Resistance is the decreased susceptibility of a pest population to a pesticide that was previously effective at controlling the pest. Pests evolve resistance to pesticides by a process of natural selection. When exposed to a pesticide, the most resistant individuals survive and pass on resistance to their offspring.

With repeated exposure to the pesticide, particularly at inadequate levels, the resistant pests are favoured, and their proportion in the population may increase. Eventually, there can be enough resistant pests in a population that the pest is controlled for only short periods or, ultimately, not at all.

Some cases of apparent resistance are the result of improper application or heavy rain following insecticide application. Before concluding that flies are resistant, check that:

- the sheep affected were actually treated
- the chemical was applied following the manufacturer's instructions
- the appropriate amount of chemical was applied
- the wool length was adequate to retain the treatment
- wool or dags did not reduce penetration of the product
- there was not unusually heavy rain following treatment, resulting in chemical wash-out.

Sheep producers can use several management strategies to minimise the development of resistance or at least delay its onset:



- Use an integrated approach to reduce reliance on insecticides.
 - Breed for resistance to flystrike.
 - Shear or crutch at times that maximise protection against flystrike.
 - Dock tails to the correct length.
 - Manage scouring.
 - Use breech modification, if required, until sheep are genetically resistant to flystrike.
 - If treatment is needed, make sure it is applied effectively.
- Know which insecticides belong to which insecticide class.

Table 1. Chemical groups and actives used for flystrike prevention

CHEMICAL GROUP	CHEMICAL ACTIVE	EXAMPLE PRODUCT	METHOD OF APPLICATION ¹	PROTECTION PERIOD (WEEKS) ²
Insect growth regulator (IGR)	Cyromazine	Vetrazin® Vetrazin® Liquid	Spray-on Jetting/Dipping	11 Up to 14
	Dicyclanil ³	CLiKZiN®	Spray-on	Up to 11
	• 12.5 mg/ml • 50 mg/ml • 65 mg/ml	CLiK® CLiK® Extra	Spray-on Spray-on	18–24 Up to 29
Neonicotinoid	Imidacloprid	Avenge & Fly®	Spray-on	Up to 14
Macrocyclic lactone (ML)	Ivermectin	Coopers® Blowfly & Lice	Jetting	Up to 12
Synthetic pyrethroid (SP)	Alphacypermethrin ⁴	Vanquish®	Spray-on	Up to 10
Spinosyn	Spinosad	Extinosad® Eliminator	Jetting	4–6

Chemical groups and actives used for flystrike prevention.

1. Always follow label directions.
2. Check the label before use as some products may differ.
3. Dicyclanil product protection periods vary due to their different concentrations of the active chemical.
4. Registered for the prevention of body strike only.

Source: Flyboss website

Continued on page 13

- Be aware that resistance to one insecticide may cause a cross-resistance to another related insecticide.
- If treatments for lice and flystrike are deemed necessary, use different insecticides and appropriate classes for each pest. Also use insecticides from different classes for treating and preventing flystrike.
- Minimise the number of insecticide treatments applied in a season.
- Apply insecticides carefully, and strictly as specified on the label.
- Monitor for flystrike frequently and kill maggots on all flystruck sheep
- Monitor for flystrike frequently, and kill maggots on all flystruck sheep.
- Understand the biology of the sheep blowfly.

Chemical groups

All registered products used to treat blowflies in a mob scenario (flock treatment) belong to one of six groups: organophosphates, insect growth regulators (IGR), macrocyclic lactones (ML), spinosyns, synthetic pyrethroids and neonicotinoids (see Table 1).

Organophosphates are older products that have mostly been replaced by more modern insecticides. As well as having high levels of resistance, organophosphates are nonselective, and their use carries work health and safety risks.

A recent chemical resistance survey conducted by the NSW Department of Primary Industries showed that blowflies are continuing to develop resistance to other chemicals used for treating flystrike. Samples sent in from Victoria showed that there is resistance to both dicyclanil and cyromazine.

Resistance should be suspected if a shortening of the protection period (specified on product labels), or flystrike in multiple treated sheep rather than just a few, is seen.

For further information, visit <http://www.flyboss.com.au/sheep-goats>.

LiveFeed

Seasonal Feed webinar on the value of autumn feed.

Experts will discuss timely and relevant issues relating to the value of the autumn feed to livestock (sheep and cattle).

Thursday 22 April (8–8.30 pm)

To register your interest contact (email, phone or text) Jane Court – jane.court@agriculture.vic.gov.au; 0436 606 742

High-performance maidens, grazing weeds, assessing feed, working dogs and more

Jane Court, Agriculture Victoria, Bendigo



Although BestWool/BestLamb did not hold its annual conference in 2020, there are some excellent and relevant presentations from previous conferences that could be well worth a watch when you have the time. We have selected a few that might be of relevance or interest now (visit the BestWool/BestLamb conference videos page to find these and others):

- **High-performing maidens.** Andrew Kennedy, Thrive Agri Services, discusses the keys to getting performance from maiden ewes (lambs and hoggets).
- **Economics of winter saving.** Andrew Whale, Livestock Logic, discusses the principles of autumn/winter saving pastures, the results of on-farm demonstrations and how the economics stack up (see 'Farmer tips on autumn saving' in this newsletter).
- **Sheep breeding equivalents for legumes.** Alan Humphries, South Australia, outlines legume (clover and lucerne) varieties and attributes to help farmers make decisions on legume species selection for their environment.
- **The value of grazing weeds.** Cam Nicholson, Nicon Rural, discusses the main summer and winter weeds and their value (or not) to livestock.
- **Feed assessment guides: tools to determine grazing strategies for cropping livestock systems.** Some feed assessment tools have been developed by farmer groups to specifically help farmers in the mixed farming zones manage grazing systems. Alison Frischke, Birchip Cropping Group, outlines their guide for grazing crops, and David Drage (with Steve Cotton) from BestWool/BestLamb group outlines their feed on offer guide for crops in the low-medium rainfall environment. You can download the *Livestock feed on offer assessment guide* from the Feeding Livestock website (<https://www.feedinglivestock.vic.gov.au>; click on 'Pasture resources').
- And don't forget: if you are up for training a working dog, **Key tips for training working dogs** is our most popular presentation, with Ian O'Connell, dog breeder and trainer from Casterton, using some of his dogs to cover the key tips for training working dogs.

Digital tips

We have introduced a new section on digital tips that we hope will help some of you to harness some of the opportunities (and challenges) that smartphones, tablets and internet connectivity provide us with. We would love you to share some of your great tips that have helped you the most, simply, to improve some aspect of farm or personal life – see details below.



Hotspotting

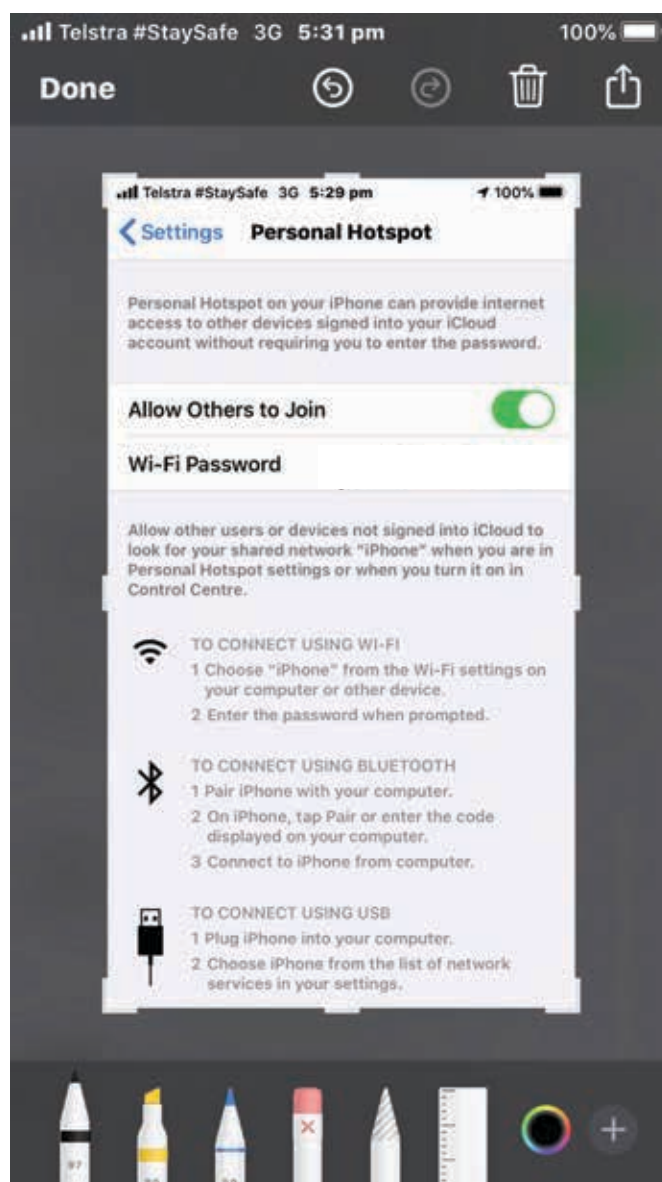
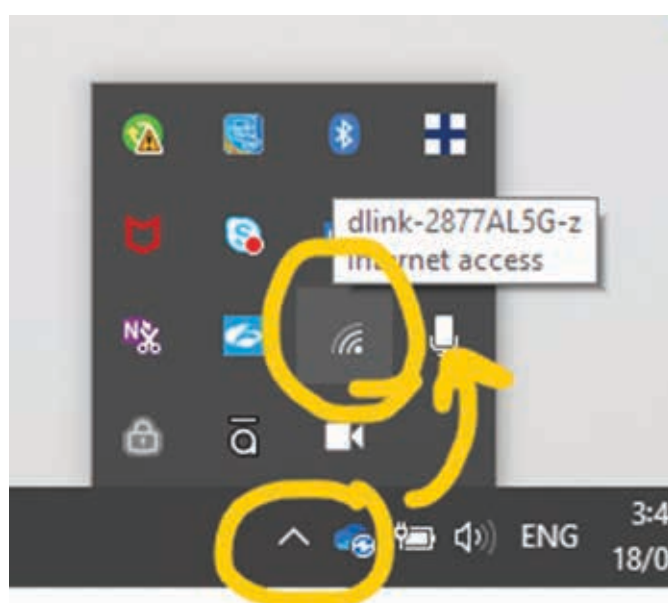
'Hotspotting' or 'tethering' is the use of your smartphone or tablet as a modem (which picks up internet signals) for another device. This may be old news for many; if not, it means you can access the internet where internet access is poor or not working but you do have mobile phone coverage. You can connect your laptop or desktop computer to the internet using your smartphone or tablet's data via a hotspot.

On your iPad or iPhone

1. Go to Settings, then to 'Personal Hotspot'. (Note: On some smartphones, you may need to go from 'Settings' to 'Connections' and then to 'Hotspots'.)
2. Tap 'Personal' or 'Mobile Hotspot', then tap the slider to on (the lock icon appears at top right on an iPad).

On your laptop or desktop computer

1. Click the ^ arrow at bottom right of screen to show more options.
2. Click the wireless (or globe) icon.
3. Select the phone, iPad or iPhone 'secured' (depending which one you have used to turn on Personal Hotspot).
4. Select 'Connect'.

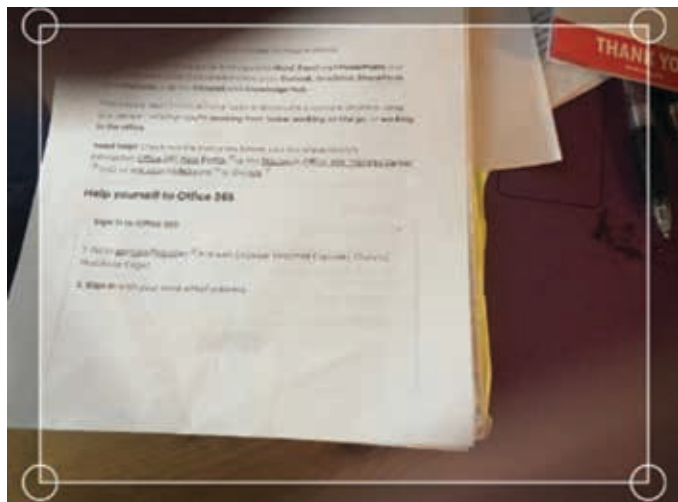


How to scan documents using your iPhone or iPad

This is great if you want to scan multiple or single pages and save or send as a pdf rather than as a picture or photo. For example, you can print forms, fill them in, sign, and then scan and send back. I will also share how to sign. I tried on my Android phone and believe I may have to use an app for that one.

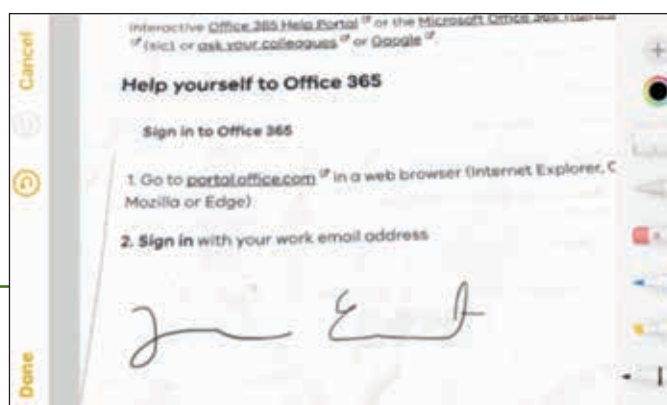
1. Go to 'Notes' and open a new note.
2. Press the camera button (some phones may have a + instead).
3. Select 'Scan Documents'.
4. Hold your phone over the document and tap to scan.
5. You can drag the corners (see below) to tidy up the edges (or retake). When happy, tap 'Keep scan' and it will tell you it is ready for the next one (ie for multiple pages) until you are done ('Save').

Then, in 'Notes', you can upload the pdf to a folder, email or message.




Sign the document

1. Open the document in 'Notes' (tap it).
2. Select the upload pic at the top and then select 'Markup'.
3. Tap + and then signature, and you can scrawl your signature (see below but neater). Then tap 'Done'.



SHARE and WIN

If you have a handy tip that might help others manage simple (or more complex) tasks we'd love to put this in our next edition. For the ones we use, we'll send you a mystery Agriculture Victoria prize pack! **Send your ideas or tips to jane.court@agriculture.vic.gov.au**



Did you know?

Under the Prevention of Cruelty to Animals Regulations introduced in December 2019, Regulation 6(4) stipulates that when the temperature is 28 degrees or above that an area of insulating material be placed on the metal tray of a motor vehicle or trailer to protect the dog from the metal surface.

AGRICULTURE VICTORIA

Agriculture Victoria animal health and sheep industry contacts

Although our offices are currently closed, the office numbers provided below are diverted to staff who can assist you. Alternatively, you can contact Agriculture Victoria on 136 186.

Location	Office Contact	Meat and Wool Services		Animal health
		Livestock Industry Development Officers	Land Management Officers*	
South-West region				
Ararat	136 186	✓	✓	
Ballarat	5336 6856	✓	✓	✓
Colac	5233 5504		✓	✓
Geelong	5226 4878		✓	✓
Hamilton	5573 0900	✓		✓
Horsham	5362 2111			✓
Queenscliff	5258 0229	✓		
Warrnambool	5561 9917	✓		✓
South-East region				
Attwood	9217 4200	✓		✓
Bairnsdale	136186	✓	✓	✓
Cranbourne	136 186		✓	✓
Ellinbank	5624 2222	✓	✓	✓
Leongatha	5662 9900	✓	✓	✓
Maffra	5147 0800		✓	✓
Swifts Creek	5159 5134	✓	✓	
Northern region				
Benalla	5761 1611	✓	✓	✓
Bendigo	5430 4444	✓	✓	✓
Echuca	5482 1922			✓
Rutherglen	02 6030 4500	✓	✓	
Seymour	5735 4300			✓
Swan Hill	5036 4800	✓	✓	✓
Tatura	5833 5222		✓	✓
Wangaratta	5723 8600			✓
Wodonga	02 6043 7900	✓	✓	✓

*Farm planning, soil health advice, soil conservation advice, dryland farm water planning

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