

# Sheep Notes



## Inside

- Grazing value of summer weeds **1**
- Summer weeds – which ones are toxic? **3**
- Listeriosis **4**
- The time to save water in your dams is when they are full **5**
- Pneumonia/Pleurisy in lambs **6**
- Feeding Livestock What's new? **7**
- Sheep and goat property to property transfers **8**
- NLIS database webinars **9**
- Changes to LPA (Livestock Production Assurance) site **9**
- Digital Tip **9**
- Farm Business Resilience Program **10**
- Answering questions about farming – Open Gate Conversation **10**
- An important conversation: How to be safe on farms **11**
- Occasional Paper – "A landholder's guide to participate in soil carbon farming in Australia" **11**
- Haemonchosis ("Barber's Pole Worm") – is it changing? **12**
- AgTech Bytes **13**
- To feed or not to feed – that is the question **14**
- Agriculture Victoria animal health and sheep industry contacts **16**

Welcome to the spring edition of SheepNotes. At the time of compiling this edition, things are looking bright for sheep farmers with good spring conditions and forecast for much of the sheep growing areas and strong prices and forecasts. You will notice that we have a few articles with QR codes attached which provide an easy access to a video or fact sheet on your phone, given how widely used these now are for checking in to venues.

With the funding from the Livestock Biosecurity Fund for this newsletter committed for two more years, there is a strong push for the cheaper digital version and while this makes sense, the feedback we have been getting to date is that many of you prefer the hard copy. This is often not because of poor internet or computer skills, but because it is more easily shared and read by family members, more easily accessed and referenced as well as being time out from a screen. We will embark on a broad research survey to get more data on this and map a future for the newsletter, so please keep providing your feedback on which version you would like (hard and/or digital), your comments on both versions as well why, plus suggestions for articles and information. Contact one of us through email or phone.

Don't forget our Digital Tip – we'd love yours! We have included one we received from one of our readers, so any simple tools you use that might help others, we'd love to publish – and we'll send you a prize.

*Jane Court and Rachael Holmes*

[jane.court@agriculture.vic.gov.au](mailto:jane.court@agriculture.vic.gov.au) and Phone 0436 606 742

[rachael.holmes@agriculture.vic.gov.au](mailto:rachael.holmes@agriculture.vic.gov.au) and Phone 0418 557 068

## Grazing value of summer weeds

*Raquel Waller, Agriculture Victoria*

Weeds! They are always there, no matter how hard you try. While some can have animal health issues (see article *Summer weeds – which ones are toxic*), others have nutritional value to sheep which may be worth considering before deciding to spray them out. In this article we will focus on summer weeds.

Generally, a good quality sown perennial pasture will contain 30–50 per cent sown grass and 20–40 per cent subterranean clover with annual

*Continued on page 2*



volunteer weeds making up the rest of the pasture. Our Mediterranean pastures (without summer responsive species) decline in energy and protein as the plants go to seed and then die off. High quality pastures may retain sufficient quality to maintain dry animals for the duration of summer-autumn, but poorer quality pastures cannot.

In the absence of a summer active pasture species (like lucerne), summer weeds can be of value. Green pick over summer can provide protein which is a necessary component of the diet and is important for the digestion of the low-quality dry feed. Ruminants struggle to digest enough pasture when the protein drops below six per cent.

Recent work by Jess Brogden and Lisa Miller at Southern Farming Systems (SFS) has documented the nutritive value of weeds that grow during the summer-autumn (Table 1). Their work will be published as a Weed Fast Facts on the MLA weeds hub ([mla.com.au/extension-training-and-tools/feedbase-hub/weed-control/](http://mla.com.au/extension-training-and-tools/feedbase-hub/weed-control/)) and SFS website ([sfs.org.au/](http://sfs.org.au/)) in late spring 2021.

Table 1 shows the nutritive value, as tested by FEEDTEST, of some weeds that are potentially useful over summer. Metabolisable Energy (ME) is the energy content of the plant. It is usually converted into megajoules in a kilogram of dry matter per hectare (MJ ME/kg DM/ha), to reflect how much of the feed an animal requires (like kilojoules per 100 g for humans). Dry matter is used so that plants of different water content are comparable in nutrient density. Crude Protein is an assessment of the level of nitrogen in the pasture.

In later summer, a fairly average or low-quality pasture has a Metabolisable Energy of less than five MJ ME and Crude Protein of about six per cent, which is insufficient to maintain liveweight in dry sheep no matter how much pasture there is. The addition of a green pick can be

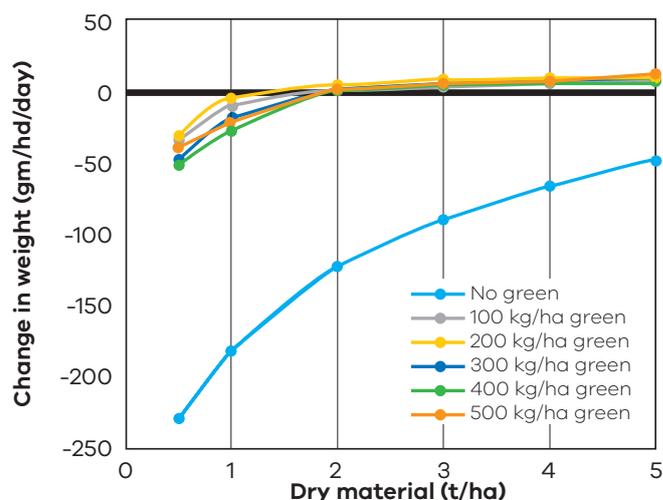


Figure 1. The weight change (g/head/day) of first cross ewes (dry) with increasing pasture mass (t DM/ha). See full presentation in the BestWool/BestLamb conference videos in 2019, (The value of grazing weeds).



Figure 2. Examples of amount of green pick in grazing stubbles (Source BestWool/BestLamb conference videos 2019, The value of grazing weeds).

enough to maintain liveweight (see 'Underperforming animals in a paddock full of feed' in the last edition of SheepNotes for more information on protein requirements). As part of a presentation on the value of weeds at the BestWool/BestLamb conference in 2019, Cam Nicholson, showed Figure 1, to illustrate the value of a small amount of green on live weight in a dry pasture.

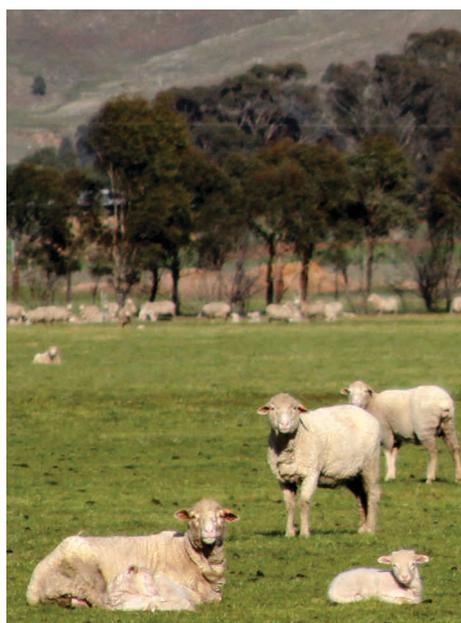
Table 1. Energy and protein content of weeds during January to March (Miller, Brogden and Nicholson 2021) The range reflects the quality drop from germination to March

Weed group	Metabolisable Energy (MJ ME/kg DM/ha)	Crude Protein %	Comment
Dandelion/flatweed	8-10	9-15	
Sorrel	8-9	10-16	January and March figures
Wireweed/hogweed	8-10	9-20	
Wild radish/mustard	13	29	November only
Thistles e.g. sow, milk	8-10	6-30	Highest when young and green.
Glammy goosefoot/mintweed	8-10	9-30	
Fat hen	8-10	20-40	
Windmill grass	8-10	7-16	
Bent grass	6-8	6-8	January only, no February or March figures
Green/Spraytopped Bent Grass	9	13	December in lieu of actual Feb-Mar figures

The graph shows the effect of some incidental summer weeds on dry ewe liveweight. Essentially the effect was similar with 100 or 500 kg DM/ha of weed, on the proviso that the green was of reasonable height, for example five cm high, so the sheep didn't have to work too hard to access it. This highlights the value of a summer rotation to allow incidental summer weeds to accumulate some height before grazing. Cam also commented that stressed-out looking weeds can maintain their nutritive value.

Figure 2 provides an example of what 100 kg of green dry matter per hectare, might look like.

The pros and cons of grazing, rather than spraying out summer weeds in your pasture needs be considered in terms of how it affects the preferred grasses and clover during the growing season (competition for resources of light/shading, water and nutrients), problematic seeds for livestock, issues of toxicity and chances of success, for example buried wireweed/hogweed seed can last for 60 years (MLA Weeds Fast Facts).



## Summer weeds – which ones are toxic ?

*Dr Jeff Cave, District Veterinary Officer, Wodonga*

Every season has its own toxic plant risks. Most issues with toxic weeds follow summer rain and are especially seen in sheep grazing stubbles. Since all animals are co-grazing the same pastures, toxic weeds can affect a large portion of the flock.

### Heliotrope

Heliotrope is most often seen in stubbles and pastures with bare ground following summer rain. It is relatively unpalatable, but sheep will eat it if they must. Heliotrope contains a toxin known as a pyrrolizidine alkaloid that damages the liver. The damage is cumulative each time heliotrope is eaten. Paterson's Curse contains the same toxin. The damage caused affects the animal's liver's ability to metabolise copper. Later, in a following Spring, when sheep have access to lush, clover rich pastures, which contain high levels of copper, their liver becomes saturated with copper. This can lead to liver and kidney failure and the condition known as "yellows", which is the clinical sign of jaundice due to liver failure.



▲ Heliotrope

### Hairy Panic

Hairy panic can appear to be a good source of green feed in summer. However, in young sheep it can cause liver damage due to saponins, which form crystals in the liver, blocking the flow of bile. Caltrop can do a similar thing. As a result of the loss of liver function, affected lambs develop jaundice seen as "yellow" and photosensitisation seen as severe sunburn or swelling on exposed areas like the ears and face. Sometimes the condition is known as "yellow bighead".



▲ Hairy Panic

There are many other toxic plants, and plants that may become toxic given a particular set of environmental conditions. It is always best to seek veterinary advice if you are concerned about the possibility of plant toxicities.

# Listeriosis

*Dr Elle Moyle, District Veterinary Officer, Hamilton*

This year has been a remarkable year for clinical listeriosis in sheep. Between January and July 2021 infectious listeriosis causing neurological disease and abortion in adult sheep was diagnosed across 14 separate properties in Victoria, predominantly in the South West (Figure 3). Notably, there was a significant increase in neurological presentation of the disease leading to death.

Producers reported clinical signs including staggering, convulsions, head tilt, circling, recumbency, paddling of the limbs and death in 0.5–10 per cent of the flock. Some also reported abortions in clinical normal sheep. Post-mortem examination was unremarkable. Diagnosis was confirmed on laboratory examination of fixed brain tissue and culture of fresh tissue from the affected sheep or aborted foetus.

Listeria is a common bacterium found in the gut of normal sheep. It can also survive and multiply in the environment, particularly rotting vegetable matter, but also soil, water, manure, feed (including pasture) and can survive up to five years. Compared to other bacteria, it is quite hardy and can withstand a range of pH, temperatures and salt conditions. Feeding silage with a pH above 5.5 is often associated with outbreaks of listeriosis. The disease commonly occurs under wet and muddy conditions. Other predisposing factors for clinical listeriosis in sheep include; sudden change in weather, change in feeding regime, introduction of carrier animals, confinement, overcrowding, poor sanitation, stress, advanced pregnancy, feeding silage, access to rotting hay or vegetation and feeding sheep on the ground. Signs are usually seen eight to nine days after infection.

The two forms of clinical listeriosis seen in sheep are the neurological form and the abortion form. Neurological form:

- Can affect any breed and at any age
- Often circling, staggering, head tilt, off-feed, found dead

Abortion form:

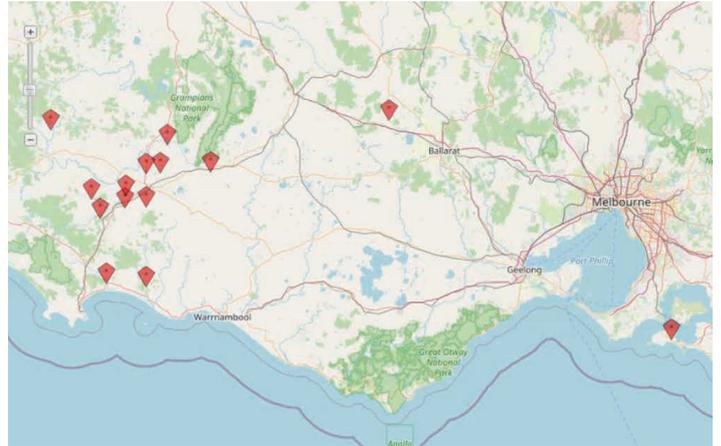
- Affected pregnant ewes of any age in the second to final month of pregnancy

Recent outbreaks may be due to the good previous season, leading to standing rank and rotting dry matter in paddocks however in almost all cases seen, sheep

have been in containment (risk of overcrowding and poor sanitation) and being fed a mix of hay, silage and



*Aborted lamb foetus*



*Figure 3. Map showing reported cases of listeriosis in 2021*

grain (potentially contaminated). Most have been late pregnant ewes of mixed ages.

Recommendations to producers who are affected is to remove animals from the potential source of listeria (silage, containment, rank feed, other sick animals). Cleaning water troughs, feeding out on fresh, dry areas and avoiding excess feed being left to soil and rot are all important preventative measures.

Other control and prevention methods include:

- Elevating feed and water off the ground
- Feeding out on a fresh, dry areas and avoiding excess feed being left to soil and rot
- Daily washing of feed and water troughs
- Avoid excessively muddy and wet containment areas
- Avoid manure contamination of feeding areas
- Burning the carcass of any sheep that dies on farm

Treatment is limited as antibiotics are generally not effective in neurological cases. In abortion cases we believe there has been reduced levels of abortions post treatment with antibiotics during an outbreak, but this is always hard to measure. If you have seen abortions it is a good idea to investigate the cause as there are many different causes and some of these such as *Campylobacter* are preventable with vaccination. Prior to the *Campylobacter* vaccine being widely used in South West Victoria, *Campylobacter* was the major cause of abortion in this district. In the last three years we have seen *Listeria* take the lead as the major pathogen causing abortion. Control involves minimising the predisposing factors with the aim to minimise this outbreak and prevent another outbreak next year. Speak to your local veterinarian about subsidised investigations.

*Listeria* can cause severe disease in people, especially those who are immuno-compromised and pregnant women. Appropriate hygiene measures and PPE need to be worn.

# The time to save water in your dams is when they are full

Greg Bekker, Agriculture Victoria



Getting to the middle of January to find that you only have one metre of water left for the stock in that paddock is not an ideal situation.

There are things that you can do now, or at least plan for, that will help save as much water as possible. If we look at what the water in the dam is used for and potential losses, we can put things in place to minimise losses.

An estimate of how much stock will drink should be made so that you know what you are likely to need until after the autumn break. How much each animal will drink will vary depending on the type of animal, weight, stage of growth or pregnancy and as temperature increases over summer. Knowing this with the total numbers of each class of stock, will give an amount you need for stock use. If the dam is connected to a pump system for domestic use or watering gardens, then these figures need to be included in your calculations of use.

The next biggest user (or loser) of water is evaporation. You lose the top one metre of water in your dam to evaporation each year. Having a small deep dam is a much better option than a large shallow one. Minimising wind across the dam will help to reduce evaporation.

The amount of water getting to your dam may have changed. Improved pastures, including deep rooted perennials and summer active species will use more water and may reduce runoff. This along with less rainfall means that at times you will get less run off into your dams. It may not be an issue this year if dams have filled after a wet winter but needs to be considered in the longer term for years when this does not occur.

Dam maintenance is critical to optimising water catchment, reducing water loss and erosion.

The following resources have been developed to help you maintain dams and water quality and to measure dam volume and estimate your water requirements. Once you know these, you are in a good position to plan for shortfalls and look for longer-term options to ensure water security on your farm.

## Farm Water Planning

Agriculture Victoria, through the Water Technical Reference Group, can assist farmers with information, planning and design for stock and domestic water systems. If you are interested in upgrading your farm water supply system, we are looking for participants for a new online workshop. This will assist producers to evaluate their current farm water supply and plan future changes. For more information or to register your interest, contact Greg Bekker on 0417 340 236 or [greg.bekker@agriculture.vic.gov.au](mailto:greg.bekker@agriculture.vic.gov.au)

You will need to download a QR reader app if using an Android phone.

### Dam maintenance

Kerri Goshnick, Agriculture Victoria, walks through the major things to look for when checking your dam.

Dam maintenance Agriculture Victoria



[youtu.be/RkUVIrefyBc](https://youtu.be/RkUVIrefyBc)

### How much water in your dam?

Greg Bekker, Agriculture Victoria, demonstrates how to make a DAMDEEP measuring tool. Use this to get an accurate measurement of the depth of a dam and then use the online summer water calculator to determine how much water you have in your dam.

Measuring the depth of your dam Agriculture Victoria



[youtu.be/Kp21tB5hPj8](https://youtu.be/Kp21tB5hPj8)

### Protecting your major water asset

A video case study of farmers Neal and Myrtle Bennetts who were burnt-out during the 2020 Corryong fires. They then experienced two very large rainfall events (50–100 mm) in short periods which caused dams to fill with loads of organic material, ash and sediment. This left them without stock water in that paddock, erosion issues and fences knocked over.

### Protecting your farm water supply after fire

Agriculture Victoria



[youtu.be/F7ZM8TfEfc0](https://youtu.be/F7ZM8TfEfc0)

### The summer water calculator

Use this simple calculator to estimate the amount of water you have and how long it will last with the number of stock you have. The calculator takes into consideration evaporation losses.

[agriculture.vic.gov.au/support-and-resources/tools-and-calculators/summer-water-calculator](https://agriculture.vic.gov.au/support-and-resources/tools-and-calculators/summer-water-calculator)

# Pneumonia/Pleurisy in lambs

Dr Hayden Morrow, District Veterinary Officer, Bendigo

## What is Pneumonia and Pleurisy?

Pneumonia is inflammation of the lungs while pleurisy refers to inflammation of the membranes that surround the lungs. These respiratory conditions can occur in all sheep; however, outbreaks are most common in weaners during summer.

## What causes pneumonia?

Outbreaks of pneumonia are contributed to by environmental, animal and pathogen factors.

- Environmental factors include dusty conditions, hot weather, and excessive crowding.
- Animal factors include inadequate nutrition, concurrent disease (e.g. internal parasites), and stress. These all impact the animal's immune system making them more susceptible to pneumonia.
- Pathogen factors refer to the bacteria and viruses that cause the disease. There are numerous pathogens that can be involved and can be either primary or secondary. Primary pathogens like *Mycoplasma ovipneumoniae* initiates a mild pneumonia with no or mild signs. This then makes the sheep more susceptible to a secondary bacterial infection which leads to severe disease. In some cases, parasitic infection from lung worm can also play a role.

In addition, poor drenching technique can lead to aspiration pneumonia.

## What are the signs?

The severity of signs can vary greatly. Some sheep affected will not show any respiratory signs only a reduction in weight gain, while others can develop nasal discharge, coughing, increased respiratory effort, lethargy and inappetence before progressing to death.

## What is the Cost?

National Sheep Health Monitoring Project (NSHMP) inspected sheep at the abattoir from over 1200 properties in Victoria in 2019-20. They found that greater than 70 per cent of properties inspected in Victoria had at least one sheep with evidence of pleurisy at the abattoir.

Overall, they reported 2.7 per cent of sheep carcasses inspected in Victoria were affected by pleurisy over the same period (NSHMP, 2020, page 30). However, there have been reports of single lines of lambs from farms having more than 15 per cent of carcasses affected. This can have a significant economic impact, as pleurisy can lead to adhesions to the chest wall which means trimming of high value cuts. Carcasses with pleurisy can have 0.7–1.9 kg trimmed depending on if and how many ribs are affected (Lloyd, 2016). As a result, carcass trimming could lead to a loss to the producer of \$5–15/lamb.

The economic cost on farm in Australia is not fully understood and likely variable between farms. Clinical cases of pneumonia lead to increases in mortality, increased treatment cost and reduced animal welfare. However, reductions in weight gain from mild cases are also likely to be important. New Zealand research has found that chronic nonprogressive pneumonia results in significant reductions in weight gain. When 20 per cent or more of the lung surface area is affected a 72 g/day (or 53 per cent) reduction in weight gain was reported (Goodwin-Ray, 2006). Another New Zealand study showed that lambs with pleurisy on average took 22.8 days longer to reach slaughter weight (Hickford, 2014). As a result, the feed costs for lambs to reach market weight will be increased.

## How to Prevent it?

Prevention should be focussed on managing environmental and animal risk factors. Key points to consider include:

- Handling/Transport
  - Practise low stress handling
  - Avoid handling/transporting sheep in hot dry conditions
  - Consider impact of mixing purchased groups of lambs from different sources (stressful but also potentially exposes lambs to new pathogens).
- Nutrition/Health
  - Ensure nutrition and access to water is optimised
  - Ensure other major animal health issues such as intestinal worms are managed
  - Ensure suitable shade is available

Continued on page 7



- Dust management
  - Hosing down dusty yards and laneways before moving stock
  - Consider impact of stocking rate on dust levels when containment feeding
  - Avoid dusty feeds
- Drenching technique
  - Do not lift head above horizontal and do not drench in cradle
- Biosecurity
  - New sheep introduced could be carriers of respiratory pathogens that are new to your flock.

Clinical cases of pneumonia can be treated with consultation from a private veterinarian. In Australia there are currently no registered vaccines for pneumonia in sheep available.

## References

Animal Health Australia (2020) *National Sheep Health Monitoring Project Annual Report 2019–20*. Available at: [animalhealthaustralia.com.au/national-sheep-health-monitoring-project/](http://animalhealthaustralia.com.au/national-sheep-health-monitoring-project/) (Accessed: 8 July 2021)

Goodwin-Ray, K.A. (2006) 'Pneumonia and pleurisy in sheep: Studies of prevalence, risk factors, vaccine efficacy and economic impact'. *PhD, Massey University, Palmerston North, New Zealand*. Available at: [massey.ac.nz/massey/fms/Colleges/College%20of%20Sciences/Epicenter/docs/KathyGoodwinPhD.pdf?0F604B246DB6A3B204BA7D811D47FB9D](http://massey.ac.nz/massey/fms/Colleges/College%20of%20Sciences/Epicenter/docs/KathyGoodwinPhD.pdf?0F604B246DB6A3B204BA7D811D47FB9D)

Hickford, J.G.H., Hodge, S., Bates, J.R. and Hogan, A.K. (2014) 'Brief communication: analysis of the on-farm cost of ovine pleurisy.' In *Proceedings of the New Zealand Society of Animal Production* (Vol. 74, pp. 62–64).

Lloyd, J (2016) *An investigation of the potential link between arthritis and tail length in sheep*. Meat and Livestock Australia. Available at: [mla.com.au/contentassets/6962324335a94e2bbbbaabc7a93ae86/b.ahe.0238\\_fina\\_l\\_report.pdf](http://mla.com.au/contentassets/6962324335a94e2bbbbaabc7a93ae86/b.ahe.0238_fina_l_report.pdf)

# Feeding Livestock What's new?

## Myth Buster Series

For anyone who has attended our Live Feed webinars, you will have been introduced to our Myth Busters segment. This is where we challenge a scientist to answer (in five minutes or less) a common issue or belief related to the feeding of livestock. In the first series we asked Gaye Krebs (Charles Sturt University) to answer whether feeding too much protein to stock was wasteful (so this was about supplement feeding rather than pasture). In series two, Shawn McGrath (also Charles Sturt University) tackled whether animals self-medicate – or find what they need if it is available. These can be accessed from "Latest News" on the right-hand side of the website.

## Pasture identification resources

We asked some of our staff to give us some of the resources they use to identify plant species in the field. This includes main pasture grass and legume species, native grasses and pasture weeds. We have included this list (which is by no means exhaustive) on the Pasture Resources page and includes both hard copy versions as well as a few apps.

## Pasture growth curves and spring growth predictions

We have included a guide to some pasture growth rates on the Pasture Resources page which have come from ProGraze courses as well as a more comprehensive list of different localities and pasture types produced by EverGraze. We are also including some predictive growth rates for spring for several sites involved in a Producer Demonstration Site (PDS) – Predicting spring growth using soil moisture. This is based on the premise that soil moisture in the bank (soil) at the beginning of spring is a reliable source of moisture to produce spring pasture growth. Hence there are several programs that use soil moisture (and seasonal forecasts) to predict the spring season ahead. The PDS is having a look at this and doing some 'actual' measures to potentially validate this. The sites all have soil moisture probes installed and all have a phalaris base and a range of legumes (subclover; balansa clover and lucerne). Melbourne University has used the soil moisture data at the beginning of each month (i.e. September and then October) plus the seasonal weather forecast to produce a pasture growth curve for each site – with a median and range provided so you can see the effect of low and high follow up rain if this did occur. The data is available for sites in central Victoria (Baynton) and south west (Harrow; Dartmoor and Cojar).

The screenshot shows the 'Feeding Livestock' website interface. At the top, there is a search bar and the Agriculture Victoria logo. Below the header, a 'WELCOME TO FEEDING LIVESTOCK' banner is visible. The main content area is divided into several sections: 'Pasture Resources', 'Beef Resources', and 'Sheep Resources', each with a 'Learn More' button. Below these are 'Beef Book' and 'Sheep Book' sections. On the right side, there is a 'FOLLOW:' section with social media icons and a 'LATEST NEWS' section listing recent articles such as 'Pre-joining ram and bull checks and nutrition' and 'September pasture growth predictions'. At the bottom right, there is an 'All News Items' section and a 'BOOK FOCUS: WHAT TO FEED' section with an image of hands holding grain.