



# Ovine Observer

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## Feed365 Trial Update – Pastures

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The recent Feed365 field day held at Katanning Research Station was an opportunity to reflect on the performance of the experimental treatments over the last year, and while we still have a lot of data analysis to do, it is possible to provide some preliminary insights.

The trial consists of 0.5 ha plots grazed by sheep spread across two sites, the first having 11 treatments the second 13. Plots are grazed depending when they are best utilised during the year and whether they have adequate feed-on-offer (FOO). The goal is to develop profitable livestock systems based on forages that minimise the use of supplement by reducing feed gaps.

The 2023 growing season ended in October with the traditional subclover/ryegrass pasture having a FOO of around 1100 kg DM/ha, by contrast the wheat stubble had a FOO of around 5000 kg DM/ha. All the remaining

treatments had FOOs between these two, the exception being those that had been sprayed and sown to summer crops.

During the summer period, the treatments that provided more grazing than the wheat stubbles either included triticale/cereal rye, serradella/ryegrass dry residues or summer-active perennials including veldt grass, teder or tall wheat grass. For example, one of the best performing treatments, veldt grass, was grazed for 12 weeks compared to the wheat stubble which was grazed for 4 weeks (Figure 1). This was impressive given the dry hot summer and low perennial growth rates.



Figure 1. Veldt grass/serradella (left) compared to wheat stubbles (right) at the beginning of December 2023 at the Katanning Research Station.

In the summer period, only the perennial forages teder, veldt grass, tall wheat grass, lucerne and kikuyu remained green. However, following rain in late summer after a long dry spell we did get patchy germination of the summer crops, which resulted in very modest amounts of green feed in February and March 2024. The most impressive summer crops were sunflower and sorghum.

The 2024 growing season commenced in May however it was not until mid-July that we commenced grazing most treatments because of the lack of feed and the need to control Red-Legged Earth Mites (RLEM). Exceptions included the perennials veldt grass and lucerne/ocksfoot which were able to be grazed following the break of season. When the bulk of grazing commenced in July the treatments with the most FOO compared to the typical subclover annual ryegrass pasture (1800 kg DM/ha) were a dry sown mix of forage and black oats (4100 kg DM/ha) and dry sown awnless triticale DynaTrit 1143 (3400 kg DM/ha) (Figure 2). This indicates that perennials and dry sown forage crops can substantially improve feed availability during the autumn and winter feed gap.

In mid-spring, the perennial pastures are being rested to be utilised for grazing in late spring and early summer. Several of the forage crops have been grazed hard to be sown



to summer crops in October, and the remaining pasture treatments will be grazed until the season finishes or feed availability reaches the minimum required to protect soil surfaces.



Figure 2. Forage and black oats (left), awnless triticale DynaTrit 1143 (middle) compared to subclover and annual ryegrass (right) in July 2024 at the Katanning Research Station.

In conclusion, treatments that provided more feed during feed gaps included triticale/cereal rye combined with subclover or serradella, awnless triticale DynaTrit 1143, veldt grass/serradella, tedera, tall wheat grass/subclover and lucerne/ocksfoot. Sorghum and sunflower are potentially useful summer crops however they do require further research. Encouragingly, the forage treatments combined were able to provide feed for most of the period reported including a dry summer. This gives us confidence that some combinations of these treatments as a forage system will meet the objectives of the project to increase the number of days of the year that pasture grown in the paddock can support livestock production.

## Acknowledgements

We would like to acknowledge the financial support of SheepLinks (DPIRD and MLA) and the seed companies Barenbrug, Nutrien, RAGT and DLF.

For more information and updates on the Feed365 project see the [website here](#).

## What is the real cause of scouring in your sheep?

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Scours (or diarrhoea) in sheep is a common condition that can occur at any time of the year, in any class (age, sex, pregnancy or lactation status) of sheep.

At this time of the year, lush, green, rapidly growing pastures (with herbage/weeds) in many sheep producing areas of Western Australia can lead to scouring due to many specific underlying causes. Managing scours is important, not only for the immediate health of the animals, but also because scouring animals will attract blow flies in spring.

Scours is a clinical sign (a symptom), not a disease or cause of disease in its own right.

Many specific causes can result in scouring. This article is a short overview of the most common occurring causes of scours in Western Australia affecting sheep. Other causes are not discussed. Veterinary investigation with laboratory tests is usually needed to identify the cause(s).

Causes of scours can be grouped into broad categories of pathogens including:

- **Parasites:** such as scour worms, or coccidia. It is important to note that Barber's Pole worm does not cause scours – it is a blood sucker that causes anemia. However, often sheep have a mix of scour and barber's pole worms, especially within about 200km of the coastline. Further inland, Barber's Pole worms are not as frequently encountered as they do not survive dry inland summers.
- **Bacteria** that affect the intestines: including Johnes Disease (*Mycobacterium paratuberculosis*, *Salmonella*, *Yersinia*, *E. coli*).
- **Viruses:** Rotavirus is more common in very young animals especially in high intensity farming situations like dairies.
- **Rumen acidosis:** can occur with lush green grass or herbage, or from grain overload or incorrect introduction of grain or grain-based pellets.
- **Herbage/weeds/toxic plants:** Some species of broad-leaf herb can cause scours due to high moisture content and low roughage: others may be irritant in high volumes consumed or actually be toxic.

### Worms causing scours

Worms are a common cause for scouring at this time of the year, but they are too frequently assumed to be the only cause of scouring, when another cause may be the underlying major disease. This causes stress, allowing scour worms to also affect the animal. Current seasonal conditions are highly conducive to the rapid build-up of worm larvae on pastures. If sheep are scouring, a faecal worm egg count can determine if worms are at least one of the issues. At least every 5 years, a drench resistance test should be done on farm: use faeces collected from current lamb crop just after weaning for highest accuracy.

Infections of black scour worm (*Trichostrongylus* spp.), small brown stomach worm (*Teladorsagia circumcincta*) and *Nematodirus* spp. (largely restricted to lambs) may cause scouring. If sheep continue to scour after good drench rotations (across the various drench active ingredient classes), then there may be one of the other causes of diarrhoea at play, and a necropsy should be undertaken and samples sent to the DPIRD lab for testing.

More information:

[Wormboss](#)

[Worm Egg Counts](#)

[Drench Resistance Testing](#)

### **Coccidiosis causing scours**

Outbreaks of coccidiosis can also cause scouring. Outbreaks are typically sporadic: they usually occur in young sheep (less than 6 months old), and are associated with high stocking densities (overcrowding, particularly for sheep housed in feedlots) or other stressful situations such as prolonged cold wet weather, poor nutrition, management procedures (e.g. weaning) or concurrent disease. A faecal worm egg count will also allow coccidiosis oocyte counts to be done to determine if coccidiosis is involved.

More information:

[Coccidiosis](#)

### **Barber's pole worm does NOT cause scours**

Barber's pole worm (*Haemonchus contortus*) is often mistaken to cause scours, however it does NOT cause scours. It is a blood-sucking worm. Blood sucking causes the loss of red blood cells (that have haemoglobin molecules essential for carry oxygen around the body). A lack of red blood cells shows up as pale mucous membrane (the membranes of the mouth, lips, gums, inside cheeks or the inside of the vulva). Lack of red blood cells causing paleness is called anaemia. Anaemia is a clinical sign (symptom) - not the underlying cause of the anaemia. Barber's pole worm, *Mycoplasma ovis* (a parasite of red blood cells) and copper deficiency are the most common causes of anaemia in sheep in Western Australia. Severe Barber's pole worm infections cause lethargy as low oxygen carried to the cells, loss of fraction of protein from the blood causing loss of fluid from the veins and arteries into tissues or body cavities include bottle jaw in sheep (sub-mandibular oedema). Sheep can lose weight, collapse and die. A break in the wool may also occur in severe cases reducing the value of the fleece.

More information:

[Barber's pole worm](#)

### **Bacteria causing scours**

The small intestine is the organ that absorbs most nutrients. An inflammation of the small intestines is called enteritis, no matter what the cause of the intestinal inflammation. Viruses can cause scouring in very young animals, however, bacterial enteritis is more common in sheep after weaning through to old age.

Common bacteria causing scours are found naturally in the environment and include; *Salmonella*, *E. coli*, and *Yersinia*. Stress is the most common risk factor that can lead to bacterial enteritis. Recent transport, being kept off feed for a period of time, or being kept at a high stocking density where hygiene is a problem are common causes that let the bacteria establish. Climatic stress including cold/wet weather, windy periods, or heat waves can also cause some bacterial enteritis to occur.

Any other concurrent disease that the animals might have will cause the animal stress and make them more prone to enteritis.

Whilst a private veterinarian may prescribe antibiotics to treat bacterial enteritis, treatment for a whole flock experiencing the outbreak of bacterial scours is usually cost-prohibitive. Further, the growing concern of antimicrobial resistance due to overuse of antibiotics in food producing animals is a major human/veterinary and industry concern. Reducing stress and focusing on better management and husbandry, is cheaper and better for the industry.

Despite the name, Pulpy Kidney is also a pathogen of the small intestines. Its better name is enterotoxaemia. Scours may be seen, but death is usually sudden in acute (fast onset) infections. A slower onset form may also occur.

More information:

**Salmonella**

**Pulpy kidney (Enterotoxaemia)**

### **Bacteria - Johne's Disease causing scours**

One bacterial enteritis causing diarrhoea is Johne's Disease (JD) caused by the bacterium *Mycobacterium paratuberculosis*. Nationally the prefix Ovine Johne's Disease (OJD) or Bovine Johne's Disease (BJD) has been dropped. Both are now called Johne's Disease or JD for short. Whilst it is no longer a quarantinable disease within Western Australia, is still a Reportable Disease under the *Biosecurity and Agriculture Management Act*. That means suspicion of JD in sheep or cattle must be reported to a DPIRD vet. It is a disease that causes malabsorption in the intestines, leading to profuse scouring, weight loss and death in sheep. Whilst lamb ingest the bacteria, it is not usually until sheep get older that it causes disease, although sheep as young as two-tooth hoggets have been diagnosed with JD. A veterinarian needs to perform a postmortem on suspect sheep and take samples for the lab to get a definitive diagnosis of JD. A visual examination by a farmer, an agent, or even a veterinarian cannot 100% differentiate between JD and scour worms (that are often present when the sheep has JD, as JD is a stressor). Vaccines are available to help reduce the occurrence of JD in sheep. Restrictions on movement and sale of animals from JD positive farms apply. A Sheep Health Statement where the seller declares that JD is not present on their farm is the best form of protection a buyer has. Avoiding purchase of sheep without a declaration, or from districts where prevalence of JD is known to be high is important.

More information:

**Johne's Disease in Sheep**

### **Ruminal acidosis/Rumenitis causing scours**

Ruminal acidosis can occur with lush green grass or herbage, or from grain overload or incorrect gradual introduction of grain or grain-based pellets. Ruminal acidosis is when the pH level of the rumen drops below normal values for that species. The acid produced from the feed consumed burns the lining of the rumen, reticulum and sometimes omasum (first, second and third stomachs of ruminant animals). This can cause scours and allow other pathogens like *Salmonella spp*, *E. coli* and *Yersinia* to enter the blood stream, cause liver damage and damage to other bodily systems and death of the animal. Other rumenitis can be caused by fungal infections of the lining of the rumen (mycotic rumenitis). Ruminal acidosis or rumenitis, is most common in grain feeding situations when 'hot feed' high in carbohydrates is fed to sheep or cattle. Generally, the risk of acidosis from grain in



descending order is wheat > barley > oats. However, sudden introduction to grain or gorging by hungry sheep of any type of grain or grain pellets, will cause ruminal acidosis where the rumen bugs have not had sufficient time to adapt to the grain. Ruminal acidosis can occur also on lush green feed, though it may be milder, often mistaken as scour worms.

More information:

[Ruminal acidosis and grain overload](#)

## Herbage/weeds/toxic plants causing scours

The high volume of water in young rapidly growing grasses and broadleaf herbage in winter can cause scours even without any toxic components to the plant. Other plants have some toxic components that are not usually a problem provided they are not the only source of grazing and are not over consumed. Sheep chase green pick feed when the dry season breaks. Broadleaf plants like Cape weed are quick to grow and may form a large part of the diet. The low roughage component in these early season growth plants can also lead to scours. Cape weed is widespread throughout sheep growing areas and is one plant that can lead to scours. Reduction in stocking pressures that allow herbage to invade and dominate grass-species pastures should be considered in paddock management. Keeping roughage in the diet by feeding hay especially in the early part of the growing season is important to keep bulk in the rumen.

## Why is a post-mortem important?

Given that there are many common causes of scours in sheep, including reportable Johne's Disease, even an experienced veterinarian cannot be 100% certain of the true cause(s) of scours, simply by making a 'field diagnosis' based only on a visual examination. Only by performing a necropsy (post-mortem) and submitting samples to a veterinary lab, will one or often several causes of scours (or other concurrent diseases) be accurately diagnosed.

Accurate lab diagnosis is fundamental to guide the correct treatment of the true cause of the disease(s) whether that be under veterinary prescription, or over the counter drenches or other products from a rural merchant agency.

## A final comment

Not every case of scours is caused by scour worms. Call a private or DPIRD Field Vet, and get a proper investigation done to establish the true cause of scours. This will save you money by ensuring the correct treatment, reduce unwarranted worm drench use, protect worm drenches by delaying the onset of drench resistance, and if the cause is other bacteria, then changes in management are needed.

Your private veterinarian can gain approval from a DPIRD Field Vet, to access the Significant Disease Investigation (SDI) subsidy that will offset much of their fees, travel cost, and lab charges. See webpage [here](#).

For more information on each condition, search the [DPIRD website](#), call your local private vet, or the DPIRD Field vet in your area.

DPIRD Field Veterinary Officer contacts are available [here](#).

## Warning for livestock owners to look out for Annual Rye Grass Toxicity

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### Introduction

Long periods of wet weather this year have prompted DPIRD vets to issues an alert to livestock owners of an increased risk of Annual Rye Grass Toxicity (ARGT) over spring and summer.

The complex interaction between rainfall, nematodes and the toxin caused by a specific bacterium, may lead to higher incidence of ARGT-related livestock deaths this year.

### Annual Ryegrass Toxicity

To be toxic, the annual ryegrass must be infected by the bacterium *Rathayibacter toxicus*. A nematode called *Anguina funesta* travels into the flowering parts of developing ryegrass and carries with it the bacteria. The seed head is then slowly taken over to form a toxic gall.

When seasonal conditions are right, including moisture and temperature, bacteria and nematode growth and development are promoted. This may result in more infected paddocks or hay crops, which in turn lead to higher numbers of stock affected by ARGT.

Climatic and seasonal weather conditions including extended weeks of wet weather, as was experienced in winter of 2024, may lead to increasing risk factors for ARGT development this spring and summer.

DPRID field vets are advising all livestock producers and hay producers, to be extra vigilant this year.

ARGT is generally more common in the wheatbelt, and in the Swan Valley/Bullsbrook, Chittering and Perth Hills areas. It was first seen in the Eastern Wheatbelt, but has spread steadily South and West over time.

### Stock losses

In recent years there have been significant stock and horse losses, with over 40 cattle deaths on one farm alone in the Northern Perth Hills areas, and cattle and horse deaths on farms around Chittering. Moora and Lake Grace. Cases have been seen in sheep as far South and West as Darkan, Kojonup and Williams. Farmers in these areas have lost dozens of sheep.

### Toxin persistence

Hay producers, horse and stock owners feeding hay need to be aware that once a paddock develops toxicity, the toxin persists in the paddock until the following growing season. The toxin survives in hay and silage. When buying hay, whether meadow or cereal hay, always ask for an ARGT testing certificate to show that the hay is low risk.



## Signs in stock

Early detection of clinical signs and removing affected stock from ARGV grass or hay is the key to stock survival.

Signs of ARGV are mostly neurological including, shaking, muscle tremors, incoordination, jaw champing and dullness. Followed by an inability to rise, and convulsions.

If affected stock are still able to rise, they may have a wide-base stance of front and back legs, and have the limbs stretched out in front or behind them, in a rocking horse-like stance.

Signs are made worse by stress or movement, and commonly a mob of apparently normal animals will suddenly show severe signs of ARGV (collapse, seizures, and death) when driven into a new paddock, or when stock are mustered.

Large numbers of a mob can be affected, and in severe cases the death rate can be 100%. ARGV can affect sheep, cattle, pigs and horses.

## Signs not specific to ARGV

These signs are not specific to ARGV. Diseases that affect the liver's ability to function such as lupinosis and blue green algae poisoning can also cause neurological signs. Metabolic diseases like thiamine deficiency and pregnancy toxaemia can also cause nervous signs, along with deficiencies such as hypocalcaemia (milk fever) and low magnesium. Pulpy kidney may in some cases cause seizures. Diseases not present in Australia such as BSE (mad cow disease) and scrapie in sheep also cause neurological signs: it is important to call a vet to conduct a proper necropsy and submit lab samples so a definitive diagnosis of the true cause can be made. This will ensure correct management advice is provided to the producer. Demonstrating the absence of BSE and scrapie helps to support export market access.

## Conclusion

The toxin in ARGV accumulates slowly in the animal's system over time and there is no specific antidote for the toxin. Affected animals which are diagnosed early and removed from the toxic pasture can make a spontaneous recovery, although they need close observation and care, along with easy access to feed and water. Severely affected animals which are unable to rise or to eat and drink should be euthanised on welfare grounds.

## Further information

For more information on ARGV see here: [Annual Rye Grass Toxicity in Livestock](#)

Producers can test their own hay or paddocks for the presence of the toxin. More advice on sampling can be found here: [Testing Hay for Annual Rye Grass Toxicity \(ARGV\) risk](#)

Faeces from affected livestock can be tested for ARGV, or dead animals can have rumen samples tested.

Suspected ARGV can also be investigated by a private veterinarian, and an outbreak may qualify for the [Significant Disease Investigation Program](#). Report all outbreaks of disease or unusual signs of changes in behaviour to your DPIRD Field Veterinary Officer or call the Emergency Animal Disease Hotline on 1800 675 888

DPIRD Field Veterinary Officer contacts can be found here: [Animal Biosecurity & Welfare program contacts for Western Australia](#)

## Are your sheep fit to load?

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### Inspection of livestock at Katanning Saleyards

Recently, the Department of Primary Industries and Regional Development (DPIRD) conducted an inspection at the Katanning sheep saleyards, evaluating approximately 30 trucks and 11,000 sheep. This assessment aimed to ensure compliance with the *Animal Welfare Regulations 2020*. During the inspection, only minor infractions were noted, particularly concerning inadequate non-slip flooring in one of the trucks.

Animal welfare is a collective responsibility. Producers, truck drivers, agents and receivers all play important roles in ensuring that animals are adequately prepared and cared for throughout their journey. This joint effort is essential for maintaining high welfare standards for the industry.

### Preparing animals for transport

Preparing animals well for transport is an important part of any livestock movement. When animals are well prepared, they are less stressed, travel better and animal welfare issues are less likely.

Practices for preparing livestock for transport include:

- resting recently mustered livestock
- pre-mixing animals from different mobs
- recording and communicating the date and times livestock last had access to feed and water
- selection of livestock prior to loading
- performing husbandry practices (for example, horn tipping) well in advance
- planning the journey considering the length and weather
- appropriate loading facilities that are fit for purpose.

Before sheep are loaded, it is important to run through a 'Is it fit to load' checklist such as the MLA's '[Is the animal fit to load?](#)' guide below.

The animal:

- can the animal walk on its own, bearing on all 4 legs
- is free from visible signs of sever injury or distress, or conditions likely to future compromise its welfare during transport
- is strong enough to make the journey (i.e. dehydration, emaciated)
- can see well enough to walk, load and travel
- is not in late pregnancy or too young to travel
- has had adequate access to water prior to loading.

Animals with pre-existing painful conditions, those unable to bear weight on all legs, or those displaying signs of stress should not be loaded. This helps prevent unnecessary suffering of the animal and aligns with animal welfare standards. If an animal is unfit to load, you must treat the animal and reassess, or consult with a veterinary surgeon before transporting (only under veterinary advice).



## Animal husbandry

Ensuring good animal husbandry and meeting the basic needs of animals is important in maintaining animal welfare standards. Even in tough seasons it is important that sheep have maintain adequate nutrition to sustain good health, this is a body condition score of around 2.5-3 (depending on class of animal and pregnancy status), the minimum standard for transport is a body condition score of 1.5. If sheep do not meet this standard, producers should consider alternative strategies such as supplementary feeding or agistment to improve the animal's condition before loading.

Other good animal husbandry practices include:

- Providing sufficient water (of suitable quality)
- Social contact with other livestock (same species)
- Sufficient space, facilities, equipment husbandry and handling procedures that minimise stress to the animal
- Minimising risk of pain, injury or disease
- Providing appropriate treatment (including euthanasia)
- Appropriate precautions against extremes in weather.

## Vehicle used in transport

When transporting livestock, it is important to ensure that the vehicle being used also provides suitable conditions for the livestock. Consideration needs to be given to the time off water depending on the class of livestock and the duration of the journey

Even when transporting livestock occasionally, the crate must have non-slip decking fitted and no protrusions or hazards that could harm the animal during the journey.

Stock crates should be inspected on a regular basis particularly at the end of each load to ensure livestock have not damaged part of the crate that can lead to injury of other animals.

## Consequences of poor animal welfare standards in transport

Failure to comply with these regulations can trigger investigations that may result in legal penalties for those responsible. This emphasises the importance of adhering to animal welfare standards to avoid repercussions and ensure the humane treatment of livestock during transport.

### More information:

[MLA: 'Is the animal fit to load?' guide](#)

[DPIRD: 'Are sheep and cattle fit to load?' guide](#)

[Animal Welfare: Livestock Transportation](#)

## Acknowledgement

Information from this article has been collated from DPIRD compliance officers and the [MLA: 'Is the animal fit to load?' guide](#).

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