

Facial Eczema - A Major Problem for Livestock

by Karine Raiz

All Australian farmers face challenges. We are challenged by the weather; by drought, scorching summers, frosty winters, graziers alerts, flood, lack of top-soil and low pH to name a few. While all these challenges can be planned for and contingency plans put into action, after all most graziers' job is to grow good grass and to keep their animals healthy, what I want to talk about is a major health challenge and the approach farmers can take to minimise and control its effect.

In our 6 years of farming we have discovered and been affected by a condition that is endemic through most of Australia – Facial Eczema. But until our alpacas were affected and we launched into research mode we were unaware of just how widespread it is.

What is Facial Eczema?

Facial eczema is an extremely stressful condition that can be likened to the most severe cases of sunburn. Named for the visible signs of photosensitisation affecting exposed non-pigmented areas of skin, especially on the face around the eyes, ears and muzzle, facial eczema can result in the death of badly affected animals and reduced productivity and fertility in less affected animals. Once contracted, it always leaves some degree of damage which can range from mild to severe.

Which animals are affected?

Facial eczema can affect all ruminants i.e. Sheep, Alpacas, Llamas, Deer, Goats and Cattle, to some degree.

The susceptibility from high to low appears to be:

High - Fallow deer, sheep, alpaca, and llama.

Moderately High - dairy cattle.

Moderate - beef cattle & red deer.

Low – goats.

Interestingly we have noticed that not all animals show signs of facial eczema. We certainly know now that some of our alpacas are susceptible, and we even have evidence that susceptibility runs in family lines. A friend who grazes goats has confirmed this in goats as well.

What causes Facial Eczema?

The disease is seasonally common in Australia, New Zealand, USA, South Africa, Britain and Europe and is caused by the ingestion of spores of the pasture fungus, *Pithomyces chartarum*, which produces the mycotoxin sporidesmin - a potent liver damaging toxin.

Sporidesmin not only causes severe liver damage and pithomycotoxicosis (facial eczema), it also damages the bladder and severely reduces milk yield in lactating animals.

Where is it found?

The fungus will grow on most pasture plants, but grows best on perennial ryegrass. It grows in the dead pasture litter at the base of the plants; most toxic spores are found in the bottom 25 mm of the pasture. When the fungus reaches toxic levels, animals grazing short pasture at high stocking rates are at greatest risk. Obviously the higher the spore count in the pasture the greater the risk.

Given suitable temperature and moisture conditions, the fungus grows in 'clusters' on the paddock, rather like mushrooms, but is normally not visible to the naked eye. It multiplies by producing millions of spores which are coated with the toxin sporidesmin. Freshly produced spores are the most toxic. If fungal growth stops after a change in the weather, the residual spores on the pasture lose their toxicity within one or two weeks.

What are the usual conditions when facial eczema affects animals?

For rapid growth and spore production *Pithomyces* need both warmth and high humidity. These conditions are met when periods of warm humid weather follow rain. Danger periods occur when

grass minimum temperatures in excess of 12-13°C for 2-3 days coincide with light rain or heavy dews that keep the base of the pasture continuously damp.

Even farmers who do not keep weather records have no problem recognising these danger periods as they are the 'sticky' days and nights when sleep is difficult. The occurrence of such weather is usually the signal for adopting preventative measures. We find Spring and Summer weather, especially with some light rain or heavy dews and mild nights, combined with ryegrass dominant pastures, and/or pasture with plenty of dead soft leaf matter provides the perfect environment for Sporidesmin.

On our farm no.2 [see last issue] we were grazing our girls on a paddock where they were affected by facial eczema. We were **puzzled by this** as the paddock contained mostly kikuyu, some native grass and clovers. The soil in this paddock was excellent and even though it was only 4 acres, we were grazing around 50 alpacas successfully. Actually they couldn't keep up with the grass! This shouldn't have been the environment to produce the symptoms of facial eczema.

On investigation with some other farmers in the district and the local produce store we found that the paddock had been seeded 5 years previously with ryegrass (type unknown) but it had failed to establish completely and the kikuyu had reasserted itself. However in the hot humid summer, with long lush kikuyu, the microclimate was perfect for the fungi to assert itself in the undergrowth.

NB Italian ryegrass does not seem to carry the same level of risk as that of other ryegrass. It is also interesting to note that Australian native pasture grasses seem to produce little to no incidence of endophyte, sporidesmin or other mycotoxins that cause liver damage to ruminant animals.

Symptoms of the Disease

The period between toxin spore ingestion and first symptoms generally depends on the amount of toxin spores actually consumed. There is also a lag time of between 10-20 days between eating toxic pasture and the appearance of signs of the disease.

The first signs of intoxication after animals are initially exposed to the toxin can be transient diarrhoea and loss of appetite. There may also be a sudden pronounced fall in milk volumes in lactating animals. These changes occur immediately after exposure to sporidesmin, and generally before signs of photosensitisation and clinical disease are normally seen, and are often not recognised.

The clinical signs, which are distressing, are caused by a generalised photosensitisation of exposed skin arising from liver damage and blockage of the bile ducts as a result of toxin-induced cell death.

Injury to the liver causes the bile ducts to thicken and become obstructed. This causes jaundice and interferes with the animal's ability to excrete waste products from its body. Phylloerythrin, the breakdown product of the green pigment in pasture, chlorophyll, then accumulates in tissues, causing a range of symptoms and signs, the most spectacular being severe hyper-sensitivity to light. It is this compound that causes the photosensitisation first seen 10-20 days after animals first graze toxic pasture and includes irritation, reddening and swelling of weakly or non-pigmented exposed areas of skin – especially the muzzle, eyes, ears and udder.

This is seen as a **reddening and** swelling of the soft tissue of the head, under the jaw and over and around the eyes. The ears become thickened, hot to touch and characteristically droop.

Photosensitive animals seek shade from the sun and are dull and restless, usually with depressed appetite. They shake their heads, flick ears and tail, stamp and kick at inflamed areas of skin and persistently rub affected areas against objects (e.g. fences, trees etc). Exposed areas of skin can develop weeping dermatitis and scabs that can become infected or fly blown.

Animals are jaundiced, which can persist for several days in mild cases and for many weeks in animals with severe liver damage. Inflammation and ulceration of the bladder can cause frequent and prolonged urination with the urine being deeply coloured with bile pigments.

While not all animals with damaged livers will show clinical signs, as these appear only in animals in which liver damage is widespread, or major bile ducts are block, in most outbreaks the majority of animals may show little, or no, outward sign of the disease despite the fact many of them will have suffered liver damage that will permanently reduce their productivity and fertility.

Except where severe photosensitisation occurs, the number of animals dying from facial eczema at the time of the outbreak is often not high, but further deaths often occur later when animals with permanently damaged livers come under additional stresses associated with pregnancy, birth and lactation.

How to Diagnose Facial Eczema

1. Observation - symptoms appear.
2. Blood test which measures the extent of liver damage.

Control of Facial Eczema

Essentially there are three basic strategies for reducing the severity of facial eczema outbreaks:

- 1) reducing toxin intakes.
- 2) protecting animals against ingested toxin and
- 3) increasing animal resistance to ingested toxin.

The most important ways of reducing toxin intakes is to identify and avoid toxic pastures. While maintaining good weather records can help to identify the danger periods when high grass minimum temperatures and rainfall favour rapid growth and sporulation of *P. chartarum*, regular examination of pasture samples for *Pithomyces* spores is highly effect.

Pithomyces spores are easily recognised, with a characteristic shape often described as hand grenade like. The number in pasture can be readily counted by anyone who can learn to use a microscope.

When dangerous conditions are detected, decisions can be made to reduce the risk of ingesting the toxic spores by choosing to graze pastures which have low spore counts because of differences in how they face the sun and wind, length and type of pasture etc.

The risk of ingesting toxic spores can be further reduced by reducing grazing pressures on the pastures by spreading stock out over all available pastures or by feeding supplements or crops to reduce both the total pasture intake and the need to graze down into the most toxic zones.

While there is no antidote for the fungal toxin or simple cure as such for the effects of facial eczema, at Surilox we have been treating our alpacas symptomatically with great success.

Affected animals are removed from the suspect pasture if possible. That is: we remove our grazing animals from their current pasture. If it is available we take them to pasture that has no ryegrass or paspalum. If this is not possible, we take them to pasture with the least amount of these grasses and we feed lucerne hay so that they do not have to depend on the pasture grasses. A good rule of thumb is one biscuit of Lucerne hay per alpaca **per day**, for other ruminants you need to use your best judgement.

We also supplement our alpacas with muesli we based on a recipe by Pat Coleby. We have changed the recipe to reflect our animals nutritional needs - this is based on the protein and other minerals available on our farm. We have also developed a Muesli Additive that we start using in Spring through to the beginning of Autumn, and we allow access to plenty of clean water. This muesli additive contains natural ingredients that are efficient mycotoxin scavengers.

Further treatment of our alpacas includes a Soothe cream which we have developed on-farm. It contains an effective sunscreen plus natural essential oils to aid in healing and minimise the impact to the animals metabolism.

Our Muesli Additive and the Soothe Cream do not interfere with normal veterinary treatment.

Animals with severe symptoms of facial eczema need to have their liver function bolstered. We always seek immediate veterinary advice for severe cases, after all it is better to incur Vet fees than lose a valuable animal.

Summary

Facial eczema is the generic term for a reaction to certain toxic substances produced or harboured by some pasture grasses, and held within the microclimate in those grass pastures. While many

livestock farmers are not all that familiar with facial eczema it is a major problem of grazing animals in areas with warm humid weather and one which can have a serious impact on the productivity of grazing operations. Lifetime lamb production of ewes with moderately severe liver damage, but not showing clinical signs of disease, for example, has been shown to be reduced by 25 per cent. Obviously, should a similar loss of fertility be experienced in an alpaca flock the financial consequences are much greater.

The appearance of clinical signs of photosensitisation in a flock or herd however, especially during the autumn, does not necessarily mean that animals have ingested sporidesmin and are suffering from facial eczema as there are also a large number of toxic plants that can cause liver damage, photosensitisation, and clinical signs similar to those of facial eczema. After any photosensitisation is noticed, or liver damage detected by blood test, it is important that all pastures the animals have recently grazed are carefully examined for the presence of toxic plants.

Information about [Natural Solutions](#) products as developed at Surilox.

Natural Solutions Soothe Cream - contains a powerful sunscreen to minimise photosensitivity and the effects of sunburn caused by facial eczema.

The natural essential oils of Urtica, Calendula and Hamamelus contained in this organic cream aid in the repair of damage to ruminant animals' sensitive exposed parts, and [provide](#) instant relief to the itching and discomfort.

Natural Solutions Soothe cream is best applied in the morning, we recommend just after dawn, and improvements should be seen within a week - redness should disappear and hair should regrow.

Natural Solutions Muesli Additive - contains natural yeast by-products specifically found to be mycotoxin scavengers, Vitamin C, natural Kelp extracts with added zinc and Dicalcium Phosphate.

We have found these ingredients help bolster an animal's resistance to Sporidesmin. The specific yeast by-products used in the Natural Solutions Muesli Additive have been proven to assist in the repair of some liver damage and prevent further damage from occurring.

The Natural Solutions Muesli Additive can be used year round however no Copper supplement should be fed to animals during the seasons where Sporidesmin can affect your animals as Sporidesmin utilises Copper to aid in its growth in an animal's system.

The Dicalcium Phosphate adds calcium and aids in the animal's uptake of vitamin D.

Prolonged high intakes of zinc can cause damage to a ruminant's pancreas so we do not recommend the use of any other zinc supplement while Natural Solutions Muesli Additive is being used.

Extremely high zinc intakes for extended periods can also interfere with the uptake and utilisation of other minerals i.e. Copper, Selenium and Calcium in particular - and can lead to symptoms related to deficiencies of these.

As far as we know there are no other products like ours available in the marketplace and we are pleased to offer them for sale.

Natural Solutions Animal Health Products are devised and packaged by Surilox.

[Surilox is located at "Nardoo" 101 Kennedy's Gap Road, Coolongolook NSW 2423](#)

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These products are Australian made and owned with ingredients sourced in Australia.

Surilox Natural Solutions Animal Health products were originally designed to use with our alpacas. We use them as needed. All ingredients are safe for animals and humans, completely non-toxic, predominantly plant based and eco-friendly.

References

Observation and Treatment of Surilox Alpacas

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