Don’t get caught under the darkness of

Coccidiosis

Did you know that only 4% of infected calves or lambs will show clinical signs?[1-7]

Trust Dycoxan to protect your stock from coccidiosis this season

chanelle

Information provided by Chanelle, makers of Dycoxan

Complete coccidiosis cover with Chanelle

What is it?

Coccidiosis is a disease caused by protozoan parasites of the genus *Eimeria*, which are typically numerous in livestock environments. Three species of *Eimeria* are considered pathogenic in cattle: *E. bovis, E. zuernii* and to a slightly lesser extent *E. albamensis*. In sheep, *E. crandallis* and *E. ovinoidalis* are the strains for consideration.

Animals readily consume coccidia oocysts (eggs) when grazing or simply exploring their surroundings. These oocysts are excreted in dung and although coccidiosis affects a wide variety of animals, the organisms involved are host-specific – coccidia from one species (e.g. sheep) cannot infect another (e.g. cattle). Even species as closely related as sheep and goats cannot infect each other.

How does coccidiosis affect my animal?

Oocysts in an animal's environment develop into infective (sporulated) oocysts under the right conditions (temperature, moisture, oxygen). Ingested oocysts pass through the digestive system and release sporozoites which penetrate cells in the gut lining. Within these cells the organisms develop and multiply further, eventually causing them to burst and release new oocysts. The 'bursting' of these cells leads to the breakdown of the delicate gut lining. The process can repeat multiple times and within two weeks the parasites can multiply up to a million-fold. The released oocysts pass out in the animal's dung and the cycle begins again.

As the gut lining is responsible for nutrient absorption in our animal, a compromised gut can lead to significant production losses and in some cases even death.

What will I see?

Clinical coccidiosis is seen in calves up to six months of age and lambs to eight weeks of age. Symptoms include:

- **Bloody/black diarrhoea**
- **Fluid loss**
- **Lethargic animals**
- **Fever/other ailments**
- **Straining**
- **Anaemia**
- **Lack of appetite**
- **Death**

The hidden problem

All ruminants kept under conventional conditions unavoidably experience infection with coccidia at some point[1,2]. However, the percentage of animals in an infected group with clinical symptoms is **typically low and often zero**. Though there are no clinical signs, performance is likely reduced as the coccidia affect nutrient absorption in the intestine and energy in the system diverts toward the necessary immune response. Diseases that negatively affect our animal without pronounced symptoms are deemed 'sub-clinical'.

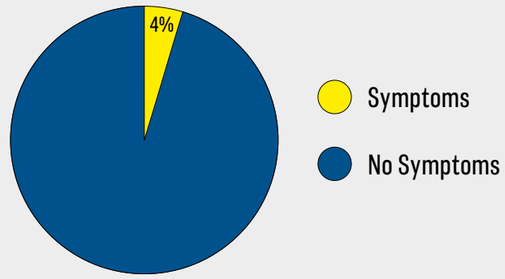
Subclinical coccidiosis

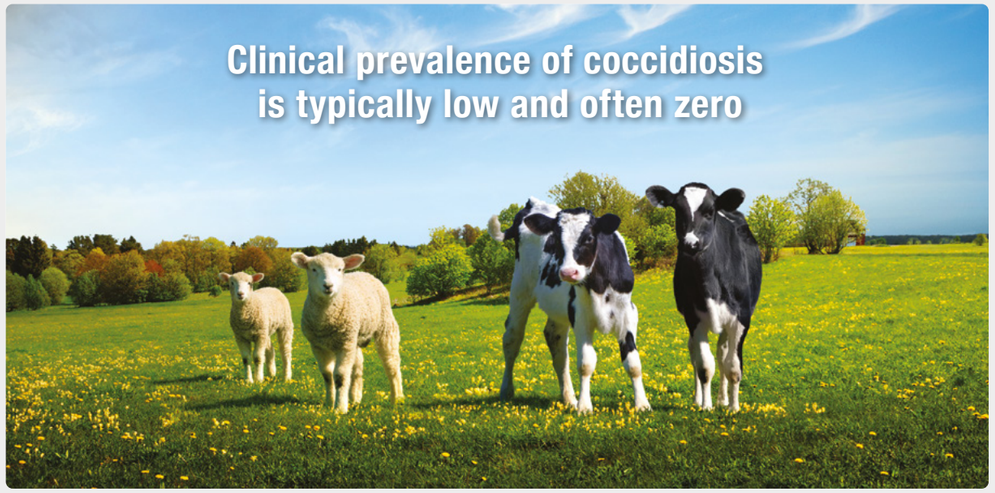
Subclinical coccidiosis can be more economically damaging to a farm than clinical cases as there may be no signs of infection, yet performance will have reduced. There is an opportunity cost in missed performance and this can be crucial particularly when producers work toward age-based growth targets.

In nine peer-reviewed scientific studies[1-7] which detected high burdens of coccidia oocysts in calf and lamb faecal samples, only 4% of animals showed clinical symptoms of coccidiosis.

Figure 1:

Animals infected with coccidiosis that showed clinical symptoms[1-7].





The solution

Anti-coccidials (e.g. diclazuril, the active in Dycoxan) are agents that disrupt the coccidia life-cycle by inhibiting development and multiplication. Administered at the correct time, they reduce both potential damage to the animal's gut and contamination of the animal's environment.

In seven of the studies included in Figure 1, live weights were taken and half of the animals were treated with an anti-coccidial. In all of the studies, animals treated with anti-coccidials grew faster than non-treated animals during trial. The growth increase ranged from 7% to 33% (Figure 2). Average performance increase was 19% across the studies.[1-5] Trial period averaged 42 days.

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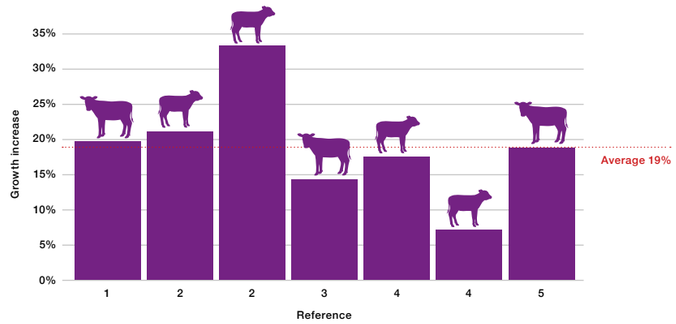
Figure 2:

Growth rate increase post-treatment versus non-treated animals



When to use Dycoxan?

Administer Dycoxan (diclazuril) within a fortnight of animals entering a risk environment (e.g. turnout/rearing shed), during the pre-patent period. Ideally, this occurs between 10 and 14 days post-movement. Alternatively, identify when there were coccidiosis symptoms on the farm in the past and treat a week in advance of when symptoms are expected.

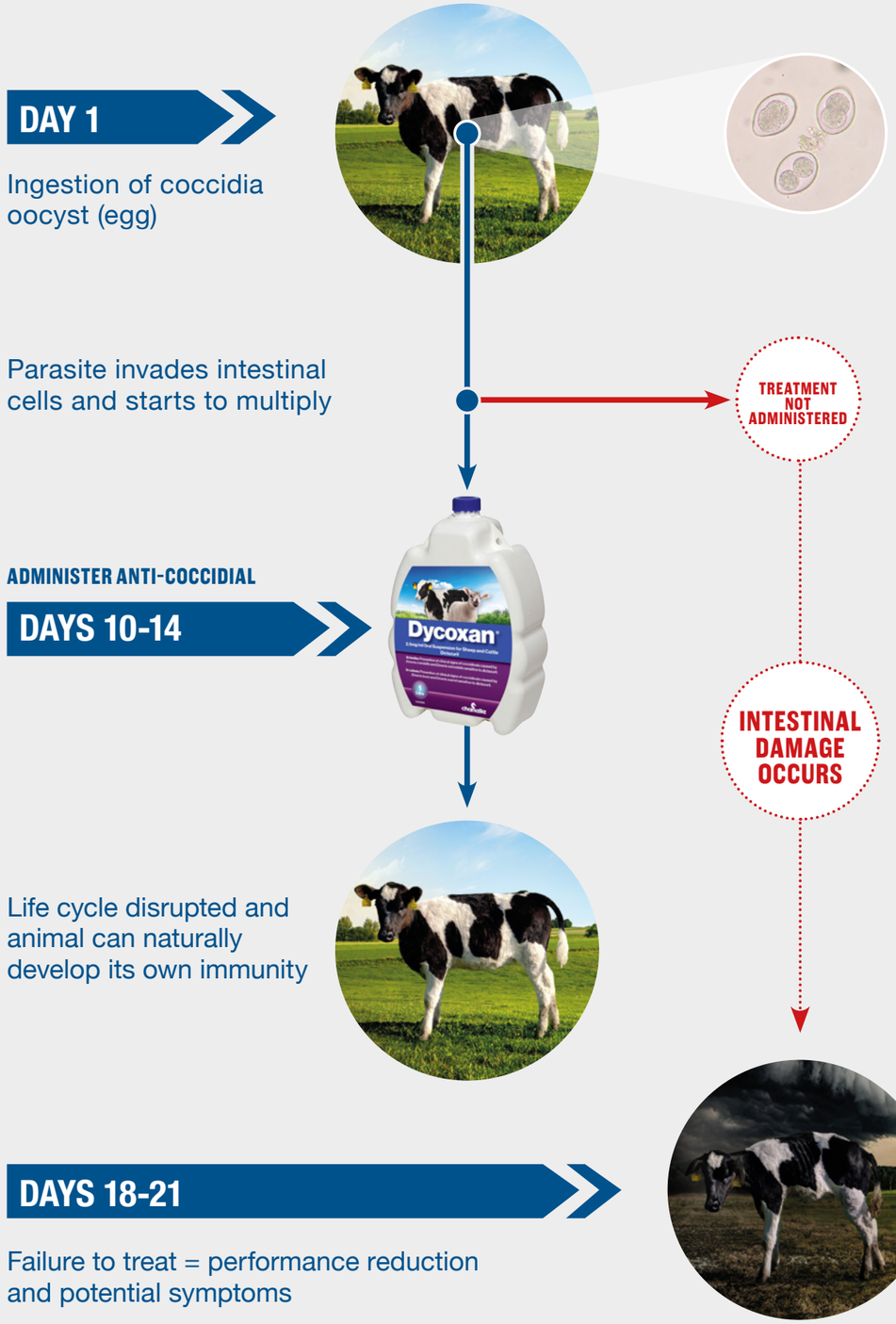
Colostrum-derived immunity diminishes in lambs from four weeks of age on, while calves are at risk sooner. If environmental coccidia oocyst burden is high, a second treatment may be required approximately 21 days after first.

Why at this time?

These agents disrupt the parasite's development, a process which takes around 21 days. When we treat animals during this development phase, we provide the animal a window of protection and a chance to build up their own natural immunity to the parasite.

Anti-coccidials should be used prophylactically (in a preventative manner across full groups). Treatment with anti-coccidials in response to symptoms is usually unrewarding, as the damage to the gut will have been done at this point and the parasite has completed its lifecycle.

Suppressing the coccidia life cycle



Natural immunity

In a sense, the process of using an anti-coccidial bears similarities to a vaccination. Vaccinations use inhibited forms of disease-causing agents to 'train' an animal's immune system to fight off the real thing when it is experienced. With anti-coccidials, we are inhibiting the disease-causing agent (coccidia) after they have entered our animal.

ANTI-COCCIDIALS DISRUPT THE LIFE CYCLE ALLOWING THE ANIMALS OWN IMMUNITY TO NATURALLY DEVELOP

Older animals will have gained immunity to coccidiosis, but young animals with developing immune system are vulnerable in early-life. Anti-coccidials can bridge the gap here but steps should also be taken to minimize exposure to coccidia oocysts.

Minimize the build-up of coccidia

Other measures (outlined below) that help to minimize the build-up of coccidia oocysts should also be put into practice on all farms. The anti-coccidial will tip the scales further in the animal's favour but following treatment the animal will inevitably be exposed to oocysts again. If the burden is below a certain level, the immune system will overcome the challenge.

Farms with large numbers, confined systems, high stocking rates or a heavy underlying burden of coccidia may practice more than one anti-coccidial treatment per animal.

In practice we should aim to treat once and then optimize the animal's environment thereafter, as too heavy a reliance on anti-coccidial agents can slow the onset of an animal's own natural immunity.

Other measures to kick out coccidia

- **Be liberal with bedding and change regularly**
- **Avoid soiled, wet bedding**
- **Treat animals kept in high stocking density-situations**
- **Keep water troughs off the ground in sheds**
- **Clip cows' tails in advance of calving**
- **There is evidence to show that external stressors such as weaning, dehorning or transportation can also increase the risk of clinical symptoms developing.**
- **Use appropriate disinfectants between seasons – AHI recommended: amine based, ammonium hydrochloride, chlorocresol or p-chloro-m-cresol.**

Dycoxan – a summary

- **Dycoxan prevents the symptoms and performance reduction** associated with coccidiosis
- It can be used in **lambs and calves**
- Administer Dycoxan (diclazuril) **10-14 days after the animal has entered a risk environment**
- If there is a history of coccidiosis on the farm, **administer product one week in advance of expected symptoms**
- If environmental coccidia oocyst burden is high, **a second treatment may be required** approximately 21 days after first.
- **Dosage rate is 1ml/2.5kg live weight (4ml/10kg)**
- **Dycoxan is available in 1, 2.5 and 5l sizes,** all compatible with automatic drenchers
- **There is zero meat withdrawal on Dycoxan**

CALF DOSAGE RATES

Calf (kg)	Dose rate (ml)
50	20
55	22
60	24
65	26
70	28
75	30
80	32
(dosage is 1ml/2.5kg live weight)	

LAMB DOSAGE RATES

Lamb (kg)	Dose rate (ml)
10	4
12	4.8
14	5.6
16	6.4
18	7.2
20	8
22	8.8
(dosage is 1ml/2.5kg live weight)	

Use medicines responsibly.

REFERENCES: 1. Daugschies, A., *et al.* 3-4, 2007, Veterinary Parasitology, Vol. 149, pp. 199-206. 2. Platzer, B., *et al.* 1-2, 2005, Veterinary Parasitology, Vol. 129, pp. 1-9. 3. Romero, Jorge, *et al.* 1-3, 2013, Veterinary Parasitology, Vol. 193, pp. 277-280. 4. Scala, A., *et al.* 2014, Small Ruminant Research, Vol. 120, pp. 242-246. 5. Enemark, Heidi Larsen, *et al.* 1, 2015, Parasitology Research, Vol. 114, pp. 201-212. 6. Mundt, Hans-Christian, *et al.* 1, 2009, Parasitology Research, Vol. 105, pp. 141-150. 7. Diaferia, Manuela, *et al.* 1, 2013, Parasitology Research, Vol. 112, pp. 163-168.

DYCOXAN® 2.5 mg/ml Oral Suspension for sheep and cattle. For the prevention of clinical signs of coccidiosis In lambs: Prevention of clinical signs of coccidiosis caused by *Eimeria crandallis* and *Eimeria ovinoidalis* sensitive to diclazuril. In calves: Prevention of clinical signs of coccidiosis caused by *Eimeria bovis* and *Eimeria zuernii* sensitive to diclazuril. Ireland: LM VPA No: VPA10987/122/001 UK: POM-VPS VM: 08749/4085

Refer to product packaging and leaflets for full indications, side effects, precautions, warnings, contra-indications and meat withdrawal. Advice should be sought from Medicine Prescriber or Licensed Merchant. Further information can be found on the datasheet, SPC or at www.chanellegroup.com.

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Have you watched our Coccidiosis TV series?

www.cocci.news/tv

A series of short clips to help you make good decisions around coccidiosis prevention.

Information brought to you by Chanelle, makers of Dycoxan. Dycoxan prevents the clinical symptoms and performance reduction associated with coccidiosis.

Open your camera here to watch

No matter your farming system, trust Dycoxan to protect your stock from coccidiosis this season.

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