

Vecoxan[®]

DICLAZURIL 2.5 mg/ml



Greater Average
Daily Gain¹



Natural
Immunity²



Environmentally
Friendly³



**Prevent coccidiosis in calves and
lambs using Vecoxan**

Coccidiosis in Ruminants



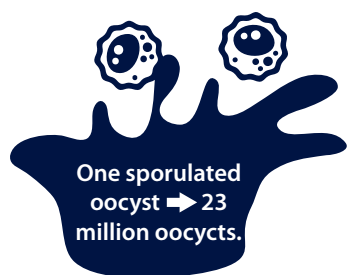
- Infection of ruminants by pathogenic *Eimeria* species is highly likely. This is mainly due to *Eimeria* sp. oocysts being abundant in the environment where animals are kept. Oocysts are designed to survive for long periods of time and eventually all calves and lambs become infected.
- The disease is transmitted via the **faecal-oral route**. The risk of infection is increased where faecal material accumulates coinciding with optimal environmental conditions for oocyst survival. The risk of succumbing to disease is increased when infected animals are exposed to **high infectious pressure** along with **stressful management practices** at the same time.
- Coccidiosis is caused by the protozoan parasite of the genus *Eimeria*. The important coccidian species regarding cattle and sheep are listed in table one.

PATHOGENICITY	CATTLE	SHEEP
High	<i>E. bovis</i>	<i>E. ovinoidalis</i>
High	<i>E. zuernii</i>	
Moderate	<i>E. alabamensis</i>	<i>E. bakuensis</i>
Moderate		<i>E. crandallis</i>



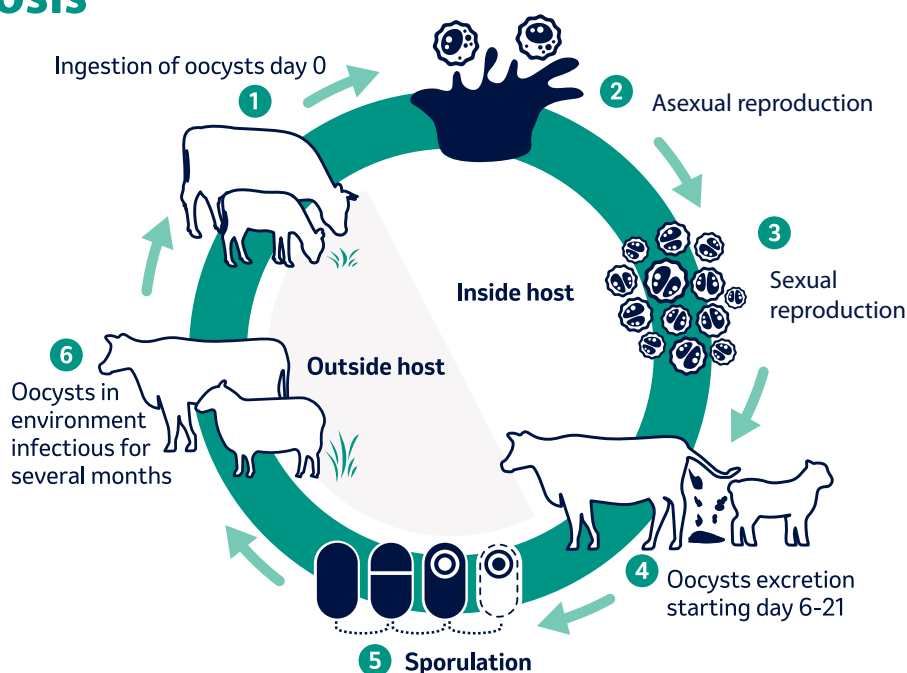
Table one: Pathogenicity of *Eimeria* species of cattle and sheep.

Lifecycle of coccidiosis



Prepatent and patent period

The prepatent period is the time from the initial infection to the onset of oocyst shedding. The patent period is the duration of oocyst shedding which varies depending on the species.



EIMERIA SPECIES	PREPATENT PERIOD	PATENT PERIOD
<i>E. alabamensis</i>	6-11 days	1-13 days
<i>E. zuernii</i>	15-22 days	2-11 days
<i>E. bovis</i>	15-23 days	5-26 days

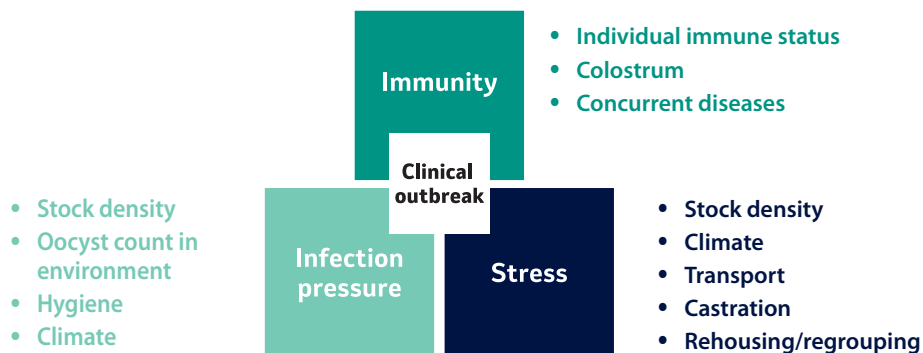
Table two: Length of prepatent and patent period of bovine *Eimeria* species

Epidemiology



- Coccidiosis is a **group disease** rather than an individual animal issue. An **entire group** is usually exposed to a similar infectious pressure and the same external stressors. Therefore, the whole group should be considered infected.
- The **correlation between stress** and the onset of clinical coccidiosis is believed to enhance the risk of an outbreak.
- The combination of high infectious pressure, the **presence of stressors** such as mixing, weaning, overcrowding and poor nutrition can facilitate the development of both clinical and subclinical coccidiosis in host animals.

The coccidia balance



Clinical Signs and Diagnosis



Calves between **three weeks and six months** and lambs aged **four weeks to six months** old are most susceptible to disease.

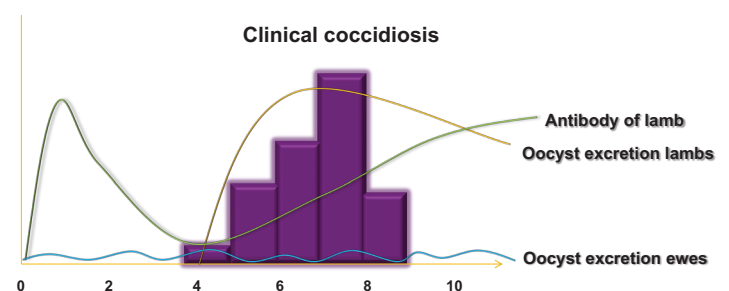


The main impact of coccidia infection results from subclinical effects rather than clinical disease.



Affected animals may have **lower live weight gain** and reduced feed conversion efficiency due to the presence of intestinal lesions. Regular monitoring of group feed intake and weight gain may be useful in detecting subclinical disease.

Relationship between age, infection pressure, antibodies and coccidiosis in lambs



Adapted from Gregory, M.W.: Epidemiology and control of ovine coccidiosis, Vth International Coccidiosis Conference, Tours (France), 17-20 October 1989. Ed. INRA Publ., 1989

Clinical signs of coccidiosis:

- Anorexia
- Colic
- Tenesmus
- Rectal prolapse
- Dehydration
- Depression

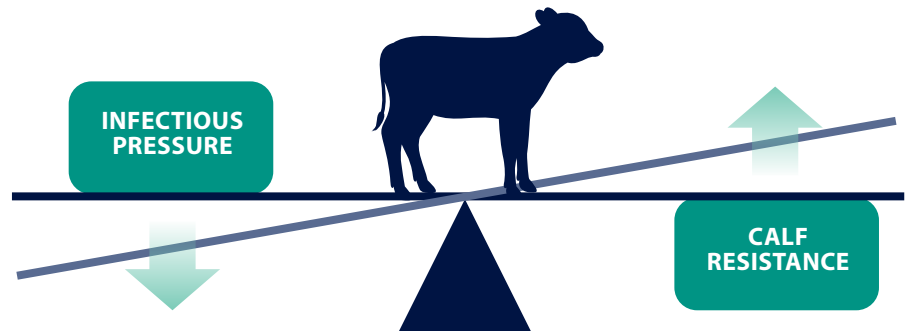
Diagnostic tools:

- Demonstration of pathogenic coccidia oocysts in faeces
- Oocyst counts of greater than 500 per gram of faeces in combination with typical clinical signs
- Low numbers of pathogenic coccidia oocysts justify further monitoring
- Post-mortem

Control of Coccidiosis



Developing **immunity** against *Eimeria* sp. is key to control. However, eliminating coccidia oocysts from Irish farms is practically impossible. Therefore, ensuring immunity develops is crucial. **Exposure to pathogenic *Eimeria* species** is required for immunity to develop. The degree of immunity that develops depends on the number of oocysts picked up during first exposure.



Immunity is partial and strictly **species-specific**. Partial immunity protects the host against clinical disease but does not prevent parasite replication completely upon re-exposure. Cross protection between species **does not occur** therefore it is possible for animals to be prone to coccidia infection more than once.

A comprehensive control strategy may include:

- Implementing a preventative strategy using Vecoxan
- Maintain good hygiene
- Avoid over-stocking indoors and/or outdoors
- Disinfect sheds, feeding equipment and handling areas
- Minimizing stressors such as mixing, re-grouping, dietary changes and over-crowding

Vecoxan administration protocol



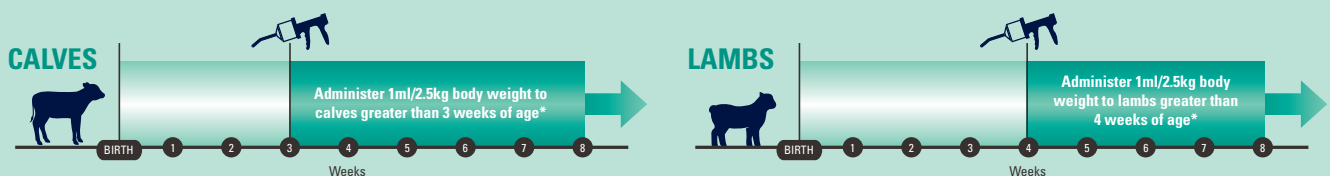
Orally 1ml/2.5kg



Can be used in calves and lambs



Any weight



- Historic treatment: Dose 1 week before expected clinical signs
- Unknown history: Dose 2 weeks after exposure
- Exposure to a stress factor: Dose at time of stress
- Clinical outbreak: Dose all calves/lambs in the group when clinical signs are observed in 1 or 2 animals
- Bought in calves/lambs: Dose when arrive on farm

*Vecoxan can be used in calves and lambs of any age, but usually disease occurs from 3 weeks of age in calves and 4 weeks of age in lambs

Research Studies



Comparative efficacy of diclazuril (Vecoxan) and toltrazuril (Baycox bovis) against natural infections of *Eimeria bovis* and *Eimeria zuernii* in French calves

P. Philippe, J.P. Alzieu, M.A Taylor, Ph. Dorchies, Veterinary Parasitology 206 (2014) 129-137

- Aim to evaluate the long-term efficacy of metaphylactic, single oral treatments with either diclazuril or toltrazuril against natural infections with *Eimeria zuernii* and/or *Eimeria bovis*, compared to untreated control animals.
- N = 199 calves aged between 21 and 55 days old, 9 farms, 3 groups (Vecoxan, Baycox, control group)
- Calves observed for 78 days post treatment

Results

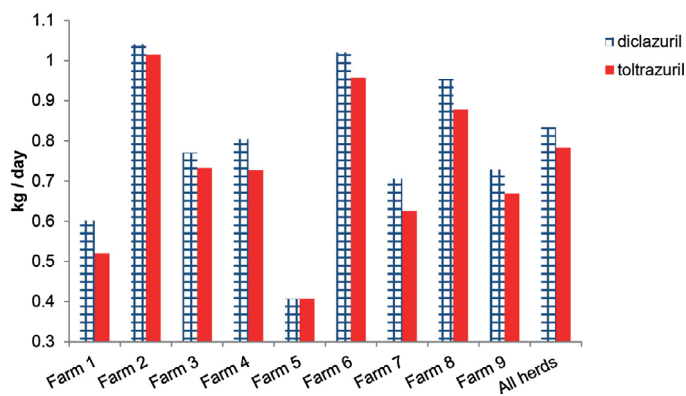


Fig. 6. Average daily weight gain (kg/day) at each trial site.

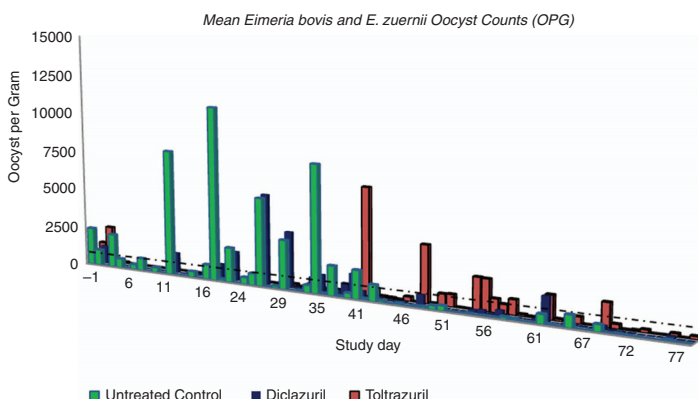
- Over the 78 day period, metaphylactic treatment with diclazuril and toltrazuril reduces the impact of coccidiosis, but **greater performance benefits** based on average daily weight gains, were achieved following the use of diclazuril (+0.057 kg/day or 4.45kg over the 78 day period).
- The duration of action of diclazuril appeared to allow a better degree of exposure to sufficient numbers and species of *Eimeria* for subsequent species-specific **protective immunity to develop**.
- The authors summarise that the higher levels of protection immediately post-treatment prevented the development of species-specific immunity to *E. zuernii* in the toltrazuril-treated group leading to **sub-clinical coccidiosis** and an **impact on growth**.

Efficacy of diclazuril and toltrazuril in the prevention of coccidiosis in dairy calves under field conditions

G. Zecher, C. Bauer, J. Jacobs, L. Goossens, G. Vertenten, M.A. Taylor, Veterinary Record (2014)

- Aim to compare the efficacy of the anticoccidials, diclazuril and toltrazuril in the prevention of bovine coccidiosis.
- N = 86 calves aged between five and six weeks
- Calves monitored for 78 days post-treatment by clinical observation, bodyweight gain, faecal oocyst counts (FOCs) and coccidia species differentiation.

Results



- FOCs in the diclazuril-treated calves declined to low levels post-treatment, increasing to occasional counts >500 oocysts per gram of faeces (OPG) between days 27 and 42, but **thereafter remained low**.
- Calves treated with toltrazuril also showed low FOCs until day 40 but then showed **several peaks of oocyst output** >500 OPG coinciding with days of diarrhoea.
- The duration of action of diclazuril appeared to allow a better degree of exposure to sufficient numbers and species of *Eimeria* for subsequent species-specific **protective immunity to develop**.

Vecoxan®

DICLAZURIL

2.5 mg/ml Oral Suspension



Why choose Vecoxan?



Licensed to **prevent coccidiosis** in both calves and lambs



Allows **natural immunity** of young stock to develop²



Greater performance benefits in calves based on ADG following use of diclazuril¹



Can be used in **any weight** of calf or lamb, indoors or outdoors



Single oral dose making it **easy to administer**



Environmentally friendly based on active ingredient³



Dosage guidelines

Lamb - Dose rate for VECOXAN

Animal weight (kg)	Dose (ml)	Number of animals treated per 1L pack	Number of animals treated per 2.5L pack	Number of animals treated per 5L pack
5	2	500	1250	2500
7.5	3	333	833	1666
10	4	250	625	1250
12.5	5	200	500	1000
15	6	166	416	833
20	8	125	312	625
25	10	100	250	500

Calf - Dose rate for VECOXAN

Animal weight (kg)	Dose (ml)	Number of animals treated per 1L pack	Number of animals treated per 2.5L pack	Number of animals treated per 5L pack
50	20	50	125	250
75	30	33	83	166
100	40	25	62	125
150	60	16	41	83
200	80	12	31	62

For each additional 5kg bodyweight add 2ml to the dose. VECOXAN 2.5mg/ml oral suspension contains 2.5mg/ml Diclazuril

Ask your MSD Animal Health Territory Manager about Vecoxan

References:

- Philippe, P., Alzieu, J.P., Taylor, M.A. and Dorchie, P., 2014. Comparative efficacy of diclazuril (Vecoxan®) and toltrazuril (Baycox bovis®) against natural infections of Eimeria bovis and Eimeria zuernii in French calves. *Veterinary parasitology*, 206(3-4), pp.129-137.
- Agneessens J, Goossens L, Louineau J, Dausgaches A and Veys P (2006). Build up of immunity after a diclazuril (Vecoxan) treatment in calves, Poster at World Buiatrics Congress, Nice.
- Van Leemput L. & Louineau, (2007). Diclazuril for coccidiosis in ruminants: safe for the environment? Janseen Animal Health, Beerse, Belgium.

Vecoxan 2.5 mg/ml Oral Suspension for lambs and calves.

In lambs: Prevention of coccidiosis caused by *Eimeria crandallis* and *Eimeria ovinoidalis*.

In calves: Prevention of coccidiosis caused by *Eimeria bovis* and *Eimeria zuernii*.

Withdrawal period. Lambs: zero days Calves: zero days. Legal Category: ROI [POM] NI [POM-VPS]

Use Medicines Responsibly

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For more information visit
bovillis.ie

