

Sustainable Biosecurity measures for the effective control of *Balantidiasis* in a Research Animal Housing Facility

INTRODUCTION

What is *Balantidiasis*?

- *Balantidiasis* is an infection of the ciliated protozoan parasite *Balantidium coli*.
- Pigs (*Sus scrofa*) are natural reservoir of the parasitic organism.

Why is *Balantidiasis* a concern?

- As a "Zoonotic" pathogen, the parasite can be transmitted to humans by the ingestion of infective cysts from contaminated water and food sources
- Manifestation in humans may include non-specific signs of mild diarrhoea to fulminant dysentery.
- *Balantidium coli* rarely cause life threatening complications and clinical onset are usually indications of an underlying disorder.

How to control *Balantidiasis* in a Research Facility ?

- Stringent surveillance methods
- Good veterinary care practices
- Recommended control measures following the detection of *Balantidium spp.* in an outdoor animal housing facility.

METHODOLOGY

Newly weaned piglets were housed in group cages consisting of up to 6 piglets per cage pen. Randomized faecal sampling of each cage population were implemented and analysis was through standard faecal Direct smear and Floatation techniques.

Step 1: Randomized collection of newly weaned piglet faeces.

Step 2: Microscopic analysis using Direct smear and Floatation techniques to detect *Balantidium spp.* trophozoite and cyst.

(+) Positive

(-) Negative

Step 3b: Treatment with oral Metronidazole® at 25 mg/kg BW daily for 5 days with frequent cage disinfection and litter isolation

(-) Negative

Step 3a: Proceed to the production line in grower stage

(+) Positive

Step 4: Prior to purchase, pigs and piglets are re-tested for presence of *B.coli*

(-) Negative

Step 5: Proceed to purchase and experimentation

RESULTS

The biosecurity and treatment program implemented were effective in the detection and elimination of *Balantidiasis* in the facility. For the month of February- May 2018, pig pens that turned out positive for the parasite had a 100% clearance after treatment and were returned to the normal growing stage of the pig production program. As a final control measure, individual animals prior to purchase were re-tested and treated to ensure researchers are working with high health status and disease free pigs.



Balantidium spp. Infective cyst



Balantidium spp. Trophozoite

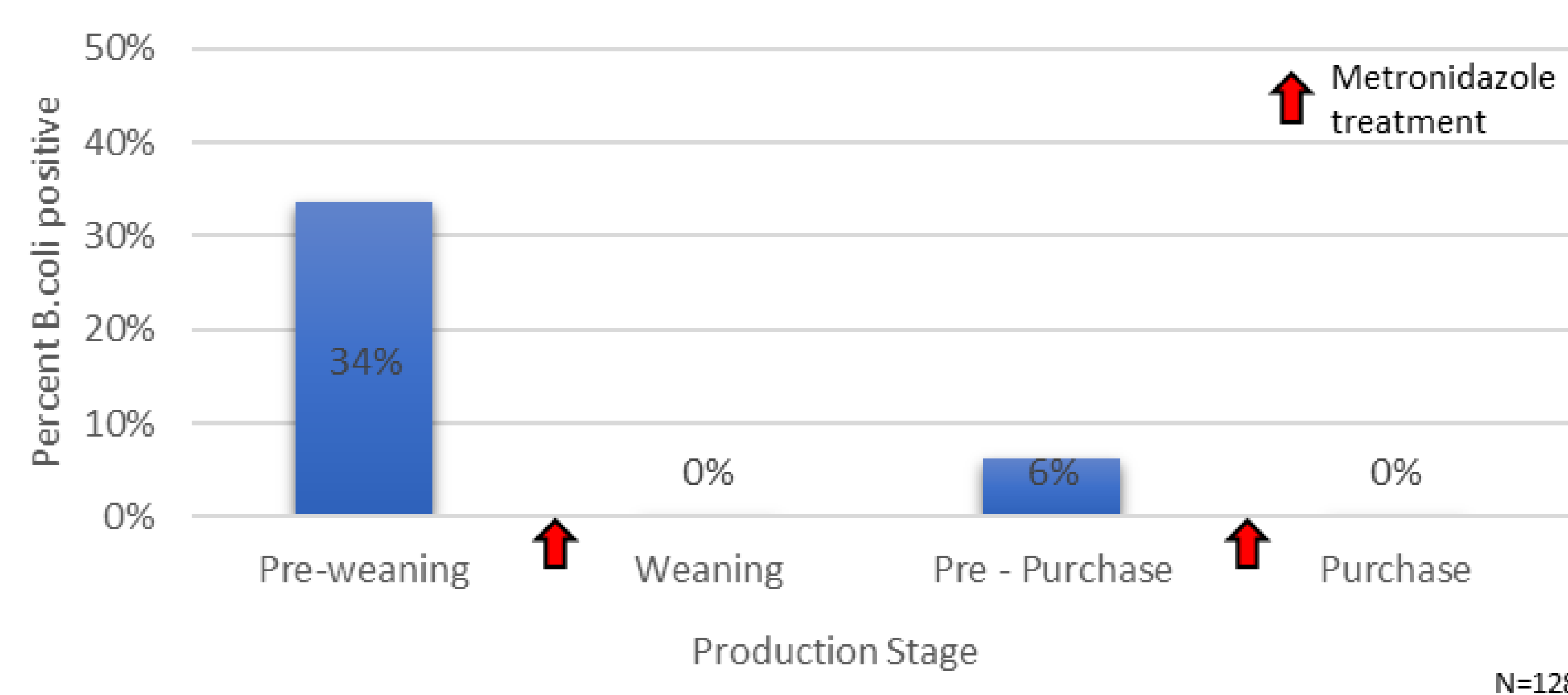


Cage disinfection with proper PPE



Pig nursery and grower stage

The Biosecurity protocols implemented are effective in controlling *Balantidiasis* in a Research Facility



CONCLUSION

Pigs (*Sus scrofa*) are natural reservoirs of *Balantidium coli* hence, total eradication of the parasite proves to be challenging in all pig housing facilities. To ensure researchers are provided with high quality and disease free pigs, animals must meet a stringent veterinary care program, surveillance methods, high standard sanitation and effective control measures to eradicate *B.coli* prior to experimentation.

Despite having a low pathogenic profile, *Balantidium coli*, still requires the attention of veterinary health care personnel. The surveillance and biosecurity program implemented in the facility are not only specific for *B. coli* detection, other types of intestinal pathogen such *Giardia*, *Coccidia* and parasitic helminths are also detected using the program.