

# Bioactive, Polyphenol-Rich Sugarcane Extract (Polygain™) for Use in Animal Feed Supplements



THE PRODUCT MAKERS

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Polygain™ is a bioavailable, regulatory approved, natural sugarcane extract rich in antioxidant, anti-inflammatory and cell signalling properties. The patented supplement Polygain™, has been trialled in commercial settings with various animals. This includes: ■ **Ruminants** ■ **Horses** ■ **Poultry** ■ **Pigs** ■ **Finfish** ■ **Crustaceans**

Polygain™ significantly improves Feed Conversion Ratio (FCR), increases growth rate, reduces the effects of heat stress, has anti-microbial properties and beneficially modulates the microbiome.

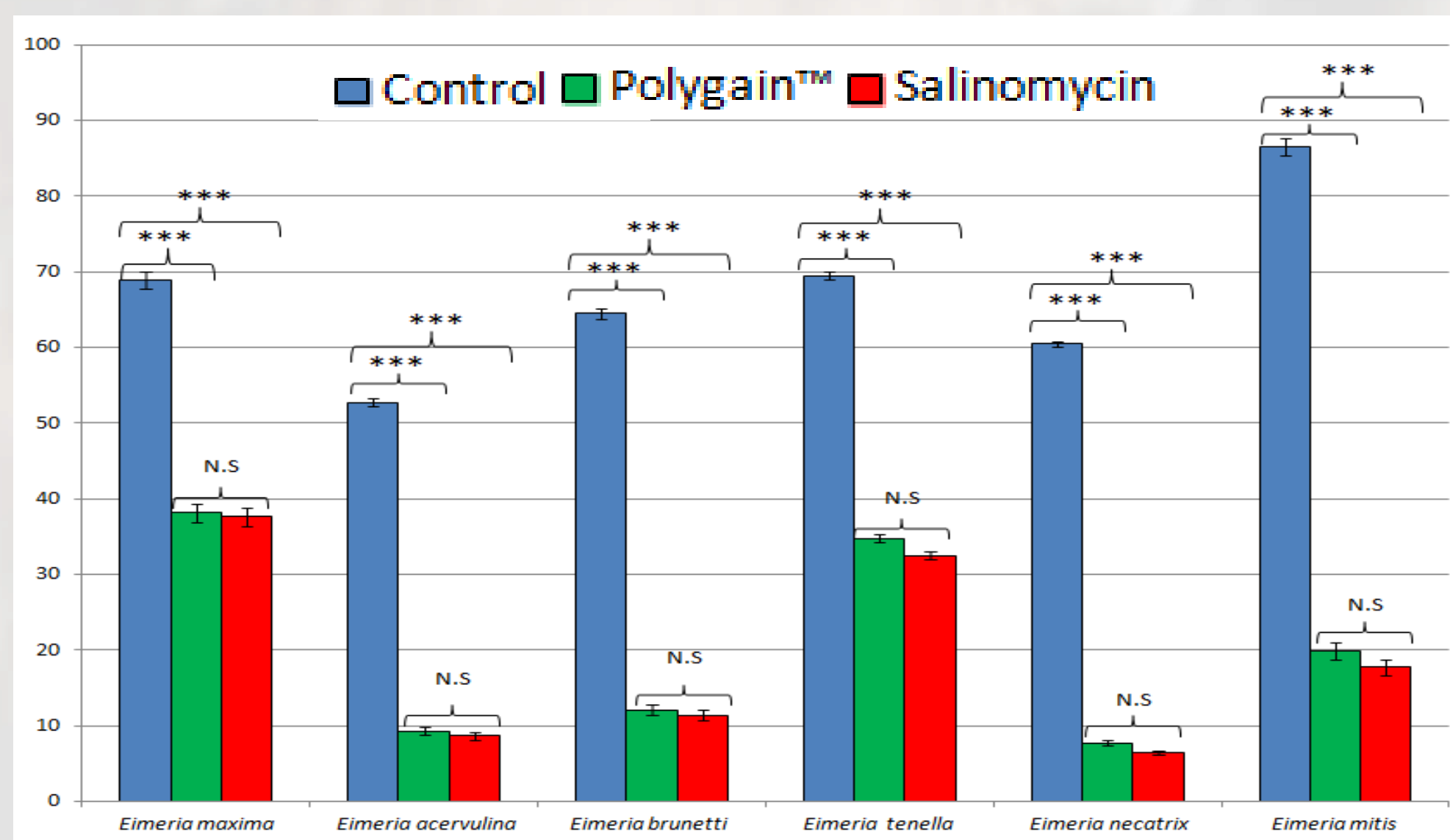
The focus of this poster is on previously conducted pre-clinical and clinical studies both *in vitro* and *in vivo*, with broiler hens. Here, Polygain™ has demonstrated potential in the treatment and prevention of Coccidiosis by inhibiting the establishment of sporocysts.

## Coccidiosis

- Genetic selection for economically desirable traits in addition to consistent over-supply of feed predisposes birds to chronic gastrointestinal inflammation.
- This inflammation inhibits nutrient absorption and enables opportunistic pathogens, including species of *Eimeria*, to become established.
- The ensuing Coccidiosis is believed to affect up to 92% of broilers in a single population at any given time.
- It's characterized by diarrhoea, permanent damage to the gastrointestinal tract and premature mortality<sup>2</sup>.
- It's estimated that \$3 billion is lost globally as a direct result of *Eimeria sp.* infections each year, with a further \$6 billion lost to secondary bacterial infections and sub-sequential necrotic enteritis<sup>3</sup>.

## Polygain™ Significantly Reduces Infection Load *In Vitro*

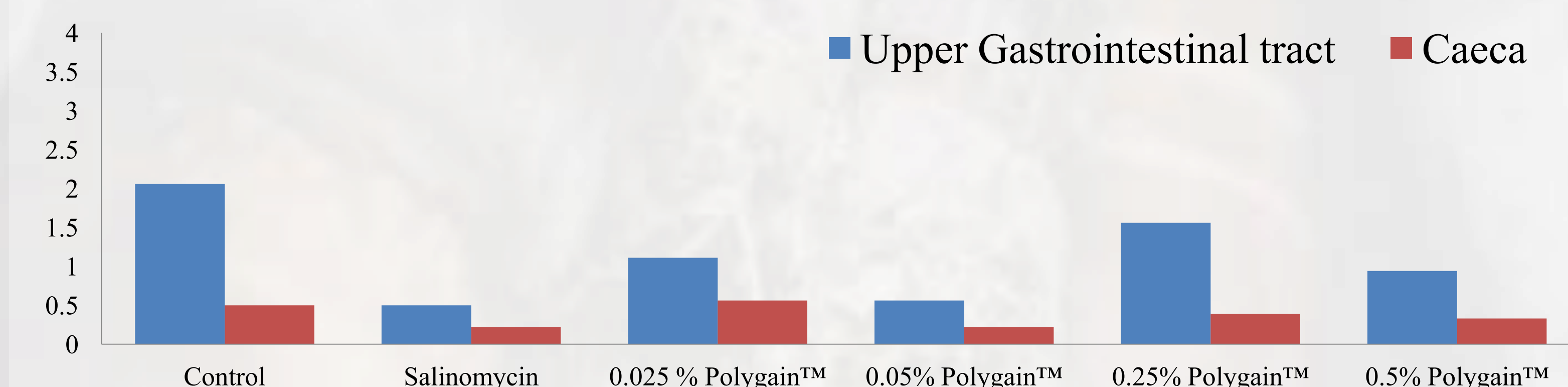
- An *In Vitro* study illustrated the effectiveness of Polygain™ against six of the most prevalent species of Coccidia.
- All 6 Coccidia species were incubated in RPMI nutrient media for 14 hours at 37°C before the total number of *Eimeria* sporozoites were recorded.
- The 3 experimental groups included a control of 2000µl RPMI nutrient media, 20µl Polygain™ with 1980µl RPMI nutrient media and 20µl Salinomycin, also with 1980µl RPMI nutrient media.



\*\*\* = highly statistically significant, P<0.001. N.S = No statistically significant difference.

## Lesion Scores

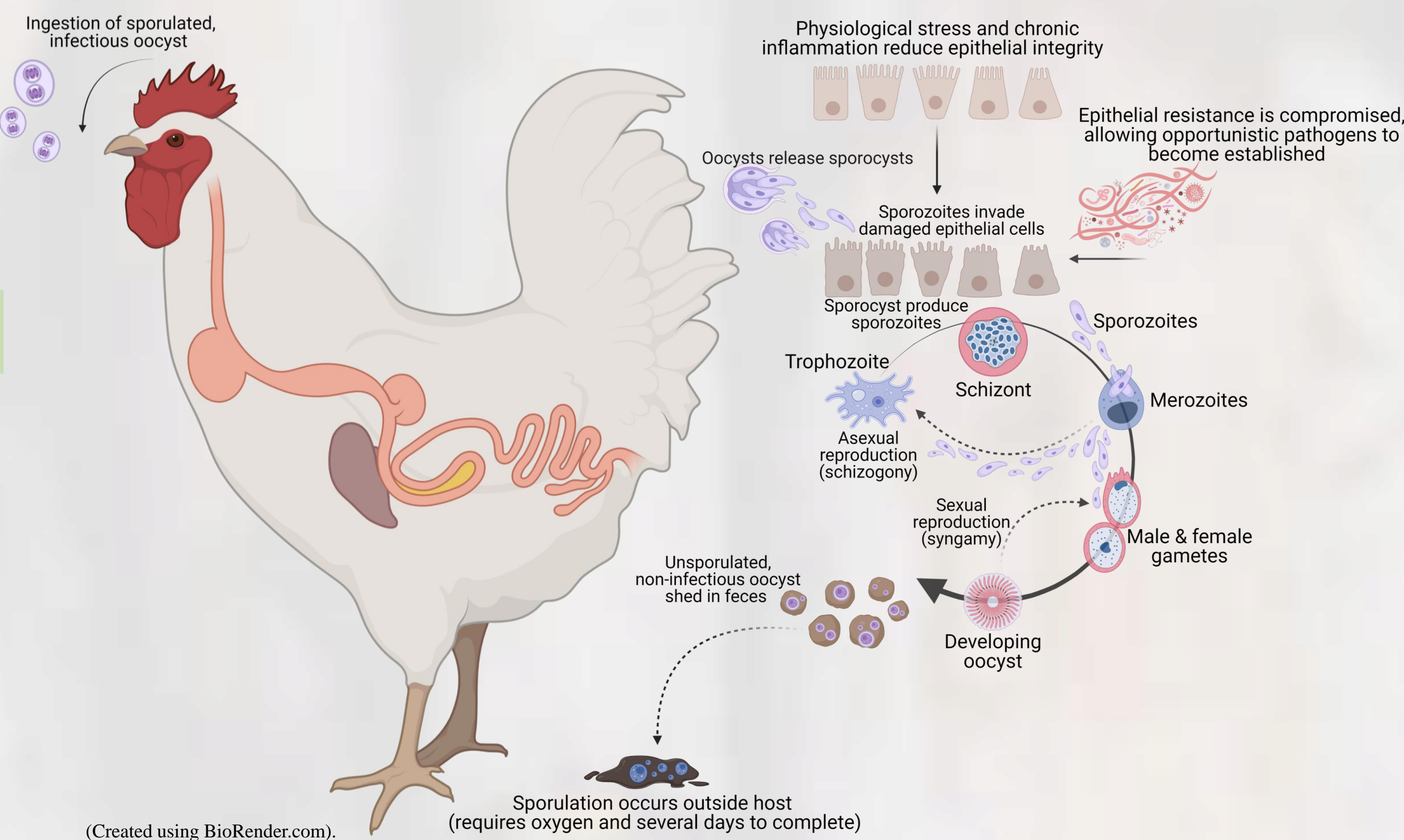
(All birds under severe infection from 20 times dosage of live vaccine)



## References

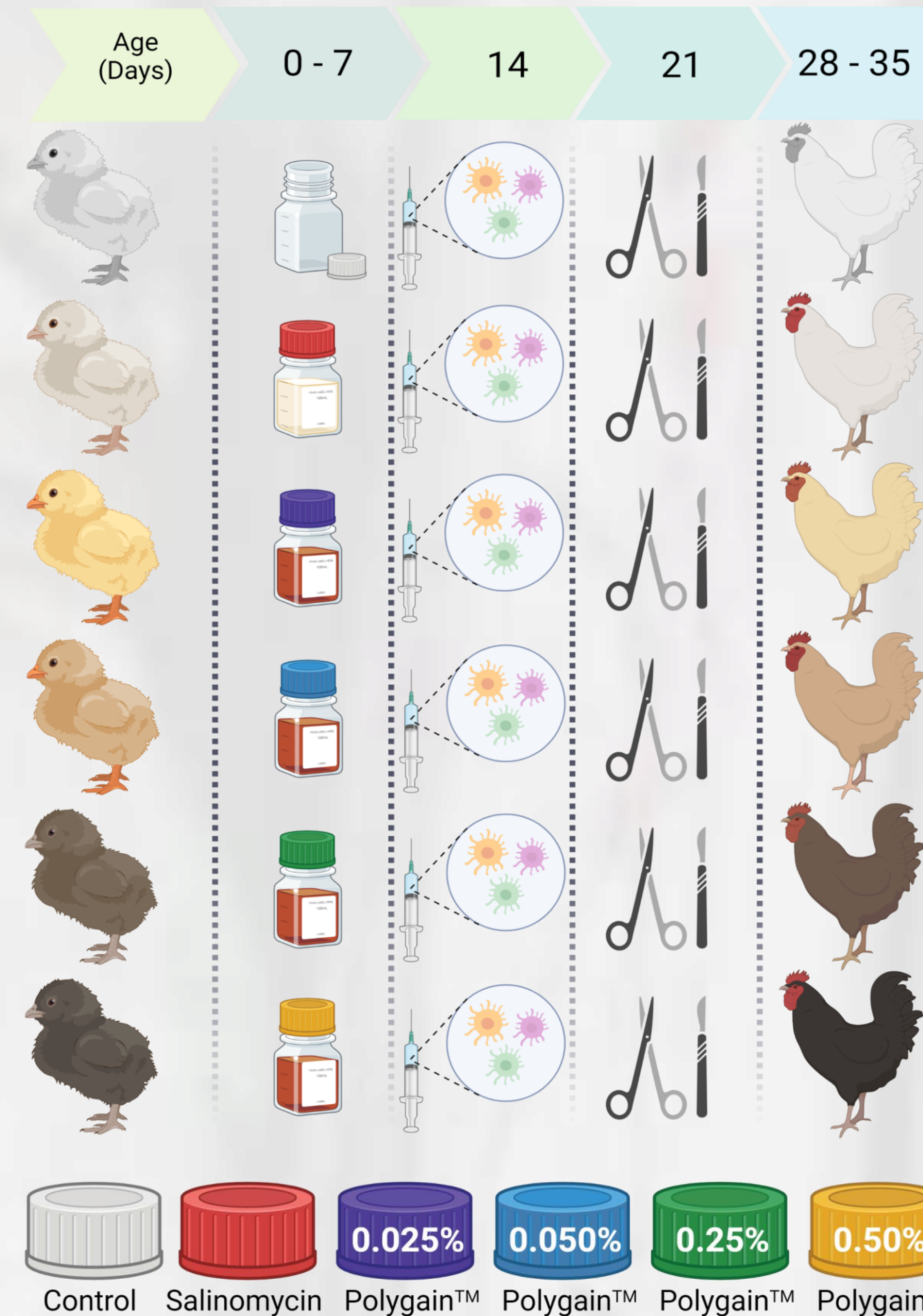
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- The growing prevalence of microbial resistance has consumers calling for more antibiotic-free produce and farming practices.
- Unchecked, antibiotic resistance is expected to account for 10 million deaths each year by 2050<sup>1</sup>.
- Polygain™ is a polyphenol-enriched sugarcane extract which may effectively be utilised as an alternative to growth promoting antibiotics.



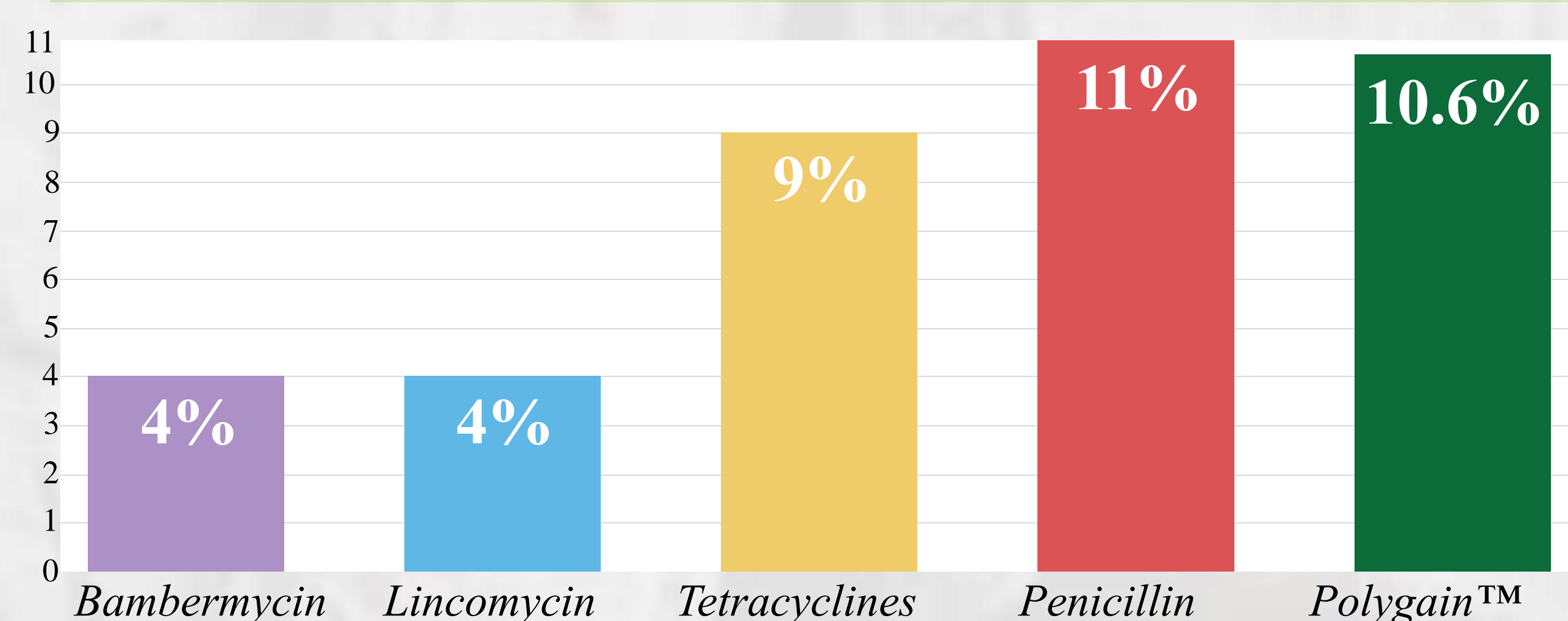
## Polygain™ as a Natural Alternative to Antibiotics *In Vivo*

Polygain™ was used to treat Coccidiosis in broiler hens. Experimental groups included 5 treatment groups and 1 control.



- From hatching, 4 treatment groups were provided with a different dose of Polygain™. The 5<sup>th</sup> group received Salinomycin, while hens in the control group received no supplementation.
- On day 14, hens were inoculated with 3 common strains of *Eimeria sp.*
- On day 21, 18 hens from each group were culled for lesion scoring and caecal collection.
- On day 35, the FCR, growth rate and weight of each hen was recorded.

## Percentage of Growth Increase<sup>4,5</sup>



Polygain™ offers a natural and effective alternative to commonly used growth promoting antibiotics.