

XTRACT® Nature combined to vaccination leads to similar performance as a standard rotation program in broilers infected or not with coccidiosis

INTRODUCTION AND OBJECTIVES

In poultry, coccidiosis is generally controlled by the use of anti-coccidials or coccidiostats added to antibiotics used as growth promoters in systems of rotation programs. However, these practices are more and more questioned. So there is a growing interest in developing alternative strategies such as vaccination or plant extracts based feed additives. XTRACT® Nature, a combination of capsicum and curcuma oleoresins is known to have a positive effect on the modulation of immunity in birds. So the objective of this trial was to evaluate the effect of the combination of XTRACT® Nature and vaccination on performance of broilers challenged or not with coccidiosis.

MATERIAL AND METHODS

The trial was set up in the experimental facilities of a major Mexican feed compounder.

- 1920 broilers of one day of age housed in floor pens,
- 48 birds per pen, 10 pens (replicates) per treatment,
- Diets based on corn, soybean meal and soybean oil, in 4 phases (d1-14, d15-28, d29-42, d42-52),
- Vaccination of all birds against Marek Disease at d1 and Newcastle disease at d12 and 24.

Treatment	Vaccinated	Challenge	0-14 d	15-52 d
Positive Control Not Infected	No	No	65 g/t salinomycin + 55 g/t bacitracin	65 g/t salinomycin + 55 g/t bacitracine + 50 g/t 3nitro-roxarsone
Positive Control Infected	No	At d14*		
XTRACT® Not Infected	No	No	100 g/t	100 g/t
XTRACT® Infected	At d1**	At d14*	XTRACT® Nature	XTRACT® Nature

*: challenge via litter spray of 1 mL/bird, each mL containing 200 000 oocysts *E. acervulina*, 10 000 oocysts *E. maxima*, 10 000 oocysts *E. tenella*; **: Attenuated live vaccine.

- Measurements: feed intake (FI), body weight (BW), body weight gain (BWG), feed conversion ratio (FCR) before and after challenge (respectively d 1-14 and d 15-52),
- Statistical analysis using GLM procedure of SAS 9.1.

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RESULTS AND CONCLUSION

Effect of XTRACT® Nature before challenge (from day 1 to day 14)

Before challenge, compared to Positive Control, birds fed XTRACT® Nature had higher body weight gain and body weight at day 14 and reduced feed conversion ratio (Table 1).

Table 1: effect of Positive Control and XTRACT® Nature on broiler performance before challenge

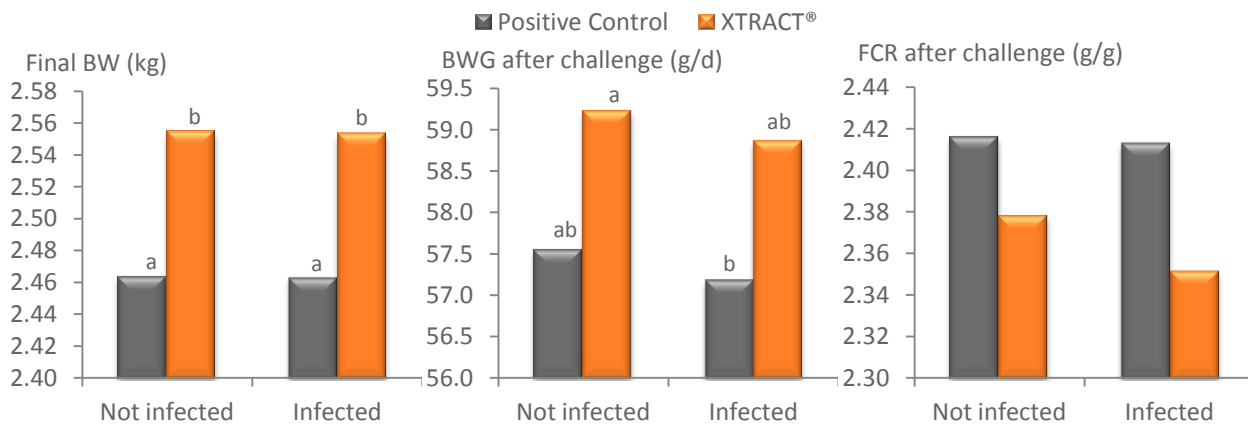
Before Challenge	FI (g/d)	BWG (g/d)	BW d14 (g)	FCR (g/g)
Positive controls Not Infected+ Infected	26.98	16.84	277.1	1.607
XTRACT® Not Infected + Infected	27.54	18.22	296.2	1.518
<i>P</i> -value	0.183	<0.001	<0.001	0.013

This suggests that besides its immunomodulatory effect, XTRACT® Nature improves performance of broilers in the absence of pathogenic challenge.

Effect of XTRACT® Nature after challenge (from day 15 to day 52)

After challenge, XTRACT® Nature significantly increased final body weight and numerically improved body weight gain of broilers, both in not infected and in infected birds (Figure 1). When looking at efficiency, there was no difference in feed conversion ration among treatments ($P > 0.2$).

Figure 1: effect of the treatments on broiler performance after challenge (a, b, $P < 0.05$)



These results show that combining XTRACT® Nature with vaccination can maintain performance of challenged birds at the same level as un-challenged broilers.

XTRACT® Nature improves performance of broilers in the absence of pathogenic challenge. The association of XTRACT® Nature and a vaccine can be also used to limit performance reduction in broilers infected with coccidiosis.

The present trial was presented as an oral at PSA Annual Meeting, 2010. The abstract is available on request.