Evaluation of the efficacy of two coccidiostat combination products, in the control of coccidiosis and dysbacteriosis in broilers in field conditions

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Set-Up

Coccidiosis and dysbacteriosis control of Belgian farms on 2 different coccidiostat shuttle programs were evaluated.

GROUPS	N° farms	D0-D18	D18-D44
Monimax®/Sacox®	17	nicarbazin+monensin	salinomycin
nicarbazin+narasin/Sacox®	17	nicarbazin+narasin	salinomycin

Mean Lesion Score (MLS) is the average score per *Eimeria* species (total score per species divided by number of birds). Total Mean Lesion Score (TMLS) is the sum of MLS per *Eimeria* species. The dysbacteriosis score is a calculated score based on following parameters: gut ballooning, abnormal content*, tonus intestinal tract*, thickness intestinal tract*, inflammation*, undigested feed. The parameters indicated with * are scored twice, once in cranial part of intestine (before Meckel's diverticulum) and once in caudal part of intestine (after Meckel's diverticulum). If the parameter is abnormal it gets a score 1, when normal a score 0. All scores are added up and divided by the number of birds.

Note: nicarbazin+narasin (Maxiban®, Elanco®); nicarbazin+monensin (Monimax®, Huvepharma®); salinomycin (Sacox®, Huvepharma®). All coccidiostats were used at the EU registered dosages.

Average coccidiosis and dysbacteriosis pressure was calculated by dividing the area under the curve by the age range of observations (AUC). Stratified bootstrap sampling (n=5000) was performed and 95% Confidence Interval (CI) calculated. Non-overlapping intervals are considered to be significant on the 0.05 level.

Results

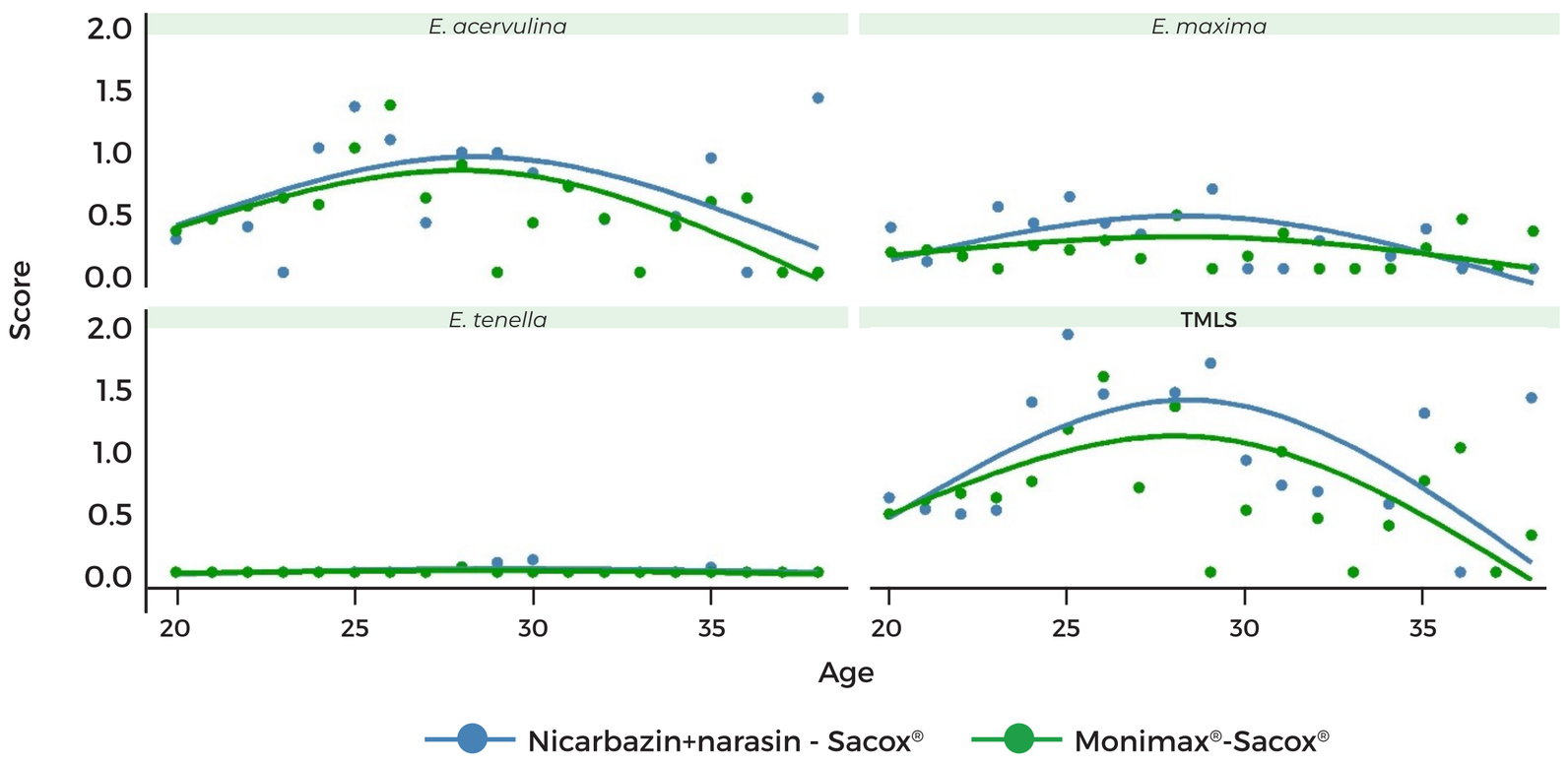

Figure 1. Evolution of the lesion scores for each of the three species (*E. acervulina*, *E. maxima*, *E. tenella*) and the total mean lesion score (TMLS) as a function of age

Each dot represents the average of the observations at the specified age. The smooth line represents the average value as a function of age. The AUC is the area under these curves.

Table 1. Average AUC for each coccidiosis species as well as the TMLS and dysbacteriosis score

	Nicarbazin+narasin – Sacox®		Monimax®-Sacox®	
Outcome	Average AUC	95% Confidence Interval (CI)	Average AUC	95% Confidence Interval (CI)
E. acervulina	0.62	[0.54, 0.70]	0.51	[0.44, 0.57]
E. maxima	0.24	[0.20, 0.28]	0.14	[0.10, 0.20]
E. tenella	0.01	[0.003, 0.030]	0.002	[0.000, 0.004]
TMLS	0.87	[0.77, 0.98]	0.65	[0.57, 0.73]
Dysbacteriosis	1.11	[1.07, 1.16]	0.87	[0.82, 0.92]

The average AUC for the Monimax®/Sacox® group was significantly lower (P-value < 0.05) for the *E. maxima* lesions, TMLS and dysbacteriosis score. The average AUC for *E. acervulina* was lower but not significantly better for Monimax®/Sacox®. The *E. tenella* lesions were very low and not different for both groups.

In conclusion, the 95% confidence intervals of *E. maxima*, TMLS and dysbacteriosis scores, do not overlap, indicating a significant difference at the 0.05 level (P-value < 0.05), hereby demonstrating a better control for Monimax®-Sacox®.

Conclusion

This comparison demonstrates a better control for Monimax®-Sacox® compared with nicarbazin+narasin-Sacox®. Using the approach described, Monimax®-Sacox® shows superior control over nicarbazin+narasin-Sacox® with respect to *E. maxima*, the total coccidiosis control and dysbacteriosis.