

Emulsifier improves energy utilization in broiler chickens

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INTRODUCTION

Energy is a major cost component for high performing animals. Due to its high energy density, fats and oils are important energy sources in feed formulation. Improving the energy efficiency of these raw materials is of high interest from an economical point of view. Nutritional emulsifiers can be used to improve fat digestibility and thus improve the energy efficiency. The objective of this study was to evaluate the effects of a nutritional emulsifier on nutrient digestibility and nitrogen-corrected apparent metabolizable energy (AMEn) in broilers receiving diets with different soybean oil levels in the starter (14-21d) and finisher (35-42d) phases.

MATERIALS & METHODS

- 960 males chicks Cobb-500
- 10 treatments, 6 reps, 60 cages
 - 14-21d: 600 birds, 10 birds per cage
 - 35-42d: 360 birds, 6 birds per cage
- Total excreta collection
 - Nutrient digestibility
 - Apparent metabolizable energy (AMEn)
- Emulsifier (Excential Energy Plus, 350g/ton)

- Diets based on corn/soybean meal
- Different levels of soybean oil inclusion

Added soya oil	Control	Emulsifier
0%	T1	T6
1,5%	T2	T7
3,0%	T3	T8
4,5%	T4	T9
6,0%	T5	T10

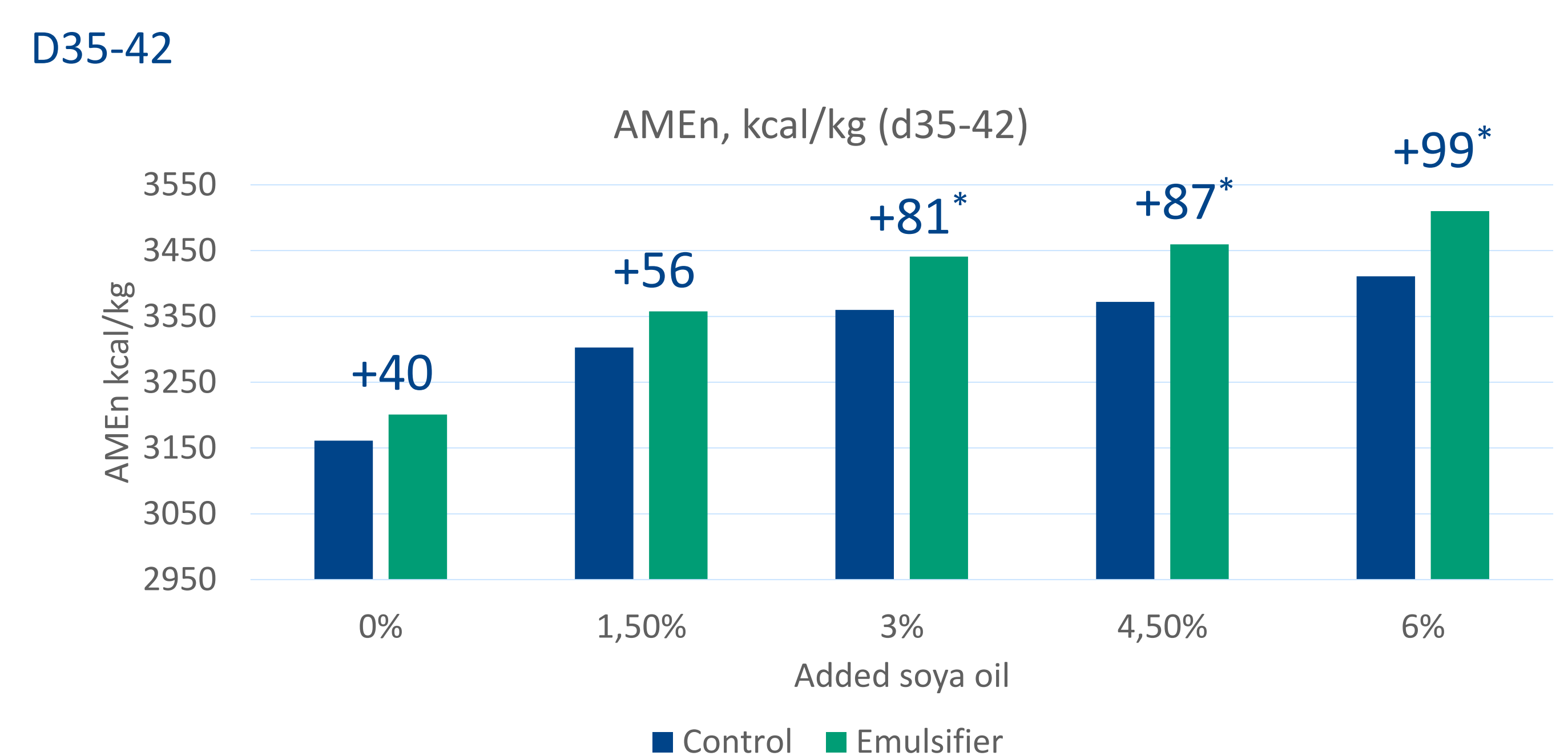
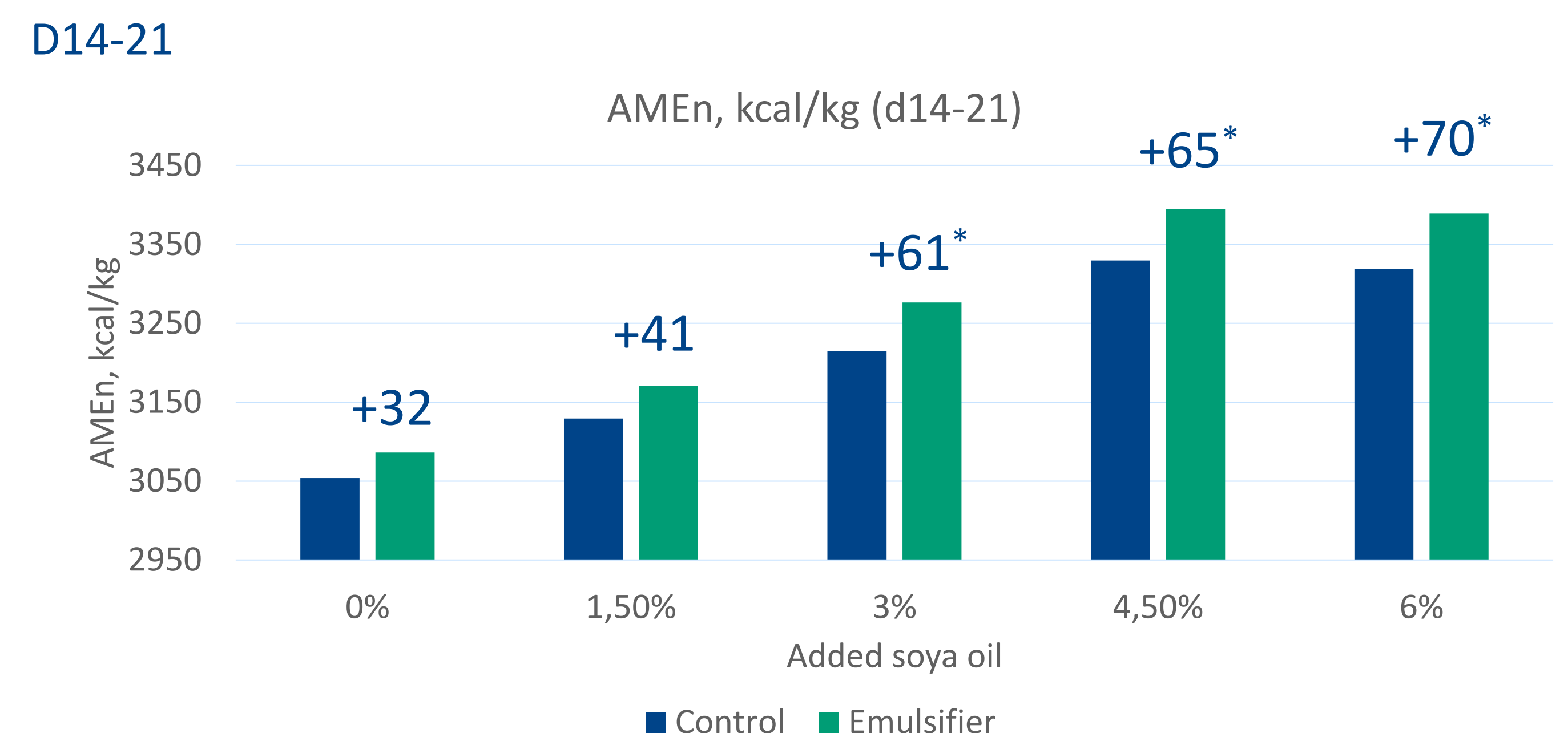
RESULTS

Table 1 and 2: Apparent digestibility coefficients for dry matter, crude protein and crude fat (%) for periods d14-21 and d35-42

Oil level	Dry matter			Crude protein			Crude fat		
	Control	Emul	p value	Control	Emul	p value	Ctrl	Emul	p value
0%	72.53	73.86	0.1133	63.28	63.54	0.8426	69.91	70.51	0.5591
1,50%	73.16	74.14	0.2418	64.41	65.64	0.3499	74.86	75.40	0.5970
3%	72.91	74.69	0.0354	63.93	65.49	0.2353	79.07	80.56	0.1486
4,50%	73.32	74.53	0.1462	66.16	66.74	0.6524	81.65	83.63	0.0577
6%	72.19	73.99	0.0339	63.86	65.26	0.2858	84.23	85.70	0.1548
CV (%)	1.94			3.46			2.25		
Average	72.82	74.24	0.0003	64.33	65.20	0.0891	77.94	79.16	0.0102

Oil level	Dry matter			Crude protein			Crude fat		
	Control	Emul	p value	Control	Emul	p value	Control	Emul	p value
0%	73.27	73.88	0.5063	62.59	61.65	0.4035	77.84	78.44	0.5698
1,50%	74.30	75.84	0.0974	64.08	66.03	0.0877	83.40	84.46	0.3130
3%	73.96	75.75	0.0535	65.55	65.23	0.7743	85.75	87.61	0.0818
4,50%	74.14	76.31	0.0210	66.32	67.91	0.1591	87.54	89.15	0.1303
6%	72.38	74.34	0.0355	64.00	64.11	0.9242	89.09	90.96	0.0803
CV (%)	2.12			2.98			2.11		
Average	73,61	75,22	0.0002	64,51	64,98	0.3440	84,72	86,12	0.0043

Graph 1 and 2: Apparent metabolizable energy (AMEn) in control and emulsifier group for periods d14-21 and d35-42



* p<0,05

CONCLUSION

In conclusion, the tested emulsifier improves digestibility of dry matter and fat and improves metabolizable energy (AMEn) in broiler diets and this is correlated with the oil level in the diet. The emulsifier has effect both in starter and finisher diets.