All birds were subjected to three feeding phases: Starter (day 1 – 21), grower (day 22 – 35), finisher (d 36 – 42). At the end of the trial (42 days), 8 broilers from each group were slaughtered and samples of jejnum were taken for determination of villus height, villus width, crypt depth and thickness of tunica muscularis. Samples of caecal contents were subjected to microbiological analysis of the gut microflora.

Data were analyzed by ANOVA/ MANOVA followed by LSD post hoc test using StatSoft software (STATISTICA 8).

Results and Discussion

Final body weight and feed conversion ratio (FCR) are shown in *Figures 1* and *2*. Performance parameters were improved when the diets were supplemented with Digestarom® P.E.P. Final body weight at 42 days of age was significantly (P<0.05) higher by 3.5% and FCR was 2.1 % lower as compared to the Control group. Intestinal evaluation of the microflora indicated that there was a numerical (P>0.05) lower number of *E. coli* in the caecal content of birds fed the phytogenic feed additive, whereas the numbers of beneficial bacteria (*Lactobacilli* and *Bifidobacteria*) were maintained (P>0.05).

The overall productivity was increased by 11 points or 4.3 %, as indicated by the European Production Efficiency Factor *(Figure 4)*.

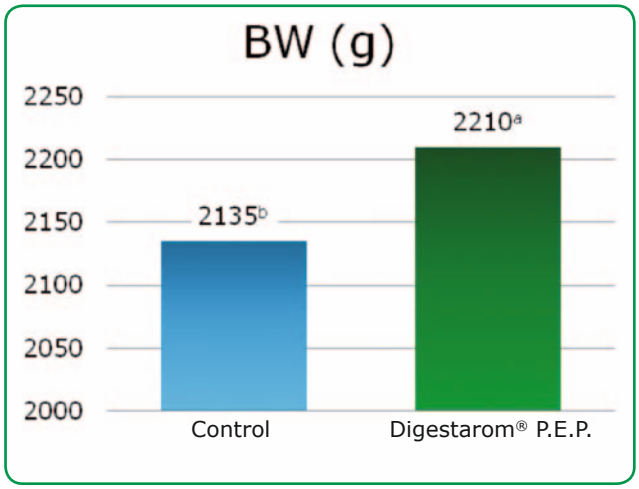

Figure 1. *Effect of a phytogenic feed additive on final body weight in broilers (measured after 42 days).* *[a,b]Significant difference (P<0.05).*

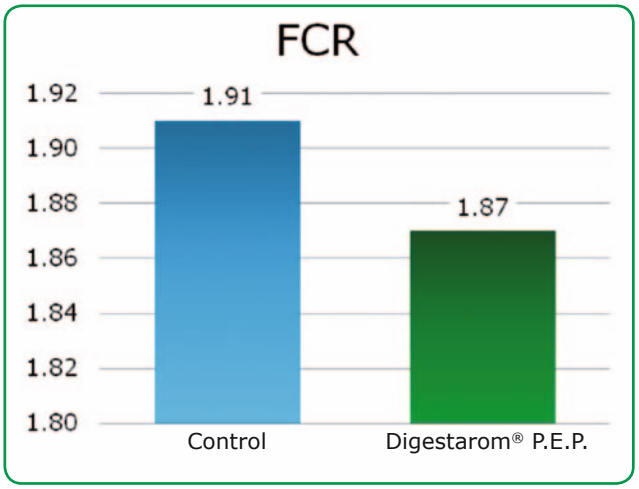

Figure 2. *Effect of a phytogenic feed additive on total feed conversion ratio (FCR) in broilers (measured after 42 days)*

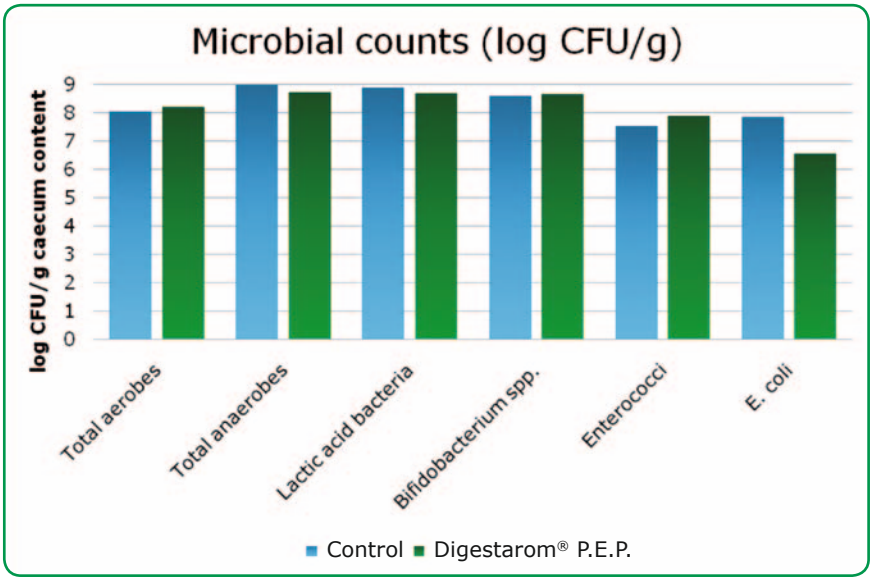

Figure 3. *Effect of a phytogenic feed additive on gut microflora in broilers (measured after 42 days)*

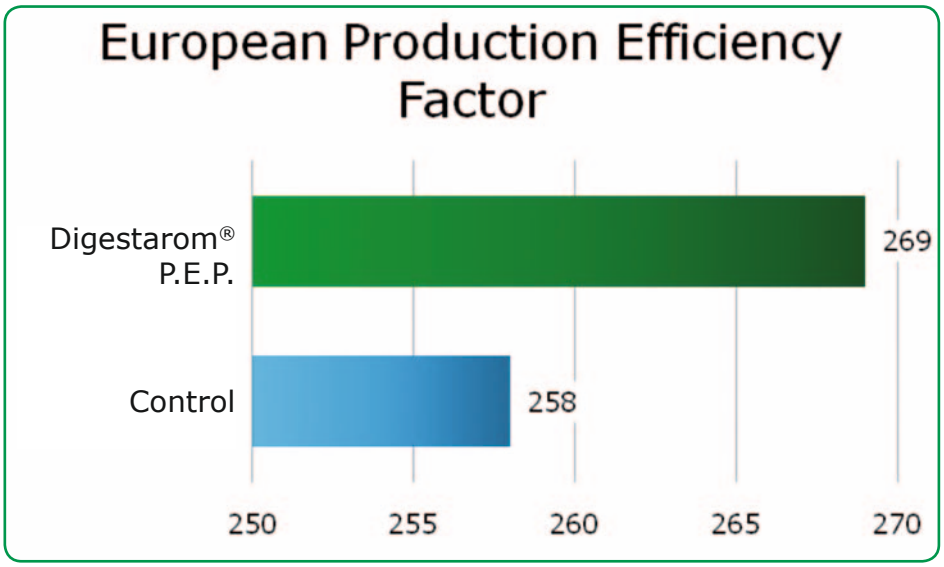

Figure 4. *Effect of a phytogenic feed additive on European Production Efficiency Factor in broilers* [Live weight (kg) × Livability (%) / Age (d) × FCR] × 100*

Crypt depth was increased (P<0.05) in birds fed phytogenics. Villus height and width did not differ significantly between treatments. These results indicate that phytogenics affect gut morphology, which might add to the positive effects on performance parameters.

The financial calculation below is based on 1000 birds and local prices for feed and live broilers. The figures show an economic benefit of using the phytogenic feed additive under the conditions of the trial. Compared to the Control, supplementation of the feed with Digestarom® P.E.P. created an additional profit, resulting in a Return on Investment (ROI) of 6.2.

		Control	Digestarom® P.E.P.	Difference
Final BW per 1000 birds	kg	2135	2210	75.00
Live broiler sales price	€/kg	1.50	1.50	
Revenue per 1000 birds	€	3202.5	3315	112.50
Feed intake per 1000 birds	kg	4006.6	4062.1	55.5
Cost of additive per 1000 birds	€		12.7	
Total feed cost per 1000 birds*	€	1561.8	1596.1	34.3
Contribution margin per 1000 birds (=Revenue-feed cost)	€	1640.7	1718.9	78.2
ROI per 1000 birds			6.2	

Conclusion

The present trial shows that Digestarom® P.E.P. has growth-promoting effect in broilers. Weight gain and feed conversion were markedly improved due to the addition of the phytogenic additive in the feed. Overall profitability and economics were positively affected by Digestarom® P.E.P.