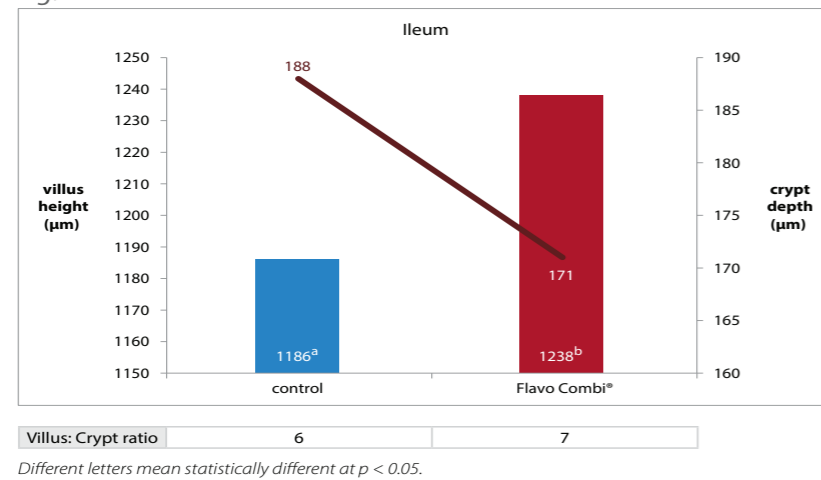




# Flavo Combi®

Fig. 4



### Cecal microflora of broiler chickens at day 42 (Fig. 5 and Fig. 6)

Flavo Combi® significantly decreases *E. coli* versus the control group. Beneficial *Lactobacilli* are not affected by supplementing Flavo Combi®.

Fig. 5

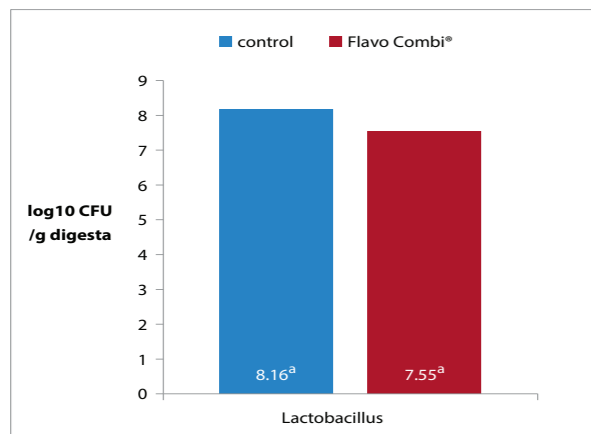
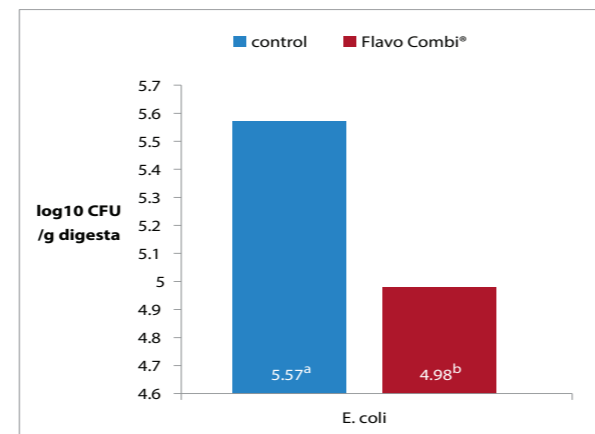


Fig. 6



### Conclusion

#### Adding Flavo Combi® in broiler feed results in:

- 7% decrease in FCR
- 10% improved digestibility
- 3-4% longer villi
- 11% reduction in potential pathogenic *E. coli*

## Effect of Flavo Combi® on digestibility, gut morphology and microflora in broilers

### Trial description

#### 1 Set-up

- **Location:** China Agricultural University, China
- **Animals:**
  - male Arbor Acres broiler
  - 72 birds per treatment divided over 12 replicates
- **Feed:** Starter: 0-21 days, Grower: 22-42 days. Feed was mainly based on corn and soybean meal.

#### 2 Treatments

- Control feed
- Control feed + 100 g Flavo Combi®/mton of feed (5 ppm of Flavomycin®/mton of feed +  $1.35 \times 10^{12}$  cfu *Bacillus licheniformis*/mton of feed)

#### 3 Measured parameters

- Average daily gain and feed conversion were calculated at day 42.
- Digestibility of dry matter, crude protein, calcium and phosphorus were determined from day 40 till day 42 based on AOAC international methods.
- Intestinal morphology (villus height and crypt depth of duodenum, jejunum and ileum) of 12 birds per treatment was measured at day 42 based on Li *et al.* (1990).
- Cecal numbers of *Lactobacilli* and *E. coli* of 12 birds per treatment were determined according to Mikkelsen *et al.* (2003).

### References:

Li, D.F., Thaler, R.C., Nelssen, J.L., Harmon, D. L., Allee, G.L., Weeden, T. L., 1990. Effect of fat sources and combinations on starter pig performance, nutrient digestibility and intestinal morphology. *Journal of Animal Science* 68, 3694-3704.

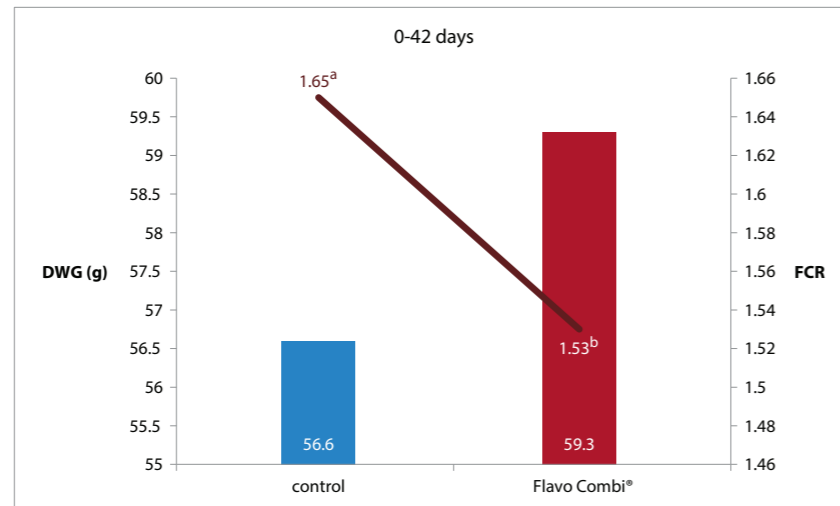
Mikkelsen, L.L., Jakobsen, M., Jensen, B. B., 2003. Effects of dietary oligosaccharides on microbial diversity and fructo-oligosaccharide degrading bacteria in feces of piglets post-weaning. *Animal Feed Science and Technology* 109, 133-150.

**Results**

Technical performance of broilers (Fig. 1)

Flavo Combi® significantly reduces feed conversion versus the control group.

Fig. 1



Different letters mean statistically different at  $p < 0.05$ .

Nutrient digestibility (Table 1)

Flavo Combi® significantly increases digestibility versus the control group.

Table 1

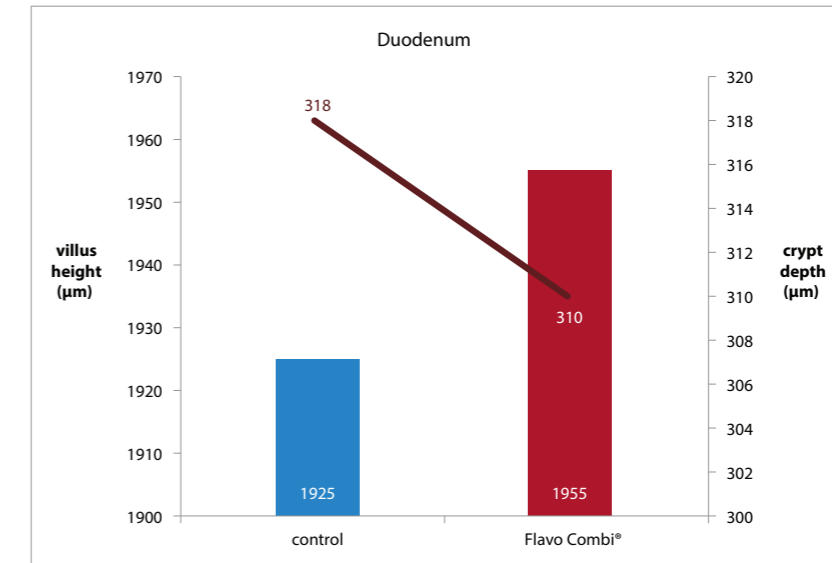
	Control	Flavo Combi®
Dry matter	0.70 <sup>a</sup>	0.77 <sup>b</sup>
Energy	0.76 <sup>a</sup>	0.81 <sup>b</sup>
Crude protein	0.50 <sup>a</sup>	0.66 <sup>b</sup>
Calcium	0.36 <sup>a</sup>	0.49 <sup>b</sup>
Phosphorus	0.74 <sup>a</sup>	0.83 <sup>b</sup>

Different letters mean statistically different at  $p < 0.05$ .

Small intestinal morphology at day 42 (Fig. 2, 3 and 4)

Flavo Combi® significantly increases villus height, leading to an improved villus:crypt ratio versus the control group.

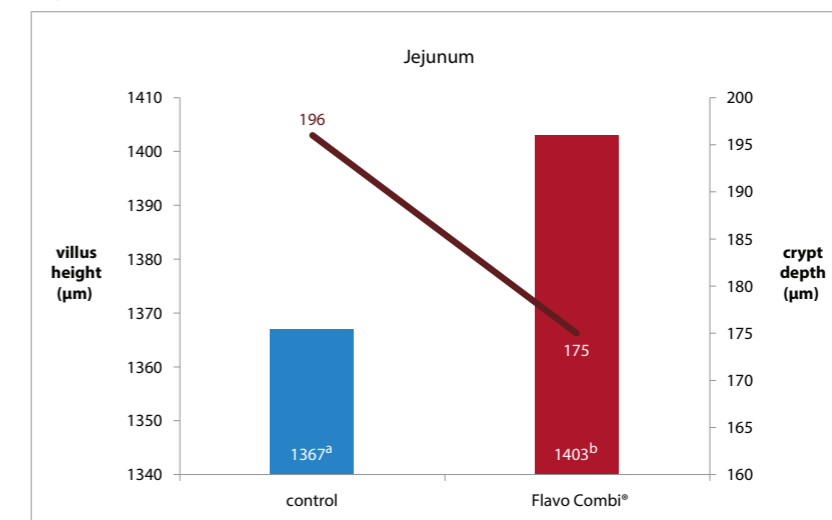
Fig. 2



Villus: Crypt ratio	6	6
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Different letters mean statistically different at  $p < 0.05$ .

Fig. 3



Villus: Crypt ratio	7	8
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Different letters mean statistically different at  $p < 0.05$ .