

# FRA<sup>®</sup>MELCO

---

## The effect of Fra AC34 Liquid on drink water uptake and performance in broilers

---

### ***TRIAL REPORT***

Public version

Trial code: CL\_Fra\_140004

**FRAmelco**

**Sales & Marketing department**

Ruisvoorn 5, NL-4941 SB,  
Raamsdonksveer, The Netherlands

## **1. Introduction**

FRA AC34 Liquid, part of the Health program, is an animal feed additive developed and produced by FRAmelco. The formulation of this product is based on a combination of 1-monoglycerides from propionic and butyric acid and essential oils. Applying this blend via the drinking water system to broilers provides farmers a unique application that improves both daily growth and final body weight without negative consequence on the feed conversion ratio.

This trial report presents the results on broiler performance and an economical evaluation of FRA AC34 Liquid supplementation. This experiment is performed on a private research instate in The Netherlands.

## **2. Material and Methods**

One-day-old female broilers (Ross) were purchased from the hatchery. On the day of arrival, they were randomly distributed over 22 wire-floor, suspended cages, 6 birds per cage. Each cage was provided with a thick foil and litter. Per cage, the total weight of the birds was measured. Continuous lighting was provided throughout the experiment. The temperature in the cage at arrival was 32 °C and was gradually decreased to ambient temperatures during the experiment.

A starter diet (days 1-10), a grower diet (days 10-28), and a finisher diet were composed. Composition of the diets is given in Table 1. The experiment consisted of two experimental groups. The control group consisted of 14 replicates whereas the treatment group consisted of 8 replicates. Treatment group received the same basal diet with in addition 1.5 g/L FRA AC34 Liquid added to the drinking water on days 1-7 and on days 28-35.

Broilers were weighed per cage on the day of arrival (day 1), and on days 10, 18, 28 and 35. Feed intake was measured per cage for the time period between the weighing's. Feed intake per broiler was calculated as feed intake per cage divided by number of broilers days. Mortality was registered on a daily basis.

Differences are considered as significant at  $P < 0.05$ .

**Table 1.** Dietary and nutritional composition during the starter, grower, and finisher phase

<b>Ingredient</b>	<b>Starter</b>	<b>Grower</b>	<b>Finisher</b>
Corn	21.63	17.59	20.00
Wheat	35.00	40.00	40.00
Barley			3.67
Soya Hipro	34.49	31.59	26.44
Palm oil		5.00	4.00
Soybean oil	5.00	3.00	3.09
Salt	0.23	0.23	0.17
Limestone	1.50	1.11	1.01
Premix (Ca, 0g/kg)	0.50	0.50	0.50
DL-methionine 99%	0.2205	0.2185	0.2365
L-lysine HCl 98.5%	0.0851	0.1087	0.2321
L-threonine 98%	0.0171	0.0305	0.0745
Sodiumbicarbonate	0.21	0.22	0.30
Monocalcium phosphate phosphosphateCP Yara	1.11	0.39	0.26
Natuphos 5000 FTU/g	0.010	0.010	0.010
<i>Calculated contents (g/kg)</i>			
Crude protein	223	212	195
Crude fat	69	97	89
Crude fiber	26	25	25
Starch	360	363	394
Ca	9.70	6.90	6.10
P	6.35	4.62	4.21
Pavailable	4.40	3.00	2.70
ME (kcal/kg)	2850	3000	3025

### 3. Results

Average body weights of the birds at the different weighing times are given in Table 2. Up to day 28, no difference in body weights between groups were measured. On day 35, the birds treated with Fra AC34 Liquid showed significantly higher body weights than the control birds.

**Table 2.** Average body weights (g) of the broilers

	Day 1	Day 10	Day 18	Day 28	Day 35
Control	45	244	635	1395	1953 <sup>b</sup>
Treatment	46	240	649	1408	2042 <sup>a</sup>

<sup>ab</sup>: Means in the same column with a different superscript indicate a significant difference ( $P < 0.05$ )

Growth rates of the birds (g/d) during the different time periods are presented in Table 3. During the starter (day 1-10) and the grower phase (day 10-28), no significant differences between the groups were seen. During the finisher period (day 28-35) differences between groups increased, but due to a large variation, differences were not statistically significant. Calculated over the period day 10-35 and day 1-35, growth rate was significantly higher for birds supplied with the FRA AC34 Liquid. Calculated feed intake and feed conversion ratio per broiler were not significantly different (Table 4 and 5). Water consumption of the birds was similar between groups.

**Table 3.** Average growth rate (g/d) of the broilers

Day	1-10	10-18	18-28	10-28	28-35	10-35	1-35
Control	19.9	49.0	75.9	64.0	79.7	68.4 <sup>b</sup>	54.5 <sup>b</sup>
Treatment	19.3	51.1	73.6	63.6	90.7	72.1 <sup>a</sup>	57.0 <sup>a</sup>

<sup>ab</sup>: Means in the same column with a different superscript indicate a significant difference ( $P < 0.05$ )

**Table 4.** Calculated daily feed intake (g) per broiler

Day	1-10	10-18	18-28	10-28	28-35	10-35	1-35
Control	25.0	69.0	118.8	96.7	146.7	110.7	86.2
Treatment	24.3	70.2	118.1	96.8	154.2	112.9	87.6

**Table 5.** Calculated feed conversion

Day	1-10	10-18	18-28	10-28	28-35	10-35	1-35
Control	1.256	1.415	1.566	1.513	1.873	1.620	1.581
Treatment	1.255	1.383	1.605	1.522	1.707	1.567	1.536

Additionally an economic cost-benefit calculation was performed. Results are presented in Table 6. The prices of feed and meat of 2012 are used to complete the calculations (LEI, 2012). Yield price was 0.92 €/kg and feed price € 374 per ton of feed. Profit is calculated as the economical yield minus feed cost. Mortality was not included in the calculations.

**Table 6.** Feed profit per 1000 birds of the experimental diets (prices of LEI, 2012)

	<b>Unit</b>	<b>Control</b>	<b>Treatment</b>
Body weight day 35	g / bird	1953	2042
Economical yield*	€ / 1000 birds	1797	1876
Feed intake	g / bird	3012	3066
Feed cost	€/ 1000 birds	1126	1147
Additive cost*	€/ 1000 birds	-	12
Total cost	€/ 1000 birds	1126	1157
Profit	€/ 1000 birds	671	719

\*: assumption that the water intake was 2 x feed intake and the water intake in period d 1-7 was 300 ml.

#### **4. Conclusion**

- Addition of Fra AC34 Liquid does not lead to a difference in drinking water uptake
- Addition of FRA AC34 Liquid (1.5 g/L) to the drinking water of broilers results in significant higher growth rates
- Addition of FRA AC34 Liquid (1.5 g/L) to the drinking water of broilers results in higher body weights on day 35
- Addition of FRA AC34 Liquid (1.5 g/L) to the drinking water of broilers results higher profit

-----

*For additional info about this trial please contact [R&D@framelco.com](mailto:R&D@framelco.com)*