

# Commercial validation trial in broiler integrator company in Spain

To corroborate the positive effects under experimental conditions, two versions of ChickCare 0-4 days were fed from arrival up to 4<sup>th</sup> day of life in comparison with best practices of one of the biggest broiler integrators companies in Spain.

## Experimental design

The study was conducted in a commercial farm, which had three barns with two silos each. Each barn had two different zones: experimental unit and commercial unit (Figure 1). Each barn was 120 meters long per 14 meters width, with 28.000 Ross 308 broiler chicks housed in a proportion of 50% males: females. The animal density was 16 broilers/m<sup>2</sup>. The characteristics of both experimental zones were:

### Experimental unit (EU):

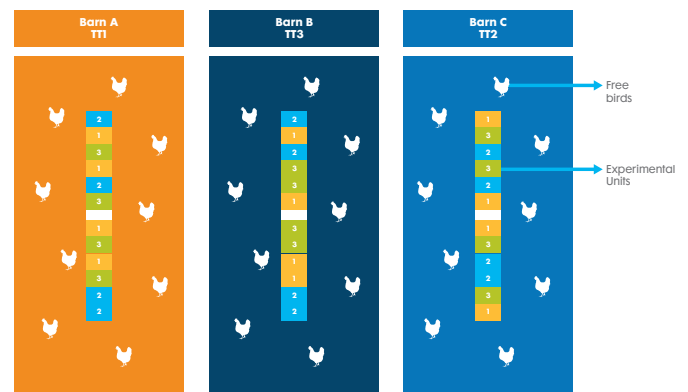
- ▶ Randomized block design per barn with three dietary treatments with two blocks of six experimental units (12 replicates/treatment in total).
- ▶ The pens were allocated along the nipple line, excluding the automatic feeder. A total of 1044 chicks, averaging 41g at arrival at the farm were randomly placed across experimental units and offered 1 out of 3 experimental diets possible.

### Commercial unit or free birds:

- ▶ Chicks outside of the experimental units were referred as a "free birds".
- ▶ In total 27.652 birds (28.000 broilers per barn minus 348 broilers of the experimental units) received one of three treatments.

The three experimental feeding programs varied in the type of pre-starter and started used respectively. Thus, treatment 1 was a standard starter feed using in the company (From 0 to 12 days of age). Treatment 2 and 3 were two versions of ChickCare (From 0 to 4 days of age), which varied mainly in the type of functional protein used. For both versions, the nutritional specifications followed the new specifications of ChickCare 0-4 days provide by Trouw Nutrition R&D. In all cases, the analysis of the composition of experimental diets were in line with theoretical values. All diets were formulated to be isocaloric and on an ideal protein basis to ensure adequacy of essential amino acids.

Figure 1: experimental units



**Table 1.** Effect of ChickCare 0-4 days on performance from 0 to 4 days of age.

Treatment	0-4 days - experimental period									
	BW <sub>arrival</sub>		BW <sub>4d</sub>		DWG <sub>0-4d</sub>		DFI <sub>0-4d</sub>		FCR <sub>0-4d</sub>	
	UE*	Free**	UE	Free	UE	Free	UE	Free	UE	Free
Control	40.28	41.48	91.6 <sup>b</sup>	92.67	12.77 <sup>b</sup>	12.80	13.54 <sup>a</sup>	-	1.038 <sup>a</sup>	-
Chickcare version 1	40.25	41.00	100.9 <sup>a</sup>	103.75	15.10 <sup>a</sup>	15.69	11.52 <sup>b</sup>	-	0.759 <sup>b</sup>	-
Chickcare version 2	40.30	41.59	101.3 <sup>a</sup>	103.93	15.17 <sup>a</sup>	15.58	11.31 <sup>b</sup>	-	0.741 <sup>b</sup>	-
SEM (n=12)	0.228	-	1.615	-	0.407	-	0.319	-	0.023	-
P-value	0.971	-	<.0001	-	<.0001	-	<.0001	-	<.0001	-

\* EU: experimental units; \*\* Free: free birds

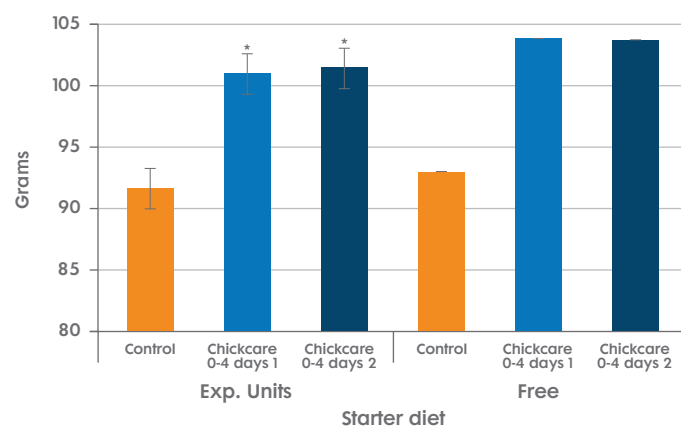
## Results

### Arrival to 4 days

**Experimental units:** Chicks fed either ChickCare 0-4 days version 1 or 2 consumed, on average, about 15.7% less feed per day and gained about 10.3% more weight as compared to chicks fed commercial starter diet; this resulted in 2.8 points improvement on FCR from 0 to 4 days of age. (Table 1 and Figure 2)

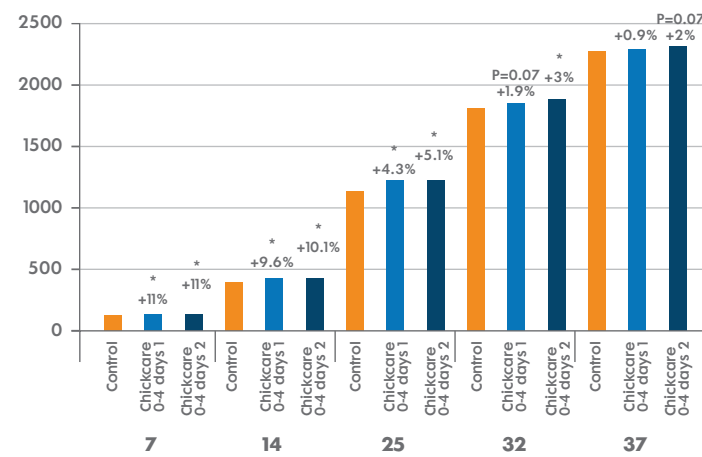
**Commercial units:** average body weight of chicks chosen randomly across five different points in the barn followed similar trend as those from experimental units (Figure 2).

**Figure 2.** Body weight of Ross 308 from experimental units (EU) and commercial units (Free Birds) fed ChickCare 0-4 days 1 or ChickCare 0-4 days 2 from arrival to 4 days of age.



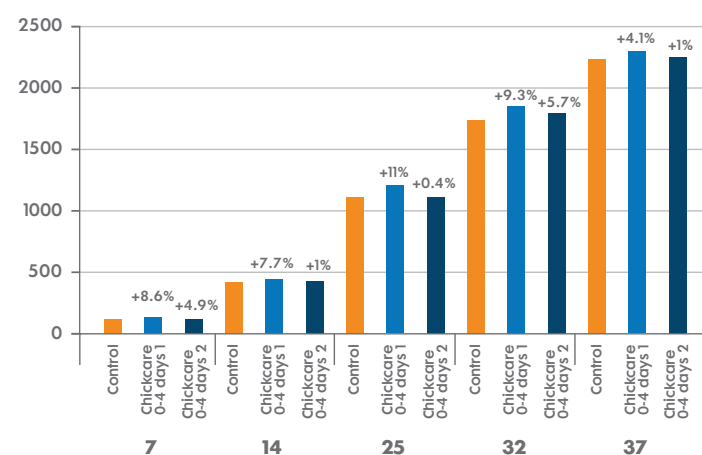
\* statistically different to control at p<0.05

**Figure 3.** Effects of use of ChickCare 0-4 days from 0 to 37 days of age in experimental units



\* statistically different to control at p<0.05

**Figure 4.** Effects of use of ChickCare 0-4 days from 0 to 37 days of age in free birds



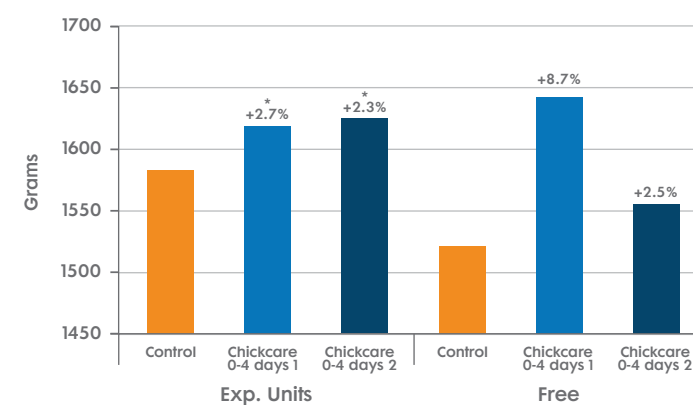
Average from 150 broilers randomly chosen across 5 points in the barn

### Carcass and breast yield

At 37 days of age, all broilers from experimental units and 150 free broilers per barn were identified with a wing tag number and sent for slaughter. Broilers coming from experimental and commercial units were all loaded in the same truck and they were the first to be sent to slaughter house.

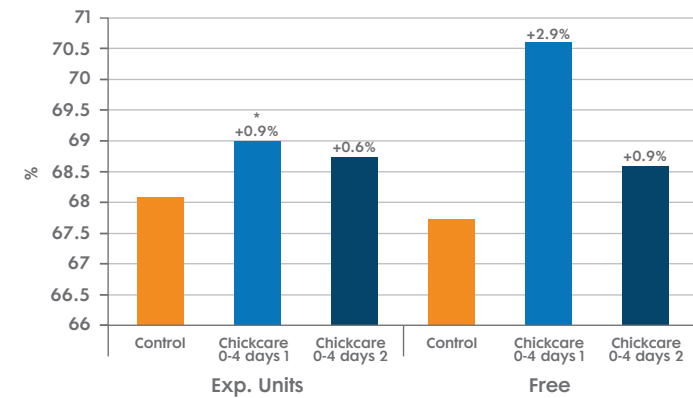
Broiler fed with ChickCare 0-4 days version 1 and 2 had respectively +2.7% and +2.3% heavier carcasses and yielded +0.9% and 0.6% better in comparison with chicks fed with control diet. Data coming from free broilers indicated

**Figure 5.** Effect of ChickCare 0-4 days on carcass weight (g) at 37 days



\* statistically different to control at p<0.05

**Figure 6.** Effect of ChickCare 0-4 days on carcass yield at 37 days

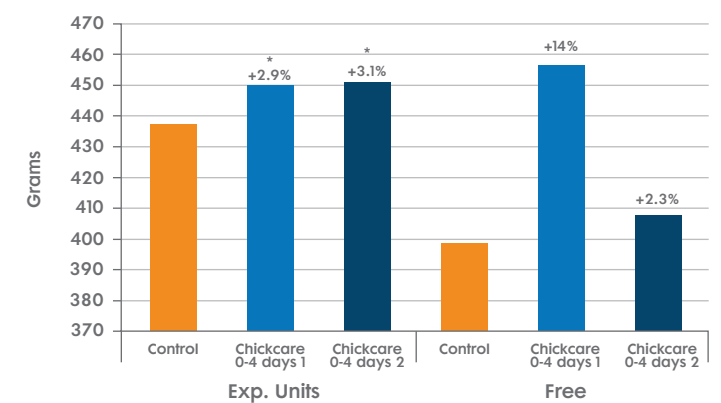


\* statistically different to control at p<0.05

that the use of ChickCare 0-4 days version 1 and 2 obtained in average +8.7% and +2.5% heavier carcasses and yielded +2.9% and 0.9% better in comparison with chicks fed with control diet. (Figure 5 and 6)

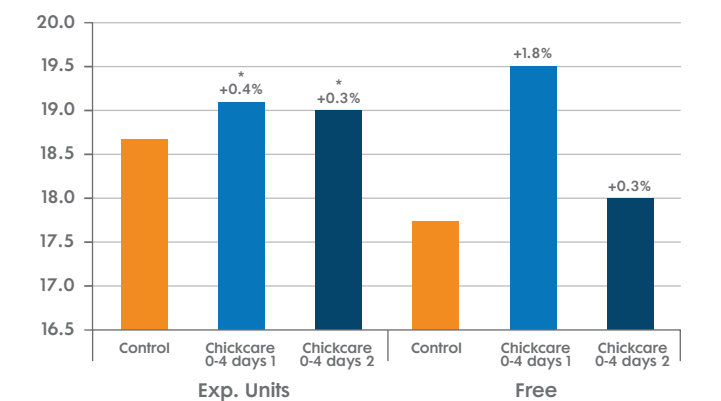
Broiler fed with ChickCare 0-4 days version 1 and 2 had respectively +2.9% and +3.1% heavier breast and yielded +0.4% and 0.3% better in comparison with chicks fed with control diet. Data coming from free broilers indicated that the use of ChickCare 0-4 days version 1 and 2 obtained in average +14% and +2.3% heavier breasts and yielded +1.8% and 0.3% better in comparison with chicks fed the control diet. (Figure 7 and 8)

**Figure 7.** Effect of use of ChickCare 0-4 days on breast weight (g) at 37 days



\* statistically different to control at p<0.05

**Figure 8.** Effect of use of ChickCare 0-4 days on breast yield (%) at 37 days



\* statistically different to control at p<0.05

## Financial study

At the end of the trial, a financial study was carried out. The objective was to evaluate the **ChickCare 0-4 days** benefits. Therefore, it was compared the control treatment & treatment 2 (selected due to its optimal results). A summary of this economic study is showed in the following table:

Treatment	Acumulate feed intake 37d (g)	* Cost (€/bird)	Breast** (g/bird)	Ingresos** (€/pollo)	Revenues** (€/bird)	Gross margin ChickCare vs. Control (€/bird)
Control	3611	0,9132	399,1	0,998	0,08	
<b>ChickCare 0-4 days</b>	3653	0,9338	456,7	1,142	0,21	+ 0,13

\* Based in feeding program scheduled by company

\*\* Price per kilogram pf breast was establish at the beginning of the trial, using data coming from Spanish data

### Conclusions

Under current trial results and market conditions we could conclude that use of **ChickCare 0-4 days** of Trouw Nutrition:

- ▶ Improves production results in early life period.
- ▶ Improves performance at market age including meat yield.
- ▶ Improves the profitability of broiler operation.