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RESULTS OF 46 CLOSTAT™ FIELD TRIALS INVOLVING MORE THAN 7.000.000 BROILERS IN EMEA

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Abstract:

At this moment (2014), we have obtained the technical results of 46 CLOSTAT™ field trials. These trials have been carried out with a control group and a CLOSTAT group, according to our standard field trial protocols. These trials were done in different countries within the EMEA area (Belgium, Netherlands, United Kingdom, Germany, Sweden, Poland, Czech Republic, Russia, Romania, Slovenia, Greece, France and Spain).

These trials involved 3.722.906 birds in the control groups and 3.430.766 birds in the CLOSTAT™ groups, which means a total of 7.153.672 birds. There was an important difference in favor of the CLOSTAT groups in the following technical parameters: mortality, average daily growth (ADG), feed conversion ratio (FCR), FCR corrected for the live weight difference and the European poultry efficiency factor (EPEF).

Following our standard field trial protocol, we can consider all control and trial groups as replicates. Therefore a paired T-test is the preferable test to determine the significance of this trial as a totality. The paired T-test confirms a very high significance for almost all technical performance parameters, except for average daily feed intake (ADFI) the differences were not significant.

Keywords: *CLOSTAT™, animal performance, growth, feed intake, feed conversion, broilers, medication cost, and statistical analysis.*

Introduction

In the agricultural sector, customers want to see with their own eyes the efficacy of the product. In order to prove an enhancement of the technical performance of life stock, you need a large number of animals involved or a large number of trials. Currently a multiple number of trials have been carried out, involving over 7 million broilers, in order to produce convincing data on the activity of CLOSTAT™. These numerous trials were performed in several different EMEA countries and were followed closely by our local area or sales managers.

Materials and methods

Technical performance:
After the field trials on the farms of customers, technical performance data were communicated to Kemin. All the data were entered in a field trial database. Incomplete data were not used in the calculations. The technical performance parameters were calculated. The main parameters are mortality, average daily feed intake (ADFI), averaged daily growth (ADG), feed conversion ratio (FCR), FCR corrected to live weight control (FCR adjusted.) and the European poultry efficiency factor (EPEF).

The formulas used are:

FCR (feed conversion ratio):

$$\frac{\text{Feed intake}}{\text{Weight at slaughter} - 40\text{ g (= weight day old chick)}}$$

If there is an important difference in weight between the 2 groups, FCR gives less indication about the real feed efficiency. Therefore we use the FCR corrected to the same body weight

FCR adjusted

FCR *Trial adjusted* = FCR trial - ((ABW trial in g – ABW control in g) / (25g X100))

EPEF (European Poultry Efficiency Factor) =

$$\frac{\text{(Average daily gain in g)*(100 - \% mortality)}}{\text{(FCR * 10)}}$$

Statistical significance:

The statistical analysis of the data was performed by a paired T-test available as a function in Excel 2010. The control and trial group of each field trial was considered as a pair. For data available as a percentage, a 1-tailed T-test was used. For the other data a 2-tailed test was used. A P-value that is lower than 0.005 indicates a reliability of 99.5 %

Results

After the registration of CLOSTAT™ for broilers in EU, several commercial trials with customers were started all over the territory covered by Kemin Animal Nutrition and Health EMEA. In total we received useful data from 46 different trials from 17 different countries, involving more than 7 million broilers.

Average Performance Data

	Control	CLOSTAT™	Difference	Difference %	P-Value
Number of Birds	3722906	3430766	7153672		
Age in days	39.0	38.9	-0.1		
Mortality %	4.56%[a]	4.03%[b]		-0.53%	<0.05
Daily feed intake (g)	99.8	99.3	-0.5		0.15
Life weight	2132[a]	2155[b]	+23	1.08%	< 0.005
Daily growth (g)	53.4[a]	54.2[b]	+0.8	1.50%	< 0.005
FCR	1.845[a]	1.809[b]	-0.036	-1.95%	< 0.005
FCR adjusted for weight	1.845[a]	1.791[b]	-0.054	-2.90%	< 0.005
EEF	284[a]	295[b]	+11		< 0.005
ROI	**3.3 ***				

[a, b] different letters are significant

*The benefits of the better slaughter house characteristics and the reduction in medication costs were not taken into account to calculate the ROI.

All data are highly significant. There is no clear effect on the daily feed intake.

All averages are weighted averages.

Number of positive trials out of 46 trials

	Number positive trials	% of total number
Mortality %	29	63 %
Daily feed intake (g)	23	50 %
Daily growth (g)	36	78 %
FCR	38	83 %
FCR adjusted for weight	42	92 %
EEF	41	89 %
ROI	40	87 %

Medication

In the French trial together with a French veterinary organization where more than ½ million broilers were involved, the medication cost was even 50 % lower in the trial group.(TL-11-00148)

Several field trials indicated that medication costs were reduced by up TO 50% due to a better gut health which was maintained through administration of CLOSTAT.

Conclusions

- Administration of CLOSTAT™ in broilers clearly improves the technical performance parameters.
- Mortality, live weight, daily growth, FCR, adjusted FCR and EPEF are significantly improved.
- Statistical analysis of the data shows that these improvements are highly significant.
- The trials where the medication costs were available showed a cost saving of between 25 and 50% through the administration of CLOSTAT™.
- The ROI is higher than 3, even without taking into account the savings in medication cost and improvement of the slaughterhouse characteristics.

References:

KEMIN Internal references:

TD-14-00008
SD-14-00010
TL-11-00148