

A successful trial with CLOSTAT™ in a layer farm with young layers

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Introduction

In 2015 we received the European registration to use CLOSTAT™ in layers. To get more experience and knowledge by that time we're performing several trials, scientific and commercial. A customer of KEMIN, Eierveiling Poederlee, was interested to perform a trial. Mainly because a previous trial with old layers showed a positive effect on the performance. In the phase of young layers (Start Laying Phase) the main issue is enteritis. During that period the young layer has to go through a lot of stressful situations. First they have the stress from the transport to the layer farm. At the same moment they have the change of feed and the adaption to the aviary system, with which the sheds are equipped. Later they start to lay, that goes together with hormonal changes, more feed intake and different changes in the body structures. As the farmer confirmed, the start of the laying phase (until the peak of lay) is the most important period to determine the health future and the technical and economic performance of the flock.

Material and methods

The farm consists of 4 very new houses installed with aviary system husbandry. Every house contains approximately 30.000 layers. The trial is done in house 5 and 6, where the CLOSTAT group is in house 5 and the control group in house 6. CLOSTAT Dry is applied on the feed using a micro dosing system that is fixed on the feeding line of house 5. Because the high challenge the birds have during this period and previous experiences we have with other customer trials we decided to dose at 1 kg CLOSTAT Dry/ ton of feed from the first day of arrival. The birds all arrived at 21st of August 2014 at the age of 16 weeks. The birds reach the peak of lay at the age of 31 weeks. At that moment we stopped the trial and started the next trial.



The farmer registers all technical parameters on a weekly basis. The first 4 weeks (adaption and start lay) are registered separately. In this trial we take into account the mortality, feed intake, lay%, egg weight, egg mass and percentage of 2nd choice eggs.

Results

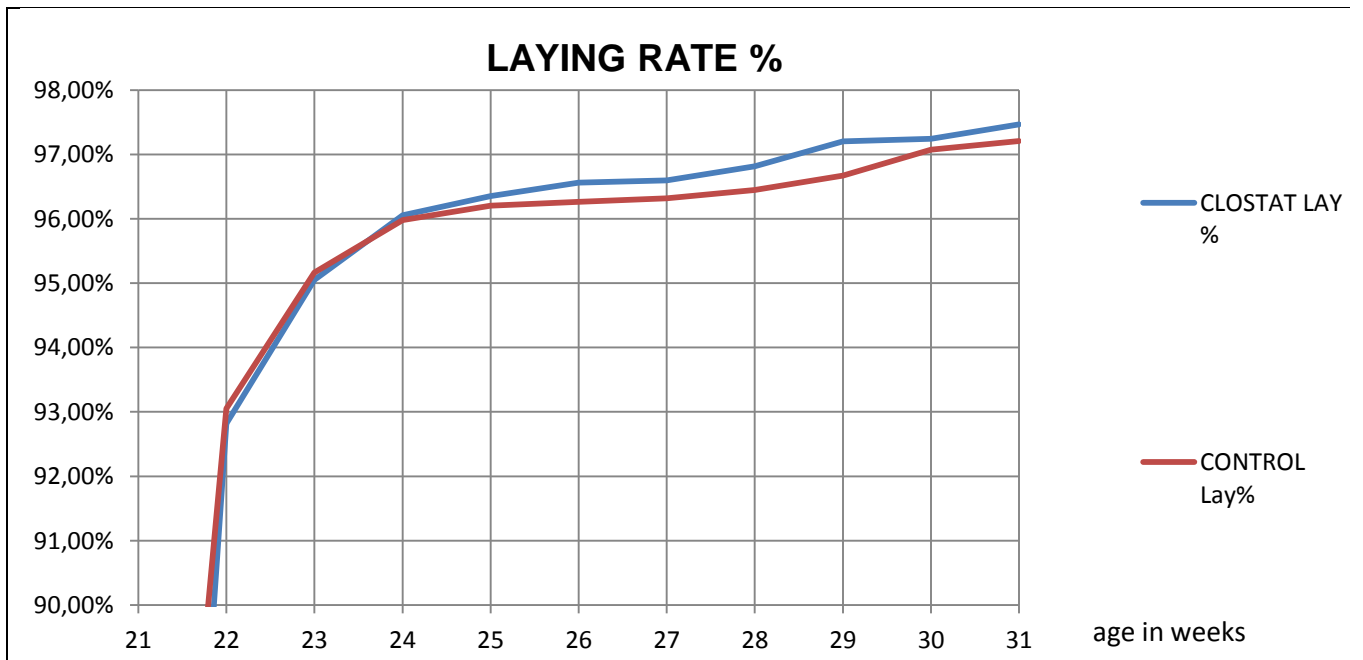
Technical performance:

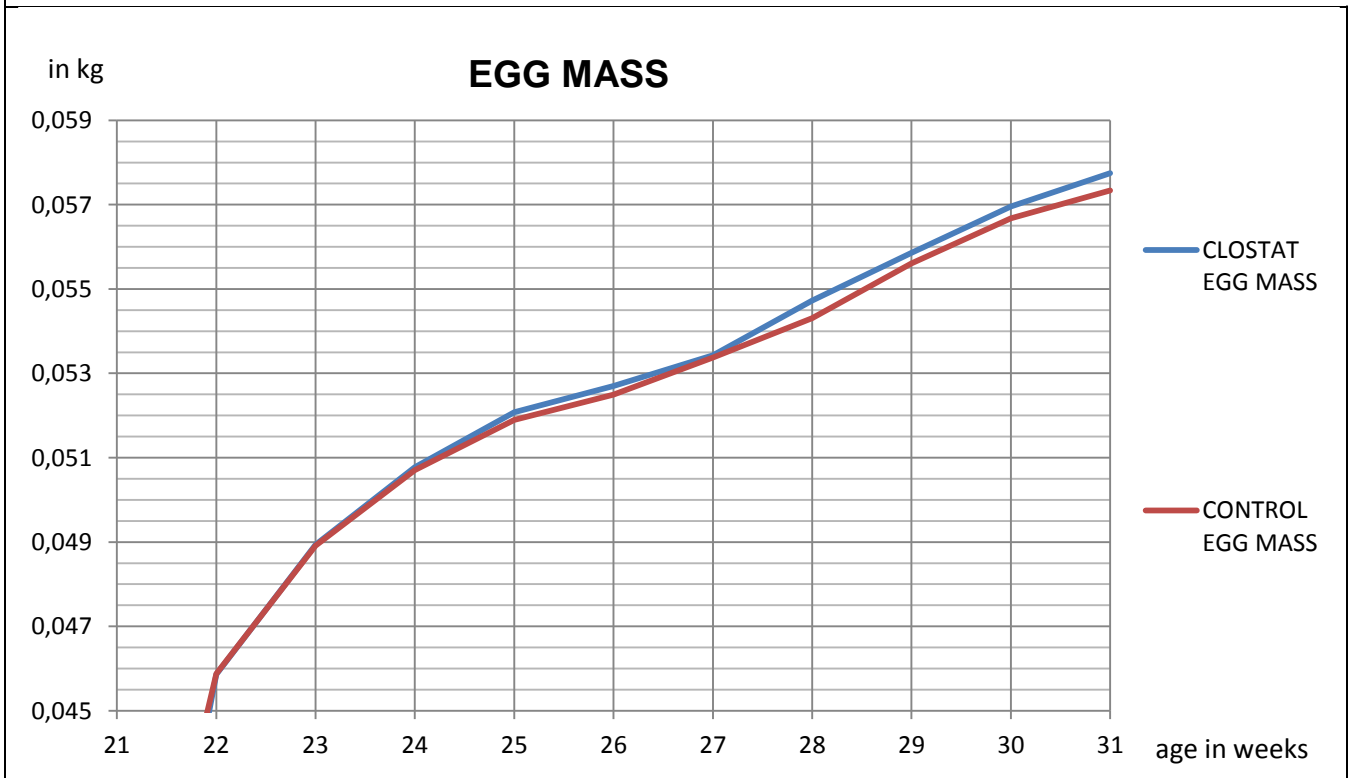
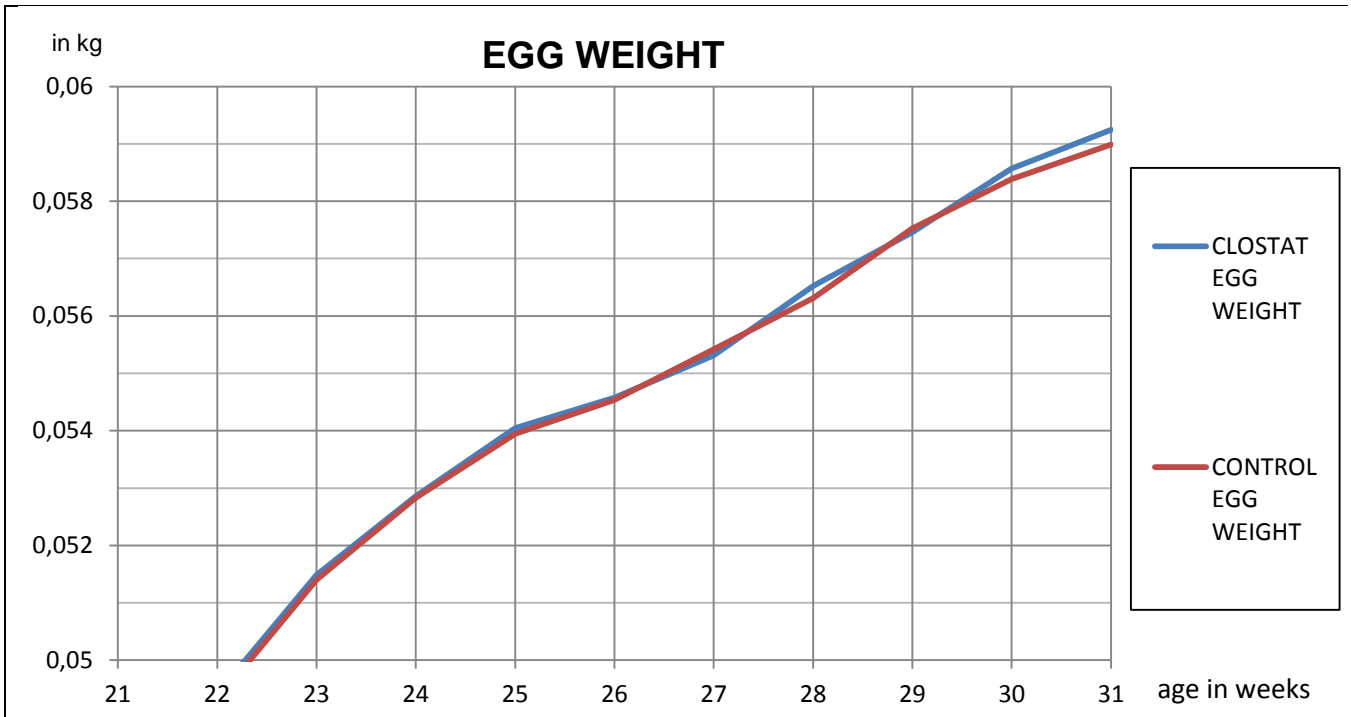
In the first 4 weeks (17-20) the mortality was less in the CLOSTAT group **(-0.22%)** than the CONTROL group

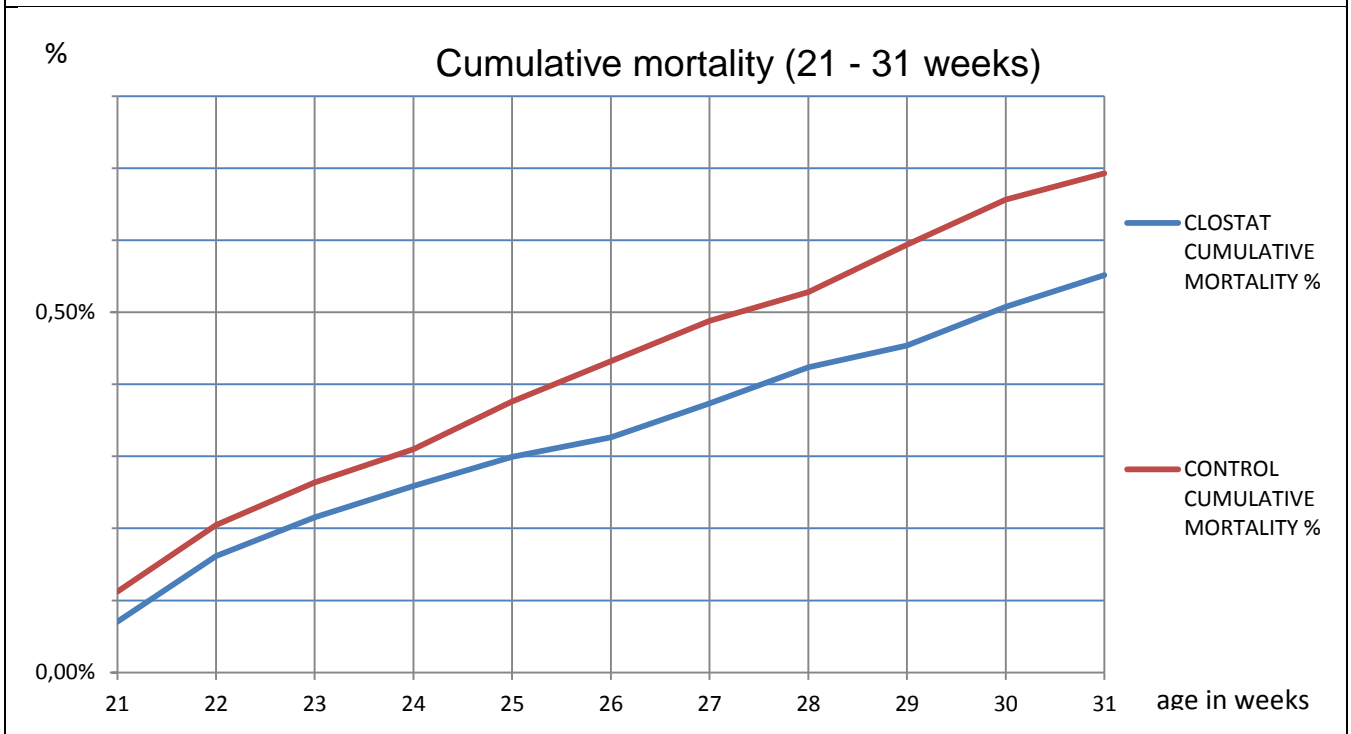
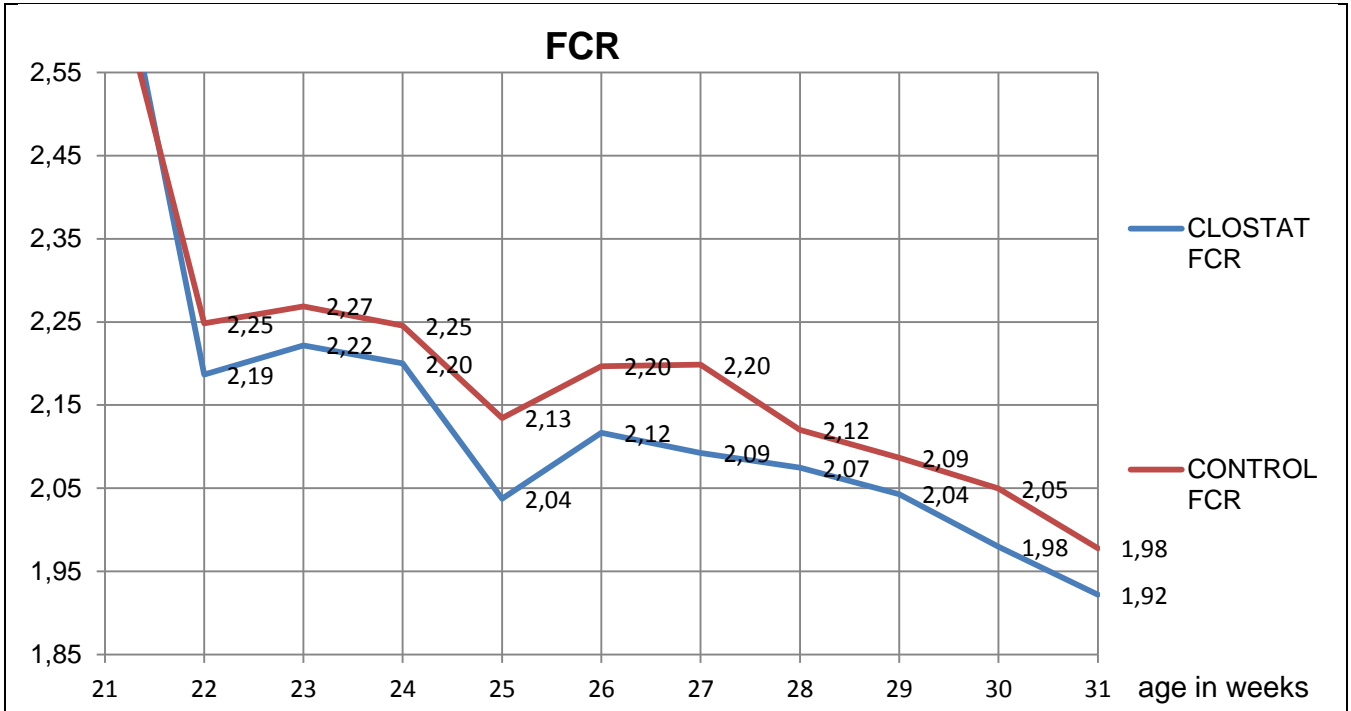
Table 1: Results in week 31

Results in week 31						
Group	Mortality cumulative % (1 st 4 weeks not included)	Mortality cumulative % (1 st 4 weeks included)	Laying rate (%)	Egg weight at week 31 (g)	Egg mass (g)	FCR
CLOSTAT™	0.55%	0.79%	97.46%	59.2	57.7	1.92
CONTROL	0.69%	1.16%	97.21%	59.0	57.2	1.98
Difference	-0.14%	-0.37%	+0.25%	+0.2	+0.5	-0.06

Graphs







Economic consequences:

In the discussion later we will discuss the benefit for the flock in general. If we only look at the economic consequences, we can calculate it in 2 different ways. In the first calculation method we do the calculation of the ROI week per week taking into account the weekly investment and weekly benefit (ROI/ hen/ week). Of course the investment is also done in the first 4 weeks where a return cannot be calculated yet, because there is no significant egg production yet. This means that the benefit of that investment will occur later (except for the mortality). If we take all mortality, including the mortality of the first four weeks, into account together with the whole investment done, we come with a second calculation method (ROI Total Flock). This method is more realistic. Expected is that the ROI will keep increasing several weeks after the trial stopped because of the better health status of the flock.

Item	Price
Pullet	€ 4.40
Eggs/kg	€ 1.05
Eggs per piece	€ 0.0625
Feed	€ 0.27
CLOSTAT	€ 4.50
Inclusion rate CLOSTAT	0.10%

Age in weeks	ROI/ hen/week (kg eggs)	ROI Total Flock
21	-2.6	1.4
22	1.7	2.8
23	1.4	3.9
24	1.3	4.8
25	3.4	5.8
26	2.8	6.9
27	3.2	8.1
28	1.6	9.1
29	2.0	10.1
30	2.5	11.1
31	2.1	12.0

Discussion

We know that in laying hens the start lay phase is very stressful and challenging. The future of a laying flock frequently is determined in this period. This is the reason why we decided to use a high dosage of CLOSTAT (1 kg/ton of feed) to perform this trial. Also previous experiences in breeder flocks where this dosage was very successful, helped us to make this decision.

The goal of the farmer in this period is mainly to have a smooth start, if possible without using any antibiotic treatments, without any significant mortality. The peak of lay should be as high as possible. If you look at the results (see graphs) this farm is a high performing farm. As well the control group as the CLOSTAT group is performing on a very high level. Nevertheless the CLOSTAT group had an even better start than the control group with clearly less mortality in the first four weeks. After 20 weeks of age, this positive tendency continues on all parameters measured. The farmer testifies that he sees the positive effect of using CLOSTAT and he expects that the benefits of this treatment in the start lay phase will have a health effect on the whole life cycle of the layers, with its economic consequences.

On the demand of the farmer we decided to keep using CLOSTAT at a lower dose also in the next phase (First laying phase).

Conclusion

Although statistics cannot be done in this type of setting in a commercial trial, the following conclusions can be taken:

- In the first 4 weeks the mortality was 0.22% lower in the CLOSTAT group.
- The overall cumulative mortality at the age of 31 weeks is 0.37% lower in the CLOSTAT group.
- At closure of the trial at 31 weeks the following improvements are registered:
 - o Laying rate + 0.25%
 - o Egg weight +0.2 g/egg
 - o Egg mass +0.5 g/day/hen
 - o **FCR -0.06** (1.98 for control group which is already very good, 1.92 for CLOSTAT group which is **exceptional**)

References

Kemin internal publication: TD-14-00205
SD-14-00011
TL-14-00053
SD-14-00141