



LYSOFORTE® helps to reduce feed cost in commercial layer farm in South East Asia – Field observation

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Introduction

Oil and fat sources of plant or animal origin are routinely included in diets fed to chickens; however there is evidence that the bird's capacity to digest and absorb dietary fats is limited¹. The efficient utilization of dietary fat requires digestion and absorption of fat in the gastrointestinal tract. Lyso-Phospholipids acts as powerful biosurfactants and can improve the fat digestibility of chicken.

Key properties of Lyso-phospholipids are as follows

Enhancing fat emulsification leading to the formation of smaller fat/oil droplets in the small intestine.

1. Smaller and stable micelle formation due to the very low critical micellar concentration (CMC).
2. Increasing the fluidity and permeability of membranes by acting as membrane transducer

Lyso-phospholipids may also alter mucosal barrier function and increase the gut permeability to macro-nutrients such as amino acids. In laying hens, egg yolk is comprised of 32% fat, which is derived from the feed on daily basis. Supplementation of Lyso-phospholipids in commercial layer diets is beneficial for boosting fat digestion and improves the egg size and egg mass².

Lysophospholipids are widely used in animal diets to increase the digestion and absorption of oils and fats and to improve animal performance and feed efficiency. The energy sparing effects exhibited by lysophospholipids in studies conducted all over the world, highlight the potential for a partial oil or fat replacement application. Research studies in Europe, South East Asia, India and China have demonstrated that lysophospholipids addition can compensate for up to 8 to 10 kg of oil or fat in poultry diets. This effect is due to enhanced emulsification and absorption of fat from the feed that translates to an increased metabolisable energy of the feed.

This paper summarizes the effects of replacing dietary fat with **LYSOFORTE** on egg production and feed intake of commercial layers at field conditions.

Materials and Methods

The objective of this field trial was to evaluate the effects of replacing dietary fat with Lysoforte on egg production and feed intake of commercial layers at field conditions.

Trial place and management: The trial was done in a commercial layer farm in South East Asia for the period of 89 days. This customer is one of the biggest commercial layer farmers having 5 million birds.

<i>Breed</i>	: Lohmann Layer
<i>Age of birds</i>	: 22 – 35 weeks
<i>Number of birds</i>	: Control 10689, Treatment 10698
<i>Feed type</i>	: Mash feed
<i>Oil source</i>	: Crude Palm Oil

Trial design : The trial was assigned in two chicken houses of same age group. The regular commercial feed formulation was used for control batches. In treatment group, reformulation has been done by replacing 40 Kcal of ME/kg of feed with supplementation of LYSOFORTE 500 g per ton. All the 40 Kcal of ME replacement achieved exclusively by replacing 8 kg of crude palm oil per ton of feed.

Table 1: Treatment design

Groups	Description
Control	Corn soy diet (Control diet contains 1.8% of added crude palm oil)
Treatment	Control diet – Less 40 Kcal of ME/kg feed + LYSOFORTE 500 g / ton (Treatment diet contains 1% of added crude palm oil)

Parameters: Egg production and feed intake was used as a direct indicator of feed utilization efficiency. In this trial the only difference between the control and treatment diet was addition of Lysoforte in treatment diet by partial replacement of crude palm oil. Data on average egg weight and birds' body weight are also recorded.

Table 2: Feed Specifications

Nutrients	Control diet	Treatment diet
Metabolisable Energy (Kcal/kg)	2800	2760
Crude Protein %	18.00	18.07
Methionine	0.40	0.40
Meth./Cyst. %	0.73	0.73
Dig M/C %	0.60	0.60
Lysine %	0.80	0.80
Dig. Lysine %	0.66	0.66
Tryptophan %	0.18	0.18
Threonine %	0.59	0.59
Calcium %	3.50	3.50
Phosphorus, total %	0.55	0.55
Phosphorus, avail %	0.40	0.40
Sodium %	0.15	0.15
Chlorine %	0.15	0.15

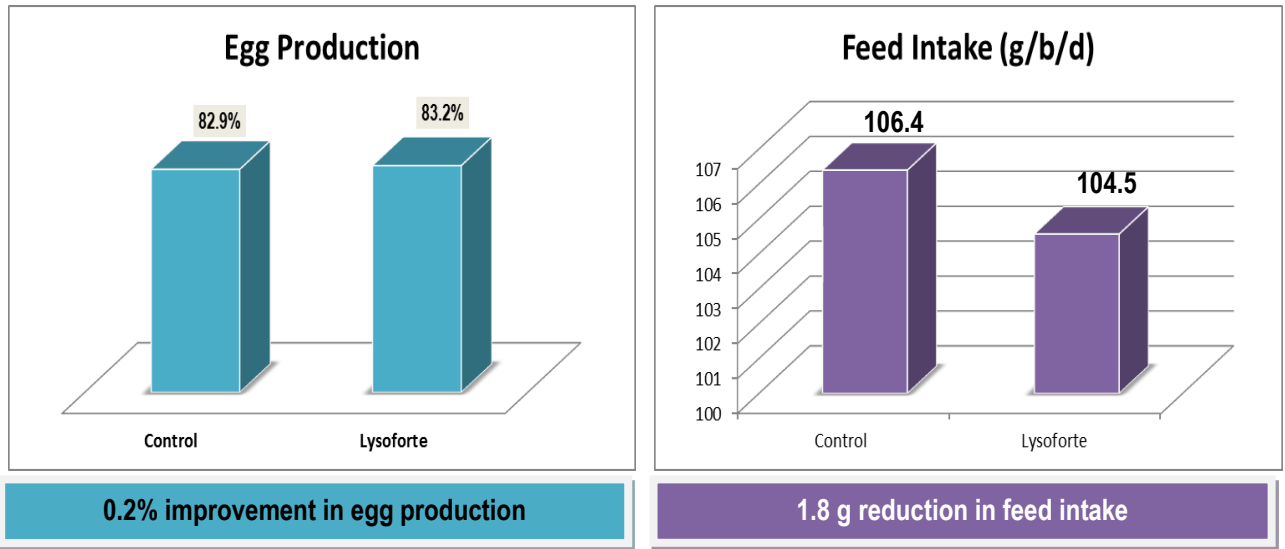
Results and Discussion

Effect on egg production and feed intake:

The average egg production of control birds from 22 to 35 weeks is 82.9%. Partial replacement of dietary fat along with supplementation of LYSOFORTE did not adversely affect the egg production. Lysoforte added group recorded 0.2% more egg production (83.2%) during the treatment period.

On the other hand, average feed intake of treatment group is 1.8 g per bird per day lower than control group. This indicates that metabolisable energy content of treatment diet significantly improved than control diet. The increased AME value of treatment diet was attributed to positive effect of Lysoforte towards improving energy digestibility of the diet.

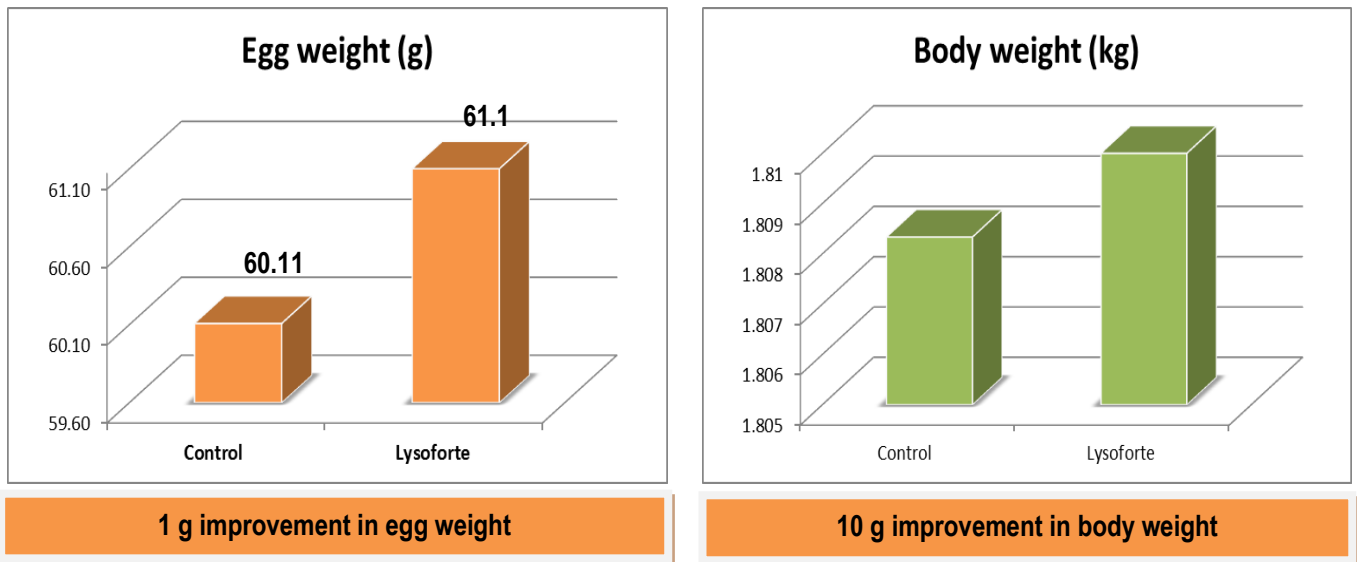
Fig 1: Effect of LYSOFORTE on egg production and feed intake



Effect on egg weight and birds' body weight

The average egg weight of control birds from 22 to 35 weeks is 60.11 g. LYSOFORTE supplemented birds able to produce eggs with 2% more weight than control birds (61.1g). Similar type of results with increased egg weight in LYSOFORTE supplemented groups were observed in earlier trial³

Fig 2: Effect of LYSOFORTE on egg weight and body weight



Return on investment

Table 3. Return on investment calculation for using Lysoforte in layer diets

Parameters	Control	Lysoforte
Total number of birds	10689	10698
Feed intake (g/b/day)	106.39	104.56
Mortality %	3.89	3.90
Egg Production %	82.9	83.1
Trial period (days)	89	89
Number of eggs produced	768450	774000
Total feed intake (Kg)	1137.20	1118.58
Feed cost per ton (USD)	433	432
Expenditure on feed cost (USD)	43858	43024
Selling price of one egg (USD)	0.09	0.09
Income from selling eggs (USD)	71722	72240
Net profit for the trial period (89 days)	27864	29216
Net profit per month (30 days) (USD)		456
Net profit for 100,000 birds / month (USD)		4,261
Net profit for 100,000 birds / annum (USD)		51,129

Summary

Overall summary on the trend in different parameters of this trial is shown in table 4

Table 4. Summary of the trial on using Lysoforte in layer diets

Parameter	Control	LYSOFORTE
Egg Production	●	✓
Egg weight (g)	●	✓
Feed Intake (g/b/d)	●	✓
Body weight (kg)	●	✓

Conclusion

The aim of the present study was to evaluate the effect of Lysoforte in commercial layer diets adopting feed reformulation. Results demonstrated that addition of Lysoforte to reformulated diet did not negatively impact the production parameters and helped to save the feed cost. From the results of this commercial farm observation, it is concluded that Lysoforte can be used as a tool to reduce the feed cost by partially replaced dietary fats.

References

1. Renner, R., Hill, F.W. 1961. Utilisation of fatty acids by the chicken. J. Nutr. 74: 259-264
2. Chinnadurai Sugumar and Bindhu L.V 2013. Lyso-phospholipids for better egg size and egg mass. Asian Poultry March 2013.
3. Kemin internal documentation - BB-03-00568