A NEW HIGH EFFICIENCY SOYBEAN MEAL SIGNIFICANTLY IMPROVES POULTRY PERFORMANCE

S.B. NEOH and V. RAGHAVAN

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By Dr. Soon-Bin NEOH
Soon Soon Oilmills, Malaysia.

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S.B. NEOH[1] and V. RAGHAVAN[2]

Summary

A new high efficiency soybean meal significantly improves FCR and weight gain in broilers, as well as increasing egg production, hatchability and egg mass in layers and breeders. FCR and weight gain improvements of about 10% are seen in numerous trials. Trials with breeders showed a 8-9% improvement in production rate, a 3-4% improvement in hatchability and a 10% overall increase in egg mass. Trials using peak layering layer flocks also showed a 2.3% improvement in egg production and 6.5% increase in egg mass.

I. INTRODUCTION

There is evidence (William A. Dudley-Cash, 2001) to suggest that there is a significant difference in the performance of soybean meal from different sources in poultry nutrition despite similar proximate analysis such as protein, crude fiber, KOH protein solubility, urease activity, and trypsin inhibitor activity. Recently Protein Dispersibility Index (PDI) was suggested as a better indication of the soybean meal quality. The suggestion is that overprocessing soybean meal binds the more reactive amino acid such as lysine and cystine in the protein with sugars and other reactive compounds rendering them insoluble and becoming nutritionally unavailable. Unfortunately our own studies and those of Saio *et al* (1982*)* showed that PDI drops quite quickly especially at higher storage temperatures probably due to the aggregation of protein making them insoluble but presumably still available nutritionally to the animals.

A new process developed by Soon Soon Oilmills claims to deactivate the anti nutritional factors of soybean meal to low levels (Trypsin Inhibitor contents < 4TIA) and yet not reduce the nutritional properties of the soybean meal. This new soybean meal offers significantly better nutritional performance in poultry and swine.

This paper outlines the results of various trials using this new high efficiency soybean meal in comparison with imported Argentine soybean meal in breeders, layers and broilers.

II. METHODS

Broiler trials were conducted at 10 commercial farms with flock sizes ranging from 2000 to 32500 birds in comparison with imported Argentine soybean meal using Cobb and Avian 43 straight run broilers. The trials lasted for 40 days and the FCR, weight gain and mortality rate were determined. The metabolizable energy of the feed was 3200 kcal/kg for starter feed and 3250 kcal/kg for grower / finisher feed. The protein levels were 21.5% and 19.0% respectively. The results are presented in Figure 1 and Figure 2.

In the 10 farms, feed using Soon Soon High Efficiency soybean meal instead of Argentine soybean meal showed FCR improvement of 5.5% to 14.5% with an average improvement of 9.3%. Similarly, body weight at 40 days improved by 4.1% to 20.0 % with an

[1] Soon Soon Oilmills, Malaysia.
[2] Sin Hin Chan (Malaya) Berhad, Malaysia.

average of 9.6%. Mortality rate was also lower at 3% to 4% instead of 5.5 % to 6.8%.

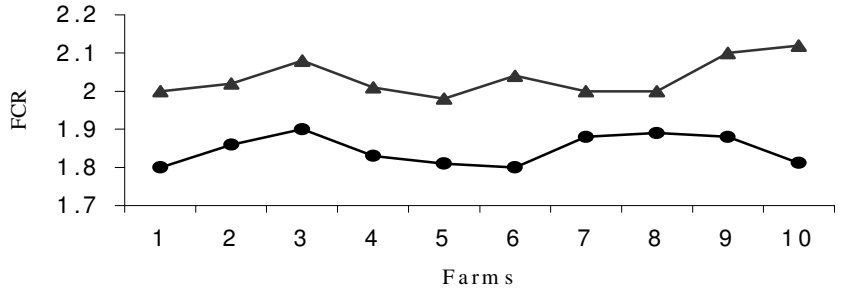

Figure 1. FCR at 40 days for broilers fed with feed using Soon Soon High Efficiency soybean meal (-•-) and feed using Argentine soybean meal (-5 -)

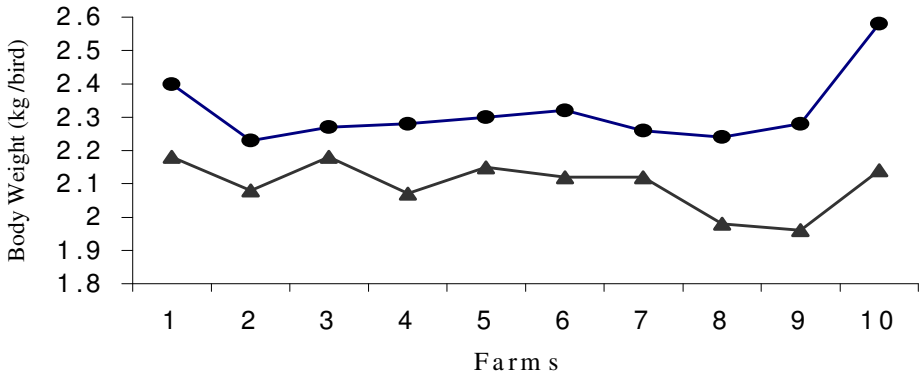

Figure 2. Body weight at 40 days for broilers fed with feed using Soon Soon High Efficiency soybean meal (-•-) and feed using Argentine soybean meal (-5 -)

Breeder trials were conducted at a breeder farm using 12500 Avian 43 breeders. The breeders were initially fed with a feed using imported Argentine soybean meal. The flock performance was monitored for a period of 5 weeks from age 48 weeks to 52 weeks, after which the feed was changed to one using Soon Soon High Efficiency soybean meal. The performance of the flock was monitored for a further 6 weeks from age 53 weeks to 58 weeks.

The metabolizable energy of the feed using Argentine soybean meal and Soon Soon High Efficiency soybean meal were 2850 Kcal/kg and 2800 Kcal/g respectively. The crude protein level was the same at 17.5%. However the average feed consumption per bird was 154g /day for the feed using Soon Soon High Efficiency soybean meal versus 160g/day for the feed using Argentine soybean meal. Production rate, hatchability rate and egg mass were monitored for the period of 11 weeks from age 48 weeks to age 58 weeks. The results are presented in Figure 3, Figure 4 and Figure 5. This trial showed a remarkable difference in production rate, hatchability rate and egg mass despite the fact that the breeders were in phase III towards the end of their production life. The production performance of the breeders were virtually restored to their peak.

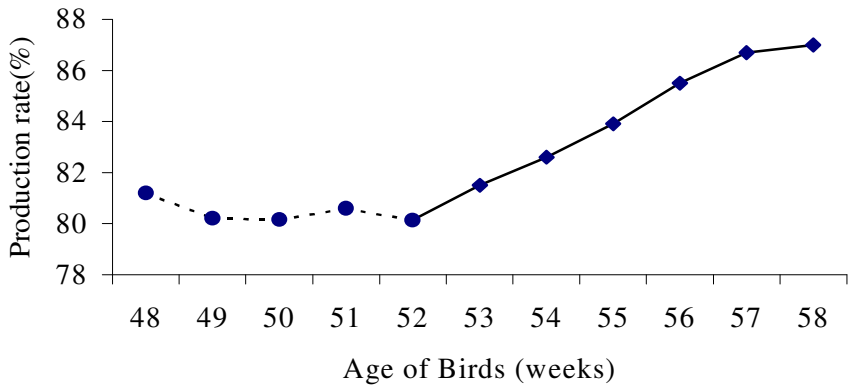

Figure 3. Production rate for breeders fed with feed using Argentine soybean meal (---•---) from age 48 weeks to 52 weeks. The breeders were then fed with feed using Soon Soon High Efficiency soybean meal (—◆—) from age 53 weeks to 58 weeks.

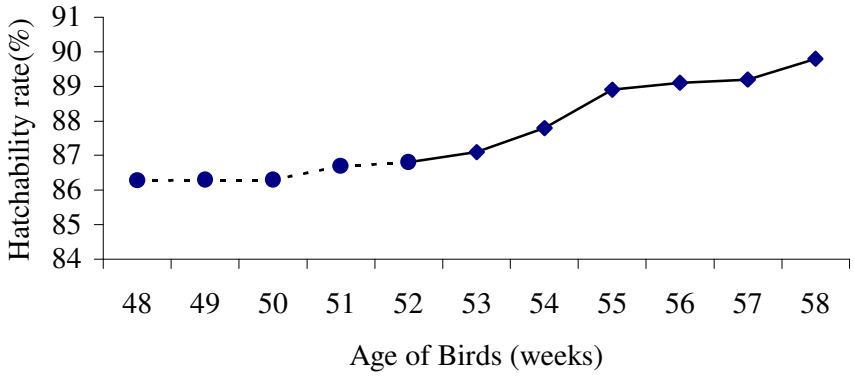

Figure 4. Hatchability rate for breeders fed with feed using Argentine soybean meal (---•--) from age 48 weeks to 52 weeks. The breeders were then fed with feed using Soon Soon High Efficiency soybean meal (—◆—) from age 53 weeks to 58 weeks.

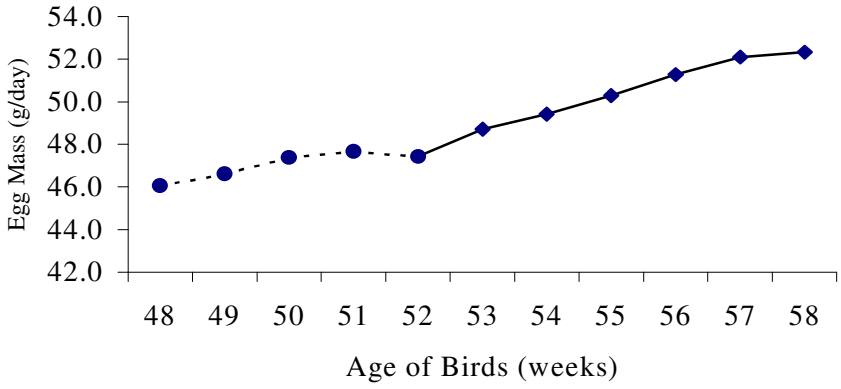

Figure 5. Egg mass for breeders fed with feed using Argentine soybean meal (---•-) from age 48 weeks to 52 weeks. The breeders were then fed with feed using Soon Soon High Efficiency soybean meal (—◆—) from age 53 weeks to 58 weeks.

Layers trials were carried out using 6 peak layering flocks divided into two groups. One group was fed with feed using imported Argentine soybean meal and the other group was fed with feed using Soon Soon High Efficiency soybean meal. The metabolisable energy of the feed was both at 2750 kcal/kg. However the layers consumed an average 7% less feed using Soon Soon High Efficiency soybean meal than those fed with feed using Argentine soybean meal. Production rate and egg weight results are presented in Figure 6 and Figure 7.

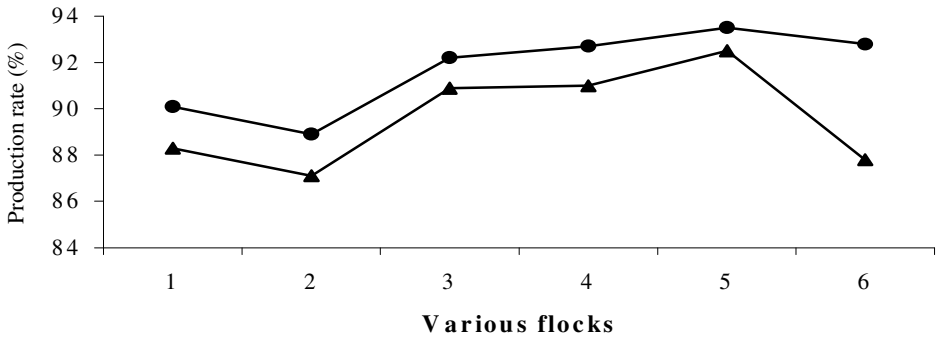

Figure 6. Production rate comparison for layers fed with feed using Soon Soon High Efficiency soybean meal (λ) and feed using Argentine soybean meal (5)

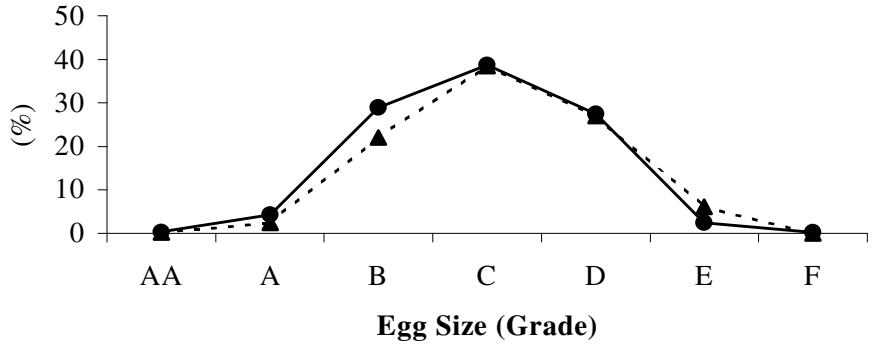

Figure 7. Egg size distribution for layers fed with feed using Soon Soon High Efficiency soybean meal (λ) and feed using Argentine soybean meal (5)

Currently numerous trials are being carried out by various companies and institutes in Indonesia, Malaysia, Thailand and Vietnam comparing Soon Soon High Efficiency soybean meal with other sources of soybean meal including U.S. dehulled soybean meal. Preliminary results from those trials show a similar trend to results reported in this paper.

REFERENCE

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William A. Dudley-Cash. Feedstuffs.Vol. 73, No. 41, October 1, 2001.