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Soon Soon High Efficiency soybean meal

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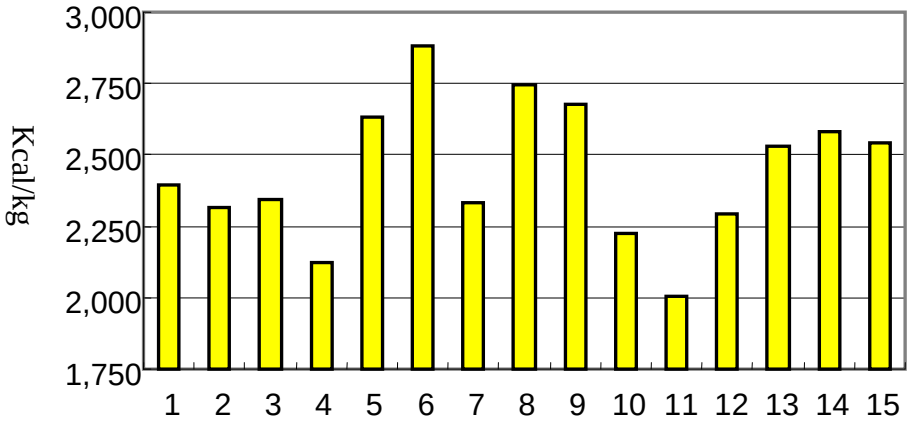
Introduction

Many still believe that basically all soybean meal has similar nutrient value especially if they have the similar proximate analysis. However in recent years there is increasing evidence that different soybean meals can have different apparent metabolizable energy (AME) and protein efficiency ratio (PER). Jiang ZR (2004) demonstrated that different soybean meal can have very different AMEn (Fig 1).

Figure 1: AMEn of dehulled soybean meals measured by Bangkok Animal Research Center, Thailand. Jiang ZR, 2004



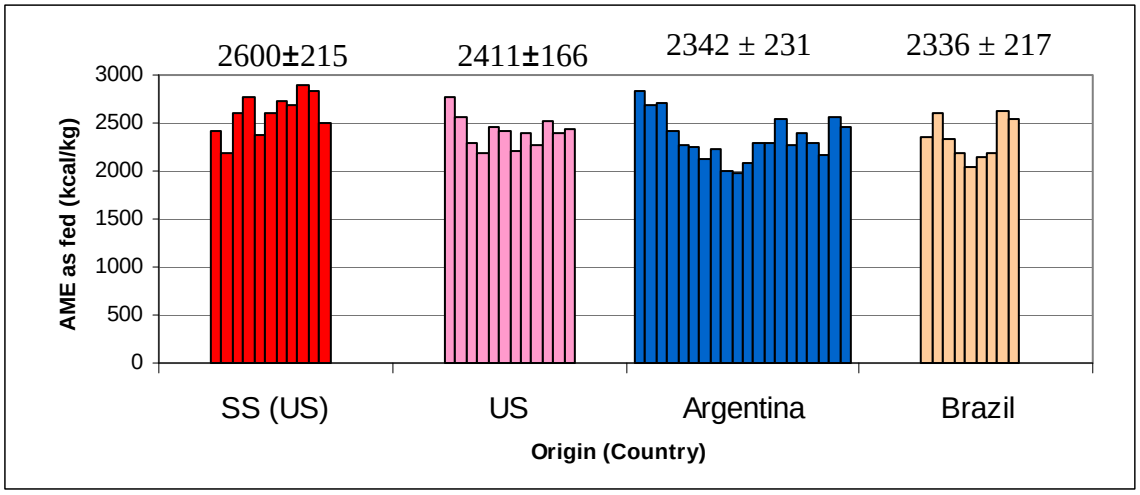
Subsequently the work of Neoh and Ng (2006) clearly showed that different soybean meals can have very different measured AME and PER and can perform very differently in poultry feeding trials. More recently Creswell (2008) measured the nutritional differences between soybean meals and by conducting a broiler feeding trials, he managed to quantify nutritionally and financially the differences between soybean meal.

Soon Soon High Efficiency Dehulled Soybean Meal (SSHESBM)

In 2001 Soon Soon Oilmills launched a new **High Efficiency Dehulled Soybean Meal.** Initially the feed industry was skeptical that any soybean meal could perform significantly better than other soybean meals. However after 7 years, there is a wealth of evidence that clearly demonstrates that the new SSHESBM has higher AME, higher PER and performed better in poultry and swine feedings.

The higher AME can clearly be seen in figure 2 which is a summary of all AME measurements that were done comparing this SSHESBM with soybean meals from different origins. The soybean meals were collected from this part of world by ASA and Soon Soon Oilmills in the years 2003 to 2008. The AME test was performed at the Bangkok Animal Research Center, Thailand.

Figure 2: AME comparison of dehulled soybean meals produced by Soon Soon (SS) using US soybeans with dehulled soybean meals from various countries



These results show that there can be up to 10% differences in the AME of dehulled soybean meals from different origins. Furthermore, the soybean meals produced by Soon Soon Oilmill from US soybeans had 7.8% more AME when compared to US soybean meals indicating that processing plays an important role in determining the AME of soybean meal. The economic value derived from the extra AME of SSHESBM compared to soybean meals of other origins is summarized in table 1.

Table 1: The extra value of SSHE SBM (per mt) based on extra AME, compared with other SBMs

	Differences in AME (kcal/kg)	Extra Value (USD/mt)
SSHE (US) vs US	189	24.06
SSHE (US) vs ARG	258	32.85
SSHE (US) vs BRZ	264	33.61

The value of 1 kcal/kg ME is calculated to be USD 0.415 based on the price of palm oil at USD 1019/mt and the AME of palm oil of 8000kcal/kg.

PER testing by ASA (Fig 3 & Table 2) also suggest that there are large differences in protein availability between SSHESBM and other soybean meals. Surprisingly the PER of SSHESBM can be up to 50% higher than other soybean meals

Figure 3: Comparison of PER between SBM of different origins (ASA unpublished data, 2003 – 2004)

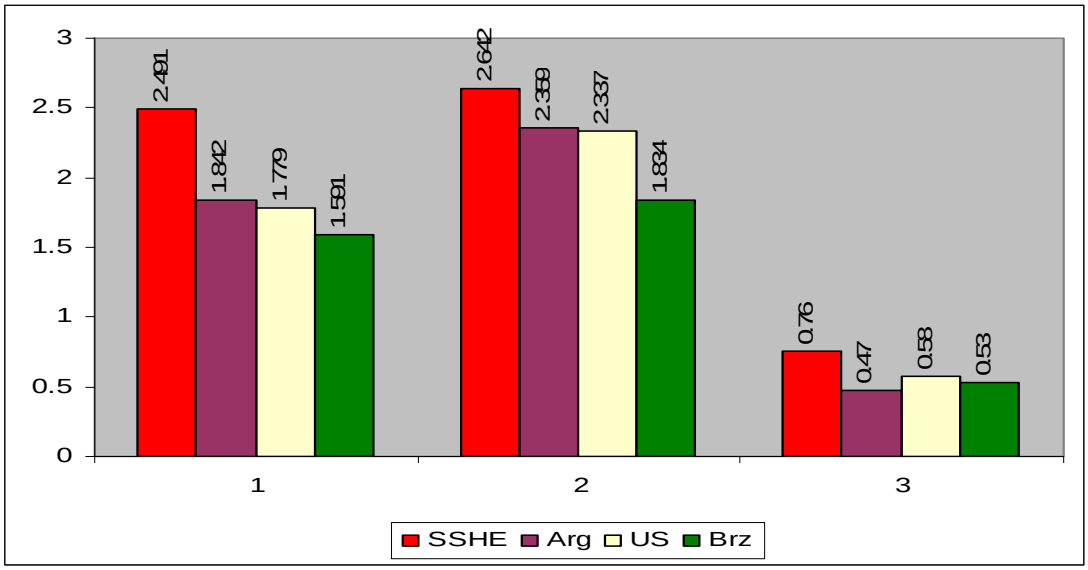


Table 2: Percentage of improvement in PER of SSHEDSBM when compared with SBM of other origins

Origin	Test 1 (%)	Test 2 (%)	Test 3 (%)	Average increase in PER (%)
US	+40.0	+13.1	+31.0	+28.03
ARG	+35.2	+12.0	+61.7	+36.31
BRZ	+56.6	+44.1	-	+50.32

Numerous feeding trials have been conducted over the years comparing SSHESBM with other soybean meals. Some of these trial results are summarized in table 3, table 4 and table 5.

Table 3: Summary of broiler trials conducted in commercial farms comparing the growth performance of SSHEDSBM with other soybean meals.

Type of trial	Duration of trials	Control : normal SBM		HE SBM		% Improvement		References
		FCR	Wt gain (kg)	FCR	Wt gain (kg)	FCR	Wt gain (kg)	
10 farms. 2000 to 32500 birds	1 to 40 days	2.01	2.11	1.84	2.32	9.3	9.6	Neoh & Raghavan, 2002
8 farms. 2300 birds	1 to 35 days	1.53	1.78	1.49	1.85	3.35	4.0	Soon Soon (Unpublished data)

Table 4: Summary of layer and breeder trials conducted in commercial farms comparing the performance of SSHE SBM with other soybean meals

Type of trial	Duration of trials	Control: normal SBM			HE SBM			% improvement			Reference
		Prod. Rate %	Egg mass g/d	Haugh %	Prod. Rate %	Egg mass g/d	Haugh %	Prod. Rate %	Egg mass g/d	Haugh %	
Breeder farms 2x 12500 Avian	6 weeks each	81.5	48.7	87.1	87	52.3	89.8	6.7	7.4	3.1	Neoh & Raghavan, 2002
Layer farms 25000 lohman	8 weeks Each	72	-	-	79	-	-	9.7	-	-	Raghavan unpulish-ed data

Table 5: Summary of broiler trials conducted in Bangkok Animal Research Center comparing the growth performance of SSHE DSBM with other SBMs

Duration of trials	Type of SBMs	BGW, g	Improvement, g	FCR	Improvements, points	References
1-21 days	SSHE	836	-	1.294	-	Neoh *& Ng* 2006
	US	811	25	1.319	2.5	
	ARG	779	57	1.350	5.6	
1-42 days	SSHE	2840	-	1.573	-	Neoh *et al*, 2007
	ARG	2788	52	1.608	3.5	

Recently Creswell in a new study measured the nutrient values of SSHESBM in comparison with US, Argentine and Indian soybean meal and in a subsequent broiler feeding trial he established the true nutritional and financial value of SSHESBM when compared to the other soybean meals. The results of this trial will be presented at this conference by Creswell (please see his paper for details). However it is interesting to present the relative financial values of these 4 soybean meals calculated from the assays and feeding trials as shown in the table 5 below.

Table 5:The relative value of Soon Soon Dehulled SBM vs other SBMs

Type of meal	Relative value (USD/t)	Difference (USD/t)
SS	621.5	-
Argentine	545.0	76.5
US	550	71.5
Indian	501.4	120.1

The financial value of SSHESBM is USD120.1 higher than Indian soybean meal, USD76.50 higher than Argentine SBM and USD71.50 higher than US soybean meal.

In order to realize financially the extra nutritional value of SSHESBM in feed formulation, we are recommending the following nutrient specifications for SSHESBM and comparing it with the nutrient specifications for other soybean meals (table 6).

Table 6. Nutrient specifications for SS HE, US, Argentine and Indian sbm

Nutrient	SoonSoon	US	Argentine	India
ME, Kcal/kg	2650	2450	2340	2160
Digest. lysine, %	2.739	2.554	2.464	2.423
Digest. methionine, %	0.601	0.576	0.576	0.543
Digest. m+c, %	1.223	1.178	1.142	1.037
Digest. tryptophan, %	0.616	0.576	0.570	0.539
Digest. threonine, %	1.681	1.564	1.547	1.476
Digest. arginine, %	3.367	3.192	3.039	3.221
Digest. isoleucine, %	2.011	1.922	1.848	1.806
Digest. valine	2.097	1.966	1.923	1.820

Conclusions:

Soon Soon High Efficiency Soybean Meal has been tested in numerous assays and feeding trials. It is proven to have higher nutrients and demonstrate better performance in animal growth trials when compared to other soybean meals. At this present time of high feed ingredient prices, the extra nutritional value of SSHESBM can be worth up to USD120 per metric ton when compared with other soybean meals. The extra nutrients can be used to dramatically reduce the cost of animal feeds without sacrificing performance. This cost saving can amount up to USD34.41/mt of feed (assuming different soybean meals are available at a common price), for details please see Creswell's paper in this conference. As far as we know no other soybean meal has undergone such vigorous testing and proof of performance.

References:

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