

Digestible and metabolizable energy by pigs in soybean meal sourced from different countries

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Introduction

Soybean meal (SBM) is the most used AA source in diets for pigs in the U.S. (Sotak-Peper et al., 2015) and contributes energy to the diets (Stein et al., 2008). However, different factors such as soil, weather, length of storage, among others, may affect the composition of soybeans (Garcia-Rebollar et al., 2016), but there is limited information about how this may affect the energy value of SBM. These differences may result in difficulties in predicting the amount of energy in diets. The objective of this research was to test the hypothesis that the DE and ME in SBM may vary among countries of origin due to the changes in chemical composition.

Materials and Methods

Five sources of SBM from the U.S., Argentina, and China, and 4 sources from Brazil and India were used. A corn diet and 23 three diets based on a mixture of corn and each source of SBM were fed to 24 growing barrows (BW: 25± 1.70 kg) that were allotted to a 24 × 7 Youden square design with 24 diets and 7 periods of 14 d. Pigs were housed in metabolism crates and urine and feces were collected, dried and analyzed for GE.

Results and Discussion

Values for DE and ME were lower ($P < 0.05$) in diets containing SBM from India than from other countries, and SBM from Argentina had greater ($P < 0.05$) concentration of DE than SBM from all other countries. The ME in SBM from Argentina was also greater ($P < 0.05$) than in SBM from China, India or the U.S. In conclusion, results of this research demonstrate that country of origin may influence the nutritional value of SBM. Therefore, difference in energy concentration in SBM from different countries should be taking into account during formulation process.

Table 1. DE and ME and apparent total tract digestibility (ATTD) of energy in soybean meal sourced from Argentina, Brazil, China, India, or the U.S.

Item	Soybean meal					SEM	P-value
	Argentina	Brazil	China	India	U.S.		
ATTD GE, %	86.2 ^a	83.1 ^{bc}	85.7 ^a	82.7 ^c	85.4 ^{ab}	2.34	0.026
DE, kcal/kg	4,127 ^a	3,995 ^{ab}	3,976 ^b	3,795 ^c	3,985 ^b	121	0.001
DM							
ME kcal/kg DM	3,887 ^a	3,821 ^{ab}	3,753 ^{ab}	3,559 ^c	3,735 ^b	133	0.002

^{a-c} Means within a row lacking a common superscript letter are different ($P < 0.05$).

References

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