

Soybean meal produced in US has greater energy values when fed to pigs than previously estimated

January 21 2016

Differences in soil type, variety of soybeans, climate, or processing conditions can cause the same crop to have different nutritional value when produced in different locations. However, feed composition tables combine values from crops grown all over the world. Results of recent research at the University of Illinois indicate that book values for energy in soybean meal underestimate the energy value of soybean meal produced in the United States.

"In the experiments we've conducted using soybean meal here at the University of Illinois, we have calculated values for digestible and metabolizable energy that were consistently 200 to 400 kcal/kg greater than values in feed composition tables," explained Hans H. Stein, professor of animal sciences at Illinois. "Most of those experiments have been conducted using soybean meal derived from beans grown in Illinois. So we decided to compare soybean meal from Illinois with soybean meal produced in other states, to determine if our results were due to better [nutritional value](#) of soybean meal produced in Illinois."

Stein led a team that evaluated the energy content of 22 sources of soybean meal obtained from crushing plants in four zones in the United States. Michigan, Minnesota, and South Dakota comprised Zone 1; Georgia, Indiana, and Ohio made up Zone 2; Zone 3 was Iowa, Missouri, and Nebraska, and Zone 4 was Illinois.

Concentrations of digestible energy (DE), metabolizable energy (ME), and net energy (NE) were the same for soybean meal from Zones 1, 2, and 4, but soybean meal from Zone 3 contained less DE, ME, and NE than soybean meal from Zones 1 and 2.

Results did not confirm the hypothesis that soybean meal from Illinois contained more energy than soybean meal from other areas of the U.S. Instead, results indicate that soybean meal produced in the United States - regardless of growing area - provides more energy to pigs than what is indicated in current feed composition tables, including values published in the most recent tables from the National Research Council.

According to Stein, if soybean meal produced in other countries has reduced energy value compared with U.S. soybean meal, it lowers the average values published in feed composition tables, but this hypothesis has not been experimentally verified. It is also possible that soybean meal produced from modern genetic material simply contains more digestible energy than soybean meal produced from previous varieties of soybeans.

"We know that for broiler chickens, soybean meal produced in the United States has greater ME values than soybean meal produced in Argentina."

Stein said more studies are needed to compare the DE, ME, or NE of soybean meal produced in different countries and fed to pigs. But the bottom line is that soybean meal produced in the United States contains at least 200 kcal more DE, ME and NE than indicated by current book values. These new [energy](#) values will increase the economic value of soybean meal and reduce diet costs if used in diet formulations for pigs.

More information: "Concentrations of digestible, metabolizable, and net energy in soybean meal produced in different areas of the United

States and fed to pigs," www.animalsciencepublications. abstracts/93/12/5694

Provided by University of Illinois at Urbana-Champaign

Citation: Soybean meal produced in US has greater energy values when fed to pigs than previously estimated (2016, January 21) retrieved 19 April 2024 from <https://phys.org/news/2016-01-soybean-meal-greater-energy-values.html>

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