

Evaluating Energy in Corn Oil

RESEARCH SUMMARY

Researchers at the University of Illinois recently conducted a series of experiments to compare methods for determining energy of lipids fed to poultry. Results of this research demonstrate type of assay for determining energy and inclusion of lipid can affect estimated energy values of lipids. Furthermore, in both assays evaluated by the researchers, relative metabolizable energy of corn oil exceeded that of other commonly used sources of lipids.

BACKGROUND

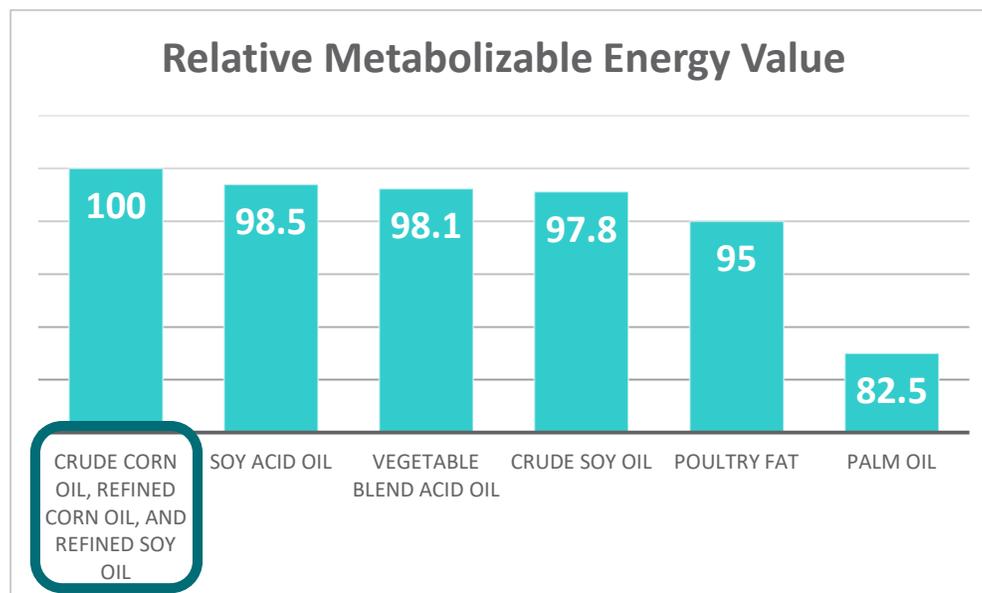
Of the nutrients used to formulate diets, energy probably represents the most variable component because of all the factors that can affect energy availability. Nutrient composition of the fat source, inclusion in diet, and assay to measure energy content represent just a few of these variables.

In order to provide additional insights into how all these factors relate, University of Illinois researchers evaluated several different sources of lipids by using either a precision fed rooster assay or a limit-fed broiler chicken assay. As part of the design, the researchers also included different amounts of lipid in the treatments to determine if amount of fat affects energy calculations.

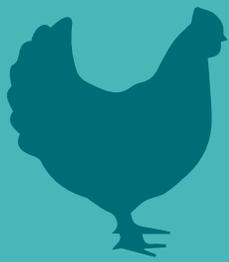
RESULTS

Researchers used the results from the precision fed rooster assay to calculate a relative metabolizable energy value (RME) for each lipid source. This approach corrects for the fat content of the diet and provides a way to compare multiple ingredients. A higher RME suggests greater value to the animal. In the University of Illinois research, crude corn oil, refined corn oil, and refined soy oil each had a RME of 100 while the remaining lipid sources had RME values between 82.5 and 98.5 (Figure 1).

Figure 1. Relative metabolizable energy value of several fat sources



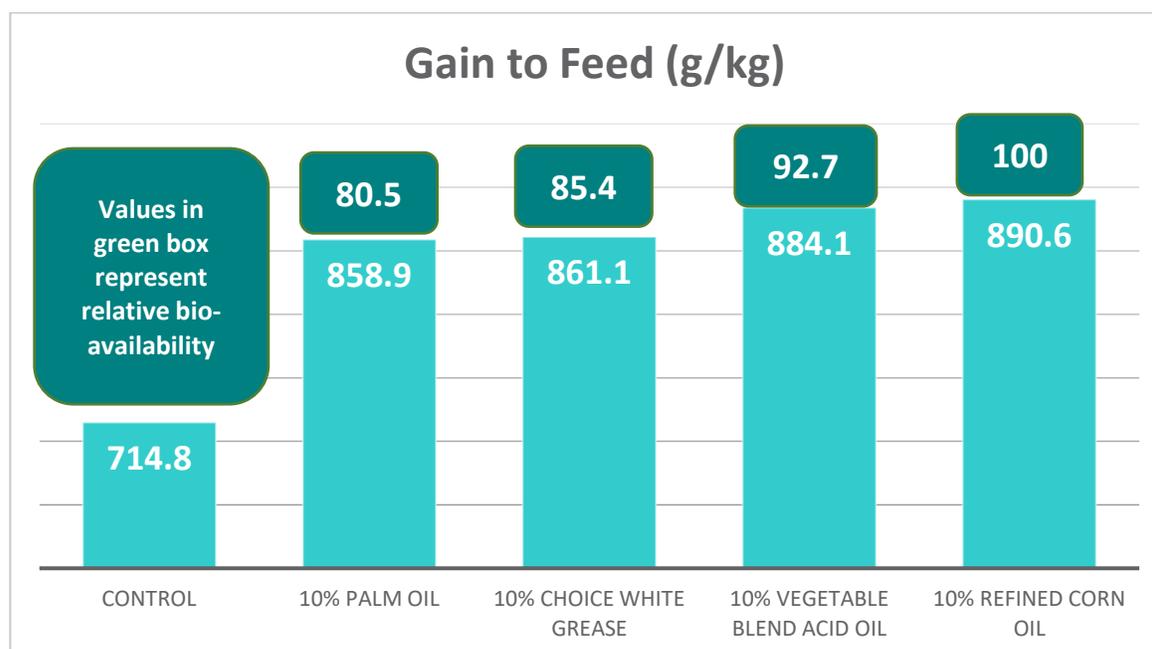
*These results are not a guarantee of nutritional value, as laboratory results are influenced by factors beyond the control of POET Nutrition.



RESULTS (CONT.)

As part of the limit-fed broiler assay, researchers reported feed efficiency and relative bioavailability of chicks fed different fat sources. Similar to the precision-fed assay, corn oil provided the most value compared with the other fat sources (Figure 2, below). Furthermore, chicks fed the corn oil diet had the greatest gain to feed compared with the other treatments.

Figure 2. Relative bioavailability and gain to feed of several fat sources



CONCLUSIONS

Results from the University of Illinois research demonstrate that corn oil provides a similar or greater amount of energy as other fat sources typically used in poultry formulations. The results also highlight how factors such as inclusion rate and assay used for energy determination can affect estimated energy values of ingredients. Nutritionists need to consider these variables when selecting energy values to use for formulation.

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