



# METABOLIZABLE ENERGY

IN SOYBEAN MEAL

**Optimize**  
WITH SOY

Priming Livestock for Premium Performance



# The Total Value Package of Soybean Meal

**Soybean meal (SBM)** is a cornerstone ingredient in animal feed, delivering essential protein, amino acids, and energy required for the growth and health of pigs, poultry, cattle, and fish. Its nutrient composition makes it a superior choice for livestock nutrition, earning its reputation as a **Total Value Package** in feed formulations.

While SBM is traditionally known for its superior amino acid profile, its role as a **valuable energy source** is equally important. Livestock need energy for growth, reproduction, and the production of milk, meat, and eggs. By supplying readily available and highly digestible energy, SBM helps meet these demands more efficiently and economically.<sup>2</sup>

SBM ADVANTAGE	IMPACT ON LIVESTOCK PRODUCTION
Superior Amino Acid Profile	Supports optimal growth and feed efficiency with highly digestible amino acids
Increased Metabolizable Energy	Provides more usable energy due to high digestibility and energy availability
Lower Fiber Content	Improves digestion and nutrient absorption for better feed conversion rates
Higher Total Phosphorus	Supports bone health and metabolism
Greater Uniformity	Simplifies feed formulations with consistent nutrient composition among production batches

# Understanding Energy in Animal Nutrition

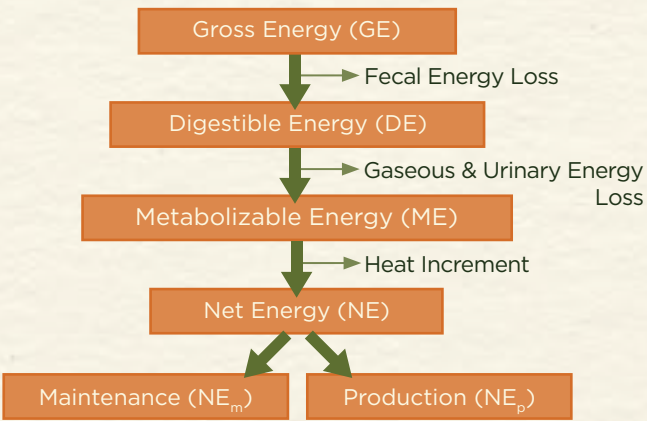
Energy is essential in every livestock diet. Animals require energy not only to maintain vital functions, but also to reach their full genetic potential.

In feed formulations, not all energy sources are equal. The types and availability of energy directly impact animal performance and feed efficiency.

## TYPES OF ENERGY IN SOYBEAN MEAL

Soybean meal plays a vital role as an energy source by delivering three key energy values:

- Digestible Energy (DE)**  
Energy retained after fecal loss.
- Metabolizable Energy (ME)**  
Energy available after fecal, gaseous, and urinary losses.
- Net Energy (NE)**  
Energy value accounted for after all losses, including heat from digestion and metabolism.



Consistent ME and NE values in soybean meal help nutritionists formulate diets with precision, reducing waste and improving feed efficiency.

# Importance of Energy in Animal Feed

## DRIVES GROWTH & PRODUCTIVITY

Energy is a key consideration when formulating animal diets. Livestock rely on energy from their feed to fuel vital functions. Without sufficient energy, animals cannot reach their full potential or maintain optimal performance.<sup>2</sup>

In diet formulations, the energy contribution of SBM plays a key role. SBM has readily available energy that helps support daily metabolic needs and enhances overall productivity.

## IMPROVES COST EFFICIENCY

Energy is the most expensive component of a livestock diet.<sup>1</sup> Using ingredients with higher energy density, like SBM, can reduce the need for supplemental energy sources, such as fats or oils.<sup>3</sup> By naturally providing both energy and essential amino acids, SBM helps optimize rations, leading to:

- Improved feed efficiency
- Reduced need for supplemental energy ingredients
- Lower total feed costs

## ENABLES PRECISE DIET FORMULATIONS

Precise, balanced diets rely on accurate energy values for every ingredient. ME is a preferred energy value in feed formulations because it reflects the energy truly available after digestion that animals can use for maintenance, growth, reproduction, and production.<sup>1</sup> The consistent ME content of SBM enables nutritionists to:

- Assign accurate energy values in formulations
- Balance diets to avoid under- or over-feeding

# Metabolizable Energy from Soybean Meal

SBM is unique among protein ingredients because it delivers essential amino acids and is a highly usable energy source. This energy primarily comes from two sources:

- About 80% from digestible amino acids**  
Amino acids supply more than just protein. They are a major source of ME that fuels growth and productivity.<sup>2</sup>
- Remainder from highly digestible carbohydrates**  
Components like sucrose, a simple disaccharide, provide additional energy to support daily metabolic functions.<sup>2</sup>

By supplying energy naturally through digestible amino acids and carbohydrates, soybean meal is a dependable and efficient energy source for livestock.



# Advantages of U.S. Soybean Meal

## HIGHER METABOLIZABLE ENERGY VALUES

U.S. soybean meal delivers more metabolizable energy than previously estimated, offering livestock producers and nutritionists greater value in every ration. Higher ME directly improves feed efficiency, reduces the need for supplemental energy, and lowers overall feed costs.<sup>3</sup>

## LOWER NUTRIENT VARIABILITY

Compared to soybean meal from other origins, U.S. soybean meal offers more consistent energy levels, helping nutritionists and feed mills to formulate more precise diets, ensure consistent animal performance, and simplify ingredient sourcing.<sup>3</sup>







## OHIO SOYBEAN COUNCIL

Learn more at [SoyOhio.org](http://SoyOhio.org)

*Brought to you by Ohio soybean farmers and their checkoff.*

Sources:

1 Kansas State University Swine Nutrition Guide: Protein Sources for Swine Diets

2 University of Georgia Department of Poultry Science: Amino Acids

3 U.S. Soybean Export Council: The Energy in U.S. Soybean Meal Provides More Value to Animals