



SOY FEED INGREDIENT DEFINITIONS

As Applied to Dairy Cow Diets

Solvent Extracted Soybean Meal (SBM): The most commonly used soy ingredient, and is a co-product of extracting oil from soybeans using a solvent. Contains 1%–2% remaining oil. Soybean hulls are added back to the meal at varying rates and impact pricing.

Heat-Treated Soy: There are three ways in which conventional and high oleic soybeans can be heat treated: roasted, extruded, and expelled. Each process is unique and impacts the protein and fat content.

Roasted Soybeans: A feed ingredient that has had a heat treatment, commonly up to 300°F, followed by steeping and cooling. Roasting increases rumen undegradable protein (RUP) compared to non-heat-treated soybeans. Roasted soybeans are further processed in varying methods and more research is needed to determine the optimum particle size of the final feed. Some feeds will be cracked into eight pieces per soybean; others may be ground to 750 microns. If the soybean is overly processed, then the expanded surface area can reduce RUP due to higher ruminal digestion. Roasting soybeans should be done via controlled heating, steeping and cooling. Processes that do not include steeping and well-controlled cooling limit the level of RUP and can lead to more variability compared to controlled roasting processes.

Extruded Soybean Meal: A feed ingredient that results from mechanically crushing soybeans using pressure to rupture the oil cell. Traditionally, all the oil remains in the extruded soybean meal, often referred to as “extruded full-fat soybean meal.” The friction of the oil cell rupturing creates heat, which increases the RUP of the ingredient. An extruded-only soybean meal is a less commonly used feed ingredient for dairy cows because there is too much oil remaining and available to the rumen, plus not enough heat has been applied to create a good RUP source.

Expeller Soybean Meal: A feed ingredient that is the result of a process that includes extruding then expelling – the pressing of the extruded soybean to collect the oil as a marketable co-product. Placing extruded soybeans in an expeller results in a higher oil removal compared to placing raw or roasted soybeans into the expeller because the oil is much more free after extrusion. Expeller soybean meal can contain 6%–12% oil, with 6%–8% being most typical. The extruded and expeller process can be done to raw or roasted soybeans. This feed ingredient is typically lower in fat and can have variability when fatty acid and RUP content is tested. It can sometimes be referred to and lumped in with an extruded soybean meal, often referred to as “Extruded/Expelled.” However, it’s important to know if the product was extruded and then expelled. The two processes are different and the terms are not synonymous.