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## THE PROTEIN-FIBER CONNECTION

Cattle get energy from this fiber because microbes in their rumen can digest fiber, releasing volatile fatty acids for energy and producing microbial protein.

These microbes, however, also need specific nutrients to function optimally. Extra vitamins or minerals rarely, if ever, are needed. They can be deficient in protein, however, especially when the cow's diet has low amounts of protein in lower quality forages.

Not just any protein will do, however. Non-protein nitrogen sources like urea are not used well by rumen microbes when most of their dietary energy comes from fiber. Rumen microbes growing in a high fiber/low energy environment perform better when provided true protein and amino acids rather than non-protein nitrogen. In addition, much of this protein should be ruminally degradable so the microbes can use it rather than in the form of undegradable intake protein, often referred to as escape or bypass protein. Protein from natural plant sources, like alfalfa, soybeans, cottonseeds, and distillers grains often provide the needed types of protein most economically.

When fed properly, rumen microbes break down and digest the fiber in the forage more completely and do it more rapidly. Forage passes out of the rumen quicker, providing space for more forage. Thus, it also increases forage intake by the cow.

Lower quality forages usually are among the least expensive feedstuffs available for the cow herd. When they are supplemented with the proper type and amount of crude protein, they can provide adequate nutrition to maintain healthy, productive animals.

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