

# Cow Pies Are Reflection Of Bovine Diet

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There's the science to beef cattle production and then there's the art to beef cattle production. Art can only take beef cattle producers so far, and then science must fine-tune the operation. The successful beef cattle producer must

mix the science and art of beef cattle production in order to make wise management decisions. If one (science or art) is neglected, then the information required to make management decisions is incomplete.

Cow pieology is the study of cow pies, but it's certainly not a science. It's an art that beef cattle producers have practiced for many years. Many beef producers observe cow pies to determine when to start supplemental feeding or when to rotate the cattle to a different pasture. The shape, size, color and texture can tell a story about the cow's diet quality.

By observing the cow pie, one can get an indication of

the quality of the animal's diet. This is not a science but rather an art that can be used as an indicator. Figure 1 is a cow pie from a pregnant cow eating hay that tested 14.8 percent protein, 28.2 percent fiber and 57.3 percent TDN or energy. This hay met the cow's requirements for protein (7.8 percent) and TDN (53.2 percent). This cow pie was flat, round and dark in color. The fiber content in the hay was low (28.2 percent); therefore, the hay was easily digested.

The cow pie in Figure 2 shows a remarkably different shape. It was not flat and round but rather the cow pie is hard, stacked and showed grooves or waves. When this cow pie landed on the ground, it stacked one on top of the other. This cow was eating hay that tested 5.1 percent protein, 31.5 percent fiber and 53.7 percent TDN. A cow pie with this shape usually is a sign of high fiber and low digestibility. In this example, the protein content was very low (5.1 percent). Because of the low protein in the diet, the digestibility of the protein and other nutrients is often seriously decreased. A supply of protein above the minimum promotes healthy microorganisms in the rumen to aid the digestion process.

Due to the poor hay growing conditions in 2011, a lot of cow pies in January and February will be looking like Figure 2. During this time of year, many cows will be lactating; therefore, body condition will decline, milk production will be reduced, colostrum concentration will be reduced, which may result in increased calf scours, and cows will take longer to re-breed. Overall cow herd productivity will be reduced for not only the current year but for the next year as well.

The cow pie in Figure 3 was from a cow eat-

ing hay with more fiber (32.8 percent), as compared to the Figure 2 cow pie, but it also had more protein (8.8 percent). Because the protein requirement was being met, more of the hay was digested and the shape of the cow pie was different. The TDN level was only 46.3 percent. If this cow continued to eat this hay without additional supplement, body condition would diminish. By observing cow pies, a change in diet quality can be observed before a decrease in body condition occurs.

The science of forage testing is the key to proper supplementation. A forage test provides the nutrient contents of hay. Knowing the nutrient composition of hay allows for the comparison between hay nutrients and the nutrient requirements of the cattle being fed. If the animals' needs are greater than what's provided in the hay, a least-cost feed supplement can be developed.



Figure 1



Figure 2

Least-cost supplemental feeding generally involves grouping animals based on their nutritional requirements, forage testing and identifying the costs of feed grains. To minimize feed costs, cattle with different nutritional requirements should be grouped separately and supplemented accordingly. Commingling cattle with different requirements (for example, non-lactating cows in the same field as lactating cows) can cause either overfeeding and waste of costly supplements or underfeeding and poor cattle performance. Knowing the nutrient composition of the forage allows feeding lower-quality hay to cattle with lower nutrient requirements and feeding higher-quality hay to cattle with greater requirements. If the nutrients in the hay are less than the requirements of the cattle being fed, a least-cost supplement can be formulated based on local grain prices and alternative feed sources.

Remember, the "art" of cow pieology may indicate a supplement is needed, but it is the "science" of forage testing that indicates which and how much supplement is needed. To be successful in the cow-calf business, one must mix the science of beef cattle production with the art of beef cattle production. The art of beef production must be mastered before the science can be applied, for it is the art that identifies when the science should be used, changed or adapted. Forage testing and least-cost rations are important "science" that when combined with the "art" of cow pieology will keep cattle healthy and efficient.  $\Delta$

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