

## Ideas on Cow-Size and Efficiency

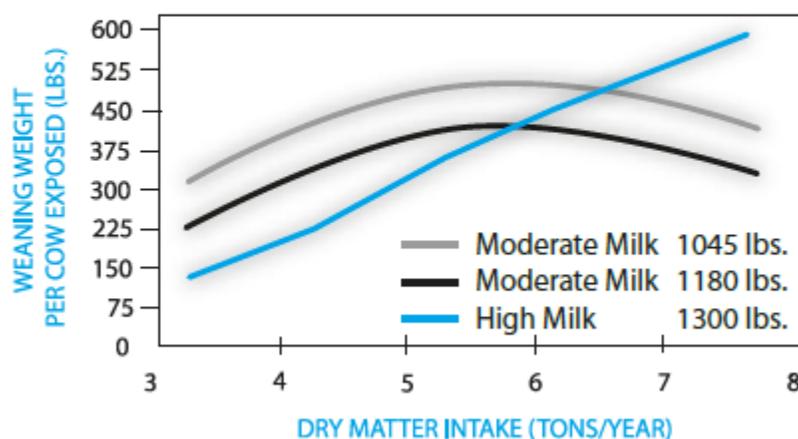
by Jason Rowntree

With beef production costs high, enhancing farm efficiency is paramount in ensuring your cow-calf operation is operating in the black. Often I speak with producers who orient themselves to one output when assessing the production status of their herd and that is weaning weight. Certainly weaning weight reigns on pay day, but what does it take to produce the heavy weaning weight? In beef production, simply put, we focus more on income and not enough on expenses which can greatly influence our production efficiency. What are efficiencies? A broad definition of efficiency is producing effectively with a minimum of waste, expense, or unnecessary effort or exhibiting a high ratio of output to input. With respect to cow-calf production, one definition is the ratio of pounds of calf weaned/unit forage consumed. This obviously is very difficult to measure because without knowing individual forage intake, the more efficient converter cannot be identified. Thus, an easier definition is to look at pounds of weaned calf per exposed cow. Finally, economically speaking, efficiency is the net income of an operation or net income = total income- total expense. Generally in a cow-calf system, this figure excludes land investment.

Certainly not the silver bullet to solving all production challenges, proper grazing management is an area I have discovered that can be a boon when it comes to controlling costs. When first developing a grazing management plan, I recommend taking three steps: 1) Conducting an animal inventory plan; 2) conducting a forage inventory and 3) deciding on a grazing system (continuous or rotational). This article will focus on conducting the cow inventory.

Matching cow genetics to your environment is the first step in attempting to map out a grazing management plan. What is the mature size and milk potential of your cowherd? Generally speaking a cow consumes 2% of her bodyweight in dry matter feed. This can increase with forage quality and if the cow is in lactation. In an outstanding review of beef cow efficiency from New Mexico State University (Mathis and Sawyer, 2000) the authors utilize an adoption of a beef cow efficiency report from the U.S. Meat Animal Research Center, Clay Center, Nebraska (Figure 1). Consider a cow residing in Michigan consumes 2% of her body weight daily and this totals 6 tons of dry matter annually.

**Figure 1. Mathis and Sawyer, 2000**  
(adopted from Jenkins and Ferrell, 1994)



Using Figure 1, the most moderately-sized, lighter-milking cow will wean the most pounds per exposure. Only when intake approaches 7 tons is the higher-weight, heavier-milking cow a more efficient converter of dry matter intake to pounds of weaned calf. What does this tell us with respect to interfacing the cowherd with an existing forage base? Moderate-weight cows are more efficient ones.

Production data from North Dakota State University would also support this statement. The cowherd at Dickinson Research Extension Center divided their cow herd, by weight, into two smaller herds. The first herd (52 cows, range 856 to 1395 lbs) averaged 1216 lbs. The second herd (50 cows, range 1350 to 1935 lbs) averaged 1571. The weaning weights of calves from cows by weight class are reported in figure 2.

Weight Range (lbs)	Number of Cows	Average Calf Weaning Weight	Average Cow Weight at Weaning	Percentage of Cow Weight Weaned
Less than 1300	37	617	1242	50%
1301-1400	39	611	1357	45%
1401-1500	38	589	1456	41%
1501-1600	33	598	1549	39%
Greater than 1600	22	572	1698	34%

Figure 2. Percentage of Cow-Weight Weaned by Weight Classification of Cows (Ringwall, 2008)

Did the larger cows wean the heavier calves? Based on this data, the answer is no. It is easy to see that the lighter-weight cows are the more productive weight class. Further, figuring on normal pasture for North Dakota, the second, larger herd required 113 **more acres** and 23 **more tons** of feed to maintain through the winter. Granted this is one year's worth of data. But the numbers, to me, are surprising.

The objective of this article for the reader to gain a better understanding on beef cow efficiency as it relates to forage intake and calf performance. The importance of understanding this concept when planning a grazing management system is paramount. When identifying stocking rate in a pastured system and understanding the principle that cows typically consume 2% of their body weight at maintenance complemented with the data provide herein, it would appear that the lighter-weight cows are the more profitable ones. Simply put, do you know the weight of your cows?