Eldon Farms is a 7,000-acre farm in the Northern Piedmont of Virginia. Over the past 15 years, we have adopted a grazing program based on three principles. While the specifics of each operation are different, I believe these principles can be applied across a host of situations.

First, we decided we needed a quantitative approach to winter grazing. Often we do a quick windshield, eyeball measurement of forages and decide how long a field can last a group of animals. We found these approximations to be lacking in consistency and predictability. Instead, we developed a falling plate meter to actually measure the amount of forage in a field. This was based on work done at WVU by Ed Rayburn.

Figure 1. A falling plate meter more consistently and accurately estimates forage biomass since it compresses the pasture sward to a uniform density. For more information on building and using fall plate meters, see the articles following this one.

Second, we developed a grazing program that built flexibility into winter forages. We have some known quantities…the number of animals we have, the amount of hay, and the amount of forage. But there are always surprises that come up over the course of a winter. We get more snow or less snow. Spring comes earlier than expected. Or the hay we purchased didn’t weigh as much as we thought it would. In
addition, we never know how much stockpiled grass we’ll have until the start of winter as fall rains are incredibly variable. Somehow, we had to have flexibility in our winter plan to allow us to deal with these risks. Our approach was fixing the amount of forage we attempted to produce and building the flexibility into the number of animals we had on forage at any given time.

As cattle producers, we tend to be risk averse, which is fine. There is no “right” level of risk to have in an operation. As long as there are potential returns to risks, they can be good risks. However, risks taken without potential returns can definitely be labeled as bad risks. Investors call this the efficiency frontier, the point at which a risk has a correlated potential return. One risk that we fail to recognize as cattle producers is the risk of not needing the feed that we work so hard to produce and having it rot in the corner of a field. Often, I believe our risk aversion about winter weather leads us to take “bad” risks by purchasing or putting up too much feed.

![efficient frontier](image)

**Figure 2.** The “efficiency frontier” is the relationship between risk and return. “Bad” risk is risk that yields little or no return. “Good” risk is risk that results in moderate or high rates of return.

And finally, the most important principle that we based our program on was optimizing the financial return of the grazing program, not a biological measurement. As farmers, we often get caught up in biological measurements...how many animals did we graze, how heavy were the calves, etc. Rather than focusing on these measurements, we decided the most important factor was how much we could return on a grazing field. We realized that in our situation, planning on grazing every day of the year was just as wrong financially as feeding 120 days of hay. Both were sub optimum.

Over the course of several years, we ended up varying the number of animals on a particular group of fields from about 90 head up to 235 head. When we had 90 head, we weaned the heaviest calves. When we had 235 head, we produced the most lbs to sell. But neither of these biological maximums created the financial optimum. That number was at 135-140 head. The economic optimum is always under the
biological optimum when it comes to stocking rates. We should always run a few less cows than a field can actually carry to make the most money.

Figure 3. The relationship between stocking rate, revenue, expense, and income. The economic optimum is always below the biological optimum for the system.

As we’ve used these three principles in our grazing programs, we’ve seen the results speak for themselves. The farm overall has become more financially viable and the fields have become healthier.