Mitigating the Challenges of Grazing Lush, Spring Forages

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Introduction

During the winter season most cattle are supplemented with dry forages, grains, and co-products. This ration is balanced and delivered to cattle. Then spring comes along and cattle are put out to grass. While green grass solves a lot of problems associated with winter feeding (manure, pen maintenance, calf health, and labor demands), it can pose nutritional challenges. Lush, spring forage has three major challenges when it comes to meeting cattle nutrition requirements.

Challenges and Solutions

The first challenge is dry matter. Wet, washy grass can frequently be below 25 percent dry matter. This makes it hard for the cow to consume the enough dry matter (DM) to meet energy demands. During the rapid, spring growth most forage samples will be below 20 percent DM. This requires a lactating 1400lb. cow with average milk to consume 138 lbs. of fresh grass to meet her energy requirement. If that cow is a higher milking cow, she would need to eat 158 lbs. of fresh grass. In most cases, the cow fills up her rumen between 100 and 125 pounds. Physical fill can be a limiter on performance when grazing washy grass.

The second challenge is high protein content of lush forages coupled with moderate energy content. Excess protein can be a problem when energy supply is short. When rumen microbes are presented a diet that is excess in protein and deficient in energy (low in carbs, fats, and sugars), deamination of protein occurs. This process results in production of ammonia and a carbon skeleton that can enter the Krebs cycle for energy production. Ammonia produced from this process crosses into the blood via the rumen epithelium. Ammonia is then converted to Urea by the liver and excreted in the urine. Excess protein has been well documented by the dairy industry as a detriment to reproductive performance. Some researchers argue excess protein is not a problem. I would suggest that producers must have adequate or above adequate energy in the ration before excess protein is ok. Even then, I would prefer the excess protein contain a good portion of rumen undegradable protein.

I have observed cattle panting after being on lush, green grass for a few days. The panting was not due to heat stress either, the temperature was in the high 60's. These cattle were panting because they needed more oxygen. Red blood cells carry oxygen to the cells. They must also carry ammonia away from the cells to the liver. I feel the panting I observed was due to too much ammonia in the system. I challenge you to watch your cattle on lush, green grass.

The third challenge is fiber. The low fiber content of immature forages results in very high passage rates and an unsatisfied cow. It seems odd that cows would be unsatisfied while knee-deep in green grass. However, I have observed this several times. Cows will readily consume a low level of dry grass hay with lush pasture. This can help the DM problem and add fiber.

While there are numerous solutions to remedy this short term problem, the main goal needs to be supplying cattle with a balanced ration. Unfortunately, lush pasture is not balanced. Some strategies may include delaying turnout until grass matures a bit more, supplying palatable dry baled forage that is low or moderate in protein (not alfalfa hay), supplementing with grains (not over 0.5% of body weight), or grazing only the top 1/3rd of the grass plant.

Research

This project utilized 120 Angus and Simmental-Angus lactating cows. Cows had calves at side during the study. There were approximately 60 cows per treatment with three reps of 20 head per treatment. The study was conducted in 2013 and 2014.

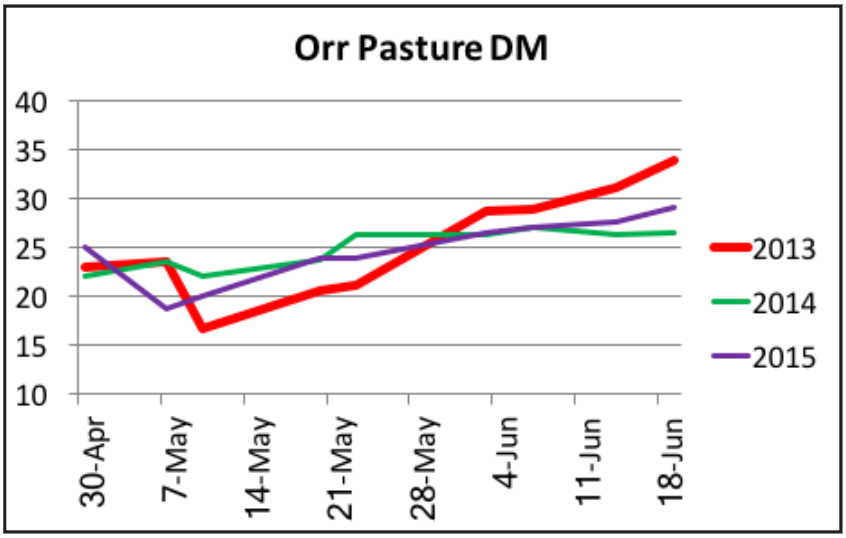
The two treatments were supplemented cows (SUP) and a non-supplemented control (CON). The SUP cows received a supplement mix of 45 percent soybean hulls, 45 percent ground corn cobs, and 10 percent dry molasses (as-is basis). The supplement was fiven at a rate of 4 lbs. per head per day. Each SUP group received 80 pounds of supplement per day. Cows were rotationally grazed on fescue-clover mixed pastures. The CON cows received no supplement and were

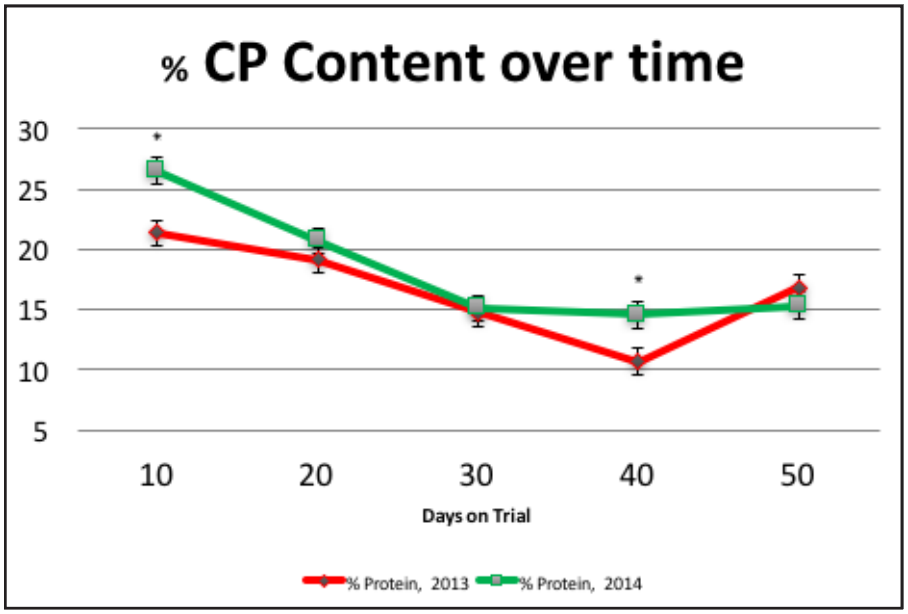
rotationally grazed on fescue-clover mixed pastures. A Co-Synch Cidr protocal was used and cows were time-AI'd. Cows were turned out to pasture the day of CIDR insertion, or approximately 10 days prior to breeding.

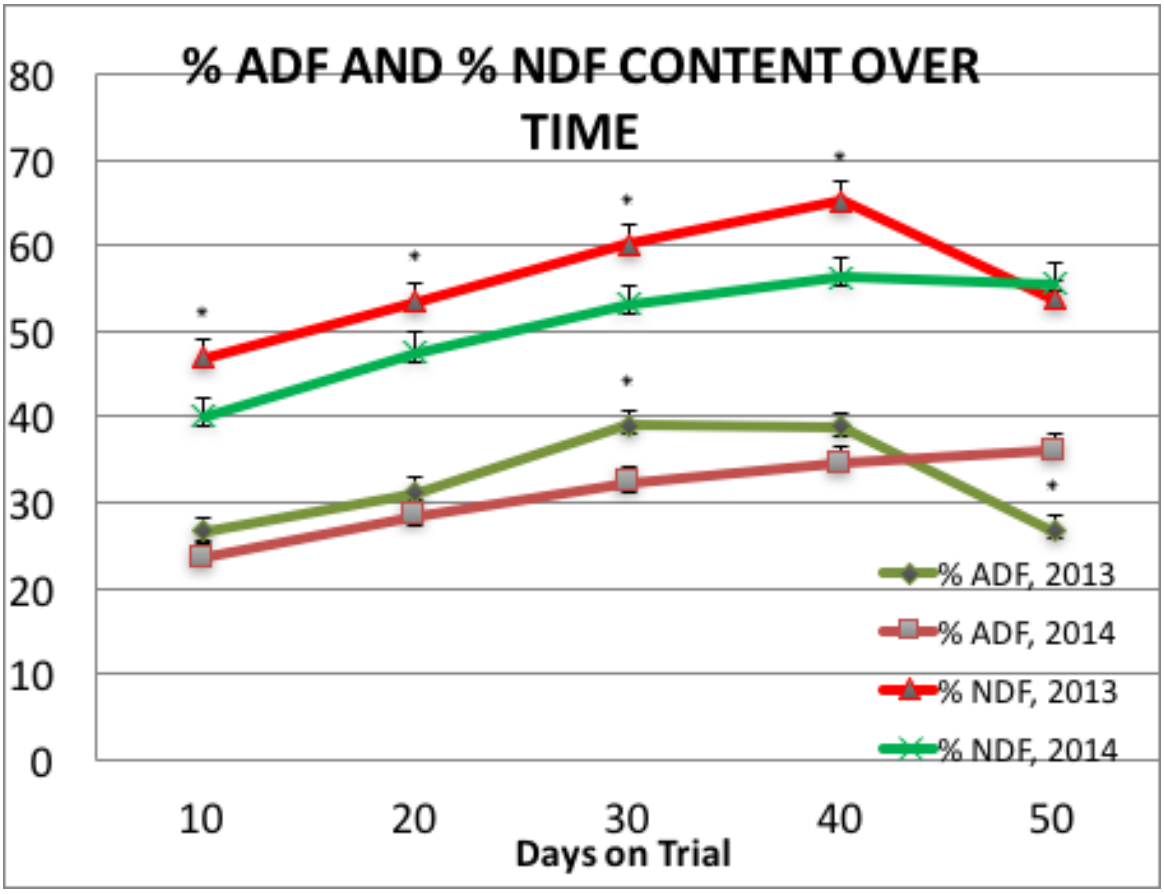
Pastures are mixed red clover, white clover, and endophyte-infected fescue. Pastures ranged from 8 to 14 acres in size. Each allotment was rotationally grazed, moving between two pastures as necessary to ensure sufficient forage availability. Stand density was measured daily, and when a pasture was determined to be too sparse to support continued grazing, the allotment was moved to its other pasture. After cows were moved off a pasture, it was clipped to remove seedheads and maintain a vegetative state so forage would continue actively growing to recover before cattle were returned to it.

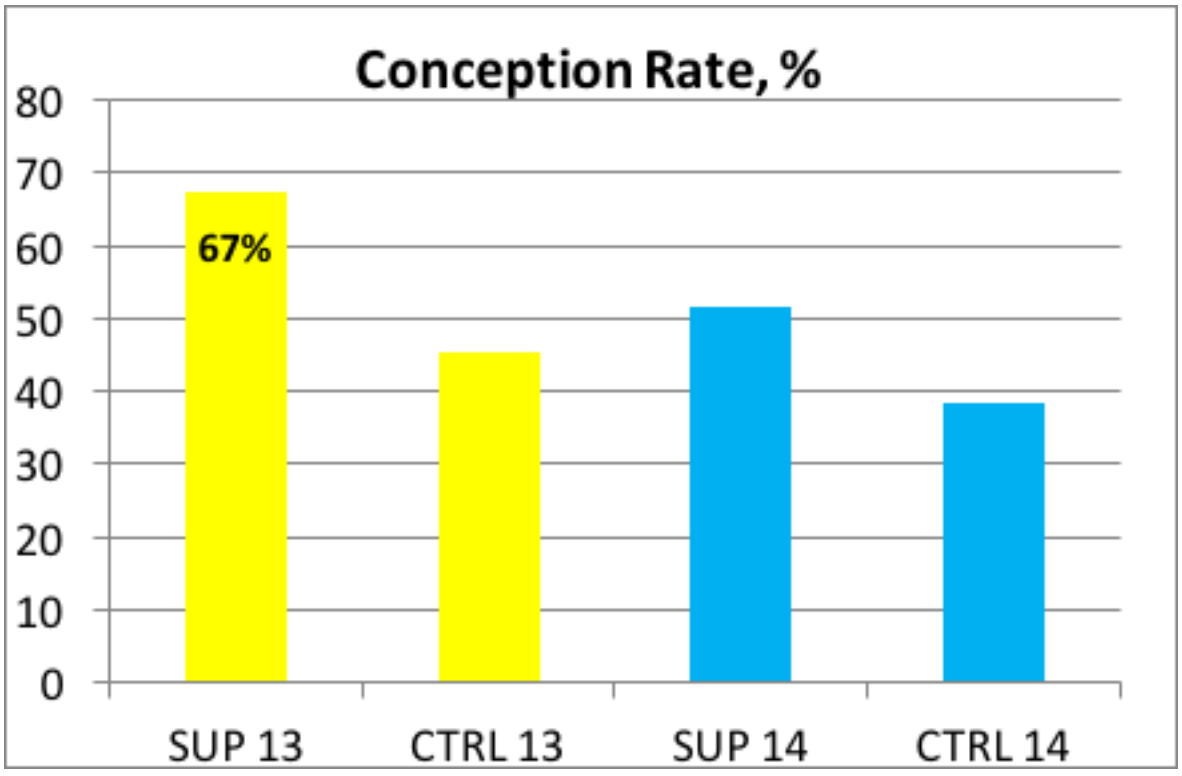
In 2014, blood samples were collected on day 0, 7, 10, and 18 of the trial. Samples were analyzed for non-esterified fatty acids (NEFA), beta-hydroxybutyrate (BHBA), and blood urea nitrogen (BUN). In both years, forage samples were taken and analyzed for CP, ADF, NDF, and ash. Composited forage samples were analyzed for forage nutrients such as CP, ADF, NDF, and ether extract.

Results showed no difference in cow body weight change or cow body condition score when comparing day 0 to day 70. No differences were seen in NEFA or BHBA concentrations. Slightly elevated BUN levels after one week on pasture were observed for the CON group. The BUN results may indicate an imbalance in forage protein to forage energy. This high ratio may still have subtle and short, brief negative impacts on energy state of the cows. Conception rates to A.I. were not statistically different, but numerically an advantage was observed for the SUP cows in both years of the study.






% ADF AND % NDF CONTENT OVER TIME
80
70
60
50
40
30
20
10
0
10
20
30
40
50
Days on Trial
% ADF, 2013
% ADF, 2014
% NDF, 2013
% NDF, 2014


Conception Rate, %
80
70
60
50
40
30
20
10
0
67%
SUP 13
CTRL 13
SUP 14
CTRL 14