# Check Alfalfa Hay for Fiber Digestibilty

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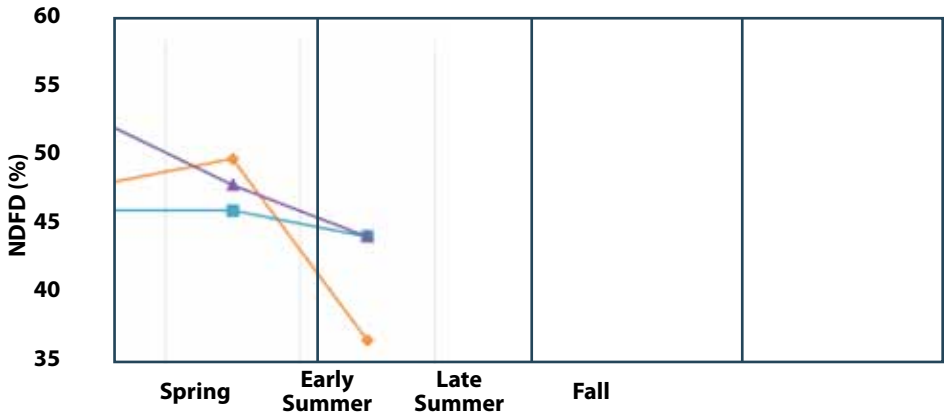
The cool wet weather this spring has caused some unusual situations for forage quality in the Midwest. Forage quality is estimated through two indicators Relative Feed Value (RFV) and Relative Forage Quality (RFQ) and both are used for hay marketing.

RFV combines intake and nutritive value into one number, based on Acid Detergent Fiber (ADF) and Neutral Detergent Fiber (NDF). Its calculation does not include fiber digestibility.

Figure 1. Relationship between NDFD during the season at 3 locations.




The RFQ includes fiber digestibility (NDFD). Generally, as the season advances NDFD value decreases (Figure 1). The NDFD value allows for the estimation of the Total Digestible Nutrients (TDN) in the forage which is a much more accurate estimate of forage quality, since it includes non-fiber carbohydrates, crude protein (CP), fatty acids, and the digestible portion of NDF. The relationship between constituents and RFV and RFQ in alfalfa hay are shown in Table 1.

Generally, first cutting alfalfa is higher in NDFD than other cuttings (Figure 1), thus, RFQ is usually greater than RFV. However, this year this was not necessarily true. Farmers should have first cutting alfalfa analyzed for fiber digestibility in addition to the usual fiber (NDF and ADF) and CP analysis.

Table 1. Relationship between constituents and the RFV and RFQ values.

| Constituent | Range | Average |
|---|---|---|
| | --------%-------- | |
| **CP** | 16.3-23.9 | 20.1 |
| **NDF** | 33.6-47.7 | 40.7 |
| **NDFD** | 44.2-59.7 | 52.0 |
| **Lignin** | 5.9-9.9 | 7.9 |
| **RFV** | **111-184** | **148** |
| **RFQ** | **124-211** | **167** |

This year we sometimes saw RFQ 40-50 points lower than RFV (RFQ is generally higher than RFV for first cutting). This was likely due to a number of situations:

1. This spring was unusually cool so alfalfa put out fewer leaves than normal. Since leaves are lower in fiber and higher in fiber digestibility than stems, reduced leaf content results in higher fiber but less digestibility. Since RFQ is weighted for digestible fiber (RFV is not), fewer leaves lowers RFQ more than RFV.
2. We also had an unusually wet spring. The combination of cool, wet weather will increase leaf diseases. As leaf drop occurs, leaf/stem ratio of the hay is decreased and, again, RFQ would be decreased for the reasons stated above.
3. The wet conditions also meant many samples had unusually high dirt contamination (dirt is largely indigestible silica). More dirt on the hay or haylage means elevated ash content; higher ash means reduced TDN since each 1% ash is 0.98 units less of TDN. Since RFV includes the ash (RFQ does not), elevated ash levels cause RFQ to be lower than RFV. This season, we saw a number of samples with 15-16% ash when the average is 12% ash.

In conclusion, due to this year's unusual weather, any forage sample with RFQ lower than RFV should be reviewed carefully and balanced in the ration.