

Total Mixed Ration Digestion (TMRD) Guideline

For Rock River Lab TMR Digestion (TMRD) in vivo apparent total tract digestion analyses

Summarized by Dr. John Goeser and Jacob Karlen
Data represent six+ years of data and experience
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TMR Apparent Digestibility (TMRD) Guidelines			
Primary Measures	Goal*	Average	Lower 15%
Organic Matter Digestion	70.3	62.1	54.0
NDFD (% of total NDF)	51.1	40.8	30.2
NDFD (% of potentially digestible NDF)	84.2	71.0	57.2
Starch D (% of total Starch)	98.7	96.0	92.7
Secondary Measures	Average	Upper 15%	Lower 15%
CP D (% of CP)**	59.4	68.7	49.8
Fat D (% of Fat)**	65.3	53.9	76.1

**Goals correspond to the upper 15th percentile

**CP D and Fat D interpretation are not straightforward due to endogenous contributions by the cow to feces (Sniffen, 2012 personal communication). Microbial CP and other Fat/CP sources, such as sloughed gut cells, influence fecal CP and Fat measures. As a result, goals are not listed.

Key Considerations:

- Rock River Laboratory uses a published field approach (Schalla et al., 2012 Journal of Dairy Science)
- TMRD results are complex and our tech support team has unmatched field experience to help interpret meaning for you
 - Evaluate TMR quality control first
 - Dry matter intake influences results and must be considered during interpretation
 - Faster passage rates = less time to digest TMR and lower results
 - Focus on OM-D first then carbohydrate digestion second to find opportunities

References:

Heuer, C.R., J.P. Goeser, and R.D. Shaver. 2013. Starch digestion variation between in vitro and in situ digestion techniques. J Dairy Sci:Abstract #T80. 2013 ADSA JAM.

Schalla, A. L. Meyer, Z. Meyer, S. Onetti, A. Schultz, and J. Goeser. 2012. Hot Topic: Apparent total-tract nutrient digestibilities measured commercially using 120-hour in vitro indigestible NDF as a marker are related to commercial dairy cattle performance. J Dairy Sci 95:5109-5114.

Sniffen, C.J. 2012. Personal Communication.

Van Amburgh, M. E. 2013. Personal communication.