STARCH DISAPPEARANCE *in* MODERN RATION MODELING

As a major factor in you and your clients' success, starch disappearance values are highly scrutinized and heavily impact the predictions provided by ration-balancing programs. Without standardized methodology, interpretation between labs is difficult. While the values from these methods are related, they can differ significantly. Accurate starch disappearance values mean optimizing cow performance and could be a differentiating factor between you and your competitors.

Rock River Laboratory now offers both *in situ* and *in vitro* starch disappearance values for corn silage, validated with numerous wet chemistry studies. Comparing and contrasting these options can guide your analysis decision:

IN SITU STARCH DISAPPEARANCE

- This method utilizes porous bags to hold samples within the active rumen of lactating dairy cows.
- Samples can be analyzed ground or intact (without grinding), offering improved understanding of the link between particle size and starch disappearance.
- Starch dynamics are captured by multiple time point measures at 0, 3, 7, 16, and 24 hours.
- The unique 0-hour time point can offer further differentiation in sample comparisons.
- Cow performance agrees with this measurement. According to Schuling et al. (2016)[1], utilizing the *in situ* starch rate of digestion (k_d) in Cornell Net Carbohydrate and Protein System (CNCPS) models improved milk production predictions, as compared to observed values.
- In this same study, *in situ* starch disappearance at 7 hours was related to *in vivo*, whereas *in vitro* starch disappearance was not.
- Research teams utilize this method as the gold standard for starch disappearance measurement.
- Reports offer an estimated rate of digestion (dynamic k_d) that can be pulled into some ration models.

If in situ starch disappearance values are working well within your ration models, we recommend continuing to utilize this method.

IN VITRO STARCH DISAPPEARANCE

- This prediction utilizes lab bench water bath methods and is commonly used by commercial laboratories.
- Starch disappearance at the 7-hour time point will now be reported.
- A single value, *in vitro* starch disappearance can help level the field when comparing starch values across teams or within other areas of the industry where *in vitro* methodology is utilized.

Our in vitro starch disappearance value may offer users greater flexibility to work within their comfort zone and ration models.

Our customer service team is ready to help answer questions and discuss. Contact us to switch to *in vitro* disappearance values on your XML file, or learn more on our web-based resources:

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ROCK RIVER LABORATORY, INC.
AGRICULTURAL ANALYSIS

1. Schuling, S.E., D. Schimeck, and B. Vander Wal. 2016. Evaluation of in vitro and in situ starch digestibility assays. J Dairy Sci. 99:E-suppl. 1. pg. 777.