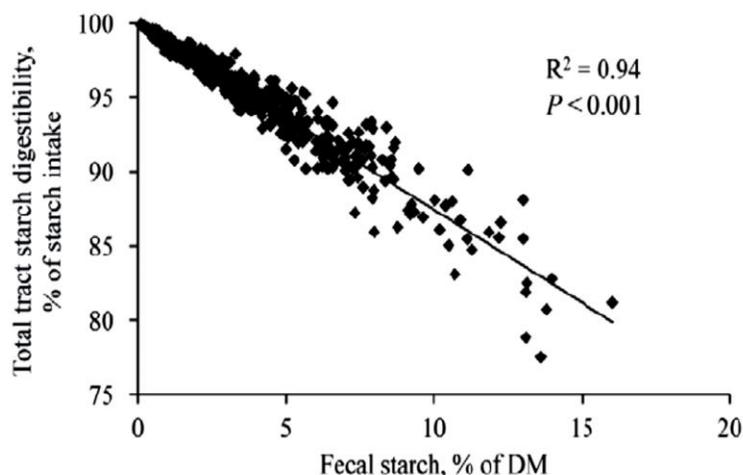


Fecal Starch as a Tool to Monitor Starch Digestion in Dairy Cattle

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Utility of Fecal Starch to Estimate Total tract Starch Digestion

- Fecal starch content is related to total tract starch digestion (TTSD) (Fredin et al., 2014; see figure below)
- Total tract starch digestibility% = 100 – 1.25 x fecal starch % DM
- As fecal starch increases by 1% unit, total tract starch digestibility decreases by 1.25% units
- Poor starch digestion can reduce milk production. With each 1% increase in fecal starch above 3%, milk yield can be reduced by 0.7 lb/cow (Ferguson, 2003)
- Much variation in fecal starch exists across herds due to differences in grain and corn silage management



Pen-based Sampling to Evaluate Diet Starch Digestibility

- Take fecal grab samples from 8-10 cows or undisturbed fecal piles in a pen
- Thoroughly mix samples in a container
- Subsample 2 cups into the provided container (only up to 2/3 of the container to allow expansion during shipment)
- Cool or freeze sample immediately to stop fermentation and submit to lab with completed forms.

Interpretation Guidelines for Fecal Starch Analysis

Fecal Starch % of DM	Guideline and Actions
<3% fecal starch (>96% TTSD)	<ul style="list-style-type: none"> -Good starch digestion -Continue monitoring starch sources to ensure good digestion
>3% fecal starch (<96% TTSD)	<ul style="list-style-type: none"> -Opportunity to improve starch digestion -Evaluate: <ul style="list-style-type: none"> -Dry grain particle size (500 microns recommended for dairy cows) -Corn silage moisture and kernel processing (32-36% dry matter) -High moisture grain particle size and moisture (1000-1500 microns for dairy cows and 26-30% moisture) -Allow for longer storage time for ensiled starch sources to improve starch digestion (>4-6 months storage time will improve digestion)

Resources:

Ferguson, J.D. 2003. Monitoring feeding programs on dairy farms. 2003. Proceedings of Nutrition and Management of Dairy Cattle. Consorzio Ricerca Fileria Lattiero-Casearia Regione Siciliana.

Fredin, S.M., L.F. Ferraretto, M.S. Akins, P.C. Hoffman, and R.D. Shaver. 2014. Fecal starch as an indicator of total-tract starch digestibility by lactating dairy cows. J. Dairy Sci 97:1862-71.