

## Estimating Starch Digestibility

Starch is an important nutrient for dairy cows. While starch digestion impacts milk production and feed intake, many attributes -- in addition to corn hybrid -- play a role: maturity at harvest, kernel processing, ensiling time before feeding, and moisture level. Because both physical and chemical properties of starch influence its digestibility, measuring (and comparing) starch digestion in the laboratory is a relatively new venture.

In an effort to overcome the challenges with corn-based feeds, the University of Wisconsin developed a procedure based on degree of starch accessibility (DSA). The thought is to measure starch access (by enzymes) in as-fed, un-ground, un-dried corn silage. The DSA procedure combines the effects of particle size and moisture on starch digestibility. From the DSA value comes an estimate of starch digestibility in the animal.

The PDMP corn silage project for 2007 included DSA data for 10 hybrids:

Hybrid	Entry	Red Knob	Landisville	Mean
Croplan S 6100 CR	4	91.03	89.17	90.10
Dekalb DKC 61-22 RR2	5	89.13	89.57	89.35
Garst 8295 YG1/RR	6	88.53	90.30	89.42
Long Island Cauliflower LICA 1156S	9	91.40	91.53	91.47
Mycogen F2 F797	13	91.27	95.53	93.40
NK Brand N 75-A4	15	87.53	90.30	88.92
TA Seeds TA 788-11	17	88.67	91.33	90.00
Doebler's 785 RB	19	90.10	92.23	91.17
Masters Choice MC 590	20	91.57	89.37	90.47
Dyna-Gro 57P12	25	89.70	91.27	90.48
	Mean	89.89	91.06	90.48
	LSD (0.05)	NS	3.43	2.45

What did we learn from the data?

- All the selected hybrids tested high in DSA; the range was 93.4 to 88.9%. All samples were harvested at similar moisture and particle size, which may have minimized differences.
- Worth noting is a change in DSA from 88 to 94 equates to an increase of 940 pounds of milk per acre in the MILK2006 spreadsheet.
- Repeatability of the procedure was good; indicating that differences among corn silages could be detected from farm to farm if moisture and processing differ.

Will the DSA test become a permanent fixture to the database in the future? That's up to the PDMP membership. For now, we're left with the fact that starch digestibility is important -- and, it can be measured. We've just got to figure out the best way to get you data that's applicable to your farm.