

A northern New York milk component study attempts to discover why component levels differ so much from one herd to another

# What influences milk components

**Milk components are the primary factor** determining the size of your milk check. Milk protein was worth \$3.76 per pound and milk fat had a value of \$1.47 per pound for Federal Order 1 this April.

To determine why milk component levels vary so much between herds, we conducted a field study on milk component levels in dairy herds. Funding came from the Northern New York Agricultural Development Program.

We selected 52 herds with varying levels of milk components in six counties – Jefferson, Lewis, St. Lawrence, Essex, Clinton and Franklin. The Holstein herds were on DHI and fed total mixed rations. They also had daily milk production greater than 65 pounds per cow per day. The herds in this project averaged 326 cows per herd and 76 pounds of milk per cow per day. (Figure 1)

Additional characteristics of these herds are:

- 17 used tiestall housing; 35 herds freestalls.
- 24 herds milked 2X; 28 milked 3X.
- Average milk fat was 3.47%, ranging 2.7- 4.2%.
- Average milk true protein was 3%, ranging from 2.8 - 3.3%.
- All but four herds fed corn silage and all fed some type of haycrop silage.
- 30 herds fed some type of dry forage, 36 fed dry corn grain and 19 herds fed high-moisture corn.
- All herds fed soybean meal.
- 42 herds fed some type of rumen buffer.

Researchers collected feed, water and milk samples for fatty acid analysis. Feed dealers provided ingredient composition of grain mixes. We were helped by 29 people from 16 feed companies or consulting firms.

### Project results

We didn't find a significant relationship between either the number of cows per herd and herd daily milk production and milk fat or milk protein levels.

There were a few factors that had a statically significant relationship with herd milk components. Even so, they usually accounted for less than 10% of the variation observed in milk component levels. This isn't surprising given the large number of factors that affect milk component levels.

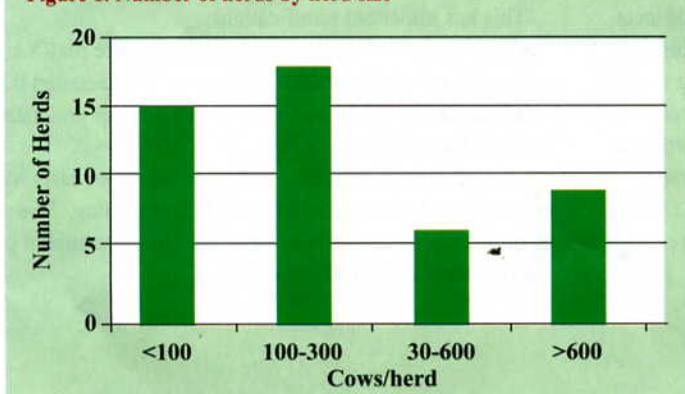
Here are the key factors that exhibited significant relationships with milk fat content:

Factor	Relationship
Corn silage particle size (Z-box)	Higher milk fat related to larger particle size
Corn silage starch level	Lower milk fat related to higher starch
Corn silage NDF	Higher milk fat related to higher NDF

Ration starch and nonfiber carbohydrate (NFC) were related to higher milk true protein.

The relationships reported come from looking at the impact of single factors. These are relationships observed in the data from this field study. They do not indicate a specific cause and effect relationship. We are adding more dairies in other areas of New York to broaden our database.■

**Figure 1. Number of herds by herd size**



### FYI

■ All but one of the authors are in Cornell's Department of Animal Science: Larry Chase is professor; Charlene Ryan, a research support specialist; Jimmy Tauzel is an undergraduate student; and Tom Overton, an associated professor.

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