

Milk Fat and Milk Protein to Fat ratio in California Dairies

University of California
Agriculture and Natural Resources



M282; ADSA 2011

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OBJECTIVES

The objectives of this study were to report the prevalence of California herds with:
 a) low milk fat percentage, and b) at risk for ketosis.

METHODS

Dairy Herd Improvement Association records were obtained from AgriTech Analytics (Visalia, CA). Information included milk composition at herd level (51 Jersey and 534 Holstein herds), and at cow level (2,321,563 tests from 138 Holstein herds in Tulare, California) from Nov-09 to Oct-10.

- Low milk fat (MF) percentage was evaluated based on herd averages below 3.2% of MF for Holstein herds and 4.2% for Jersey herds, and on the proportion of cows below 2.5% of MF at any given test (Oetzel, 2008).
- The risk of ketosis was evaluated based on the proportion of cows within a herd that at first test had a protein to fat ratio (P:F) < 0.75 (Duffield and Bagg, 2002). Days in milk ranged from 1 to 45.

RESULTS: Description of Milk Fat Percentage

Table 1. Percentiles of milk fat percentage in California Jersey (n= 51) and Holstein (n=534) herds from Nov-09 to Oct-10.

Month	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Overall
Jersey Herds													
Top 25%	4.9	4.9	4.9	4.9	4.8	4.8	4.8	4.7	4.9	5.0	5.1	5.0	4.9
Bottom 25%	4.6	4.6	4.4	4.4	4.4	4.5	4.4	4.3	4.5	4.5	4.7	4.7	4.5
Median	4.8	4.7	4.7	4.6	4.7	4.6	4.6	4.5	4.6	4.8	4.8	4.9	4.7
Holstein Herds													
Top 25%	3.8	3.9	3.8	3.8	3.8	3.7	3.7	3.6	3.6	3.6	3.7	3.7	3.7
Bottom 25%	3.5	3.6	3.5	3.5	3.5	3.4	3.4	3.4	3.3	3.4	3.4	3.5	3.4
Median	3.7	3.7	3.7	3.6	3.6	3.6	3.6	3.5	3.5	3.5	3.6	3.6	3.6

Jersey herds:

- **39.2%** had at least one MF test below 4.2%.
- **14.5%** had at least 25% of the MF tests below 4.2%.

Holstein herds:

- **22.0%** had at least one MF test below 3.2%.
- **7.0%** had at least 25% of the monthly MF test below 3.2%.

RESULTS: Cows with Milk Fat below 2.5%

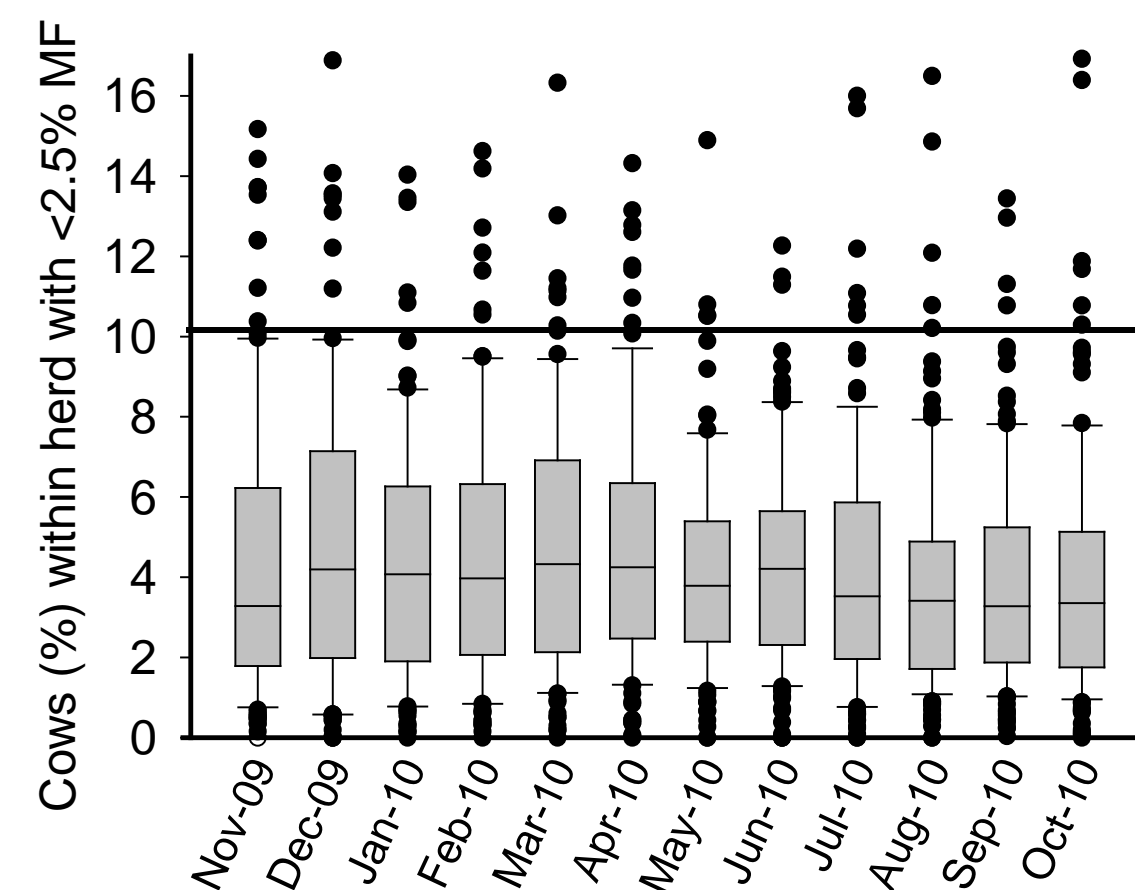


Fig 2. Percentage of cows within herd by month with less than 2.5% of milk fat (MF) in 138 Tulare, CA, dairies.

- Cows (%) within herd with MF<2.5%: Q₁=2.8%, Q₂=4.3%, Q₃= 5.8%.
- In **6.3%** of the tests, >10% of the cows within a herd had MF < 2.5%.
- Herds (**26.1%**) had at least one monthly test with >10% of the cows with MF<2.5%.
- Herds (**8.0%**) had more than 25% of their monthly tests with >10% of the cows with MF < 2.5%.
- Herds with at least 10% of the cows with MF < 2.5% ranged from **3.3%** in Apr to **9.5%** in Nov.

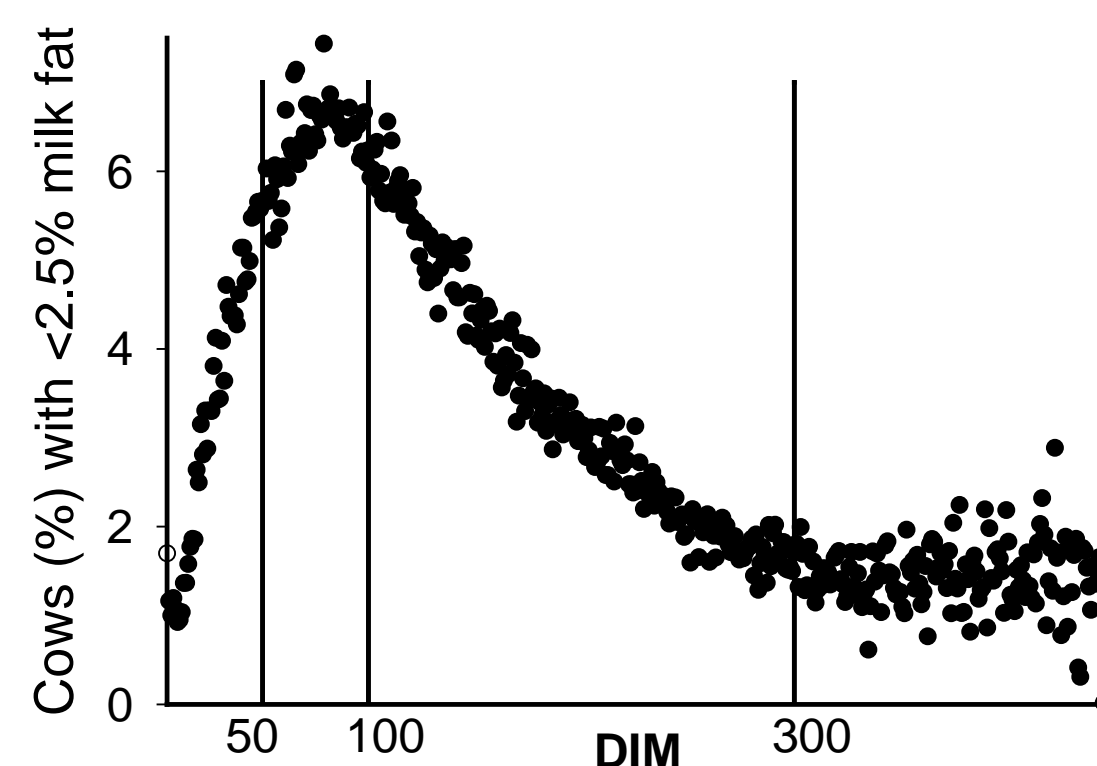


Fig 3. Percentage of cows within herd by DIM with less than 2.5% of milk fat (MF) in 138 Tulare, CA, dairies.

RESULTS: Cows with Protein:Fat < 0.75

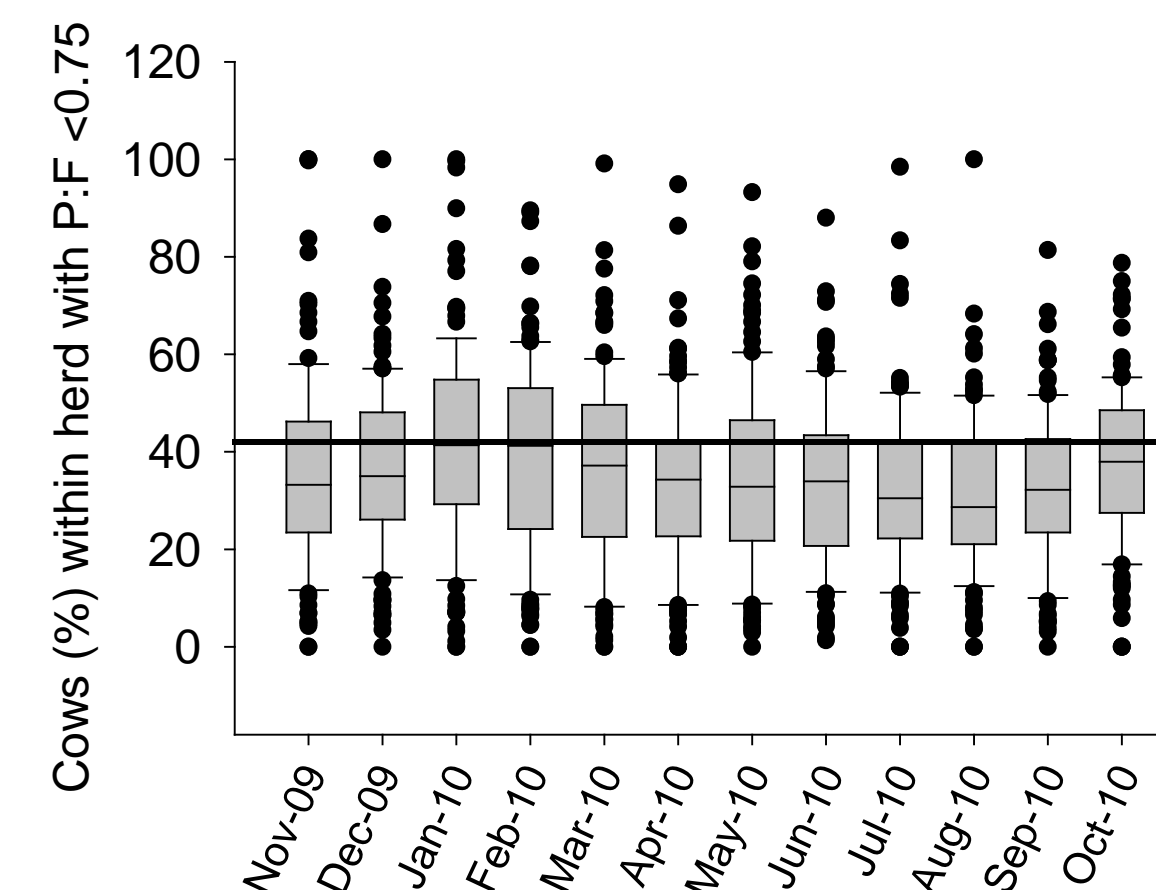


Fig 4. Percentage of cows within herd with a protein to fat ratio (P:F) less than 0.75 by month in 138 Tulare, CA, dairies.

- The risk of ketosis was evaluated and **79.7%** of the herds had at least one test where more than 40% of the cows had a P:F < 0.75 at first DHIA test.
- A large proportion of herds (**18.8%**) had 75% to 100% of their tests with more than 40% of the cows having P:F < 0.75.
- The percentage of herds with more than 40% of the cows with P:F < 0.75 ranged from **26.7%** in Aug to **52.3%** in Feb.
- At a given test, herds were identified where all the cows at first test had a P:F < 0.75 (4 herds) or P:F > 0.75 (5 herds).

SUMMARY

Milk fat depression may be a problem in some CA herds based on:

- The overall percentage of herds with low MF percentage.
- The proportion of cows within a herd with very low MF percentage.

Dairy producers should investigate MF depression problems using their DHIA records and comparing those with the achievable benchmarks reported in this study.

Based on P:F at first test, a large proportion of herds were identified at risk for ketosis. Further research needs to be conducted to evaluate associations between P:F and fresh cow health, and lactation performance.