Feeding Management Practices on California Dairies

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1. Describe current feeding management practices on California’s Central Valley dairies.

2. Identify opportunities to optimize feeding management.
In summer 2009, a feeding management survey was mailed to dairy producers in Tulare, Stanislaus, and San Joaquin; the first, third and seventh largest dairy counties in California.
Methodology

Producers received an envelope containing:

1) an invitation letter to participate in the study,
2) a double sided one-page survey, and
3) a pre-paid return envelope.
Response rate was 16.9% (120/710).

Herd size range: 160 to 6,600 lactating cows (median=950).
Results Outline

- Feeds used in Central Valley’s dairies
- TMR Preparation and Mixing Equipment
- Feed Bunk Management Practices in High Producing Pens
- Software and Monitoring Tools
Alfalfa hay and corn silage are the two most common forages fed to dairy cows in California dairies. Cereal hay and silage are also frequently fed.
Very diverse byproducts are incorporated into dairy rations. This is a result of a vibrant local agriculture industry. Almond hulls and cottonseed (whole lint and pima) are the two most common byproducts.
Rumensin, anionic salts, sodium bicarbonate and yeast supplements are common additives used in dairy rations.
TMR Preparation and Mixing Equipment
What type of mixer wagon do you have? Primary Mixer Wagon

Primary mixer wagons are either truck mounted or trailer mounted. Vertical mixers are more popular than horizontal mixers.
What type of mixer wagon do you have? Secondary Mixer Wagon

No one type of mixer wagon is more popular than another.
In which order are feeds added to the mixer?

Vertical Mixer Wagon

Horizontal Mixer Wagon

Order of Ingredients

Dairies (n)
In which order are feeds added to the mixer?

Order of Ingredients

Vertical Mixer Wagon

- Hay
- Silage

Horizontal Mixer Wagon
In which order are feeds added to the mixer?
In which order are feeds added to the mixer?

Vertical Mixer Wagon

Horizontal Mixer Wagon

- Hay
- Silage
- Grains
- Min Vit
In which order are feeds added to the mixer?

Vertical Mixer Wagon

Horizontal Mixer Wagon

- Hay
- Silage
- Grains
- Min Vit
- Protein Mix

Order of Ingredients

Dairies (n)
How long is the TMR mixing time (addition of first ingredient to the end of mixing before feed delivery)?

The distribution of the targeted TMR mixing time varies widely (range: 3-35 min).

The diagram shows the distribution of targeted TMR mixing time across different intervals:
- <=5 minutes: 0 dairies
- 6-10 minutes: 10 dairies
- 11-15 minutes: 30 dairies
- 16-20 minutes: 20 dairies
- >20 minutes: 5 dairies

Total dairies: 94 out of 120 (n=94/120)
How long is the TMR mixing time (addition of first ingredient to the end of mixing before feed delivery)?

The distribution of the targeted TMR mixing time varies widely (range: 3-35 min).

What explains this distribution?

Should we be concerned about it?
Do you evaluate particle length of TMR using a Penn State Separator?

Only forty-three percent of producers evaluate TMR particle length at least once a month.
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Only forty-three percent of producers evaluate TMR particle length at least once a month.

Frequency of particle size separator use

Dairies (%)

- 1x d
- 1x wk
- 2x mon
- 1x mon
- 4x yr
- 1-2x yr
- Never

(n=112/120)

How often is it necessary to monitor particle length?

Is once a month enough?
Seventy-nine percent of producers checked the mixer scale at least once a year. But, only 19% checked it at least monthly. The mixer wagon was calibrated by an outside service (60%) or an in house employee (40%).
How often do you calibrate the mixer wagon scale?

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Feed Bunk Management Practices in High Producing Pens
How many times a day is the TMR fed?

Most producers, 64%, fed TMR twice a day (range=1-6).
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How many times a day is the feed pushed-up?

Half of the producers pushed-up the feed 1 to 4 times a day. Only 10% of the dairies pushed the feed 9 or more times (range: 1-20).
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Do you feed for refusals?

44.4% YES
(n=115)
Do you feed for refusals? What percentage?

- 54% of producers feeding for refusals are targeting 3% or less (range: 1-10%)
- 44.4% of producers feed for refusals (n=115)

Fifty-four percent of producers feeding for refusals are targeting 3% or less (range: 1-10%)
Do you feed for refusals? What percentage?

54% of producers feeding for refusals are targeting 3% or less (range: 1-10%).

What are the practical implications of feeding for 1 vs 10% of refusals?

44.4% YES (n=115)
Refusals are commonly fed to heifers.
How many times a week are feed bunks cleaned?

Forty percent of the dairies clean feed bunks daily. However, 23% of dairies clean feed bunks only once a week.
Forty-two percent of small herds reported that rations were reformulated between 2 to 4 times a year.
How often was the ration for high producing cows reformulated in 2008?

Forty-one percent of medium size herds reported that rations were reformulated between 5 to 7 times a during 2008.
How often was the ration for high producing cows reformulated in 2008?

Thirty-seven percent of large dairies reported that rations were reformulated more than 10 times during 2008 (range: 1-24).
Corn silage dry matter was evaluated at least once a month in 52.3% of dairies. Only 8.3% of dairies determined DM weekly, or more often. Most dairies delegated DM determination to an outside nutrition consultant (86.6%).
How often do you evaluate corn silage dry matter?

Corn silage dry matter was evaluated at least once a month in 52.3% of dairies. Only 8.3% of dairies determined DM weekly, or more often. Most dairies delegated DM determination to an outside nutrition consultant (86.6%).
Software and Monitoring Tools
Dairy Comp 305 and DHI-Plus are the most commonly used herd management software.
Forty four percent of dairies utilize feed management software. EZ-feed and Feed Watch are the most popular software programs.
Feed management software programs are commonly used to monitor intakes (91%) and less used to check inventory (50%).
Sixty-two percent of the dairies monitor feed efficiency. Thirty-four percent of the dairies monitor milk urea nitrogen.
Only 17% of the dairies returned the survey. It is unknown if the results from this survey represent Central Valley dairies (selection bias).

Dairy owner and manager responses are subjective and their responses may not represent actual feeding management practices at the dairy (information bias).

Results from this survey suggest that feeding management practices vary greatly across dairies. And, we still need to know ....
We Still Need to Know …

- If producers are doing what they are reporting.
- If feeding management practices vary across dairies in response to individual needs.
- If current feeding management practices are leading to desirable outcomes (particle length of the ration, feed availability in the feed bunk, weight accuracy of ingredients, etc).
- If the ration fed differs from the ration formulated and how feeding management practices impact that (calibration of the wagon scale, forages dry matter, feeders errors, etc).
- If undesirable outcomes and errors impact health and production.
- What bottlenecks that prevent the implementation of “best” feeding management practices can be overcome (managerial, resources, educational, etc).
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