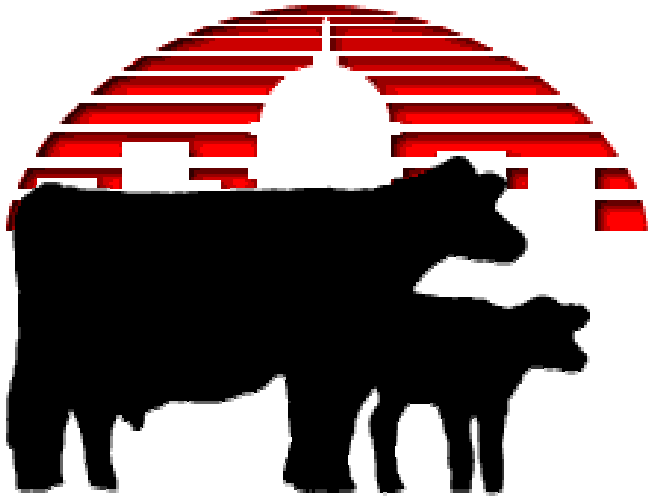
Causes and prevention of displaced abomasum (DA) in dairy cows

Dr. Randy Shaver
Department of Dairy Science
University of Wisconsin - Madison



Economic losses associated with DA

- Treatment costs range from $100 to $200 per case
- 10% of cows that are diagnosed with DA are culled or die before the next test day
- Treated cows that remain in the herd produce about 800 lb. less milk the next month than cows without DA

R. D. Shaver , Ph.D. UW Extension

Incidence of LDA

- 80% to 90% of DA are left-sided (LDA)
- Literature estimates of mean yearly incidence rates for LDA range from 1.4% to 5.8%
- Recent surveys with high-producing herds show mean yearly LDA incidence rates of 3.3% (range 0-14% in 61 herds) and 5.0% (range 0-22% in 71 herds)

Transition Period and LDA

- 80% to 90% of LDA are diagnosed within 1 mo. postpartum
- 50% to 80% of LDA are diagnosed within 2 weeks postpartum
- This underscores the transition period as the major risk period for LDA

Transition Period and LDA

- Intake (DMI) during the transition period
  - Prepartum DMI depression
  - Slow rate of increase in postpartum intake
- Low transition period DMI as an LDA risk factor
  - Lower rumen fill
  - Reduced F:C ratio in non-TMR herds
  - Greater incidence of other postpartum disorders

Postpartum disorders and LDA

- Cows with ketosis (12x) , RP (7x), metritis (5x-45x), or hypocalcemia (5x) were at increased risk for LDA
- Cows with LDA were at increased risk (50x) for ketosis
- Feeding and management practices that prevent other postpartum disorders reduce the risk of LDA
- Ketosis and LDA are closely related disorders

Body Condition Score (BCS) and LDA

- Cows with excess BCS at calving are at increased risk for LDA
- Why ?
  - Increased incidence of ketosis and fatty liver
  - Greater prepartum DMI depression
  - Slower rate of increase in postpartum DMI
- Target BCS at Calving: 3.5 to 3.75

Prepartum concentrate feeding: Benefits of starchy grain

- > DM & NEI intakes
- Adaptation of rumen microbes
- > VFA absorptive capacity of rumen tissue
- > Ruminal propionate production

How do these benefits help prevent LDA?

- < loss of body condition
- < fatty liver
- < ketosis
- < Ruminal acidosis

Prepartum concentrate feeding: Consequences of feeding a diet with low F:C ratio

% Forage (DM basis)	% LDA
75	0
60	16.7
45	40
30	36

Coppock and co-workers (1972)

How would feeding a prepartum diet with low F:C ratio increase the risk of LDA?

- Lower rumen fill
- Decreased rumen motility
- Decreased abomasal motility and emptying

Guidelines for prepartum energy feeding

- DMI of total concentrates
  - .75% of BW
  - 10 to 12 lb. per cow per day
- .70 to .72 Mcal NEl per lb. total diet DM
- 35% to 40% NFC in total diet DM
- > 50% forage in diet DM
- TMR to regulate F:C ratio

How does feeding finely-chopped forage or a fine TMR increase the risk of LDA?

- Reduced chewing activity
- Lower rumen fill
- Reduced fiber-mat formation in rumen
- Decreased rumen motility

Physical form guidelines - Transition diets

- TMR should have 10% of particles on top screen of PSU shaker box
- Haycrop silage should have 20% to 25% of particles on top screen of PSU shaker box
- 5 lb. per cow of long or coarsely chopped hay may aide transition groups
- Limit corn silage to < 50% of forage DM

Hypocalcemia and LDA

- Cows hypocalcemic at calving were at increased risk (5x) for LDA
- Hypocalcemia may reduce ruminal and abomasal motility
- Strategies to prevent hypocalcemia at calving may be useful for the prevention of LDA

Controlling Hypocalcemia

- Dilute down the K content of dry cow and steam-up diets
  * Corn silage works well

- Use anionic salts to lower the DCAD of steam-up diets

- Balance and regulate ration Ca & P

Bunk Management as a Risk Factor LDA

- Feeding or management practices that restrict DMI
- Poor consumption of forage in non-TMR herds
- Errors in TMR mixing and delivery
- Over-processing of TMR
- Sorting of TMR in feed manger