



# Dairy Update

DISPLACED ABOMASUM AND FEEDING IMPLICATIONS

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During recent years the problem of displaced abomasum (DA) has emerged as a major problem in dairy cattle management. Case records from the University of Minnesota Veterinary Hospital had 1 case in 1958 compared to 35 cases in 1969.

Displaced abomasum is a disorder of ruminants in which the abomasum (fourth or true stomach) fills with gas, fluid, or both, and moves to an abnormal position in the body cavity. Migration can be to the right (RDA) or left (LDA) in the abdominal cavity. The right sided displaced abomasum is usually accompanied by torsion and fluid accumulation. Incidence rates are 80% LDA, 15% RDA, and 5% torsions in 239 cows in New York.

The treatment of DA usually involves surgery. The abomasal cavity is opened, the displacement corrected, and abomasum sutured to the body wall in its normal position. Scar tissue forms preventing future displacement. Some veterinarians do not open the cavity, but position and suture externally. Current surgical techniques are quite successful. Any complications at the time of surgery reduce the chance of economic recovery to less than 50%.

The economic losses due to DA are:

- 15% less milk in the lactation in progress following surgery and convalescence.
- Surgical fee, drugs, hospitalization, and transportation costs.
- Financial loss of the cow due to death.
- Genetic loss if a good cow is sold or dies.

## CAUSES OF DISPLACED ABOMASUM

The etiology of DA is not completely characterized. A number of factors have been suggested in three areas: genetic, mechanical, and atony.

### Genetic

DA is most commonly seen in dairy cattle although it has been reported in beef cattle and sheep. Breed distribution of DA cows is comparable to the cattle population in the area. Selection of bigger, deeper bodied cows may contribute to DA with more internal room for organs to move and shift. Most affected cows have at least one lactation. The mean age of DA cows was 4.9 years compared to 4.3 years in the Pennsylvania DHI population. LDA occurred more often in winter and spring with 60% during the stabling season.

This archival publication may not reflect current scientific knowledge or recommendations.  
Current information available from University of Minnesota Extension: <http://www.extension.umn.edu>.

## Mechanical

The abomasum is normally suspended like a hammock and can swing lengthwise. Toward the end of pregnancy the uterus moves beneath the rumen, lifting it off the abdominal floor. At parturition the rumen drops down and could trap the abomasum on the left side. A large fetus (or twins) could accentuate the situation. Other possible mechanical factors include:

- violent fall or slip
- down with milk fever
- trucking or careless unloading of pregnant cows
- reduced rumen volume and fill (high grain, off feed, disease, etc.)

## Atony

The lack of muscle tone and/or movement in the abomasum has been suggested as a contributing factor in DA. The atony could be caused by nutrition, stress conditions, metabolic deficiencies, and/or organic diseases. The nutritional aspects will be explored in greater depth in the next section.

One study reported that 15% of the affected cows experienced some disease immediately preceding LDA while 23% had a **concurrent** disease at the same time. Retained placenta and metritis were the diseases most frequently associated with LDA. Four **other studies** in which 64% of the cows with DA also had metritis. Histamine has been shown to diminish or stop abomasal contractions. High levels of histamine can come from tissue breakdown in systemic diseases such as mastitis or metritis. A higher incidence of these diseases is seen following parturition. Another source of histamine can be large amounts of high-protein concentrates.

Calcium plays a role in smooth muscle tone and is essential in smooth muscle contraction. Since the abomasum contains smooth muscle, it would be affected by hypocalcemia and milk fever.

## NUTRITION AND FEED IMPLICATIONS IN DISPLACED ABOMASUM

A great deal of attention has been focused on nutrition since dairy producers get into and out of DA problems with ration changes. The following feeding situations can contribute to DA:

1. High grain feeding in the dry period. Heavy grain feeding will reduce forage intake and rumen fill, more acid, less stomach movement, and gas formation.
2. Lead feeding. The practice of gradually increasing grain intake to 1 to 1 $\frac{1}{2}$ % of the cow's body weight at parturition can cause DA.
3. Forage type. Incidence of DA in cows receiving corn silage was higher compared to alfalfa-grass rations. Energy level, physical form, dry matter intake, and percent grain will affect rumen digestion, VFA production and rumen fill. Corn silage being low in calcium resulting in calcium deficient rations may explain higher incidences of DA on corn silage based rations.
4. Physical form of the ration. Finely chopped alfalfa-grass silage was observed in herds with DA problem. Feeding 5 to 10 pounds of long hay has been suggested in herds experiencing DA. The long hay will increase rumen p<sub>H</sub>, increase buffering capacity and lower and alter VFA production. Feeding of ground forage in a complete ration has resulted in DA. The relation of DA to complete rations depended on the level of energy (grain) and/or fineness of chop of the forage.

5. Limited forage. Reducing the amount of forage fed the dry cow has an effect on DA. This is related to the level of grain feeding, lower fiber, rumen digestion, and less bulk in the ration.
6. Rapid changes in the ration. Cows switched from a dry cow to milking cow ration should be allowed adequate time to adjust. If not, cows may go off feed, lower feed intake, and have altered rumen digestion which makes the cow more susceptible.
7. Over-conditioned cow. The fat cow becomes an economic hazard and risk. Poor appetite, lower feed intake, and dependency to mobilize body fat will add extra stress to the over-conditioned cow making her more prone.

#### WHAT'S A DAIRYMAN TO DO?

The final question is what should a dairy farmer do to minimize DA in his herd. The following suggestions are based on research, observation, ruminant nutrition and digestion, and some cow sense. They may apply in some herds, but not all herds.

Condition cows in late lactation to restore body weight and condition.

Avoid fat, over-conditioned cows.

Limit grain in the dry period to meet the cow's needs.

Insure adequate mineral and vitamin in the dry period.

Lead feed cautiously, if at all.

Feed 5-10 pounds of long hay to dry cows.

Avoid finely chopped forages.

Make ration changes gradually.

Increase grain intake after calving at the rate of 1-1½ lb per day.

Minimize movement and transportation of pregnant cow.

Prevent falls and injury to pregnant cow.

Minimize milk fever, ketosis, and off-feed.

Maintain clean calving areas to minimize metritis.

Dip teats and dry treat infected quarter to reduce mastitis.

#### IN SUMMARY

Unfortunately no one answer or solution is available today. Good management coupled with an understanding of DA can help many dairy producers.

DISPLACED ABOMASUM SURVEY

I. Herd Identification

Name of herd owner \_\_\_\_\_

Address \_\_\_\_\_ County \_\_\_\_\_

Breed \_\_\_\_\_ Herd Size \_\_\_\_\_

If on DHI, Rolling Herd Ave. \_\_\_\_\_ lb milk \_\_\_\_\_ lb fat

Number of displaced abomasums 1973 \_\_\_\_\_ 1972 \_\_\_\_\_

II. Identification of Cows With Displaced Abomasums

	Cow I.D.	Age	Lactation No.	Sire I.D.	Calving Date (DA occurred)	Previous 305	Treatment for D.A.
						ME Record (If Available)	(Sold, operated, etc)
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							

III. Dry Period Treatment of Cows

A. Forage: \_\_\_\_\_ Type \_\_\_\_\_ Amount Fed Per Day \_\_\_\_\_

1. Hay		
2. Silage		
3. Silage		

B. Grain Mixture \_\_\_\_\_ Max  
 Amount fed per day \_\_\_\_\_ Is lead feeding practiced \_\_\_\_\_ Amt \_\_\_\_\_

IV. Milking Cow Feeding Program

A. Forage: \_\_\_\_\_ Type \_\_\_\_\_ Amount Fed Per Day \_\_\_\_\_

1. Hay		
2. Silage		
3. Silage		

B. Grain Mixture \_\_\_\_\_

Maximum Amount Fed/Day \_\_\_\_\_

V. Health Picture - List each cow with displaced abomasum. Check any health complications.

Cow No.	Mastitis	Milk Fever	Off Feed	Uterine Infection	Ketosis	Other (Specify)
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

VI. Other Considerations

1. If ensiled forage is fed, is a screen used? \_\_\_\_\_ (If yes, give screen sizes)

2. Is the grain coarse, medium, fine ground; rolled; pelleted; or whole? \_\_\_\_\_  
(Give screen sizes if known)

3. Mineral Program

	Kind of Mineral	Method of Feeding
Dry Cows		
Milking Cows		

Thanks for your time and assistance. If you want a summary of this survey, please

check this box:

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