CHAPTER 24

Down Cows

Prepared by Drs. Alexander Burrows, Marianne Parent, Michael Walker

WHEN DOES A DOWN COW OCCUR?

A cow that is lying for a prolonged period of time and cannot stand is known as a down cow. Down cows can occur at any time, but most commonly occur in the few days before or after calving. The importance of identifying and managing a down cow is to treat the cause so she can stand again and to prevent further injury to the muscles as the weight of the cow can cause muscle damage when she is down for prolonged periods.

CAUSES AND PREVENTION AT CALVING

Injury:

- **Causes:**
  Injury usually occurs to the nerves and can lead to temporary or permanent loss of sensation and use of one or both hind limbs. Nerve injury most commonly occurs as the calf is being delivered, particularly if it is a large calf or difficult calving, and will result in the cow being unable to stand soon after the calf is born.
- **Treatment:**
  There is no specific medication to treat this condition, therefore it is important to manage the cow well until she is able to stand on her own. Management of a down cow involves rolling every 4 hours from the side the cow was lying on. This allows for improved blood circulation to the muscles of the hind leg. Bedding is also important for the cows comfort. Bedding should be clean, dry and about 15 cm in depth. Since the cow is unable to reach the feed and water troughs, allowing access to food and water will prevent worsening conditions. The down cow can be assisted to stand to increase time to recovery by increasing blood circulation to the entire body.
- **Prevention:**
  Injury resulting in a down cow cannot be entirely prevented. Opting for bulls with a high rating for calving ease and waiting to breed heifers until they are at least 60% of a mature cow's weight may prevent difficult calvings and resulting injuries.

Infection:

- **Causes:**
  Severe infections can result in down cows because they are too weak and sick to have the energy to stand. In the days following calving the most common causes of severe infection are metritis (infection of the uterus) and mastitis. If the cow is down and not interested in eating, particularly if there is evidence of mastitis or vulvar discharge, it is important to call a veterinarian immediately as their condition can worsen very quickly.
- **Treatment:**
  A veterinarian should give medicines and discuss managing the down cow (see above).
- **Prevention:**
  The risk of a cow developing severe mastitis or metritis can be decreased by maintaining a clean environment around calving and in the days afterwards, and following the recommendations in the mastitis prevention section of the handbook. As well, poor nutrition during the dry period increases the risk of a cow developing metritis, therefore a proper steam up period is important. Finally, cows with a retained placenta are at increased risk of developing metritis; see section on retained placentas for more details.

Nutritional:

Nutritional imbalances can also result in a down cow; these can be divided into 4 groups.

1. **Calcium deficiency (shortage):**

- **Causes:**
  The most common mineral deficiency is calcium deficiency (milk fever). Cows need calcium for proper muscle function. At the time of calving, a large proportion of a cow's calcium is being used to produce milk and not enough is left over for muscle function. When this occurs the cow will appear weak and be unable to stand.
- **Treatment:**
  Luckily, milk fevers are easy to treat. You should call the veterinarian and he/she will give the cow an intravenous injection of a calcium solution and the cow usually is able to stand within 3 hours. Usually one treatment is enough but sometimes cows will need to be treated more than once. Please see "Injury" above for management of a down cow.
- **Prevention:**
  We can prevent some milk fevers by what we feed the cow during the dry period. It is crucial that we feed cows a mineral supplement that has equal or less calcium compared to phosphorus during the dry period. We should also not feed dry cows legumes (Desmodium, Leucaena, Lucerne, Calliandra) because they are usually high in calcium. Good quality Napier grass and/or corn stalks are good for dry cows, especially if they did not receive much manure fertilizer. On the day of calving, we switch minerals to a milking cow mineral with a calcium to phosphorus ratio of 2:1 or 3:1 (twice as much calcium as phosphorus).

2. **Magnesium deficiency:**

- **Causes:**
  Magnesium deficiency, also called grass staggers or grass tetany, occurs after cows have been grazing very lush grass during the rainy season. This is very rare in no-graze systems but could occur if cows are being fed very freshly cut lush grass.
- **Treatment:**
  Like milk fever, cows will usually recover quickly after the veterinarian gives some intravenous magnesium. Please see "Injury" above for management of a down cow.
- **Prevention:**
  If feeding lush grass during the rainy season, introduce slowly to the diet by mixing with some dried fodder and ensure the cow is receiving adequate mineral supplement.

3. Phosphorous deficiency:

- **Causes:**
  Phosphorous deficiency is a rare cause of a cow being down.
- **Treatment:**
  The veterinarian can administer an intravenous injection of a phosphorous solution. After treatment, the cow should stand within 6-12 hours. Please see "Injury" above for management of a down cow.
- **Prevention:**
  Ensure the cow receives a proper mineral supplement with a 1:1 ratio of calcium to phosphorous during the dry period.

4. Ketosis:

- **Causes:**
  This most commonly occurs in the first few weeks after calving because the cow's body is still adjusting to putting large amounts of energy into milk production. The cow is in a negative energy balance, meaning she is losing more energy then she is getting from her diet.
- **Treatment:**
  The veterinarian can administer an intravenous injection that will boost her energy, however this is only a short term treatment and the cow may need further oral treatments of a product called glycol and a change to a high energy diet. Please see "Injury" above for management of a down cow.
- **Prevention:**
  Prevention of ketosis starts with a proper steaming up before calving and continues following calving with feeding a diet that meets her rising energy requirements. Please refer to the nutrition sections of this handbook for more information on steaming up and calculating the dairy meal requirements of a cow that is milking.

CAUSES AND PREVENTION AT ANY TIME

Injury:

- **Causes:**
  Injuries can occur at any time and in any animal. However, they most commonly occur during mounting activity, on slippery/hilly ground or in poorly designed stalls. The most common injuries causing down cows include dislocated hips and broken bones.
- **Treatment:**
  Unfortunately, these injuries resulting in down cows are often difficult to treat and with poor success. However, it is still important to have a veterinarian examine the animal to rule out treatable causes.
- **Prevention:**
  Housing with proper footing that is even and allows good traction is important in preventing injuries. Well designed stalls with a soft, even surface will decrease risk of injury while lying down. Please see section on cow shed/stall construction for more details.

Nutritional: While the nutritional causes of down cows discussed above most commonly occur during the days around calving, they can occasionally occur at other times. Treatment and prevention are as mentioned above.

Severe disease:

- **Causes:**
  Any disease causing severe illness in an animal can result in her being unable to rise. Severe disease causes severe weakness and exhaustion in cattle and they are focussing all of their energy reserves on recovering.
- **Treatment:**
  It is important to treat the animal for the underlying disease as soon as possible. By the time an animal is unable to rise due to severe disease; they are very ill and may not recover if not immediately treated by a veterinarian. Please see "Injury" above for management of a down cow. In some cases, it may take these cows a few days to recover to the point of rising on their own following treatment, so proper management is very important during this time.
- **Prevention:**
  Clean dry, well ventilated environment with proper nutrition will provide an animal with the best ability to fight off serious illness.