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Management of Winter Stress in Dairy Cows for maintaining the productivity

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INTRODUCTION

Winter can reduce dairy cow productivity if management practices are not followed for cold stress due to shorter daylight hours, and changing feed dynamics. Cold conditions challenge **milk yield, feed efficiency, and cow health**. With the right winter management strategies, dairy farmers can maintain consistent productivity while protecting animal welfare.

Like many other animals, dairy cows are animals that are sensitive to photoperiods. This means that the length of daylight, on any given day, has a direct impact on the cow and not only on the quality of pasture that they are consuming. They are also sensitive to changes in temperature, which occur naturally as seasons change. In combination, these two environmental factors can have a varying daily impact on a herd.

In dairy cows the transition of seasons to winter will affect:

- Dry Matter Intake – the amount of dry matter that the cow consumes.
- Milk Production – the quantity of litres produced by the cow.
- Fertility – the likelihood of conception and the length of time in between calvings.

Some signs of cold stress include:

- Shivering
- Reduced feed intake
- Lethargy
- Decreased production

- Respiratory distress or increased incidence of illness

Below are some winter management tips to keep dairy cows productive throughout the cold season.

1. Prioritize Cow Comfort in Cold Weather

Cold stress increases maintenance energy requirements, diverting nutrients away from milk production.

Best practices include:

- Providing wind protection and draft-free housing
- Keeping bedding dry and well-bedded
- Reducing moisture buildup in barn.

Comfortable cows eat more, rest longer, and produce more milk.

2. Adjust Nutrition for Higher Energy Demand

Winter increases a cow's energy needs by 10–20%, depending on temperature and exposure.

Key nutritional strategies:

- Increase ration energy density without disrupting rumen health
- Maintain consistent forage quality
- Avoid sudden ration changes that can reduce intake

Efficient rumen fermentation helps cows generate internal heat while sustaining milk output.

3. Support Rumen Health and Feed Efficiency

Cold stress can disrupt rumen microbial balance, reducing nutrient utilization.

To maintain feed efficiency:

- Ensure balanced fiber and starch levels
- Support beneficial rumen microbes
- Maintain consistent feeding times

Healthy rumen function is essential for converting winter rations into milk rather than body heat alone.

4. Maintain Water Access at All Times

Water intake directly affects feed intake and milk yield. Frozen or cold water discourages consumption.

Winter water tips:

- Prevent freezing with heaters or insulation
- Keep water clean and easily accessible
- Monitor intake daily

Even slight reductions in water intake can significantly lower milk production.

5. Strengthen Immunity During Winter

Winter stress weakens immune response, increasing the risk of mastitis, respiratory disease, and metabolic disorders.

Support immunity by:

- Minimizing stress from overcrowding
- Maintaining proper ventilation
- Supporting gut health through nutrition.

Healthy cows recover faster and maintain production during seasonal challenges.

6. Monitor Body Condition and Health Closely

Winter is a critical time to track:

- Body condition score (BCS)
- Lameness and hoof health

- Signs of illness or reduced intake

7. **Antioxidant supplementation** helps dairy cows manage cold winter stress by neutralizing harmful free radicals and supporting immune function.

Key Antioxidants and Benefits

- **Vitamin E:** Protects cell membranes from oxidative damage and strengthens immunity during cold weather.
- **Selenium:** Works with Vitamin E as a core component of antioxidant enzymes like glutathione peroxidase.
- **Vitamin C:** Scavenges reactive oxygen species and supports white blood cell activity when environmental stress rises.
- **Beta-Carotene:** Improves overall metabolic status, reproductive health, and antioxidant potential.

Adjust total mixed rations to include high-quality forage or specific mineral-vitamin premixes before winter sets in. Early intervention prevents small issues from becoming costly productivity losses.

Winter does not have to mean lower productivity. With proper housing, nutrition, rumen support, and health monitoring, dairy farmers can maintain strong milk production and cow health throughout cold weather.