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Daily dry matter correction in dairy TMR

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This issue explains why forage dry matter changes continuously, how even small moisture shifts alter the delivered ration, and why routine dry matter correction remains one of the simplest and most profitable management practices on a dairy farm.

Dairy nutritionists formulate TMR diets on a dry matter basis, but mixer wagons load ingredients as they are received. This difference creates one of the most common sources of feeding error on commercial farms.

Corn and sorghum silages, haylage, wet byproducts, and even high-moisture grains rarely maintain constant moisture throughout storage. Unless their dry matter is measured regularly and mixer sheets adjusted accordingly, cows gradually receive a different ration than the one formulated.

Unlike many nutritional interventions, correcting TMR dry matter requires no new ingredients or expensive additives—only routine measurement and disciplined management.

Why dry matter keeps changing

High moisture ingredients experience changes in their dry matter concentration for many reasons. Weather during feed-out, seepage, rainfall on bunker faces, different harvest fields, silo depth, packing density, fermentation, and feed-out rate all influence dry matter concentration. A corn silage that tested 35% dry matter when first analyzed may measure 31% or 39% several weeks later. Laboratory analyses remain accurate, but they represent only the sample submitted on that day, not the forage being loaded every morning.

Small moisture changes alter the TMR

A change of only 3 to 5 percentage units in forage dry matter changes the amount of nutrients supplied by that forage and alters the intended nutrient balance of the TMR. For example, if a ration is formulated assuming silage contains 35% dry matter, feeding 30 kg as-fed of such silage supplies 10.5 kg dry matter. If actual dry matter falls to 31%, the same 30 kg supplies only 9.3 kg dry matter. The cow unknowingly receives 1.2 kg less forage dry matter per day, increasing the concentrate proportion and altering the intended nutrient balance without changing the formulation itself.

Practical ways to measure dry matter

Routine laboratory analyses remain the reference standard, but they are too slow for day-to-day feeding decisions. Most farms can accurately monitor forage dry matter using simple on-farm methods. Common options include the Koster forage tester, which dries samples with heated air, the microwave oven method, where samples are dried in short heating cycles until weight stabilizes, and the increasingly popular air fryer, which provides more uniform drying with less risk of scorching. Commercial electronic moisture meters and portable near-infrared (NIR) analyzers are also becoming more common on larger farms.

Dry matter checking frequency
The correct frequency depends on ingredient variability rather than the calendar. Corn silage and haylage generally deserve testing two or three times each week, whereas relatively stable wet byproducts may require only weekly checks. Daily measurements are justified after heavy rain, when opening a new bunker or silo bag, or whenever visible changes in moisture occur. Waiting for monthly laboratory reports often means feeding an incorrect ration for weeks before the problem is recognized.

Correct mixer weights immediately
Measuring dry matter has little value unless mixer sheets are updated. If the nutritionist wants to feed 10.5 kg forage dry matter, but corn silage now contains only 31% dry matter, the new loading rate becomes 34 kg as-fed instead of 30 kg. The ration formulation itself remains unchanged; only the amount loaded into the mixer changes. This simple calculation restores the intended nutrient supply and prevents gradual ration drift.

Let the cows confirm the adjustment
Routine dry matter correction should produce consistent feed intake, stable rumination, fewer sorting problems, predictable manure consistency, and more stable milk yield and milk components. Unexpected changes in these indicators should prompt a dry matter measurement before changing the ration formulation or adding feed additives. Many apparent nutritional problems originate simply from feeding the wrong amount of forage dry matter. To this end, investing in an inexpensive device to routinely measure DM remains one of the most efficient farm-level investments.

In brief, daily dry matter correction is one of the least expensive and highest-return management practices available to dairy producers. By measuring moisture regularly and adjusting mixer weights immediately, farms ensure that cows receive the ration the nutritionist formulated—not the one created by changing silage moisture. In modern dairy nutrition, consistency often produces greater returns than complexity.

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