

Dry Matter and As Fed Conversions

All feeds contain some water in practical feeding situations. The amount of moisture in any feedstuff directly affects its nutrient content. If we want to compare the nutritive value of feeds that vary in moisture content, the composition of the feed must be expressed on a "dry matter" or moisture-free basis. For example:

Feedstuff	%DM	As fed % CP	As fed % CF	Dry basis % CP	Dry basis % CF
Alfalfa pasture, pre-bloom	19.8	4.1	4.6	20.7	23.2
Alfalfa hay, pre-bloom	90.5	19.0	22.6	21.0	25.0

As fed – This refers to feed as normally fed to animals. On an as fed basis, feed may contain from 90% water for lush pastures to 10% water for cereal grains.

Dry matter – That part of a feed, which is not water. It is computed by determining the percentage of water and subtracting the water content from 100%. On a dry matter basis, feed contains 0% water.

$$\% \text{ Dry matter} = 100\% - \% \text{ Water}$$

Converting feed composition data

$$\% \text{ nutrient (dry)} = \frac{\% \text{ nutrient (as fed)}}{\% \text{ dry matter}} \times 100$$

$$\% \text{ nutrient (as fed)} = \% \text{ nutrient (dry)} \times \frac{\% \text{ dry matter}}{100}$$

Converting amounts of feed

$$\text{amount feed (dry)} = \text{amount feed (as fed)} \times \frac{\% \text{ dry matter}}{100}$$

$$\text{amount feed (as fed)} = \frac{\text{amount feed (dry)}}{\% \text{ dry matter}} \times 100$$

Useful rules:

1. The percentage of a nutrient on a dry matter basis will always be **higher** than it will be on an as fed basis.
2. The amount of feed on a dry matter basis will always be **lower** than the amount of feed on an as fed basis.
3. When a **nutrient** is expressed in units such as lbs, grams, or calories (amounts) it is not changed by moisture corrections.