

Microwave Oven DM Estimation

Forage dry matter levels can be accurately estimated using an inexpensive (\$100 range) microwave oven and a \$70-80 electronic postal scale. Mechanical postal scales are generally not accurate enough to indicate gram differences in dry weights.

Here's how it's done :

- 1** Weigh a microwave-safe container large enough to hold 100-200 grams of wet forage (a paper bag is a good choice). Record the weight of the container (WC) or, if your scale has a *tare* adjustment, set the scale at zero (WC = 0).
- 2** Weigh 100-200 grams of forage into the container (WW). The larger the sample, the more accurate your determination can be.
- 3** Place a drinking glass or glass jar containing 8 oz of water in the back corner of the oven. The water serves as a 'ballast' to absorb excess energy and prevent ignition of the sample.
- 4** Heat the forage sample at 80-90% of maximum power for 5 minutes. Reweigh and record the weight.
- 5** Repeat step **4** until the weight is less than 5 grams lower than the previous weight.
- 6** Heat the sample at 30-40% of maximum power for 1 minute. Reweigh and record the weight.
- 7** Repeat step **6** until the weight is less than 1 gram lower than the previous weight. This is the dry weight (WD).
- 8** Calculate dry matter (DM) % as follows :

$$DM\% = \frac{WD - WC \times 100}{WW - WC}$$

CAUTION! If your sample does ignite, turn off the oven, unplug the power but don't open the door until the sample has burned completely. If you want to use your household microwave oven, take it out of the house to dry forages.

for more information:

[Monitor Silage Dry Matter Content](#), *Alberta Dairy Management*