

Measuring Moisture Content in Silage or High Moisture Hay

Hay

Getting the moisture content right in hay is important at any time, however when working with high moisture hay, measuring the correct moisture percentage is even more critical.

Moisture probes are useful to a point, however there can be significant differences between different probes in the same bale, and they can show significant differences when cross referenced against a dry matter test.

Si-Lac Extra bacterial silage and hay inoculant can be used with high moisture hay up to around 25% total moisture, including stem, node and dew moisture. If these moistures are exceeded, the amount can be too much for the bacterial inoculant applied to handle. In addition to this, the bacteria used in Si-Lac Extra need moisture to grow and colonize the hay, so when moistures are at the lower end e.g. below around 16-17%, the hay becomes too dry for the bacteria to live and grow, so it would be a waste to use the inoculants in that situation.

Silage

Moisture is needed by bacteria for the fermentation process, but the moisture content within the crop can be a factor in silage quality.

It is far better and more efficient to produce quality silage from a higher moisture crop than a crop that is too low in moisture. The nutritional loss of Silage that is made too dry is far greater than silage that is too wet.

There are some simple methods of checking the moisture percentage and dry matter content of your crop. These are:

- (a) Moisture probes
- (b) Microwave Oven Test
- (c) Bench test drying ovens
- (d) Visual assessment and feel of moisture.

The recommended and easy way to measure moisture percentage and dry matter, is the **Microwave Oven Test**.

The recommended procedure for do this test is as follows:

- Obtain a representative sample from the crop – a number of points throughout the paddock, remembering that if testing hay, it is often wetter underneath.
- Chop the sample into 5-10mm lengths and mix thoroughly.
- Weigh a representative sub-sample (Ideally 100g), record the weight, and place in a thin layer on a “microwave-safe” container.
- Place a glass of water and the sample into the microwave and dry for 2 minutes. (Ensure that weight of water does not exceed weight of sample to be dried)
- Remove sample and weigh. Stir and place back in the microwave.
- Repeat drying in 30 second lots until the moisture loss is less than 3 grams, the weight doesn't change, or the sample appears to be starting to burn. If burning occurs, use the last recorded weight.
- Calculate the moisture % = (wet weight sample - dry weight of sample) divided by wet weight, multiplied by 100.
- Dry matter content % = 100% - moisture content.



Caution— Failure to use the glass of water with the sample may result in fire.

Note—Microwave power may vary, therefore drying times may also vary.

Example 1

Hay

Initial Wet sample = 100g

After drying, final Dry sample =76g

Moisture % = $(100 - 76)/100 \times 100 = 24 \%$

Sample indicates hay ideal for applying Si-Lac Extra

Example 2

Silage

Initial Wet sample = 100g

After drying, final Dry sample =32g

Moisture % = $(100 - 32)/100 \times 100 = 68 \%$

Sample indicates that the silage is in the ideal range for harvest and compacting at the correct chop length.