

Mango Dry Matter Instructions

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When a mango has 14% dry matter it is considered mature enough to pick and will ripen properly with a good flavour. The procedure set out below shows how dry matter percentage can be calculated simply and accurately. Mango dry matter should be used in conjunction with the other maturity indicators of heat sums, internal flesh colour and external colour and shape.

Essentially dry matter is the difference between the mango flesh sample when it is freshly cut and full of water compared to the weight of the sample after all the water has been dried. The result can be converted to a percentage of the original wet weight, known as the **DRY MATTER PERCENTAGE (%DM)**.

Equipment:

- Cutting board
- Large knife
- Apple corer
- Microwave or drying oven
- Patty papers
- Accurate scales (0.1g accuracy)
- Calculator
- Notebook or spreadsheet to record the results

Method:

Sample Preparation

1. Select some “average” fruit to be tested from your block (avoid obviously forward or backward fruit).
2. Weigh the patty papers and write the weight or a code number on the bottom of the paper (using 2 papers together for each sample works better).
3. Cut off both cheeks of the mango to be sampled.
4. Take a sample from both cheeks of the fruit using the apple corer. The sample should be taken from the centre of the round part of the cheek and be around 1 cm thick.
5. Slice the skin off, so that only the flesh remains on the sample.
6. Weigh and record this weight as the “Wet weight + patty paper”.

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Drying procedures

Microwave oven

1. Fill a coffee mug 2/3 full with cool water and place it in the microwave. This is essential to stop the samples burning instead of drying. Don't overfill the cup as it will boil over onto the sample.
2. Run the microwave with the sample and coffee cup for about 3 minute intervals. Replacing the cup of hot water with new cup of cool water every 3 minutes.
3. Repeat the above for 3 minutes and then 2 minutes, then 1 weighing in between each run. Continue at 1 minute intervals until there is no change in weight of the sample- indicating that the sample is completely dry.
4. Record the dry weight + patty paper.

Drying oven

1. Place the sample in a drying oven and leave for 24 - 48 hours at approximately 65°C. Higher temperatures will cause burning.
2. Record the dry weight + patty paper.

Calculation

Dry weight/Wet weight x 100% = % Dry Matter

1. The weight of the patty /wet weight minus the patty paper is the wet weight.
2. Likewise, the weight of the patty /dry weight minus the patty paper is the dry weight.
3. Divide the dry weight by the wet weight and multiply by 100% to bring it to a percentage. This is the %Dry Matter.

General notes

Scales must be accurate to at least 0.1g.

This test is only useful when the sampled fruit is the same as the fruit to be harvested.

There are other tools for determining maturity that can be used in conjunction with dry matter testing.