University of California
Agriculture and Natural Resources
Making a Difference for California

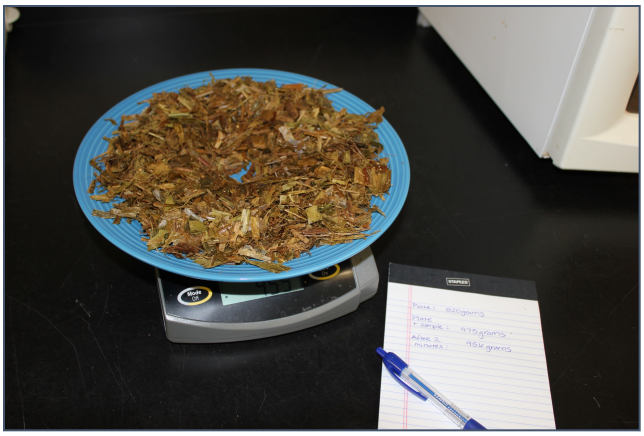
Using a Microwave Oven to Test Forage Moisture Content On Farm

1. Equipment needed: microwave, preferably with a turn table; microwave safe plate (not paper); gram scale accurate to at least 1.0 gram; representative sample; note pad & pen; a well ventilated space.

2. Weigh and record the weight (grams) of the empty plate.

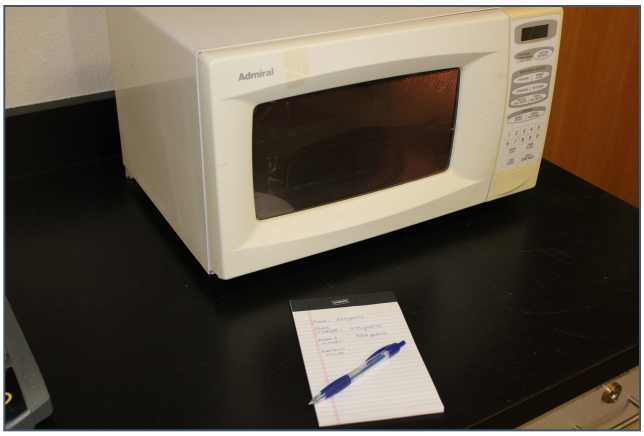
3. Place about 100 grams of a representative sample on the plate. Weigh and record as sample + plate.

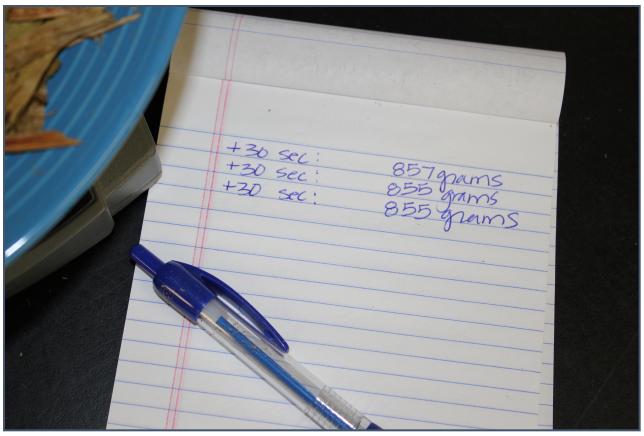
4. Arrange the sample so that it is spread evenly across the container and not more than 1.5 inches high. Leave a small depression in the center of the container (should resemble a donut).



5. Place the sample container in the microwave. For wet forages (silages), start by heating the material for 2 minutes on high. All microwaves are different, so some of this will be trial and error with your specific model.

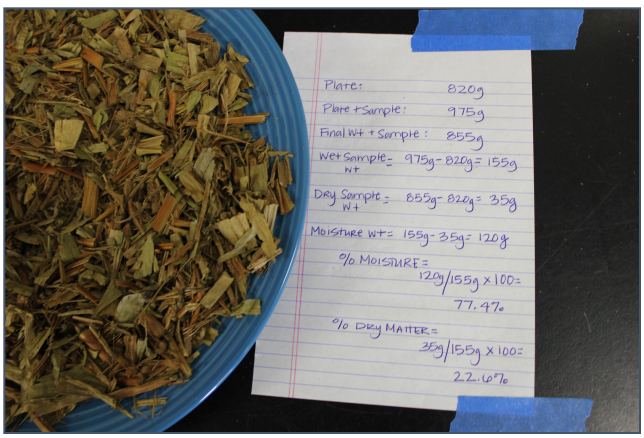
6. Open the door and allow any steam to dissipate. Remove the container, reweigh it, and record this weight.





7. Mix the forage and arrange so that it is again evenly distributed and resembles a donut. Return the container to the microwave and heat for an additional 30 seconds if almost dry, or 1 minute if still wet.

8. Repeat steps 6 & 7 until the difference between one sample weight and the next does not exceed 1 gram. If the sample begins to burn, use the previous weight.



9. Calculate the % Moisture (or % Dry Matter) as shown (left and on next page).

Adapted from:
https://cropwatch.unl.edu/using-microwave-oven-test-moisture-content-forage-unl-cropwatch-aug-9-2012

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Calculations from #9:

Plate	820 grams
Plate + wet sample	975 grams
Final weight (plate + dry sample)	855 grams
Wet sample weight	975g – 820g = 155 grams
Dry sample weight	855g – 820g = 35 grams
Moisture weight	155g – 35g = 120 grams
% Moisture	120g/155g x 100 = **77.4%**
% Dry Matter	35g/155g x 100 = **22.6%**