Measuring grass cover on the farm and in the paddock

Quadrat method (cut and weigh method)

1. Items needed:
   - 0.5 m^2 square
   - Hand shears
   - Scale
   - Plastic bag
2. Find multiple locations within your paddock that look representative of the paddock
3. Place your quadrat down, fluff up the grass within the square down to the crown of the plants
4. Using the shears, cut grass down to your desired residual height (post-grazing height – you're trying to determine amount of graze-able grass) – I like 3" residual
5. Using your scale, weight the amount of grass in grams. Do this in multiple sections of the paddock, recording your results so you can take an average
6. Retain a sample from your bags so that you can calculate the % dry matter (%DM) later

Calculating DM using the microwave method

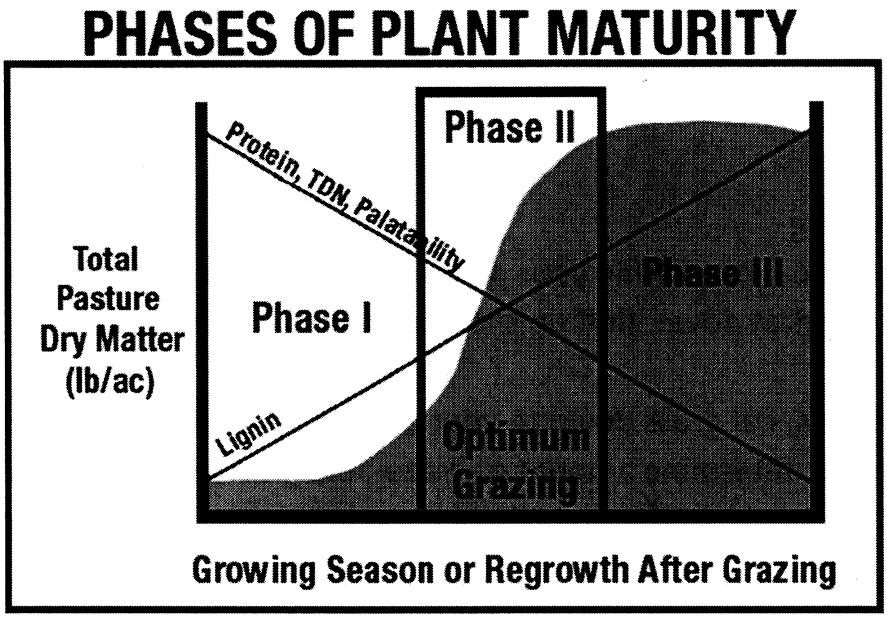
1. Items needed:
   Plastic container
   Digital scale sensitive to 0.0
   Microwave
2. Tare your container on the scale
3. Add 10g of your grass sample for that paddock
4. Microwave in short bursts (30 seconds) until the weight of the grass does not change between intervals (usually about 2.5 mins of microwaving but be careful and monitor so it doesn't light on fire!)
   Calculation: 1 – [[start weight (g) – end weight (g)]/start weight (g)] = 0.__ DM

Kg DM/hectare calculation:

Average weight of quadrat clippings (kg) x 40,000 (# of quadrats in a hectare) x %DM = kg DM/hectare

Example: you take 5 cuts from around your paddock, and they average to 195g
We determine the %DM is 22%

0.195 kg x 40,000 x 0.22 = 1,716 kg DM/hectare → graze now! Grass is lush and good quality



- Optimum grazing happens **before** plant puts energy towards vertical growth and seed production
- This optimum phase is when plants are generally < 12" tall and DM is at **1,400 kg DM/hectare (1,247 lb DM/acre)**
- When DM measures higher than that measurement, plant is higher in lignin, lower in protein, and lower in *palatability*
    - Animals will be less efficient at grazing to proper residual (height of grass left after grazing) because they'll leave it behind due to poor palatability
- If pasture measures at > 2,500 kg DM/hectare (2,227 lb DM/acre) grass is not palatable, is 'headed out', too high in lignin, lower in nutrients, and should be mowed down mechanically before it matures even further

Converting from lb DM/acre to kg DM/hectare and vice versa

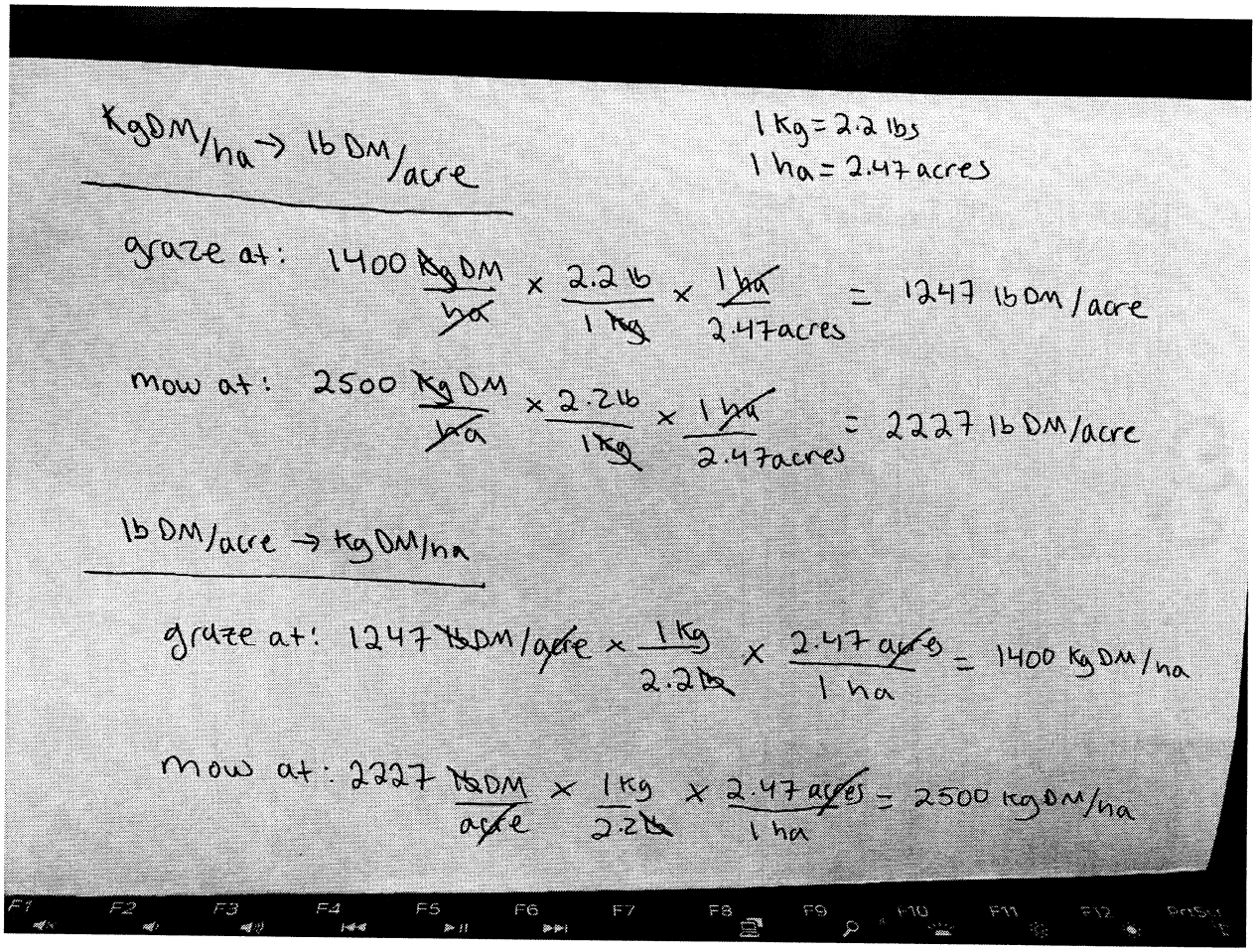
It's helpful to be able to have an idea of basic measurements in both 'languages' so that if you're speaking with farmers in the US, they will likely better understand lb DM/acre or internationally, kg DM/hectare

Below is a photo showing how you convert from one to the other. When doing calculations, it is important to keep all your numbers with the proper units as to not get confused.

There are 2.2 lbs in 1 kg

There are 2.47 acres in 1 hectare

The examples below utilize two of the KEY metrics of grass.... When to GRAZE and when to MOW. I have demonstrated in the first example how to go from kg DM/ha to lb DM/acre and the bottom example does opposite



Quadrat measurement practice

1. What is the pasture dry matter? _____% DM
2. What is the weight of the clippings?

Bag	Clippings (grams)
average	

3. What is the current pasture cover in kg DM/hectare?

   Reminder:

   Average clippings weight (kg) x 40,000 x %DM = ____ kg DM/hectare

What does this tell us????

The rule of thumb is:

Rest at <1400 kg DM/hectare

Graze at 1400 kg DM/hectare

Mechanically harvest at > 2500 kg DM/hectare

According to the quadrat method, should this pasture be rested, grazed, or mechanically harvested?