

Measuring crop yield

Summary

- Estimating the yield of a brassica crop is critical to allocating the correct break size.

Fresh weight

Joining a 3.54 m length of alkathine will give a full circle with an area of 1m². This circle should then be placed over representative areas of the crop. Everything that falls within the circle should be cut to the typical grazing height/utilisation level for the type of crop, placed in a bag and weighed to give the fresh weight (remember to subtract the weight of the bag). This process should be repeated 5+ times across the paddock to gain an average fresh weight.

The fresh weight is then multiplied by 10,000 to convert the fresh weight from kg/m² into kg/ha (10,000m² = 1 ha).

For example:

Sample	1	2	3	4	5	Average
Fresh weight (kg/m ²)	8.6	9.3	9.2	9.4	9.0	9.1
Fresh weight (kg/ha)	86,000	93,000	91,000	94,000	90,000	91,000

Dry matter %

Three samples per crop should be taken to determine the DM %. For each sample take one or more whole plants (representative of the crop) and chop into small segments. Weigh the sample to determine fresh weight and then dry at 60-90°C for 48 hrs, or until the weight of the sample stops falling. Finally weigh the dried sample to determine the dry weight.

Once the fresh weight and dry weight of the sample are known the dry matter % can be calculated by dividing the dry weight by the fresh weight.

$$\begin{aligned}
 \text{E.g. Fresh weight of Sample} &= 112\text{g} \\
 \text{Dry weight of Sample} &= 16.8\text{g} \\
 \text{Dry matter \%} &= 16.8\text{g} \div 112\text{g} \\
 &= 15\%
 \end{aligned}$$

DM testing is offered as a service by some testing laboratories.

Crop yield (kg DM / ha)

Now that the fresh weight yield (91,000 kg/ha) and the dry matter % (15%) are known the crop yield in kg dry matter per hectare can be calculated.

$$\begin{aligned}
 \text{Crop yield (kg DM/ha)} &= \text{Fresh weight (kg/ha)} \times \text{Dry matter \% (DM\%)} \\
 &= 91,000 \text{ kg/ha} \times 0.15 \text{ (15\%)} \\
 &= 13,650 \text{ kg DM/ha}
 \end{aligned}$$