How much dry matter is available?

In low rainfall areas, where crop establishment is variable and row spacing is often above 20 cm, the best way to calculate dry matter is to take crop cuts.

Estimating the amount of dry matter by cutting

Measure a length 2 m along the crop row. Cut the selected row to ground level and collect the sample. Repeat a further four times at random locations across the paddock. Combine all cut samples and weigh.

Compare the weight of the sample collected with the table.

Weight of green sample collected (gm/10 m row)	Row Spacing		
	20 cm	25 cm	30 cm
	kg DM/ha		
1000	675	540	450
2000	1350	1080	900
3000	2025	1620	1350
4000	2700	2160	1800

These relationships are based on dry matter of 13.5 %.

Grazing budget

Matching stocking rate to the feed available is critical to achieve even grazing of a crop. A grazing budget involves estimating the amount of DM present, the amount to leave behind, a crop growth rate and the amount the animals will eat.

The **amount of DM** present can be estimated using the cutting method.

The **DM left after grazing** can be as low as 300 kg/ha but crop recovery will be slower.

The **crop growth rate** will vary between regions but is in the range of 20 to 30 kg/ha/day in July and 40 to 80 kg/ha in August. Local agronomists should have more accurate figures.

Animal consumption can be estimated by allowing 1 kg DM/DSE/day.

Example feed budget – how many stock are required?

A wheat paddock is measured at 600 kg/ha DM at the start of July and we want to graze it down to 300 kg/ha DM over a month. The crop is growing at 20 kg/ha/day. The total feed available is 300 kg/ha plus 30 days @ 20 kg/ha/day = 900kg/ha.

We have pregnant merino ewes available, rated at 1.5 DSE/ha. They will eat 1.5 kg DM/day or 45 kg of DM over 30 days.

The stocking rate required is:

900 kg/ha DM available / 45 kg eaten per animal = 20 ewes/ha.

PN20685

Grazing winter cereals in low rainfall regions

The purpose of grazing crops in low rainfall areas is primarily for feed, however with good seasonal conditions, early grazed crops may provide the opportunity for grain.

Cereals can be grazed when the plants are anchored and have grown secondary roots. This usually occurs around the three leaf stage.

In low rainfall areas, grazing will often result in a reduction in grain yield compared to no grazing, even at early tillering. If grazing continues past growth stage 30 (start of stem elongation) plant recovery will be poor.

It is recommended some dry matter (DM) is left after grazing to assist the crop to recover.

Grazing also delays crop maturity.

Careful consideration should be given to stocking rate and duration of grazing to avoid uneven grazing which can lead to variable crop maturity.

Grain & Graze™

Profit through knowledge

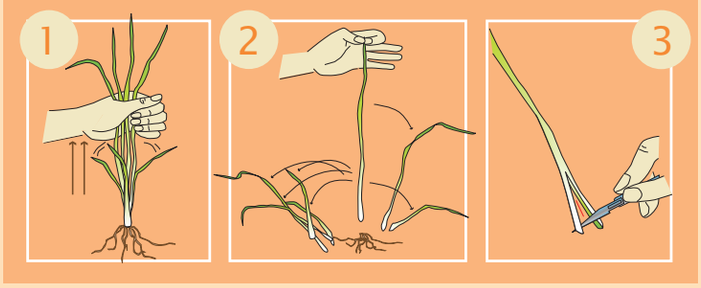
Determining growth stage 30

Growth stage 30 (GS 30) cannot be determined by a date on the calendar, although dual purpose or winter varieties are more predictable.

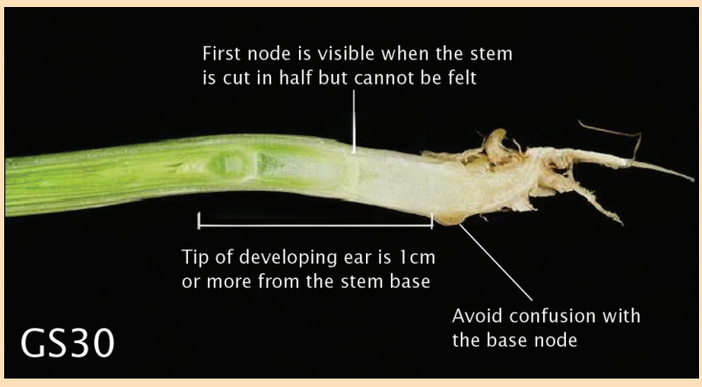
Visual observation of the emerging embryo ear is the only way to accurately assign this growth stage.

How to dissect a cereal plant to determine growth stage

- Pull up a plant and shake the dirt off the roots
- Pass your hand around the plant and draw upwards to identify the tallest leaf (this will be attached to the main stem of the plant)
- Peel off any dying leaves
- Cut the roots from the plant at the stem base
- Cut the stem lengthwise along the stem to expose the embryonic ear.



Growth stage 30: Tip of the embryo ear is 1 cm or more from base of the shoot. No node is detectable. Grazing should cease at this stage to avoid damage to the embryo ear and potential grain yield loss.



Growth stage 30 refers to the development phase when the plant stops tillering and the embryo ear which has formed in the base of each tiller begins to move up the stem.

This phase is also characterised by each tiller beginning to thicken and nodes forming low down on each tiller.

How to pick when GS 30 is approaching

Grazing delays the transition from tillering to stem elongation by a few days. Also the main stem of a cereal plant is usually more advanced in its development than the neighbouring tillers.

To gain an indication that GS 30 is approaching, monitor the main stem on plants that have not been grazed. When these plants begin stem elongation, the rest of the grazed crop will not be far behind.

Establishing an exclusion area in a paddock with weldmesh or portable sheep yard panels can provide a point to monitor crop development.

Growth stage 31: The first node on the stem is detectable and is 1 cm or more above the base of the shoot. There is a space between the node and the base of the shoot. Grazing at this growth stage will damage the embryo ear and result in grain yield loss.