

Winter cereal grazing management

Establishment and grazing of winter cereals

Under dry conditions and where the autumn break is variable, it could be advantageous to sow winter cereals to fill an early-autumn feed gap in perennial ryegrass-based systems, particularly in regions where perennial ryegrass is not as persistent. Winter cereals have a larger seed than perennial ryegrass allowing them hold on for longer in dryer soils. In addition, winter cereals that are sown early offer the benefits of being available for grazing in autumn, providing valuable feed during the autumn and winter when pasture growth rates are slower. If correctly managed and established early, under favourable conditions it may be possible to get two or more grazing's from a cereal crop during autumn/winter, before lock-up for hay or silage in spring.

Variety selection and sowing time

Variety or cultivar selection influences sowing time and expected grazing performance. It is important to consider the maturity of your selected cultivar. The maturity of the cultivar chosen should depend on what the main purpose of that crop is:

- Early maturing varieties should be sown in late May, June or July. If sown too early, they will turn to head in winter and get exposed to frost risk.
- Mid maturing varieties are best sown in May, but if sown too early, they can also run to head in winter.
- Late or very late maturity cereals are ideal for early autumn sowing. They will stay vegetative during winter and allow opportunities for grazing before hay or silage in spring. Do not sow these varieties too late in autumn or in winter however.

Seek advice from your local agronomist to select to select a variety that is best suited to your needs and farming practice. Agriculture Victoria's "Forage Cereals" management guide also provides detailed information on this issue.

KEY MESSAGES

Select a variety that suit your sowing time and expected grazing performance

Graze actively growing crops between three-leaf stage and GS-30

Avoid grazing with hungry stock, gradually introduce stock onto crops by increasing length of grazing each day

Timing of stock removal is more important than stocking rate to ensure cereal survival

Paddock preparation

Paddocks must be prepared well in advance of sowing to ensure maximum establishment of young plants, including adequate weed control, soil testing, and retention of soil moisture. Some of the following practices maybe applicable depending on the soil conditions and cropping system:

- **Liming** may improve the quality of acidic soils if the soil analysis shows a low pH.
- **Very shallow ploughing** may help to prevent the growth of weeds and enhance the activity of microorganisms by introducing crop residues into the soil. This practice is mainly done when the previous crop was also a cereal crop.
- **Shallow ploughing** if the previous crop wasn't also a cereal crop. Ploughing to depths of 10–20 cm encourages the destruction of sprouted weeds.
- **Spraying** herbicides to reduce the weed burden in the paddock. This maintains ground cover, reduces loss of top-soil and also retains moisture that can be used by the following crop.
- **Final surface soil tillage** (including discing) cuts, crushes and mixes the soil
- **Harrowing** breaks crust to an average depth of 6cm, aggregates soil structure, aligns the surface and destroys weeds.

Soil temperature

Most cereals prefer an average daily soil temperature between 15–25°C for good germination. Poor emergence (10–50%) may occur if temperatures are too high. However, some cereal varieties, mostly oats, can be sown at comparatively higher temperatures of up to 30°C with a satisfactory emergence rate (e.g. Outback, Wintaroo & Brusher). Sowing in February and March can be tricky due to high soil temperatures, especially if relying on rainfall to keep crops alive until late autumn when rainfall is more reliable.

Fertiliser

Phosphorus and nitrogen should be applied at sowing to ensure good early plant growth and the build-up of nutrients. Post-sowing nitrogen application should be left until after grazing and should NOT be applied just before grazing due to the risk of high forage nitrate levels (depending on weather conditions approximately three weeks before next grazing to allow nitrogen to dilute in plant). High nitrate in forage can lead to toxicity in grazing livestock, especially under cool, cloudy conditions.

Water availability and sowing strategies

Pre-irrigate

Ideally, the recommended strategy is to pre-irrigate, spray the weeds out, then sow. This gives you control over sowing time and makes weed management reasonably cheap. However, rain after irrigation could make the paddock too wet to sow.

Dry sow and waiting for rain

Sowing into dry soil and waiting for rain can spread the workload and allows the crop to start growing as soon as the rain arrives. Enough rain is needed to maintain soil moisture, start germination and establish the crop. Germination can start at 10mm of rain, but this may not be enough for crop establishment. False breaks can be avoided by selecting a variety in which the maturity matches the anticipated timing of the break. Keep in mind that in-crop herbicides will likely be required if weed control prior to sowing was inadequate.

Irrigating post sowing

Seeds can be at risk of bursting when irrigating post-sowing. The following conditions need to be met if this strategy is going to work:

- quick watering
- good drainage
- dry soil profile
- very shallow seeding (< 25mm) and no soil crusting
- higher sowing rates if establishment is poorer
- no follow up rains.

As with dry sowing, weed control can be difficult.

Sowing rate

Seek advice from your local agronomist to determine the sowing rate that suits your farm and growing conditions. Sowing rates can vary greatly between 40 to 125 kg/ha depending on:

- the purpose of the crop (e.g. early grazing, hay, grain)
- seed size
- germination percentage
- expected establishment
- desired plant density.

Grazing management

When to start grazing cereal crops

Wait until the three-leaf stage when the crop begins to tiller and the root system is strong enough that the plant won't be pulled up from the ground. To be sure, a 'pinch and twist test' should be applied.

Figure 1 When to stop grazing cereal crops



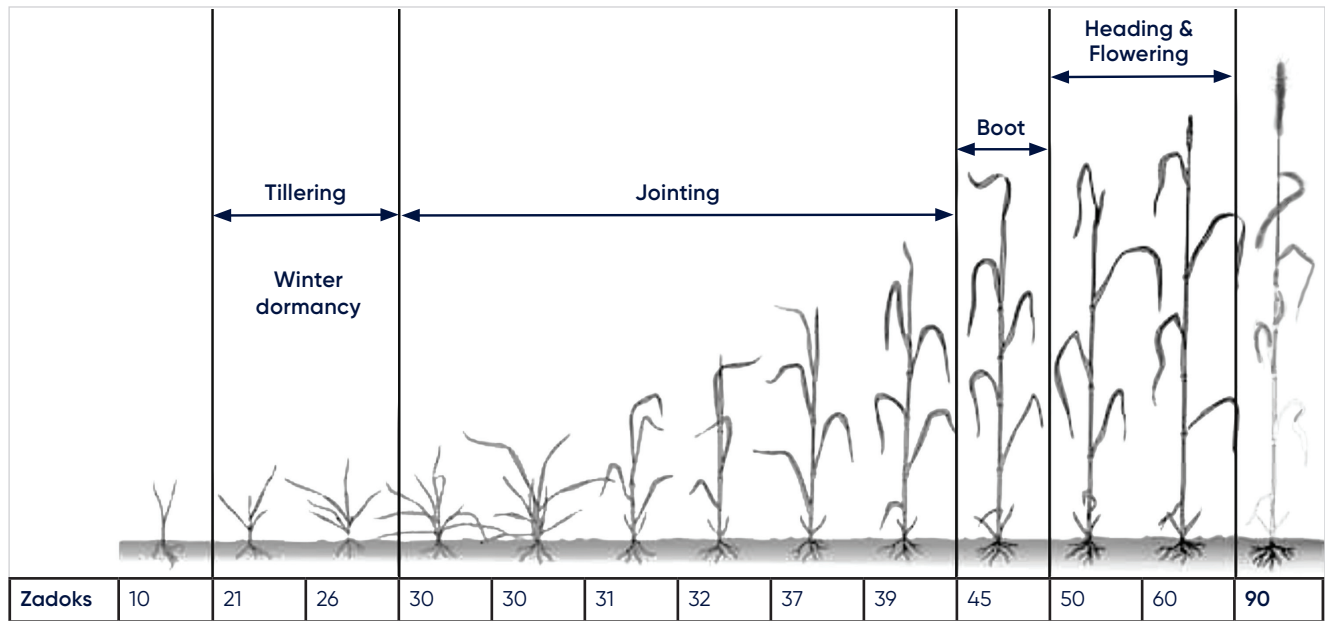
GS30 Start of stem elongation (note leaf sheath extending)

The change in crops from vegetative growth to stem elongation (reproductive growth) is critical when grazing. A quick way to identify the growth stage of your cereal is to feel at the base of the main stem at the soil level and squeeze:

- if the stem does not crush (ie the stem is not hollow) then you know the growing point (node) has not yet come above the ground and you know that your cereal is not past growth stage 30
- if the stem crushes you know that your cereal is at growth stage 31 or more. The node has come above the ground and the stem is hollow below the node.

Heavy grazing should finish before GS30 and 'clip grazing' using light stocking rates can be used past GS30. Timing of stock removal is more important than stocking rate to ensure good recovery and yield on winter cereals.

Figure 2 Cereal growing stage (GS-30)



Animal welfare

To prevent animal health and performance issues:

- Ensure stock are vaccinated
- Graze herds of stock that are less likely to suffer from grass tetany
- Introduce stock to grazing crops carefully
- Never put hungry stock straight onto a young crop. It takes time for rumen microbes to adapt to any changes in the diet. If possible, gradually introduce stock onto crops by increasing length of grazing each day.
- Seek professional advice to minimise the risk of animal health disorders such as, hypomagnesaemia (grass tetany), hypocalcaemia (milk fever) and nitrate/nitrite poisoning.

Some forages, such as wheat can reduce absorption of minerals (magnesium Mg) in the gut of livestock and limit liveweight gains. Consider the use of mineral supplements when necessary to overcome deficiency.

Further reading

Forage Cereals: A Management Guide For Dairy Farmers (Agriculture Victoria)

2019 Victorian winter crop summary

<https://grdc.com.au/resources-and-publications/groundcover/gc109/rules-of-thumb-for-grazing-cereals>

https://www.dpi.nsw.gov.au/_data/assets/pdf_file/0011/288191/Cereals-for-grazing.pdf

<https://www.incitepivotfertilisers.com.au/news-and-insights/agronomic-insights/winter-crop/nutrition-for-grazing-cereals-and-canola-crops>

FOR FURTHER INFORMATION

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