

Management of 'Choice' chicory special purpose crops

Chicory should be first grazed **no earlier than the seven leaf stage** (i.e. plants have seven fully grown leaves). This is normally 8 weeks after spring-sowing. This ensures that plants have well-developed tap roots to improve survival through the growing season.

Aim to feed about 20% of the cows' daily diet (3-4 kg DM/cow) in chicory over a sustained period as the rumen requires time to adjust to chicory like any change in feed type. To do this 6-8 ha of chicory should have been planted per 100 cows.

First year crop

Target covers are: Pre-grazing 25-35 cm height, Post-grazing 5-10 cm height. These are the heights of the leaves, ignoring the stems.

First year chicory will generally take about 3-4 weeks to reach 25-35 cm height depending on the time of year and weather.

So each day an area of chicory (about 0.3 ha per 100 cows) should be fenced off and cows moved onto this break for 2-3 hours. Back-fencing is preferred to ensure good regrowth.

This system provides for a 3 week grazing rotation, but may need to be adjusted if growth is unusually slow or fast.

Dairy cows will readily graze lower than 5 cm and management strategies need to be in place to ensure this does not occur

Factors reducing persistence:

- First grazing before the seven leaf stage
- Treading damage, particularly when soils are wet
- Frequent grazing (< 25 cm pre-grazing height)
- Overgrazing (> 5 cm height)
- Grazing during winter when plants are semi-dormant



Chicory at 30 cm pre-grazing – the recommended height for grazing.



Cows will readily overgraze chicory.

Second year crop

The decision to take a chicory crop through a second year should be made in the autumn. As a guide a minimum of 30 plants per m² are required to achieve a satisfactory yield in the second year (10-12 t DM/ha).

If chicory is taken through a second year, changes are required to overcome the lack of growth from chicory paddocks during the winter and the feed gap filled either from supplements or reduced stocking rate.

Second year chicory plants have a strong urge to go to seed. Careful management is required to minimise the number of plants that have mature stems. Mature stem is generally avoided by grazing cows, reducing the utilisation of DM grown.

To minimise the amount of mature stems the pre-grazing height of the leaves should not exceed 25 cm in the second year.

Letting the leaves grow beyond 25 cm will not accumulate any more leaf, just increase stem growth. This is shown in Figure 1 where 10% of the total annual yield was stem when chicory was cut at 25 cm, increasing to 25% when chicory was cut at 35 cm and 30% when chicory was cut at 55 cm.



Second year chicory sward containing >25% stem. It is recommended that chicory is grazed before this point.

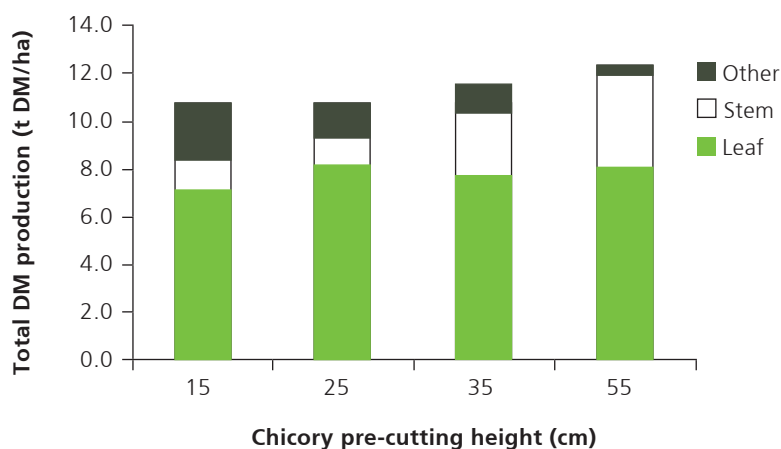


Figure 1. Dry matter production from second-year chicory cut at heights of 15, 25, 35 or 55 cm and separated into the yield of leaf (■), stem (□) and other plants (■).

In second year chicory it is difficult to achieve target residual heights due to stem. As residual height has less impact on yield and persistence than grazing interval, the main concern should be achieving target pre-grazing heights.

Fertiliser requirements

Annual maintenance phosphate, sulphur and potassium are the same for chicory as for ryegrass pastures.

Chicory is responsive to nitrogen fertiliser. If sown with clover, two to four applications of 80 kg/ha of urea are recommended over the spring/summer. For chicory sown without clover, 300-400 kg/ha of urea is needed annually to make up for the lack of nitrogen fixation.



Residual of second year chicory with stem.