

## UNDERSTANDING PASTURE QUALITY



Pasture *quality* directly influences animal performance, health and reproduction, and in combination with pasture *quantity* dictates the economic potential of pasture. The supply of digestible energy is the greatest nutritional limitation to maximizing per head performance of pasture-fed animals.

### *To improve pasture feed quality;*

- 1. Maximize animal consumption of fresh leafy plant material by minimising the content of flowerheads, stems and dead material in pasture.*
- 2. Maintain high levels of clovers and herbs in pastures.*

Pasture quality (nutritive value) largely depends on the ratio of fibrous indigestible cell wall to the digestible cell contents of the plant. Of major importance is the lignification of the cell wall, which directly affects digestibility and hence the ME/kg available from the pasture.

### *Factors that affect pasture digestibility include;*

- **Plant structure** – parts vary in amount of lignified cell wall tissue, e.g. new leaf versus sheath
- **Heading/Flowering** – stem tissue declines in quality faster than leaf tissue, as well as the proportion of stem increasing with flowering
- **Plant age** – lignification increases with age, with exception of clovers
- **Dead material** – this is the main determinant of pasture quality
- **Temperature** – the lignification process becomes more rapid as temperatures rise
- **Anti-quality factors** – endophyte and pasture fungi (e.g. facial eczema) can affect animal performance

- **Fertiliser** – applications can have a small influence on quality, e.g. applying N lifts protein concentrations
- **Pasture species** – quality differs in species, including the relative proportions of leaf, sheath and stem. For example, cocksfoot leaf is of lower digestibility than ryegrass, tetraploids have higher cell wall/cell contents ratio, legumes and herbs are generally of higher quality than grasses, species and cultivars vary in timing of heading and thus timing of quality decline.

## Heading of grasses

Heading date is a means of classifying cultivars into groups. It is defined as the date when 50% of plants have emerged seedheads in a 'typical' year. The actual date is a guide only, with variation (by 2-3 weeks or more) from year to year. The order of heading of varieties remains relatively constant. Seed companies use the terms; early, mid and late to define heading dates.

Early heading ryegrasses have strong winter-early spring growth compared to the traditional mid flowering ryegrasses. They are ideally suited to dryland climates, winter-spring lambing and spring calving systems. Late heading ryegrasses are generally characterized by strong late spring-summer growth, and valuable autumn and early winter growth, but often show significant early spring deficits in growth. They suit dairy and lamb finishing systems with summer moisture which allow expression of their late growth.

Cultivars, even within species, can differ in behaviour during flowering. The degree of aftermath seeding (on-going seedhead development after the initial heading) of cultivars vary, and can have an impact on summer pasture quality and management.