

# Pasture production principles

The rate of pasture regrowth after grazing depends on many factors. Management can do only a limited amount about climatic constraints like those of soil moisture and soil temperature but can achieve a great deal through manipulating the frequency and severity of grazing.

Graph 1 shows a classic "S" shaped regrowth pattern with three phases during the weeks after grazing:

- Phase I is slow, tentative growth after severe overgrazing (a paddock with less than 500kg DM/ha in total is very bare indeed). Most of the leaf area has been eaten and the rate of photosynthesis is low;
- Phase II is the period of most rapid growth when the leaf area is greatest and little sunlight is wasted by falling on bare ground. There's a spell before this phase begins after hard grazing but it can occur immediately after lax grazing;
- Phase III is a period when grass growth slows, as the pasture length increases and more leaves become shaded. The death rate of plant tissue starts to exceed growth rate and the proportion of dead, low quality feed becomes high.


If maximum pasture production was the only objective of

management decisions, a grazing system that keeps pasture in Phase II would be best. Under rotational grazing, this probably means grazing down to 3-5cm at each grazing and allowing pastures to grow to 12-18cm before regrazing. Under a set stocking system, this corresponds to setting a stocking rate so that pasture length is never below the height range of 2-6cm.

However, maximum pasture production is not the sole aim in grazing management. High levels of pasture utilization and animal production per hectare is the major aim.

Repeated lax grazing reduces the photosynthetic capacity of plants but hard grazing in the early winter will overcome this problem. Where feed intakes need to be controlled, pastures often need to be grazed below the optimum levels and control of pastures that are or are about to go into the seedhead stage is important to achieve highest possible summer growth rates and keep pasture quality high.

The need, then, is to vary grazing intensities and severities depending on the season of year, composition and productivity of pastures and level of animal intake required. It is the farm manager's control of these pasture/animal interactions that determines animal production per hectare.

Optimum post-grazing intervals and dry matter levels vary according to different times of year and management situations. For winter on a Southland farm, for example, the curve may be similarly shaped but the time scale would be longer than in the graphed example and divisions between phases could be at levels of pasture dry matter different from those arbitrarily assumed here. 

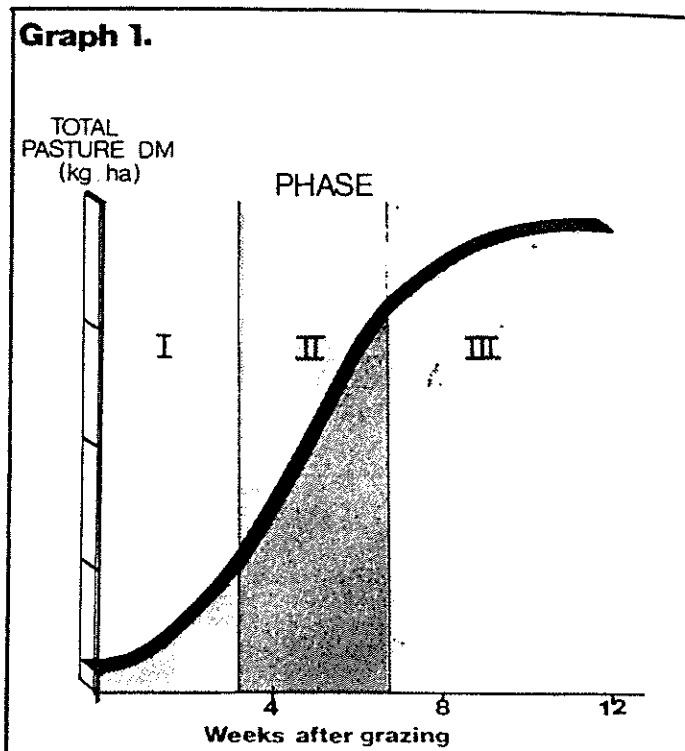
1. Two factors that influence pasture regrowth that the farmer can not control are:

2. Copy the graph and give it a title.

3. For each phase of growth state:  
 (i) the rate of growth.  
 (ii) the reason for the rate of growth.

4. Why would a farmer not attempt to maintain pasture growth at phase II?

5. Why is it important to control pastures that are about to go into the seed-head stage?



It's important to keep ryegrass in vegetative growth. The sample at left is poor feed from a pasture that will regrow poorly.