



RED DEER IN A FARM SYSTEM

Feeding deer

How much do deer eat and what drives intake?

The feed requirements of deer differ depending on their age, stage of growth, the season, feed quality, environment and management. To maintain good levels of production throughout the year the feed supply has to match the stage of production and seasonal requirements in terms of usable or 'metabolisable' energy ('ME'), protein and trace elements.

In the UK, pasture is the basis of the majority of deer feeding systems, however pasture growth is not as well matched to the deer production system as it is to sheep, beef and dairy systems.

Intake is influenced by the amount of pasture offered to the animal (referred to as pasture cover, pre-grazing mass or height) and the quality of the pasture as poor quality pasture is digested more slowly by the animal, therefore reducing intake.

It is important to understand the different feed requirements for maintenance and growth.

Among the issues that need to be understood are seasonality and its effects on the growth of young deer, their feed requirements and practical day-to-day management.

Deer will make nearly 40% of their annual weight gain in spring, so supplying the highest quality pasture is a major priority from as early as late March when the deer growth spurt starts.

A failure to meet target weights gives early warning that feed management needs fine tuning. This is important for deer because of their seasonal growth cycle. An ability to grow well in spring and summer must be efficiently utilised, since missed opportunities at that stage cannot be caught up in winter. Ideally, producers should weigh at the end of autumn, winter and summer to monitor progress.

Balancing supply & demand

A major limitation to deer production from pasture is the imbalance between the seasonal forage supply and the animal demand that occurs due to the late spring calving of deer compared to sheep and cattle. Ryegrass/white clover pastures produce high quality feed in spring, with peak production in late spring, followed by reduced summer growth and a decline in quality. The addition of specialist pastures and crops can be used in the farm system to provide high quality feed at appropriate times of the year.

Appropriate sources

Feed supply

The predominant feed source for deer is permanent pasture (ryegrass/white clover). Winter or summer crops (swedes, rape, turnips and fodder beet), lucerne, silage or grain are used to improve the performance at different times of the year. Seasonal pasture curves and pasture quality vary widely throughout the UK.

Research has shown that animal performance is affected by pasture quality.

Typical ME values of feeds

High quality	Spring pasture (short)	12.0 MJME/kgDM
	Barley grain	12.5
Medium quality	Pasture silage	9.0
	Maize silage	9.5
Low quality	Wheat straw	7.0
	Aged meadow hay	7.0



RED DEER IN A FARM SYSTEM

Feed budgeting (Feed planning)

Understanding the interaction between feed supply and animal requirements at different times of the year is critical in improving animal productivity and farm profitability.

The aim of feed planning is to relate the feed resource on farm to the animal needs during the year. It will identify feed shortages in advance which mean options such as applying nitrogen, reducing stock numbers, cropping or purchasing supplements can be taken. Some of these changes may occur over more than one season. Feed planning will also identify feed surpluses in good seasons.

- Good feed planning means better use of the available pastures and greater deer productivity.

The following information needs to be calculated when performing a feed budget:

- Average winter length
Days where pasture growth drops below stock demand.
- Average winter growth rates.
- Effective grazing area
- Winter stocking rates
Classes and numbers (including other stock) plus any winter sales policy
- Supplements available (and an estimate of feed quality)
Hay, silage etc and including crops grown or possible grazing off
- Nitrogen or N based fertiliser
The time of application and expected growth rates. Nitrogen will not grow grass if applied at the wrong time, when temperature or moisture is limiting.
- Pasture and Feed utilisation
Varies from 85% on intensive operations to 65% on extensive situations

Other considerations

- Planning the winter feed
- Managing spring feed surplus
- Fawning and lactation
- Weaning decision

RED DEER IN A FARM SYSTEM



Feeding systems

Introducing deer to new feed

Animals adapt slowly to a change in diet from pasture to some other feed types i.e. from grass to lucerne or brassicas. The microbes in the rumen have to change to use the new feed and this takes time, (2-3 weeks before the animal can achieve maximum intake). Managing this transition badly can result in low or no animal growth for the period.

- For best results introduce animals to the diet gradually giving stock time to adjust to the new diet by allowing access to pasture and silage/hay for the first few days. Monitor animals closely as they are introduced to new feed.
- To maximise animal performance avoid short periods on different feeds ie once they are introduced to the crop make sure they can stay there for a reasonable period. Hinds and calves can be introduced to a crop prior to weaning with calves then weaned back on to crop.

Brassica crops

Ensure the crop is mature before introducing the deer and allow access to grass, silage or hay.

Fodder beet crops

The nutrient composition of fodder beet indicates that it should be supplemented about 50% with hay/silage or pasture to balance the diet. Ideally the silage or hay should be fed to animals before they access the fodder beet. The protein content of the fodder beet is low (Crude protein = 10%) so protein can become limiting. However management strategies such as the importance of the age of animal or length of time on a fodder beet crop are not well understood. Anecdotally farmers seem to be using much less supplement and not losing animals although after about 60 days stock can lose condition quickly.

Grain

Small amounts of grain fed with grass require little introduction as deer will adapt readily. If larger amounts are required (>25% of the diet) then adjustment is required, starting with a small amount per animal and gradually increasing the amount over a week to 10 days.

Lucerne

There is growing interest in growing lucerne for deer in summer dry regions. Lucerne is a protein rich source of feed and it retains its high quality for much longer than grass. Roughage (hay or straw) and salt both need to be provided when grazing lucerne to make sure there are no health issues

Water requirements

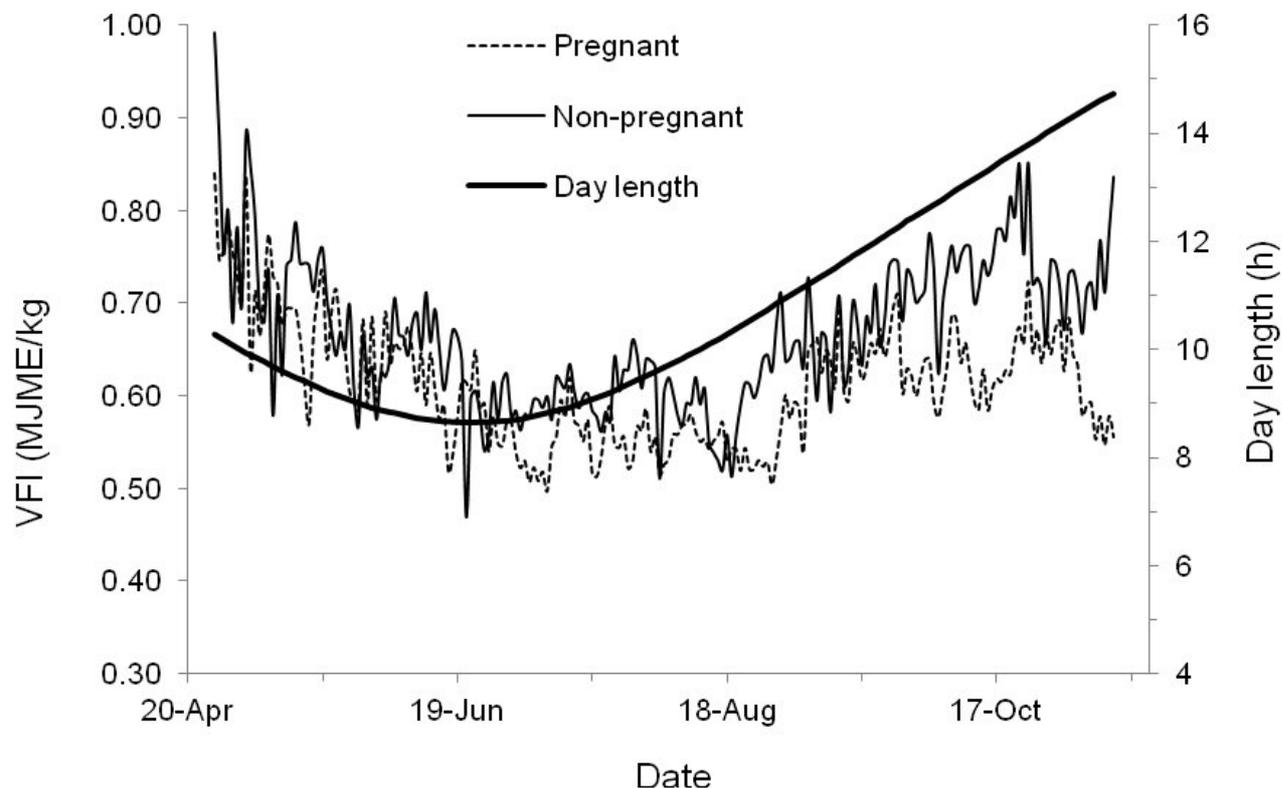
Deer require or consume varying amounts of water and different stages throughout the year. Fresh Clean water should be available to all stock all of the time.

RED DEER IN A FARM SYSTEM

Intake requirements

The potential feed intake of animals is determined by physiological state (e.g. pregnancy, lactation, sex) and genetics. The animals' health and the feed offered determine whether the potential is reached.

Red deer exhibit strong seasonal responses to day length meaning changes in food intake and subsequently live weight gain throughout the year. In general these are: low intake and low liveweight gain in winter (short daylength) and high intake and liveweight gain in summer (long daylength).



(Predicted mean daily voluntary food intake of pregnant and non-pregnant hinds relative to day length (hours between sunrise and sunset) during indoor feeding. (Scott, I.C., Asher, G. W., Barrell, G.K., Juan, J.V. (2012).)

Intake is also influenced by the amount of pasture offered to the animal. In all seasons, liveweight gain increases with increased pasture availability, up to 6-8 kg DM/hd day offered. This is about the same as a post-grazing residual of 1500-1600kgDM/ha or 8cm. The more that is offered, the more that can potentially be eaten, up to a maximum where increased available pasture dry matter has no more influence on intake and liveweight gain.

However, increasing pasture allowance does not compensate for the seasonal differences in intake and liveweight gain expressed by the animals. The feed intake and liveweight gain of red deer are also sensitive to pasture quality which is influenced by the time of year.