

Preparing a winter feed budget

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Take home messages:

- Make sure you prepare a feed budget early for the winter months to ensure maximum profitability over the period.
- Don't underestimate the nutritional requirements of your herd, make sure your livestock have enough feed for maintenance and production.
- Work out what feed that you have for the winter and the nutritional content of this.
- Use this information to calculate if you have an energy surplus or deficit and manage your herd or feed accordingly.

To effectively manage your feed over the winter period, preparation of a feeding budget is imperative. By calculating early on how much feed you will need to use over this period, you will be able to budget the feed you have accordingly and prepare earlier. This technical article aims to help you understand the basic feed requirements of your stock and the energy potential of your home-grown feed. You should then be able to work out whether you have a surplus or deficit of energy and understand how to manage either instance.

What are the nutritional requirements of my herd?

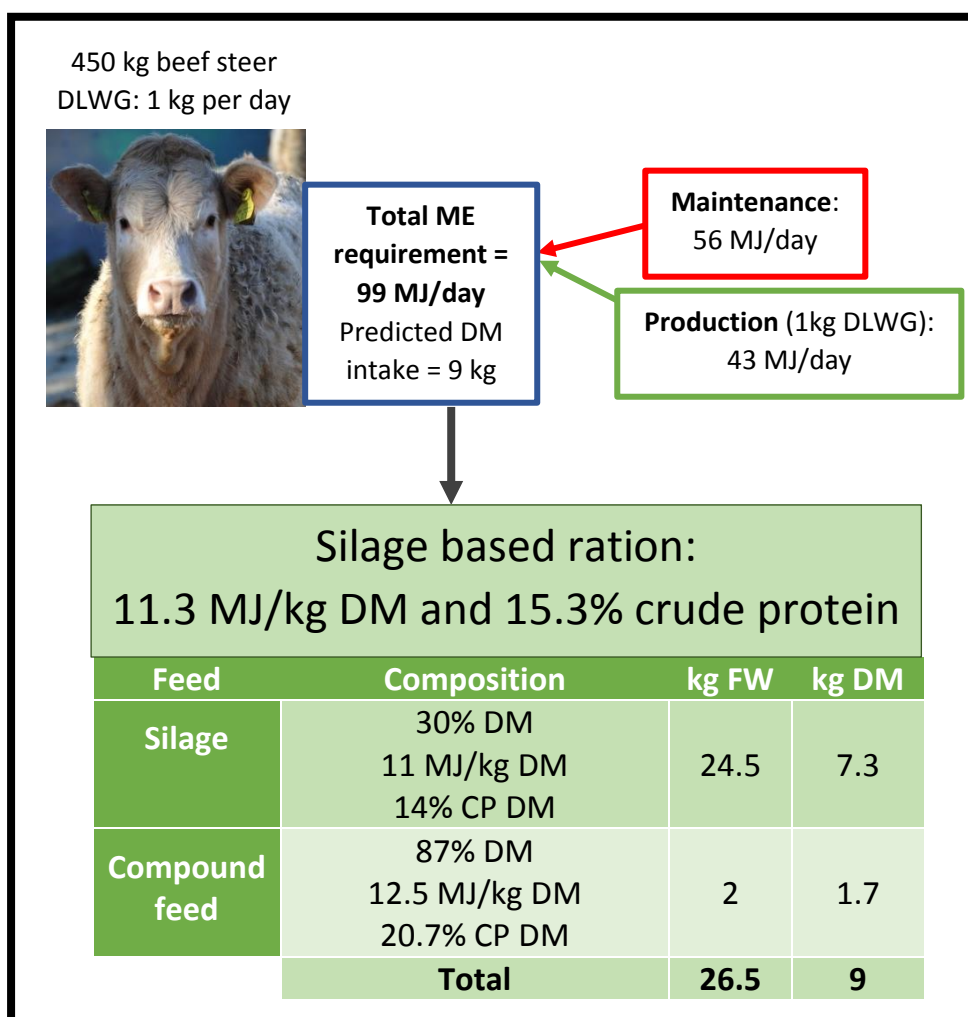
To understand the protein and energy requirements for your herd over the winter, you must first segregate the herd into the different classes of stock. For example, in a beef system, growing stock will have different requirements to in-calf heifers. The daily metabolic energy (ME) requirement for each class of animal should be calculated. All animals have a nutritional maintenance requirement that is required to stay alive and keep body weight constant. Maintenance does not include the energy required to support production, such as pregnancy, growth or lactation. Most farmed livestock are not in a maintenance only state but need additional feed to support production. For example, of the total ME required by a 600 kg dairy cow that produces 30 kg of milk, only 31% is needed for maintenance. On the other hand, a 450 kg growing beef steer of a medium maturing breed, that is aiming for a daily liveweight gain of 1 kg per day, requires 56% of the total ME requirement for maintenance. In both scenarios, although more so in the dairy cow, a substantial bulk of the necessary energy consumption is for production. Failure to provide adequate nutrition will result in unproductive and unhealthy stock, which will cost more money in the long run. Protein requirements should not be forgotten and be balanced with energy requirements.

It is also important to remember that the energy and protein requirements of the animal must be matched within the expected (or actual if known) dry matter (DM) intake of that animal which increases steadily with age and metabolic live weight of the animal.

Detailed ration requirements are available for [beef cattle](#) and [dairy cows](#). Some information on requirements of [ewes](#) is available, although information within the sheep sector is [being updated](#). For an overview of annual ME demands see '[Feed planning for cattle and sheep](#)'. Box 1 shows an example of how to formulate a ration for a 450 kg growing steer, using data from the AHDB beef ration calculator.

The role of minerals, trace elements and vitamins must not be forgotten in ration formulation. All are necessary for maintenance, enhancement of production and health.

Box 1: An example silage based ration formulation for a 450 kg beef steer with a DLWG of 1 kg per day. The [Beef Ration Calculator from AHDB](#) was used to formulate the ration. For more information, see '[Practical Beef Nutrition](#)' and seek advice from a suitably qualified nutritionist.



How much energy does the feed I have contain?

The feed that is available to your livestock for the winter will depend on your system. Housed animals will require conserved forages and bought in feed; although grazed animals will still require these, they will be supplementary to available pasture. The ME value of available feed must be calculated on the dry matter (DM) value of the feed.

Pasture

Before winter, it is best to plan which fields will be grazed during winter turnout. This will enable you to work out how much cover you have and, with the use of a sward stick, estimate the DM value for each field. If you will not be grazing your herd throughout winter, it is still a good idea to keep an eye

on the growth of the pasture regularly. An understanding of how well the forage is growing may mean that you can start grazing earlier and save money.

Different land management practices and sward composition will result in diverse nutritional content from field to field. For more information on what energy supply to expect from your field, take a look at '[Feed planning for cattle and sheep](#)'.

Conserved forage

The best way to understand how much energy your silage will provide is to take samples and test the quality. Production quality will vary between seasons, and so analysis should be completed every year. Outputs on the DM, ME, crude protein and pH, will help you plan how best to use your silage. You will also need to factor in how much feed will be wasted through storage or feeding, which is normally estimated at around 5%. Once this is accounted for, the final value can be added into your feed budget.

Bought in feeds

The energy and protein contents of concentrates and straights can be established from the supplier. For home-grown straights see the [Mini Feeds Directory](#) for guidance.

Mineral and nutrient provision – don't just hope it will be OK

Bought in compounds will contain appropriate levels of minerals, trace elements and vitamins for the class of stock formulated for. If feeding your own forage, it is useful to complete testing to ensure livestock are not deficient in any minerals and trace elements. Ensure that any bags of minerals added to a home mix contain the full spectrum of minerals, trace elements and vitamins required by the class of stock being fed. However, care must be taken with overfeeding, as some minerals and nutrients can be toxic or may interfere with the absorption of other elements if present in excess.

Work out your energy balance

Based on the information you have collected on your farm and the estimated number of days that your stock will not be grazing, the following sum works out your energy balance:

1. First work out the energy required

Energy required (MJ ME) = Number of animals x daily energy requirement/head (MJ ME) x estimated number of non-grazing days

2. Work out the energy balance

Energy balance (MJ ME) = Energy supply available through on-farm-feed (MJ ME) – Energy required (MJ ME)

The energy balance outcome will be either a positive or negative number. If you have a positive energy balance, read below on energy surplus. If you have a negative energy balance, read below on energy deficit.

Energy surplus

If you have too much feed, you may want to reduce your utilisation of bought in feed and rely on your pasture or home-grown conserved forage. It is important to take into account whether younger animals will be able to consume more forage where this lowers the energy density of the ration. If you have enough room, you could also consider increasing stock numbers. However, in both cases, don't forget that the protein must be matched sufficiently to energy inputs. You could also consider selling surplus home-grown silage for extra revenue.

Energy deficit

If you do not have enough feed, you can explore options to buy in forage. However, this is costly and the quality cannot always be relied on. Therefore, firstly consider alternative solutions. Can you sell surplus stock or cull unproductive animals as soon as possible before winter? If the weather permits, winter housing systems could utilise extended grazing, keeping livestock out as long as possible in the autumn and turning out early the following spring. Ensure that your stock remain healthy thereby maximising feed conversion potential on adequately balanced rations so that no feed is wasted.

Calculating the overall energy balance for your whole farm will be more complicated than just one straightforward equation. There are several useful spreadsheets available online to help you break down the requirements on your farm, for two examples, see either the [Tried and Tested booklet](#) or [AHDB Beef and Lamb](#). Alternatively, complete our E-learning module on preparing a winter feed budget.

Keywords: Nutrition; feed; winter; silage; pasture; budgeting