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**Straw Based Diets for Dry Suckler Cows**

Nutrient requirements for overwintering spring calving suckler cows are relatively low and straw based diets can be an effective way of meeting them. The cost effectiveness of the rations will depend on how much you pay for straw and what alternatives there are (silage/hay). The energy requirements of pregnant cows increase by around 50% in the last 3 months of pregnancy. A common approach is to use the cow's fat reserves from the summer months over the winter period, thus feeding a flat rate until calving. This is acceptable for the 'average' cow - thin cows will need additional supplementation.

### Key features of straw based diets for dry suckler cows

To make straw-based diets successful, the limitations of the straw as a feed must be acknowledged and corrected. Straw is low in energy, low in protein and very deficient in minerals. There are considerable variation in straws according to their species, variety, growing conditions and weather at harvest. Table 1 shows average analysis for the different straws.

**Table 1: Straw composition**

Straw Type	ME (MJ/kg DM)	Protein (gCP/kg DM)
Oats	6.8	35
Barley	6.3	35
Wheat	6.0	35

When selecting straw for feeding a useful guide is the ratio of stem to leaf. Digestibility of the leaf is around 56%, compared to that of the stem, which is around 37%. Choosing a straw with a higher leaf to stem ratio will result in a higher D-value and consequently, higher intakes.

Regardless of D-value, all straws have very low protein content and it is vital to get the protein supplementation right otherwise utilisation of the straw (around 80% of the diet) will be impaired. There is insufficient protein - in particular effective rumen degradable protein (ERDP) - in the straw to meet the requirements of the rumen bugs. These rumen bugs digest the straw into a form that the animal can use, and they need protein and other nutrients to be effective.

The 'book' value for the energy content (ME) of straw is 6.6MJ/kg DM and this can only be achieved if there is sufficient ERDP. If ERDP is lacking, the energy value of the diet will be lowered by around 30%. Insufficient protein supply would mean the cows not getting enough energy and would likely lose more weight over the winter. They may also suffer from other problems such as rumen impaction.

Furthermore, feeding a low protein supplement alongside straw will result in insufficient bacterial protein produced in the rumen. This bacterial protein is vital for supporting maintenance and calf growth. If insufficient protein is available the cow is then forced to mobilise lean tissue rather than fat, and if the deficiency is prolonged it could result in poor calves born from thin, weak cows. Colostrum quality may also suffer as well as causing long term effects on fertility.

### Minerals

The type of mineral required will depend the type of protein supplement being used, often protein sources are good for phosphorus. Ensure that the mineral supplement is designed for suckler cows on straw based diets and contains high levels of trace elements and vitamins.

**Note:** Supplements for straw based diets for spring calvers should have a high protein content. If cows are fat and need less supplementation then the protein content of it needs to be higher.

## Ammonia treated straw

Ammonia treated straw requires little or no supplementation with extra energy or protein for the spring calver; therefore higher levels of a mineral supplementation are required here. In addition, the mineral mix should contain sulphur, which is required by the rumen bacteria to utilise the non-protein nitrogen in the treated straw. This is also the case if urea liquids or licks are fed with straw.

**Table 2: Example straw based diets for a 650kg suckler cow, 8 weeks from calving losing -0.25kg/day (kg fresh weight/day/head)**

	A	B	C	D
Straw ad-lib	9.5	9.5	9.5	7
Barley	0.5			
Rapemeal	1.8			
Pot ale syrup (PAS)		4.0		
Wheat dried distillers grains (WDDG)			2.2	
Draff				15
Minerals	Yes	Yes	Yes	Yes
*Cost/day	88p	75p	88p	73p

\*Costs excluding minerals: straw £50/t, rapemeal £195/t, barley £110/t, PAS £70/t, WDDG £185/t, draff £25/t

The above table is for cows needing to lose around 1/3 of a condition score over the winter period. One condition score is around 13% of a cow's bodyweight. It would be ideal to split the cows into 2 or 3 groups according to their condition and feed appropriately.

The average weight of the cows should be known as well - the difference between diets for a 600kg cow and a 800kg cow is around 16MJ.

## What about cows outside?

Cows out wintered will require 10-15% extra energy, this needs to be factored in on straw diets as well.

## Rules of thumb for straw based diets

- Ensure diets meet the requirement of rumen bugs, this is normally 9% CP in diet DM (90gCP/kgDM)
- Make sure straw is clean and palatable
- The diet is very dry, so ensure a plentiful supply of clean water
- Ensure all cows have good access to the supplement and the straw (ring feeders in a corner of the shed can cause intake problems)
- Don't scrimp on the mineral supplement, ensure it is suitable for suckler cow straw diets with good levels of trace elements and vitamins
- As calving approaches consider adding silage with the straw to ensure cows get a smooth transition if they are on a silage based diet post-calving

The key to success is to ensure that the nutrient requirements of the rumen are being met and the rumen bugs will in turn feed the cow.