

Draff for Sheep on Crofts and Smallholdings

Practical Guide

Draff is the fibrous residue remaining after sugars have been extracted from malted barley in the malt whisky production process. Draff from grain distilleries also contains residues from cooked wheat or maize. Extraction with hot water removes the sugar from the malt, thus concentrating other nutrients such as oil and protein.

The process also removes soluble minerals such as sodium, potassium, magnesium and some trace elements. In diets that contain more than 50% draff need special consideration for mineral supplementation. The high level of unsaturated oil in draff depresses the activity of rumen bacteria which leads to reduced digestibility, low intake and poor performance.

Draff contains virtually no potassium – an essential element which is present in adequate amounts in all other foods and for this reason is not normally included in standard mineral mixes. Whether this is required will depend on what other feeds are in the ration.



Image source: KW Alternative Feeds

Draff is a highly palatable, moist feed that is a good source of digestible fibre and protein, suitable for use in cattle and sheep rations. Unlike some other distillery feeds, draff has a low to medium copper content therefore can be safely fed to most breeds of sheep (caution still advised when feeding to breeds susceptible to copper toxicity- such as texels).

Composition of draff:

Figure 1:



Figure 1 illustrates the composition of draff compared to barley. The higher content of digestible fibre and lower content of starch in draff minimises the risk of acidosis and therefore allow high levels to be fed safely.

Figure 2:

*Dry matter (g/kg)	*Metabolisable energy (MJ/kg DM)	*Crude Protein (g/kg DM)	Oil (g/kg DM)	Neutral detergent Fibre (g/kg DM)	Sugar (g/kg DM)
180 - 240	10.4 - 11.1	110 - 200	87	620	13

*analysis can vary

Key features of draff:

- High fibre
- Moderate ME
- Low calcium, potassium and sodium
- Low-medium copper content – care with sensitive breeds of sheep
- High oil – watch for rumen function

Recommended feeding rate:

Pregnant Ewes

- Up to 3kg, typically no more than 2kg/head, as a substitute for forage and some concentrates
- Maximum safe limit is 1kg draff per 25kg ewe liveweight
- Ad lib feeding in late pregnancy is **not** advisable due to high risk of prolapse
- Mineral/vitamin supplement is vital due to low level of minerals in draff

Example ration for a 65kg blackface ewe, carrying twins, 6 weeks pre-lambing:

Feed (kg)	Draff + Hay (kg)	Draff + Silage (kg)
Draff	1.5	1.5
Hay	1.0	-
Silage	-	4
Ewe nut (18% protein)	0.25	-
Ewe Min/vit	0.02	0.02

*Based on silage at 25% DM, 10.5 ME, 10%CP, draff 23%DM, 11.1 ME, 20% CP, hay 85%DM, 8.6ME, 8.5%CP

Store lambs

- Changes to the diet should be made gradually and make sure intakes are being achieved by the whole group
- Draff/ silage mixtures are more suited for store lambs or long keep finishing
- Rule of thumb 1kg draff per 10kg liveweight

Example rations for 30 kg castrated lamb growing 100 g/day

Feed (kg)	Draff + Barley (kg)	Draff + Silage (kg)
Draff	3	2.5
Silage	-	1
Barley	0.1	-
Lamb Min/vit	0.02 ⁺	0.02

*Based on silage at 25% DM, 10.5 ME, 10%CP, draff 23%DM, 11.1 ME, 20% CP

⁺Specialised draff mineral required on draff/cereal diet

Finishing lambs

- Can be fed ad lib, typically up to 50% of their dry matter intake
- Rule of thumb 1kg draff per 10kg liveweight, supplemented with around 0.5 kg of cereal/sugar beet pulp to achieve liveweight gains required
- Draff fed to appetite supplemented with 0.5kg sugar beet pulp works well for hill types for a slow but good finish as lambs achieve higher weights without getting overfat
- Specialised draff mineral necessary on a draff/cereal ration
- Addition of limestone (feed grade) added to draff improves the digestibility significantly by forming calcium based soaps with the unsaturated fat (high in draff)
- High levels of unsaturated fats increase the demand for vitamin E therefore choose a mineral with a high vitamin E level

Example finishing ration for 35 kg castrated lamb growing 150g/day

Feed (kg)	Draff + Barley (kg)	Draff + Sugar beet pulp (kg)
Draff	3	3.5
Barley	0.3	-
Sugar beet pulp	-	0.2
Lamb Min/vit	0.02 ⁺	0.02

*Based on silage at 25% DM, 10.5 ME, 10%CP, draff 23%DM, 11.1 ME, 20% CP

Storage

When draff supply is higher than short term requirements the surplus should be stored under air tight conditions to prevent microbial deterioration. Draff can be stored by en-siling in clamps alongside silage during the summer months. In practice the quantity of surplus draff which can be preserved in this way is restricted by the availability of clamp space and the limited duration of the grass silage harvest. Effective storage requires experience and losses can be high if not undertaken with care.

Draff can also be ensiled on it's own in a pit or temporary silo. In order to reduce dry matter losses it's important to compact the draff as much as possible.



Tips for storing draff:

- To avoid pit overheating leave draff to sit for half a day before building up
- Pit should be side sheeted
- Build up draff in layers and ensure each layer is well compacted
- The weight of a tractor is generally too heavy and will sink therefore use of a front loader, telescopic handler or a quad bike to roll each layer works well to exclude as much air as possible
- Using white salt to dust over the top before sheeting can aid in preserving the draff and preventing mould spoilage
- Fold inside sheets
- Add two top sheets minimum (ideally three)
- If not sealed appropriately then mould can appear very quickly
- Do not feed any visibly mouldy draff to sensitive stock- pregnant animals Minimise exposure to air and rain when emptying the pit – re-sheet daily after every removal from pit



Options for storage on a smaller scale:

This is an area that needs further exploration but some options for storing draff on a smaller scale is to use a large, clean plastic container such as; propcorn barrels, plastic tattie boxes (or sheeted wooden tattie boxes), plastic fish boxes (large boxes used for transportation), dye drums or silage additive barrels.

- Thoroughly clean the container of any residual material
- Sheet the sides and top of any open containers to ensure air tight conditions
- Pour the draff into the container and ensure it is well compacted, excluding as much air as possible. For example, it can be packed in by using the back end of a digger