URGENT NEWS

No 179: Potatoes for Cattle

Potatoes for Cattle

With increasing feed ingredient prices and short supplies, there is a need to consider all suitable alternative feed materials. One option this year may be potatoes as the unprecedented wet weather has resulted in many potatoes not being of saleable quality.

However a few practical points should be considered when feeding potatoes to cattle.

Nutritional value

Although high in moisture (20% dry matter), potatoes are highly digestible and a good source of energy (ME 13 MJ/kg DM).

They are rich in starch (57% DM basis) but low in protein and fibre (11 and 2.6% DM basis respectively). The protein in fresh potatoes is readily soluble in the rumen.

Potato starch is in a granular/crystal form. Due to this structure, the rumen degradability of the starch tends to be slower than wheat or barley and somewhat similar to maize grain. The rumen by-pass starch provides a good source of glucogenic energy but care is needed in ration formulation to avoid excessive starch entering the small intestine resulting in digestive upset. This is a key consideration in upper feeding limit recommendations for potatoes.

Potatoes can be a replacement for some cereals and forages. On an energy basis, 1kg potato dry matter can replace between 970-990g of barley or around 910-925g maize (DM basis)

Similarly, solely on the basis of metabolisable energy, 1kg potato dry matter can replace around 1.2kg of grass silage, or 1.1kg of maize silage (DM basis), dependent on their energy value. In times where fodder is in short supply this can be a useful option.

However, such a replacement will not supply the forage fibre contribution which must therefore be balanced to avoid inducing acidosis. This is particularly important when wet and/or high acid loading silages are being fed as part of the ration.

Feeding rate

On a fresh basis, up to 9-10kg/head/day can be fed to lactating cows. At 20% dry matter, this can replace around 2.3kg of cereals (fresh basis)

When feeding potatoes, ensure that the total ration is balanced for all nutrients beyond ME, particularly metabolisable protein, NDF, minerals and vitamins, starch and rumen health.

Production parameters

Milk production and milk quality is not significantly affected when potatoes replace a moderate level of cereal in the diet. However there have been some reports where feed intake was depressed which may have been due to soil contamination.

Practical Considerations

- Potatoes pose a risk of choking and should not be fed whole. Chopping or crushing will reduce this risk. Small or frozen potatoes pose the biggest threat to choking and must be carefully processed before feeding.
- Excess soil can be a problem which can decrease the intake significantly and affect rumen function. Beware of stones when feeding potatoes.
- Avoid feeding green and sprouted potatoes as these are high in glycoalkaloids, which can be toxic to cattle.
- Rotten potatoes should also be avoided.

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- Store potatoes for stockfeed to minimise sprouting or rotting. This is not easy and as such rapid consumption of the delivery is often the only practical solution
- Introduce potatoes slowly to allow rumen microbes to adapt to the starch supply.
- Potatoes are low in minerals and vitamins and as such the balance in the total diet must be checked.
- Feed values may differ slightly for different varieties (there have been over 150 registered varieties in UK). The composition table below provides a useful guide.

Further information can be obtained from the Frank Wright Trouw technical department on 01335 341102.

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Composition

Nutrient	Unit	Potatoes
Dry Matter	%	20 – 22
ME	MJ/kg DM	12.5 - 13.40
Starch	% DM	57 - 69
Sugars	% DM	4.0 - 7.3
Protein	% DM	9.5 - 10.8
Oil	% DM	0.2 - 0.5
Fibre	% DM	2.7
NDF	% DM	7.3 - 8.5
Ash	% DM	5.3 - 7.3
MPB	g/kg DM	30
MPN	g/kg DM	76
MPE	g/kg DM	106
PAL	meq/kg DM	1200
Calcium	% DM	0.04 - 0.09
Phosphorus	% DM	0.2 - 0.28
Sodium	% DM	0.02 - 0.06
Potassium	% DM	1.3 - 2.4

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