

Advice on making the most of liquid feeds

Harness liquid feed assets

Liquid feeds have been popular with producers for many years. But with a range of blended products now being offered alongside traditional liquid co-products from the human food industry, such as cane molasses and British beet molasses, choosing the right liquid feed is a challenge in its own right.

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Be clear about exactly what you want a feed to do. That's vital when looking at the specific types of liquid feed, according to KW nutritionist Richard Wynn. "For liquids, there are four main properties that need to be considered – binding ability, palatability, energy content and protein supply.

"And you also need to be very clear about the true cost of the products, remembering to compare value per unit of energy or protein supplied, not just on a cost per tonne basis," adds Dr Wynn. "Dry matter content can also vary widely – from 42 to 76% – and has a big impact on the 'true' cost, with some specifications quoted on a dry matter basis and others on an as-fed basis."

Liquid feeds are challenging some of the dry feeds available at the moment, in terms of their cost-effectiveness for supplying energy and protein.

"And, as the cost of dry straights has risen, liquids are now able to stand alone and compete directly on price," says Dr Wynn.

"British beet molasses, for example, now costs around 15.5p/10MJ ME – cheaper than rolled wheat, at 17.5p/10MJ ME, and close to some of the most cost-effective dry straights, such as sweet starch.

"It means that in many cases ration costs can be reduced by replacing some of the expensive cereals in the diet with a good value liquid feed, and get the extra benefits absolutely free."



Richard Wynn: "Liquid feeds are now able to stand alone and compete on price"

Liquid feeds are highly effective in binding the different components in the ration together to help prevent 'sorting'. It's a problem that can substantially increase the risk of acidosis if the rumen doesn't receive a fully balanced ration in each mouthful.

Research carried out by Frank Wright Trouw, for example, found that ration sorting was a problem on 54% of the farms studied.

Prevent sorting

"Cows digging 'nose holes' into the feed mix is an obvious sign of sorting and adding a liquid feed is an effective way to reduce that selection," says Dr Wynn. "It's also an important point for rations that are dry or contain a large amount of variable quality silage or cereals. Liquid feeds are often used to reduce dustiness and help to make the ration more palatable, thereby increasing intakes."

Increasing feed intake is probably one of the most common reasons for including liquid feeds and is a function of both increased palatability and improvements in rumen fermentation efficiency. The

overall result is an increase in milk yield, with figure 1 showing how the rapidly available nutrients in liquid feeds help kick-start fermentation, particularly when added to diets low in rumen available energy.

"It's the 'sugars' or simple carbohydrate found in liquid feeds that supply the initial 'burst' of energy needed to get rumen fermentation started," explains Dr Wynn.

"The aim is to ensure that the rumen microbes have a constant supply of energy, and it's often difficult to achieve this without a liquid feed.

"In addition to this rapidly available energy, liquid feeds derived from the brewing and distilling industries contain yeast extracts that Trident research work has shown to stimulate rumen microbial growth.

"It's a benefit over and above the nutritional content, further enhancing fermentation efficiency."

Spey syrup, for example, is a co-product from selected Scottish whisky distilleries, so it not only contains high levels of protein (35% on a DM basis), but also has the majority of its rapidly available energy in the form of yeast cells.

Additional sugars

When it comes to actually choosing a liquid feed, start by working out the main reason for using one. If it's just straightforward dust suppression or preventing sorting within a ration, then small amounts of a standard low-cost liquid blend will be adequate for the job.

"The only point to remember is that there are now some specific blends designed to match the protein content of balanced TMRs, so they can be added to

an existing mix with minimal need to change the overall ration formulation," adds Dr Wynn.

The main decision is then whether simple carbohydrates and additional sugars are required in the ration, or if there's a need for extra protein or both.

"Additional sugars are usually required where grass silage sugar content is low, or feeds like soya hulls are being used to supply digestible fibre rather than molassed sugar beet feed," says Dr Wynn.

"High performance dairy rations typically require a minimum of 7% rapidly available sugars and simple carbohydrates in the diet, with liquid feeds the most cost-effective way to achieve these levels.

"Fed alongside good levels of starch, digestible fibre and structural fibre, it means that the rumen energy supply should be optimised without risk of acidosis.

"The need for additional rumen degradable protein – the main type of protein in liquid feeds – is likely where large amounts of low protein silages like maize silage and whole-crop cereal silage are being fed.

"In these situations, choosing a liquid that will supply additional protein will help to create a balance with the energy supply in the rumen."

Improve palatability

The final decisions then relate to palatability, and whether intakes need a particular boost, or if there's a particular problem with any ration ingredients that need to be masked.

As Dr Wynn explains, although all liquid feeds will generally improve the 'taste' of the ration and help to drive intakes, a number are either inherently more 'tasty'.

These include British beet molasses (high levels of 'sweet' sucrose) and spey syrup ('malty' taste), or contain flavour enhancers.

For example, cane molasses-based blends are formulated specifically to contain flavours that will help mask less palatable feed materials, such as poorly fermented silages.

"And regional availability needs to be taken into account," concludes Dr Wynn. "British beet molasses, for example, is less likely to be available in Scotland due to higher transport costs from their point of origin in central England, with spey syrup from the Scottish distilleries less popular in the south of England for the same reason." |

Figure 1: Rate of gas production

