

Revealed –the true cost of your forage

Latest figures show that grass silage is no longer king when it comes to low-cost feed

Is grass silage really the most cost effective feed you can grow

and feed on your unit? What impact have high fuel and fertiliser prices had on production costs and what are the alternatives?

Read our exclusive article to find out more.

What is the true cost of forage? That's a question that KW wanted a definitive answer to and, in early 2006, it commissioned independent consultants CARA and Andersons to undertake a study investigating the actual cost of silage, using on-farm data collected from its consultancy clients.

Now that data has been updated using 2008 results, it shows that although many of the trends remain similar, the actual cost of making silage has increased substantially compared to the alternatives.

More expensive

"The 2005 harvest data showed that – based on the cost per unit of energy and protein at the point of feeding – third- and fourth-cut grass silages were very expensive compared to either earlier cuts, or to maize and wholecrop cereal silage," says KW technical manager Michael Marsden. "But the surprise was how many dry and moist feed co-products were just as cost-effective as even the cheapest silages.

"The updated figures show that fertiliser,

energy and rental costs are the ones responsible for most of the increase, with first-cut grass silage a massive 73% more expensive than three years ago, but even maize and wholecrop silages are now 41% more costly."

The lack of sufficient fourth-cut grass silage in 2008 prevented any comparison this time around, but as before, the study generated figures for an accurate estimate of the true cost of getting silage crops grown, harvested and stored (see table 1). Historically, stored forages were a low-cost feed that helped support modest production yields, but ever increasing costs (both fixed and variable) and rising herd output mean a change of emphasis is needed.

Table 2: Typical clamp and feeding losses for stored feeds

forage type	increase (%)
grass silages	+15.0
maize silage	+7.5
wholecrop silage	+7.5
moist feeds	+5.0

Table 1: Comparison of true cost of stored forage crops

forage type	2005 £/t DM*	2008 £/t DM*	increase (%)
clamp grass silage 1st cut	61	105	+73
clamp grass silage 2nd cut	75	111	+49
clamp grass silage 3rd cut	85	133	+57
grass silage single cut	60	90	+52
maize silage	61	86	+41
wholecrop silage	68	96	+41
big bale grass silage	123	153	+25

* No costs were allocated for depreciation of farm machinery or the owner's labour.

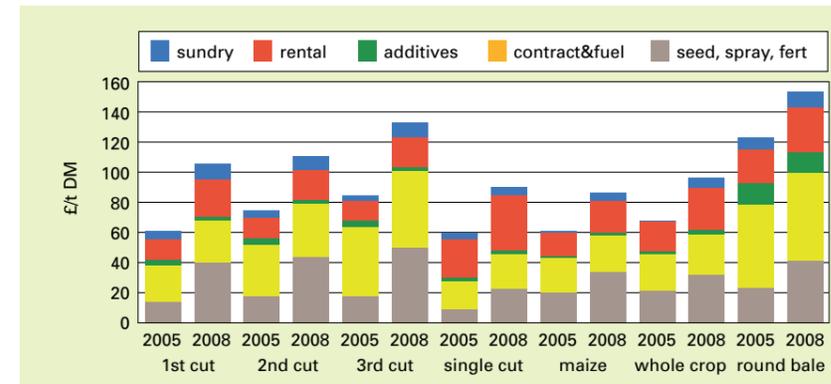


Figure 1: Comparison of forage costs (source: CARA, Andersons)

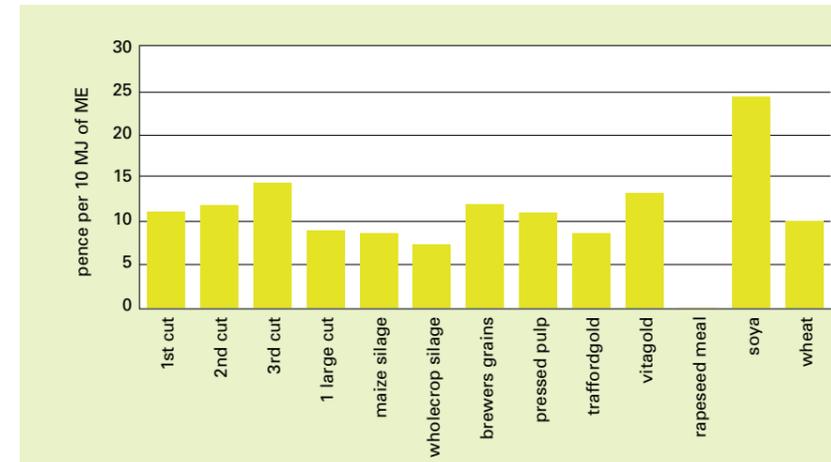
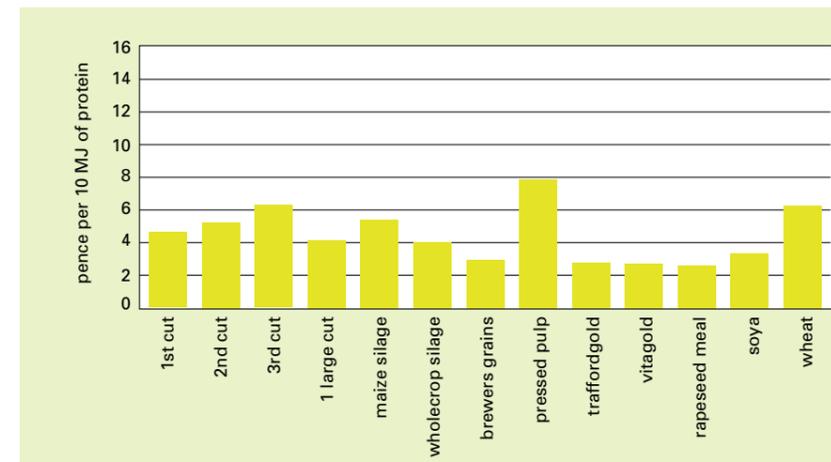


Figure 2: Feed cost comparison on cost per 10MJ ME basis

Figure 3: Feed cost comparison on cost per 100g protein basis



“Silage is now more important as a ration foundation that provides the structural fibre to maintain rumen and cow health and, when required, support butterfat production,” says Dr Marsden. “And the figures show that the key economic drivers of cost increases but confussed are dry matter yield per hectare, fertiliser inputs and the losses from cutting to feeding, plus contracting and fuel costs. Between 2005 and 2008, for example, fertiliser costs rose by 150% and fuel by 91%.”

Accurate comparison

Figure 1 shows how the main costs break down for each of the silages studied, with the differences between the two studies, and between different types of silage, very clear. But comparisons on a dry matter basis only tell part of the story, with clamp and feeding losses of up to 15% common for grass silages (table 2). Taking these losses into account allows for a much more accurate comparison of these ensiled forages against alternative concentrate feeds, with figures 2 and 3 showing the results on the basis of a cost per 10MJ ME (figure 2) or 100g protein (figure 3).

“Comparing against the cost of second-cut silage, it’s very clear that in terms of energy supply, only third-cut grass silage, rapemeal and soyabean meal are poorer value,” Dr Marsden explains. “But the latter are typically used to supply protein, not energy, so their true value in a ration is better shown in the second graph. What the energy graph does show is the cost-effectiveness of maize and wholecrop silages, and how much better than even second-cut grass silage most of the alternatives are.

“And in terms of protein, Traffordgold and Vitagold are among the best value, far more so than the forages. It really does highlight the point that forages need to be seen primarily as energy and structural feeds, with protein sourced much more cost-effectively by buying in what is required,” he adds.

The increase in bio-ethanol production is also going to increase the availability of such high protein co-products. The Hull-based British Sugar joint venture with British Petroleum (BP) called Vivergo, for example, will produce the equivalent of around 400,000t of wheat distillers’ dark grains each year, and a similar volume will also soon be available from Teesside. With the starch fermented to produce

Silage value linked to grass variety

You cannot make a silk purse out of a sow’s ear, and it’s certainly not possible to make the best quality silage out of inferior grasses.

And it’s not just about keeping weed grasses out of your leys, because according to British Seed Houses there is sufficient variability even within ryegrass varieties on the recommended lists to affect the profitability that can be achieved from the resulting silage.

“The argument of selecting the best available grass varieties is very strong even if you simply look at yield,” says British Seed Houses’ Paul Billings.

Looking specifically at first-cut silage yields where the highest third-year yield comes from the new perennial ryegrass AberBite, which offers 1.94tDM/ha more than the lowest yielding on the list, the ‘top to bottom’ advantage from AberBite based on Kingshay’s first-

cut forage cost of £109/tDM is an astonishing £211/ha.

However, yield is only part of the story, as variances in quality on the recommended lists are even starker. The high quality diploid perennial ryegrass AberAvon is compared with a lower D-value variety in Table 1. According to calculations made at DARD, the grass research institute at Crossnacreevy in Northern Ireland, this six-unit variance in silage digestibility is worth 2kg/cow/day in additional milk, as well as increased protein content.

Relevant information on varieties is contained in the latest Herbage Varieties Guide, which has been produced by the British Society of Plant Breeders in conjunction with NIAB, and is freely available from British Seed Houses and other companies participating in the Grass Levy Scheme.

Table 3: Impact of variety choice on silage value.

diploid varieties	recommended list performance results			difference
	2-cut total yield 10.1t/ha (%)	2-cut digest yield 7.2t/ha (%)	2-cut average digestibility D units	
AberAvon	101	106	75D	
Gandalf	99	96	69D	+6 units*

* Each 6 units in silage digestibility will increase milk production by 2 kg/cow/day, milk protein by 0.1%/cow/day



ethanol, the result is an excellent value protein source – whether moist or dried – that is an ideal complement for forages grown for their energy.

“Producers should stop planned third-cut grass silage, grow an increasing amount of maize or wholecrop wheat silages and save on fertiliser without putting yields at risk by making the most of slurries and manures,” says Dr Marsden. “It’ll mean a change to managing late season grass, perhaps modifying stocking rates or calving patterns to increase the demand for autumn grazing, but we’ve shown it’s the more cost-effective route.

“And if silages are primarily for energy and structure, then aim for a longer chop length, higher dry matter material of greater than 11ME MJ/kg DM, matched to a co-product feed suitable for the type of forage your land grows the most profitably.”

Rachael Porter