Saving on the fuel bill

How much do you spend on fuel? Keeping a record of how much fuel is used for which job will help you to see where a large percentage of your fuel goes - can you make these tasks more efficient, and ultimately cheaper? Savings for some operations may seem small, but when made on a daily basis, they can all add up. Suggestions from SAC Consulting's Jim Campbell included:

- Don't leave vehicles idling
- Match the correct tractor to the job in hand
- Diet feeder – can you reduce the time of operation?
- Field work – is direct drilling an option for some crops? Direct drilling uses around 12 litres of fuel per hectare while ploughing, sowing and cultivating can consume around 60 litres/ha.

For farms that bring in contractors, often there is no incentive for the contractor to minimise fuel use, as the fuel is being supplied by the farm business. What measures does your contractor have in place to reduce fuel use?

Key points:

- Monitor to measure and manage effectively.
- Carry out an energy audit. How do you compare to benchmarks; could you save on fuel costs?
- Marginal gains; don't underestimate the small savings that can be achieved on routine activities - especially those carried out on a daily basis.
- Benchmark; what are others doing? Can you improve the farms technical performance?
- Consider which renewables would be best suited your system.
- No one size fits all - do what's right for your business.
Reducing electricity use - Top tips
Cut the cost of electricity use in the dairy. Ideas include:

- Know how much electricity you are using on the farm. Ask your energy supplier about fitting a smart meter (some will do this free of charge).

- How do you compare to benchmarks? SRUC's Jim Campbell suggested annual dairy cow electricity use is between 200 and 400 kW/cow/year. Most farms have scope for improvement.

- Make full use of off-peak/cheap rate electricity (if your contract permits) to heat water for the morning wash. Balance this with heating hot water so its ready when you need it; its expensive to heat water to a high temperature and then pay to keep it there.

- A variable speed milk pump can help to regulate the flow of milk and improve cooling. Payback costs vary depending on the system chosen. Good to consider as a retrofit if existing equipment needs upgrading.

- Make use of cold water; this can bring milk temperature down to around 7°C, before using energy in the refrigeration unit. A correctly sized plate cooler can reduce energy demand for milk refrigeration by 30-40%.

- Keep fans clean and out of direct sunlight. Cooling equipment choked with dirt and dust and located in direct sunlight will have to work harder.

- Check water heating timers - with clocks changing and power cuts, timers can soon fall out of sync with cheaper tariffs.

- Well insulated pipework and storage tanks can prevent heat loss, reducing the cost of getting your water up to temperature. An 80mm thick insulation jacket, which can be bought for roughly £15 to £20, can offer savings of £80 -150 annually.

- Do you need to do two hot washes daily?
Calf management at Hillend

At Hillend, an igloo system for calf management is planned, along with a new calf house.

Small tweaks to housing can make all the difference. For example during periods of heavy rainfall, the gutters simply aren’t big enough to shift the rainwater, so gutters overtop and lead to wet bedding in the current calf house. Calf jackets are being used for calves up to four weeks to help to get them off to a good start. To date, the heifer groups have done better than the mixed sex groups.

At Hillend, we are hoping that daily weight gain can be increased to nearer 0.6 or 0.7kg/day for the better calves. Aiming to do some benchmarking to assess pregnancy rates; currently calving at 24 to 27 months.

We will be revisiting the calves and new calf house at future meetings to see what effect these changes have had on calf production.

Nutrition management

- Doesn’t stop at ration formulation
- Judge objectively feed preparation and presentation
- Look at cow space and comfort during eating and drinking
- Use records to monitor performance.

Which to feed; Milk or milk powder?

This will depend on the price you are getting for your milk and your individual farm system. Here are some of the pros and cons as discussed at Hillend:

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<th>Pros</th>
<th>Cons</th>
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<td>Potential to save money on powder by using your own milk on certain milk contracts.</td>
<td>Potential disease issues of feeding milk to calves from some herds.</td>
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<tr>
<td>Improved calf growth rates and improved calf health.</td>
<td>Difficulties in producing a consistent feed product if using “dump” milk.</td>
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<tr>
<td>Utilising a waste product.</td>
<td>Best performance on pasteurised milk which can be a hassle and a cost to produce.</td>
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Heating and hot water in the dairy - is biomass the answer?

One of the first considerations when thinking about a biomass system is identifying your largest heat requirement, explained SRUC’s John Farquhar. For Hillend, it would be heating for the main house, followed by hot water to supply the dairy and farm cottages.

Distances
Consider what length of pipe work you would need to link these systems. Pipework loses heat and is expensive; trenches need to be dug and backfilled, so could add £70 to £100 per meter. For Hillend, connecting an additional two farm cottages would cost in the region of £30,000.

What fuel type is right for you?
Choices include woodchip, pellet, log or straw burner. This will depend on your site, access, fuel costs and ease of supply, plus how much management time you have to support the system.

Renewable Heat Incentive (RHI)
RHI rates have changed. The domestic scheme is paid at £0.11/kWh generated over 7 years whereas the commercial rate is less attractive at £0.06/kWh generated, but paid over 20 years. On balance the commercial scheme is more suitable for the farm. Biomass would be a good option for heating the farmhouse and farm cottages. Due to installation costs and pattern of energy demand, other renewables may be a more practical option for the dairy at Hillend.

Biomass; points to consider

- Understand the pros and cons of the various technologies - could other options meet your needs?
- Match the renewable heating technology to the nature and scale of heat demand. Heat can’t be created purely to attract funding - there must be an economically justified need.
- For small and medium-sized plants (up to and including 45 kWth), both installers and equipment need to be certified under the Micro-generation Certification Scheme (MCS).