

Teagasc Notes for week ending Friday 24th January 2020

Teagasc Sustainability Series: Step 6. Improved Energy Efficiency and Renewable Energy

As part of our Sustainability Series, this article will focus on how dairy farmers in the Waterford Kilkenny region can focus on improving their energy efficiency. The key sources of energy used on farms are electricity, gas and oil in the form of petrol, diesel and heating oil. Tractors and other machinery are all powered by diesel and are unlikely to move to electric power. In the longer term, Biogas seems the most likely practical alternative for agricultural and heavy plant machinery. Coal, oil and gas are classified as ancient carbon as they are extracted from the ground after billions of years and burned to release this stored carbon into the atmosphere. In terms of carbon, the production Biogas is recycling carbon that is already present in the atmosphere. Many of the key machinery and heavy plant manufacturers have already developed purpose built Biogas engines, while older engines can be successfully converted to biogas combustion. There is much development yet to take place in this area from a national policy perspective and creation of a network of biogas digesters to produce this Biogas. There is also an opportunity for the country as a whole to reduce its' dependence on imported gas.

In terms of electricity, milk cooling, water heating and vacuum pumps amount for the biggest proportion of energy use on dairy farms. It is these areas that offer scope for the greatest energy savings as they account for 20-30% of electricity consumption on a typical farm. There is a massive range in total energy use (electric and fuel) across farms. Electricity costs vary from €15 - €45 per cow per year. The variation is due to many factors from fuel use to the proportion of more expensive day tariff (normally 9am until midnight) electricity used and the unit cost.

The first step any farmer can take to improve efficiency is to identify the main consumers of electricity. Record consumption, collect data from bills, read meters regularly or install a smart meter. Next ensure that the business is on the best tariff and maximise the use of off-peak electricity.

Basic measures such as using timer switchers, lagging pipes (hot and cold) and water tanks, replacing halogen floodlights with sodium lights, plus ensuring that equipment such as condensers are clean and well maintained also make a big difference. Condenser maintenance is a common problem. Half an hour spent cleaning condensers with a low pressure hose and a soft brush will pay-off instantly. Make sure condensers are well located to avoid recirculating warm exhaust air.

Installing energy efficient equipment such as bulk tanks, variable speed vacuum pumps, or heat recovery units can make a big difference to energy use. However the high capital costs often mean that the scale of energy savings is unlikely to warrant replacement. Working out the simple payback for energy efficiency projects is a good way to prioritise cost saving measures.

Electricity only accounts for 4% of the variable cost of producing milk (about €0.05 cent per litre). This needs to be kept in context before investing heavily in new equipment. At present the DAFM funded Targeted Agricultural Modernisation Scheme (TAMS) is in operation until 2020 and will cover 40% of the cost of many upgrades including new milk cooling tanks and compressors, plate coolers, water heaters and heat recovery units. Up to 60% of the cost will be covered for young farmers. For more information on this scheme consult the website of the Department of Agriculture, Food and the Marine. There is also a 40% grant on the installation of solar panels up to 6 kwh (Kilowatts) on farms. These can be installed on the roof area of sheds such as the parlour on the farm.

Breakdown of energy consumption on Irish dairy farms

Costs of Electricity on Irish dairy farms

- Average costs are €5 per 1,000 litres of milk produced. There is large variation in energy costs on dairy farms from €2.60 to €8.70 per 1,000 litres of milk.
- The main drivers of energy consumption on dairy farms are milk cooling (31%), the milking machine (20%) and water heating (23%)

- The average farm could save €1,800 per year through a combination of altered management strategies and energy efficient technology

Energy Audits

Energy audits are an effective tool to reveal areas where savings can be made. These results were obtained from energy audits carried out on 22 commercial dairy farms over 12 months. The average herd size was 118 cows but the study included farms ranging from 47 to 290 cows.

Teagasc will host an Energy in Agriculture event in Gurteen Agricultural College on the 14th of July this year. The energy efficient technologies will be on display and information available.

Teagasc Kildalton College Distance Education Green Cert Course

Kildalton Agriculture College are now taking application for the Distance Education Green cert course for non-agricultural award holders. The course will commence in early March 2020. This course meets the training requirements of graduates from other non-agricultural award programmes who are interested in farming and who will inherit a farm over the coming years. The course duration is 15-20 months and applicants must be the holder of a Level 6 or higher major award in a non-agricultural discipline. Interested applicants can apply online at www.teagasc.ie.

Events

Teagasc Kilkenny will host a Beef Seminar on Thursday the 6th February at 8pm. at the Springhill Hotel, Kilkenny. The topics will include:

1. Dairy Calf to Beef Systems - Physical / Financial Analysis.
Paul Crosson, Teagasc, Grange.
2. Grassland Management this year to maximise Liveweight.
Martina Harrington, Teagasc.
3. BDGP requirements / New Calving Evaluation2020 / New BEEP.
Chris Daly, ICBF.
4. Dept. of Agriculture Inspections this Year.
Mairead Fanning, DAFM Inspector

