

Smart Farming

A Guide to Help Improve Farm Returns with Better Resource Management

Inputs such as fertiliser, feeds and harvesting costs account for over 75%¹ of variable costs on livestock farms.

Here are some tips to help you save money and time by managing inputs and minimising losses and spillages.



Save €26/cow over winter months by reducing spoilage and losses when feeding fodder

Aim for 20 - 25% dry matter content for pit silage and 25 - 30% dry matter content for round bales.

For pit silage use two sheets of black 0.125mm thick polythene. Fast filling and quick sealing limits heating and preserves feed quality. Fully cover from edge to edge with tyres or other suitable materials².

For round bales, aim to produce firm bales with a target of at least 600kg/bale fresh weight (4ft x 4ft). Wrap bales within one hour of baling with 4 layers of good quality stretch or 6 layers where more handling or longer storage is required³. Transport bales to storage area immediately after wrapping and do not puncture. Protect from birds, vermin and livestock.



Reduce losses in the pit and at feeding by 7%. It will result in savings of €15 per tonne DM fed or €26/cow over 5 month winter feeding period⁴



One small hole (3mm) per bale resulted in an 8% loss of edible silage; while one large hole (24mm) resulted in 33% loss of edible silage⁵

Reduce silage effluent - It saves money, reduces corrosion and minimises pollution risk



Reduce the effluent produced by almost 12,000 gals - by increasing the DM of grass at ensiling from 20% to 24%⁶

Based on 600 tonne of grass

When possible - Wilt grass prior to ensiling. It will reduce the amount of silage effluent that is generated. This saves money by reducing landspreading costs, environmental risks and corrosion of your concrete. How much effluent do you produce?

Effluent produced per tonne of fresh grass ensiled

DM% ⁷ of harvested grass	Litres effluent/tonne
18	210
20	160
22	120
24	70
26	20
28	0
30	0

Consider buying feed and fertilizers in bulk – It can save you up to €15 per tonne

Consider buying feed and fertiliser in bulk (1 tonne or 500kg bags). This will save money and minimise the amount of packaging waste. The difference can be up to €10 to €15 per tonne.

Feed production costs (fertilizers, purchased concentrates, harvesting costs etc.) account for over 75% of variable costs on Irish livestock farms⁸. Ensure that any losses through spillages and spoilage during storage are minimised. Use appropriate storage facilities, which are dry. Ensure birds and vermin do not have access to the storage area.

Each 1% loss of purchased concentrate through spillages and spoilage in store costs you €3 per cow. For example, a 3% loss on a 60 cow dairy herd feeding 1 tonne concentrate costs €540 or €9/cow⁹.

A 5% loss of fertiliser through overspills or poor handling and storage costs you €21 per tonne purchased of 18:6:12. If you purchase 25 tonnes of fertiliser for a typical 60 cow herd, this will cost you approximately €525.¹⁰

Minimise waste on the farm

Prevent waste being generated by looking at the amount of packaging on goods purchased. Designate a clean dry area on the farm where wastes are segregated and stored before recycling or disposal. Waste materials have the potential to cause harm for farmers, animal health and the environment. Some wastes will be hazardous because of certain properties such as being flammable, toxic or irritant. Such materials should not be left lying around the farmyard. Dispose of waste using the guideline below. Remember it's illegal to bury or burn wastes on your farm¹¹.

6 Inputs & Waste

Waste Type	Action
Waste oil, waste oil containers, oily filters, oily rags, waste brake fluids, waste hydraulic oils are all hazardous waste	<ul style="list-style-type: none"> ✓ If machinery is serviced by a mechanic, ask the mechanic to take the oily wastes away. If the wastes are generated on-farm by yourself, only an authorised hazardous waste contractor should be used to dispose of the waste. ✓ Some local civic amenity sites will accept small quantities of waste oil; check at your local site. Don't stock pile waste oils, bring them to your civic amenity site as they are generated on your farm. ✓ Don't mix different waste oils together.
Lead based, solvent based or chromate based waste paints are considered to be hazardous waste and can be toxic to livestock	<ul style="list-style-type: none"> ✓ If these waste are on your farm, only an authorised hazardous waste contractor should be used to dispose of these ✓ Some local civic amenity sites will accept waste paints, check with them.
Tractor/car and portable batteries are hazardous waste	<ul style="list-style-type: none"> ✓ All shops that sell batteries are required to take-back waste batteries for free. ✓ Car and tractor batteries should be returned to your local garage or tractor dealerships. ✓ Electric fence batteries should be returned to your local agri-merchant. <p>For more information see www.recyclefree.ie</p>
Waste electronic and electrical equipment (WEEE) is equipment that requires a battery or plug to work and is no longer operational	<p>Some WEEE is hazardous waste because of certain substances and/or components it contains. e.g., Fluorescent tubes; Fridges and freezers and old TV and computer monitors.</p> <ul style="list-style-type: none"> ✓ Household WEEE can be brought to a civic amenity site and be recycled for free. ✓ WEEE relating to an agricultural production system can be brought back to the producer who is required to operate a take-back collection scheme.
Most animal health waste arising from the treatment of animals on farm is deemed to be hazardous waste because of its hazard properties and contamination with bodily fluids	<p>These include expired, unused and residual medicines, syringes and needles, disposable gloves and some aerosol cans.</p> <ul style="list-style-type: none"> ✓ Ask your vet to take back veterinary wastes generated during the farm visit. ✓ Unused and expired animal remedies can be brought back to the veterinary practice or pharmacist where the medicine was purchased free of charge¹². ✓ An authorised hazardous waste contractor should be used to dispose of hazardous animal health waste due to its hazard properties and biosecurity risks.
Recycle used silage covers and wrap from silage bales at recycling centres such as those operated by the Irish Farm Film Producers Group or any other authorised waste contractor ¹³	<p>Other farm plastics which are now accepted include bulk and small feed and fertiliser bags, netting and twine and triple rinsed empty pesticide containers¹⁴. Keep used silage wrap and sheeting as clean and dry as possible and avoid contamination with slurry, manure or soil.</p> <p>Triple rinse empty pesticide containers immediately after use in accordance with EPA and Department of Agriculture 7Steps: Good Practice Guide for empty pesticide containers. Only triple rinsed pesticide containers managed in accordance with this guide can be classified as non-hazardous waste and accepted at recycling centres.</p>

Footnotes

- Hennessy, T., Kinsella, A., Moran, B., and Quinlan, G. 2001. Teagasc National Farm Survey 2011. Teagasc, Athenry, Co.Galway.
- Waste Management (Tyres and Waste Tyres) Regulations 2007, SI 664 of 2007.
- O'Kiely, P., and Forristal, D. 2003. Ten tips for making good quality baled silage. Teagasc Grange and Oakpark Research Centres. Ireland.
- Reducing total losses from 30% (poor management) to 23% (average management) to 16% (excellent management) reduces the costs of providing livestock with silage from €203 to €185 to €170/tonne DM eaten. Based on dairy cow eating 1.6 tonnes FW silage per month for 5 months at 22% DM. Cost of producing 1 tonne of silage DM = €150.
- McNamara, K., O'Kiely, P., Whelan, P., Forristal, D., and Lenehan, J.J. 2002. Simulated bird damage to the plastic stretch-film surrounding baled silage and its effects on conservation characteristics. Irish Journal of Agriculture and Food Research.. Vol.41, No. 1, June 2002.
- Weissbach, F. and Peters, G. 1983. Quality chemical composition and feed value of silage effluent. Feldwirtschaft, 24: 78-81.
- Typical contractor charges €40 to €50 per hour for a splash plate tanker. If they spread 25m³/hour, the cost of spreading is approximately €1.50/m³ or about €7/1000 gallons.
- Hennessy, T., Kinsella, A., Moran, B., Quinlan, G. 2011. National Farm Survey 2010. Teagasc, Athenry.
- Typical industry loss from feed is approximately 1.5%. Figures calculated for typical 60 cow herd fed 1 tonne of purchased concentrate feed at €300/tonne at 3% losses from spillages and spoilage during storage.
- Typical industry losses for fertiliser are 0.5%. A loss of 50 kg/tonne equates to losses of 5%. A dairy farm with 60 cows will purchase approximately 25 tonnes. Price of 18:6:12 is €420/tonne.
- Waste Management (Prohibition of Waste Disposal by Burning) Regulation, S.I.No. 286 of 2009.
- Animal Remedies Regulations SI No. 734 of 2005.
- Go to www.nwcpo.ie for a list of authorised waste collectors.
- EPA and DAFM. 2012. 7 Steps: Good Practice Guide for Empty Pesticide Containers. EPA, Johnstown Castle Estate, County Wexford. Ireland.