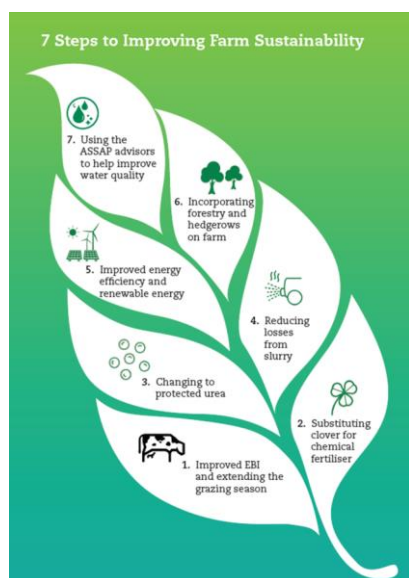


Teagasc Notes for week ending Friday 10th January 2020

Sustainability: What does it mean for farming in Waterford?

Demonstrating that our farming systems are sustainable from an economic, environmental and social perspective is a key challenge facing farmers in Waterford over the next number of years. Why is this so important? We have fantastic farmers in the region covering a wide range of farming systems that produce quality foods in the form of cereals, milk, meat, eggs and vegetables amongst others. Demonstrating that we produce food sustainably in Waterford is a key marketing tool. The Teagasc leaf image below illustrates the 7 steps of sustainable farming in the region and many of these steps are already in place on many of our farms. Over the next number of weeks, we will feature each key element of the 7 steps to improving sustainability in more detail. This article will focus on Number 4; Low Emissions Slurry Spreading.



4. Low Emissions Slurry Spreading (LESS).

Irish agriculture accounts for 98 % of national ammonia emissions. This is important as Ireland, as well as many other EU countries, has been set annual ammonia emission reduction targets under the National Emissions Ceilings Directive (EU) 2016/2284. Ireland must reduce national ammonia emissions by 5% compared to 2005 levels by 2030.

The land-spreading of slurry is the second largest agricultural source of ammonia emissions in Ireland annually. LESS equipment such as the Trailing Shoe and the Dribble Bar have been found to reduce ammonia emissions by between 30-60% compared to splash-plate application.

Changing over to using LESS equipment such as the Trailing Shoe and the Dribble Bar to replace the traditional splash-plate is a key element to help us achieve the targets set out.

Key Messages on LESS

1. Low emission slurry spreading reduces ammonia loss and increases the fertiliser Nitrogen value of slurry.
2. It increases the flexibility of slurry application on grazed pasture due to lower grass contamination
3. It allows more precise application of slurry and reduces odours during and after application.

Questions

1. What is LESS?

- Techniques of slurry spreading which reduce losses of Nitrogen (N) gases to the atmosphere
- LESS covers techniques such as dribble bar , trailing shoe, injection, umbilical systems
- Dribble bar deposits slurry in rows on grass, trailing shoe parts the grass depositing slurry directly onto the soil surface, injection injects slurry into the top soil.

2. How does it work?

- LESS reduces surface of the applied slurry which reduces emissions of gases to the atmosphere
- By reducing Nitrogen (N) losses from slurry application, more nitrogen is retained in soil leading to higher Nutrient Use Efficiency. Trailing shoe increases slurry N content by 5 units of N/1,000 gals. So at an application rate of 3,000 gal/ac is 15 extra units N/acre.
- Higher utilization of slurry nutrients means less need for bag fertiliser.

3. Why is it important?

- It's a powerful tool to reduce gas emissions (ammonia) from slurry spreading
- Gases in question are air pollutant ammonia and indirectly greenhouse gas (GHG) nitrous oxide.
- LESS helps to achieve our emission reduction targets.

4. How much emissions can be saved (See Table 1).

- Slurry nitrogen is approximately 40 – 60 % ammonium. Splash plate application in summer will result in nearly half of this ammonium lost as ammonia gas.
- Ammonia loss is fast. Half of the loss occurs within 4-12 hours.
- Trailing shoe reduces ammonia loss by up to 60%, trailing hose by 40%
- Injection, although not tested in Ireland, internationally 70% reduction recognised for shallow injection.

Table 1:- Slurry application technique & Nitrogen recovery from Spring applied Cattle Slurry				
	Splash plate	Band Spreader	Trailing Shoe	Injection
Available N (kg/m ³)	0.7	1.0	1.25	1.44
Available N (units/1,000gals)	6	9	11	13

5. What are the other benefits of LESS?

- Less surface covered in slurry also means less odour and grass contamination
- Improved flexibility with applications as a result of reduced contamination of grass leading to quicker return to grazing
- Better graze outs of the paddocks by livestock
- The opportunity to apply slurry into larger grass covers which creates a wider window of opportunity for application in better soil conditions particularly in spring
- Better soil conditions to apply slurry on heavier / wetter soil types
- Precise & even application of slurry across the spread width
- Large reduction in release of odour during and after application compared with splash plate

- Slurry can be targeted to fields that are low in P and K easier. In general when a farmer is using a splash-plate they can only spread fields that have a very low cover of grass. These fields could be in index 4 for P and K?
6. What are requirements of using LESS i.e. tractor power / weight of equipment –
 - Horse power requirement will depend on the size of the tank – 2,000 v 3,500 gal (130 to 150Hp).
 - A dribble bar weighs 0.5t and a trailing shoe weight 0.75-1t. A 2000 gal slurry tanker full of slurry weighs 13t so the extra 0.5t for the dribble bar is small relative to the weight of the tank.
 - Slurry comes out of the tank faster with a dribble bar and trailing shoe compared to a splash-plate. Therefore the forward speed needs to be increased
 7. Targeted Agricultural Modernisation Scheme (TAMS II)
 - LESS equipment is covered under the current TAMS II scheme at the 40%. Where an applicant qualifies as a young trained farmer or qualifies a DAFM registered farm partnership or has a 20% shareholding in a Ltd company, the rate is 60%.

EVENTS

1. Calf Care Farm Event on the farm of Richard Mahony, Shangan, Shinganagh, Butlerstown, Co. Waterford X91 V4DW on Thursday the 9th of January at 11am. There is no parking on the farm but buses will be provided from Butlerstown GAA grounds from 10.30-11am. Topics to be covered include housing, health, feeding, animal welfare and getting animals ready for sale.
2. Teagasc Once – A – Day Milking Conference on the 15th January at the Horse & Jockey Hoetl, Tipperary. Registration at 12.30. Register for the conference at www.teagasc.ie. Places limited so book early. Topics include:
 - a. A farmers perspective - milking 800 cows once a day in two herds *Keith Davies, Gloucestershire, UK;*
 - b. Physical and financial performance of Irish once a day dairy farmers in 2019 *Brian Hilliard, Teagasc;*
 - c. Results of year one of the Once a Day dairy herd trial at Teagasc Moorepark *Emer Kennedy, Teagasc;*
 - d. A farmers perspective - Making the decision to go once a day, current performance and future plans for their 125 cow crossbred herd in Tipperary *Catherine & Liam Millerick;*
 - e. Deciding on twice daily, once a day or robotic milk production systems - economic, lifestyle and financial outcomes *Patrick Gowing, Teagasc*