

GETTING THE MOST FROM YOUR SLURRY

Introduction

Organic manure is a valuable source of plant nutrients. The key aim is to maximise the value of slurry, i.e., get the most from the phosphorus (P) and potassium (K) content, as well as the nitrogen (N). This will be achieved by making sure that it goes to the right place at the right time and is spread at the right rate.

How does using slurry reduce greenhouse gas emissions?

By making the best use of slurry on the farm, there is a saving in chemical N fertiliser use. By reducing chemical N use, there is a reduction in nitrous oxide (N₂O) emissions, which is one of the main greenhouse gases we are concerned with. Using low-emission slurry spreading (LESS) also reduces ammonia emissions by up to 30%.



What do you need to do?

Step 1: Know the nutrient content of your slurry

Knowing the N, P and K content of your slurry is a useful starting point to planning your fertiliser programme for the year. There are

two options for getting this information: send a sample to a laboratory for analysis (**Figure 1**); or, use a hydrometer to estimate the nutrient content of the slurry using **Table 1** as a guide.

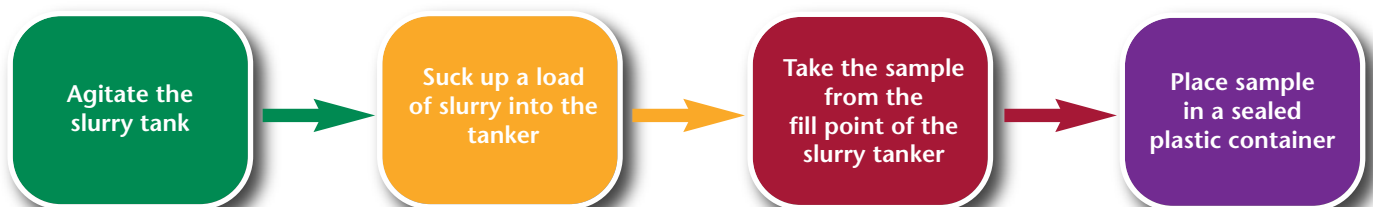


FIGURE 1: How to take a slurry sample. *Adher to all health and safety guidelines in agitating and extracting the samples.

Getting the most from your slurry

Table 1: Value of slurry (cattle).

Slurry dry matter (%)	N (units/1,000 gallons)	P (units/1,000 gallons)	K (units/1,000 gallons)	Value (€/1,000 gallons)
2% (very dilute)	4	2	13	16
4% (watery)	6	3	21	25
6% (typical)	9	5	32	39
7% (thicker)	10	6	36	45

Step 2: Ensure you have adequate slurry storage

It is important to apply slurry at the correct time to maximise its fertiliser replacement value (N, P and K). Having adequate storage gives you

flexibility to match slurry application timings with grass growth, enabling a better use of nutrients when grass is growing. **Figure 2** shows you how to assess the slurry storage situation on your farm.

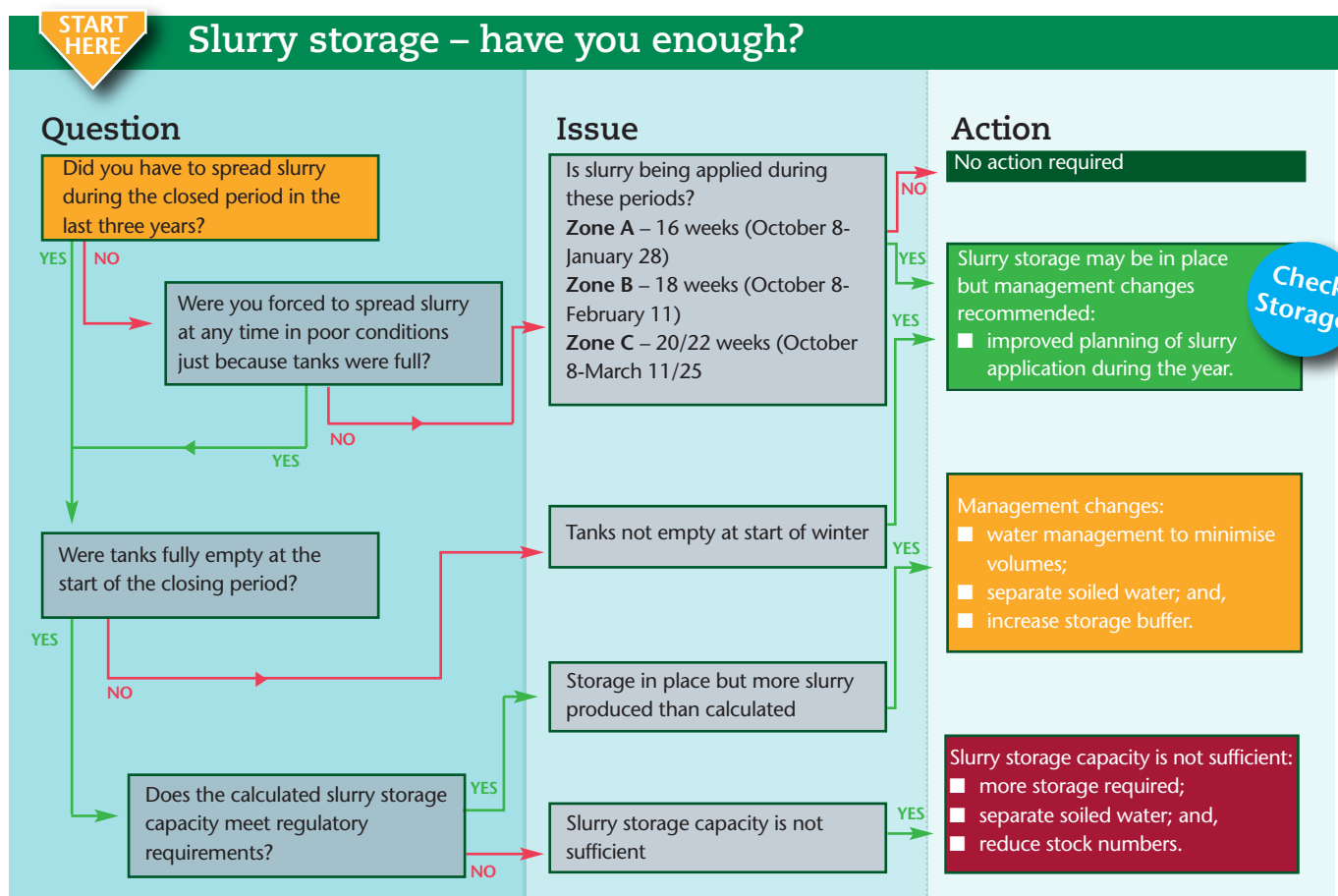


FIGURE 2: Slurry storage – have you enough?

Step 3: Apply slurry at the right time

The third step to increasing slurry N efficiency is optimising the timing of applications. Spread when potential N losses are low and uptake by a growing crop is high (February to April – **Figure 3**). Spring applications of cattle slurry typically have a higher recovery

of N (by up to 50%) compared to summer applications. Weather conditions in spring will be more favorable to improving the recovery of N from the slurry. For example, during cool (<13°C), damp, overcast days, N loss through ammonia emissions is lowest.



Did you know that the N availability from slurry spread in spring is almost double that of slurry spread in the summer?

Getting the most from your slurry

Take note

1. Apply slurry where ground conditions are suitable, i.e., apply to soils that are trafficable.
2. Umbilical slurry spreading systems should only be used where ground conditions are suitable. Using this system where soils are saturated to avoid soil damage from tankers poses a risk to water quality. When using umbilical spreading systems, ensure slurry is not over applied.
3. Slurry should not be spread if heavy rainfall is forecast. High rainfall levels can lead to soils becoming saturated and water flowing over the surface of fields, bringing with it the nutrients applied.

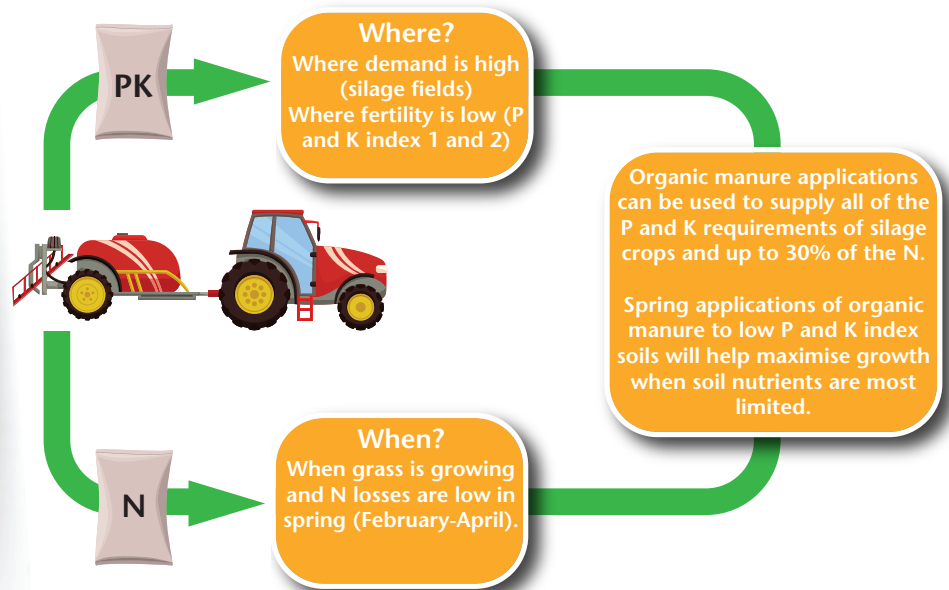


FIGURE 3: When to apply nutrients.

Step 4: Apply slurry in the right place Figure 4 shows where best to apply slurry.

Planning



- Have a slurry application plan
- You must not spread organic manure within:
 1. 5m of surface waters (extends to 10m for the first two and last two weeks of the spreading season).
 2. 10m of surface waters where the slope towards the water exceeds 10%.
 3. 15m of exposed cavernous or karst features, such as swallow holes and exposed rock.
 4. 20m of a lake shoreline.
 5. 25-200m of a water abstraction point for human consumption.

Where?



- Spread on fields/paddocks where fertility is low and nutrient demand is highest (e.g., silage fields).
- Direct watery slurry to grazing plots.

Silage ground



- Maximise the use of slurry on silage ground as 3,000 gallons/acre makes up the majority of P and K requirements, as well as up to 30kg N.
- Target thicker (higher dry matter) slurry to silage fields.

FIGURE 4: Where to apply slurry.

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Step 5: Using the right equipment

Spring applications using LESS further increase N availability by 65% compared to summer applications (Table 2). For example, where a

grass silage crop receives 33m³/ha (3,000 gallons/ac) in spring, this will supply 33kg N/ha (~25-30% of the crop's N requirement); however, when applied in summer it will only supply 20kg N/ha.

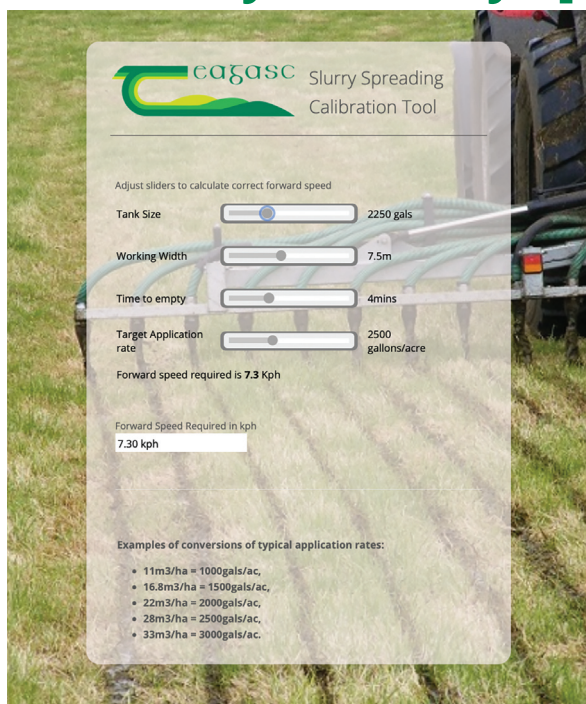
Table 2: Available N, P and K values kg/m³ for slurry applied by LESS in spring and summer.

Time of application	N kg/m ³ (units/1,000 gallons)	P kg/m ³ (units/1,000 gallons)	K kg/m ³ (units/1,000 gallons)
Spring	1.0 (9)	0.5 (5)	3.5 (32)
Summer	0.6 (5)	0.5 (5)	3.5 (32)

Other benefits of LESS

1. Improved flexibility with applications as a result of reduced contamination of herbage leading to a quicker return to grazing.	✓
2. Opportunity to apply slurry into larger grass covers, which creates a wider window for application in better soil conditions, particularly in spring.	✓
3. More even application of slurry across the spread width.	✓
4. Smells released during and after application are reduced.	✓

Calibrate your slurry spreader



Teagasc has created a simple online calibration calculator to eliminate the guess work. The tool can be used with any type of slurry tanker, no matter what applicator is being used on the back. It works on your smartphone, so it can be accessed from the tractor seat. It is simple to use through the following method:

- sliders allow you to input the size of the tanker, spread width, and the time taken to empty the load; and,
- select you desired application rate.

Use the Slurry Calibration Tool on the Teagasc website. Scan the QR code or follow this link: <https://www.teagasc.ie/rural-economy/farm-management/farm-machinery/machinery-calibration/slurry-calibration-tool/>



The Signpost Programme is a collaborative partnership of farmers, industry and State agencies, working together for climate action. For more information please visit: www.teagasc.ie/signpost.