

slurry

Get more from slurry nutrients

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Would you accept bagged mineral fertiliser without a nutrient label or with only an estimate of what you were buying? Definitely not, most would answer, particularly with the current high fertiliser prices.

Yet we routinely apply slurry and manure with often at best an estimate of their nutrient delivery using average standard values. While this is an improvement over no estimate, we can do better. A slurry or manure test will cost about €50-€80, or about the cost of two small bags of CAN currently.

In this article, we provide tips to control costs by helping you up your game on slurry/manure management for 2022, be it in grassland or arable cropping.

Right place

Do you have recent soil test results? If you do, pull them out – if you do not, there is still time to get them. A soil test is essential for saving money by targeting manures to where they are needed. Index 4 Phosphorus (P) and/or Potassium (K) fields are not

the place for applications of valuable slurry/manure.

In grassland or arable cropping, target slurry and manure to fields at index 3 or lower, and fields that have the highest demand for P and K i.e silage ground. Remember that 75% of the value of slurry is from its P and K. Do not be tempted to use more slurry on the grazing ground in 2022 at the expense of silage ground.

This will leave you lacking P and K for silage crops that will come at high cost when purchasing bagged fertiliser. Excessive slurry applications can also lead to overdoing K on the grazing blocks, potentially leading to issues with grass tetany in spring.

For silage, grazing or arable ground, ideally focus on the index 1 and 2

soils, as it is here the yield benefit from P and K will be greatest. New research from Teagasc Johnstown Castle is showing that where slurry is used to deliver P to low index soil, the plant P availability is better compared to the same rate of conventional mineral P fertiliser. This represents a significant cost saving and more bang for your P by simply putting manure in the right place.

Have you thought about the evenness of spread? Splash plate spreaders often have a poor spread pattern. Visiting Danish farmers some years ago we were told that uneven spread was a factor in moving away from splash plate there.

Be particularly cautious of spread pattern when using slurries for cereal

Table 1: Average nutrient content of slurries sampled in the early 2000s compared to the average values in a range of storage tank types in the Teagasc-Dairygold joint programme.

	Slurry Dry Matter %	LESS Units N/1000 gals	Splash-plate spring Units N/1000 gals	Phosphorus (P) Units P/1000 gals	Potassium (K) Units K/1000 gals	Number of samples taken
Teagasc early 2000s	6.3	9	6	5	32	
Teagasc/Dairygold 2021	6.7	11	8	5	27	128
Covered tanks	7.3	12	9	6	29	53
Open towers	6.5	9	7	5	25	9
Open tanks	5.5	8	6	4	23	15
Lagoons	4.3	7	5	3	17	4

to save costs in 2022



crops; the penalty for a poor spread pattern can be lodging in addition to “streaking” of the crop.

The use of a dribble bar or trailing shoe can overcome this issue. The trailing shoe and dribble bar places the slurry in narrow lines reducing loss of valuable N that is instead retained for grass growth. Teagasc research has shown that using a dribble bar/trailing shoe will increase the N content of your slurry by three units N/1,000 gals compared to using a splash plate.

• **Tip:** Use your soil tests to guide manure to low P and/or K fields, target fields with the highest demand for P and K i.e silage ground, set-aside 2,500-3,000 slurry/ac for the silage ground on grassland farms, use a dribble bar/trailing shoe to get the best N value from the slurry.

Right rate

How can you apply the correct top up rate of expensive bagged fertiliser if you don't know what nutrients you applied using slurry or manure? Slurry survey work by Teagasc in the

early 2000s showed a 17, 11 and 15-fold difference in available N, P and K, respectively, across the range of farms sampled.

In 2020/21, slurry samples from dairy farms across the south-west of the country found high variability. N ranged from 3-17 units /1,000 gals, P from 1.1-12.5 units 1,000 gals and K from 4.5-46 units/1,000 gals. The type of storage tank the slurry came from had a large influence on the nutrient content of the slurry (Table 1).

The more watery the slurry the lower the N, P and K values. Slurry from covered tanks had higher N, P and K content than slurry from lagoons (Table 1). If slurry from covered tanks is to be spread on grazing ground, adjust the rate per acre. For instance, 2,000 gals/ac from a covered tank will supply 18-22 units N/ac, whereas slurry from an open tank/lagoon will have to be applied at 2,500 gals per acre to supply a similar application rate of N.

The results of Teagasc's work highlights the impor-



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Table 2: Supply of N, P and K depending on the tank that slurry comes from.

Slurry type	Application rate	Nitrogen (N) (units/ac)	Phosphorus (N) (units/ac)	Potassium K (units/ac)
Standard Teagasc values	3,000 gal/acre	27	15	96
Covered tanks	3,000 gal/acre	33	18	87
Open tanks	3,000 gal/acre	24	12	69
Lagoon	3,000 gal/acre	21	9	51
First cut silage requirement (Index 3)		100	16	100
First fertiliser round for grazed pasture		23		

tance of testing the slurry/manure you will be applying. Spending time to work out what nutrients you are applying with your advisor and tailoring a prescription for the correct balance of fertiliser needed to meet the crop requirements is a prudent and cost effective exercise.

Many labs across the country test slurry and require a 0.5-1l sample that has been well agitated beforehand.

Evacuate and ventilate prior to agitating and take great care with slurry gases and potential falls when collecting the sample. Using the slurry tanker to suck out a couple of loads from the agitated storage tank and collecting a sample from the tanker gate valve after the first tanker is spread is an option.

- **Tip:** Match your slurry application to the demand for P and K, adjust application rate based on your slurry test results or the type of tank you are taking the slurry from.

Right timing

Nitrogen use efficiency of slurry is at

its highest in the spring, with an extra three units N /1,000 gals available in springtime compared with spreading in the summer.

When the slurry spreading open period arrives, every extra day you can hold slurry in the tanks brings you closer to the time where growth and efficient use of those valuable nutrients will be ramping up.

On many farms, capacity will be tight but the temptation to empty tanks should be resisted. Only spread enough slurry to allow you to carry through until applications are needed on the silage ground.

If using slurry or manure for spring arable crops, keep application as close as possible to drilling. Incorporate slurry/manure as quickly as possible to retain the maximum amount of the N value.

- **Tip:** Retain enough slurry to cover the first-cut silage ground, as it has the highest nutrient demand.

Right source

The source in this case is choosing

the correct slurry for the correct field or crop.

For example, higher dry matter slurry from covered tanks with higher P and K content should be targeted to silage ground or fields with lower indexes for P and K.

We can see in Table 2 that applying 3,000 gallons per acre of slurry from a covered tank will supply enough P and K for first-cut silage at index 3, whereas 3,000 gallons per acre of slurry from an open tank/lagoon will leave you well short on P and K.

The more concentrated slurry from a covered tank will also be more suitable to move over a distance, due to its greater nutrient content.

More watery slurry from an open tank or lagoon will be better suited to grazing fields once the silage ground is covered. The N will get washed in quicker and lead to lower contamination of the grass for grazing livestock.

- **Tip:** Identify the tanks in your farmyard that are better suited to silage ground or index 1 or 2 ground vs grazing ground.