



Nutrient Status

Manure and Slurry – Pig

NRM has conducted a recent review of agricultural manures and slurries going back to January 2011 to identify the mean values and variation in nutrient content. We have also investigated the potential financial value of a typical manure/slurry within each category. This review has used customer results over this period that have been analysed for the standard manure analysis packages. These samples are from throughout the UK covering many different farming practices within each category. The categories chosen are a selection of those highlighted in RB209 as types of organic fertilisers.

The purpose of this review is to highlight the possible variation there is in nutrient value and see how this translates to the value of the material when it is spread to land. The variation in nutrients for each material can highlight the importance of getting this material tested so that it can be used in the most efficient way, saving land managers money on fertiliser application or ensuring that enough additional fertiliser is applied if manure values are low.

The full report can be found on the NRM website - <http://www.nrm.uk.com/downloads.php>

This document focuses on Pig manure and slurry and provides a brief summary of the variation in financial and nutrient value for each material. With the use of current fertiliser prices and using the mean nutrient values we have produced a spreading scenario to show what the financial savings could be in a real life situation. This has been done with the use of the MANNER-NPK¹ software and takes into account a number of factors when it comes to spreading the material.

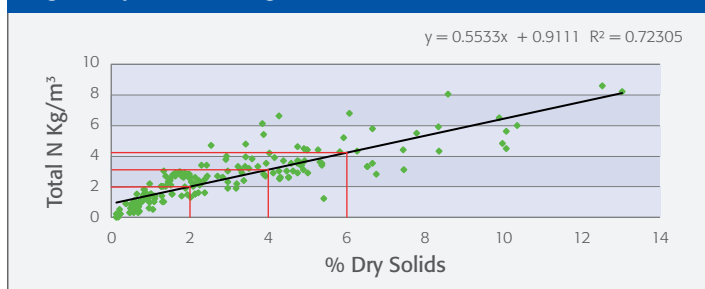
Variation in Financial Value and nutrients of Pig FYM

Manure	N					P			K		
	Nitrogen (Kg/t)	NH ₄ -N (Kg/t)	N Efficiency %	Crop Available N	£ / tonne	P ₂ O ₅ (Kg/t)	Crop Available P205	£ / tonne	K ₂ O (Kg/t)	Crop Available K	£ / tonne
Pig FYM											
Mean	5.75	1.06	12	0.71	0.41	4.65	2.79	2.69	6.64	5.98	2.52
Max	28.44	4.80	12	3.33	1.93	21.11	12.67	12.24	25.50	22.95	9.69
Min	0.69	0.00	4	0.03	0.02	0.71	0.42	0.41	0.41	0.37	0.16

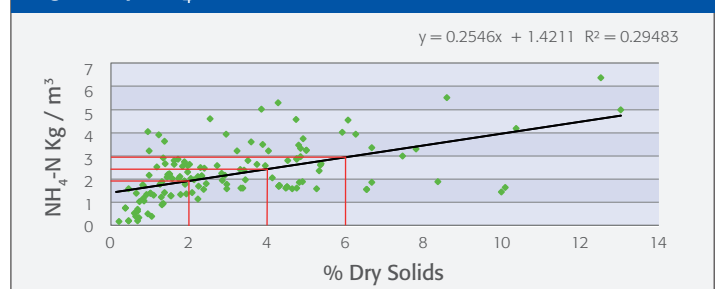
Variation in nutrients of Pig Slurry

Providing variations in financial values of slurry would be very misleading as % dry solids needs to be taken into account. Further details on this can be found in the full report. The charts below show the wide variation that there can be in this material.

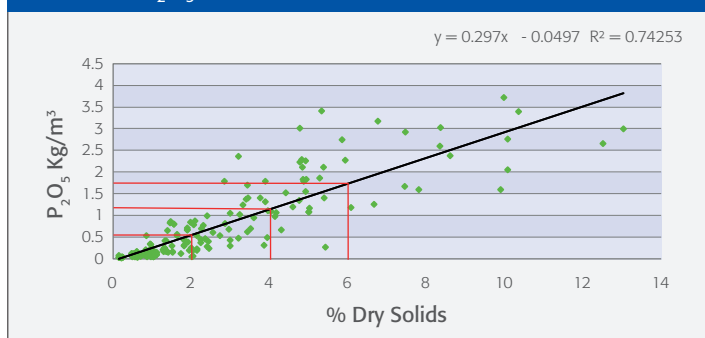
Pig Slurry Total Nitrogen



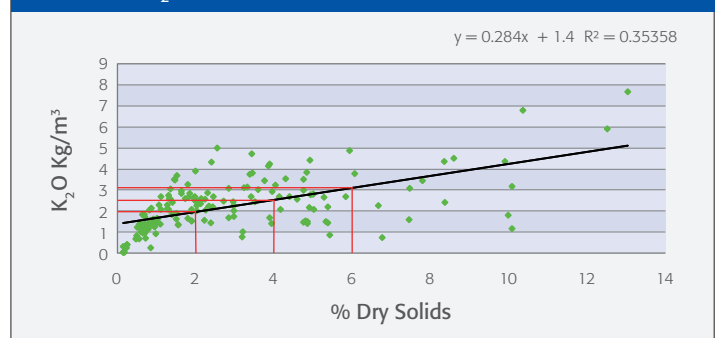
Pig Slurry NH₄-N



Pig Slurry P₂O₅



Pig Slurry K₂O



Pig FYM Spreading Scenario

Potential financial value of Manure application

£45/ha

Application details	
Manure type	Pig FYM fresh
Cropping	Potatoes
Application date	15/02/2016
Application rate (t/ha or m ³ /ha)	8
Application method	Broadcast spreader
Method of soil incorporation	Plough

Manure analysis (using Cattle FYM mean values)		
DM (%)	Kg/t	31.8
Total N		5.75
NH ₄ -N		1.06
Nitrate - N		0
Total P ₂ O ₅		4.65
Total K ₂ O		6.64

Nitrogen in Application							
		Nitrogen losses (kg/ha)			Crop available N (kg/ha)		
Total N (kg/ha)	Mineralised N (kg/ha)	Nitrate-N	Ammonia-N	Denitrified-N	Current crop	Following crop year 2	N use efficiency (%)
46	2	0	4	0	6	1	13

P & K in Application			
Total P ₂ O ₅ (kg/ha)	Available P ₂ O ₅ (kg/ha)	Total K ₂ O (kg/ha)	Available K ₂ O (kg/ha)
37	22	53	48

Financial Value	
Crop available N (£/ha)	£3
Total P ₂ O ₅ (£/ha)	£21
Total K ₂ O (£/ha)	£20
Grand total (£/ha)	£45

¹ MANNER-NPK Version 1.0.1 2013

* Based on 58p/kg N, 58p/kg P₂O₅ & 38p/kg K₂O
Assumed soil index values: P ≤ 2, K ≤ 2+

Pig Slurry Spreading Scenario

Potential financial value of Manure application

£161/ha

(6% Dry Solids)

Application details	
Manure type	Pig Slurry
Cropping	Winter Wheat
Application date	15/09/2015
Application rate (t/ha or m ³ /ha)	50
Application method	Band Spreader – Trailing Shoe
Method of soil incorporation	Plough

Manure analysis (using Pig Slurry mean values)					
	kg/t	2	4	6	
		DM (%)			
		Total N	2.02	3.12	4.23
		NH ₄ -N	1.93	2.44	2.95
		Nitrate - N	0	0	0
		Total P ₂ O ₅	0.64	1.24	1.83
		Total K ₂ O	1.97	2.54	3.10

Nitrogen in Application								
			Nitrogen losses (kg/ha)			Crop available N (kg/ha)		
% Solids	Total N (kg/ha)	Mineralised N (kg/ha)	Nitrate-N	Ammonia-N	Denitrified-N	Current crop	Following crop year 2	N use efficiency (%)
2	101	0	24	9	7	57	0	56
4	156	4	31	15	8	71	2	45
6	212	7	38	23	10	84	4	40

P & K in Application				
% Solids	Total P ₂ O ₅ (kg/ha)	Available P ₂ O ₅ (kg/ha)	Total K ₂ O (kg/ha)	Available K ₂ O (kg/ha)
2	32	16	98	89
4	62	31	127	114
6	92	46	155	140

Financial Value			
	2% Solids	4% Solids	6% Solids
Crop available N (£/ha)	£33	£41	£49
Total P ₂ O ₅ (£/ha)	£18	£36	£53
Total K ₂ O (£/ha)	£38	£49	£59
Grand total (£/ha)	£89	£126	£161

¹ MANNER-NPK Version 1.0.1 2013

* Based on 58p/kg N, 58p/kg P₂O₅ & 38p/kg K₂O
Assumed soil index values: P ≤ 2, K ≤ 2+

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NRM Laboratories Coopers Bridge, Braziers Lane,
Bracknell, Berkshire RG42 6NS
Tel: 01344 886 338 Fax: 01344 890 972
Email: enquiries@nrm.uk.com www.nrm.uk.com



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