



Nutrient Status

Manure and Slurry – Poultry

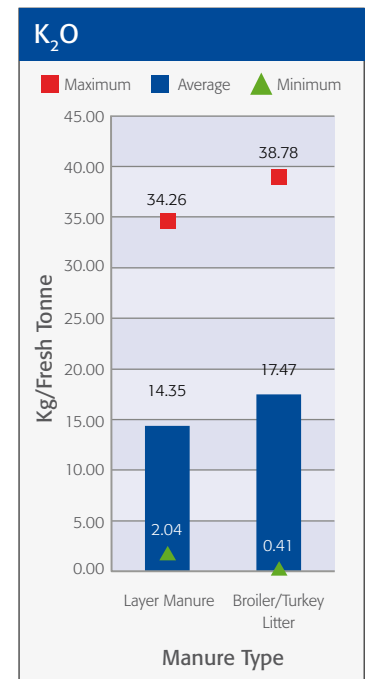
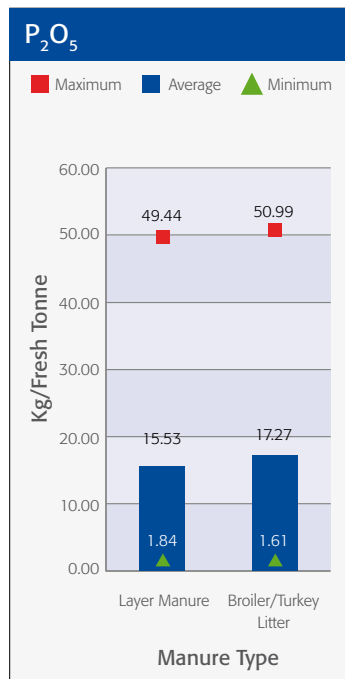
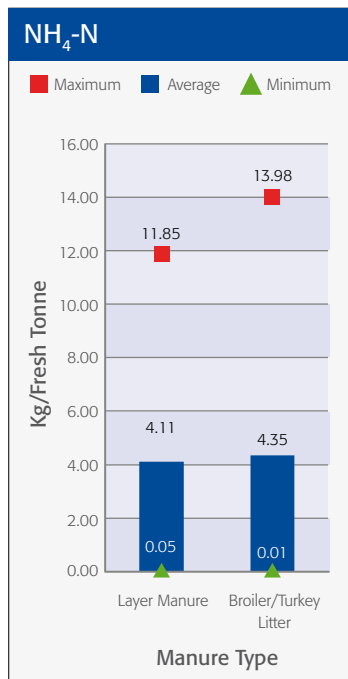
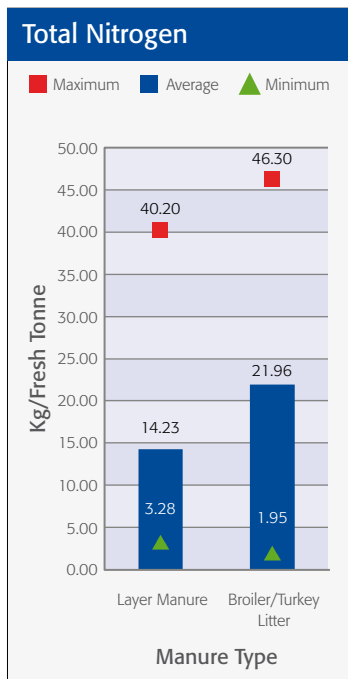
NRM has conducted a recent review of agricultural manures and slurries going back to January 2011 to identify the mean values and variation in nutrient content. We have also investigated the potential financial value of a typical manure/slurry within each category. This review has used customer results 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 Poultry Manure 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-NPK! software and takes into account a number of factors when it comes to spreading the material.

| Variation in Financial Value and nutrients of Poultry Manure | | | | | | | | | | | |
|--|-----------------|---------------------------|----------------|------------------|-----------|---------------------------------------|--|-----------|-------------------------|------------------|-----------|
| 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 P ₂ O ₅ | £ / tonne | K ₂ O (Kg/t) | Crop Available K | £ / tonne |
| Layer Manure | | | | | | | | | | | |
| Mean | 14.23 | 4.11 | 50 | 7.17 | 4.16 | 15.53 | 9.32 | 9.00 | 14.35 | 12.92 | 5.45 |
| Max | 40.20 | 11.85 | 45 | 17.97 | 10.42 | 49.44 | 29.66 | 28.68 | 34.26 | 30.83 | 13.02 |
| Min | 9.10 | 0.05 | 39 | 3.59 | 2.08 | 1.84 | 1.11 | 1.07 | 2.04 | 1.84 | 0.78 |
| Broiler/Turkey Litter | | | | | | | | | | | |
| Mean | 21.96 | 4.35 | 41 | 8.99 | 5.21 | 17.27 | 10.36 | 10.02 | 17.47 | 15.73 | 2.27 |
| Max | 46.30 | 13.98 | 43 | 19.24 | 11.56 | 50.99 | 30.59 | 29.57 | 38.78 | 34.90 | 14.74 |
| Min | 1.95 | 0.01 | 64 | 1.26 | 0.73 | 1.61 | 0.97 | 0.93 | 0.41 | 0.36 | 0.16 |



Layer Manure Spreading Scenario

Potential financial value of Manure application **£149/ha**

| Application details | |
|---|--------------------|
| Manure type | Layer Manure |
| Cropping | Spring Cereal |
| 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 Layer Manure mean values) | | |
|--|------|------|
| DM (%) | Kg/t | 41.6 |
| Total N | | 14.2 |
| NH ₄ -N | | 4.11 |
| Uric Acid – N | | 4.1 |
| Total P ₂ O ₅ | | 15.5 |
| Total K ₂ O | | 14.3 |

| Nitrogen in Application | | | | | | | |
|-------------------------|-----------------------|-------------------------|-----------|---------------|--------------------------|-----------------------|----------------------|
| Total N (kg/ha) | Mineralised N (kg/ha) | Nitrogen losses (kg/ha) | | | Crop available N (kg/ha) | | |
| | | Nitrate-N | Ammonia-N | Denitrified-N | Current crop | Following crop year 2 | N use efficiency (%) |
| 114 | 11 | 3 | 14 | 4 | 57 | 3 | 51 |

| 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) |
| 124 | 74 | 114 | 103 |

| Financial Value | |
|--|-------------|
| Crop available N (£/ha) | £33 |
| Total P ₂ O ₅ (£/ha) | £71 |
| Total K ₂ O (£/ha) | £44 |
| Grand total (£/ha) | £149 |

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+

Broiler/Turkey Litter Spreading Scenario

Potential financial value of Manure application **£174/ha**

| Application details | |
|---|-------------------------|
| Manure type | Broiler / Turkey Litter |
| Cropping | Spring Cereal |
| 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 Layer Manure mean values) | | |
|--|------|------|
| DM (%) | kg/t | 53.5 |
| Total N | | 21.9 |
| NH ₄ -N | | 4.35 |
| Uric Acid – N | | 3.7 |
| Total P ₂ O ₅ | | 17.2 |
| Total K ₂ O | | 17.4 |

| Nitrogen in Application | | | | | | | |
|-------------------------|-----------------------|-------------------------|-----------|---------------|--------------------------|-----------------------|----------------------|
| Total N (kg/ha) | Mineralised N (kg/ha) | Nitrogen losses (kg/ha) | | | Crop available N (kg/ha) | | |
| | | Nitrate-N | Ammonia-N | Denitrified-N | Current crop | Following crop year 2 | N use efficiency (%) |
| 175 | 27 | 3 | 14 | 4 | 72 | 8 | 41 |

| 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) |
| 138 | 83 | 139 | 125 |

| Financial Value | |
|--|-------------|
| Crop available N (£/ha) | £42 |
| Total P ₂ O ₅ (£/ha) | £79 |
| Total K ₂ O (£/ha) | £53 |
| Grand total (£/ha) | £174 |

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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