LIVESTOCK BEDDING TRIAL
based on
WOOL RICH CARPET WASTES

REPORT
17TH June 2010

REDWING LANDBASE LTD.
BEDDING TRIALS REPORT

Introduction

There are two wool rich waste streams produced by the carpet manufacturing industry for which the development of sustainable re-use or recycling outlets are imperative.

1. Cropper dust, the shearing waste from finishing wool rich carpet, has previously been spread to agricultural land as shoddy; however the inclusion of nylon fibres in the carpet weave to improve wear tolerance has led to this avenue being closed under current interpretation of the Environmental Permitting Regulations by the Environment Agency.

2. Carpet Off-cuts from manufacture are currently land filled, and so any initiative to raise them above the disposal category in the waste hierarchy will be a positive move. The tonnage involved is low, however a further 99,000 tonnes of post consumer wool rich carpet are also land filled each year, so a sustainable outlet for carpet trimmings has potential for extension into the post consumer sector.

Traditionally livestock bedding was either straw or sawdust based, however in recent years a range of waste based materials have found successful outlets on farms as bedding substitutes. Straw and sawdust have increased in cost at the same time as demand for other competing uses for these materials has diminished supply.

As a result there is a large potential market for suitable, absorbent bedding materials. To prove to be suitable materials for livestock bedding, cropper dust and wool rich carpet shred will need to demonstrate the following:

1. Perform well as bedding materials
2. Produce manure acceptable for land spreading under environmental legislation.

Carpet Recycling UK commissioned Redwing Landbase Ltd to operate small scale trials to:

A. Demonstrate the suitability or otherwise of the wastes as bedding
B. Provide analytical evidence to contribute to a future discussion with the Environment Agency over the regulatory position of land-spreading resulting manures.
Trial Design

The trial was initially designed to cover farms across a wide geographical area, and several different livestock systems.

Cropper Dust and Carpet shred were to be supplied FOC at source through CMA contacts.

Each farm would be chosen based on a high level of livestock management and their innovative approach to new ideas. Following registration with the Environment Agency, small but adequate volumes of cropper dust and carpet shred would be delivered to the farms for comparison with their existing system of livestock bedding. Farmers would be given a simple record sheet on which to record their judgement of how the wastes performed as bedding and compared with straw or sawdust.

Samples of the manure containing these wastes, would be taken at the point at which the bedding required changing. The samples would be analysed for nutrient content in order to determine potential benefit to agriculture, and potential toxic elements in order to determine potential harm to the environment, and the residual man-made fibre content.

Assumptions

In planning the trial design the following assumptions were made:

The willingness and ability of farmers to manage the trial at a farm level.
The availability of cropper dust from manufacturers in producing areas close to the farms.
The availability of carpet shred without charge.

The trial budget was based on these assumptions.

Problems

1. Supply of materials for the trials was not available in many areas
2. Carpet shred had to be produced at contract shredding rates for the trial.
3. Farmers would only run the trials as long as the materials were available in sufficient quantities to be practical, and at the time required.
4. All samples needed to be tested in two stages by different Laboratories.

Implications for the Trials

The result of these problems were that the cropper dust and carpet off cuts were only available from one area, and the carpet off cuts had to be transported to be
shredded on a contract charge rate before being transported back to the farms. This greatly increased costs and as well as delaying the carpet shred trials.

As a result, it was decided to reduce the number of farms to 3 in order to contain costs.

Problems with timely supply of the wastes led to discontinuation of the trial on two farms, resulting in an increased focus on one farm only to produce representative results.

Laboratory analyses also proved expensive and slow due to the novel nature of the requirement and the two stage analysis adopted.
Results

Cropper Dust Manure BTP1 *

Material delivered to farm    15/2/10
Livestock Type     Beef Cattle
Housing
      Date Bedded   16/2/10
      Date of Sample  9/3/10

Analysis Reports NRM 97679 and Shirley Technologies 26533/STL/IGS

Summary of Results

Fibre Analysis

Manure Dry Matter     22.7%
Sample weight     25.3g
Extracted dry fibre weight     1.64g
Fibre content          6.48%

Fibre constituents on a fresh weight basis

Nylon fibre content         0.55%
Polypropylene content       0.136%
Combined man-made fibre content  0.68%

Nutrient Analysis

Summary of Results

<table>
<thead>
<tr>
<th></th>
<th>Kg/t Dry Matter</th>
<th>Kg/t SAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Nitrogen</td>
<td>87.9</td>
<td>19.95</td>
</tr>
<tr>
<td>Phosphate</td>
<td>6.45</td>
<td>1.46</td>
</tr>
<tr>
<td>Potash</td>
<td>25.23</td>
<td>5.73</td>
</tr>
</tbody>
</table>

*Based on later experience, this bedding was analysed before it was fully utilised and could have remained in use for a further 10 to 14 days*
Results

Carpet Shred Manure BTP2

Material delivered to farm    29/4/10
Livestock Type                Beef Cattle
Housing                      Loose Housed
                              Date Bedded    29/4/10
                              Date of Sample 12/5/10

Analysis Reports NRM 11318 and Shirley Technologies 26836/STL/IGS

Summary of Results

Fibre Analysis

Manure Dry Matter    19.8%
Sample weight        25g
Extracted dry fibre weight    1.42g
Fibre content        5.68%

Fibre constituents on a fresh weight basis

Nylon fibre content    0.5%
Polypropylene content  0.59%
Combined man-made fibre content  1.09%

Nutrient Analysis

Summary of Results

<table>
<thead>
<tr>
<th></th>
<th>Kg/t Dry Matter</th>
<th>Kg/t SAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Nitrogen</td>
<td>27.3</td>
<td>5.4</td>
</tr>
<tr>
<td>Phosphate</td>
<td>14</td>
<td>2.76</td>
</tr>
<tr>
<td>Potash</td>
<td>15.78</td>
<td>3.12</td>
</tr>
</tbody>
</table>
Discussion

Both cropper dust and wool-rich carpet shred make excellent livestock bedding materials. They are warm, comfortable and absorbent, keeping livestock cleaner than traditional alternatives. Farmer response is positive as it saves time and labour and provides animal welfare benefits. There are issues over handling and packaging, but these could be easily overcome and there would be a commercial value to the materials as bedding.

Nutrient analysis shows that the resulting bedding has good manurial properties, and similarly to paper effluent cake bedding, retains much of the nutrient value in livestock deposits.

PTE levels are well below levels which would cause concerns for land-spreading.

Delays caused by the supply and shredding problems have resulted in these results being 3 months later than originally anticipated. Meanwhile at meetings between the EA and Carpet Recycling UK in March, but not communicated to Redwing, the EA position on livestock bedding has been discussed and clarified. These results can contribute to future discussion with the EA, on land-spreading of livestock manures containing wool rich carpet wastes, but this would appear to now hinge on fine legal definitions rather than on an evidence based approach to risk and benefit.

The acceptability of re-using these materials as livestock bedding will be dependant on a policy decision on the intent for inclusion of man-made fibre in the manures.

Analysis for the cropper dust manure at the point at which it was removed shows that it retains 0.68% man-made fibre (of which 80% is Nylon). This compares with approximately 20% man-made fibre in the original material.

However experience with the wool rich carpet shred has shown that we only achieved approximately 50% recovery on the cropper dust, and that the bedding would have continued to perform well for another 10 days to two weeks had it been left in place.

At a bedding rate of 0.45 m$^3$ per animal and a slurry production of 32 litres per head per day, a further 14 days use of bedding would have added a further 0.45m$^3$ of slurry per 45 Kg of cropper dust. This has the potential to reduce the man-made fibre content from 0.68% to 0.068% by means of further dilution by a factor of 10.

Ideally we would like to re-run this part of the trial to fully recover the material before analysis, but as the main bedding season is now finished, and in view of the
outcome of the March meeting with the EA, feel it is sensible to present these results for discussion before any further work is undertaken.

Analysis of the wool rich carpet shred at the point where it **was fully recovered** shows that it retains 1.09% man-made fibre which splits 45/55% between nylon and polypropylene. This is as a result of polypropylene backing being retained in the shred mix.

It might be possible to mechanically process wool rich carpet to remove the backing fabric, and the resulting wool rich fibre would then be similar in content to the cropper dust and could be considered in the same way. However experience in the United States suggests that this may not be cost effective for low value products using current technology.

However, as the decisions over these materials now appears to hang mainly on legal definitions of ‘incidental’ and ‘integral’ inclusion of plastics, it may be arguable that in processing wool rich carpet to remove the polypropylene, effort is expended to extract as much man-made fibre as possible?

**Conclusions**

Both the cropper dust and wool rich carpet shred make good bedding materials and would have a commercial value as livestock bedding. There is a growing demand for bedding and a ready market exists.

The resulting manure retains high nutrient values and could benefit agricultural soils

**Cropper Dust**

On the basis that cropper dust proved not to be fully utilised at the time of analysis we think it will be possible to comply with or improve on the PAS 100 standard for compost, (0.25% plastic by weight) when utilising cropper dust as livestock bedding.

**Wool Rich Carpet Shred**

This is unlikely to be accepted as reuse by the E.A. without pre-processing to remove the poly-propylene backing, because the resulting manure will exceed the PAS 100 standard for plastic contamination when the waste is fully recovered as livestock bedding.
APPENDIX 1

ANALYSES
CONFIDENTIAL TEST REPORT

Our Ref: 26533/STL/IGS
Client Ref: Letter 25/3/10

Client: Redwing Landbase

Client: Paul Hodson
Redwing Landbase Ltd
Parton House Gardens
Parton
Castle Douglas
DG7 3NB

Job Title: Composition Analysis of Dust Manure

Clients Order Ref: Letter 25 March 2010

Date of Receipt: 7 April 2010

Description of Samples: Sample of dust manure – Ref: BTP1

Work Requested: Determination of material composition as best possible

UKAS Accreditation: Our Laboratories are UKAS accredited. However, it should be noted that tests marked * are not UKAS accredited in this report and are not included in the UKAS Accreditation Schedule for our laboratory, either due to the work not conforming fully to the standard (e.g. reduced number of specimens) or to it being outside the scope of our accreditation. Subcontracted tests are marked ** and will be performed by a UKAS accredited facility except where similarly indicated.
CONFIDENTIAL TEST REPORT

Our Ref: 26533/Stl/igs  
Client Ref: Letter 25/3/10  
Client: Redwing Landbase

INTRODUCTION

Shirley Technologies Limited (STL) was supplied with a small bag of dust manure, labelled BTP1. The material comprised a significant amount of vegetable matter mixed with fibrous matter.

STL was requested to perform tests to determine the approximate fibre composition, bearing in mind the amount of vegetable matter present.

LABORATORY TESTING

Fibre Composition – Quantitative Analysis

The material composition was estimated using the methodology laid out in accordance with EC Directives 73/44/EEC and 96/73/EC as amended by 2006/2/EC. The composition was calculated with the vegetable matter in place and then recalculated to remove this matter, to give an estimation of the fibre content.

<table>
<thead>
<tr>
<th>Fibre Composition</th>
<th>Including Veg Matter</th>
<th>Excluding Veg Matter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetable Matter</td>
<td>~23.6 %</td>
<td></td>
</tr>
<tr>
<td>Wool/Protein Fibres</td>
<td>65.8 %</td>
<td>66.2 %</td>
</tr>
<tr>
<td>Nylon Fibres</td>
<td>8.5 %</td>
<td>11.1 %</td>
</tr>
<tr>
<td>Polypropylene Fibres</td>
<td>2.1 %</td>
<td>2.7 %</td>
</tr>
</tbody>
</table>

It was also noted that the residual matter, after sequential removal of nylon, polypropylene and wool, contained isolated single fibres and microscopical instances of what appeared to be embossed synthetic film. However these materials could not be removed for examination due to the contaminant vegetable matter present.

The information contained on the preceding pages of this certificate is hereby certified to be a correct statement of the tests and investigations carried out by Shirley Technologies Ltd. on the materials referred to.

Reported by: [Signature]  
IG Strudwick  
Technical Manager

Countersigned by: [Signature]  
J L Buckley  
Senior Analyst

Enquiries concerning this report should be addressed to the Reporting Officer.
MANURE ANALYSIS RESULTS

Sample Reference: BTP1
Sample Matrix: MANURE

The sample submitted was of adequate size to complete all analysis requested.
The sample will be kept as the dry ground sample for at least 1 month.

ANALYTICAL RESULTS on 'as received' basis.

<table>
<thead>
<tr>
<th>Determinand</th>
<th>Value</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh Weight</td>
<td>25.30</td>
<td>g</td>
</tr>
<tr>
<td>Dry Weight</td>
<td>1.64</td>
<td>g</td>
</tr>
<tr>
<td>Fibre Content</td>
<td>6.48</td>
<td>%</td>
</tr>
</tbody>
</table>
ANALYTICAL REPORT

Sample Reference: BTP2
Sample Matrix: MANURE

The sample submitted was of adequate size to complete all analysis requested.
The sample will be kept as the dry ground sample for at least 1 month.

**ANALYTICAL RESULTS on 'as received' basis.**

<table>
<thead>
<tr>
<th>Determinand</th>
<th>Value</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh Weight</td>
<td>25</td>
<td>g</td>
</tr>
<tr>
<td>Dry weight</td>
<td>1.42</td>
<td>g</td>
</tr>
<tr>
<td>Fibre Content</td>
<td>5.68</td>
<td>%</td>
</tr>
</tbody>
</table>

Date Received: 13-May-2010  
Date Reported: 14-May-2010

Released by Dr R C Wilkinson  
Date: 14/05/10
CONFIDENTIAL TEST REPORT

Our Ref: 26836/STL/IGS
Client Ref: Letter 18/5/10

Client: Redwing Landbase

Client: Paul Hodson
Redwing Landbase Ltd
Parton House Gardens
Parton
Castle Douglas
DG7 3NB

Job Title: Composition Analysis of Dust Manure

Clients Order Ref: Letter 18 May 2010

Date of Receipt: 19 May 2010

Description of Samples: Sample of dust manure – Ref: BTP2

Work Requested: Determination of material composition as best possible

UKAS Accreditation:
Our Laboratories are UKAS accredited. However, it should be noted that tests marked * are not UKAS accredited in this report and are not included in the UKAS Accreditation Schedule for our laboratory, either due to the work not conforming fully to the standard (e.g. reduced number of specimens) or to it being outside the scope of our accreditation. Subcontracted tests are marked ** and will be performed by a UKAS accredited facility except where similarly indicated.
CONFIDENTIAL TEST REPORT

Our Ref : 26836/STL/IGS
Client Ref : Letter 18/5/10
Client: Redwing Landbase

INTRODUCTION

Shirley Technologies Limited (STL) was supplied with a small bag of dust manure, labelled BTP2. The material comprised a significant amount of vegetable matter mixed with fibrous matter.

STL was requested to perform tests to determine the approximate fibre composition, bearing in mind the amount of vegetable matter present.

LABORATORY TESTING

Fibre Composition – Quantitative Analysis
The material composition was estimated using the methodology laid out in accordance with EC Directives 73/44/EEC and 96/73/EC as amended by 2006/2/EC. The composition was calculated with the vegetable matter in place and then recalculated to remove this matter, to give an estimation of the fibre content.

<table>
<thead>
<tr>
<th>Fibre composition</th>
<th>Including veg matter</th>
<th>Excluding veg matter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetable matter</td>
<td>~57.6 %</td>
<td>-</td>
</tr>
<tr>
<td>Wool/protein fibres</td>
<td>23.1 %</td>
<td>55.2 %</td>
</tr>
<tr>
<td>Nylon fibres</td>
<td>8.8 %</td>
<td>20.5 %</td>
</tr>
<tr>
<td>Polypropylene fibres</td>
<td>10.5 %</td>
<td>24.3 %</td>
</tr>
</tbody>
</table>

It was also noted that the residual matter, after sequential removal of nylon, polypropylene and wool, contained isolated instances of short lengths of folded yarns which were analysed microscopically as a blend of polyester and cotton. However these materials could not be removed for examination due to the contaminant vegetable matter present.

The information contained on the preceding pages of this certificate is hereby certified to be a correct statement of the tests and investigations carried out by Shirley Technologies Ltd. on the materials referred to.

Reported by: ........................................ I G Strudwick
Technical Manager

Countersigned by: ........................................ P M Whitaker
Operations Manager

Enquiries concerning this report should be addressed to the Reporting Office.
The sample submitted was of adequate size to complete all analysis requested. The sample will be kept as the dry ground sample for at least 1 month.

**ANALYTICAL RESULTS** *on 'dry matter' basis.*

<table>
<thead>
<tr>
<th>Determinand</th>
<th>Value</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry Matter</td>
<td>22.7%</td>
<td>%</td>
</tr>
<tr>
<td>Total Nitrogen</td>
<td>8.79%</td>
<td>% w/w</td>
</tr>
<tr>
<td>Total Phosphorus (P)</td>
<td>2815</td>
<td>mg/kg</td>
</tr>
<tr>
<td>Total Potassium (K)</td>
<td>20935</td>
<td>mg/kg</td>
</tr>
<tr>
<td>Total Magnesium (Mg)</td>
<td>2545</td>
<td>mg/kg</td>
</tr>
<tr>
<td>Total Copper (Cu)</td>
<td>35.9</td>
<td>mg/kg</td>
</tr>
<tr>
<td>Total Zinc (Zn)</td>
<td>126</td>
<td>mg/kg</td>
</tr>
<tr>
<td>Total Lead (Pb)</td>
<td>7.77</td>
<td>mg/kg</td>
</tr>
<tr>
<td>Total Cadmium (Cd)</td>
<td>0.083</td>
<td>mg/kg</td>
</tr>
<tr>
<td>Total Mercury (Hg)</td>
<td>&lt;0.05</td>
<td>mg/kg</td>
</tr>
</tbody>
</table>
MANURE ANALYSIS RESULTS

Sample Reference: 
DUST MANURE BTP 1
Sample Matrix: MANURE

The sample submitted was of adequate size to complete all analysis requested. The sample will be kept as the dry ground sample for at least 1 month.

<table>
<thead>
<tr>
<th>Determinand</th>
<th>Value</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Nickel (Ni)</td>
<td>2.92</td>
<td>mg/kg</td>
</tr>
<tr>
<td>Total Chromium (Cr)</td>
<td>34.4</td>
<td>mg/kg</td>
</tr>
</tbody>
</table>

Date Received: 22-MAR-2010
Date Reported: 29-MAR-2010

Released by Dr R C Wilkinson
Date 29/03/10
**MANURE ANALYSIS RESULTS (Metric Units)**

Sample Reference: BTP2  
Sample Matrix: MANURE

The sample submitted was of adequate size to complete all analysis requested. The sample will be kept as the dry ground sample for at least 1 month.

<table>
<thead>
<tr>
<th>Determinand on a DM basis unless otherwise indicated</th>
<th>Units</th>
<th>Result</th>
<th>Amount per fresh tonne</th>
<th>Amount applied at an equivalent total Nitrogen application of...</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>170 kg N/ha 250 kg N/ha</td>
<td></td>
</tr>
<tr>
<td>Dry Matter</td>
<td>%</td>
<td>19.8</td>
<td>198.00</td>
<td>6227</td>
<td>9158</td>
</tr>
<tr>
<td>Total Nitrogen</td>
<td>% w/w</td>
<td>2.73</td>
<td>5.41</td>
<td>170</td>
<td>250</td>
</tr>
<tr>
<td>Total Phosphorus (P)</td>
<td>% w/w</td>
<td>0.610</td>
<td>2.77</td>
<td>86.99</td>
<td>127.92</td>
</tr>
<tr>
<td>Total Potassium (K)</td>
<td>% w/w</td>
<td>1.31</td>
<td>3.11</td>
<td>97.89</td>
<td>143.96</td>
</tr>
<tr>
<td>Total Magnesium (Mg)</td>
<td>% w/w</td>
<td>0.738</td>
<td>2.43</td>
<td>76.29</td>
<td>112.19</td>
</tr>
<tr>
<td>Total Copper (Cu)</td>
<td>mg/kg</td>
<td>48.5</td>
<td>0.01</td>
<td>0.30</td>
<td>0.44</td>
</tr>
<tr>
<td>Total Zinc (Zn)</td>
<td>mg/kg</td>
<td>296</td>
<td>0.06</td>
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<tr>
<td>Equivalent field application rate</td>
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<td>1.00</td>
<td>31.45</td>
<td>46.25</td>
<td>tonnes/ha</td>
</tr>
</tbody>
</table>

Released by Joe Cherrie Date 21/05/10
MANURE ANALYSIS RESULTS (Metric Units)

Sample Reference: BTP2
Sample Matrix: MANURE

The sample submitted was of adequate size to complete all analysis requested.
The sample will be kept as the dry ground sample for at least 1 month.

### ANALYTICAL RESULTS

<table>
<thead>
<tr>
<th>Determinand</th>
<th>Units</th>
<th>Result</th>
<th>Amount per fresh tonne</th>
<th>Amount applied at an equivalent total Nitrogen application of...</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>170 kg N/ha 250 kg N/ha</td>
</tr>
<tr>
<td>Total Lead (Pb)</td>
<td>mg/kg</td>
<td>59.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Cadmium (Cd)</td>
<td>mg/kg</td>
<td>0.218</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Mercury (Hg)</td>
<td>mg/kg</td>
<td>0.050</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Nickel (Ni)</td>
<td>mg/kg</td>
<td>7.30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Chromium (Cr)</td>
<td>mg/kg</td>
<td>38.1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How does your sample compare with 'standard' figures for organic manures?

<table>
<thead>
<tr>
<th>Cattle FYM (fresh) (per tonne)</th>
<th>Cattle FYM (old) (per tonne)</th>
<th>Pig FYM (fresh) (per tonne)</th>
<th>Pig FYM (old) (per tonne)</th>
<th>Layer manure (per tonne)</th>
<th>Broiler / turkey litter manure (per tonne)</th>
<th>Duck manure (fresh) (per tonne)</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry Matter</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>30</td>
<td>60</td>
<td>25</td>
</tr>
<tr>
<td>Total Nitrogen</td>
<td>6.0</td>
<td>6.0</td>
<td>7.0</td>
<td>7.0</td>
<td>16.0</td>
<td>30.0</td>
<td>6.5</td>
</tr>
<tr>
<td>Ammonium Nitrogen</td>
<td>1.5</td>
<td>0.6</td>
<td>1.8</td>
<td>0.7</td>
<td>5.6</td>
<td>8.1</td>
<td>1.4</td>
</tr>
<tr>
<td>Uric Acid Nitrogen</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>2.4</td>
<td>3.9</td>
<td>0.2</td>
</tr>
<tr>
<td>Total Phosphate</td>
<td>3.5</td>
<td>3.5</td>
<td>7.0</td>
<td>7.0</td>
<td>13.0</td>
<td>25.0</td>
<td>5.5</td>
</tr>
<tr>
<td>Total Potash</td>
<td>8.0</td>
<td>8.0</td>
<td>5.0</td>
<td>5.0</td>
<td>9.0</td>
<td>18.0</td>
<td>7.5</td>
</tr>
<tr>
<td>Total Magnesium</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
<td>2.2</td>
<td>4.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Total Sulphur</td>
<td>1.8</td>
<td>1.8</td>
<td>1.8</td>
<td>1.8</td>
<td>3.8</td>
<td>8.3</td>
<td>2.7</td>
</tr>
</tbody>
</table>

The 'standard' availability figures to the next crop grown for phosphate and potash (as per RB209) are 60% and 90% respectively. The 'standard' figures for organic manures above have been selected from Defra's Fertiliser Recommendations for Agricultural and Horticultural Crops (RB209). Further information on fertiliser recommendations for organic manures can be obtained from RB209.

Released by Joe Cherrie 21/05/10