

## CCS Technical Information

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**Improving the precision and efficiency of compost stability assessment** - The UK ORG0020 test is used to assess compost stability as part of the compost certification scheme (CCS) and adherence to BSI PAS100:2011. Test samples are incubated and a continuous supply of air maintained to achieve optimal conditions for aerobic decomposition. If the air flow falls outside the required range, it may impact on test accuracy and precision. A recent study carried out by Heriot-Watt University and The Open University investigates the effects of changing the flow control proposed in the original test method, looking to achieve more stable air flow and thus improving the variability of test results. The study also looks at the oxygen demand to confirm the acceptable air flow rates. A comparison of the running costs of the original setup versus the modified setup is also described. The results in the report provide evidence of improved test precision using the modified setup and also indicate improved accuracy. Using assumptions about the cost of labour and lifespan of equipment, the modified test setup appeared cost effective. The report is available to download [here](#).

**Compost quality and safety for agriculture** - WRAP have published their report summarising the extensive project(s), which began in 2008, exploring the quality of PAS100 compost and any risks associated with the application to agricultural land. *Compost quality and safety for agriculture* can be read on ResearchGate [here](#). The report presents the scenarios and hazards considered, the methods employed, and the results of each risk assessment. Seven categories of hazards/risks were considered, including; potentially toxic elements, animal pathogens, and physical contaminants. The results of these assessments showed that the risks were low or negligible. Throughout the report, limitations of the research are also presented and explained. The report also details some highly useful information about the benefits of applying quality compost to soils.

In summary, the findings of these three projects (all incorporated into one report) are very positive and highlight that the risks of compost were low or negligible (within all scenarios explored).

**Physical contaminants in PAS composts & digestates** - The long-awaited WRAP report on physical contaminants in PAS composts & digestates was recently published on their website (January 2017). This research project aimed to explore the current robustness of physical contaminant testing regimes and sampling regimes required under the Compost Certification Scheme (CCS) and Biofertiliser Certification Scheme (BCS). The project examined ways in which the testing methods could be made more robust and sought to

understand variability of analysis between the different laboratories and within each laboratory. Recommendations for improvement are provided throughout the report. WRAP also explored the surface area testing method as opposed to the weight based method currently used. Sampling methods were examined for a range of compost and digestate producers and analysed according to the guidelines set by CCS and BCS. You can learn about their findings [here](#).

**Herbicides in compost** - WRAP have published a report presenting very beneficial information for growing media manufacturers regarding the detection of herbicides in green compost. Herbicides, such as clopyralid and aminopyralid, can be found in the feedstock material sent to composting sites. Therefore, the resulting compost material may also contain herbicide residues. These herbicides can slow down the growth of plants and so are not desirable for application as growing media ingredient. This report looked at how a bioassay test (using field beans) can detect low levels of herbicides in compost and can provide confidence to growing media manufacturers that this test works. Field beans were found to be more sensitive to herbicide residues than the other plant species tested.

The project consisted of 4 stages; 1) developing and testing a bean bioassay test, 2) screening a range of plant species for their sensitivity to herbicide residues in green compost, 3) testing samples of green composts and green-food composts for herbicides, and 4) testing growing media for herbicide residues.

The study concluded that the tomato plant response test is sufficient and suitable for testing composts supplied to the agriculture and field horticulture markets. However it is not sensitive enough to detect herbicide residues for compost destined for the growing media market. For this purpose, the field bean bioassay test should be used in conjunction with the tomato plant response test. You can access more information about the research and download the full report [here](#).

**Green waste compost production in Wales** - WRAP has produced an interactive map which shows the locations of all the facilities treating (or accepting) green waste (in Spring 2016). You can pull up further information by clicking on the individual sites, such as whether the site is certified. The map is available on their website [here](#).

Alongside this, they've published a summary report which provides an overview of the capacity of the green waste composting infrastructure in Wales, and it also considers the likely future supply and demand of green waste composting capacity. The results of the survey which they carried out showed, for example, that at the end of 2015 there were 17 composting facilities in Wales, and in 2014/2015 those facilities received approximately 164,000 tonnes of green waste and food waste.

**Scottish ASORI** – Zero Waste Scotland has published a new report which reveals the positive growth of the organics recycling sector in Scotland during the year 2014. This growth is found to be linked to the new Waste (Scotland) Regulations which sought to improve the management and recycling of food waste in Scotland. The regulations set out important requirements in the chain of food waste management. From 1<sup>st</sup> January 2014, food businesses and local authorities were required to separate their food waste for recycling. This has proven to be a promising strategic step in their transition to a more circular economy.

The amount of organic waste processed in Scotland by compost and anaerobic digestion facilities increased by an impressive 30,000 tonnes in 2014 compared to the previous year. Food waste collections by local authorities have proven to be effective as local authorities were found to be the main source of input material for compost and anaerobic digestate (AD) processes (accounting for 85%). The number of composting sites certified to PAS100 increased from 22 in 2013 to 25 in 2014 (out of 29 composting sites in total – presenting a high proportion of certified sites to non-certified sites in Scotland).

Annual surveys of the organic recycling sector began in the mid-90s and were first steered by the Composting Association. For more information about the survey carried out in 2014 and to download the full report, 'A survey of the organics reprocessing industry in Scotland in 2014', you can access it on their website [here](#).

**Digestate and compost videos** – WRAP has recently published a third video on their website about the benefits of using compost. This 3-minute long short uses animation and photography to depict the numerous benefits of using compost in agriculture specifically. It is primarily an educational video for farmers but also for those simply wishing to learn more about compost. The benefits presented in this video include higher soil organic matter after long term application of compost to soil. This video also demonstrates how both green compost and green/food compost is produced. To watch this video, and the previous two videos produced as part of DC-Agri's Knowledge Exchange activity, you can access the page on their website [here](#).

**DC-Agri Project** - WRAP has recently produced a new report based on the findings of a five-year project exploring the effects of quality digestate and compost, as renewable fertilisers, on crop yield and soil quality. The report is titled 'Field Experiments for Quality Digestate and Compost in Agriculture' and the project spanned 5 years (2010-2015). The key findings are based upon the results of experiments which were implemented on 22 experimental sites. Food-based digestate, a renewable fertiliser, proved to be a strong alternative to manufactured fertilisers as a source of nitrogen. The use of this digestate, on

crops that require nitrogen, will increase crop yields, improve soil quality, and reduce farmers' costs. Digestate can also produce higher crop yields through the supply of other nutrients to the soil, which produces a 'nutrient boost'. WRAP observed that compost, as a renewable fertiliser, increased the content of organic matter in soil more quickly than other organic materials. Other highly positive results of the experiments include the observation that there were significant increases in soil microbial biomass after application of green compost to the soil for 9 years. However, this report proposes the use of compost as a long term, rather than short term, alternative to manufactured fertilisers. Overall, the crop quality was found to be of a similar standard to crops grown using manufactured fertilisers. The report summary can be found here on their website through this [link](#).

Alongside this, WRAP also published Digestate and Compost Good Practice Guidance documents. These provide farmers, growers, advisers and agricultural contractors, with assurance and guidance on the use of digestate and compost as renewable fertilisers. These can be found on their website [here](#). Contained within these good practice guides, [The Renewable Fertiliser Matrix](#) details when compost and digestate can be used as renewable fertilisers during different periods within the harvest cycle.

You can download the related bulletins on their [website](#).

You may also be interested in WRAP's short video for farmers and agronomists on how to use digestate as a renewable fertiliser, visit this [webpage](#).

**Growing Media Package** - WRAP has recently completed a project titled 'Supporting Retailers to Increase their Use of Sustainable Growing Media' which aimed to support retailers and prepare them for the transition to a more sustainable growing media industry. This work was undertaken in light of DEFRA's report 'Towards Sustainable Growing Media'. More information about the project and associated reports can be found on their website through this [link](#).

The revised report 'Compost Production for use in Growing Media – a Good Practice Guide' details highly useful information for compost producers regarding the production of quality composts. This report aims to develop the understanding and knowledge of compost producers concerning; opportunities in the growing media market; the use of published guidance; and the application of techniques for measuring specific parameters. The report can be found [here](#).

The revised report 'Guidelines for the Specification of Quality Compost for use in Growing Media' similarly acts as a tool in supporting compost producers with their endeavour to produce quality compost. The BSI PAS 100 and the Compost Quality Protocol set high standards for composters to abide by in order to produce high quality product. Therefore

this report offers composters valuable guidance, in recognition of this, to ensure that the requirements are met. The report can be found [here](#).

The report 'De-mystifying the Use of PAS100 Compost in Horticultural Growing Media' presents numerous ways in which PAS100 compost can be improved for use as growing media, through seeking to resolve the issues identified by the Sustainable Growing Media Task Force (SGMTF). These nine issues include physical contamination and high bulk density. This comprehensive report can be accessed [here](#).

An [infographic](#) developed by Newleaf displays a diagrammatic explanation of how the components in a bag of growing media are sourced. It highlights which stages of the sourcing process could potentially have a high impact on the environment, and therefore provides useful information to the retail supply chain on growing media choices.

**Seven Ways to Save our Soils** - The Soil Association has published a concise, and comprehensible, report outlining seven ways in which both farmers, and the government, can address the prevalent issue of soil degradation. This publication titled 'Seven Ways to save our Soils' presents seven ways in which the Soil Association's target for improved soil health can be reached. The target is to increase organic matter in arable and horticultural soils by 20% over the next 20 years. The seven ways to implement this aim involve the combined efforts of farmers and the government. One way in which the Soil Association has suggested that this can be achieved is by increasing the amount of plant and animal matter returned to the fields. This could involve the encouragement of farmers to utilise certified composts to replace nitrogen based fertilisers. The report also highlights that organic farms practice all seven of these approaches, and stresses the importance of increasing support for organic farming. The report can be found [here](#).