Organics Recycling

- **CONTAMINATION** SEPA report
- **CARBON CAPTURE** Compost and climate change
- **HOT TOPIC** Compostables in AD
- **BUYERS' GUIDE** Air separators

The quarterly members' magazine from the Organics Recycling Group of the REA

Autumn 2019 Issue 42

TARGETING ZERO CONTAMINATION

THE PLAN FOR PLASTIC-FREE FEEDSTOCKS

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WELCOME

Jeremy Jacobs
Technical Director, REA

The topic of plastics is never far away from the conversation in our world. With a recent BBC Countryfile episode highlighting the issues of plastics in compost, ORG is ramping up the dialogue with local authorities, LARAC and NAWDO and working collaboratively with WRAP to improve the quality of inputs to garden waste, an issue that has been flagged by members as one of significant concern. I am keen to hear what has worked well for your business and how you have been successful or otherwise in improving the quality of garden waste that you receive.

For those of you that have been around this business for some time, you may recall that there used to be an annual survey, carried out initially by the Composting Association (as we were then known), and more recently by WRAP. Due to funding cutbacks, this has not happened since 2015, but Defra has now asked WRAP to commission a comprehensive survey of the AD and composting industry to examine capacity and throughput in the sector. More information on this can be found on page 24 – I urge you all to participate and support this initiative, as it offers the opportunity to have an impact on the direction of our valued sector within the wider resources arena.

Lastly, you will see in this edition of Organics Recycling that we have a date and venue booked for the ORG 25th Annual Conference and Exhibition, to be held on 12 March 2020 in Kenilworth. Save the date for this milestone in the growth of our sector; kindly headline sponsored by JCB, this is an event not to be missed.

Thank you once again for your continued support.

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Organics Recycling is the magazine of the Renewable Energy Association's (REA) Organics Recycling Group

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ISSN 2041 - 2169

Printed by Pensord Press
Printed on Revive 100% recycled

Organics Recycling is published by Resource Media Limited for the Organics Recycling Group of the REA.

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GOVERNMENT

UK Government launches bioplastics innovation drive

The Department for Business, Energy and Industrial Strategy (BEIS) has announced key funding for innovation in bioplastics as part of the Industrial Strategy Challenge Fund's programme for Smart Sustainable Plastic Packaging, delivered by UK Research and Innovation (UKRI).

£60 million from government and £149 million from businesses is set to be put towards the development of new forms of packaging made from bio-based materials, with increased recyclability and recycled content.

The funding forms part of the Clean Growth Challenge, a key aspect of the government's Industrial Strategy, and seeks to build on the UK's commitment to achieving net-zero carbon emissions by 2050, while also sitting alongside the waste reduction and circular economy objectives of the UK Bioeconomy Strategy and Resources and Waste Strategy.

Currently, around 80 million tonnes of plastic packaging is produced each year in the UK, with around 95 per cent being lost to the economy after a short first-use cycle. The government says that investment from its Industrial Strategy 'is already backing the development of plastics made from plants and products that degrade easily in the environment', and hopes to build on that development.

BEIS has also launched a call for evidence on standards for bio-based and biodegradable materials on the sustainability, wider impacts and end-of-life destinations of the new materials. The consultation closes at 11.45pm on 14 October 2019.

PEOPLE

Obituary: David Border

David Border, who died in June 2019 at his home in Cambridgeshire, was a very well-known and respected figure in organic waste recycling and leaves a considerable legacy in the organics industry.

After graduating from the University of London in 1967 and going on to lecture in biochemistry at Imperial College during the 1970s, David moved into the mushroom industry, before joining the large-scale mushroom compost site Hensby's in 1987. At Hensby's, David pioneered what would become industry-standard in-vessel composting, trialling different input materials such as shredded green waste. This pioneering streak saw David become central to the development of the well-known large-scale composting facility at Huntingdon.

An avid communicator of ideas, David published articles widely in journals in Europe and the US, including in the prestigious 'Nature' early in his career. Always forward-thinking, his expertise on new technologies, such as anaerobic digestion, was well-respected, provided through his company David Border Consultancy. His passion for his work did not relent, and he turned his attention to innovative uses of bioresources and next-generation technologies such as micro-algae.

Sadly, David took his own life at his home in June. Those that worked with David know that his legacy lies in the quality, predictability and safety of our composts and digestates and in the next generation of organics recycling research.

To mark David's passing, donations to the mental health charity Mind can be made via the following link, which was established by friends and colleagues in his memory: **https://uk.virginmoneygiving.com/David_Border**

COMPOSTING

Veolia calls for ban on peat compost

Waste management company Veolia has called for an end to the use of peat compost in the UK.

UK peatlands act as important carbon sinks, holding around 3.2 billion tonnes of carbon. To feed the UK's taste for peat compost, we destroy 280,000 tonnes of peatlands every year, rising to 805,000 tonnes when including imported peat.

With the UK Government committing to reach net-zero carbon emissions by 2050, the preservation of peatlands is a vital measure in pursuit of that goal. Organic alternatives exist through the composting of household garden waste, the supply of which is expected to increase if the government implements proposals for the free collection of garden waste.

Commenting, Richard Kirkman, Chief Technology and Innovation Officer at Veolia UK, said: "Peatlands are currently being destroyed at breakneck speed in the UK. At this rate a vital ecosystem, along with its wildlife and broader environmental value, will be lost. Peatlands are carbon sinks, no different to rainforests, and yet peat decimation is happening on British soil."

He continued: "Government must act on two fronts: incentivise peat-free compost for consumers while discouraging peat use through a phased, wholesale ban. If we are serious about our planet's health and childrens' futures we need a complete removal of such a ruinous practice, especially when there is an alternative readily on hand to replace it."

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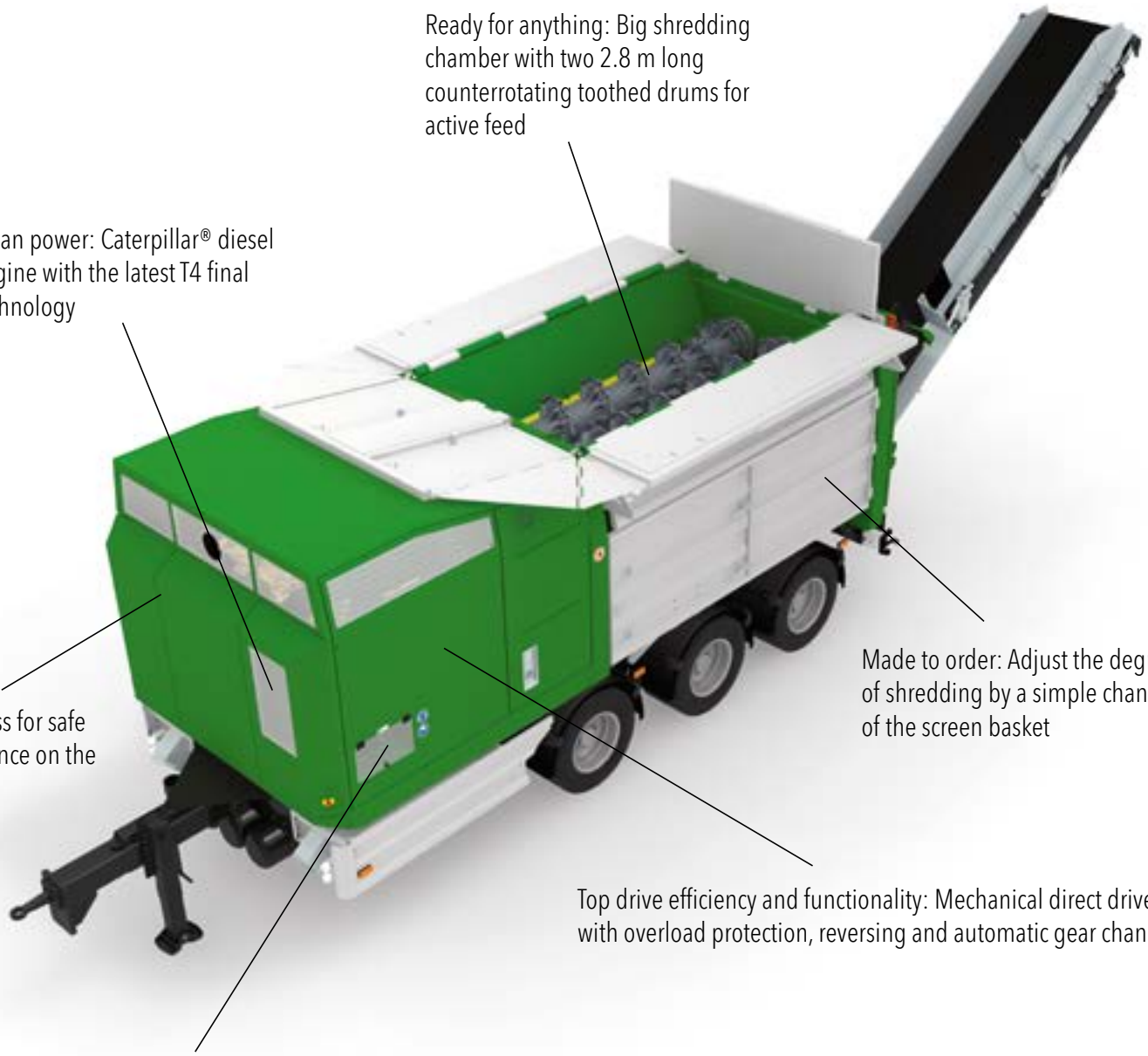

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CONFERENCE

25 years of ORG

In 2020, the Organics Recycling Group of the REA will be celebrating its 25th year at its Annual Conference and Exhibition on 12 March. The venue for next year's conference will be Chesford Grange in Kenilworth and this prestigious event will mark a milestone in the growth of our sector.

Organics 2020 Conference will be titled 'Lifting the lid on the future of organics recycling', and will provide a unique opportunity for the industry to review the successes of the last 25 years, as well as to plan for the next 25 in what is a fast changing environment. We have faced many challenges over the last quarter of a century and through innovation and determination we have grown the sector to one that encompasses a breadth of technologies, contributing significantly to the UK achieving a recycling rate of 45 per cent.

With mandatory separate food waste collections now firmly on the horizon, there will be opportunities to grow further and embrace the changes coming our way through the Resources and Waste Strategy.

So with all this happening now, ORG urges you to attend this event and support your sector at this pivotal moment in order that we can effect change and drive the organics recycling agenda even further. We want to deliver a more sustainable organics recycling sector, enhance and improve our finite soils and provide a sustainable artificial fertiliser replacement, soil improver and growing media.

The full programme will be available in due course. Should you wish to exhibit at or sponsor the event, please contact Mark Kelly at **mkelly@r-e-a.net**.

ODOUR

Public inquiry: Revision of olfactometry standard

The European Standard for olfactometry, EN13725, was published in 2003. Its primary application is to provide a common basis for evaluation of odour emissions in the member states of the European Union. The public inquiry is now open for the UK's 2019 revision of the standard. You can view the draft of the revised standard on the BSI standards development website. The revised standard is expected to be published in late 2020.

Robert Sneath, Director at Silsoe Odours, acts as the appointed UK expert for the CEN working group (CEN/TC264 WG2) responsible for the ongoing development of the EN13725 standard. Sneath explains: "EN13725 provides a unified standard of olfactometry. It ensures consistent, comparable and accurate olfactometry results across all laboratories accredited to EN13725 by the United Kingdom Accreditation Service (UKAS). The new revision includes several updates and certain exclusions. In particular, it makes improvements around odour sampling techniques."

COMPANY NEWS

Foresight Group acquires two AD plants

Renewable investment manager and REA member Foresight Group has acquired two large-scale anaerobic digestion (AD) plants in Thetford, Norfolk and Newmarket, Suffolk, part of the sale of farming business Strutt and Parker (Farms).

The plants are expected to run for a further 17-18 years, and will together produce around 95,000 megawatt hours (MWh) of power annually – equivalent to powering 30,000 homes in the UK. It is expected that the plants will offset around 10,700 tonnes of CO2 equivalent compared with electricity generated from coal.

The acquisition reflects Foresight's ongoing interest in the bioenergy sector, as the company has previously invested in 35 greenfield and operational AD plants across the UK and Europe. Foresight is working in partnership with organics recycling company Material Change, which has entered into long-term feedstock supply, digestate offtake and management and maintenance service contracts as part of the new transaction. Material Change already provides services to seven AD sites, and its parent company Heathpatch is an equity investor in the East Anglia projects.

Commenting on the acquisition, Charlie Sheldon, Director at Foresight, said: "There is an increasing demand from investors for infrastructure assets of this type. As such, we look forward to making further acquisitions as part of our wider AD and energy-from-waste strategy."

Charles Course, Director at Material Change and Heathpatch, added: "We are pleased to have further expanded our relationship with Foresight and look forward to developing and enhancing the plants acquired.

"We hope that the combination of Foresight's experience and our knowledge and experience in agriculture, waste processing, AD development and operation will make us a first choice for anyone considering the sale, or enhancement, of AD assets."

Welcome to the Scottish section of Organics Recycling. If you would like more information or have any comments, please get in touch with **Jenny Grant** at jenny@r-e-a.net

Organics industry surveys for Scotland

Zero Waste Scotland has published surveys of the organics recycling industry in Scotland. These cover composting and anaerobic digestion (AD)/biogas facilities and were carried out in 2018 using figures from 2017.

Key findings: AD

Overall, the Scottish AD sector in 2017 generated 217 million cubic metres (m3) of biogas, with significant growth in the industrial and farming sectors, which generated by far the largest volume of biogas, at 84 and 63 million m3 respectively – cumulatively, 68 per cent of the total. These sectors have seen significant developments in terms of gas to grid projects, with 41 per cent of total biogas generated estimated as having been used for this purpose.

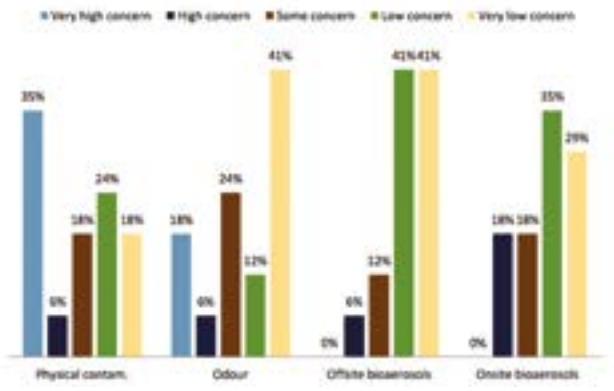
With an estimate from the 2017 AD survey of 141,651 tonnes of food waste being processed at AD facilities, along with food waste accounting for 34,300 tonnes of composting feedstocks, this gives an overall total of 175,951 tonnes of food waste processed in 2017, compared with an overall total of 141,028 tonnes in 2014. This tonnage refers to food waste from households and commercial sources.

There are some uncertainties in the period ahead, with the Feed-in Tariff system closing in 2019, which removes subsidies for electricity generated from facilities with an installed capacity of 5 megawatts or less. The current Renewable Heat Incentive (RHI) system will also come to an end in 2021, with little certainty of what will follow.

Key findings: Composting

The survey found a reduction in the number of licenced and permitted composting processes, falling from 31 in 2014 to 27 in 2017, with an associated reduction in full-time equivalent employees working in the sector. The 2017 input tonnage suggests a four per cent decrease from 2014, at 398,170 tonnes, although grossing was required for non-participating sites, which may affect this.

A significant change from 2014 was the increase in co-mingled green and food waste from local authorities (135,000 tonnes in 2017 compared to 75,455 tonnes in 2014), with a corresponding decrease in green-only waste. Based on operator estimates of food in co-mingled green and food waste, alongside separated food waste inputs, the food waste to Scottish composting sites remains at a similar level to the 2014 survey at 34,300 tonnes.



The survey asked composting sites what key issues they were concerned about. Image: Zero Waste Scotland

Compost production in 2017 was 224,925 tonnes. Compost site outputs diversified in 2017 with the production of 16,189 tonnes of AD 'soup' (produced by the cleaning of source-separated food waste). Information has also been gathered on the production and fate of oversize; a challenge for many operators was the cleaning of oversize outputs to remove physical contamination (i.e. film plastic), as the cost of cleaning countered revenue achieved for the material.

Agriculture remains the largest market in tonnage terms for compost outputs (84,407 tonnes, 38 per cent), closely followed by land restoration (60,955 tonnes, 27 per cent). The most valuable market (based on the estimating approach used) was landscaping (27,289 tonnes, 12 per cent generating £281,895), with bagged product (7,651 tonnes, three per cent) earning the highest price (mean of £16.88 per tonne, generating £129,149).

A key focus on this year's survey was physical contamination, given SEPA's ongoing tightening of limits on compost outputs from PAS 100 certified sites (for more on this, see pages 17-18). The survey captured information on contamination levels, rejected loads, operator concerns on contamination and suggestions for tackling this problem.

Compost quality workshop

The REA, in conjunction with Zero Waste Scotland and SEPA, held a workshop for Scottish Compost Operators in July 2019.

This was in advance of the plastic contamination limits in SEPA's end-of-waste guidance for compost, which are due to change in December 2019. From 1 December 2018, the limit for plastics was changed to 0.08 per cent (66 per cent of current PAS 100), while from 1 December 2019 the limit for plastics will again drop to 0.06 per cent (50 per cent of current PAS 100) – more on this on pages 17-18.

The workshop was intended to open up a discussion with the sector on the progress towards these new limits. The group discussed the feasibility of meeting the new 2019 limit and the challenges involved, as well as identifying potential solutions.

PLASTICS

Call for evidence on standards for biodegradable, compostable and bio-based plastics

Emily Nichols

BEIS (the Department for Business, Energy and Industrial Strategy) and Defra are seeking evidence from scientists, manufacturers, the research community and waste management companies on the sustainability and wider impacts of biodegradable, compostable and bio-based plastics, asking whether new and improved standards and labelling for these materials would be valuable.

The government is seeking evidence that identifies gaps and provides expert advice on:

- The overall sustainability (e.g. all aspects of a product's life-cycle) of bio-based and biodegradable plastic products in comparison with those made from other materials;
- How, or if, existing relevant plastic degradation standards might be promoted without any adverse effects on the environment and disposal routes; and
- The design and implementation of standards for biodegradable plastics to ensure that they fully biodegrade in a reasonable time frame in specified environments.

Amongst the questions, the government has asked for evidence on:

- The impacts (including monetary) of biodegradable and compostable plastics in the current waste management system (including the quality and safety of composts and digestates);
- The behaviour of bio-based plastics compared to conventional fossil-based plastics in the current waste management system;
- How waste collection systems would need to be adapted, if at all, to accommodate both niche and mass introduction of biodegradable plastics; and
- How anaerobic digestion, composting and energy-from-waste operators currently manage compostable plastics in areas where food waste is collected in bags/liners.

The REA will submit evidence on behalf of the organics recycling industry. The government aims to publish its response within 12 weeks of the 14 October deadline for submitting evidence. The evidence 'will inform the government's next steps in this area'.

STANDARD RULES PERMITS

Forthcoming permit changes

Jenny Grant

The Environment Agency (EA)is planning to launch a consultation on changes to biowaste Standard Rules Permits. This will include permits relating to composting and anaerobic digestion (SR2008, SR2010, SR2011, SR2012 and SR2015).

The consultation should be out in September and will run for three months. We will highlight this to members when it is published and plan to host a webinar with the EA to summarise the proposed changes and canvas members' feedback.

We believe the changes are principally to implement the BAT (Best Available Techniques) requirements within the revised Waste Treatment BREF (BAT Reference document) and may include requirements for secondary containment and restrictions on plastics in feedstocks. We have previously published a briefing note on the BAT conclusions within the BREF – available on the ORG website. The EA is also liaising with Defra, local authorities, devolved administrations and other government bodies.

In addition, the EA is also looking to make changes to Bespoke Permits. Holders of Bespoke Permits are being contacted with a notice for information about how they are complying with BAT, what critical infrastructure standards are in place, requirements for bioaerosol monitoring, what the capacity agreement is and if they generate air pollutants. Sites will have six months to respond and then the EA will vary the permits. Should a permit holder fail to respond, the EA will vary the permit as an agency lead variation. This will begin with Phase One installation permit holders and the EA is planning to release 25 notices each month to spread the workload.

The EA will have a dedicated email account and when they get queries or complaints they will deal with these as a peer review team to guarantee decisions and advice are consistent.

We will keep members updated with further information as we receive it.

EU Fertilising Products Regulation

Emily Nichols

EU Regulation 2019/1009, the EU Fertilising Products Regulation (FPR), entered into force on 15 July 2019 and most of its rules will apply from 16 July 2022.

This directly applicable regulation (not requiring transcription into member state laws) covers mineral fertilisers, organo-mineral fertilisers, organic fertilisers, organic soil improvers, liming materials, growing media, inhibitors, plant biostimulants and fertilising product blends (a blend can be a mixture of any product type covered in this regulation, provided that the products and their ingredients meet requirements).

Compliant products (including those independently certified where required by this regulation) are allowed to be placed on the EU market and, together with declaration of conformity, carry the CE mark.

This regulation repeals existing EU Fertilisers Regulation (2003/2003) with effect from 16 July 2022, thus allowing mineral fertiliser industries, supply chains and users three years to transition to complying with this new EU regulation or to continue manufacturing, supplying and using mineral fertilisers as per national regulations in EU member states.

Amongst other EU FPR-compliant products, products that consist of waste-derived compost or digestate, or that include one or more of these as an ingredient or ingredients, can be placed on the EU market from 16 July 2022. EU member states with their own national end-of-waste (EoW) rules for the same waste-derived products (e.g. those in UK countries for waste-derived composts and digestates) are allowed to continue using them, giving manufacturers who place products on relevant markets in those countries a choice of whether they comply with the EU FPR or national EoW rules.

At the time of writing this article in early September, the uncertainties about if and when the UK will exit the EU, with or without a deal, mean we don't yet know how many of the EU FPR's not-yet-applicable rules will become applicable here. In the event of no deal, the UK Government would seek new primary powers that would enable it to choose to what extent its post-Brexit laws mirror EU laws.

Up to the task

Independent consultant at OSHCS Ltd, **Matthew Lee**, has 36 years' experience as an HSE inspector. Here he explains how competence goes above and beyond training for ensuring safety on site

One of the key requirements for any waste company is to ensure that staff and contractors are able to perform their work in a safe manner. Although undertaking risk assessments, establishing safe systems of work and the provision of safe plant and equipment are very important, first and foremost should be ensuring competence of those undertaking the task.

Some organisations assume that training equals competence. Although training is an essential part of the procedures for developing competence, there are many other factors that must be considered. It should also be remembered that in many incident investigations, HSE will often ask employers how they established that the persons involved were both trained and competent. As such, records for both delivery of training and assessment of competence are important, but in my experience, many employers only record the former.

HSE describes competence as 'the combination of training, skills, experience and knowledge that a person has and their ability to apply them to perform a task safely,' adding: 'Other factors, such as attitude and physical ability, can also affect someone's competence.'

It is important to accept that we all have limitations in our competence. Despite having been an operational inspector with the HSE for over 36 years, there were several employment sectors where I fully accepted I was not competent and required additional expert help. I am aware of several health and safety consultants who have clearly been drawn into undertaking work outside their areas of competence, sometimes with tragic results when companies have followed poor advice.

Employers should also consider the need for managers and supervisors to have enough understanding of the work they are overseeing to fulfil their role satisfactorily. For example, if you supervise forklift truck (FLT) operations you do not need to be a qualified FLT operator, but you need to understand FLT dos and don'ts.

When deciding what training to provide, and who is to provide it, employers should try and select a suitable training provider who is, where possible, experienced in their industry. In some cases, such as FLT driver training, there is a clear syllabus that must be followed, while in others there are recognised standards such as IPAF and CPCS.

WISH has produced a helpful guidance document to assist employers (**https://wishforum.org.uk/wp-content/uploads/2017/02/WASTE-21.pdf**). This outlines legal requirements, training standards, general training requirements and key areas of training.

For managers and supervisors, the REA runs a two-day general health and safety course specifically designed for those in the composting and anaerobic digestion sector. Contact Jeremy Jacobs for further details: **jeremy@r-e-a.net**.

Supervisors and managers don't need to be qualified machinery operators, but they do need to understand the dos and don'ts

Please find below a list of forthcoming events. For more details go to www.r-e-a.net

26 SEPTEMBER

Bioenergy Super Sector Group meeting – London

A meeting for REA members bringing together the different sectors involved in bioenergy – ORG, Biogas, Biomass, WHA, RTFG, Energy-from-Waste – to hear all the latest relevant updates.

3 OCTOBER

Innovation in digestate: best strategies to maximize value and manage environmental impact – Birmingham

This event will look at the challenges that AD and farming sectors are already facing and are likely to face in the future on digestate management, and will explore the most effective solutions to address these challenges.

13-15 OCTOBER

Food waste study tour to Italy in conjunction with Cré

Interested in what the leading pioneers in Italy are doing to develop the bioeconomy sector? This tour will give an overview of current best practice and approaches in food waste separate collection and recycling.

NOVEMBER (DATE TBC)

ORG Scotland Conference

Details to be confirmed. Contact jenny@r-e-a.net for further information.

WINTER (DATE TBC)

Understanding PAS100 and PAS110 courses

Applying HACCP to composting and AD

Details to be confirmed. Register your interest with jenny@r-e-a.net

12 MARCH 2020

Organics 2020, the composting and AD conference – Warwick

Come join us in celebrating the ORG's 25th Anniversary at next year's Conference and Gala Dinner. 2020 is a big year for the Organics Recycling Group as it marks a significant milestone in our history.

This 25th anniversary we will celebrate the great strides that have been made over the years whilst at the same time seeking to explore new opportunities in this innovative and adaptive sector.

Preview: Innovation in digestate

Kiara Zennaro sets out what's in store for attendees at the REA's upcoming event

On 3 October the REA will be hosting, in conjunction with the REAL Market Development Working Group, an event focused on the best strategies to maximise the value of digestate and minimise its potential environmental impact.

This theme is really topical at the moment, as future EU and UK policy and regulations are likely to place more emphasis on the need to protect and improve our environment, for example by preserving the soil carbon, reducing nutrient losses and minimising macro and microplastics to land, as well as improving air quality and fighting climate change.

This, combined with current rules already in force to prevent diffuse pollution – e.g. the Farming Rules for Water – is likely to place more pressure on the AD and farming sectors to manage digestate in the best possible way, minimise any environmental impacts, reduce handling costs and maximise value.

The event will look at the challenges the AD and farming sectors are already facing and are likely to face in the future on digestate management, and will explore the most effective solutions to address these challenges. It will also look at the economics of these solutions and ask what needs to happen to make the business case for implementing these solutions stack up.

Key topics

Key topics will include (but are not limited to):

- EU and UK policy regulations affecting digestate storage, use, markets and applications;
- Innovations, solutions and strategies on ammonia control, liquid reduction, contaminant removal, and odour management;
- Details and economics of digestate processing techniques; and
- Adding value to digestate and new emerging markets.

The event will be held in Birmingham at the Priory Rooms, Quaker Meeting House, 40 Bull Street, B4 6AF. It is a BASIS CPD event, meaning it is approved by BASIS to provide CPD points.

Who should attend?

- AD developers
- AD operators
- Funders
- Consultants and agronomists
- Farmers
- AD operators
- Scientists/Academics
- Policy makers
- Environmental Regulators

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- REA Member £150.00 + VAT
- REAL Members £150.00 + VAT
- NFU Members £190.00 + VAT
- Non-Members £250.00 + VAT

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Down to earth solutions

Composting has enormous potential to sequester carbon in soil, assisting in the offset of emissions to the atmosphere. **Arjen Brinkmann**, Managing Director of BVOR, the Dutch Association for Biowaste Processors, and **Percy Foster**, Chief Executive of Cré – the Composting and Anaerobic Digestion Association of Ireland – explore some of the recent approaches to measure and monetise this

On the front line of climate change, sequestration of carbon in soils is increasingly recognised as an important battlefront.

European countries have committed to a 40 per cent reduction of CO2 in 2030 (compared to 1990 baseline levels) as a result of the Paris Climate Change Agreement. While part of this will be achieved through Emission Trading Schemes (ETS) for major industries, other sectors together need to achieve a 30 per cent reduction (see diagram). This presents an enormous opportunity for the organics recycling sector – one way to increase carbon uptake by soils is the application of compost, as compost contains a high percentage of stable organic matter.

The United Nations Framework Convention on Climate Change identifies that any mechanism, activity or process that removes CO2 from the air is classified as a 'sink'. Human activity impacts on these terrestrial sinks, through land use, land-use change and forestry (LULUCF) actions. Today, we are aware that this has altered the balance of the carbon cycle, the exchange of CO2 between the terrestrial biosphere system and the atmosphere.

The potential for LULUCF actions is widely recognised, though the storage of carbon and the emission (reductions) of CO2 from biomass (above ground or below ground, living or dead). The basic principle is that more storage of carbon in biomass leads to net CO2 emission reductions, and that reduced storage (e.g. as a result of converting forests into agricultural land) counts as a CO2 emission.

For the composting sector this is relevant as organic carbon stored in agricultural soils counts under LULUCF. In other words, more storage of organic carbon via the application of organic soil improvers such as compost is counted as a reduction in CO2. This puts a 'climate value' on measures to improve organic matter content in soils.

Implementing LULUCF in the Netherlands

In 2018, a Dutch Government-funded research program was set up to study the potential for carbon storage in mineral agricultural soils and to propose practical measures (in addition to research work done on CO2 emission reduction by improved water management in peat soils).

The consortium, led by Wageningen University and supported by CLM and Louis Bolk research and consultancy, has engaged with major industry stakeholders, including BVOR (the Dutch Association for Biowaste Processors), to guide the research process.

This research has examined the CO2 impact of various options, including:

- Less intensive soil management (reduced depth of ploughing, no tillage);
- Leaving more crop residues on the field (green manure, cover crops);
- Adding extra organic matter from outside the farm (compost/digestate, animal manure, other organic soil improvers); and
- Planting of perennial crops or wood.

In particular, this project addresses the methodological issues that are relevant when making claims about additional organic matter or carbon storage in soils. A key consideration is determining the reference level of organic matter in soil and the variation in data that it is realistic to expect.

There is also a need to measure additional carbon storage. Here, two main approaches are possible. Firstly, output measuring, which refers to measuring soil organic matter in soils. Particular challenges with this approach are that there is spatial variability in soils, that only long term effects are visible, and that soil sampling is relatively expensive.

> "Supporting farmers who sequester carbon in soil is a no brainer in the current climate"

Secondly, input measuring: in this simpler approach, the CO2-effects of specific measures are calculated by way of default values (e.g. CO2 per tonne of compost applied).

Another complex consideration in working out the carbon in soil is the incentives for flux or for stock. An incentive for flux means that, primarily, the increase of carbon in the soil is stimulated, while an incentive for stock means that the quantity of stored carbon is stimulated. In other words, the question is whether there is an incentive for improving organic matter contents (which may be easier for farmers who degraded their land in the past), or an incentive for farmers who took good care of their land in the past.

Other methodological challenges include monitoring, control and actions, as well as mechanisms to avoid double counting when it comes to accreditation.

Finally, this research program also looks to study mechanisms that could be used to stimulate farmers to actively work on more soil organic matter and more carbon storage in soils. Such mechanisms could include carbon credits (see below), sustainability requirements for agricultural products, credit conditions from the banking sector, conditions in land lease contracts, government subsidies, or a revised EU common agricultural policy.

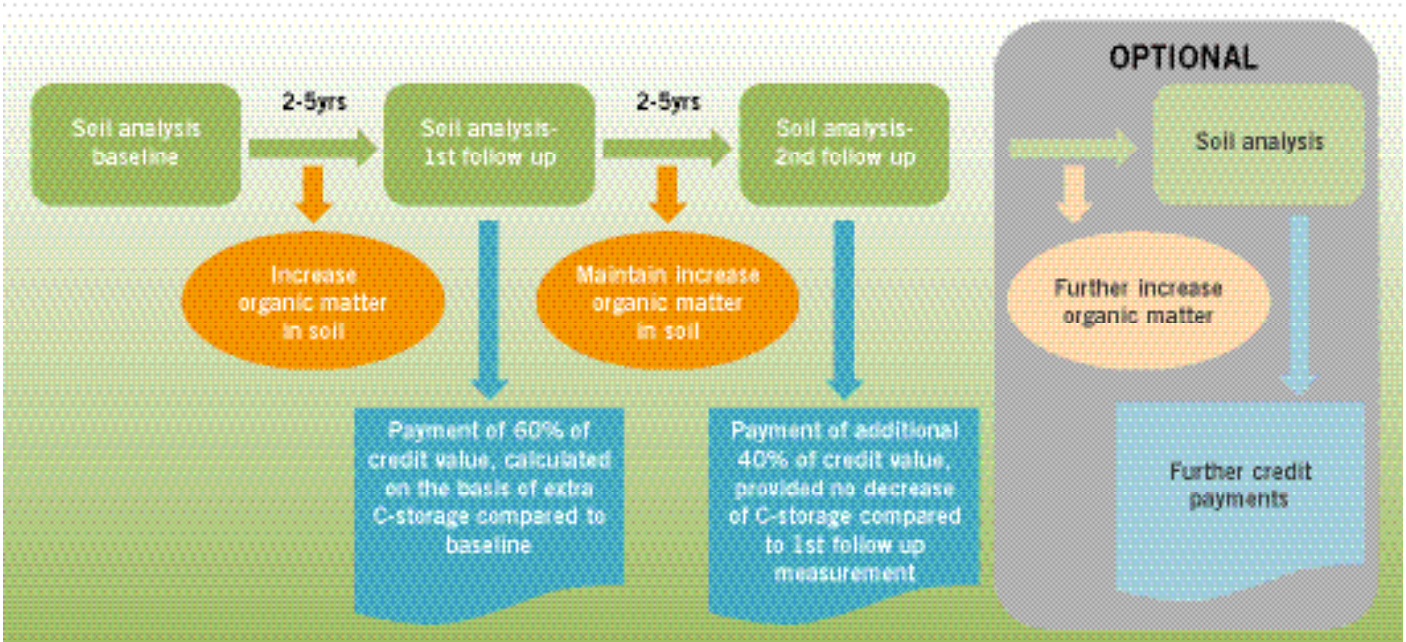
Inspiration from Austria: the 'Humus Projekt'

The 'Humus Projekt' refers to an Austrian private scheme for soil carbon credits. In this project, participating farmers can sell so-called 'soil carbon credits' equivalent to the amount of carbon they have additionally stored in their soil during project participation. Companies wishing to reduce their carbon footprint buy the carbon credits. Started as a local initiative in 2007, the scheme now involves more than 100 farmers throughout the country. The Austrian retailer Hofer AG (part of Aldi) is the main buyer of credits.

When a farmer starts participating in the project, a baseline measurement is carried out of the stable organic matter (humus) in his soil. He then starts working on storing additional organic matter, whether that is through applying organic soil improvers, planting green cover, reduced tillage or other means. An initial high compost dosage of 100-200 tonnes per hectare is important – it is claimed that this high dose resets or kickstarts microbiological soil life and helps the further rapid build up of soil organic matter.

After between two to five years, a second measurement of soil organic matter is carried out. The additional soil organic matter stored during the first phase is calculated, and converted to a corresponding amount of CO2. The farmer then receives a payment of carbon credits equivalent to 60 per cent of this amount of CO2.

Five years later, a third measurement of soil organic matter is undertaken. If the content is at least equal to the quantity during the second measurement, the farmer receives a second payment corresponding to the remaining 40 per cent of the credit value.



The Humus Projekt: how carbon credits are paid to farmers

The carbon credit price is €45 per tonne, of which €30 is for the farmer and €15 is for the scheme management. Costs for soil sampling and soil analyses, as well as coaching of farmers throughout the project, are included in scheme management costs. The relatively high carbon credit price is acceptable to buyers because of the credible layout of the scheme and the local context, i.e. 'carbon in soils of local farmers instead of trees in Brazil'.

Looking ahead

Recently, Arjen Brinkmann from BVOR made a presentation on this topic to the Cré Board of Directors and also at the ORG annual conference. As result of this, Cré has established its own working group, the Carbon Committee, which is firstly going to conduct a literature review on this topic. Following on from this, it's envisaged that an extensive research programme with field trials is required. There are many synergies between the three associations – Cré, ORG and BVOR – on this topic, which offer the potential for further collaboration.

The Common Agricultural Policy (CAP) is currently being revised and the approach this time is that instead of a 'common' approach agreed at EU level, national member states have proposed ways in which farmers should be supported. Supporting farmers who sequester carbon in soil is a no brainer in the current climate, and despite Brexit, the UK Government should still be supporting farmers who do so – by using various organic materials but ideally quality-assured stable compost with a high humus content.

Calculating the climate benefits of compost

While research on methodological aspects of carbon storage in soils is being undertaken, BVOR has recently started to actively communicate on the climate benefits of compost.

Communication is based on the following 'rule of thumb' calculation:

- Green compost and biowaste compost in the Netherlands contains approximately 200 kilogrammes (kg) organic matter per tonne.
- In biologically stable compost, 90 per cent of organic matter is humus (i.e. has been stored in the soil for a long time).
- In humus, 57 per cent of the organic matter is carbon.
- This means that the application of one tonne of compost results in a carbon storage of 200 * 0.9 * 0.57 = approx. 100 kg long-term carbon storage after one year. This equals 44/12 * 100 = approx. 375 kg CO2.
- With an average annual humus degradation rate of two per cent, this leads to quantities of 255-310 kg CO2 stored after 10 to 20 years;
- With a potential future CO2 price of €50 per tonne, compost would represent a climate value of approximately €10-20 per tonne depending on exact calculation rules.

With food waste collections on the horizon for all English households and interest in compostable materials growing fast, we asked three industry experts: What is the future of compostables in the AD sector?

Paul Killoughery, Managing Director, Bio Collectors

Compostable materials play a very important part in the recycling strategy for our country's food waste and should absolutely be incentivised and encouraged as part of that.

Bio Collectors recycles food waste from across Greater London using AD. Most, if not all, of our clients are looking to reduce their use of plastic or non-recyclables when it comes to food through swapping to EN13432 'compostable' alternatives. Whilst we do accept these materials in small quantities as part of a mixed collection, they present difficulties with effective processing through AD as they are not being designed with that process fully in mind.

In order for compostables to truly become part of the circular waste stream, it is important that how these materials are processed in the real world is taken into account when designing them. Composting at an industrial level is slow and costly, meaning facilities offering that process are rare. AD is far more widespread and efficient, so becomes the most likely end destination for compostable materials since wherever they are, usually food waste is too.

As such, the AD process specifically must be considered hand-in-hand with the ideal behind these new alternative materials – otherwise they risk becoming little more than an environmental fig leaf.

Lucy Frankel, Environmental and Communications Director, Vegware

Vegware products – compostable liners, cups, containers, and cutlery – are accepted by over two dozen UK organics facilities, mainly IVC, but also some open windrow and a small number of wet AD plants.

Using an autoclave as the AD plant's depackager allows our products to pass into the process; the products' fibre content provides available carbon, which if hydrolysed properly, can increase biogas yields. But dry AD is perfectly suited to a wide variety of compostable materials, and also creates biogas. The UK would benefit from investigating this technology, which is very common elsewhere in the EU.

Co-locating IVC and AD should become the norm – composting digestate solves the issues around storage and ammonia emissions, and these two technologies in tandem create quality products from a wide range of feedstocks, including compostable packaging.

Plastic liners may present some short-sighted benefits for mechanical depackagers at wet AD, but there is no way to avoid the resultant microplastics in digestate.

Taking the longer-term view of protecting soils, conventional liners and food are basically incompatible. Once mixed, you either lose organic waste matter to disposal, or feed microplastics to soil.

David Newman, Managing Director, BBIA

At the moment in the UK, we are getting plastic going to soil when we apply digestate and shed-loads of plastic and food waste going to landfill and incineration.

Around Europe you will see that food waste plants are often co-located composting and AD facilities; in fact in Germany and Italy, the composting came first and the AD was bolted on later. In the UK, the industry developed without there having already been collections of food waste for composting. When the incentives came in, the profit from the energy was so high that it almost didn't matter what came out the other end. Now incentives have collapsed, so you have to squeeze that asset to make every saving you can – the outputs become critical.

The role of compostables here is to help the whole food waste chain, to ensure that it's collected cleanly and that plastics don't go to soil. Some plants don't want to handle compostables – but you've got to convince me that it's better to accept plastic packaging or liners when there's so much plastic going to soil.

We have to get our heads around the outputs if we want to maximise the profitability of the industry and stop the environmental externalities that are associated. But I know that the AD industry is looking very closely at this; they are very concerned about the amount of plastic they're getting and by default spreading to soil. Even if the volumes seem small, it all adds up.

Compost quality: A closer look

With SEPA introducing new, stricter limits on the level of plastic contamination acceptable in Scottish organics outputs, the organisation commissioned research into the quality of food waste delivered to Scottish composting sites. **Thomas Aspray,** Director of consultancy firm Solidsense Ltd, explains the results

In 2017, the Scottish Environment Protection Agency (SEPA) amended its position on the acceptable level of plastic in Scottish compost and digestate outputs in order to better align with Quality Meats Scotland (QMS) and Scottish Quality Crops (SQC) standards.

For compost outputs the introduction of these levels is phased as follows:

- From 1 December 2018 the limit for plastics >2mm is 0.08 per cent (by air dry weight). This equates to 66 per cent of the limit as specified in BSI PAS 100:2018.
- From 1 December 2019 the limit for plastics >2mm will be 0.06 per cent (by air dry weight). This equates to 50 per cent of the limit as specified in BSI PAS 100:2018.

These changes have raised concerns amongst PAS 100-certified composters, including but not limited to those processing food waste feedstocks. Therefore, earlier this year, in order to better understand the situation, SEPA commissioned work to investigate the levels of plastic in both domestic and commercial food waste delivered to composting sites. In addition to the analysis of food waste samples, a desk-based review of practice outside the UK was carried out to support recommendations for relevant stakeholders.

The impact of caddy liners

Domestic food waste samples from seven local authority (LA) sources were analysed, both on a source and individual bag/caddy liner basis. Results showed that six out of seven sources were wholly or predominantly presented in compostable caddy liners, either provided by the LA or sourced by households. The seventh source, where households were not provided with compostable liners by the LA, had low compostable caddy liner use. The cause of low compostable caddy liner use in this source may not be limited to lack of provision, but may also be influenced by a low engagement and education of households (something that was beyond the scope of the project).

Although the number of samples analysed in the project was limited, the results suggest that provision of compostable caddy liners by LAs resulted in cleaner food waste in terms of the amount of plastic within the liners on a weight by weight basis. The plastic contamination within liners or bags ranged from 1.3 per cent to <0.1 per cent fresh weight (FW).

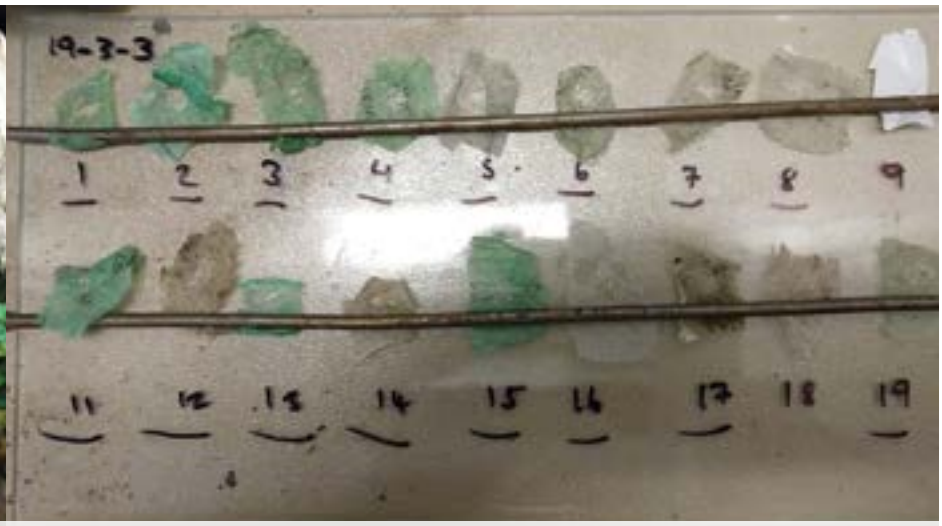
No obvious correlation could be found between the quantity of food waste presented for recycling and the type of caddy liner used. Non-compostable liners (such as single-use carrier bags) from one source had the highest average weight; however, some compostable liner samples also contained large amounts of food waste. Overall, the results show high variability of food waste weight both between and within domestic food waste sources, irrespective of the type of caddy liner used.

Reporting plastic contamination on both a percentage FW and percentage dry weight (DW) basis showed, as expected, that plastic contamination was higher on a percentage DW basis due to the higher moisture content of food waste (approximately 70 per cent) relative to that of isolated plastic. The difference was less significant for samples where the bulk of plastic was compostable due to these materials having a greater affinity for retaining moisture. The difference in contamination level reported on a percentage FW or DW basis has implications for the acceptable level of non-compostable plastic in food waste feedstocks, as later discussed.

Commercial food waste samples analysed in the project included one supermarket, as well as mixed commercial (e.g. hotel, restaurant, butcher and baker) samples. The supermarket sample was heterogeneous in nature with a high level of plastic contamination, although this material is typically processed by mechanical means prior to composting or anaerobic digestion. For the mixed commercial sources, these were, on the whole, of good quality, especially where collections were controlled at source through collection services operated by the composting sites.

Domestic food waste bag contents

Individual intact bags prior to content analysis



Bag fragments after chloroform treatment to determine compostable from non-compostable

Modelling

Given the current standard acceptable level of non-target material (contamination) in LA organic waste contracts is five per cent, an assessment was made in the project of how plastic contamination at levels of five per cent and below in food waste feedstock would translate into compost outputs. The assessment was based on food waste having a moisture content of 70 per cent and considered compost outputs at different moisture contents in the range 50-70 per cent.

Further, the assessment allowed for weight loss through the process ranging from 10-30 per cent. Based on this, the analysis showed that feedstock with five per cent, or even one per cent, contamination requires significant clean-up to achieve either the PAS 100 or the new SEPA limits. The result highlights that non-target material limits in LA organic waste contracts need further consideration.

Review of practice outside the UK

Our review of practice in other countries found that in the main, as in the UK, compost quality is managed by setting criteria on output quality. Only a couple of examples were found where authorities regulated input quality, in Washington and California in the USA.

For the output quality criteria, although SEPA's new plastic limit (already in use by QMS and SQC) is strict, it is not deemed exceptional. For example, in Australia, the plastic limit is ≤0.05 per cent on a DW basis, albeit with a higher particle size threshold of five millimetres (the UK lower particle size being two millimetres). The review suggested that the SEPA limit for December 2019 is perhaps closest to the limit in Switzerland of 0.1 per cent on a dry weight basis (with the same two-millimetre lower particle size).

In terms of data on food waste quality elsewhere, the majority of information was for co-mingled food and green waste; however, a few examples were also found for separated food waste. One of the most interesting studies was from Italy, showing that the non-compostable fraction in household food waste was higher (nine per cent FW basis) when conventional polyethylene bags were used, whereas this fell to 1.4 per cent when compostable bags were used. This result supports observations from the SEPA project as mentioned above.

Recommendations and conclusions

A number of recommendations were generated, the majority of which are for domestic rather than commercial food waste, as the latter was found to be largely self-regulating, particularly in the case of mixed business commercial food waste.

For domestic food waste, a key recommendation is around LA compostable caddy liner provision. Specifically, the analysis of domestic food waste samples, supported by research from elsewhere, indicated that the provision of compostable caddy liners (of course supported by household education) results in cleaner food waste. Engagement with compost site operators supported this recommendation, in as far as confirming that compostable caddy liners were compatible with their processes.

A second key recommendation is around contracts between LAs and composters for domestic food waste sources. Engagement with composting operators and the modelling of contamination through the composting process showed the current acceptable level of five per cent non-target material needs changing to support the collection of quality separated food waste for recycling.

Although these recommendations will have cost implications for LAs, the current concern of the general public around plastics in the environment cannot be ignored. A more consistent approach to compostable caddy liner provision (at least in the short term), along with household engagement and education on a national level, may have economies of scale for LAs and will hopefully lead to reduced public confusion around the requirements of organic waste recycling.

TARGET ZERO

GETTING PLASTICS OUT OF ORGANIC WASTE

Technical Director **Jeremy Jacobs** introduces the REA's plan to tackle the problem of plastic contamination in food and garden waste, the bane of every operator's working life and a very real threat to our environment

You will have heard both myself and Charlie Trousdell, the ORG Chair, go on about the issue of plastics in food and garden waste, and I am sure our frustration at seeing so much unwanted plastic in deliveries of feedstock the length and breadth of the country matches that of our members.

So what are we doing as your trade body to overcome this issue, to help our members and make change happen? We know that implementing behavioural change takes time. We have seen a significant head of steam building against single-use plastics since the screening of the BBC's Blue Planet II series. The REA believes that now is the time for a concerted effort to improve the quality of feedstocks that you, our members, receive on a daily basis. We recognise that incidental plastics are inevitable; however, as we are told by members, many sites tolerate excessive contamination levels, predominantly composed of plastic. This cannot continue to be acceptable practice. We want to ensure we protect our finite land bank on which we rely so heavily for our food production.

Our vision

Our vision is the supply of plastic-free garden and food waste to anaerobic digestion (AD) and composting sites. Certified compostable materials are acceptable where sites choose to accept them.

Plastic contamination is not a new problem, but an issue that has plagued the sector for many years. Through an active communications campaign, working with a range of key stakeholders, we would like consumers to put only suitable biodegradable material types into their garden and food waste bins. Removing and disposing of unwanted plastics from feedstocks costs the UK composting and AD industries millions of pounds per year and could jeopardise the so far successful use of composts and digestates.

We have initially outlined the details of our plans to REA members and on the whole they are supportive of a campaign to clean up inputs to their sites. The REA has a broad spectrum of members involved in biological waste treatment including composters, AD operators and also Mechanical and Biological Treatment (MBT) sites. Not all of these technologies have the same requirements, so it is important that we understand the needs and concerns of each.

We are in the process of discussing the campaign with some of our AD members, including issues such as how to successfully transition from polyethylene (PE) liners to certified compostable ones without losing contracts to AD competitors who may offer to accept food waste in PE liners. It is for this reason that we plan to focus initially on garden waste collections and then move on to food waste collections, whether they are destined for in-vessel composting (IVC) or AD.

The breadth of stakeholders we plan to engage with is broad and it will include you, our members, as well as government, LARAC, NAWDO, the Environment Agency (EA) and other trade associations involved in this sector. We recognise the importance of getting buy-in from as many as possible in order that change is effected smoothly and willingly! The householders are of course the most important target of all and their influence comes predominantly from local authority (LA) communication campaigns. We plan to work with WRAP to ensure there are appropriate resources for LAs to use in the future as well as running a number of webinars on the topic.

Our actions

We plan to engage with all stakeholders in the supply chain and concentrate on bespoke actions for each.

Government

- Call for ring-fenced funding for waste collection communications including leaflet drops for householders.
- Discuss with Defra its second round consultation on consistency in waste collections, planned for 2020.
- Call for recycling and quality messages – including those specific to the relevant types of biodegradable waste – to be integrated into primary school education programmes.
- Call for tougher punitive actions to be allowed against householders proven to be repeat offenders for placing the wrong material in their garden waste bin.

Regulators

- Provide feedback to the EA on its likely proposals to change Standard Rules Permits to include a limit on the total physical contaminants level in biodegradable wastes supplied for composting or AD.
- Encourage consistent (across the country) regulation of sites to ensure compliance.

Waste producers (focusing on households)

- Provide information directly to householders about the importance of no plastic in garden waste and why this matters, via press and social media.
- Work with others (e.g. WRAP) to ensure green and food waste is included in any communications on putting the right waste in the right bin.
- Ensure clear guidance is available for LAs so they reflect their composting service provider's policy when informing householders whether they can put certified compostable packaging and/or non-packaging items in their relevant bins, as well as how they can identify certified compostable products.

Waste collectors/consolidators including local authorities

- Encourage them to have a clear policy on acceptable materials and contaminant levels and to communicate this to waste producers, including what happens if contamination is present.
- Provide information and links to existing templates and guidance for communicating with householders.
- Encourage the training of collection crews as to what is and isn't acceptable (this can also be supported by sites assisting with this).
- Promote the importance of inspecting bins that contain excessive contamination and providing feedback to waste producers, e.g. stickering bins when contamination inside them is visible.

Treatment facilities (initially focusing on garden waste sites)

- Encourage agreement through contractual arrangements on acceptable levels of contamination and for these levels to take account of the quality of compost/digestate required, as well as on-site control measures that remove plastics
- Provide template contracts.
- Provide information on the importance of inspection of deliveries on arrival (a key critical control point for rejecting inputs).

"Removing and disposing of unwanted plastics from feedstocks costs the UK composting and AD industries millions of pounds per year"

- Encourage implementation of a surcharging clause within contracts where waste contamination level requires extra, non-routine actions.
- Encourage implementation of delivered load rejection where waste contamination level is beyond what the facility can time and cost-effectively remove.
- Emphasise the importance of composter feedback on contaminants to waste-supplying clients, for example photos of contamination (already widely used as a form of evidence gathering).
- Encourage them to pass on the costs of disposing of rejected loads and removed contaminants to the waste-supplying client (landfill and haulage cost).
- Provide information on how they can work closely with collection crews and assist in their training.

Product users

- Inform compost and/or digestate producers about any 'multi end user requirements' that require additional quality parameters over the minimum specified in the relevant PAS.
- Increase awareness of what quality looks like and advise users to check quality of delivered compost/digestate before it is used.
- Inform users about how to query compost/digestate quality and what to do if they believe the quality of what they have received is not what they ordered/agreed, e.g. if the compost is certified, inform the relevant certification body, or REAL if the user can't identify the relevant certification body.
- Where compost/digestate is spread on agricultural land, communicate the importance of complying with the Codes of Good Agricultural Practice for the Protection of Air, Soil and Water, the Code of Good Agricultural Practice for Reducing Ammonia Emissions (or the Prevention of Environmental Pollution from Agricultural Activity code in Scotland) and the Farming Rules for Water.

As mentioned earlier, initial efforts will be focused on garden waste collections, as this is more straightforward than food. We recognise the challenges of removing PE packaging from household food waste collections where LAs have already implemented collection regimes using PE as their preferred material type. Navigating this 'transitional' phase of moving from PE to compostables will be a sensitive one, and will also be impacted by the government's stance on the provision of free compostable liners to LAs as mooted in the recent Resources and Waste Strategy consultation.

We will also be discussing with Defra the scope of the soon to be revised packaging producer responsibility system to ensure that consumer-facing, certified compostable sacks and liners for food waste bins and kitchen caddies are included.

What do we need from you?

To support the work we are planning, we need as much feedback from our members as possible. We would like to know if you have data on the percentage of contamination you receive, how much this costs you to remove and dispose of and if there are particular areas that present the biggest challenge. The more evidence we have, the better! We will of course anonymise this to ensure it cannot be attributed to specific sites. Please get in touch with anything you are able to share.

This campaign has a number of target audiences, with some harder to reach than others. We are keen that you, our members, provide us with feedback on your own experiences regarding contamination in order that we can use these to evidence some of the actions listed above.

We are under no illusion of the size of the task in hand, as our visits to composting sites have revealed in recent weeks and as the images in this article illustrate. We do, however, have a tsunami of anti-plastic supporters out there who wish to do the right thing and make change happen. There has never been a better time to influence the required transformation.

I urge you to play your part, however small or large that may be, to support us in our drive to improve the quality of feedstocks and protect our soils for future generations.

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WRAP market survey: Informing Defra policy

With government policy set to increase the amount of organic waste collected, WRAP will be carrying out a survey of the AD and composting market. **Liz Victor**, Senior Researcher at Winning Moves, the company conducting the survey, explains

Members of the anaerobic digestion (AD) and composting industries are being invited to participate in a new study to map the market for organics recycling. This work has been commissioned by the Waste and Resources Action Programme (WRAP) on behalf of the Department for Environment, Food and Rural Affairs (Defra).

The research will be carried out by an independent research consultancy, Winning Moves, with the input of an advisory group including representatives of the REA, the Anaerobic Digestion and Bioresources Association (ADBA), the Environmental Services Association (ESA) and consultancy firm NNFCC.

Informing policy

This is an important opportunity for the sector to feed in data and views to inform Defra policy on the recycling of organic waste. In its Resources and Waste Strategy, the government revealed that it planned to introduce mandatory separate food waste collections for every household in England, as well as free garden waste collections – the government has published the responses to the Defra consultation on consistency in household and business recycling, and its intended next steps, on the government website. If these policies are introduced, collected tonnages of household organic waste are expected to increase significantly.

Infrastructure will need to be available and capable of processing this uplift in organic material available for treatment, a need that is behind the motivation for this survey. In particular, the WRAP survey will:

- Consider potential market failures that Defra may need to address;
- Inform the commitment to support bio-waste recycling in the Resources and Waste Strategy; and
- Inform potential policy changes relating to the additional separate collection of food and garden waste from households.

A Defra spokesperson said: "We are reviewing policies to support the recycling of biowaste to ensure that we can maximise the benefits of AD and composting, whilst managing the risks. We need reliable evidence to inform our future policy on biowaste treatment options and extending the collection of household food and garden waste."

The data collected as part of the survey is expected to include:

- Permitted, planned and operational capacity;
- Actual throughput;
- The nature and source of the waste processed;
- The nature and destination of rejected waste, contamination of digestate and compost;
- Employment;
- Market, end uses, standards and PAS status for digestate and compost;
- Electricity, biomethane and renewable heat output; and
- Additional information required for policy decisions such as understanding the use of new technology including digestate post-processing technologies, the viability of alternative organic waste treatment such as dry AD and the impact of regulations.

Wherever possible, the project will replicate the approach used in earlier reports on the industry to facilitate understanding of how the industry has developed over time.

Pilot testing

Winning Moves will be piloting alternative approaches to collecting this data with members of the industry from September 2019. The aim of this will be to understand how to collect reliable data whilst making the process as simple and quick as possible for relevant businesses.

If you are interested in being involved in this, please contact **lizv@winningmoves.com**. The main phase of data collection will take place in autumn 2019, and the final market survey report is expected to be published in early 2020.

Quality Protocols: Up for review

Jenny Grant sets out the Environment Agency's review of Quality Protocols and calls for ORG members' input into the review

The Environment Agency (EA) is leading a review of all the Quality Protocols (QPs), which are end-of-waste frameworks used to identify the point at which waste can be considered fully recovered.

The EA is planning to review all the QPs over the next 12-18 months and will start with the Compost Quality Protocol and the Anaerobic Digestion Quality Protocol (as well as the Poultry Litter Ash Quality Protocol).

There will be an initial review that will consider various factors including: issues of clarity; evidence of abuse or excessively onerous terms; evidence that they do not demonstrate end of waste or unintended risk of pollution; desire from industry for additional inputs or applications of end products; developments of new technologies, end markets and product standards; changes in law; and any other relevant issues. We will be engaging with the EA during this stage.

Following the initial review, the EA will decide if it will continue to support the QPs. It has indicated that there are three potential outcomes:

1. The review supports the QPs with their current wording or with only minor amendments so they can be continued to be used after being republished in the form of a Resources Framework.
2. The review does not support the continuation of the QPs but industry asks for them to be revised and updated. The documents would undergo a complete overhaul to update them and then the revised documents would be published as a Resources Framework. The work done by the EA on the revision would be chargeable and industry would need to work in partnership with the EA.
3. The EA decides it does not support their further use (and industry doesn't wish or is unwilling to meet the costs for it to be revised) so the relevant QPs become archived. Any materials produced in compliance with the QPs will no longer be regarded as a non-waste and waste regulatory controls will apply.

The EA will issue press releases when it is looking to gather more widespread views of the QPs under review. They are also engaging with us and other industry associations in advance of this and we expect to meet with them in September.

Initial thoughts

We have asked for clarification from the EA on a few things following the issuing of the briefing note. This included what would be considered to be a 'minor amendment', what sort of evidence it would require to support any change and what impact the EU Fertilising Products Regulation may have. We are not clear on how the EA expects the funding mechanism to work and we plan to discuss this further with them.

Get involved

We would like feedback from our members about what changes they would like to see in the Compost and AD QPs. We have emailed all members to ask for feedback and if they have any evidence to justify the changes. Some of the things we are considering include:

- Materials that could be added to the appendix B list of suitable inputs.
- Additional designated markets that could be included. We have had feedback that some members would like amateur horticulture and soft landscaping as additional markets for the AD QP.
- We have asked members if they would support a reduction in the physical contaminants limits.

We have asked for feedback so that we can contribute at an early stage in the review process. Provided the review continues, we hope there would be further opportunities to provide input into the process. We will keep members posted on any developments through our website and newsletters. For further information, please contact **jenny@r-e-a.net**.

Molly Rogers, Research and Communications Assistant at REAL, provides the latest on the CCS, BCS and the REAL Research Hub

Compost and Biofertiliser Certification Schemes

CCS POSITION ON TECHNICAL REQUIREMENTS

REAL's CCS Position on Technical Requirements was updated in June 2019. This document accompanies the Scheme Rules and is used by operators and certification bodies to ensure consistency with interpretation of requirements and provide clarity of technical requirements within the Scheme.

The updated positions were discussed amongst the certification bodies and circulated to the Technical Advisory Committee for final comments before being published. The updated version of the Technical Requirements document includes two new sections: Checking and agreeing quality requirements with customers (Section 20) and Test failures during certification renewal (Section 21).

Section 20 aims to provide clarification of changes within PAS 100 (PAS 100:2018) and to ensure uniformity in interpretations of the standard. This section covers the requirements of Clause 4.2 within PAS 100:2018, the Safety and Quality Control System, as well as the definition of 'customer'.

Key elements of Section 20 include:

- Composters must always check the intended end use of their compost, and whether the customer has further quality requirements for the product.
- Composters must retain a 'proof' of this check with the customer (paperwork or record).

When a customer has additional quality requirements for the product, this must be confirmed in a written agreement between the composter and the customer.

Section 21 contains guidance for composters if they incur a test failure(s) prior to their annual audit. Key elements of this section include:

- If composters are unable to sample and test further compost batches, then a declaration note must be signed to confirm sampling of a batch at the next available opportunity.
- The process of re-sample verification will not indicate a non-conformance for the composter and therefore will not hold up the certificate.

ANALYSIS REQUEST FORMS

REAL has updated the CCS compost and BCS digestate Analysis Request Forms. These forms are used by laboratories to identify the correct tests for compost/digestate samples and to determine which samples have been sent to the laboratory for certification purposes. The updated CCS form includes a field for 'Purpose of analysis' and the BCS form includes 'Purpose of analysis' and 'Certification code'.

Additionally, the BCS has seen some operational changes. Certification codes have been issued to operators by certification bodies for each digestate output type (whole digestate/separated liquor/separated fibre) and eventually, laboratories will be uploading PAS 110 test results directly onto the BCS database, at which point they will be available to the relevant certification body. These changes have been introduced to improve the robustness of the BCS.

REVIEW OF BSI PAS 110

In May, REAL issued a survey to all BCS operators, which provided context on the PAS 110 review and ADQP review. The survey asked, 'Do you think there is a need to initiate a PAS 110 revision process in the near future?' and gave operators the opportunity to provide additional comments.

The survey results were compiled and analysed by REAL and presented to the Technical Advisory Committee for discussion and advice on whether wider industry engagement is necessary at this stage. REAL will now be engaging with the Environment Agency and WRAP to seek their views on whether a revision of PAS 110 is necessary in the near future. Following this consultation, a case will be made to BSI, with a corresponding letter, on whether a revision of the standard should be initiated. Should the revision process be established, workshops will be set up with wider industry to discuss specific technical issues within the standard.

Research Hub

SECOND MEETING OF THE RESEARCH PANEL

The Research Hub's Research Panel met for the second time on 13 June 2019. Key agenda items included the presentation of the Research Hub's SurveyMonkey results and the prioritisation and selection of Research Project Proposals, to take forward to tender.

The Panel discussed each of the thirteen shortlisted Research Project Proposals, as included in the survey, and, informed by the results, decided to take forward one research project in 2019. The chosen project is simple in its objectives, allowing the project to run productively and ensuring success as the first project.

THE FIRST PROJECT OF THE RESEARCH HUB

The first project taken forward by the Research Hub is titled 'The development of a Research Library for the Organics Recycling Industry'. Existing industry research will be collated and a gap analysis will be undertaken; the collation of existing research, across both the compost and anaerobic digestion (AD) industries, will allow research 'gaps' to be identified and will distinguish areas of research that are limited or altogether absent.

The establishment of the Research Library should help prevent the duplication of research studies and further, and importantly, prevent a misuse of research resource. The Panel is of the opinion that the findings of this project have the potential to shape and inform the objectives of future Research Project Proposals submitted to and taken forward by the Research Hub. The Research Library will be an informative and valuable resource for both the composting and AD industries.

PLANS FOR 2019 AND BEYOND

The Research Hub will run a tender to appoint a contractor for the first project of the Research Hub. The tender period is expected to run throughout September and October with the successful contractor anticipated to be appointed at the end of November, while the contract period will run throughout December and into 2020.

The third meeting of the Research Hub, due to take place at the end of October, will provide an opportunity for the Panel to discuss the progress of the first project of the Research Hub as well as an opportunity to discuss subsequent projects of the Hub.

Previously, the Research Hub was accepting research project proposal submissions within a designated 'submission period'. The Panel has now decided to accept proposals at any time of the year outside of a designated 'submission period'. Projects submitted outside of the submission period will be 'banked' and reviewed at a later period.

Enva Resource Management

Enva is a diverse and rapidly expanding recycling and resource recovery company with sites across the UK and Ireland. **Ralph Lodge**, Technical Director of Enva Resource Management, explains more

Whilst to many Enva is a relatively new waste management brand, our constituent operations have been around for many years and have a significant track record in the UK and Ireland recycling and resource recovery markets.

Operating under a single brand enables us to better connect the business and realise the associated environmental and commercial benefits for customers across our key resource recovery, waste collection, industrial services and water markets.

In recent years the company has continued its growth with a number of further acquisitions, including Blue Sky Plastics, Hadfield Wood Recycling, GP Compost Products, Clearcycle Environmental, Bio Industries, Associated Reclaimed Oils and Rilta.

With 29 sites in the UK and Ireland, Enva manages a range of hazardous and non-hazardous waste materials, producing high-quality secondary resources and products for reuse in manufacturing, restoration and the generation of sustainable energy.

Enva is now the largest recycler of waste oil and plastics deriving from waste electrical and electronic equipment (WEEE) in the UK, the largest hazardous waste recycling business in Ireland, the largest organic waste recycling business in Ireland and Scotland and the second largest wood recycler in the UK.

This diverse capability and attitude towards material recovery at Enva means we are a very long way down the road to being considered primarily as a provider of high-quality secondary resources rather than a waste management business.

The organics operations within Enva revolve around the processing of organic waste materials and their final recycling to agriculture, land restoration or soil production.

In supporting the UK and Irish water industries, Enva finds beneficial end uses for sewage sludge that cannot be applied to agricultural land without further processing. These consist of long-term contractual operations and fire brigade work in times of sewage treatment plant outages. Over many years Enva Resource Management has built up sizable land banks across the UK and Ireland to cope with significant volumes of sewage sludge that can sometimes occur with a plant failure. Each land bank has an associated on-farm processing site. Established land banks are also widely utilised to recycle other beneficial organic waste streams directly back to land for use in agriculture.

The acquisition of GP Compost Products in the central belt of Scotland included a large in-vessel composting facility, green waste composting and biomass operation. By adding compost to the wide range of other organic waste streams, Enva has enhanced its ability to produce soils suitable for land restoration projects.

The latest brownfield site to near completion is the restoration of Trearne Quarry. This was a difficult three-year project to return a limestone quarry, partially within a Site of Special Scientific Interest, back to pre-quarrying land usage.

The site contains many geologically fascinating strata and fossils of great interest to geologists and palaeontologists. Soils for the site were produced at a nearby Enva production facility and carefully layered across the site whilst leaving internationally significant fossil-bearing quarry faces exposed. The work has been overseen by Scottish Natural Heritage and the quarry will eventually be handed back to the local community as a geological and recreational resource.

The wider Enva company and its organic recycling and recovery operations will continue to expand, diversify and innovate in the coming year to offer industry outlets for discarded materials. This is being driven by the need to conserve and reduce the use of virgin material, to develop a more circular economy and to truly reflect the waste hierarchy.

Trearne Quarry during and after restoration

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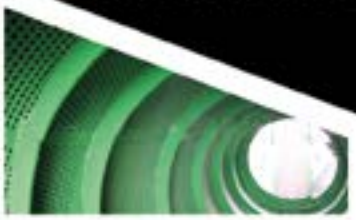

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Breath of fresh air

Richard Mawson, Business Development Director at Eggersmann, takes us through the key considerations for choosing an air separator, a crucial piece of machinery to ensure quality, contamination-free outputs

As many of us know, selecting air separation technology for use within the organics sector is especially difficult as, unlike other areas within the waste sector, where there is a very defined density difference between the light and heavy separation requirements of a process, the organics sector typically deals with removing light plastic film from a relatively light compost or compost-like product.

This requirement means that many of the air separators designed for the waste sector are unsuitable for the organics sector, which calls for a much more controlled separation to achieve good results.

At this point it should be noted that unlike many separation technologies, air separation is all about compromise. It is virtually impossible to remove all light contamination without also removing some product and conversely it's virtually impossible to retain all the product without leaving some contamination. The aim with an air separator is, therefore, to find the 'sweet spot' where product loss and contamination levels are acceptable for the operator.

There are several key factors that must be taken care of if good results are to be expected, the first of which is the preparation of the input material. When separating materials that have very similar densities it is important to ensure that the particle size distribution of the material to be separated is as close as possible. For example, expecting an air separator to remove light material from a zero- to 80-millimetre size range will almost certainly result in poor separation, whereas a 20- to 80-millimetre size range would provide much better results.

Once the feedstock is in a narrow particle size distribution, the next step is to ensure that it can be fed uniformly into the air separation system. The best way to ensure this is to choose an air separator that will allow the input volume to be adjusted to achieve best results.

Once the material has entered the air separator uniformly it is important that a wide range of adjustments are available to alter the separation characteristics of the unit, especially as this will often change due to many factors. Machines that have very little adjustment may not enable an operator to find the 'sweet spot' during certain operating conditions, leading to poor results.

After the air separation phase, many of the mobile machines have options for additional separation of metals and stones, for instance, which are certainly worth considering if these contaminants are present within your product.

Finally, my recommendation would be to choose a manufacturer that has experience in this sector. There are many air separation technologies that work very well in other areas of the waste industry but would deliver relatively poor results on compost or compost like outputs. The fact that the majority of air separation technology suppliers in this sector have mobile machines means that operators have a great opportunity to trial the technology before buying.

KOMPTECH

The Komptech Hurrikan Windsifter is a tried and tested machine with many years' operation throughout the composting sector. This machine efficiently removes light plastics, film and foils from screened overflow particles using a patented 'pressure-suction' process that enables an effective separation and removal of light fractions from screened compost in two steps.

Material is separated by a targeted air knife. Then, lightweight material is drawn out by a powerful suction blower, fully adjustable to separate material by variation of blower speed, blower distance and vent flaps. Users can improve the quality of their finished products even further by using a magnet separation roller to remove the metal and a de-stoning belt to remove the stones and rocks.

The separation efficiency for the two models is up to 90 per cent for the Hurrikan and 95 per cent for the Hurrikan S. These machines can help transform contaminated oversize into a tradeable biomass product.

Electric drive of all components ensures top efficiency while offering many control possibilities, and an optional generator offers the ability to power the machine straight from the mains.

Contact
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IMPACT AIR SYSTEMS

Impact recognises the industry requirements of ensuring a high-quality waste stream, so has engineered successful separation solutions that greatly improve the separation of valuable recyclable materials while providing the operator with a low maintenance and hassle-free system.

Combining a highly skilled in-house engineering team, 3D modelling software and working in conjunction with a carefully selected external supplier base, the Zigzag Air Classifier boasts impressive resistance to abrasive materials, fewer moving parts and the very latest filtration technology, whilst maintaining its exceptional separation efficiency.

The Impact Air Drum Separator/ Airknife is a popular choice for waste operators who process a high volume of material every day. The separation success of a wide and varied range of applications is second to none and the systems are installed in many waste management facilities worldwide.

Contact
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ECOHOG

Ecohog Ltd specialises in air and metal separation, servicing the waste and recycling industry with over 25 years' experience and continually evolving separation equipment. The Ecohog Windshifter range is robustly designed to tackle tricky applications such as RDF/SRF, compost, MRF waste, waste wood, C&D/C&I waste and incinerator bottom ash.

Not compromising on quality as standard, the Windshifter range incorporates high-powered efficient fan technology features in all machines, with static, hook-loader and crawler-tracked options. Auxiliaries are available for purpose-built equipment, including on-board generator, magnetic head drum, manual or hydraulically-powered conveyors, manual or hydraulic support legs and hooded infeed chamber to capture flyaway material.

Recognising that not all applications warrant a Windshifter, the Airhog Suction System can be installed on any moving conveyance system for the efficient extraction of superlight contaminants.

With quality and customer service at the core, the Ecohog team works closely with customers to design machines that will achieve required levels of separation and a profitable return on investment.

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KIVERCO

Kiverco's DS150 Density Separator forms part of the new Kiverco Compact mobile/modular range. This machine has been designed to efficiently separate material into usable fractions, using the latest in air separation technology. The self-contained DS150 greatly reduces the amount of material that needs to be sent to landfill, delivering notable savings in areas where landfill taxes and transport costs are high.

Its hydraulic jack leg support system offers safe and rapid set up and transport capability on- or off-site. Viewing windows are included to monitor material flow and twin recirculating air blowers mean the closed loop system maximises separation performance and recovery and also minimises dust.

Kiverco has been successfully manufacturing static and mobile recycling plants for over 25 years, helping customers produce higher quality recyclable products and faster financial returns. All models in the Kiverco Compact Range can be used alongside other mobile equipment or, combined together, can form a complete recycling system.

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EGGERSMANN

Under the brand Terra Select, Eggersmann GmbH produces and sells mobile screening and separation machines, in particular drum screens, star screens and wind sifters. The Terra Select products have become indispensable in composting plants, processing plants for biomass and specialist waste disposal companies – there are virtually no limits to their applications.

They can produce marketable compost products and structural materials in a single operation or screen heavy materials such as soil, sand or construction rubble quickly and easily.

The Terra Select W 70 allows lightweight materials to be separated from compost and biomass. The mobile sifter has its own hopper with integrated metering roller which can be fed by a loading shovel or directly in series from an upstream plant. Metals and stones can be removed via the roller magnet and stone belt.

Key features include:

- Cleaning of lightweight materials
- Flexible feeding options
- Uniform material feed through metering roller
- Magnet roller
- Stone separator
- Throughput rates up to 80m³/h
- Approved for road use

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CRJ SERVICES LTD

CRJ Services Ltd is a material processing and recycling equipment solutions provider, supplying a range of machinery from a number of top European OEMs.

CRJ's portfolio of machinery has been strategically selected to be able to offer customers a quality solution to a wide range of recycling and material processing requirements.

The Steelweld Rotary AST1500 is a versatile tracked mobile air separator, which uses powerful adjustable fans and a rotary drum to separate material based on its density. The AST1500 comes with a fully adjustable feed belt, air system and air knife, so operators can configure the system for optimal separation on their specific application.

Thanks to its unique low feed height, the AST1500 can be directly fed by a screener. It also benefits from crawler tracks and an on-board diesel generator, which allows the unit to be easily manoeuvred around site, with no need for an external power supply. With quick set up times and an easy push button control panel, this innovative design means high performance and low maintenance.

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Enough is enough

With plastic waste high on the public agenda, ORG Chair **Charlie Trousdell** calls for lower plastic contamination to ensure quality digestate and compost outputs

I realise I keep going on about plastic, but as the BBC Countryfile piece showed on 11 August, plastic-contaminated compost is being spread to land and is clearly causing our industry an image problem. The programme also showed food waste being made into animal feed, including 'tasty pieces of plastic'!

Countryfile just about acknowledged that the contaminated compost was due to a specific problem at the producing site but then went on to state that the rules allow up to 0.25 per cent contamination in compost, implying this was 0.25 per cent plastic rather than being clear that 0.12 per cent was the limit for plastic. In Scotland, of course, the plastic limit rules are even tighter; currently at 0.08 per cent and due to be tightened to 0.06 per cent from 1 December 2019. We all agree that in an ideal world plastic should not be present in composts or digestates.

By the time you read this, ORG/REA will have launched a campaign to encourage householders to do the right thing and the Environment Agency will have launched its consultation on Standard Rules, which will propose a tighter limit on input contamination.

I call on our members to start getting tougher on waste acceptance; why do so many in our industry think it is acceptable to agree to contracts with five per cent or more contamination? A 40,000 tonnes per annum site could in theory have to accept 2,000 tonnes of plastic, which is clearly bonkers!

To ensure our businesses and the environment prosper we must focus on quality outputs, which obviously mean better inputs. We have to explain to local authorities, waste brokers and householders that we need as close to zero plastic as possible. It is not difficult to achieve with a concerted campaign working with all stakeholders.

We are in a climate emergency and soils are losing organic matter at ever increasing rates, so putting quality organic matter back to land is critical. Our industry needs to get off the fence, stop worrying about upsetting a local authority or a contractor and demand green waste free of plastic.

The AD sector has made agreements with certain local authorities to accept polyethylene plastics used for the collection of food waste. Should we really be encouraging the use of this material? Should we be defending the indefensible? The REA will continue to debate this with its AD members and we hope that over time, plastics (excluding compostable ones in composting) will be a thing of the past for the collection of biodegradable waste.

Money is always stated as being an issue, but cleaner feedstocks should lead to fewer costs for the industry; surely in a maturing industry we should be looking at value for money to ensure our businesses are truly sustainable.

To finish on a more positive note, we are currently working on monetising the application of quality compost where we can show carbon sequestration benefits. It's complex but hopefully we will have more news on this in the coming months.

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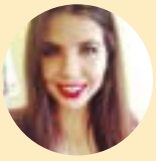

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