Grassification

Policy Landscape Analysis

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WP3 – Value chain assessment

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Introduction

This Grassification deliverable reports on the policy landscape applicable to the valorisation of roadside grass clippings. The **first chapter** is more technical oriented. It provides a high-level and broad-spectrum overview of policies and legislation applicable at different stage of the valorisation process, from verge to final biobased grass product. The overview is given on European level as well as for the respective participating Grassification partner countries or regions in the Interreg 2SEAS area (Belgium/Flanders, the Netherlands, United Kingdom). The **second chapter** is more practical oriented. It provides same exemplary cases of grass cutting valorisation in the aforementioned participating partner countries.

Figure 1: Interreg 2SEAS area

Chapter 1. POLICY LANDSCAPES

1.1 European Policy Types

Author: Ruben Guisson (VITO)

This section starts with a short introduction to the different European legislative and policy types as background information to section 1.2.

1.1.1 Directorates Generals

The European Commission is the EU's politically independent executive arm. It is sole responsible for drawing up proposals for new European legislation, and it implements the decisions of the European Parliament and the Council of the EU.

The European Commission is divided into 31 policy departments, known as Directorates-General (DGs), which are responsible for different policy areas. DG's develop, implement and manage EU policy, law, and funding programmes. Executive agencies manage programmes set up by the Commission.

https://ec.europa.eu/info/departments_en

1.1.2 Types of EU Law

https://ec.europa.eu/info/law/law-making-process/types-eu-law_en

1.1.2.1 Regulations

Regulations are legal acts that apply automatically and uniformly to all EU countries as soon as they enter into force, without needing to be transposed into national law. They are binding in their entirety in all Member States.

1.1.2.2 Directives

Directives require Member States to achieve a certain result, but leave them free to choose how to do so. Member States must adopt measures to incorporate them into national law (transpose) in order to achieve the objectives, set by the directive. How Member State's do so, is often left to their own discretion, provided the measures do not conflict with other EU legislation. National authorities must communicate these measures to the European Commission.

1.1.2.3 Decisions

While Directives and Regulations apply to all Member States, a decision only applies to a certain Member State or private entity. A decision is binding in its entirety.

1.1.2.4 Recommendations

Recommendations allow the EU institutions to make their views known and to suggest a line of action without imposing any legal obligation on those to whom it is addressed. They have no binding force.

1.2 EU Policy Landscape

Authors: Ruben Guisson (VITO)

This section brings forward the essentials of the main EU legislative and policy frameworks applicable to the valorization of roadside grass in different stages of the value chain. The text boxes literally iterate an excerpt of the official policy document.

1.2.1 Waste Framework Directive (98/2008)

This regulation is relevant for Grassification when it comes to applying roadside grass cuttings for material or product purposes; as in principal the cuttings are considered bio-waste; being subjected to the measures of the Waste Framework Directive.

> *This Directive lays down **measures to protect the environment and human health by preventing or reducing the adverse impacts of the generation and management of waste** and by reducing overall impacts of resource use and improving the efficiency of such use.*

'waste' means any substance or object which the holder discards or intends or is required to discard.

'bio-waste' means biodegradable garden and park waste, food and kitchen waste from households, restaurants, caterers and retail premises and comparable waste from food processing plants.

Municipal waste is defined as waste from households … and waste from other services and activities, which is similar in nature and composition to waste from households. Therefore, municipal waste includes, inter alia, waste from park and garden maintenance, such as leaves, grass and tree clippings, and waste from market and street cleaning services…

1.2.2 General Food Law/Regulation (178/2002)

This regulation is relevant for Grassification when it comes to testing the liquid fraction (juice) obtained from the pressing of grass clippings for the production of protein (insects and microalgae).

> *This Regulation … establishes common principles and responsibilities, … arrangements and procedures to underpin decision-making in matters of food and feed safety.*
>
> *This Regulation lays down the **general principles governing food and feed in general, and food and feed safety in particular.***
>
> *This Regulation shall apply to all stages of production, processing and distribution of food and feed.*
>
> *Food Law … covers any stage of production, processing and distribution of food, and also of feed produced for, or fed to, food-producing animals.*
>
> *Feed means any substance or product … intended to be used for oral feeding to animals*

This Regulation applies to all feed business operators and therefore also for producers of insects for feed. (source: https://ec.europa.eu/food/sites/food/files/safety/docs/animal-feed_marketing_concept-paper_insects_201703.pdf)

EU Law regulates the conditions for food and feed business operators, including insect producers, to produce and commercialize their products in the European Union. A package of legislative texts defines general principles and standards in the area of food and feed safety; commonly known as the 'General

Food Law' (Regulation No 178/2002) and the 'Hygiene Package' (e.g. Regulation No 852/2004 on the hygiene of foodstuffs and Regulation No 183/2005 laying down requirements for feed hygiene).

1.2.3 Feed Hygiene Regulation (183/2005)

This regulation is relevant for Grassification when it comes to testing the liquid fraction (juice) obtained from the pressing of grass clippings for the production of protein (insects and microalgae).

*This Regulation lays down the **general rules on feed hygiene and the conditions and arrangements ensuring traceability of feed**…*

The Regulation applies to the activities of feed business operators at all stages, from and including primary production of feed, up to and including, the placing of feed on the market

This Regulation applies to all feed business operators and therefore also for producers of insects for feed. Insect production for feed is considered a primary production of feed.

(source: https://ec.europa.eu/food/sites/food/files/safety/docs/animal-feed_marketing_concept-paper_insects_201703.pdf)

According to the above texts, producers of insects – like any other food or feed business operator – are responsible for ensuring the safety of the marketed products: to this end, these texts impose general obligations on those actors – such as the registration or approval of their activities before national competent authorities – and establish hygiene standards to be applied at the different stages of production covered. (source: http://ipiff.org/insects-eu-legislation/).

1.2.4 Feed Marketing Regulation (767/2009)

This regulation is relevant for Grassification when it comes to testing the liquid fraction (juice) obtained from the pressing of grass clippings for the production of protein (insects and microalgae).

*This Regulation… **harmonises the conditions for the placing on the market and the use of feed** (in accordance with the general principles laid down in the Food Regulation (178/2002).*

This Regulation lays down rules on the placing on the market and use of feed for both food-producing and non-food producing animals (e.g. pets).

This Regulation provides that animals in the EU may be only fed with safe feed.

Article 24: The Community ***Catalogue of feed materials*** shall be created as a tool to improve the labelling of feed materials and compound feed. The Catalogue shall facilitate the exchange of information on the product properties and list feed materials in a non-exhaustive manner.

With respect to substrate as feed for insects; … insects may be produced in the EU exclusively with substrates eligible as feed materials for farmed animals

1.2.5 Novel Food Regulation (2283/2015)

This regulation is relevant for Grassification when it comes to testing the liquid fraction (juice) obtained from the pressing of grass clippings for the production of protein (insects and microalgae).

This Regulation lays down rules for the placing of novel foods on the market within the Union.

Novel Food means any food that was not used for human consumption to a significant degree within the Union before 15 May 1997

"New" proteins for food and feed applications have to pass the **Novel Food regulation** (**2015/2283).** The regulation introduces a centralised assessment and authorisation procedure that makes the overall process more efficient.

Some of the main features and improvements of the new Regulation are the following:

- Centralised, safety evaluation of the Novel Foods will be carried out by the European Food Safety Authority (EFSA). The European Commission consults EFSA on the applications and bases its authorisation decisions on the outcome of the EFSA's evaluation.
- Establishment of a Union list of authorised Novel Foods: This is a positive list containing all authorised novel foods. Once a novel food is added to the Union list, then it is automatically considered as being authorised and it can be placed in the European Union market.

Note: EU decision makers have also established **restrictions on the feed which may be given to 'farmed animals'** – i.e. animals that are kept producing food, feed or other derived products (e.g. wool or hides). These restrictions also apply to insects intended for human consumption or for animal feed use.

1.2.6 Fertiliser Regulation (1009/2019)

This regulation is relevant for Grassification when it comes to testing the potential use of the liquid fraction of roadside clippings for the production of organo-chemical fertilisers or soil improvers.

*This regulation opens the single market for **fertilising products which are not currently covered by harmonisation rules, such as organic and organo-mineral fertilisers, soil improvers**, inhibitors, plant biostimulants, growing media or blends. It lays down common **rules on safety, quality and labelling** requirements for fertilising products.*

- Organic: fertilisers derived from plant residues or livestock manure.
- Organo-mineral: a fertiliser obtained by the mixing of one or more organic fertilisers with one or more inorganic fertilisers (e.g. nitrogen or phosphorus).
- Soil improver: a material to be added to the soil to maintain or improve its properties.
- Inhibitors: a substance added to a fertiliser which extends the time a component, such as nitrogen, is released into the soil.
- Plant biostimulants: substances and micro-organisms which can stimulate natural processes to improve nutrient uptake, nutrient efficiency and crop quality.
- Growing media: solid or liquid materials in which plants grow; substrate.
- Blends: the mixing of fertiliser inputs tailored to crop requirements.

This regulation very recently came into application (July 2022). Earlier, conventional mineral fertilisers, were covered by the 2003 regulation, and are typically extracted from mines or produced chemically, they entail high energy consumption and CO_2 emissions. Until now, they have benefitted from a legal advantage over organic fertilisers, which were submitted to different national rules, so their market and circulation within the European Union was more constrained. The new rules intend to fill this gap. The goal is to **encourage greener and innovative fertilisers** and offer more choice to European farmers.

Closing the loop - An EU action plan for the Circular Economy (Source: https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52015DC0614&from=EN).

1.2.7 Communication (2015/614) – Closing the loop – An EU action plan for Circular Economy

This communication is relevant for Grassification when it comes to, using fibre and/or fibre pellets from roadside grass fibres in different types of building and isolation materials, natural fibre composites (NFC) and wood plastic composites (WPC).

The action plan focuses on the transition to a more circular economy. Within the action plan priority areas are defined as; sectors facing specific challenges in the context of the circular economy, because of the specificities of their products or value-chains, their environmental footprint or dependency on material from outside Europe. These sectors need to be addressed in a targeted way, to ensure that the interactions between the various phases of the cycle are fully considered along the whole value chain. One of these sectors is biomass and bio-based products

> ***Bio-based materials**, i.e. those based on **biological resources** (such as wood, crops or **fibres**) can be used for a wide range of products (**construction, furniture,** paper, food, textile, chemicals, etc...) and energy uses (e.g. biofuels). The bioeconomy hence provides alternatives to fossil-based products and energy, and can contribute to the circular economy. Bio-based materials can also present advantages linked to their renewability, biodegradability or composability. On the other hand, using biological resources requires attention to their lifecycle environmental impacts and sustainable sourcing. The multiple possibilities for their use can also generate competition for them and create pressure on land-use.*

The bio-based sector has also shown its potential for innovation in new materials, chemicals and processes, which can be an integral part of the circular economy. Realising this potential depends in particular on investment in integrated bio-refineries, capable of processing biomass and bio-waste for different end-uses. The EU is supporting such investments and other innovative bio economy-based projects through research funding.

1.3 Flemish Policy Landscape

Authors: Ruben Guisson (VITO)

1.3.1 Materials Decree (Materialendecreet)

In Flanders roadside cuttings are considered a waste stream (see also below) in order to be considered a resource (and not a waste) so the stream can be used for material production an end-of-waste status is crucial to be obtained.

In general, it is important to know when a material carries the waste label and when this waste stream loses the status of waste. Conditions for the end-of-waste status are set in the European Waste Framework Directive (2008/98/EC), which have been translated for Flanders in the Materials Decree[1].

On the one hand, the Materials Decree contains a general assessment framework in Articles 36 and 37 to establish the waste status of a material and on the other hand there are specific end-of-waste criteria for specific applications such as soil improver, fertiliser, building material or sealing layer. Note; if European End-of-Waste criteria already exist for the material, these will apply. Articles 36-37 quote;

Article 36 - Waste is no longer considered to be waste if it has undergone a treatment for recycling or other recovery and it meets all of the following conditions:

1. the substance or object is intended to be used for specific purposes;
2. there is a market for or demand for the substance or object;
3. the substance or object complies with the technical regulations for the specific purposes stated in point 1°, and with the legislation and standards applicable to products;
4. the use of the substance or object has no adverse effects on the environment or human health in general.

Article 37 - A substance or object resulting from a production process not primarily intended for the production of that substance or object can only be classified as a by-product and not as waste if the following are met: requirements :

1. it is certain that the substance or object will be used;
2. the substance or object can be used directly without further processing other than that which is customary during normal production;
3. the substance or object is produced as an integral part of a production process;
4. further use is lawful, in other words the substance or object complies with all product, environmental and health protection regulations for the specific use and will not lead to overall adverse effects on the environment or human health.

1.3.2 Flemish regulation on materials (VLAREMA)

In addition to the Material Decree, the Flemish Regulation on Materials (VLAREMA)[2]; implements the practical execution of the Decree. It distinguishes between waste, by-products and raw materials. Section 2.4 of the Regulation defines the conditions and procedures to obtain a resource declaration (end-of-waste declaration). The application for a resource declaration should contain the following documents and data;

1. the desired use of the material as raw material;
2. the applicant's identification details and his relation with the raw material producer
3. the identification data of the raw material producer:

[1] https://navigator.emis.vito.be/mijn-navigator?woId=41707 (Dutch)
[2] https://navigator.emis.vito.be/mijn-navigator?woId=43991 (Dutch)

4. the identification of the material: common name, annual quantity and the EURAL code of the material
5. an overview of the production process with a description of the input flows used and the steps in which the material is released, if applicable;
6. a copy of the environmental permit for the operation of the classified establishment or activity for the process or work from which the material is released, if applicable;
7. for applications for a raw material declaration that relate to application as building material, soil improver,… additional specific criteria apply:
    a) Evidence that the material meets the applicable specific criteria
    b) Motivation why the use of the raw material in the application does not have any adverse effects on people and the environment in general;
    c) if applicable, a sampling and analysis report of a representative sample of the material, drawn up by a recognized laboratory in the discipline of waste and other materials,
    d) for building materials, the leachability test is performed on the sample with the highest metal contamination.
8. a description of the specific intended application or use of the material, and its substantiation by means of reports;
9. a statement that the information provided is correct and complete.

The responsible governmental body to apply for a resource declaration is the public waste agency of Flanders (OVAM).

1.3.3 Resource declaration (grondstofverklaring)

In Flanders grass cuttings are considered waste, more specifically green waste, and as such resort under the Waste legislation. OVAM quotes; *green waste is compostable organic-biological waste that is released in gardens, public gardens, parks, nature reserves, on the verges of waterways and roadsides. Green waste includes pruning with a diameter of less than 10 cm, plant remains, hedge clippings, leaves, lawn and roadside clippings. Green waste is released by private individuals, green services, garden contractors, etc.*

As being considered waste the cuttings should reach the end-of-waste status to order to be useable as a resource. The diagram below shows the practical flow scheme to obtain an end-of-waste status (GV = Grondstofverklaring, adopted from OVAM, *Manual for the definition of the waste phase*.

So, if you want to use a certain waste materials, here grass cuttings, as a resource, you must request a resource declaration. As mentioned, a resource declaration is required if you want to use certain waste materials as a resource .

An application for a resource declaration can be launched on the dedicated website[3].

[3] https://services.ovam.be/sso/pages/login.xhtml

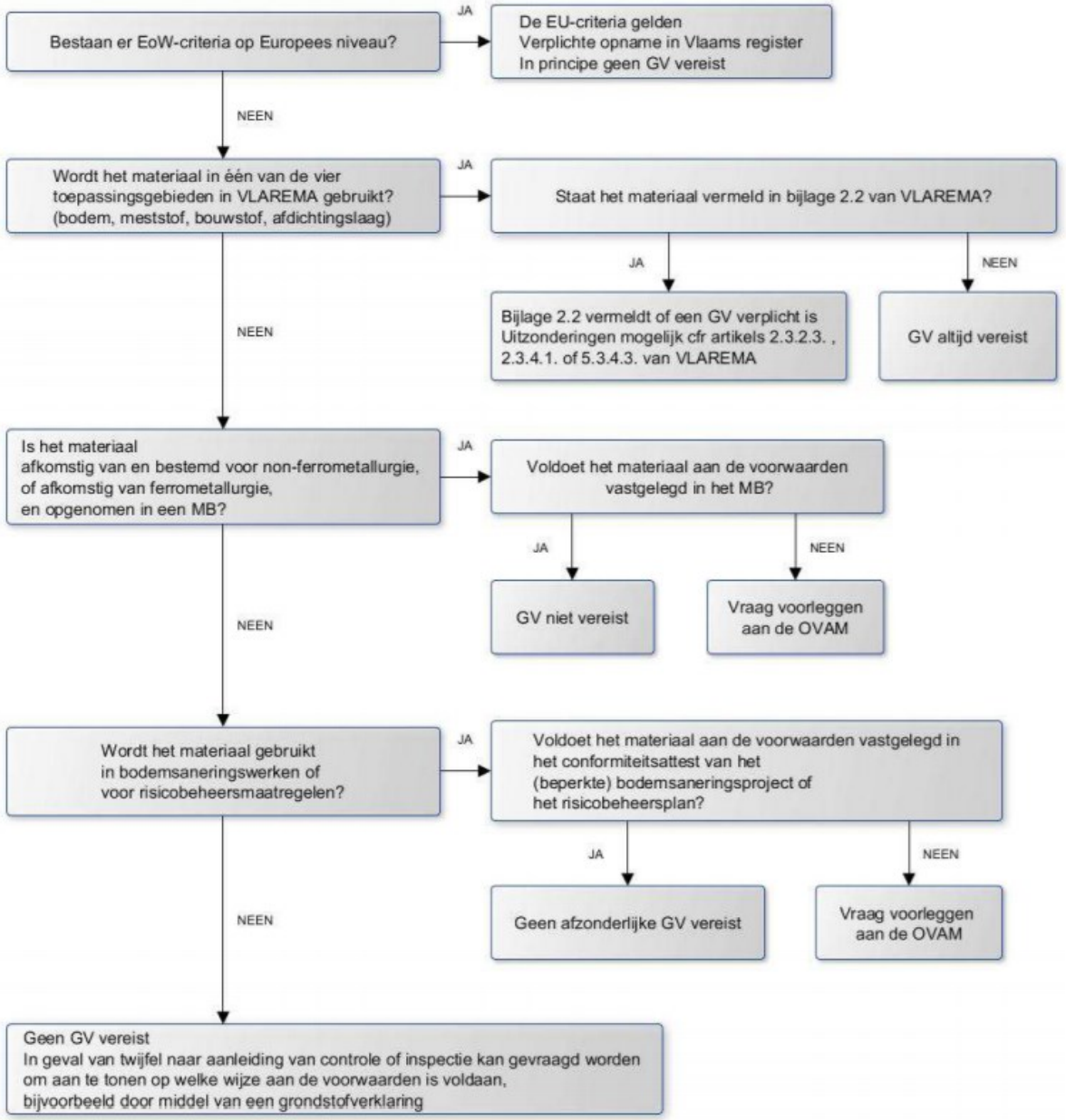

Figure 2: Flow chart for a resource declaration

By law, according to Article 36 of the Materials Decree, waste becomes a resource when it has undergone a recovery treatment and when it meets the conditions – referenced in section 1.3.1; in short:

- The substance or object is used for specific purposes;
- There is a market or demand for the substance;
- The substance or object complies with the technical regulations
- The use of the substance has no adverse effects on the environment or human health.

Unlike Article 36, Article 37 provides an assessment framework for substances that are the result of a production process that is not primarily intended for the production of that substance. In that case one can speak of a by-product instead of a waste when:

An end-of-waste declaration can be requested to demonstrate that grass cuttings meet the conditions and criteria in Article 36 and is therefore not waste[4]. OVAM decides on the issue of such a raw material declaration. How to apply for a raw material declaration and what information this document must contain is referenced in section 2.4 of VLAREMA. After applying for a raw material declaration, a decision is made within a period of 20 calendar days about whether or not the declaration is admissible. OVAM grants or refuses the raw material declaration within 45 calendar days after dispatch of the admissibility declaration.

However, at the same time, the OVAM website currently quotes - *all green waste must be composted*. Either this is done oneself (i.e. composting green waste from one's own site itself on site and re-using the compost obtained on one's own site) or this is done by a licensed composting installation. So, composting has obtained an end-of-waste status, provided the composting is done following specific rules and the composting installation features the right permits to do so – all this is information is provided in detail on the VLACO (Flemish Composting Association) website[5].

So green waste, including roadside cuttings, cannot be used directly as a soil improver (not even after reduction), but must always be composted in an establishment licensed for this purpose. In this way, green waste is converted into a stable, high-quality germ-free and weed-free soil improver.

Green waste can also be digested (or fermented) – as a pre-treatment to composting – meaning that the resulting digestate must be composted still to reach an end-of-waste status. However, the study 'Bermgras (2014)' (EN: roadside gras)[6] concluded, dry fermentation is an exception in Flanders (and still is anno 2022, author's note), but may form the key to an optimal roadside grass fermentation. Dry fermentation lends itself excellent for the fermentation of green waste and various composting installations are currently investigating the option to extend composting with a pre-digestating installation.

1.3.4 Action plan biomass(residual)streams (2021-2025)

This Action Plan wants to facilitate the selective collection and recycling of biomass(residual)streams with a view to reduce costs and realise material savings. The plan offers a framework for the government and involved sectors to close the cycle of food loss and biomass (rest)streams in Flanders and to achieve the Flemish and European objectives in the period 2021-2025[7].

The action plan, amongst many other actions, references a specific action for nature grass cuttings; with the ambition to treat by 2025, at least 30,000 tons grass clippings from nature (fresh material, wet-weighed) to be used in material applications (i.e. next to composting). Note however that, the ambition relates to 'nature' grass (not being waste) and does not include roadside grass cuttings (being waste).

1.3.5 Production and destination of biomass(rest)streams for a circular economy in Flanders

This paragraph discusses not so much a legal document but rather a market analyses of the production and destination of biomass(rest)streams in Flanders – with a focus on roadside grass cuttings.

The range of clippings is seasonal. The mowing period is between June and September. In order to be able to spread the processing of the clippings over the entire year, the clippings are often stored or

[4] See chapter 2.1 for an exemplary case addressing this process
[5] Startpagina | Vlaco
[6] https://www.ows.be/wp-content/uploads/2014/09/Bermgras-openbaar-rapport.pdf
[7] VR 20210423 Actieplan voedselverlies en biomassa 2021-2025.pdf (vito.be)

ensiled in the interim. The discharge of the clippings and a subsequent processing are mandatory according to the roadside decree, but are not always done correctly. Although there are exceptions, according to the decree, the clippings must be disposed of within 10 days after mowing be removed with a view to impoverishment of the verges. Every year on two peak moments free large amounts of roadside clippings and administrators and processors then look for it also for solutions. For the actual processing, various destinations are followed such as mainly composting , to lesser extent digestion, animal feed (only for grass from nature management not for roadsides), ... depending on the quality of the clippings.

Composting is today by far the most important processing technology for the clippings being processed. Clippings are ensiled in certain regions to absorb peak moments and later dispose of them to green composting. This also partly explains the increasing evolution of the composting of roadside clippings as shown in the figure below. From recent analysis of Vlaco shows that in 2016 about 82,000 tons of roadside clippings from municipalities and other roadside managers was transported to a composting installation or fermentation installation in Flanders.

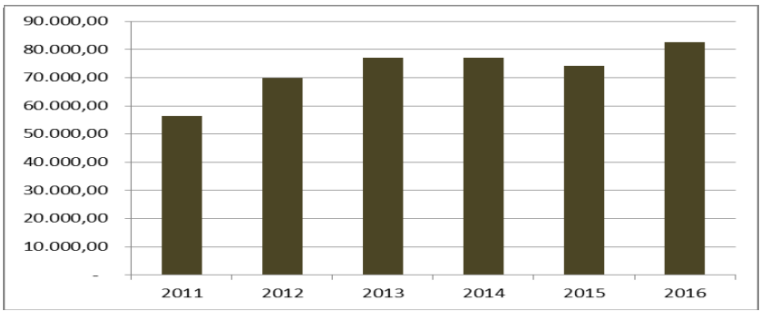

Figure 3: Evolution of composting of roadside grass cuttings (VLACO, 2017)

A number of managers allow grasslands or roadsides grazing, and there are farmers who additionally hay for the purpose of producing fodder. A part of the grass from the grass strips that are used for erosion prevention remains behind on the erosion strips themselves. Fermentation of grass clippings requires a number of preconditions.

The possibilities of grass fermentation were investigated in, among others, Graskracht (2012), Bermg(r)as (2014) and GR3 (2015). Especially dry fermentation with post-composting appears to be a promising but more expensive option than composting. The Action plan biomass(residual) streams (2015-2020)[8] set the target by 2020 that at least 10% of the annual supply of Flemish roadside clippings that comply with the quality requirements is processed in dry fermentation installations with post-composting[9]. However wet fermentation is only allowed on condition that a subsequent hygienisation takes place which can guarantee that plant pathogens and weed seeds are killed i.e. with a post-composting set. Processing of clippings in wet fermentation currently remains a marginal event, with individual installations accepting roadside clippings from their own municipalities mainly on the basis of goodwill.

Finally, more recently, some innovative processing technologies such as fibre, protein and nutrient extraction have also been on the research agenda with the aim of extracting raw materials from grass; for example for paper-and-cardboard (fibres), animal feed (protein) and soil-improving (nutrient)

[8] The predecessor of the Action plan referenced in section 1.3.4

[9] However data suggest this target was never reached (note of the author).

applications (GrasGoed (2016)). However, the quality requirements for the clippings are high, as a result of which the Netherlands often works with cultivated agricultural grass cuts.

For more detailed information about the processing of roadside clippings, reference is made to, among other things, the results of the projects Graskracht (2012), Bermg(r)as (2014), GR3 (2015), GrasGoed (2016) and VLACO.

1.4 Netherlands Policy Landscape

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1.4.1 Environmental Management Act (Wet Milieubeheer)

The Environmental Management Act is the main overarching legal instrument for environmental law in the Netherlands and regulates a large number of different terrains. The act is a framework law and therefore in broad lines states what legal instruments are applicable and which principles apply to them. Further elaboration is offered in underlying council orders (Algemene Maatregelen van Bestuur), ministerial regulations and many other acts that focus on a specific part of environmental protection (e.g. the Nature Protection Act which implements EU species protection and Natura 2000 legislation). The act is broad in its scope and contains the powers of national (advisory) bodies, plans, environmental quality requirements, the environmental impact assessment, coordination, enforcement, measuring, etc. Additionally, more substantive issues are discussed such as sound, air pollution, emission trading and, of particular relevance for this research: waste.

The act implements the European Waste Directive[10] in chapter 10.[11] Here it is stated that it is prohibited for anyone '*who performs or fails to perform actions with regard to waste and who knows or could reasonably have known that adverse consequences for the environment arise or could arise as a result, is obliged to take or refrain from taking all measures that can reasonably be required of him, in order to prevent or limit those consequences as much as possible*.' This broad duty of care assures that the environment must be taken into consideration in all instances.[12,13] Waste water also falls under the waste definition, as was confirmed by the Council of State, the highest administrative court in the Netherlands.[14] The Environmental Management Act is further specified in the Environmental Law Decision (Besluit Omgevingsrecht, BOR) and the Environmental Ministerial Order (Regeling Omgevingsrecht, MOR).

Transport

The commercial transport of waste may only take place by carriers who are registered on the VIHB list as carrier. This is the consequence of Article 10.55, first paragraph, of the Environmental Management Act. Commercial transport refers to the professional transport of waste for a fee. This means that a transporter must be hired by a disposer (or a consignee) to transport the waste materials to another location for some form of compensation. Transporting waste is distinguished in the collection of waste, unlike a collector, because the ownership of the waste does not pass to the carrier. The entry on the list is valid for five years on the basis of Article 7 of the Biaf. After this, another application must be

[10] Directive 2008/98/EC

[11] <www.afvalcirculair.nl>, search for '*wet milieubeheer, afvalstoffen*', last checked on 06-09-2020

[12] Art. 10.1 Wet Milieubeheer

[13] See in this regard also the National Waste Management Plan as discussed before.

[14] ECLI:NL:RVS:2009:BJ6670, 02-09-2009

submitted. The VIHB list is managed by the National and International Road Transport Organization (NIWO) .

In the Netherlands, an accompanying letter must be present during transport on the basis of Article 10.44, first paragraph, of the Environmental Management Act. Pursuant to Article 10.44, second paragraph, of the Environmental Management Act, the accompanying letter is issued upon receipt of the clippings by the company that further processes the clippings.

Temporary storage of grass cuttings

Storage of grass cuttings must always be done within a facility. Otherwise there is a violation of the dumping ban which is regulated in the Decree on landfills and dumping bans on waste ('Besluit stortplaatsen en stortverboden afvalstoffen)[15] The period that the cuttings may be stored is regulated in Article 11e and is based on Article 16 Waste Framework Directive in conjunction with Article 8:40 of the Environmental Management Act, in which parts of the European Landfill Directive have been implemented. The following terms for the storage of waste are mentioned for establishments intended for the storage of waste[16]

- The term for storage for disposal is a maximum of one year;
- The term for storage prior to recovery is a maximum of three years.

In case of recovery, the cuttings may be stored for a maximum of three years pursuant to Article 11e of the Decree on landfills and dumping bans on waste.

Continuous storage

For continuous storage of grass cuttings before processing, a Wabo permit (Wet algemene bepalingen omgevingsrecht - Environmental Law General Provisions Act) is needed according to Article 2.1, first paragraph, under e. For 600 m^3 or less, a notification requirement applies on the basis of the Activities Decree. The maximum time for storage is 3 years similar to temporary storage.

1.4.2 National Waste Management Plan (Landelijk Afvalbeheerplan (LAP)

The National Waste Management Plan (LAP) is the policy framework for waste in the Dutch circular economy and sets several ambitious goals. The Plan is based on the National Environmental Policy Plan and the EU Waste Directive[17],

Firstly, the maximum amount of waste supply may not be higher than 74Mton. Secondly, at least 95% of waste must have a useful application by 2021. All levels of government, (national, provincial and local) are required to take the LAP into account when carrying out or making decisions that revolve around waste, offering a uniform and consistent waste management policy.[18] Because of this, the LAP can above all be considered as the overarching policy framework consisting of numerous topics revolving around waste such as collection, recycling, burning, disposal, transport, circular economy and matters to take into account when allocating permits, monitoring and supervision, determining if something must be considered as waste or not.

The LAP was drafted by the Minister of Infrastructure and Water Management (Minister van Infrastructuur en Rijkswaterstaat) and revised every six years, making that LAP3 is now in force and

[15] ABRvS 20 augustus 2008, ECLI:NL:RVS:2008:BE8816.
[16] Directive 1999/31/EG
[17] Art. 10.6 Wet Milieubeheer & Directive 2008/98/EC
[18] Consultatie Landelijk Afvalbeheerplan, p. 4

will remain so until revision in 2021.[19] In the LAP, the waste hierarchy must be respected.[20] Derogation of the LAP is however permissible where necessary if this is justified in relation to the entire life cycle of the waste.[21] Due to this high standard of reasoning, the LAP aims to assure uniformity while still providing some necessary flexibility.[22] Currently, 85 sectoral plans exist which consist of further policy considerations regarding the higher usage of waste in specific sectors. [23] If a sectoral plan is present, it will be considered the *lex specialis*, and will therefore have priority over the LAP.[24]

1.4.3 End-of-waste criteria

Article 6 (4) of the Waste Framework Directive provides that, where no criteria exist at Community level, Member States can decide on a case-by-case basis that a particular waste is no longer waste. Pursuant to Article 1.1, paragraph 6, of the Environmental Management Act, the Minister of Infrastructure and the Environment can decide on a national level or by ministerial regulation for each waste stream that a waste or a waste stream that has undergone treatment for recovery, is not regarded as waste. The Minister of Infrastructure and the Environment also tests against the end-of-waste criteria of article 6 Waste Framework Directive.

It concerns the following criteria:

- The substance or object is commonly used for specific purposes;
- There is a market for or demand for the substance or object;
- The substance or object complies with the technical regulations for the specific purposes, as well as with the legislation and standards applicable to products; and also
- The use of the substance or object will not have overall adverse effects on the environment or human health.

In order to pre-assess a judgment by the Minister of Infrastructure and the Environment, the above criteria are tested to find out whether the cuttings can ever lose their waste status. In practice, it is not always clear whether and when valuable substances lose their waste status, how long it takes to go through the whole procedure and which information is exactly needed. This creates uncertainty for companies and authorities as to whether or not products from roadside grass can be used and when.

1.4.4 Nature Conservation Act (Wet Natuurbescherming)

The Nature Conservation Act is the main legislation that implemented the Habitat Directive (92/43/EEC) and the Birds Directive (2009/147/EC). The Act thus focuses both on area protection (Natura 2000, chapter 2) as species protection (chapter 3). The Act requires the Minister to determine a national nature focus which envisions the protection of animal and plant species and habitats as well as a sustainable development and integration of biological diversity and general economic policy such as agriculture, fishery and innovation policy. Additionally, the national focus must also discuss climate

[19] Art. 10.3 Wet Milieubeheer & Landelijk Afvalbeheerplan p. 7
[20] Prevention, preparation for reuse, recycling, other useful applications such as energy generation, safe disposal.
[21] Art. 10.5 sub a Wet Milieubeheer
[22] Consultatie Landelijk Afvalbeheerplan, p. 5
[23] Of these 85 as listed in annex E, only several may be relevant for biobased products from waste water: (16) water treatment sludge, (17) residuals from the preparation of drinking water, (22) residues from sludge combustion, (58) oil/water mixtures, oil/water/sludge mixtures and oily sludges, (73) highly polluted waste water streams and baths, (75) metal-containing waste water with organic contaminants, (76) other acids, other bases and other metal-containing waste water, and (77) aqueous waste with specific contaminants
[24] Consultatie Landelijk Afvalbeheerplan, p. 9

change, sustainable timber management, research and the protection of ecosystems.[25] The national nature focus must then be further specified by the individual provinces.[26] As stated before, the Act also focuses on the protection of floral and animal species. Making it illegal to kill or capture them without a permit. Violation of this law can be a criminal offence following the Act on Economic Offenses (Wet op de Economische Delicten). If conducted on purpose, it may lead to a penalty of community service, six years imprisonment and/or a fine not exceeding 87.000 EUR.[27] The Nature Conservation Act can be relevant for the cutting and transport of grass from roadside verges in nature conservation areas.

1.4.5 Commodities Act (Warenwet)

The Commodities Act is the general Dutch legislation that requires that food and drink products must not harm the health or safety of consumers. The act focuses on the entire process of food production as well as food transport, import, export and packaging. The Inspectorate of the Netherlands Food and Consumer Product Safety Authority (Nederlandse Voedsel en Waren Autoriteit) upholds the Commodities Act.[28] Under the Commodities Act is the Dutch implementation of the Novel Food Regulation (Warenwetbesluit nieuwe voedingsmiddelen en genetisch gemodificeerde levensmiddelen). The commodities act is of importance when grass from roadside verges is used in products that are used for food transport and/or packaging.

1.5 United Kingdom Policy Landscape

Author: Bethany Pateman – Kent Wildlife Trust

1.5.1 Introduction

Since the publication in 2000 of the Waste Strategy for England and Wales, significant changes, largely driven by EU waste laws, have been made to how waste is produced and disposed of in the UK. Building on the gains of the 2000 policy and the subsequent 2007 Waste Strategy for England, Defra published in 2013 a Waste Management Plan for England. The Resources and waste strategy for England, 2018[29] sets out how England will preserve material resources by minimising waste, promoting resource efficiency, and moving towards a circular economy. Whilst at the same time minimising the damage caused to the natural environment by reducing and managing waste safely and carefully, and by tackling waste crime. It combines actions with firm commitments for the future and provides a policy direction in line with the Government's 25 Year Environment Plan[30].

1.5.2 Waste Management Plan

Although the United Kingdom (UK) is no longer a member of the EU the devolved nations of the UK continue to base relevant waste legislation largely around the EU policy landscape. The latest Waste

[25] Art. 1.5 Wet Natuurbescherming
[26] Art. 1.7 Wet Natuurbescherming
[27] Art. 6 Wet op de Economische Delicten
[28] www.nvwa.nl
[29] Policy Paper: Resources and waste strategy for England, Policy Paper, Defra 18 December 2018, https://www.gov.uk/government/publications/resources-and-waste-strategy-for-england
[30] Policy paper: A Green Future: Our 25 Year Plan to Improve the Environment, Defra, 11 January 2018 https://www.gov.uk/government/publications/25-year-environment-plan

Management Plan for England was published January 2021[31]. Wales, Scotland, and Northern Ireland also have equivalent waste strategies. The Waste Management Plan is a high-level document which provides an analysis of the current waste management situation in England and evaluates how the Plan will support implementation of the objectives and provisions of the Waste (England and Wales) Regulations 2011. It is supported by Waste Prevention Programme for England which articulates the actions for government and for others which will result in reduced waste arisings and increased resource efficiency and will be published in autumn 2021.

The next section focusses on policy in England, where the Grassification Project is taking place.

1.5.3 Environmental Permitting Regulations

Verge cuttings are a waste under Environmental Permitting (England and Wales) Regulations 2016 SI2016/1154[32]. The material is designated as a municipal waste and described as EWC 20 02 01 Biodegradable waste from Parks and Gardens but given concerns around contaminant levels within certain collected material the EWC 20 03 03 Street cleaning residues may also be appropriate.

The four main routes materials may be managed are as:

- discarded waste to be recovered under environmental permitting regulations to a suitably permitted facility.
- a non-waste product under a waste quality protocol or resource framework;
- a product or biproduct which has achieved 'End of waste'; and/or
- a low risk 'exempt' waste material

Verge cuttings are plant material and not considered to be an Animal by-product. Verge cuttings once removed from the site of production must be transported, stored, and treated as a waste under Environmental Permitting Regulations.

The process and regulation for management of verge material in England is mirrored elsewhere in Europe. The Environment Agency considers verge material to be a waste once cut and removed from the site where it has been produced. The verge cuttings must therefore be:

- Transported by an individual or company that holds an Upper Tier Waste Carriers Licence.
- Stored at a suitably permitted facility.
- Incinerated at a suitably permitted facility to generate energy from waste; or
- Biological treatment at a suitably permitted facility, with the output of the process (e.g., compost or digestate) used appropriately with Environment Agency approval.

Verge cuttings have been found to be variable in nature. Criteria for their acceptance as feedstock materials into permitted treatment facilities, such as anaerobic digestion and composting sites, will need to be set before the Environment Agency deems them acceptable to be treated. There are concerns regarding heavy metal contamination and micro-plastic contamination, specifically from tyre fragments deposited by passing vehicles to the grass verge. These may contaminate the resulting compost or digestate produced from the treatment process, which could be of disbenefit when the material is used in the wider environment, as a soil improver or source of plant nutrients.

Extensive sampling and analysis of verges in Kent, England has been undertaken to inform an environmental risk assessment which will be submitted to the Environment Agency for consideration.

Currently if the verge is cut and the arisings left in situ waste management regulations do not apply.

[31] Policy Paper: Waste Management Plan for England, Defra 27 January 2021 https://www.gov.uk/government/publications/waste-management-plan-for-england-2021

[32] The Environmental Permitting (England and Wales) Regulations 2016, https://www.legislation.gov.uk/uksi/2016/1154/contents/made

1.5.4 Waste quality protocols

Waste quality protocols (QPs) are end of waste frameworks that industry can follow voluntarily. They set out the requirements for when certain wastes can become non-waste once they've been fully recovered. The QPs are regulated by the Environment Agency who have reviewed those for anaerobic digestate and compost and decided they need to be revised. The required revisions are currently being assessed. Verge cuttings are currently not included as a suitable input material to the Anaerobic Digestate QP or the Compost QP. If there is not a Quality protocol or resource framework which covers the production and use of a recycled material, then the material must be tested as to whether it achieves 'End of waste'.

The harmonised end of waste test sets out conditions in article 6(1) of the WFD that must be met to achieve end of waste status. The material must be used for a specific purpose and have a clear market. It must meet the technical and legal requirements for its use and is compared to an existing product or 'comparator material'. The use of the recycled material must not lead to overall adverse environmental or human health impacts and therefore potential pollutants and their limits must be carefully considered.

The process of achieving 'product' status for a recycled material is currently under review and the Definition of Waste service in England and Wales has been suspended, leaving businesses to self-assess 'end of waste' and 'by-product' status of materials using the existing Defra guidance.

1.5.5 Fertilisers Regulations

The European Commission has sought encourage large scale fertiliser production from domestic organic or secondary raw materials in line with the circular economy model, by transforming waste into nutrients for crops. The EU Fertilising Products Regulations were published 5 June 2019[33] and harmonise the requirements for fertilisers produced from phosphate minerals and from organic or secondary raw materials in the EU, opening new possibilities for their production and marketing on a large scale. Great Britain and Northern Ireland have historically operated separate domestic regulatory regimes under the Fertilisers Regulations 1991 and the Fertilisers Regulations (Northern Ireland) 1992, respectively.

A revision of the UK fertiliser Regulations may present an opportunity for the easier use of anaerobic digestate and compost produced from verge cutting feedstock but barriers to its use as a feedstock need to be overcome first.

In summary there are several legislative pathways that may permit the recovery of verge cuttings for biological treatment or incineration which are preferable to disposal to landfill. Incineration is currently acceptable at a suitably permitted facility whilst there are still barriers to the biological treatment and use of the resulting digestate or compost derived from verge cuttings in the UK.

[33] Regulation (EU) 2019/1009 of the European Parliament and Council, 5 June 2019, laying down rules on the making available on the market of EU fertilising products and amending Regulations (EC) No 1069/2009 and (EC) No 1107/2009 and repealing Regulation (EC) No 2003/2003

Chapter 2. VALUE CHAIN ROADMAP

The value chain roadmap is presented under the form of exemplary cases from the three involved Interreg2SEAS regions. The cases present good examples and the way forward to increase the attractiveness and viability of using roadside grass clippings as a renewable resource for the production of biobased products, thus promoting a more circular economy.

2.1 Flemish exemplary cases

Authors: Nathalie Devriendt (ProNatura)

2.1.1 Exemplary case – products from grass fibers

Short description:

Pro Natura is a non-profit organisation working in a sector of social economy. Pro Natura is a social and sustainable enterprise with 155 employees. The company over the last 28 years takes care for nature conservation and at the same time creating new opportunities for jobs. Through innovative projects Pro Natura encourages green work in the regions and offers employment, training and work experience for people who have difficulties finding a job in the regular economy.

During the landscape maintenance and management activities of ProNatura green waste more specifically road side cuttings are one of the largest amounts of waste, needed to be treated in a waste treatment installation (composting). The logistics, transport and gate fee come with a lot of cost. Treating these roadside cuttings and making qualitative fibers for biobased products is the goal for ProNatura.

Pro Natura employs low skilled people and wants to stimulate the development of new business based on problematic waste streams from our stakeholders (local authorities). The main green waste product involved is grass where Pro Natura wants to:

- create job opportunities (specifically in the part leading to the refining process to fibres), and
- imply the social economy in the organisation of the value chain and new production plants.

ProNatura is already active for 28 years in landscape management. Innovation has always been part of the DNA within ProNatura. In 2017 the focus of green waste-to-bioenergy (a lot of research effort but not the results that were hoped for) switched to green waste-to-materials. Within the Interreg Grasification the production of fibers started from small trials to pilot scale, with the drying capacity in the greenhouse in Pamel and the development and use of a hammermill to produce fibers out of roadside cuttings.

Sourcing area of our green waste is local: from roadsides and landscape management activities for municipalities, industrial sites, etc. All resources come from a perimeter of not more than 100 km around the sites of ProNatura.

Policy aspects:

The grass from roadside cuttings consists of mixed herbs, very different varieties. Most important challenge of the grass that also the litter that is thrown away is collected together with the grass and

also and important amount of sand particles. In Flanders the legal status of roadside cuttings is green waste and needs to be treated following the waste treatment legal framework.

For ProNatura the legal waste status for roadside cuttings was clear from the beginning. ProNatura has turned the roadside cuttings into fibers as a resource for further processing. However, it was not clear for the processing companies that using these grass fibers would make them waste treatment facilities. ProNatura started with the procedure of the end-of-waste criteria in Flanders to counter that problem and to turn the fiber from legal status waste to resource. In the beginning it was not clear for ProNatura that this procedure should be followed for every other end-application. ProNatura thought that going through the procedure once would be enough to turn their fibers from waste into resource. Unfortunately, this is not the case, the Flemish Public Waste Agency (OVAM) is also looking at the different end-applications of the fibers and wants **a procedure for every other end-application**.

This problem was discussed with OVAM and as a solution we could **cluster all the different end-applications** in the different procedures and ProNatura was allowed to refer to lab results, scientific studies, etc. from the other end-applications if relevant.

Another problem was that OVAM, in line with the directive of the EU, had some quantitative limit values for certain end-application like soil improvers, building material, … but for other end applications **no quantified limit values are available**. ProNatura had to propose his own limit values in line with the processing companies of the end-application. Our biobased processors had difficulties to define such quantitative limit values. ProNatura solved this by using the quantified limit values from the soil improvers in combination with some extra limit values defined in combination with the processing companies.

ProNatura was very soon in the process aware of the Flemish legislation of 'Grondstofverklaring' (Resource declaration/end-of-waste). The **administrative part is very straight forward with a good working digital platform that makes it easy to put a file together**. How to tackle certain questions and **deliver the correct evidence material/background (lab results, scientific research, own experience, …) was more difficult.** Especially for the new biobased materials that our produced from our grass fibers not every aspect is already known e.g. what is the market for the end-application, what do you replace of conventional material, what is the LCA and end-of-life behavior of your product, … ?

To tackle this problem, ProNatura asked for a temporary declaration 'grondstofverklaring', valid for 2 years. During this period all involved parties get the opportunity to experience, research, develop and market more. This reasoning was followed by OVAM and they approved our grass fibers but with the condition that within the next coming 2 years we provide them with more detailed information about LCA, market and new lab results.

An online manual is available to run the procedure of applying for a 'grondstfofverklaring'. This is helpful but for real innovative application it could not answer all questions at hand. It proved also important to have an approachable and helpful policy officer who can answer questions and give guidance.

Moreover, ProNatura was lucky to be able to lean on the work of the Interreg Grassification project. The different reports with the research results were used as evidence material for OVAM. It would have been useful to have had a dummy example of a full application. ProNatura solved that by calling another company with experience with this procedure to help us for certain questions.

How complex was the procedure perceived? As mentioned above not complex, although the log-in to the platform is taking you at least a week because an official letter with certain code needs to be send to the CEO of the company. The CEO needs to give this code to the employee and needs to allow the employee to fill in all necessary documents. Once that phase is passed, the procedure is going fluently.

As a last topic the cross border transport **export of products granted a 'grondstofverklaring'** is addressed. After all the declaration is only valid in Flanders, but not recognized in the other Belgian regions and nor in other EU countries. For this topic, much uncertainty remains.

For now, ProNatura has no idea how to tackle this. E.g. what if ProNatura will be delivering fibers to Dutch companies in the near future? **There is a procedure called 'federal exemption) i.e. on Belgian level.** However, it is not clear for ProNatura if this needs to be asked for grass fibers too. This question was also addressed to the Flemish responsible body, OVAM; if they knew how this 'federal exempt' adds to the Flemish regional end-of-waste criteria? However, they didn't know anything about that.

Going beyond fibers, imagined at certain point, it would be possible to make a food supplement out of the roadside cuttings, ProNatura would need to tackle not only the 'grondstofverklaring' but also some other legislation around **novel food/food supplements**. Which legislation, where to ask for, etc. … this all very unclear. Asking around has not helped ProNatura forward.

Some recommendation towards the responsible governmental body OVAM to further improve the application of 'grondstofverklaring':

- Example of full application would be helpful, with examples of evidence material.
- Clustering is good, but policy makers could think of one procedure for one intermediate product like grass fibers.
- More 'publicity' should be made about the necessary documents. ProNatura had the luck to be in the Grassification project and to be able to use the research results for the application. It would be good that more of the research results could help companies to fulfill all necessary evidence. In subsidy programs where waste is researched this tip could be given to the projects.

Some recommendations towards companies that want to reuse fibers from grass in products:

- Don't be afraid of the procedure, push it forward even if it looks difficult.
- Dare to use literature, scientific research, … .
- Start with one end-application and learn from it and proceed afterwards with the other end-applications.
- If you have new innovative end-applications and not all questions can be fully answered, go for a temporary permit, so that policy makers, end-users end your own company can learn by doing in the next coming years. But stay in communication with the policy makers.

2.2 Netherlands exemplary cases

Author: Alexander Compeer – CoE BBE Avans Hogeschool

2.2.1 Exemplary case – Staatsbosbeheer

Short description:

Staatsbosbeheer is a nature organization which is commissioned by the Dutch government to strengthen the position of nature in the Netherlands. As a leading national public body and as landowner and manager of a sizeable amount of nature reserves, they work to conserve and develop the Netherlands' characteristic green heritage.

Creating biomass is not one of the purposes of Staatsbosbeheer, neither product development, but they do participate in projects which are focusing on valorizing residual streams. Their knowledge is mainly on the harvesting process and the quality of the nature materials.

The way of harvesting biomass (coming from regular maintenance) is very important, you can either 'produce' waste or a product.

Staatsbosbeheer was involved in the supply chain for Huhtamaki, they delivered all kinds of different variations of nature grass (different in length, composition, dry matter content). Nature grass was chosen to intend to have clean material (due to the fact it was meant for food packaging). Roadside grass is associated with pollution, that was something they want to avoid.

There has been a project 'van berm tot bladzijde' (from roadside grass to paper(filler)) by Parenco (nowadays Smurfit Kappa Vandra). Also, Rijkswaterstaat was involved, Youri Wolf could be contacted.

It can be mentioned that the first meter of roadside grass (measured from the road) has a different composition than the meter after that.

Policy aspects:

Last two decades there were a lot of policies that changed once in a while. There were exemptions for residual flows from agriculture, forest and nature management. In 2019 this changed and roadside grass became leading in policies, the 'vrijstellingsregeling afvalstoffen' (waste exemption regulation), If something is clean and unsuspected, you can use it.

However, the egg carton project was active before this change in regulations. Nowadays they are still produced, but in cooperation with other partners.

Staatsbosbeheer says: "We have no waste, only residual streams. The same material is suitable and used for elephant feed and we do not feed waste to elephants. If you transport the material in a truck and the investigating officer asks what is in the truck, when you say it is feed it is alright but when you say it is waste you have a problem, while it is the same material ". So, it is really decided by the application of the material and Staatsbosbeheer says we are dealing with raw material, not waste. Until 2019, the intention was leading for the status of the material.

If you want to produce a biological product, it has to be Skal certified. Skal Biocontrole ensures that your business' organic production, processing, or trading activities complies with the EU organic regulation, the Dutch Landbouwkwaliteitswet (LKW, Agricultural Quality Act), and the regulations and principles of Skal Biocontrole. All nature grass of Staatsbosbeheer can be Skal certified.

If you have intentions with roadside grass, you do not need to get rid of it and it is no waste. However, if you don't have any intentions with it, you do need to get rid of it and it is seen as 'waste' unless you get rid of it within a distance of 5km.

More info:
https://bvor.nl/herziene-vrijstellingsregeling-plantenresten-stelt-eisen-aan-kwaliteit/
https://www.rvo.nl/sites/default/files/2020/09/Kwaliteitsborging-in-de-Kleine-Kringloop_0.pdf

2.2.2 Exemplary case – Grassa

Short description:

Grassa (– Green Refined Solutions) is a company established in 2014 within the Netherlands, providing a solution for the biorefinery of green products. At this moment, the main focus is to be able to process cultivated grass into a mineral concentrate, fructooligosaccharide (FOS), protein concentrate and a pressed fiber cake.

However, Grassa also participated in projects to test the feasibility of processing nature grass via their technology, the role of Grassa is not specifically to provide an alternative route of processing residual streams. Rather they focus on providing a technology to create high value feed products for cattle (or for human food applications eventually).

Besides performing some testing abroad, Grassa is basically active within the Netherlands only.

Policy aspects:

Grassa is nowadays optimizing their technology to be able to increase the capacity of their machinery. Therefore, they use only cultivated grass at the moment. The benefits of using cultivated grass is that it is a crop, cultivated on purpose, it is clean due to the controlled cultivation/harvesting conditions, therefore 'waste status' is not an issue.

The only important policy they have to deal with is GMP+ and SecureFeed. Next to that, the Dutch 'Keuringsdienst van Waarde' who needs to perform some inspection on the biorefinery process and check if all juridical regulations are taking place in order to ensure good quality products.

Roadside grass is not suitable for GMP+ certification (with regards to the technology and purposes of Grassa refinery products). Roadside grass is still considered as 'waste material' from legal point of view, therefore feed and food applications are impossible. Policies impede the route from roadside grass towards food products. However, if you go for an application like foliar fertilizer, roadside grass might be suitable. The remaining press cake can't be silage anymore, but that could then probably be applied in biocomposite material.

2.2.3 Good Practice – Helpdesk Afvalbeheer

The helpdesk provides a web-test to support the analysis whether a product is waste or no waste:

https://www.afvalcirculair.nl/onderwerpen/afval/toetsing-afval/webtoets-afval/

The web-test is primarily intended for companies to obtain an indication via an assessment that they carry out themselves whether a substance, material or is waste or, for example, a by-product. Moreover, the tool can also be used by competent authorities.

The web-test is a supporting tool for companies and competent authorities and is not legally binding. The web test is suitable for use within the Netherlands (based on Dutch legislation).

The assessment framework (toetsingskader) ‘waste or product?’ is provided in the flow diagram below. The detailed guidelines can be found on (Dutch):

https://lap3.nl/publish/pages/138148/leidraad_afvalstof_en_product_januari_2021.pdf.

Ministerie van Infrastructuur en Waterstaat

Toetsingskader afvalstof of product

Beoordeling moet per geval en op basis van alle voor dat geval specifieke feiten en omstandigheden

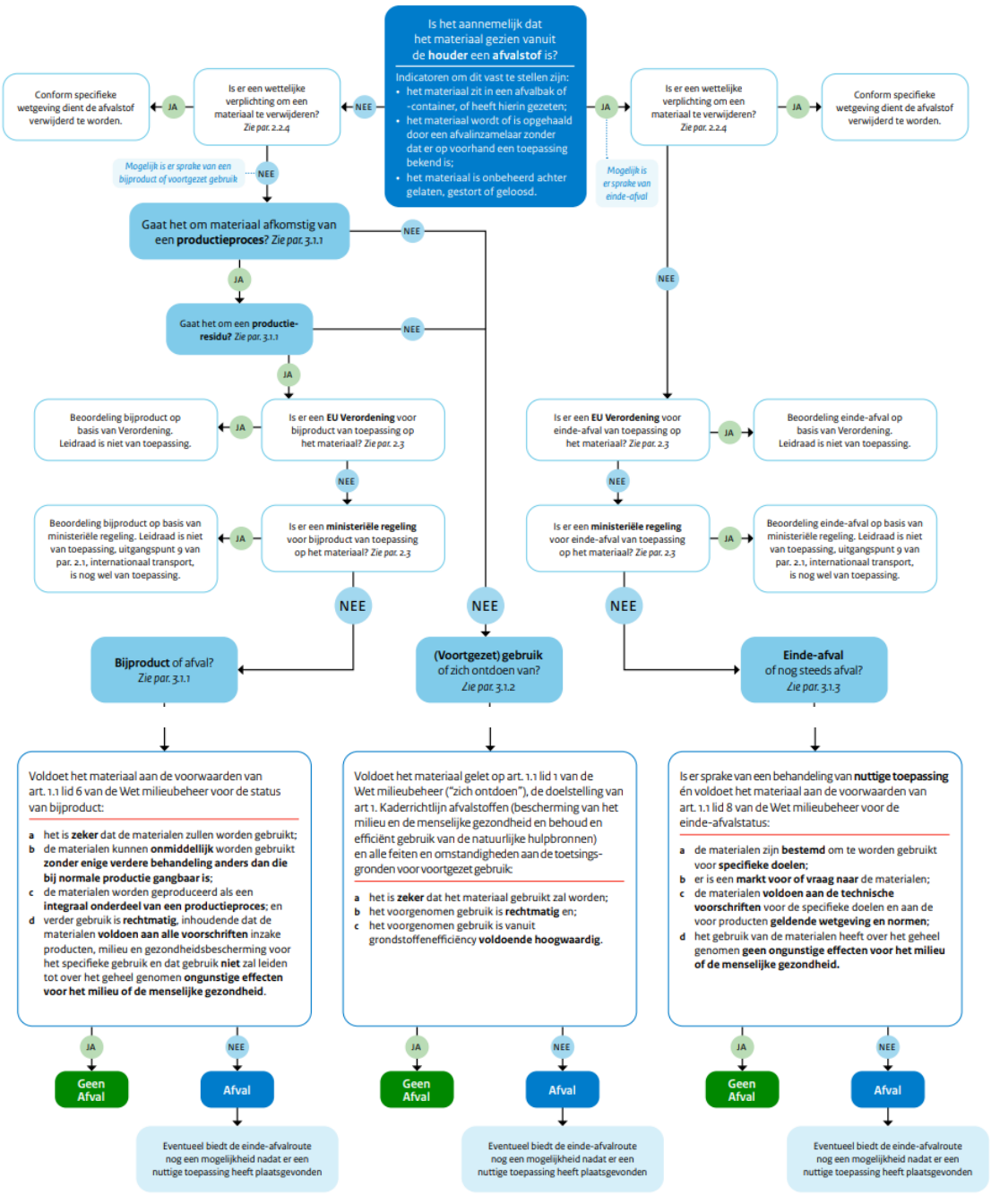

Figure 4: Flow diagram assessment framework 'waste or product? (Netherlands)

2.3 United Kingdom exemplary cases

Author: Bethany Pateman – Kent Wildlife Trust

2.3.1 The journey to using road verge cuttings in biological processes

Short description:

The Kent Wildlife Trust (KWT) is a conservation charity that was founded in 1958 and covers Kent and Medway. It has numerous reserves and is involved in many projects, including the Roadside Nature Reserve (RNR) project which has been running since 1994. This has been formed from a partnership with Kent County Council (KCC) who fund the project and are responsible for most of the verge cutting across Kent. The rest of this is either devolved down to district/parish levels or the motorways and some other trunk roads are managed by Highways England. This project aims to protect and conserve road verges that are valuable for wildlife with appropriate management to provide wildlife corridors/steppingstones connecting functional habitats throughout the landscape. For KWT working on the Grassification project is so important because the 'cut and collect' management of road verges is not mandatory in the UK, so the cuttings are left in-situ. This management over time enriches the verge and reduces its biodiversity value. A big barrier to councils implementing a cut and collect regime is the cost of the verge cuttings needing to be processed as a waste product. If the waste status could be changed for road verge cuttings then they could potentially be used in an AD plant to produce biogas which could make cut and collect financially viable, then there would be an incentive for stakeholders to apply this cutting regime.

Policy aspects:

The road verge cuttings in the UK are currently certified as a waste product due to the potential chemical and physical contaminants that could be found in them, of particular concern is the lack of knowledge of potential microplastic contamination from tyre and brake pad wear. The Environment Agency (EA) are the governing body in the UK who can change waste status' and issue permits for waste. The EA have provided guidance on suitable European Waste Code(s) (EWC) to be applied to collected roadside verge materials. The following EWC codes should be applied together with provision of an adequate description of the waste:

- EWC 20 02 01 for verge cuttings (i.e. plant matter only) from the A road, free of litter or other material
- EWC 20 03 01 for separately collected litter from the verge; and
- EWC 20 03 01 If all the waste on the verge is collected up together (i.e. a mixture of the verge cuttings and litter).

KWT picked up on this permitting issue when visiting Lincolnshire for a demonstration of their cut and collect machinery in June 2019. Since then we have been focusing on proving or disproving whether road verge cuttings would be safe to use in biological processes. After talking to the EA, they asked for a literature and feasibility study to be carried out by KWT which included getting samples from a road verge near Dover tested for chemical contaminants. This was contracted out to Earth Care Technical Ltd. who specialise in waste permits.

The vegetation samples were taken from an 8km stretch of verge along the A20 near Dover in October 2019. The samples were taken at varying distances from the road to show the varying levels of contamination in respect to the distance from the carriageway. Three tests were carried out on the vegetation at accredited UKAS labs, the test suites comprised of:

- Routine waste characterisation suite
- Biomethane potential test
- Persistent Organic Pollutants (POPs)

The contaminant levels were measured using the BSI PAS100 physical contaminant test and were found to be within acceptable limits, but there were some chemical contaminants that need further investigation.

The results also showed that roadside verge grass cuttings exhibited good theoretical biogas potential.

The Literature and Feasibility study was presented to the EA in January, the feedback from the EA was that it was a comprehensive study, but more sampling of verge material would be needed. There was also no testing for physical contaminants in this study which is a big concern for the EA in terms of using road verge material in biological processes.

The next phase of this study was carried out in summer 2021, this involved collecting vegetation and soil samples from ten road verges of varying traffic volumes, ten nature reserves (unimproved grasslands) and from ten arable fields. The samples have been sent off to the same lab as used in phase 1 to be tested for the chemical contaminants, we'll also be testing the samples for microplastics at the Canterbury Christ Church University lab. We hired a research assistant to collect the samples, create methodology for testing for microplastics and to carry out a literature study. Work on the microplastics analysis is still undergoing and we have a final report by the end of the year. We will then present these results to the EA, even if we could get an end of waste code there would need to be a lot of other changes in Kent to roll out a cut and collect regime at a landscape scale.

We have a big problem with litter in the UK, if verge cuttings were allowed to be taken to AD a thorough litter pick of the verge would need to be carried out before the verge is to be cut. In England the responsibility of litter picking falls on the district councils so making sure the litter is removed before the verge cut and collected would take a lot of coordination which may not be dependable.