

# New Annex IX feedstocks – definitions and guidance

Gemma Toop – Guidehouse

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# On 14 March 2024, the Commission adopted the list of new feedstocks to be added to the Annex IX list of advanced biofuels

## Feedstocks added to Part A

- (r) Fusel oils from alcoholic distillation;
- (s) Raw methanol from kraft pulping stemming from the production of wood pulp;
- (t) Intermediate crops, such as catch crops and cover crops that are grown in areas where due to a short vegetation period the production of food and feed crops is limited to one harvest and provided their use does not trigger demand for additional land, and provided the soil organic matter content is maintained, where used for the production of biofuel for the aviation sector;
- (u) Crops grown on severely degraded land, except food and feed crops, where used for the production of biofuel for the aviation sector;
- (v) Cyanobacteria.”.

## Feedstocks added to Part B

- (c) Damaged crops that are not fit for use in the food or feed chain, excluding substances that have been intentionally modified or contaminated in order to meet this definition;
- (d) Municipal wastewater and derivatives other than sewage sludge;
- (e) Crops grown on severely degraded land excluding food and feed crops and feedstocks listed in Part A of this Annex, where not used for the production of biofuel for the aviation sector;
- (f) Intermediate crops, such as catch crops and cover crops, and excluding feedstocks listed in Part A of this Annex, that are grown in areas where due to a short vegetation period the production of food and feed crops is limited to one harvest and provided their use does not trigger demand for additional land and provided the soil organic matter content is maintained, where not used for the production of biofuel for the aviation sector.”.

# The Commission will develop guidance to define feedstocks in an Implementing Regulation

## Next steps for the Commission

- The Commission will develop guidance as part of the update to the Implementing Regulation 2022/996.
- This will include guidance to determine several of the new feedstocks added to Annex IX, for example:
  - How to demonstrate intermediate crops **do not trigger demand for additional land** and **maintain soil organic matter**
  - Potential for overlap between intermediate crops and feedstocks included in Annex IX Part A (p) “**other non-food cellulosic material**”
  - How to define **severely degraded land**
- The draft text is being prepared this year and will be **subject to public consultation next year**.
- The certification methodologies of recognised voluntary schemes will need to be updated thereafter to take account of any new legal basis.

# Intermediate crops and crops grown on severely degraded land are placed in Part A when used to produce biofuels for aviation, and in Part B when used for other transport sectors

- (3) The criterion determining whether a feedstock is added to Part A or Part B of Annex IX is whether the feedstock can be processed only with advanced technologies or it can be processed into biofuels or biogases with mature technologies. In absence of a definition of advanced and mature technologies in Directive (EU) 2018/2001, it is appropriate to consider a number of factors when adding feedstocks to Annex IX Part A or to Annex IX Part B. This includes next to indicators for the readiness of technology and the commercial readiness also the level of deployment of technologies. Further, the level of maturity of technology differs between the type of fuels that are produced. With regards to intermediate crops and crops grown on severely degraded land, the technologies needed to process those feedstock into biofuels used in aviation are not yet commercially deployed at scale while mature technologies are already available and deployed at scale to process the same feedstock into other types of biofuels that are used in other transport sectors such as biodiesel, bioethanol and biogas. Therefore, it is appropriate to add those feedstocks, exclusively when used for the production of biofuels for the aviation sector, to Annex IX Part A to the Directive, and to Annex IX Part B to the Directive if the feedstock is used for the production of other types of biofuels that are used in other transport sectors.

# Intermediate crops: Key challenges

## Intermediate crops

### Definitions Annex IX Part A(t) or Part B(f) if not used in aviation

Intermediate crops, such as catch crops and cover crops that are grown in areas where due to a short vegetation period the production of food and feed crops is limited to one harvest and provided their use does not trigger demand for additional land, and provided the soil organic matter content is maintained, where used for the production of biofuel for the aviation sector;

### Key questions include

- How to prove in a practical way that intermediate crops do not trigger demand for additional land?
- How to prove soil organic matter is maintained?
- What is the timeframe of 'limited to one harvest' and how to allow flexibility for different crop rotation systems?

The low ILUC-risk certification methodology<sup>1</sup> to calculate additional biomass from sequential cropping can provide input to demonstrate that intermediate crops do “not trigger demand for additional land”.



<sup>1</sup> Low ILUC certification guidance: <https://iluc.guidehouse.com/>

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Soil organic matter can be proven through soil testing, but this adds cost and can be risky for farmers in case a year-on-year comparison of soil measurements shows soil organic matter has gone down (also due to natural variations)

Concerns raised by stakeholders about the cost and practicality of the  $e_{sca}$  soil testing requirements.

Would it be sufficient to prove that the farmer leaves straw and other intermediate crop residues on the field after harvesting, and participates in a low-till or no-till system?

# Intermediate crops: Key challenges

## Other non-food cellulosic material

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### Definitions Annex IX Part A(p)

‘non-food cellulosic material’ means feedstock mainly composed of cellulose and hemicellulose, and having a lower lignin content than ligno-cellulosic material, including food and feed crop residues, such as straw, stover, husks and shells; grassy energy crops with a low starch content, such as ryegrass, switchgrass, miscanthus, giant cane; **cover crops before and after main crops; ley crops**; industrial residues, including from food and feed crops after vegetal oils, sugars, starches and protein have been extracted; and material from biowaste, where ley and cover crops are understood to be temporary, short-term sown pastures comprising grass-legume mixture with a low starch content to obtain fodder for livestock and improve soil fertility for obtaining higher yields of arable main crops;

### Key questions include

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- Potential for overlap between intermediate crops and feedstocks included in Annex IX Part A (p) “other non-food cellulosic material”?

If not used in aviation, there is potential for intermediate crops to already fall into the existing Annex IX Part A(p) “other non-food cellulosic material”.

Defined in REDII Article 2(42) as “feedstock mainly composed of cellulose and hemicellulose, and having a lower lignin content than ligno-cellulosic material, including food and feed crop residues, such as straw, stover, husks and shells; grassy energy crops with a low starch content, such as ryegrass, switchgrass, miscanthus, giant cane; **cover crops before and after main crops; ley crops** [...]”.

# Severely degraded land: Key challenges

## Severely degraded land

Definitions Annex IX Part A(u) or Part B(e) if not used in aviation

Crops grown on severely degraded land, except food and feed crops, where used for the production of biofuel for the aviation sector;

## Key questions include

- What are the thresholds to define significantly salinated, low organic matter or eroded?
- How can this be measured?
- How to set a threshold that defines “severely degraded” but also balanced an ability to cultivate that land and an incentive to improve the quality of the land over time?

Severely degraded land is defined in point 9 of Annex V, part C of the REDII.

“‘Severely degraded land’ means land that, for a **significant period of time**, has either been significantly salinated or presented significantly low organic matter content and has been severely eroded.”

It is also referred to in the low ILUC methodology in Delegated Act 2019/807 and in the GHG bonus for cultivation on severely degraded land. Clear and consistent definitions for severely degraded land should be set across all the potential policy applications in the REDII.

Low ILUC-risk certification methodology<sup>1</sup> proposes thresholds and a soil sampling protocol.

<sup>1</sup> Low ILUC certification guidance: <https://iluc.guidehouse.com/>

# Concluding remarks

- Intermediate crops can offer a significant potential source of feedstock for bioenergy that does not require additional land
- High level of interest from different sectors to develop intermediate crops, including for aviation and biomethane
- Important for the Commission to set clear definitions, which can be practically demonstrated, and to incentivise the scale-up in a way that bridges the gap to the agriculture sector and encourages the many advantages that intermediate crops can bring – promoting cover cropping to protect the soil, enhancing biodiversity etc
- Providing a clear definition for severely degraded land also important to encourage investment in bringing that land into sustainable production, ideally also providing an incentive to reverse current land degradation



# Thank you

Gemma Toop, Associate Director  
Energy, Sustainability & Infrastructure  
[gemma.toop@guidehouse.com](mailto:gemma.toop@guidehouse.com)