Comments to Annex IX 2nd feedstock consultation

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We would like to make some additional comments beside the limited answers requested in the feedback form. These comments concern both some of the feedstocks in the shortlist and some of the excluded feedstocks.

Our principle view

Svebio, the Swedish Bioenergy Association, does not support the general approach in the regulation in RED with double-counting and definition of "advanced biofuels" as fuels based on certain feedstocks. In our view, advanced biofuels are biofuels with very high GHG savings compared to fossil fuels regardless of feedstock. We also favor continued and increased use of biofuels from agricultural energy crops, in order to use the abundant resources in European farming (abandoned and fallow farmland, freed acreage as a result of higher yields, increased yields due to rotation crops on currently used farmland, etc). And above all we favor a free market, as this is the basis of the EU. We are convinced that administratively set feedstock regulations and double-counting will distort the markets, create a suboptimal use of raw materials, and lead to unnecessarily higher costs for the energy transition in the transport sector. These regulations also create political risks for companies and investors, and open up for increased lobbying and corruption, as well as for fraud.
The policies should instead be based on carbon pricing and well-designed sustainability criteria. Based on these incentives, both energy efficiency and renewable fuels can compete in a fair way, resulting in the lowest total cost for society and the consumers.

Despite this, we would like to comment on some of the feedstocks.

Feedstocks on the short list

A general comment is that a lot of research and development is done in the food industry and in the forest industry to make new products from wastes and residues, e. g. by extracting certain valuable components. This is part of the development of the bioeconomy. The dichotomic classification into *food/feed – not food/feed*, and *product – waste*, constitutes a simplification that will be an obstacle in coming years to such development and create a distorted evaluation of different alternative uses. This is true for several of the proposed feedstocks, like potato/beet pulp, fish oils and others. The double-counting will create a short-term artificial value when the feedstock is used for biofuel production compared to other alternatives. This evaluation should instead be made on the market reflecting true market conditions.
With development of new processes and new products, the line between products, co-products, residues and waste will be less easy to define in coming years. What is a waste or residue today may be a product tomorrow.

Potato/beet pulp

Both potato pulp and beet pulp are currently used to produce and be marketed as valuable feed.
The Swedish producer of beet sugar, Nordic Sugar, produces a number of feed products from beet pulp, for cattle, horses, sheep, pets, and even bees:
https://www.nordicsugar.com/animal-feed/
Also, molasses is used for feed.
The Swedish producer of potato starch, Lyckeby, delivers its potato pulp to farmers as feed, mainly for cattle. It contains proteins, and if it wasn't used for feed, the farmers would have to use other protein feeds, like imported soy, or preferably rapeseed meal from biodiesel production or protein feed from ethanol production.
http://www.lyckeby.com/Documents/Produktblad%20Pulpa.pdf
(information only in Swedish)

Molasses

As we think sugar beets could be used for ethanol production, among other energy crops, also molasses could be used. But molasses is also used as feed (see above), and when included in Annex IX this could lead to unfair competition with feed use, if double-counting creates an artificial higher price.

Raw methanol

We support including raw methanol of biogenic origin from the forest industry. This feedstock is similar to talloil, as it is a residue in the paper pulp industry. It needs to be refined to remove certain unwanted components, and a first commercial plant of its kind is now operating in Mönsterås in South Sweden by Södra, producing around 5.000 tons/y. Some of it will be used in RME production in Denmark. Similar units can be built at many pulp factories around EU.
There may be a similar issue in the near future concerning raw turpentine as process by-product. There may be also many others, both in the pulp factories and in oil refineries when these turn to biogenic raw-materials instead of fossil oil.

Oil, beans and meals derived from non-edible rotation crops

Different terms are used here – "rotation crops" and "intermediate crops" and "cover crops". The terminology reflects the lack of logics in the directive. All of a sudden it is accepted, and even promoted through double-counting and inclusion in Annex IX A, to grow certain kinds of energy-rich crops. But at the same time, it is not allowed to do this production in an efficient manner on regular land.
If the term "rotation crops" is used, then also rapeseed must be accepted, as it is a major rotation crop in areas with grain production. Rape can be sown directly on the harvested grain field, with minimum tillage, and increases the harvest in the following crop with 15% or more.

The criteria seem to be that these crops should be non-edible (to humans and farm animals?), regardless of their productivity, to satisfy the criteria in the directive. This clearly demonstrates the shortcomings of the directive. Farmers will be forced to grow less efficient crops if they want to sell the harvest for biofuels production instead of planting the best energy crops. The effect is less than optimal GHG reduction.

Biomass from fallow land

This category also demonstrates the shortcomings of the directive, as it is allowed to use cellulosic crops from fallow land, but not energy crops producing starch, sugars or oils. The farmers are incentivized to produce crops that give raw-material that is less useful for biofuels production, and from which it is more costly to produce biofuels. The fallow land will be used in a sub-optimal way if the purpose is to produce biofuels and substitute fossil fuels.
There is also a basic difficulty to define fallow land. Is this only fallow land on actively used farmland, or does it also include abandoned farmland?
In Sweden, between 1990 and 2017 around 230.000 hectares of farmland was abandoned. Until 2045, another 230.000 hectares will be abandoned according to the forecasts in a recent governmental study (SOU 2020:4, only in Swedish). On top of that, the fallow area (excess cultivated area mainly because of increased yields for food or feed crops, and stagnating demand) will increase from 130.000 hectares today to 456.000 – 509.000 hectares, according to the same governmental study; the total Swedish agricultural land area is today around 2.5 million hectares.
If "fallow land" is to be considered for energy crops, a clear definition of "fallow land" must be made. Is it all land that will be taken out of production due to higher yields in the coming years, and does it include also farmland that has already been taken out of production (abandoned land)? A definition must also include the same kind of farm land in countries outside EU, like in Ukraine, Russia and Belarus, where there are millions of hectares of abandoned farmland.
Our opinion is that all unused farmland – fallow or abandoned – existing today and being added in the future, should be used for regular energy crops, like grains (wheat and corn), rapeseed, sugar beet, sunflower, etc., for maximum production of biofuels.

Biomass from degraded land

If there is a clear definition of degraded land, this should be used. For polluted land, there must be a risk assessment. The productivity on such land is usually low, and better land should be used first for optimal production and GHG reduction.

Mixture meadow

We think this is covered in point p), and the growth on meadows is best used for animal grazing. Harvest for biofuels production is probably not feasible.

Damaged crops

These are not “fit for use in the food and feed chain” (the definition for point d), and therefore they should qualify. The volumes are probably large, due to natural events and different problems along the supply chain. Even if there is risks for fraud, the material should be used for energy, not brought to landfill, destroyed or disposed of in other ways. Damage can occur in the fields and at harvest, at transport and at storage. It is well known that large amounts of food are wasted along the supply chain.
One problem is to define “damaged crops”. A planned ethanol factory in Sweden was intended for “low-grade grain”, grain of low quality that could be obtained on the world market for a low price. It could be grain that is deemed to be of too low quality to use for food or feed under normal circumstances. Because of the rigid definitions in EU regulations, this project had to be scrapped.
With another regulation than the current RED, the risk for fraud would not be a problem, as the market would handle the up-coming situations and locate the feedstock to the best use for its market value. The fraud risk is a direct consequence of the regulation.

Animal residues and fats (category 2 and 3 in EC 1069/2001)

Most of these residues are residues from food industry (e.g. slaughterhouses), and therefore covered by point d) in Annex IX A. Some of these residues are used as fodder in fur farming (Europe accounts for 50% of world fur production).

Other biowaste

This type of waste in our opinion is considered as included in point d) of Annex IX A, as it is waste from the “food and feed chain”, but this should be made clear. This would also include discarded food from stores, food and feed damaged at transport and storage, etc. All of these categories are already used in biogas production and some of this material could be used for ethanol production.

Waste biogenic CO_2

The definition of bioenergy in RED is unscientific and illogical, as it is based on degradability. The accurate definition, e.g. given by ISO standards, is that bioenergy is based on materials of biological origin, excluding materials that are fossilized and embedded in geological formations (peat makes a middle separate category). With the current definition of degradability, charcoal (biochar) and non-degradable bioplastics are excluded, although these materials are undoubtedly bioenergy when combusted.
Waste biogenic CO_2 will be an important source of renewable fuels in the future, when CCU technologies are developed. In Sweden only, the volume of biogenic CO_2 from large CHPs and pulp factories is around 30 Mt, which could either be used for bio-CCS or for bio-CCU. Biogenic CO_2 is also produced in fermentation processes in ethanol plants and biogas reactors. This CO_2 is more concentrated and easier to recover.
It is essential to make clear that CCU fuels based on biogenic CO_2 will be considered as advanced biofuels. They should not, as stated in the report, be categorized as “Renewable Fuels from Non-Biological Origins”, as the CO_2 is of biological origin. And they should not be categorized together with fuels made from recycled fossil carbon, as they are still a part of

the natural carbon cycle, and do not release carbon that increases the atmospheric CO_2 content.

Plastic waste (bio-plastics)

An increasing share of plastics are produced from biogenic sources, both bio-degradable plastics and non-biodegradable, and in the future all plastics should be bio-based.
With the same kind of logics as for b) "biomass fraction of municipal waste" and for "biogenic fraction of end-of-life tyres", the biogenic fraction of plastic waste should be listed in Annex IX A.
The global production of bio-plastics is about 2.1 million tons, and growing:
https://www.european-bioplastics.org/market/

Sea algae

For sea algae, the document states: "No evidence or documentation provided during consultation. Limited interest from stakeholders."
Sea algae and other aquatic biomasses are interesting for several reasons, and should be included in the short list.
Several categories are investigated, and could potentially be used for production of biofuels, mainly for biogas production:
. Beach wrack. Algae, sea-weeds and other biogenic material/waste that can be harvested along seashores. Traditionally this raw material was used as fertilizer, but is now often left to rot on the beaches. It can be harvested and used for biogas production. Harvesting has multiple environmental benefits like reducing eutrophication and degradation of seashores.
Facts about beach wrack, e.g. from the EU-supported research project Contra Baltic Beach wrack:
https://www.beachwrack-contra.eu/
Biogas production from beach wrack has been tested in full scale in Trelleborg in southern Sweden, in the Life project Bucefalos (LIFE11 ENV/SE/839).
. Cultivated macro-algae, like *sugar kelp* and other species. Several projects are looking into this. The algae can be used for a large number of products, including food, but could also be used for production of biodiesel or biogas. Cultivation is considered along the Swedish west coast, and applications for environmental permits are handled by the authorities and environmental courts.
. Cultivated other aquatic organisms. Research has mainly been on *squirts*. These animals attach to different surfaces and use the nutrients in the sea, and provide the ecosystems service to clean the water from excess nutrients. The biomass production can be high. They cannot be used as food or feed, but may be used for biogas production. The economic feasibility is not clear and no commercial production has started.
Recovery of beach wrack and cultivation of macro-algae are just as near to commercial practice as cultivation of algae on land in ponds or photobioreactors (point a), and should therefore be included in Annex IX A.

Comment on fish oil
(included in the questionnaire)

The only major Swedish producer of fish products (Orkla/Abba) does not produce fish oil. The oily fraction is included in the regular fish waste, which is used partly for fodder, partly for biogas production, in a recently opened biogas plant. This biogas is used for the internal processes, as electricity and steam (but could of course in principle be up-graded to be used as transport fuel).

We have been informed about fish oil production and use in neighbouring countries. The product “fish oil” is in general the ethyl ester of fish oil, a residue from production of omega 3 fish oil, which is considered a health product. This “fish oil” is used as fuel much the same way as FAME, to substitute fossil heating oil. There is an ambition to include the product in fish fodder, which could have higher market value. If no double-counting takes place, which we recommend, the use of these esters will be decided by the market.

In principle this “fish oil” could be used as a feedstock for HVO transport fuel (biodiesel), but this is not done today to our knowledge. The feedstock could also be used for biogas production and up-graded as transport fuel.