

Food - Fuel, Competition or Synergy?

Conclusions

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We, businesses, NGOs, knowledge institutions and government authorities actively participated in this dialogue. We consider this as a proper reflection of the results of the debate, the various arguments and problem-solving approaches, agrees and disagrees. We conclude that:

- There is a considerable degree of agreement, both in terms of problem analysis and problem-solving approaches
- Most results also apply to other biobased products such as biomaterials, biochemicals and biobased building blocks.
- The outcome contains points of reference for future collaboration between the various parties from the government, market and society.
- The result contains useful building blocks for biofuel policy in the Netherlands and Europe.

Initiators

- Agentschap NL
- Oxfam Novib
- Energie-Nederland
- Rathenau Instituut
- Ministerie van Economische Zaken
- WNF
- Neste Oil
- Corbion
- Port of Rotterdam
- Rotterdam Climate Initiative
- Centre for Society and the Life Sciences
- Instituut Maatschappelijke Innovatie

Final document Food-Fuel, Competition or Synergy?

Introduction and main elements

The central question in the food-fuel debate is whether the use of biomass for biofuels is competing with food supply. This debate is of great influence on the current and future use of biofuels. In the food-fuel debate, the big issues of today come together: improving food supply, developing sustainable energy, CO₂ reduction, preservation of biodiversity, improving welfare and using technological developments. The food-fuel debate is a coproduction of the business sector, NGOs, science and government.

Through five meetings¹, two questionnaires, a parallel study into the perspectives on the debate and meetings with the supervisory committee, the opinions, agreements and differences in this discussion have been collected. In their replies, both NGOs and businesses indicated that the debate was open and constructive and that there was more agreement than anticipated in advance.

This theme has been the subject of a political discussion for years now. In September, the European Parliament decided to apply a ceiling of 6% for first-generation biofuels and 2.5% for advanced biofuels in 2020. The negotiations in the European Council, which also has to make a decision about this dossier, are still under way. In the Netherlands, both the 2012 coalition agreement and the energy agreement of the SER (Social and Economic Council of the Netherlands) highlight the importance of the best possible use of biomass (cascading). In 2014, a joint vision on a sustainable fuel mix will be developed in the Netherlands, also as an elaboration on the energy agreement. Biomass forms a partial solution to the bigger energy questions. In the short term, there are no sustainable biofuel alternatives for maritime transport, air traffic and long-distance road transport, but in other areas sun and wind will play an important role, such as with regard to the energy supply for electric cars.

¹ Three larger meetings with approx. 80 participants and two smaller meetings with 15 participants. There were a large number of speakers at these meetings: (1) Bart Leenders (Neste Oil), Sander van Bennekom (Oxfam Novib), (2) prof. M. Keyzer and prof. A. Faaij, (3) Euro MP Bas Eickhout, John van Himbergen, negotiator on behalf of the Netherlands, I&M, (4) Hein Aberson (Solar Oil Systems), Marieke Hartevelde (IUCN), Eric van den Heuvel (Argos North Sea Group), Hidde van Kersen (IOI Loders Croklaan), Katie Minderhoud (Solidaridad), Danielle de Nie (Natuur en Milieu), Edward Smeets (LEI).

Three perspectives on the debate were identified during a series of interviews²: (i) "*Permanent faith in industry and technology*" puts the emphasis on the positive aspects of biofuels to fight climate change, to create innovation and new opportunities for the agricultural sector. According to this perspective, a stable policy is required, enabling the industry to grow and develop increasingly sustainable biofuels. First-generation biofuels may already be sustainable, but they are also a necessary first step towards the continued development of biofuels. The second perspective is "*Biofuels within preconditions*", which puts the emphasis on the wider sustainability context. With the right policy, biofuels form part of a sustainable energy supply. According to this perspective, policies may need adjusting in order to guarantee the sustainable and efficient use of land, for instance. (iii) "*Food in the tank is irresponsible*" is the most critical in terms of biofuels: biofuels have little to no effect in the fight against climate change, while first-generation biofuels do put additional pressure on land and vulnerable groups, and compete with food production. These three perspectives help to interpret the agreements and differences (detailed below).

In the problem analysis there is consensus that the use of biofuels can offer opportunities but also threats to food security. Biofuels are not inherently positive or negative related to food security. So the ultimate effect strongly depends on *how* biofuels are produced. In addition, food security is influenced by a number of other factors. Making a distinction between first and second-generation fuels is not enough; both can be sustainable and not sustainable.

The parties agree that biofuels should not be at the expense of food security. Stronger still, the ambition should be for biofuels to *contribute* to food security. Ultimately, the solution for the food issue lies in the global fight against food waste, in sustainable land use and higher agriculture productivity levels. Biofuels may contribute to this, but the contrary may also be true. The key question is: which crops and production methods make the most efficient and sustainable use of scarce land? More sustainably produced biofuels are still being developed. The policy should be aimed at the continued development of these fuels and the phasing out of less sustainably produced biofuels.

Transparency and certification are vital in order to guarantee the sustainable production of biofuels. The dialogue with suppliers of biomass should become more important. The biofuels market is a result of government policy and this policy should be adjusted as this market develops and intended and unintended effects become visible, partially on the instigation of NGOs and businesses. At the same time, the invasive and continuously changing government policy disrupts the market and it slows down the development of sustainable biofuel chains. There is a fear that the lack of a joint vision among the governments in the EU may result in sustainable, innovative production of biobased products and fuels will predominantly take place outside Europe.

Furthermore, the parties continue to disagree. This is due to inherent uncertainties, but also because of conflicting perspectives and interests. The disagreement relates to the need of first-generation fuels as condition for the development of more sustainable second-generation fuels, the

² Study by Anouke De Jong. Based on 16 interviews in the course of which theories were classified by means of a Q-analysis. These theories largely corresponded with an initial survey. Three perspectives were subsequently identified following a factor analysis.

climate effects of biofuels, the effect on food prices and food security and whether or not first-generation biofuels should be promoted at all as a precaution and due to the immense challenges in the agricultural sector. Although the consensus is that hunger is not primarily caused by biofuels, opinions differ about whether the food-fuel discussion is one of the relevant discussions or if it distracts from more important issues with regard to food supply.

Parties agree more about the following problem-solving approaches:

- The parties involved agree on fighting waste of food, sustainable land use and higher agriculture productivity levels. The parties also largely agree on stimulating biofuels that result in improved agriculture practices, on a comprehensive approach to food, materials and energy production and on the need to invest in farmers, local biomass chains, the local community and the local market.
- In addition, transparency regarding the biomass chain and effective supervision and control mechanisms is regarded as vital. One particular item that is deemed highly important is the safeguarding of local land rights through free prior and informed consent.
- The cascade principle needs closer consideration and detailing for the various applications and their economic and social values. A level playing field in terms of requirements and encouragement is desirable. A level playing field for green chemicals in relation to biofuels is desirable, for instance by expanding the RED with materials and chemicals, or by including CO₂ gains in the biochemical and biobased industry in the Renewable Energy Directive. A level playing field is also desirable in relation to other sources as fossil fuels, or other applications as food.

Below we give an overview of the widely shared analysis and problem-solving approaches, plus an overview of the main points of conflict.

Shared analysis

Based on the results of the aforementioned activities, it is concluded or insufficiently refuted³:

General

1. On the one hand, developments in the use of biofuels offer opportunities in the fields of CO₂ reduction, employment and productivity improvement of the agriculture sector.
2. At the same time, the production of biofuels poses risks to food security, biodiversity and deforestation.
3. Not all first-generation fuels are non-sustainable and not all second-generation fuels are sustainable.
4. Since the 1950s, the global population has grown from 3 to 7 billion people and food availability has followed this growth in population. The growth from 7 to 9 billion can be accommodated from a technical point of view, even when biofuels are being produced.
5. The relationship between biofuels and the rise in food prices is not univocal. Various studies produce different estimates. The relationship with oil prices, logistics, failed crops, speculation, meat consumption and food waste play an important role too.
6. The question whether we should use food crops or non-edible crops for biofuels is simplified and misleading. The key question is: which crops and production methods make the most efficient and sustainable use of scarce land?
7. Biofuels should not be at the expense of food security. The ambition should be for biofuels to contribute to food security.
8. When biomass of by-products provides for some of the local energy demand, it will boost rural development.
9. Agrarian businesses can profit from a better price and more sales channels for agricultural produce, of from selling larger volumes if they have the opportunity to increase production of biofuel crops.
10. The food sector too has to handle biomass carefully and aim for maximum use.

³ This concerns theories that were suggested in a questionnaire (N=51) during the first meeting and which were then re-discussed and supplemented at a second meeting.

11. The lack of a joint vision among EU governments means that sustainable, innovative production of biobased products and fuels is likely to take place outside rather than within the EU.
12. The drastic and ever-changing government policy disrupts the market and hampers the development of sustainable biofuel chains.
13. Policy and certification systems are important in order to enable businesses to guarantee the sustainable production of biofuels. A proper organisation of certification is an important task in that respect.
14. More sustainably produced biofuels are still being developed. The policy should be aimed at the continued development of these fuels and the phasing out of less sustainably produced biofuels.

Disagrees analysis

The lowest consensus in the *analysis* relates to the following items.

Theories	For-against
Based on the precaution principle, we should stop the generic promotion of biofuels and allow only those biofuels that are 100% proven to have no effect on food security.	19-22
Continued growth of first-generation biofuels stimulates the introduction of second-generation biofuels that are more sustainable.	19-17
First-generation biofuel has limited applications, due to competition with food production and deterioration of biodiversity.	22-17
The extra CO2 emissions caused by changing land use on account of the EU biofuel policy largely cancels out the CO2 gains.	10-18
It is difficult to verify the sustainability of biofuels.	20-19

Disagrees problem-solving approaches

Maintaining the existing EU policy. The current aim of mixing in 10% of first-generation biofuels has no or even a positive effect on food security (all NGOs regard this as deterioration, a lot of businesses think it is a (very) valuable solution).

A halt on or drastic reduction of first-generation biofuels. This is the only guarantee for food security not to come under pressure (NGOs feel this is a (limited) valuable solution, businesses see it as deterioration).

Within the context of the food-fuel discussion, the business sector also feels it is useful to expand agricultural production of biofuels in Europe, while NGOs feel this is not or only slightly useful (average business perspective 1.4 / NGOs 2.3). Businesses also give more priority to fighting food waste so as to reduce tension between food and fuel.

Shared problem-solving approaches

Based on a survey, various problem-solving approaches were assessed. There seems to be a lot of consensus about certain solutions⁴. Problem-solving approaches related to linking biofuel production to improving agriculture, good governance in the biofuel chain, a level playing field and local biomass chains. The following problem-solving approaches were highly appreciated by the respondents. Below are the figures of the answers for each question in the following categories:

- Very valuable
- Valuable to a limited extent
- No added value
- A deterioration

Linking biofuel production to improving agriculture

- Stimulate biofuels that optimise agricultural productivity. Aim for an integrated approach of food, materials and energy production that maximise the return per hectare and close the nutrient cycle at the same time. (*Theory #5/ Very valuable:39, Valuable to a limited extent:10, No added value:4, A deterioration:1*)
- Stimulate biofuels in such a way that investments are made in farmers, the local community and the local market. Transfer of knowledge, added value and good agricultural practices are very important. (*#6/34,16,3,0*)
- Promote agricultural practices such as colesseed and alternating production. The production of colesseed leads to revenues in the fields of feed and fuel. It leads to substantial CO₂ reductions and improved soil fertility (*#8/22,18,5,1*)
- Promote combined production, for instance through mixed food & energy cropping. This may contribute to a growth in income and soil fertility. Which combinations are the most effective depends on regional conditions (*#12/29,20,1,3*)

Good governance in the biomass chain

- Invest in good governance. Effective supervision and control mechanisms for sustainability of biomass production are very important in this respect. (*#20/25,22,6,0*)
- In the case of investments in the production of biomass for biofuels, the land rights of local communities must be safeguarded via free prior and informed consent. (*Theory#4 /Very valuable: 40, valuable to a limited extend: 7, no added value: 4, a deterioration: 1*)

⁴ N=54, Agreement when more than 80% feels it is a limited or very valuable problem-solving approach and businesses and NGOs agree. The majority of respondents came from the business sector. The proportion of Government/intermediary, business sector, NGOs was 16:21:4. When you ignore the employer and instead focus on the position in relation to the number of theories that represent the three perspectives, the relationship was more equal, as a number of students seem to argue more from an NGO perspective. The proportion 'cautious/on certain conditions', 'permanent trust in the industry' and 'no food in the tank' is 2:3:2.

- The aim for a sustainable production of bioenergy will benefit from transparency. This concerns both insights into production methods (production of biomass, conversion, by-products, final destination of fuels and co-products) and governmental action. (#17/32,14,5,0)

Create a level playing field

- Create a level playing field for bioenergy and more high-quality biobased applications, for instance by extending the Renewable Energy Directive to materials (REMD) or adjusting guidelines with regard to resources. Currently, it is mainly the most low-value applications that are stimulated by means of subsidies and targets. (#13/27,9,7,1)
- Create a level playing field between biobased and fossil applications. At the moment, biofuels are subject to reporting and sustainability obligations that do not apply to fossil applications (#14, 29,13,5,2)
- Create a level playing field in relation to *all* biomass applications, including food and feed. (#18, 21, 20, 4, 2)

Local biomass chains

- Aim for biomass cycles on a regional scale where possible. This makes it possible to generate biomass close to the source by means of biorefining, and turn it into applications with a higher value. (#11/31,14,3,1)
- European farmers have to be able to use the agrifuel they generated, without having to pay any duty on it. The majority of EU countries already applies this. The Netherlands are the exception, as the use of own agrifuel is taxed in full. The Dutch duty on agrifuels made of colseed, produced for personal use must be abolished. (#15/28,18,6,0)

General

- Combat food waste. At this moment, approximately 40% of food is wasted somewhere along the chain. A better treatment, improved storage and increasing shelf-life lead to higher levels of food security and more room for biofuels. (#23/36,14,2,1)
- Aim for flexible biomass plants (multi-feed stock and/or multiple fuel and non-fuel applications (#10/25, 14, 7, 2)
- The obligation to reach a percentage of biofuels in total fuel production, should be replaced by an objective for the entire CO2 reduction of fuels in the transport sector (*Theory #3/ Very valuable:33, Valuable to a limited extent:14, No added value:2, A deterioration:5*).

Organisation

The parties involved actively participated in this dialogue and feel this is a good reflection of the result. The parties involved are of the opinion that these results contain useful building blocks for future collaboration and for the biofuel policy.

A monitoring committee consisting of Dorette Corbey (AWT, Commissie Corbey), Danielle de Nie (Stichting Natuur en Milieu), Bart Leenders (Neste Oil) and Vinus Zachariasse (Wetenschappelijke en Technologische Commissie Biobased Economy) offers advice about content and the course of procedure during this debate. Sander van Bennekom (Oxfam Novib), Ella Lammers (Agentschap NL), Karin Weustink (MinEZ) and John van Himbergen (Min I&M) were regularly consulted during the process. Implementation was effected by IMI in collaboration with CSG.

Signatories

Large Companies

NESTE OIL



Corbion



Rabobank



NGO's



Solidaridad

**NATUUR
& MILIEU**

Platforms



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Nederlandse Vereniging van
Duurzame Biobrandstoffen

the
dutch
biorefinery
cluster



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Nederlandse
Papier- en
karton-
fabrieken

SME



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Government and science

Rathenau Instituut

Onderzoek en debat over wetenschap en technologie



Ministerie van Economische Zaken



Participants

André Jurjus	Energie-Nederland
Amber Noordegraaf	Universiteit Leiden
Andre Faaij	Universiteit Utrecht
Annelie Boogerd	Min. EZ
Annita Westenbroek	Dutch Biorefinery Cluster
Anouke de Jong	IMI
Arjette Stevens	WWF Netherlands
Arko van der Lugt	van der Lugt
Art de Boo	TNO
Assia Edderouzi	Min. I&M
Bart Hellings	Min. EZ
Bart Leenders	Neste Oil
Bart-Willem ten Cate	Argos
Bas Eickhout	Europees Parlement, GroenLinks
Beate Bouwman	ecoScala
Benjamin Tromp	Essent
Bert van den Bergh	Greenyield
Bo Klaversteijn	Sorgum Fairchar Africa
Bregje van Keulen	Agentschap NL
Carlo Hamelinck	Ecofys
Caroline van Leenders	Agentschap NL
Carry Jansen	student UvA
Danielle de Nie	Natuur en Milieu
Daphne van Esveld	student Uva
Diederik van der Hoeven	Daedalus
Dorette Corbey	Adviesraad voor het Wetenschaps- en Technologiebeleid
Ed de Jong	Avantium
Edward Smeets	LEI
Ella Lammers	Agentschap NL
Eppo Bolhuis	Boschap
Eric van den Heuvel	Argos
Erwin Vink	NatureWorks LLC
Floris Nool	MatureDevelopment BV
Fokko Kroesen	KLM ROYAL DUTCH AIRLINES
Foluke Quist-Wessel	AgriQuest
François de Bie	Purac
Frank Bergmans	Productschap MVO

Frans van Dam	CSG Centre for Society and the Life Sciences
Gerdien Meijerink	WUR
Gerhard Muggen	BTG Bioliquids BV
Gijs van der Starre	CSG Centre for Society and the Life Sciences
Giovanni Wawoe	ResponsibleBizz
Guido Enthoven	IMI
Hans Langeveld	Biomass Research
Hans van Meijl	WUR
Harry Kager	LTO Nederland
Hein Abersson	Solaroilsystems BV
Heleen Koopal	BioMCN
Henk van Latesteijn	Value Mediation Partners
Hester Faber	Kennisalliantie
Hidde van Kersen	IOI Loders Croklaan
Huib de Vriend	LIS Consult
Irene Mouthaan	Min. EZ
Irma Brassinga	student UvA
J.C. Vogelaar	Harvestagg
Jan Heetebrij	HeeCon Business Development
Jan Heijns	Pakhuis de Zwijger
Jan Staman	Rathenau Instituut
Jan Wisse	Niaba
Jentse Hoekstra	Agentschap NL
Jo Kloet	Green Inspiration
Joan Geerts	DSM
John Butter	Min. EZ
John van Himbergen	Min. IenM
Jolien Eenkhoorn	student UvA
José Dams	student UvA
Julien Eekhoorn	student UvA
Jurgen Ganzevles	Radboud Universiteit Nijmegen
Karen Witsenburg	Both Ends
Karin van Doorn	Min. EL en I
Karin Weustink	Min. EL en I
Katie Minderhoud	Solidaridad
Kenny Oostrik	student UvA
Kiki Verschuuren	student UvA
Kimberly Wolf	student UvA
Klaas Hoekstra	NAV Nederlandse Akkerbouw Vakbond
Koen Dortmans	Centre for Society and the Life Sciences
Krista Janssen	student UvA
Lex Borghans	Purac

Lotte Krabbenborg	CSG Centre for Society and the Life Sciences
Marieke Hartevelt	IUCN
Marieke Leegwater	Solidaridad
Mariël Rouschop	Quality Services Certification BV
Marten Hamelink	Min. EL&I
Martha van der Meulen	student UvA
Martien Duijndam	Green Consult
Mattijs Kallenberg	student UvA
Mattijs Taanman	IMI
Mees Hartvelt	AWVN
Michiel Hulshof	Tertium
Michiel Keyzer	VU
Monique de Moel	Port of Rotterdam
Nicola Kimm	Corbion
Nicolette Klijn	Agrimaco
Onno Houtschild	Dröge & van Drimmelen
Patricia Osseweijer	TU Delft
Paul Hamm	VNCI
Paul Reinshagen	Wetenschapsjournalist
Paul van der Heijden	MatureDevelopment BV
Peter Besseling	Min. EL en I
Peter Bruinenberg	AVEBE
Peter Paul Schouwenberg	Essent
Peter Stadhouders	ROC West Brabant
Peter van der Klok	TCE Go Four
Petrouschka Werther	Min I&M
Rebecca Groot	student UvA
Rene Sauveur	Pantanova
Ria Kalf	Platform Bio-Energie
Robert Stuyt	Brabers
Roel Bol	Min. EL en I
Rogier van Keulen	NVDB
Rolf Groot	Natuurlijk Advies
Romi Biesheuvel	student UvA
Ron Aberson	Solaroilsystems BV
Rop Zoetemeyer	Purac
Rosa Hendriks	student UvA
Ruben Veefkind	Greenchoice
Sander van Bennekom	Oxfam Novib
Sandra Maas	student HAS
Sietse van der Werff	CFC
Sietske Boschma	Agentschap NL

Sjaak Janssen	Algaeologica
Suzanne Dekker	SkyNRG
Ted Duijvestein	Gebroeders Duijvestein
Thom Achterbosch	WUR
Thomas Piessens	Min. EL en I
Tom Egyedi	IMI
Tom van der Lee	Oxfam Novib
Ton Runneboom	Biorenewable business
Vinus Zachariasse	WTC
Walter Ruijgrok	Energie-Nederland
Ward Mosmuller	DSM
Wiert-Jan de Raaf	Rotterdam Climate Initiative
Wijnand Schonewille	biobased-opportunities
Willem Jan Markerink	Bioliquid