

Myth: CO₂ emission
reduction percentage
is a biofuel property

or

It's the system, stupid!

or

How many eggs does it take to bake a
bag of meringues?

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Gothenburg, 2017-05-10

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How many eggs does it take to make a bag of meringues?



How much meringue and with which ingredients?

BBC Food - Recipes - How to make meringues

www.bbc.co.uk/food/recipes/how_to_make_meringues_70958


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How to make meringues



Preparation time
less than 30 mins

Cooking time
30 mins to 1 hour

Serves
Makes 8 sandwiched meringues


Dietary
V

Perfect meringues with a crunch on the outside and slightly chewy on the inside. Easy to make and lovely sandwiched with chocolate and cream

Find a recipe on BBC Food

☐ Quick & Easy ☐ Vegetarian

Related Recipes



Christmas chocolate Yule log
By Sue Lawrence

Ingredients

For the meringue

3 free-range eggs, whites only

150g/5½oz golden caster sugar

double cream, whipped, used to sandwich meringues together

Method

See more [double cream recipes](#) (2260)



Raspberry
cinnamon
meringue

By Nigel Slater

See more [meringue recipes](#) (31)



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How many eggs do three egg whites correspond to?

Meringues – Yum! Meringues and ice cream – Double Yum!



BBC Food - Recipes - Vanilla ice cream

www.bbc.co.uk/food/recipes/vanillaicecream_4616


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Vanilla ice cream



This easy recipe for creamy vanilla ice cream doesn't require an ice cream maker.

Lemon meringue ice cream with lemon balm

Ingredients

2 vanilla pods

500ml/16fl oz double cream (see tip)

70g/3oz sugar

3 egg yolks

A perfect match!

How large egg use should we allocate to the meringues?

- If we planned to make meringues and then decided to also make ice cream?
 - If we, from the start, planned to make ice cream with meringues?
- If we planned to make ice cream and then decided to also make meringues?



Egg-free meringues!



NB! Contains egg

Egg use is **not** a property of the meringues

It's the system, stupid!

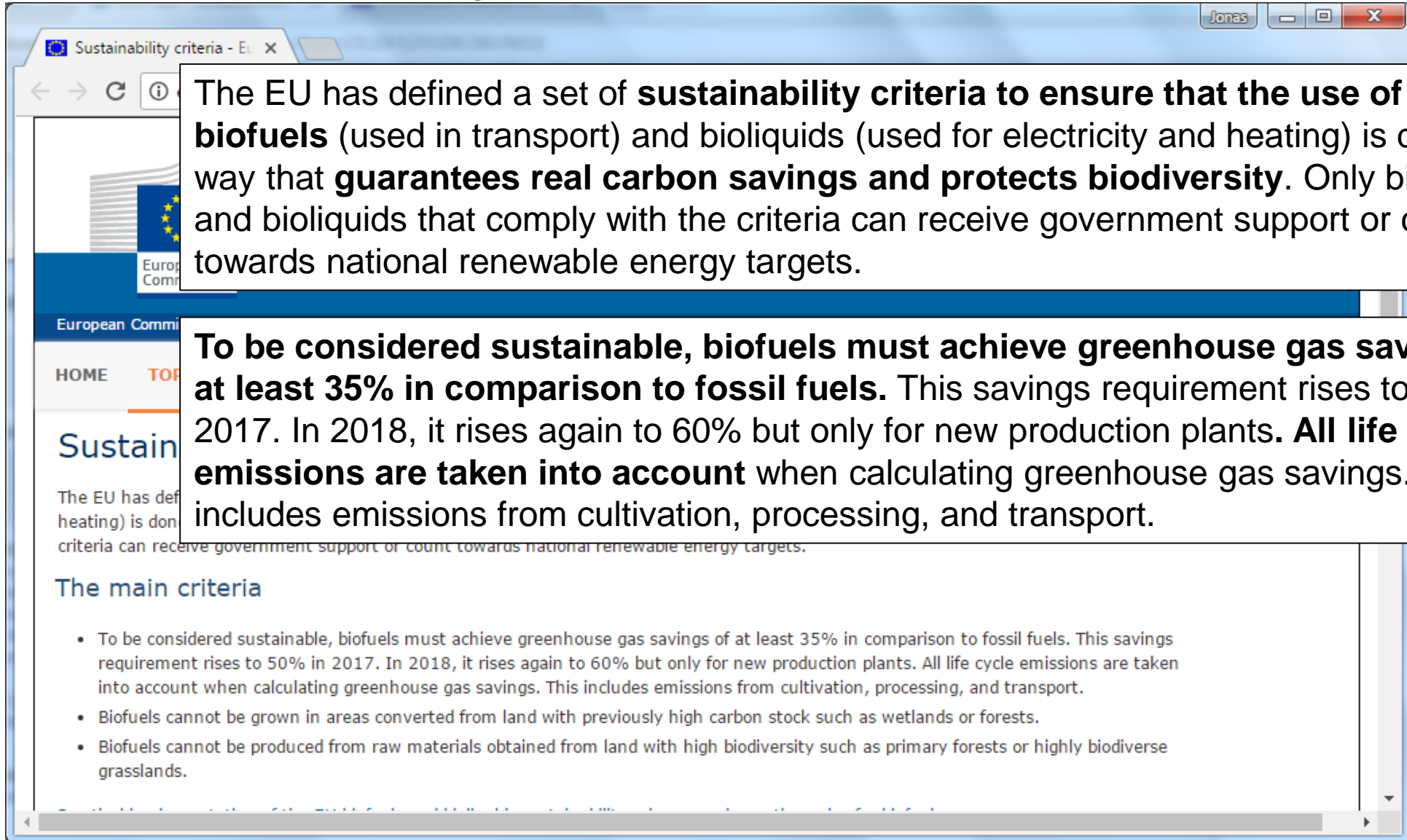
(Or, rather, it's a system property)

Is CO₂ emission reduction percentage a biofuel property?

No!

It is a system property

RED, sustainability criteria



The EU has defined a set of **sustainability criteria** to ensure that the use of **biofuels** (used in transport) and bioliquids (used for electricity and heating) is done in a way that **guarantees real carbon savings and protects biodiversity**. Only biofuels and bioliquids that comply with the criteria can receive government support or count towards national renewable energy targets.

To be considered sustainable, biofuels must achieve greenhouse gas savings of at least 35% in comparison to fossil fuels. This savings requirement rises to 50% in 2017. In 2018, it rises again to 60% but only for new production plants. **All life cycle emissions are taken into account** when calculating greenhouse gas savings. This includes emissions from cultivation, processing, and transport.

The main criteria

- To be considered sustainable, biofuels must achieve greenhouse gas savings of at least 35% in comparison to fossil fuels. This savings requirement rises to 50% in 2017. In 2018, it rises again to 60% but only for new production plants. All life cycle emissions are taken into account when calculating greenhouse gas savings. This includes emissions from cultivation, processing, and transport.
- Biofuels cannot be grown in areas converted from land with previously high carbon stock such as wetlands or forests.
- Biofuels cannot be produced from raw materials obtained from land with high biodiversity such as primary forests or highly biodiverse grasslands.

Virgin palm oil: Unsustainable? – Used cooking oil: Sustainable?

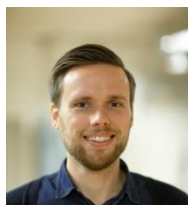




THE METHOD'S INFLUENCE ON CLIMATE IMPACT ASSESSMENT OF BIOFUELS AND OTHER USES OF FOREST BIOMASS



CHALMERS



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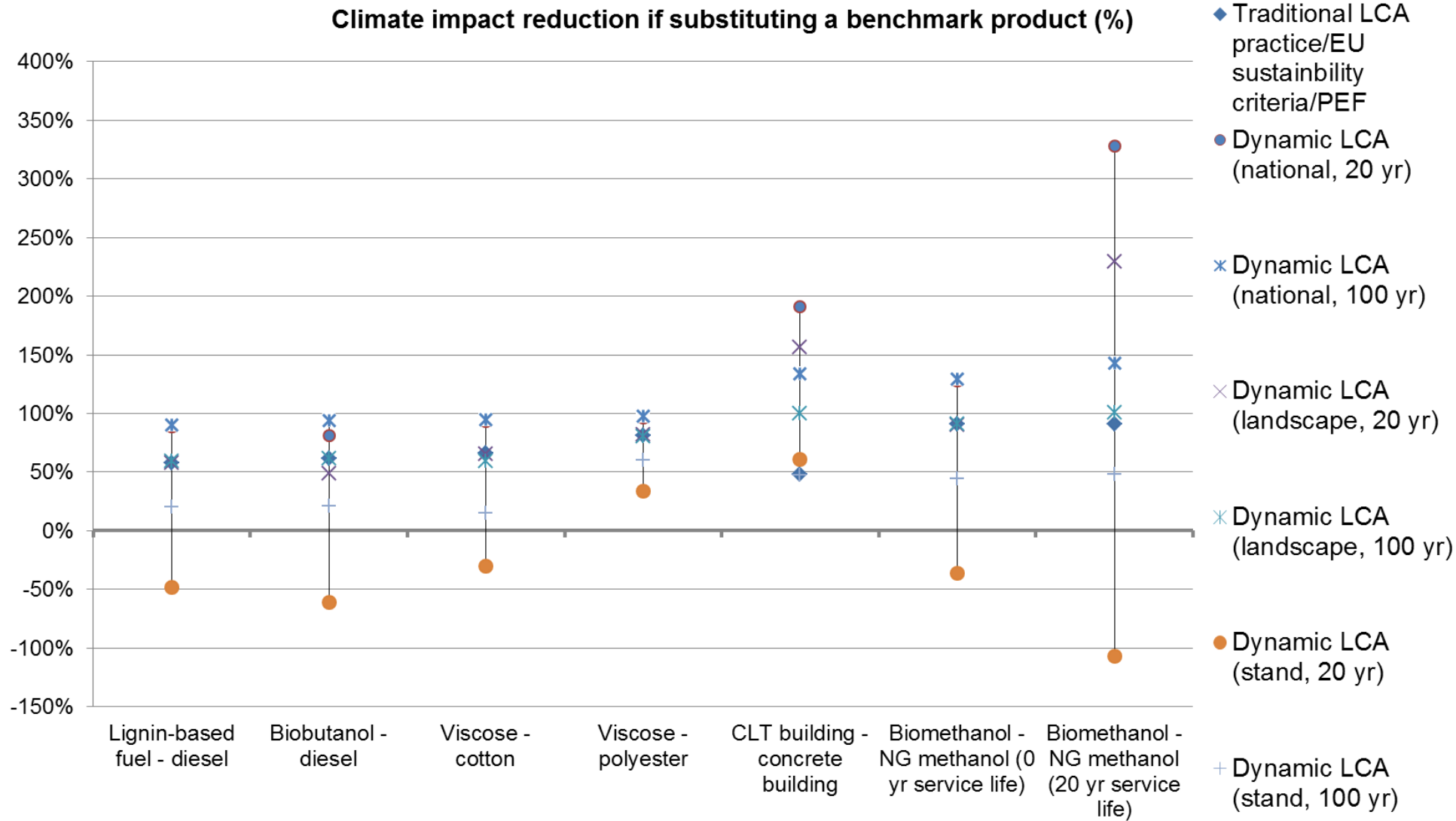


Louise
Staffas

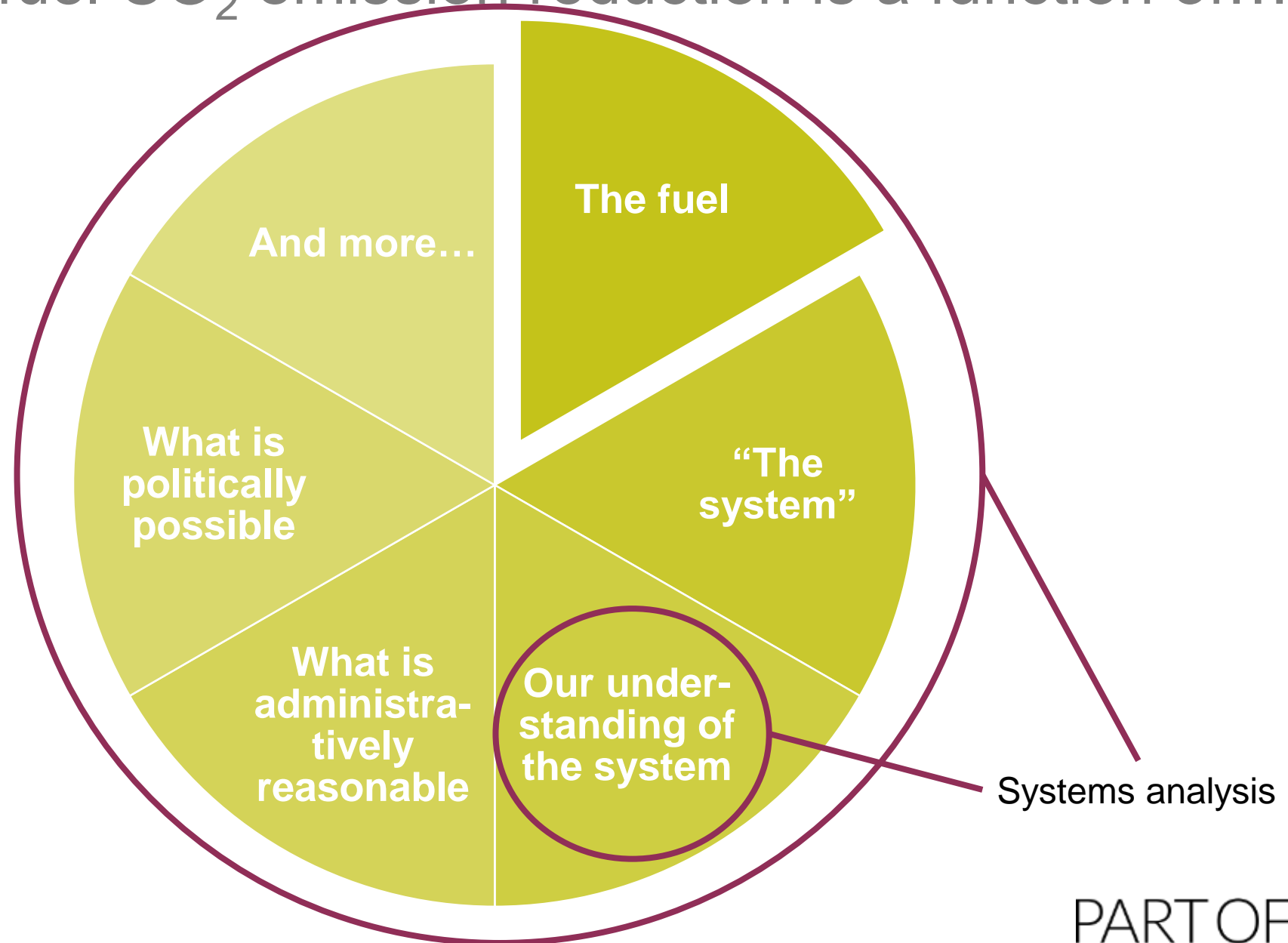
The methods - procedure

Aspect of climate impact	Traditional LCA practice	Standards	Dynamic LCA
Timing of emissions and CO ₂ capture	X	X	V
Biogenic CO ₂ emissions = climate impact	X	X	V
Time horizon of characterization factors	100 years	100 years	Any time horizon possible
Change of soil organic carbon	X	(V)	V
N ₂ O emissions from land use (fertilisation)	X	(V)	(V)
Albedo effects	X	X	(V)
Aerosol effects	X	X	(V)
Indirect land use change	X	X	(V)
Reference situation at forest	X	X	(V)

Results (example)



Reported biofuel CO₂ emission reduction is a function of...



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