

# MARS

## Is TFA reduction feasible to the industry? MARs perspective

Seminar at Hungarian Permanent Representation to the EU  
Trans fatty acid reduction in foodstuffs – Make it happen in the EU!

04.04.2016



The Five Principles



OUR PRINCIPLES IN ACTION





### OPEN LETTER

To:  
First Vice-President Frans Timmermans,  
Vice-President Jyrki Katainen,  
Commissioner Vytenis Andriukaitis,  
Commissioner Elżbieta Bienkowska,

Brussels, 15 October 2015

Subject: Call for a legislative limit for the amount of industrially produced TFAs in foods

Dear Commissioners,

BEUC, CPME, EHN, EPA, Kellogg Company, Mars, Mondelēz and Nestlé are concerned about the health effects of trans fats from partially hydrogenated oils. There's an important evidence base on the adverse health effects of consuming trans fats, notably by increasing the risk of heart attacks or heart disease.

Most trans fats in our diet originate from foods containing industrially produced trans fats.

The businesses signing up to this statement are committed to removing trans fats originating from partially hydrogenated oils from all our foods. Over the last 10 years they have already acted voluntarily in launching programmes to removing such trans fats whilst others have not.

Increasingly, legislators around the world, including the US and several EU and EEA Member States, have taken measures to limit industrially produced TFAs in foodstuffs. They have mostly opted for legislative measures that limit the amount of industrially produced TFAs in foods to 2g per 100g of fat.

We therefore respectfully call on the European Commission to propose a legislative limit for the amount of industrially produced TFAs in foods to 2 gram per 100g of fat.

This would be an effective step towards significantly reducing trans fats originating from partially hydrogenated oils from all foods. It would create a level playing field for consumers wherever they shop and whatever they buy and for business (large-, medium- or small-sized) across the EU and help improving health of all citizens.



MARS  
chocolate

HEALTH & WELLBEING



# Use of fats & oils in confectionery: do we need *trans* fats?

Andrea Cattaruzza

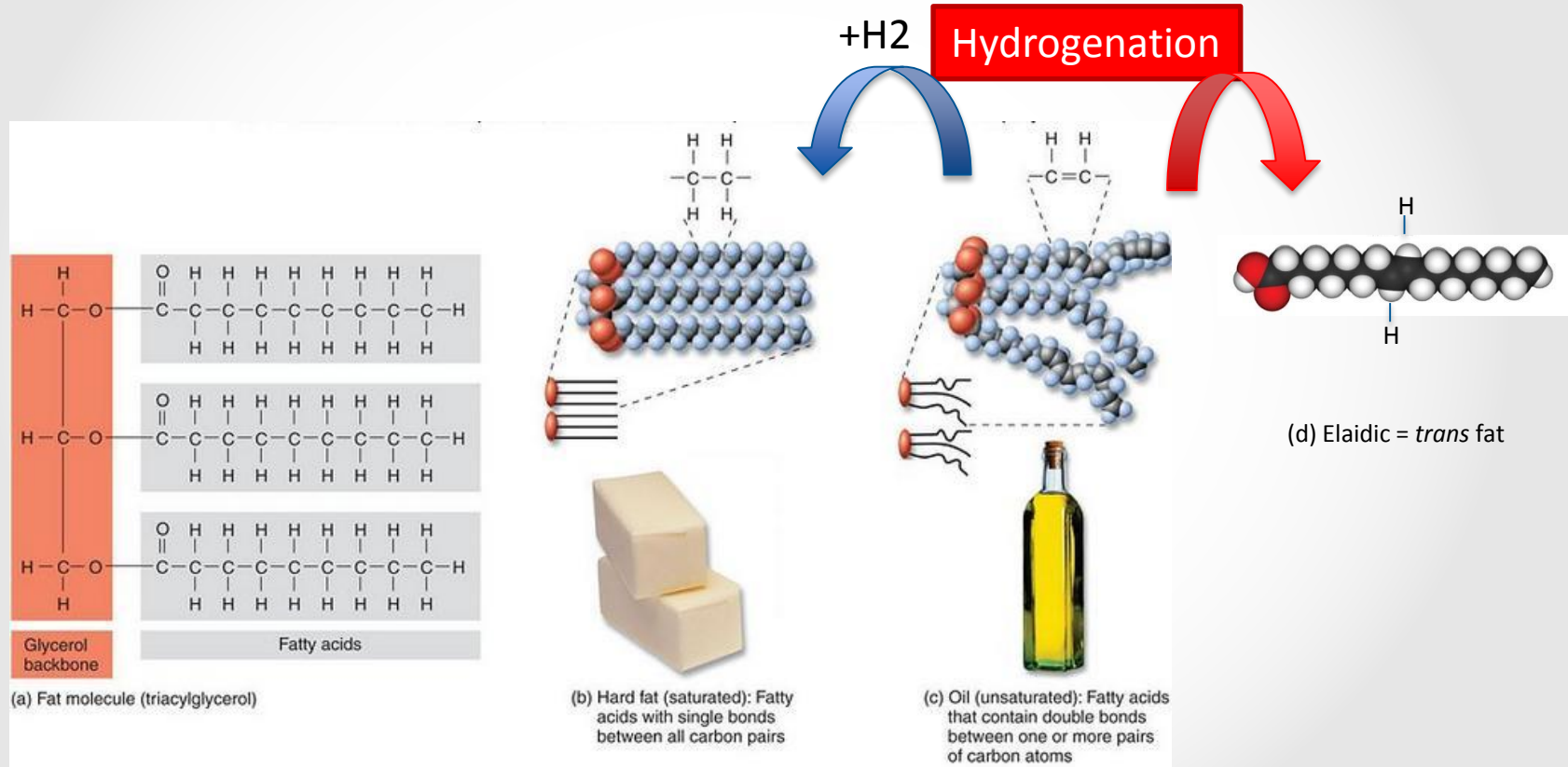
Mars Global Chocolate Science & Technology  
Brussels, 4 April 2016



# Content

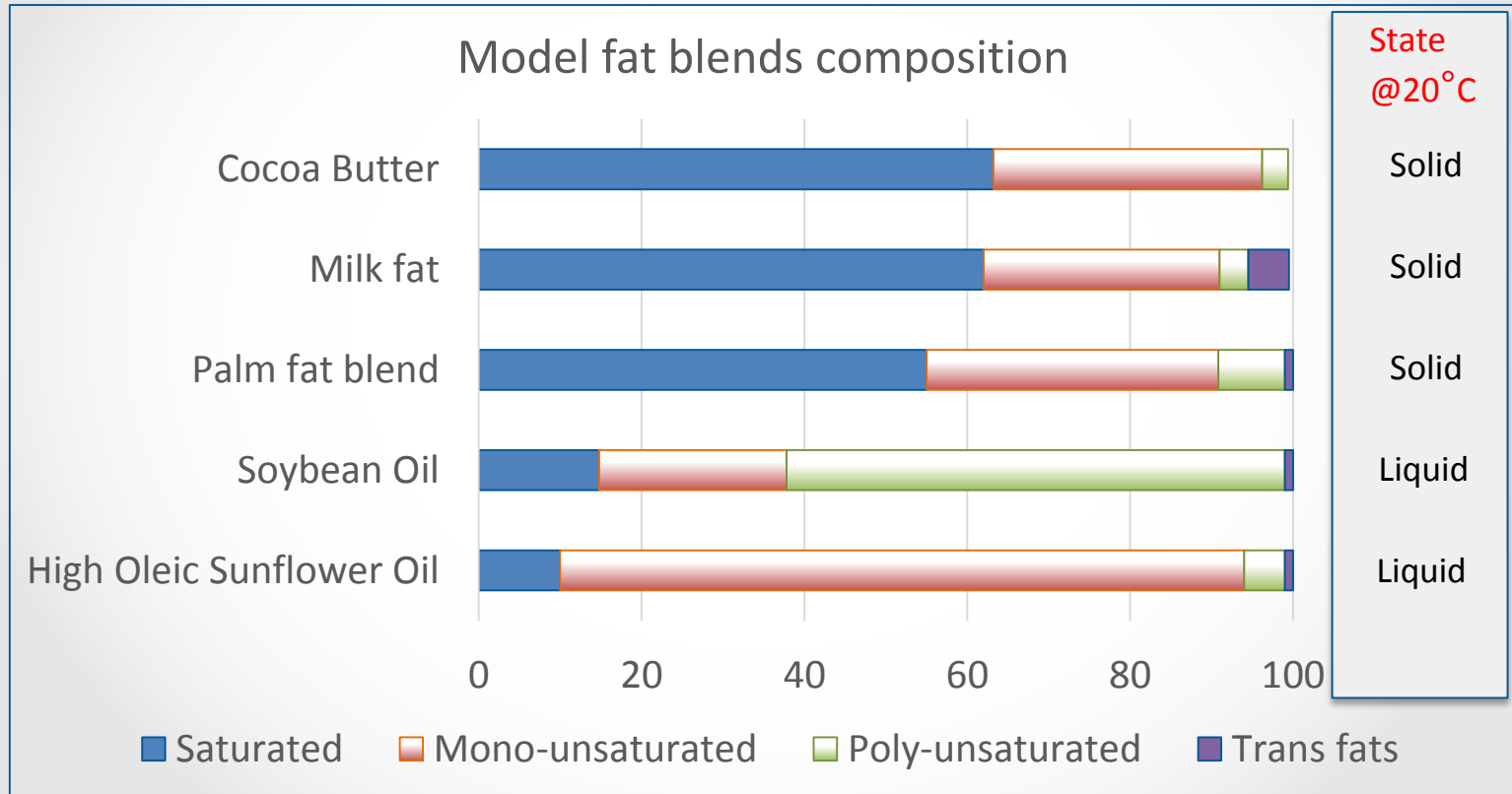
- **Fats & Oils basics**
- **Role of fats in Confectionery**
- **Nutrition Science**
- ***Trans* fats replacement strategies**
- **Conclusions**

# Fat chemistry and physical properties

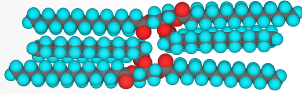


# Oils & fats are blends of fatty acids

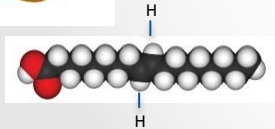
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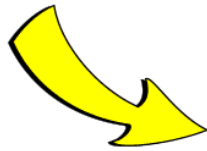
# Challenges of fat reformulation



High in Saturated



High in *trans* fats

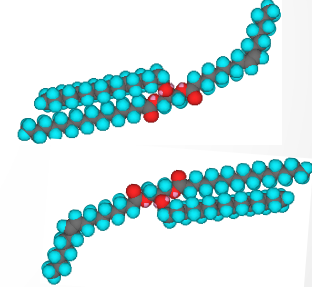


These work best in confectionery



These are better for you

...in Baked goods:  
dough structure, short texture  
...in Caramels:  
cold flow, mouthfeel  
...in Cream Fillings:  
melting behaviour, flavour release,  
migration and bloom  
...in the processing lines



High in Unsaturated

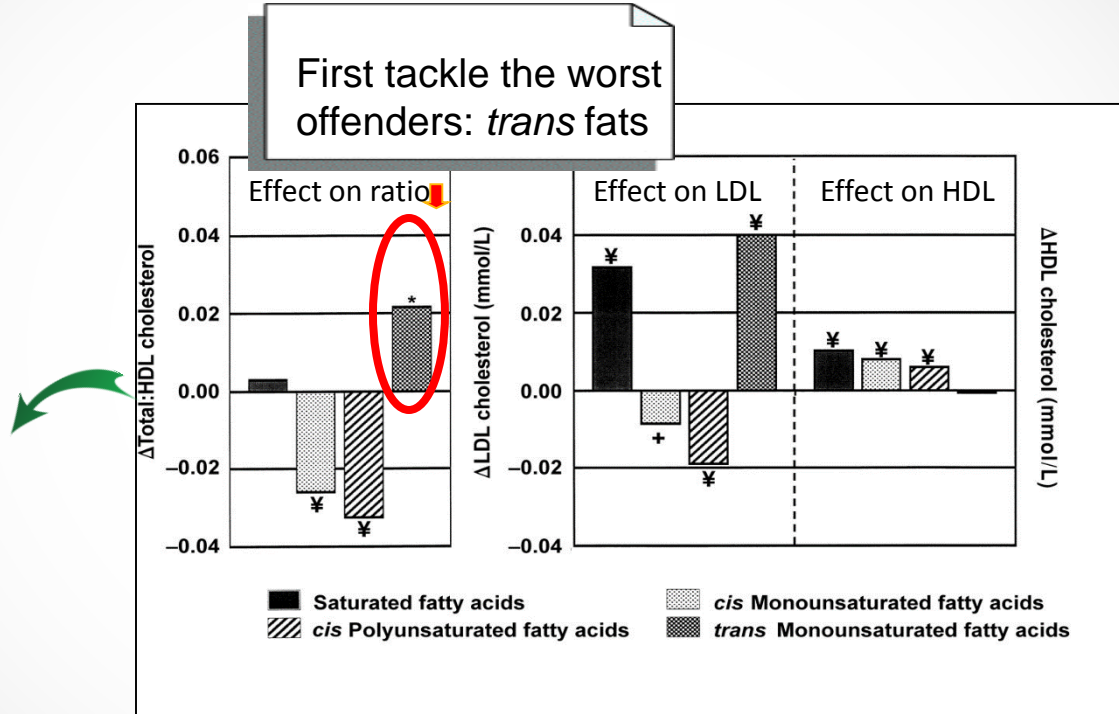


# Dietary fats and blood cholesterol

9

40 years of research:

- dietary fatty acids affect blood cholesterol levels
- Tot/HDL ratio is a major risk factor for Cardiovascular Disease – lower is better



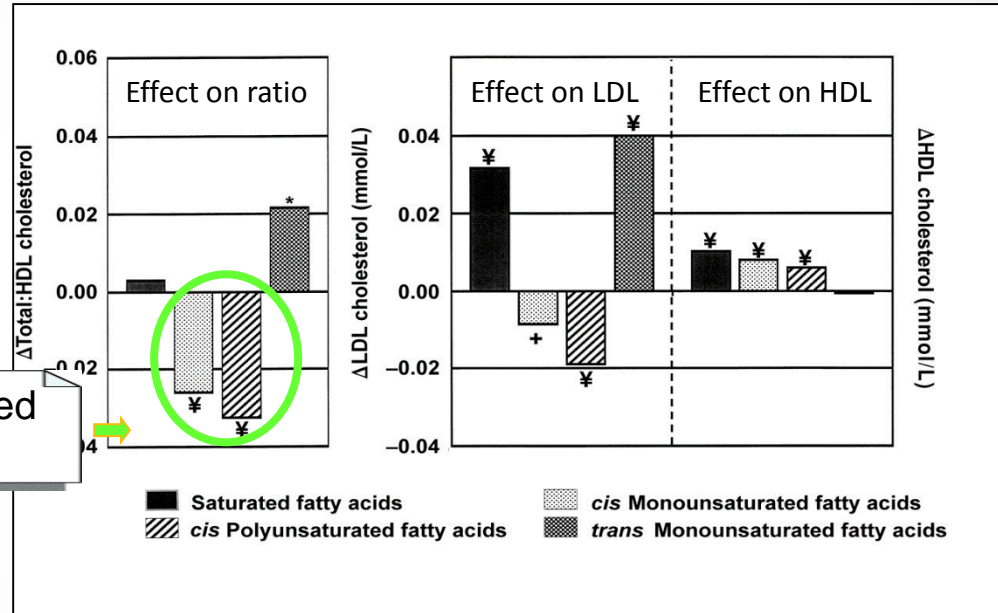
Mensink *et al.*, 2003, Am. J. Clin. Nutr. 77:1146

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# Dietary fats and blood cholesterol

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Clearly we need more of these



Mensink *et al.*, 2003, Am. J. Clin. Nutr. 77:1146

# Public Health Impact

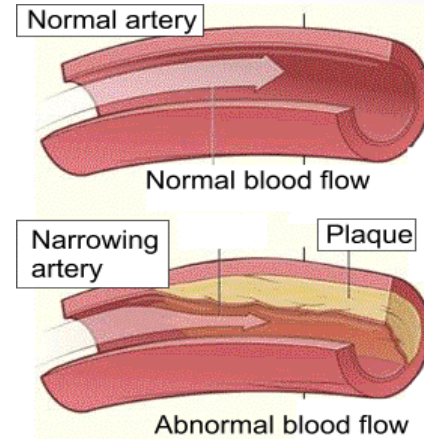
*Trans* fats,  
Saturated Fats



Blood cholesterol



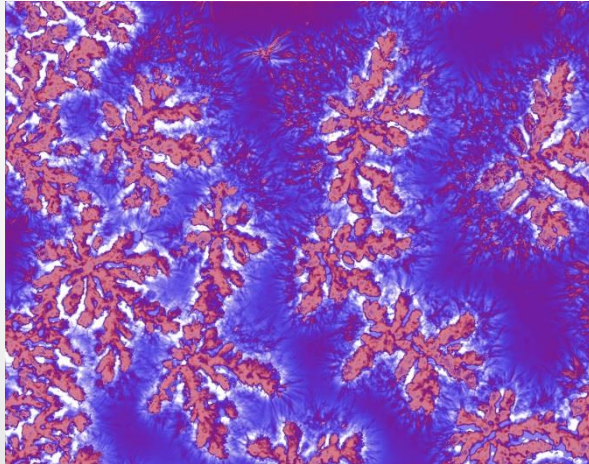
Cardio Vascular Disease =  
number 1 cause of death  
in developed countries (\*)



(\*) *Global Health risk report, WHO 2004.*

# Challenges of fat reformulation

Fats are complex



*From: A. Marangoni., 2005*

They are extremely functional



Oxidation  
Mobility, migration  
Crystallisation, structure



↓  
for flavour  
for lubrication

↓  
for texture  
for melting  
for mouthfeel

In the processing line

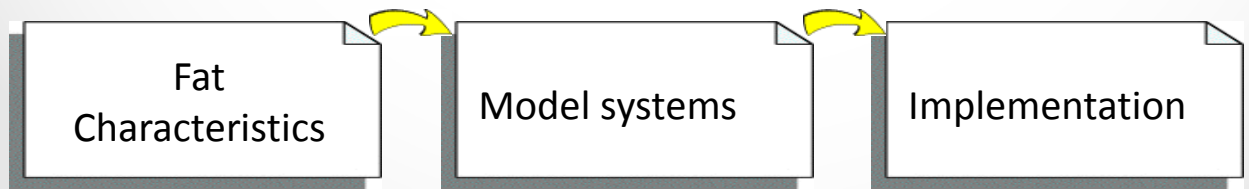
# The work that needs to be done

Blends  
Blends  
Blends  
...fractions

High in *trans* fats

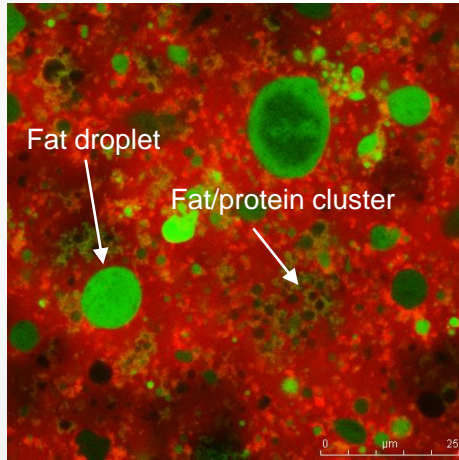
High in Saturated

High in Unsaturated



# The work that needs to be done

## Example 1: Caramel



**Fat = green**

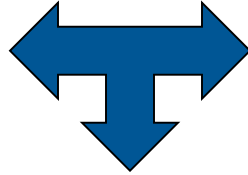
**Protein = bright red**

- a) Role of fat on structure
- b) In-mouth breakdown
- c) Texture and taste
- d) Shelf life
- e) Processing efficiency
- f) Scaling-up

# The work that needs to be done

## Example 2: Cream fillings

Milk  
Sugar



Fat  
30%-40%

Suspension of  
crystals and  
solids in liquid fat



depositing

cooling



Structure is  
fat crystal  
network

Hardness  
and melting  
behaviour !!

# Trans fat replacement in Mars products: Europe

Since 2003!



## The Challenges...

8 Mars factories,  
17 brands,  
400kT product....

## Results

<0.5% *Trans* fats in Mars products  
Product Attributes, Factory Performance  
Controlled cost impact

## Learnings

Clarify the science  
Understand fat functionality  
Make key choices!



Global Deployment



# Conclusions

- It is possible to use alternatives to *trans* fats in confectionery
- Fats are very functional ingredients and have a specific roles in foodstuff
- Fats are extremely versatile and offer many options
- Industry needs to make the right choices
- Nutritional quality is a critical parameter

Thank You