



HOW CAN WE MAKE NUTRIENT AND CLIMATE DATA OPERATIONAL FOR MENU PLANNERS AND DECISION MAKERS

- AN OUTLINE FOR A COMPUTER ASSISTED TOOL

**Søren Løkke, Associate Professor , Dept. development and
planning, Danish Centre for Environmental Assessment
AAU**

Copenhagen Institute of Technology, 26. November 2009

PRODUCTION AND CONSUMPTION OF FOOD IS IMPORTANT FACTORS FOR CLIMATE CHANGE

Agriculture & Fishery

- Methane • manure; CH₄ & NO₂ • Machinery
- CO₂e from degradation humus • Pesticides



Production & processing

- CO₂e from production, processing and storage
- CO₂e from packaging production



Distribution

- CO₂e from transport
- CO₂e from storage



Consumpt. & disposal

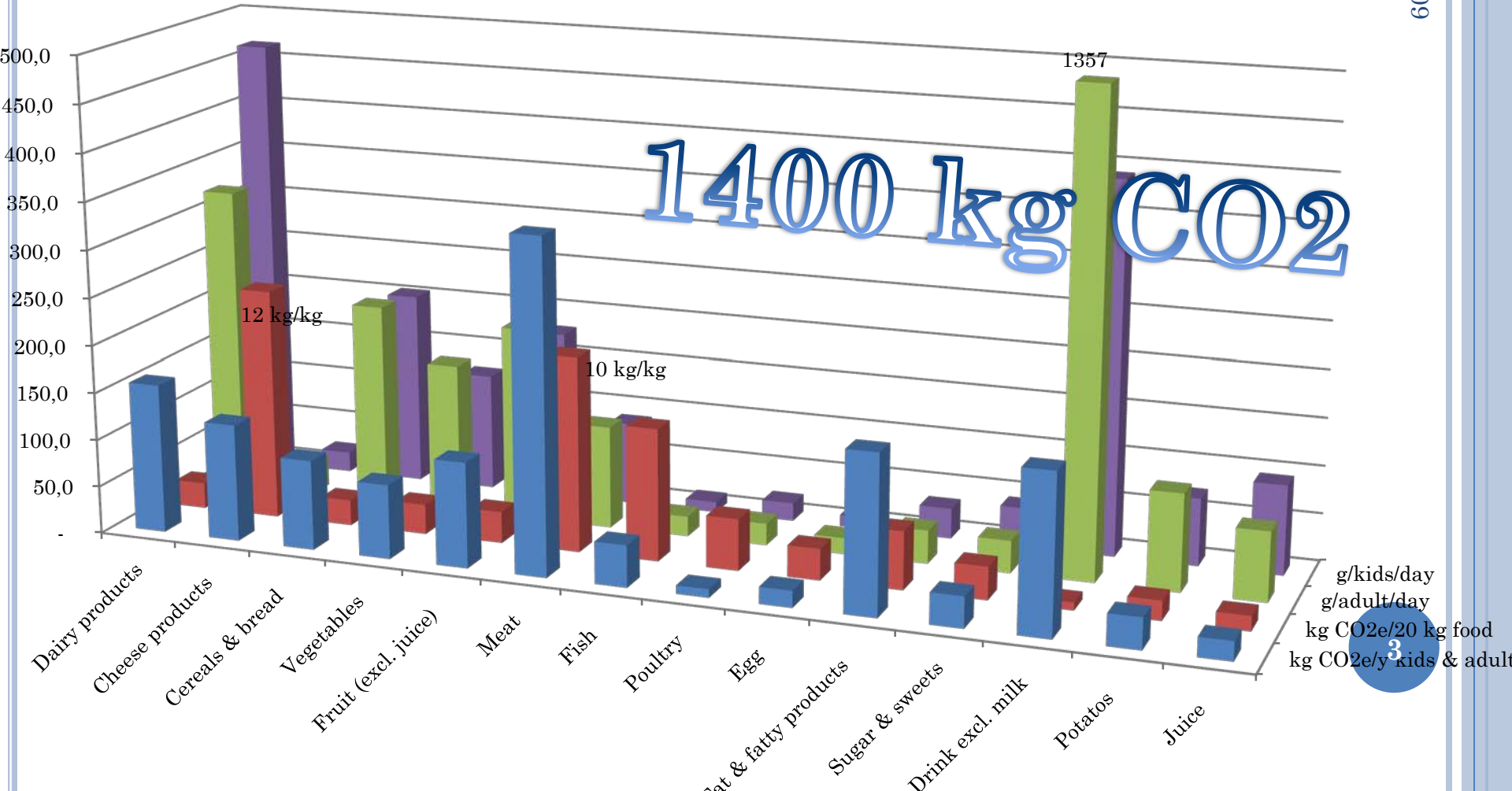
- Shopping-transport • CO₂e from storage and cooking
- CO₂e from waste disposal



THE CLIMATE IMPACT OF FOOD IN A CONSUMER PERSPECTIVE

- Danish food habits 1995 – 2006: Status and development with focus on fruit, vegetables and sugar, Fødevareinstituttet 2008; IDA 2009

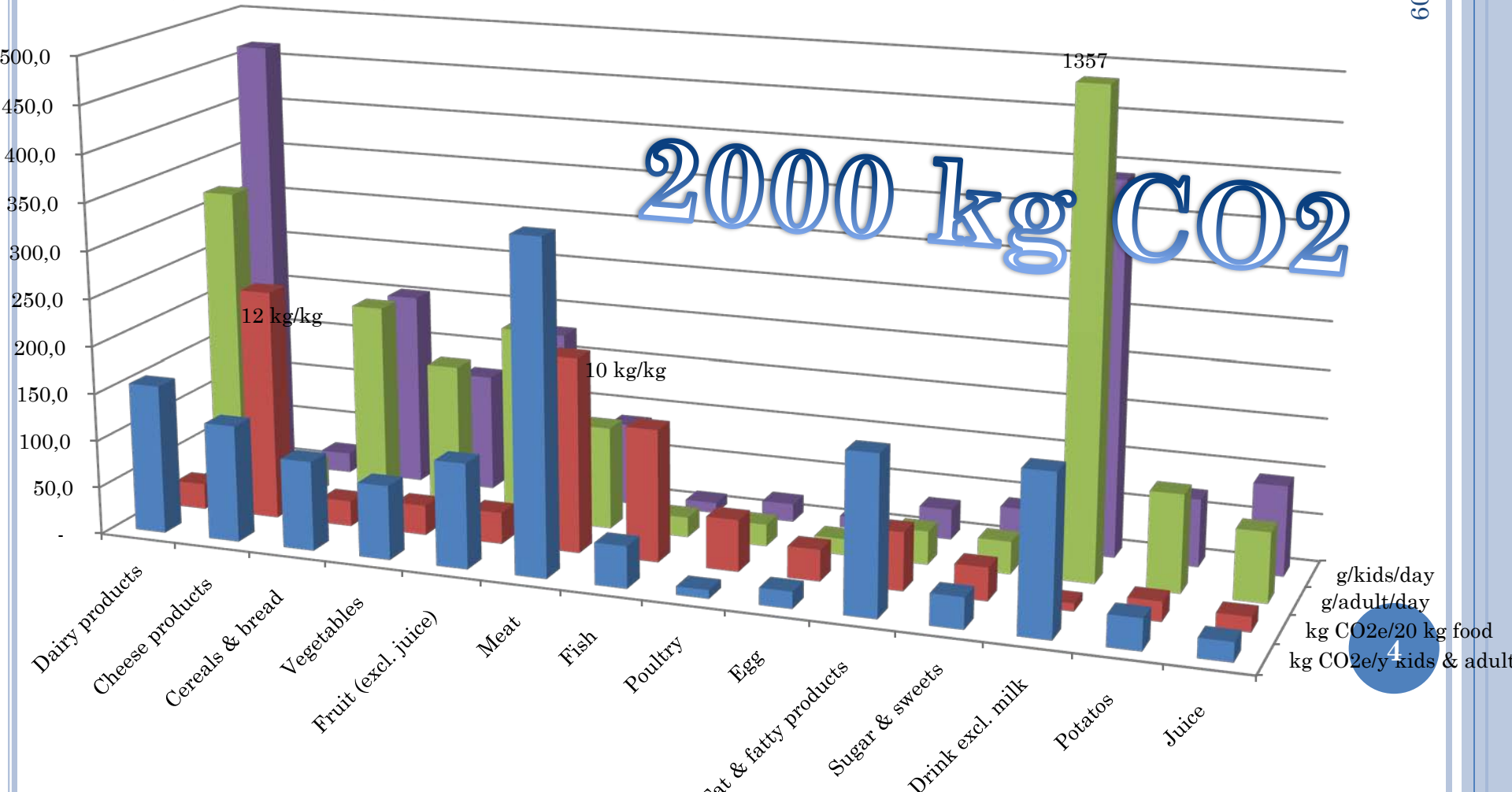
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THE CLIMATE IMPACT OF FOOD IN A CONSUMER PERSPECTIVE

- Pr Dane: 50 kg meat– or 93 kg (Danish Agricultural organisation) – or 140-145 kg (World Resources Institute)

2000 kg CO₂

THE CLIMATE IMPACT OF FOOD IN A CONSUMER PERSPECTIVE

- Pr Dane: 50 kg meat– or 93 kg (Danish Agricultural organisation) – or 140-145 kg (World Resources Institute)
- 93 kg ~ 1500 kg CO₂e

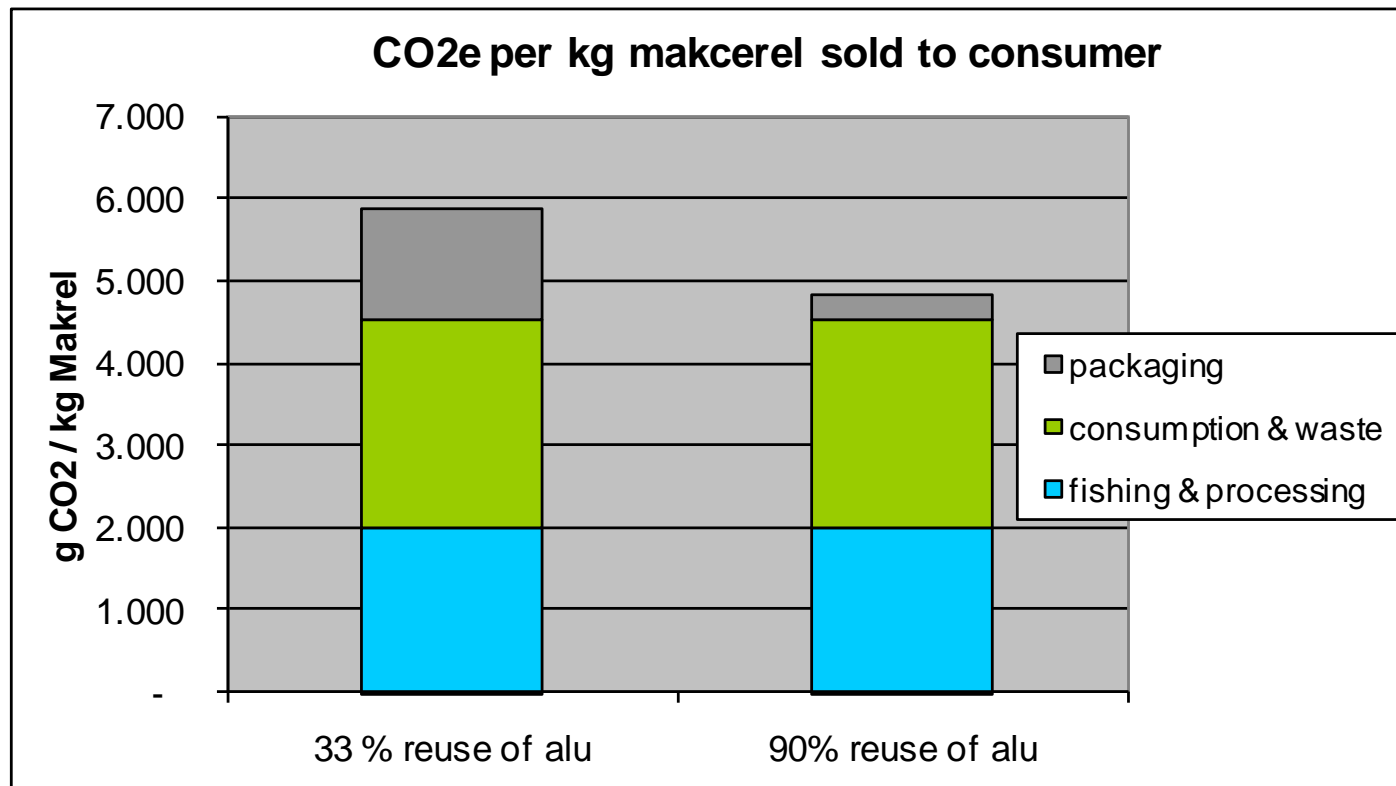
2700 kg CO₂

THE CLIMATE IMPACT OF FOOD IN A CONSUMER PERSPECTIVE

- Pr Dane: 50 kg meat– or 93 kg (Danish Agricultural organisation) – or 140-145 kg (World Resources Institute)
- 93 kg ~ 1500 kg CO₂e
- 145 kg ~ 2300 kg CO₂e

3500 kg CO₂

EXAMPLE INCLUDING PACKAGING; MACKAREL FROM SEA TO TABLE



APPROACHES TO PRESENTING NUTRITIONAL AND CLIMATE DATA

Pork, slice of neck, raw - Nutrition Information and Facts - The Danish Food Composition Databank - Mozill...

http://www.foodcomp.dk/v7/fcdb_details.asp?FoodId=5014

National Food Institute - Technical University of Denmark (DTU) Danish Food Composition Databank - ed. 7.01

FODB no. 5014

Pork, slice of neck, raw

Svinekød, nakkekotelet, rå
Sus scrofa L. Refuse: 0%

Content pr. 100 g	Unit	Content	Variation	No.	Source
Energy	kJ	758			00050
Protein, total [NCF: 6.25]	g	20.0		200	06004
total-N	g	3.20		200	06004
Fat, total [FACF: 0.920]	g	11.3	9.5 - 14.7	8	
saturated fatty acids	g	4.14			00050
monounsaturated fatty acids	g	4.78			00050
polyunsaturated fatty acids	g	1.26			00050
Carbohydrate, total	g	0			00000
carbohydrate, available	g	0			00050
added sugar	g	0			00000
dietary fibre	g	0			00000
Alcohol	g	0			00000
Ash	g	1.0		200	06004
Moisture	g	68.0		200	06004
Vitamin A	RE	0			T0381
retinol	µg	0	<6	2	T0381
β-carotene eq.	µg	0			T0381
Vitamin D	µg	0.61			00050
D3 cholecalciferol	µg	0.11			06004
D2 ergocalciferol	µg	0			00000
25-hydroxycholecalciferol	µg	0.10			06004
Vitamin E	α-TE	0.10			T0381
alpha-tocopherol	mg	0.10			T0381
Vitamin K	µg	0			T0381
Vitamin B1, thiamin	mg	0.743		100	06004
Vitamin B2, riboflavin	mg	0.149		100	06004
Niacin equivalents	NE	9.87			00050
niacin	mg	6.2		100	06004
tryptophan	mg	3.67			00050
Vitamin B6	mg	0.304		100	06004

APPROACHES TO PRESENTING NUTRITIONAL AND CLIMATE DATA

The screenshot shows the website 'EcoMenu ekomatsedeln' in a Mozilla Firefox browser. The page has a navigation bar with tabs: HEM, MILJÖANPASSA, SÖK RECEPT, NÄRINGSBERÄKNA, VECKOMATSEDEL, and RECEPT A-Ö. Below the navigation bar are five content cards, each with a title, an illustration, and a brief description:

- MILJÖANPASSA**: Lär dig hur du gör recept mer ekologiska och mer näringsriktiga med bibehållen budget.
- SÖK RECEPT**: Sök i vår ekologiska, S.M.A.R.T.-anpassade receptbank och hitta ett recept utifrån måltidskomponenter och storkökstyp.
- NÄRINGSBERÄKNA**: Näringsberäkna dina egna recept och få information om hur bra ditt recept är ur miljö- och närings synpunkt.
- VECKOMATSEDEL**: Förslag på ekologiska och näringsanpassade veckomenyer, komponerade av vår dietist.
- RECEPT A-Ö**: Alla våra recept i bokstavsordning, uppdelat efter storköksinriktning.

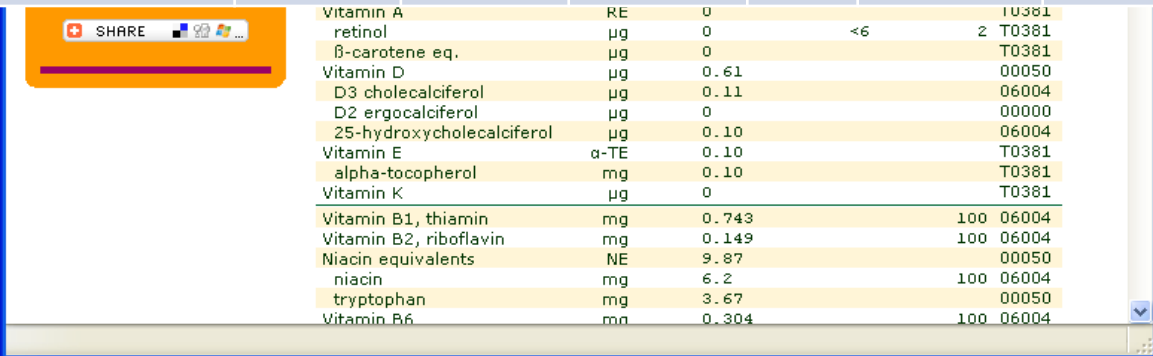
Below the cards is a section titled 'Ekologiska måltider för alla storkök' with a paragraph of text and a link 'Se instruktionsfilm'. At the bottom, there is a copyright notice 'Copyright 2009 EkoMatCentrum' and a phone number 'Telefon: 08-779 59 29. info@ekomatcentrum.se'.

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APPROACHES TO PRESENTING NUTRITIONAL AND CLIMATE DATA

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Food	Production system	Origin	Proces	Energy	Fat	Protein	Carbo- hydrate	CO2e	Special issues
Tomato	Organic	DK	Cook chill						
Tomato	Conventional	ES	Cook serve						
Tomato		ES	Boil						
Tomato		DK	Bake						
			Fry						



Vitamin A	RE	0	10381
retinol	µg	0	<6 2 T0381
β-carotene eq.	µg	0	T0381
Vitamin D	µg	0.61	00050
D3 cholecalciferol	µg	0.11	06004
D2 ergocalciferol	µg	0	00000
25-hydroxycholecalciferol	µg	0.10	06004
Vitamin E	α-TE	0.10	T0381
alpha-tocopherol	mg	0.10	T0381
Vitamin K	µg	0	T0381
Vitamin B1, thiamin	mg	0.743	100 06004
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Tomato		ES							
Tomato		DK							

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- User customisation with respect to kitchen practice and mashinery
- Correction parameters

EXPECTED AREAS OF APPLICATION

- the consultancy of authorities,
- assistance of the kitchen professionals in planning diets that are both nutritionally correct climate friendly, and
- benchmarking the environmental performance of kitchens and catering systems.

TRIBLE EFFECT OF THE NUTRITION-CLIMATE DATABASE AND INFORMATION SYSTEM

- influence the menu-design in moving the ingredients
 - from red to white meat,
 - from animal to vegetable protein sources,
 - from out of season and transported to locally grown in-season vegetables
- influence the menu-design in moving the preparation technology/method
- Influence the production system
 - Competition between organic systems

CHANGES UP STREAM...

- Change the food demand,
 - pressure for change in food production structure, including crop priorities and decreasing animal production,
 - moving production priority from volume to quality
- Change the information demand
 - Pressure for improving the single production system
 - Moving production from production blind towards climate change towards climate change optimised production
- And downstream we get healthier eating!