

Trends in the food sector.  
Functional Foods, Food  
Ingredients & The Virtual Vita  
Wheat Company

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# FoodGroup Denmark

- Food consultants
- Scandinavian food businesses
- Consultancy for EC
- Innovation, business plans, R&D management, technology transfer
- Functional Foods

# Agenda

- Summary and trends within functional foods (products, markets, scientific substantiation, legal aspects / regulation)
- The Virtual Vita Wheat Company

# Functional foods definition

- A food is functional if it is satisfactorily demonstrated to affect one or more target functions in the body beyond traditional nutrition, in a way that is relevant either to an improved state of health and well-being and / or the reduction of risk of disease

# Drivers for functional foods

- Scientific progress (new knowledge on health-diet relations and mechanism)
- Corporate ambitions (competition, added value). European food market ↓
- Consumers (focus on health, self-medication, ageing- 15%→24% over 65 )
- Governments (costs of health care). CVD costs in Europe: 180 Billion € / year

# Moderating factors

- Slowly developing scientific progress, in particular the influence on disease endpoints
- Many biological markers of diseases are lacking or questioned
- Health claims (disease reduction) not accepted on EU level or most national levels (but accepted in the US and Japan)

# Improving the situation?

- EC proposal on functional and health claims (SANCO paper), July 2003
- Codex Alimentarius progress on health claims (May 2002)
- New national progress on claims (e.g. UK, The Netherlands and Sweden)
- Proposals underway for substantiation of health claims (ILSI, Passclaim)
- A large number of EC documentation projects



# Major chronic and diet related diseases

- Ischaemic heart diseases (thrombosis, arteriosclerosis etc) and stroke
- Cancers (colon, lung, breast, prostate, uterus..)
- Diabetes Mellitus
- Osteoporosis
- Gastrointestinal disorders

# Further functional foods focuses

- Obesity
- Mental / cognitive, e.g. Alzheimer, Parkinson's, learning, mood
- Immune function
- Physical performance
- Ageing

# Dietary importance of chronic diseases

- Estimated to be between 25 and 75 %, depending on the specific disease
- Examples: CVD > 30%; Colon cancer 70%

# Food components of major interest

- Lipids
- Dietary fibres
- Vitamins
- Minerals
- Pro / prebiotics
- Antioxidants
- Phytosterols
- Phytoestrogenes
- Peptides
- Carbohydrates  
(resistant starch,  
chitosan)
- Plant extracts

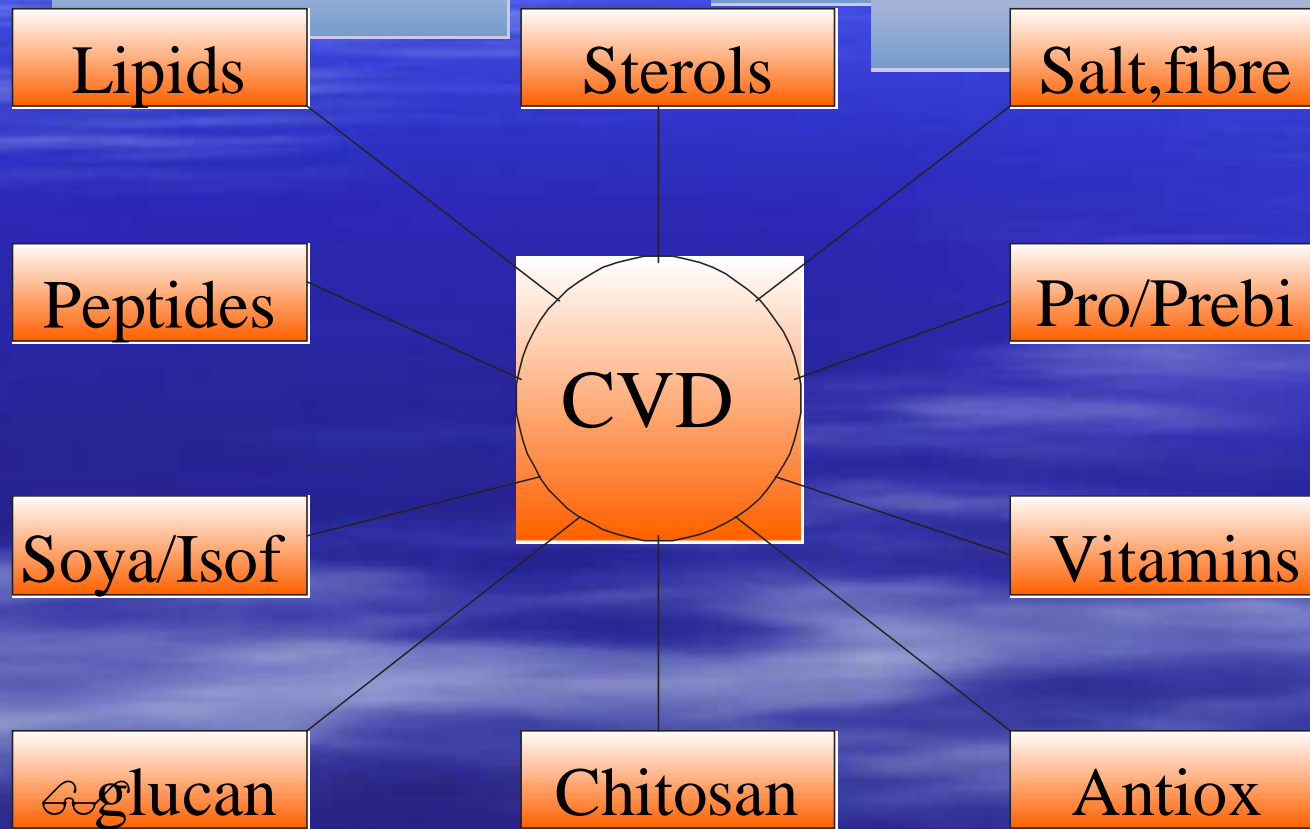
# Functional foods market, 2001

- EU 18,6 Billion €
- US 18,5 Billion €
- Japan 19,5 Billion €
  
- Global 62,4 Billion €, 9% growth
- Global, Letherhead International: 10 Billion €
- Still a small fraction of the food market!

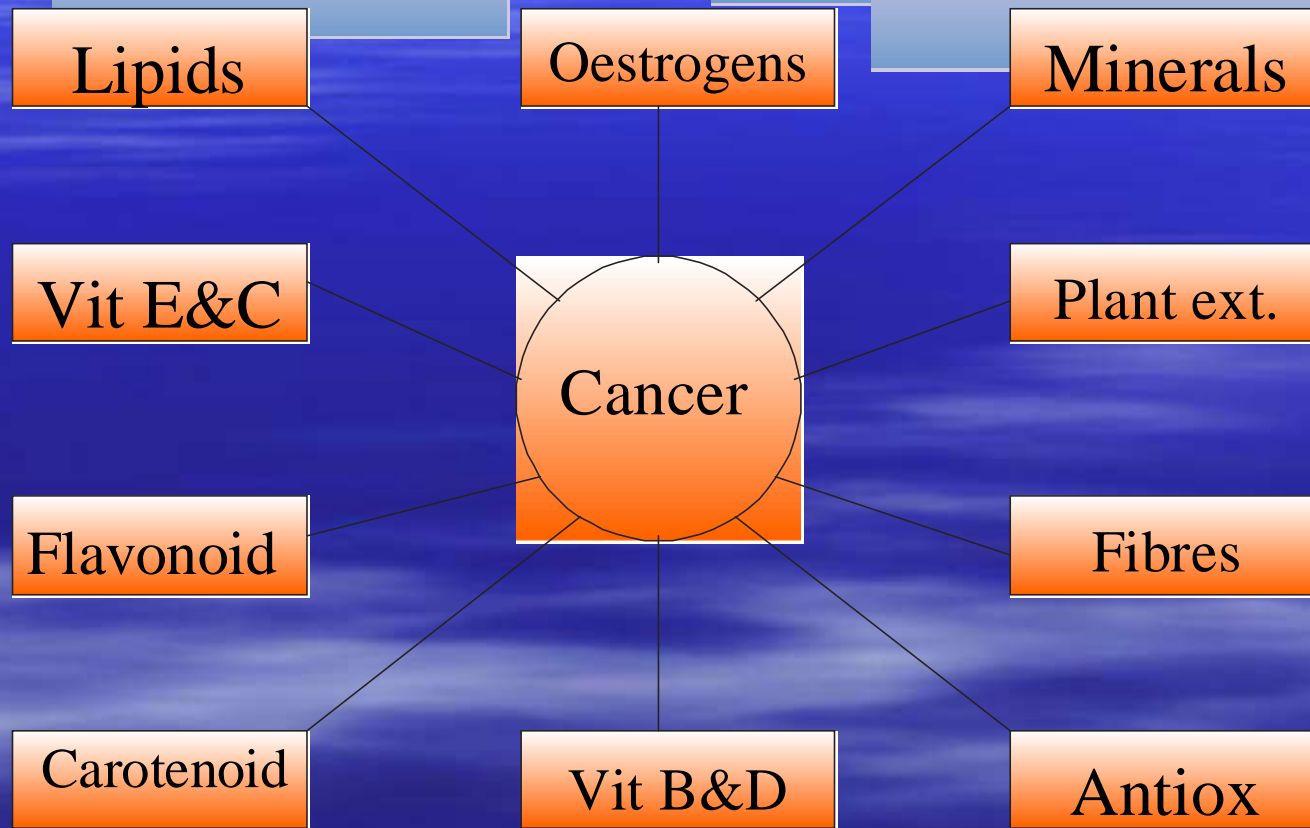
# Functional foods market 1998

- EU focus on dairy and cereal products (46% and 30%)
- US focus on soft drinks and cereal products (60% and 17%)
- Japan focus on soft drinks and cereal products (58% and 11%)

# Claimed causal effects



# Claimed causal effects





# CVD and stroke

N-3 PUFA



# CVD and stroke

Palsgaard N-3 PUFA flour



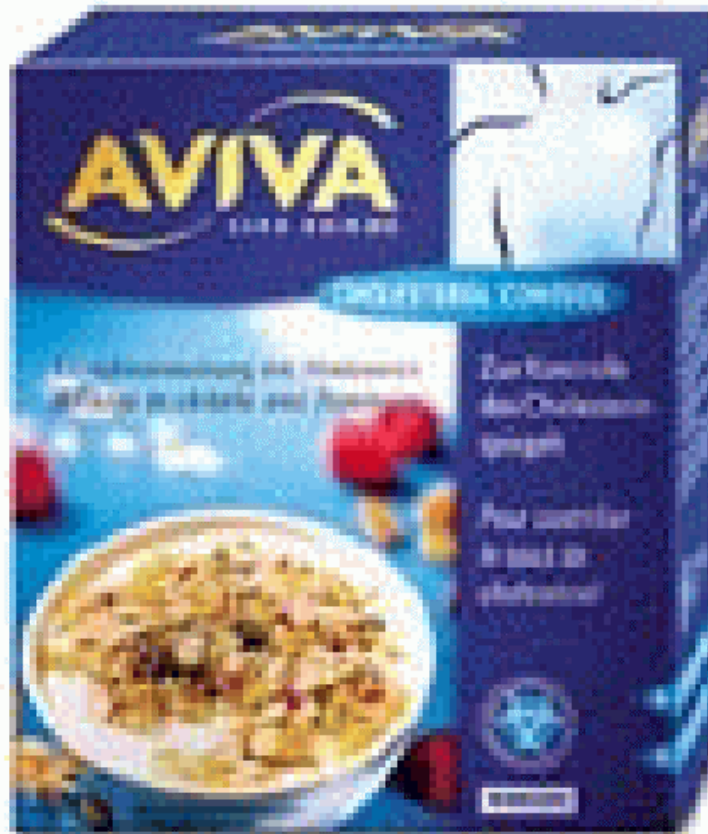
# CVD and stroke

## Beta-glucan



# CVD and stroke

## Cholesterol control



# CVD and stroke

## B-vitamins

### **Love Your Heart**

The following information tells you how **Nutrition for Women** can help your heart. Click the words in purple to see other sources of these vital nutrients.



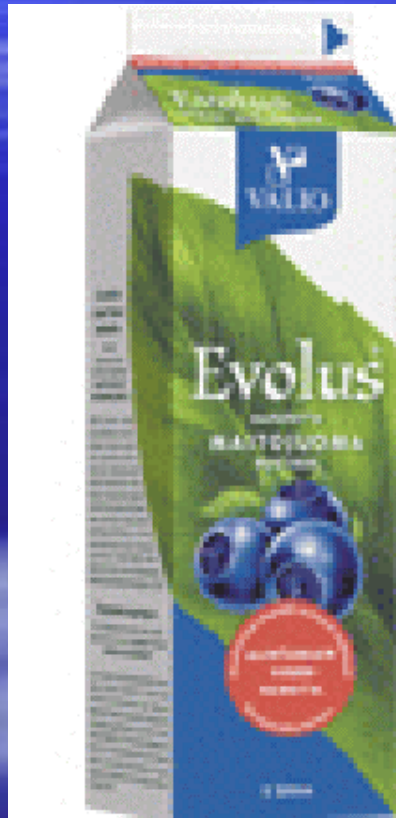
# CVD and stroke

B vitamins



# CVD and stroke

## Peptides



Evolus®  
Luonto  
puuttuu  
asiaan.



# CVD and stroke

Sterols, fish oil, olive oil

May reduce your  
risk of heart disease.





# CVD and stroke

## Abacor<sup>®</sup> – Key Facts

- ▶ Most effective cholesterol-lowering food ingredient
- ▶ Patented composition of isolated soy protein w. fixed isoflavones, cotyledon soy fiber, and soy phospholipids
- ▶ Composition adds to cholesterol-lowering effect of soy proteins

# CVD and stroke

Hypertension and high K / Na



# CVD and stroke

## B vitamin etc for women



**VIActiv™**  
Active Nutrition  
for Women  
by Women.

*Brought to you by the Women's Health Division of Mead Johnson Nutritionals.*

**MeadJohnson®**  
Nutritionals

Viactiv is also available in Canada and can be found on the [Mead Johnson Canada Viactiv website](#).

CVD, cancer and general health  
prebiotics, minerals, vitamins, soy



# The Virtual Vita Wheat Company

Functional Food Ingredients from  
Soft Wheat

# The Vita Wheat Company

- **Virtual** company producing functional food ingredients from **soft wheat or wheat bran**
- Virtual: Because the process has not been demonstrated on large scale until now but is based on **pilot or laboratory** demonstration
- Based on this, a **business plan** has been established within the Basan project, inc. a **market survey** of products and **economical analysis**

# Why wheat functional food ingredients?

- A high intake of cereal grains is associated with good **protection** from cancers, diabetes and cardiovascular diseases (most population studies)
- This protection is expected to be due to the **cereal bran** or components in the bran
- Most evidence from **wheat**, oat and rye

# Wheat

Bran

Tocols / sterols

Oligosaccharides

Protein + folate

Endosperm

Res. starch

Gluten

Xylan



# The Vita Wheat Ingredients

<b>Component</b>	<b>Health effect</b>
<b>Tocols, antioxidants</b>	<b>CVD, Cancer</b>
<b>Phytosterols</b>	<b>CVD</b>
<b>Oligosaccharides</b>	<b>Prebiotic</b>
<b>Folate, B6 vitamin</b>	<b>CVD, Cancer, neural tube defects</b>
<b>Resistant starch</b>	<b>Prebiotic, diabetes, cancer</b>
<b>Xylan</b>	<b>Prebiotic, cancer</b>
<b>Dietary fibre</b>	<b>Fat replacer, cancer</b>

# Some major results from the business plan

- 50.000 tonnes of wheat per year
- Investment 54 M€; Running costs 26 M€ / year; profit 38 M€ / year; Break even 19%
- Market leader in natural folate (in protein), resistant starch, xylo-oligosaccharides
- Large producer of natural tocopherols
- A process based on wheat bran only is much lower in investment and costs

# Our future work on functional foods

- Initiation of a European SME network within functional foods by the end of the year.  
Objective: new products development and business collaboration
- 2 new reports on new functional food ingredients (CVD and cancers)
- Considerations on how to commercialize the Vita Wheat process

Thank you for your attention