

# Mejeriutbildning



## Mejeriutbildning vid Lunds Tekniska Högskola

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*Livsmedelsteknik*

*Lunds Universitet*



## Food Engineering - Research Aim

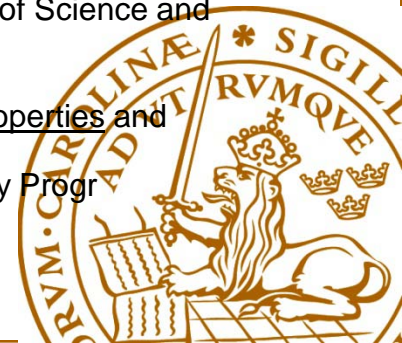
### Design and Production of Foods with Health Benefits

- Characterization of food structures on colloidal and microscopic levels in order to be able to control processes and choice of raw materials to achieve the structures resulting in consumer perceived quality.
- Surface and colloidal chemistry - to characterize and understand the mechanisms for formation of structures observed on nano- and microlevels.
- Process engineering - mathematic modelling of food unit operations and processes

# Dairy Research Projects

## Genomics, structure and health aspects

- Milk Genomics - Genetic Influence on Milk Composition and Processability  
(MSc. Maria Glantz, Prof. Lindmark Månsson, Prof. Paulsson, Dr Stålhammar), SLF, TvärLivs, Arla Foods
- Milk Genomics - Genetic Influence on Milk Composition and Technological Properties in Swedish and Danish Milk  
(MSc. Frida Gustavsson, Prof. Lindmark Månsson, Prof. Paulsson, Prof. Andrén and Dr Stålhammar), SLF
- Neutron scattering study of acid-induced casein micelle aggregation  
(MSc. Sofie Botegård, Prof Paulsson, and Prof. Nylander) ESS
- Health Promoting effects of Bioactive Peptides in Milk  
(Dr. Catja Freiburghaus, Prof. Lindmark Månsson, Prof. Paulsson and Prof. Oredsson), FORMAS
- Bioactive Peptides in Milk and Gut health  
(Dr. Birgit Janicke, Prof. Lindmark Månsson, Prof. Paulsson and Prof. Oredsson), LU and Kungliga Fysiografiska Sällskapet
- Health Benefits of Whey Bioactive Components using Genomic Technologies  
(Dr. Ligia Rodrigues, Prof. Lindmark Månsson, Prof. Paulsson and Prof. Teixeira), Ministry of Science and Technology, Portugal
- Denaturation, Aggregation and Gelation of Whey Proteins, Genetic Variants, Functional Properties and Processing Effects  
(Prof. Paulsson, Prof. Dejmek and Prof. Nylander), NorFA, NIF, TFR, European Community Progr



# Dairy Research Projects

## Structure and processing effects

- Structure and Crystallisation of Milk Lipids, Phospholipid-Protein Interactions  
(Dr. Rianne Waninge, Prof. Nylander, Prof. Paulsson, Prof. Bergenståhl, Dr. Nieuwenhuijse and Prof. Walstra), Friesland Foods, NL
- Rheology of Milk Gels such as Yoghurt and Cheese Curd  
(Prof. Paulsson, Prof. Dejmek, Dr. Janhöj, Dr. Folkenberg and Ass Prof. Ipsen), Danone, Danish Dairy Research Foundation, Innovationsloven
- Permeability and Syneresis of Cheese Curd  
(Tech Lic. Andrea Grundelius, Prof. Paulsson and Prof. Dejmek), European Community Programme
- Curd Grain Fusion  
(Dr. Kristina Lodaite, Dr. Östergren, Prof. Paulsson and Prof. Dejmek), European Community Prog.
- Cheese Curd Texture and Micro-Rheology  
(Dr. Stina Helstad, Prof. Paulsson, Prof. Dejmek, Prof. Ardö), Danish Dairy Research Foundation, FÖTEK
- Structural Changes of Cheese from Concentrated Milk  
(Tech Lic. Magnus Larsson, Prof. Paulsson, Prof. Dejmek and Prof. Ardö), Arla Foods Innovation
- Microfiltration of Milk  
(Prof. Trägårdh, Prof. Paulsson and Prof. Dejmek), Arla Foods, Skånemejerier



# Dairy Research Projects

## Structure and processing effects

- Fluid Engineering in Homogenizers and effect on Emulsion Formation  
(Dr. Fredrik Innings and Prof. Trägårdh), Tetra Pak
- Heat Induced changes in UHT Processed Dairy Products  
(Dr. Bozena Malmgren, Dr. Bergman, Prof. Paulsson and Prof. Dejmek), Tetra Pak
- Adsorption and Fouling behaviour of Milk Components on Modified Stainless Steel Surfaces  
(Dr. Olga Santos, Prof. Nylander, Prof. Paulsson and Prof. Trägårdh), European Community Prog
- Loss Prevention in the Dairy Industry  
(Dr. Marcus Henningsson, Dr. Östergren and Prof. Dejmek), VINNOVA, Öresund Food Network
- Modelling and Simulation of Liquid Food Processes  
(Dr. Tomas Skoglund and Prof. Dejmek), Tetra Pak
- Fouling and Cleaning in the Dairy Industry  
(MSc . Carin Hagsten, Dr. Innings, Prof Nylander, Prof. Trägårdh, Prof. Paulsson, Dr Hamberg, Dr Wiklund)  
TvärLivs, Tetra Pak, Arla Foods
- Structure of Dairy Emulsions and Processing Effects  
(MSc. Jonas Börjesson, MSc Löfgren, Prof. Dejmek, Prof Paulsson), Skånemejerier



# Dairy Research Projects

## Fluid Dynamics and Flow Effects

- Shear Induced Aggregation  
(MSc. Ulf Lindblad, Prof. Trägårdh, Prof. Bergenståhl, Prof. Paulsson and Prof. Dejmek), LiFT-Future Technologies for Food Production
- Wetting and Dispersion of Powders into Liquids  
(Tech lic. David Hellborg, Prof Trägårdh, Prof. Bergenståhl and Prof. Axelsson), Ideon Agro Food, QB Food Tech, Arla Foods, McNeil, Semper, Tetra Pak, VINNOVA
- Rehydration and Dissolution Technology for Food Protein Powders  
(MSc. Erik Börjesson, Prof Paulsson, Prof Trägårdh, Dr Innings and Prof. Bergenståhl), Tetra Pak, Vetenskapsrådet
- Simultaneous Fragmentation, Coalescence and Adsorption of Macromolecules during Emulsification in High Pressure Homogenizers  
(MSc. Andreas Håkansson, Prof. Trägårdh, Prof. Bergenståhl and Dr Innings), Vetenskapsrådet
- Numerical Studies of Mixing in Pipes and Static Mixers  
(Dr. Mårten Regner, Dr. Östergren and Prof. Trägårdh), Vetenskapsrådet



# Dairy Research Projects

## Membrane Technology

- Optimisation of the Membrane Emulsification Process: Numerical and Experimental Studies of Flow Effects on Drop Formation  
(Dr. Anna Timgren, Prof. Trägårdh and Prof. Trägårdh), Vetenskapsrådet
- Nanofiltration at Elevated Temperatures: Influence of the combined effects of Temperature, Salts, pH and Cleaning  
(Dr. Mattias Nilsson, Dr. Östergren and Prof. Trägårdh), Alfa Laval, Ellco Foods, Danisco Sugar, Johnsson Diversey, Skånemejerier, Energimyndigheten
- Developing a New type of Membrane Emulsification Membranes  
(Dr. Marilyn Rayner), VINNOVA
- Membrane Emulsification: Modelling Interfacial and Geometric effects on Droplet Size  
(Dr. Marilyn Rayner, Prof. Trägårdh and Prof. Trägårdh), Vetenskapsrådet





# Mejeriutbildningar vid Lunds universitet



- **Bakgrund:** Utbildning i mejeriteknologi sker vid Lunds Universitet i samverkan med Svensk Mjolk och Tetra Pak. Syftet är att ge deltagarna en fördjupning på högskolenivå inom mejeriteknologi och mejeriprocesser.
- **Kurser:**
  - **Mejeriteknologi (7.5 hp)**
  - **Mejeriprocesser (7.5 hp)**
- **Undervisningen:** föreläsningar, laborationer och studiebesök med lärare från deltagande parter samt från svenska och danska företag och universitet.
- **Målgrupp:** Blivande civilingenjörer samt personer verksamma inom mejerisektorn och närliggande verksamheter.
- **Information:** [www.food.lth.se](http://www.food.lth.se), undervisning / [marie.paulsson@food.lth.se](mailto:marie.paulsson@food.lth.se)





# Mejeriteknologi

- Föreläsningar (7.5 hp)
  - Mjolkproduktion
  - Mjolkens sammansättning
  - Mjolkens kemi och mikrobiologi
  - Fysikaliska egenskaper
  - Kvalitetskontroll
  - Hygien
  - Processinverkan
  - Reologi i mejeriprocessing
  - Främmande ämnen
  - Näringsaspekter
  - Mejeriindustrin i Sverige och Internationellt





# Mejeriteknologi

- Laborationer
  - Mjölakens kemi
  - Mjölakens mikrobiologi
- Studiebesök
  - Skånemejerier, Malmö
  - Lantbruksuniversitetet, Alnarp
  - Försöksladugård, Svalöv







# Mejeriprocesser

- Föreläsningar (7.5 hp)
  - Produktionsteknik och teknologi
  - Processutrustning
  - Membranprocesser
  - Industriell hygien och kvalitetsstyrning
  - Processlinjer
    - K-mjök, fermenterade produkter, ost, matfett, pulver, glass
  - Processdesign
  - Processberäkningar
  - Förpackning
  - Automation
  - Lagstiftning
  - Mjök och hälsa





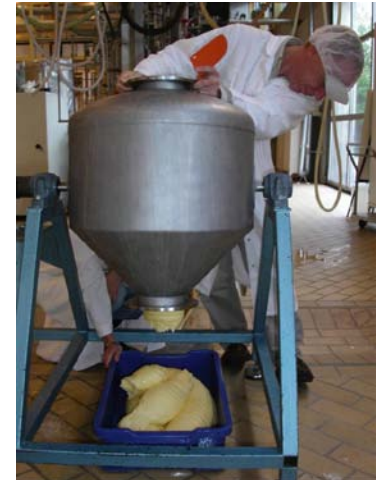
# Mejeriprocesser

- Laborationer
  - Ost
  - Yoghurt
  - Smör
  - Glass
  - Diskning och hygien
- Studiebesök
  - Tetra Pak, Lund
  - Skånemejerier, Lunnarp
  - Kemikalia, Skurup
  - Christian Hansen, Hörsholm





# Mejeriprocesser





## Kommande Mejerikurser vid LTH

- Mejeriprocesser (7.5 hp)
  - 12 september - 7 oktober 2011
  - Anmälan senast: 1 augusti 2011
  
- Mejeriteknologi (7.5 hp)
  - 2 april - 20 april 2012
  - Anmälan senast: 1 februari 2012
  
- Information: [www.food.lth.se](http://www.food.lth.se),  
se utbildning, uppdragsutbildning  
<http://www.food.lth.se/utbildning/uppdragsutbildning/>

