

# Dairy Farming Database and knowledge production in the Netherlands

PAK-Dutch Dairy Roundtable 30th november 2013

Maarten Vrolijk, Livestock Research



WAGENINGEN **UR**  
For quality of life

# Demand for more food, produced on 1 globe



*Feeding the world  
within the carrying  
capacity  
of planet earth*



**2x2**

- Doubling Production
- Halving Ecological Footprint







- Dairy cows 1.500.000
- Dairy farms 19.000
- Milk production 12.8 billion kg
- Prod/cow/day 27.4 kg
- Prod/cow-lifetime 30.540 kg ~2400 kg solids (4.37%/3.51%)
- Average lifetime 4.1 year (+25% > 5 year, +2% > 6 year)
- Milkrecorded cows 89%
- Milkrecorded herds 85%

Sources: IFCN 2013, CRV 2012, LEI 2012





# How do we know all this?

- I&R-system



Sterkalfje: "Dag Dafne, mag ik je vanavond bellen? Ik heb namelijk een probleem..." © FamilieBorfont.nl



# How do we know all this?

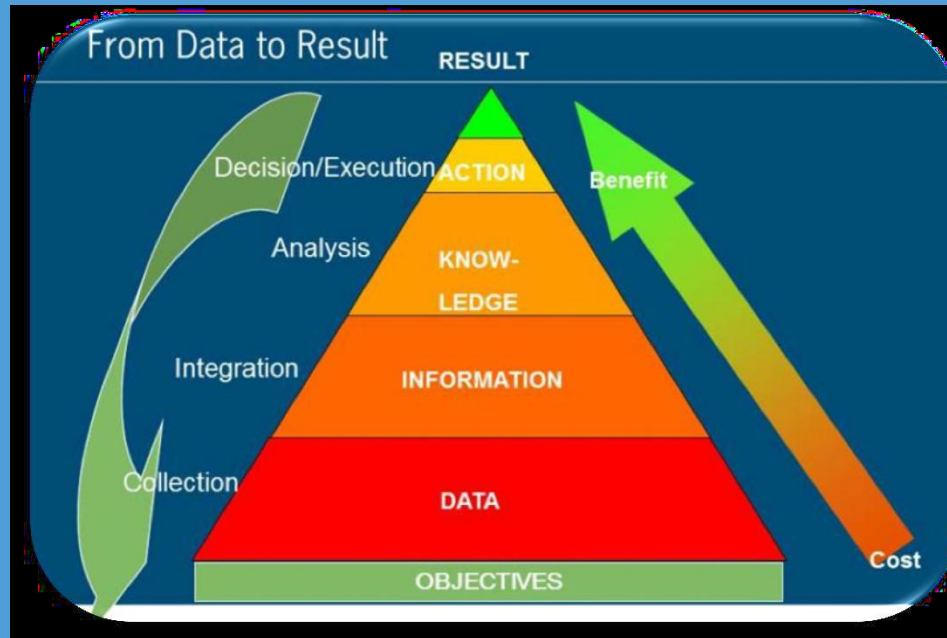
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- Central online database, connected with
  - Dairy farms
  - Dairy processing companies
  - Feed companies
  - Laboratories
  - Management information systems
  - Etc.
- Equipment, skills, rules, legislations



# How do we know all this?

- Strategy





**DAIRY**  
CAMPUS

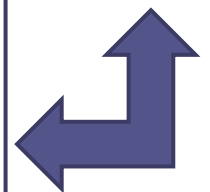
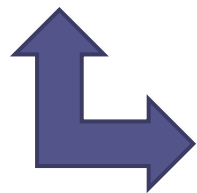
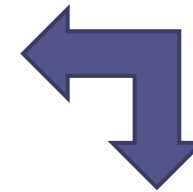
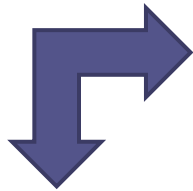


# **Dairy Campus is the national and international center for research, innovation, education and training in the dairy chain**

Dairy Campus focuses on:

- Future-proof, sustainable research and innovation in the dairy chain
- Education, training & dissemination
- Cooperation with entrepreneurs in the dairy chain

# Supporting partners

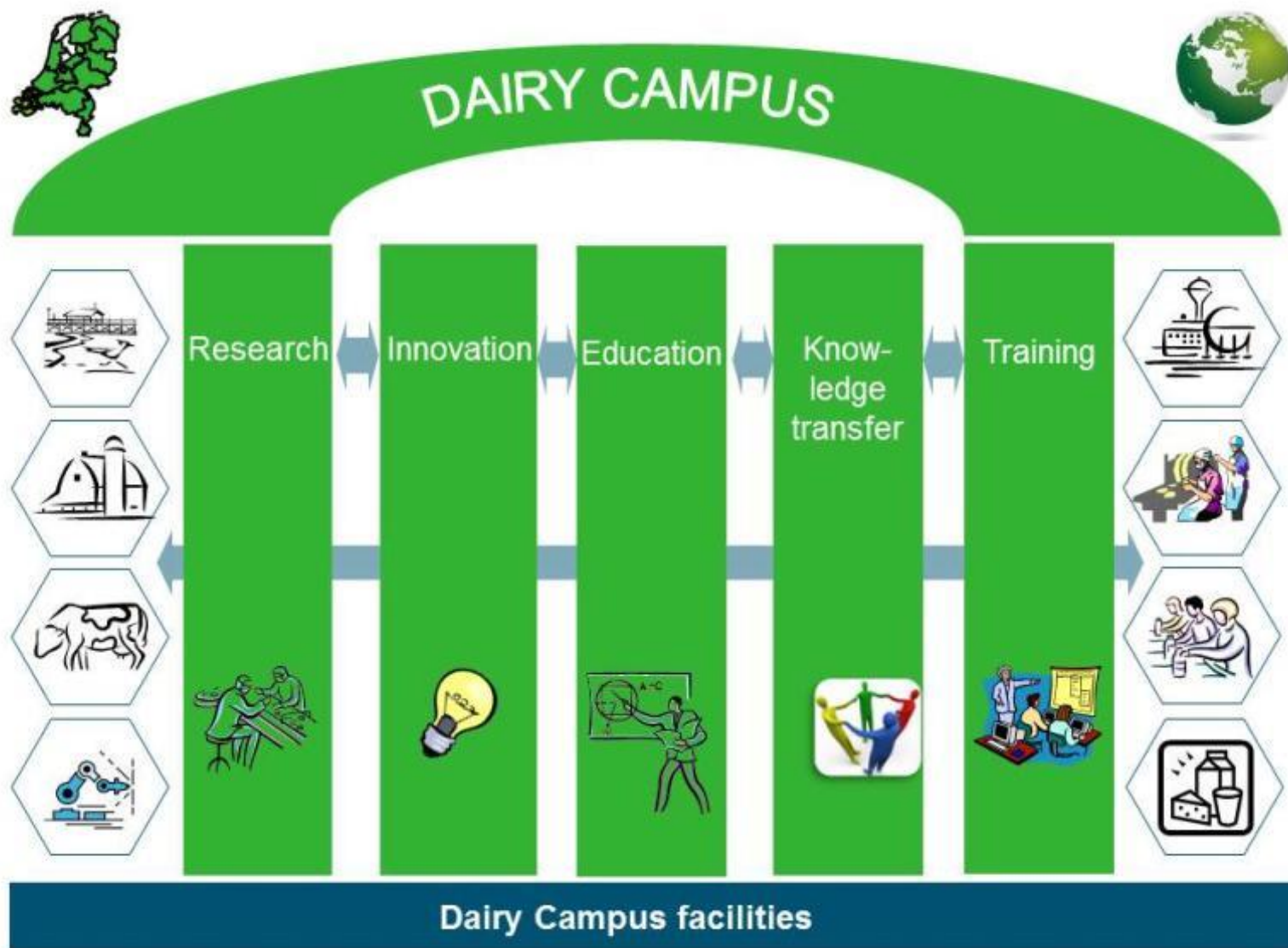


# Partners / Stakeholders





# Dairy Campus as a network organization



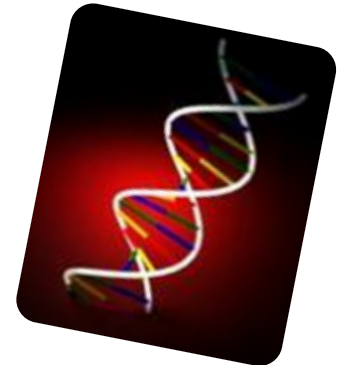
# Dairy Campus: Research

Run by Wageningen university and  
Livestock Research Institute



## Research projects

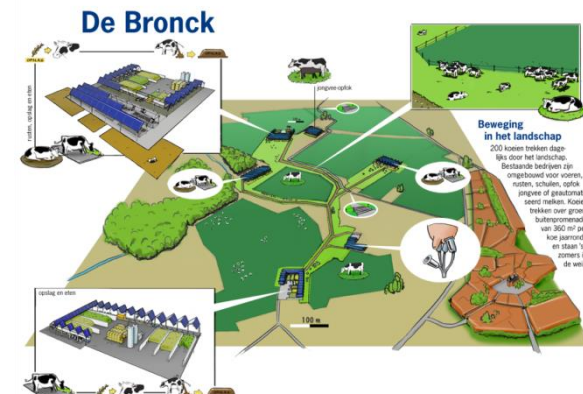
- Animal Nutrition
  - Resource & nutrient efficiency
  - Healthy animals (for healthy humans)
- Animal Breeding & Genomics
  - Genetics & genomics
  - Breeding programs
- Animal welfare & health
  - Animal welfare, health,
  - disease control



# Dairy Campus: Research

## Research projects (continued)

- Environmental issues and manure handling
  - Greenhouse gasses
  - Manure handling & treatment
  - Fodder production, harvesting & storage
- Livestock Systems
  - Housing concepts
  - Quality assurance
  - Farm economics, farm management
- Dairy Science technology
  - Milk quality, food safety, protein dynamics, human health





# Dairy Campus: Innovation themes (1)

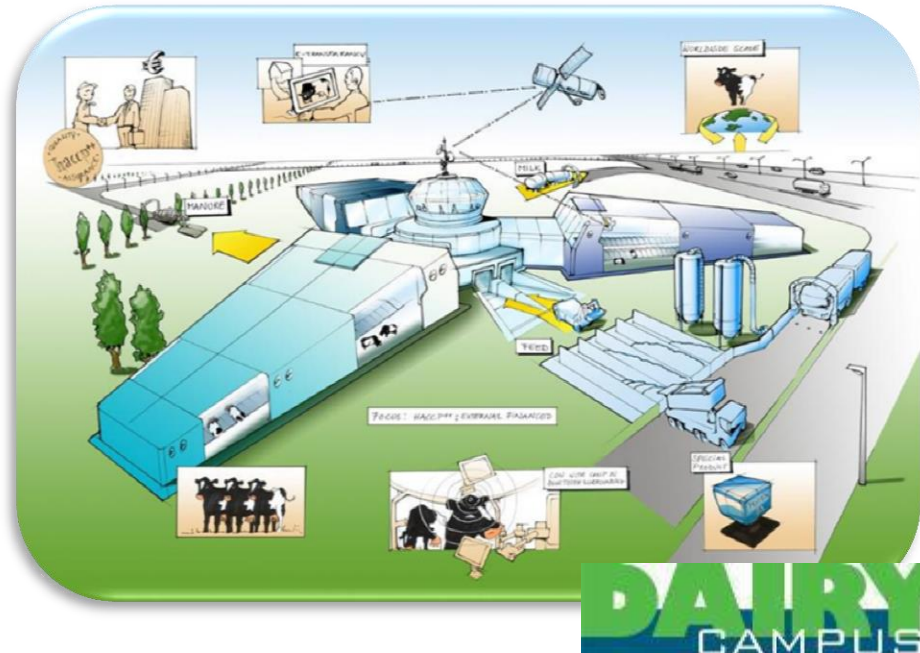
## Sustainability

- Manure management
- Animal Welfare
- Footprint, climate change
- Entrepreneurship



## Dairy Housing

- Innovative housing
- Grazing & feeding
- New floors & bedding
- Milking & Labour efficiency



# Dairy Campus: Innovation (2)

## Dairy Chain

- Tracking & Tracing
- Milk refinery
- On farm processing
- Less volume to transport
- Quality Assurance



## Smart Farming

- Use of sensor technologies
- From Data to Action
- Data mining, data analysis
- Farm & chain management



# Dairy Campus: Education

From co-worker to PhD student

Wageningen University

- BSc, MSc, PhD

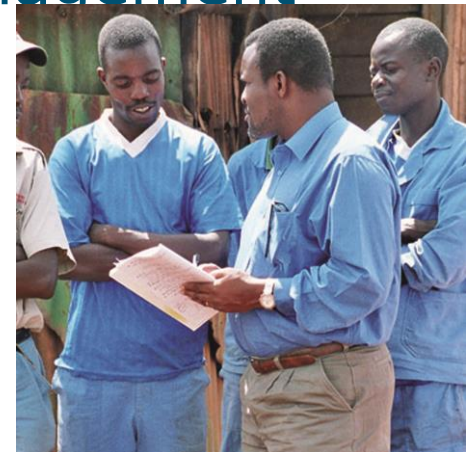
Applied University Van Hall Larenstein

- BSc – also future farmers
- Applied Master Innovative Dairy Management

- Life Sciences – processing

Nordwin agricultural college

- Farmer education, co-workers





# Dairy Campus: Dissemination

With Dutch farmers organization LTO Nederland

- Study groups – Dairy Academy
- Excursions to farms, to Dairy Campus
- Workshops on certain topics
- Use of social media
- Virtual farm visit under construction

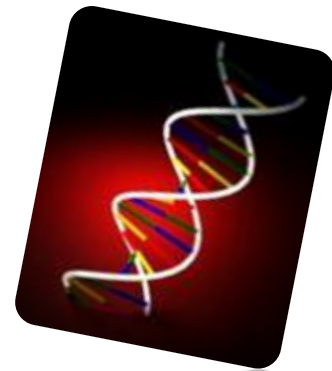


# Towards a climate neutral housing system



# Technologies on dairy farms – towards smart farming !

- Utilization of electronic devices and systems
  - ID, concentrate feeders
  - yield sensors, pedometers, conductivity
- Robotic Milking Systems
- Automated milking parlors
- Integrated data systems on farm
  - (ID, Yield, Data collection, sampling)
- Strong growth of external data services
- In-line sensors and on-farm analyzers are entering market

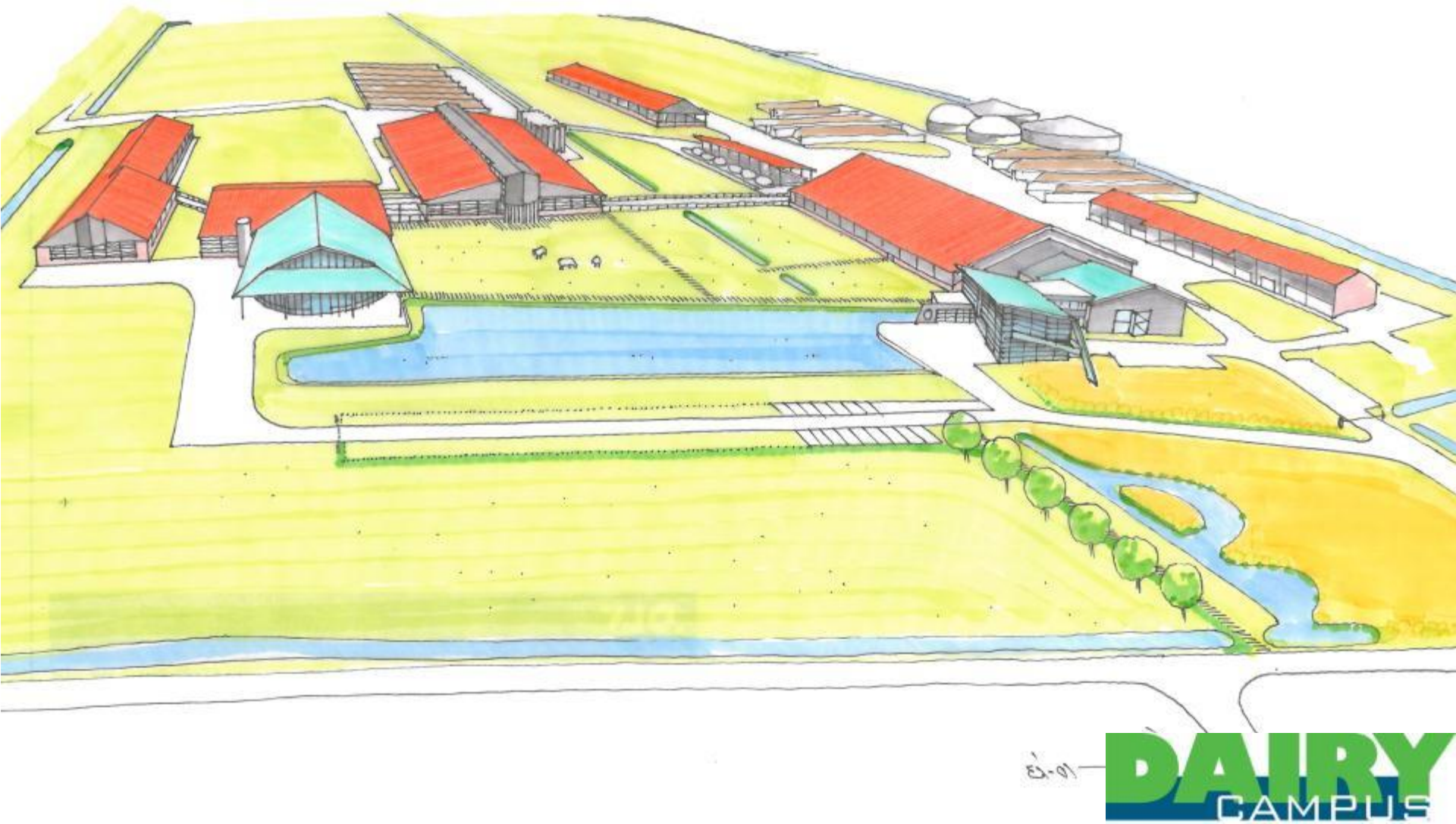


# Overview sensors in dairy production

Measurements	Indications	Management
Hormones	Heat	Reproduction
Urea	Ketosis	Feeding
Proteins	Inflammation	Health
Pathogens	Mastitis/diseases	Health / Product
Conductivity, SCC	Mastitis	Health
Residues	Milk quality	Product quality
Yield, fat & protein	Feed quality	Feeding, Health
Body score	Condition	Feeding
Locomotion score	Claw health	Health
Heart rate, rumination	Diseases, welfare, stress	Health, Feeding
Location (gps)	Diseases, welfare	Health



# Dairy Campus in 2015 (artist impression)



# Infrastructure

- Dairy Campus center
  - Central facility with meeting rooms, offices, data collection center
- Innovative dairy farm with 550 dairy cows
  - Research, innovation projects
  - Training & Education programs
  - Dissemination activities
  - Demonstration purposes
- Development Business area for agribusiness companies (industrial zone City of Leeuwarden)



# AgroTechnics Holland september 2012









# Dairy sector NL

# Pakistan (+ buffalo's)

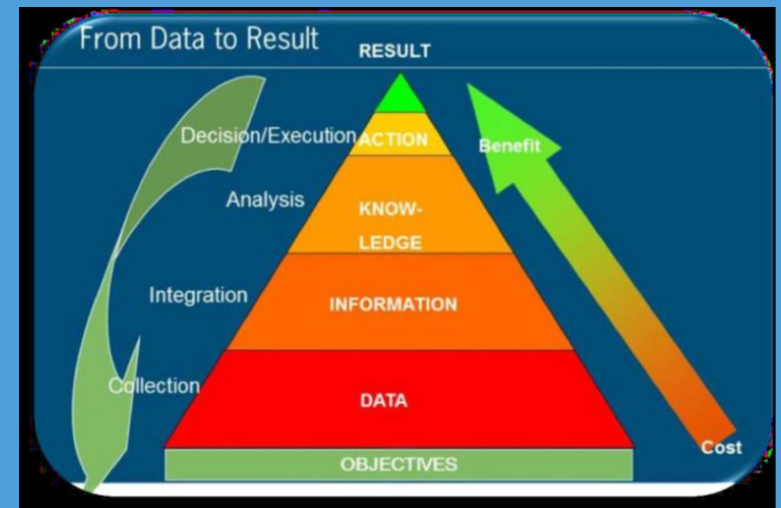
■ Dairy cows	1.500.000	21.958.00
■ Dairy farms	19.000	7.203.000
■ Milk production	12.8 billion kg	42.8 billion kg
■ Prod/cow/day	27.4 kg	5.5 kg

Source: IFCN Dairy Report 2013



# Dairy Farming Database Pakistan ingrediënts

- 20% of farms > 20 cows
- Agreements, rules, registration
- Tag, passport, photo
- Willingness, inspiration, time
- Best Practices from abroad
- Pilot







# Thanks for your attention.



[maarten.vrolijk@wur.nl](mailto:maarten.vrolijk@wur.nl)

T +31 320 293404

@marvrolijk

[nl.linkedin.com/in/maartenvrolijk](https://nl.linkedin.com/in/maartenvrolijk)



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