

Livestock as an enterprise

Dutch dairy sector

Agrofuturo Medellin

Sep 6th 2016

Maarten Vrolijk, Wim Houwers Livestock Research



WAGENINGEN **UR**
For quality of life

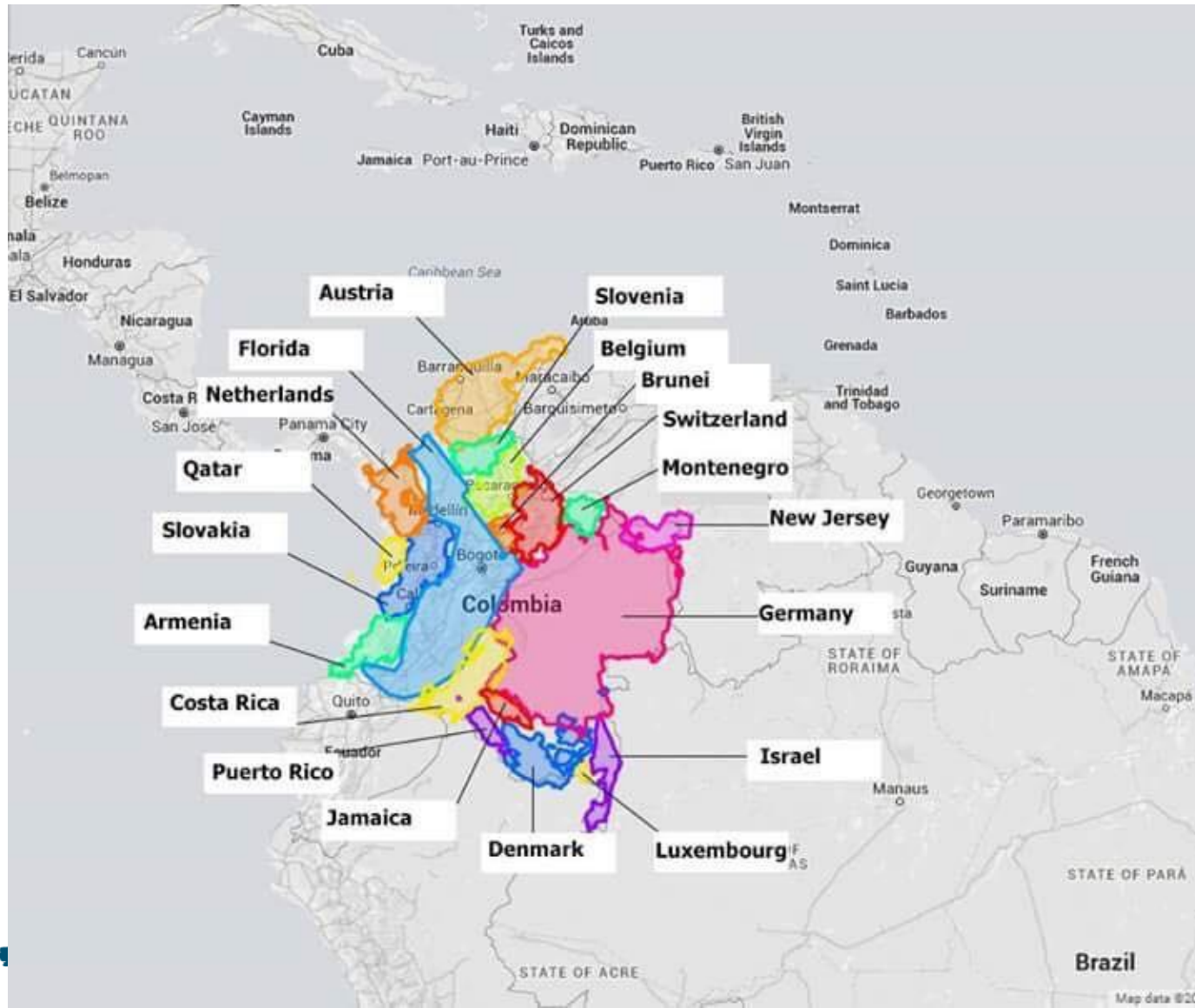
Netherlands: an animal hotspot

- 497 People per km² land
Total 41,543 km²
- 2nd largest Exporter of Food and Agriculture Products



- 17 Million People
- 100 Million Chickens
- 12 Million Pigs
- 1.6 Million Dairy Cows
- 1 Million Veal Calves
- 1 million Fur Animals
- 6 million Pets
- 500.000 horses

Size Colombia and the Netherlands



The Netherlands fits 26 times in Colombia

Characteristics of Dutch dairy 1

- Climate / 770 mm rainfall, summer and winter
- Highly productive / fertile soil
- Entrepreneurship / attitude of farmers
- Family farms
- Strong Cooperative organisations for milk processing, feed supply and breeding, but also strong private companies.
- Research and education
- Efficient production system output/input



1950 – 1990 Quantity of production

- Knowledge infrastructure: OVO triangle, Government (research), Extension and Education, scaling
- Improved access to finance for farmers and companies (cooperative agricultural bank)
- Specializing: only dairy and more cows per farm
 - External input like concentrates and fertilizer
- Mechanisation: Marshall & more production (person/day)
- 1972 – 1985 EU directive: interest subsidy on investments, guaranteed milk price
- 1984 Milk quota: less but more efficient cows lower costprice



Development milking systems (1950-2010)



1990 to now Quality of production

- Milk quality, scaling, energy, animal well-fare and GHG-emission
- Knowledge -> quality farming, nutrient efficiency, co creation
- Water- and air quality → environment
- Multidisciplinary approach and stakeholder involvement
- Public-Private Cooperation leading for research funding



Characteristics Dutch agriculture 2

- Ministry of Agriculture: (applied) research, advice, education (OVO triangle)
- F2F learning: studygroups, demonstrations, projects
- Private advice organisations
- Small country -> high land prices -> added value (seed potatoes, horticulture, trees, genetics, dairy, vegetable seeds, etc.)
- Export : very strong agribusiness, food processing
- Development entrepreneurial skills farmers



Dutch dairy sector in 2016

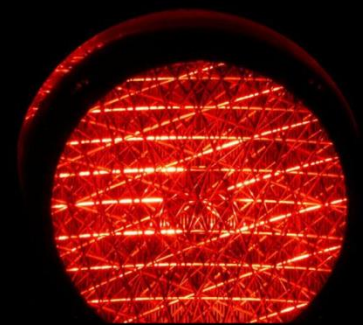
- 17.200 dairy farms
- 360 dairy farms with on farm dairy processing
- Average size 89 cows, 790.000 kg/year
- 14 billion kg milk (appr. 70 % export)
- ~20 dairy companies (FrieslandCampina 75%)
- April 2015 end of EU quota -> production +12%



Average data of Netherlands dairy farms

	1960	1985	2010	2015
Total Milk total (million tons)	6.7	12.5	11.9	13.5
Dairy farms	185,000	58,000	20,000	18,300
Dairy cows (million)	1.6	2.4	1.5	1.63
Dairy cows per farm	9	41	75	90
Milk production per cow kg	4205	5371	8000	8317
Land for grass and forage (ha's)	14	25	43	51.5
Kg Milk per ha	5,500	12,512	14,070	15,000
Kg N per ha (grassland)	175	325	243	243
Kg concentrates per cow	830	2280	2060	2204
Milk per hour labour	8	72	142	





El campus de Wageningen UR



La historia de dos

Fundado en **1876** como un polytécnico agrícola municipal

En **1877** fundación del primer *instituto de experimentación*

En **1918** formalmente reconocido como *Universidad*

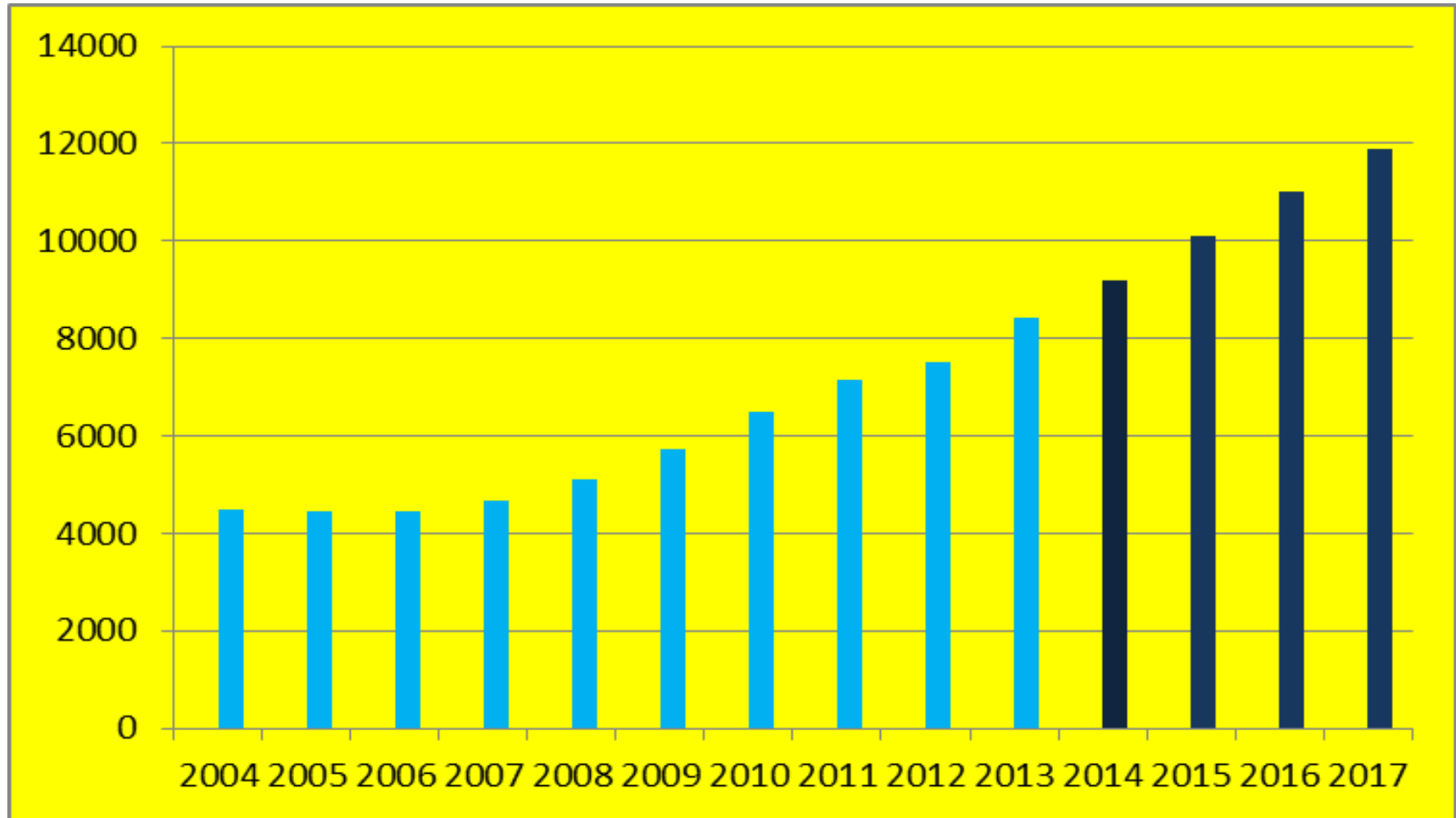
1998 se juntan

La **Universidad** y los **Institutos de Investigación Agrícola** a
Wageningen University & Research centre

*Explorar el potencial de la naturaleza,
mejorando la calidad de vida*

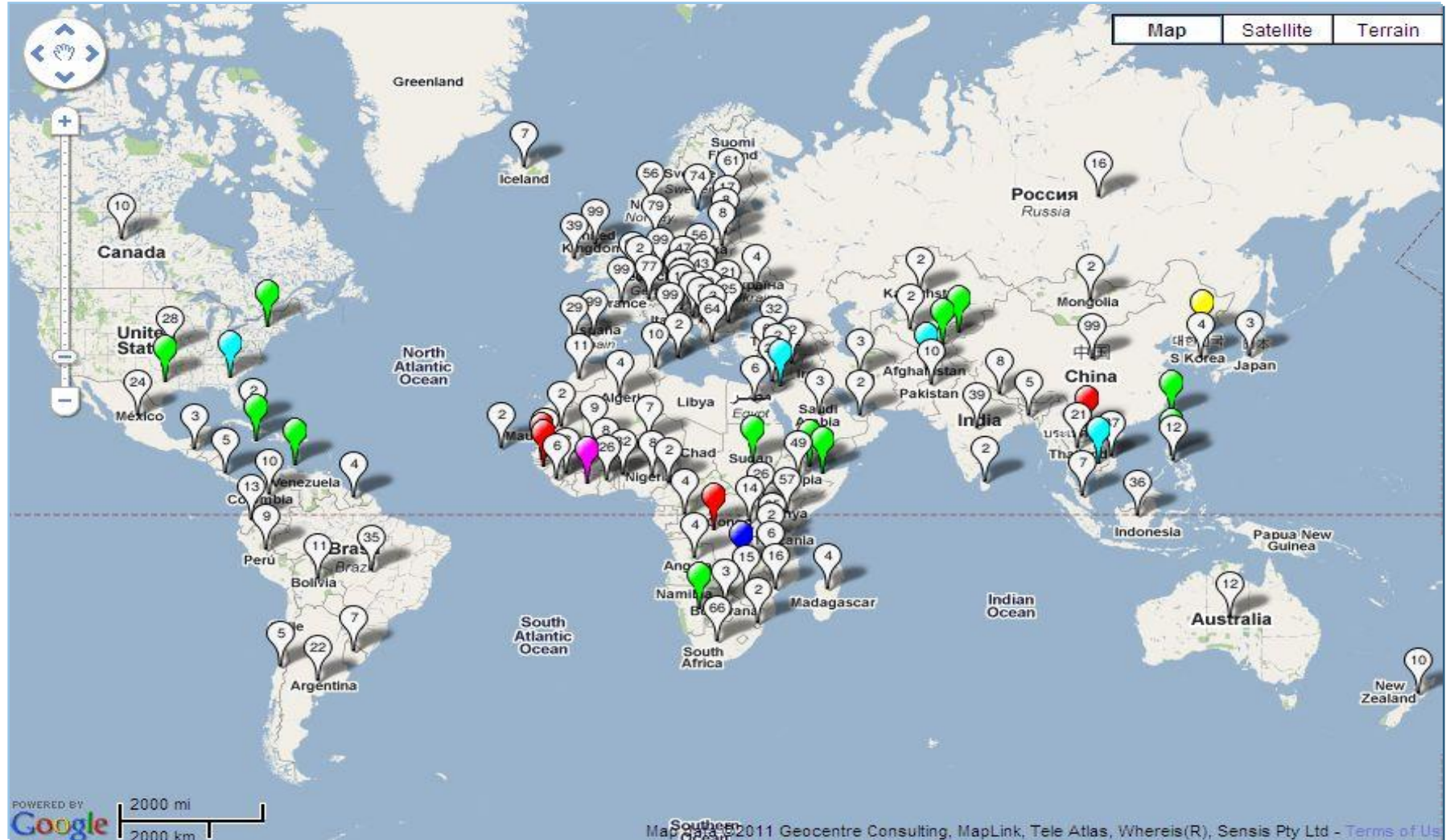


Incremento de los estudiantes (BSc/MSc)



■ expected

Proyectos internacionales



WAGENINGENUR
For quality of life

Estudiantes de Colombia

2016/2017: 20 Maestría 23 Doctorado
2005-2016: 14 → 20

- Environment Sciences (7)
 - Food technology (5)
 - Food Safety (1)
 - Water technology
 - Molecular Life Sciences
 - Urban environment management
 - Animals Sciences
 - Aquaculture

Wageningen UR en Colombia

- **Intelligent Water Management in Coffee**
(FNC, MADR, Nestle S.A. Nespresso S.A. Cenicafe, Dutch Min.)
- **Biorefinery of Colombian agriculture by-products for biobased economy**
(Cenipalma, Aceites S.A. and Asocana and Cenicana)
- **DairyCap**: mejorando la alimentación de ganado lechero en Antioquia
- **PhD studies** on Banana: Panama disease and Black Sigatoka
(Augora, UNIBAN, Univ. de Medellin/CIB, ICA)
- **PhD study** on gender relations in extractive industry
- **PhD study** on Gooseberry (Uchuva en Spanish) and its health promoting compounds

Farm as an enterprise 1

- Current situation + Goal = Strategy
- Strategy = Activities (protocol) + Resources
- Improvement = Monitoring, Analysing, Reflection, Conclusions, Improved Activities
- Plan, Do, Check, Act (PDCA)
- Resources = animals, people, land, finance, inputs, etc
- Data + Context = Information
- Information + Strategy => Farm Management



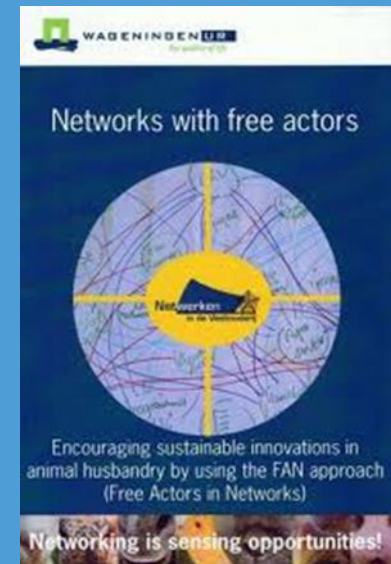
Farm as an enterprise 2

- Information management = internal and external info
- How to organize? Advice, Education, HRM, Development of skills
- Risk Assessment: products produced, market, resources (people), weather/climate, enterprise, etc.
- Never Copy → Paste
Reflection & Implementation: farmresults, advice, BP
- R&D: investment, articulation,
- Research: scientific, applied, cocreation



Production new knowledge

- Fundamental Research - Applied Research - Advice - Practice
- Study groups of farmers: expert knowledge
- Dairy Farmers Academy
- Networks of Farmers and other actors
 - Common innovation goal
 - New roles/skills: respect
 - Common language
 - Everyone participates



Colombian-Netherlands Dairy Capacity and Business development project 2016 - 2018

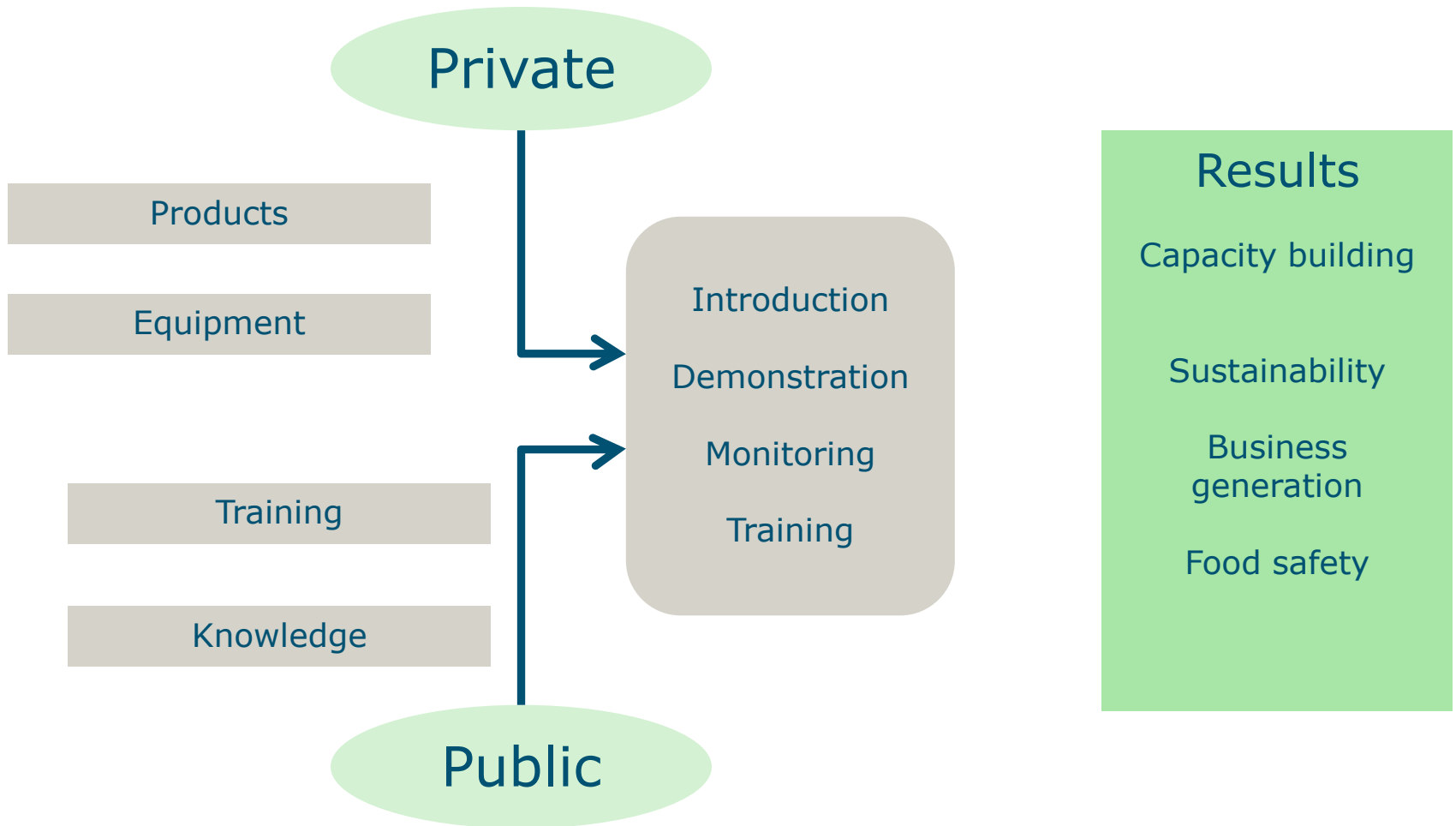


DairyCaB consortium



Other Colombian partners from Lactividad network participate !

Conceptual Approach DairyCaB



Long term objective DairyCaB

- A platform for cooperation in the dairy production
- Increase performance and efficiency of farms
 - Appropriate knowledge, training and technology
 - Sustainability
 - Cost efficiency
 - High quality of milk
- Increase performance of supplying industries
 - to farms
 - to processors

Innovation themes

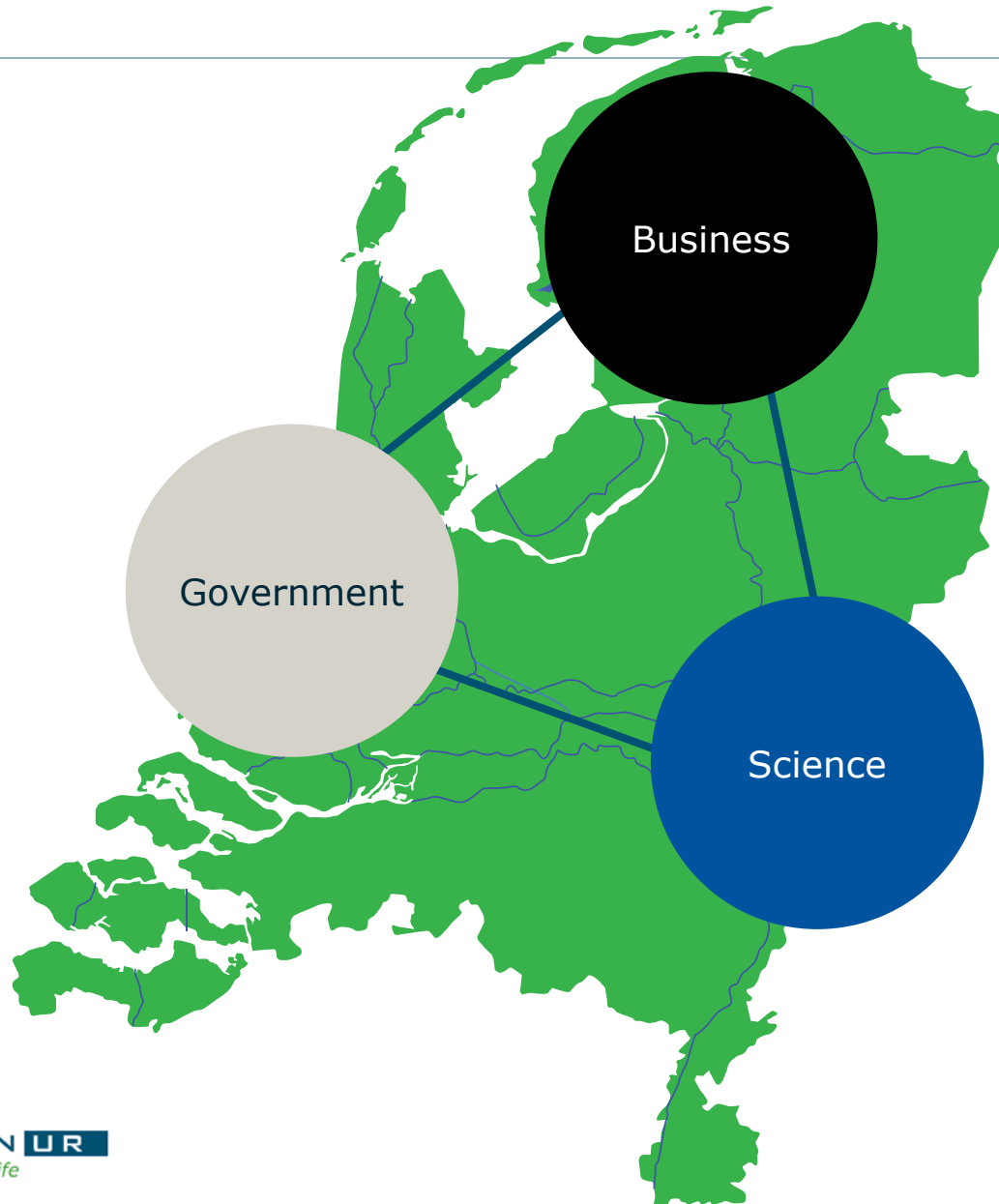
1. Improvement of pastures
2. Introduction & conservation new forages
3. Soil and Feed analyses (NIRS)
4. Improving rations and feeding
5. Calf and heifer management and feeding
6. Farm management by using farm information



Short term Objective DairyCab

- Establish Demonstration and training farms
- Companies and knowledge institutions share and increase knowledge and experience
- Demonstration to farmers and extension workers
- Training of farmers and extension workers
- Development and validation of NIR database for fodder analyses and feeding recommendation
- Practical performance validation of products in factsheets

El triángulo de oro





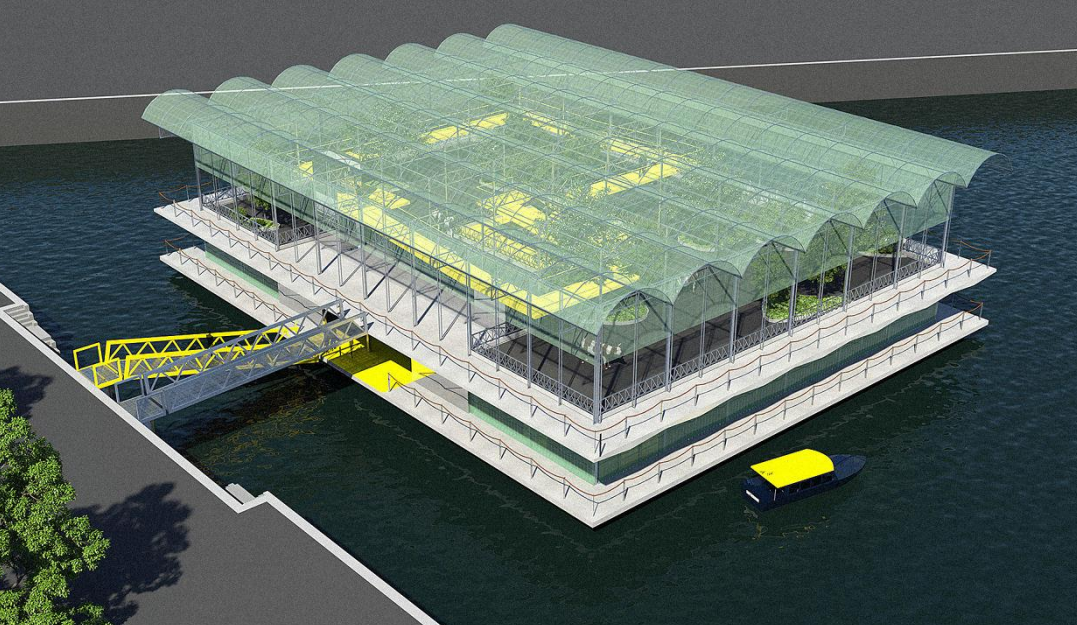
Dairy is our future





Cow Garden





Zuivelwand

Vergader en educatieruimte

Melkrobot

Koeientuin

Rij-zone voerrobot

Goederenlift
voor productie uit kas,
kelder en melkfabriek.
Tevens minder valide
mogelijkheid

Rondloop bezoekers

iGracias!



maarten.vrolijk@wur.nl

T +31 317 480485

@marvrolijk