

Feed & Gas

ICAR Working Group Who? Why? What?

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Feed & Gas working group who?

Chair		
Roel Veerkamp	Yvette de Haas	
Members working group		
Jennie	Pryce	Australia
Filippo	Miglior	Canada
Nina	Krattenmacher	Germany
Raffaella	Finocchiaro	Italy
Birgit	Gredler	Switzerland
Phil	Garnsworthy	United Kingdom
Rouillé	Benoit	France
Jan	Lassen	Danemark
Gilles	Renand	France
Industry liaison group		
Marco	Winters	UK
Daniel	Abernethy	AUS
Juan	Pena	Spain
Andrew	Cromie	Ireland
Sijne	Van Beek	The Netherlands

Research liaison
group with
researchers in

Belgium, Canada,
Denmark, France,
Germany, Ireland,
Italy, Norway, UK

Why?



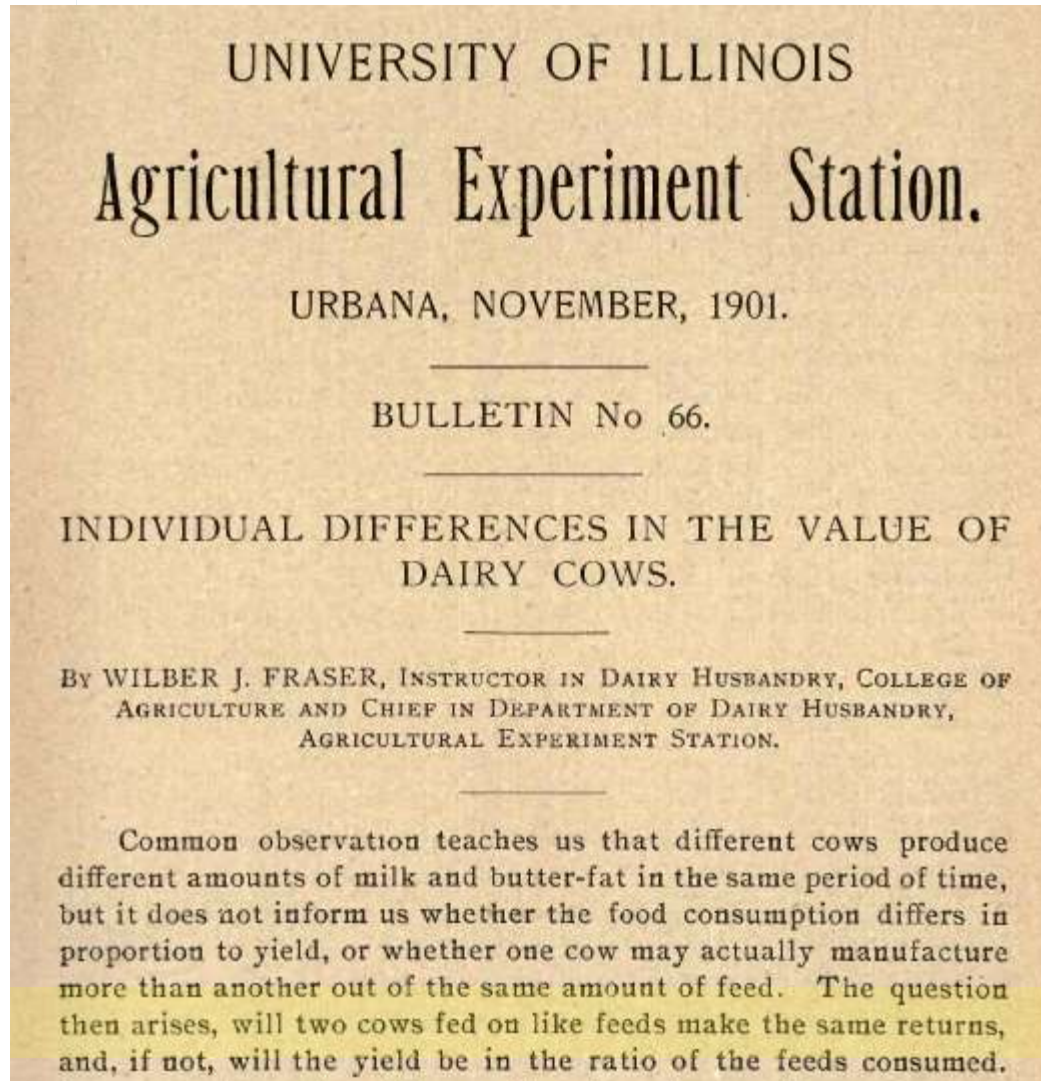
**Feeding 9 billion people
within the carrying
capacity of planet earth**

***Livestock 18% of total
global anthropogenic GHG
emissions***



Globally resources efficiency important

Why? Economic importance farm level



Journal of Heredity (1911) os-6:295-300

COW-TESTING ASSOCIATIONS.

295

countries. They have become widely disseminated in Sweden and Norway, and there are now control associations in Finland, Russia, Germany and Scotland. In most places an attempt is made to carry out the weighing and valuation of the feed, as in Denmark; but, in some parts of Norway, where the cows subsist entirely on grass in the summer and on hay and straw in the winter, it is thought that the estimate of the feed will be too inaccurate, and therefore the work of the control assistant is limited to managing the test milking, testing for butter fat, and keeping a record of the milk and butter yield.

Where there is no record of the consumption of feed, there will be no basis for a fair comparison of the milk and butter yield in the various herds, because the amount of feed will always affect the yield of butter; but, even without a record of the feeding, the "control" will give every farmer valuable information regarding the yield of milk and butter of the individual cows, so that he can positively distinguish the best, the good, and the poor cows; and he gets an opportunity to find those cows that give particularly rich milk, which is of immense importance, if it is, as we believe, that giving rich or poor milk is for each cow a peculiar and inherited quality.

Why?



Cows with feed
intake/GHG records
and DNA



Bulls with DNA

**Genomic selection enables
animal breeding without
progeny testing**

Breeding value
for feed intake

Measuring individual feed intake (DMI)

Insentec RIC system



Calan Broadbent



Growsafe system



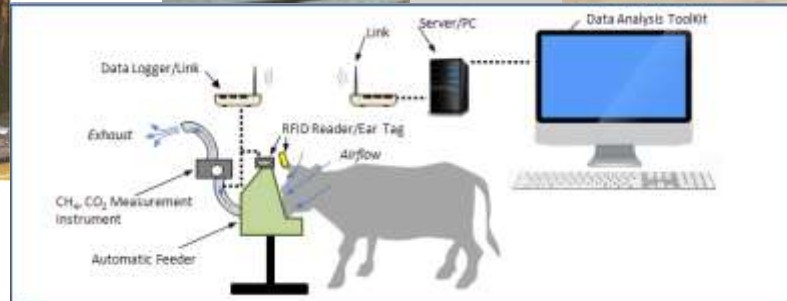
n-alkane technique



NZ & Aus Callagher equipment



Measuring methane



Many international initiatives

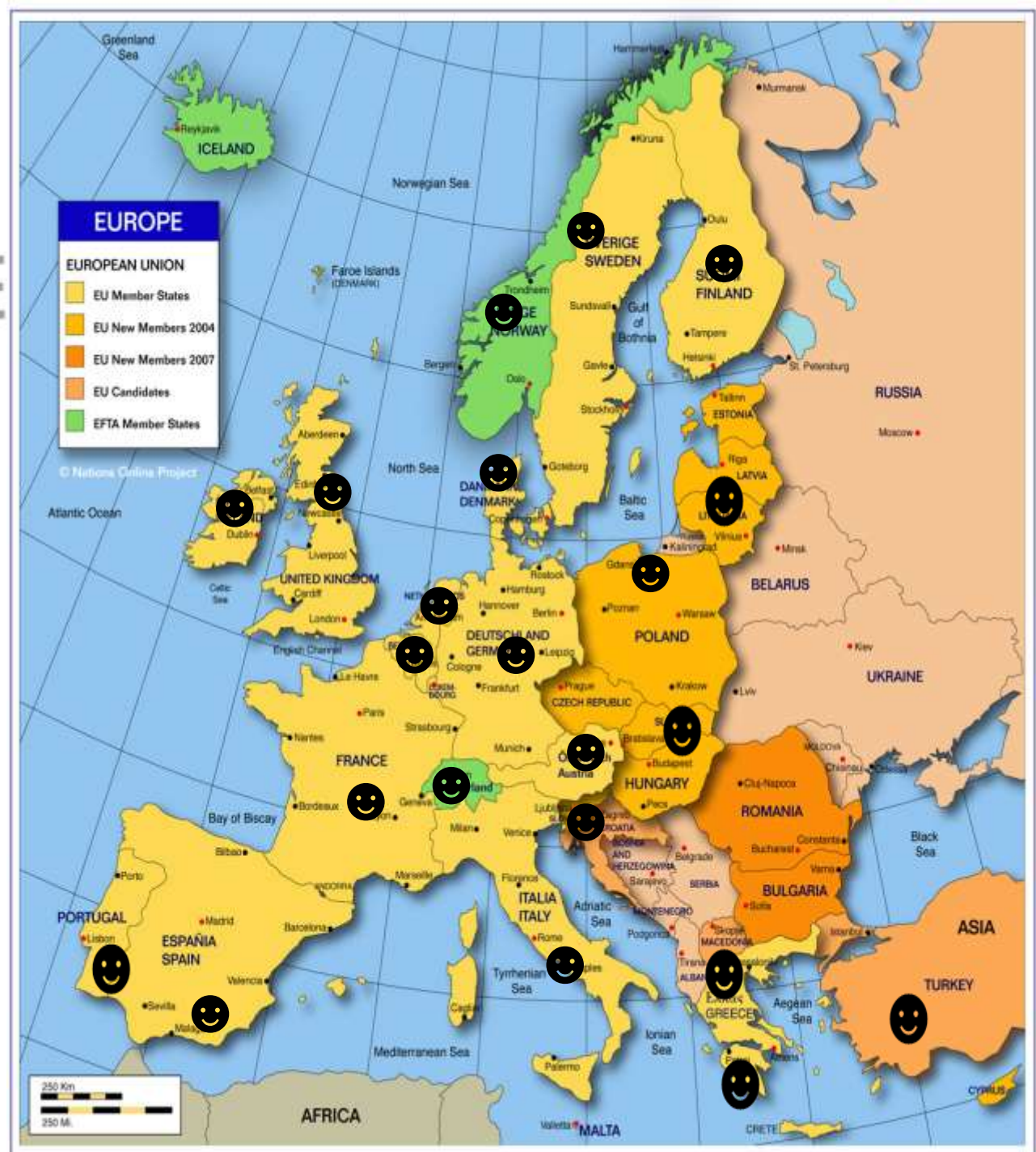
1. RobustMilk
2. Australasian RFI project
3. Global Dry Matter Initiative: gDMI
4. RFI: Michael VanderHaar
5. FUNC (Feed Utilization in Nordic Cattle)
6. Efficient Dairy Genome Project Canada





METHAGENE

- AT; BE; CH; DE; DK; ES; FI; FR; GR; ISR; IE; IT; LT; MAC; NL; NO; PL; PT; SE; SLO; SK; TU; UK
- >150 participants
- >30 institutions
 - Academic
 - Government
 - Industry



WAGENINGEN
UNIVERSITY & RESEARCH

Why feed & gas working group?

Important societal challenges for livestock production related to resources efficiency

Genomic selection and new recording technologies provide the potential for animal breeding to become part of the solution

Many international initiatives on-going

Australia and the Netherlands have introduced feed efficiency in national breeding index

Priorities Feed&Gas working group

- International forum to stimulate collaboration; maintain the momentum established by gDMI
- ICAR guidelines for recording DMI and methane
- Survey among ICAR members
- Business and operational model → Service ICAR?

Maintain momentum gDMI2

Subprojects :

1. Develop protocol and database for sharing phenotypes
2. Improved genomic prediction with more data and enhanced modelling
3. From biology of feed efficiency to breeding goals for efficiency
4. Utilising across breed information with sequence data
5. Proxies (MIR, type, sensors, ...) for cost-effective prediction of feed intake related traits
6. Economic values and breeding strategies

Current scope of guidelines feed intake

1. Utilizing existing feed intake data

2. Setting up data recording

3.
Recording
indoors
and at
pasture

4.
Additional
recording
of traits

5.
Bulls, cows
and young
stock

6.
Lactation
period

8.
Feeding
system

9.
Genotype

10. Merging and sharing data in genetic evaluations

- Very much in research arena
- What questions do you have?

Survey among ICAR members

1. Data and Recording Methods for Feed Intake and Methane Emissions
2. Selection Goals for Methane Emissions and Feed Intake Traits
3. Genetic evaluation



Adrien Butty
PhD, Switzerland



Caeli Richardson
MSc, Canada



Angela Wilson
RA, Canada

Current answers status

to part

	Invited	Total takers	Complete responses	Partial responses
1. Data collection	120	19	7	12
2. Evaluation	118	5	4	1

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Special acknowledgement to Cesare Mosconi

Summary

- Feed & Gas working group
 - Resources efficiency important
 - Genomic selection enables animal breeding
 - Many global initiatives

- Current priorities
 - Forum for collaboration: gDMI
 - Guidelines fro DMI and methane
 - Survey