



Global Methane Genetics initiative

Led by



WAGENINGEN
UNIVERSITY & RESEARCH

In Partnership with



BEZOS
EARTH
FUND



Global
Methane
Hub

GMG Beef Working Group meeting

18-05-2026



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Agenda

- Welcome
- Open discussion with all
- GMG Beef projects
 - BLUEGRASS: Australia, Ireland, New Zealand, North America, UK
 - US beef
- Update GMG-initiative
- AOB



Open Discussion with all

What is going on in your group/institute, related to:

- Methane projects beyond GMG?
- Investigating Genotype $\times$ Environment interactions?
- Adoption and incentives for breeding as a mitigation strategy?
- Genetic correlations between methane and other key traits?
-



Updates of GMG-Beef projects

Update GMG

NEW projects & proposals

- **Low-methane genetics expansion to small ruminants in Africa and Asia (ICARDA)**
- **Buffalo proposal** (Lead University of Adelaide, Australia, Asian countries & South America)
- **Asia cattle proposal** (Bangladesh, India, Indonesia, and Pakistan)





Share data,
and accelerate genetic progress
to reduce methane emission

Global Methane Genetics Initiative

LOGIN

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Email

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For registration, please contact us at methane-register@datagene.com.au

GMG project:

Framework adoption & incentivization system for genetic selection as methane mitigation tool

**Methane
breeding value
validation
protocol**

Webinar
May 11, 2026

**SWOT analysis
trait definition
Selection index
Breeding objective**

Webinar
April 13, 2026

**Review of
policy levers
and market
mechanisms**

Webinar
May 7, 2026

Session at ICAR meeting in Verona: Adoption & Incentives to Breed for Methane Mitigation
<https://icar2026.it/meeting-programme/> & panel discussion

Webinars & WG meetings

News
flash*

Towards guidelines to validate genetic evaluations for enteric methane emissions

Date and time
Monday, 11 May 2026
12:00-13:00h CET

Latin America working group meeting

Date and time
Tuesday, 12 May 2026
16:00-17:30h CET

Beef working group meeting

Date and time
Monday, 18 May 2026
13:00-14:30h CET

Microbiome working group meeting

Date and time
Tuesday, 9 June 2026
12:00-13:30h CET

Webinar planning GMG initiative 2026

Measuring methane emissions using Laser Methane Detection (LMD) in rural livestock systems: key considerations

Date and time
Wednesday 25 March 2026
9:00-10:30h CET

SWOT analysis of methane trait definitions and consequences for breeding programs

Date and time
Monday, 13 April 2026
12:00-13:00h CET

Dairy working group meeting

Date and time
Thursday, 23 April 2026
12:00-13:30h CET

Sniffer data aligning and editing pipelines

Date and time
Wednesday, 29 April 2026
14:00-15:30h CET

Sheep working group meeting

Date and time
Thursday, 30 April 2026
12:00-13:00h CET

Enabling adoption of methane-reducing breeding programs through GHG accounting and MRV frameworks

Date and time
Thursday, 7 May 2026
12:00-13:00h CET

Africa working group meeting

Date and time
Friday, 8 May 2026
13:00-14:30h CET

GMG newsletter:



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* <https://www.wur.nl/en/news/methane-emissions-cows-and-sheep-can-be-reduced-25-using-breeding-programmes>

In person meetings



Save
the
date



EOI Call for Papers Extended!



Course:
Data editing
Phenotypes
Genetic analyses
Breeding
program



Any other business & closure

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Contact:
gmg@wur.nl

Methane Efficiency : BLUEGRASS Project





five entities. five purposes. one mission.



established 1978



established 1979



established 1980



established 2007



Continued data collection for important production traits

- 12.5M birth weights
- **12.5M weaning weights**
- 6.3M yearling weight
- 2.4M heifer calving ease scores
- 148K carcass records
- 3.7M ultrasound carcass records
- **42K individual intake records**
- 460K docility scores
- 194K heifer pregnancy observations
- **290K mature cow weights**
- 690K Foot conformation scores *(combined)*
- 43K PAP Scores
- 55K Hair Shed Scores
- 9.1M Functional Longevity
- 517K Teat and udder conformation scores
- **2.3M genotypes**

Data as of 05/18/2026





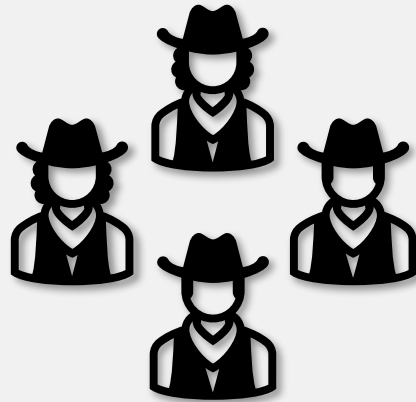
OUR ACTIVITIES

METHANE EFFICIENCY RESEARCH



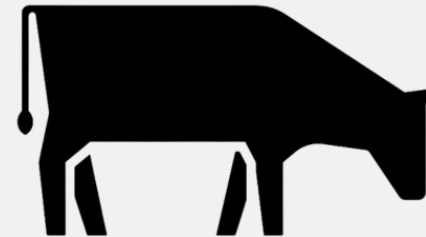
Evaluate and Secure Collection Units

Evaluate data collection technologies and finalize purchasing decisions. Technologies to be considered include but are not limited to Portable Accumulation Chambers, Optiweigh and AgScent sniffers, and GreenFeed systems.



Ask for Volunteers

AGI will actively pursue volunteers interested in participating in the research from across the Angus community representing diverse regions.



Collect the Data

Methane measurement records paired with genotypes. Collection will start in year 2 and ramp up over the project. Aim to collect **4,600** phenotypes. (~7,000 MLA)



Analyze and Report Findings

Working with the international research team, the analysis pipeline will be built to estimate research breeding values from the data. Methane alone is difficult to select for and needs to be considered along with other traits.



METHANE AND EFFICIENCY RESEARCH



Project Overview

Although significant progress has been made in developing selection tools for feed intake during the postweaning gain phase to describe efficiency, accurately measuring intake and efficiency in grazing cattle remains a major challenge.

Mature body weight has been used historically as a straightforward approach to measuring cow efficiency (Dickerson, 1978). Recent research from Oklahoma State University shows that mature body weight might not tell the whole story. In drylot studies using feed intake systems and high forage diets, some larger cows ate the same amount or even less than smaller cows (Lalman, BIF Proceedings, 2024). This supports the long-standing hypothesis

Project Timeline

This is a five-year project with an anticipated completion date of 2030.

Project Activities

1. Evaluate and Secure Collection Units (Year 1) —The team will evaluate data collection technologies and finalize purchasing decisions. Technologies to be considered include but are not limited to Portable Accumulation Chambers, Optiweigh and AgScent sniffers, and GreenFeed systems. Options will be evaluated for accuracy, safety to animals, cost per unit and per record collected, and maintenance requirements. Measurement protocols and data collection protocols will be established for the project during activity 1.

2. Ask for Volunteers (Year 1-5) — AGI will actively pursue volunteers interested in participating in the research from across the Angus community representing diverse regions and varying forage and grazing environments. At this stage, no specific breeders have been selected.

3. Collect Data (Year 2-5) — Utilizing the technology selected through activity 1, the methane measurement records paired with genotypes will be collected. The number of records matches within-country capabilities, which is also generally aligned with the size and influence of the respective beef cattle populations in each country. The number of records increases over years as the units developed in activity 1 are scaled up to full capacity and recording protocols are streamlined. In total, the AGI will collect 7,000 total measurements (4,600 records funded by the Bezos Earth Fund grant will be submitted to the committee managing the Global Methane Genetics initiative, and any data shared for research or genomic prediction will be anonymized.) Samples for rumen microbial analyses will be collected from 20% sub-sample of animals across locations. Different microbial communities are known to produce varying levels of methane, and subsampling may help to clarify the influence of these microbial factors.

Australian update on GMG northern beef project

BLUEGRASS

M. Aldridge, D. Lakamp, S. Miller

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Key outcomes

- 7,000 new methane phenotypes (4,600 from GMG)
- On farm recording method for commercial breeders
- Methane breeding values for industry that meet accuracy thresholds
- Incorporate methane breeding values into breeding objectives
- Knowledge sharing and international alignment for global impact

How we are getting to 7,000 new phenotypes

Australia	
Year 1	0
Year 2	450
Year 3	1,100
Year 4	1,450
Year 5	1,600
Total	4,600



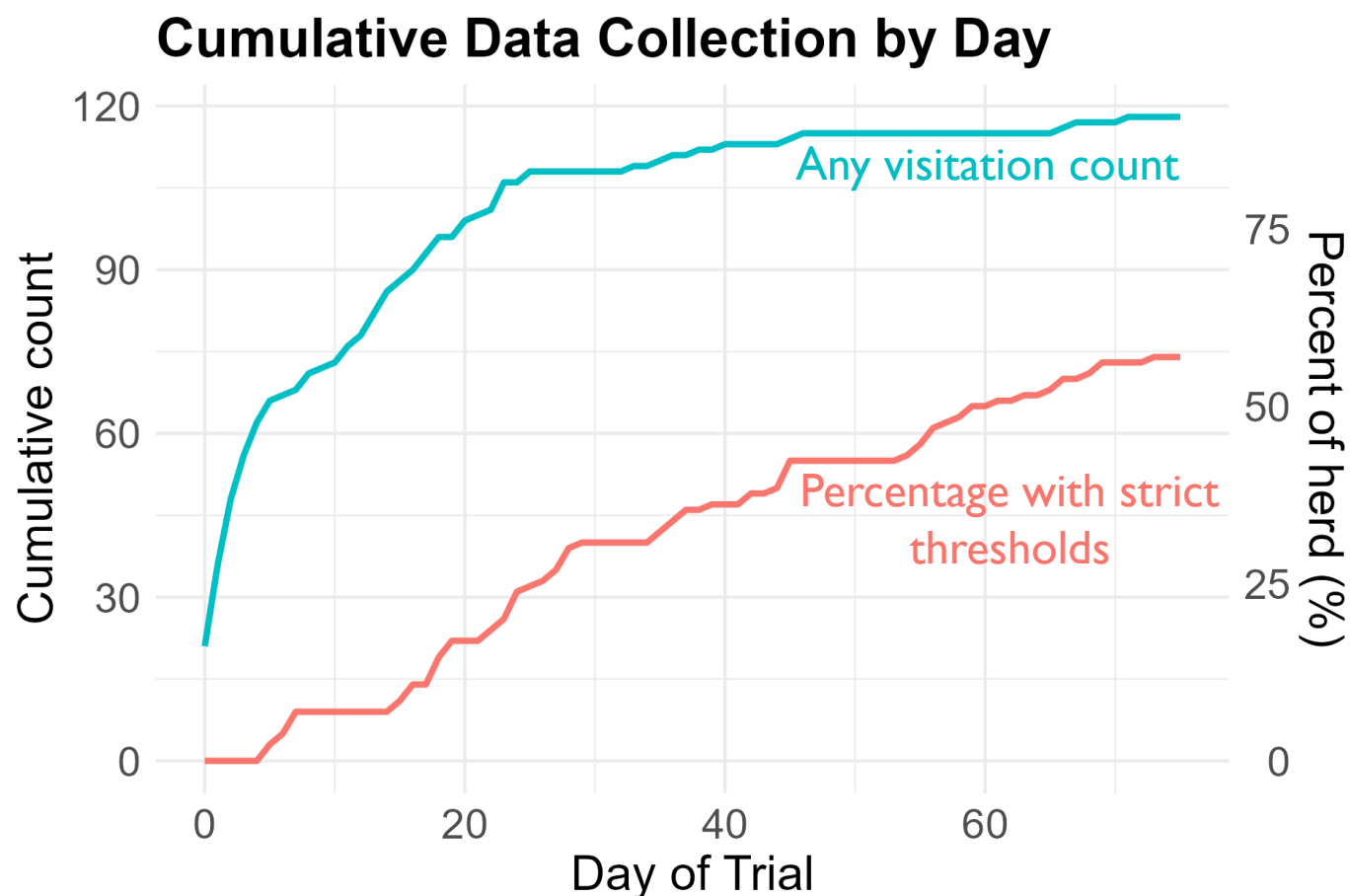
+2,400



**Global
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initiative**



How we are getting to 7,000 new phenotypes



Next steps

- First breeder = 120 heifers finished and 100 cows ongoing (140 records)
- Next breeder lined up = 280 cows by WCGALP (175 records)
- Discussions with leading breeder, non-drought affected area ~ 250 cows
- Ongoing analysis and how many units do we need?

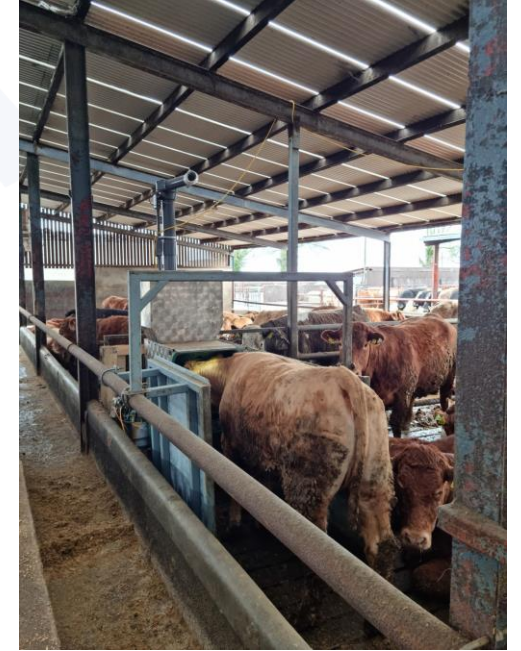
Ireland – Beef Systems Methane Phenotyping

Methane Database (GreenFeed):

- Centralised database of methane phenotypes and background animal data (incl. genotypes + pedigree) – 43x GF units
- **Data origin:** Progeny Test, Production Experiments, Commercial Farm phenotyping
- **Main breeds:** Angus, Limousin, Charolais, Hereford, Aubrac, Belgium Blue, Simmental, Holstein-Friesian

Methane Genetic Evaluation :

- Prototype single-step methane evaluation available from high-energy indoor finishing systems
(<https://www.icbf.com/methane/>)
- **Progress Aims:** Multi-breed multi-system (mature cows + growing + finishing cattle)
- **Ongoing work:** Trait definitions, (Co)Variance components within and across systems -> Life stages repeatability



Ireland – Beef Systems Methane Phenotyping

Considerable number of unique animals with repeated methane records

- multiple life stages per animal

	Beef	Dairy-on-beef	Dairy	Total
Steers	1,070	1,750	1,055	3,875
Heifers	1,405	1,520		2,925
Young Bulls	360		40	400
Cows	290			290
Total	3,125	3,270	1,095	7,490

System	Beef	Dairy-on-beef	Dairy	Total
Growing Grass	412	1,707	180	2,299
Growing Silage	464	1,505	178	2,147
Finishing Silage	2,397	1,925	873	5,195
Finishing Grass	71	212		283
Dry Cow	158			158
Lactating Cow	262			262
Cull Cow	90			90
Total	3,854	5,349	1,231	10,434

Database increasing by 2,700- 3,000 records per year

BLUEGRASS Update:

- No equipment yet purchase – contracts almost finalised
- Target Angus/Hereford commercial & pedigree herds
- GreenFeed data captured in 2025 available

U.S. BEEF PROJECT UPDATE

Global Methane Genetics Working Group Update

Matt Spangler

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PROJECT PARTNERS

- University of Nebraska – Lincoln
 - Matt Spangler
 - Samodha Fernando
- US Meat Animal Research Center
 - Bailey Engle
 - Larry Kuehn
 - Warren Snelling
- Kansas State University
 - Megan Rolf



GERMPLASM EVALUATION (GPE) AT USMARC



- Angus
- Shorthorn
- Santa Gertrudis
- Gelbvieh
- Simmental
- South Devon
- Brannman
- Charolais
- Salers

The best opportunity to evaluate the diversity of the entire U.S. beef herd

CURRENT STATUS

- First data collection completed in a drylot setting (n=130 heifers) with oral and rumen samples collected
- Rumen fluid test samples (n=10) from Australia/AgVic have been received, extracted, and sequenced.
- Budgetary issues resolved in the last 30 days.
- Currently in the process of purchasing equipment
 - Analox
 - Agscent x Optiweigh
 - Renewing GreenFeed contracts (2)
 - New GreenFeed units (KSU) for deployment on Angus producer operations in Kansas