Challenges and options around incentivisation of genetic approaches to mitigation of methane emissions from ruminants

Robert Banks

Global Methane Hub

agbu

Where we are:

- Genetic improvement for methane mitigation from ruminants
  - Feasible (genetic variation exists, and can be detected)
  - Cost-effective (phenotyping costs can be spread across many producers)
  - Reliable (genetic improvement works)

- Prices for traits:
  - Guide selection – in breeding programs, and production decisions
  - Provide incentive to guide choice of genetics – adoption
  - **Limited or absent for methane**

- Governments and companies starting to seek approaches to CH4 reduction
  - Value of emissions reduction (= carbon price)
  - What to reward (what is the genetic decision?)
  - How to reward (money, services, tax credits etc)

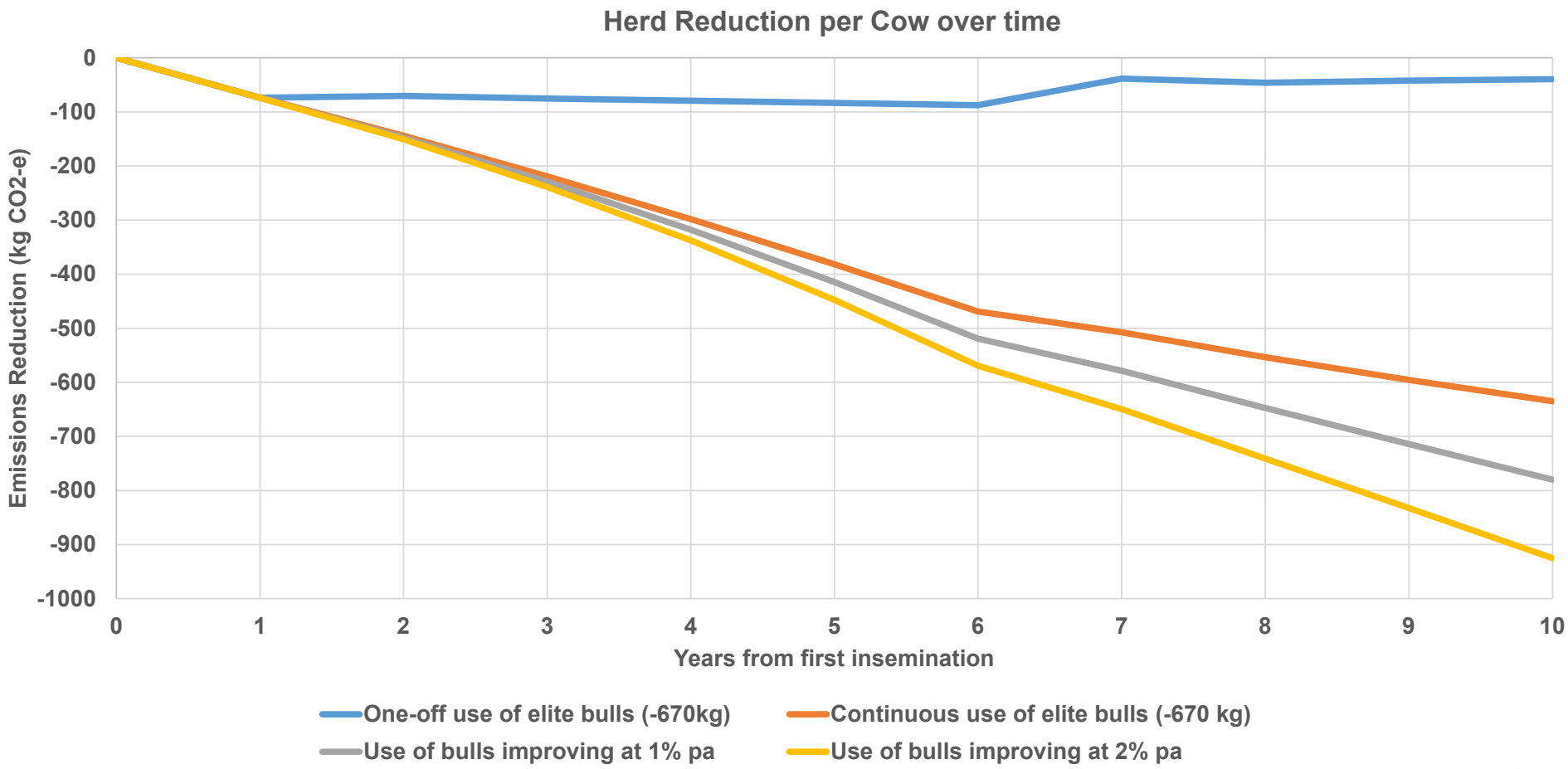
agbu

Simple examples – explaining effect of genetic decisions:

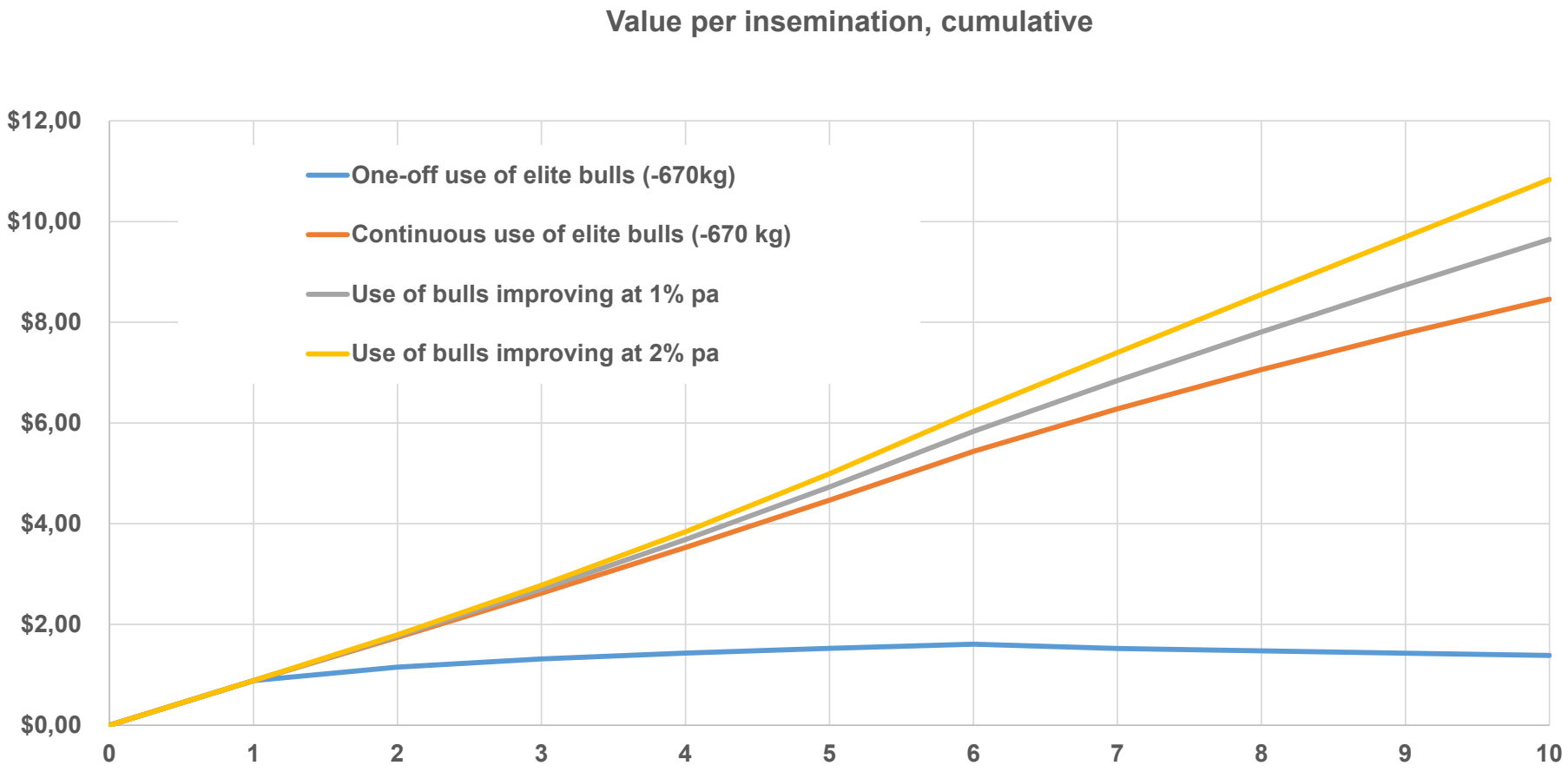
- Gene flow into a herd
- Subsidise semen price
- Reward retention of genetically low-emissions heifers

These are examples based on questions being asked now

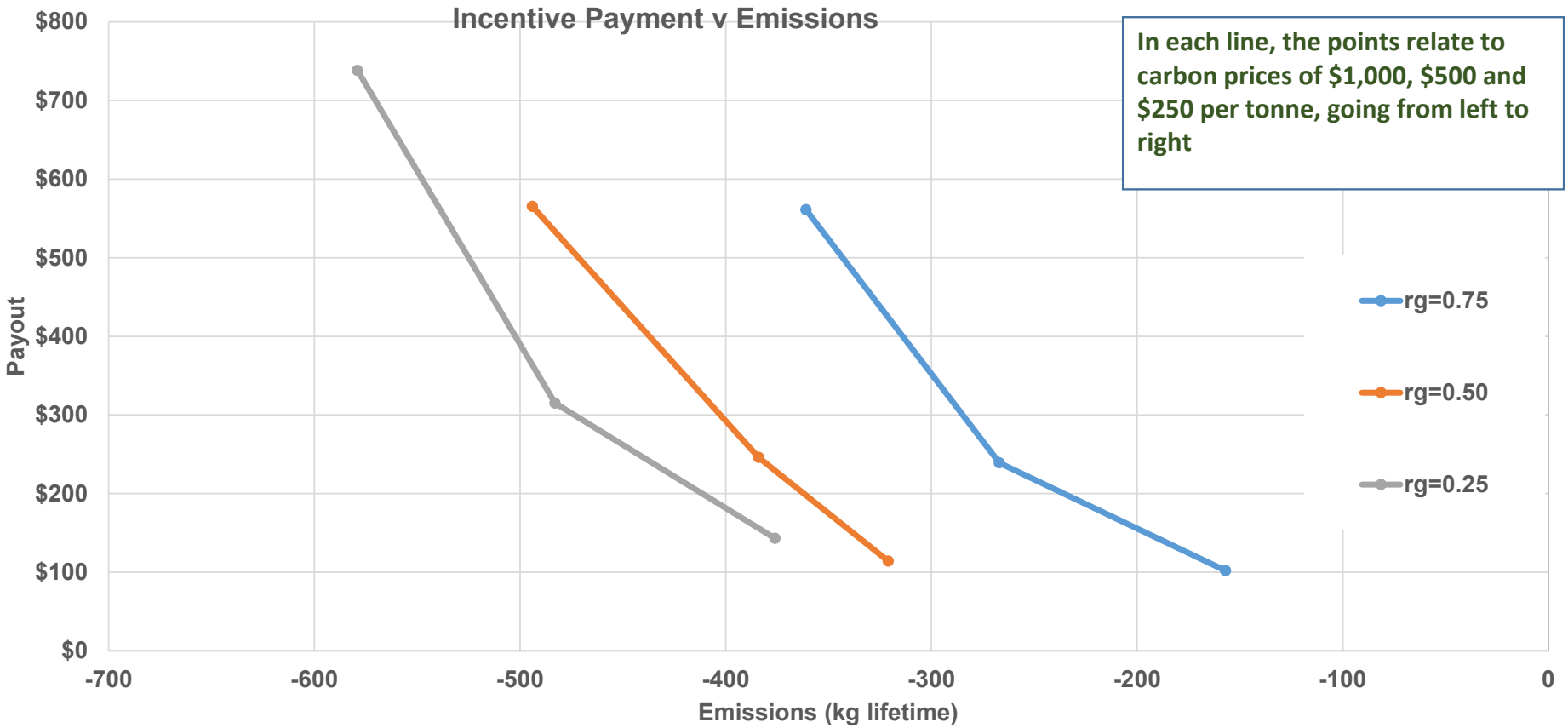
Gene flow into a herd – 4 semen choice scenarios:



Emissions reduction value per insemination (carbon $100/t CO2-e)



Cost of mitigation – retention of genetically –ve heifers:



Observations:

- Intervention via semen or heifer retention (or both)
- Establishment of trusted, reliable payment is vital
- Price establishment (whatever the price is) resolves the “trade-off” and “opportunity cost” issues for the commercial producer
  - Geneticists can help explore and understand the space of possible changes
- Sound information resources for governments, food and breeding companies, farmer organisations – **vital**

Conclusions and Challenges:

- What to pay for reduction and what to pay for, are key questions
  - Price determines genetic change outcomes via interaction with production merit
  - Time horizon – and emissions targets - critical

- Geneticists can assist:
  - with modelling any scenario
  - With communicating positives of genetic approaches

- Genetic evaluation centres can (must) play a central role:
  - Independent national breeding values underpin payment

agbu