The importance of farm systems thinking in animal recording

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Situation

- Quality phenotypes are foundation
- New traits – fertility & health
  - Managed & (maybe) recorded at individual cow level
  - Assisted by new data capture
- Move towards dedicated ‘data herds’
  - High quality pheno & genotypes
NZ context

- Data quality is variable in National Herd
  - Expansion, large herds, efficient staffing
  - Value in basing AE on subset of herds?

- Importance of reproductive performance
  - $500M/yr lost opportunity
  - On-going issue for farmers
  - Large research investment in divergent lines
    - Test phenotype against BVs
    - Identify better predictor traits
    - Understand physiology of genetics
Sire impact on fertility where herd reproductive performance is, on average, high, mid or low.

Calving Rate (42 days): The percentage of a sire’s daughters who calved within the first 42 days of calving, within their respective herds.
Why?

• Do low performing herds suffer from mis-management?
  – Poor oestrus detection
  – Poor Body Condition Score

• Or high performing herds benefit from intervention?
Divergent Fertility Lines
% Submitted for mating

Proportion submitted

High Fertility BV
SR 21 d
SR 42 d
SR 64 d (post TRT)

Low Fertility BV

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Why??

On-Farm Intervention

• All heifers
  – Calve early – longer to mating
  – Separate heifer mob – might be milked OAD

• Non-cycling or low BCS heifers
  – Milk OAD – might be in separate mob
  – Preferentially fed
  – Run with bull
  – CIDR/PG
My contention

• Divergent lines show a large difference in fertility
  – Greater than predicted by modelling

• Quite possible that the smaller genetic effect in high performing herds is due to management intervention
  – including at individual cow level
  – and unrecorded

• So, likely that the genetic effect in mid-lower herds is closer to the ‘true’ signal
  – Economic cost
  – Genetic standard deviation & heritability
Herds with the best data
Two questions

• What data do we need to have from within a herd?
  – Preferential treatment
  – Hormonal treatments

• Which herds do we want data from?
  – Representative – current situation
  – Low intervention – future?