Dairy Industry Network Data Standards

Animal Data Standards

22 January 2013

www.rezare.co.nz

Introduction and Background

After coffee, Andrew Cooke welcomed the attendees and introduced the project

… the industry now needs a national repository of accurately recorded data encompassing many 'non-genetic' fields.

- Anderson Report, May 2009

… DairyNZ will take a leadership role in facilitating the continued development of the **NZ Dairy Database Network** comprising industry good (including the *Dairy Industry Good Animal Database*), commercial and government databases (e.g., development of data standards, establishing new or novel data for genetic evaluation, investment, etc).

- DairyNZ, The NZ Dairy Core Database Consultation

About this project

- Primarily funded by NZ dairy farmers through DairyNZ and the Ministry for Primary Industries Primary Growth Partnership
- Co-funding from Farm IQ Systems
- In-kind contributions from Rezare Systems
- Rezare Systems is the lead provider

Animal Data Standards Work Stream

Andrew described the three work streams in the project, and the plan for Animal Data Standards

Why work on data standards?

- "Grease the wheels of commerce"
- Reduce costs of compliance
- Encourage new innovation
- Data sharing vs. "centralised database"

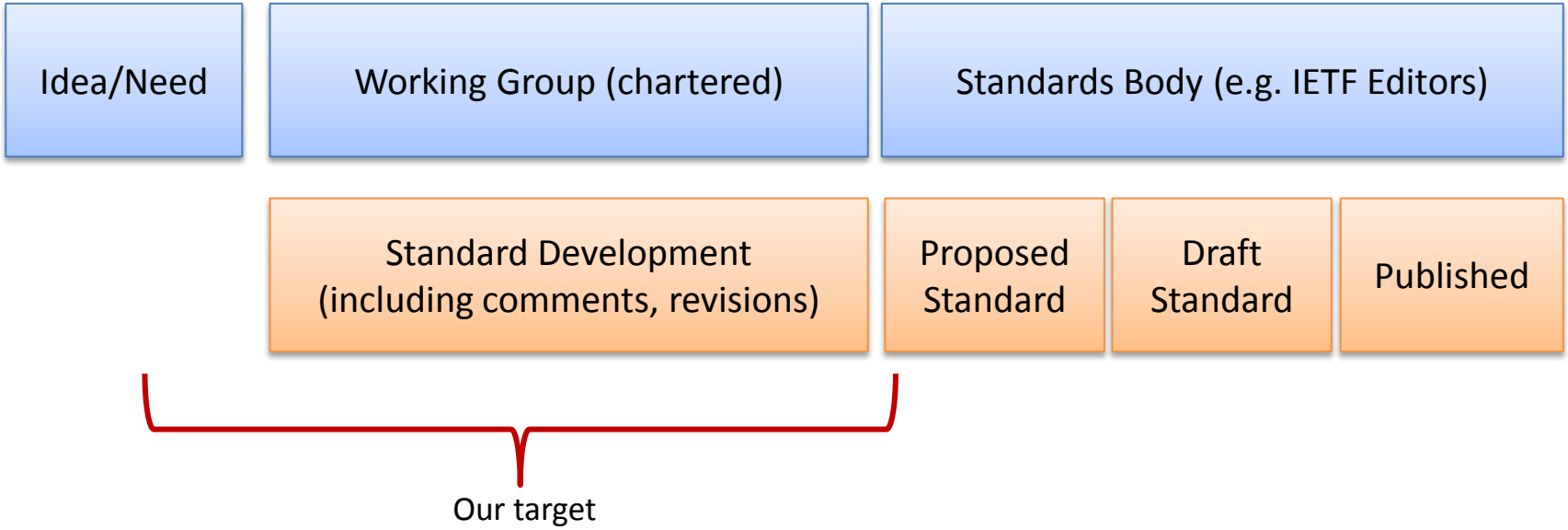
Animal Data Standards Work Stream

- Initial workshop
  - Identify desired outcomes
  - Define the scope
  - Agree guiding principles (including principles for stakeholder participation)
  - Initial technical discussions
  - Planning the next steps
- Draft development
- Presentation and review
- Next Steps towards formalisation

Modern Standards Processes

We talked about where this process might fit in the light of other (more formal) standards processes

For instance: ISO, IEEE, IETF, Open Group, W3C, GS1,…



Getting to Consensus

- A draft is prepared
- Draft is made available for review, with a timeframe for responses
- Comments and ballot (agree/disagree) responses submitted
- Changes proposed, recirculation for review
- Short period for sanity review/last call
- Process may iterate

Identifying Desired Outcomes

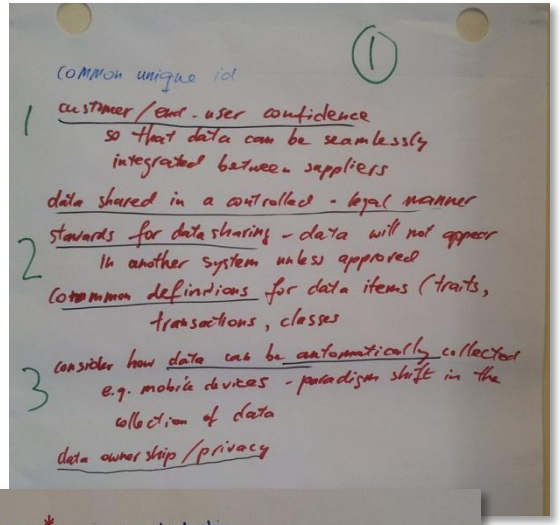
We broke into five groups to discuss these questions, then reported back our opinions

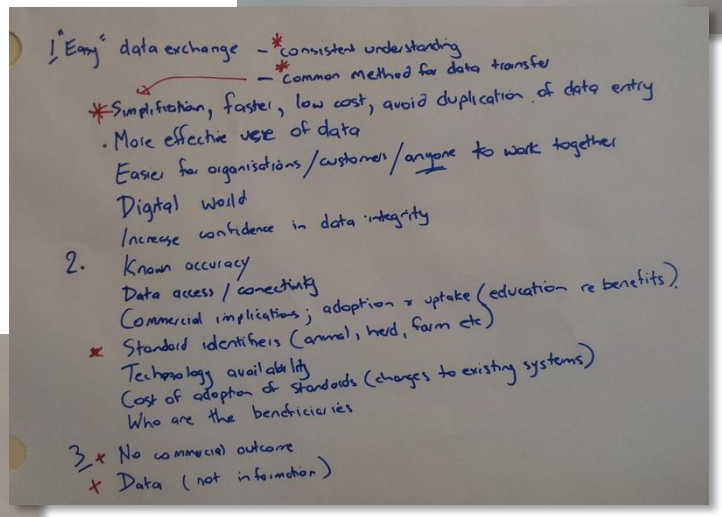
- What do we want to achieve from standardisation?
- What are the issues we need to address (or at least be aware of)?
- Are there guiding principles to observe?

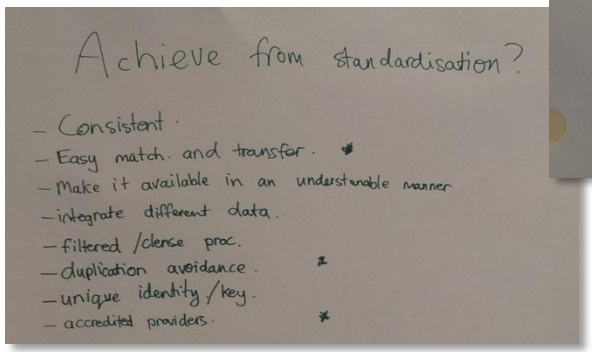
Desired Outcomes

What do we want to achieve from standardisation?

- Common method of data transfer
- Common definitions
- A unique identifier
- Easy to understand and “user-friendly”
- Data integrity to gain customer / end user confidence
- Efficiencies, reduction in duplication, costs
- Quality and accuracy
- Data control
- Single platform or base for tools
- Accreditation
- Improved data collection and quality through automation and mobility







Desired Outcomes

What are the issues we need to address/be aware of?

- Privacy
- Commercial sensitivity and IP
- Collaboration between agencies
- Conflicting priorities
- Competition and willingness to share
- Future-proofing – technology advances
- Separation from original purpose once standardised
- Getting buy-in
- Timescales

- privacy act compliance
- commercial interests
- lack of industry organisation to date
- need for better collaboration to derive value
- proliferation of databases - models - technology
- lack of standardisation
- technology advancements
- different approaches
- different priorities conflicting

Issues to address.
- understand current systems.
- capability/to change commitment.
- willingness to share.
- sensitivity. /commercial / IP. *
- timescales

(4) What are the issues ?
- Is NAIT understood?
- Is Schema suitable / future proofed?
- Global
- Competition, Security, Protection IP
- Don't want to lose sight of purpose (Bee players vs HT)

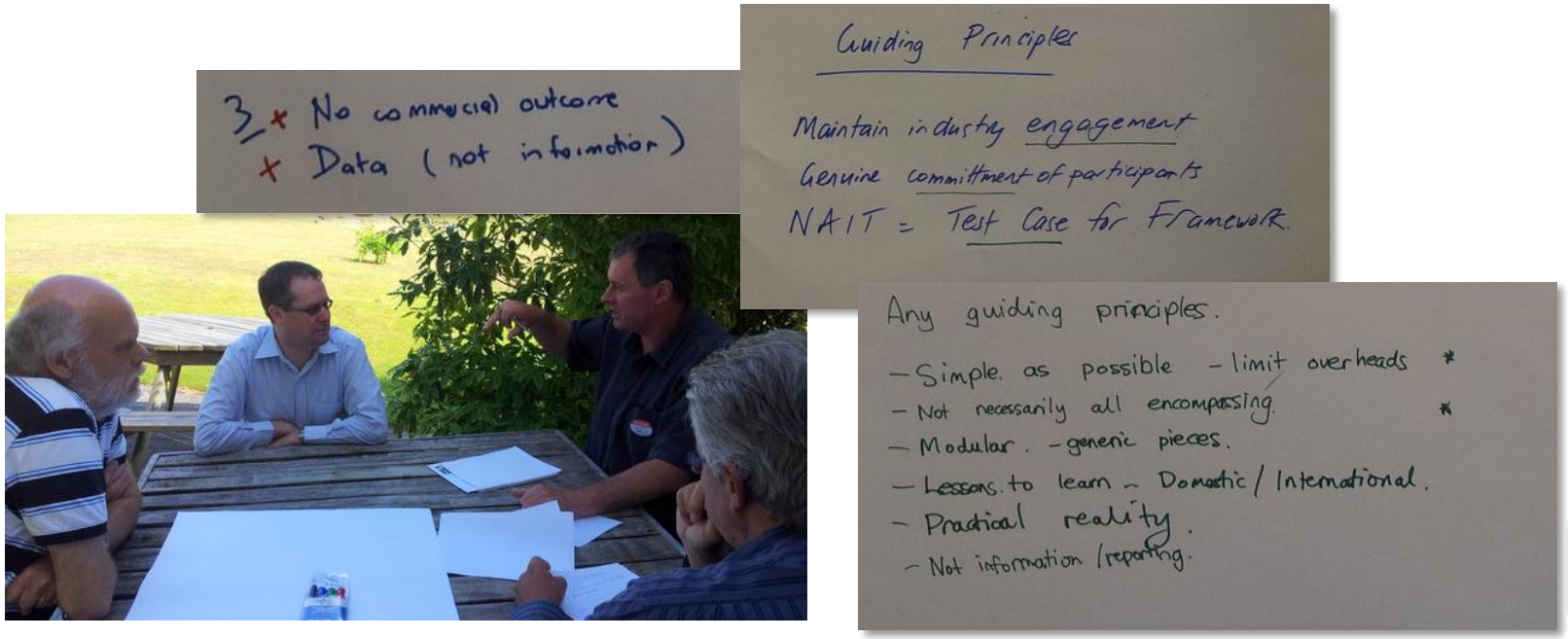
2. Known accuracy
Data access / connectivity
Commercial implications; adoption + uptake (education re benefits)
* Standard identifiers (animal, herd, farm etc)
Technology availability
Cost of adoption of standards (changes to existing systems)
Who are the beneficiaries

Rezare systems

Desired Outcomes

Are there Guiding Principles to observe?

- Utilise existing standards and work (e.g. ICAR, NAIT)
- Respect commercial investment
- Expect commitment from participants
- Learn from national and international standards/processes
- Make standards “modular” so people can comply with appropriate parts
- Stay as simple as possible
- Distinguish between “data” and processed “information” – focus on the former



Defining Scope

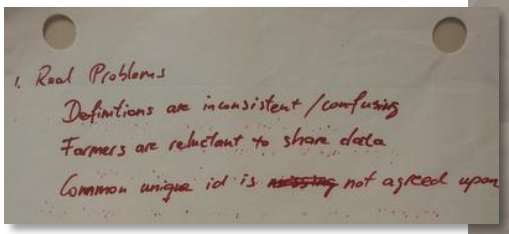
This time our groups tackled the question of Scope: what should we work on?

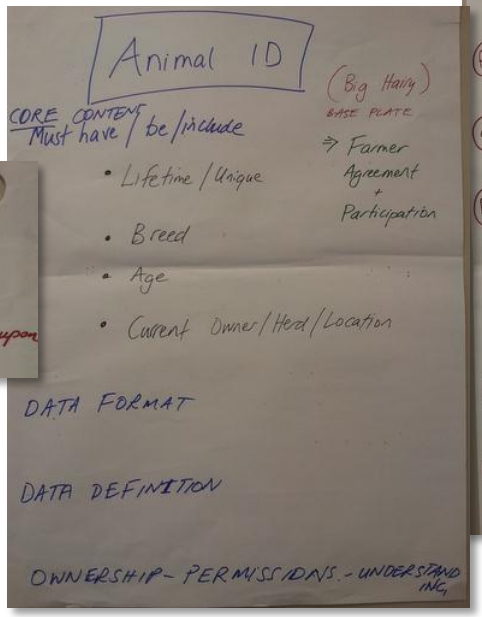
- What are the “real-world problems” we want to apply standards to?
- Are there existing standards or work we should use, review, or collaborate with?
- Which of these areas do we consider really important to work on?
- Which area would we contribute time to?

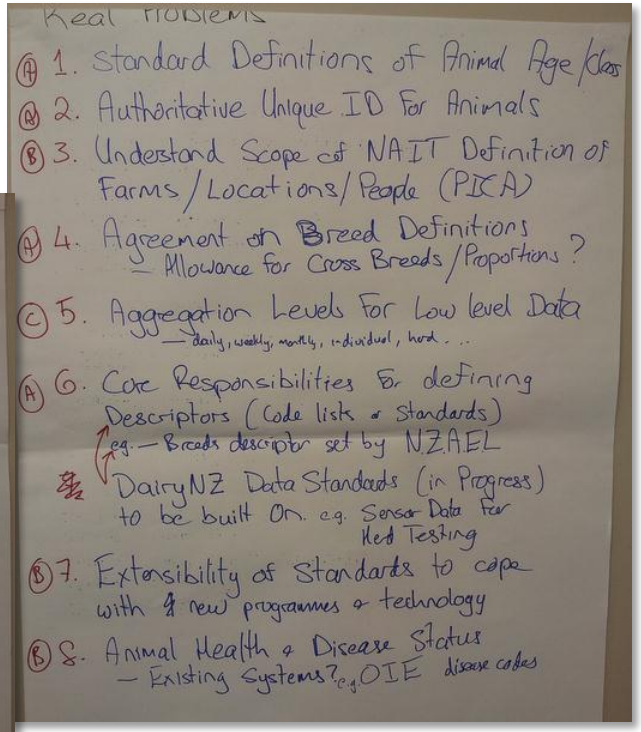
Defining Scope

What are the "real-world problems" we want to apply standards to?

- Definitions – farms, locations, people, animals, breeds, classes, timesteps
- Unique identifiers – animals and farms/enterprises
- Core fields for an animal "life data"
- Ownership of data – how to express permission/authorisation
- Measurements and expressing methodologies/precision
- Management activities
- Health treatments and disease status
- Making standards extensible



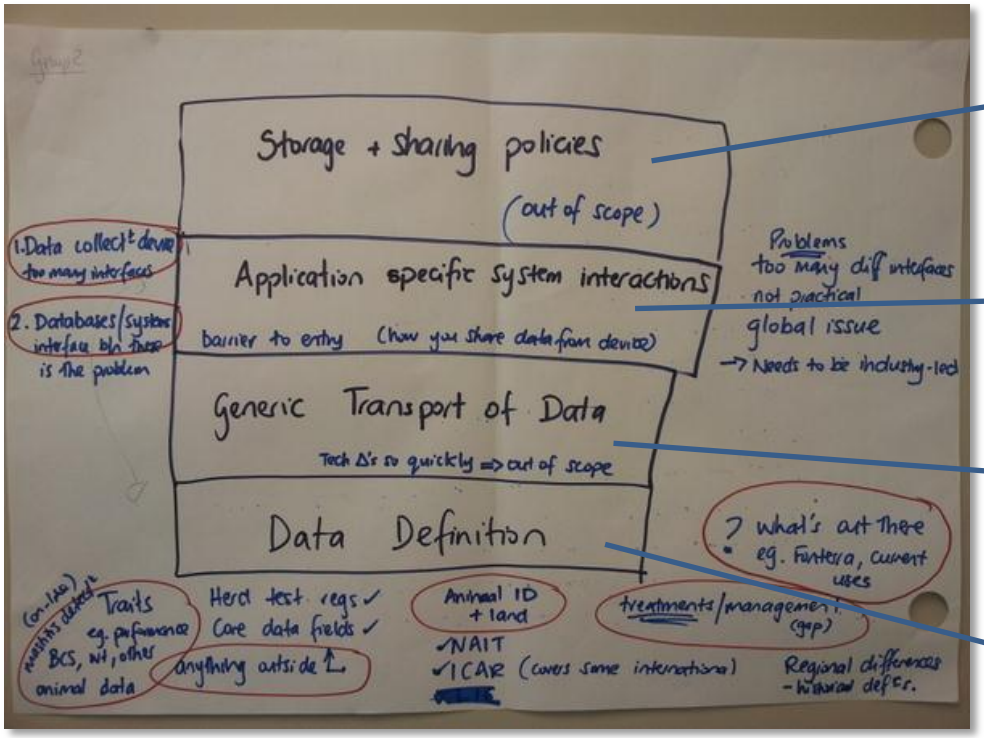




Defining Scope

What are the problems we want to apply standards to?

Some noted there was work at multiple levels:



Authorisation
(security, access control, sharing)

Messages
(e.g. Herd Test, Sale, Weighing)

Existing standards
HTTP, REST, WS*, CAN…

Data dictionaries
Meaning, interpretation, size

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Defining Scope

Which areas are important to work on?

After each group presented it's discussions, we summarised some general areas, and asked people to vote with their first and second priority.

The stars indicate areas where most interest was expressed.

Information about Animals

Animal Identification
Unique IDs for animals, land, and enterprises (RFID and traditional)

Life Data
(Mostly) static data that defines an animal (sex, birth date, breed…)

Observations and Actions

Measurements
Weights, scores, yield, milk test results…

Health
Treatments, products, and diagnosis

Management
Movements and other management activities

Access control and Policy

Authentication
Identifying people and their roles (covered by other Internet standards)

Policies
Retention, scope of use, sharing (mandates from farmer or originator)

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Technical Break-Out

Those attending then broke into groups that reflected their areas of interest from the scope discussion. We ended up with three groups, targeting Animal ID, Life Data, and Observations/Measurements. We asked them these questions.

- Work on a statement of **Scope** for this area
- What "**real problems**" illustrate our scope?
- Are there **existing standards** or work we should use, review, or **collaborate** with? Who is not here, but should be?
- What **areas of work** within this scope need initial focus? Start to shape these up.

Technical : Animal Identification

This group discussed identification of animals – an issue complicated by wanting to identify historical animal data as well as current/future animals..

Scope

Identify the unique and appropriate identification for animals (and land, enterprises, people). The initial priority is Dairy animals, but other species and classes should be considered.

Illustrating the Need

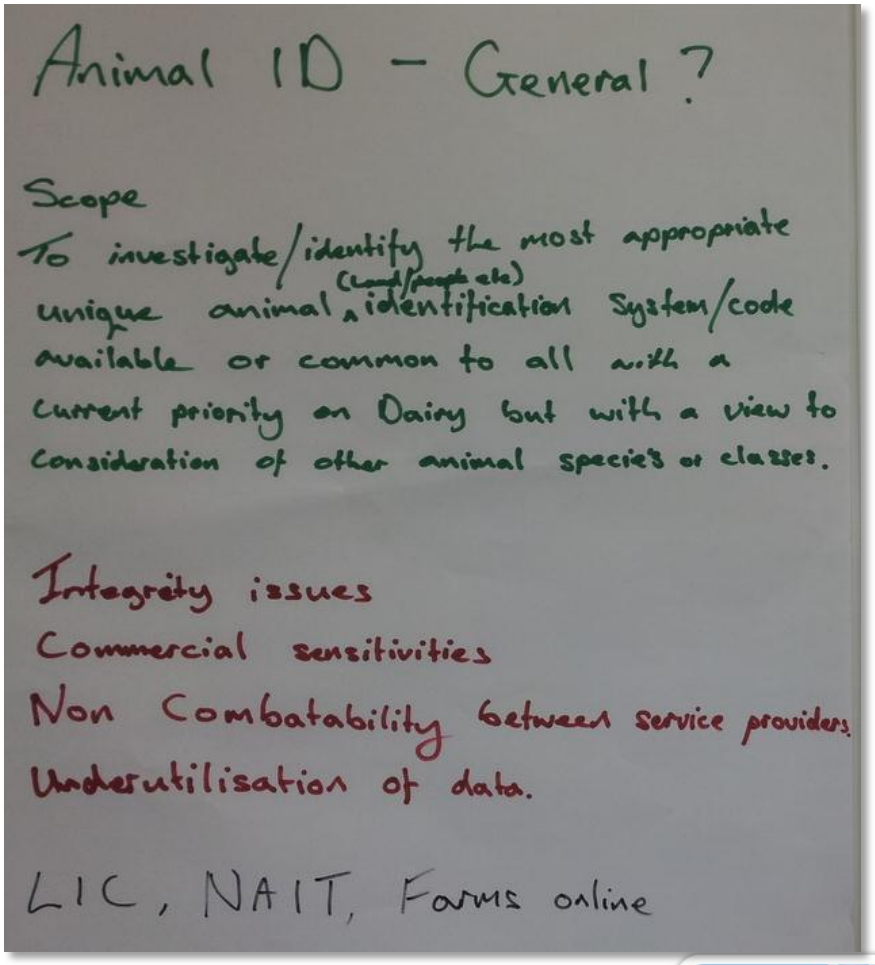
Different schemes use different ways of identifying animals. This leads to lack of compatibility between service providers, and under-utilisation of data. It is possible this is partly driven by commercial sensitivities.

Existing Standards

LIC/MINDA identification for animals (relies on Participant Code)
NAIT – Electronic ID and Trakka standards
NAIT Person in charge of animals (PICA) code
Farms On Line property identification
AHB identification for cattle and deer

Areas of Work

To be confirmed



Technical : Animal Life Data

This group discussed the static data that is recorded about animals, and how this might be standardised.

Scope

Create definitions for information that does not change about animals (or only changes rarely), including how to map between various definitions. This covers static data or “facts” such as date of birth, breed, sex, and parentage.

Illustrating the Need

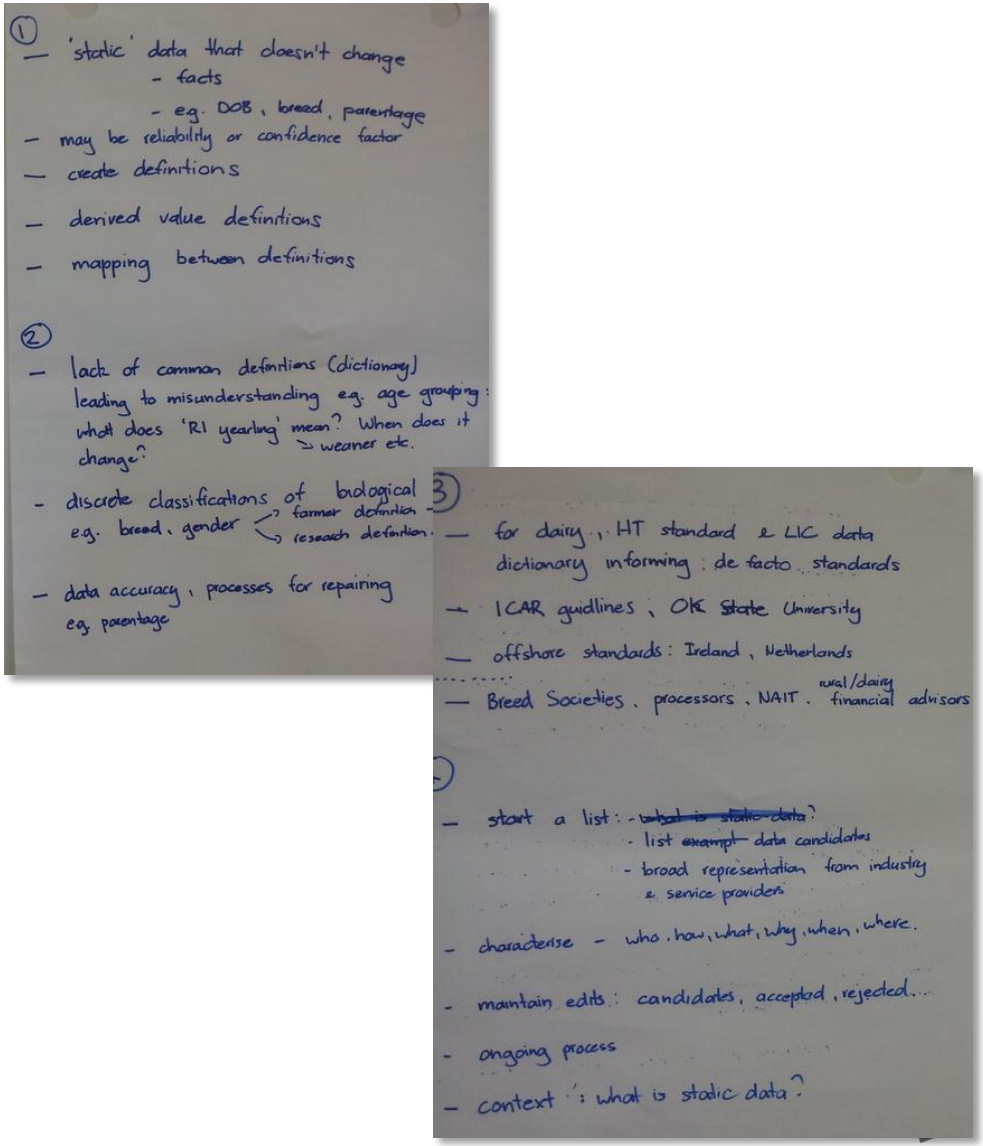
We lack common definitions, which results in misunderstanding. Age classes for instance appear to have a number of synonyms which can mean slightly different things (Yearling vs Weaner vs R1). We also need expressions of accuracy (how well established is the parentage of this animal?).

Existing Standards

A few things are covered in the Herd Test standards. We also need to distinguish between farm-level definitions and research definitions (for instance: sex).
See ICAR Guidelines, Oklahoma State University breed definitions, offshore work (Ireland, Netherlands), breed societies, processors, NAIT, and rural advisors.

Areas of Work

Create a set of definitions – data candidates
Characterise – who, how, what, why, when, where
Document mapping, maintain edits
Agree how to represent accuracy/precision
Agree how an on-going process will be maintained over time.



Technical : Observations and Actions

The group looking at measurements and observations joined with the group covering Animal Health, as they felt there was a lot of commonality. The focus continued on Animal Health, though we have recorded here some suggestions about observations generally.

Scope

Information that is observed about animals, or records of actions carried out on those animals. This may include recurring information such as treatments, weights, and herd tests.
To define health status, diagnosis, and treatment of individual animals.

Illustrating the Need

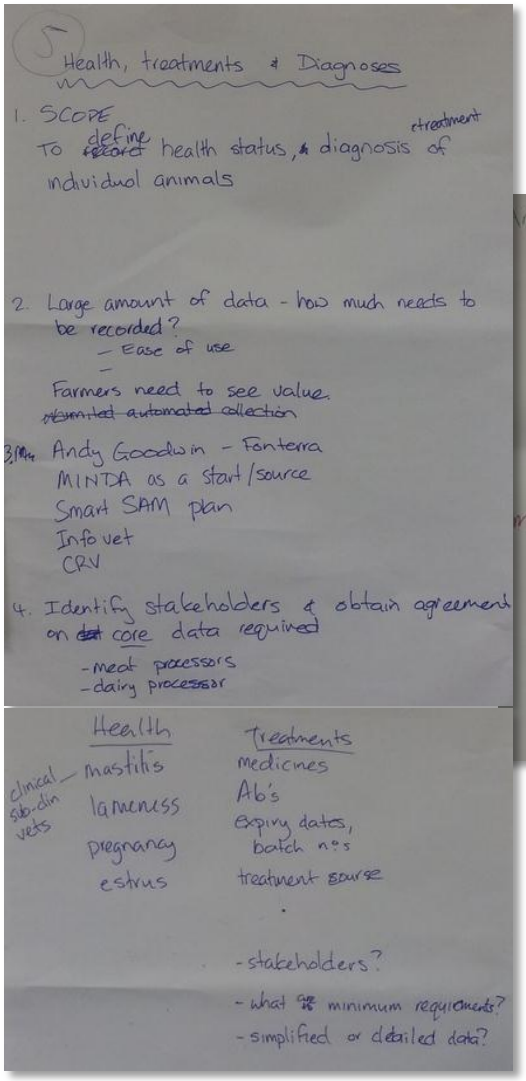
One of the challenges with using data collected for one purpose to assess something else is understanding the method by which the measurement was taken, and the level of precision or reliability of the measurement. This indicates some meta-data will be needed.
Better health information in areas such as mastitis, lameness, pregnancy and oestrous are all desirable.

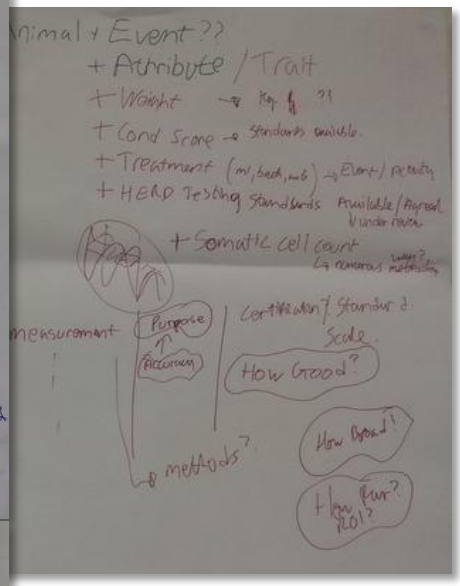
Existing Standards

The herd test standards are available (albeit under review).
MINDA, Infovet, and CRV all capture some health information.
Look at DairyNZ's SmartSAMM Plan.

Areas of Work

Identify stakeholders and agree a core set of useful data (for instance, dairy companies and meat processors.
Agree a set of events, traits, or measurement categories and utilise existing standards where possible.
Consider how meta-data about precision (or fitness for purpose) and methods could be transferred.





Next Steps

At the end of the meeting we discussed how best to progress with this work.

- Rezare Systems is proposing to set up online working groups to facilitate interaction. Those details will be sent out shortly.
- Rezare Systems will also provide editor resource (people such as Kim, Doug, Andrew and others) who can work on drafts of standards that incorporate all our feedback.
- Ideally we would like to get to “Draft Standard” stage before May, but that will depend on scope and commitment from the working group.
- Of those in attendance, 19 volunteered to join a working group on Animal ID and Life Data.
- 18 Attendees volunteered to join a working group on Observations, Measurements, and Health.

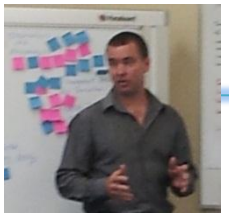
Working Groups

Animal ID and Life Data

- Steven Whitaker
- Dan Loughnane
- Clive Nothling
- Jenny Jago
- Tim Hale
- Evan Yates
- Kayo Sakey
- Paul Edwards
- Harry Yoswara
- Gerry Schuil
- Ton Bleijenberg
- Maureen Jackson
- Debbie Brister
- Stewart Cowan
- Ben Martin
- Jeremy Bryant
- Sue Petch
- Richard Tiddy
- Mark Johnstone

Observations, Measurement, Health

- Kayo Sakey
- Maureen Jackson
- Debbie Brister
- Daniel Buchanan
- Clive Nothling
- Armin Werner
- Stewart Cowan
- Harry Yoswara
- Richard Tiddy
- Paul Johnstone
- Sue Petch
- Jeremy Bryant
- Tim Hale
- Jenny Jago
- Milli Naidoo
- Dan Loughnane
- Steven Whitaker
- Mark Johnstone



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In-kind Contributions have been provided by Rezare Systems Limited.

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