BCS and Its Use for Optimization of Feeding / Herd Management

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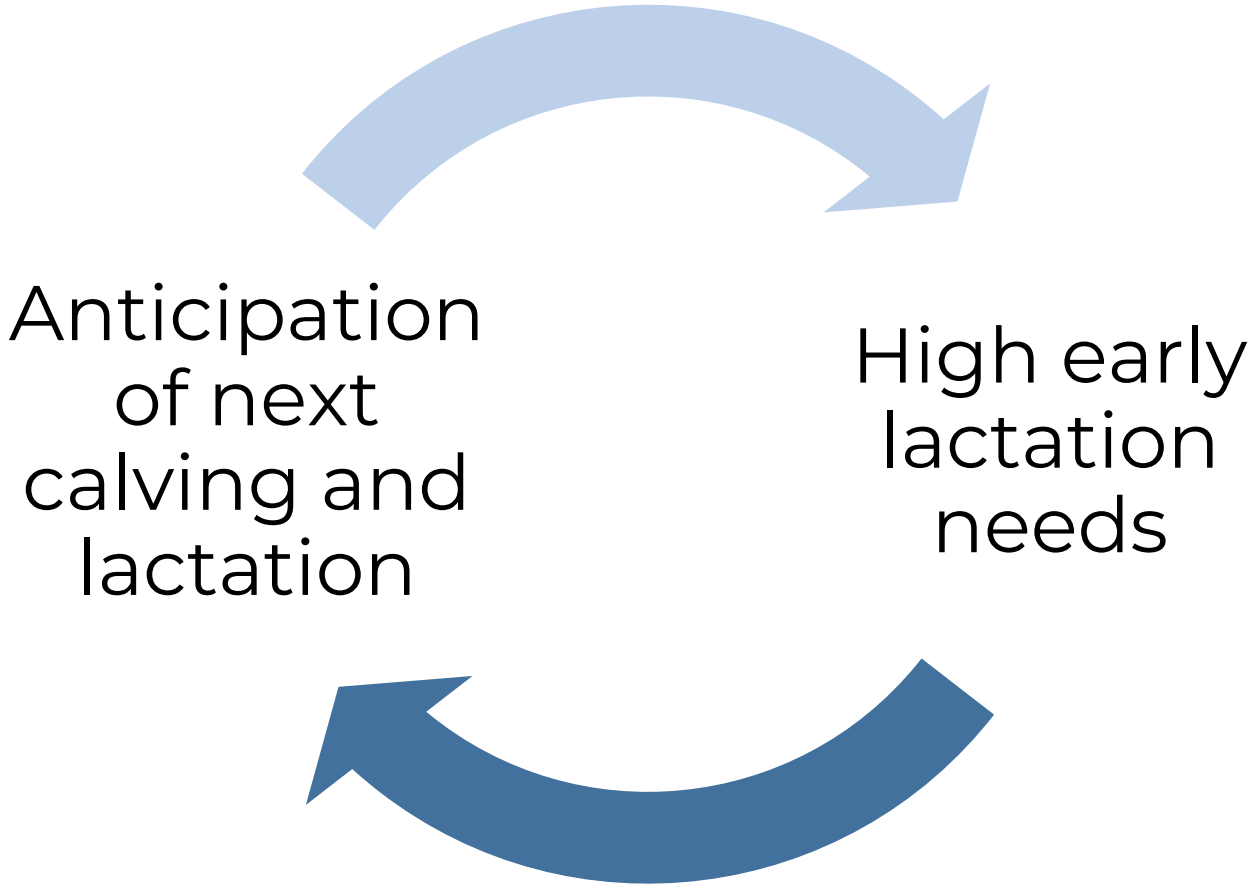
Introduction
Why Do Nutritionnists Care about BCS?



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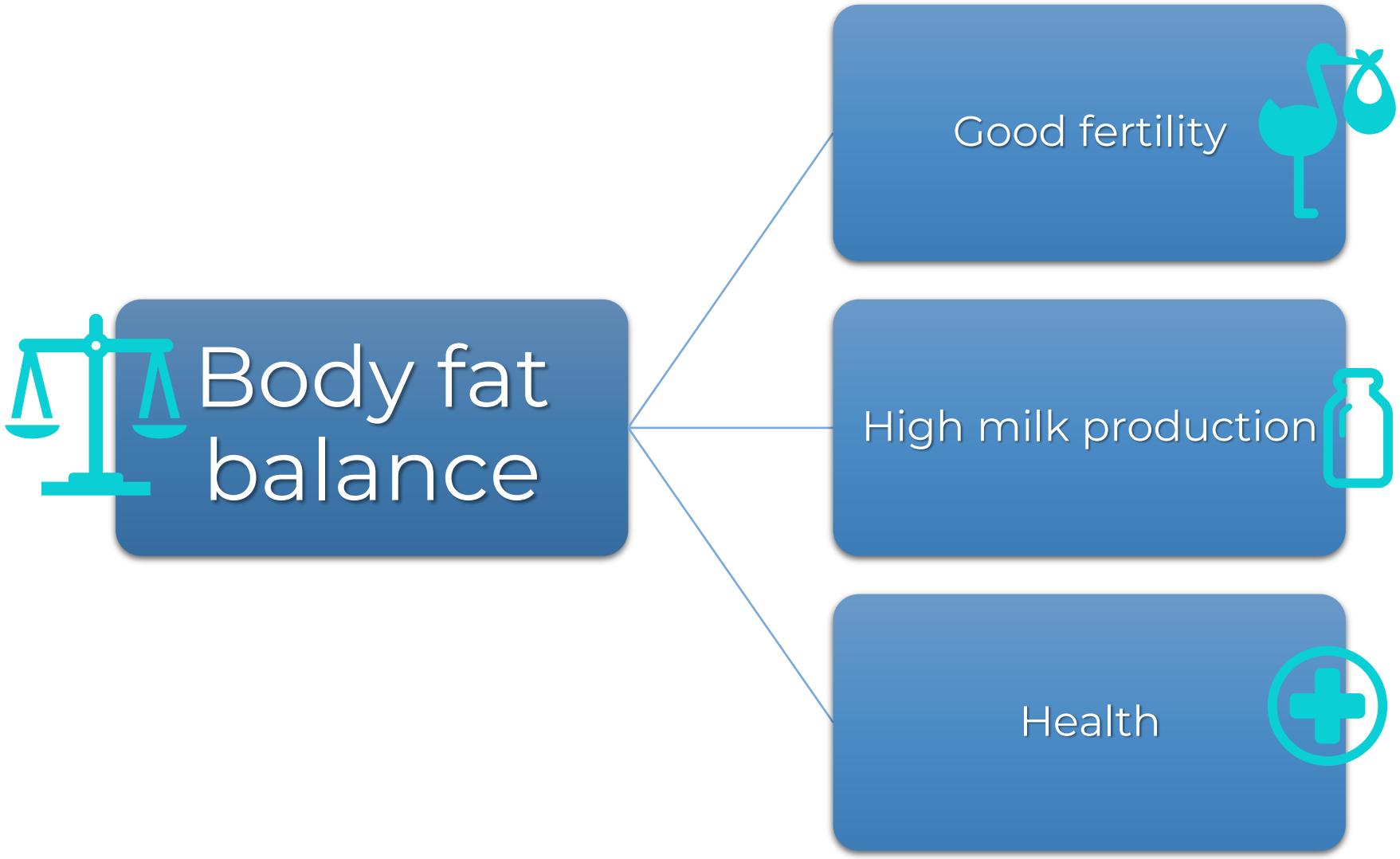
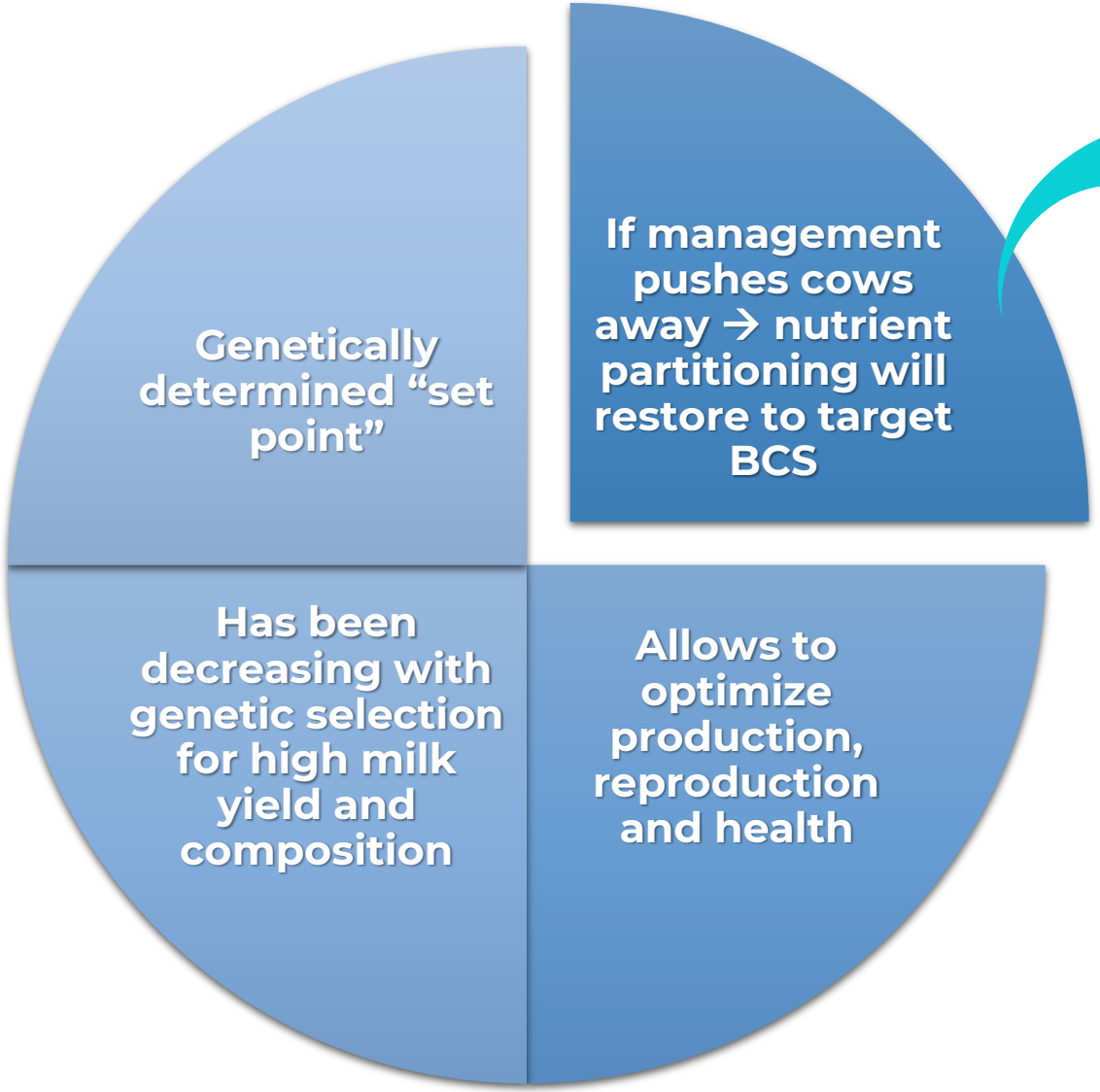


Is There a Target Lactation BCS? The Cow Would Say « Yes »



Target BCS:
BCS the cows will try to reach somewhere around 10-20 weeks of lactation

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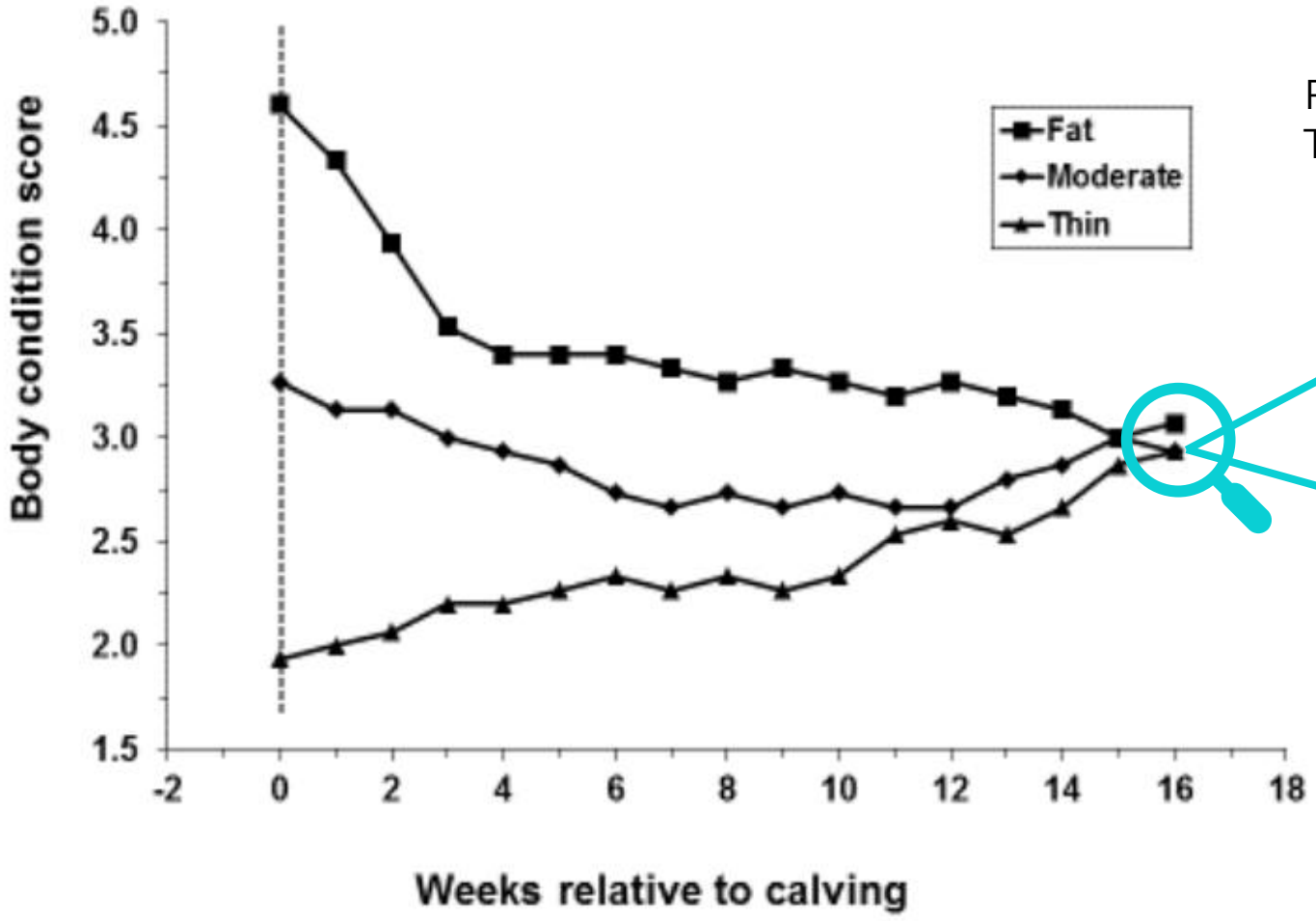
No Matter BCS at Calving, Cows Will Get Back to Their « Target » BCS



Fat cows: **Loose** more BCS
Thin cows: **Gain** BCS in early lact

At week 16, thin cows had **higher** DMI and Production than fat cows

Garnsworthy (2007), Drackley (2016)

Use of BCS for Herd Nutrition and Management

↑ BCS during the dry period

- Internal fat, insulin resistance, fatty liver, dystocia… extreme BCS loss in early lactation, poor production and poor fertility

Problem cow

↓ BCS during the dry period

- Negative impacts on calf growth, survival and future performance; cow → poor production

Problem cow

\+ BCS at calving

- Lower DMI, excessive mobilization, increased risks or disease and poor fertility

Problem cow

− BCS at calving

- Lower immunity, anestrue, risk of lower milk yield

Problem cow

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For better sustainability, all these should be avoided

Use of BCS for Herd Nutrition and Management

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Use of BCS for Herd Nutrition and Management

Aim for BCS at calving around 3.0-3.25 (Cows) and 3.25-3.5 (Heifers)

BCS

Aim for the target BCS in mid-late lactation (200 DIM)

BCS

Aim for a 0.5 point variation in BCS in early lactation

- The other way around: Aim for a BCS at calving that would be 0.5 above the « target » BCS at 100 DIM

Δ BCS

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Inter-Observer Variation

73 cows, 28d interval for BCS scoring

BCS_1 = Week 1-3

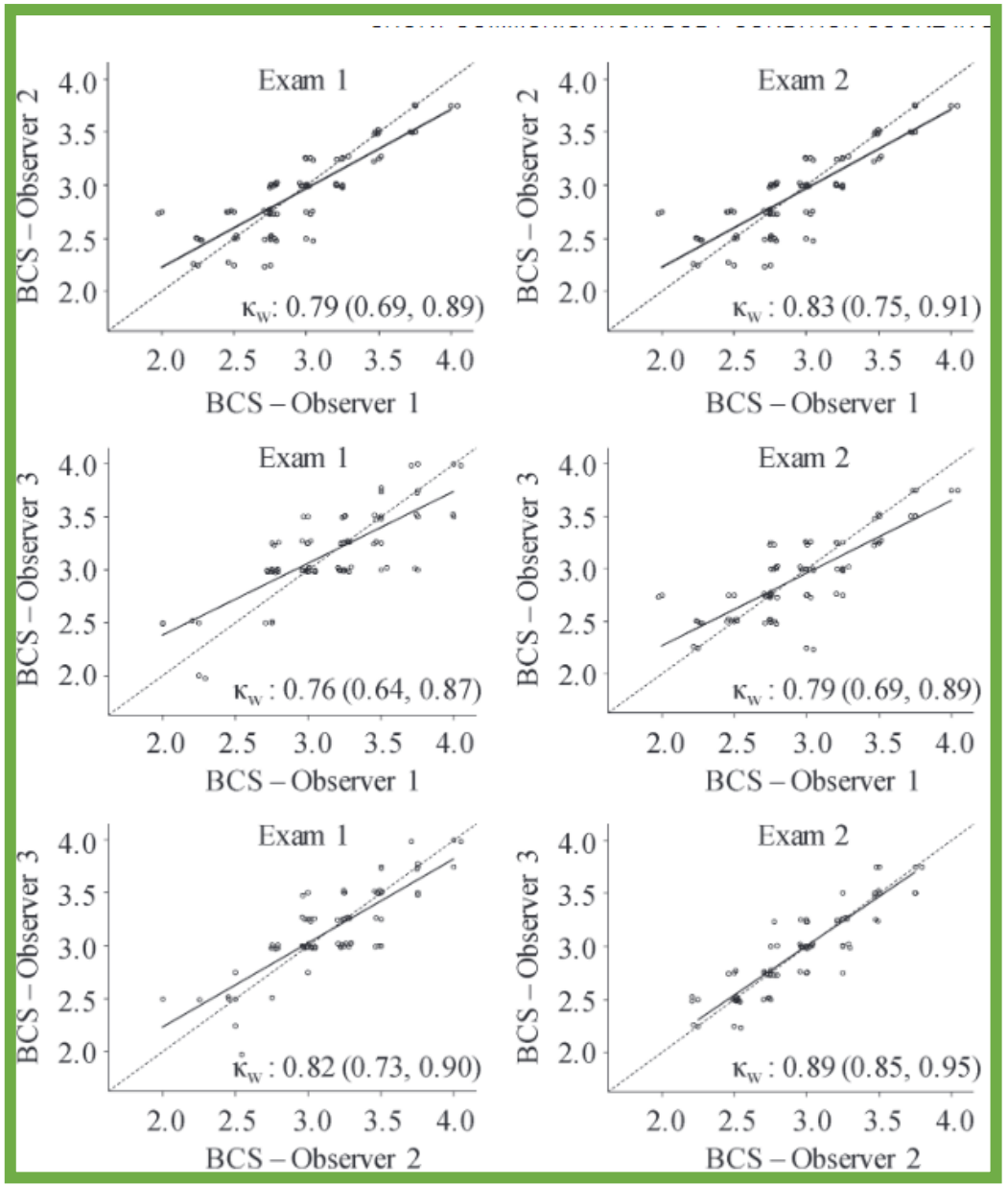
BCS_2 = Week 6-8

Morin et al., 2017

Inter-Observer Variation

Single BCS Evaluations:
BCS_1 K_w = 0.79 (95%CI: 0.69-0.85)
BCS_2 K_w = 0.84 (95%CI: 0.77-0.89)

K_w = weighted Kappa



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Morin et al., 2017

Inter-Observer Variation

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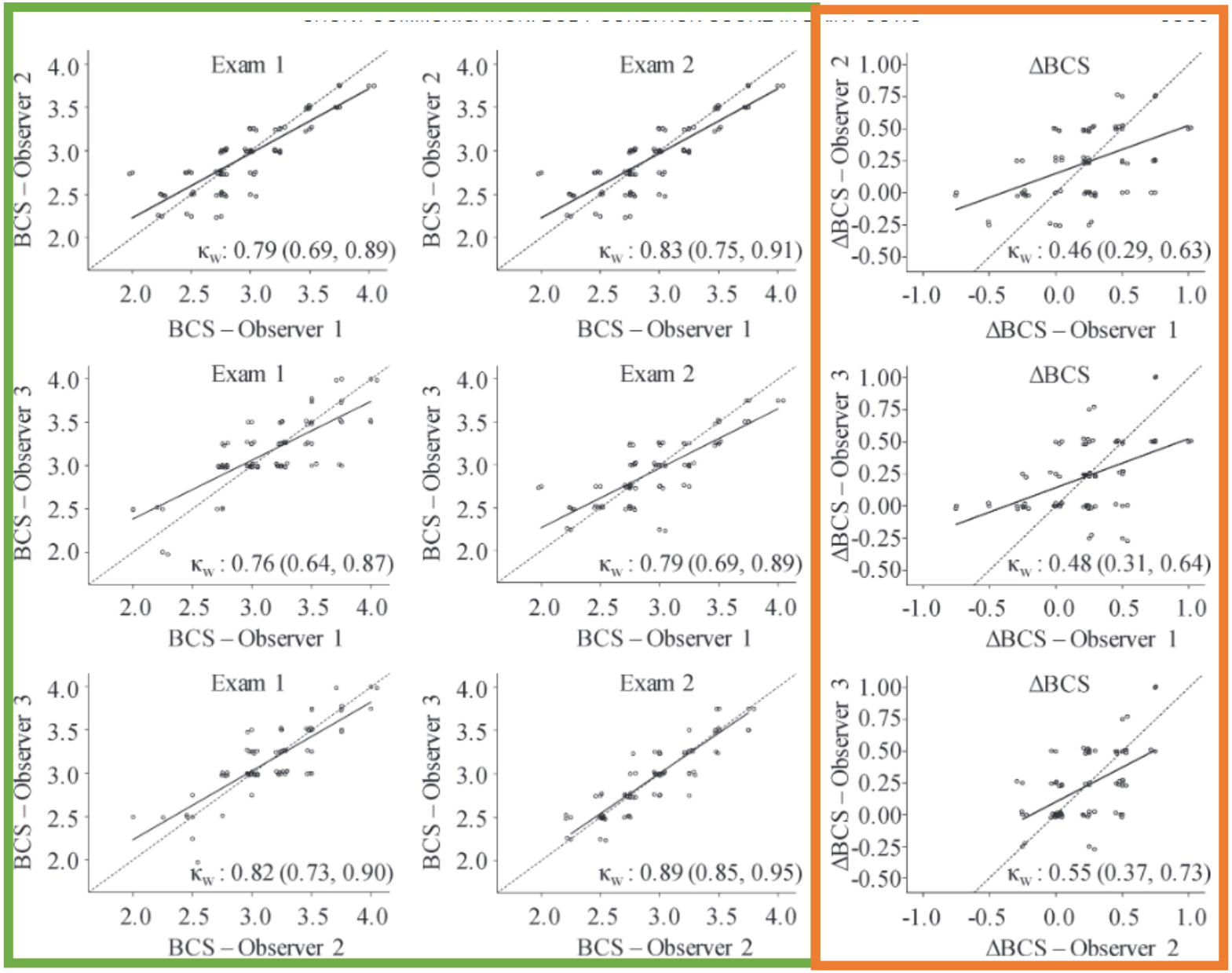
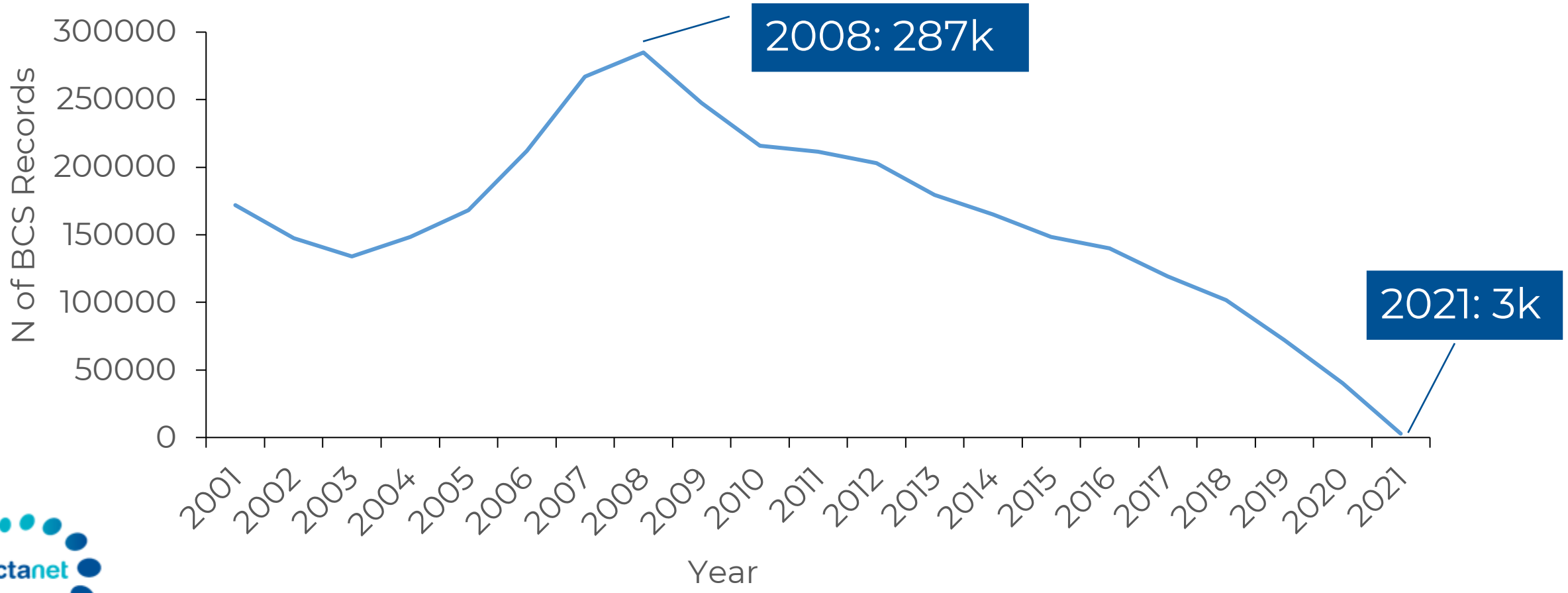
Δ BCS Evaluations:
Δ BCS K_w = 0.49 (95%CI: 0.32-0.63)

Concusions:
- Single BCS measures: multiple observers would provide high accuracy
- Δ BCS measures: single observer for reliable results



Morin et al., 2017

Our Lactanet Dataset
3.4 M BCS Values in Last 20 Years



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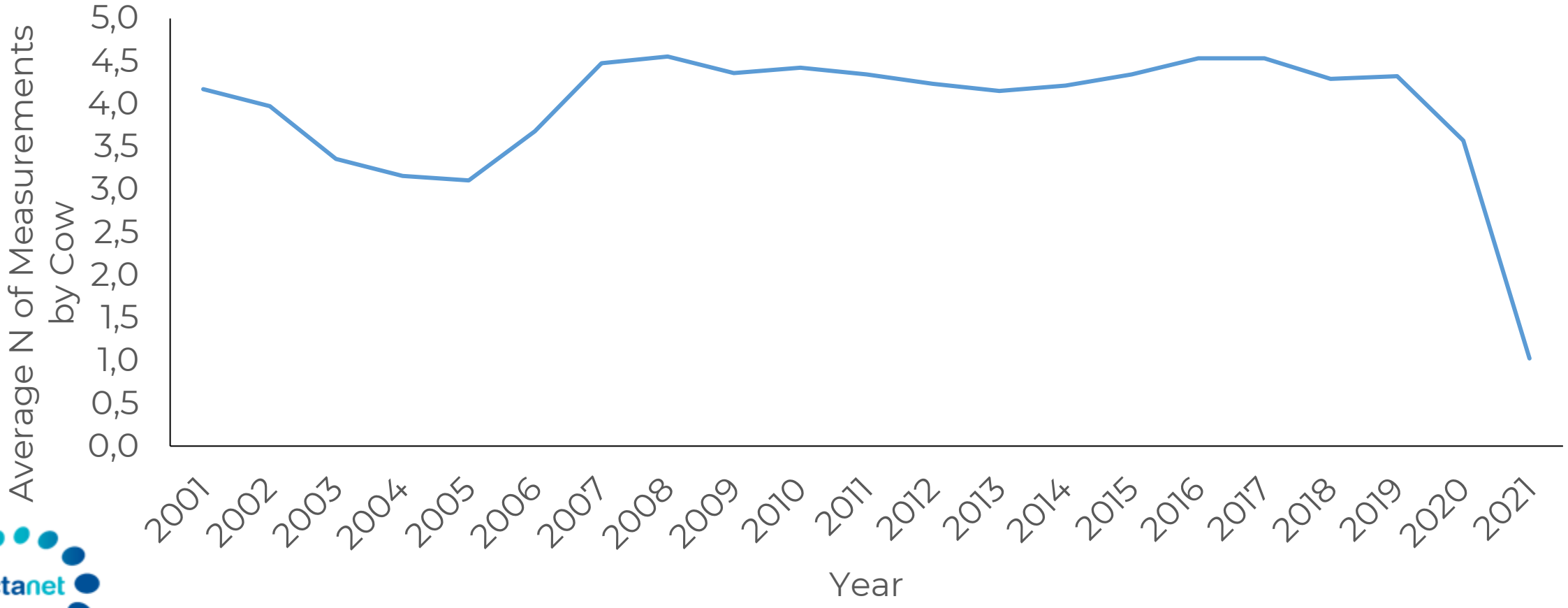
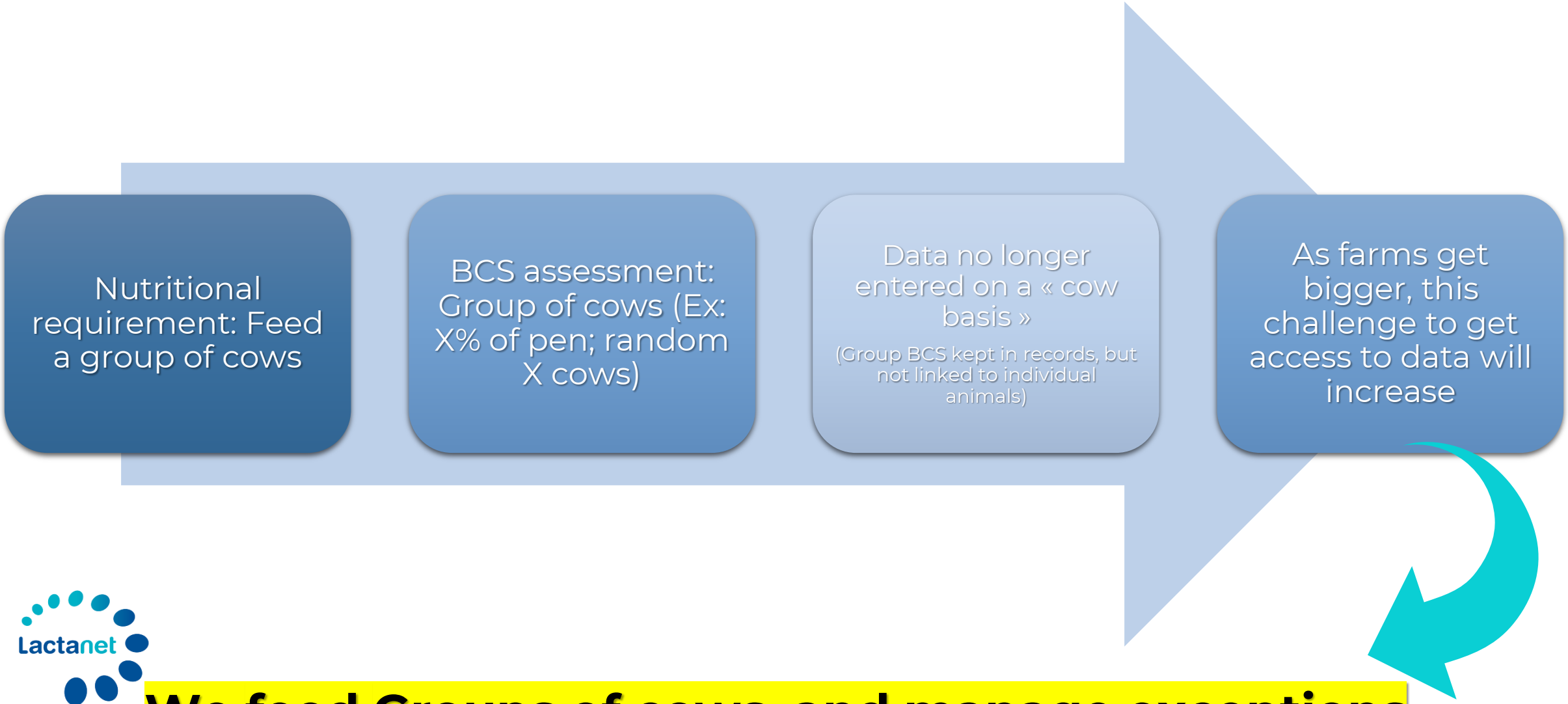
Less Individual Cow Assessments Same N/Cow (Covid)



Pen Level Assessments



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We feed Groups of cows, and manage exceptions

Food for thought

- BCS assessment is critical to adjust ration and avoid future problems, especially around calving/early lactation
- Current farm structures and management might limit the individual cow BCS assessment and recording
- Potential for automated systems:
  - High data frequency
  - Well suited for larger herds
  - Economics for small herds?
  - Monitoring of critical periods?