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F O R U M

Precision Livestock: Technology that Creates Solutions

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Performance Livestock Analytics



Precision Livestock Farming (PLF) or Applied Process Engineering

Continuous monitoring of normal for deviations (Wathes et al., 2008)

- Calving
- Estrus
- Lameness
- Illness

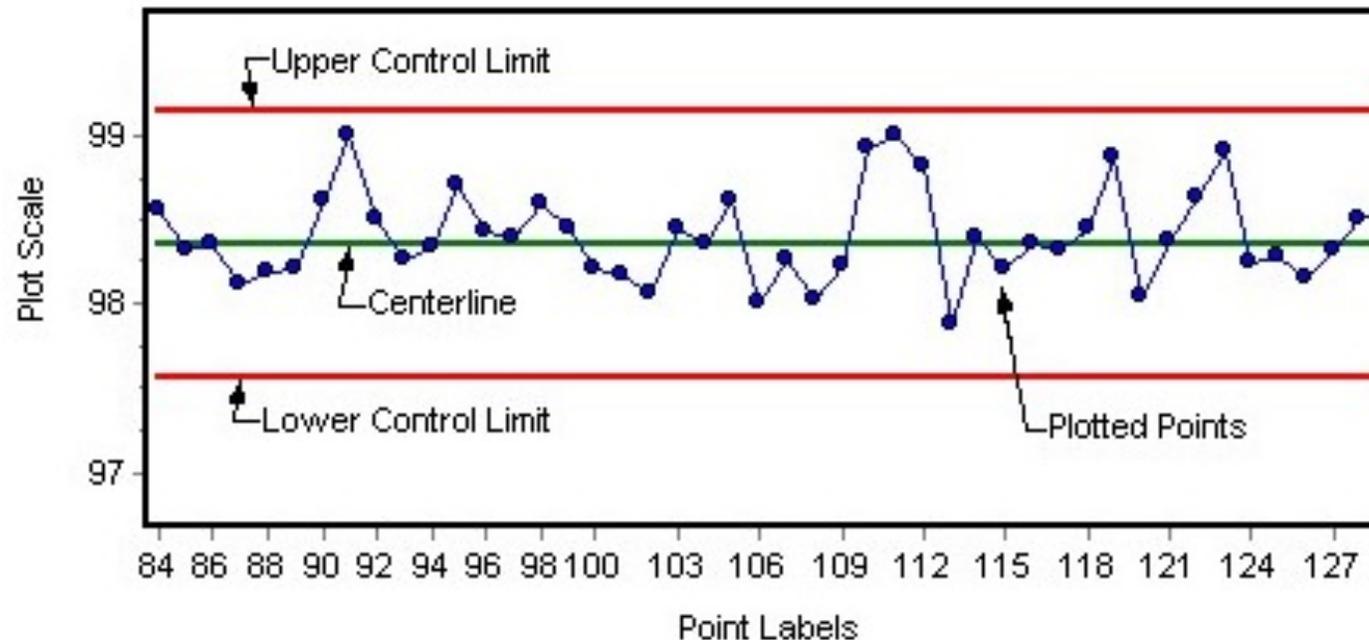


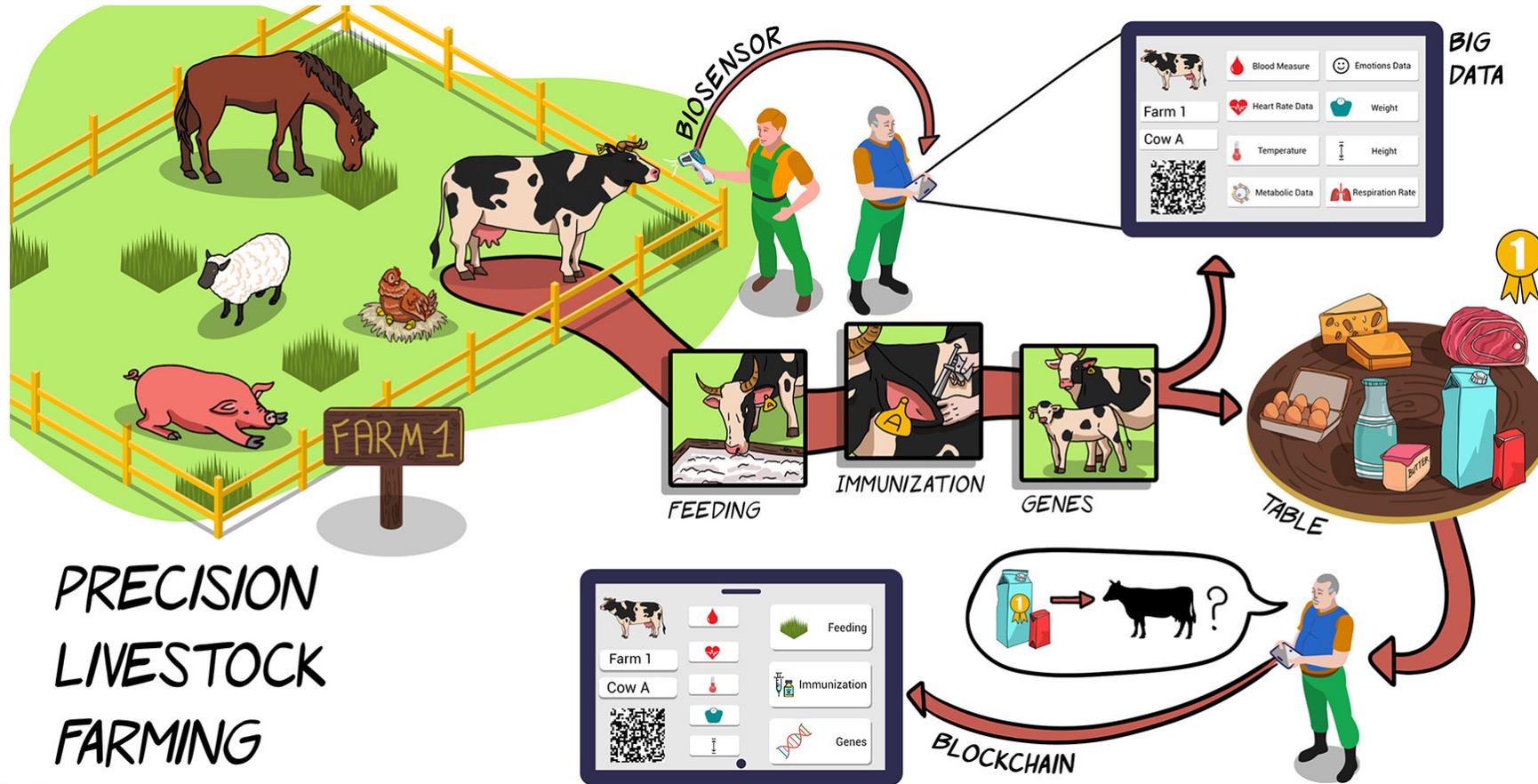
Image credit: <https://acqnotes.com/acqnote/careerfields/control-chart>



Finding Deviations is Easier



PLF Incorporates Passive Data Collection






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FORUM



Overview

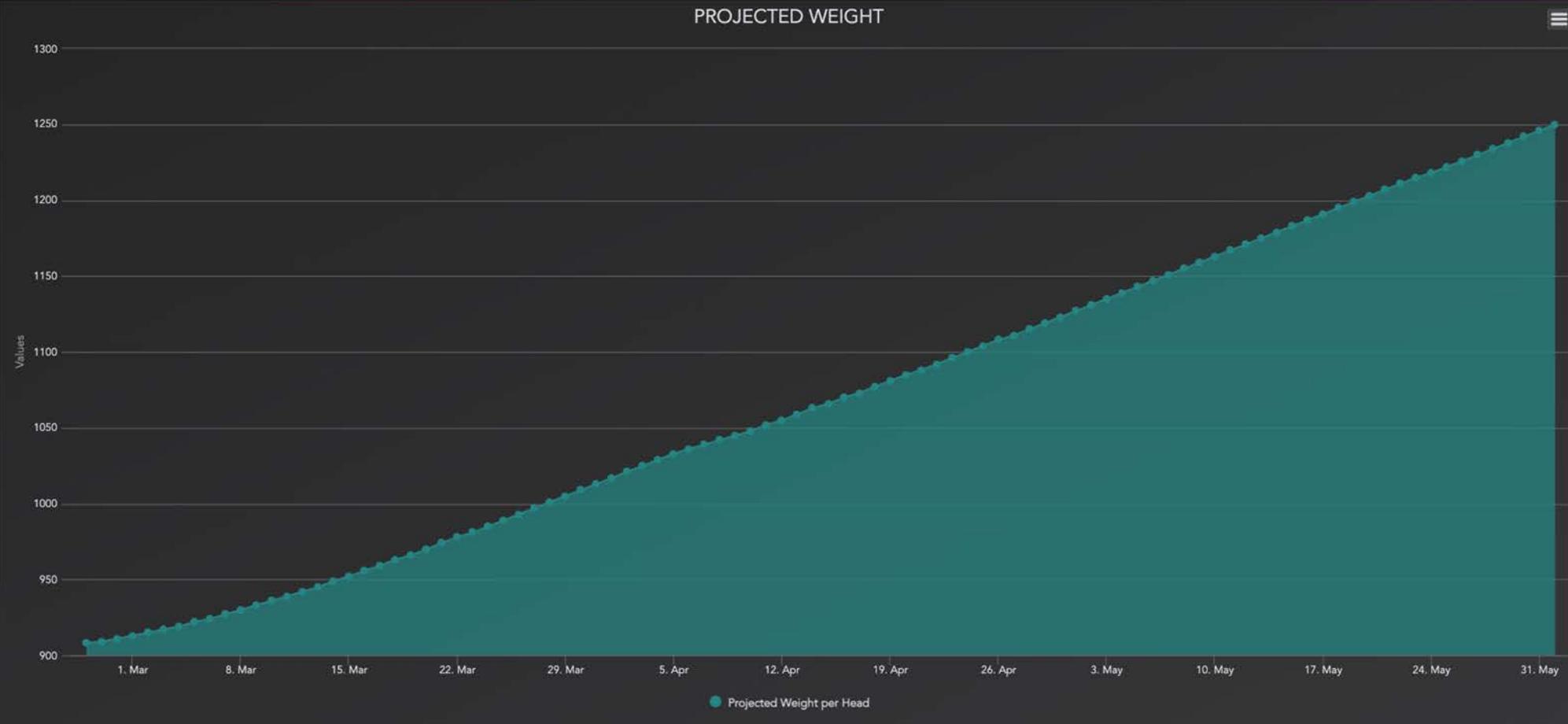
General/Feed

2/26 906 JR

Projected Weight

Export CSV

- Sheets
- Delivery
- Pens
- Inventory
- Rations
- Analytics
- Reports



Operation Size and Scale

- Increasing scale often used to drive production efficiency
- As operations scale technology is used to address labor and management challenges



PLF Enables Operational Growth

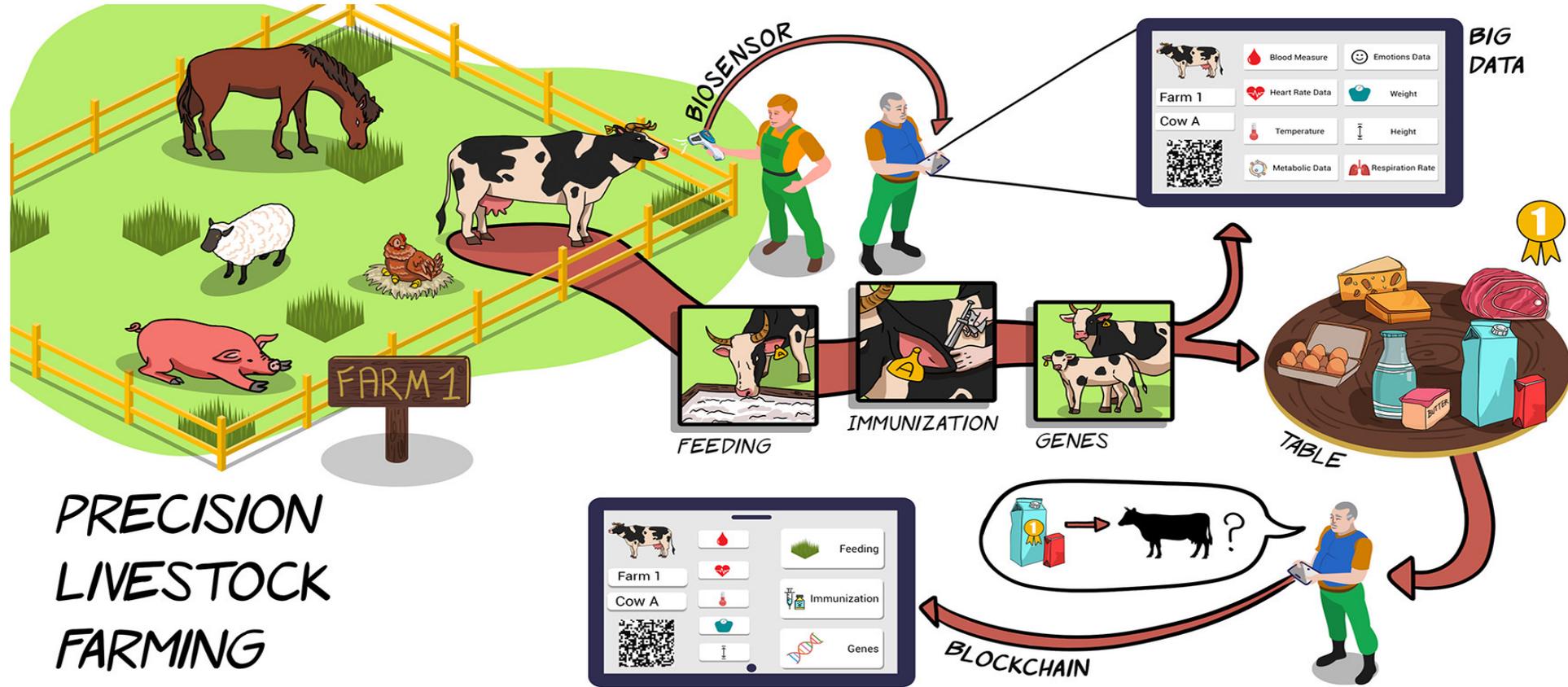
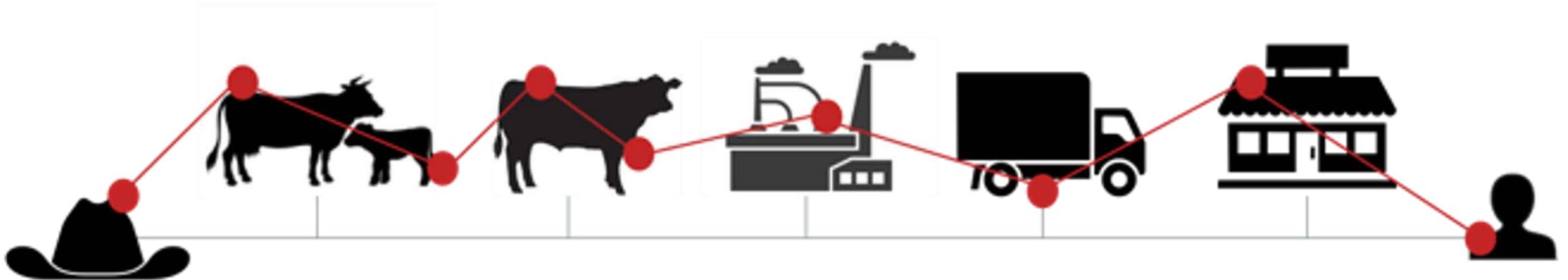


Image credit: Neethirajan and Kemp, 2021



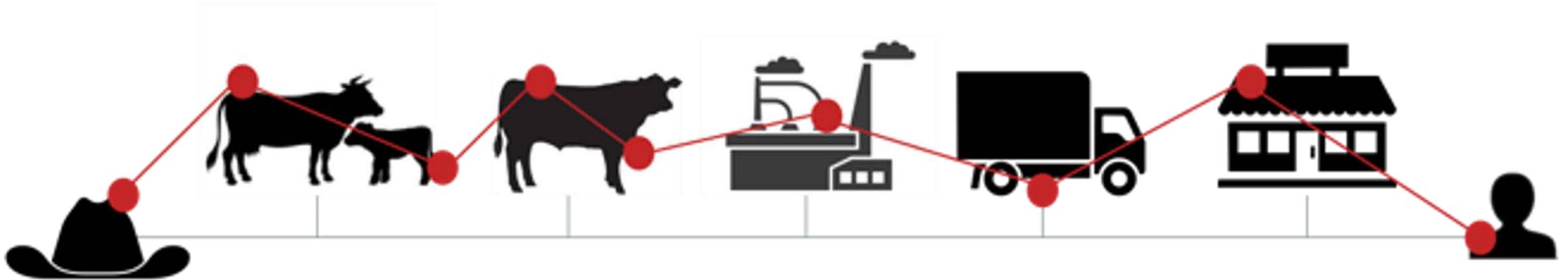
Is Scale the Answer to Sustainability?

Livestock management relative to the animal's genetic potential offers a path to environmental sustainability (Berckmans 2017)



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What Percentage of Genetic Potential is Captured?



Optimal Systems

Are we optimizing for animal performance or logistics?



Image credit: West Texas A&M



Image credit: Miranda Reiman



Managing for the Individual Within a Pen

Individuals are average components yet rarely represent the average



Individuals are
"Pen-alyzed"

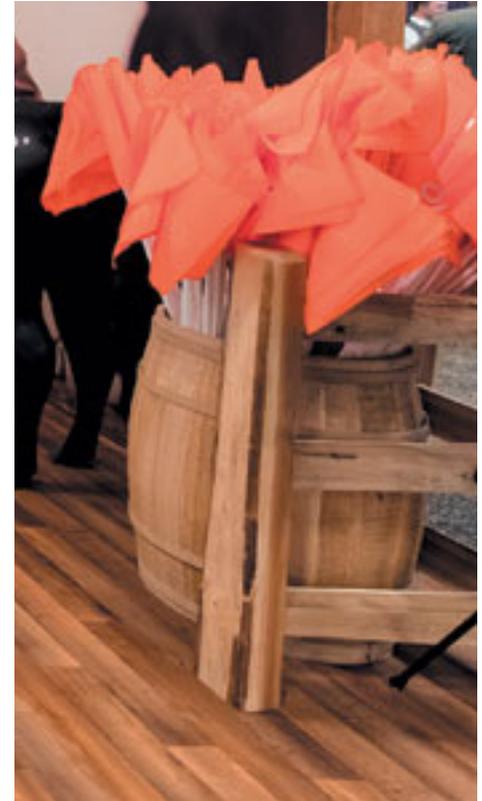
Rosa 2021



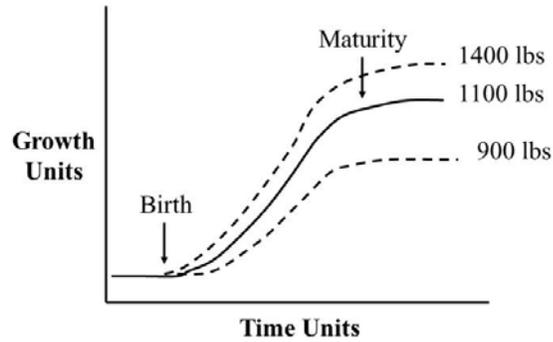
Precision Animal Management

Which is more important to manage, the average or the variation?

- Lot, pen and pasture-based management assumes each animal is average
 - Weight
 - ADG
 - Forage consumption
 - Supplement conversion
- Variation has varied “value” depending on the segment you operate in
 - Seedstock producers use variation to advance
 - Commercial cow – calf operations realize variation as a cost in marketing and management
 - Stocker / backgrounding business model is built on consolidating variation
 - Feed yards apply standardized management to larger groups



Knowledge is Not the Gap



³ Adapted from Berg & Butterfield, 1976

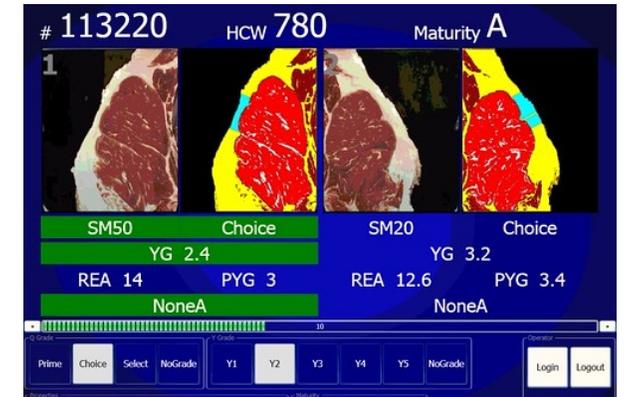
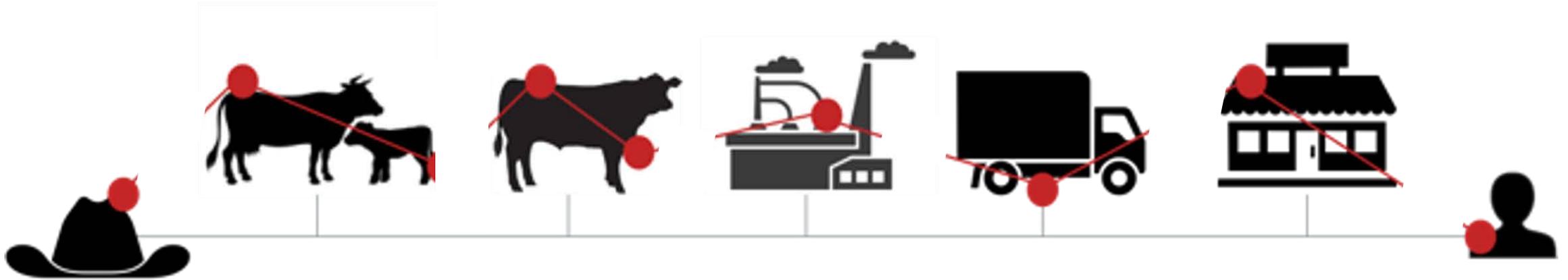


Image credit: USDA

Data Capture & Transfer – PLF Opportunities

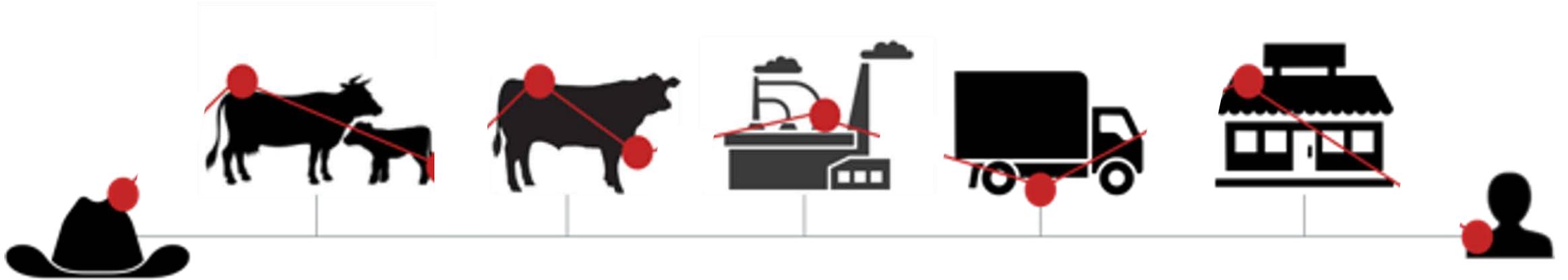
The data needs to be relevant to everyone involved

- The segment who is responsible for gathering
- The segment responsible for transfer



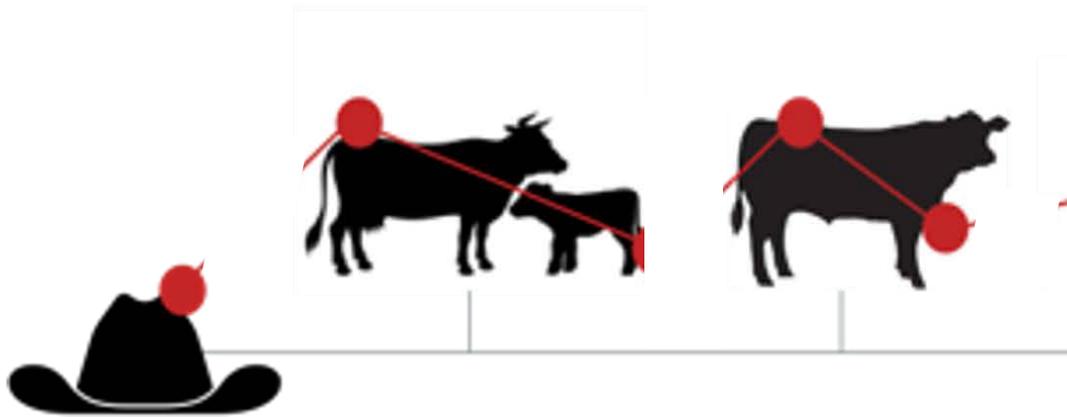
Data Capture & Transfer – PLF Opportunities

- Which is more valuable?
 - Data
 - Useful exchange



Data Capture & Transfer – PLF Opportunities

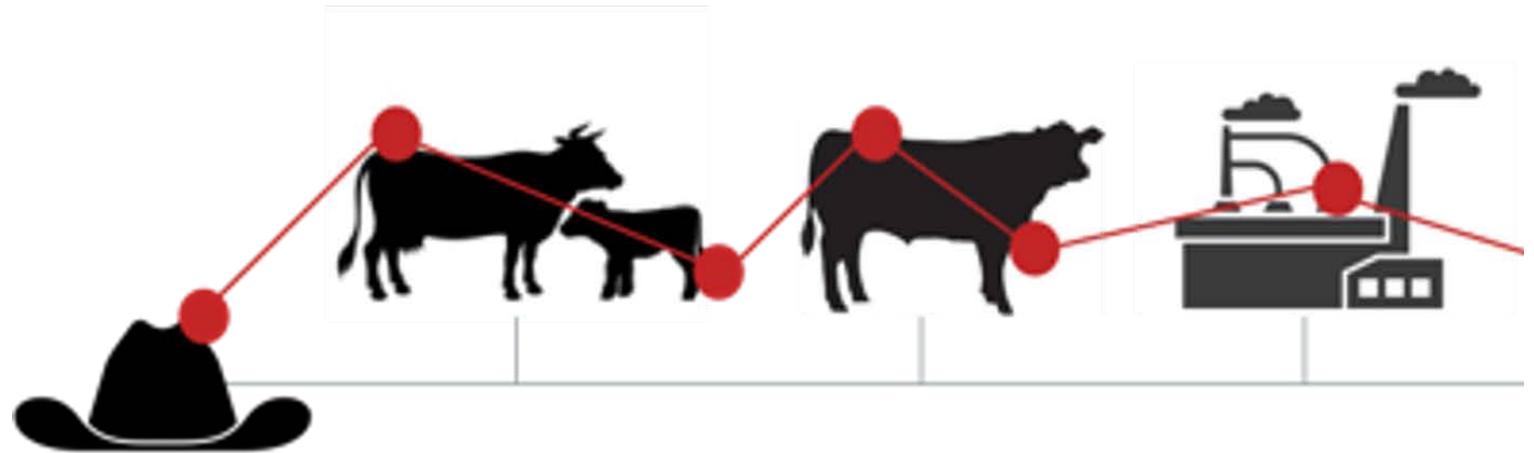
- Which is more valuable?
 - Data
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Data Capture & Transfer – PLF Opportunity

The data needs to be delivered in a useful format and time

- How many opportunities to implement individual animal management?



PLF Adoption Considerations

Animal Welfare and Data Privacy



Image credit: Cargill 2018



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PERFORMANCE LIVESTOCK ANALYTICS

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PLA may modify the terms and conditions of the agreement using the contact information customer has provided. Any renewal term customer may terminate the agreement. If the changes take effect in the next 30 days, the changes by providing PLA notice of its intent to the time the changes take effect then customer



Solution Opportunities For Precision Livestock Management

- Capture the value of normal management
 - Value added vs. value captured
 - Solution becomes part of your daily workflow
- Improve animal performance or well being
 - Reduce stress
 - Enhanced health outcomes
- Enhance labor efficiency creating options for availability and skillsets
- Future value proposition by improve the decisions at the next segment

"I think changing behavior is extremely difficult ... anybody who's very optimistic about changing behavior is just deluded. It's hard to change other people's behavior. It's very hard to change your own."

Daniel Kahneman



Thank You

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