



Leave it Better™

# CARBON CREDITS: On the Horizon

*27 February 2024 – Sask Milk Dairy Info Day*  
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# Topics

- What is a carbon credit?
- How are credits generated?
- What's the state of the carbon market?
- What's coming down the line?



# What is Carbon?

- Chemical element
- 15<sup>th</sup> most common element on earth
- 2<sup>nd</sup> most common element in the human body after oxygen
- An essential element to all life in the universe
- The "Carbon" discussion is not about elemental carbon
- Carbon mixed with other elements form 2 of the greenhouse gases (GHG):
  - Carbon dioxide (CO<sub>2</sub>)
  - Methane (CH<sub>4</sub>)
  - Nitrous oxide (N<sub>2</sub>O – a molecule of nitrogen and oxygen)

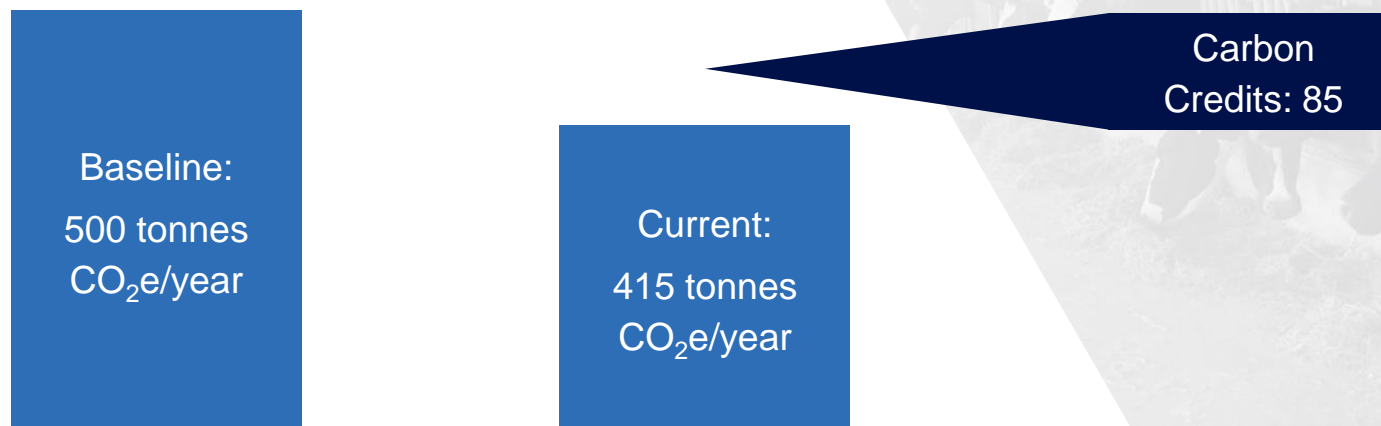
# What is a Carbon Credit?

- Carbon credits are units of carbon dioxide equivalents (CO<sub>2</sub>e)
  - 1 carbon credit is 1000kg of CO<sub>2</sub>e (1 tonne)
- What is it “equivalent” to?
  - The three main GHG have been assigned a value that indicates how much solar energy they retain over 100 years (global warming potential – GWP)
  - CO<sub>2</sub> has a GWP of 1
  - CH<sub>4</sub> has a GWP of 27 (non-fossil fuel)
  - N<sub>2</sub>O has a GWP of 273
- CH<sub>4</sub> and N<sub>2</sub>O have 27 and 273 times the ability to retain solar energy over a 100-year period relative to CO<sub>2</sub> respectively
- 1 tonne of CH<sub>4</sub> = 27 tonnes of CO<sub>2</sub>e
- 1 tonne of CH<sub>4</sub> = 27 carbon credits

# Where does the “Credit” fit in?

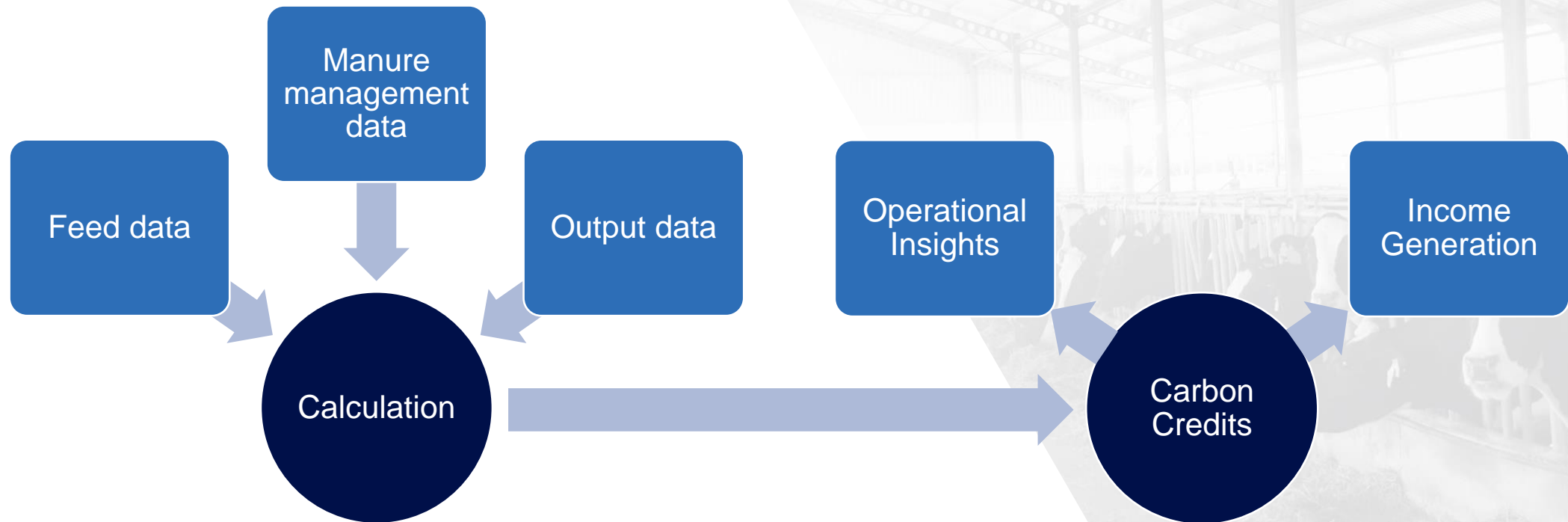
- Carbon Credits are generated through calculations
- Calculations are compared to some baseline or original value
- Any time an operation reduces CO<sub>2</sub>, CH<sub>4</sub>, or N<sub>2</sub>O relative to the baseline, they generate credits
- Credits indicate that GHG have been prevented from entering the atmosphere

*For example:*



# How are carbon credits made?

- Carbon credit calculation is complex and involves multiple streams of data converging into one calculation



# What's the current state of livestock carbon markets in Canada?

- Carbon credits generated by feedlot operators in Alberta are earning 85-95% of the Federal Carbon Price per credit
- Feedlot producers are creating approximately 0.11 credits/hd/y:
  - ~\$8/hd/y in 2024; ~\$17/hd/y by 2030
- The federal carbon price has become a political football – these prices and opportunities may not last until 2030
- Currently no opportunity for dairy operators to participate in this market
- Carbon markets also exist outside the regulated price arena
  - Trend now is toward carbon insetting instead of offsetting
  - Insetting keeps the emissions reductions within the supply chain
  - Prices are difficult to determine, but appear to be 60-80% of the federal carbon price
  - Fast-paced and challenging to keep up with – it's the wild west!

# What's on the horizon for dairy producers?

- Carbon Insetting models will continue to evolve and grow, some will fail and others will succeed
- UpLook Dairy
  - Elanco Knowledge Solutions™ service that has been successfully introduced in the United States
  - The first carbon credits from this service were minted by Athian™ and sold on January 2<sup>nd</sup>, 2024 to Dairy Farmers of America
  - Current calculations include a protocol for Rumensin®, to be expanded as other products are introduced
- UpLook™ Dairy is being evaluated for the Canadian Dairy industry with no defined timeline for release



# What's on the horizon for dairy producers?

- Dairy opportunities in Canada may bypass the government-organized offset markets and start with private insetting market models
- Dairy operations across Canada should be preparing for the data demands of the carbon industry – digitization of farm records will be a requirement of all carbon calculation platforms. Start now!

# Animals Will be a Part of the Solution

4 ways to enhance livestock sustainability

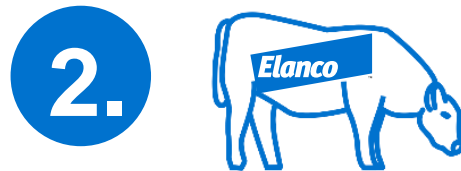


## On the Land

- *Feed & forage improvements*
- *Cover crops*
- *Pasture management*
- *No-till farming*

**Value creation:**

Production improvement and environmental stewardship



## In the Animal

- *Genetics*
- *Nutrition management*
- *Animal health*
- *Methane-reducing feed ingredients*
- *Production efficiency*

**Value creation:**

Carbon credit reduction from feed additives



## Out of the Animal

- *Bio-digesters*
- *Manure management*
- *Water usage*

**Value creation:**

Fertilizer revenue, water quality, tax credits



## Operations

- *Data and tracking*
- *Energy efficiency*
- *Production efficiency*

**Value creation:**

Reduced on-farm resource needs

# Leave it Better™

- Questions?

