



# Workshop Series: Reusable Research Data Made Shiny

Ontario Dairy Research Centre | Zoom  
February 21<sup>st</sup> - 24<sup>th</sup>, 2023





## General daily schedule

Time	Event
08:30 - 09:00	Morning Coffee
09:00 - 10:15	<b>Session 1</b>
10:15 - 10:30	Coffee Social
10:30 - 12:00	<b>Session 2</b>
12:00 - 13:00	Lunch
13:00 - 14:30	<b>Session 3</b>
14:30 - 14:45	Coffee Social
14:45 - 16:00	<b>Session 4</b>



## Day 2 Overview

Session		Topic	Speaker (s)
Morning	1	FAIR Principles	Michelle Edwards
	2	FAIR Principles cont'd Data Reusability Mindset	Michelle Edwards Lucas Alcantara
Afternoon	3	Tour at the Ontario Dairy Research Centre (ODRC)	Lucas Alcantara Rebecca Dunn
	4	Discussion of Practical Data Collection and Challenges at the ODRC	Lucas Alcantara



Welcome!

Session 1

Session 2

Session 3

Session 4

Wrap-up!



# QUESTIONS?



Who has heard about the FAIR principles?  
What do they mean to you?



## FAIR Principles

### The FAIR Guiding Principles for scientific data management and stewardship

Wilkinson, M., Dumontier, M., Aalbersberg, I. *et al.* The FAIR Guiding Principles for scientific data management and stewardship. *Sci Data* **3**, 160018 (2016). <https://doi.org/10.1038/sdata.2016.18>



## FAIR Principles

Let's take a look at the FAIR Principles in a little more detail:

<https://www.go-fair.org/fair-principles/>



## FAIR Principles

Goal is to have all this occur as machine-actionable - Why?

- Imagine I have 30 years of data collected in binders – all handwritten numbers and notes
- How easy is it for me to search and find data collected on a specific date?
- Is it organized according to date?
- Is the handwriting legible? Was it in pencil?

How much data is collected today? Every hour?





## FAIR Principles

How do we make data FAIR?

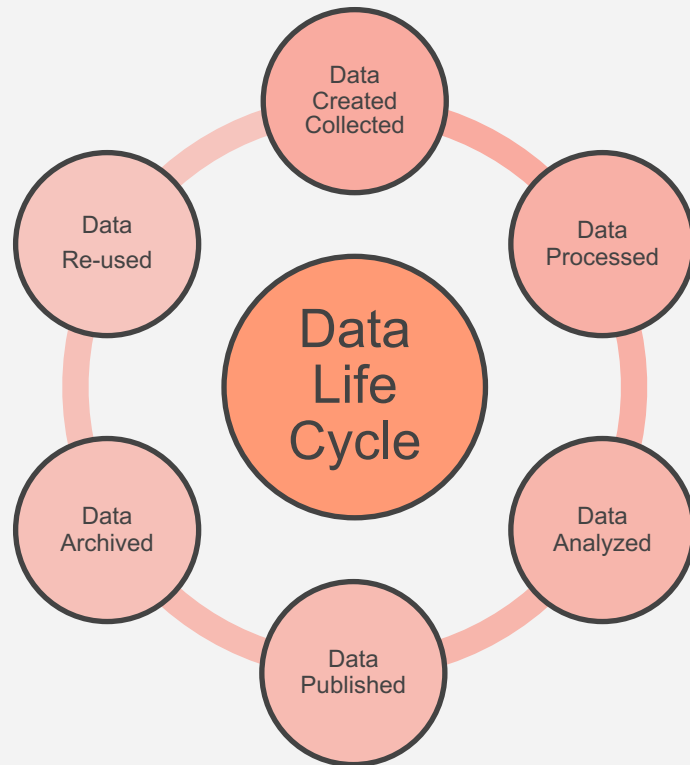
Think about our Data LifeCycle

F= Findable

A=Accessible

I=Interoperable

R=Reusable





## FAIR Principles - Exercise

How do we make data FAIR?

In groups of 4-5 (Online attendees we will create ROOMS for you), discuss how you would take one of your projects (past or present) and make it more FAIR. Document one way for each of the following:

F= Findable

A=Accessible

I=Interoperable

R=Reusable

Identify a reporter in your group to share your results with the larger group after Coffee Break



Welcome!

Session 1

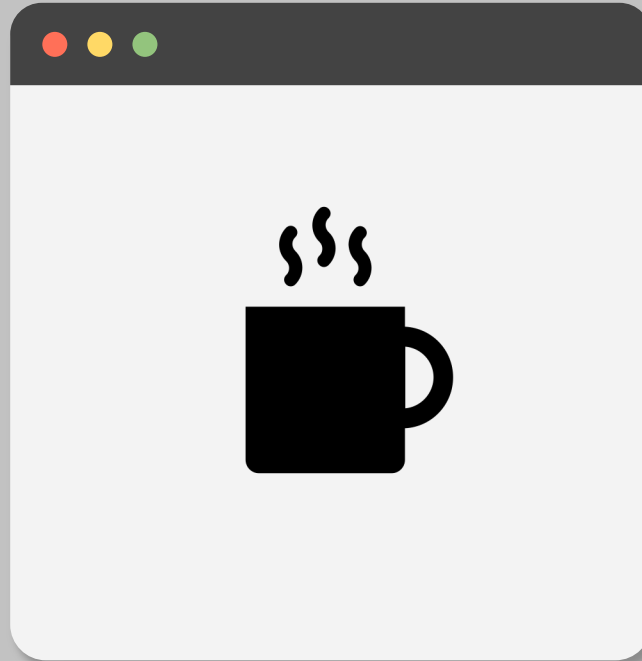
Session 2

Session 3

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Wrap-up!

# Coffee Break!





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FAIR Principles - Exercise

# Exercise DISCUSSION



## FAIR Principles – Reuse

How we are working to make "older" data reusable

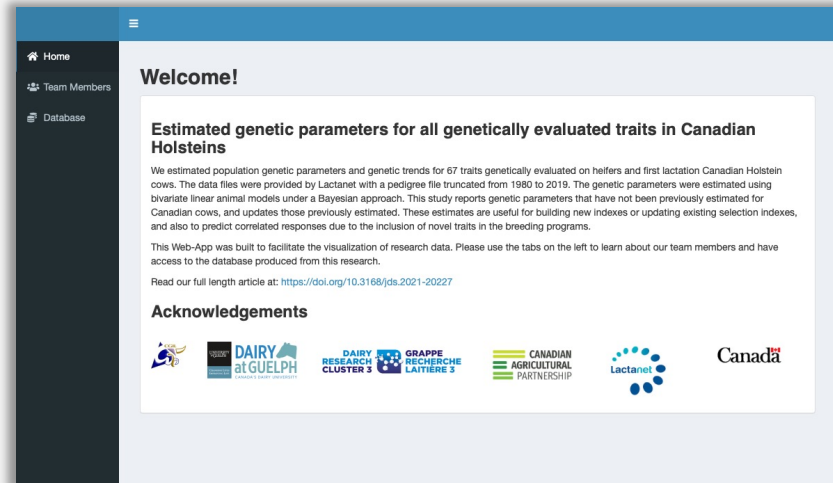
OAC Historical Research Data and Reproducibility Project

<https://borealisdata.ca/dataverse/ugardr>



# How to showcase your results to improve data reusability?

## Use an R-Shiny App



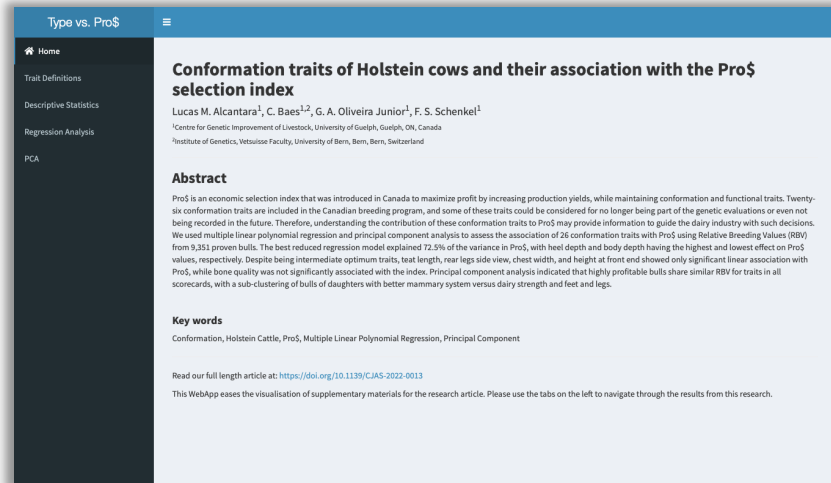
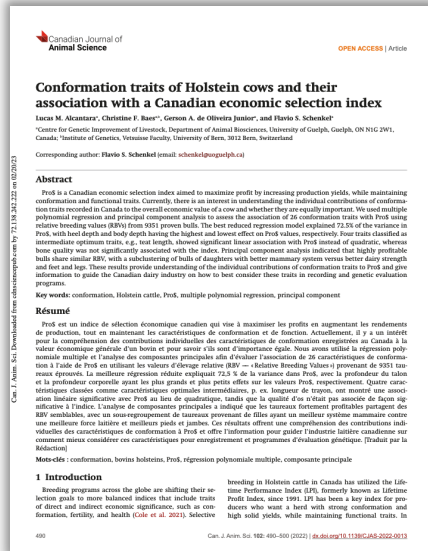
<https://cgil.shinyapps.io/correlations>

Oliveira Junior, G. A., Schenkel, F. S., Alcantara, L., Houlahan, K., Lynch, C., & Baes, C. F. (2021). Estimated genetic parameters for all genetically evaluated traits in Canadian Holsteins. *Journal of Dairy Science*, 104(8), 9002-9015. <https://doi.org/10.3168/jds.2020-19830>



# How to showcase your results to improve data reusability?

## Use an R-Shiny App



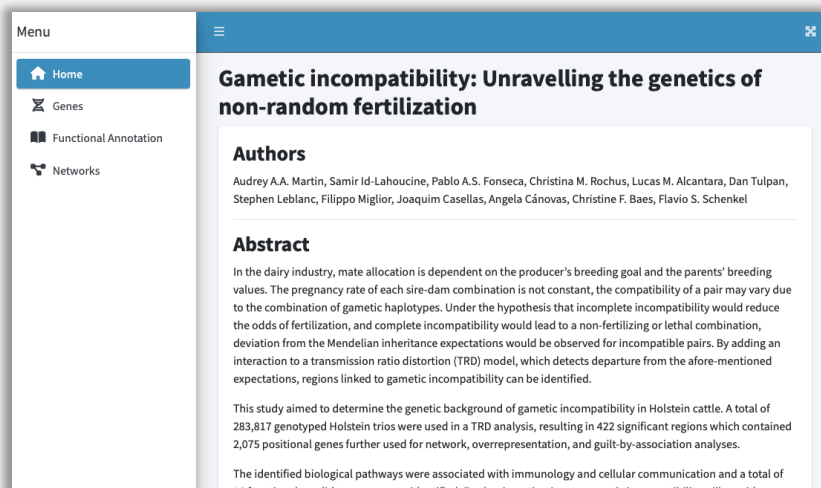
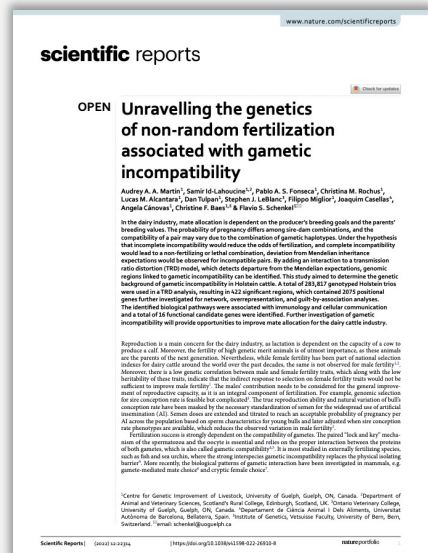
<https://alcantara.shinyapps.io/prodollar>

Alcantara, L.M., Baes, C.F., Oliveira Junior, G.A., and Schenkel, F.S. (2022). Conformation traits of Holstein cows and their association with a Canadian economic selection index. *Canadian Journal of Animal Science*. 102(3): 490-500. <https://doi.org/10.1139/cjas-2022-0013>



# How to showcase your results to improve data reusability?

## Use an R-Shiny App



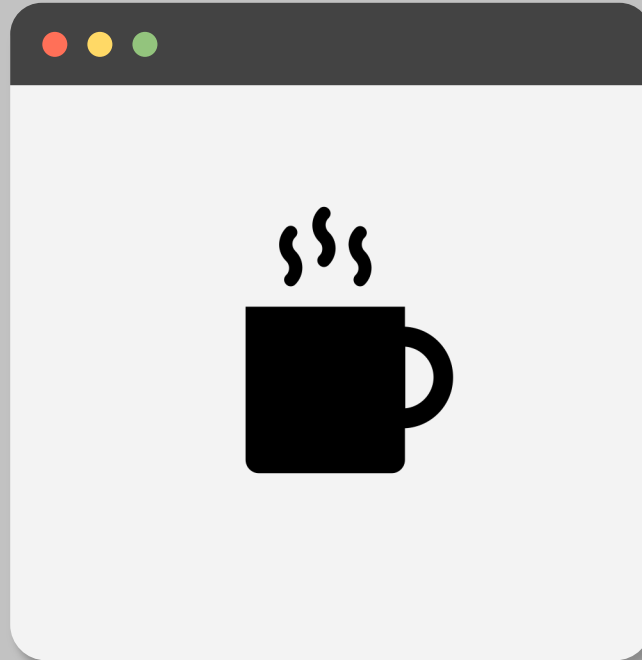
<https://aaamartin.shinyapps.io/netview>

Martin, A.A.A., Id-Lahoucine, S., Fonseca, P.A.S., Rochus C.M., Alcantara, L.M., et al. (2022). Unravelling the genetics of non-random fertilization associated with gametic incompatibility. *Scientific Reports* 12, 22314. <https://doi.org/10.1038/s41598-022-26910-8>





# Coffee Break!





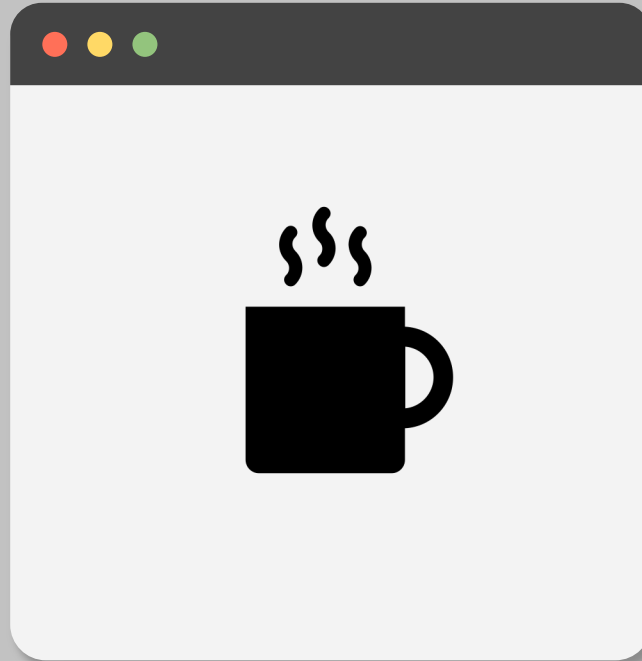
## Tour at ODRC

Online attendees:

- 360° Tours at the Ontario Agri-Food and Innovation Alliance YouTube channel: [@AgInnovationON](#)
- Maternity and Special Needs: <https://youtu.be/OiMbJdyZXBw>
- Robotic Milking System: <https://youtu.be/2DYhSSAFMlc>
- Rotary Parlour: <https://youtu.be/VuIIFAvOjNE>
- Calf Nursery: <https://youtu.be/HdMAsASf43Q>
- Lactating Cow Housing: <https://youtu.be/IJncYUAeSRY>



# Coffee Break!





Welcome!

Session 1

Session 2

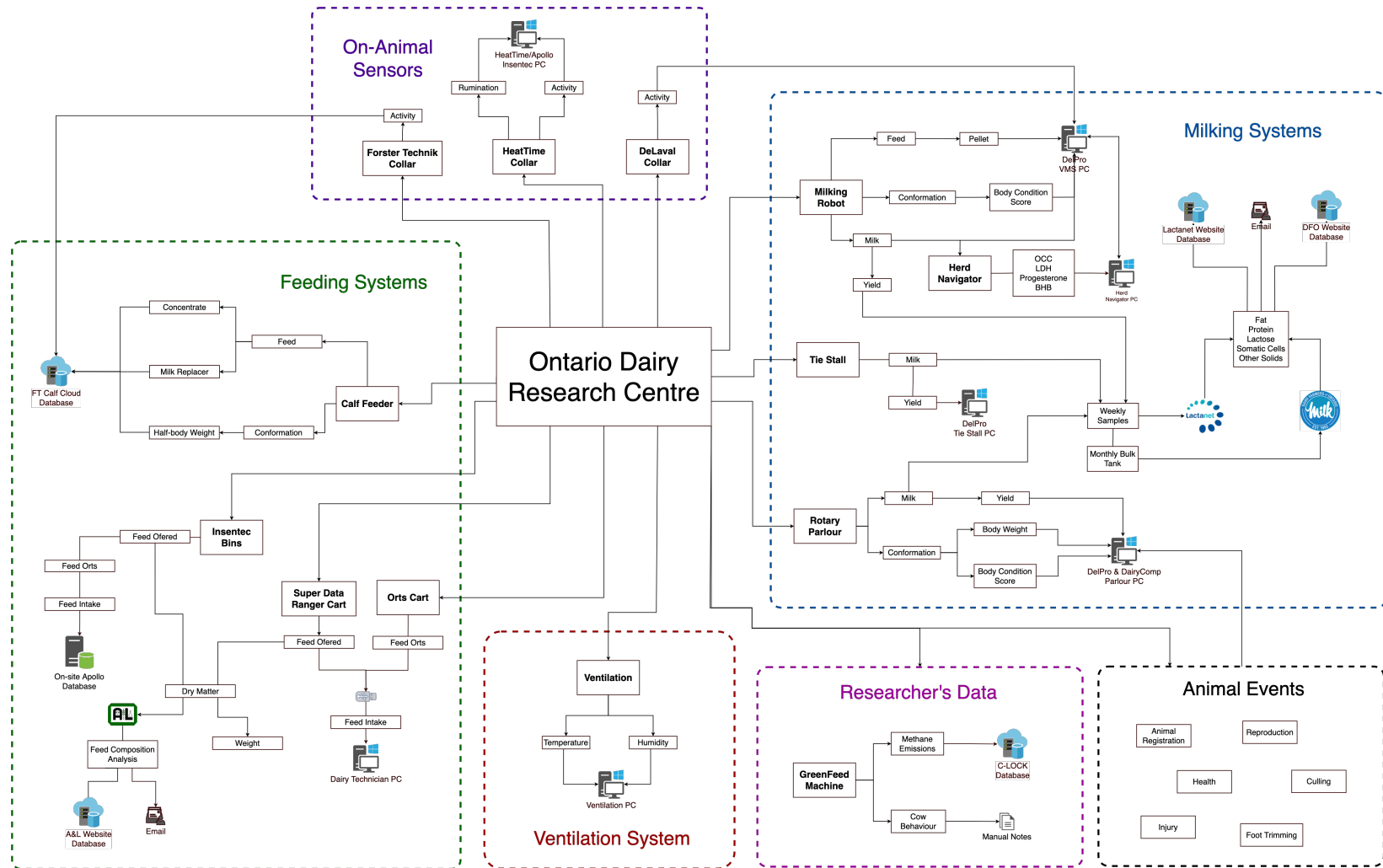
Session 3

Session 4

Wrap-up!

## Practical Data Collection and Challenges at the ODRC

# DISCUSSION





## Get ready for tomorrow

1. Posit Cloud
  - a. Register online if you have not done so yet
  - b. If you can, get familiar with it
    - i. Take a peak at tomorrow's projects on our Workspace
    - ii. Don't look at the answers just yet ;)
2. Don't forget to bring your own laptop, as one will not be provided for you.