



**GIFS** | GLOBAL INSTITUTE  
FOR FOOD SECURITY

*Growing science for life*

Nutrien - a Founding Partner

# Innovation and technology advancing food security

Steve Webb, CEO

June 2023

Founding Partners:

[www.gifs.ca](http://www.gifs.ca)

**Nutrien**<sup>™</sup>  
*Feeding the Future*<sup>™</sup>

 Government  
of  
Saskatchewan

 UNIVERSITY OF  
SASKATCHEWAN

# About GIFS

- Established in 2012.
- Industry-Government-Academic Partnership.
- Truly **Global**: Staff from 24 countries.



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# GIFS Role: Our Vision and Mission



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## Our **vision** inspires us

A world where everyone has access to safe and nutritious food

## Our **mission** drives us

We work with partners to discover, develop, and deliver innovative solutions for the production of globally sustainable food



# GIFS: Our Purpose

An ag. and food *connector* and *innovation catalyst* delivering successful outcomes:

- We advance innovation.
- We bridge commercialization.
- We are a service connection bridge.



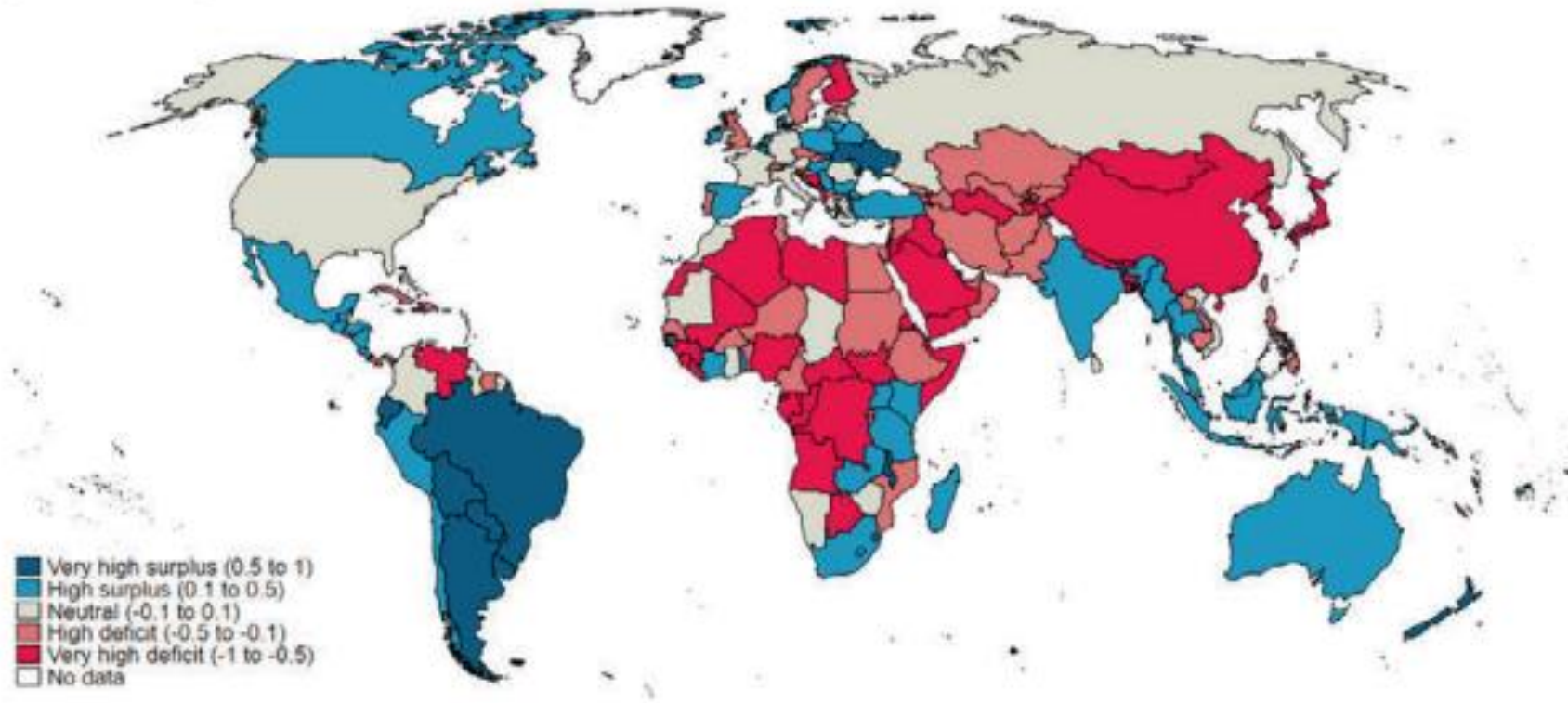
# GIFS: Our Location

- We're in the perfect location in **Saskatoon, Saskatchewan**:
- The heart of Canada and **sustainable** Western Canadian agriculture (Saskatchewan, Alberta, Manitoba)
  - **40%** of Canada's arable land and **30%** of its ag biotech industry
  - Producing wheat, canola and pulses and other commodities with a **smaller carbon footprint**
- Location of major ag. and food companies and multinationals
- Location of several leading-edge science organizations



# Food Security Trade

a) Food net position, 2021



**Food Net Exporters**

**Food Net Importers**

United Nations Conference on Trade and Development: Key statistics and Trends in International Trade 2022, [unctad.org/system/files/official-document/ditctab2023d1\\_en.pdf](https://unctad.org/system/files/official-document/ditctab2023d1_en.pdf)

# Delivering Sustainable Global Food Security



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**Food security:** Ability of all people at all times to have access to sufficient, safe and nutritious food

## Challenges and opportunities

- Growing global population: **8B people**
- Trade, infrastructure deficits, disjointed global regulatory environment
- Urbanization and changing consumer diets
- Geopolitics
- **Innovation**



# Innovation and Food Security

- Increased capabilities and capacities for innovation
- Track-record of collaboration, innovation and safety
- Regulations supporting research, development and transfer of innovative science





# 1. Gene Editing

- New crop varieties that are **more resilient** and **tolerant** to drought, heat, pests and disease
- Enhance food quality and **address nutritional deficiencies**
- **Accelerated breeding**: More rapidly bring new crop varieties to market and shortening the breeding cycle



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## 2. Vertical Farming

- Production in controlled environments
- Requires **fewer inputs** (herbicides, pesticides) and less water
- **Increased efficiency:**  
More produce per acre



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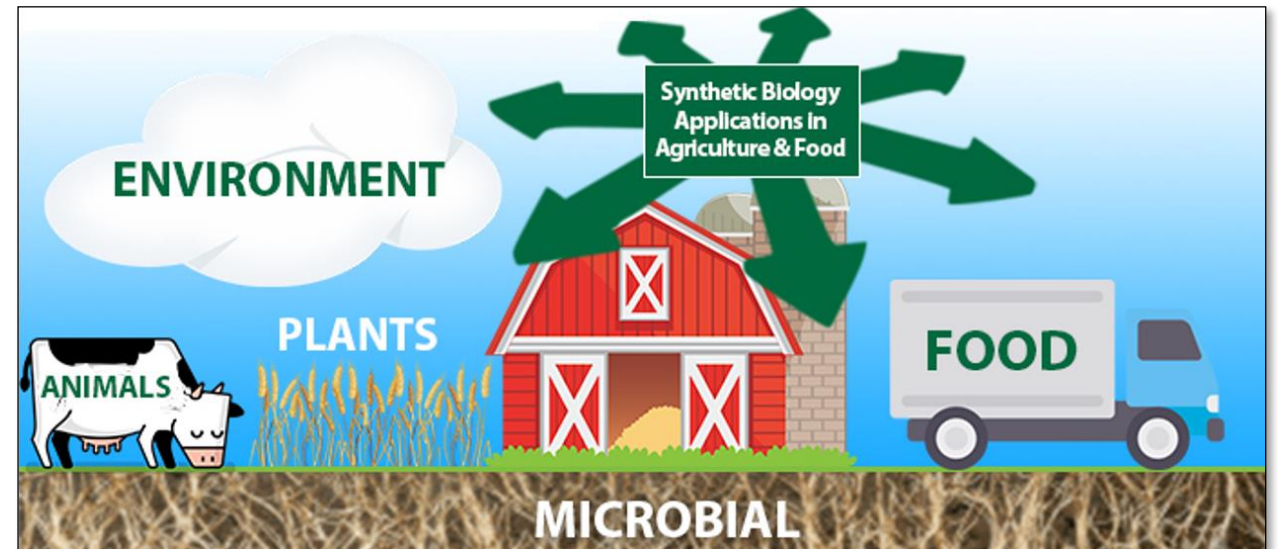
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## 3. Biomanufacturing

- Use of **automation & miniaturization**, **biology** and **computation** to produce the reagents, peptides, enzymes and other materials industry needs to deliver products on a large scale
- Diverse applications in agri-food:
  - Make food production **more efficient**
  - Increase the **nutritive value** and **flavour** of food
  - Create new food products
- GIFS is building Canada's **only** biomanufacturing facility dedicated to advancing sustainable agriculture and innovative food ingredients





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## 4. Regenerative Agriculture

- **Ag as a solution:** Leave the land better than it was
- **Regional differences:** Cropping systems, tools, machinery and scale differs from one region to the next
- Many tools already available: **precision ag** and **variable-rate technology**
- Many practices already widely adopted in Western Canada: **No-till**, **crop rotation**, **nitrogen-fixing pulse crops** and **herbicide-tolerant canola**

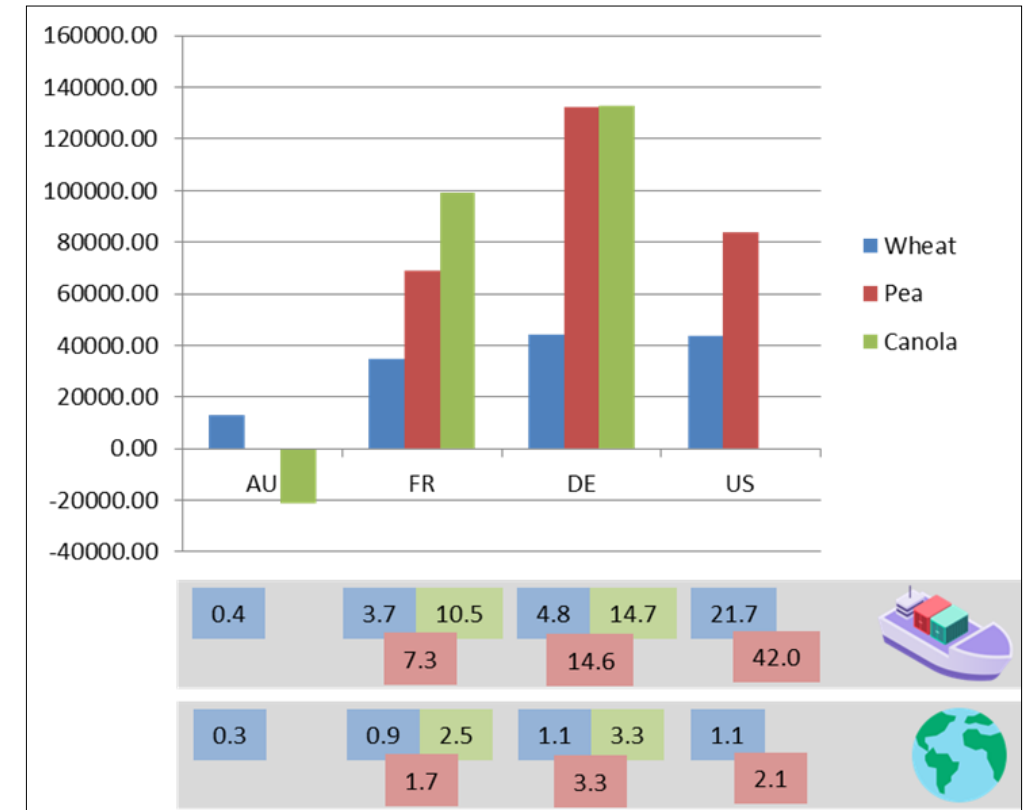


# Sustainable Agriculture

- Sustainable agriculture: Three equally important pillars of **economic, environmental** and **social value**
- National Index on Agri-food Performance: Canada's first agri-food sustainability index highlighting sustainable production and areas to improve

## Canadian Successes

- Sustainable farming practices in Western Canada have:
  - Transformed the soil from a GHG emitter to a **net carbon sink**
  - Resulted in lower carbon footprints in food production:
    - Wheat produced in Saskatchewan has **200% lower carbon footprint** than in Germany
    - Saskatchewan can **ship wheat 3.5 times round the world** before reaching the carbon footprint of some European countries



# Let's Work Together

- GIFS is a **connector** and agriculture **innovation catalyst**
- A bridge builder, connecting the agri-food value chain to enhance food security
- [partnerwithus@gifs.ca](mailto:partnerwithus@gifs.ca)



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## CONTACT US



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# THANK YOU



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