TGI is launching a Challenge...

to leverage the best of geospatial to help create a food secure future

TGI's approach

Taylor Geospatial Institute focuses on:

1. identifying the problems that most need geospatial innovation
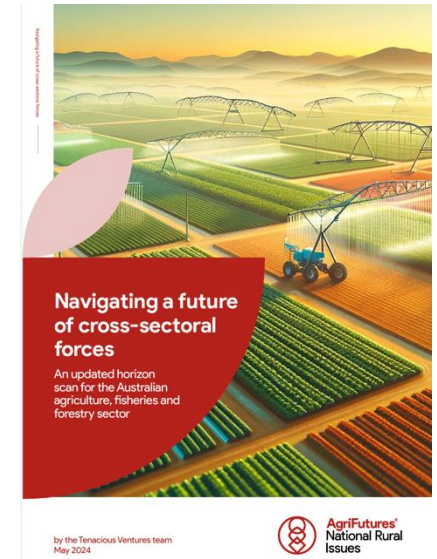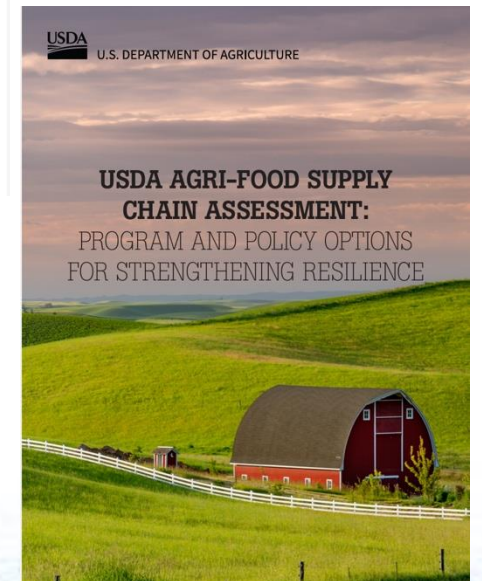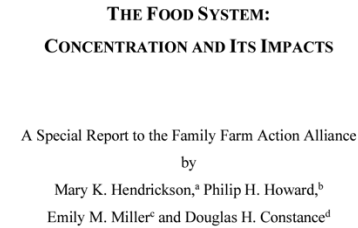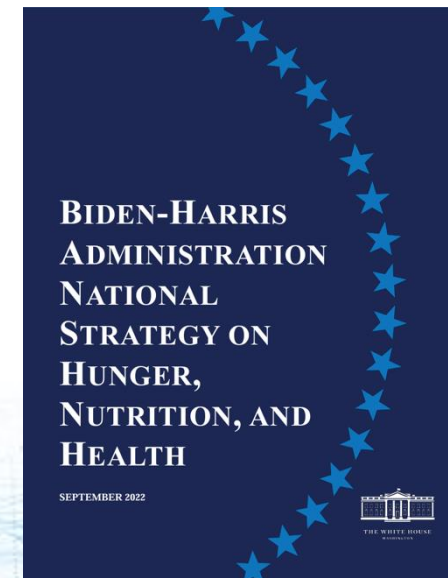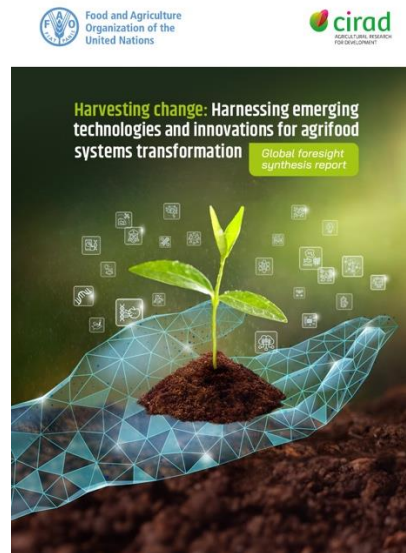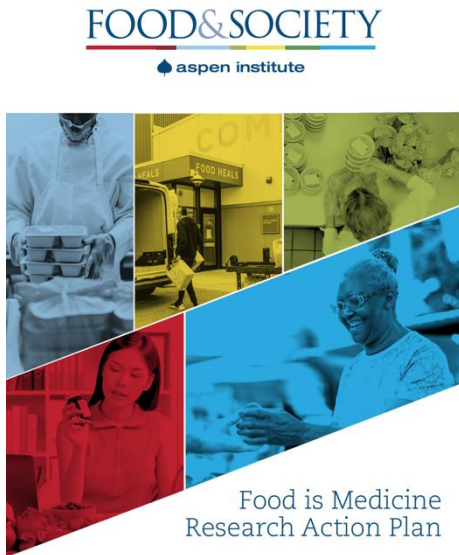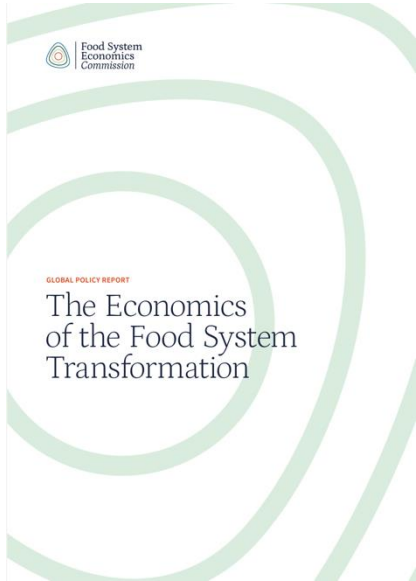2. getting research on how to address them into action.

3 steps to foster new geospatial capabilities for food security

- Horizon Scanning

- Collaborating to identify interesting problems

- Funding interdisciplinary applied research teams

Horizon Scan: What drives the risk of not creating a more food secure future?

The Economics of the Food System Transformation
GLOBAL POLICY REPORT
Food System Economics Commission

FOOD&SOCIETY
aspen institute
Food is Medicine Research Action Plan

Food and Agriculture Organization of the United Nations
cirad AGRICULTURAL RESEARCH FOR DEVELOPMENT
Harvesting change: Harnessing emerging technologies and innovations for agrifood systems transformation
Global foresight synthesis report

THE FOOD SYSTEM: CONCENTRATION AND ITS IMPACTS

A Special Report to the Family Farm Action Alliance
by
Mary K. Hendrickson,[a] Philip H. Howard,[b]
Emily M. Miller[c] and Douglas H. Constance[d]

[a] University of Missouri
[b] Michigan State University
[c] Family Farm Action Alliance
[d] Sam Houston State University

Navigating a future of cross-sectoral forces
An updated horizon scan for the Australian agriculture, fisheries and forestry sector
by the Tenacious Ventures team
May 2024
AgriFutures National Rural Issues

USDA U.S. DEPARTMENT OF AGRICULTURE
USDA AGRI-FOOD SUPPLY CHAIN ASSESSMENT: PROGRAM AND POLICY OPTIONS FOR STRENGTHENING RESILIENCE

BIDEN-HARRIS ADMINISTRATION NATIONAL STRATEGY ON HUNGER, NUTRITION, AND HEALTH
SEPTEMBER 2022
THE WHITE HOUSE

What are some things we could do with geospatial to enable food security?

LCA and location weighted fair price for food
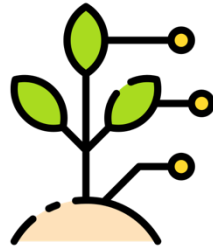
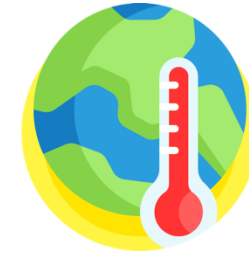Sustainable production, better labor conditions

Zero waste in ag and food systems

Data-driven experimentation across food systems

Common elements in risks to food security

- Uneven power dynamics: economic, political and social

- Unanticipated climate change impacts

- Poor communication of information

- Poor information in the first place

What is the most impactful way geospatial could reduce risks of future food insecurity?

Sustainable Agricultural Landscapes

Avoided Food Loss and Waste

Equitable Nutrition Access
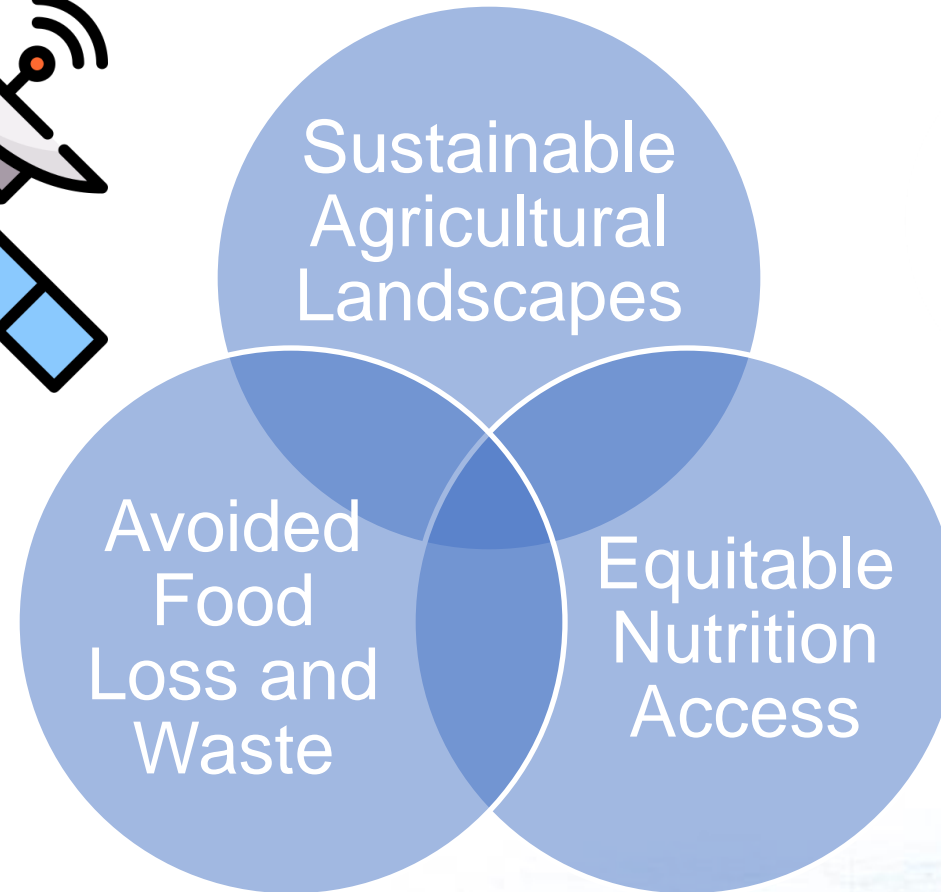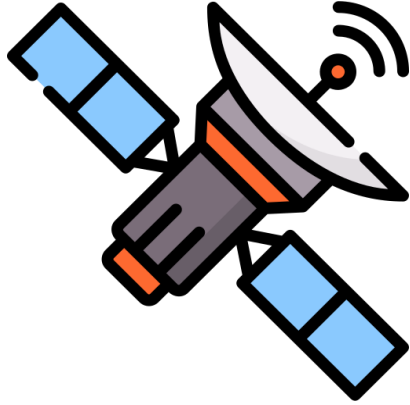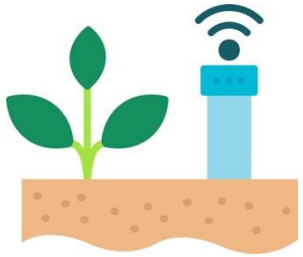
Beyond the reports...

A view from Northern Ireland

- We need spatially granular measurements of soil health and biodiversity as public goods.

- We need measurement systems to evidence farmer journeys as they adopt new practices.

- The future of farming will move away from monocultures and into more complex systems. We will need spatial data to manage complexity.
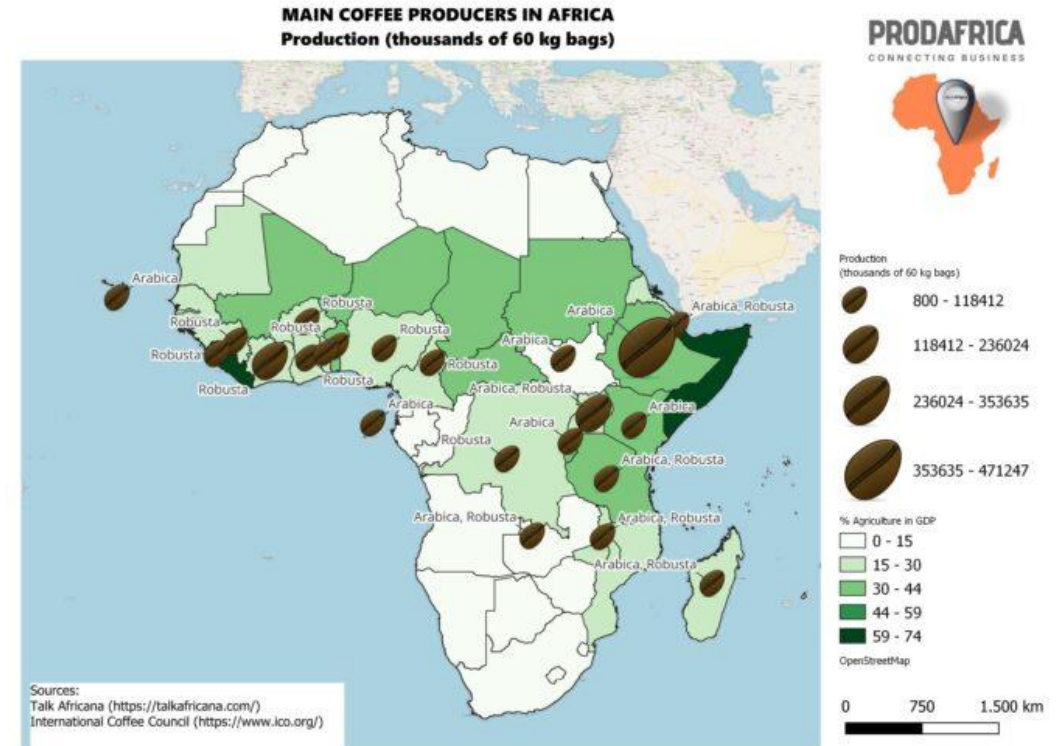
A view from East Africa

- Investments in supply chain sustainability are part of corporate strategic responsibility. They need spatial data visualizations of the impacts of interventions.

- The Modern slavery act compliance is a driver. Every crop has a 'dna' based on where its produced. Spatial data is needed to link commodities to very specific locations.

MAIN COFFEE PRODUCERS IN AFRICA
Production (thousands of 60 kg bags)

PRODAFRICA
CONNECTING BUSINESS

Production
(thousands of 60 kg bags)
- 800 - 118412
- 118412 - 236024
- 236024 - 353635
- 353635 - 471247

% Agriculture in GDP
- 0 - 15
- 15 - 30
- 30 - 44
- 44 - 59
- 59 - 74
OpenStreetMap

0   750   1.500 km

Sources:
Talk Africana (https://talkafricana.com/)
International Coffee Council (https://www.ico.org/)

TGI

A view from the US science/policy space

- Organizations need data on soil health and soil carbon sequestration. The agricultural carbon market is coming, and Growing Climate Solutions Act is a reality.

- It's not clear which gov't funded programs are effective. We need spatial data to evaluate what works and to validate claims.
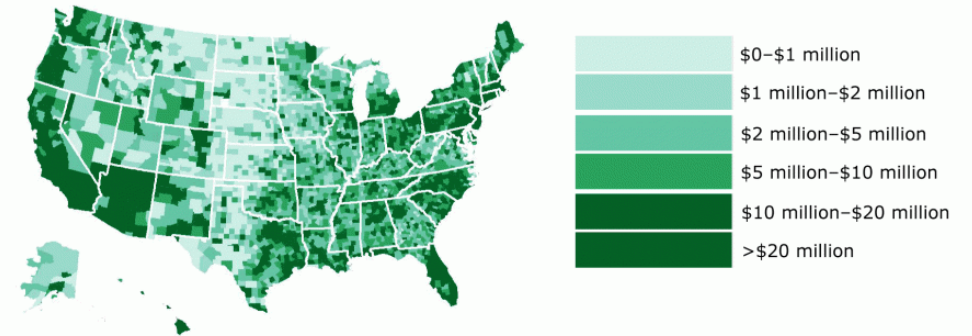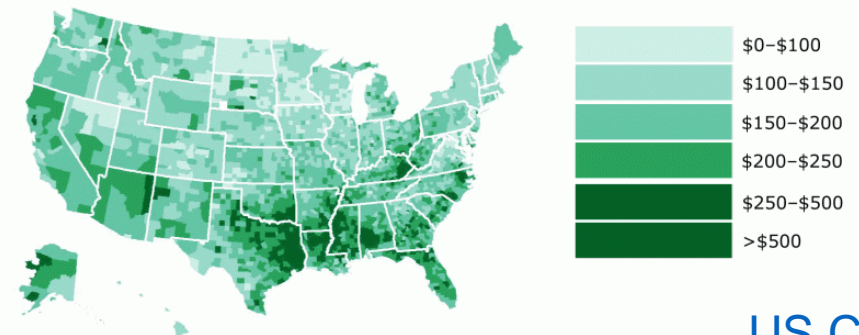
A view from the US rural policy space

- We need to increase the visibility of the impacts of the consolidated sectors in food and agriculture that shape how food is produced, marketed and accessed.

- We need to model and increase the visibility of the true costs of food, inclusive of costs to public health.

A Health Care Cost Associated with Food Insecurity, by County

- $0–$1 million
- $1 million–$2 million
- $2 million–$5 million
- $5 million–$10 million
- $10 million–$20 million
- >$20 million

B Per Capita Health Care Cost Associated with Food Insecurity, by County

- $0–$100
- $100–$150
- $150–$200
- $200–$250
- $250–$500
- >$500

US CDC

Common threads

- We need spatial data for food system businesses to cost in sustainability and health impacts.

- We need spatial data to incentivize behavior changes by demonstrating their positive impacts.

- We need locally adapted approaches to all aspects of food systems.

Next steps…

- Launching the Geospatial Innovation for Food Security Challenge
  - Foster collaborations - *always*
  - Collectively identify important problems – *Nov '24 – April '25*
  - Invest in projects to co-evolve emergent geospatial tech with approaches to food security challenges – *Call for project proposals summer '25*