"Our" perspectives | Sustainability momentum
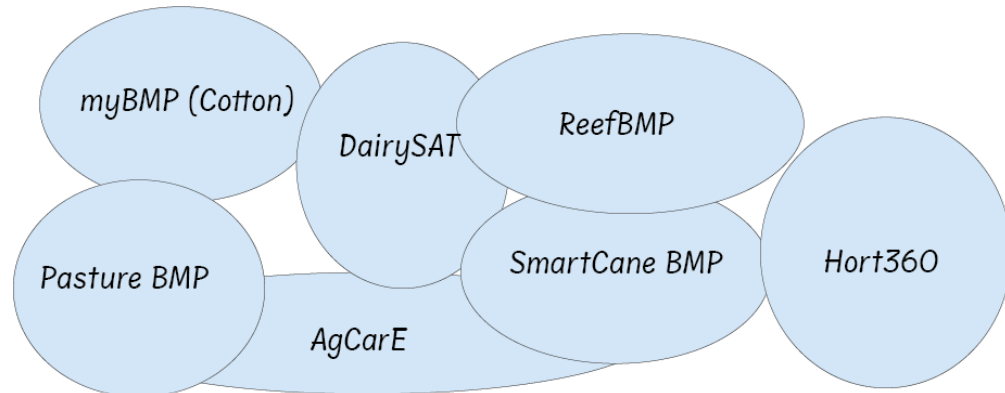
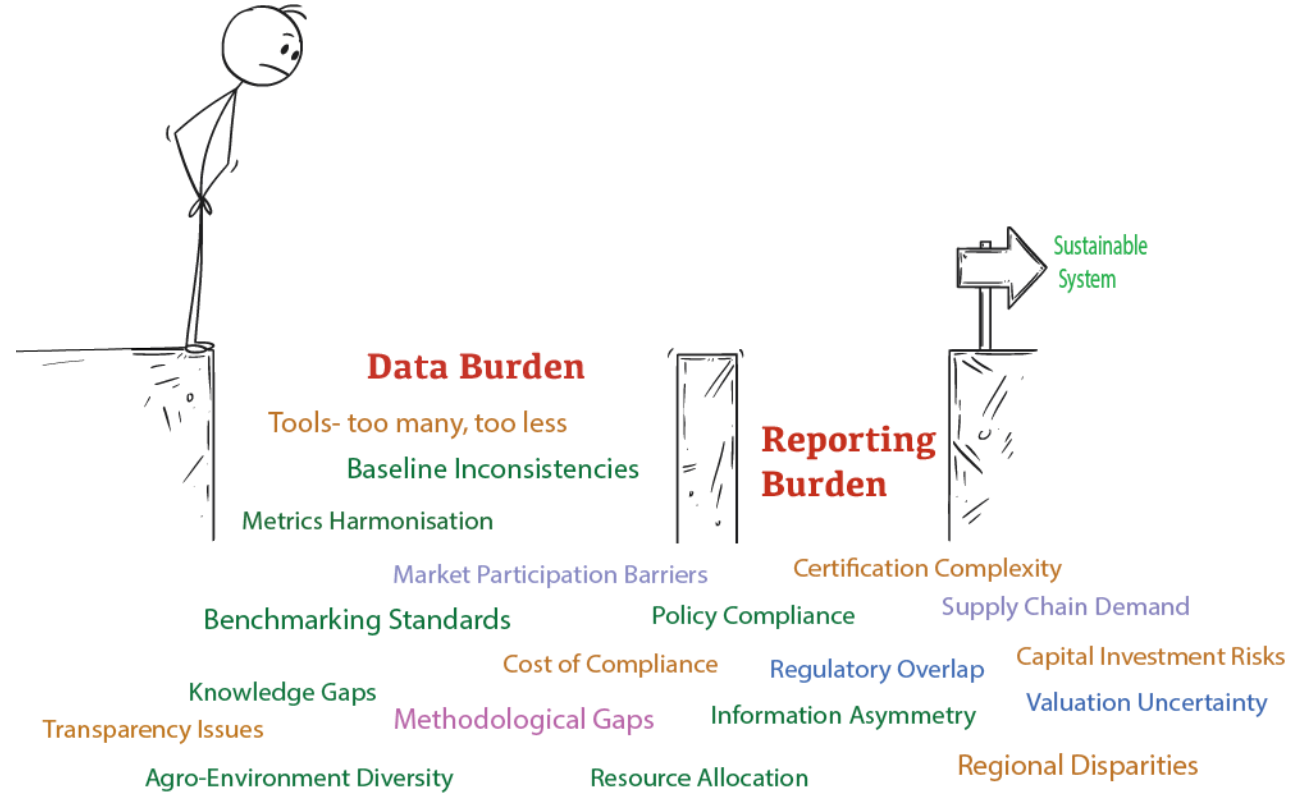**"Their" perspectives | Emerging concerns**

Frameworks

Australian Agricultural Sustainability Framework

Taskforce on Nature-Related Financial Disclosures (TNFD)

Australian Certified Organic (ACO)

International Sustainability and Carbon Certification (ISCC)

Australian Grains Industry Sustainability Framework

Agricultural Biodiversity Stewardship Package

Meat & Livestock Australia Carbon Neutral by 2030

Australian Export Grains Innovation Centre Sustainability Initiatives

Biodiversity Offset Scheme

Sheep Sustainability Framework

Nature Repair Market

Practices/Tools

myBMP (Cotton)

DairySAT

ReefBMP

Pasture BMP

AgCarE

SmartCane BMP

Hort360

Data Burden

Tools- too many, too less

Baseline Inconsistencies

Metrics Harmonisation

Reporting Burden

Sustainable System

Market Participation Barriers

Certification Complexity

Benchmarking Standards

Policy Compliance

Supply Chain Demand

Cost of Compliance

Regulatory Overlap

Capital Investment Risks

Knowledge Gaps

Methodological Gaps

Information Asymmetry

Valuation Uncertainty

Transparency Issues

Agro-Environment Diversity

Resource Allocation

Regional Disparities

GRDC
GRAINS RESEARCH & DEVELOPMENT CORPORATION
UOQ2307-003RTX

Sustainability Tracker Tool- for downscaling and implementing Sustainability Frameworks

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Acknowledgment of **Country**

The University of Queensland (UQ) acknowledges the Traditional Owners and their custodianship of the lands on which we meet.

We pay our respects to their Ancestors and their descendants, who continue cultural and spiritual connections to Country.

We recognise their valuable contributions to Australian and global society.

Review of Existing Sustainability Frameworks
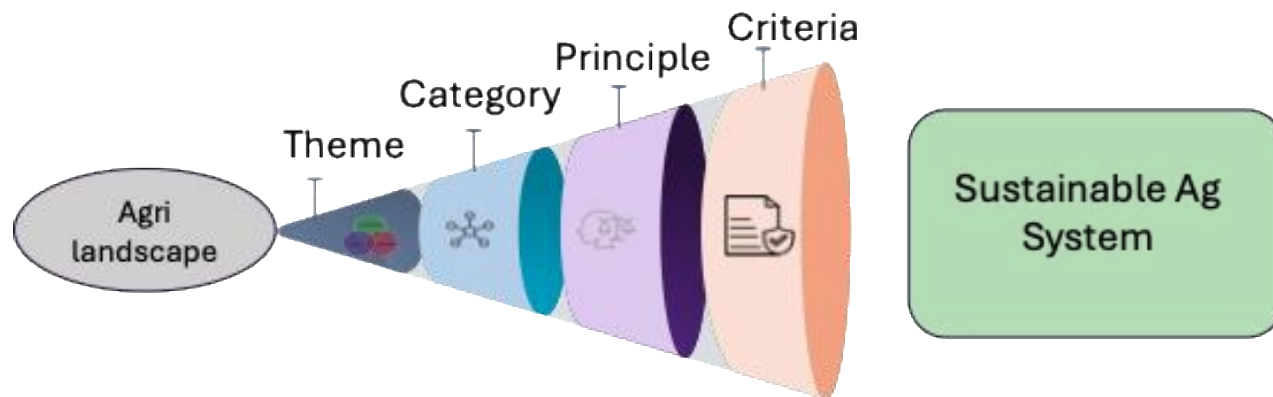
Criteria and Supporting indicators are generic

- need to be tailored for particular commodity-based system
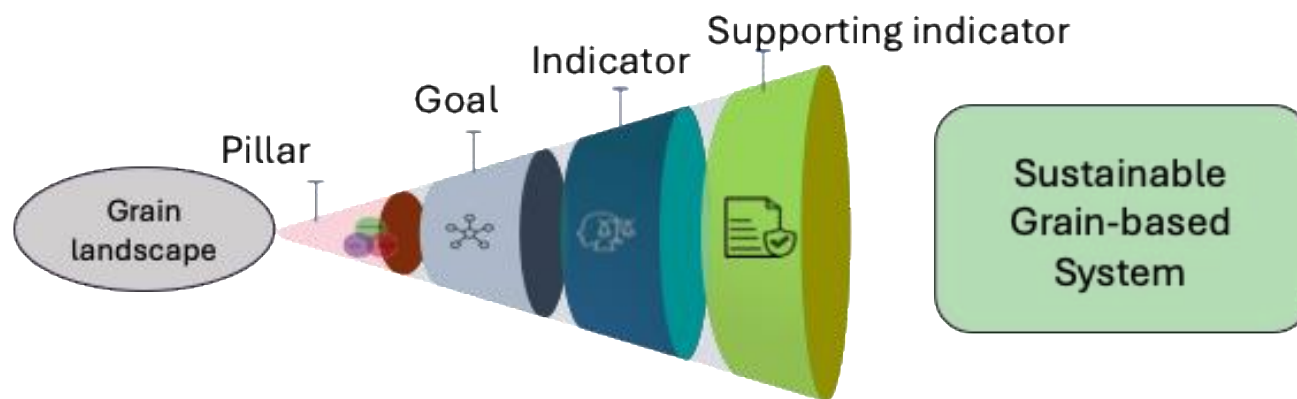
# Grower and Stakeholder Perspectives

Growers: data burden, profit in the centre of sustainability concept

Researchers: How to address diversity among production systems while using these frameworks

Industries: Linking different segments of the value chain, Carbon market, Traceability, Biodiversity

# Developing Methodologies for Sustainability Assessment
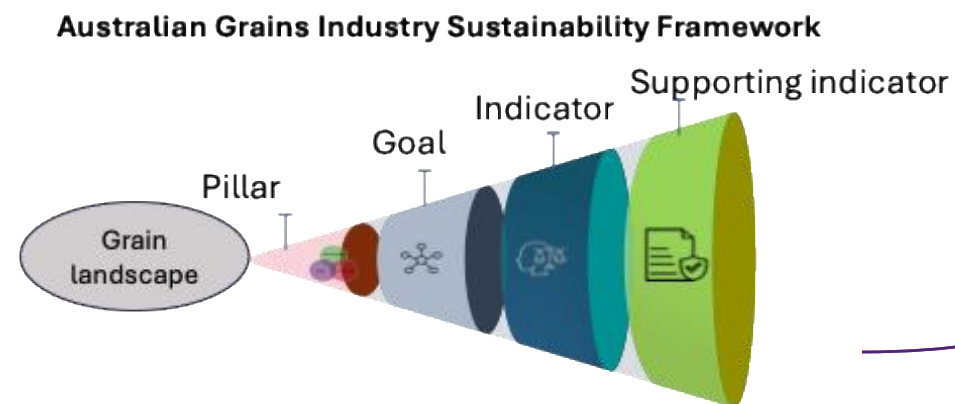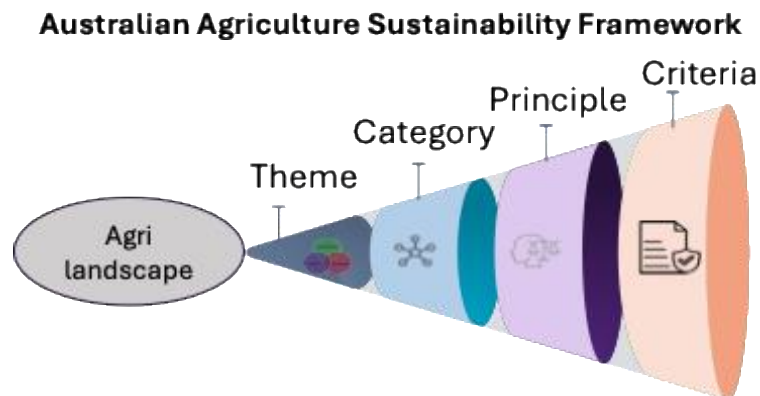
Structure

Representations of property level and crop specific practices/decisions

Assessment

Defining and methodologies of benchmarking and sustainability scoring

Sustainability Tracker Tool

- Reducing data-burden on growers

- Focus on practices rather than only impact indicators

- Backend machine learning models for benchmarking and computing sustainability scoring

- Current version is tailored to grain-based system (wheat)
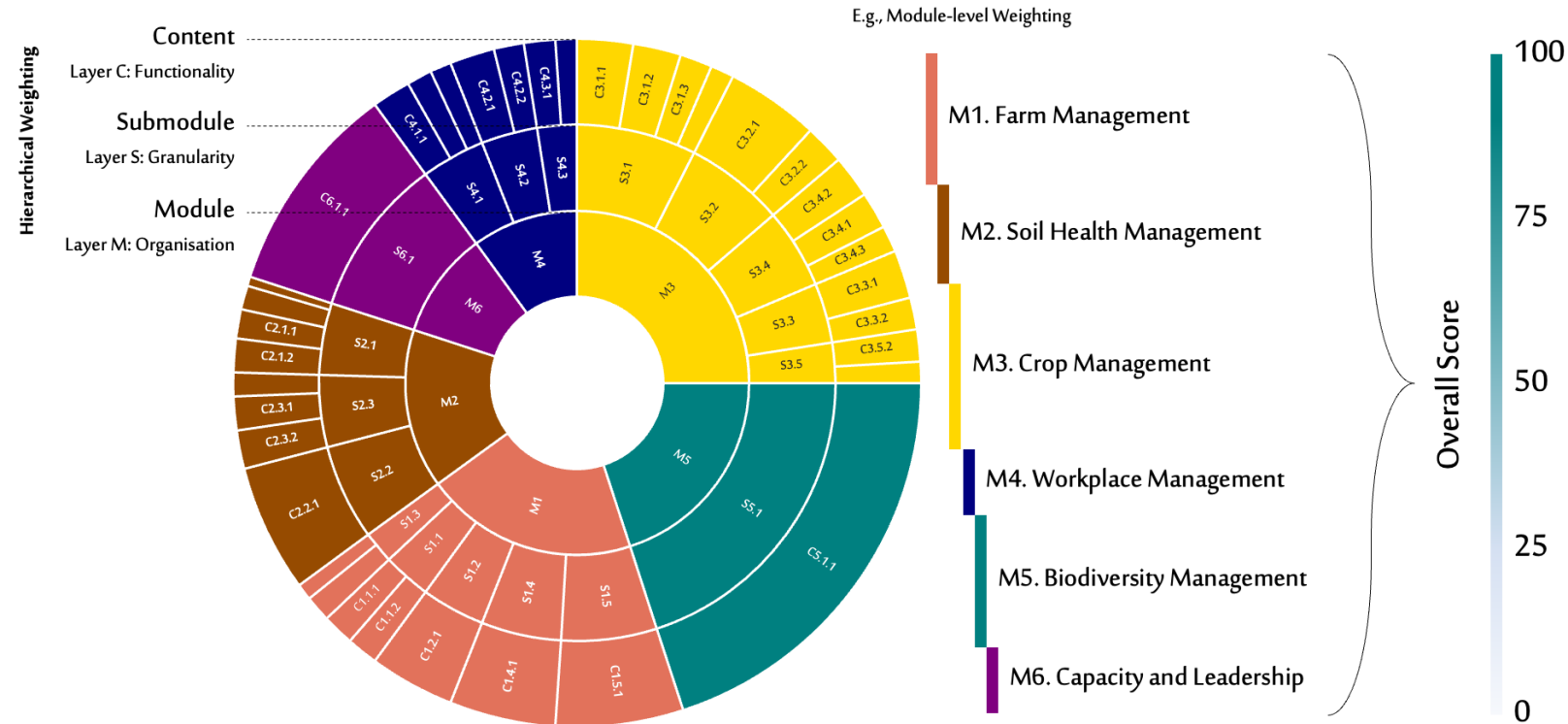
Sustainability Tracker Tool

Capabilities to handle diverse types of data

- Qualitative data

- Quantitative data

- Mixed data

- Longitudinal data
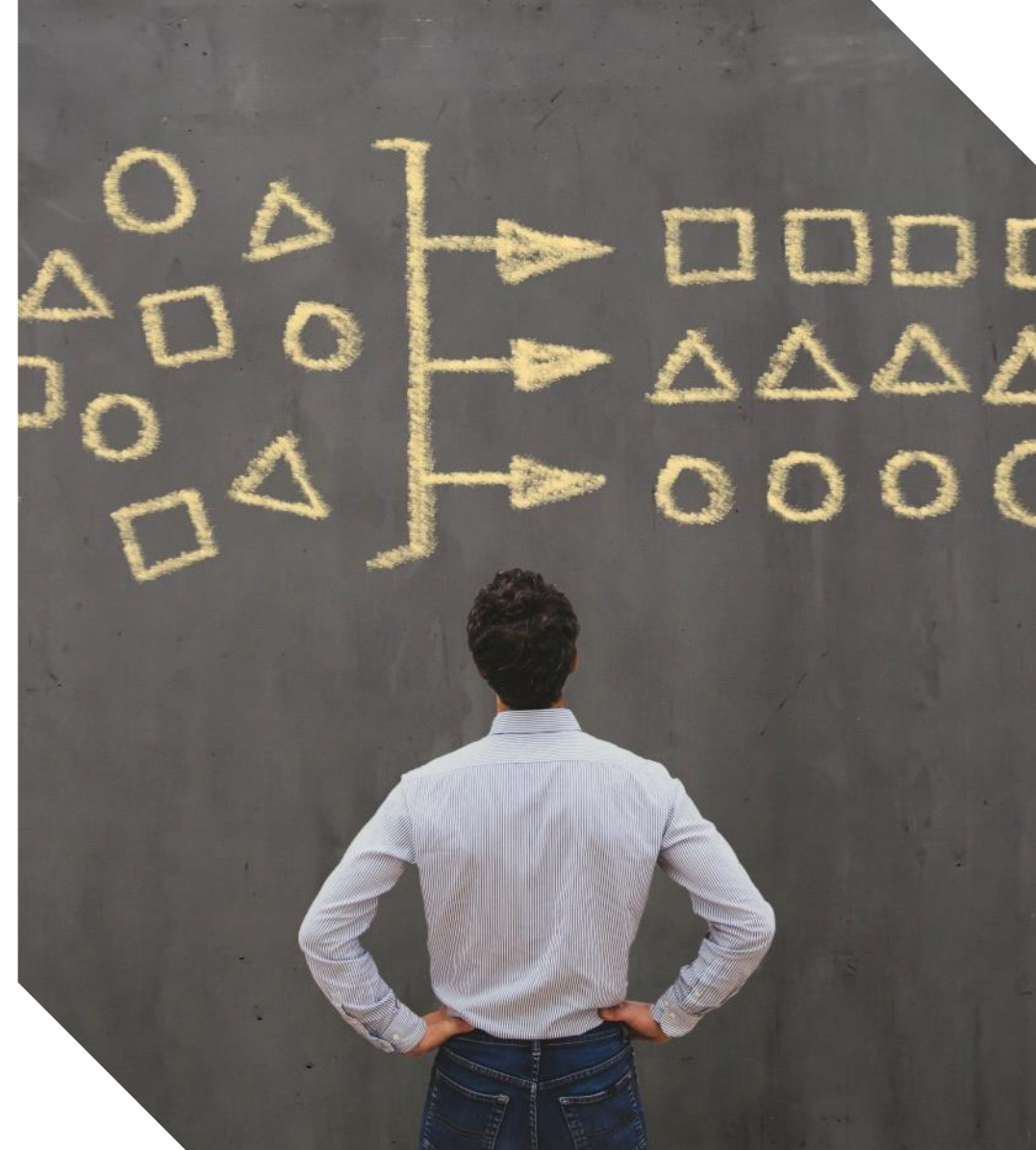
Topic modelling for qualitative data

1. MODULE

◉ Farm Management

○ Soil Health Management

○ Crop Management

○ Workplace Management

○ Biodiversity Management

○ Capacity & Leadership

2. SUBMODULE

○ Ass. Soil/Water/Crop

◉ Record Keep/Pad. Diary

○ Market Analysis/Profit.

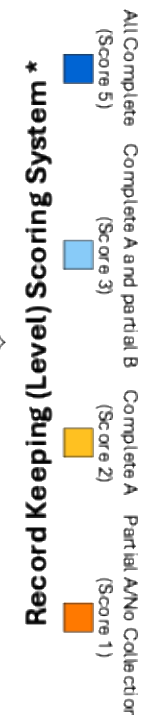○ Regul. Compl./Risk & Saf.

3. CONTENT

◉ On-Field Logs

◉ Data Management

Paddock Diary (Completeness) Scoring System: All Complete (Score 3) — blue; Complete A and B (Score 2) — light blue; Complete A (Score 1) — yellow; No Record Keeping (Score 0) — orange.

Text Scanning and NLP Algorithm

Record Keeping (Level) Scoring System *: All Complete (Score 5); Complete A and partial B (Score 3); Complete A (Score 2); Partial A/No Collection (Score 1)

Data Mng.	Proxy	Pre-Season		Establishment		Growth		Harvesting/Post.	
		Date	Record	Date	Record	Date	Record	Date	Record
A. Basic	Paddock/Variety								
	Sowing Time								
	Seeding Depth								
	Plant Density								
	Harvesting Time								
	Yield/Crop Residue								
	Protein								
	Grade/Price								
	Seeds								
	Fertilisers								
	Water (Rain/Irrigat.)								
	Pesticides								
B. Intermediate	Acidity/Salinity								
	Nutrient Content								
	Texture/PAWC								
	Growth Stage								
	Incidence of Pests								
	Signals of Stress								

A. Essential Operation — Land Preparation; Sowing; Harvesting
B. Resource Utilisation — Fertilisers; Water
C. Pest/Injury Monitor. — Pest Attacks; Crop Damages
D. Resource Allocation — Responsibilities; Services

Benchmarking (e.g., Grain Yield)

Sustainability Tracker Tool: Dashboard
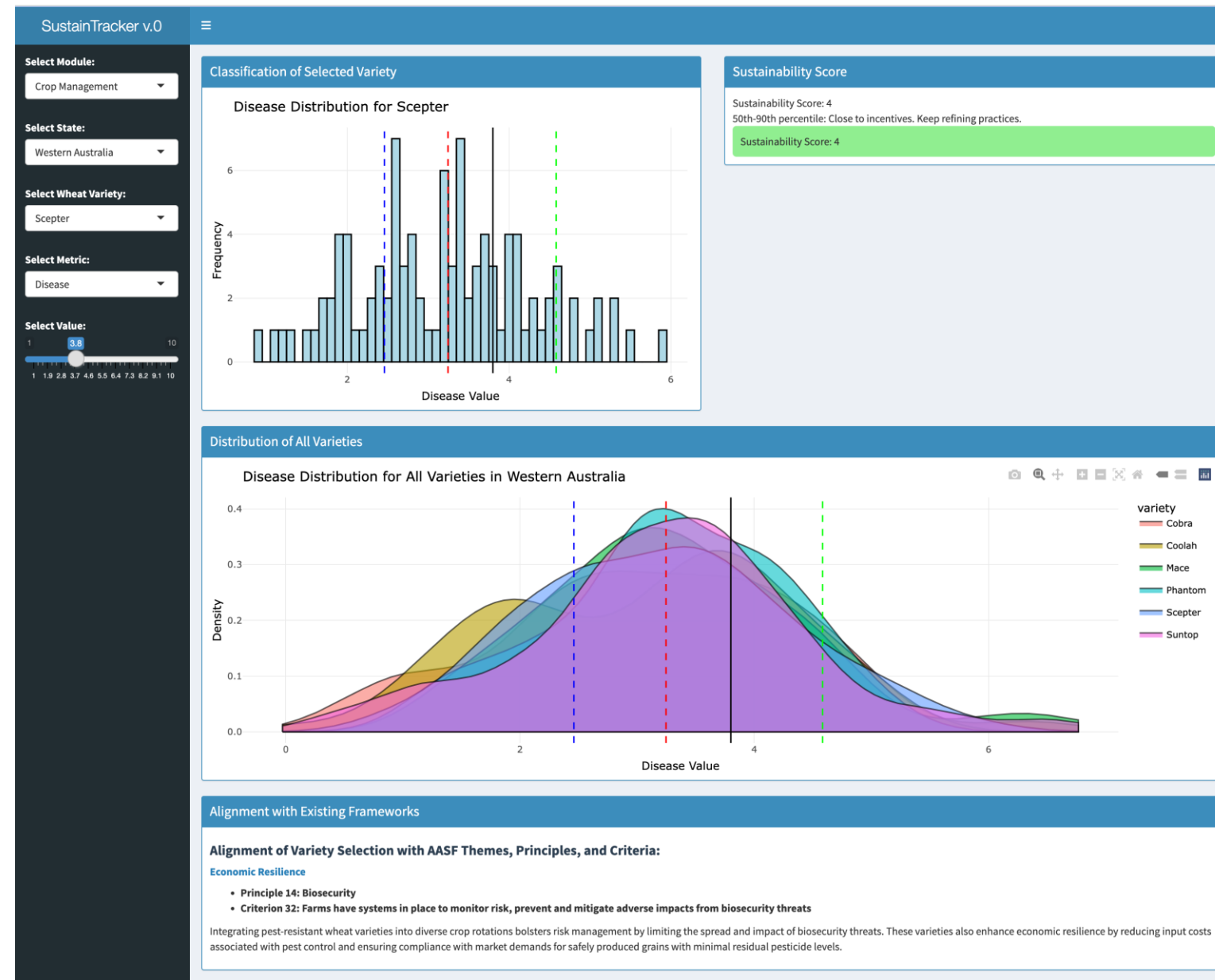
Aligning our perspectives to their perspectives

Thank You!

Creating Enabling Environment

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