Department of Primary Industries and Regional Development

GOVERNMENT OF WESTERN AUSTRALIA

Protect
Grow
Innovate

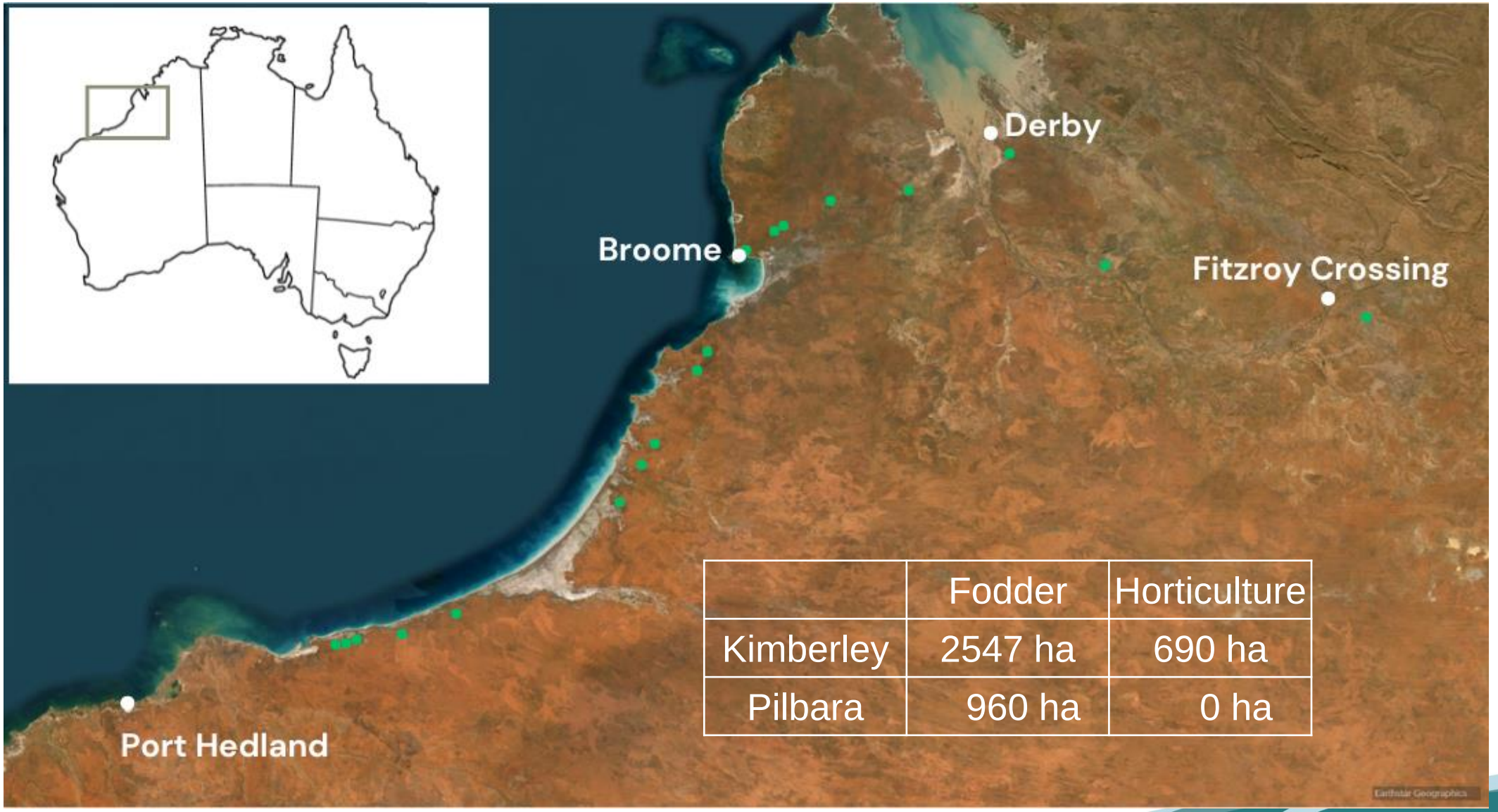
Adapting and advancing

How is investment into irrigation in northern WA shaping the future of pastoralism?

Chris Ham

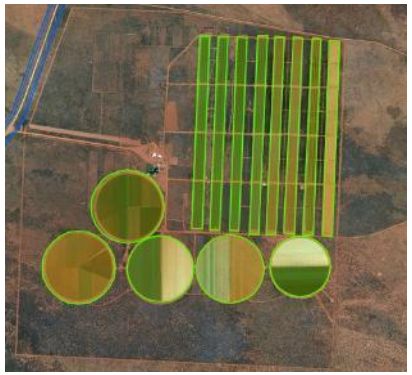
Carla Milazzo

Pastoral Irrigated Agriculture (& Horticulture)

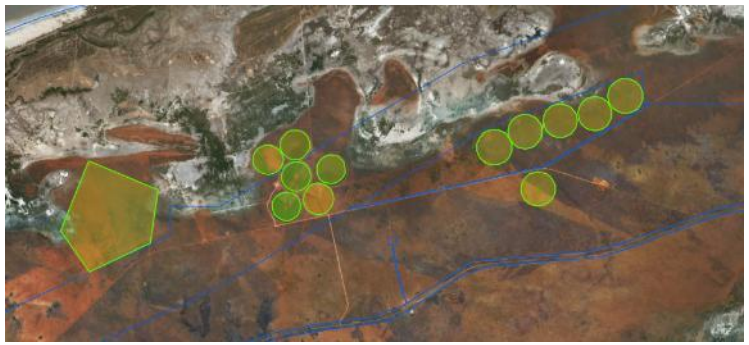


	Fodder	Horticulture
Kimberley	2547 ha	690 ha
Pilbara	960 ha	0 ha

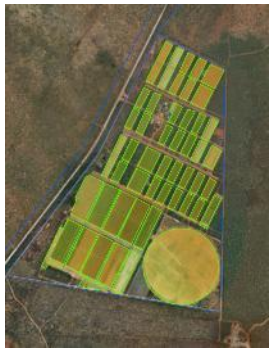
Pastoral Irrigated Agriculture (& Horticulture)



Shelamar Horticulture

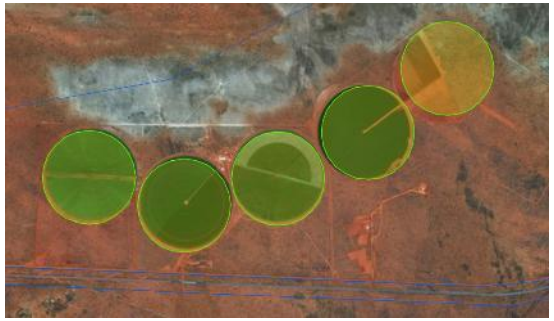


Pardoo Stages 1, 2 & 3

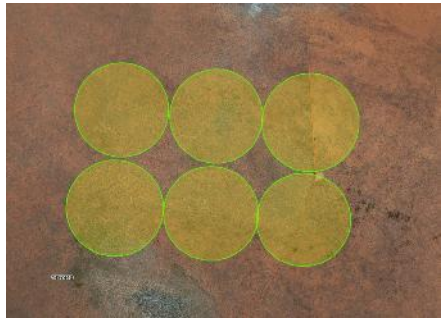


Shamrock Gardens

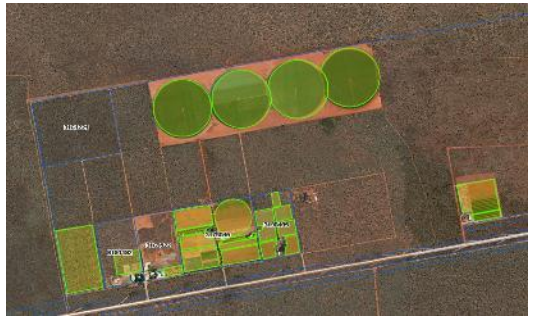
Kilto Station



Wallal Downs Stage 1



Wallal Downs Stage 2



Skuthorpe Stage 1

Anna Plains
Shamrock Station
Nita Downs
Mowanjum
Liveringa
Gogo
and others…

So, why would you invest in irrigation?

- There is no romance involved…
- Approvals take time and $$
- Can operate 365 days/yr
- Requires skilled management
- Workforce can be challenging
- Potentially good returns
- Individual benefits vary

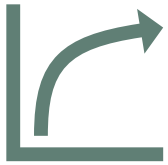
What is driving the investment?

- Isolation and freight costs
- Limited rainfall (<800 mm)
- Limitations of natural pastures
- Pastoral tenure & policy
- Supply chain & abattoirs
- Market forces

Carla Milazzo – sweet sorghum trial, DPIRD Broome

Regional changes

First Nations led projects



Rate of development

Tenure options & Water planning

Political support & social licence

Advancements

Kimberley & Pilbara cropping systems differ

Synergy between these is promising

Building capacity and knowledge

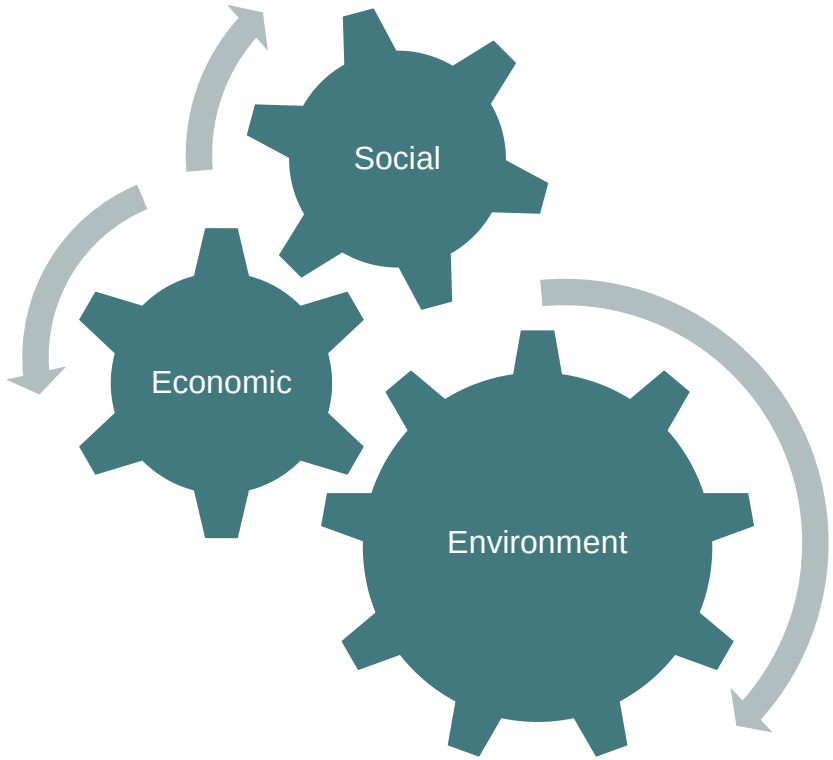
Service provision increasing

Expert engagement increasing

Research capacity increasing

Industry collaboration increasing

Complexity is daunting – resilience and perseverance required



Political support – protection v development - need balanced approach

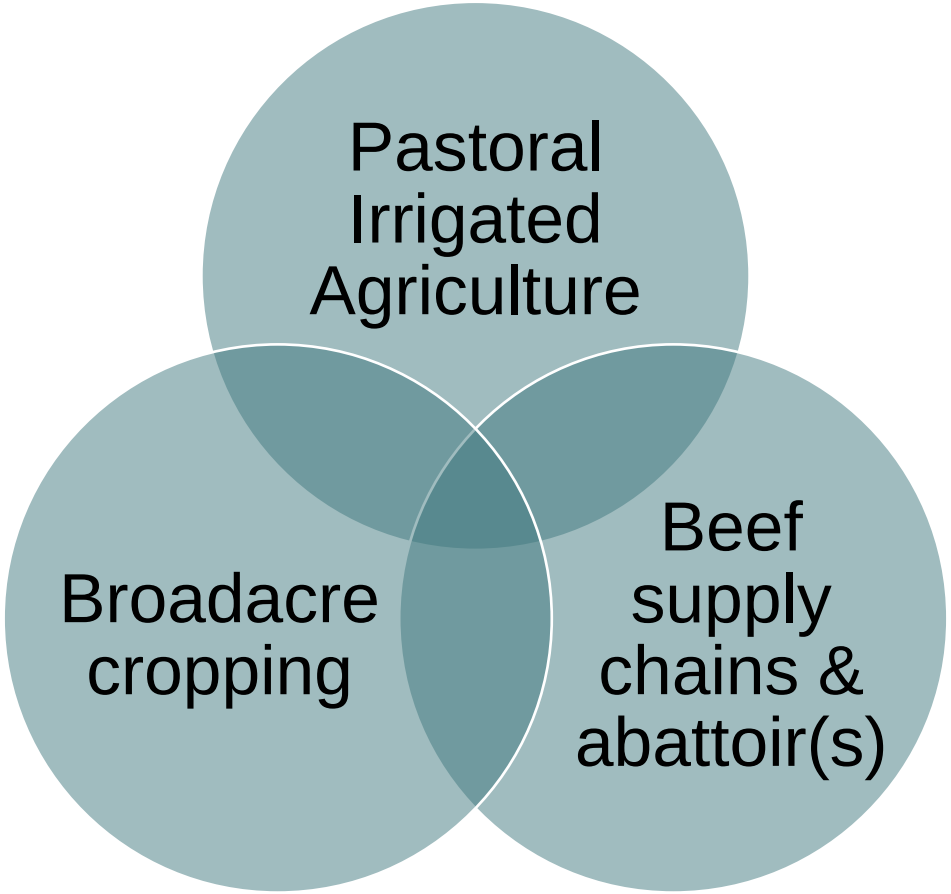
Regulation increasingly complex & often disconnected

Focus on policy and process improvements

Secure capital investment requires certainty and tenure – rethink development models

Embrace need for consultation, consent & social licence & environmental impacts

Regional synergies & local supply chains



- Cotton/ cattle/ corn/ fodder – WA and NT
- Fodder supply chains
- Meat – local supply chains – Station store, KAPCCO, KMC
- Cotton seed and (potentially) meal
- Grain (local and imported)
- Feedyards and feedlots
- Alternative markets for cull cows and heavier animals

Pastoral Irrigated Agriculture Project

- Funded by Royalties for Regions
- Northern Beef Development program
- 2020 to 2025 - $800K

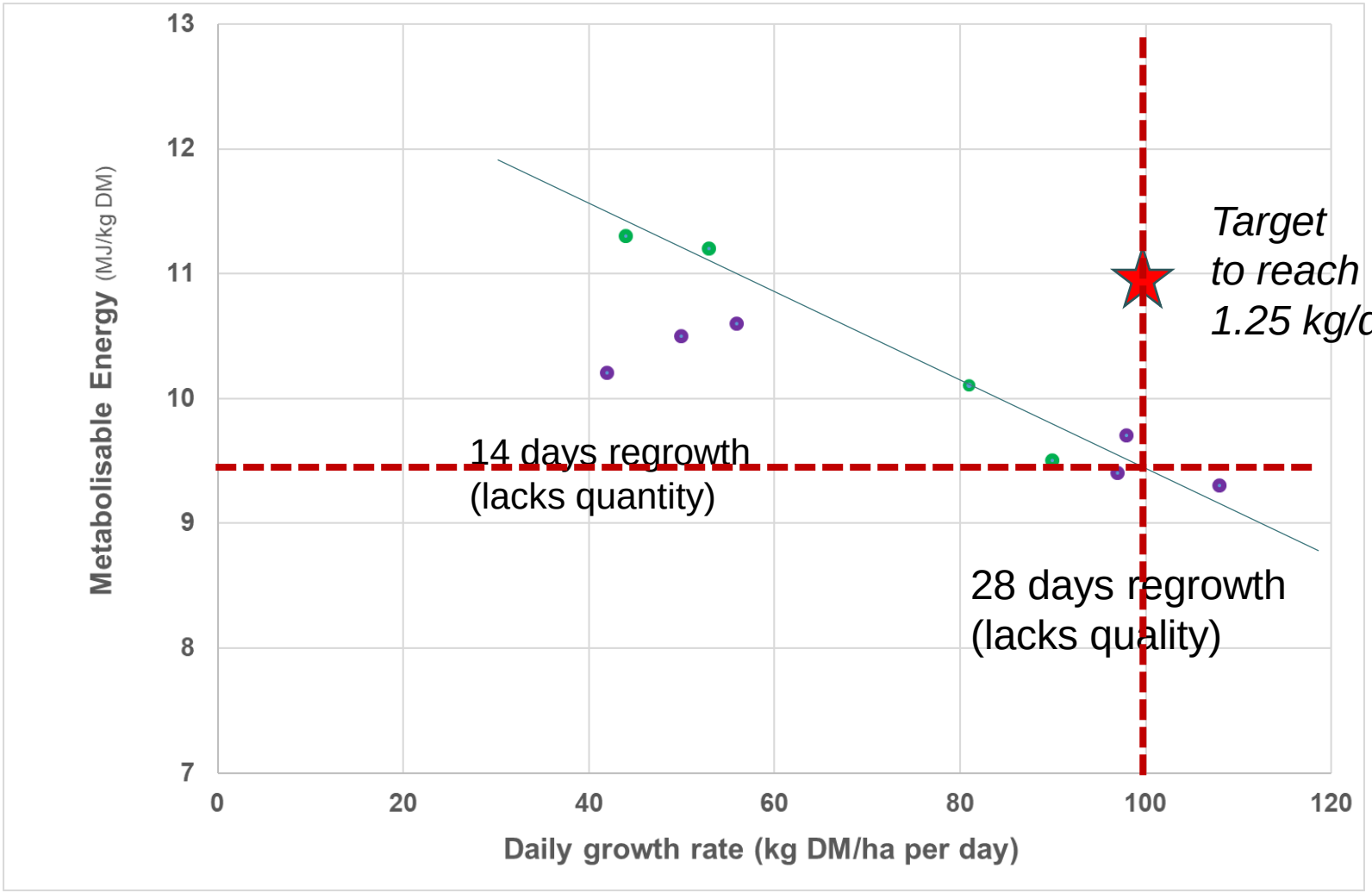
- Set up research site – Broome
- Field trials
- Policy improvements
- Information to support managers and investors
- Local data

To gain >1.0 kg/day need both quality and quantity!

Cattle live-weight	DMD 50% ME 7 MJ	DMD 62% ME 9 MJ	DMD 74% ME 11 MJ
200 kg	– (3.8 kg)	**0.6 kg** (5 kg eaten)	**1.25 kg** (6.3 kg eaten)
400 kg	– (6 kg)	**0.5 kg** (8 kg eaten)	**1.25 kg** (10 kg eaten)
600 kg	– (6 kg)	**0.5 kg** (9 kg eaten)	**1.0 kg** (10.5 kg eaten)

Calculated from "**MLA Beef Cattle Nutrition"** Table 1 ME requirements and Figure on page 17 on Intake versus Digestibility
Assumes adequate protein
Compiled by Geoff Moore DPIRD Senior Research Officer

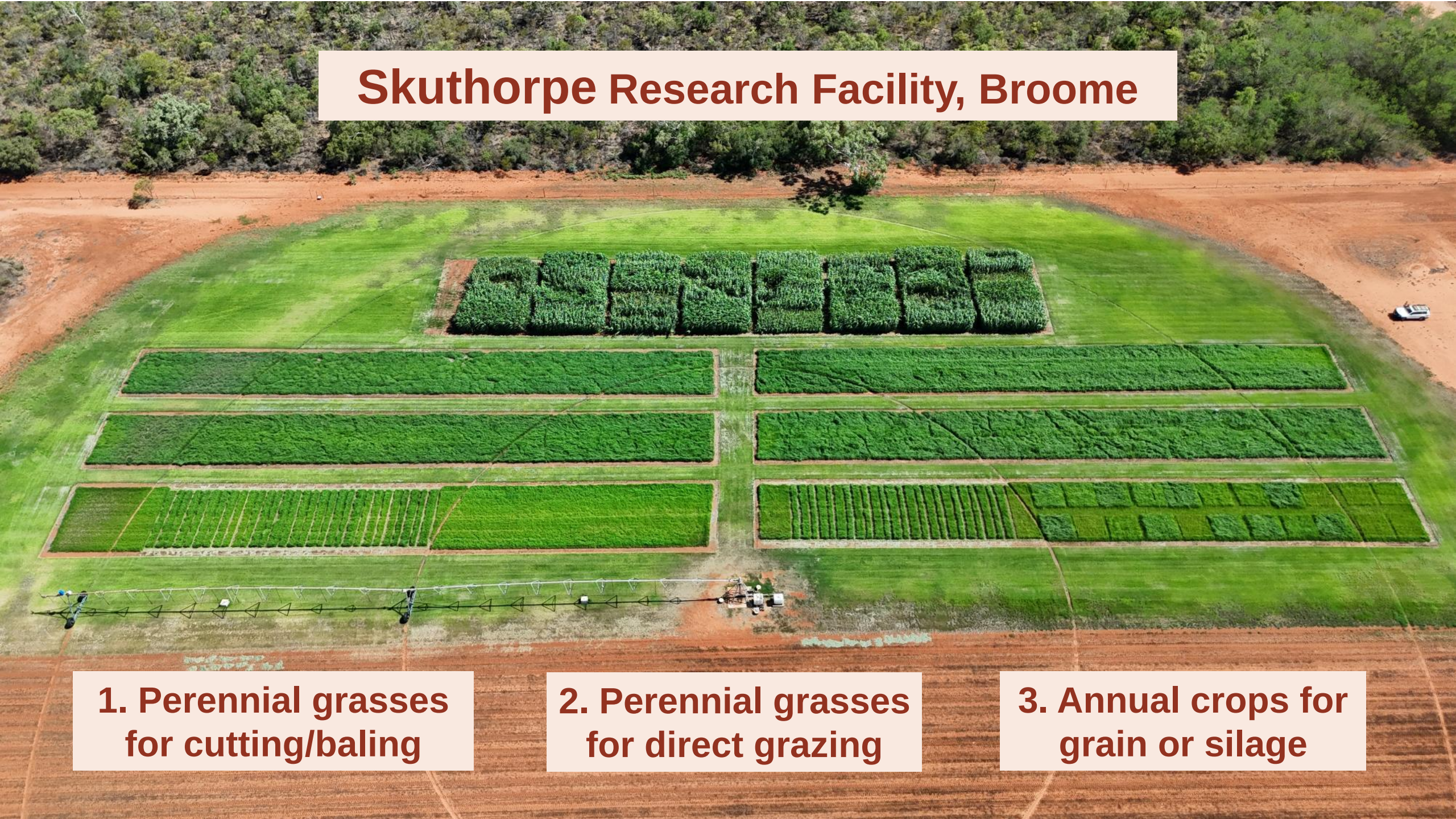
Digestibility/energy limitations of tropical grass



There are limits to what a tropical pasture can achieve compared to temperate grazing systems even under irrigation

Geoff Moore and Clinton Revell DPIRD Research Officers

Skuthorpe Research Facility, Broome



1. Perennial grasses for cutting/baling

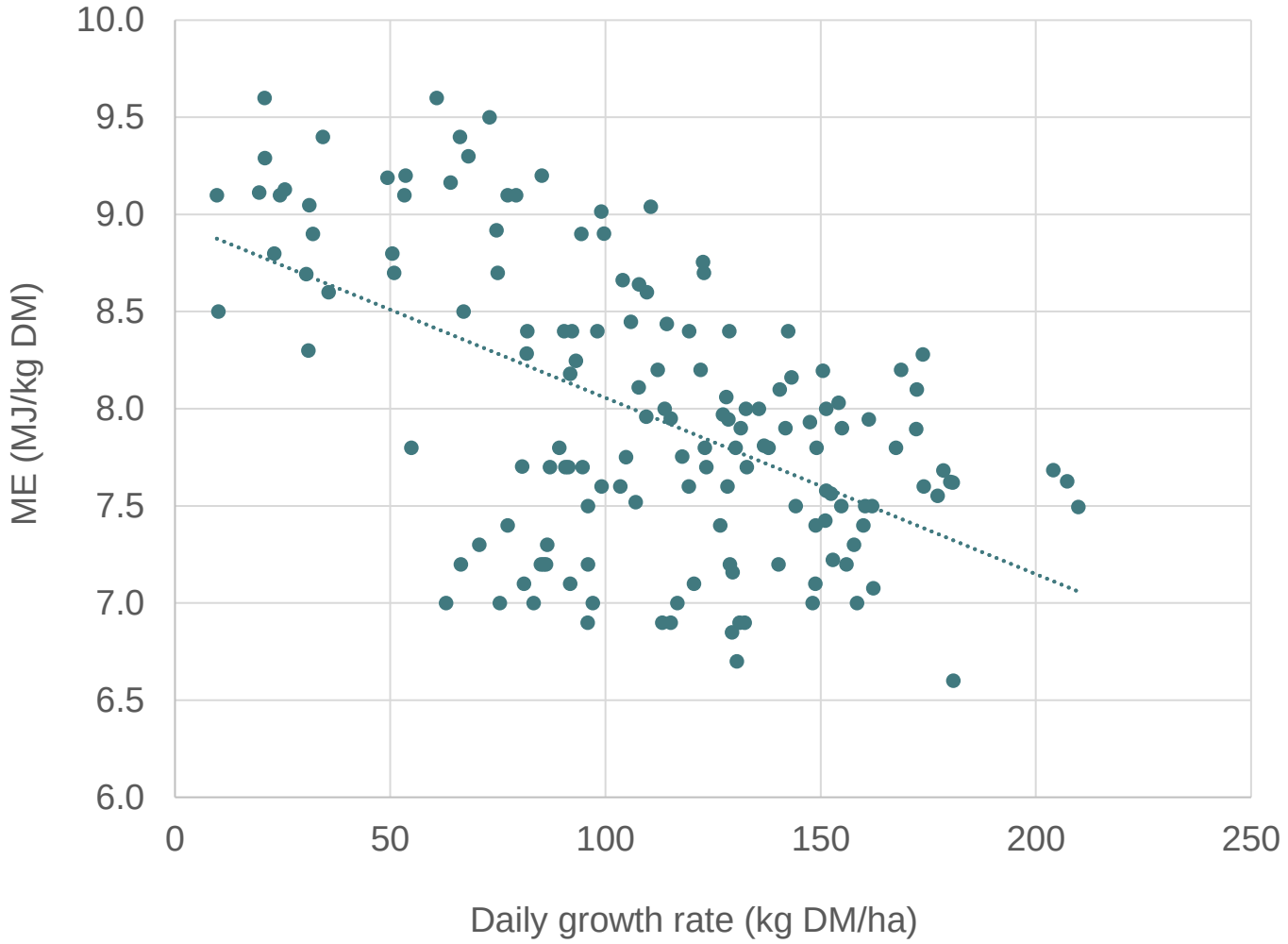
2. Perennial grasses for direct grazing

3. Annual crops for grain or silage

Perennial grasses are highly productive

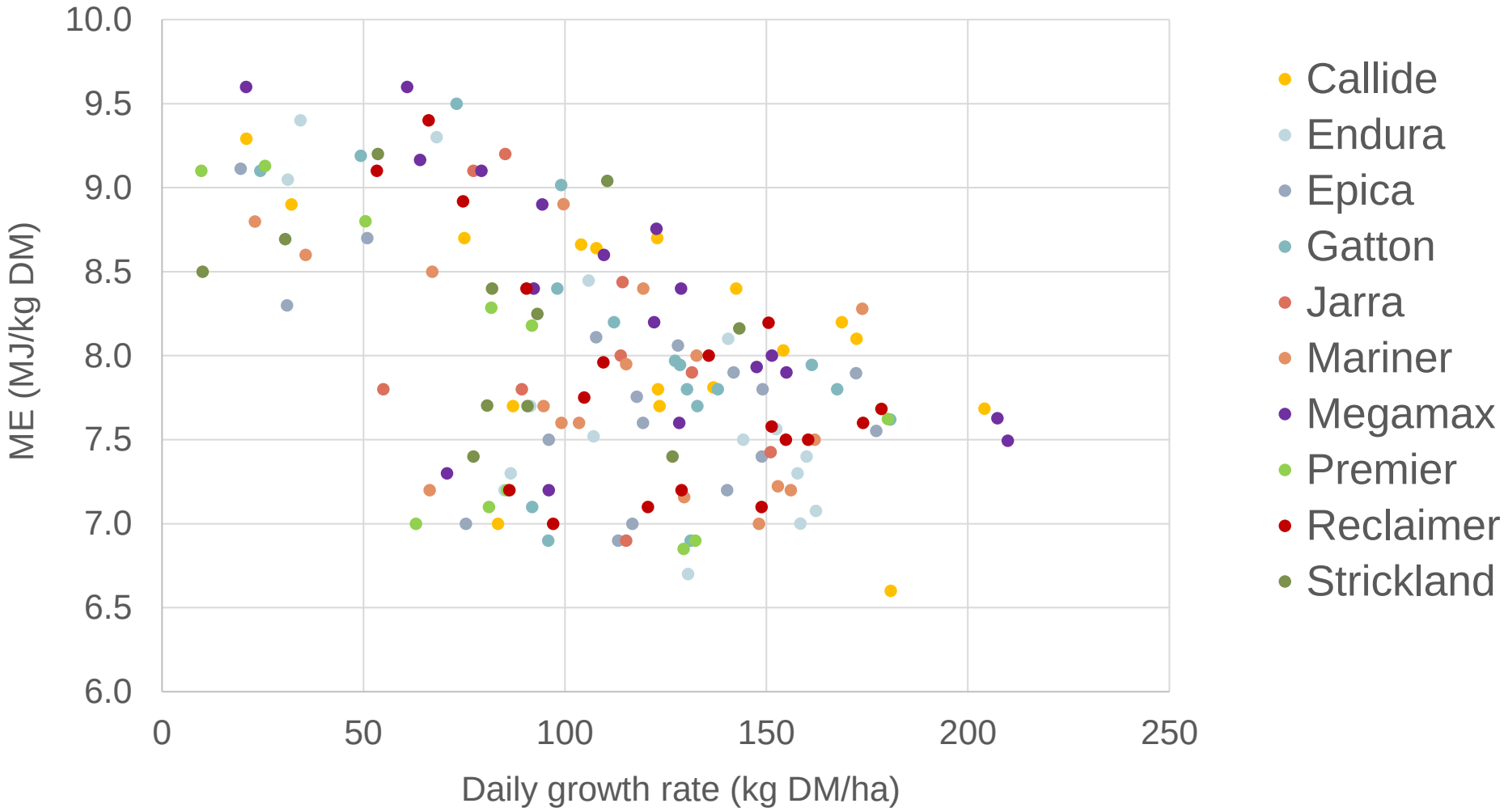
Cultivar	Species	kg DM/ha/day	t DM/ha/year
Reclaimer	Rhodes *(Chloris gayana)*	117.7	43.0
Callide	Rhodes *(Chloris gayana)*	114.8	41.9
Gatton	Panic *(Megathyrsus maximus)*	114.3	41.7
Megamax 059	Panic *(Megathyrsus maximus)*	111.8	40.8
Epica	Rhodes *(Chloris gayana)*	111.5	40.7
Mariner	Rhodes *(Chloris gayana)*	110.8	40.4
Endura	Rhodes *(Chloris gayana)*	110.6	40.4
Strickland	Digit *(Digitaria milanjiana)*	92.2	33.7
Premier	Digit *(Digitaria eriantha)*	82.0	29.9
Jarra	Digit *(Digitaria milanjiana)*	39.5	14.4
Splenda	Setaria *(Setaria splendida)*	–	–
Humidicola	*(Brachiaria humidicola)*	–	–

Perennial grass varieties – ME x growth rate



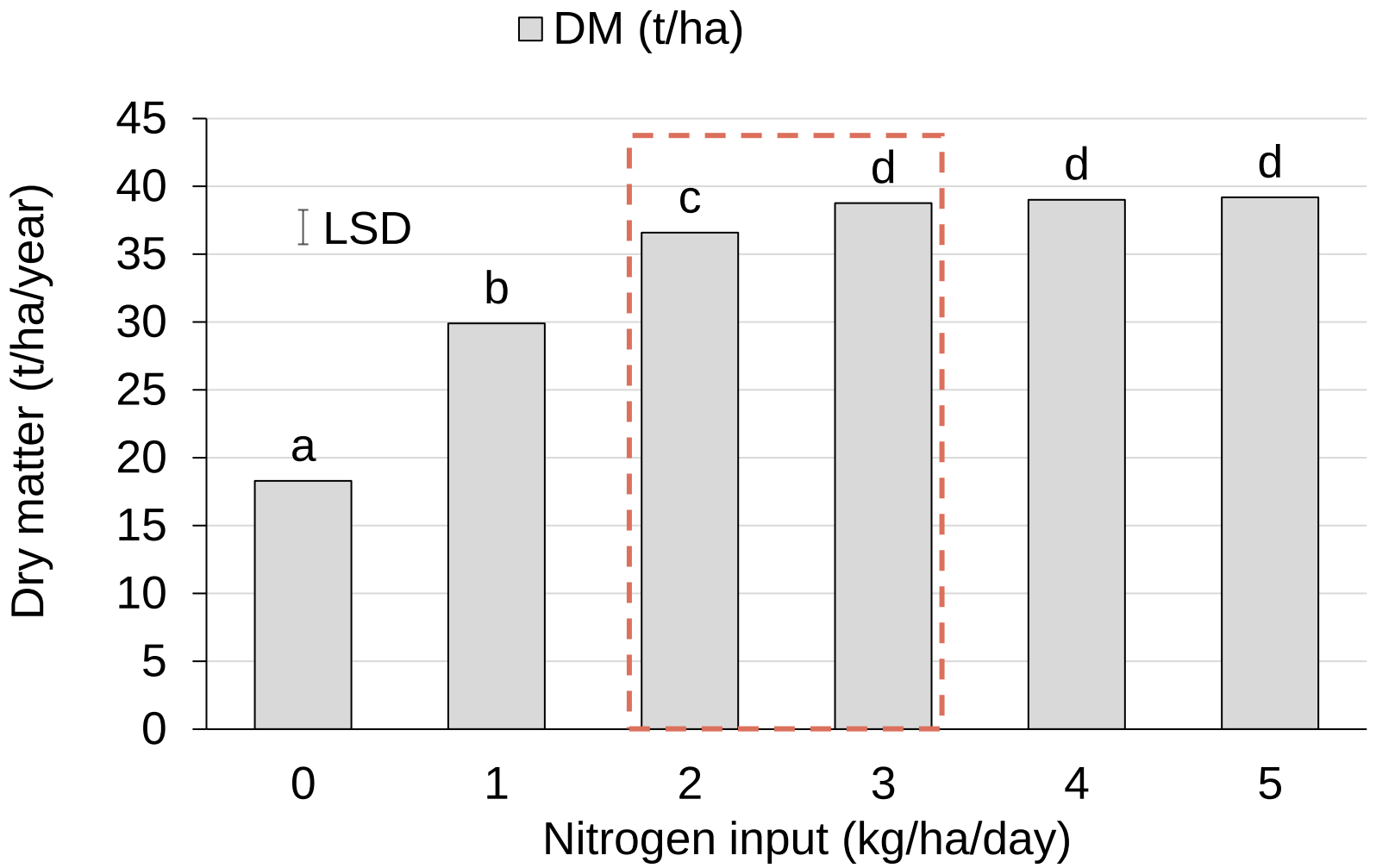
- Data points taken at harvest (ranges from 23–34 days regrowth)
- ME levels below 10 MJ/kg DM

Variability is not explained by pasture variety

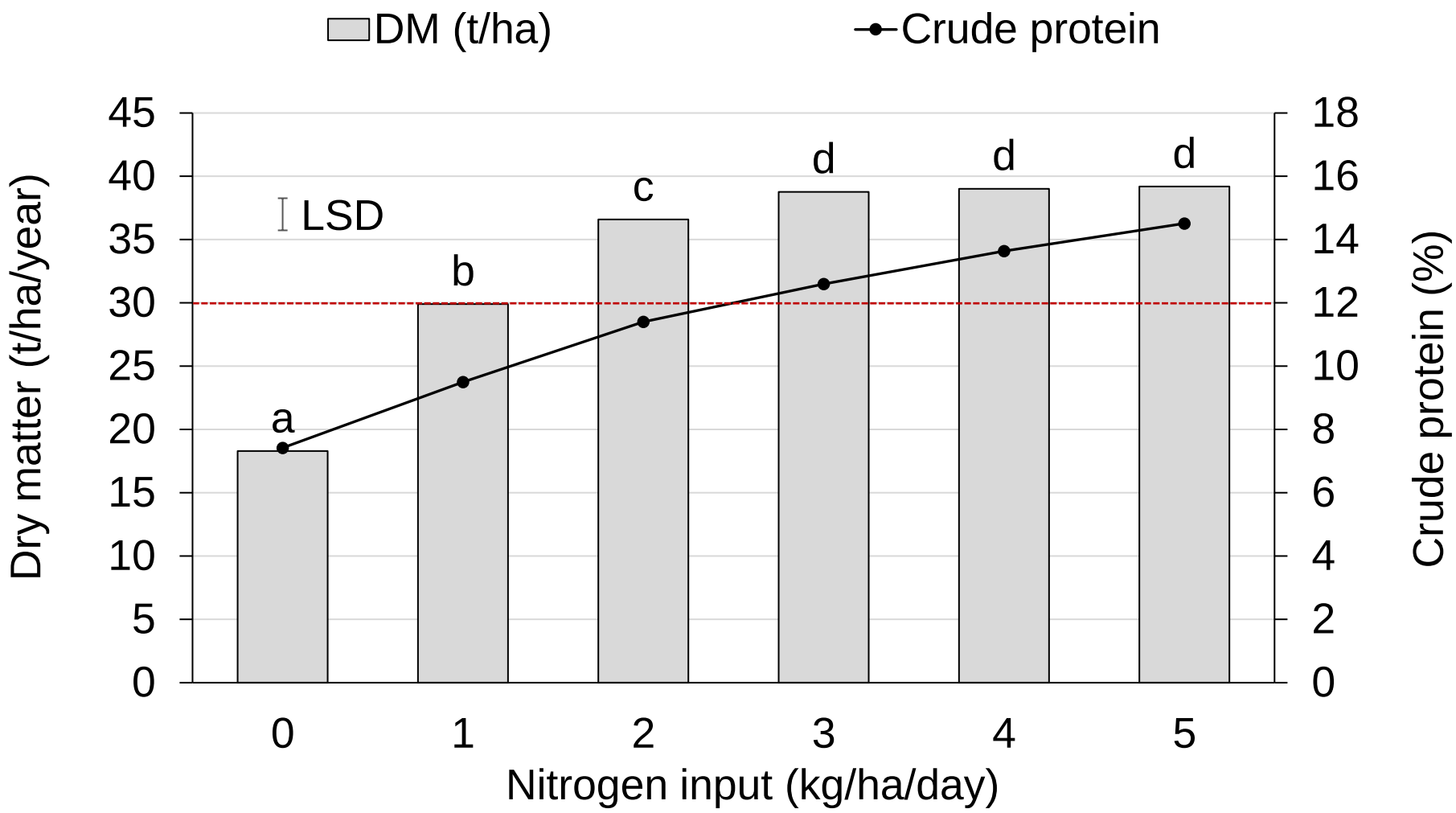


Nitrogen response in Rhodes grass

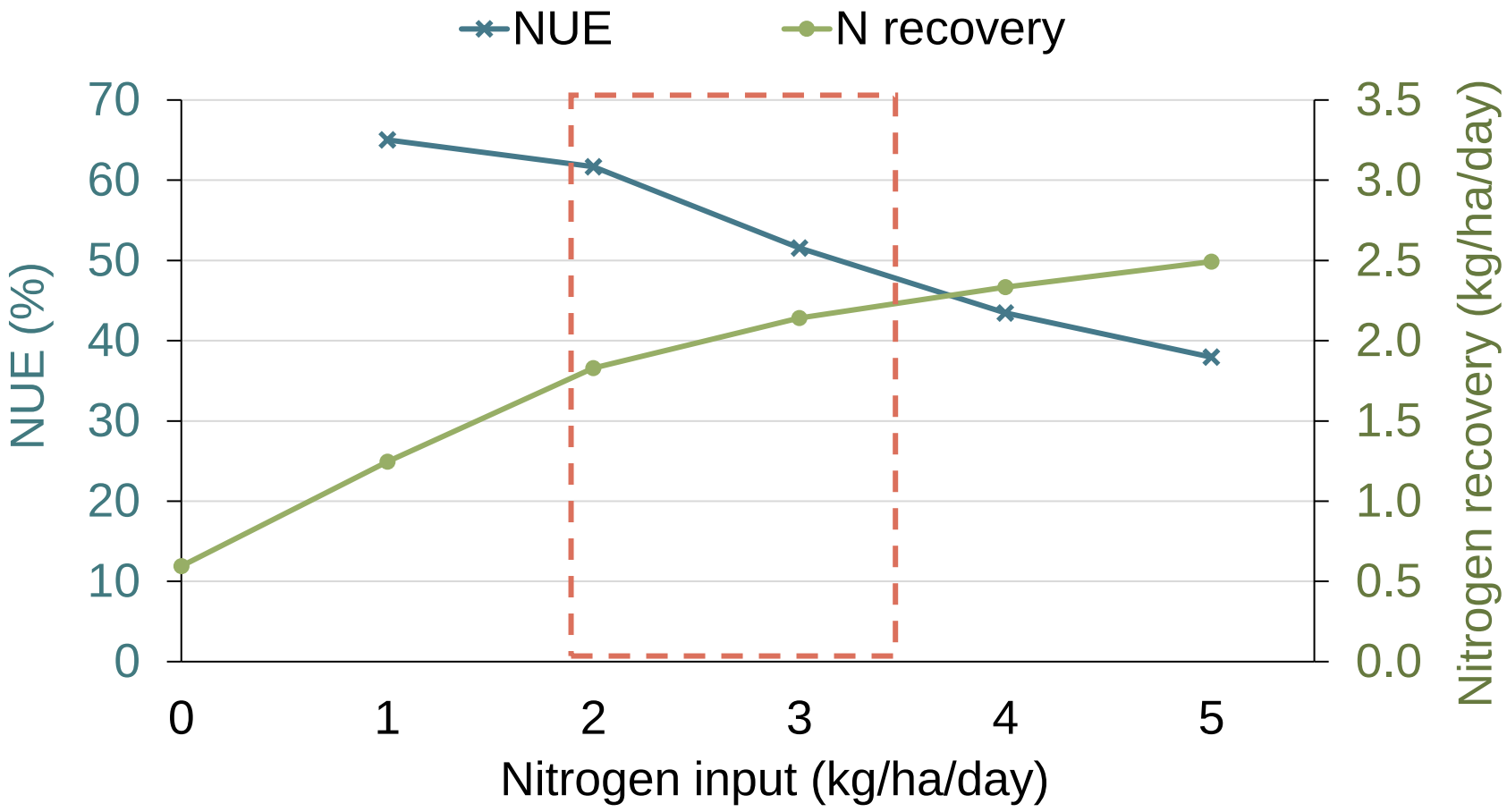
Nitrogen productivity response in Rhodes grass



Nitrogen productivity response in Rhodes grass



Nitrogen-use efficiency (of urea) declines as input level increases



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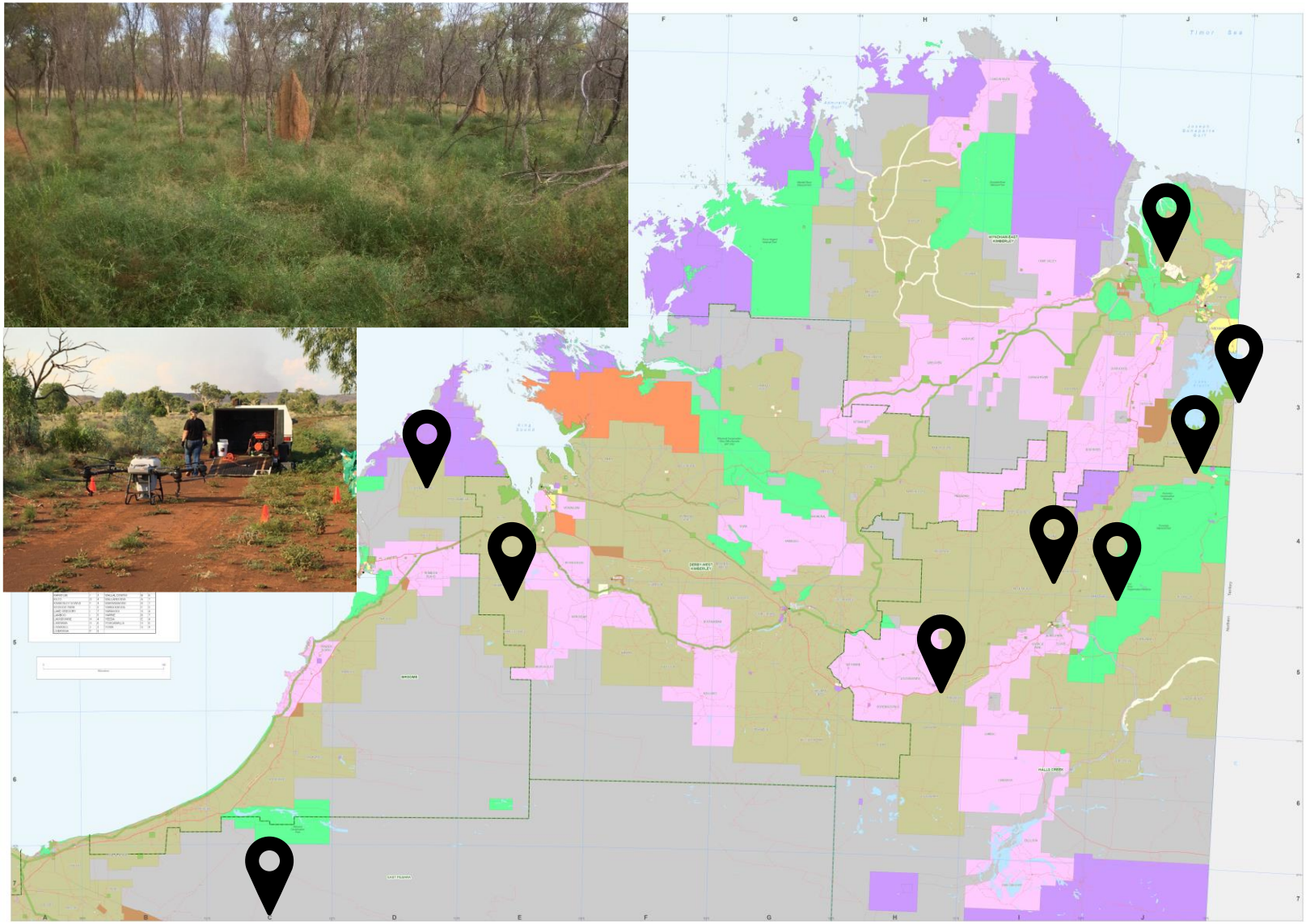
Feedbase – Dryland Stylo Project



- Trial and demonstration work to look at innovative, cost-effective methods to establish Stylo.
- Project Funders
- Northern Hub/DPIRD/RfR

Project Lead

Geoff Moore, DPIRD

Adapting and adopting

Build on strengths & synergies

Energy & fertiliser use efficiency

Biodiversity and soil health

Integrated Pest Management

Cropping capability

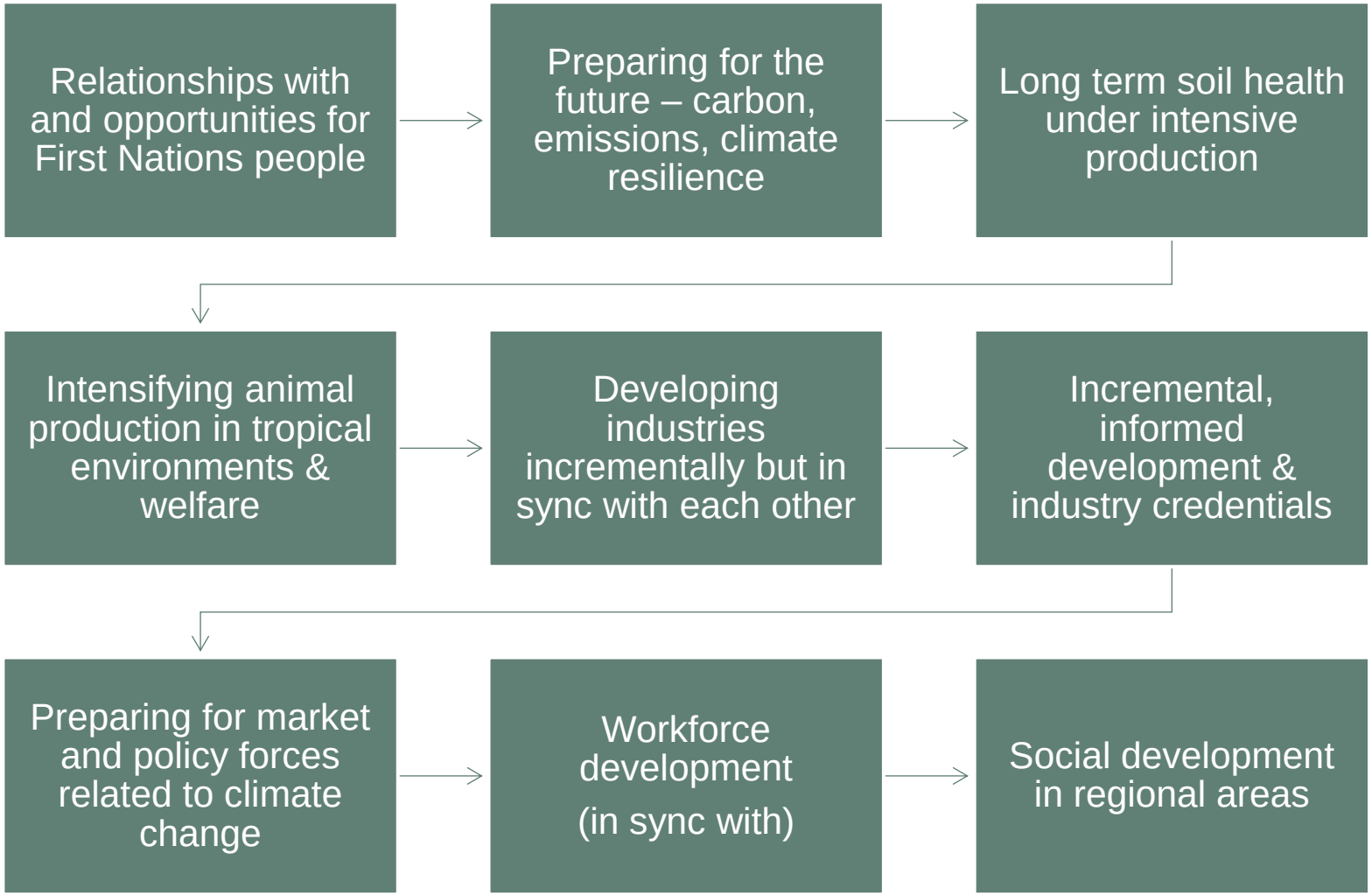
Service provision & expertise

Long term data on resource use & impacts

Success is more important than speed or scale

Evidence based decision making

Future direction



Thank you

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