CRCNA
DEVELOPING NORTHERN AUSTRALIA

Australian Government
Department of Industry, Science, Energy and Resources

Business Cooperative Research Centres Program

Developing a Broadacre Cropping Sector in North Queensland

Dr Lance Pendergast, Lawrie Owens,
Charlie Nastasi, Graham Harris

NORTHERN TERRITORY GOVERNMENT

Queensland Government

Department of Primary Industries and Regional Development
GOVERNMENT OF WESTERN AUSTRALIA

Aim

- To evaluate crop options and practices that can be used to develop profitable cropping systems within the region

Past Research



2018

Replicated trials on Forest Home Station:

- cotton
- mungbean
- sesame
- soybean

Past Research 2019









Replicated trials on Forest Home Station:

- cotton
- mungbean
- sesame
- Soybean

All photos taken 28 March 2019

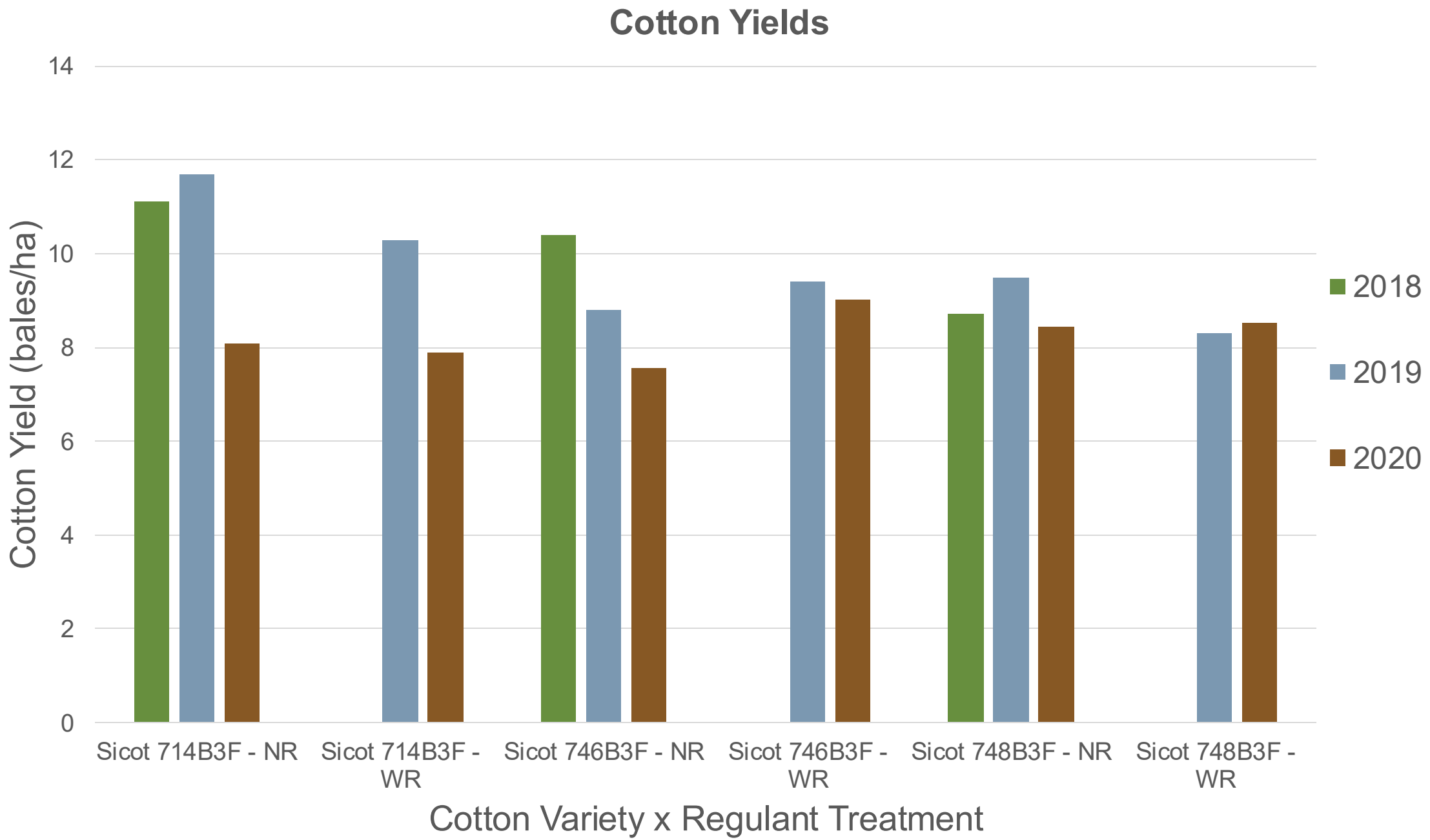
2020

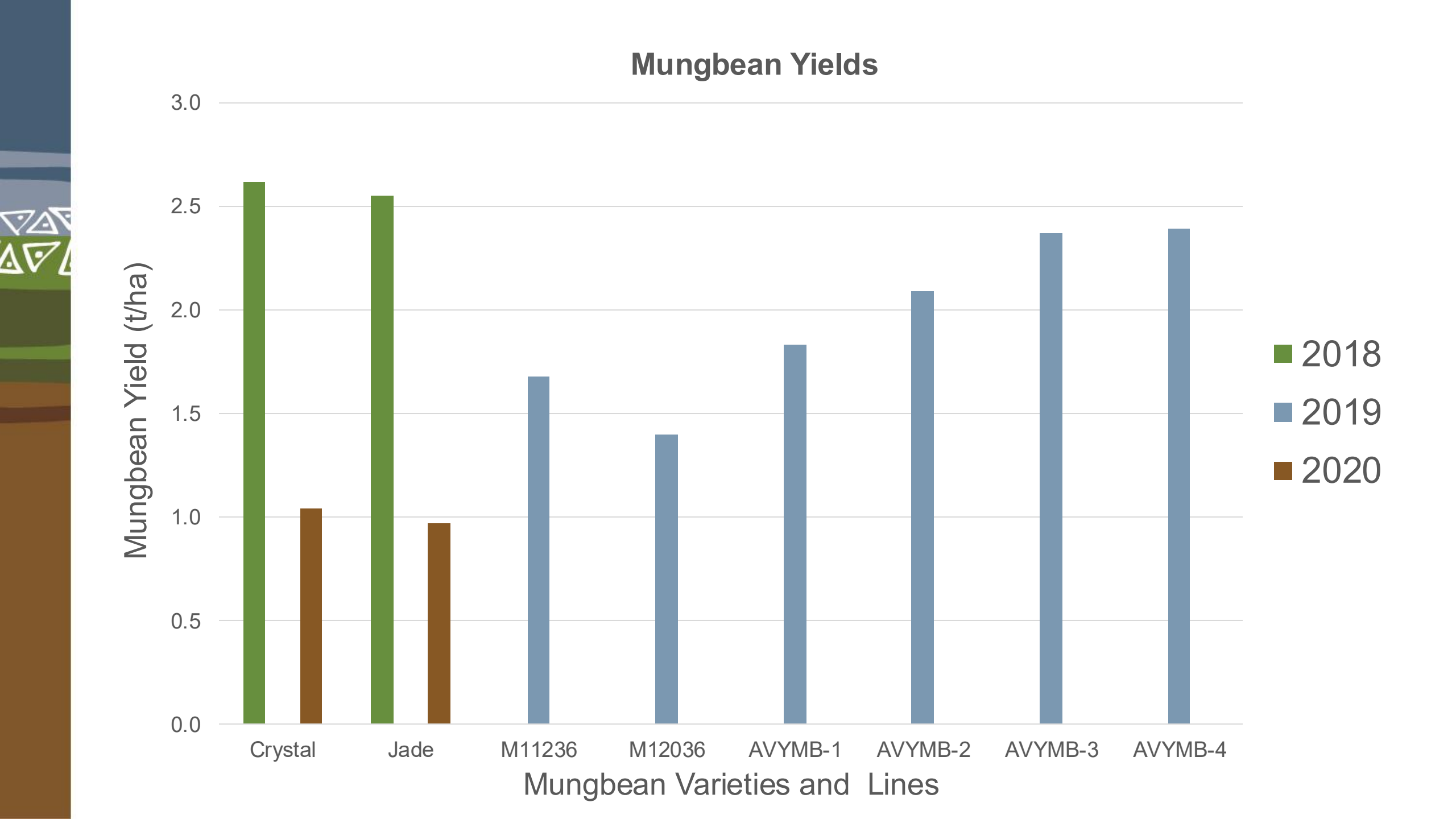
Replicated site at Forest Home Station:

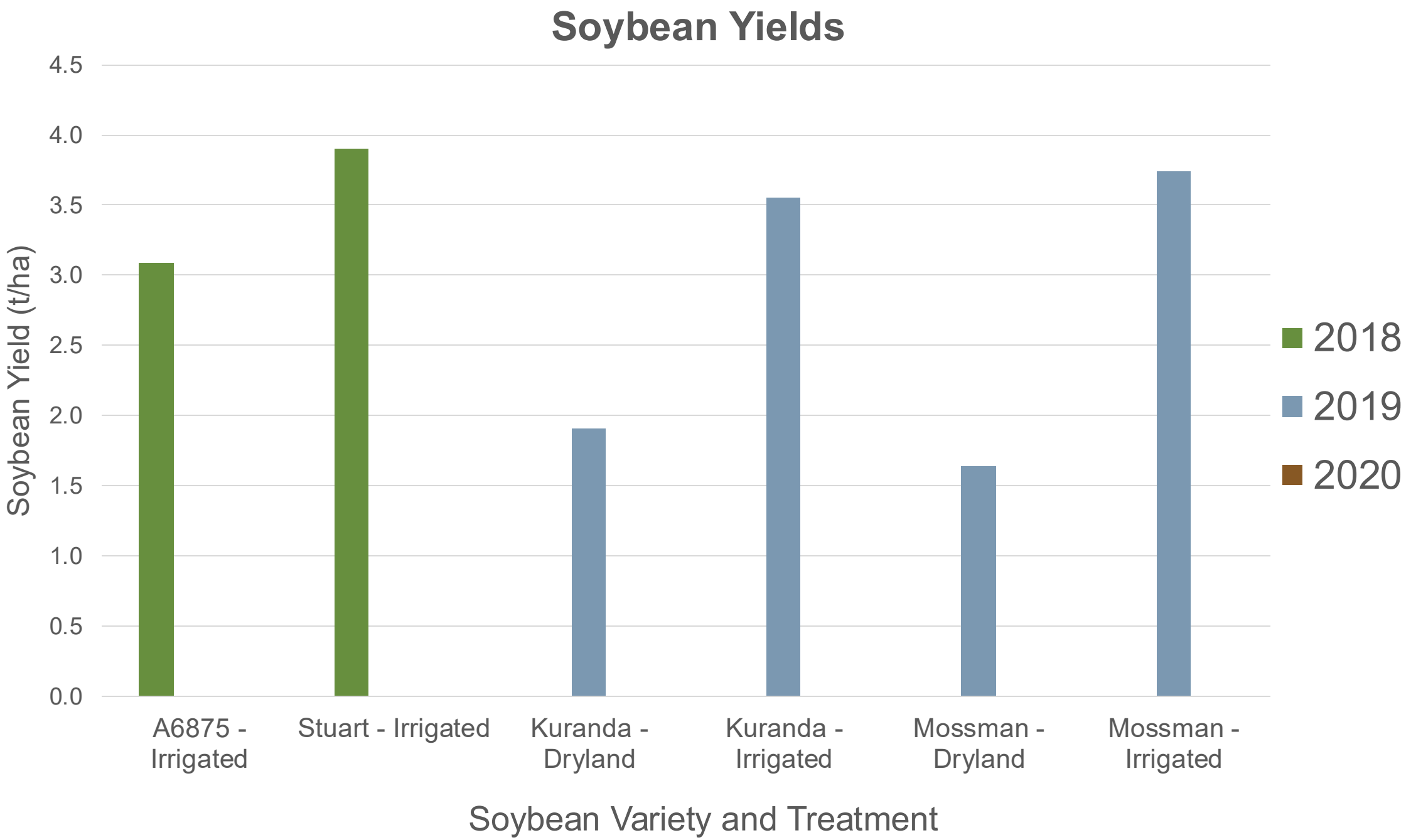
- Cotton (714B3F, 746B3F, 748B3F)
- Mungbean (Crystal, Jade)
- Sesame (4 black types, 2 white types)
- Soybean (Kuranda, Mossman)

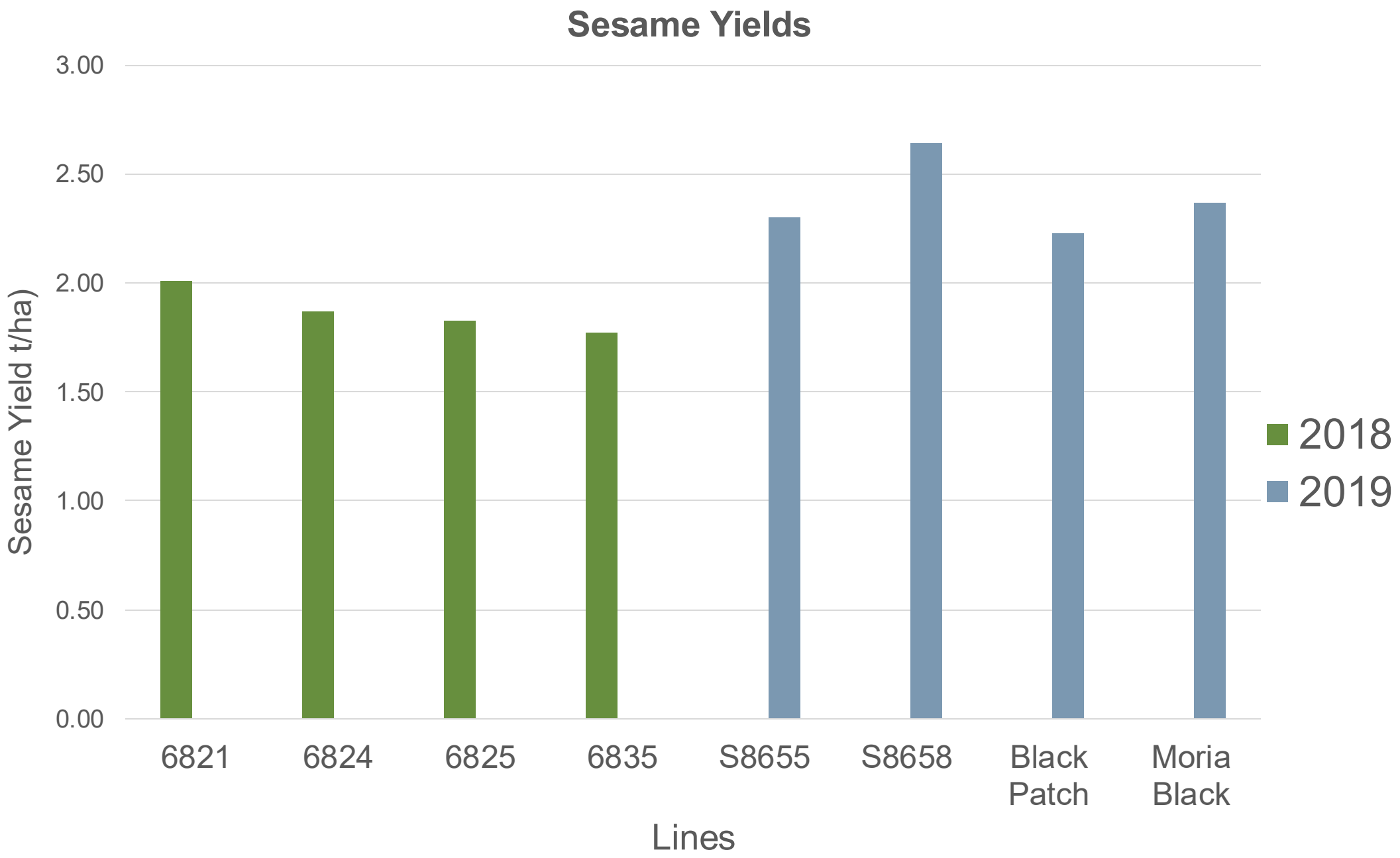

Forest Home Trial Site (12 May 2020)


Cotton (54 das)
Mungbean (43 das
Replicated trials
(16 April 2020)
Sesame (63 das)
Soybean (35 das)


Cotton Yields
14
12
10
8
6
4
2
0
Cotton Yield (bales/ha)
2018
2019
2020
Sicot 714B3F - NR
Sicot 714B3F - WR
Sicot 746B3F - NR
Sicot 746B3F - WR
Sicot 748B3F - NR
Sicot 748B3F - WR
Cotton Variety x Regulant Treatment


Mungbean Yields
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mungbean Yield (t/ha)
Crystal
Jade
M11236
M12036
AVYMB-1
AVYMB-2
AVYMB-3
AVYMB-4
Mungbean Varieties and Lines
2018
2019
2020


Soybean Yields
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Soybean Yield (t/ha)
A6875 - Irrigated
Stuart - Irrigated
Kuranda - Dryland
Kuranda - Irrigated
Mossman - Dryland
Mossman - Irrigated
Soybean Variety and Treatment
2018
2019
2020


Sesame Yields
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Sesame Yield t/ha)
6821
6824
6825
6835
S8655
S8658
Black Patch
Moria Black
Lines
2018
2019



Forest Home Trial Site (4 March 2021)

2021 - Planting

- Sesame
  - 17 December 2020 (impacted by weed competition and post-planting rain)
  - 21 January 2021
- Cotton
  - 28 January 2021
- Soybean:
  - 15 January 2021 (poor establishment due to seed cooking – similar to 2020 planting)
  - 9 February 2021 (replant)
- Mungbean
  - 4 March 2021

2021 – Herbicide assessment

- Pre-liminary evaluations of possible herbicide options have been applied to the sesame trials

Learnings

- Cotton
  - well adapted
  - good weed control options available (need to manage reliance on glyphosate)
- Mungbeans
  - well adapted
  - good weed control needed
  - insect management needed

- Soybeans
  - establishment challenges
  - sandy loam soils unsuited to furrow irrigation
- Sesame
  - establishment challenges
  - poor early competitiveness with weeds



Acknowledgements









Department of Agriculture and Fisheries

State Development, Infrastructure, Local Government and Planning

Ken and Brendan Fry,
Forest Home Station

DAF Broadacre Farming Systems Team
Dr Lance Pendergast, Lawrie Owens & Charlie Nastasi