No Till Grain Production On The Jimbour Plain

“Why we do what we do”

ST JOHN KENT
Jimbourn Flood Plain

- Kent, McLaren Partnership
  30km N/W of Dalby. 2000 ha
- Dryland, Sorghum, Barley, Pulse crops of Chick peas, Mung beans and Lab Lab
Soils - Our Greatest Asset

- Heavy cracking clay soils
- 600mm annual rain
- No subsoil constraints
- PAWC; > 300mm to 1.2m depth
- Achievable yields
  - 2.5 t/ha Chick pea
  - 5t/ha sorghum on little or no in-crop rain
The Early Days

Ploughing
• Poor soil structure
• Compaction
• Organic carbon run down
• Dead soil
• Poor water infiltration
• Bare soil
The Game Changer - Zero Till (ZT)

When rum and roundup cost the same per Lt

1985

1995

2003
Early Controlled traffic (CT)
1995

- Manual marker arms
- 1.6m spray rigs
- 2m tractors
- 3m headers
2003. 3 metre Controlled Traffic (CT) with 9m multiples

- Self propelled high rise spray rig custom made to 3m Wheel Tracks.
- New Tractor modified to 3m tracks
- Header auger extended x 600mm
- Auto steer
2012 – 12 Metre Multiples

- 12 metre planters and Header.
- 36 metre Spray rig all on 120 inch Tracks
- tramlines (8-13%)
2015 ...
The Final Piece Of The Puzzle
Controlled Traffic Opportunities

Double Cropping - Two crops in 12 months

6.6t/ha Sorghum
3.7t/ha Chick Pea
2012
The Corner Stone
Soil Health - ZT and CT.

- Greater water infiltration
- All stubble retained. No bare ground
- Healthy Living soil / worms, VAM etc.
- Fertilizer requirement down
- Greater field efficiency
- Yields have doubled.
- No yield increase in the last ten years
- Every year a tougher weed
Learning to farm without Roundup and Urea. Cover cropping trials
Elimination Process - Biomass = N
Summer option - Mung Bean/Grain/ LabLab / Sorghum
Winter Option - Chickpea/ Faba Bean/Barley
Yield mapping.
Measuring to Manage.
The Future

- Unmanned Vehicles
- Precise spot weed treatment
- Smaller pixels for more accurate information gathering, eg yield mapping, EC surveys, land forming.
- Precision weed treatment
- Real time Satellite information for crop sensing, surveillance
- Better software and internet to drive all of the above
- Things yet to be thought of and developed.
New Satellites

Anticipated launch schedule:
- 2010 – 1 satellite ("Michibiki")
- 2018 – 4 satellites
- 2023 – 7 satellites
On Going

- Weed seeking, + 90% Herbicide saving
- Drones?
On farm Storage - Control
Progress is impossible without change
And a few failures
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