Benefits of Pulses in Farming Systems
• Agronomy provider to 40 farmers in NW NSW
• 3 agronomists providing weekly hands-on advice
• Established in 2004
• Majority of clients are family owned farming operations
• West of Moree/Narrabri to Walgett
Coleman Agriculture – The Climate

- 500 mm average annual rainfall
- Highly variable
- 55% Summer, 45% Winter rainfall
- Summer rain is generally storm rain
- Hot Summer temperatures > 40’ Max
- Mild Winters – 15 frosts/year, generally mild days providing good growing conditions
Agriculture – The soils

- Grey vertisols – cracking clay soils
- High Plant Available Water Capacity
- 150 – 250 mm PAWC
- Good soils are our strength. They allow us to farm in unreliable/variable rainfall environment.
WATER; WHAT WATER?
Yield of Planting this year v Long fallow and Plant next year.

- WHEAT + N
- WHEAT ON
- BARLEY
- CHICKPEA

Legend:
- PLANT ON 55mm PAW
- LONG FALLOW & PLANT ON 180mm
Coleman Agriculture – The Farming System

• Zero-till – stubble retention underpins infiltration rates and fallow efficiency

• Controlled traffic – Clay soils compact easily inhibiting water infiltration, root growth and crop performance.

• Crop rotation – vitally important for disease reduction in a zero-till system.

• The above 3 techniques must be adopted together
Agriculture – The Crops

• Crops grown in order of area planted to each
• Wheat
• Chickpea
• Faba Beans
• Sorghum/Cotton
• Barley
• Oats/Forage Sorghum/Grazing Crops
Coleman Agriculture – The Crops

- WHEAT
- CHICKPEA
- FABA BEAN
- BARLEY
- SORGHUM
- COTTON
- GRAZING
Coleman Agriculture – The Rotations

• W – CP – W - - S - - (4 crops in 5 years)
• W – CP – B – FB – W -- S -- (6 crops in 7 years)
• W - - Cotton - - (2 crops in 3 years)
Coleman Agriculture – Legumes

+ve

- Disease break – Crown Rot, Yellow Spot, Net Blotch, Common Root Rot
- Nitrogen input – Cost saving from not applying Nitrogen to these crops, also some residual Nitrogen following faba beans in some years
- WUE $/mm is often higher than the cereals
- Marketing opportunities – operating in different markets
- Risk management – certain seasons suit certain crop species.
Chickpeas are very intolerant of compaction

With the introduction of ZT & CT during the 1990’s, chickpeas began to show their true potential

Greg Rummery (recent Brownhill Cup recipient) was responsible for this growth

Tolerate heat and dry conditions well
CHICKPEAS
Coleman Agriculture –
CHICKPEAS +ve

• Large seed – can emerge from 200mm depth
• Water use is well suited to our environment - moderate growth during Winter saving stored moisture for grain-fill.
• Indeterminate flowering reduces frost risk
• High value crop suits our area with high freight costs
Desi differences in Pt Build-up

All in 9 trials except CICA0912

High Risk

Medium Risk

P = < 0.01, log detransformed
Coleman Agriculture – CHICKPEAS -ve

- Varieties able to set pods at less than 15°C
- Higher levels of resistance to RLN
- BGM is a huge concern in years like this
- Growth regulators need further investigation as the correct planting date, plant population, row spacing dependent on the season, which is unknown until the end of the season.
- Very prone to waterlogging
- Low residue following harvest results in low fallow efficiency
FABA BEANS
Coleman Agriculture – Faba Beans +ve

• Large seed – can emerge from 250mm depth
• Improved varieties have increased frost tolerance allowing earlier planting resulting in higher yields
• Doza changed the way we grow faba beans
• Indeterminate flowering reduces frost risk
• Early planting, early harvest utilises machinery, labour more efficiently and reduces risk
• Can tolerate waterlogging, wet feet.
• Rust tolerance has improved – Breeding
• Fantastic at conditioning the soil (unquantifiable)
Faba bean differences in *Pt* Build-up

All 6 trials

`P < 0.01, log detransformed`
Coleman Agriculture – Faba Beans -ve

- Need a full profile – often long fallow
- Marketing – very reliant on Egypt
- Chocolate Spot control is heavily reliant on fungicide use
- Lodging has become a problem with our earlier planting
- New varieties stay green when grain moisture is low – need for dessication registrations
- RLN susceptibility
- Lots of unknowns – more to learn
Coleman Agriculture – Other Pulses

- Mungbeans – require in-crop rainfall. Too risky in our environment. Lottery ticket crop. Varietal improvements will overcome this.
- Field peas – have not been competitive with chickpeas and faba beans due to price.
- Lentils have had limited trial work done in the area.
Coleman Agriculture – Economics

![Bar chart showing the profitability of various crops.]

<table>
<thead>
<tr>
<th>Crop</th>
<th>Profitability ($1,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHEAT + N</td>
<td>2.8</td>
</tr>
<tr>
<td>WHEAT ON</td>
<td>2.8</td>
</tr>
<tr>
<td>BARLEY</td>
<td>3.0</td>
</tr>
<tr>
<td>CHICKPEA</td>
<td>1.8</td>
</tr>
<tr>
<td>FABA BEAN</td>
<td>3.0</td>
</tr>
<tr>
<td>CANOLA</td>
<td>1.8</td>
</tr>
<tr>
<td>COTTON</td>
<td>3.0</td>
</tr>
<tr>
<td>SORGHUM</td>
<td>3.0</td>
</tr>
</tbody>
</table>
Yield required to achieve $300/Ha GM in 2016

- **WHEAT + N**: 2.25
- **WHEAT**: 1.90
- **BARLEY**: 3.50
- **CHICKPEA**: 0.50
- **FABA BEAN**: 1.50
- **CANOLA**: 2.00
- **COTTON**: 3.25
- **SORGHUM**: 3.50

Coleman
Agriculture – Economics
• Chickpeas and Faba Beans are very important crops in our Farming Systems for disease, nutrition, soil health, rotation, and economic reasons

• We welcome the improvements in chickpea and faba bean varieties in recent years. We also look forward to similar improvements in the other pulse crops so we can incorporate them into our farming system.
We also appreciate the support we receive from Scientists, Pathologists & Researchers within the Pulse industry particularly Kevin Moore and Joop Van Leur.

Thankyou.