



Department of
Primary Industries

Role of canola in Integrated Weed Management in Northern Cropping Systems

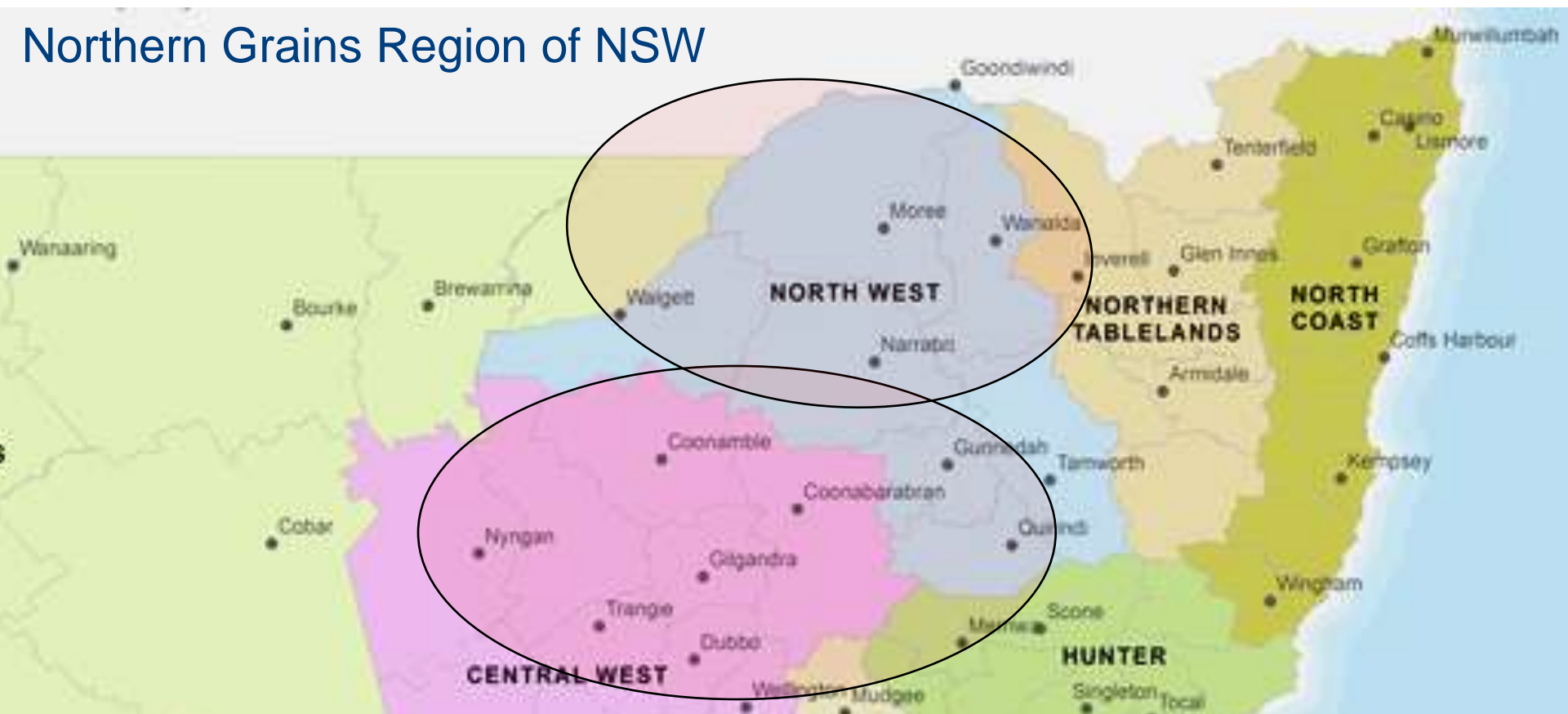
ARAB 18

Tanunda SA - 2014

Kathi Hertel (R&D Agronomist)

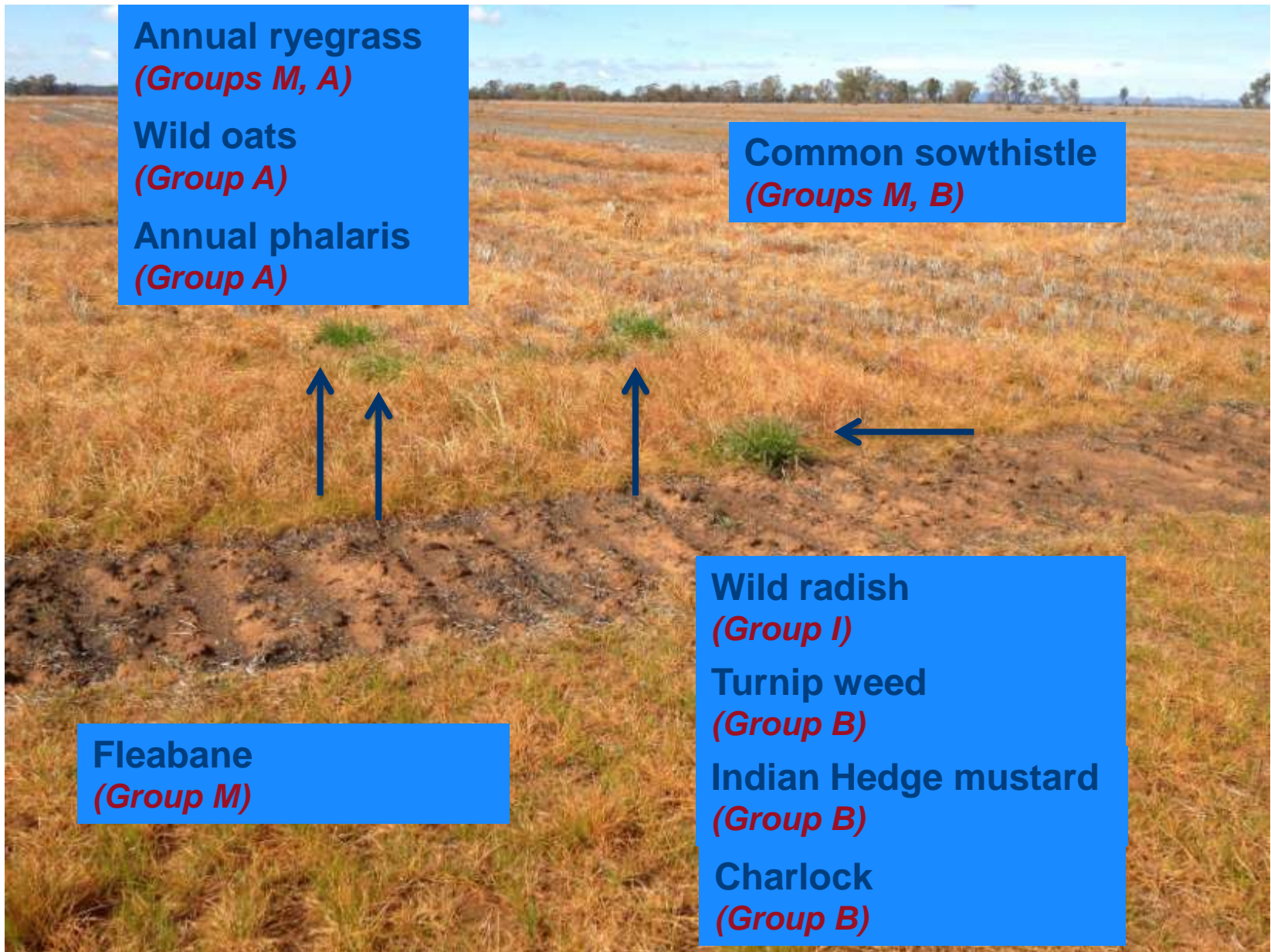
ACRI - Narrabri

Northern Grains Region of NSW



Northern farming systems

- * No-till
 - stubble retention
 - wide rows
 - guidance systems
 - seed & fertiliser placement
- Seasonal rainfall pattern (summer & winter crops)
 - Stored moisture in fallows



Annual ryegrass
(Groups M, A)

Wild oats
(Group A)

Annual phalaris
(Group A)

Common sowthistle
(Groups M, B)

Fleabane
(Group M)

Wild radish
(Group I)

Turnip weed
(Group B)

Indian Hedge mustard
(Group B)

Charlock
(Group B)

Photo: Greg Brooke (NSW DPI)

Canola & the NGR

Unique features

- *Herbicide technologies*
 1. Conventional
 2. Triazine tolerant
 3. Imidazolinone tolerant
 4. Glyphosate tolerant

→ ↑ resistance selection pressure
- *Diverse genotypes*
 - Open pollinated & hybrids
 - Varietal maturities

Competitive crops

- weed growth suppression
- ↓ seed production
- Hybrids vs open-pollinated (OP's)
- Seeding time
- Seed quality
- Seeding depth
- Seeding rate (crop population)
- Row spacing
- Row orientation
- Fertiliser management

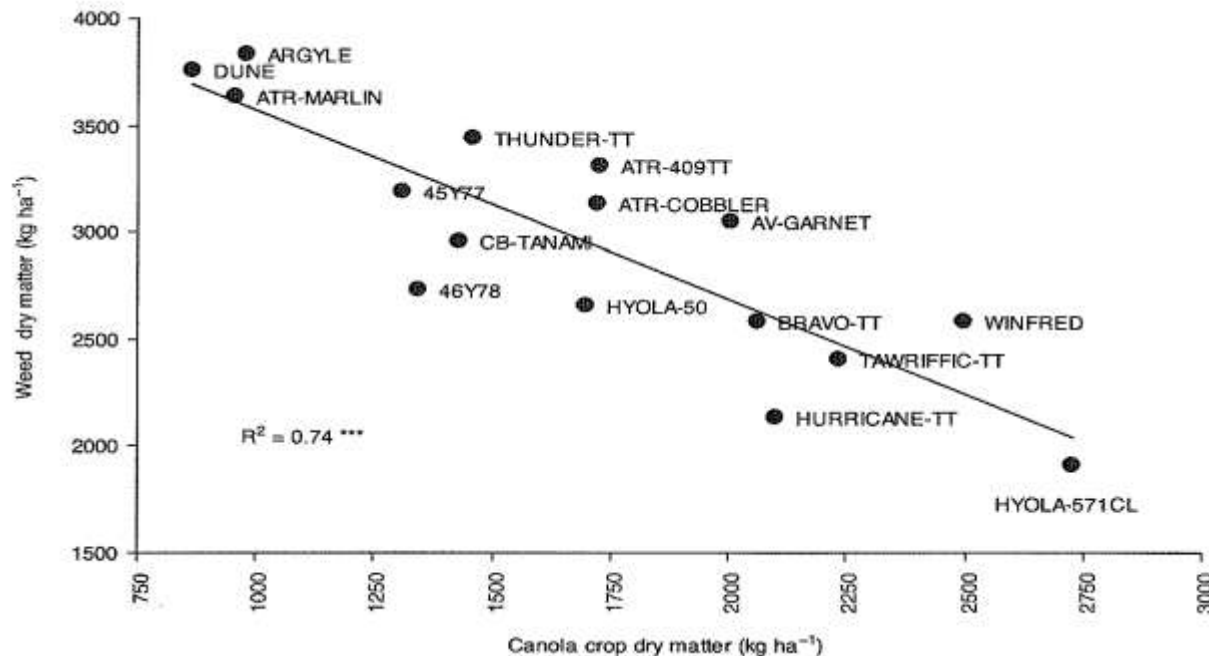
Competition - Impact on ARG (& mimics)

Weed biomass

- Competitive ability of Australian canola genotypes for weed management

Lemerle *et al* 2014

Journal: Crop & Pasture Science



Relationship between crop and weed dry matter at late flowering.
(Lemerle *et al* 2010)

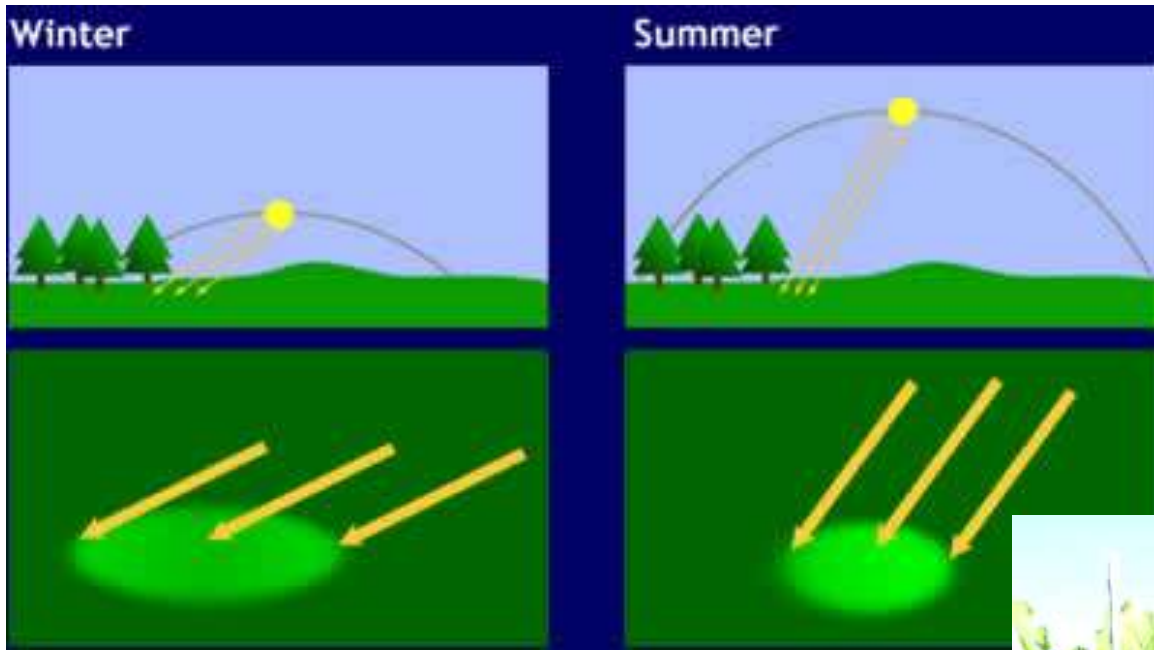
Weed seed production

- ↓ weed biomass

- lower weed seed production

→ lower seed bank replenishment

Row orientation



Orienting the crop @ 90° to the sun's rays

→ gives crop more sunlight

→ partially shades the inter-row



Photo: Greg Brooke NSW DPI

Early vigour & competitiveness

Staggered germination



Photo: Don McCaffery NSW DPI

Seed size

> 2 mm < 1.8 mm



Photo: Rohan Brill NSW DPI

Sowing time

TOS1



TOS 2



TOS3

TOS4



Compounding effects

Seeding rate

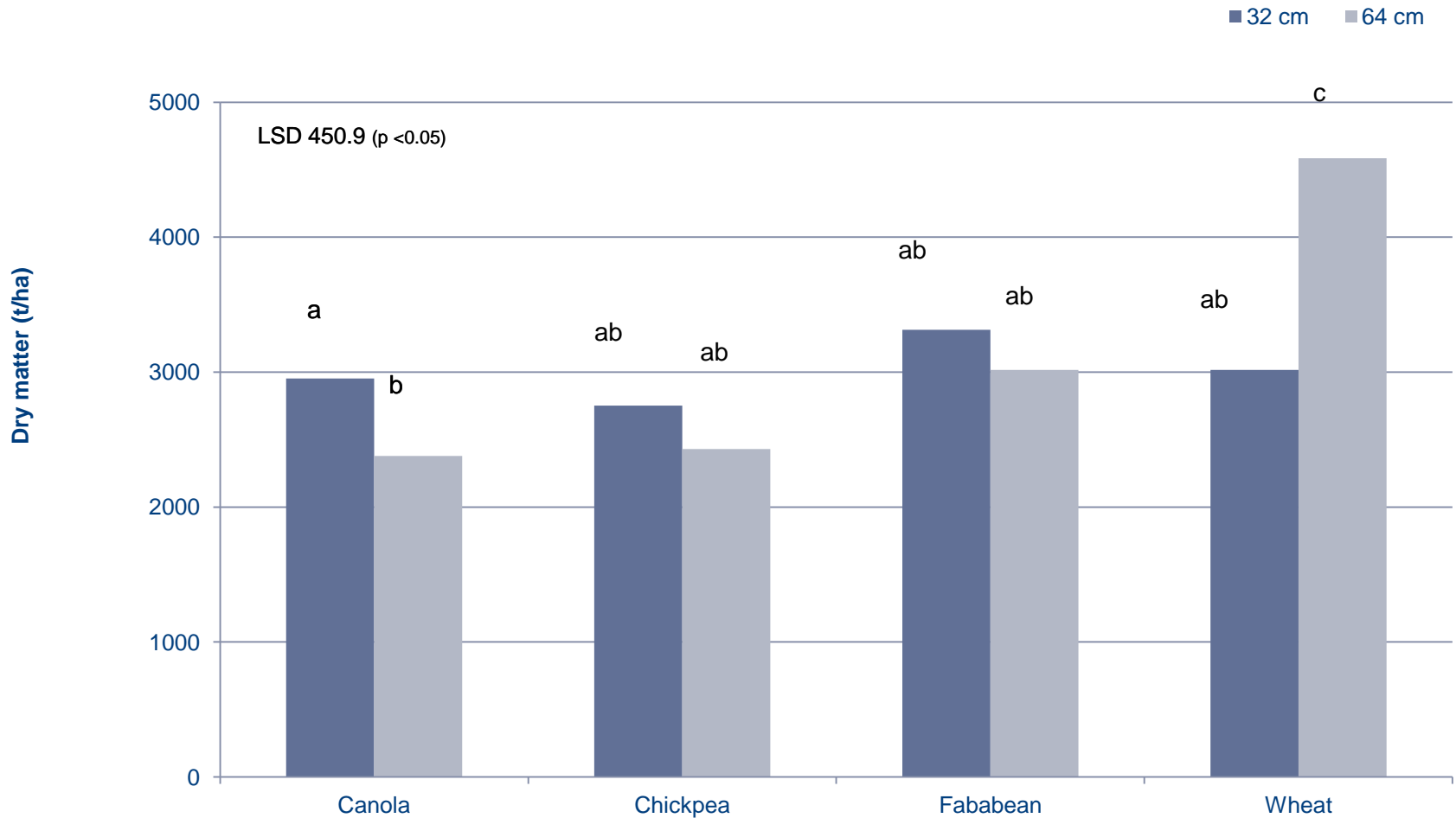


Seeding rate x sowing time



Canola competitiveness

Crop dry matter and row spacing
- Tamworth NSW 2001



Unpublished data



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Scope and opportunity

- Need for reliable data of management tactics, alone & in combination at a regional level (**G**enotype x **E**nvironment x **M**anagement)
- Quantify their impacts
 - Apply in decision making of strategic IWM
 - Validate canola's contributions to IWM in northern farming systems
 - Develop long term profitability and sustainability of canola in the NGR

Acknowledgements

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