USQ
Centre for Agricultural Engineering

Australian Government
Cotton Research and Development Corporation
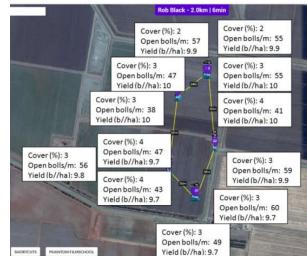
Australian Government
Department of Agriculture and Water Resources

Aerial imagery for yield prediction

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- Yield prediction improves management and contract planning

- Existing approaches are typically site and season specific

- UAV imagery and process-based crop models trialled for yield prediction with CottonInfo at 13 sites

- Average error in yield was 2.4 b/ha without images and 0.9 b/ha with images (1-15%)

2. Image and model analysis

Rob Black - 2.0km | 6min

Cover (%): 2 Open bolls/m: 57 Yield (b//ha) 9.9
Cover (%): 2 Open bolls/m: 55 Yield (b//ha) 9.9
Cover (%): 3 Open bolls/m: 47 Yield (b//ha): 10
Cover (%): 3 Open bolls/m: 55 Yield (b//ha): 10
Cover (%): 3 Open bolls/m: 38 Yield (b//ha): 10
Cover (%): 4 Open bolls/m: 41 Yield (b//ha): 10
Cover (%): 4 Open bolls/m: 47 Yield (b//ha): 9.7
Cover (%): 3 Open bolls/m: 56 Yield (b//ha): 9.8
Cover (%): 3 Open bolls/m: 59 Yield (b//ha): 9.9
Cover (%): 4 Open bolls/m: 43 Yield (b//ha): 9.7
Cover (%): 3 Open bolls/m: 60 Yield (b//ha): 9.7
Cover (%): 3 Open bolls/m: 49 Yield (b//ha): 9.7

3. Yield prediction (Z=Zone)

1. Image collection

Images

Accuracy of yield prediction in 2016/17

Z1 Z2 Z3 Z4

Yield predictions from UAVs at Springfield

Z1 Z2 Z3 Z4 Z5
Z6 Z7 Z8 Z9 Z10
Z11 Z12 Z13 Z14 Z15