Samford Ecological Research Facility (SERF)
SERF

- **1016.6 mm MAP**
- **25.6 °C max AT, 13.0 °C min AT**
- **Humid subtropics**
- **Flux Tower setup: June 2010**
SERF

Flux Tower

Lona van Delden
Samford: Turbulent fluxes

- Fm (kg/m²s²): 7360 4250 3110
- ustar (m/s): 7360 4250 3110
- Ff (mg/m²s): 7360 1995 5365
- Fe (W/m²): 7360 3018 4342
- Fh (W/m²): 7360 4281 3079

Date: 01/02, 01/03, 01/04, 01/05, 01/06

Hour: 0, 6, 12, 18, 24
Flag: 0, 5, 10, 15, 20, 25

Lona van Delden
Proposed Title:

Land use change and its impact on the carbon cycle in urban soils of southeast Queensland, Australia
GHG unit

Lona van Delden
GHG unit

- Automatic chamber unit (CO$_2$, CH$_4$, N$_2$O)
- 4 treatments x 3 replicates
- Forest, pasture, lawn (turf grass), fallow
- Conversion to CO$_2$ equivalent for C budget calculations
- 2 years data set
- Management:
  - Lawn: fertilization, irrigation, cut intervals
  - Fallow: herbicides

Lona van Delden
GHG unit
GHG unit

farm house

old plot

sink hole

2 m + 0.5 m buffer

4 m

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GHG unit
Soil Survey

Analysis:

- C/N
- SOC
- C fractions
- C isotopes
- Mineralization rates
- Texture, pH, EC, CEC, BD
Soil respiration

Comparison of low and high managed lawns and age of land use

• LI-8100A unit
• Fortnightly
• Soil temperature and moisture additionally
• Heterotrophic vs. total soil respiration
Modelling

• Calibration of ecosystem model (DayCent) with GHG data set

• Validation and extent of the model with soil survey and respiration data

• Future scenarios for different land use
OzFlux + PhD?

- C budget calculation
- SEQ climate model
- (Sub)Urban ecosystems
- Land use change
Thanks