Cooperative Research Centre for
IRRIGATION FUTURES

Irrigation Futures Training Series

TRAVGUN
National Training Course

One day course for irrigation consultants and travelling gun irrigators to

- Achieve high application uniformities
- Minimise the loss of water through deep percolation and irrigation of non-cropped areas
- Improve irrigation efficiency and profitability

By the end of the day participants will have

- Practical tips on how to improve the operation of travelling gun irrigators
- Skills to model a single irrigation event or season using TRAVGUN
- Better understanding of how to alter gun configuration and lane spacing to improve irrigation efficiency

The course covers research and practical information on travelling gun irrigators and lets everyone work with the TRAVGUN model using their own data or data from exercises.

TRAVGUN can model a single irrigation event or predict seasonal performance

TRAVGUN is a powerful decision support model that aids irrigators and extension staff to select

- Nozzle types and sizes
- Wetted sector angles
- Machine speeds
- Lane spacings

The model

- Predicts the spray pattern and distribution of field depths for any given wind direction or seasonal wind pattern
- Can also be used as a tool to optimise system design and management.

TRAVGUN can be calibrated using catch can transects easily measured in the field with simple equipment.

The resource materials that will make up the training package are:

1. TRAVGUN program

2. TRAVGUN manual

3. The NCEA field procedure & forms for the evaluation of guns

4. Practical exercises

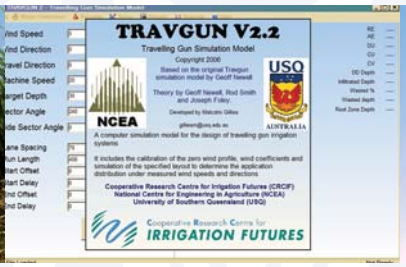
5. Copies of the Powerpoint presentations used in the lecture sessions

TRAVGUN National Training Course is provided by CRC for Irrigation Futures partners:

NCEA
NATIONAL CENTRE FOR ENGINEERING IN AGRICULTURE

State Government Victoria
Department of Primary Industries

USQ
UNIVERSITY OF SOUTHERN QUEENSLAND
AUSTRALIA


6. NCEA review report
   (Newell, G, Foley, J and Smith, RJ (2002) Travelling Gun and Boom Irrigation Machines: Review of Machine Characteristics, Performance Data and Research Issues. National Centre for Engineering in Agriculture Publication 179764/1, USQ, Toowoomba)

7. NCEA benchmarking paper on guns in the sugar industry
   (Smith, RJ, Baillie, C and Gordon, G (2002) Performance of travelling gun irrigation machines. Proc Australian Society of Sugar Cane Technologists, 24: 235-240)

8. NCEA paper on Travgun
   (Smith, RJ, Gillies, MH, Newell, G and Foley, JP (2007) A decision support model for travelling gun irrigation machines. Biosystems Engineering (submitted)

Course program		
9am	1. Overview of travelling gun machines	▶ Machine characteristics ▶ Performance measures (Ea, DU etc) ▶ Performance studies ▶ Factors affecting nozzle performance - pressure, nozzle type & size, trajectory angle ▶ Factors affecting machine performance - machine speed, lane spacing, sector angle, wind
10am	2. TRAVGUN theory	
10.30am Morning tea		
11am	3. The TRAVGUN model	▶ Getting started ▶ Gun setup ▶ Results ▶ Importing transect data ▶ Model calibration ▶ System optimisation
12pm	4. Data requirements and field procedure - including wind data	
12.30 LUNCH		
1.15pm	5. Basic calculations	▶ Nozzle head-discharge relationship ▶ Average depth and application rate (from transect and from H-Q data) ▶ Uniformity & efficiency
2.15pm	6. Modelling case studies	
3pm Afternoon tea		
3.15pm	Modelling case studies continued	
4.15pm	Summary and close	