



on track to improved profit and lifestyle

## CTF UP-2-DATE newsletter

### Jan - Feb CTF Solutions team highlights

- *Lismore satellite image delivered. It showed significant variation from waterlogging*
- *Topographical mapping at Dululu for 6 farms*
- *Two workshops on 'Surviving High Fuel Prices' were delivered to the Rural Results Group in February.*
- *A Hyperspectral Imaging Workshop was held by the University of Southern of Queensland*
- *A CTF field day was held at Winchelsea*  
*CTF Solutions spoke with Clay Mitchell from Iowa (USA)*

### Topographic mapping in the Don River catchment in Central Qld

Topographic mapping in the Don River catchment as part of the Fitzroy Basin Association (FBA) and Wowan Landcare group project has continued. The project's farmer participants have collected 2500 acres of topo data, using both their 2cm guidance systems, and the FBA-funded community base-station, during spraying and planting, with no extra effort. CTF Solutions has collected topography data for over 3000 acres of the cropping country in the catchment. The data is being used to develop integrated, district-wide drainage and farm paddock layouts.

### Formation of ACTFA - the Australian Controlled Traffic Farming Association

The ACTFA's primary purpose is to provide the mechanism for Australian farmers adopting and developing controlled traffic farming practices to share information and experiences, to source information and to set priorities for CTF research and development. An interactive, informative and user-friendly website [www.actfa.net](http://www.actfa.net) will form the basis of the ACTFA networking capabilities on a truly national basis. ACTFA will be unique in Australia, as a national production based association covering all agricultural industries, including the grains and horticultural industries.

**The ACTFA Mission** is to improve the profitability and sustainability of Australian agriculture through the promotion and support of **Controlled Traffic Farming (CTF) systems**. **ACTFA plans include:**

- A national network for sharing ideas and knowledge transfer for continual development of farming systems.
- An interactive website for the exchange of ideas and information between members adopting CTF across and between all states
- Informative teleconferences for members with expert speakers from Australia and overseas

- Newsletter reporting on the progress of technology development and farmer experiences
- Study grants for members, both nationally and internationally, to enhance the knowledge of all members
- Priority setting and industry directions for research and development into CTF agricultural systems
- A forum for promoting and increasing attendance at the annual **CTF Conferences – CTF06 at Ballarat on 27-29 September 2006.**
- Local Community and industry liaison to encourage community support for regional farmers adopting CTF.

### CTF06, Ballarat, 27-29 September 2006.

Expressions of interest for further information on [www.actfa.net](http://www.actfa.net).

### Satellite Imagery Captures

**Sugar:** IKONOS Image captures over the Burdekin River Irrigation Area for large sugar production enterprises are continuing. An image was also captured in the Mareeba area.

**Grain:** IKONOS imagery captured on the central Darling Downs in mid-January is to be used for GRDC funded precision agriculture research projects, one of which is being conducted by **CTF Solutions**, and a separate project being conducted by the Qld DPI and University of Southern Queensland. The data is to be combined with hand biomass cuts, yield & protein data. The imagery will also be made available to farms under the capture area.

### Formation of a satellite imagery users group

A number of Tully Sugar growers are forming a satellite imagery users group. In a recent trip to the area by **CTF Solutions**, these growers were advised on the application of satellite imagery to identify and outline problems, and through image analysis, be able to quantify the extent of production problems to aid improvement of their production systems.

## **NCEA investigates Plant Sensing to Improve Irrigation Performance through Variable Rate Irrigation (VRI) By Simon White (NCEA)**

Differences in the availability of soil moisture are a major contributor to variability within a field. This can be due to differences in soil types, compaction and/or the occurrence of variable rainfall events. When all other variables are being managed, irrigated crops can go one further by minimising the problem through variable rate irrigation (VRI).

VRI is already being conducted commercially in the USA with retrofitting of control systems on centre pivot and lateral move machines. The primary focus of these systems is to simply switch off or on water supply to banks of sprinklers when part of the machine is passing over non-cropped areas. Non-cropped areas may include low lying areas, roads or rocky outcrops. Research machines have been fitted with sub-mains and extra sprinklers to apply different rates allowing the investigation of crop response to different soil moisture deficits. This was conducted recently by the National Centre for Engineering in Agriculture (NCEA) as part of a student project investigating deficit irrigation in cotton.

The next step is to investigate if VRI can be used successfully to improve field performance as well as water use efficiency by overcoming spatial and temporal variability in soil moisture. This type of variable irrigation application would require an adaptive irrigation control system. This system variably applies water to individual management units within the field based on crop based sensing. Retrofitting of hardware to a centre pivot or lateral move machine with the ability to variably apply irrigation is not a hard task. The difficulty lies in the sensing data which is used to decide how much irrigation to apply during each pass. An adaptive irrigation control system requires a real time sensor that collects crop data and estimates a plants' availability to soil moisture or the presence of crop stress. Other factors influencing the system process would also need to be sensed in real-time (e.g. weather data) and/or be included as pre-existing knowledge (e.g. soils maps, topography) within the controller unit algorithms.

Work being conducted through the NCEA is investigating the various plant based sensors which could be used as the input for use in an adaptive irrigation control system. The aim is to find a sensor whose measured response correlates well with soil moisture availability or crop stress and therefore be used as the input data to a VRI system. This work is being funded by the Cotton Research and Development Corporation and the CRC for Irrigation Futures. This season has primarily focused on point source plant sensors, the use of a hyperspectral scanner for crop reflectance measurements and a vision system able to autonomously measure plant growth characteristics on the go. Next season investigations will include aerial imagery and the use of crop canopy temperature sensors. For further information on the CRC for Irrigation Futures or the investigation of plant based sensors for irrigation scheduling contact Dr Steve Raine (07 4631 1691) or Simon White (07 4631 1354) respectively.

### **March – April CTF Solutions Activities**

- Visited Victoria to deliver imagery captured late last year in the Lismore area. Major issues identified included water logging and poor layouts.
- The CTF Solutions hire yield monitor is currently installed in a header harvesting high yielding sorghum crops on the Central Darling Downs in QLD.
- CTF Solutions was invited by the Queensland Department of Primary Industries to participate in delivering introductory workshops on precision Agriculture. 75 people attended the workshops, which were held in Capella, Moura and Emerald.
- GRDC SIP09 meeting was held in Geelong, Victoria on the 27th March.
- CTF Solutions was invited to speak at the Queensland Farmers Federation Conference held on the 25th March at Coolool, QLD.
- CTF Solutions plans to visit NSW growers in April.
- Don is attending a high rainfall zone workshop in Victoria.

**CTF Solutions** is a grower-orientated organisation. We need your support and input to provide the service excellence that we strive for.

Please contact us with your comments and ideas. This is your Newsletter, please tell us what you'd like to see more (or less) of!

To contact the **CTF Solutions** team, or to arrange a visit, logon to [www.ctfsolutions.com.au](http://www.ctfsolutions.com.au)

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