Diary dates

More detailed diary dates are located on the GRDC website.

November	
9-12	7th Australasian Plant Virology Workshop, Rottnest Island, WA Contact: Mike Jones, 08 9360 6116, M.Jones@murdoch.edu.au
December	
3-7	**Australian Society of Soil Science Inc & Australasian Soil and Plant Analysis Council Inc Conference,** University of Adelaide, SA Contact: Plevin and Associates Pty Ltd, 08 8379 8222, events@plevin.com.au http://www.plevin.com.au/soils2006/welcome.htm
January 07	
15	**Adjuvant Technologies for Spray Applications workshop,** University of Qld, Customs House, Brisbane Contact: Andrew Hewitt, 0427 025 354, 07 5460 1293, a.hewitt@uq.edu.au
17	**Spray Drift & Application Modelling Workshop,** University of Qld, Customs House, Brisbane Contact: Andrew Hewitt, 0427 025 354, 07 5460 1293, a.hewitt@uq.edu.au
19	**Aerial Application Workshop,** University of Qld, Gatton Campus Contact: Andrew Hewitt, 0427 025 354, 07 5460 1293, a.hewitt@uq.edu.au
February 07	
13-14	**Grains Research Update for Advisers (Southern Region)** Wagga Wagga, NSW Contact: Jon Lamb, 08 8362 5417, jlcom@chariot.net.au
13	**Central West Conservation Farming Association/ Stipa Native Grasses Association 2007 Conservation Agriculture Conference,** Wellington, NSW Contact: Neville Gould, 02 6845 1044, cwcfa@bigpond.com.au
14	**Central West Conservation Farming Association/ Stipa Native Grasses Association 2007 Conservation Agriculture Field Day,** Wellington NSW Contact: Neville Gould, 02 6845 1044, cwcfa@bigpond.com.au
19	**Nyngan Grains Research Update,** Nyngan RSL, NSW Contact: John Cameron or Erica McKay, 02 9482 4930, updaten@tpg.com.au, http://www.icanrural.com.au
20	**Coolah Grains Research Update**, Coolah Sporting Club, NSW Contact: John Cameron or Erica McKay, 02 9482 4930, updaten@tpg.com.au, http://www.icanrural.com.au
21-22	**Dubbo Grains Research Update**, Dubbo RSL, NSW Contact: John Cameron or Erica McKay, 02 9482 4930, updaten@tpg.com.au, http://www.icanrural.com.au
23	**CWFS Farm Machinery Field Day,** Condobolin Ag Station, NSW Contact: Debbie, 02 6895 1001, debbie.o'neill@dpi.nsw.gov.au
28 Feb - 1 Mar	**Goondiwindi Grains Research Update**, Goondiwindi Community Centre, Qld Contact: John Cameron or Erica McKay, 02 9482 4930, updaten@tpg.com.au, http://www.icanrural.com.au
March 07	
27-28	**The 14th Australian Soybean Industry Conference "Success with Soybean",** Brother's League Club, Bundaberg, Qld Contact: Andrew Dougall, 07 4132 5539, andrew.dougall@dpi.qld.gov.au

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Grains Research UPDATE NORTHERN REGION

GRDC Grains Research & Development Corporation

Short term cover crops improve fallow efficiency

Work done by MCA (Paul Castor) and QDPI & F (Laurie Price) as part of the Eastern Farming Systems project at Goondiwindi has shown that cover crops of millet can reduce the risk of erosion, increase infiltration and fallow efficiency and maintain soil biology. Improvements in the efficiency of fallow water storage, can mean that more water is available for the next crop – despite the fact that water was used to grow the cover crop!

The problem is that skip-row sorghum residues provide little ground cover. This leads to problems with erosion and getting the soil profile to wet up again. To address these issues, millet was sown to create groundcover, in the fallow after harvesting skip-row sorghum. The millet was then either sprayed out with glyphosate after 6-8 weeks, or taken through to harvest.

Trials in both 2004/05 and 2005/06 found millet cover crops grown after skip row sorghum and sprayed out gave a benefit to the subsequent winter crop. Growing a millet cover crop was estimated by MCA in 2005 to add $20 machinery costs and $34 for seed, fertiliser and herbicide. However at least one fallow spray is saved leaving a net cost of $42/ha. The average yield increase following a sprayed out cover crop for 2005 wheat was 0.15 t/ha. At a price of $180/tonne this is an extra return of $27/ha. Hence the cost of protecting land from erosion was $15/ha.

September planted cover crops sprayed-out before day 72 averaged 10% extra water in the top 15cm compared to a bare fallow come winter crop planting. Cover crops that were left to mature or were sown in November, generally had a water deficit compared to the sprayed fallow treatment.

Winter crop plant establishment was generally higher where a cover crop had been sown as the surface soil was wetter. A sprayed out cover crop led to a subsequent winter yield improvement averaging 0.15t/ha in 11 out of 12 comparisons. In one example the use of millet groundcover provided an opportunity to plant forage oats that was not really available in the adjoining long fallow area (Dry matter production on the oats increased from 0.47 to 1.91t/ha). Millet cover crops were found to have no effect on crown rot levels in subsequent wheat crops.

White French millet was the best species tested for producing cover. Ideal planting appeared to be September with a November spray-out, giving maximum opportunity to refill the soil profile before winter planting. Sprayed-out millet stubble caused no problems when planting winter crops where the spray out was delayed, promoting high levels of groundcover.

FURTHER INFORMATION:
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Project code: DAQ0050

Scientist says "GMOs could benefit Australia"

Genetically modified (GM) crops are now grown on over 90 million hectares worldwide with the dominant GM countries being United States, Argentina, Brazil, Canada and China.

At the recent GRDC Update at Jandowae, Deputy Chief of CSIRO Plant Industry, TJ Higgins said "CSIRO is investing in certain GM technologies because they have the potential to contribute significantly to healthier communities and more sustainable and profitable agriculture. For example;

- plants that produce DHA (an omega 3 oil) to help improve human health and reduce pressure on fish stocks;
- plants that can increase soil phosphorus uptake, reducing fertiliser costs;
- GM chickpeas with resistance to Helicoverpa and
- 'crop biofactories' where plants produce industrial raw materials for use in plastics, adhesives and paints."

"None of the above are possible without the final variety being genetically modified," said Dr Higgins.

"Some crop traits can be developed via genetic modification or conventional breeding. One such example is CSIRO Food Futures Flagship's new high-amylose wheat. This wheat is high in resistant starch - important for healthy bowels and is typically low in the Australian diet.

"There is good evidence to show that there is generally no price difference between GM and non-GM crops. Japanese prices for Canadian canola (mostly GM) and Australian canola (non-GM) have remained the same since GM canola was adopted. Despite this evidence and amidst other fears most state governments have implemented GM moratoria to prevent the growing of GM canola. Queensland has remained somewhat free of this debate, largely because canola isn't a crop of importance in the state, and has no GM moratoria. This lack of moratoria allows Queensland growers to more rapidly take up new GM technologies – placing them at a considerable potential advantage when suitable new GM plants are developed.

"Generally speaking, industries that adopt new technologies are those that thrive. GM crops are now available across the world and to a limited extent in Australia. In a competitive environment, Australian growers are facing the question of whether certain GM crops will place them at a disadvantage or advantage and whether to adopt them," said Dr Higgins.

FURTHER INFORMATION:
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Stratification of nutrients in no-till

Years of soil sampling data show a story

Crops utilise nutrients from within the soil profile, commonly down to 90cm. Soil analysis on the Jimbour Plain showed that to get a good indication of nutrient status, a stratified sampling technique is needed for more elements than just N.

Data shows nutrient levels in the top 10cm appear okay where fertilisers have replaced nutrients taken up by plants. However, in the 10-60cm region where roots are growing in moisture, levels can be reduced. This could also be the case in the 60-90cm zone, and potentially an issue in years when good soil moisture from a long fallow allows root growth and nutrient / moisture extraction from depth.

Under current farming systems, most phosphorus and zinc is applied in the top 10cm with the seed. When this surface zone has dried out, increasing reliance is placed on nutrient uptake from roots deeper in the soil profile.

This data shows that soil testing only to 10cm may is unlikely to reflect the real nutrient status of the soil in the effective full root zone. Growers should be asking soil to be sampled down to at least 90 cm, with a complete analysis of nutrients at depth every 5 years, to monitor changes of available nutrients at depth over time.

Whether it is economical for growers to start applying nutrients at depth in dryland farming systems is as yet still unclear. Darling Downs growers have been experimenting with deep applications of nutrients over the last five years with no yield responses as moisture has been the biggest limitation over this period.

FURTHER INFORMATION:
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Table 1. Non-mobile nutrients - change in nutrient availability over a 5 year period in a soil on the Jimbour Plain.

Soil Depth	Nutrient Levels								
	P mg/kg			Zn mg/kg			K meq/100g		
	1996	2000	2002	1996	2000	2002	1996	2000	2002
0 - 15 cm	NA	20	12	NA	0.7	0.5	NA	1.32	1.03
15 - 60 cm	7	4	4	0.2	0.3	0.1	0.62	0.66	0.53
60 - 90 cm	11	8	4	0.3	0.2	<0.1	0.58	0.87	0.57

Ethanol and bio-diesel – what's happening?

"With government policies supportive of a biofuels industry and planned capacity expansion, biofuel production appears likely to increase significantly over the next few years. This would represent a new source of demand for grains and oilseeds", Graham Love from ABARE reported at recent Grains Research Updates.

"Four new biodiesel facilities were commissioned in 2006, bringing the total number of biodiesel plants now operating to six. Five more biodiesel and several large ethanol plants could commence production in the next 12–18 months.

"If all the current and proposed projects were to produce at full capacity within the first year of operation, biodiesel production could reach 334 ML in 2006-07 and 561 ML in 2007-08, while fuel ethanol production could reach 234 ML and 479 ML respectively.

"A key question for Northern grain and oilseed producers will be what feed-stocks these new biofuels producers are likely to demand. Although some of the new plants may be able to use a mixture of feed-stocks, actual demand will depend on traditional factors such as price and availability.

"As biofuels are sold mainly into the transport fuels market in competition with petrol and diesel, the price that biofuel manufacturers should be able to obtain for their product depends on domestic prices for petrol and diesel, which are effectively set by the world oil price, the Australian exchange rate, and levels of fuel tax. ABARE economists are working on a figure of around US$40/barrel (in 2005-06 dollars) for West Texas Intermediate oil in the long term. Recent falls in world oil prices from historically high levels suggest that the softening in oil prices widely expected by many industry analysts may already have begun.

"Analysis of the economics of production suggest that at forecast 2006-07 prices, producers are likely to find sorghum and low quality wheat economic as feedstocks for ethanol production, but biodiesel producers are likely to find used cooking oil and tallow more economic as a primary feedstock than canola. However if world fuel prices stay high or increase, biodiesel and ethanol could serve as a hedge for growers seeking to offset the risk of rising fuel prices. If this were to happen, there may also be an impact on the value of grain in traditional markets," said Graham Love.

Full details of Graham Love's paper presented at the Updates can be found at the GRDC website. http://www.grdc.com.au

FURTHER INFORMATION:
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Adjuvants, spray modelling and aerial application workshops in January 07

The Centre for Pesticide Application and Safety (CPAS) at the University of Queensland (UQ) is holding a series of one-day workshops in January 2007 of potential interest to grains advisers.

15th January – Adjuvant technologies for spray applications. Key speakers with extensive experience in developing adjuvants for spray optimisation, as well as evaluating adjuvant interactions with tank mix and nozzle systems will discuss the issues.

17th January – Spray drift and application modelling in grains and other crops. Speakers will include model developers from around the world and Australia. Introduction to model use will enable applicators, growers and advisers to make use of a range of modelling tools to optimise spray application.

19th January – Aerial application. This workshop includes hands-on practical work to compliment theory.

FURTHER INFORMATION:
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Moti yields in CQ

According to Queensland Department of Primary Industries and Fisheries (QDPI&F) researcher Col Douglas, the new chickpea variety 'Moti' has out yielded other varieties by 12% in 6 years of trials in the tough Central Queensland growing conditions.

The Western Australian-bred chickpea variety was released for use in CQ in 2003 and the region was the only grain growing area to receive a licence.

The traits that give Moti such high yield under the tough, hot CQ conditions are early flowering, erect growth and resistance to lodging. It's downside is that it has no resistance to ascochyta – making it unsuited for regions with this disease and vital that the industry continues to work together to keep ascochyta out of CQ.

FURTHER INFORMATION:
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FURTHER INFORMATION:
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GRIST Manual 2006

The GRIST page contains a range of 2006 trials conducted by grower groups operating across Australia. Topics cover disease management, farming systems and rotations, improving crop performance, nutrition, Soils and soil management and weed management control strategies.

FURTHER INFORMATION:
http://www.grdc.com.au/growers/oft/oft_search/docs/grist/index.htm

RESEARCH INFORMATION FOR FARM ADVISERS
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