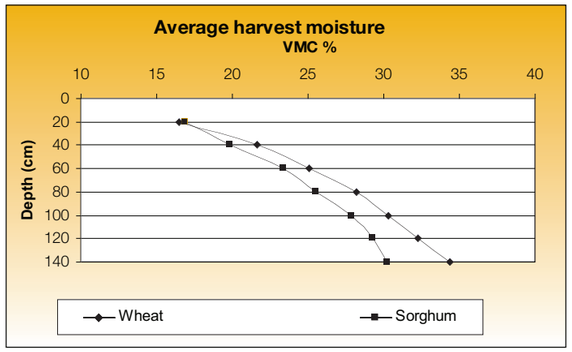

Figure 3. Soil water at harvest of 18 wheat and 10 sorghum trials.

Water management will be discussed further at the upcoming CQSFS Forum and Grains Research Update – Ready, Set GROW… on the 24th and 25th of July 2007 at Emerald Town Hall. For further information on the Forum please contact John Cameron on 02 94824930 or updaten@tpg.com.au.

FURTHER INFORMATION:
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GRDC code: DAQ00049

Ready – Set Grow! Emerald farming systems forum and Update

Central Queensland Sustainable Farming Systems project in conjunction with the GRDC is organising a 2-day forum and grains research Update for Emerald in late July – entitled Ready, Set, GROW…CQSFS Project Leader Richard Routley, said "Ready, Set, GROW… at the Emerald Town Hall on July 24 & 25th would showcase new ideas and research across a range of emerging industry issues.

"The day one agenda maps out the future of farming systems in CQ. Hot topics include soil fertility, managing water, genetics, farm economics and the environment.

"Day 2 will focus on on-farm grain storage, covering planning on-farm storage systems managing grain quality, insect management, aeration, drying and cooling. Silo bags and controllers will also be discussed.

"An industry dinner on the evening of day one promises to be a great social occasion. The inspiration for the Ready, Set, GROW...forum was the CQSFS project's ten year anniversary", said Mr Routley.

FURTHER INFORMATION:
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To register, contact John Cameron or Erica McKay on 02 9482 4930. A full agenda and registration form can be downloaded from: www.icanrural.com.au

GRDC code: ICN6

VISIT AUSTRALIA'S GRAINS RESEARCH WEB PAGE GRAINZONE www.grdc.com.au

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Diary dates

More detailed diary dates are located on the GRDC website.

Up coming Grains Research Updates

Wednesday July 18th
Moree RSL – Summer crops

Thursday July 19th
Spring Ridge Country Club – Summer crops and local research

Tuesday and Wednesday 24 & 25th July
Emerald Town Hall – Farming systems (24th) and on-farm storage (25th)

Grains Research UPDATE NORTHERN REGION
GRDC Grains Research & Development Corporation

Wild oats resistance options

"Herbicide resistance is becoming more widespread throughout NNSW particularly in wild oats to Group A (fop) herbicides," said NSW DPI Weeds specialist Andrew Storrie. "Populations with resistance to Group A dim herbicides are also present in NNSW, as well as to Group B and Group K herbicides. In some populations with Group A resistance, group K resistance is also present – even where Group K products have not been used. Group B resistance could also be present – especially where group B herbicides have been used 3 or more times," said Mr Storrie.

"The best way to manage herbicide resistance is to know where you stand. To determine the full extent of resistance, testing for Group A (fops, dims), Group B and Group K must be conducted. Seed from suspected resistant populations from last year can be sent to John Broster at Charles Sturt University, Wagga Wagga (02 6933 4001) for seed testing," said Mr Storrie.

What to do after 6-8 fop applications

"Paddocks with a history of 6 or more applications of a Group A herbicide are in 'herbicide resistance territory'. Plans should be made to introduce a more diverse range of weed management tactics such as using a pre-emergent like Avadex® followed by a Group B herbicide, rotating to a summer crop, selective crop topping with Mataven® and adopting agronomic strategies that give the crop a competitive head start on the weeds," advises Mr Storrie. Close monitoring must be carried out within 2 weeks of any spray application to ensure patches of wild oats have not escaped control.

If weed escapes are present:

1. Contact your adviser immediately, and
2. Spray in-crop test strips, using group A (fop and dim), B & K herbicides to determine resistance levels. This will give fast (~3 week) results, or
3. If you have escapes and decide just to use Mataven (Group K) to clean up survivors, there is a risk of failure here also.

Irrespective of what is done, you will need to determine the resistance status of the field for the next season. Send wild oat samples to be Quick tested for Group A (fop and dim), B & K herbicides to Peter Boutsalis in Adelaide (www.plantscienceconsulting.com). A Quick test requires one hundred wild oats plants (2-leaf to late tillering) and has a 4-8 week turnaround. The problem is that while you are waiting for the test results, yield is lost due to wild oat competition and weeds may be too big and stressed to control by the time results are back. Alternatively weed seed can be sampled for testing later in the year.

It is extremely important to be out in the crop inspecting weed burdens and spray results, as any escapes should not be allowed to set seed, as this compounds the problem for future seasons.

FURTHER INFORMATION:
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GRDC code: DAN00079

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Kit tackles chemical runoff

A new kit helps grain growers minimise chemical runoff. Developed by Queensland Department of Natural Resources and Water (DNR&W) researchers David Freebairn, Dan Rattray and Norm Gurner, the 'Pesticides in Catchment' (PIC) kit, includes a quick reference guide, risk assessment tool and best practice manual.

"With pesticide residues (albeit usually at low levels) often showing up in water flows from agricultural catchments, there is both a need for agriculture to demonstrate its good management practice and in some cases to adopt better practices," Dr Freebairn said.

This project looked at how agricultural chemicals move in the landscape, identifying high risk situations and providing management options to reduce off-site movement.

According to Dr Freebairn, "there are three simple things growers should keep in mind when considering risks of herbicide movement. These are;

- runoff risk is lower on drier, deeper and more permeable soils;
- soil erosion risk is lower with more cover and lower slopes;
- the greater the distance between paddock and stream, the greater the chance of runoff losing its sediment and chemical load before it enters the stream.

The Pesticides in Catchment Kit raises awareness of the risk factors for off-site movement of pesticide by providing a framework to help growers and advisers to identify and manage risk - providing the basis for a simple environmental management system.

To access the Pesticides in Catchment (PIC) information, visit www.grdc.com.au and type in DNR00002 in the search engine.

When runoff and sediment risk is high, options to reduce risk near sensitive areas might be to use a less persistent chemical, a lower rate, or use mechanical weed control instead.

FURTHER INFORMATION:
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GRDC code: DNR2

Feedlots value corn

"A feedlot is best described as an energy transfer system" said Rob Lawrence of Integrated Animal Production in Toowoomba. "A system that maximises energy transfer efficiency can maximise profitability."

"To do this you need feed with high available energy. Cereal grains have a high energy (starch density of 70-80%), yet the availability of starch varies between grains and grain processing method. Grain is best assessed on Net Energy for gain (NEg) and not protein" explained Mr Lawrence. As shown in table below, corn has 30% greater energy efficiency than dry or tempered rolled grain sorghum.

Table 1. Net Energy for maintenance (NEm) and gain (NEg) for dry or tempered rolled cereal grains and NEg differences compared with sorghum

Grain	NEm Mcal/kg	NEg Mcal/kg	NEg Difference
Sorghum	1.84	1.20	-
Barley	2.06	1.40	+15%
Wheat	2.18	1.50	+25%
Corn	2.24	1.55	+30%

"Feed rations high in available energy reduce daily operational costs (feed manufacture / delivery & manure removal), grain/energy loss and feed requirements. This implies that a feedlot that processes grain as dry or tempered rolled, could afford to purchase corn at a 30% premium to that of sorghum, and wheat at a 25% premium because of higher NEg efficiency.

"Even if the price differentials were greater, I would still advise the feedlot to source an additional grain rather than rely solely on dry or tempered rolled sorghum," said Mr Lawrence.

This raises the question, if corn is potentially a higher value crop, why is it not a common feedlot ingredient? The answer is that due to poor local availability of corn, it is harder to source, can sometimes be priced out of the market and can have processing limitations (tonnes/hour), as many local feedlot roller mills are not configured for corn.

"Source reliability, steam flaking and reconstitution allow sorghum to be used more efficiently. However feedlots would prefer corn as a feed source due to its high energy efficiency," said Mr Lawrence.

Improved agronomy and management of corn as a dry land crop could improve the reliability and potential volume of local supply. With growing local demand for what is potentially a premium feedlot grain, is there the option to change the mix of summer crops grown in irrigated and more reliable dryland growing regions?

Phillip Dew of IAP will be addressing the relative value of feed grains at the Moree Grains Research Update on July 18th at the Moree Services Club.

FURTHER INFORMATION:
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Improving reliability of rainfed corn

"With increasing demand for quality feed grains and silage, there is renewed interest in corn. Being more sensitive to moisture and temperature stress than grain sorghum, corn has a reputation as a variable and somewhat unreliable yielding dryland crop. However with increased demand and with the development of new quick maturing varieties coupled with good agronomy, there is room to reassess options for corn in southern Queensland and northern NSW," said Dr Colin Birch of the University of Queensland.

Dr Birch has modelled dryland corn in APSIM using soil and long term weather data. Yield impacts were modelled for combinations of plant population, quick and medium maturing cultivars, planting dates and soil water profiles. Key findings were:

- Unsurprisingly, higher rainfall areas like Quirindi and Gunnedah had higher predicted yields and were more reliable than areas to the north and west (Goondiwindi – Moree)
- Wide yield variability (0-8t/ha) existed in the Goondiwindi to Moree area
- Fast maturing cultivars were more reliable and produced higher predicted mean yields outside traditional premium corn growing areas
- Low plant populations (20,000 plants/ha) were more reliable, especially in more marginal areas (Moree - Goondiwindi), with higher populations suitable on full profiles in the more reliable areas (eg Quirindi)
- Planting on a full soil water profile increased yield and reduced risk of crop failure, especially in more marginal areas.
- Strategies to minimise high temperatures during sensitive crop stages using early or late planting of fast cultivars in more marginal areas will help optimise yield.

This research along with regional summer crop trial results will be discussed in more detail at the Moree Grains Research Update to be held at the Moree Services Club on July 18th.

FURTHER INFORMATION:
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GRDC code: CSA1

Summer crop water use – how does this compare to wheat?

How much water do different crops use and how does this affect crop selection for different situations / soils and roles in a crop rotation? The *Combating Subsoil Constraints Project* has been investigating water use by both summer and winter crops.

Two trials at Jambin and Moura looked at rooting depth and water use of 6 summer crops: sorghum, corn, mungbeans, cotton, pearl and French white millet.

The data (figures 1 and 2) showed that water use by a particular crop in a relatively unconstrained site, was proportional to the length of growing time, with longer season crops (eg cotton) extracting more water than shorter season crops (eg French white millet).

"This has obvious re-cropping implications, with less rainfall needed to refill the profile after French white millet than after cotton. Subsoil constraints that limit rooting depth, also impact water use. At a highly constrained site in 2004/05, mungbean roots were limited to 80cm, whereas French white millet and corn extracted water from 100cm, and sorghum to more than 100cm," said researcher Mr Stuart Buck, from QDPI&F Biloela.

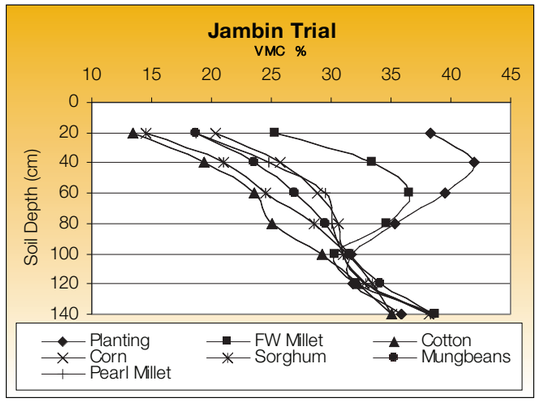

Figure 1. Water extraction results from Jambin.

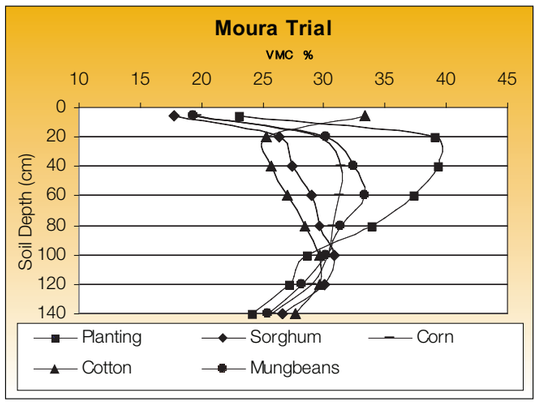

Figure 2. Water extraction results from Moura.

"It is often commented by growers that the soil seems drier (more cracks) after wheat compared to sorghum. Is this a difference in water extraction? Looking at 18 wheat and 10 sorghum trials with a dry finish, sorghum extracted slightly more water than wheat throughout the profile (figure 3). A possible reason for the grower observation is that sorghum is grown during the wet season and so on average would receive more in-crop rain compared to wheat and thus not rely as heavily on stored moisture. But in the drier years when sorghum needs to fully exploit the subsoil for moisture, sorghum has the ability to dry the subsoil as well as, or slightly more than wheat."

RESEARCH INFORMATION FOR FARM ADVISERS
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