Fertiliser rate	MAP at 66kg/ha
Foliar	Twin N 1 vial/5h before growth stage 30
Herbicide	Site treated 2L/ha Roundup 450 and 1.5L/ha Triflur Xcel at sowing.
Design	Block design with three replications and fully randomised
Measurements	Establishment, vigour, yield, protein, screenings, test weight and moisture

What happened?

All the trials established well and at growth stage 30 showed good health and vigour. The Twin N foliar application was applied in the late evening or early mornings to reduce evaporation, allowing the bacteria time to enter into the plant. This process is said to take around three hours and the plant surface needs to remain moist for this duration.

At the spring field days there were obvious signs of moisture stress across all the trials. The trial displayed no signs of nutrient deficiencies.

The season ended quickly across all sites and all crops ran out of moisture severely penalising yields.

Results

Table 1. Twin N yield & grain quality

Euabalong			
	Yield (t/ha)	**Protein %**	**Screening %**
Nil	0.283	13.65	10.1
Twin N	0.319	13.58	9.17
Tottenham			
	Yield (t/ha)	**Protein %**	**Screening %**
Nil	1.039	14.02	6.2
Twin N	1.062	13.7	5.72
Weethalle			
	Yield (t/ha)	**Protein %**	**Screening %**
Nil	0.801	12.40	4.43
Twin N	0.834	12.57	4.37

What does this mean?

Twin N was of no benefit to crop performance at any of the three sites. However, with yields severely constrained by lack of moisture, extra N was most likely not required by the crops so any N product would have failed to produce a benefit.

Twin N is an additional input cost. The site at Wirrinya had Twin N applied to the crop when prospects were looking good. The crop failed due to the poor finish to the season. This is a risk all growers face which impacts on how much input to use.

Further research is required to fully assess the benefits of using Twin N. As the trials were suffering from severe moisture stress, nitrogen would not have been the limiting factor.

Acknowledgements

Thanks to all the co-operators, hosts, district agronomists, seed and product suppliers and CWFS staff for assistance with our trials throughout the year.

CWFS ZINC PRODUCT TRIALS

Brad Davis
Central West Farming Systems

Key Messages

- Zinc seed dressings and/or zinc foliar sprays did not benefit treated crops in the 2009 season

What products were used?

In conjunction with Agrichem (Silver Sponsors of CWFS), CWFS conducted a number of trace element response trials through the use of seed dressings and foliar sprays. These products included :

- Activist Zinc (30% Zn)
- Zip (18% P, 2% K, 14% Zn) and
- Kelpak (100% seaweed concentrate).

Why was it done?

Soil tests across a number of CWFS regional sites recorded low levels of zinc. Our regional trial sites at Condobolin, Euabalong, Rankins Springs and Weethalle recoded levels below 0.4 mg/kg of Zinc (DTPA). For this reason, these trials were set up to see if zinc was limiting yield potential.

How was it done?

Three replicated and randomised small plot trials were sown at Euabalong, Tottenham and Wirrinya. Due to poor seasonal conditions, the trial at Wirrinya failed and was not harvested.

At Euabalong the trial compared three control rates of MAP fertiliser, 0, 30 and 50 kg/ha. Treatments of a Zip/Kelpak seed dressing were applied to these fertiliser rates, and then later half were treated with Zip/Kelpak foliar spray for comparison.

Similarly at Tottenham, two control rates on MAP fertiliser of 0 and 50 kg/ha compared treatments of fertiliser with a Activist Zinc/Kelpak seed dressing, half of these were later treated with Activist Zinc/ Kelpak foliar spray or left untreated for comparison.

Background

Euabalong Site

Hosts	Ian & John Kemp
Location	“Derrida”
Paddock history	Barley Stubble
Soil Type	Red Clay Loam
Soil fertility	pH (1:5 water) 5.9 Colwell P 35 mg/kg Nitrate Nitrogen 25 mg/kg Sulphate Sulphur 3.7 mg/kg Zinc (DTPA) 0.35 mg/kg
Sowing Date	11th June 2009
Harvest Date	13th November 2009
Plot Size	13m x 1.8m
Seeding rate	40 kg/ha EGA_Gregory Wheat
Fertiliser rate	MAP at 0, 30 & 50 kg/ha
Seed Dressing	Zip/Kelpak
Foliar Spray	Zip at 2L/ha & Kelpak at 1L/ha in 50L/ha of water
Herbicide	Site treated with 2L/ha Roundup 450 2 weeks prior to sowing, 1.5L/ha Roundup 450 and 1.5L/ha Triflur Xcel at sowing.
Design	Block design with three replications and fully randomised
Measurements	Establishment, vigour, yield, protein, screenings, test weight and moisture

Tottenham Site

Background

Host	David Fishpool
Location	“Curran Park”
Paddock history	Fallow
Soil Type	Red Clay Loam
Soil fertility	pH (1:5 water) 6.6 Colwell P 58 mg/kg Nitrate Nitrogen 31 mg/kg Sulphate Sulphur 7.6 mg/kg Zinc (DTPA) 0.8 mg/kg
Sowing Dates	29thth May 2009
Harvest Date	4th November 2009
Plot Size	13m x 1.8m
Seeding rate	40 kg/ha of Gregory wheat
Fertiliser rate	MAP at 0, 50kg/ha
Seed Dressing	Activist /Kelpak
Foliar Spray	Activist at 0.5L/ha & Kelpak at 1L/ha in 50L/ha of water
Herbicide	Site treated with 2L/ha Roundup 450 at sowing, Axial and MCPA Lve in crop

During the season the trial was given a single spray with MCPA LVE, Verdict and Axial to control weeds.

Design	Block design with three replications and fully randomised
Measurements	Establishment, vigour, yield, protein, screenings, test weight and moisture

What happened?
The trial established evenly and plant numbers were consistent across all plots. In the Tottenham and Wirrinya trials, there were no visual differences in early vigour between any of the treatments.

For the Euabalong trial there was a visual difference in vigour between the different rates of MAP fertiliser controls. This vigour became more evident with the increasing rates of MAP. There were no visual differences in vigour between treatments that had a seed dressing and those without.

At growth stage 30 the product foliar sprays were applied to their allocated plots.

The Euabalong spring field day was held mid September and the trials were looking healthy at this stage. The treatments with a Zip/Kelpak seed dressing and a foliar spray appeared to have a greater biomass and better root development than the treatments without the seed dressing and foliar sprays.

Results
Due to the poor finish and the later sowing at both the Euabalong and Tottenham sites, the yields of these trials were low and variable. The average yield for all treatments at Euabalong was 0.34 t/ha, and at Tottenham 0.41 t/ha. Moisture was the limiting factor determining yield outcomes last year. Even the low rates of MAP only did increases yields at Euabalong.

What does this mean?
To achieve comprehensive results these product trials need to be repeated over a number of seasons and possibly over a range of soil types. As mentioned earlier, a number of soil samples from across the Central West are displaying low levels of zinc in the analysis. In seasons where moisture is not such a limiting factor, these low trace element levels have the potential to limit yield.

Acknowledgements
Thanks to all the co-operators, hosts, district agronomists, seed and product suppliers and CWFS staff for assistance with our trials throughout the year.

2009 CANOLA APHID MANAGEMENT TRIAL

Leigh Jenkins, Rohan Brill & Don McCaffery
I&I NSW

Key Messages:
- sow canola early to maximize both yield and oil potential
- pirimicarb products remain the preferred option for controlling aphids in canola, on the basis of 3 criteria: residual activity, yield response, and economic (marginal return) analysis
- product choice and rate appears more critical in later sown crops
- aphid species identification will assist with product selection and prevention of resistance.

Trial Objectives:
1. Identify and assess species of aphids affecting canola in the local region, and identify and assess impacts of beneficial insects as biological control agents.
2. Evaluate various commercial and unregistered insecticide options for the control of aphids in canola, and impact on beneficial species.
3. Develop recommendations for aphid thresholds in canola and timing of chemical application, based on economic yield response to control.

Background: Aphid infestations can occur at two stages of the canola crop cycle; during the autumn/ winter establishment phase, and again during spring when crops are flowering and podding. Early infestations can lead to establishment failure or stress and the risk of virus transmission. Spring infestations often have a "double whammy" impact in combination with moisture stress, as high aphid populations appear more evident in dry seasons. In this region the problem has been noted as difficult since 2007, whilst 2008 was one of the worst seasons for aphids over a wide area of NSW.

Three issues arise in relation to the economic benefits of controlling aphids in canola. Firstly, yield potential is already reduced by the dry season/ moisture stress, so it is difficult to determine when control is warranted, and what thresholds apply to ensure a cost-benefit return from spraying. Secondly, many growers and their advisers have experimented with lower rates of both registered and unregistered products, as a consequence of both reducing costs and limited product supply at critical times. Thirdly, careful selection of insecticides is essential to ensure that damage is not caused to nearby beehives or to beneficial predatory insects within the crop, and the harvest withholding period of the insecticide is not exceeded.

This trial was a first attempt to examine some of these issues and will be refined and repeated in 2010. The trial was jointly conducted by Don McCaffery, Leigh Jenkins and Rohan Brill (all I&I NSW) at Trangie Agricultural Research Centre in 2009.

2009 Trial details

Variety:	44C79
Seeding rate:	3.75 kg/ha
Fertiliser:	Granulock 12Z @ 100 kg/ha
Sowing dates:	TOS 1 - 21 April 2009 TOS 2 - 11 May 2009
Herbicides:	Stomp® @ 2.0 L/ha (at sowing); Intervix®, Lontrel® + Verdict® (post-sowing).

Treatments
1. Control (untreated)
2. Pirimor® WG (a.i. pirimicarb) @ 0.5 kg/ha (registered label rate in canola)
3. Pirimor® WG (a.i. pirimicarb) @ 0.25 kg/ha (half registered rate)
4. Pirimor® WG (a.i. pirimicarb) @ 0.125 kg/ha (quarter registered rate)
5. Fastac® Duo (a.i. alpha-cypermethrin) @ 300 mL/ha (label rate for heliothis)
6. Rogor® (a.i. dimethoate) @ 500 mL/ha (unregistered; as per Permit PER11140 for use 2008)

Insecticides were applied on 8 September 2009 by hand-boom over the top of each plot (water rate 70 L/ha; Hardi LD01 nozzles @ 5 km/hr).

TOS 1 (21/04/09) @ late pod-fill stage
TOS 2 (11/05/09) @ 60% flowering – mid pod-fill stage.

Each treatment plot was separated by two untreated buffer plots to reduce spray-drift impact.