4Front

Intelligence about the farm chemical business • Autumn 2018

4Farmers ...
...For Farmers

CHINESE CLEAN-UP HAS CHEMICAL SUPPLY AND PRICE RAMIFICATIONS

A crackdown by the Chinese government on environmental issues has resulted in supply shortages and subsequent price increases for agricultural chemicals.

Being the 'factory for the world' for some years has led to major environmental issues in China such as water and air pollution causing various health problems.

One of the key parts of the Government's high priority reform is their '2 + 26 Policy'. This is an attempt to control pollution in 2 major cities, Beijing and Tianjin and 26 cities in the surrounding region during the winter.

In order to reduce pollution over the current winter a particularly strict control of industries has been implemented. Production output has been reduced by a minimum of 50% with some operations going so far as an 80% reduction.

The need for the severity of the cut-back during winter is due to most heating in China being generated by the burning of coal.

The disruption of production and higher ongoing costs to overcome pollution issues may lead to smaller factories disappearing.

There has also been speculation on the possibility of market manipulation occurring to advantage some large companies.

OUTCOMES

Such a severe reduction in production capacity was sure to cause supply challenges and increased prices. Glyphosate prices, for example, have risen around 25% in the last year.

In retail terms, a quality 450g/l product has increased from less than $3.50/l to around $4.50/l.

Th effect on Paraquat 250 has been worse, with an increase of over 50% from approximately $3/l to over $5/l - if replaced at current world prices.

Growers should brace themselves for at least some increase in the cost of post emergent products.

Production uncertainty has also caused payment terms to be tightened. Together, earlier shipping and shorter credit terms have put more pressure on the supply chain.

FUTURE

After March, the '2 + 26 Policy' relaxes but there is no certainty that production output in the short term will return to previous levels.

On a longer term basis, production will probably be planned differently. This year's shock price changes might settle down, but costs will probably be slightly higher longer term because of this renewed focus.

2,4-D MISHAP

Compounding production constraints, the 2018 prices and supply of phenoxy 2,4-D like products have been affected by an explosion and fire that destroyed a phenoxy raw material production facility.

This additional problem has contributed to significant delays in delivery of stock and a jump in prices of these products.

The retail price of Ester 680 a year ago was down to $5/l but replacement stock now retails for around $6/l; if it's available.

OTHER EVENTS

Going forward there are yet more events expected to severely disrupt production. From mid March till mid April a major Chinese party conference will run that will demand factories in surrounding areas be shut down. Later in June, a major world leader summit is planned that will demand the same thing.

CONCLUSION

It's not always possible to buy product at the lowest price, and furthermore, carrying stock is a cost. However, supply chain uncertainty this year has demonstrated the value of farmers being well organised and strategic in their purchasing.

4Farmers Products

with cross reference to similar trade name products

Herbicides	Similar Product
2,4-D Amine 625, 750	Amicide 625®
2,4–D Ester 680	Estercide Xtra 680®
2,4–D Ester 800	Various
2,4-D plus Picloram	Tordon™ 75-D
Amitrole 250	Amitrole T®
Atrazine 600, 900	Gesaprim®
Bromacil	Uragran®
Bromox MA	Bromicide MA ®
Bromoxynil 200	Bromicide 200®
Brown Out	Spray.Seed®
Butroxydim 250 (RP*)	Factor®
Carfentrazone 240	Hammer®
Chlorsulfuron 750	Glean®
Clethodim 240	Select®
Clodinafop 240	Topik®
Clopyralid 300, 750	Lontrel®
Cyanazine 900	Bladex®
Dicamba	Dicer 500®
Diclofop-Methyl 500	Hoegrass®
Diflufenican 500	Brodal®
Diflufenican/Bromoxynil	Jaguar®
Diquat 200	Reglone®
Diuron 900	Various
Fluazifop 212	Fusilade®
Flumetsulam 800	Broadstrike®
Fluroxypyr 200	Starane™
Glufosinate-Ammonium 200	Basta®
Glyphosate 450, 470, 540	Roundup®
Glyphosate 875	Roundup Dry®
Haloxyfop 520	Verdict®
Ipic 240	Flame®
Imazamox 700 (RP*)	Raptor®
Imazethapyr 700	Spinnaker®
I-PYR 750	Arsenal®
LV MCPA 570	LVE Agritone ®
LVE MCPA/ Diflufenican	Tigrex®
MCPA 750	Agritone®
Metolachlor 960	Dual®
s-Metolachlor 960	Dual Gold®
Metribuzin 750	Lexone®, Sencor®
Metsulfuron Methyl 600	Ally®
Oryzalin 500	Surflan®
Oxyfluorfen 240	Goal®, Striker®
Paraquat 250	Gramoxone®
Pendimethalin 330	Stomp®, Argo®
Propyzamide 500	Kerb®,Edge®, Rustler®
Prosulfocarb 800	Arcade®, part Boxer Gold®
Quizalofop-p-ethyl	Targa®
Simazine 900	Gesatop®
Sulfometuron 750	Oust®
Sulfosulfuron 750	Monza®
Terbuthylazine 750	Terbyne 750®
Terbutryn	Igran®
Tralkoxydim 400	Achieve®
Tri-allate 500	Avadex ®
Triasulfuron 750	Logran ®
Tribenuron Methyl 750	Express ®
Triclopyr 600, 755	Garlon®
Trifluralin 480	Treflan®
Tri-pick	Grazon®
Turf Control	Spearhead®

70% formulated in Australia by 4Farmers

Seed Dressings	Similar Product
Fluquinconazole (RP*)	Jockey Stayer®
Imidacloprid 600	Gaucho®, Emerge®
Imid-Triadimenol	Zorro®
Iprodione 500	Rovral®
Metalaxyl-M 350	Apron XL®
Procymidone 500	Sumislex ®
Tebuconazole 25T	Raxil®
Triadimenol liquid/WP150	Baytan C®
Triticonazole 200	Real®

Fungicides	Similar Product
Azoxystrobin 500	Amistar WG ®
Azoxy Cypro	Amistar Xtra®
Carbendazim 500	Bavistin®, Spin®
Chlorothaloril 720	Bravo®
Epoxiconazole 125	Opus 125®
Flutriafol 500	Impact®, Intake®
Iprodione 500	Iprodione Aquaflow ®
Mancozeb 750	Penncozeb 750 DF®
Procymidone 500	Sumisclex ®
Propiconazole 500	Tilt®, Throttle®
Tebuconazole 430	Folicur®
Tebuconazole 800	Turbulence®
Triadimefon 125	Triad®, Slingshot®
Triadimefon 500 Dry	Unique to 4Farmers
Triadimenol 250	Bayfidan®,Shavit®

Insecticides	Similar Product
Alpha-Cyper 100, 250	Dominex®
Aluminium Phosphide	Phostoxin®
Bifenthrin 100	Talstar®
Chlorpyrifos 500	Lorsban®
Dimethoate 400	Rogor®
Fenamiphos 400	Nemacur®
Fipronil 800	Regal ®
Imidacloprid 200	Confidor®
Lambda-Cyhalothrin 250	Karate Zeon ®
Omethoate 290	Le-mat®
Pirimicarb 500	Aphidex®,Pirimor®

Rodenticides	Similar Product
Zinc Phosphide Mouse Bait	MouseOff ®
Strychnine Alkaloid Crystals	
1080 Vermin Baits	

Other Products	Similar Product
Ammonium Sulphate	
Boom Cleaner	
Citric Acid	
Farm Pro 700	LI 700®
Foam marker	
Metaldehyde Snail/Slug Bait	
Penetrator	Pulse Penetrant®
Speedy Spray Adjuvant	Hasten®
Sunshade Spray Adjuvant	AntiEvap®
Turbo Charge	Supercharge®, Uptake®
Wetter 1000	

Trace Elements
Zn Chelate
Cu Chelate
Mn Chelate

*RP – Registration pending

WE'VE HAD A MAJOR VICTORY: 4FARMERS ESTER 800 IS BACK!

In 2005 the APVMA suspended use of 2,4-D high volatile esters (HVEs) following concerns of vapour drift. Use of HVEs continued on under permit until their use was terminated in 2014 and all registrations cancelled.

In response to customer demand, 4Farmers started the journey to re-register Ester 800 which required a considerable investment in time and resources.

We are very pleased to announce we have been successful in this quest. 4Farmers Ester 800 is now registered and should be available from early April.

The registration is currently for WA only for summer fallow and in crop use.

This success was made possible with the cooperation of research partners like Eureka! who kindly made the following post on LinkedIn after its approval.

'Congratulations to 4Farmers

Eureka! would like to congratulate the West Australian based agchem company, 4Farmers, on this week's registration of a 2,4-D isobutyl ester herbicide product.

Short chain 2,4-D esters such as the ethyl ester and isobutyl ester were once the "go to" low cost herbicide for the control of broadleaf weeds in the wide open spaces of WA and SA.

In 2006, evidence that volatile loss from areas sprayed with these chemicals caused off-target damage to sensitive crops resulted in the APVMA withdrawing the registrations from 2,4-D short chain ester products.

Since then just one company, a large multinational that is a member of the influential international "Task Force on 2,4-D" was able to produce enough evidence to support the reinstatement of their particular formulation.

That was until now when the APVMA registered 4Farmers 2,4-D IB Ester 800. The registration was supported by 40 data packs including 30 studies of volatile loss from soils and plants as well as studies on bees, aquatic animals and aquatic plants. This evidence was sufficient to convince the government regulator that the 4Farmers' specific formulation is safe when used under the guidelines stated on their label.

Such a comprehensive group of scientific studies is usually only undertaken by the large multinational companies and shows a commitment to Australian agriculture and local research that deserves recognition.

Anthony Flynn, Managing Director

Eureka! AgResearch, Altona, VIC 3018

Why 4Farmers Ester 800 is so good

Many farmers are looking forward to using 4Farmers Ester 800 when it is expected to be available in early April.

Anecdotally many farmers feel HVEs pack more punch than low volatile esters (LVE's) and amines, and there are sound scientific reasons why this is true.

Amine formulations are water based and are slow to penetrate the waxy coating on leaves. Esters on the other hand have a solvent base that can move through waxy leaves more easily.

HVEs are superior to LVEs because their chemical composition allows them to be more rapidly absorbed than LVEs.

VAPOUR DAMAGE EXAGGERATED

The two main ways volatile chemical formulations leave a site after application are drift in small droplets and vapour. Droplet drift is quite manageable. Vapour drift can be more problematic thus the scrutiny on HVE's.

John Moore (Dept Ag & Food WA, 2008) in a review of 2,4-D ester formulations surprisingly concluded that there were very few substantiated cases of off target damage due to 2,4-D vapour despite popular opinion.

He found that vapour drift was highly localised and there was more chance of farmers incurring damage due to poor droplet management. Extremely low level concentrations of vapour might move many kilometres but there was no evidence that these were damaging to plants.

SUPERIOR 4FARMERS FORMULATION

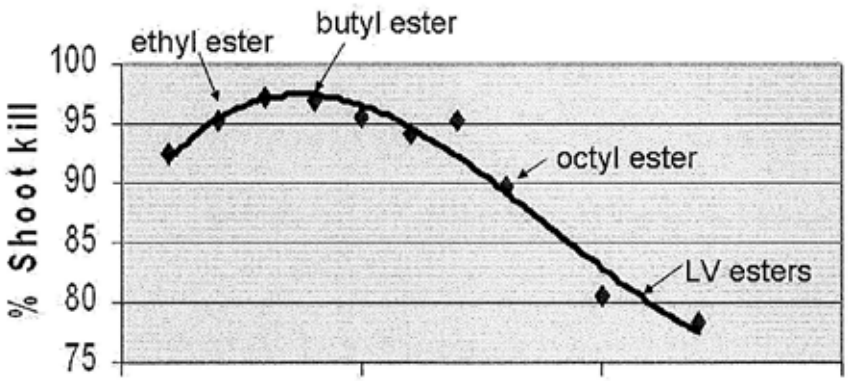
Ester 800 can be made from either of two active constituents; Isobutyl Ester (IBE) which is what 4Farmers product is made from, and Ethyl Ester which is contained in the only other Ester 800 registration in the market.

The advantage of 4Farmers IBE Ester 800 formulation is that it has considerably lower volatility than Ethyl Ester, thus further mitigating the concerns people may have regarding damaging vapours.

ESTER 800 INCREASES CANOLA YIELD

To put the potential effect of damage to neighbouring susceptible crops into perspective, it should be understood that low doses of chemical might show signs of damage but this does not mean final yields are affected.

With Ester 800 on Canola for example, John Moore points out that the data suggests very low doses at early stages are actually more likely to increase yields before yields reduce, and higher rates eventually kill a plant.



Correlation of chain lengths of ester molecules and their efficacy. 4Farmers Ester 800 is made from butyl ester.

Long-range climate and crop forecasting by Dr David Stephens-Agrometeorology

Agrometeorology Australia is a new company issuing long-range weather and crop forecasts that were developed in the Department of Agriculture, Western Australia (DAFWA).

Dr David Stephens developed these systems in a PhD and a GRDC research project "Better long-lead seasonal forecasts for southern Australia".

The strength of this service is its long lead time; forecasting the winter growing season from about October/November the year before.

The other feature is the accurate track record the forecasts have so far achieved.

Whilst working in DAFWA, Dr Stephens successfully predicted by February each year the drier seasons in 2001, 2002, 2004 and 2006.

He also predicted the better seasons in 2003 and 2005.

In 2007 he successfully predicted a La Nina but that year didn't translate into a good season as would normally occur.

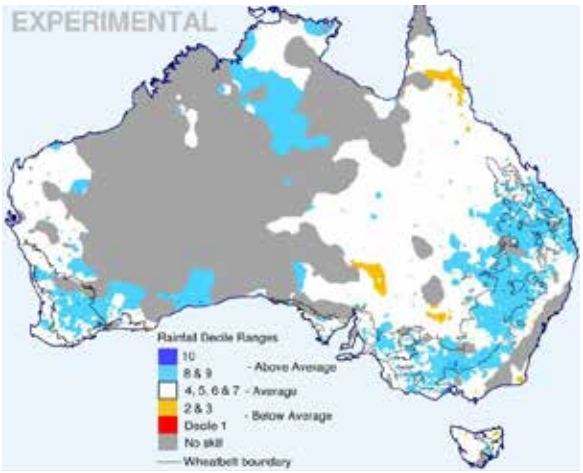
After 2007, Dr Stephen's focus was changed within the government and the public forecasts issued by the model were withdrawn.

Convinced of their value, he began issuing long lead forecasts again, accurately indicating a drier 2015 and an above average season in early 2016 (Fig.1).

Under the banner of "Agrometeorology Australia" he issued a below average season in 2017 (Fig. 2).

Clients are able to receive regular systematic climate summaries and outlooks through the year.

Subscription to the service can be made via. www.agromet.com.au



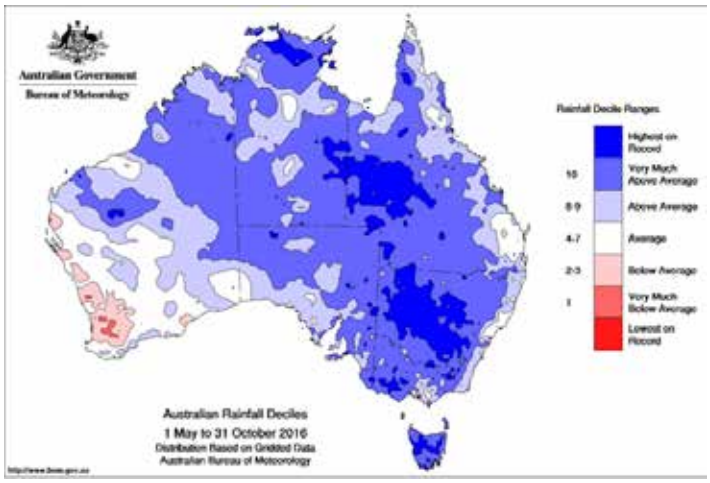
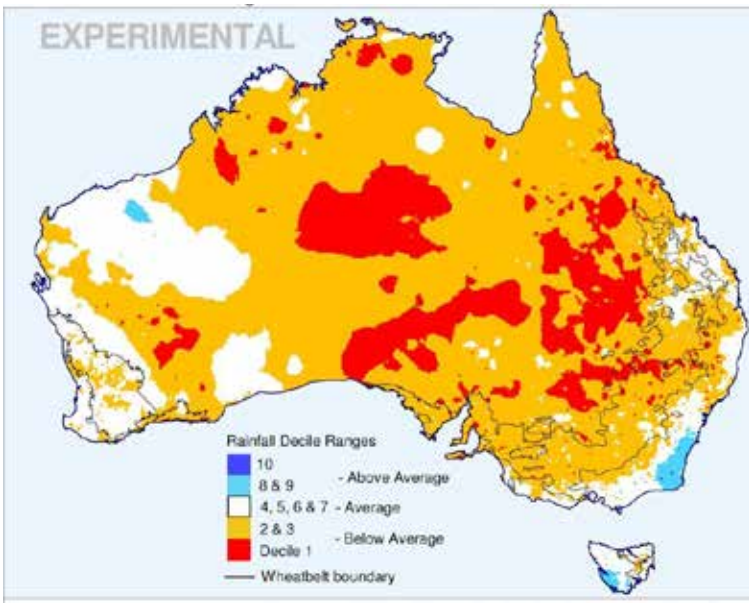


Figure 1: Dr David Stephen's forecast of May-October rainfall in February 2016 (in AEGIC) and actual rain. Note excellent seeding rains in March/April set up a bumper crop in WA.



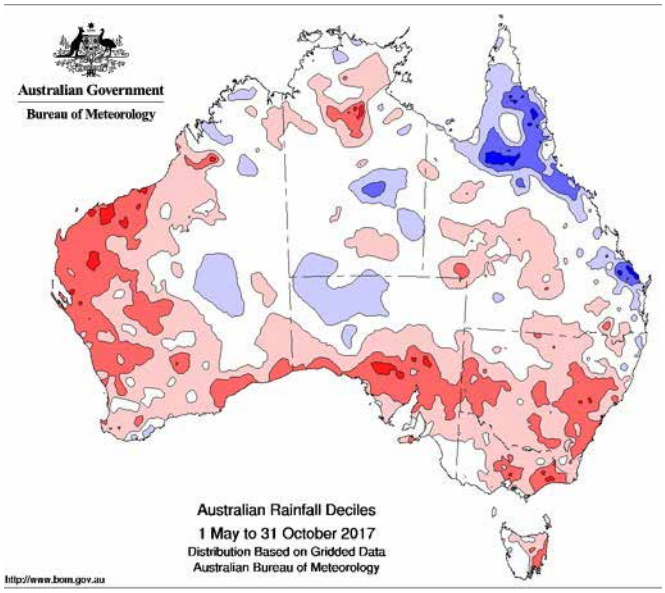


Figure 2. Dr David Stephens forecast of May-October rainfall in February 2017 (Agrometeorology Australia) and actual rain. Note: climate discussions noted similarity between 2017 and 2006 sea surface temperatures in the Indian Ocean.

Prosulfocarb strategies for Ryegrass control become clearer

4Farmers Prosulfocarb 800 is currently one of the most exciting developments for herbicide control of Annual Ryegrass.

The 4Farmers agronomy team did a series of trials last season testing out 4Farmers Prosulfocarb 800 over a range of rates, timing of applications, various tank mixtures and weed species.

If you want more information or data, on how Prosulfocarb can best work for you, then please contact a 4Farmers agronomist or your local distributor.

ESSENTIAL FOR RESISTANCE MANAGEMENT

Prosulfocarb is a group K chemical, different to Trifluralin and most others presently used to control Ryegrass. For that reason alone, it should be an essential herbicide in Ryegrass control strategies.

Continual use of one herbicide group, for example Trifluralin, develops resistance. Rotating between groups year to year helps extend chemical efficacy. However, using more than one chemical group on a weed in the same season will significantly extend the life of all herbicides.

So rather than relying on either Trifluralin or Prosulfocarb in one season, use a robust lethal rate of both in the same season (see simulation model).

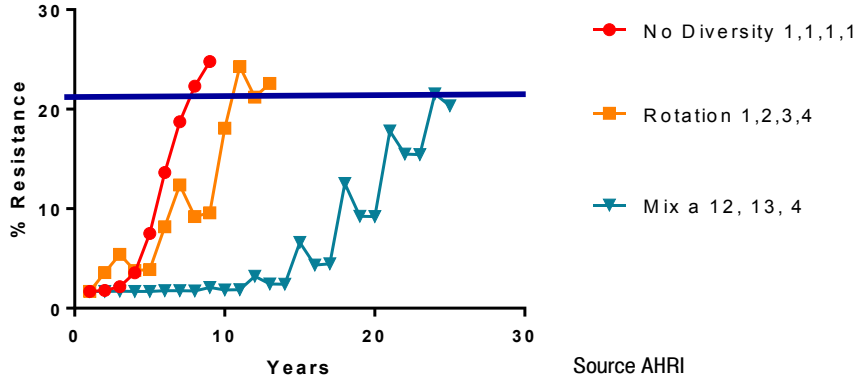
TRIFLURALIN + PROSULFOCARB GOOD PARTNERS

4Farmers trials last year demonstrated that any Ryegrass surviving after Trifluralin and Prosulfocarb tended to be stunted, less competitive and set little seed. When either chemical was used solely there were more Ryegrass escapees that tended to be bigger and healthier.

Metolachlor has been commonly used in the past as a tank mix partner, but has a greater risk of crop damage.

Modeling simulation of resistance

1 = Trifluralin; 2 = Prosulfocarb; 3 = Pyroxasulfone; 4 = Propyzamide



Source AHRI

POST SEEDING APPLICATION MORE EFFECTIVE

Whilst post seeding applications of Prosulfocarb are not yet registered, either post seeding pre-emergent (PSPE) or early post emergent (EPE), proved the most robust control in 4Farmers trials.

Prosulfocarb vapour pressure is low enough to be effectively applied PSPE. In one trial Prosulfocarb was effective even after 6 weeks on dry soil. Ideally, rain should fall as soon as possible after application.

If applied EPE, Ryegrass needs to be very small; before the 3 leaf stage.

Post sowing chemical applications generally give better control because they give an even blanket over the target area. Thus Ryegrass within furrows is better controlled, compared to IBS which moves chemical out of the furrows.

Another reason for the improved efficacy is the chemical is being applied closer to when the Ryegrass is germinating.

BEWARE BROADLEAF SPRAYS

A bonus of Prosulfocarb is that it provided some discernible control of Wild Radish.

Applied PSPE Sulfosulfuron or other B group chemicals might also be a consideration. Adding Diflufenican is another thought, though it is not registered on cereals.

Having at least some early control of broadleaf weeds buys some time before other post emergent sprays need to follow.

If applying Prosulfocarb EPE, then leave at least 10 days before applying Jaguar® or Tigrex® or similar products. If applied closer then crop damage might result.

WILD OATS

Prosulfocarb control of Wild Oats proved poor. For control of Wild Oats IBS clients should stick to Triallate or a post emergent grass control. If the target is mainly Ryegrass then Prosulfocarb is far superior to Triallate.

PICTURES: From left to right progressively better Ryegrass control (i) Uncontrolled plot (ii) Trifluralin 2L/ha IBS (iii) Trifluralin 2L/ha IBS + Prosulfocarb 2L/ha EPE

Chelated trace elements win the bottom line

In our last 4Front edition we featured 4Farmers new EDTA chelated trace elements range and their benefits over oxide or sulphate products;

- Superior tank mixing compatibility in post emergent pesticides
- Safer on crops
- Easy storage and handling in 25kg heat sealed bags, and ease of dissolving
- More efficient plant uptake, at least twice as effective as oxides or sulphate forms

QUALITY NOT QUANTITY

Building up the background level of trace elements is probably still best done with compound fertilisers. Although this is not the case in all situations, for example alkaline soil types where foliar sprays can be more effective.

The vastly superior uptake of chelates means that lower amounts of active ingredient can be applied to achieve the same result as higher rates of oxides or sulphates. Comparing products just by grams of elements they contain without considering how efficiently they are taken up by the plant is overlooking their true value.

For comparison purposes, chelates are considered 100% efficient whereas oxides and sulphates are 50% and 40% respectively.

RATES

Tissue testing conducted by 4Farmers clients last year showed that the lower application rates of 4Farmers Chelates had similar levels of trace elements in the plants compared to commonly used rates of oxides.

The following table compares the recommended maintenance rates of oxide trace element products and the equivalent rates of 4Farmers Chelates to achieve the same response.

When the efficiency of chelates is accounted for the $/ha cost is very similar. Once the other benefits of chelates are factored in, it can be readily understood why they represent so much better value.

TIMING

Copper: Where general maintenance is required, copper is most beneficial when applied from the 2 leaf stage through to early stem elongation, ideally at or before early tillering. However, where deficiency exists, follow-up applications may be necessary.

Manganese: Manganese maintenance application timing is similar to that of copper.

Zinc: Zinc is required early, ideally at the 2 leaf stage of the crop. It can help cereals to be more resilient to herbicide damage (e.g. Tralkoxydim).

To better recognise trace element deficiencies see the Spring 2016 4Front article "Communicating with Plants".

Product	Nutrient Content	Product Application Rate	Nutrient Application Rate	Cost ($/ha)
4Farmers Copper Chelate	140g/kg	535g/ha	75g Cu/ha	$3.42
Copper Oxide product	500g/L	300ml/ha	150g Cu/ha	$3.45 – $3.90
4Farmers Mn Chelate	120g/kg	1kg/ha	120g Mn/ha	$5.50
Manganese Oxide product	500g/L	500ml/ha	250g Mn/ha	$4.50 - $7.00
4Farmers Zinc Chelate	140g/kg	750g/ha	105g Zn/ha	$3.45
Zinc Oxide product	700g/L	300ml/ha	210g Zn/ha	$2.85 – $3.60

Note: Individual conditions and circumstances vary greatly; therefore seek tailored professional advice based on soil test results to optimise application rates for individual circumstances.