

## Dioxin Issue



*Television claims on Dioxin in 2,4D creates excessive alarm*

Page **3**

## Premium Adjuvant



*Turbo Charge oil proving to be the premium adjuvant*

Page **4**

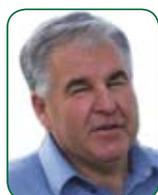
## Safe Transport



*Transporting Dangerous Goods Legally*

Page **6**

# Farm chemical prices rise with changes to Chinese environmental laws and declining AUD



**A**n upgrade in environmental regulations by the Chinese government placed on chemical manufacturers has caused constraints in supply, resulting in price increases on some farm chemicals.

Glyphosate and Paraquat, in particular, have been affected by the political push through the Chinese Ministry of Environmental Protection that is focusing on improving the environment.

The shortage has been worsened by increased world demand for Glyphosate.

The gradual fall in the Aussie Dollar exchange rate is also contributing to the price rise.

### Glyphosate

The price of Glyphosate technical grade active constituent (TGAC) has jumped from around US\$4.50/kg to approaching US\$8/kg in less than six months.

Though tightening environmental restrictions might have been anticipated, many have been surprised at the speed and zeal they've been applied. Forty employees from two of the biggest suppliers are reported to be held in custody because of environmental compliance breaches and some of these companies may face heavy fines.

One of the contributing reasons for demand increasing has been the world growth of Glyphosate tolerant GM crops.

The situation has allowed many producers to book short term capacity out to at least the end of October and enjoy good margins.

There is no hurry for producers to book more and get too far ahead of themselves.



Another aggravating factor is that the ability of smaller factories, to enter the market is much more limited now due to the investment required to make plants compliant to the new regulations.

No one is really sure how things will eventuate from October onwards and are wary about over committing themselves. Everyone is mindful of the bubble event that occurred in 2008 but no one is predicting this nightmare.

Prices could continue to lift a little more in the short term but over the medium and longer period prices could ease again as factories adapt and if the rigours of the environmental demands were to be relaxed.

### Paraquat

Paraquat's cost has risen from under US\$3/L to well over US\$4/L within the past four months and supply is very tight.

Besides stricter environmental controls Paraquat is affected by some special Chinese demand circumstances.

After June 2014 Paraquat producers will

no longer be allowed to sell liquid into the domestic market. Chinese domestic sellers will be allowed two years to sell the remainder of their liquid inventory. After this time it is possible they might be using other forms of Paraquat like granules.

Therefore demand pressure to build up inventory by Chinese domestic sellers will be strong until mid-next year.

Production of Paraquat for export is expected to continue unchanged.

A limitation with Paraquat is that illegal factories cannot start up like they have with Glyphosate or 2,4-D to take advantage of higher prices because Paraquat requires a very dangerous raw material, sodium cyanide, that is under particularly strict control and not attainable by illegal factories.

### Other Products

Other products affected by the added environmental constraints, like 2,4-D amine are also rising in price. It's possible the same pressure could affect Trifluralin, Triallate, and other products – time will tell

### Spring Specials

Glyphosate and Paraquat prices might go higher before easing.

4Farmers will give clients an opportunity to secure well priced product in early order 'Spring specials'.

Other products like Trifluralin have not yet had the same cost increases but there will be some as a result of the lower AUD.

# 4Farmers Products

With Cross Reference to similar trade name products

## Herbicides

Herbicides	Similar Product
2,4-D Amine 625,750	Various
2,4-D Ester 800	Various
2,4-D Ester 680	Various
2,4-D plus Picloram	Tordon™ 75-D
Atrazine 900 WG	Atradex®, Gesaprim®
Bensulfuron 600 WG	Dupont Londax DF®
Bromox MA	Bromicide MA®
Bromoxynil 200	Buctril®
Brown Out	Spray.Seed®
Chlorsulfuron 750 WDG	Glean®, Siege®
Clethodim 240EC	Select®
Clodinafop 240EC	Topik®
Clopyralid 300EC, 750SG	Lontrel®
Cyanazine 900 WDG	Bladex®
Diclofop-Methyl 500	Hoegrass®
Diflufenican 500SC	Brodal®
Diuron 900DF	Diurex WG®
Fluazifop 212EC	Fusilade®
Fluometuron 900WG	Nu-tron 900 DF
Fluroxypyr 200	Starane™
Glyphosate 470,450,360,540	Roundup®
Glyphosate 875	BiDri700®, Roundup Dry®
Glufosinate-Ammonium 200	Basta®
Haloxyfop 520EC	Verdict®
Imazethapyr 700WG	Spinnaker®
Ipyp 750WG	Arsenal®
Ipic 240	Flame®
LV MCPA 570	Nufarm LVE Agritone®
LVE MCPA/ Diflufenican	Tigrex®
MCPA 500, 750	Various and Agritone®
MCPA/Picloram	Tordon™ 242
Metolachlor 720EC	Dual®
Metribuzin 750WG	Lexone®, Sencor®
Metsulfuron Methyl 600WG	Ally®
Oryzalin 500SL	Surflan®
Oxyfluorfen 240EC	Goal®, Striker®
Paraquat 250	Gramoxone®
Pendimethalin 330EC	Stomp®, Argo®
Propyzamide 500SC, 900WG	Kerb®, Edge®
Quizalofop-p-ethyl	Targa®
Simazine 900WG	Gesatop®, Simagranz®
Sulfometuron 750WP	Oust®
Sulfosulfuron 750	Monza®
Tralkoxydim 400WG	Achieve®
Tri-allate 500EC	Avadex®
Triasulfuron 750WG	Logran®
Tribenuron Methyl 750	DuPont™ Express®
Triclopyr 600EC	Garlon®
Trifluralin 480EC	Treflan®
Trifluralin 600EC	Treflan 600®
Tri-pick	Grazon®
Turf ControlSC	Spearhead®

## Seed Dressings

Seed Dressings	Similar Product
Imidacloprid 600 SC	Gaucha®, Emerge®
Imid-Triadimenol	Zorro®
Procymidone 500 SC	Sumislex
Tebuconazole 25T	Raxil®
Triadimenol 150 + WP	Baytan®, Baymax®
Triadimenol 150 liquid	Baytan®, Baymax®
Triticonazole/Cypermethrin	Real® 200C

## Fungicides

Fungicides	Similar Product
Azoxystrobin 500 WG	Amistar WG®
Carbendazim 500	Bavistin®, Spin®
Chlorothaloril 720	Bravo®
Flutriafol 250SC	Impact®, Intake®
Iprodione 500	Iprodione Aquaflow 500 SC®
Mancozeb 750 WG	Penncozeb 750 DF®
Procymidone 500	Fortress 500®
Propiconazole 250EC, 500EC	Tilt®250,Throttle®500Folicur®
Tebuconazole 430SC	Triad®, Slingshot®
Triadimefon 125EC	Tee-Fon 500®
Triadimefon 500 Dry	Bayfidan®, Shavit®
Triadimenol 250EC	

## Insecticides

Insecticides	Similar Product
Abamectin 18EC	Vertimec®
Alpha-Cyber 100EC, 250SC	Fastac Duo®, Dominex®
Bifenthrin 100EC	Talstar®
Chlorpyrifos 500EC	Lorsban®
Cypermethrin 260EC	Scud®, Sonic®
Dimethoate 400EC	Rogor®
Fenamiphos 400	Nemacur®
Imidacloprid 200SE	Confidor®
Lambda-Cyhalothrin 250 CS	Karate Zeon®
Omethoate 290	Le-mat®
Pirimicarb 500	Aphidex®, Pirimor®

## Rodenticides

Rodenticides	Similar Product
Rat and Mouse Bait Pellets	Talon®
Zinc Phosphide Unsterilised Mouse Bait	MouseOff ZP®

## Other Products

Other Products	Similar Product
Ammonium Sulphate	
Boom Clean Dry	
Citric Acid	
Ethephone 720 SL	Galleon® Growth Regulator
Farm Pro 700	LI 700®
Foam marker	
Glyphosate Wetter	Gly Wetter Plus Surfactant®
Penetrator	Pulse Penetrant®
Speedy Spray Adjuvant	Hasten®
Sunshade Spray Adjuvant	AntiEvap®
Turbo Charge	Supercharge®, Uptake®
Wetter 1000	

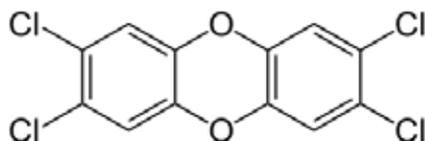
# Television claims on Dioxin in 2,4-D creates excessive alarm

The '4Corners Report' on dangerous dioxin contaminants being used in 2,4-D products has created a wave of concern in the farming community. Dioxins are a concern but the alarm in this instance was possibly over exaggerated.

## Background

Dioxins refer to a large group of chemicals known more fully as Polychlorinated dibenzodioxins (PCDDs).

The simplified dioxin name is given because every PCDD molecule contains a central dioxygenated central ring. This is flanked by two other chemical rings.



TCDD: the most toxic dioxin

The toxicity of PCDDs depends on the number and position of the chlorine atoms on the molecule.

Dioxins are produced by incineration of various compounds. 70% in the Australian environment is estimated to come from biomass burning.

Dioxins are also produced in certain chemical reactions like the production of 2,4-D TGAC where the reaction temperature is not controlled.

The 2,4-D products referred to can include 2,4-D amine, as well as all ester products.

## Nasty Agent Orange

Dioxins can be of concern but it is very much dependent on the type we are dealing with. The most toxic dioxin is 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). This is the dioxin commonly found in 2,4,5-T or otherwise known as the infamous Agent Orange used in the Vietnam War.

In order to speed up supply of Agent Orange, US manufacturers (mainly Monsanto) increased the temperature in the manufacturing process. This increased the concentration of TCDD many times more than was normally produced for farmers at the time.

It is unlikely that TCDD is produced in the production of chemicals like 2,4-D. 2,4-D products may carry other dioxins, though without knowing the specific type or amount, it is difficult to judge their toxicity.



## No Australian Standards

Knowledge of dioxins in 2,4-D has existed but there has been little observance because the Australian regulatory body, the APVMA has not set compliance standards. This suggests the APVMA, in their judgement has not seen cause for concern at this point.

However, the APVMA did act in 2010 to halt production of another chemical, quintozone, because of a high level of undeclared dioxins.

Other pesticides were tested at the time but the levels were much lower and regarded of little concern.

There have been dioxin standards placed on 2,4-D products used in America and Europe. Only more purified products have been allowed in these countries.

The extra cost of the product with the lower dioxin content is estimated to be approximately 8%.

It was reported to us that, in the recent enquiry into 2,4-D dumping that Nufarm was alleged to have been exporting the premium "low dioxin" content 2,4-D it produced and then importing cheaper "normal dioxin" content into Australia.

One of the inferences in the '4 Corners' program was that farmers should only buy a reputable brand of 2,4-D.

Obviously that's nonsense. Any randomly selected brand of 2,4-D might have come up with the same results irrespective of its pedigree.

We strongly believe that if farmers are seriously concerned about this issue they should have been far more concerned about poor quality Trifluralin importations.

Sub-standard Trifluralin has the potential to carry high levels of carcinogenic nitrosamines. The incident of this is arguably more harmful than dioxin levels in 2,4-D.

## The next step

4Farmers would prefer to be certain that our 2,4-D is the best that can be supplied.

As a consequence we have been investigating the availability of products produced to the standards used in the U.S.A. and Europe.

We are also investigating the possibility of adding the capacity to test for Dioxins into our own laboratory.

Testing has been suggested to be difficult and expensive, however, we are keen to deliver the best quality product possible so we will keep you informed of the progress we make.

References; Wikipedia, APVMA Factsheet Dioxins

Living Farms researchers Richard Devlin and Andrew Wherrett impressed with the job Turbo Charge Oil has done on Ryegrass in Canola.



## Turbo Charge oil proving to be the premium adjuvant

**4** Farmers has based its paraffinic or mineral oil adjuvant, Turbo Charge on what we regard as one of the premium products in the market, Supercharge®.

Therefore the label claims for Turbo Oil this season have been virtually the same as found on the Supercharge® label and have limited label claims other than use with Tralkoxydim.

Based on its pedigree, 4Farmers has absolute confidence in the performance of Turbo Charge for a wide range of situations requiring a high quality mineral oil.

The expectations have proven to be valid as independent trials against Uptake® with Clethodim will be used to expand label claims next season.

### Annual ryegrass (%) control conducted 13, 26 and 41 Days after Application.

Treatment No.	Product	13 DAA	26 DAA	41 DAA
1	Untreated Control	0.0 d	0.0 b	0.0 c
2	4F Oil 0.5% Clethodim 500mL	15.0 bc	72.5 a	96.5 a
3	Uptake 0.5% Clethodim 500mL	17.5 ab	77.5 a	96.5 a
4	4F Oil 2% Clethodim 500mL	25.0 a	75.0 a	98.0 a
5	Uptake 2% Clethodim 500mL	18.8 ab	77.5 a	98.0 a
6	Clethodim 500mL	7.5 cd	67.5 a	88.8 b
	LSD	9.19	10.77	2.15
	CV	43.67	11.59	1.79
	F Prob	<0.001	<0.001	<0.001

Living Farms Principal, Richard Devlin agrees. "When applied with Clethodim at 500ml/ha, 4Farmers Turbo Charge Oil gave results statistically similar to the Uptake® benchmarked at both the 0.5% and 2% rates tested in this trial"

Crop safety of 4Farmers Turbo Oil also appears to be as good as Uptake®, with no crop damage evident.

4Farmer's General Manager, Neil Mortimore agrees, "Growers should be looking for a premium product, and results from this trial suggest that 4Farmers oil is every bit as good as the Uptake® standard."

4Farmers anticipates submitting data in the new few weeks to the APMVA for new label claims to be approved.

## NEW PRODUCTS Fluroxypyr 200 niche for tough broadleaf weeds

(Similar to Starane™)

**M**arshmallow, Wireweed and Fleabane are some of the toughest broadleaf weeds confronting farmers around Australia.

It's on these weeds that 4Farmers Fluroxypyr has a niche as a spike with Glyphosate and other chemicals during summer spraying or pre sowing knockdown. It is also reported to have good activity on melons.

This profile is no surprise when we consider Fluroxypyr is a Group I herbicide out of the same group as Triclopyr, Clopyralid, and Picloram.

Label rates when mixed with Glyphosate are generally around 0.75/ha. Farmer experience has found spikes down to 0.4L/ha quite useful.

For example some farmers with small Marshmallow use as little as 0.4L/ha as a spike with Glyphosate. If small Fleabane is also present 0.4L/ha of 2,4D Amine 625 could be added. On bigger Fleabane, a spike of Clopyralid may be introduced.

Fluroxypyr offers great flexibility in its application.

- Experience has found it works well at relatively lower water rates compared to other similar products.
- It tends not to drift as much as other products and has aerial spraying registrations.
- Excellent compatibility with other products and performs well in cold water.
- Another significant advantage of Fluroxypyr is that the plant-back period is relatively short for legumes compared to say, Clopyralid.

Fluroxypyr is already a popular chemical, particularly in eastern states, not only as a knockdown, but in crop for various tough broadleaf weeds.

# Water Quality: Are you aware of its effects on your chemical spraying?

Using the cleanest water possible when spraying is important. Rain water or scheme that is not too cold is the closest to ideal.

If you don't have an ideal water source, be aware that sub-standard water might affect the chemicals you're using.

## Water Hardness

Total hardness is a measure of the amount of cations (positive ions) such as calcium, magnesium, sodium, iron and carbonates in the water, usually expressed in parts per million (ppm or milligrams per litre (mg/L) of calcium carbonate equivalents.

Farmers should be cautious of any bore water or water with more than say, 200ppm CaCO<sub>3</sub>. Ammonium sulphate is the best product to help mitigate hardness.

## pH

It is generally best to aim for a near to neutral pH.

Alkaline water when mixed with pesticides can cause problems such as alkaline hydrolysis and increased breakdown of the product, poor droplet contact with the target and reduced performance or stability from some formulations and adjuvants.

To reduce the pH, citric acid can be used. Alternatively a buffering agent like 4Farmers FarmPro 700 can reduce it to a set point and hold it there.

Very acidic water can affect tank mix stability and lead to gelling of some salt based products such as 2,4-D amines, particularly in tank mixes containing other salt based and flowable products.

## Salinity

High levels of salinity can result in some chemicals precipitating out of solution and others becoming inactivated. High salinity can also cause difficulties in adjusting the pH.

Saline water is best avoided.

Situation	Definition	Evaluation	Comment	Examples Not Recommended
Hard	>1000ppm CaCO <sub>3</sub>	Won't lather with soap but will with shampoo.	<ul style="list-style-type: none"> <li>Water with excess calcium and magnesium salts.</li> <li>These ions can cause some chemicals to precipitate.</li> <li>Hard water can also effect the balance of the surfactant system and affect properties such as wetting, emulsification and dispersion.</li> </ul>	Glyphosate, Paraquat
Saline	1000mS/NaCl	Tastes salty	<ul style="list-style-type: none"> <li>High levels of sodium chloride (NaCl)</li> <li>These ions interfere with chemicals by inactivation, breakdown or precipitation.</li> </ul>	Esters, SUs, Triazines
High pH	>8pH	pH meter	<ul style="list-style-type: none"> <li>Alkalinity affects the rate of hydrolysis or breakdown of chemicals in water.</li> </ul>	Glyphosate, Diflufenican
Low pH	<5pH	pH meter	<ul style="list-style-type: none"> <li>Acidity affects the rate of hydrolysis or breakdown of chemicals in water.</li> </ul>	Trisulfuron
Muddy		Can't see the bottom of 10L bucket	<ul style="list-style-type: none"> <li>Suspended clay or silt particles (colloids) can have large surface area and bind on to some chemicals making them ineffective</li> </ul>	Paraquat, Brown Out, Glyphosate
Cold	<10°C	Thermometer	<ul style="list-style-type: none"> <li>Can result in gelling problems. Granules can be more difficult to mix.</li> <li>If using oil adjuvant be cautious with mineral oil and consider vegetable oil.</li> </ul>	Mineral Oil in Clodinafop

## Muddy water

Products like Paraquat and Glyphosate can bind to colloids making the chemical inactive.

Adding aluminium sulphate or gypsum can correct the problem. Take care with both of these products as an antagonism could occur with glyphosate. Ammonium sulphate can nullify this antagonism.

## Cold water

Cold water can make chemicals difficult to mix, especially granules. Others can become insoluble and gel. Drawing from a larger tank rather than a small tank can help.

Switching to a vegetable oil adjuvant rather than a mineral oil, adding wetter or even sticking to a higher quality mineral oil can sometimes be helpful.



**Tip: If you have to deal with substandard water it is generally better to use it as quickly as possible and not let your chemical mix stand in the tank.**

Ref: GRDC and AgWA



## Better Website with more info

The 4Farmers website is undergoing some major development work.

The site is being packed with MSDSs, labels and leaflets, information sheets and crop reference material.

There'll also be the facility for on-line purchasing and contact details of our distributors. New Facebook and Twitter addresses will also be available soon.

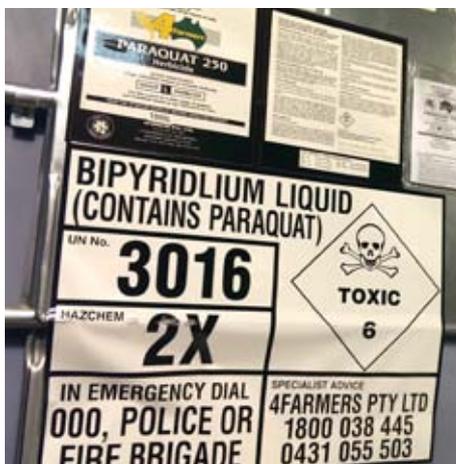
# Transporting Dangerous Goods Legally

In the last edition of 4Front we ran a comprehensive story on handling and the transport of dangerous goods.

To clarify some points, people with no DG transport licence may carry up to three 1000L containers of DGs but they still must comply with essentially every other regulation for DG transport.

This includes;

- Vehicles carrying a placarded loaded must have \$5M insurance
- Carry emergency procedure guide (EPG). This is not the MSDS.
- EPG and all transport documentation must be carried in the emergency information holder.
- The emergency holder must be secured on the inside of a door of the cabin in a conspicuous position. It must be marked with the words "Emergency Information" in red letters at least 10mm high on white background.
- Placarding includes not just a diamond placed on the front of the truck but also an emergency information panel on each side of all trailers loaded with bulk DGs and on the rear.



*The emergency information panel on the product may suffice if properly displayed*

- Appropriate PPE including eye wash.
- Fire Extinguisher

Packaged goods in receptacles less than 500L become a placarded load when carrying more than 1000L total. This load then carries most of the same responsibilities for bulk load above, except you don't need emergency panels and only class diamonds at the front and rear.

## Crop protection guide a hit

**4** Farmers 2013 Crop Protection Guide has proven to be a big hit with clients.

The Guide covers the wide range of 4Farmer's products used in broadacre cropping, plus a lot of other handy reference information for spraying.

We're looking forward to making the 2014 guide even better.

All good 4Farmers clients will receive a free copy again in 2014.



*Brendan and father, Tony Mason who farm 9000ha at Perenjori WA. Brendan says: "We crop a big area and rely heavily on chemicals. The 4Farmers Guide is a very handy reference to help with that".*

## 4FARMERS CAN SUPPLY CHEMICALS TO EVERYWHERE IN AUSTRALIA.



### Contact head office to find your local distributor.

If you're not near a local distributor we can send chemicals direct to you.

**Head Office 1800 038 445**

**[www.4farmers.com.au](http://www.4farmers.com.au)**