

In-furrow application of UNIFORM[®]



syngenta.

UNIFORM provides the only control of *Rhizoctonia* in Australian wheat and barley crops – a disease of significant economic consequence to growers. UNIFORM also provides control of *Pythium* - the common cold of wheat and barley - and Stripe Rust of wheat.

UNIFORM application: flexibility for growers

UNIFORM can be applied in-furrow as a liquid or as a coated granular fertiliser and at variable rates depending on the machinery set up and the expected disease pressure.

UNIFORM can be:

- Applied with fertiliser in-furrow
- Applied as liquid in-furrow below the seed
- Applied as a Spilt Application - liquid in-furrow plus a surface band
- When applying UNIFORM use a minimum separation of 15mm from the seed
- When applying with fertiliser, use the minimum distance recommended for the fertiliser

There are a number of factors to consider when applying UNIFORM either coated on a granular fertiliser or in-furrow as a liquid. These are outlined in the following document.

Granular fertiliser

Treating granular fertiliser

Spray UNIFORM evenly onto granulated fertiliser and immediately mix thoroughly in a mechanical mixer or auger. Apply at a rate which will deposit the specific rate of the product on the quantity of fertiliser required to be sown in-furrow per hectare.

To maximise the evenness of the spread of UNIFORM onto the granules, it is best not to run the auger at full capacity. While it is desirable that every granule of fertiliser is covered with UNIFORM it is not critical. However, treated granules must be evenly mixed

throughout the total amount of fertiliser so that they can be consistently applied across the paddock, ensuring that all seedlings have access to UNIFORM.

To assist in applying the correct rate of UNIFORM to granular fertiliser, Tables 1, 2 and 3 on page 2 provide guidance on volumes and rates.

This information was compiled using current industry guidelines and best practice. Care should be taken during initial treatment to ensure appropriate result from application rate and process.

Please note, dusty and/or higher Nitrogen-based fertilisers may be adversely affected by higher rates of moisture, or humid conditions.

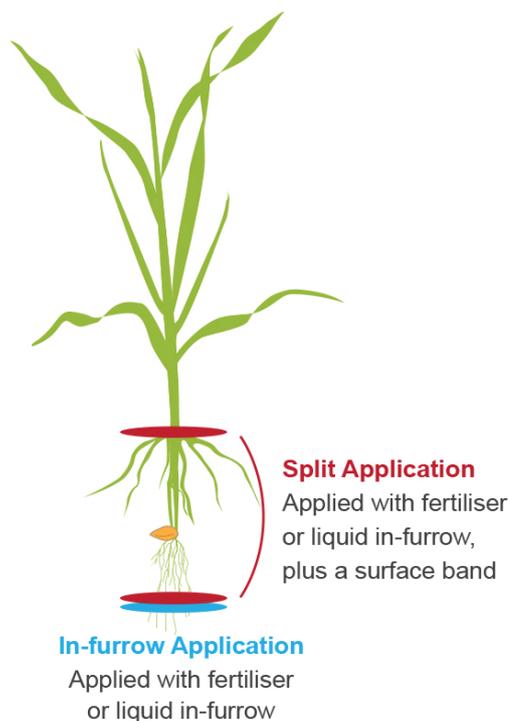


Figure 1. Application options for UNIFORM.

cont. on page 2

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Table 1: (Guide only) Volume of UNIFORM required at three rates per 100kg of fertiliser on various fertiliser rates

Fertiliser rate (kg/ha)	Volume of UNIFORM/100kg of fertiliser		
	200mL	300mL	400mL
50	400	600*	800*
60	333	500*	667*
70	286†	429*	571*
80	250†	375	500*
100	200†	300	400
120	167†	250†	333

* Application volumes over 400mL/100kg of fertiliser may adversely affect the flow rate and handling characteristics of dusty/poorly granulated fertilisers and some high nitrate fertilisers.

† Application volumes under 300mL/100kg of fertiliser should be diluted with water to a total volume of 300mL/100kg of fertiliser to improve coverage.

Table 2: Required volume of UNIFORM for a range of fertiliser rates.

Please note: dusty and/or higher Nitrogen-based fertilisers may be adversely affected by higher rates of moisture, or humid conditions.

UNIFORM rate (mL/ha)	Fertiliser rate (kg/ha)						
	50	60	70	80	90	100	120
	Litres of UNIFORM per tonne of fertiliser						
200	4.0	3.3	2.9	2.5	2.2	2.0	1.7
300	6.0	5.0	4.3	3.8	3.3	3.0	2.5
400	8.0	6.7	5.7	5.0	4.4	4.0	3.3

- Water should be added to UNIFORM to make total mix up to 3L/t to improve coverage
- Ensure treated fertiliser is dried adequately before use
- Not recommended as fertiliser may become too sticky

Table 3: Required output^{NB} from sprayer to achieve different rates of UNIFORM on fertiliser.

Fertiliser flow rate (t/hr)	Fertiliser flow rate (kg/min)	UNIFORM rate per 100kg of fertiliser			
		200 [†] mL	300mL	400mL	500 [*] mL
		UNIFORM Sprayer output (mL/min) required			
5	83	170	255	340	420
10	167	340	510	680	1112
20	333	680	1020	1360	2223
40	667	1360	2040	2720	4447
60	1000	2040	3060	4080	5040

* Application volumes over 400mL/100kg of fertiliser may adversely affect the flow rate and handling characteristics of dusty/poorly granulated fertilisers and some high nitrate fertilisers. High humidity may also affect flowability.

† Application volumes under 300mL/100kg of fertiliser should be diluted with water to a total volume of 300mL/100kg of fertiliser to improve coverage.

NB: Where fertiliser output through an auger is known (i.e. the auger is calibrated), the total required output from a nozzle or nozzles is presented.

Application at sowing

Always ensure that treated fertiliser is dry before sowing. Treated fertiliser should be sown in the same furrow as the seed, not broadcast. The flow rate of fertiliser may subsequently be changed following treatment, and the seeder should be calibrated with the treated material accordingly so that the correct rates of fertiliser and fungicide are delivered.

DO NOT mix seed with treated fertiliser prior to planting. Once fertiliser has been treated, protect it from direct sunlight, exposure to water and extreme environmental conditions prior to planting. Treated fertiliser should not be kept for extended periods of time.

Crop safety: almost all fertilisers are capable of causing damage to germinating seeds if they are in close proximity to seeds and in a concentrated band. Care must be taken to separate fertiliser and seed to prevent damage to emerging seedlings.

Residue management

UNIFORM is cream coloured hence it can be difficult to determine if fertiliser has been treated or not. Major suppliers of UNIFORM treated fertiliser will add a red dye so that it can be identified in comparison with untreated fertiliser. This is to avoid the risk of treated fertiliser contaminating augers or trucks, resulting in unintentional residues of fungicide in grain that may be transported in the same equipment. The dye also reduces the risk of confusion where both untreated, and treated fertiliser, are stored on farm.



Figure 2. Major suppliers of UNIFORM treated fertiliser will add a red dye to avoid the risk of treated fertiliser contaminating augers or trucks.



Figure 3: UNIFORM without dye in a mixing pot (left) and with blue dye added (right). Solutions must continue to be agitated while treating.



Figure 4: Fertiliser granules treated with UNIFORM plus red dye at 2 per cent.



Incotec Blue Pigment UNIFORM Untreated

Figure 5: Samples of granular fertiliser treated with UNIFORM and blue dye (left) in comparison with UNIFORM alone (middle) and untreated (right).

Liquid fertilisers

With liquid fertilisers

UNIFORM can be applied at sowing by liquid banding below or beside the seed and can be mixed with most liquid fertilisers (e.g. UAN). Always ensure there is separation between seed and the liquid band and use a minimum separation from the seed recommended with the fertiliser, at least 2cm-3cm when banding.

When applying UNIFORM as a liquid in-furrow band you should use a total solution volume of 20 to 100L/ha. Generally a minimum of 30L/ha will ensure a consistent stream and even distribution. Volumes greater than 100L/ha may result in the movement of product too close to the seed causing seedling damage.

UNIFORM should be thoroughly shaken before use. During trial work there were very few problems with compatibility, but care should be taken to ensure that liquid fertilisers mix easily with UNIFORM. If compatibility problems do occur, mixing UNIFORM with water in a 1:1 ratio before adding UNIFORM to the liquid fertiliser may overcome the issue. Liquid fertilisers containing phosphorus or sulphur are generally incompatible.



Figure 6: Sowing boot with liquid injection tube fitted.

Water only

UNIFORM may be applied with water only through liquid injection systems. A minimal separation distance of 15mm from seed should be maintained to reduce the potential for seedling damage. VIBRANCE® fungicide seed treatment will provide immediate protection of seedlings from soil-borne diseases (see the VIBRANCE label) until roots have established in the UNIFORM treated zone.

Mixing: half fill the spray tank with water and begin agitation. UNIFORM should be agitated/mixed prior to opening the product container. Then, slowly add UNIFORM with the remainder of the water. To maintain even UNIFORM distribution, a minimum of 30L/ha of spray is recommended.

Flushing

Liquid injection systems should be flushed at the end of each day as per standard practice regardless of whether using with liquid fertiliser or with water alone.



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For further information please call the Syngenta Technical Product Advice Line on 1800 067 108 or visit our website at www.syngenta.com.au.

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