

Tech Note

Impact Endure. The original, trusted name for in-furrow fungicides.

Impact Endure is a preventative, curative fungicide offering unsurpassed systemicity for the control of certain fungal diseases in wheat, barley and canola when mixed with fertiliser or applied as a foliar spray.

IMPACT ENDURE

- Is highly systemic and is absorbed by the roots to move rapidly to the leaves
- Has long lasting activity with protectant properties
- Is a highly concentrated formulation for ease of handling and requiring less product to be applied to ensure fertiliser maintains its form
- Has equivalent viscosity to current formulation for ease of pumping from larger pack sizes
- Has label claims for major crops of Wheat, Barley and Canola with in-furrow and foliar usage

MODE OF ACTION

Impact Endure contains flutriafol, the world's most systemic azole fungicide. Its innovative formulation ensures optimal uptake and distribution throughout the plant. All azole fungicides act by blocking the synthesis of ergosterol in sensitive species of fungi causing rupture of the cell wall and subsequent inhibition of growth. The flutriafol binds to the cytochrome 450 molecule and inhibits growth. The stronger the binding, the better the inhibition of the ergosterol production and hence fungicidal activity.

SYSTEMICITY

Flutriafol is the most systemic triazole fungicide available and when applied in-furrow at planting it is rapidly taken up by the roots of the crop. When applied as a foliar application it has the ability to rapidly enter the leaf to provide fast activity. Impact Endure's long lasting residual

effect ensures the crop is protected from disease outbreaks through the vulnerable growth stages.

When applied as a seed treatment, Impact Endure can control embryo borne smut and bunt to eradicate seed infections at sowing.

An important factor which determines how rapidly a compound moves within plants is how lipophilic the compound is.

Overview of the lipophilicity of different Triazoles

Product	Log K _{ow} Values
Flutriafol	2.3
Cyproconazole	2.9
Tetraconazole	3.1
Triadimenol	3.3
Epoxiconazole	3.4
Tebuconazole	3.7
Propiconazole	3.7
Flusilazole	3.7
Difenoconazole	4.3

Source:??

Mobile
↑
↓
Immobile

IN-FURROW APPLICATION

Spray undiluted product evenly onto granulated fertiliser and immediately mix thoroughly in a mechanical mixer or auger.

On farm application

- Apply to dry, relatively dust free granular fertiliser
- Apply to fertiliser as it is passing through an auger
- Set up nozzles at or near the base of the auger
- Run auger at half speed to assist in secondary mixing and transfer of Impact Endure to all granules
- Please note that application of Impact Endure will affect the flow characteristics of the fertiliser – farmers need to ensure the planter is calibrated for the fertiliser with Impact Endure applied.

Crop	Disease	Rate/Ha	Withholding Period
Canola	Blackleg	200mL	4 weeks grazing
Wheat	Stripe rust Take all Septoria Tritici Blotch	100mL or 200mL	4 weeks grazing
Barley	Powdery Mildew Scald	100mL or 200mL	4 weeks grazing

DIRECTIONS FOR USE

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A. IMPACT ENDURE APPLIED IN-FURROW AS A FERTILISER TREATMENT

Crop	Disease	Rate/HA	WHP	Critical Comments																								
Canola	Blackleg (<i>Leptosphaeria maculans</i>)	200 mL	4 weeks Grazing	Treatment will reduce blackleg infection in both susceptible and tolerant canola varieties. Application: Spray undiluted product evenly onto granulated fertiliser and immediately mix thoroughly in a mechanical mixer or auger. Apply at a rate which will deposit 200 mL of the product on the quantity of fertiliser required to be sown in furrow per hectare, using the table below as a guide. <table><tr><th>Fertiliser rate per hectare (kg)</th><th>Volume of product per 100 kg of fertiliser (mL)†</th></tr><tr><td>60</td><td>333</td></tr><tr><td>70</td><td>286</td></tr><tr><td>80</td><td>250</td></tr><tr><td>100</td><td>200</td></tr><tr><td>120</td><td>167</td></tr></table>	Fertiliser rate per hectare (kg)	Volume of product per 100 kg of fertiliser (mL)†	60	333	70	286	80	250	100	200	120	167												
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Wheat	Stripe Rust (<i>Puccinia striiformis</i>)	100 or 200 mL	4 weeks Grazing	For control of Stripe Rust of wheat and control of Powdery Mildew and Scald of barley, use the high rate where conditions conducive to severe disease are expected. Where the Wheat variety may be susceptible to Stripe rust and depending on paddock history, a decision should be made to determine the suitable rate of application. These applications will allow control of stripe rust for up to 105 days after sowing. Application: Spray product 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, using the table below as a guide. <table><tr><th>Fertiliser rate per hectare (kg)</th><th colspan="2">Volume of product per 100 kg of fertiliser (mL)†</th></tr><tr><th></th><th>100 mL rate</th><th>200 mL rate</th></tr><tr><td>50</td><td>200</td><td>400</td></tr><tr><td>60</td><td>167</td><td>333</td></tr><tr><td>70</td><td>143</td><td>286</td></tr><tr><td>80</td><td>125</td><td>250</td></tr><tr><td>100</td><td>100</td><td>200</td></tr><tr><td>120</td><td>84</td><td>167</td></tr></table>	Fertiliser rate per hectare (kg)	Volume of product per 100 kg of fertiliser (mL)†			100 mL rate	200 mL rate	50	200	400	60	167	333	70	143	286	80	125	250	100	100	200	120	84	167
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	Take-all (<i>Gaeumannomyces graminis</i>)	200 mL																										
Barley		100 or 200 mL																										

B. IMPACT ENDURE APPLIED AS A FOLIAR SPRAY

Crop	Disease	Rate/HA	WHP	Critical Comments
Wheat	Stripe Rust (<i>Puccinia striiformis</i>)	125-250 mL Ground Application Apply in 100-150 L water plus 200 mL of 1000 g/L agricultural wetting agent per 100 L of spray solution.	7 weeks Harvest or Grazing	Apply when Stripe Rust appears and before disease reaches 1% of leaf area. The high rate of application gives a longer period of protection than the low rate. In crops with high yield potential, and where conditions favourable to severe disease persist, use a single application at the higher rate, or two applications 3-4 weeks apart at the low rate.
	Leaf Rust (<i>P. recondita</i>), Septoria Nodorum Blotch (<i>Septoria nodorum</i>), Septoria Tritici Blotch (<i>S. tritici</i>)		4 weeks Grazing	Apply after flag leaves have begun to emerge and before disease reaches 1% of flag leaf area. The high rate of application gives a longer period of protection than the low rate. In crops with high yield potential, and where conditions favourable to severe disease persist during flowering, use a single application at the higher rate, or two applications 3-4 weeks apart at the low rate.
Barley	Powdery Mildew (<i>Erysiphe graminis</i>)		10 weeks Harvest or Grazing	Apply when Powdery Mildew first appears. The high rate of application gives a longer period of protection than the low rate. Where conditions favourable to severe disease persist, a single application at the higher rate, or two applications 3-4 weeks apart at the low rate, may be required.

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