# New breakthroughs in control and management of fungal diseases – UNIFORM for management of stripe rust and yellow spot

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## Key messages

**UNIFORM is an in-furrow fungicide providing protection from the economically significant soil-borne and foliar diseases leading to improved plant health and yield performance**

**Stripe rust and/or yellow spot management by UNIFORM® offers yield advantages**

**UNIFORM controls stripe rust of wheat**

**UNIFORM suppresses yellow spot of wheat**

## Aims

**Stripe rust and yellow spot of wheat are the two most costly foliar diseases of wheat in Australia. Foliar applied fungicides are available to help manage these diseases but often disease attacks seedlings and plants at growth stages before fungicides are applied. Loss of healthy leaf tissue escalates while ever environmental conditions suit respective diseases. Foliar fungicides help manage these diseases later in the crop.**

**An In-Furrow fungicide at sowing will control early infections of stripe rust and thus delay *hot spot* development which in turn may prevent, or at least limit, an epidemic. Likewise, fungicide available to seedlings as roots explore and take up nutrients will suppress yellow spot development, reducing infection levels in the lower leaves.**

**Trials were undertaken with UNIFORM®, to assess efficacy against both stripe rust and yellow spot of wheat in comparison with Intake (flutriafol) and untreated plots.**

## Method

**Small plot replicated trials were undertaken over several years at sites across the Australian wheat belt. UNIFORM, or its active ingredients at equivalent rates, or flutriafol were applied In-Furrow at sowing. Untreated plots were included for comparison.**

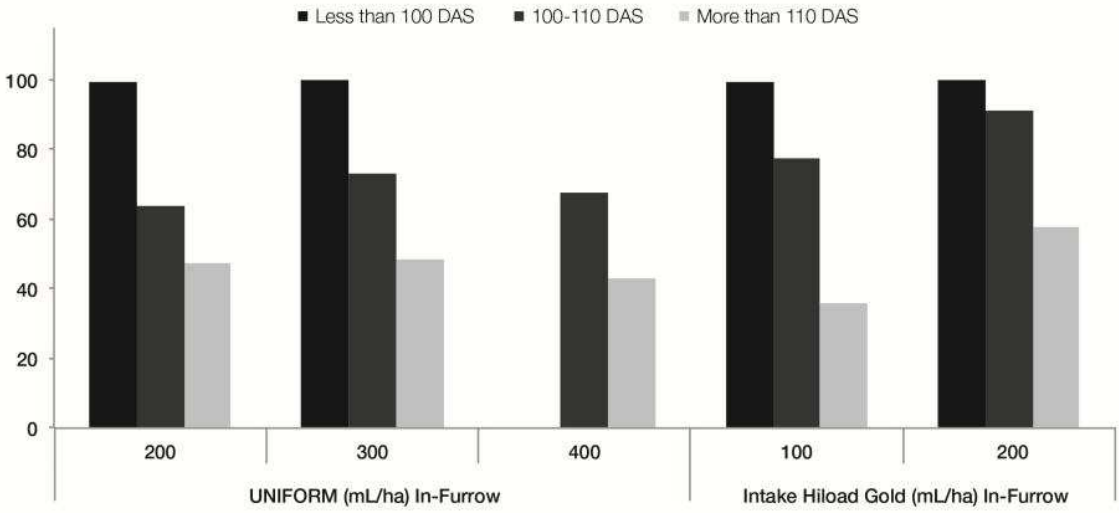
**Leaves were assessed for incidence and severity for stripe rust or yellow spot in respective trials. Incidence of disease was based on the number (%) of plants infected. Severity was a visual assessment of the proportion (%) of leaf area affected. Diseases developed at different growth stages of crops in respective trials. Results are a summary of the level of reduction in severity of respective diseases in comparison with untreated plots. Data presented is from the latest data where differences ($P<0.05$) were observed or where disease development has ceased to further develop. Varieties were generally selected based on a ranking of S (susceptible) or MS (moderately susceptible) for stripe rust and MS for yellow spot trials, respectively.**

## Results

**Stripe Rust - In all trials UNIFORM and Intake HiLoad Gold treatments at each rate respectively, were associated with a reduction in the severity of stripe rust in comparison with untreated plots (Figure 1). Reduction in stripe rust was associated with improved yield in six of eight trials.**

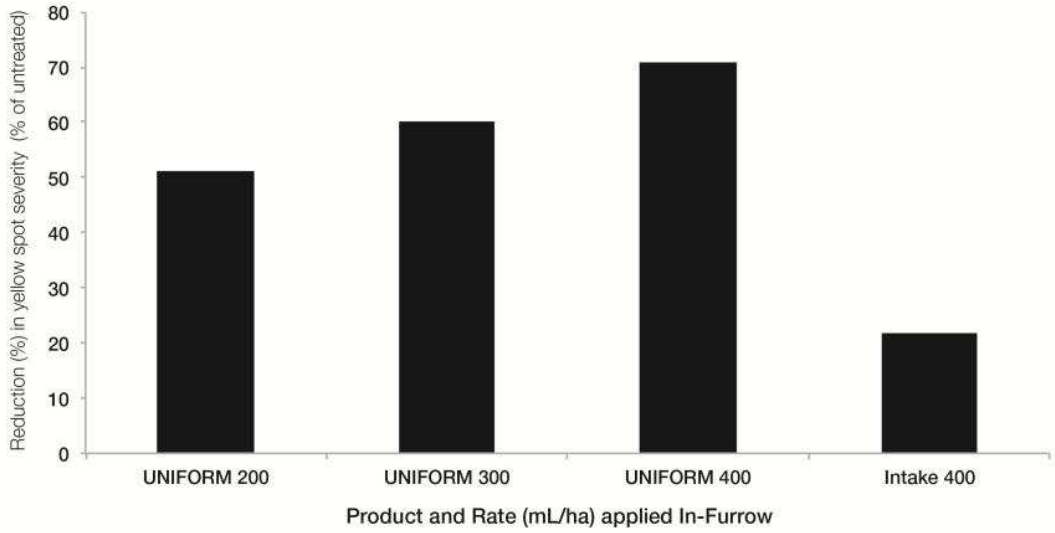
**Yellow Spot - In all trials UNIFORM treatments at each rate respectively, were associated with a reduction in the severity of yellow spot in comparison with untreated plots (Figure 2). Reduction in yellow spot was associated with improved yield in two of eight trials.**

Figure 1: Summary of level of control* (% untreated) of stripe rust up to 100 days after sowing (das), between 100 & 110 das and for more than 110 das. Treatments were applied in-furrow at sowing. UNIFORM was applied at three rates, and Intake HiLoad at two




* All treatments recorded sig (P<0.05) lower level of stripe rust in comparison with untreated at respective sites, (except Moree low disease)
# Sites where trials were undertaken; 2008 Greenthorpe & Walla Walla NSW, Inverleigh Vic; 2011 Temora (2) NSW, Balliang Vic; 2012 – Grenfell & Moree NSW, Arthurton SA
Source; APVMA submission

Figure 2: Summary of Reduction(%)* in Yellow Spot Severity in Wheat where UNIFORM or Intake were applied In-Furrow at sowing, up to 60 days after sowing, in comparison with untreated plots in trials# across the Australian wheat belt.




* Sig (P<0.05) difference between UNIFORM treatments and untreated control all sites
Note: 300 & 400mL /ha registered for suppression of yellow spot UNIFORM at 200mL/ha and Intake are not registered for yellow spot
# Summary of trials undertaken in 2011; Temora, NSW, Eradu & Greenhills WA; In 2012; Dookie Vic, Greenhills WA and in 2013; Yarrawonga Vic, York (2) WA Source; APVMA submission

## Conclusion

**UNIFORM applied in-furrow, either on its own or mixed with fertilizer, controls (300-400 mL/ha) or suppresses (200mL/ha) stripe rust for 100 days and suppresses (300-400 mL/ha yellow spot for up to 60 days. Efficacy of UNIFORM against either disease was associated with yield advantages.**

**Control or suppression of stripe rust and yellow spot in wheat, in addition to control of Rhizoctonia and Pythium, by UNIFORM applied In-Furrow, offers growers protection from several diseases from**

**crop emergence and alleviates concern in years where environmental conditions suit one or several diseases.**

**Key words**

**UNIFORM in-furrow fungicide, stripe rust, yellow spot, wheat**

**Further Reading**

**Alan McKay, *et al* (2014). Rhizoctonia control improved by liquid banding of fungicides. GRDC Grains Research Update for Advisors, South Australia**

**Daniel Huberli *et al* (2015). New breakthroughs in control and management of fungal diseases – focus on Rhizoctonia solani AG8. GRDC Grains Research Update for Advisors, Western Australia**

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