Northern Stripe Rust Management: An Evaluation of Seed Treatment Efficacy and Benefits

Background

In recent years stripe rust has re-emerged as a disease of significance across all Australian grain growing areas. Plant breeding incorporating resistant germplasm represents the most effective method of long term disease management. However fungicides are an additional tool that will enable disease management in varieties without effective genetic resistance.

Currently there are no varieties with effective stripe rust resistance combined with useful tolerance to crown rot. Until such varieties are released, northern growers and advisers need to select varieties firstly on the basis of crown rot risk and then manage for stripe rust accordingly.

Why look at seed treatments?

Research conducted in 2005 by Steven Simpfendorfer, NSW DPI Tamworth, demonstrated significant yield benefits from the use of 'at planting' treatments for stripe rust management on susceptible wheat varieties (ratings 1-4). Two planting options provided greatest benefit; Jockey - a long acting seed treatment and Impact® - a fertilizer treatment. Although disease onset did not occur until GS49 (awn peep), yield benefits of 17%-27% were obtained from the use of Jockey (at 300-450 mL/100 kg seed) and 19% from Impact. The level of yield benefit was similar to the 23% obtained from a single high rate fungicide application at GS49.

Results in a nutshell

Crop safety: *Jockey® provided good plant establishment and crop safety in all trials.*

Disease efficacy: *Jockey provided good levels suppression of stripe rust for over 100 days. NB stripe rust was still present but at significantly lower levels of incidence and severity.*

Grain yield: *No impact on yield from Jockey under zero or low stripe rust situations.*

Economic benefit: *Use of Jockey under nil or low disease conditions resulted in a net cost of $13/ha over 4 trials at $200/t grain prices.*

Overall: *The results from these trials confirmed that Jockey is a seed treatment that has good levels of crop safety and provides extended suppression of stripe rust. The length of disease activity supports the findings from the NSW DPI 2005 Tamworth trials.*

Seed treatments are likely to provide greatest benefit on susceptible varieties when disease onset is early. Seed treatments may also provide a management benefit where farming logistics prevent timely foliar application.

In crops planted under marginal conditions, where disease onset is late or where disease risk is expected to be low, foliar application may provide a more flexible management alternative.