

PROMISING ADVANCES AGAINST WHEAT POWDERY MILDEW

NEW FUNGICIDE FOR POWDERY MILDEW IN WHEAT

This season, Australian wheat growers have a new, highly-effective fungicide from a unique mode-of-action category to include in managing powdery mildew (*Blumeria graminis* f.sp. *tritici*).

The conditions that favour high wheat yields also favour powdery mildew development, with growers in regions prone to the disease facing ongoing loss of fungicide effectiveness, resistant powdery mildew strains, and variety susceptibility. In areas prone to the disease, growers may encounter multiple infestations in a single crop, and make four applications of existing fungicide options, frequently without full control. The disease has become increasingly important in recent years, with increased susceptibility to powdery mildew in dominant wheat varieties.

Powdery mildew fungicide with new Group U6 mode of action

After extensive trials and testing in Australia, a new effective powdery mildew fungicide Flute 50 EW (active ingredient cyflufenamid 50 g/L) has just been registered for use in Australian wheat crops. Even though Flute has been the 'gold standard' for combatting wheat powdery mildew in Europe for many years, it has not been registered for Australian growers until now.

Australian company AgNova Technologies, focusing on niche, specialty technologies and filling gaps in farming inputs, has brought this tried-and-trusted powdery mildew fungicide to market. After several years of trialling, testing and registration, Australian wheat growers now have another effective weapon against this important disease.

Flute is a unique Group U6 mode-of-action fungicide against powdery mildew, with strong penetrative translaminar and vapour action that effectively controls the disease; combats resistance to Group 3 and Group 11 fungicides; and has excellent crop safety and compatibility. With no cross-resistance to other current products for powdery mildew, Flute effectively controls the disease and displays excellent safety to the crop, beneficial insects and arthropods.

Flute interrupts powdery mildew at several points in its life cycle – preventing the pathogen from entering

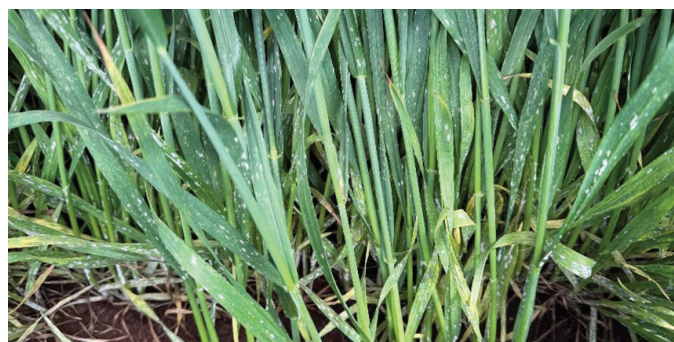
the leaf; inhibiting hyphal growth within the plant; and inhibiting spore formation. It shows no cross resistance to any other fungicide group, and its activity is specific to powdery mildew.

As well as wheat, Flute 50 EW fungicide is registered in Australia to control powdery mildew in grapes, cucurbits and strawberries.

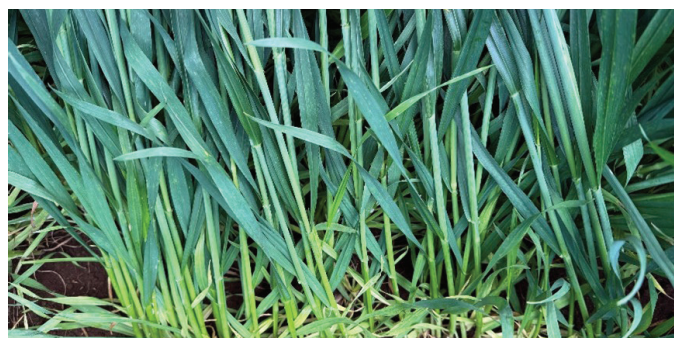
Applying Flute

Application should begin at the first sign of powdery mildew during tillering, before disease levels reach 5% of leaf area. However, best practice is to apply Flute when conditions are conducive to powdery mildew and prior to disease expression. Flute has rapid rainfastness, but 2 hours should be allowed between spray drying and rainfall. Formulated as a liquid oil-in-water emulsion (EW), Flute is easy to mix.

Flute can be applied by ground rig only, at 100–150 mL/ha, with water volumes greater than 80 L/ha improving performance. A wetting agent is not required but can be used if Flute is applied with a tank-mix partner that requires an adjuvant. With its EW formulation and low use-rate, Flute can be tank-mixed with a wide range of fungicides, insecticides and herbicides.



Wheat: Untreated control with powdery mildew



Wheat: Treated with Flute 150 mL/ha

Managing resistance

Wheat powdery mildew strains resistant to Group 11 (QoI) fungicides or with reduced sensitivity to Group 3 (DMI) fungicides are becoming more widespread, particularly in the southern and eastern wheat regions. To avoid resistance to Flute developing, use only one spray per crop, and do not apply consecutive sprays of Flute in the same paddock between seasons.

Understanding and preventing powdery mildew

Over summer, powdery mildew can remain dormant on stubble or active on volunteer wheat plants, which can infect the next crop when conditions are suitable. The disease is considered high risk for developing fungicide resistance with its quick life cycle (as little as 7 days); large numbers of spores; reproducing both sexually and asexually; spreading widely via wind; and developing in the lower canopy, where it potentially receives a sub-lethal fungicide dose due to poorer spray coverage.

Retaining fungicide effectiveness

The limited number of high-yielding wheat varieties with strong powdery mildew resistance means heavy reliance on fungicides, but there are only a limited number of fungicide modes-of-action available for rotation.

Flute's unique mode of action has a critical part to play as a rotation product for powdery mildew, and therefore, requires careful management to retain its key role.

A powerful specialist fungicide

Flute, a powerful specialist fungicide, was registered in horticulture crops in Australia in 2013 and has cemented its place as a premium mildewcide in grapes, strawberries and cucurbits. With best-management-practice programs, powdery mildew resistance to Flute/cyflufenamid has not developed in these crops.

Losing efficacy of any fungicide group compromises all other groups. Therefore, to help prevent resistance developing and to avoid putting at-risk fungicides under further pressure, it is important to integrate tactics for disease management by not planting varieties rated very susceptible to susceptible to powdery mildew; by rotating crops to reduce disease carryover; using non-chemical methods to reduce disease pressure; spraying strategically and only if necessary; and rotating and mixing mode-of-action groups.

Service agents for best management practice

In Australia, Flute is sold by AgNova Technologies to the end user via a service agent, who will supply growers with agronomic advice to support a Best Management Practice program.

An invaluable tool for industry

AgNova export and supply-chain manager Toby Williams said this brand-new chemistry for powdery mildew in Australian wheat had been driven by the wheat industry.

"With the main wheat varieties now grown in the southern regions of Australia all being susceptible to powdery mildew, and development of a high level of resistance to current fungicides, the addition of Flute for managing powdery mildew in wheat is very important."

Mr Williams said trials had shown Flute to be a very robust product as a protectant against powdery mildew in wheat, very cost-effective and economical (at around \$15–21/ha, depending on application rate), and very compatible for tank mixing with a wide range of products.

"Powdery mildew was not a major problem in wheat until the early 2020s, after the industry moved to new varieties that proved to be susceptible to powdery mildew. There was an explosion of powdery mildew in southern wheat crops, with resistance spreading quickly through the southern states. AgNova responded by appraising suitable chemistry and coming up with an existing successful powdery mildew fungicide, Flute, the 'gold standard' used in European wheat crops."

AgNova development manager Cameron Stone highlighted that this highly effective fungicide against powdery mildew featured novel chemistry, low use-rates and no residues on grain, all extremely important aspects for Australia's vital international wheat markets. As such, Flute is an invaluable asset in the fight against wheat powdery mildew.

