



# FUNGICIDES IMPORTANT TOOLS FOR PREVENTING AND MANAGING PLANT DISEASE

### WHAT ARE FUNGICIDES?

Fungicides are chemicals that can inhibit the growth or development of fungal pathogens. They are important tools that farmers use proactively to protect and maintain plant health, quality and yield.

By controlling fungal plant diseases, farmers can save 125 M TONS

of **FOOD** each year-

enough to FEED 600

600
MILLION PEOPLE.



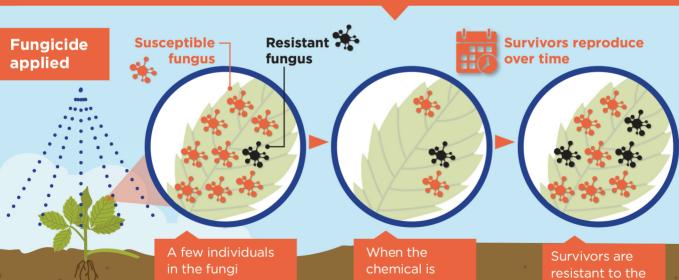


Certain species of fungi can become resistant to fungicides.

This not only diminishes the fungicide's long-term effectiveness, but can reduce the amount of food able to be produced.

## **HOW DOES FUNGICIDE RESISTANCE EVOLVE?**

It is an evolutionary process that builds up through the survival and spread of resistant fungi after repeated use of the same fungicide treatment.<sup>2</sup>



Applying the same fungicide with the same mode of action repeatedly enables the resistant population to multiply.

A few individuals in the fungi population are naturally resistant to certain types of chemicals.<sup>3</sup>

chemical is used, it controls almost all of the fungus in the population.<sup>3</sup> Survivors are resistant to the action of the chemical and lead to the next generation.<sup>3</sup>



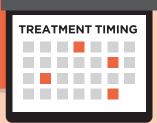
The plant science industry works with farmers, advisors and academia to identify resistance issues and to provide guidance and tools that help them manage resistance on the farm.

# Q&A

Does fungicide resistance cause an increase in the use of crop protection products?

A. No. In fact, increased use of crop protection products is not recommended as a resistance management strategy. Resistance can be proactively managed through the combination of diverse strategies, including: avoiding repetitive use of one fungicide or

mode of action; mixing or alternating with an appropriate partner fungicide; limiting the number and adapting the timing of treatments; and integrating with non-chemical methods.<sup>2</sup>



Do fungicide mixtures help delay resistance?

Yes. Fungicide mixtures – two or more fungicides that have different modes of action combined in a spray tank and applied as a single mixture – can be used to delay the onset of resistance.<sup>2</sup> A Mode of Action indicator on pesticide product labels helps to easily identify which chemicals have the same mode of action to guide resistance management efforts.

#### **SOURCES**

1 imperial.ac.uk

<sup>2</sup> frac.info

<sup>3</sup> extension.psu.edu



Resistance Management Strategies are developed and maintained by our scientific technical review committees in consultation with relevant national and international experts. These strategies help all crop protection users sustainably control pests, weeds and diseases that are a constant threat to Australia's natural environment and our nations food, feed and fibre produce.

Visit: www.croplife.org.au