

# GRDC Grains Research Update



## **Wheat Powdery Mildew - Using new fungicide resistance detection methodologies to stay ahead of the game.**

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# Factors affecting fungicide resistance

## Pathogen Characteristics

Short latent period ✓

Asexual and sexual reproduction ✓

Infect all life stages of host ✓

Large population size ✓

Large mono-culturing of susceptible host ✓

Pathogen persistence over seasons ✓

Progeny easily dispersed ✓

## Fungicide Characteristics

Limited access to fungicides from different chemical classes ✓

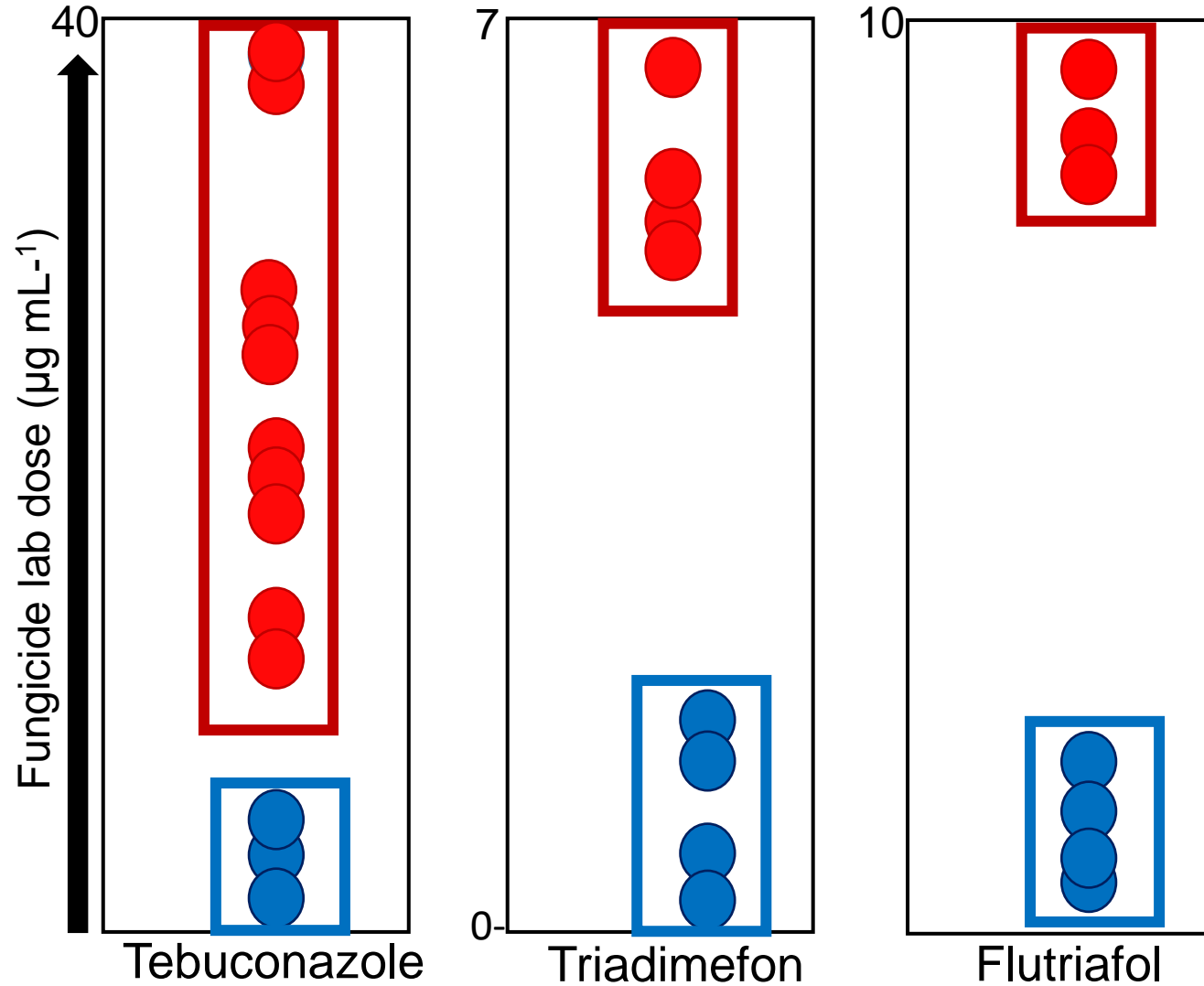
Prolonged use of single fungicide class ✓

Fungicides targeting a single cellular process ✓

Extended exposure (spatial/temporal) ✓

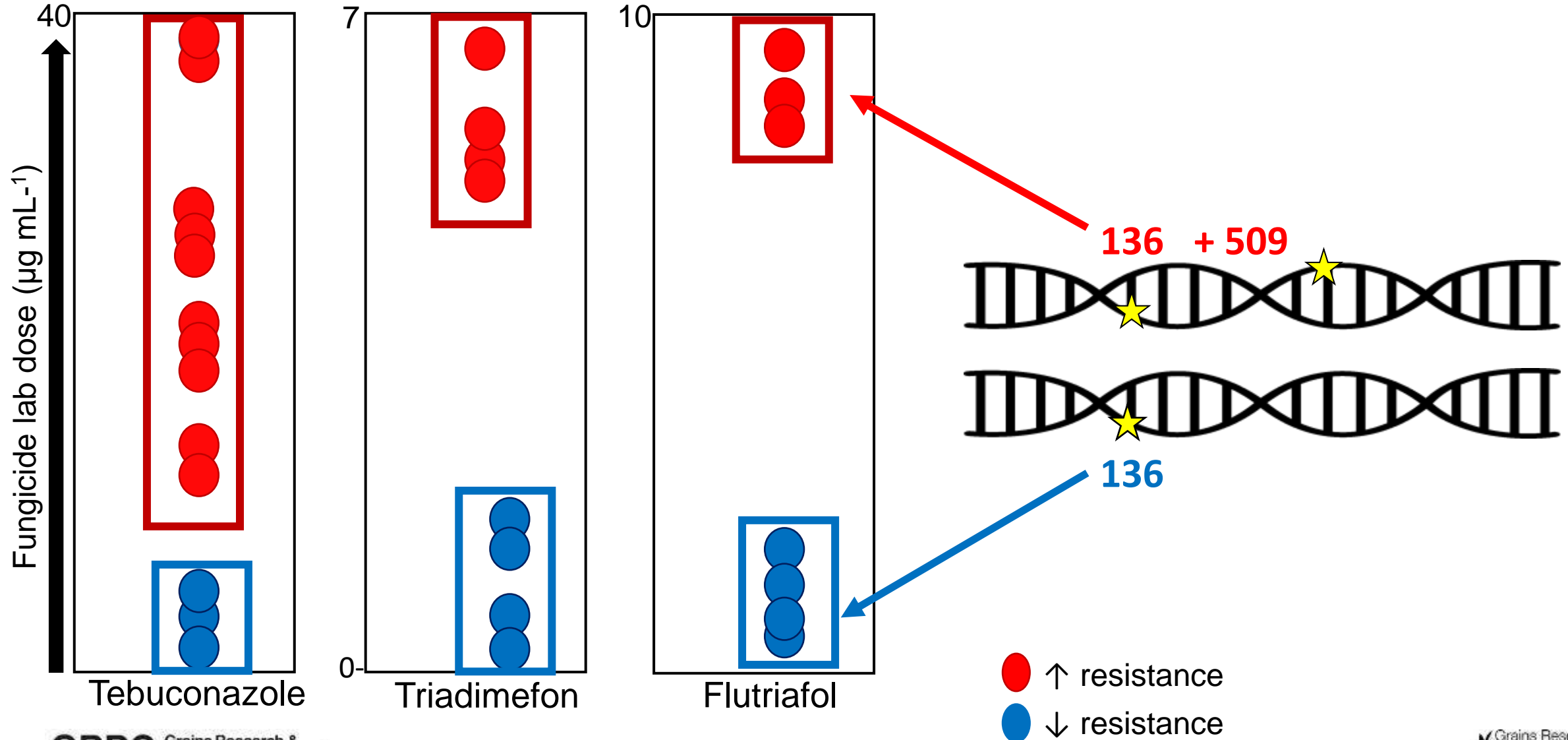
Multiple sprays per season ✓

# Fungicide resistance in barley powdery mildew

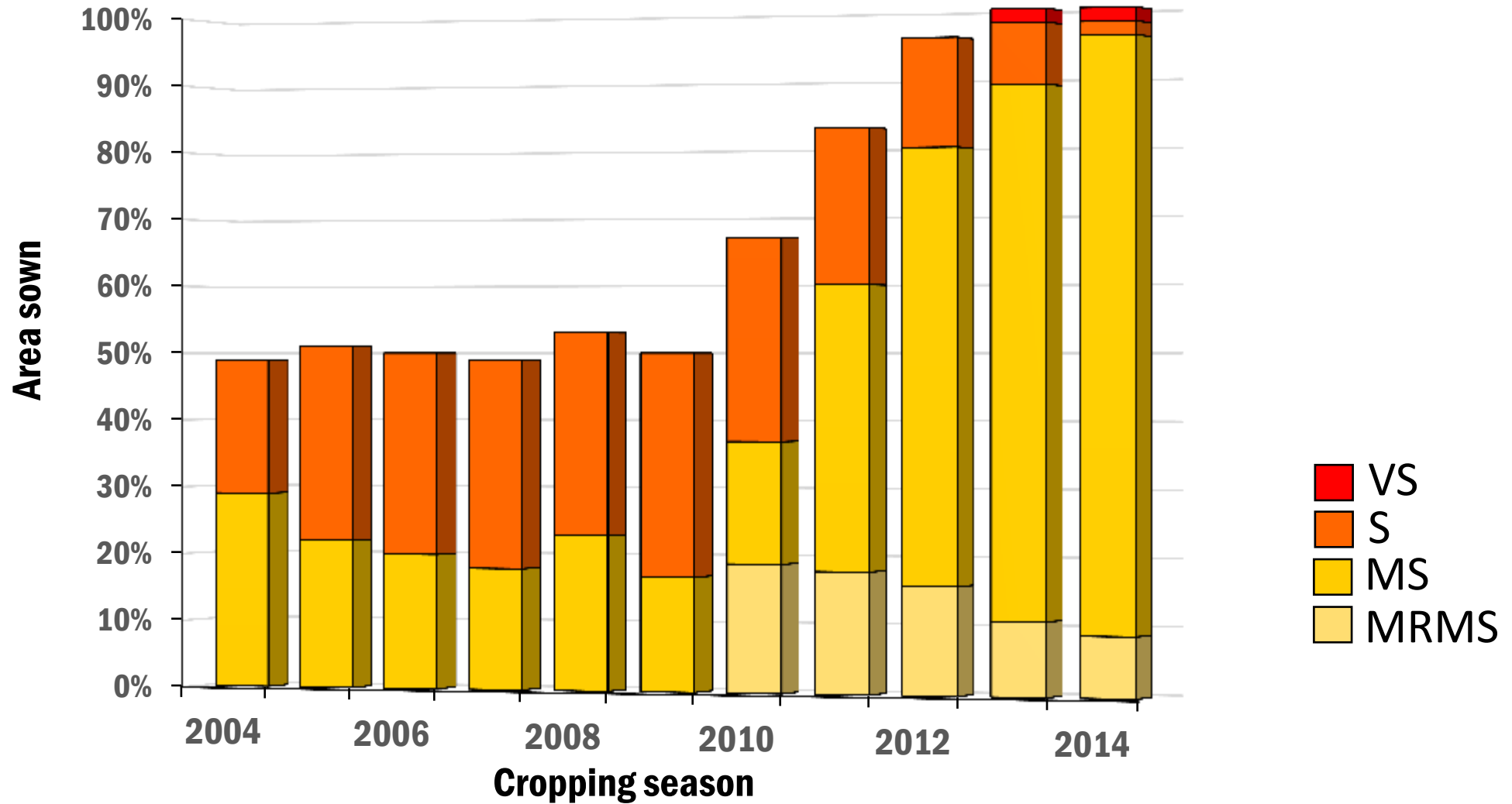


- ↑ resistance
- ↓ resistance

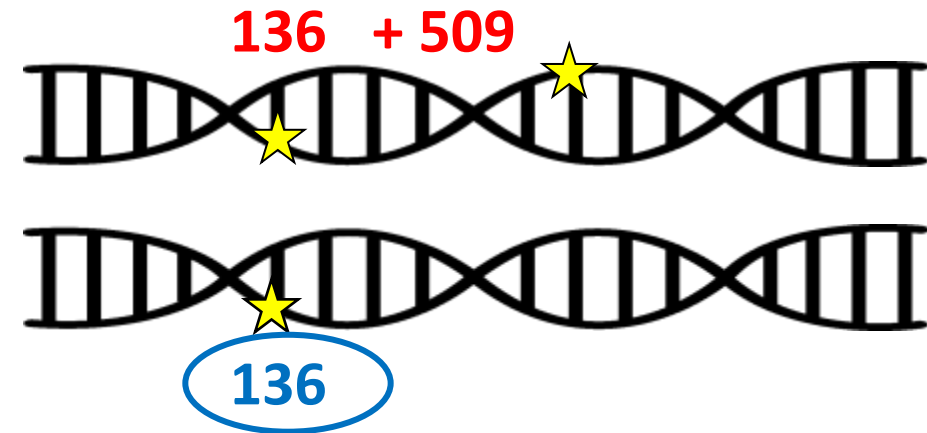
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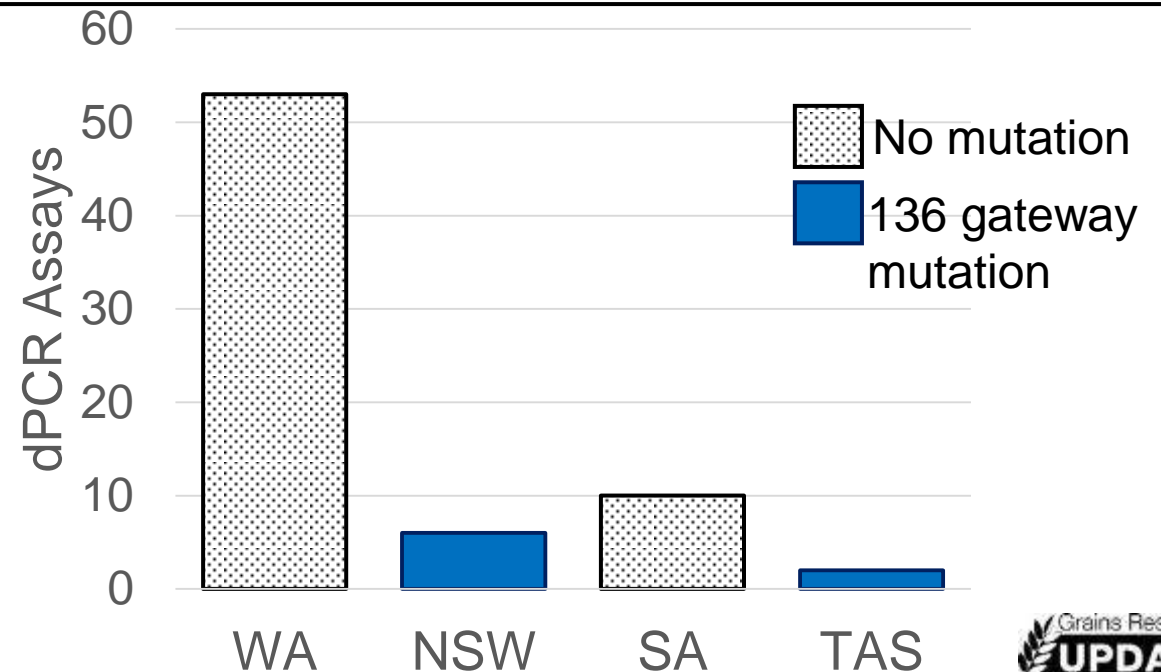
# WA wheat powdery mildew susceptibility



# Using cancer technology to detect resistance in wheat powdery mildew



- Technology used in cancer research
- Detect frequency of mutation to <1%
- 71 tests run on wheat samples in 2015
  - 53 WA
  - 6 NSW
  - 10 SA
  - 2 TAS





# Minimising the incidence and spread of fungicide resistance

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## Questions?

