

Etoxazole Resistance Detection in Mites

Recent molecular testing by the NSW DPIRD has confirmed etoxazole (Zeal®) resistance in two-spotted spider mites collected from northern NSW. This finding comes at a difficult time for crop managers in this region who are already facing challenges with mite management due to diafenthiuron and abamectin resistance.

The target site mutation responsible for this resistance has been found in approximately 10% of the mites tested from last season. As confronting as this sounds there is some good news in that the gene responsible for resistance is recessive. This means that offspring that only carry one copy of the resistance gene are fully susceptible to etoxazole. All mites that have tested positive for this resistance gene have been heterozygotes (only carrying one copy). However, these individuals are still 'sleepers' within the population, carrying resistance that isn't yet being expressed.

The major risk going forward is that overuse of etoxazole may increase the proportion of these heterozygote mites, which in turn increases the chance that these individuals will mate together. On average, one quarter of the progeny from each of those matings will be homozygous mites (carrying 2 copies of the gene) that are likely to survive field applications of etoxazole.

With the usage of etoxazole likely to be high in the 2024/25 season due to resistance for other products and low availability of propargite (e.g. Comite®) there is a clear risk of this form of etoxazole resistance may take hold.

This finding does not change the IRMS for the 2024/25. Commencing control of threshold level mites between squaring and early flowering with etoxazole remains a sound approach.

However, when used, etoxazole must be applied to achieve maximum effectiveness.

Key steps include:

- Apply etoxazole when mite populations are low (20-30% of leaves infested) and **INCREASING** at a rate of 1% per day, ideally between late squaring and mid flowering, and well before row closure. Avoid using etoxazole prior to mid squaring (at least 12 nodes). Natural enemies are often able to control low infestations at this stage provided the rate of increase is lower than 1% per day.
- Ensure that the maximum label rate is used.
- Coverage is essential as the product is not systemic and mites do not move extensively within the canopy. Coverage of every leaf matters.

- Use a ground rig where possible. For older crops, consider the use of droppers to ensure adequate coverage of the lower canopy. Use a minimum of 100 L/Ha of water.
- If applied aerially, use the highest water rates you can afford.
- Only use ONE application per crop per season and rotate with a different mode of action (MoA) group if subsequent application is required.
- Etoxazole is **UNSUITABLE** for late season usage.
- Etoxazole is **NOT EFFECTIVE FOR CONTROLLING MODERATE TO HEAVY INFESTATIONS**.

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