

TOMATO LEAF MOULD IN NEW ZEALAND

Industry Research Brief: Critical Findings on *Fulvia fulva* Current Situation (2024-2025)

KEY FINDING

Almost 50% of commercially available leaf mould resistant tomato cultivars in New Zealand were examined in this study (10 of 22 identified cultivars). **100% of examined cultivars showed compatible** tomato leaf mould infection symptoms, indicating current *Cf*-gene resistance may be **bypassed by *F. fulva* pathogen races**. Additional evidence suggest that all the commercially available tomato leaf mould-resistant cultivars in New Zealand may have lost their resistance against tomato leaf mould.

IMMEDIATE IMPACT: This substantial sample suggests widespread resistance breakdown. Growers using these cultivars can no longer rely on host resistance as primary control strategy. Alternative management approaches are needed.

Research Validation & Molecular Evidence

Scientific Approach: A field survey of at least 10 tomato leaf mould-resistant cultivars commercially available in New Zealand (labelled as “Ff:A-E” or “Pf:A-E”) presented symptoms compatible with *F. fulva* infection.

Due to unforeseen biological and institutional delays in the genome sequencing pipeline, a **PCR (Polymerase Chain Reaction) testing protocol** has been implemented. The outcome of this procedure may indicate whether the resistance conferred by the *Cf-9* gene (the main gene conferring resistance to *F. fulva* nowadays) has been broken down.

Current Progress: High-throughput PCR screening of representative isolates is underway, with whole-genome sequencing planned to map the genetic profile of New Zealand's *F. fulva* population sampled in the North and South Islands.

Implications for Growers

IMMEDIATE CONCERNS	RESEARCH SOLUTIONS
<ul style="list-style-type: none">• At least 50% of available 'resistant' cultivars showing failure• Remaining 12 cultivars require assessment• Increased fungicide dependency• Potential yield and quality losses• Need for revised IPM strategies	<ul style="list-style-type: none">• Diagnostic improvement tools being developed• Industry knowledge gap assessment underway

Addressing Industry Knowledge Gaps

Diagnostic Challenge: Industry consultations yielded inconsistent results in distinguishing *F. fulva* from other fungal pathogens (such as powdery mildew and botrytis). To address this:

- ✓ Nationwide grower knowledge survey designed and close to being deployed
- ✓ High-quality symptom image library created

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Preliminary Fungicide Sensitivity Screening

As an added value to the sector, remaining *F. fulva* isolates will undergo preliminary testing against some of the industry's most frequently used fungicides. These results will provide an early indicator of potential shifts in fungal population sensitivity.

Note: These findings are preliminary and intended to guide future, broader validation trials.

Next Steps & Timeline

TIMING	DELIVERABLES
Q2 2026	PCR validation results and industry knowledge assessment
Q3 2026	Comprehensive genomic analysis and preliminary fungicide efficacy data

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