

Research Driving a Healthier Passionfruit Industry

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Meet Dr Vivian Rincon-Florez

Dr Vivian A. Rincon-Florez is a Research Fellow at the Queensland Alliance for Agriculture and Food Innovation (QAAFI) at The University of Queensland. With more than a decade of experience, her research focuses on plant disease management across a range of crops, including macadamias, bananas and orchard systems. Her work spans pathogen detection, soil health, and studies into disease causes and spread, with the aim of improving crop resilience while reducing reliance on chemical interventions.



Dr Vivian A. Rincon-Florez
Photo credit: Hanna Millard

More recently, Dr Rincon-Florez has expanded her research into passionfruit production, leading a QAAFI internally funded project supported by the Department of Primary Industries. The project focuses on disease management in Australian passionfruit and is helping to lay the foundations for more resilient varieties capable of withstanding increasing disease pressures.

She is also collaborating with Dr Mobashwer Alam and Dr Patrick Mason to develop disease screening assays that support the existing University of Queensland–industry passionfruit breeding program. These tools will help identify disease-resistant traits and accelerate the development of improved varieties for Australian growers.

Throughout her career, Dr Rincon-Florez has worked closely with growers and industry partners to ensure that her research delivers practical, on-farm outcomes. Her goal is to provide growers with effective disease management strategies that improve productivity while supporting more sustainable production systems.

One of the major focuses of her current research is the management of *Fusarium* diseases, including wilt and crown rot, one of the passionfruit industry's most significant diseases. These pathogens can affect roots, trunks, and vines, reducing vine health, fruit quality, and farm profitability.

Research Focus

According to Dr Rincon-Florez, effective disease management begins with prevention.

"Start with a clean environment. That applies not only to growers but also to nurseries. Healthy plants begin with clean planting material and good hygiene."

Developing genetic resistance is another key priority. By breeding varieties with improved disease resistance, growers can reduce production losses while lowering their dependence on chemical controls.

Current research is examining disease samples collected from orchards across Australia to determine whether commonly used fungicides across Queensland and Northern New South Wales remain effective or whether pathogens are developing resistance.



Fusarium wilt can destroy entire vines. It is caused by a fungus which infects the plant through the roots and then travels up the plant stem *Photo credit: Jay Anderson*

The findings will help researchers provide growers with evidence-based recommendations on the most effective products, ideal application timing, and whether chemical applications may no longer provide adequate control.

Dr Rincon-Florez also highlights the important role that growing conditions, orchard layout, irrigation practices and weather play in disease development.

"Seasonal conditions can have a significant influence on disease outbreaks."

By better understanding how environmental conditions affect disease pressure, researchers hope to help growers time their spray programs more effectively, improving disease control while reducing unnecessary chemical applications.

Ultimately, the goal is to give Australian passionfruit growers the tools they need to produce healthier vines, reduce input costs, and build a more resilient and sustainable industry.

How can growers support the research?

Dr Rincon-Florez is keen to work directly with growers and is currently looking to:

- Connect with passionfruit growers to better understand current disease pressures and management practices
- Translate research findings into practical, on-farm solutions
- Identify the most significant disease threats affecting yield, fruit quality and profitability
- Collect disease samples from orchards to strengthen the research database and support the development of disease-resistant varieties

If you would like to contribute to this important research or discuss disease issues in your orchard, contact Dr Vivian Rincon-Florez at The University of Queensland

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