

The road to food security through better plant disease management

July 25 2024



Banana bunchy top disease. Credit: University of Queensland

The colorful history of plant pathology in Australia since colonization is

the subject of a [special edition](#) of *Historical Records of Australian Science*, edited by QAAFI's Associate Professor Andrew Geering.

Despite the challenges of academic isolation and lack of communication, the profession flourished and made many world-first discoveries.

Dr. Geering said the issue pays special attention to some of the major plant diseases that affected agriculture in the 19th and early 20th centuries, with several common themes emerging.

"There was no scientific specialization among the early plant pathologists—they were equally adept at researching plant [pathogenic bacteria](#) as fungi," Dr. Geering said.

"Joseph Bancroft, the first person to describe Fusarium wilt of banana, was a practicing surgeon in Wickham Terrace in the Brisbane suburb of Spring Hill.

"Secondly, they had to work in isolation, unaware of what was happening in neighboring states or overseas.

"This makes the discoveries they made even more remarkable.

"Thirdly, the problems of communication and the small scale of research in Australia meant there was slow recognition of the discoveries made here by scientists in the Northern Hemisphere.

"Rupert Best deserved to have been one of Australia's first Nobel Prize winners for his characterization of tobacco mosaic virus, but his research was not widely publicized overseas."

He said despite the success of agriculture in modern Australia, farmers had to overcome many challenges to grow a crop.

"There was extreme weather variability, shallow and infertile soils and attacks by pests and pathogens.

"Early attempts to transplant European farming practices into Australia often failed, and a great deal of scientific research had to be done before the current level of success was achieved."

Another area of focus of the special issue is biosecurity.

Our plant quarantine system is the envy of the world," Dr. Geering said.

"[Richard Davis and colleagues](#) describe the history of the Northern Australia Quarantine Strategy, which has been responsible for providing early warning of plant pathogens like the fungus responsible for black Sigatoka disease in bananas."

But Dr. Geering said some of the articles featured show that history should not be viewed with rose-tinted glasses.

"One striking feature of the early history of Australia is the gender bias towards men in professional life as is shown in the career of Gretna Weste, while racial prejudice was widespread in some farming communities," he said.

"Australians of Chinese heritage were the pioneers of the Australian banana industry but had to cope with very discriminatory government regulations that were implemented as part of the White Australia policy.

"There was also strong interstate rivalry between the state governments, which hindered a fully collaborative approach to solving plant disease problems.

"In 1923, the Queensland Minister for Agriculture and Stock refused to

cross the state border to meet with his counterpart from New South Wales at Tweed Heads to discuss how a research project on banana bunchy top disease could be jointly funded.

"A class system existed between the formally educated and uneducated, and the contributions of lay farmers to solving plant disease problems were sometimes ignored or not properly recognized."

More information: Andrew D. W. Geering, The contributions of Rupert Best to the modern concept of the nature of viruses, *Historical Records of Australian Science* (2024). [DOI: 10.1071/HR23022](https://doi.org/10.1071/HR23022)

Richard I. Davis et al, Northern Australia Quarantine Strategy plant health surveys: over thirty years of a globally unique on- and off-shore solution to island nation biosecurity challenges, *Historical Records of Australian Science* (2024). [DOI: 10.1071/HR24011](https://doi.org/10.1071/HR24011)

Provided by University of Queensland

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