Fire Blight Research with Dr Rachel Mann – video transcript 24/5/13

Narrator:

La Trobe University scientist, Dr Rachel Mann, has developed a new diagnostic test for the major horticulture disease fire blight. Fire blight is not currently present in Australia, but has proved devastating to pear and apple industries overseas.

Dr Rachel Mann:

Fire Blight is a disease that is caused by bacteria that affects apples and pears and what is does it gets into the plant usually through the blossoms or through any natural openings and it moves through the tissue and kills the tissue as it goes through and you end up getting dead blackened leaves, and shoots and limbs from the tree and it looks as though it has been scorched by fire, and that’s why its called fire blight.

Narrator:

Fire blight is one of Australia’s major biosecurity threats and Dr Mann’s research is set to revolutionize screening procedures across the world.

Dr Rachel Mann:

The research in this project was based on improving diagnostic tests for fire blight. This was done with my supervisors, Dr Kim Plummer and Dr Brendan Rodoni. The aim was really to improve testing at the border to make sure that the tests were not missing bacteria where plant material was being imported into the country. Additionally, we want to use these tests for surveillance to prove we don’t have the disease in our apple and pear growing regions, or in the country as a whole.

Narrator:

The genetic makeup of fire blight was largely unknown prior to Dr Mann’s work, so the first step in developing a diagnostic test involves sequencing the DNA of the bacteria.

Dr Rachel Mann:

So what we have done to develop the test is we’ve sequenced the genomes or genetic maps of lots of different strains of the fire blight causing bacteria and we’ve compared those genomes to genomes of closely related bacteria and a whole array of other bacteria. What we’ve done we have identified unique DNA signatures that are only found in the fire blight bacteria. We take a small piece of plant tissue, and we extract all the DNA from that sample and then we put in specific probes that are looking for those unique signatures that are only found in the bacteria, so if the plant sample has the bacteria, we get a positive result.

Narrator:

Dr Mann is one of ninety La Trobe University researchers working in the new Centre for Agribioscience. AgriBio was officially opened in April 2013, and is a joint collaboration between La Trobe University and the Victorian Department of Environment and Primary Industries.

Professor John Dewar:

It’s about protecting agriculture production from disease, but also about making sure we increase productivity to meet the demands of an expanding global population.

Narrator:

The research underway at AgriBio is not only important for Australian agriculture, but will have international significance.

Dr Rachel Mann:

So we’re hoping that these diagnostic tests will become an international standard for testing of fire blight, and this will help prevent the movement of fire blight globally. It’s also important for Australia to maintain its fire blight free status because having this disease would affect our markets into certain countries.

Narrator:

Dr Mann will now turn her attention to developing diagnostic tools for a range of other diseases threatening the horticultural sector.

Dr Rachel Mann:

The methods that we used to develop the test for fire blight are currently being used in a new project with CRC for Plant Biosecurity, to develop tests for other plant pathogenic bacteria of high biosecurity risk to Australian plant industries.

Narrator:

Dr Mann’s research won the prestigious Nancy Millis Post Graduate Thesis Award in 2013, it’s an example of the collaborative work being undertaken at AgriBio between the Department of Environment and Primary Industries and La Trobe University.

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