

# Fact File: *Pseudomonas syringae*

## What are they?

*Pseudomonas syringae* bacteria can infect a wide range of plants including: apple, bean, pea, beetroot, stone fruit, barley, wheat and horse chestnut trees.



## Symptoms

The bacteria cause ugly blisters to form on fruit. They can also cause cankers to form on trees. Cankers girdle and squeeze tree trunks, cutting off the nutrient and water supply to branches and fruit. The bacteria can eventually kill trees!



**Q: How would *P. syringae* affect apple production?**

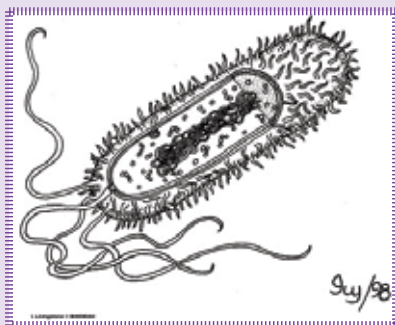
## What do they look like?

### Rod shape

The bacteria are rod-shaped. This allows them to 'squeeze' into plant cells through plant wounds.

### Swimming tails

The bacteria have flagella, which are whip-like protein tails that help the bacteria swim through the soil towards plants.



## How do they infect?

*Pseudomonas syringae* bacteria infect plants through natural openings, such as plant breathing holes called stomata in leaves and lenticels in woody tissues.

The bacteria produce toxic chemicals that modify surrounding plant cells, allowing bacteria to infect and multiply.

## Ice weapons!

Some *Pseudomonas syringae* bacteria have ice-making proteins on their surface that help to form ice crystals. These ice crystals grow and pierce plant cells creating wounds, through which the bacteria can enter the plant.



**Q: What temperature would favour infection?**

**Q: What other living things have a swimming tail?**

**Q: Can you make a model of *Pseudomonas syringae*?**

## Images

1. Image of *Pseudomonas syringae* by Robert Jackson, University of Reading
2. Image of Tomato speck disease: Chris Smart, NYSAES, Geneva NY, Wikipedia.
3. Diagram of *Pseudomonas syringae* by I. Livingstone. Copyright Biodidac.
4. Image of ice crystals: Steffan Enbom, Wikipedia

Created by the British Society for Plant Pathology (2013)

