

# Maintaining protection from rot infection

***Apply copper every four weeks with a minimum of 10 applications per year to maintain an adequate cover.***

- Copper sprays are protectant fungicides and are not curative.
- Copper fungicides need to be applied before infection occurs.
- In contrast to other pests on-orchard, rot infection cannot be monitored as fruit rarely show symptoms pre-harvest.
- The label rate of copper fungicide applications for avocado orchards in New Zealand is every four weeks.
- It is essential to maintain consistent coverage and retention of copper particles over the fruit surface throughout the year as fungi that infect avocado fruit remain active throughout the year.
- The protective and active layer of copper diminishes over time and offers only short-term protection.
- Growth of plant material and fruit, wind, rain and rub reduce the level of coverage, and consequently the efficacy of the fungicide (Figure 1).

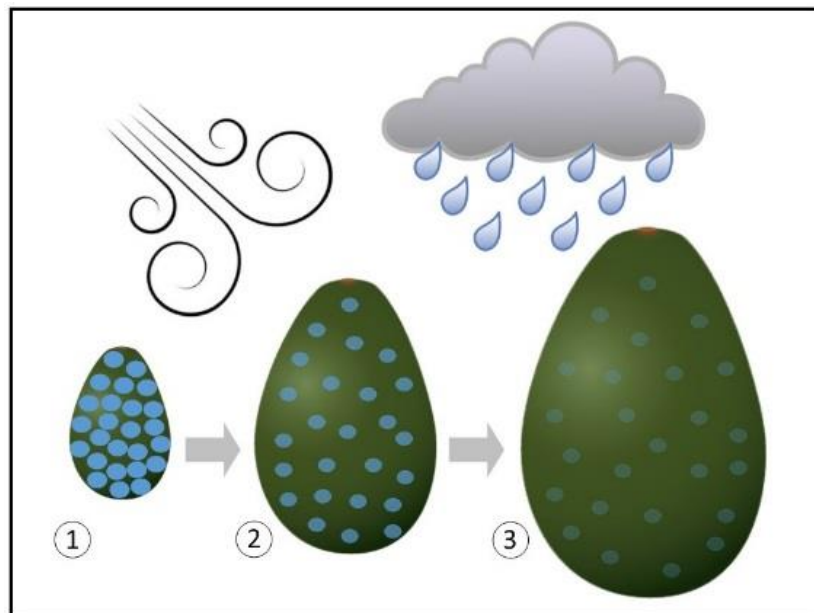


Figure 1. Changes in spray coverage due to plant material growth and weather. 1) initial spray with most of the fruit protected, 2) gaps appear and coverage wearing off, 3) large gaps and minimal coverage leading to less protection against fungi.

- Applications of copper fungicide immediately following fruit set is an important time as growth of the fruit is at its greatest.

## Best practise copper application

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- Fungicide applied prior to a rainfall event will provide the best protection as fungal spores in the canopy are dispersed by water.
- Before a rainfall event consider when the last copper fungicide application was made. If longer than three weeks, copper should be applied two days prior to the weather event occurring.
- Taking note of long term weather forecasts will enable growers to formulate a 'spray plan'.
- Copper formulations can also be used as a frost protectant.

Copper formulations with a smaller particle size tend to have better coverage, rain-fastness and longevity. For help choosing the right copper fungicide formulation for your orchard refer to the technical note on copper.

The rate of application required to effectively spray an avocado orchard will vary with the size and density of the target canopy. A well calibrated spray unit is essential for spray application efficacy and cost efficiency. To optimise your copper fungicide spray application refer to

- *Why do you need a spray plan?* Avoscene, September 2015, pg. 31.  
<https://industry.nzavocado.co.nz/news-events/avoscene/>
- *Effective spray application in New Zealand avocados.* Avoscene, November 2015 pgs. 40-42.  
<https://industry.nzavocado.co.nz/news-events/avoscene/>
- *How do my sprays work?* Avoscene, September 2016, pgs. 36-38.  
<https://industry.nzavocado.co.nz/news-events/avoscene/>