

# Phytophthora



Chestnut seedling infected with *P. cinnamomi* displays dark staining on roots and shoot.



Classic symptoms of *P. cinnamomi* infection include chlorotic, wilting leaves and canopy dieback.

## Chemical pesticides

- Metalaxyl
  - Used to eradicate *Phytophthora*
  
- Phosphonates
  - Used to protect plant tissues from infection or to inhibit further growth of the organism inside plant tissues.



# Application of Metalaxyl

## CONDITIONS OF USE

### Products to be used:

RIDOMIL GOLD 480 SL SYSTEMIC FUNGICIDE (APVMA No. 64812)

PLUS OTHER REGISTERED PRODUCTS

Containing: 480 g/L METALAXYL-M as the only active constituent.

### Directions for Use:

Crop	Pest / Disease	Rate
Chestnut	Root and collar rot <i>(Phytophthora spp.)</i>	5.2 mL/m <sup>2</sup>

### Critical Use Comments:

- Apply at the beginning of summer as a soil drench by boom sprayer or equivalent to a radius 1 m around each tree trunk (approximately 4 m<sup>2</sup>).
- Apply in sufficient water to provide uniform coverage of the soil.
- DO NOT apply using spraying equipment carried on the back of the user.
- DO NOT apply more than 4.7 L of product per ha per application.
- DO NOT apply more than 2 applications in the same 12 month period.
- DO NOT apply less than 3 months after the initial treatment.
- The area of soil to be treated should be free of weeds and heavy mulch.



# Application of Phosphorous acid

Permit No: **PER15259**

Crop Type	Plant Disease	Product & Application Rate
CHESTNUT TREES	Suppression of Phytophthora Trunk and Root Canker ( <i>Phytophthora cinnamomi</i> )	<p><u>400 g/L product:</u></p> <p><b>Foliar:</b> Apply at a maximum rate of 500 mL product per 100 L water.</p> <p><b>Stem Injection:</b> Dilute 1 to 2 with water; then inject 20 mL per metre of canopy.</p>
		<p><u>600 g/L product:</u></p> <p><b>Foliar:</b> Apply at a maximum rate of 333 mL product per 100 L water.</p> <p><b>Stem Injection:</b> Dilute 1 to 3 with water; then inject 20 mL per metre of canopy.</p>
		<p><u>620 &amp; 625 g/L product:</u></p> <p><b>Foliar:</b> Apply at a maximum rate of 320 mL product per 100 L water.</p> <p><b>Stem Injection:</b> Dilute 1 to 3 with water; then inject 20 mL per metre of canopy.</p>

## Application rates – Phosphorous acid

Product Formulation	Foliar Application	Trunk application
400 g/L	500 mL per 100L	1 mL + 2 mL water
600 g/L	333 mL per 100L	1 mL + 3 mL water
620 g/L	320 mL per 100L	1 mL + 3 mL water

- Apply to trees with good leaf canopy
- Spring and Autumn.
- Spray volume of 2,000 – 3,000 L/ha for mature trees

## Trunk spray of Phosphorous acid

- Rate of 200 g ai/L (20% phosphorus acid concentration)
- Add 2% bark penetrant to solution e.g. Pulse, Devour 1020

{Chestnut grower's report is 15 mL of PENETRANT in 3 L mixture}

- Apply from soil level to about 50 cm height
- Apply to the point of slight run-off, around the trunk



## Take home messages

- Grow best in low pH (acidic) and light-sandy soils
- Chestnut trees require well drained soils and a pH of 4.5-6.5.
- Chestnut tree roots do not like heavy/clay soils. The more clay in the soil the less likely the chestnut tree will survive year after year.
- Routine and proper nutrition is important for tree health, vigor and optimal yield
- High soil organic matter is a factor commonly implicated in *Phytophthora* suppression