REPORT OF EFFICACY OF PROLINE® AND PAGAENT® FUNGICIDES ON *FUSARIUM CIRCINATUM* IN THE LABORATORY; THE CAUSAL AGENT OF PITCH CANKER IN SOUTHERN PINES

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What is the importance of this study?

- Pitch Canker is considered by some to be the most threatening tree disease in the world. PC is the limiting disease in South African nurseries. In Calif. it has caused significant losses on Monterey Pine
- There are no fungicides registered for the control of Pitch Canker on seedlings.
- Labeling benefit

Proline Fungicide

- Proline 480 SC®
- Manufactured by Bayer CropScience
- Active Ingredient – prothioconazole 41%
  - Rates used:
    - 1x = 5 fl oz acre based upon 30 gal water/acre
    - 0.5x = 2.5 fl oz acre based upon 30 gal water/acre
    - 0.25x = 1.25 fl oz acre based upon 30 gal water/acre

Pagaent Fungicide

- Pagaent®
- Manufactured by BASF
- Active Ingredients – pyraclostrobin 12.8% & boscalid 25.2%
  - Rates used:
    - 1x = 14 oz/100 gal
    - 0.5x = 7 oz/100 gal
    - 0.25x = 3.5 oz/100 gal

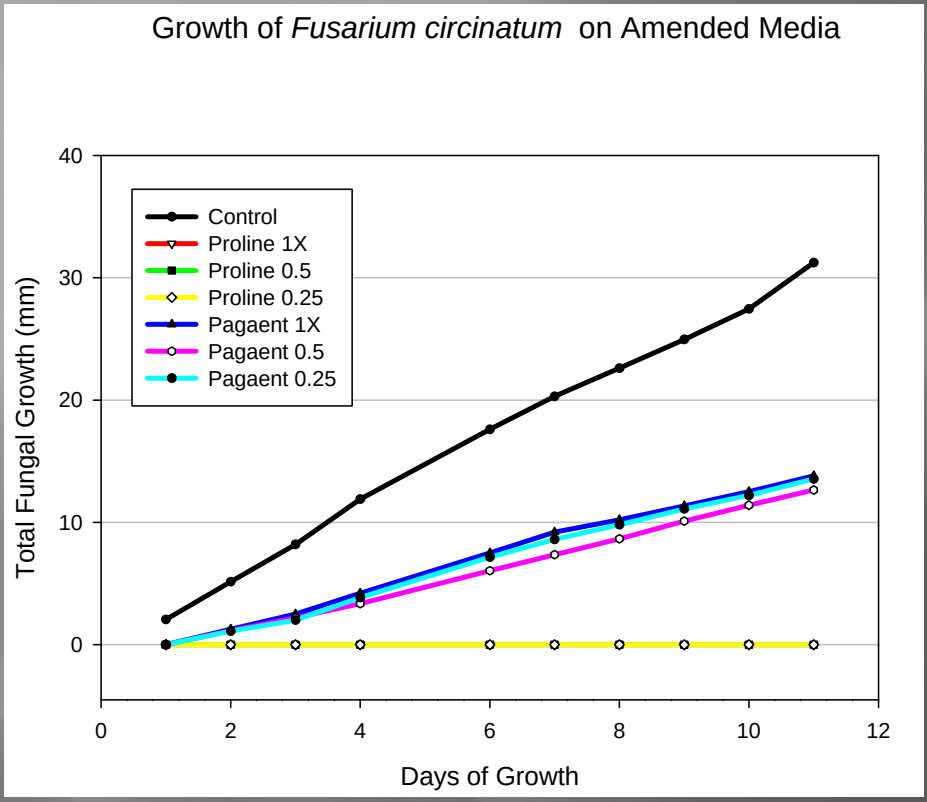
Study Methodology

- Potato Dextrose Agar (PDA) was amended with the different rates of each fungicide after autoclaving and just before pouring the plates.
- There were 20 plates (83 mm) of each fungicide concentration plus 20 unamended PDA plates as a control.
- A #4 cork borer (~8mm) plug of *Fusarium circinatum f*rom a two week old culture was placed at the center of each plate.
- The edge of each plate was wrapped in paraffin plastic film.

Study Methodology

- The radial growth of the fungus was measured in one direction over a period of 10 days.
- After 11 days, the plugs from 2 plates within a treatment where placed back on unamended PDA and any growth was recorded.

Results



Each data point for each treatment represents the average of 20 plates

Observations:

- No fungal growth was observed on the Proline ® amended PDA plates for any concentration over the 11 day period.
- On some Proline ® plates the fungus grew out from the original plug for several mm, never touching the amended PDA . The appearance was that of a mushroom cap suspended over the soil.
- *Fusarium circinatum* was inhibited ,but did grow on all concentrations of Pageant ®. There were no differences between the concentrations of Pagaent ®.

Photographs

Photographs

Control at 11 days

Photographs

Proline ® Plug
after 11 days

Photographs

Pageant ® Plug
after 11 days

Follow- up

- After 11 days, when the plugs were placed back on unamended PDA.
- Purpose – to see if the fungicide was:
  1. Fungicidal - killed the fungus
  2. Fungistatic – inhibited the growth
- *Fusarium circinatum* grew from the all Pagaent ® amended media but not from any of the Proline ® amended media.

Photographs

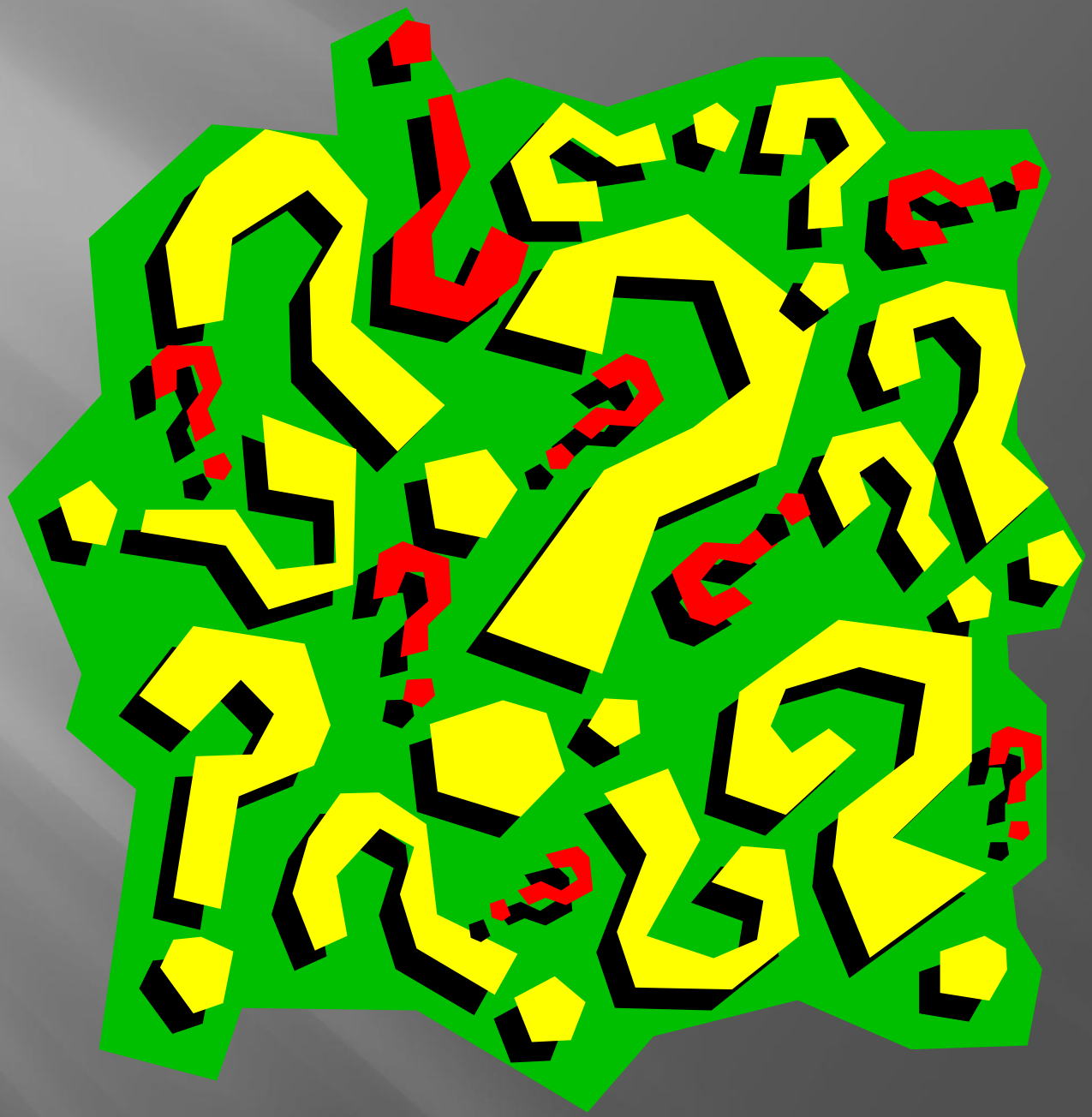
Proline ® (Left) and Pageant ® (Right) Plugs replated on unamended PDA

Photographs

Proline ® Plugs
Replated on
unamended PDA

Conclusions

- Proline®
  - No fungal growth on plates after 11 days.
  - All three rates controlled the fungus.
  - The fungus was killed on the plates and did not grow when placed on unameded PDA at the end of the study.
- Pagaent ®
  - Fungal growth was suppressed at all levels tested compared to the control.
  - There was no difference between the rates tested.
  - The fungus was not killed but started to regrow when placed on unamended PDA at the end of the study.



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