



# Cone and Seed Improvement Program BCMoF Tree Seed Centre

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## SEED SOAKING TANK SANITATION METHOD TO REDUCE RISK OF CONTAMINATION OF SEEDLOTS BY *FUSARIUM*

Conifer seed has been shown to harbour *Fusarium* inoculum (Axelrood et al, 1995) which may play an important role in damping-off and root rot in seedlings. A previous study has shown that during the running water soak, infested seedlots can contaminate other seedlots (Neumann, 1995). In addition, surveys of seed preparation equipment found *Fusarium* to be present within seed soaking tanks (Neumann, 1996). These studies suggest that sanitation of seed soaking equipment may help to prevent contamination of seed which may lead to reduced losses in the field.

Power-washing tanks with water was not found to be effective. As a result, trials using paint, hydrogen peroxide, bleach, and Ivory™ dishwashing soap were conducted to find an effective tank cleaning regime. The aluminum tanks tested in the study were used for running water soaks and ranged in volume from approximately 60 litres to 600 litres.

The first set of trials involved painting inner tank surfaces with a polyamide epoxy gloss coating to reduce inoculum levels. This treatment substantially reduced *Fusarium* on the sides of tanks, however the fungus was still detected on tank bottoms.

In another set of treatments, tanks were filled with 3% (v/v) hydrogen peroxide and soaked over the weekend. This treatment was very effective and required little labour but was considered to be prohibitively expensive because of the volumes of chemical required. One less expensive option may be to soak just the bottoms of tanks since this was the primary location of *Fusarium* inoculum.

The final set of trials involved scrubbing tanks with one of the following: 3% hydrogen peroxide solution, 0.5% bleach solution buffered to a pH of 7.0 or a 5% solution of Ivory™ dishwashing soap and hot (50 °C) water. All tanks were thoroughly rinsed with tap water following treatment. In most cases, all three chemical scrub treatments reduced *Fusarium* levels by nearly 100%.

Over all, the Ivory™ and hot water scrub treatment was considered to be the best option for tank sanitation. Although labour is required, the low cost of the soap product and worker safety issues determined that this treatment could most easily be incorporated into a tank sanitation regime.

Tank sanitation may play an important role in operations requiring the imbibition of conifer seed. Tanks or seed soaking containers that are not regularly cleaned may contribute to seed contamination. *Fusarium* spores remain viable for several years and the fungus may be able to proliferate on organic materials frequently found on tank bottoms.

## REFERENCES

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***Melody Neumann***

*Ecos Biological Consultants*

***David Trotter***

*Nursery Extension Services*

***David Kolotelo***

*Tree Seed Centre*

***Cone and Seed Improvement Officer***

[Dave.Kolotelo@gov.bc.ca](mailto:Dave.Kolotelo@gov.bc.ca) (604) 541-1683 extension 228