

## AN EVALUATION OF CHEMICAL APPLICATIONS FOR THE CONTROL OF COMMON SCAB DISEASE ON POTATOES.

H. Pung, and S. Cross

Serve-Ag Research, PO Box 690, Devonport, 7310, Tasmania

### INTRODUCTION

Common scab (*Streptomyces* spp.) is a serious disease of potatoes grown for processing, seed and fresh markets in some major production regions in Australia. Reduced yield and quality of potatoes due to common scab results in lower returns for growers. This is a serious concern in an increasingly competitive market.

There has been uncertainty in the potato industry on the significance of common scab infected seed in commercial seed lines and their potential in transmitting the disease onto new tubers. This study, therefore, seeks to determine and clarify the relevance of seedborne infections.

Initial studies have shown that seed treated with high concentrations of mancozeb was effective in reducing common scab disease caused by infected seed. High concentrations of mancozeb, however, may cause phytotoxicity when applied to freshly cut seed tubers. Therefore, following consultations with growers, further studies were conducted in this work to develop a safe and cost effective seed treatment method that could be incorporated into current commercial operations for the control of seedborne infections.

### METHODS

The relevance of infected potato seed in causing common scab on new tubers was examined in 37 seed lines of Russet Burbank in 1998. Seed lines from 3 potato cold storage facilities were selected at random, and 50 to 100 tubers from each seed line were washed and assessed for scab incidence.

The ability of seed tubers from infected seed lines to transmit common scab disease was examined in a pot trial using pasteurised potting mix. Tubers from the infected seed lines were sorted into 2 categories for this study - those with obvious common scab lesions and those without any common scab lesions. The trial design was a complete randomised block with 10 replicate pots.

Different mancozeb products, including those currently used by some growers, as well as new products, were evaluated in a pot trial for scab control. The feasibility of treating seed tubers prior to storage was also evaluated in this trial. Infected tuber seeds were treated with the appropriate product, and sown in pasteurised soil. The trial design was a complete randomised block with 10 replicate pots.

### RESULTS AND DISCUSSION

Many certified seed lines had common scab infected seeds - 49% seed lines had common scab, and the level of common scab in the seed lines ranged from 2 to 15 % of tubers infected.

Seeds that came from an infected seed line but had no common scab lesions could still transmit the disease onto new tubers. Common scab severity on new tubers increased when an increase occurred in the severity of the disease on seed tubers.

All mancozeb-based products, Pencozeb®, Dithane®, Tato dust® and Tato bark®, reduced the incidence and severity of common scab infections in new tubers. The level of common scab control achieved with mancozeb was similar to that achieved with Shirlan® and Maxim®.

**Table 1: The effect of mancozeb dust timing on common scab incidence and severity.**

Treatment*	%Tubers with scab incidence	%Tubers with deep scab
4 months before planting	2 a	0 a
24 hours before planting	13 a	5 a
Untreated control	86 b	73 b

\*Mancozeb used in the treatments has 75% active ingredient.

Within the same column, means followed by the same letter are not significantly different at the 5% level according to Duncan's Multiple Range Test.

Effective common scab control with the early application of mancozeb indicates that pre-storage seed treatment for common scab control is an option to growers (Table 1).

### ACKNOWLEDGEMENTS

HRDC and Australian Potato Industry Council funded this work.

David Rann of Simplot Australia is gratefully acknowledged for his assistance in this study.