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Seed Treatment and Fungicide Applications to Control Stem Blight on Potato
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Introduction

- *Phytophthora infestans* is often brought to the field by latent infected potato seed tubers.
- Pathogen grows and sporulates on tubers at high soil moisture after rainfall.
- Spread of sporangia via soil water causes stem blight on neighbouring plants.
- The precise onset of the first infection steps cannot be calculated yet.

Aim: Reduction of stem blight and spread of the disease independent from date of epidemics onset.

Materials and Methods

23 field trials were carried out with seed tubers inoculated by injection of zoospores (Figure 2). Either a single tuber was used or an inoculated tuber was planted adjacent to a healthy one.

To reduce primary stem blight, tubers were treated with 120 g copper/ha (copper hydroxide; trade name: Cuprozin flüssig) or 2.0 kg/ha of a systemic fungicide (Metalaxyl M + mancozeb; trade name: Ridomil Gold) prior to planting. In a third approach the systemic fungicide was applied to plants in the field (2.0 kg/ha) when *Phytophthora* was positively detected in stems via Polymerase Chain Reaction (PCR).

Results

Copper seed treatment nearly equally often led to a high effect (reduction of stem blight >50%), a moderate effect (reduction of stem blight between 10 and 50%) and a low effect (reduction of stem blight <10%).

A seed treatment with a systemic fungicide caused a high effect in 52% of all experiments and a moderate effect in 39%. A low effect only occurred in 9% of the experiments.

An early field application of the systemic fungicide led to a reduction of stem blight >50% (high effect) in 70% of all experiments, while no low effect occurred (Figure 3).

The average reduction of stem blight by a copper seed treatment was 34%, and 54% with a systemic fungicide seed treatment. The highest reduction of 65% was achieved by the early field application of a systemic fungicide (Figure 4).

Summary

- Best control of stem blight was achieved by early application of systemic fungicide.
- Seed treatments also reduced stem blight, with a systemic fungicide being more effective than a copper treatment.
- By combining a seed treatment with an early fungicide application a farmer can obtain effective stem blight management.