TRACKING THE DISPERSAL OF *BOTRYTIS CINEREA* IN THE VINEYARD SYSTEM

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A system for tracking the movement of spores was developed and evaluated using strains of *Botrytis cinerea* deficient in nitrate reductase. To determine whether the isolates would be able to survive in the field long enough to recapture, UV tolerance and pathogenicity of grape tissue were compared, and found to be similar to wild-type field isolates. Three spore trapping methods were then evaluated: surrogate susceptible tissue (SST), washings of surrounding vine tissue and trap agar plates. Contamination and lack of resolution ruled out using SST as a trap method. Washing surrounding tissue gave high resolution, but was labor intensive, and sensitive to contamination and presence of agrochemicals. Trap agar plates were found to be less labor intensive, gave higher resolution and were relatively free of contamination. When dispersal of the marker strains was evaluated in the field, the majority of spores were found to land on the ground within 90 cm of the ground point source. Spore movement from the ground to the canopy was patchy, possibly because of the turbulent wind patterns observed during field evaluation.

FORMULATIONS FOR DELIVERY OF MICRO-ORGANISMS TO SOIL

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Micro-organisms have the potential to control or prevent many soil inhabiting pests and diseases. Their use, however, has often been limited by poor survival of bulk cultures and rapid loss of viability once added to the soil. To overcome these problems we have developed thermostable biopolymer formulations that allow microbial storage and distribution without significant loss of viability. Once stabilised, beneficial micro-organisms can be incorporated into suspensions, powders or granules which provide different options for delivery. Micro-organisms in granules can be applied directly to the soil using conventional seed drills. Incorporation of micro-organisms into granules allows the release rate to be manipulated to meet the needs of different plant production systems. Where a synchronous pest or disease attack needs treatment, a rapid release formulation can be applied. When the activity is required against an organism that is active throughout the life of the crop, a slow release formulation can avoid the need for multiple applications. Where pest activity is associated with a late stage of crop development, or application is only possible at planting, a delayed release will provide the best crop protection. Some of our recent developments in controlled release formulations are presented.