

Industry Liaison Office



Research at Work.

Fungal inoculation of native plants

A 'natural systems' methodology to land reclamation

The Expertise

Mycorrhizal fungi inoculation of native plants for use in restoring mine sites and other disturbed landscapes affected by development, offers an 'all natural systems' alternative to conventional fertilizer-intensive land reclamation practices. This is emerging science, where the well documented benefits of mycorrhizae combine with indigenous species applications.

Symbiotic (mycorrhizal) fungi is first collected from ecosystems adjacent to the reclamation site, then inoculated onto the root systems of greenhouse grown native grasses, shrubs and tree seedlings. The fungi confer increased resistance to residual soil toxins and disease, reducing stress and improving plant survival rates.

Conventional land reclamation practices for mine sites and forestry operations often require regular fertilizer and pesticide treatments. Proponents responsible for land reclamation can realize substantial savings by inoculating with mycorrhizal fungi, as this methodology acts as a 'natural fertilizer'. Residual fertilizer loss for conventional methodologies can cost businesses thousands of dollars each year. Additionally, plant failure rates are significantly decreased, helping to reduce costly replanting.

This methodology limits associated residual fertilizer runoff into local watersheds, an important consideration in overall ecosystem health. The use of indigenous plants also has strong public appeal as it increases biodiversity while returning disturbed sites to ecologically sustainable systems.

Stage of Development

Exploratory research. Seeking research sponsors interested in 'all natural systems' reclamation practices using indigenous plants.

Applications

- Mining companies obligated to meet sanctioned regulatory requirements for site clean up
- Forestry Industry, including sawmill and pulp and paper operations responsible for reforestation
- Federal agencies responsible for crown land reclamation

Advantages

- Per hectare cost savings up to 80% vs conventional reclamation practices
- Marked improvement in seedling growth and survival rates
- Broad public appeal in returning site to natural state using native plant species

Researcher

Dr. Gavin Kernaghan, Associate Professor, Department of Biology
Mount Saint Vincent University

Contact

Gina Funicelli, Director, Industry Liaison Office
t. 902.491-6297 e: gina.funicelli@msvu.ca