



MIKRO-TEK INC.
MICROBIAL TECHNOLOGIES FOR THE ENVIRONMENT
AGRICULTURE • MINING • FORESTRY

The Company

Mikro-Tek, an environmental [biotechnology](#) company located in Timmins Ontario, was established in 1990 and has developed a technology to increase [carbon sequestration](#) through the application and management of naturally-occurring soil fungi called [mycorrhizae](#). A properly matched symbiotic mycorrhizal association allows the host plant to increase moisture and nutrient uptake from the soil, resulting in increased plant survival and growth, which also increases the carbon sequestration potential of the site.

The technology was first proven in [domestic forestry](#) projects with data, collected from approximately 10 million forest seedlings planted across Canada, demonstrating average increases in survival and/or growth of 25%. These field results were used to certify that the claims made are accurate and the product is safe for use, and to obtain commercial product registration as a Microbial Supplement under the Fertilizers Act from Agriculture Canada.

In 1999 Mikro-Tek undertook a \$2.7 million project, with partial funding from Canada's Climate Change [Technology Early Action Measures \(TEAM\)](#), to demonstrate and assess the technology's application in forestry projects in Chile. Indigenous species and strains of mycorrhiza were collected in-country, cultured, screened and compared to others for effectiveness. The mycorrhizal species and strains that showed the greatest increase in nutrient uptake and growth on the targeted tree species were then mass-produced using proprietary biotechnology procedures developed by Mikro-Tek. Approximately one million nursery seedlings were inoculated with mycorrhizal strains, and in 2001 were planted on a number of sites in Chile to compare field performance between inoculated and control plots. In 2002, first year field measurements showed statistical increases in growth from 23% to 70% for Eucalyptus, 41% to 128% for Radiata pine, and 113% to 125% for Quillay. [[pdf report](#)]

TEAM contracted independent consultants to verify the technology using field data collected in Canada and in Chile, and to model the resulting increases in carbon sequestration in order to provide assurance that the technology is scientifically verifiable using Kyoto Protocol guidelines. They reported that Mikro-Tek's mycorrhizal strains and inoculation procedures had, to that date, resulted in the sequestration of an estimated additional 308 ktCO₂e in Canada, and 56 ktCO₂e in Chile, with a yearly potential of 10,950 ktCO₂e in the Canadian forestry sector, and 9,090 ktCO₂e in the Chilean forestry sector. [[PDF Report Executive Summary](#)]

Based on these research results, sequestration projects have been initiated with landowners in Chile and approximately 3 million seedlings have been inoculated to date, to afforest approximately 2,400 hectares of under-productive grazing land. Mikro-Tek has carried out an in-country baseline study and is in the process of registering these projects with Chile's [Clean Development Mechanism \(CDM\)](#) office to bring them to the international CDM Executive Board for registration as [Certified Emission Reductions \(CERs\)](#). Mikro-Tek has also inoculated 16.6 million seedlings in the Canadian Boreal forest to reforest approximately 9,700 hectares, and the emission reductions generated in these projects will be registered as soon as the Canadian Domestic Plan is finalized and a registration process and entity are established.

Long-term field studies have demonstrated that land management practices such as restoring degraded lands and modifying tilling practices can increase the amount of carbon sequestered in the soil rhizosphere. Mikro-Tek is now building on results in the forestry sectors to develop a similar application for enhancement of soil organic carbon sequestration in grassland [reclamation and agricultural](#) projects. As part of a \$3.9 million contract with [Sustainable Development Technology Canada \(SDTC\)](#), Mikro-Tek is collecting field data in the agricultural and reclamation sectors to qualify and verify the inoculation technology's ability to increase soil organic carbon sequestration. Initial test plots have been established in agricultural and mine land reclamation sites in Northern Ontario and additional sites are planned for establishment on highway, pipeline and electrical transmission right-of-way corridors.

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Mikro-Tek has now formed “C-Trade™ Carbon Pool” to provide companies designated as large final emitters with an opportunity to offset their carbon emissions by investing in a pool of aggregated sequestration projects in these three sectors – Domestic Forestry, CDM Forestry, and Agriculture/Reclamation. As of April 2004, C-Trade™ held assets of 1,471,000 tCO₂e from projects implemented in Canada and Chile. A consortium of investors in C-Trade™ will contract Mikro-Tek to establish projects, and to register, certify and distribute the resulting emission reductions to the unit holders on a pro-rated basis.



The Canadian GHG Challenge Registry ® is Canada's only publicly accessible national registry of voluntary greenhouse gas baselines, targets, and reductions based on individual entities and/or facilities. The objective is to Challenge Canadian companies to undertake voluntary actions that will contribute towards the reduction of Canada's GHG emissions. The Registry records the actions planned and executed by

registrants, providing them with the opportunity to exchange information and to share best practices with their peers. Registered reports are scrutinized and the most rigorous reporters are assigned Bronze, Silver or Gold Champion level Reporter status.

Since submitting their first action plan in 2000, Mikro-Tek has consistently been awarded VCR Gold Champion level reporting status.