



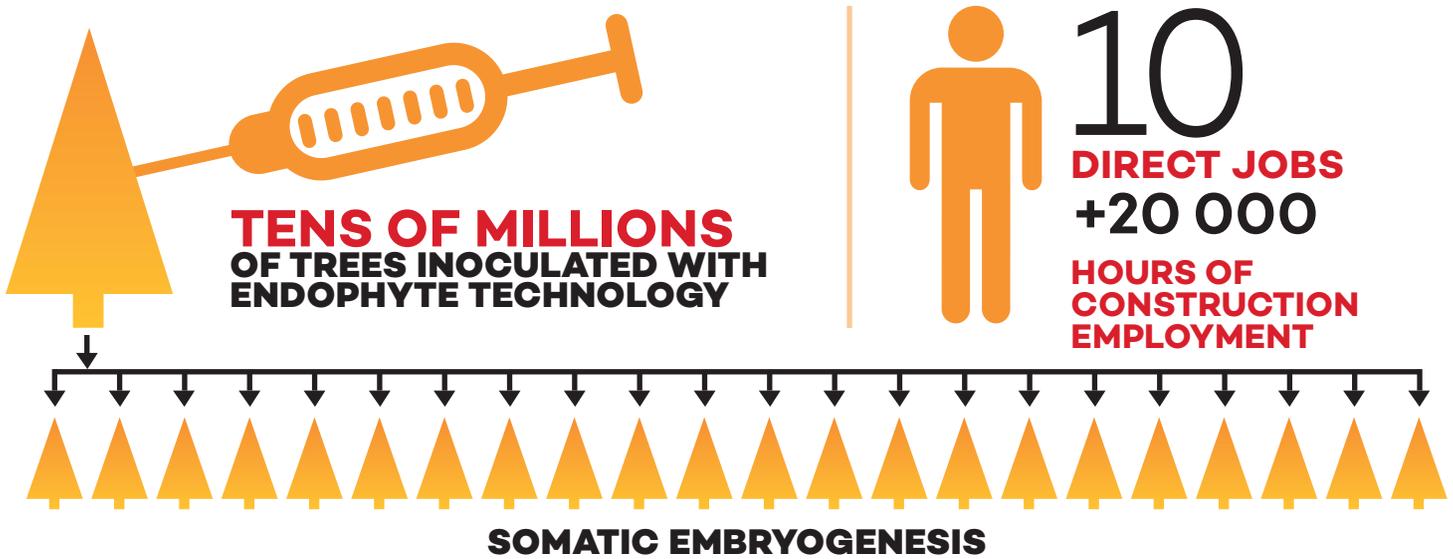
# HEALTHIER TREES GROWN FASTER

Irving Pulp and Paper has developed Canada's first large-scale advanced seedling plant.

- incorporates both the somatic embryogenesis process and Irving's patented Endophyte-Enhanced Seedling Technology that enhances the seedlings' natural tolerance of insect and fungal pests
- Somatic Embryogenesis techniques allow multiplication of many highly selected conifer varieties
- the new lab will produce specific naturally occurring fungi (endophytes) which live inside trees across our region. The fungi produce chemical compounds which improve the host tree's tolerance against insect species such as the spruce budworm and diseases like white pine blister rust. This is a world-first approach to improving trees' natural pest tolerance



## UTILIZING CANADA'S FORESTS: RESULTS EXPECTED



## INNOVATING WITH WOOD

Irving's state-of-the-art 5,320 sq ft manufacturing facility is used for the production of conifer somatic seedling varieties and endophytic fungi. It contains:

- unique automation equipment and advanced climate controlled growth room for mass production of up to **4 million somatic seedlings per year**
- sophisticated fermentation and bioreactor equipment to produce sufficient quantities of inoculum to treat **tens of millions of seedlings per year** with beneficial conifer fungi

## POTENTIAL OPPORTUNITIES

- ECONOMIC: INCREASED QUALITY AND QUANTITY OF WOOD FROM THE SAME FOREST PLOT**
- COMMUNITY: CONTINUED EMPLOYMENT AND FINANCIAL STABILITY IN A RURAL RESOURCE-DEPENDANT COMMUNITY**
- ECONOMIC: EXPORT POTENTIAL WITH PATENTS**
- MARKET: SOMATIC EMBRYOGENESIS PROCESS IS APPLICABLE TO A NUMBER OF FOREST SPECIES**



**IRVING PULP & PAPER IS ENGAGED IN MANUFACTURING PULP FROM WOOD AND OTHER MATERIALS**

**PROJECT LOCATION: SAINT-JOHN, NEW BRUNSWICK**

*Irving is proudly Canadian — from research to world-first discovery to commercialization.*

— Greg Adams, Manager, Research and Development J.D. Irving, Limited

**Investments in Forest Industry Transformation Program:** In 2010, Natural Resources Canada's Canadian Forest Service created the Investments in Forest Industry Transformation Program (IFIT) to support Canadian companies to develop and grow markets for new and innovative high-value products using Canada's forest resources. *For more information [www.nrcan.gc.ca/forests/federal-programs/13139](http://www.nrcan.gc.ca/forests/federal-programs/13139)*

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