



Ontario Centres of
Excellence

Where Next Happens

ONTARIO CENTRES OF EXCELLENCE

FOURTH ANNUAL HAZELNUT SYMPOSIUM

Brantford, Ontario,
March 19, 2013

Ontario Centres of Excellence is a member of



Ontario Centres of Excellence (OCE) is funded by the Government of Ontario.

ABOUT ONTARIO CENTRES OF EXCELLENCE (OCE)



Ontario Centres of
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Where Next Happens

Established by the Ontario government in 1987

- > Created to bridge the gap and create partnerships between college and university research departments, research hospitals and Ontario industry**
- 2004 – seven independent centres amalgamated into OCE Inc.**
- 2008 – OCE added a Centre for Commercialization of Research (CCR)**
 - > Supported with federal funds**
- 2010-2011 – new mandate from Ministry of Research and Innovation**
 - > New Leadership**
 - > Regional structure with priority sector focus**
 - Aligned with Ontario's Innovation Agenda**
 - Streamlined OCE to further increase efficiency**
 - > Introduction of the Ontario Network of Excellence (ONE)**

WHAT WE DO



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Invest in Ontario's tomorrow

OCE drives the development of Ontario's economy by helping create new jobs, products, services, technologies and businesses.

- **Leverages the full capacity of Ontario's research institutions in order to help technology-based companies create jobs and prosperity by commercializing Ontario-based research discoveries.**
- **Provides real-world experiences for Ontario's next-generation of innovators and entrepreneurs.**
- **Supports the development of a world-class technology transfer system.**
- **Commercializes publicly-funded academic research and expands Ontario's network of Canadian and international partners.**

OCE ACCOMPLISHMENTS



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Focused on Commercialization Job Creation – Growth

- **OCE invested \$21.1 million in 477 projects that attracted \$40.7 million in investment from industry partners**
- **Projects involved a record number of 47 colleges, universities and research hospitals**

Federal Program Areas

- > **2008 funding from NCE to help create CCR**
- > **Continuing ability to attract Federal funds**
 - **OCE facilitated 30 NSERC ENGAGE grants totaling \$748,000 for clients**
 - **OCE NSERC IRDF (new)**
 - **SmartStart (Fed Dev) (new)**

New Initiatives 2011:

- **Social Innovation**
- **Experiential Learning**
- **Energy Asset Map**
- **IBM Initiative - High Performance Computing**



COMMERCIALIZATION

Sources of Finance

Government Research Funding

Ontario Centres of Excellence Programs
IACP CCR

Angel Investors

Venture Capital

IPO / Other

Banks

Industry



INCOME

- Revenue
- Jobs
- Start-ups

Stages of Commercialization of Innovation

Fundamental /
Pure Research

Applied
Research

Technology &
Product
Development

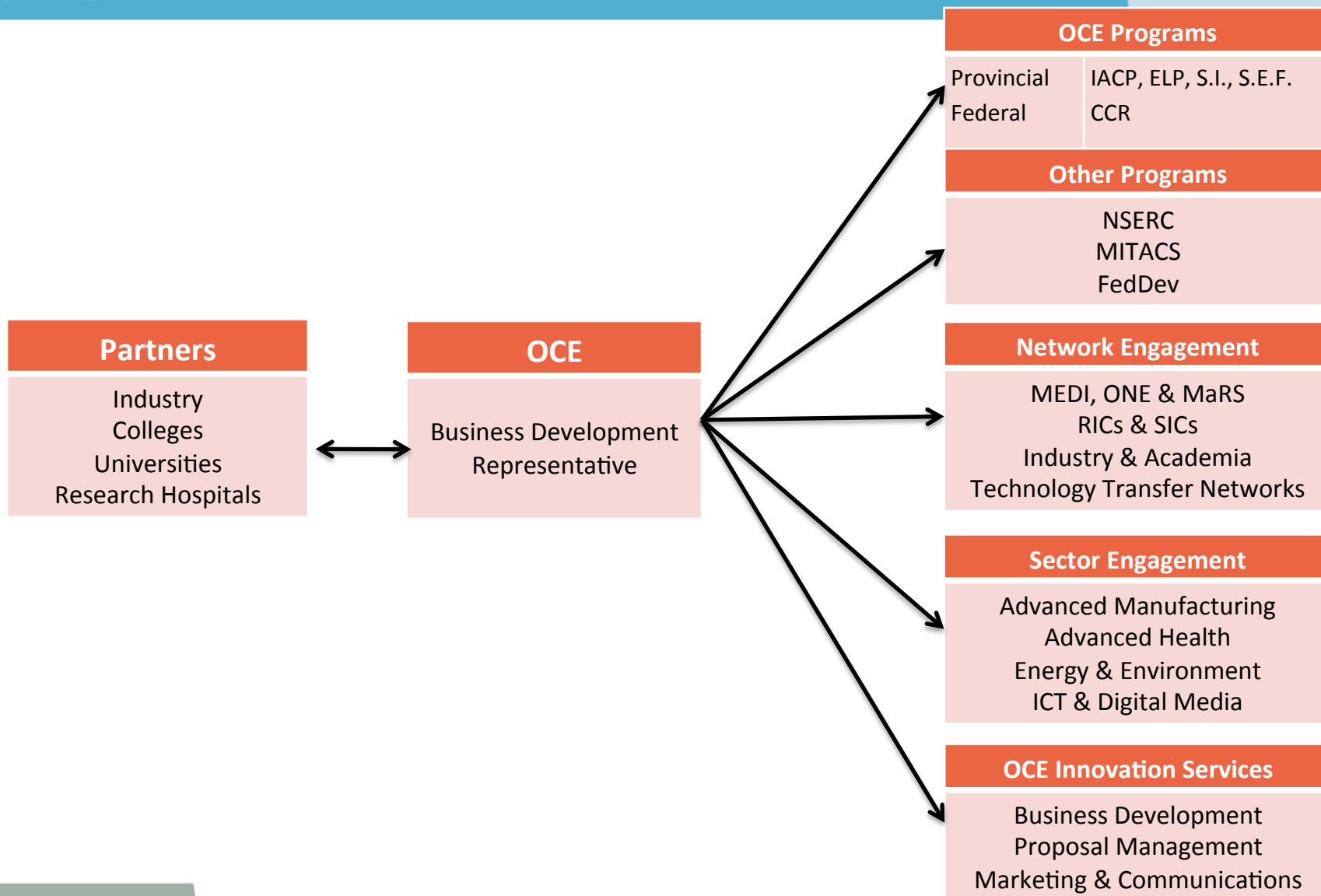
Commercial
Demonstration and
Initial Operations

Market Entry &
Volume
Production



IDEA

OCE ENGAGEMENT



OCE Program Suite

2012-13

- Technical Problem Solving
- Collaborative Commercialization
 - First Job
- Market Readiness 1, 2, 3
 - Connections
 - TTP IPOP
- TTP Infrastructure
 - TTP CONII
 - ELP
 - HPC SOSCIP
- Social Innovation
- Special Energy
- Sector Initiatives
 - CCR
- Embedded Exec
- Access to capital
- New Entrepreneur
- Comm. Assistance
 - Smart Start
- Martin Walmsley
- OBI Fellowships
- NSERC IRDF

simplified



2013-14

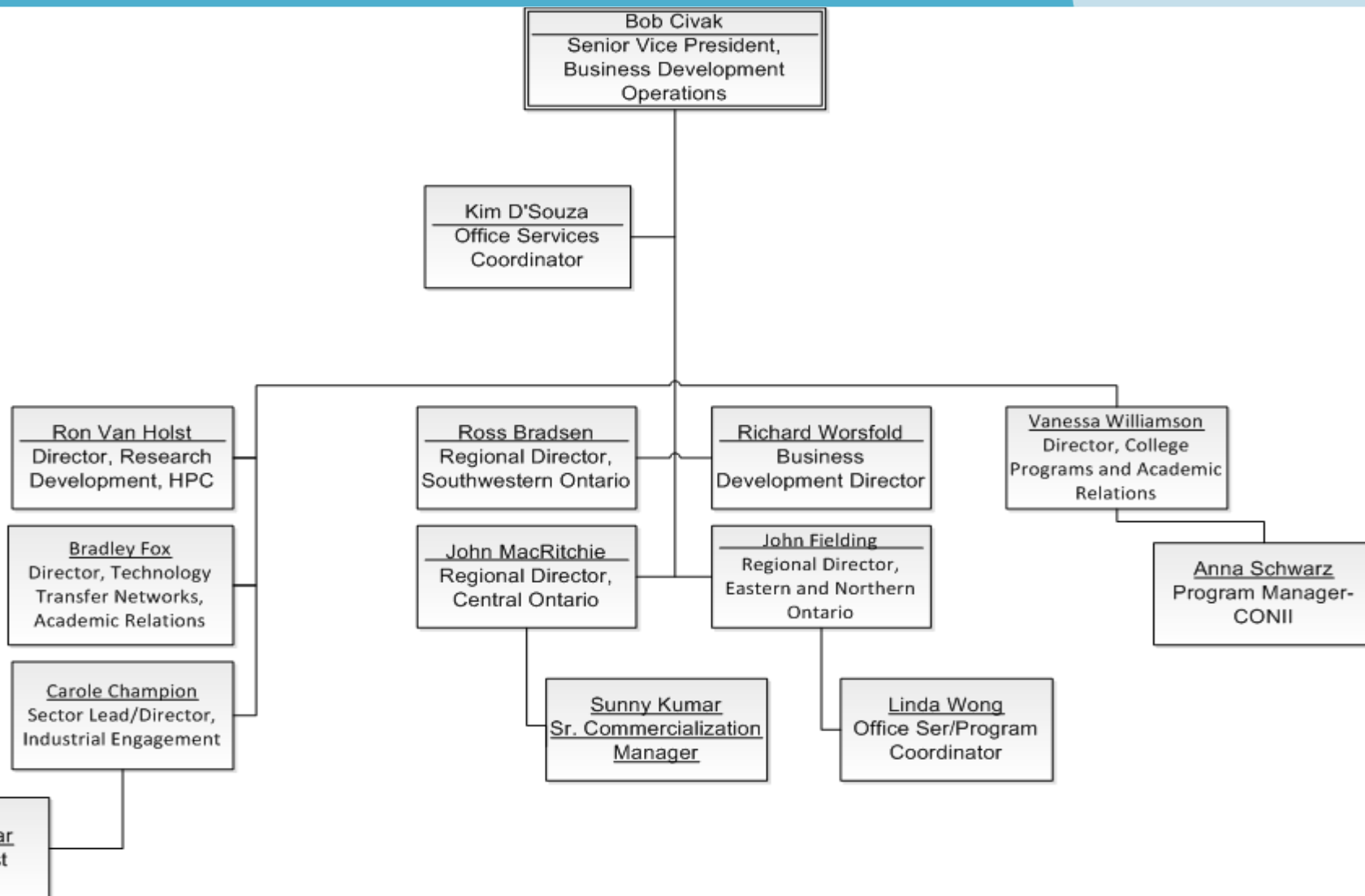
- Collaborative Commercialization
 - Market Readiness 1, 2
 - TTN IPOP
 -
 - TTP CONII
 - (ELP)
 - HPC SOSCIP
 - (Social Innovation)
 - Special Energy
 - Sector Initiatives
 - CCR
 - Embedded Exec
 - Access to capital
 - New Entrepreneur
 - Market Readiness 3
 - Smart Start
- Entrepreneurship Fellowships

BUSINESS DEVELOPMENT OPERATIONS



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HAZELNUT AND RAPID TREE PROPOGATION PROJECT



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PROJECT PARTNERS (CASH)

**Ontario Centres of Excellence
(\$283,743.67)**

Ferrero Canada (\$1,400)

**Society of Ontario Nut Growers
(\$7,400)**

PARALLEL PROJECT

**OMAFRA (New Directions
Program)**

PROJECT PARTNERS (IN-KIND)

Ferrero Canada (\$525,000)

Earthgen International (\$45,000)

**Vineland Research and Innovation
Centre (\$49,800)**



- **Ontario-grown hazelnuts**
 - **Locally adapted Hazelnut varieties**
 - **Micro-propagation techniques**
 - **Nursery technologies**
- **Unique combination for Ontario**
- **Unique competitive advantage**
- **Potential to become largest horticultural crop in Ontario**
- **Large value-chain with long-life span**

“FOOD IN THE NORTH”

- **A series of projects that have been ongoing for 20 years**
- **Two spin-off companies**
- **Several new products for companies**
- **Eighteen year source of revenue for a Cambridge company**
- **New project directions will result in several spin-offs; food security in northern communities, jobs in the communities**

EXAMPLE PROJECT

Nutrition North Canada Board



Agence spatiale
canadienne

Canadian Space
Agency

UNIVERSITY
of GUELPH



NSERC
CRSNG



COM DEV®





Innovative Technologies in Challenging Environments (INTICE)

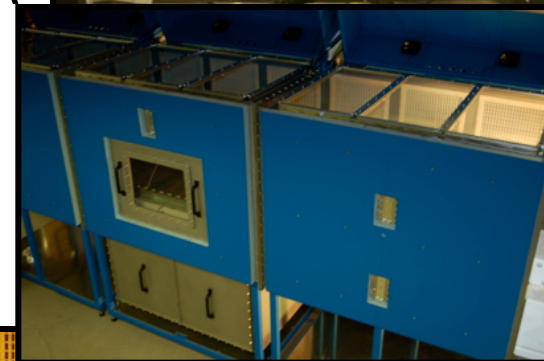
- The “pull” of technology requirements for human space exploration yields significant benefits to Northern Communities
- Application of our technology developed for space, is particularly well-suited for use in Northern Canadian communities with similar inherent climate challenges and energy limitations





World Authority on ALSS

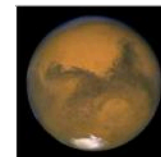
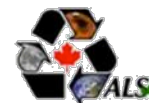
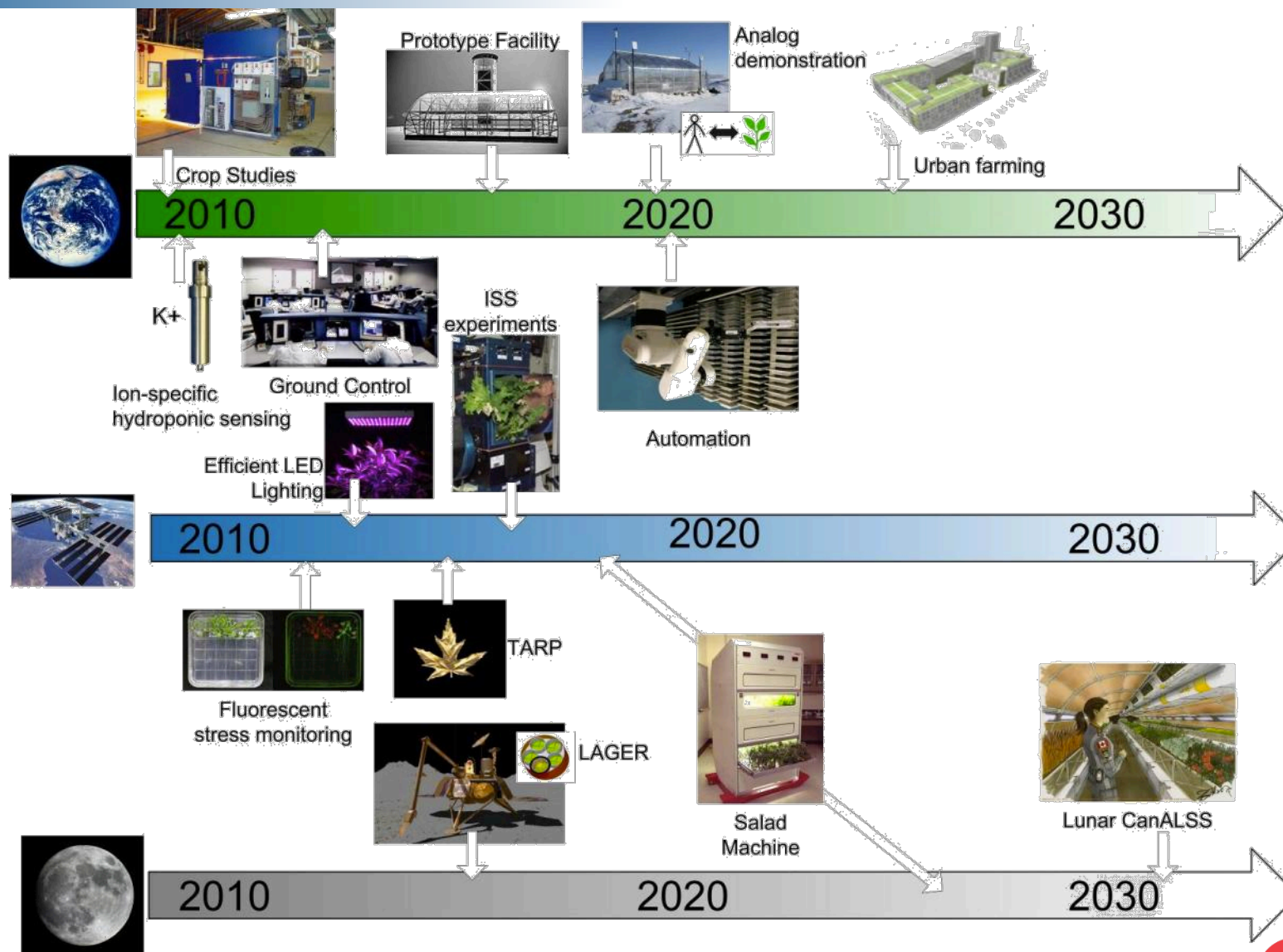
- ESA MELiSSA program includes Canadian Higher Plant Chamber as a key component.
- \$15 M world-class R&D facility supported by COM DEV, CSA, NSERC, OCE, and OMAFRA
- International collaborations (NASA, IBMP Russia)



COM DEV



CanALSS Roadmap Overview



COM DEV

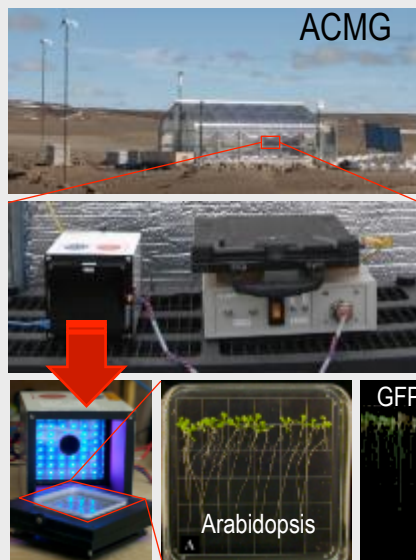
Technology Transfer

Current Analog & ISS Deployments

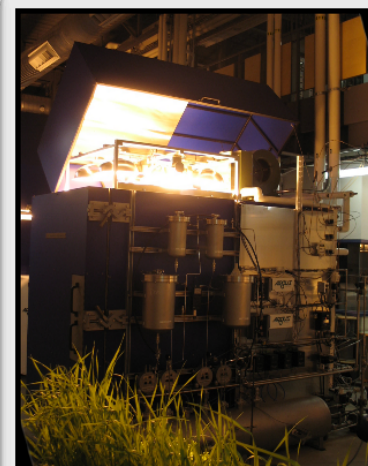
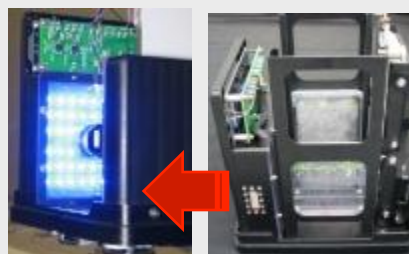
INTICE

Food Production

The technological
 'push' towards
 advanced life
 support systems
 is complemented
 by the market
 pull of Canada's
 greenhouse
 industry,
 Northern
 Communities,
 and urban
 centres



Orbit -ISS APEX



COM DEV


 COM DEV

Our Vision

- Greenhouses are ancient technology
- We will work with Northern communities to develop a cost-effective food production system based on transfer of key technologies developed for Advanced Life Support in Space.
 - High efficiency multi-wavelength LED lighting for programmable photo-chemical control of plant morphology and growth rates
 - Inter-canopy light distribution for maximum density and photosynthetic efficiency
 - Fluorescent optical monitoring systems
 - Automated hydroponic monitoring and remediation systems
- The product will be highly reliable, insulated, scalable (modular), volume- and energy-efficient.
- Continuous improvement with upgrades from our ongoing space research program, in collaboration with Northern receptors and users.



Feeding Northern Communities

- Market study and preliminary concept design
 - Location of pilot facility: CHARS? Iqaluit?
 - What support infrastructure is available in communities?
 - Skill-sets of potential employees?
 - Abandoned mine shafts, shipping containers?
 - Cost of power?
 - What scale of facility is economically viable?
 - Preliminary crop selection
- Pilot facility development
 - Seek feedback from operators & users





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DiscoveryTM
Ontario Centres of Excellence
ocediscovery.com

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2013

SAVE THE DATE

May 27-28, 2013

Metro Toronto Convention Centre



Ontario



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Where Next Happens

March 25, 2013

THANK YOU QUESTIONS

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