AGRITECH INNOVATION CHALLENGE I 2016

INNOVATION CHALLENGE

Greenhouse Vegetables

Introduction

- 309 hectares and 64 operations in 2015 (BCVMC)
- "Greenhouse-grown fresh produce continues to gain market share on field production"
  - High quality product
  - Productive; 8-fold ⇧ relative to field tomatoes (Pydynokwski et al. 2008)
  - Consistent, year-round supply
  - Sustainable production
  - Efficient water use; 77% ⇩ relative to field tomatoes (Pydynokwski et al. 2008)

- **Scenario #1 – Handling Crop Debris**
  - **Innovation Challenge**
    - An innovative, economically viable solution to produce plastic-free crop debris
      - Plant support system that is compostable, strong and thin, or
      - Mechanized system to separate plastic contaminants from crop debris
  - Innovative solution to plastic ground cover and other plastic waste

- **Scenario #2 – Cost of Energy**
  - Fuel (NG) accounts for 13% of operating costs
  - $28 million per year for the sector
  - Fuel ⇨ heat + CO_2 (fuel gas)
  - Carbon dioxide 'fertilization' makes the plant more generative
    - 55% ⇧ in fruit set (peppers)
    - 30% ⇧ in crop tonnage (tomatoes, peppers)
  - But, system efficiency declines when the demand for heat is low
  - Industry adopts technology to reduce fuel use:
    - Heat recovery condensers
    - Thermal screens
    - Heat storage tanks
    - Biomass boilers
    - Cogeneration
  - **Innovation Challenge**
    - An alternative source of CO_2 that is economically viable and has a small carbon footprint
      - Atmospheric CO_2, industrial or landfill sources
    - New energy efficiency technology or alternative fuels to reduce the cost of energy

The sector is also interested in innovative solutions related to:

- **Mechanization** of grading and packing lines
- **Pest Management** for Pepino Mosaic Virus, Hairy Root Disorder
- **Nutrient Management** to refine fertilizer programs

Growing Forward 2 A federal-provincial-territorial initiative
BCIC BC INNOVATION COUNCIL
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