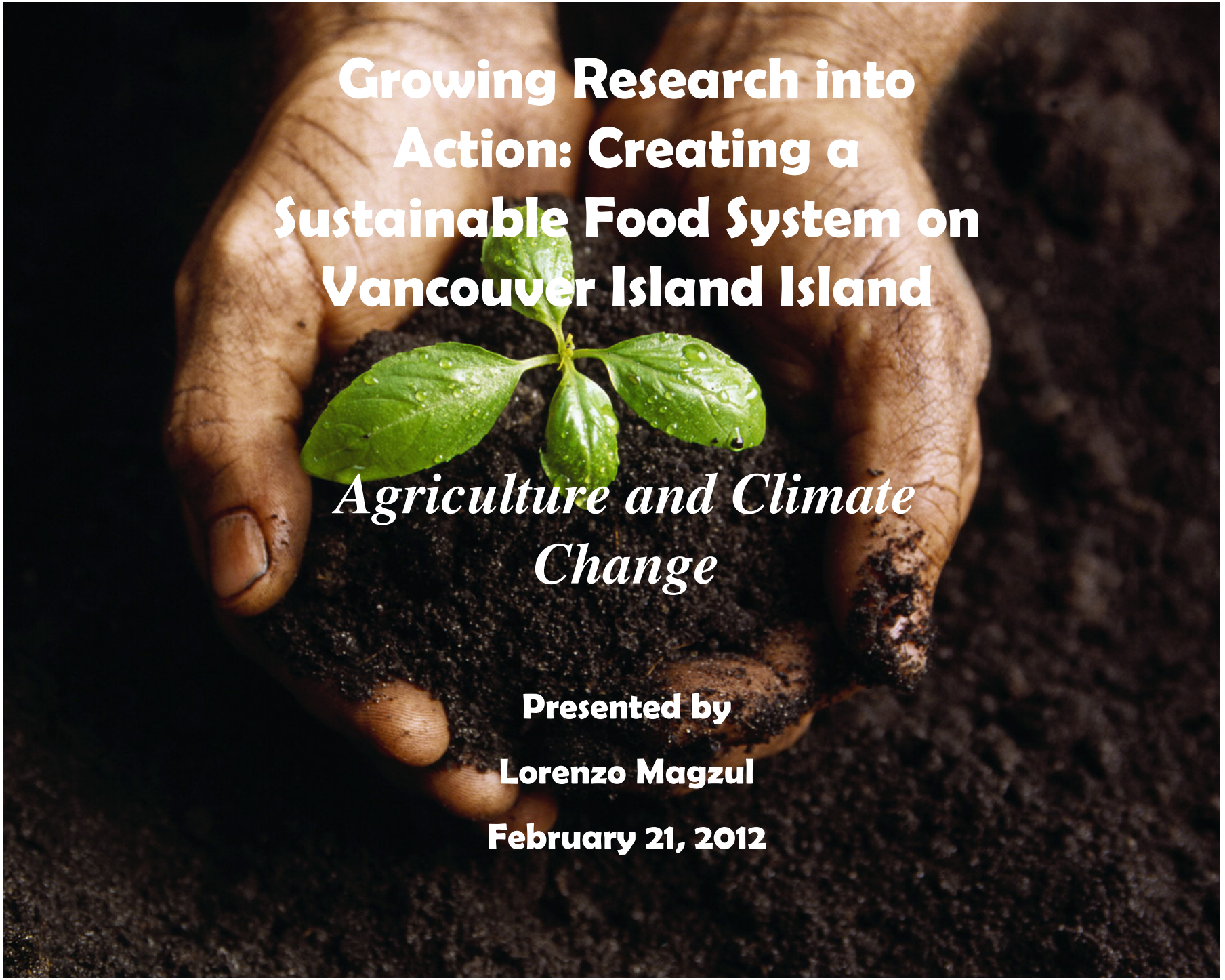

Growing Research into Action: Creating a Sustainable Food System on Vancouver Island Island

Agriculture and Climate Change

Presented by

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February 21, 2012

Strategy three: Agriculture and Climate Change

Leslie Puska, Liz Clements and Kelsey Chandler (VIU)

What do we know about how climate change will impact agriculture on Vancouver Island, and what are we doing about it?

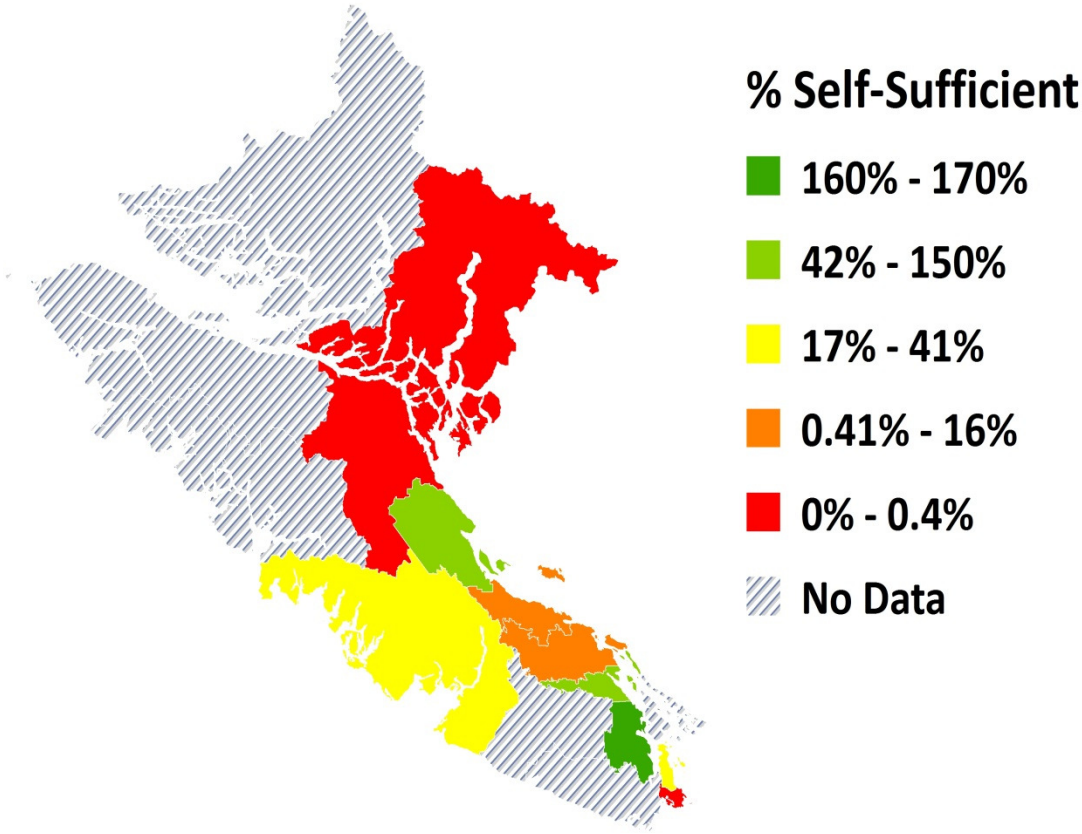
Why this matters…

- Better understanding of climate change impacts on island agriculture
- Engagement in discussions of implications and needed actions

BC food system

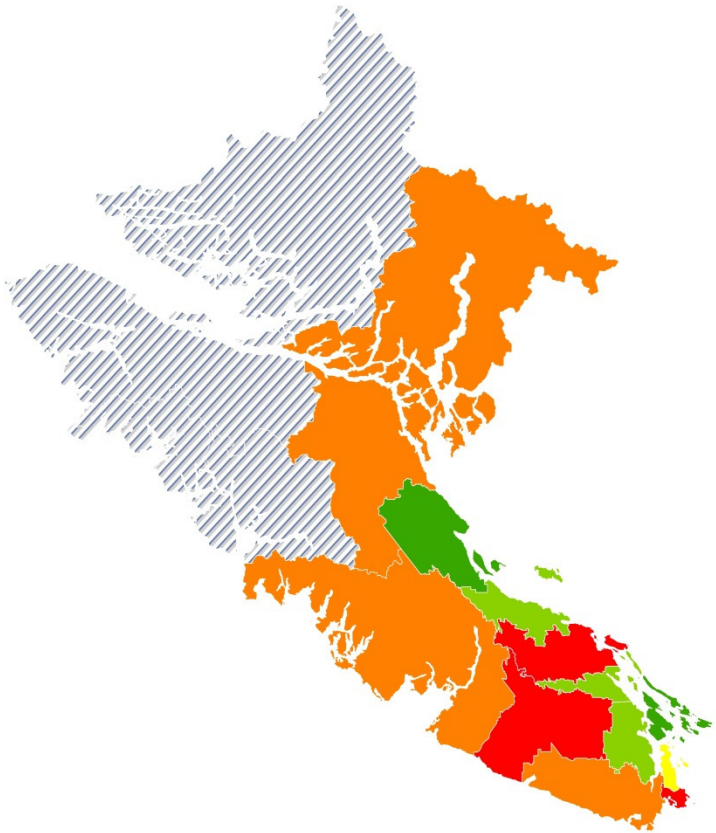
- 50 years ago 85% of food consumed on VI produced locally
- Today only 5% produced locally
- 13% of BC farms are on VI
- 86% of farms on VI report less than $50,000 in farm receipts
- Only 5% of land in BC is suitable for agriculture

Preliminary Results: Dairy Self-Sufficiency(Ostry 2009)



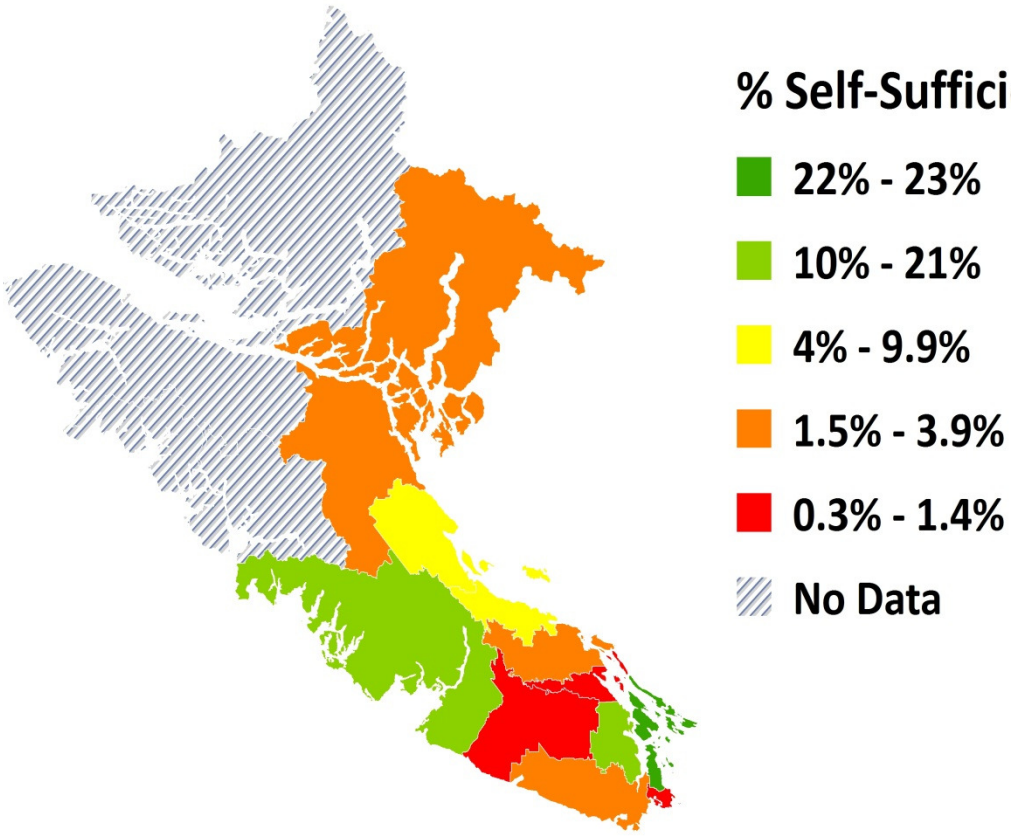
LHA	Dairy SSR
Greater Victoria	0.0%
Sooke	x
Saanich	24.3%
Gulf Islands	0.0%
Cowichan	169.5%
Lake Cowichan	x
Ladysmith	128.5%
Nanaimo	7.8%
Qualicum	15.7%
Alberni	40.7%
Courtenay	152.4%
Campbell River	0.4%
TOTAL	**35.50%**

Preliminary Results: Fruit Self-Sufficiency(Ostry 2009)



LHA	Fruit SSR
Greater Victoria	1.0%
Sooke	4.1%
Saanich	7.4%
Gulf Islands	75.0%
Cowichan	17.3%
Lake Cowichan	2.5%
Ladysmith	8.9%
Nanaimo	2.9%
Qualicum	8.9%
Alberni	4.6%
Courtenay	17.6%
Campbell River	3.4%
TOTAL	**8.1%**

Preliminary Results: Vegetable Self-Sufficiency (Ostry 2009)



LHA	Vegetable SSR
Greater Victoria	1.1%
Sooke	3.4%
Saanich	23.2%
Gulf Islands	21.9%
Cowichan	15.7%
Lake Cowichan	0.3%
Ladysmith	1.4%
Nanaimo	2.0%
Qualicum	5.1%
Alberni	24.3%
Courtenay	10.7%
Campbell River	4.3%
TOTAL	7.3%

BC food system

- BC imports 70% of fruits and vegetables from California
  - California: increase in average temperature, decrease in rainfall, flooding
- VI loss of processing and storage facilities
  - Seasonal surplus exported or waste

Climate change - global

- Temperature and precipitation change in last 100-150 years
  - 11 of the 12 years from 1995 to 2006 warmest years (since 1850)
  - Global mean temperature over the last 100 years increased by 0.74 C (greater in northern latitudes)

Climate change - global

- Precipitation
  - From 1900 to 2005 precipitation increased in eastern North and South America; decreased in the Mediterranean, southern Africa and southern Asia
  - Areas affected by drought increased since the 1970s

Climate change - global

- Climate related events
  - Melting of glaciers
  - Hurricanes, storms
  - Heat waves, droughts

Agriculture and climate change

- Agricultural GHG, carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O)
- In 2007 3.5% of BC's greenhouse gas emissions were attributed to agriculture
  - ruminant digestion, manure management, agricultural soils (soil disturbance and fertilizers) and cleared range / deforestation
  - Does not include food processing, energy consumption on farms and transportation associated with food production

BC Climate change

- Recent decades increase in temperature (0.7 C in winter and 1.6 C degrees in summer)
  - Wetter winters and spring
  - Drier summers
  - Specially in south coast, including VI
- Unpredictable weather affect small-scale farmers

BC Climate change

- Projected climate by 2055
  - Winters will be 2-4 C degrees warmer
  - Summers 2-3 degrees warmer

BC Climate change

- Climate related changes
  - Projected 13% decrease of precipitation in summers; increase of 6-9% of precipitation in fall and winter
    - Food production affected by spring floods and dry summers
  - Change in snowpack levels and melt time affect seasonal stream flow
    - Recent floods in Comox Valley-2006 and 2009; Cowichan Valley-2009; Port Hardy-2010.

BC Climate change

- Climate related changes
  - Increase in sea level rise
    - Saltwater intrusion into fresh water: impact on quality and quantity of water supplies for drinking and irrigation
  - Droughts, warmer and drier summers; 2006 Tofino drought, 2009 east coast of VI

BC Climate change

- Climate related changes
  - Potential for new pests and diseases

- Opportunity for growing crops in some regions
- Agriculture constrained by soil suitability and water availability

What do we need to do?

- Build Awareness
  - Improve data collection and dissemination on CC specific to VI
  - Improve knowledge of risks and opportunities related to CC on VI
  - Lobby politicians to support adaptation measures by farmers on VI
- Build Capacity
  - Diversify production
  - Increase accessibility to local foods
  - Utilize techniques that reduce CO2 emissions on farm
  - Provide financial support to farmers that use GHG mitigation practices

What do we need to do?

- Build Strategy
  - Role of local and sustainable agriculture in carbon credits
  - Integrate climate change into farm plans, adaptation measures
  - Protect land and water resources

Questions?

Question for you

What other agricultural recommendations can we make to mitigate or adapt to climate change?