Sustainable Agriculture and Food Systems in Metro Vancouver

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Economic, Job Creation, and Food Production Potential on Underutilized Agricultural Land in Surrey, British Columbia
Surrey’s Agriculture

Opportunities/Challenges

• 22,000 acres in close proximity to urban markets

• Class 2 and 3 farmland

• 30% fewer farms over past 20 years

• 32% of Surrey’s agricultural land not used for farming (7,500 acres)
Research Questions:

1. How much of Surrey’s underutilized agricultural land could be used for farming?

2. What are the potential economic, job creation, and food production outputs of Surrey’s underutilized agricultural land?
Field work:

- 7,500 acres underutilized land identified by Ministry of Agriculture in 2004

- Underutilized properties visited to determine what portion could be used for agriculture
Findings: 3,800 acres available for agriculture; Small size – majority under 10 acres.
Small Lot → Micro Farm ( < 1/2 acre)
Medium Lot → Small Scale Farm (0.5 – 2 acres)
Large Lot → Mid-Scale Farm (>2 acres)
Non Arable Land → Structure Based Agriculture
Non Arable Land → Food Retail
“Local food systems increase business innovation and entrepreneurship; foster regional economic development; and support employment.”

Jeffrey O’Hara, Market Forces Report, 2011
Our Second Research Question:

What is the economic, job creation, and food production potential of Surrey’s underutilized agricultural land?
Economic and Food Production Potential

Agricultural production data applied to three scenarios to illustrate a variety of potential outcomes:

Production of:

- 32 crop and animal products
- 10 highly profitable products
- 10 very labour intensive products
Economic and Food Production Potential

Scenarios suggest that bringing underutilized land into agriculture could:

- Create up to 2,500 FTE jobs
- Double the size of Surrey’s agricultural economy by generating up to $174 million
- Satisfy up to 100% of demand for 24 crop and animal products
Next Steps

- Nine major challenges to actualizing this agricultural vision for underutilized land

- Themes:
  - Non-farmer landowners
  - Shortage of farmers and farm workers
  - Limited pre and post-production services/equipment
  - High price of farmland
Next Steps

• What can the City of Surrey do to promote and support agriculture on its underutilized land?

• 38 recommendations
  ➔ Updated OCP
  ➔ Updated Agricultural Plan
  ➔ General policy and programming direction
Climate Change & Agriculture
Climate Change Impacts on Agriculture

**SLOW CHANGES**

- Increased Temp’s
  - Direct effects on plant growth
  - Direct effects animals & insects
- Increased CO\(_2\)
  - Direct effect on plant growth
  - Indirect effect on insect growth
- Increased sea level
  - Salinization or loss of farmlands
- Water Variability
  - Changes in precipitation
  - Droughts/floods

**FAST CHANGES**

- Extreme weather events
Agriculture’s Impact on Climate Change

- Methane
- Nitrous Oxide
- Carbon Dioxide
Climate Change Solutions

1. Mitigate GHG Emissions
   - Reducing GHGs entering atmosphere
   - Removing carbon dioxide through carbon sequestration

2. Adaptation
   - Increasing resistance and resilience
Many solutions but change is hard.

- Stop clearing forests for agriculture
- Efficient land management and planning
- Maximize land productivity and food production
- Maximize farm energy efficiency
- Maximize soil and water health management
- Maximize carbon sequestration
- Integrated nutrient management
- Productive compost systems
- Closed-loop energy cycling
- Maximize biodiversity and species conservation
- Diversify cropping systems
- Integrated pest management
Challenges: Gaps in the Knowledge

‘Climate change involves open, complex and imperfectly understood systems’

(The Hartwell Paper May 2010)

- Diversity of agriculture production systems
- Scientific uncertainties around GHG emissions, sequestration and adaptation
- Difficulties in developing inventories and prioritizing actions
- Mixed messages in the media
Challenges: Planning for Climate Action requires action

Community-Wide Climate Action Planning Framework:

1. **Commitment, Engagement and Resources**: Make a commitment to climate action, sustainability and integration. Engage the community. Allocate resources.

2. **Measuring**: Understand the community’s energy consumption and greenhouse gas emissions.

3. **Planning**: Set targets. Identify flexible and progressive policy and process tools to achieve GHG emissions targets, and integrate them into the OCP/RGS and other documents.

4. **Implementing**: Use planning and policy tools to put the plans and policies into action.

5. **Monitoring**: Monitor progress and make adjustments over time that will help move effectively toward achieving climate action goals.

From: BC Ministry of Community, Sport and Cultural Development
Challenges: Jurisdictional Powers Governing Agriculture & Climate Change

Policy Burgoo
Change Agents: Local Governments

- Local governments historical role in sustainability
- Emission reduction systems in place for other sectors (buildings, transportation and waste)
- Local government planning tools that affect land use and community design
  - Regional growth strategies (20 year plans)
  - Official community plans (5 year plans)
  - Agricultural area plans
- Public support for sustainable food systems
- Current provincial climate policies support for innovative strategies from Local Governments
- Local government participation in climate change programs (Partners for Climate Protection and Climate Action Charter)
Food Systems Research Overview

Municipally-Enabled and Supported Agriculture (MESA)

Ecological Systems
- Economic Opportunities
- Land Use
- Climate Change
- Social/Community Cohesion and Health
- Planning, Policy and Governance

Underutilized Land
- Economics Opportunities
- Food Production

Climate Change Mitigation
- Science
- Policy
- Planning
Future of Food Systems?
Institute for Sustainable Horticulture

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