



CLIMATE CHANGE ADAPTATION PROGRAM

BC Agriculture Climate Change Action Plan

Executive Summary

Funding for this project has been provided by the Governments of Canada and British Columbia through Growing Forward, a federal-provincial-territorial initiative. The program is delivered by the Investment Agriculture Foundation of BC.

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Climate Action Initiative
BC AGRICULTURE & FOOD

BC Agriculture Climate Change Action Plan

EXECUTIVE SUMMARY

2010-2013

funding provided by

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Executive Summary

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This Executive Summary highlights the key content of the BC Agriculture Climate Change Action Plan. The Introduction below summarizes the history, purpose and context of the Action Plan as well as its structure. Following the Introduction are a series of tables which provide the Goals, Strategies and Actions included in the Action Plan. The tables do not provide the background or rationale for the proposed work and the details regarding timelines, centres of responsibility and level of priority are not provided. This information may be found in the full length Action Plan.

The BC Agriculture & Food Climate Action Initiative

The *BC Agriculture and Food Climate Action Initiative* (the “Initiative”) is a joint project of the BC Agriculture Council and the Investment Agriculture Foundation. Initiative activities began in May of 2008. The Initiative is led by an Advisory Committee made up of agricultural producers and food processors from around the province, as well as representatives from various government agencies.

The Initiative was created to: increase industry understanding of the implications of climate change, respond to and address climate change issues and opportunities, strengthen agriculture’s climate change networks, act as a forum for sharing resources, information and tools, and communicate and collaborate with relevant BC government agencies. During its two years, the Initiative Advisory Committee has sought to accomplish, or make progress toward, all of these goals.

The primary deliverable of the Initiative is this Action Plan which is intended to provide the BC agriculture and agri-food community with the necessary strategies to meet the challenges of climate change. The objectives of the Plan are:

- To develop tools and resources that enable BC’s agricultural producers to assess and reduce greenhouse gas emissions;
- To facilitate an increase in economic opportunities (cost savings, revenue diversification and market competitiveness) associated with GHG mitigation and clean energy production on BC farms ; and
- To develop tools and resources that enable BC’s agricultural producers to evaluate vulnerability to the impacts of climate change and to integrate climate change adaptation into decision-making.



The context of Agriculture’s Climate Change Action Plan

The work of the BC Agriculture and Food Climate Action Initiative has existed within a rapidly changing context. The BC government has set strong policy direction with respect to climate change and continues to work toward meeting its emission reduction targets. Local governments are now actively engaged in developing greenhouse gas emission inventories and planning for emission reductions.

More recently, the BC government released their Climate Change Adaptation Strategy which outlines priority actions for supporting province-wide adaptation. The focus on adaptation is anticipated to increase in the future.

At the same time, the federal government has a number of initiatives underway including development of a Canadian carbon offset system, a “roadmap” for climate change adaptation in agriculture, and various tools and programs.

Globally, the economic opportunities associated with “clean” goods and technologies continue to expand and there remains a strong momentum in the private sector to create alternatives to fossil fuels, reduce greenhouse gas emissions and to identify associated diversification and marketing opportunities. All industries will continue to be impacted by these shifts and will be challenged to view their businesses in a new way.

The Initiative has also been tasked with looking forward and developing strategic direction in a time of fiscal restraint. This context influences how BC’s agricultural producers view their industry and their businesses, as well as overall capacity to manage change. An economic downturn does not diminish the value of this Action Plan and its goals. If anything, the economic environment increases the importance of addressing industry’s capacity to manage risk. However, the recommended strategic approaches reflect the current constraints facing both industry and government.

The scope of the Action Plan

- The Plan encompasses both climate change mitigation (reduction of greenhouse gas emissions) and climate change adaptation (planning for, and responding to, changes in climate)
- In keeping with the Initiative’s mandate, the Action Plan is pan-agricultural
- The Plan strategies and actions support innovation and economic diversification for the sector
- The timeframe for implementation of the Action Plan is three years; August 2010 to August 2013



The Structure of the Action Plan

The Action Plan is divided into two parts, the first addresses climate change adaptation and the second climate change mitigation.

Adaptation & Mitigation

To date mitigation has been the driving force behind government climate change policy, legislation and regulation and it is also the focus of emerging economic opportunities and incentives. In response to this, the work of the Climate Action Initiative has also focused primarily on mitigation – supporting the agriculture sector with addressing greenhouse gas emissions. As a result, the mitigation portion of the Plan includes greater detail and clarity regarding strategies and actions.

However, adaptation is an area of high priority; improving agriculture’s resilience in the face of climate change is a matter of critical importance, not only for the sector, but for society as a whole. It is for this reason that the adaptation section is placed at the front of the Action Plan. The adaptation and mitigation sections each include: topic areas, goals, strategies and actions.

Topics

The broad scope of Topic 1, “Strategic Adaptation,” reflects current state of knowledge regarding agricultural climate change adaptation in BC. It is anticipated that as the implementation of the Plan moves forward, more specific strategies and actions will be delineated.

Before further strategic direction can be defined, improvement of the available information is required. Filling the information gaps does not necessarily mean focusing on climate change models. What is required is a summary of existing knowledge, an assessment of the risks and opportunities facing the industry and the identification and evaluation of options for improving industry resilience. Therefore, the Plan’s primary focus for adaptation is on increasing the information available to enable strategic decision-making.

The mitigation portion of the Plan is divided into three interconnected topics. The emissions associated with agricultural production are often distinguished from those associated with energy and require separate consideration. For this reason the focus of “Farm practices & greenhouse gas mitigation” is strategies associated with soils, livestock and nutrient management. Nonetheless, in many cases the goals and strategies identified within this topic will also support work in the area of energy.

Energy is divided into two separate topics to indicate the need for distinct strategies to accomplish the goals in these areas. “Farm energy & fuel efficiency” focuses on maximizing efficiency of energy and fuel consumption and “Clean agricultural energy



production” focuses on increasing the energy production on BC farms and/or with agricultural by-products.

Goals, Strategies & Actions

The goals are intended to state the outcome that is sought. In the simplest terms the goals should answer the question: What are we trying to achieve? The strategies articulate how the goals will be accomplished. The strategies should answer the question: *How* do we achieve our goals?

The actions drill down to the level of specific activities. Actions answer the questions: *What* will we do? What steps will we take? The actions provide a level of detail that is generally absent from strategic plans because appropriate actions are determined by circumstances that change frequently. However, strategic plans that do not incorporate this level of detail are frequently left to languish on a shelf. This is because such plans fail to translate high level goals and strategies into concrete actions. It is also extremely difficult to assess progress on goals and strategies. Therefore, the Action Plan includes actions but this portion of the Plan will remain flexible and responsive.

Acknowledgement Statement

This Plan was funded in part by the Investment Agriculture Foundation of B.C. through programs it delivers on behalf of Agriculture and Agri-Food Canada and the B.C. Ministry of Agriculture and Lands.

Disclaimer Statement

Agriculture and Agri-Food Canada (AAFC), the BC Ministry of Agriculture and Lands (BCMAL) and the Investment Agriculture Foundation of BC (IAF), are pleased to participate in the production of this Plan. We are committed to working with our industry partners to address issues of importance to the agriculture and agri-food industry in British Columbia. Opinions expressed in this Plan are those of BC Agriculture & Food Climate Action Initiative Advisory Committee and not necessarily those of BCMAL or AAFC.



Table A: Summary of strategic adaptation Goals, Strategies & Actions

Part I. ADAPTATION Strengthening sector resilience	Topic 1. Strategic adaptation	
<i>Goals</i>	<i>Strategies</i>	<i>Actions</i>
Goal 1.1 Improve the state of knowledge regarding risks and opportunities associated with climate change	Strategy 1.1.1 Assess the risks/opportunities, for agriculture in BC, associated with climate change	<ul style="list-style-type: none"> • Conduct a (region-by-region) climate change vulnerability assessment for agriculture in BC • Facilitate the development of commodity-based climate change adaptation plans
	Strategy 1.1.2 Strengthen collection and coordination of weather data	<ul style="list-style-type: none"> • Assess weather data collection in BC’s agricultural regions • Fill data collection gaps and confirm that needs of researchers and agricultural producers are met
Goal 1.2 Address priority agricultural adaptation research and development gaps	Strategy 1.2.1 Communicate key industry research needs to the research community and potential partners	<ul style="list-style-type: none"> • Organize regional “BC Agriculture Adaptation” workshops to identify adaptation R&D priorities & strategies • Foster partnerships for collaborative R&D in BC and with other jurisdictions
Goal 1.3 Enable consideration of agricultural climate change adaptation issues in government decision-making	Strategy 1.3.1 Develop educational resources to inform government policy, planning and programming re: agricultural adaptation	<ul style="list-style-type: none"> • Develop/disseminate tools to assess impacts of policy, planning and programs on agriculture’s capacity to adapt • Initiate outreach to local governments to share existing educational resources • Coordinate workshop series with local governments to increase knowledge of mitigation and adaptation issues



Part I. ADAPTATION Strengthening sector resilience	Topic 1. Strategic adaptation	
<i>Goals</i>	<i>Strategies</i>	<i>Actions</i>
	Strategy 1.3.2 Increase sector representation in relevant local government planning activities	<ul style="list-style-type: none"> • Coordinate with BC agricultural organizations to facilitate industry representation in local planning activities • Provide educational materials on adaptation issues to support sector participation in local planning activities
Goal 1.4 Integrate climate change adaptation considerations into decision-making of agricultural organizations and operations	Strategy 1.4.1 Develop knowledge & resources to support informed decisions at the agricultural organization and farm level	<ul style="list-style-type: none"> • Conduct a (region-by-region) climate change risk/opportunity assessment for agriculture in BC • Facilitate development of commodity-based climate change adaptation plans • Integrate consideration of climate change adaptation into government programming for agriculture, particularly programming intended to protect producers from risk
	Strategy 1.4.2 Identify and communicate models/best practices for farm-based climate change adaptation	<ul style="list-style-type: none"> • Conduct a scan of adaptive practices from within BC and other jurisdictions and develop recommendations for further research • Conduct small scale regional testing/demonstration or prioritize for further BC-based research



Table B: Summary of Farm Management Practices & GHG Emissions Goals, Strategies & Actions

Part II. MITIGATION Toward a low carbon sector	Topic 2. Farm management practices & greenhouse gas mitigation	
<i>Goals</i>	<i>Strategies</i>	<i>Actions</i>
Goal 2.1 Strengthen agricultural producer knowledge of linkages between farm practices & GHG mitigation	Strategy 2.1.1 Provide producers with information/technical resources regarding farm practices and GHG mitigation	<ul style="list-style-type: none"> • Integrate available information regarding management practices and GHG emissions into existing technical resources for industry • Develop commodity-specific “GHG mitigation and management practices” fact sheets
Goal 2.2 Improve the state of knowledge regarding agricultural GHG “sources and sinks” in BC	Strategy 2.2.1 Identify gaps in current knowledge and prioritize research needs	<ul style="list-style-type: none"> • Form an agriculture GHG mitigation technical committee
	Strategy 2.2.2 Communicate key industry research needs to the research community & potential partners	<ul style="list-style-type: none"> • Facilitate improved availability of research priorities to all interested parties • Foster partnerships with other jurisdictions to identify opportunities for collaborative R&D activity
	Strategy 2.2.4 Explore viability of implementation of carbon footprint assessments for farm businesses	<ul style="list-style-type: none"> • Conduct scan of carbon footprint assessments and provide recommendations regarding viable approaches • Conduct pilot project for carbon footprint assessment(s) • Develop template for carbon footprint assessments



Part II. MITIGATION Toward a low carbon sector	Topic 2. Farm management practices & greenhouse gas mitigation	
<i>Goals</i>	<i>Strategies</i>	<i>Actions</i>
Goal 2.3 Increase availability of technical and financial support for implementation of GHG mitigation practices on farms	Strategy 2.3.1 Maximize benefits associated with GHG emission reductions occurring through BMPs	<ul style="list-style-type: none"> • Form an agriculture GHG mitigation technical committee • Develop (basic) mechanisms for tracking & reporting sector emission reductions occurring through BMPs • Facilitate linkage between BMPs and other incentives
	Strategy 2.3.2 Increase agriculture sector participation in carbon offset markets	<ul style="list-style-type: none"> • Facilitate partnerships with agencies and businesses purchasing carbon offsets • Seek to clarify eligible agriculture project areas and establish protocols for agriculture offsets (with the PCT) • Identify and implement mechanisms to support small and medium sized offset projects
	Strategy 2.3.3 Identify options for remuneration for agricultural EG&S	<ul style="list-style-type: none"> • Conduct scan of EG&S programs • Explore opportunities for partnerships in developing agricultural EG&S programming in BC
Goal 2.4 Increase local government and community access to information regarding agriculture and GHG mitigation	Strategy 2.4.1 Provide educational materials for local governments to increase knowledge of agriculture and GHG mitigation	<ul style="list-style-type: none"> • Conduct outreach to local governments to share existing educational resources • Initiate workshop series with local governments to increase knowledge of sector's mitigation/adaptation issues • Share good news stories re: sector climate change mitigation activities through existing mechanisms



Table C: Summary of Farm Energy & Fuel Efficiency Goals, Strategies & Actions

Part II. MITIGATION Toward a low carbon economy	Topic 3. Farm energy & fuel efficiency	
<i>Goals</i>	<i>Strategies</i>	<i>Actions</i>
Goal 3.1 Increase available information about energy/fuel use on BC farms	Strategy 3.1.1 Gather baseline energy and fuel consumption data for the sector and identify key efficiency opportunities	<ul style="list-style-type: none"> • Develop assessment tool and conduct BC Farm Energy Assessment Pilot Project • Collect baseline data through energy assessments • Conduct energy assessment pilot project for medium/small farms and small scale processors
Goal 3.2 Maximize implementation of energy/fuel efficiency practices and technologies on BC farms	Strategy 3.2.1 Provide energy assessment tools for the BC agriculture sector	<ul style="list-style-type: none"> • Highlight key energy efficiency opportunities through educational resources for the agriculture sector • Deliver farm energy assessments for BC producers • Enable energy efficiency “self assessments” through development of manuals for small-scale producers and processors
	Strategy 3.2.2 Generate tools & resources for implementation of efficiency practices and technologies on BC farms	<ul style="list-style-type: none"> • Integrate priority energy efficiency practices and technologies into BMP Program • Facilitate increased availability of incentives for implementation of efficiency measures/technologies
	Strategy 3.2.3 Measure progress against benchmarks and integrate new technologies and opportunities	<ul style="list-style-type: none"> • Conduct follow-up survey/site visits with producers who have undertaken energy assessments to determine level of implementation • Collect data on implementation of energy efficiency improvements by measuring uptake of incentives

Table D: Summary of Clean Agricultural Energy Production Goals, Strategies & Actions

Part II. MITIGATION Toward a low carbon economy	Topic 4. Clean agricultural energy production	
<i>Goals</i>	<i>Strategies</i>	<i>Actions</i>
Goal 4.1 Support assessment and development of farm-scale energy and fuel production opportunities across BC	Strategy 4.1.1 Build knowledge of farm-scale energy and fuel production options in BC	<ul style="list-style-type: none"> • Conduct cost-benefit analyses of clean energy technologies for farm-scale production including, where possible, case studies of existing projects • Facilitate pilot demonstration projects that enable data collection and technology transfer
	Strategy 4.1.2 Build capacity of agricultural producers to assess and develop their energy production potential	<ul style="list-style-type: none"> • Develop and/or disseminate educational resources for farm energy production (See Strategy 4.2.1, Action c) • Facilitate regional “agricultural energy” working groups with broad cross-section of participants • Identify/strengthen cost-share, offset, granting and lending opportunities for farm scale clean energy and fuel production
Goal 4.2 Increase commercial clean agricultural energy production in BC	Strategy 4.2.1 Support development of commercial agricultural energy opportunities through improved knowledge and capacity	<ul style="list-style-type: none"> • Form technology-specific working groups for technologies with commercial promise • Conduct feasibility studies to evaluate commercial viability of technologies • Develop/disseminate educational resources for commercial energy production options (See Strategy 4.1.2, Action a)



Part II. MITIGATION Toward a low carbon economy	Topic 4. Clean agricultural energy production	
<i>Goals</i>	<i>Strategies</i>	<i>Actions</i>
	Strategy 4.2.2 Remove barriers for commercial clean energy production as an ancillary agricultural activity	<ul style="list-style-type: none"> • Increase understanding/knowledge of agricultural energy opportunities with regulating provincial and municipal agencies and streamline regulatory processes • Facilitate development of a supportive feed-in-tariff structure for clean energy technologies in BC • Conduct survey of BC consumers to determine level of interest in paying premium for clean agricultural energy • Develop and disseminate educational resources regarding agricultural energy for local and regional governments
	Strategy 4.2.3 Support farm energy business development & management	<ul style="list-style-type: none"> • Provide services to assist and support emerging farm energy businesses • Facilitate expansion of financial opportunities/business models available to producers developing energy businesses
	Strategy 4.2.4 Identify and address research gaps for agricultural bioenergy/biofuel production in BC	<ul style="list-style-type: none"> • Conduct feasibility study for BC agricultural bioenergy/biofuel opportunities that evaluates regional infrastructure requirements and competitive advantages • Conduct assessment of BC agricultural bioenergy/biofuel feedstock options