CLIMATE CHANGE
ADAPTATION PROGRAM

Fraser Valley Agricultural Water Workshop Project

Project Summary

Funding for this project has been provided by the Governments of Canada and British Columbia through Growing Forward 2, a federal-provincial-territorial initiative. The program is delivered by the Investment Agriculture Foundation of BC.

DELIVERED BY

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Introduction

Background

In 2014 and 2015 the BC Agriculture & Food Climate Action Initiative (CAI) and the Fraser Valley Regional District brought together producers, representatives of the Fraser Valley agricultural industry, and local and provincial government to develop a plan to support producers in the Fraser Valley with adaptation to climate change. This plan, called the Fraser Valley Adaptation Strategies, was developed with input from over 80 participants. The Fraser Valley Adaptation Strategies identifies the potential impacts of climate change and suitable strategies and actions for adaptation in the Fraser Valley agriculture sector.

In the development of the Strategies, participating agricultural producers highlighted several information gaps regarding the future of agricultural water in the Fraser Valley. Concerns were raised about the changing regulatory context, as well as the ways that climate change might affect both supply and demand during the agricultural production season. To address these concerns, the Strategies document identifies the need for a knowledge transfer activities to help communicate information on regulatory changes and water management options to producers (Strategies 1.1 and 1.2).

With input from the Fraser Valley Adaptation Strategies working group, a project to implement these priority actions was developed and, in December of 2015, Christina Metherall of Elucidate Consulting to was contracted to develop and deliver the Fraser Valley Agricultural Water Workshop project.

Project Objectives

The Fraser Valley Agricultural Water Workshop project was developed to meet the following objectives:

- To provide Fraser Valley producers with:
  - Information regarding the current and future regulatory and water supply contexts in the region
  - Access to expertise regarding existing water management tools and resources
  - Technical information regarding agricultural water management
  - Information regarding current and future drainage management issues
- To provide local demonstration/s of successful implementation of best practices and technologies

Project Deliverables

The Fraser Valley Water Workshop Series project is composed of the following deliverables:

- Background research/consultation
- Delivery of the Fraser Valley Agricultural Water Management Symposium
- Knowledge transfer resource sharing the information presented at the Symposium
- Final report

This report provides a summary of the project and recommendations for future work.

Summary of Consultation and Research

The background research and scoping exercise included a review of available literature and consultation with subject matter experts. This scoping work was done in two phases.

The first phase of the scoping began with a review of information on water management in the Fraser Valley to identify the priority issues and concerns and the types of water management actions recommended. Interviews were conducted with subject matter experts on water management. Interviewees were consulted on suggested reference materials, potential speakers and/or farm tour sites and suitable water management technologies or practices to be promoted or adopted in the Fraser Valley. Interviews were conducted with 36 key contacts including local producers, government staff, agriculture specialists, and commodity group representatives.

It was suggested that the project timeline should be extended to avoid conflicts with the growing season and to allow the Province more time to develop its water license application process for producers. It was also recommended that the topic of drainage be included. It was noted that many of the adaptations relevant to the Fraser Valley (e.g. use of soil moisture sensors and irrigation scheduling) may be more conducive to classroom discussion than field demonstration. In addition, with the commodity-specific nature of many water management practices it would be difficult to deliver a tour that showcased practices that would be relevant to a range of producers.

Based on this feedback, it was decided to exclude the farm tour and instead focus on 'bringing the farm tour to the classroom'. In the second phase of background research it became evident that although it would be helpful to divide water management topics by commodity group, it would be difficult to obtain provincial and local government participation in multiple workshop sessions for multiple commodity groups. It was important that all participating producers learn about changes to regulations directly from provincial government staff. For this reason, a multi-workshop one-day format was proposed instead of a workshop series.

Based on the information gathered, the contractor proceeded to develop a full day event on the topic of agricultural water management in the Fraser Valley. The event would feature:

> A morning plenary session covering the provincial regulatory context (the Water Sustainability Act), enabling producers to engage with local government and other specialists about the future of water and water supply in the Fraser Valley Regional District, and
>
> An afternoon of concurrent sessions focused on agricultural water management for various commodities. This would include presentations about water management tools and resources, presentations from local producers and suppliers highlighting best water management practices, presentations on recent drainage management research and at least one practical session from MFLNRO staff on how to apply for a water license for a groundwater well.

Upon completion of the background research and consultation it was determined that the knowledge transfer piece for this project should be a written document to share the information gained through these sessions more broadly after the event.

Agricultural Water Management Symposium

On November 17, 2016 the BC Climate Action Initiative with ARDCorp held the Fraser Valley Agricultural Water Management Symposium at the Quality Hotel in Abbotsford. The event provided a wide range of relevant water-related information to producers including information on future water supply, the provincial regulatory context (the Water Sustainability Act) and water management practices and technologies.

The event was composed of a morning plenary session, which provided an opportunity for producers to receive information about the changes to water management as a result of the new Water Sustainability Act, as well as to engage with local government and other specialists about the future of water and water supply in the Fraser Valley Regional District. The plenary session also included a presentation on climate change projections and their links to water management on farms. It also included an afternoon of concurrent sessions focused on agricultural water management for various producer groups. The afternoon included presentations about water management tools and resources, and presentations from local producers and suppliers, highlighting best water management practices, including on-going drainage management research. The afternoon also included two practical sessions in which producers were provided with detailed information on how to apply for a water license for their groundwater well.

An agenda for the day is provided in Appendix A.

This event was attended by approximately 100 individuals, representing a wide range of agricultural interests. Participants included sixteen dairy producers, fourteen nursery or greenhouse growers, three berry growers, seven mixed fruit and vegetable farm producers, and a wide range of producers growing other commodities including hops, turkey, poultry, and honey. An additional ten participants attended from various agricultural commodity groups and thirteen staff attended from local or provincial government.

The event was advertised to the agricultural community primarily through commodity groups and local agricultural organizations. Further details on promotions and outreach are included in Appendix B.

Knowledge Transfer Resource

Following the Fraser Valley Agricultural Water Management Symposium, an information transfer resource was created in order to share the information presented at the event more broadly. It was decided to use a written format for the knowledge transfer resource because in the initial scoping exercise, many commodity group representatives recommended developing a brochure that could be easily distributed to producers through their email distribution lists and newsletters. It was also suggested that it would be valuable to have a written resource that could be made available at other events such as the Pacific Agriculture Show.

Based on discussions with the CAI, it was decided that a knowledge transfer resource would be developed that shared highlights from the symposium and linked producers to available resources. This resource is included in Appendix C.

Assessment and Lessons Learned

The success of the Fraser Valley Agricultural Water Workshop Project was assessed through a participant feedback survey. The project was also evaluated against the performance indicators identified in the initial project description. The following provides an overview of the survey results and an evaluation of the event according to performance indicators. It is followed by a discussion of lessons learned and recommendations for future work.

Participant Feedback Survey

At the end of the symposium, participants were given a survey to provide feedback and suggestions on the event. A total of 34 people responded to the survey.

The feedback survey demonstrated that the symposium was well received. Overall, the majority of respondents rated the event as either "Excellent" or Very Good" and stated that the event increased their understanding of climate change impacts, the new provincial rules around water, and how to manage water on their farm. Approximately half of survey respondents identified themselves as farmers. The remaining respondents did not identify themselves and may have been producers or members of an agricultural organization or local government. Many participants made positive comments, noting that they appreciated the wide range of topics and thought the event was well organized. They also described the speakers as very helpful and knowledgeable.

Further details on the survey and results are included in Appendix D.

Assessment According to Performance Indicators

The following near term performance indicators were identified in the project description:

- Completion of two-three workshops in the Fraser Valley on water regulation, supply and management
- Completion of (1) tour of FVRD innovative water management sites
- A high level of interest in aforementioned workshops/tour
- Availability of a knowledge transfer resource as a result of sessions
- Increased knowledge of regulatory changes, water supply and climate change issues
- Increased interest in adoption of resources, practices and technologies

The Fraser Valley Water Workshop Series Project evaluates well according to the performance indicators identified in the project description.

Performance Indicator #1: Completion of two-three workshops in the Fraser Valley on water regulation, supply and management

- ✓ The project involved the successful completion of a large full day event, composed of fourteen workshop sessions presented by sixteen guest speakers, including nine concurrent sessions tailored to particular commodity groups. The decision was made to deliver the workshops in one

day to convey as much information as possible through a single session, and to ensure that all producers were able to connect with the MFLNRO/MOE staff and appropriate members of local government. The format still allowed producers to receive some information specifically focused on their geographic area, water supply source and/or production system.

Performance Indicator #2: Completion of (1) tour of FVRD innovative water management sites

- ❖ Based on the feedback provided by the Working Group and several subject matter experts, it was decided to not include a tour of water management sites. The rationale for this decision is included in the summary of background research and consultation. With that in mind, the Fraser Valley Working Group suggested that the consultant help to 'bring the tour to the classroom' by requesting that presenters provide pictures and demonstrate recommended practices where appropriate. Where possible, this approach was used at the symposium.

Performance Indicator #3: A high level of interest in aforementioned workshops/tour

- ✓ There was a very high level of interest in the symposium. One hundred and two (102) participants pre-registered for the event and several additional participants showed up the day of the event.

Performance Indicator #4: Availability of a knowledge transfer resource as a result of sessions

- ✓ A knowledge transfer resource was developed and will be available on the Climate Action Initiative website. It will be shared widely with producer groups and local governments in the Fraser Valley following completion of the project.

Performance Indicator #5: Increased knowledge of regulatory changes, water supply and climate change

- ✓ A substantial amount of information on regulatory changes, water management, and climate change was provided at the symposium. Presenters shared their knowledge on a wide range of topics related to water management and participant's questions demonstrated a strong degree of interest in the topic and a high level of knowledge transfer. The information shared at the event is also summarized in a knowledge transfer resource (see previous indicator).

Performance Indicator #7: Increased interest in adoption of resources, practices and technologies

- ❖ While this indicator is difficult to measure, many participants responded to the feedback survey stating that the event increased their understanding of climate change impacts in the Fraser Valley, the new provincial rules around water, and their understanding of water management on their farm. The knowledge transfer resource will also assist in guiding producers to the technical resources available on these topics, which is likely to increase the level of interest in adoption of resources, practice and technologies.

Lessons Learned

There were several lessons learned from this event (which could be used to inform the development of future knowledge transfer projects):

1. **Workshop timing:** In the future, it may be valuable to consider hosting knowledge transfer events in the spring. Although the high level of attendance at this fall session demonstrates that it is good timing from the perspective of participants, it was quite challenging to coordinate an event over the summer growing season.

   It was very difficult to gather input on the event over the summer because most producers, agricultural suppliers, and industry experts were too busy to respond to phone calls and emails and many government staff and commodity group representatives took their vacations at that time.

   It would be much easier to complete scoping and background research in the fall and deliver an event in February (note: calving occurs mid-February through March).

2. **Workshop materials:** In the future, it may be helpful to give event participants handouts that provide an overview of the workshop materials. This would allow them to take information home for further analysis and to use as reference material. Additional workshop materials such as handouts would need to be identified as deliverables in future projects and their development included in the work plan prior to the event. It is more challenging to develop knowledge transfer materials before an event – particularly if the information that will be in included must be gathered from guest speakers. It is fairly straightforward to develop knowledge transfer materials that summarize event proceedings after an event, so if there is a limited budget, the development of resource materials after an event (as was done for this project) would be most feasible.

3. **Final plenary session:** In the future, it would be beneficial to include a plenary session at the end of the day. At the symposium, participants were directed to return to the main room for closing remarks, however, the concurrent sessions were spaced quite far apart (due to the layout of the physical venue) and many participants did not return for the final session. In the future, it is recommended that any large events include a final plenary session covering a topic of very high interest to participants. This would ensure that participants are motivated to stay until the end and would provide a more satisfying conclusion to the event.

Recommendations for Future Work

The following recommendations are made for future work:

1. **Conduct knowledge transfer activities through partnerships with existing communications networks and events:** In the future, it may be useful to consider how knowledge transfer events can be more closely connected with existing communications opportunities and events such as the Pacific Agriculture Show and commodity group field days. There is likely greater potential to reach more audience members if pairing outreach with existing events.

   In addition, these partnerships could also potentially reduce the time required by the CAI or consultants in logistics and communications.

One of the potential challenges of working within existing events, is that these events will have their own mandate, and the opportunity to share focused and in depth information is likely to be much more limited (i.e. instead of a full day event, dedicated to sharing information on changes to regulations and water management, perhaps only 20 minutes may be provided to share information on climate change adaptation or a particular innovative technology at a commodity group field day).

If this approach is to be taken, it would be very helpful to coordinate these efforts over a longer time scale. For example, it would be beneficial to begin by gathering information on the distribution of opportunities throughout the year and coordinating with the various potential partnerships well in advance. (Note: for this project, the consultant attempted to partner with commodity groups to present at AGMs, but several of the AGMs had already occurred prior to project initiation and others were occurring at the beginning of the project, while the project was still in the initial scoping/background research phase.)

2. **Continue sharing the knowledge transfer resource:** it will be important to dedicate resources to sharing the knowledge transfer resource developed as part of this project with various commodity groups and organizations.
3. **Where possible, conduct field based extension activities:** future knowledge transfer activities should focus on field based extension as many producers enjoy this sort of workshop and this could increase participation levels. The symposium topics for this project did not lend themselves well to field based extension but it would be good to include a field based component in future projects that target specific farm practices or commodity groups.

Appendix A: Agricultural Water Management Symposium Agenda

Date: November 17, 2016

Time: 9:30 AM - 4:00 PM

Location: Quality Hotel & Conference Centre (previously the Ramada Plaza & Conference Centre), 36035 North Parallel Road, Abbotsford, BC

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Agenda

9:30 WELCOME

9:35 ICEBREAKER

9:45 CLIMATE CHANGE: WHAT WE ARE EXPECTING IN THE FRASER VALLEY?
Emily MacNair, BC Climate Action Initiative

10:05 AGRICULTURAL WATER USE IN THE FRASER VALLEY
Stephanie Tam, Ministry of Agriculture Water Resource Engineer

- What does the Agricultural Water Demand Model tell us about current and future water use in the FVRD?

10:25 WATER SUSTAINABILITY ACT AND ON-FARM WATER SUPPLIES
Ted White, Ministry of Environment (MOE)
Jacquelyn Shrimer, Emily Elsliger, Ross Kreye, and Bryan Robinson, BC Ministry of Forests, Lands, and Natural Resource Operations (MFLNRO)

11:25 UPDATE ON MUNICIPAL WATER SUPPLIES AND DRAINAGE

- **City of Abbotsford, Rural Lowland Drainage and Irrigation**
  Pardeep Agnihotri, Acting Director of Operational Services, DDI & Civic Facilities, City of Abbotsford
- **City of Chilliwack**
  Tara Friesen, City of Chilliwack

12:00 LUNCH BREAK

1:00 MOVE TO CONCURRENT SESSION ROOMS

1:10 CONCURRENT SESSIONS

Time	Room #1 - Summit	Room #2 – Pinnacle	Room #3 – Valley
1:10-1:55	**Enhanced Irrigation Management using Soil Moisture Sensors** How can soil moisture sensors be used to enhance irrigation management? This session will describe a study that took place on three Fraser Valley berry farms, where soil moisture sensors were used to improve irrigation management (Stephanie Tam, Ministry of Agriculture).	**Sustainable Irrigation System Management (Sprinkler Systems)** How can we irrigate better to produce healthier crops and support sustainable water use? This session will include guidance on using irrigation schedulers and other tools to optimize water use and crop productivity.(Ted Van der Gulik, Partnership for Water Sustainability in British Columbia)	**Water Circulation and Reuse in Greenhouses: Case Study - Van Belle Nursery (Abbotsford)** How can greenhouses and nurseries recirculate water to conserve and reuse irrigation water and meet storm water management requirements? (Valerie Sikkema & Alberto Reinoso, Van Belle Nursery)
2:00-2:45	**Strategies to Improve Forage Yield and Quality while Adapting to Climate Change** How can producers improve farm profitability and security by increasing the yield and quality of their forage crops? In this session Derek Hunt will describe a study on sites at AAFC Agassiz, 2 farms in FVRD and the UBC Dairy Centre, which looks at how different irrigation management practices can be used to maximize and balance summer and winter forage production (Derek Hunt, Agriculture and Agri-Food Canada)	**Sustainable Irrigation System Management (Drip/Trickle Systems)** How can we irrigate better to produce healthier crops and support sustainable water use? This session will include information on irrigation scheduling and other tools to optimize water use and crop productivity. (Ted Van der Gulik, Partnership for Water Sustainability in British Columbia)	**How to License your Groundwater Well** This session will take producers through the steps required to license their groundwater well in order to help secure access to their water supply in the future. (Milen Kootnikoff, MFLNRO)
2:45-3:00	Coffee break		
3:00-3:35	**How to License your Groundwater Well** This session will take producers through the steps required to license their groundwater well in order to help secure access to their water supply in the future. (Milen Kootnikoff, MFLNRO)	**Improving On-farm Drainage Management to Reduce Impacts of Climate Change** What are some of the most effective and economical drainage practices for producers in the Fraser Valley? Sean Smucklr will describe a study he is coordinating which looks at different drainage practices (drainage cleaning and maintenance, cover crops, tile drain spacing, etc.) and assesses which practices are the most cost-effective and best at reducing winter ponding and improving drainage (Sean Smucklr, UBC)	**Water Recycling on Dairy Farms** How can dairy producers recycle water on their farm to reduce water needs and improve wastewater management? (Jim Peters, Pacific Dairy Centre)

3:40 FINAL DISCUSSION AND CLOSING REMARKS

Appendix B: Outreach and Communications Materials

As part of the Fraser Valley Agricultural Water Workshop Series project, the consultant developed outreach and communications materials to promote the knowledge transfer event. These materials included:

- Single-sided flyer to be used in all promotions
- Newsletter advertisement (designed for the BC Blueberry Council newsletter)

The flyer was distributed by the consultant through the following communications channels:

- Social media: posted to local Facebook groups including Fraser Valley Farm and Pet supplies, Agassiz and Kent News and Events, Chilliwack Farmers and Gardeners Online Marketplace, Climate Action Initiative (post boosted and targeted to Fraser Valley geography), Fraser Valley Events (x2), posted on both Facebook and Twitter for the CAI
- Direct invitations to commodity groups and local organizations groups including:
    - Blueberry Council
    - BC Landscape and Nursery Association
    - BC Poultry Association
    - BC Greenhouse Growers Association
    - BC Dairy Association
    - BC Potato and Vegetable Growers' Association
    - BC Agriculture Council (also promoted on BCAC social media outlets)
    - Delta Farmers Institute
    - BC Young Farmers & Fraser Valley Direct Farm Marketing Association
    - Fraser Valley Cole Crop Growers' Association
- Advertisement in BC Blueberry Council newsletter (several other commodity groups were contacted and asked if they would like a custom advertisement, but only the BC Blueberry Council had specific sizing requirements for an advertisement in their newsletter)
- Direct invitation to working group participants
- Request for distribution to all local government Agricultural Advisory Committees

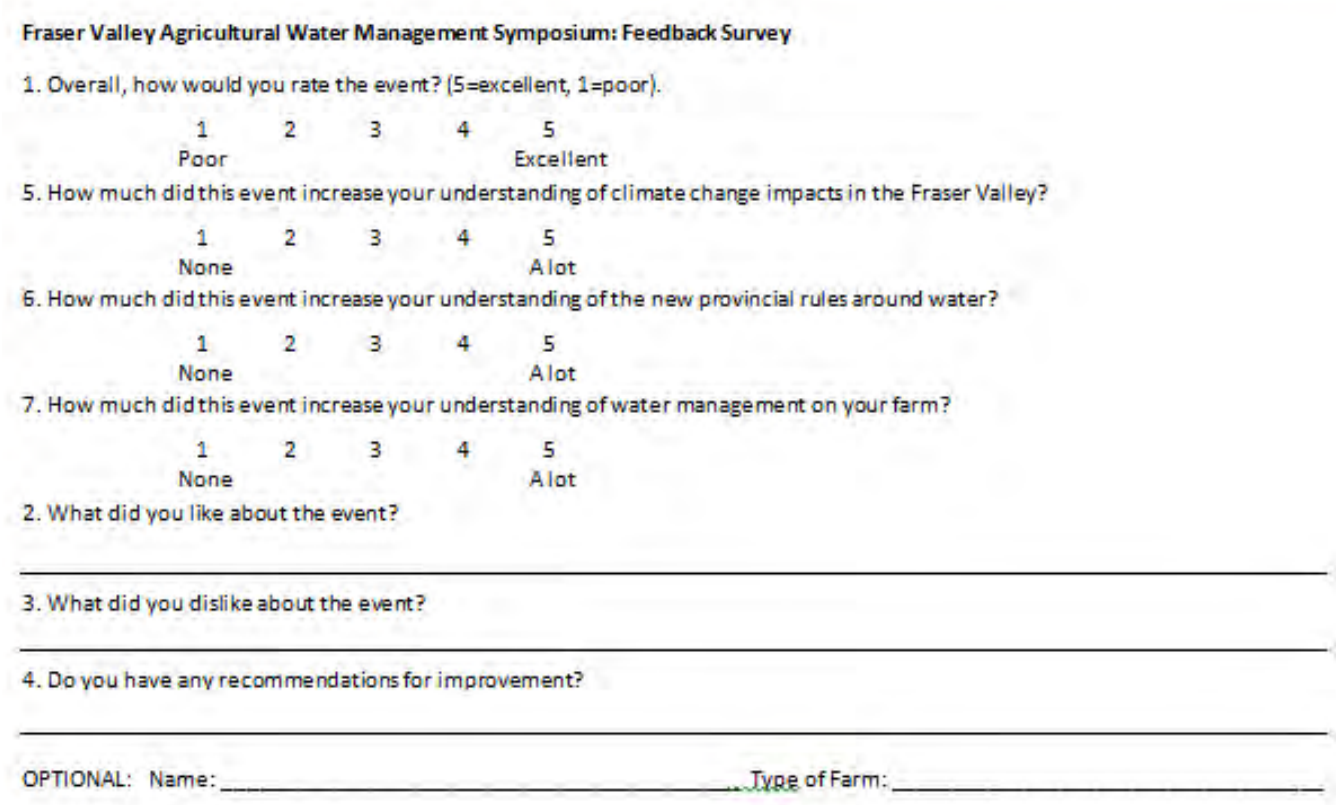
The following figure shows the newsletter advertisement placed in the BC Blueberry Council newsletter. The figure on the following page shows the flyer distributed to all other groups and organizations.

Appendix C: Knowledge Transfer Resource

Appendix D: Workshop Evaluation Information

Fraser Valley Agricultural Water Management Symposium: Feedback Survey

At the end of the symposium, participants were asked to fill in a survey to provide feedback and suggestions. The following figure shows the survey.



Fraser Valley Agricultural Water Management Symposium: Feedback Survey

1. Overall, how would you rate the event? (5=excellent, 1=poor).

1 2 3 4 5
Poor Excellent

5. How much did this event increase your understanding of climate change impacts in the Fraser Valley?

1 2 3 4 5
None A lot

6. How much did this event increase your understanding of the new provincial rules around water?

1 2 3 4 5
None A lot

7. How much did this event increase your understanding of water management on your farm?

1 2 3 4 5
None A lot

2. What did you like about the event?

_____

3. What did you dislike about the event?

_____

4. Do you have any recommendations for improvement?

_____

OPTIONAL: Name: _____ Type of Farm: _____

Survey Results

A total of 34 surveys were completed. Overall, the event was very well received. In addition to the survey responses, participants made several positive comments to the consultant following the event and many positive comments were also received from the symposium speakers.

The majority of participants rated the events as either “Excellent” or Very good” and stated that the event increased their understanding of climate change impacts, the new provincial rules around water, and how to manage water on their farm. Approximately half of survey respondents identified themselves as farmers (the remaining did not identify whether they were a producer). It appears that the primary value received from the event was related to the increased understanding of the new provincial rules around water.

The following page provides detailed information on the responses obtained to the survey questions.

Q1: Overall, how would you rate the event? (5=excellent, 1=poor)

Average response: 4.2

Q2: How much did this event increase your understanding of climate change impacts in the Fraser Valley?

Average response: 3.5

Q3: How much did this event increase your understanding of the new provincial rules around water?

Average response: 4

Q4: How much did this event increase your understanding of water management on your farm?

Average response: 3.4

Q5: What did you like about the event?

- Learning about available tools for irrigation management
- The presenters were very approachable
- Good variety of speakers - applicable to the topic; good food
- Good scope of water-related topics. Expertise in speakers
- Sessions explaining practical issues, municipal water, irrigation, drainage
- Good speakers, interesting talks
- Very well run/professional
- Well registration/licensing presentation and morning talks
- I thought a good mix of speakers and topics
- Not too rushed, YET not too long. Good speakers
- All of it
- Hands on
- In depth discussions - not only high level
- Excellent speakers
- Irrigation information
- Hearing other's opinions. The fire alarm added some excitement
- The range of topics
- The diversity of presentations and quality of presentations (easy to understand)
- Let's me know where to find all needed info
- Brought in lots of producers
- Well organized, diverse speakers
- The academic section of event
- Greenhouse information
- Venue/lunch
- Small Groups
- Talks from Van Belle staff and UBC professor, Front Count BC licensing process

Q6: What did you dislike about the event?

- Linear tables
- Review on climate change
- Distance between event rooms was awkward, certain presentations were overly complex
- Initially billed as well registration workshop - changed to water management
- Fuzziness about requirements (licensing)
- Meeting rooms should have been closer together. Some parts were a little monotone and dry
- Need better handouts to go with presentations
- Large, crowded presentations
- Meeting room dispersion

Q7: Do you have any recommendations for improvement?

- More time for breakout sessions after lunch
- Fewer fire alarms :)
- No fire alarms
- No. It was excellent
- More time could have been spent on climate change impacts
- More updates later re: licensing
- Make licensing more user friendly. It seems a little overkill for the amount of information they want.
- We would like to hear the successful s? In terms of these academic information application
- Smaller group work
- Go for a half day session - you lost too many after lunch and with juggling people to separate rooms