



BC School Fruit and Vegetable Nutritional Program

Evaluation 2012 - 2013

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“This is the best program they have come up for students. They have learned to eat way more fruit and vegetables and are willing to try things that they never would have before. It also has given the students a real sense of where their food comes from and what it takes to put it on their table ... something that many students in urban centers don't understand, they think it all just comes from a grocery store. We have gone from students who have never tasted a banana to students who are waiting for the peppers to go out on the table at snack time. Very seldom do you see pop and junkfood in our hallways anymore, so students from K-12 are making smarter choices when it comes to their food.” *BSFVNP Program Coordinator, David Stoddart School, Merritt*

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1.0 EXECUTIVE SUMMARY

Background. The BC School Fruit and Vegetable Nutritional Program (BCSFVNP) is funded by the BC Ministry of Health and administered by the BC Agriculture in the Classroom Foundation, with the help of a variety of produce partners. The goal of the program is to: *Improve the nutritional health of BC children by working collaboratively with produce partners to deliver fruits and vegetables directly to all BC schools.*

The program aims to deliver on six key objectives:

- For students: to increase the exposure to, willingness to try and acceptability of fruits and vegetables;
- For students and teachers: to increase awareness of local fruits and vegetables;
- For volunteers and coordinators: to increase the awareness of safe handling practices for fresh produce;
- To increase the availability of local fruits and vegetables in BC schools;
- To support the local economy through business for farmers and distributors;
- To build relationships with produce partners and collaborate.

During the 2012 - 2013 school year, the BCSFVNP delivered fresh produce snacks to 1341 K-12 public schools and 77 First Nations schools in BC. Context Research was contracted to evaluate the program over two school years (2011-12 and 2012-13). During the first evaluation year, we focused specifically on the BCSFVNP in First Nations schools, and reported on this evaluation in July 2012. In the second evaluation year, we focused on schools new to the BCSFVNP in September 2012, and invited their participation in evaluation over the course of the 2012-2013 school year. This report details our evaluation methods and results, highlights the new and continued successes and challenges in distributing produce and working with produce partners and schools, and the extent to which the program objectives were met.

Methods. Within the 2012-2013 evaluation year, our methods included interviews with AITC and all BCSFVNP produce partners, a student survey offered at the program outset (September 2012) and at school year end (June 2013) to schools new to the BCSFVNP in September 2012 (N=956 students in paired analysis), an online survey for teachers and coordinators at all BCSFVNP schools administered in June 2013 (N=832), and collection of observations of program impact from participating schools on a monthly basis (435 observations collected). We also continued our evaluation in a limited sample of First Nations students (N=82) to explore impacts of the BCSFVNP over a longer term.

BCSFVNP Process. Similar to 2011-2012, our findings regarding the BCSFVNP implementation process in 2012 - 2013 continue to be positive. Central to the success of the program, was the effort AITC made to build relationships with schools and produce partners. Through regular communications, AITC worked continuously on assessing and understanding the needs of growers, processors, carriers, schools and teachers. This allowed them to build a program that met the needs of all parties and established buy in, and belief in, the program.

AITC also spent time improving and streamlining the distribution process in 2012-2013. School program coordinators reported that they were highly satisfied with distribution processes,

and produce partners felt the program was well organized and effective, and believed strongly in the program and the benefits it had on students.

Based on the process evaluation findings, we recommend continuing efforts to engage, build relationships, and encourage collaboration with all program stakeholders. Ongoing effort will be required to efficiently work with the logistics and challenges associated with the cold chain supply and ensure that schools update AITC with their latest program information (e.g. allergies, “do not deliver” dates, contacts and FoodSafe certificates). We also heard from stakeholders interest in (1) further program expansion (to all BC schools (including independent schools), and to other provinces), (2) distribution of a wider variety of produce, (3) improving public awareness of the BCSFVNP, (4) opportunities for growers to visit classrooms and teach children about agriculture and local produce, (5) tracking shipments from the grower to the classroom, (6) enabling produce deliveries on every school day (instead of the current three), (7) encouraging schools to use the BCSFVNP educational resources to promote learning about local produce.

BCSFVNP Outcomes and Impacts. Our assessment of outcomes and impacts for students, teachers and coordinators demonstrated continued progress towards achievement of the BCSFVNP objectives. During the 2012-2013 school year, students at schools new to the BCSFVNP were clearly aware of an increased availability of, and exposure to, vegetables and fruit in their school environment, with 66.4% of students noting that their school provided fresh fruits and vegetables 1 to 3 times per month, compared to 37.3% noting this at baseline. Students reporting that their school didn’t provide fresh produce snacks declined from 17.3% at baseline to 1.8% at follow-up. Impact observations reported by coordinators over the course of the year supported this increase in produce availability in the schools. An overwhelming 99% of program coordinators and teachers indicated that the increase in produce availability at their school was notable.

We found that both acceptability of and willingness to try vegetables and fruit increased significantly in students starting the BCSFVNP in September 2012. Interestingly, the data suggested that elementary students’ acceptance of vegetables and fruit was more influenced by ‘affect’ (i.e., feelings related to fruits and vegetables) and secondary students’ acceptance of vegetables and fruit was more influenced by their perceptions of whether their peers accepted vegetables and fruit. Willingness to try vegetables and fruit increased more obviously in elementary school students than in secondary school students, however, the analysis showed the change to be highly significant in the pooled group of students.

Further, The BCSFVNP had clear impact on vegetables and fruits actually tried in the school environment (on average, 4 tried at the beginning of the school year to 6 tried by June). The program appeared to impact vegetables and fruits tried at home for elementary school students, but not for secondary school students.

We were unfortunately only able to capture the two year longitudinal data in a much reduced sample of First Nations students, and our findings were not supportive of continued benefits of the BCSFVNP in terms of increased exposure to vegetables and fruits, or further increases in acceptability and willingness to try vegetables and fruits. This may have been due to the

students reaping the greatest benefits when the program was new to them and their school (resulting in smaller, less noticeable changes in the second year of the program), a reduced sample size with a concentration of students at schools that were concurrently providing produce to students through various meal and snack programs, and/or the mixed, ongoing impacts of all the other healthy eating and nutrition programs operating at First Nations schools. First Nations schools remained appreciative and supportive of the BCSFVNP, and viewed it as an important contribution to their school food supply and the nutrition that they are able to offer vulnerable students.

We did not find an effect of the BCSFVNP on students' awareness of local vegetables and fruits. However, the program coordinators and teachers indicated that they believed this was changing for students, and showed that they felt that learning about BC produce was an important part of the program.

Our observations and data for student outcomes and impacts indicate that the BCSFVNP is doing things right to have an impact on acceptability and willingness to try vegetables and fruit, especially in the first year of a school's participation. To continue with these good effects, it would be worthwhile to explore increasing the variability year to year in vegetables and fruit that students are exposed to, to increase opportunities for further improvements in willingness to try and to facilitate greater learning about BC produce. Further, promoting consistent integration and use of awareness-building pieces (i.e., "Scoops") in classrooms to improve students' awareness of BC agriculture, growing practices, and what produce is available close to home is warranted.

Outcomes and impacts relevant to coordinators and teachers were extremely positive. All evidence pointed towards well-informed, highly engaged and participating stakeholders, champions and schools. Nearly 80% of teachers and coordinators felt that *their* awareness of local vegetables and fruits increased because of their school's participation in the BCSFVNP, and a similar 80% indicated that the program had made a positive difference in volunteers' awareness of safe-handling procedures for fresh produce.

For local produce partners, we heard clearly that the program allowed them to build and strengthen relationships with AITC, collaborate and foster new relationships with a wide range of suppliers, and enhance relationships with customers and retailers. Further, carriers felt informed and supported in distributing produce for the program. In terms of increased business, four growers and processors reported the program was profitable and allowed them to reach new markets. Eight grower/processors and Overwaitea also reported they marketed their involvement with the program to drive new business or reach new markets.

Overall, students and schools participating in the BCSFVNP benefited, as did produce partners. Outcomes and impacts benefiting students were clearer in a large sample of students from a mix of schools, with changes in willingness to try fruits and vegetables and actually trying fruits and vegetables more pronounced in younger, elementary school students as compared to secondary students. Importantly, the program participants and champions recognized the importance of the program and demonstrated a commitment to the success and continuation of the BC School Fruit and Vegetable Nutritional Program.

2.0 PROGRAM AND EVALUATION BACKGROUND

The BC School Fruit and Vegetable Nutritional Program (BCSFVNP) aims to improve the nutritional health of BC children by delivering local fruits and vegetables to all BC schools. The BCSFVNP has been in operation since 2005, with funding provided from the BC Ministry of Health to the BC Agriculture in the Classroom Foundation (BC AITC). With help from volunteers and supportive produce partners, fresh fruit and vegetable snacks are provided every other week, thirteen times in the school year, to over half a million students. During the 2012 - 2013 school year, the program delivered 6.9 million servings of vegetables and fruit to BC students. The program also aspires to teach students about the importance of eating fresh, local products as it relates to supporting local farmers and the economies of rural regions. BCSFVNP promotes BC-grown produce and provides business to 10 different suppliers, representing over 600 B.C. growers. Produce is distributed by the Overwaitea Food Group, Saputo Dairy Products Canada, Dynamex Couriers, Papason Trucking Ltd, and other partners as needed.



2.1 PROGRAM GOALS AND OBJECTIVES

The goal of the BCSFVNP is to improve the nutritional health of BC children by working collaboratively with produce partners to deliver fruits and vegetables directly to all BC schools.

The BCSFVNP is working towards the following objectives:

- For students: to increase the acceptability of, exposure to, and willingness to try fruits and vegetables;
- For students and teachers: to increase awareness of local fruits and vegetables;
- For volunteers and coordinators: to increase the awareness of safe handling practices for fresh produce;
- To increase the availability of local fruits and vegetables in BC schools;
- To support the local economy through business for farmers and distributors;
- To build relationships with produce partners and collaborate.

2.2 EVALUATION BACKGROUND

During the Fall of 2011, AITC contracted Context Research to design and deliver an evaluation of the BCSFVNP over two school years (2011/2012 and 2012/2013).

In 2005/2006, AITC piloted the program in ten BC schools. During the pilot, each school received two servings of fresh produce over 32 weeks. The pilot evaluation¹ showed that students at the participating schools: (1) ate at least 5 fruit and vegetable servings per day; (2) ate one serving more than children at a comparison school; (3) increased their consumption to two



servings if they previously only ate one; and (4) increased their knowledge of BC grown apples. Further, the evaluation showed that the program facilitators (e.g. teachers, suppliers and distributors) were very satisfied with the program and felt it aligned with their values. There were similar, positive findings in subsequent evaluations from 2007-2010.^{2,3}

Researchers in other jurisdictions have evaluated similar fruit and vegetable snack programs, and reported on various outcomes.^{4,5} Notably, in Mississippi, the evaluation of a state-wide snack program for students in kindergarten to grade 12⁶ showed that at the end of the school year, participating students were more familiar with fruits and vegetables, had more positive attitudes towards fruits and vegetables, were more willing to try fruits and vegetables, and had increased their self efficacy to eat fruits and vegetables.

After a short hiatus, the BCSFVNP was renewed in the 2011 school year, with dedicated program funding from the BC Ministry of Health, and additional funding for extra produce servings at First Nations Schools provided by the First Nations Health Council. At the time,

¹ Naylor PJ, Bridgewater L. School fruit and vegetable snack initiative: Pilot phase evaluation. 2006.

² Naylor PJ, Bridgewater L. School fruit and vegetable snack initiative: Evaluation of the implementation of the 2006/2007 provincial roll-out. 2007.

³ Naylor PJ, Scott J. Perspectives of teachers and administrators on the implementation of the School Fruit and Vegetable Nutritional Program. 2009.

⁴ He M, Beynon C, Bouck MS, St Onge R, Stewart S, Khoshaba L, Horbul BA, Chircoski B. Impact evaluation of the Northern Fruit and Vegetable Pilot programme- a cluster-randomized controlled trial. *Pub Health Nut.* 2009; 12(11): 2199-2208.

⁵ Davis EM, Cullen KW, Watson KB, Konarik M, Radcliffe J. A fresh fruit and vegetable program improves high school students' consumption of fresh produce. *J Am Diet Assoc.* 2009; 109: 1227-1231.

⁶ Coyle KK, Potter S, Schneider D, May G, Robin LE, Seymour J, Debrot K. Distributing fresh fruit and vegetables at school: Results of a pilot outcome evaluation. *Pub Health Reports.* 2009; 124: 660-669.

program stakeholders had lingering questions around how the program changed students' attitudes towards, and knowledge of, fruits and vegetables, and in particular, their willingness to try new fruits and vegetables. Changes in 'willingness to try' were viewed as potentially having a more lasting impact on healthy eating, than situational changes in fruit and vegetable consumption. As well, stakeholders were interested in continued and augmented evaluation with produce partners, to assess the impact of the program in the agriculture sector. As well, there was a general curiosity around how the program was received in First Nations schools, as 2011 was the first year that the BCSFVNP was offered to these schools. Thus, evaluation work to explore these issues was prioritized in 2011-2012.

From January 2012 to June 2012, the evaluation focused on the process and outcomes of implementing the BCSFVNP in First Nations schools that newly joined the program in the 2011-2012 school year. We reported on this evaluation previously (July 2012). In summary, we found that by the end of the school year, First Nations students were significantly more willing to try new fruits and vegetables and were significantly more accepting of fruits and vegetables than they had been at the start of the program. The students recognized significantly more fruits and vegetables grown in BC, and had tried a significantly greater number of fruits and vegetables at school by the end of the school year, as compared to the start of the program. Further, in First Nations schools, the BCSFVNP increased teachers' and coordinators' knowledge of local fruits and vegetables and increased safe produce-handling practices. Teachers and coordinators also indicated that the program is highly feasible and entirely acceptable in First Nations schools. Local produce growers reported that the program allowed them to reach new markets, helped them collaborate with a wide range of suppliers and fostered new relationships among the range of involved produce partners.

For the 2012-2013 school year, our evaluation focus shifted to include those schools that started the program in September 2012. There was continued interest in evaluating changes in willingness to try fruits and vegetables and acceptability of fruits and vegetables in a larger sample of students, including those attending public elementary schools and secondary schools. We continued to examine impacts on students, teachers, growers and processors, and expanded our evaluation methods to invite observations of program impacts on a monthly basis, as well as a direct, in-school, guided observation of program implementation across all participating schools. We discuss the results of the 2012-2013 BCSFVNP evaluation in this report.

3.0 EVALUATION METHODS

3.1 EVALUATION FRAMEWORK

To evaluate the BCSFVNP, we developed a logic model and evaluation framework (Appendix A). The framework provides a description of the process and outcome evaluation activities. The process evaluation was used to understand the course and context of implementing the BCSFVNP. Findings from the process evaluation provided insight into the successes and challenges of implementing the program, and provide recommendations for similar programs to learn from. The outcome evaluation assessed progress towards the BCSFVNP objectives through the measurement of specific outcomes and impacts as defined in the logic model (Appendix A):

OUTCOMES	IMPACTS
Schools are informed and participating in the program.	For students, increased exposure, acceptability, exposure, and willingness to try fruits and vegetables.
Relationships with local growers and distributors are built and maintained. Distributors have the information and support to deliver the produce.	For students and teachers, increased awareness of local fruits and vegetables.
Relationships with the schools are built and maintained. Schools have the capacity to implement the program.	For volunteers and coordinators, increased awareness of safe handling practices for fresh produce.
Produce is received by schools and distributed to students.	Increased availability of local fruits and vegetables in BC schools.
	Increased business for local growers and produce distributors.
	Strengthened, collaborative relationships among produce partners.

3.2 EVALUATION TIMELINE

During the 2012/2013 school year, the evaluation focussed on schools that started the program in September 2012, which was a mix of 36 public schools and 16 First Nations schools). The timeline of evaluation activities for the 2012 - 2013 school year is provided in Table 1, below (a detailed timeline is provided in Appendix B). Evaluation methods for the 2012/2013 school year are described below.

Table 1: Evaluation timeline 2012 - 2013 school year

Activity	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct
Monthly observation logs	X	X	X	X	X	X	X	X	X	X				
Interviews (growers, processors, carriers)							X							
Student surveys	X								X	X				
Coordinator surveys									X	X				
Interviews (AITC)										X				
Data organization and analysis								X	X	X	X	X	X	
Reporting											X	X	X	X

3.3 PROCESS EVALUATION METHODS

The process evaluation was used to provide insight into the successes and challenges of implementing the program.

Key Informant Interviews

We gathered feedback from five AITC staff members and conducted interviews with 13 BCSFVNP growers, processors and carriers. Interviews with AITC staff focused on the successes and challenges of implementing the program (e.g. distribution logistics, building relationships with schools and suppliers, etc.). Meanwhile, interviews with growers, processors and carriers were used to learn about their involvement in the program over time, and gather information on new or strengthened relationships, increased business, the benefits of the program and the provision of information and support to implement the program. As we also assessed outcomes and impacts relevant for growers and processors, we used these interviews as an opportunity to collect outcome data (described below).

We conducted interviews by phone, using a semi-structured interview guide (a sample interview guide is provided in Appendix C). Interviews were audio-recorded and lasted 20 to 30 minutes. The full list of interviewees is provided in Appendix D.

Coordinator and Teacher Surveys

Through an online survey, we queried the process of program implementation, including aspects such as satisfaction with the process, ease of the process, and results of the direct observation of snack distribution. The online survey for teachers and coordinators was also directed towards the outcome evaluation (as described below). We invited all teachers and coordinators (one primary contact per school) at all participating schools (1,418 schools) to participate in the online survey.

In May and June 2013, 832 coordinators and teachers completed the online survey. Of these respondents, 398 (48%) were the BCSFVNP Program Coordinator, 302 (36%) were the FoodSafe certified volunteer, 214 (26%) were teachers, 193 (23%) were principals or vice-principals, and 229 (28%) were parents or volunteers (respondents could select more than one answer). Also, the majority of respondents came from schools that had been implementing the Program for more than three years (624, 75%).

In-School Observation of Snack Distribution

To help us assess the variability in program implementation across schools, as well as to collect quantitative data regarding the number of children trying and wasting snacks at schools, we asked the primary coordinators at all participating schools (N = 1,418) to complete one observation of program



implementation in one classroom at their school in May 2013. We provided coordinators with instructions to complete the observation (Appendix E), and provided a structured opportunity to report on the observation via the online survey in May – June 2013.

Through reporting on the online survey, 624 coordinators contributed observations of in-school implementation of the BCSFVNP.

3.4 OUTCOME AND IMPACT EVALUATION METHODS

Through the following methods, we assessed the degree to which the BCSFVNP objectives were met in the 2012/2013 school year.

Student Surveys

We conducted baseline (September 2012) and follow-up surveys (May-June 2013) with students in grades 3 through 12 at schools that started the BCSFVNP in September 2012 (52 schools were invited to participate in the student survey; students from 16 schools participated in baseline and follow-up surveys). We ran the survey as an online version and as a print version, depending on the resources at individual schools. Both versions were well-received in the schools. For analysis, we had paired data for 956 students from 16 schools.

We also conducted a second follow-up survey (May-June 2013) with the students at First Nations schools who completed the baseline and first follow-up surveys during the 2011/2012 school year to assess the impact of the program over a longer duration of time. For this analysis, we had longitudinal data for 82 First Nations students.

The primary purposes of the survey were to assess changes in willingness to try vegetables and fruit and to assess acceptability of vegetables and fruit. Surveys were also used to determine changes in students' awareness of local, BC fruit and vegetables, and their

perceptions of increased availability of vegetables and fruit in the school environment. More detail on the survey constructs is provided in the paragraphs below. We tested and refined the surveys with children in the target age range (grades 3 through 12) prior to implementation in schools. The survey is provided in Appendix F.

The survey was used to assess changes in:

- (1) willingness to try fruits and vegetables (i.e., food neophobia)
- (2) numbers of fruits and vegetables tried at home and at school
- (3) acceptability of fruits and vegetables
- (4) knowledge of local fruits and vegetables
- (5) perception of availability of fresh fruits and vegetable snacks in the school environment

We examined changes in these variables within the pooled student sample (n=956) and separately within elementary (n=480) and secondary (n=476) students.

Willingness to Try: We designed the survey by integrating adaptations of surveys previously validated in a school-age population in BC with newly developed segments to address our unique survey needs. To measure 'willingness to try', we used a modified version of the Food Choices Scale for Children,⁷ which was originally drawn from the validated Food Neophobia Scale⁸ and the Food Neophobia Scale for Children.⁹ The Food Choices Scale was adapted (in Action Schools! BC) to focus specifically on fruits and vegetables; within the BCSFVNP evaluation we made small changes to keep the items focused on local fruits and vegetables (i.e., the items relating to fruit and vegetables from other countries were not relevant and therefore removed), and one item was re-worded to focus on willingness to try fruits and vegetables within the school environment (as opposed to at a friend's house). The resultant scale had 7 items, each receiving a score between 1 and 7; scores were cumulated into a single 'willingness to try' (neophobia) score, where higher scores were related to a higher willingness to try fruits and vegetables. We used a paired samples t-test (SPSS 16.0) to compare the mean 'willingness to try' scores at baseline and follow-up.

Numbers of Fruits and Vegetables Tried: We assessed changes in the number of fruits and vegetables students' had tried using a picture checklist of fruits and vegetables that included all items available through the BCSFVNP (11 items), as well as four additional items that were deemed commonly available in BC. We asked students to check items that they had tried at home, and those that they had tried at school. We used a paired samples t-test (SPSS 16.0) to compare the mean number of fruit and vegetables tried at baseline and follow-up, for both home and school.

Acceptability: We adapted the Knowledge, Attitudes and Perceptions survey⁷ to assess feelings about fruits and vegetables (affect score), and perceptions of the social environment related to fruits and vegetables (perceptions score). We reduced the survey to include three

⁷ Day ME, Strange KS, McKay HA, Naylor PJ. Action Schools! BC – Healthy Eating; Effects of a Whole-school Model to Modifying Eating Behaviours of Elementary School Children. *Can J Publ Health*. 2008; 99(4): 328-31.

⁸ Pliner P, Hobden K. Development of a scale to measure the trait neophobia in humans. *Appetite*. 1992; 19: 105-20.

⁹ Galloway A, Lee Y, Birch L. Predictors and consequences of food neophobia and pickiness in young girls. *J Am Dietet Assoc*. 2003; 103(6):692-98.

items relevant for 'affect' and 2 items relevant for 'perceptions of the social environment'. The scores for these items were cumulated within the two measures, and were considered within our interpretation of 'acceptability' of fruits and vegetables. We used a paired samples t-test (SPSS 16.0) to compare both the mean 'affect' and 'perceptions' score at baseline and follow-up.

Knowledge of Local Fruits and Vegetables: We assessed changes in knowledge of local fruits and vegetables through a picture checklist (similar to 'fruit and vegetables tried', above), in which students were asked to check fruits and vegetables that they thought were grown in BC. Resultant scores represented the number of fruit and vegetables that they correctly checked. We compared mean scores at baseline and follow-up with a paired samples t-test (SPSS 16.0).

Perception of Availability: We asked students about how they perceived the availability of produce snacks at baseline and follow-up (via a frequency scale), and examined the percent of students answering at each level of frequency.



Monthly Reporting Logs

During Fall 2012, we worked with AITC to add an evaluation item to the regular monthly reporting logs that schools were already completing. Through these logs, we invited contributions of first-hand observations of the program's impact within the schools:

*Evaluation is an important part of this program. To help us understand what students know and like about fruits and vegetables and how this changes over the year, please tell us about your observations of the program at your school. You can contribute an observation of the program impact as often as you like ... every month, or just once in the school year. Please share one significant observation made this month that shows the impact of the program on the students at your school. **This month we observed ...***

AITC submitted the impact observation data to Context regularly for review and thematic analysis. From September 2012 to February 2013 we reviewed the monthly logs and thematically analyzed the 435 submitted observations. Early in the process, we identified 37 theme areas. Later, we collapsed and combined themes to make the data organization and analysis process more manageable. In the end, we assigned observations to 22 theme areas (Appendix G). Some observations were assigned to more than one theme area. For example, an observation could have highlighted students' excitement for a snack as well as increased willingness to try produce.

Electronic Surveys With Teachers and Coordinators

As indicated under 'Process Evaluation Methods', we conducted electronic surveys in Spring 2013 to collect teachers' and coordinators' perspectives on program implementation. In relation to program outcomes and impacts, the survey also explored capacity to implement

the program, increased awareness of local, BC vegetables and fruit, increased awareness of safe handling practices, enhanced relationships with AITC, perspectives on increased availability of fruits and vegetables in the school environment and changes in students' willingness to try and acceptability of vegetables and fruit.

Key Informant Interviews

As described under 'Process Evaluation Methods' we conducted key informant interviews in March 2012. In addition to collecting process-related data, these interviews explored outcomes and impacts including:

- Relationships with local growers and distributors are built and maintained.
- Distributors have the information and support to deliver the produce.
- Increased business for local growers and produce distributors.
- Strengthened, collaborative relationships among produce partners.



4.0 PROCESS EVALUATION FINDINGS

4.1 NEW PROGRAM FOR 2012-2013: OUTPUTS

During the 2012-2013 school year, 52 new schools (36 public and 16 First Nations) joined the BCSFVNP, taking the total number of schools participating to 1,418. To provide snacks for these schools, AITC worked with 637 growers/processors and 88 grocery stores to distribute 6.9 million servings of fruits and vegetables (Figure 1).



Figure 1: BCSFVNP 2012 -2013 distribution process schematic (supplied by AITC).

4.2 PROGRAM IMPLEMENTATION: BUILDING AND MAINTAINING RELATIONSHIPS

In 2012-2013, AITC continued building relationships with schools and produce partners. Below we describe the factors that facilitated building relationships (no challenging factors were reported or discussed with the evaluation team).

Facilitating Factors for Relationship-Building

- *Understanding the needs of schools and partners*
AITC highlighted the importance of understanding, and accommodating, the needs and realities of schools and produce partners (e.g. they are very busy and have existing schedules and priorities). AITC actively sought feedback and tailored the program to meet the needs of produce partners and schools to ensure it is easy for them to participate in the program. For example, AITC used technology (School login page, online log sheets and update forms, Synervoice Automated Call System, email waybills) to streamline communication and make it easy for schools and partners to access information.

- *Quick, concise communication with schools*
The AITC Program Operation Manager and the School Liaison and Communications Coordinator discussed the importance of regular, concise communication with the schools to keep them informed (e.g. delivery delays or changes), build trust and cement relationships.

The AITC School Liaison and Communications Coordinator also discussed the importance of circulating “back-up” emails and automated phone calls to ensure schools received messages and notifications. This was particularly important for schools that had high staff, principal and volunteer turn over.

- *Regular communication with produce partners*
Feedback from AITC highlighted the need to have regular, yet concise, communication with the produce partners. For example, AITC initiated “waybill” emails for individual drivers so they knew what produce they are delivering a week in advance. These efforts ensured the distribution process ran smoothly and potential issues or disruptions were addressed. The Program Operations Manger also discussed how keeping partners in close communication allowed them “to want to grow with [the BCSFVNP] and help resolve issues as they arise.”
- *Sharing and promoting the value of the program*
AITC actively promoted the value of the BCSFVNP to produce partners and funders (e.g. Ministry of Health) by sharing success stories, testimonials, and program “wins.” These actions showed partners and funders the value the program brings to students and schools around the province. This helped partners feel a part of the program, established buy-in, and helped them see how they were contributing to the program objectives. For funders, it helped them see the value of continued funding to the program.

The Program Operations Manager also discussed how AITC helps produce partners understand the economic impact of the program. Providing information regarding the volume of BC fruits and vegetables purchased helps growers, processors and carriers understand the opportunity the program provides to the agricultural industry now and in the future.

- *Saying 'Thank You'*
The AITC Executive Director talked about the importance of regularly thanking produce partners for their involvement and commitment to the program. Saying “thank you” showed produce partners that their efforts were appreciated and conveyed the importance of their involvement with the program.
- *Engaging principals*
The AITC Program Operation Manager and School Liaison and Communications Coordinator highlighted the importance of engaging principals and ensuring they were on board with the program. When principals were not engaged, it was difficult to gain alignment with the school staff, volunteers and parents. To overcome this challenge, AITC began directing communication for new and existing schools to both principals and coordinators to make sure they were informed and engaged.

4.3 PROGRAM IMPLEMENTATION: DISTRIBUTING PRODUCE

AITC put a significant amount of time, energy and effort into distributing produce efficiently and effectively. The distribution process involved transporting fresh produce to schools across the province with the help of BC growers, processors and carriers. Below we describe the facilitating and challenging factors associated with distributing produce.

Facilitating Factors for Produce Distribution

- *Effective logistics for distribution*
When we interviewed the BCSFVNP carriers, growers, and processors, it was clear the produce partners believed the distribution process was well-organized. All three carriers and Overwaitea reported the process of distributing produce was smooth and effective as a result of the regular communication and schedules provided by AITC. One carrier also stated that, due to the duration of their involvement with the program, they were familiar with the distribution process, had fixed “kinks” in the delivery process and had built relationships with AITC and the schools they delivered to. This made it easy for them to deliver produce for the program.
- *Buy-in and belief in program*
Eleven growers, processors and carriers spoke about the benefits of the program, particularly for students. The belief in the program, along with AITC’s enthusiasm and support, fostered a sense of good will and commitment to the program, which in turn facilitated ease of participation in the distribution process. It also motivated some produce partners to go above and beyond what was expected of them (e.g. the staff and crew of the “Lady Rose” ferry in Barkley Sound made certain that produce deliveries made it on the ferry and to the students).

- *Greater collaboration among produce partners*
The AITC School Liaison and Communications Coordinator reported that Overwaitea stores and drivers were collaborating and working together to proactively solve issues and challenges that arose within the distribution chain. Often times, drivers and stores would call AITC to inform them of a solution to an issue rather than report a problem. This resulted from the relationships that had been built between drivers and stores, and also highlights the commitment to the program.

Challenging Factors for Produce Distribution

- *Length of time in the cold chain supply*
AITC discussed the importance of ensuring that produce gets from the farm to the school in as few days as possible (most produce arrives at schools within six days of leaving the farm). A very small number of schools (11) require more time due to their remote location. Although this is not an ongoing or regular challenge (AITC has established a very efficient distribution process), unforeseen disruptions to the cold chain supply can impact the quality of the produce.

4.4 PROGRAM IMPLEMENTATION: SCHOOL LEVEL

Below we discuss feedback and observations from teachers and coordinators regarding the process of implementing the BCSFVNP. We also describe the factors that facilitated and challenged program implementation in schools.

Teacher and Coordinator Perspective on Program Implementation

The survey of teachers and coordinators (n=832) showed they were very satisfied with the all aspects of the program. Between 95 and 100% of respondents were 'highly satisfied' or 'satisfied' with produce quality, variety, volume, delivery, distribution, and packaging. Further, 806 (97%) respondents felt they had the necessary information and materials to implement the program.

Using the online survey, we also asked teachers and coordinators to observe and report on one produce delivery at their school. More specifically, we asked questions related to produce delivery, preparation, distribution and consumption. For each question, there were a range of answers that could be selected. The survey responses showed that program implementation varied across schools. However, the most commonly reported observations were as follows:

- **School staff** received the produce shipment when it arrived at the school (278, 45%)



- The **BCSFVNP Program Coordinator** prepared the snack before it was given to students (330, 53%)
- **Student helpers** delivered snacks to classrooms, the lunchroom, or the location where it was given to students (319, 51%)
- **Teachers** gave students their snack or portion (402, 64%)
- Students **received** the snack in their **regular (home) classroom** (569, 91%)
- Students **ate** the snack in their **regular (home) classroom** (561, 90%)
- **All** students received the snack (379, 61%)
- **Most** (80-99%) students tried the snack (479, 77%)
- **Very few** (1-20%) students wasted a significant portion of the snack (**439, 70%**)
- Extra or leftover produce was **distributed to other students** (403, 65%)

Finally, we used the survey to ask coordinators ‘what could be done to make the program easier to run.’ Of the 329 coordinators who provided a response, 185 indicated that the program was great the way it was, and 144 made the following recommendations for changes:

- Pre-wash the produce (32 comments)
- Ensure produce is ready to distribute and/or eat (e.g. carrots and blueberries in individual portions, distribute single serving fruit only, provide spoons with kiwis) (29 comments)
- Use less packaging (16 comments)
- Change delivery times to ensure produce can be given to students the same day it is received (14 comments)
- Encourage schools to have more volunteers or staff to assist with the program (13 comments)
- Provide more produce and more varieties of produce (10 comments)
- Have drivers notify the appropriate school staff when produce arrives at the schools (nine comments)
- Address issues related to refrigeration (e.g. only provide produce that doesn’t require refrigeration, provide funding for fridges) (seven comments)
- Provide more funding to schools (e.g. to purchase trolleys for in school deliveries and to employ program support) (three comments)
- “Other” (e.g. provide materials in French, provide nutrition fact sheets, make it so schools don’t need to reapply for the program each year) (11 comments)



AITC Perspective on Program Implementation in Schools

AITC reported a few facilitating and challenging factors of implementing the program.

Facilitating Factors

- *Engaging drivers to communicate with schools*
The School Liaison and Communications Coordinator reported that AITC encouraged drivers to talk to schools that had not returned their online Renewal Form. Since the drivers had a vested interest in keeping the school on the Program, and were on “front line,” they were very successful in helping schools complete their form.
- *Ensuring produce partners have up-to-date FoodSafe certificates*
The AITC Executive Director spoke about the importance of ensuring that all produce partners have up-to-date FoodSafe certificates. In order to participate in the program, AITC requires that all partners submit copies of their current certificates. This ensures the health and safety of the children who receive and consumer the produce deliveries.

Challenging Factors

- *Ensuring school information is up to date*
The AITC School Liaison and Communications Coordinator highlighted the importance of ensuring that records for each school (e.g. allergies, “do not deliver” dates, contacts, and FoodSafe certificates) were up-to-date. If records were not kept up to date, it was possible for a school to miss out on a delivery. To overcome these challenges, AITC created an easy-to-use online form for schools to submit changes. However, it was necessary for schools to remember to inform AITC, which didn’t always happen.

4.5 SUMMARY AND RECOMMENDATIONS REGARDING BCSFVNP PROCESS

Below we summarize the process evaluation findings and make recommendations around the program process.

Process Evaluation Summary

The feedback we received from AITC, schools and produce partners about the course and context of implementing the BCSFVNP was extremely positive. Central to the program success was the effort AITC made to build relationships with schools and produce partners. AITC went out of their way to understand the needs of growers, processors, carriers, schools and teachers. For example, they actively sought and incorporated feedback and engaged in regular communication. Doing so allowed them to build a program that met the needs of all parties and established buy in, and belief in, the program.

In addition to building relationships, AITC spent a significant amount of time improving and streamlining the distribution process. They also regularly communicated with produce partners and encouraged collaboration with schools. Produce partners felt the program was

well organized and effective, and believed strongly in the program and the benefits it had on students.

In terms of program implementation, teachers and coordinators were very satisfied with all aspects of the program. They also observed and described one produce delivery. Feedback from the observations showed that while program implementation varied across schools, there was a scenario that occurred most commonly, which included: school staff receiving the produce shipment, the BCSFVNP Program Coordinator preparing the snack, student helpers delivering snacks to students, teachers giving students their snack, and students receiving, trying, and eating the snack in their regular (home) classroom, with little wasting of produce.

AITC highlighted the challenge of maintaining the cold chain supply and ensuring that school records were up to date. Although AITC did their best to overcome these challenges, these factors were largely out of their control and simply required ongoing attention.

Recommendations

Based on the process evaluation findings, we recommend continuing efforts to engage and build relationships with all groups involved in the program. It is also important to establish buy in and encourage collaboration between schools and produce partners. Ongoing effort will be required to improve the cold chain supply and ensure that schools update AITC with their latest program information (e.g. allergies, “do not deliver” dates, contacts and FoodSafe certificates).



AITC, Growers, processors, carriers, and school-level program coordinators also had the following suggestions to enhance and/or improve the program:

- Expand the program to include all BC schools and/or to other provinces (four partners and the AITC Executive Director suggested this)
- Distribute a wider variety of fruits and vegetables (two partners and ten program coordinators)
- Increase awareness of the BCSFVNP among the general public (one partner)
- Create opportunities for growers to visit classrooms and teach children about agriculture and local produce (one partner)
- Develop mechanisms to track shipments from the grower to the classroom (one partner)
- Enable produce deliveries five days a week rather than the current three days a week (one partner)
- Invite independent schools to participate in the program (AITC Executive Director)
- Encourage schools to use the educational resources (“Scoops”) to promote reading and learning about local produce (AITC Executive Director).

- Pre-wash the produce (32 program coordinators)
- Ensure produce is ready to distribute and/or eat (29 program coordinators)
- Use less packaging (16 program coordinators)
- Change delivery times to ensure produce can be given to students the same day it is received (14 program coordinators)
- Encourage schools to have more volunteers or staff to assist with the program (13 program coordinators)
- Have drivers notify the appropriate school staff when produce arrives at the schools (nine program coordinators)
- Address issues related to refrigeration (e.g. only provide produce that doesn't require refrigeration, provide more funding for fridges) (seven program coordinators)
- Provide funding to schools for related resources (e.g. to purchase trolleys for in school deliveries and to employ program support) (three program coordinators).

5.0 OUTCOME AND IMPACT EVALUATION FINDINGS

5.1 OUTCOMES AND IMPACTS FOR STUDENTS

In this section, we discuss evidence related to outcomes and impacts relevant to students and schools, namely:

OUTCOMES	IMPACTS
Produce is received by schools and distributed to students.	Increased availability of local fruits and vegetables for students in BC schools.
	Increased acceptability, exposure, and willingness to try fruits and vegetables.
	Increased awareness of local fruits and vegetables.

Outcome & Impact: Availability of local fruits and vegetables for students in BC schools

Within our student survey, we examined whether the students noticed an increased availability of fruits and vegetables in their school environment. As well, this perspective indicates whether the outcome ‘produce is received by schools and distributed to students’ was achieved. We asked students, ‘Does your school give you fresh fruits and vegetables for snacks?’ At baseline, responses were spread across options (Figure 2), with over a third of the sample indicating that fruits and vegetables were rarely or never provided by the school. There was a notable change in follow-up responses, with the majority of students (66.4%) indicating that their school provided fresh fruits and vegetables one to three times per month. The proportion of students indicating that their schools rarely or never provided fresh fruits and vegetables dropped to 11% (from 33%).

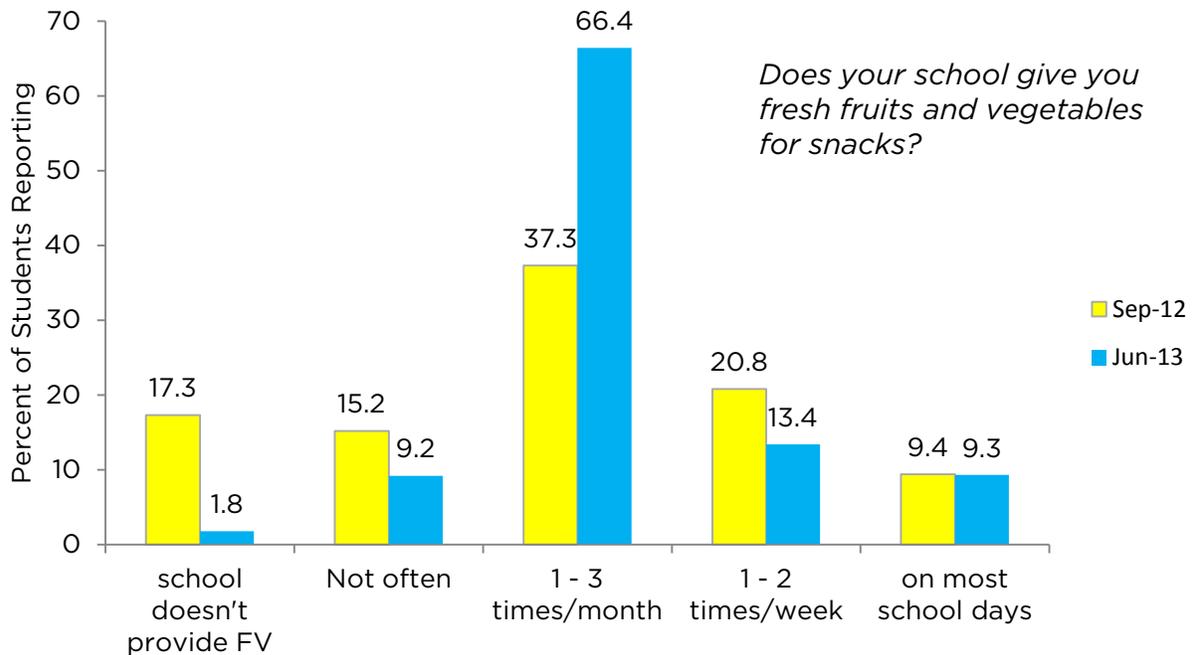


Figure 2: Baseline and Follow-up Responses to 'Does your school give you fresh fruits and vegetables for snacks?' from student survey at new BCSFVNP schools, 2012-2103.

Further, within our program coordinators survey, we found that 99% of coordinators and teachers felt that availability of fruits and vegetables increased in their school because of the BCSFVNP. Finally, impact observations from program coordinators gave further support to the BCSFVNP's impact on availability of vegetables and fruit in schools (the full analysis of this evaluation activity is presented in Appendix H): there were 24 observations relating to how the BCSFVNP filled a nutrition gap at schools, and a further 24 observations of sharing of extra produce among classes or with ongoing meal programs. These observations of impact on availability of vegetables and fruit are illustrated below:

I have a few students in class who have challenges in the home, and come to school hungry. It was so nice to be able to offer blueberries....they were just so happy as they ate them. -Osyoos Secondary School

The apples were lovely! We had some extra so the kindergarten and grade one students had the opportunity to spend some time in the kitchen making apple sauce for snack. Thank you from all the students at Nanoose Bay Elementary for you fabulous program! -Nanoose Bay Elementary

Clearly, over the course of the BCSFVNP in 2012-2013, fresh fruits and vegetables made it into the hands of students, and they noticed and experienced the increased availability of fresh fruits and vegetables in their schools.

Interestingly, in the First Nations students who completed long term follow-up, we did not note this same shift in perspective of availability of fruits and vegetables. In this much smaller sample, at baseline, students (52%) tended to report that their school provided fresh fruits and vegetables on most school days, and this perspective remained the same over the two years of follow-up. There was little opportunity for a shift in this variable, as students were

already experiencing a high level of fruit and vegetable availability. This is likely due to the provision of food through various funded meal programs at the First Nations schools, and from our observations in 2012 during school visits, the high priority that First Nations school administrators placed on nutrition in the school environment.

Impact: Increased exposure, acceptability, exposure, and willingness to try fruits and vegetables

Exposure: We showed in the previous section that there was, indeed, increased exposure to fruits and vegetables for students at schools starting the BCSFVNP in September 2012. In our limited sample of First Nations students followed over two school years, we see that this increased exposure is not as evident due to an already high exposure from coinciding meal and nutrition programs at these schools.

Analysis of impact observations from the program coordinators' submitted monthly logs indicated that increased exposure to fruits and vegetables was notable to them. We found that *'new fruit and vegetables were introduced to students'* was one of the most common theme areas for impact observations, with 24 of 435 observations specifically indicating increased exposure. Illustrative observations of increased exposure include:



Our school has a high Indo-Canadian population so, for some students, some of the fruits and vegetables that they are being served, they haven't had before.
-Senator Reid Elementary

We actually have students that have never had a blueberry till now. We all look forward and get excited on delivery day. Thank you again. -West Langley Elementary

A few more children tried kiwi that have never tried it and they liked it. This program is a wonderful way to introduce new and a variety of fruits and vegetables.
-Ntamtqen Snm'a?m'aya?tn

Acceptability: We assessed students' acceptability of fruits and vegetables within our student survey, through which we compared changes in *'affect'* scores and *'perceptions of the social environment'* scores between baseline and follow-up. *Affect* scores were calculated including responses to *'liking the taste of vegetables'*, *'liking the taste of fruit'*, *'eating vegetables and fruit makes me feel better'*. *Perceptions of the social environment* scores were calculated based on responses to *'my friends/my family eat lots of vegetables and fruit'*. We found that both *affect* and *perceptions* scores increased significantly over the course of the school year in the pooled sample of elementary and secondary students ($p < 0.001$, both). The strength of these results differed in elementary and secondary students, however. We found that *affect* scores significantly improved in elementary students over the school year (8%

increase, $p < 0.001$); affect scores in secondary students improved over the school year, to a lesser extent, with changes being borderline significant ($p = 0.044$). For *perception* scores, secondary students increased significantly from baseline to follow-up (9% increase, $p < 0.001$), with elementary school students improving to a lesser, and non-significant level ($p = 0.056$). *Perception* scores for secondary students were notably lower than those for elementary students at baseline, suggesting that they had a bigger potential change to make on this score over the course of the year. Overall, this evidence strongly suggests a significant effect of the BCSFVNP on acceptability of vegetables and fruit for elementary and secondary school students, with elementary students' acceptance of vegetables and fruit being more influenced by 'affect' (i.e., feelings related to fruits and vegetables) and secondary students' acceptance of vegetables and fruit being more influenced by their perceptions of whether their peers accepted vegetables and fruit.



We did not observe these similar changes in 'acceptability' for students at First Nations schools, within the 2-year analysis. This lack of significant change is likely due to a few reasons:

- (1) the sample was small ($n = 82$ had 2 years of data).
- (2) the sample was concentrated at just three schools (70 of 82 students were from one of three schools) for which 61% of students were reporting, at baseline, that the school was providing fresh fruit and vegetable snacks either every day or a couple times a week. This means that the produce supplied through the BCSFVNP would not have been such a marked change for these students who were already receiving produce at a high frequency. Interestingly, First Nations students in this sample appeared to have higher scores at baseline for both '*affect*' and '*perceptions of the social environment*' than students in the larger sample of elementary and secondary school students from in the 2012-2013 analysis. It's possible that First Nations student in this sample started the BCSFVNP with a higher level of acceptability for vegetables and fruits than the mix of students (predominantly non First Nations) who started the program in September 2012.
- (3) the possibility that the greatest impact of the program is achieved after one year of participation.

Further evidence suggesting increased acceptability of vegetables and fruit for BC students in the BCSFVNP came from the coordinators' and teachers' survey and from the impact observations made by program coordinators.

Feedback from the online surveys clearly showed that coordinators and teachers believed the program had a positive impact students' acceptance of fruits and vegetables. To illustrate, within the online survey, 671 coordinators and teachers (81%) indicated that "the majority of

students are excited and look forward to the produce.” When asked specifically whether they noticed a positive effect of the program on students’ acceptance of fruits and vegetables, 641 (78%) coordinators and teachers indicated “yes, for most students,” and 166 (20%) indicated “yes, for some students.”

Impact observations made by program coordinators in 2012-2013 provided evidence of increased acceptance (the full analysis of this evaluation activity is presented in Appendix H). This general theme area was illustrated by 199 positive observations of acceptability (of 435 total observations, representing 46% of observations), within three sub-theme areas: 1) students have increased acceptance of fruit and vegetable snacks (24 observations); 2) students enjoy the fruit and vegetable snacks (97 observations); 3) students are excited about produce deliveries/ask when snacks will arrive (78 observations). A sample of these ‘acceptance’ observations are presented below.

At the high school level, it is always amazing how excited the students are about receiving the fruit. I have heard teacher after teacher comment how thrilled the kids are to receive something like plums and how surprised they are when they hear it. Thanks so much! -Sa-Hali Secondary

The peaches were delicious. Many students were asking for more. Enjoyed by all! - Departure Bay School

A few groans with carrots (hoping for something more exciting) but they still ate them! -Reynolds Secondary School

Willingness to Try: We assessed changes in ‘willingness to try’ (or food neophobia) directly through the student survey. Increased scores on the food neophobia scale indicate more willingness to try vegetables and fruit. We found that in the pooled sample of elementary and secondary school students, *willingness to try* increased significantly between September 2012 and June 2013 ($p < 0.001$), however this change was more heavily driven by changes in the elementary students’ scores (5% increase, $p < 0.001$), than secondary students’ scores which were not significant ($P = 0.13$) when the groups were separated for analysis. As elementary and secondary students started, in September 2012, with nearly the same average score, it’s possible that this variable is more amenable to change in the younger students, with older students being more set in their ways and less receptive to encouragement in trying new foods.

Again, within the 2 year analysis of the smaller sample of First Nations students, the changes were harder to see. Although the change in *willingness to try* within the first year of the BCSFVNP was significant ($p < 0.05$), the additional increase after another year in the program was marginal and not significant ($P = 0.052$). Like for *acceptability*, it may be that the greatest impact of the program occurred within the first year, with smaller, less perceptible shifts in willingness to try detectable in the second year.

Through the online survey, we also asked teachers and program coordinators whether they noticed a positive effect of the program on students’ willingness to try fruits and vegetables: 639 (77%) coordinators and teachers reported “yes, for most students,” and a further 169 (20%) reported “yes, for some students.” This was further supported by the observation data

that was submitted through the monthly reporting logs. Sixty teachers and coordinators provided observations directly linked to increased willingness to try or curiosity about vegetables and fruit (Appendix H):

*As this was our second delivery (ever!) we found students are now understanding the program and are more **willing to try the fruit**, rather than the hesitation they had last time. -Ecole Panorama Ridge Secondary*

The kids are curious when they see the yellow bins. They ask: "What are we getting today?" -Sir John Franklin Elementary

*More kids were **willing to try the peaches**, or to take one with them than last time. -Learn at Home Nanaimo*

Actual Vegetables and Fruits Tried: We assessed changes in vegetables and fruits tried at school and at home, between September 2012 and June 2013 through the student survey. Changes in *actual tried* is indicative of a greater *willingness to try* vegetables and fruit. The number of vegetables and fruits tried at school increased significantly between September 2012 and June 2013, in both elementary and secondary school students (3.9 to 5.6, $p < 0.001$). There seemed to be an interpretation difference on this question between elementary and secondary students, as evidenced by higher scores at baseline in elementary students. It appeared that the secondary students were interpreting the question as '*indicate vegetables and fruits you have tried at school **this year***', whereas elementary students appeared to be thinking about it in terms of their whole school history. Regardless, both groups increased significantly on this variable, with the elementary students starting with a higher baseline and ending with a higher final measure (4.3 tried at baseline, 6.1 tried at follow-up).

Results for *actual tried* at home were clearly different between elementary and secondary students. There was no change in vegetables and fruits tried at home between September 2012 and June 2013 for secondary school students (13.5, both times), with elementary school students increasing significantly from 11.9 tried at home in September 2012 to 12.8 tried at home in June 2013 ($p < 0.001$). The consistent change in the elementary students' data was enough to make the pooled sample significant as well (12.7 to 13.1 tried, $p < 0.001$).



For First Nations students in the 2-year analysis, the changes in *actual tried* at school were significant in the first year of the program (4.9 to 6.2 tried, $p < 0.005$), and levelled off at the higher level in the second year of the program (remaining at 6 tried). This may have been due to the minimal changes in the program (i.e., produce actually delivered) between 2011-2012

and 2012-2013. For *actual tried* at home, the results were similar (10 to 11 tried in the first year, $p < 0.05$, with the results staying at 11 in the second year).

Thus, for actual fruit and vegetables tried, it appears that the biggest difference can be made in the immediate, school environment, where the BCSFVNP has the most influence. These data suggest that the BCSFVNP not only increased students' willingness to try vegetables and fruits at school, but facilitated that actual '*trying*' or consuming of the vegetables and fruit. A subtle, significant increase in the number of vegetables and fruits tried at home was most evident in younger students, who had, on average, tried less vegetables and fruits at home at baseline than their older counterparts.

Impact: Increased awareness of local fruits and vegetables for students

Within the student survey, we assessed students' recognition of vegetables and fruits grown in BC. Students generally scored well on awareness at baseline (average percent correct was 63%), and these scores did not change over the course of the year (all comparisons not significant). These results were similar in First Nations students - there did not appear to be any effect of the BCSFVNP on students' awareness of local fruits and vegetables, even after the second year of the program.

However, coordinators and teachers generally felt that students' awareness of BC fruits and vegetables increased because of the program: 389 (47%) reported "yes, for most students," 335 (40.5%) reported "yes, for some students," and 66 (8%) didn't know. A further 37 impact observations related to improved awareness in students came from program coordinators:

We introduced the idea of BC as a place where fruits grow, and introduced blueberries to kindergartners as a healthy snack idea. -Westwood Elementary

The students were unaware that we used to only get Japanese mandarins. The info sheets are very helpful. -Tsay Keh Dene School

Evidently, there are many teachers using BCSFVNP materials in the classroom, and facilitating discussions about local produce. However, there may be a disconnect between what students are hearing about in class relative to the BCSFVNP, and what they're able to transfer in a test of awareness or recognition on paper. It may be worthwhile augmenting or reinforcing the BCSFVNP educational component, or helping teachers to consistently use or integrate materials, to ensure transfer of knowledge to students.

5.2 OUTCOMES AND IMPACTS FOR TEACHERS AND COORDINATORS

In this section, we discuss evidence for outcomes and impacts relevant for teachers and program coordinators, namely:

OUTCOMES	IMPACTS
Schools are informed and participating in the program.	For teachers, increased awareness of local fruits and vegetables.
Relationships with the schools are built and maintained.	For volunteers and coordinators, increased awareness of safe handling practices for fresh produce.
Schools have the capacity to implement the program.	

Outcome: Schools are informed and participating in the BCSFVNP

Over the course of the evaluation, our interviews and working relationship with AITC demonstrated the high priority they place on keeping schools informed. By and large, they do this to promote and ensure successful school participation in the program. Their efforts are working: 97% of program coordinators indicated that they had the necessary information and materials to implement the BCSFVNP. Most program coordinators indicated that they tend to communicate monthly (39%) or bimonthly (40%), with a smaller number (2%) indicating they communicate weekly with AITC. The vast majority (88%) knew what to do when there was a problem with a produce delivery.

The coordinators' survey also gave us evidence of successful program participation: when asked how often produce was received and distributed as planned at the school, 77% indicated 'every time' and a further 22% indicated 'almost every time'. Not one coordinator (of 832 respondents) responded with 'not often'.

We have further evidence of participation from the open-ended survey question (for program coordinators): *'Is there anything else you would like to say about the program?'* That 549 coordinators chose to respond here is indicative of good engagement, but the 91% of positive responses and comments in this space indicates absolutely embracing the program. We constructed a word cloud (Figure 3) to represent this input from coordinators; a larger font size indicates greater repetition of the words or phrases across input. There were many submissions of thanks and general gratitude for the program, wishes for it to continue, descriptions of positive program impacts, proclamations of love for the program and recognitions of the program's smooth operations due to AITC's efforts. Clearly, the hundreds of coordinators who operate this program at the school level are engaged, and are encouraging their schools to participate fully.

Established relationships, with easy lines of communication, helped school program coordinators feel that their school had the capacity to implement the BCSFVNP, as the requirements on the school remained low. Through input provided on the coordinators' survey, we found that, in general, schools had the relationship they needed with AITC to run the program smoothly, and easily had the capacity to meet the demands of the program. The high priority and value coordinators placed on the program assisted in ensuring that the program was resourced. There were very few (< 5 in a sample of 832) indications that a school could not support a program and needed additional resourcing.

Impact: Increased awareness of local fruits and vegetables for teachers

We also used the online survey to ask coordinators and teachers about the impact of the BCSFVNP on increasing coordinators' and teachers' awareness of local, BC fruits and vegetables. Six hundred and forty seven (78.5%) respondents reported 'yes', and 177 (21.5%) said no. Evidence from the monthly reporting logs also supported the achievement of this objective for some teachers (Appendix H):

I sent out with the plums to each class, a copy of the information on the plums you sent us ... many teachers said that it was a great teaching tool. - Minnekhada Middle School

The BCSFVNP presented the opportunity for teachers and coordinators to learn about BC fruits and vegetables alongside the students. An improved awareness of BC produce happened for most coordinators and teachers, but not all, and likely was dependent on the degree of engagement and perceived program need at individual schools.

Impact: Increased awareness of safe handling practices for fresh produce for volunteers and coordinators

Through time spent learning BCSFVNP procedures and administering the program, there was a continuous opportunity for program coordinators and volunteers to improve their awareness of safe-handling practices for fresh produce. Through the online survey, 80% of coordinators and teachers reported that they had noticed a positive effect of the program on coordinators' and volunteers' awareness of safe handling practices for fresh produce.

5.3 OUTCOMES AND IMPACTS FOR PRODUCE PARTNERS

Here, we discuss evidence for outcomes and impacts relevant to produce partners, namely:

OUTCOMES	IMPACTS
Relationships with local growers and distributors are built and maintained.	Strengthened, collaborative relationships among produce partners.
Distributors have the information and support to deliver the produce.	Increased business for local growers and produce distributors.

Outcome: Distributors have the information and support to deliver the produce

During the one-on-one interviews, all four carriers indicated they felt supported and informed in distributing produce for the BCSFVNP. AITC took steps to ensure produce partners had the required information to effectively distribute produce. For example, the initiated “waybill” emails to ensure drivers knew what they were delivering a week in advance and communicated regularly by phone and email. These efforts ensured that carriers had the support and information required to deliver produce. It also ensured the distribution process ran smoothly and potential issues or disruptions were addressed.

Outcome & Impact: Strengthened, collaborative relationships among produce partners

Through our interviews with AITC and the produce partners, we assessed progress towards the outcome ‘relationships with local growers and distributors are built and maintained.’ To build and maintain relationships, AITC regularly communicated with produce partners to ensure they had the information required to effectively distribute, promoted the value of the program, and recognized the good work of the produce partners by saying thank-you. These efforts made it easy for partners to participate in the program, fostered buy-in and belief in the program and conveyed the importance of their involvement.

We also used the interviews to assess the impact ‘strengthened, collaborative relationships among produce partners’. It was also clear that strong relationships and linkages were made with the broad network of BCSFVNP growers, processors and carriers. Eight produce partners reported new or strengthened relationships as a



result of the program. Three grower/processors reported strengthened relationships with Overwaitea and two reported strengthened relationships with AITC. Five produce partners discussed how participating in the program enhanced and strengthened their relationships with customers and retailers because it conveyed that they were giving back to their community. Finally, one carrier also discussed how they had strengthened relationships with the schools they delivered to as a result of being involved with the program for several years.

Strong relationships and collaboration also fostered good will and enthusiasm for the program. AITC growers, processors and carriers spoke highly about the BCSFVNP. They talked candidly and enthusiastically about the important social, health, educational and economic benefits of the program. All of the growers, processors and carriers had positive things to say about AITC and the BCSFVNP. They believed strongly in the program (e.g. introducing students to fresh, healthy fruits and vegetables, supporting local growers and processors and increasing awareness of the BC produce industry) and spoke highly of AITC.

Impact: Increased business for local growers and produce distributors

Through our interviews, we assessed the impact “increased business for local growers and produce distributors.” More specifically, we asked the BCSFVNP growers, processors and carriers about the financial impact of the program. All BCSFVNP growers and processors reported receiving fair prices for the produce they supplied to the program.

Four grower/processors reported experiencing an increase in business due to the volume of produce they supplied to the program. One of these growers specifically said they planted additional crops for the program and had a market for their small size fruit. Two also said they appreciated the security the program provided- they knew they had a guaranteed market for their produce. Two larger grower/processors indicated it was hard to tell if they experienced an increase in business because of the program. Not all growers/processors specifically commented on increases to their business.

Eight grower/processors and Overwaitea reported they marketed their involvement with the program to drive new business or reach new markets (e.g., children who are future consumers and have the ability to influence their parents), strengthen relationships and convey they are giving back to the community. They discussed how these efforts had the potential to increase business in the future.

5.4 SUMMARY OF OUTCOMES AND IMPACTS FOR THE BCSFVNP IN 2012-2013

Our assessment of outcomes and impacts for students, teachers and coordinators demonstrated continued progress towards achievement of the BCSFVNP objectives. During the 2012-2013 school year, students at schools new to the BCSFVNP were clearly aware of an increased availability of, and exposure to, vegetables and fruit in their school environment, with 66.4% of students noting that their school provided fresh fruits and vegetables 1 to 3 times per month, compared to 37.3% noting this at baseline. The number of students reporting that their school didn't provide fresh fruit and vegetable snacks declined from 17.3% at baseline to 1.8% at follow-up. Impact observations reported by coordinators over the course of the year support this increase in fruit and vegetable availability in the schools. An overwhelming 99% of program coordinators and teachers indicated that the increase in produce availability at their school was notable.

We found that both acceptability of and willingness to try vegetables and fruit increased significantly in students starting the BCSFVNP in September 2012. Interestingly, the data suggested that elementary students' acceptance of vegetables and fruit was more influenced by 'affect' (i.e., feelings related to fruits and vegetables) and secondary students' acceptance of vegetables and fruit was more influenced by their perceptions of whether their peers accepted vegetables and fruit. Willingness to try vegetables and fruit increased more obviously in elementary school students than in secondary school students, however, the analysis showed the change to be highly significant in the pooled group of students.

Further, The BCSFVNP had clear impact on vegetables and fruits actually tried in the school environment (on average, 4 tried at the beginning of the school year to 6 tried by June). The program appeared to impact vegetables and fruits tried at home for elementary school students, but not for secondary school students.

We were unfortunately only able to capture the two year longitudinal data in a much reduced sample of First Nations students, and our findings were not supportive of continued benefits of the BCSFVNP in terms of increased exposure to vegetables and fruits, or further increases in acceptability and willingness to try vegetables and fruits. This may have been due to the students reaping the greatest benefits when the program was new to them and their school (resulting in smaller, less noticeable changes in the second year of the program), a reduced sample size with a concentration of students at schools that were concurrently providing produce to students through various meal and snack programs, and/or the mixed, ongoing impacts of all the other healthy eating and nutrition programs operating at First Nations schools. First Nations schools remained appreciative and supportive of the BCSFVNP, and viewed it as an important contribution to their school food supply and the nutrition that they are able to offer vulnerable students.

We did not find an effect of the BCSFVNP on students' awareness of local vegetables and fruits. However, the program coordinators and teachers indicated that they believed this was changing for students, and showed that they felt that learning about BC produce was an important part of the program.

Our observations and data for student outcomes and impacts indicate that the BCSFVNP is doing things right to have an impact on acceptability and willingness to try vegetables and fruit, especially in the first year of a school's participation. To continue with these good effects, it would be worthwhile to explore increasing the variability year to year in vegetables and fruit that students are exposed to, to increase opportunities for further improvements in willingness to try and to facilitate greater learning about BC produce. Further, promoting consistent integration and use of awareness-building pieces (i.e., "Scoops") in classrooms to improve students' awareness of BC agriculture, growing practices, and what produce is available close to home is warranted.



Outcomes and impacts relevant to coordinators and teachers were extremely positive. All evidence pointed towards well-informed, highly engaged and participating stakeholders, champions and schools. Nearly 80% of teachers and coordinators felt that *their* awareness of local vegetables and fruits increased because of their school's participation in the BCSFVNP, and a similar 80% indicated that the program had made a positive difference in volunteers' awareness of safe-handling procedures for fresh produce.

For local produce partners, we heard clearly that the program allowed them to build and strengthen relationships with AITC, collaborate and foster new relationships with a wide range of suppliers, and enhance relationships with customers and retailers. Further, carriers felt informed and supported in distributing produce for the program. In terms of increased business, four growers and processors reported the program was profitable and allowed them to reach new markets. Eight grower/processors and Overwaitea also reported they marketed their involvement with the program to drive new business or reach new markets.

Overall, students and schools participating in the BCSFVNP benefited, as did produce partners. Outcomes and impacts benefiting students were clearer in a large sample of students from a mix of schools, with changes in willingness to try fruits and vegetables and actually trying fruits and vegetables more pronounced in younger, elementary school students as compared to secondary students. Importantly, the program participants and champions recognized the importance of the program and demonstrated a commitment to the success and continuation of the BC School Fruit and Vegetable Nutritional Program.

6.0 APPENDICES

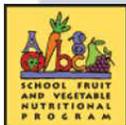
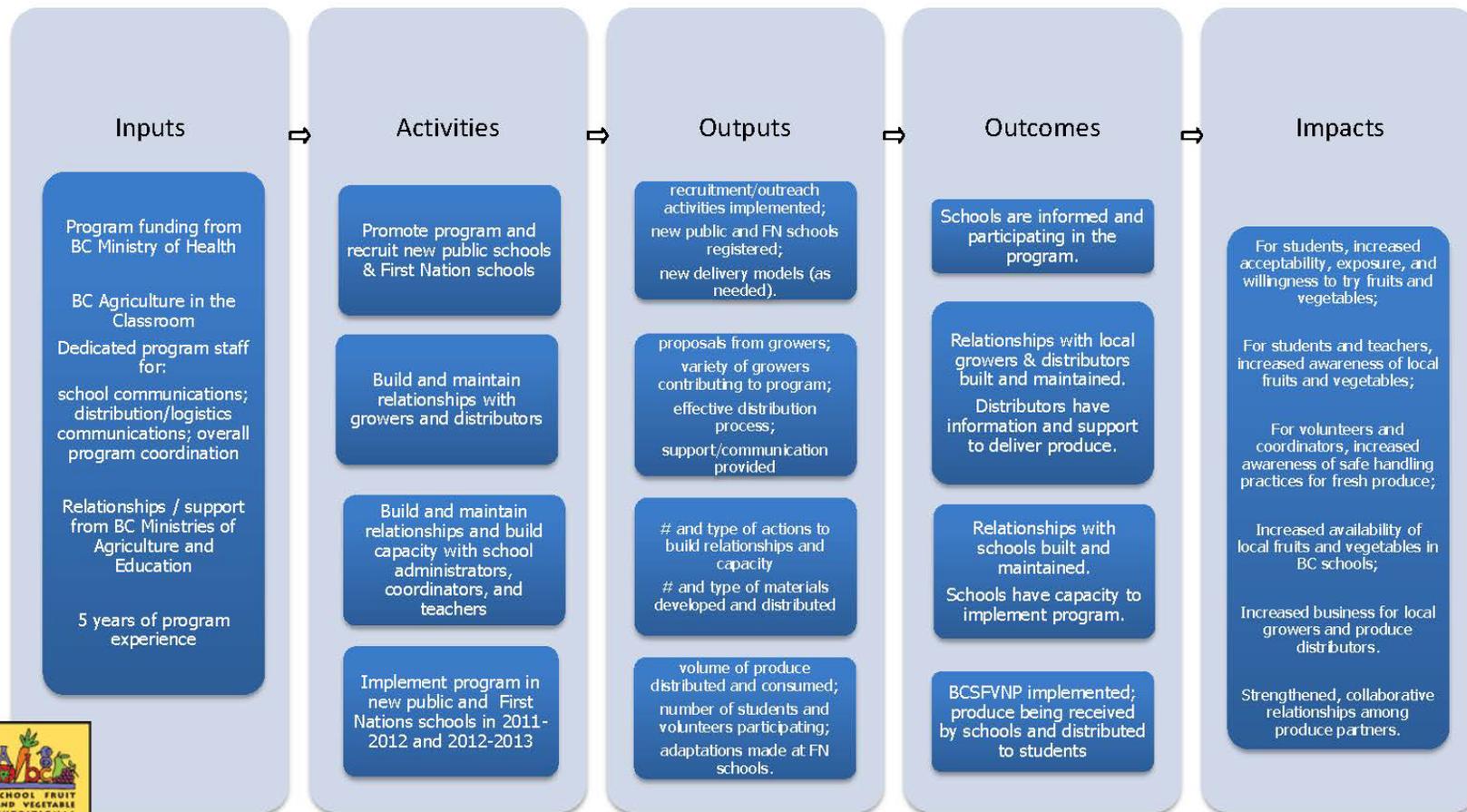
APPENDIX A: Logic Model and Evaluation Framework

BC School Fruit and Vegetable Nutritional Program: 2011 - 2013

Vision: Improving the nutritional health of BC children by working collaboratively with produce partners to deliver local fruits and vegetables directly to all BC schools.

Objectives

- For students: to increase acceptability, exposure, and willingness to try fruits and vegetables.
- For students and teachers: to increase awareness of local fruits and vegetables.
- For volunteers and coordinators: to increase the awareness of safe handling practices for fresh produce.
- To increase the availability of local fruits and vegetables in BC schools.
- To support the local economy (through business for farmers and distributors).
- To build relationships with produce partners and collaborate.



December 12, 2011

Activities, Outputs & Process Evaluation Framework		
Activities	Outputs	Methods
<p>Recruitment of new public and First Nation schools Responsibility: AITC</p> <ul style="list-style-type: none"> • Via website promotion and DASH newsletter and word of mouth • Distribute expression of interest documents and provide assistance once proposal submitted • Determine distribution logistics (once EOI's received) • Distribute consent forms • Communication with schools (email/phone) about start date • Update AITC Access database • Update AITC website with product information 	<ul style="list-style-type: none"> • Type/# of recruitment/outreach activities implemented • # of new schools registered • # of new FN schools registered • Description of new delivery models (as needed) • AITC Access database • AITC website database 	<p>Tracking via AITC database (2011-12 only)</p> <p>Interviews with AITC (Tammy)- successes/challenges of recruitment</p>
<p>Build/maintain relationships with growers and distributors Responsibility: AITC (Tammy & Michelle)</p> <ul style="list-style-type: none"> • Distribute RFPs to local growers • Review RFPs, select grower, determine required produce • Support and communication with Overwaitea (Overwaitea places order with grower, food is delivered to EV logistics-sent out to individual Overwaitea locations) • Support and communication with Saputo drivers (transport produce from individual Overwaitea stores to schools) • Ongoing communication + troubleshooting (emails/phone calls) with Overwaitea and Saputo drivers 	<ul style="list-style-type: none"> • # of proposals submitted from growers • #and diversity of growers used • Effective distribution process • Support & communication provided to Saputo and Overwaitea 	<p>Tracking via AITC database/files (2011-12 only)</p> <p>Interviews with AITC (Tammy & Michelle)- successes/challenges of building/maintaining relationships with growers & distributors</p> <p>Process-related questions asked during interviews with growers, processors & carriers</p>
<p>Build/maintain relationships & build capacity with school administrators, coordinators, and teachers Responsibility: AITC (Laura)</p> <ul style="list-style-type: none"> • Distribute and develop classroom and curriculum materials: teachers and coordinators manual, monthly newsletter articles, posters, stickers, top 10 guide, etc. • Communication- phone calls, emails, etc. when necessary (most info now available on website) 	<ul style="list-style-type: none"> • # and type of actions to build relationships and capacity • # and type of materials developed and distributed • New materials and methods produced (if 	<p>Interviews with AITC (Laura)- successes/challenges of building/maintaining relationships with schools</p> <p>Process-related questions included on electronic surveys with teachers and in-school coordinators</p>

<ul style="list-style-type: none"> Website- delivery schedule, etc. 	<p>necessary)</p> <ul style="list-style-type: none"> Website analytics 	
<p>Implement program in new public schools and First Nation schools in 2011-2012 & 2012-2013 Responsibility: AITC, distributors, Schools (administrators, coordinators, etc.)</p> <ul style="list-style-type: none"> Source, wash, package produce Deliver produce Implement curriculum activities Receive and distribute produce to students (coordinators) 	<ul style="list-style-type: none"> Volume of produce distributed. Volume of produce consumed. Number of children participating. Adaptations made to program at FN schools 	<p>AITC database (2011-12 only)</p> <p>Interviews with AITC (Lindsay & Tammy)- overall program implementation</p> <p>Interviews with FN School Association and other FN partners (Acceptability/suitability of BCSFVNP model) (2011-12 only)</p> <p>Process-related questions included on electronic surveys with teachers & in-school coordinators, including results of in-class observation of produce distribution (by teachers)</p>

Outcomes and Impacts Evaluation Framework		
Outcomes & Impacts (as in logic model)	Indicators	Methods
<p>Outcomes</p> <ul style="list-style-type: none"> • Schools are informed and participating in the program • Relationships with schools built and maintained • Schools have the capacity to implement the program • BCSFVNP implemented; produce distributed to students <p>Impacts</p> <ul style="list-style-type: none"> • Increased awareness of safe handling practices for fresh produce • Increased availability of local fruits and vegetables in BC schools 	<p>Coordinators report successful participation in the program and feeling informed</p> <p>Coordinators report relationship with AITC built and maintained</p> <p>Coordinators report having the capacity to implement the program</p> <p>Coordinators report receiving and distributing produce to students</p> <p>Coordinators report having an increased awareness of safe handling practices for fresh produce</p> <p>Coordinators report increased availability of local fruits and vegetables. Volume of produce distributed to schools.</p>	<ul style="list-style-type: none"> • Electronic survey with school teachers and coordinators
<p>Outcomes</p> <ul style="list-style-type: none"> • Relationships with local growers and distributors built and maintained • Distributors have information and support to deliver produce <p>Impacts</p> <ul style="list-style-type: none"> • Increased business for local growers and produce distributors • Strengthened, collaborative relationships among produce partners 	<p>Growers and distributors report relationship with AITC built and maintained</p> <p>Distributors report having information and support to deliver produce</p> <p>Local growers and produce distributors report/give examples of increased business Produce partners report strengthened, collaborative relationships</p>	<ul style="list-style-type: none"> • Interviews with growers and distributors (also include process-related questions)

Outcomes and Impacts Evaluation Framework		
Outcomes & Impacts (as in logic model)	Indicators	Methods
Outcomes <ul style="list-style-type: none"> • BCSFVNP implemented; produce being received by schools 	Schools/coordinators report receiving produce	<ul style="list-style-type: none"> • Review monthly logs submitted by coordinators to AITC & AITC database (2011-2012 only)
Outcomes <ul style="list-style-type: none"> • BCSFVNP implemented; produce being received by schools and distributed to students Impacts <ul style="list-style-type: none"> • Increased awareness of local fruits and vegetables • Increased availability of local fruits and vegetables in BC schools 	<p>Teachers report produce being received and distributed to students</p> <p>Teachers report having an increased awareness of local fruits and vegetables</p> <p>Teachers report increased availability of local fruits and vegetables</p>	<ul style="list-style-type: none"> • Electronic survey with teachers
Impacts <ul style="list-style-type: none"> • Increased acceptability, exposure, and willingness to try fruits and vegetables • Increased awareness of local fruits and vegetables • Increased availability of local fruits and vegetables in BC schools 	<p>Students report increased acceptability, exposure, and willingness to try fruits and vegetables</p> <p>Students report increased awareness of local fruits and vegetables</p> <p>Students report increased availability of local fruits and vegetables</p>	<ul style="list-style-type: none"> • Pre-post surveys with students • Observation of produce distribution in sample of schools (in person or provide observation sheets to teachers) (2011-2012 only) • Discussion groups with students (2011-2012 only) • Observation data from monthly reporting logs (2012-2013 only)
Outcomes <ul style="list-style-type: none"> • BCSFVNP implemented; produce being received by schools and distributed to students 	Examples, footage, photos, testimonials, etc. of produce being acquired, distributed and then received by schools and distributed to students (i.e. program implemented as planned)	<ul style="list-style-type: none"> • Direct observation of produce distribution in sample of schools (in person or provide observation sheets to teachers) (2011-2012 only) • Observation data from monthly reporting logs (2012-2013 only) • In-class observation of produce distribution (by teachers) (2012-2013 only)

APPENDIX B: Evaluation Timeline

2013	
January	<i>AITC Activities</i>
	<ul style="list-style-type: none"> • Forward data from monthly logs to the evaluation team (on-going)
February	<i>Evaluation Team Activities</i>
	<ul style="list-style-type: none"> • Review and analyze monthly logs (on-going)
February	<i>AITC Activities</i>
March	<ul style="list-style-type: none"> • Provide evaluation team with names and contact information for 2012-2013 growers, processors and carriers
March	<i>Evaluation Team Activities</i>
April	<ul style="list-style-type: none"> • Interviews with 2012-2013 growers, processors and carriers (re: increased business, strengthened relationships, etc.)
April	<i>Evaluation Team Activities</i>
	<ul style="list-style-type: none"> • Update teacher/coordinator survey to include observation questions • Draft instructions for teacher/coordinator re: gathering observation data • Draft communications to promote teacher/coordinator survey- include a hard copy of the observation questions and instructions • Draft communications to promote student survey • Draft communications to promote student survey to FN schools from 2012
May	<i>AITC Activities</i>
	<ul style="list-style-type: none"> • Communicate and promote end of program evaluation activities (student survey and online survey for teachers/coordinators) to be conducted in May 2013
May	<i>Evaluation Team Activities</i>
June	<ul style="list-style-type: none"> • Student surveys with public schools and First Nations schools • Follow up student surveys with initial First Nations schools/students (those that completed surveys in January and June 2012) • Electronic surveys with teachers and coordinators (program implementation and impact)
June	<i>Evaluation Team Activities</i>
July - August	<ul style="list-style-type: none"> • Interviews with AITC (process evaluation) • Review and compile feedback from monthly logs (January-June 2013, re: satisfaction with program and observation of impact)
July - August	<i>Evaluation Team Activities</i>
August - October	<ul style="list-style-type: none"> • Data organization and analysis
August - October	<i>Evaluation Team Activities</i>
August - October	<ul style="list-style-type: none"> • Generation and sharing of reporting materials and evaluation communication products

APPENDIX C: Sample Interview Guide (Growers/Processors)



**BC School Fruit and Vegetable Nutritional Program
Survey for Growers & Processors
2013**

The BC School Fruit and Vegetable Nutritional Program (BCSFVNP) delivers fresh, local fruits and vegetables to BC schools. We want to learn about your involvement with the program. To help us understand how this program is working for you, please take your time and answer the questions below.

Your responses will help us evaluate 1) new or enhanced partnerships/relationships that have resulted from the BCSFVNP and (2) support and/or increased business for growers & produce distributors.

Your Name:
Name of Business:

****Are you a grower? A grower/processor? Or a processor?**

1.) Please describe your business.

- a) Where are you located?
- b) How large is your operation? (Acreage? Coop? Are you representing a number of growers?)
- c) What produce do you supply to the BCSFVNP program?
- d) How long have you been providing produce for the program?
- e) How often do you supply produce?

2.) Have you changed your operation's practices as a result of providing produce to the BCSFVNP?

- a) Have you planted/sourced additional acreage specifically to support this program? Please describe this increase in terms of percentage.
- b) What additional crops have you planted and or sourced?
- c) How much (% increase in volume)?
- d) Do you use any season extension practices as a result of the program? (e.g. greenhouse, etc).
- e) Has there been an increase to your business as a result of you providing produce to the BCSFVNP?

4.) Overall, is the program profitable for you?

For example:

- a) Are the prices you receive at fair market value/ competitive?
- b) What would it take to make the program more profitable for you?
- c) Do you have any additional costs from the program? What are they?

5.) Have you developed or strengthened relationships as a result of the BCSFVNP? If yes, with whom? Have relationships resulted in new business?

6.) Has your marketing plan changed as a result of this program? How?

7.) Other than revenue, what are the benefits to you for participating in the BCSFVNP?

8.) Why did you want to be involved in the BCSFVNP?

9.) From your perspective, what are the benefits of the BCSFVNP?

For example: to children, families, growers, schools?

10.) From your perspective, is the BCSFVNP sustainable after funding from the Ministry of Health is over? What is needed to make the program sustainable?

11.) How could the BCSFVNP be improved?

12.) Any other comments?

APPENDIX D: List of Interviewees (Growers, Processors and Carriers)

Company	Name
2013 Growers and Processors	
BC Fresh	Murray Driediger
BC Hot House	Mike Reed
BC Tree Fruits	Shea Bydlowski
Direct Organics Plus	Robert Slade
Fresh Direct Product Ltd	Raymond Ng
Harker's Organics	Sara Harker
Houweling's Tomatoes	David Bell
Tamarac Fresh Cut Foods Ltd	Tony DeMaria
South Alder Farms	Harvey Krause
Windset Farms	Jeff Madu
Carriers	
Saputo	Norm Desilets
Dynamex	John Carrier
Papason Trucking Ltd.	Randy Bobier

APPENDIX E: Observation Instructions for Coordinators

To All BC School Fruit and Vegetable Nutritional Program Coordinators:

We hope your school has been enjoying the fruit and vegetable program this year! It is our pleasure to evaluate this program, and we'd love to have your input. We're contacting you as you play an important part in administering the program at your school. You are in the best position to really tell us what this program is like at your school, and we're hoping that you will **observe and report on one fruit or veggie snack delivery in one classroom** in April or May.

Please try to answer these questions through your observation:

1. Who received, prepared and delivered the snacks at your school?
2. How did the snack get into the hands of the students?
3. Where did students receive and eat their snack?
4. How many students received the snack, and how many tried the snack?
5. How many students wasted or threw away a significant portion of the snack?
6. What was done with extra or leftover produce?

When you do your observation, please record the answers to the six questions above. We will follow-up with you in May to invite you to participate in a **multiple choice** online survey through which we will collect your observations and any other input you may have regarding the program.

If you have any questions or concerns regarding the evaluation of the BC School Fruit and Vegetable Nutritional Program, please contact Lindsay Richardson at lrichardson@contextresearch.ca.

Thank you for participating,
Lindsay Richardson & Kerry MacKelvie O'Brien, Context Research

APPENDIX F: Student Survey



**BC School Fruit and Vegetable Nutritional Program
Pre-Program Survey for Students
September 2012**

The BC School Fruit and Vegetable Nutritional Program delivers fresh, local fruits and vegetables to BC schools. We want to know if this program changes what you know and like about fruits and vegetables. This is not a test - there are no right or wrong answers. To help us understand how this program is going in your school, please take your time and answer every question as honestly as you can.

First name and last initial: _____

Date: _____ Grade: _____

1) Rate each statement below on whether you agree, feel 'in the middle' (neutral, you don't feel strongly about it), disagree or don't know. Please **circle** your response for each item.

EXAMPLE: I like doing surveys	 Agree	 In the middle	 Disagree	? Don't know
I like the taste of fruit	Agree	In the middle	Disagree	Don't know
I like the taste of vegetables	Agree	In the middle	Disagree	Don't know
My family eats lots of vegetables and fruit	Agree	In the middle	Disagree	Don't know
My friends eat lots of vegetables and fruit	Agree	In the middle	Disagree	Don't know
Eating vegetables and fruit makes me feel better	Agree	In the middle	Disagree	Don't know

2) Do you think it is better to buy and eat fruit and vegetables grown in British Columbia? Please circle your response.	Yes	No
Explain:		

3) Does your school give you fresh fruits and vegetables for snacks? Please **circle** your response.

On most school days	One or two times a week	One to three times a month	Not often (one or two times a year)	My school doesn't give me fruits or vegetables
---------------------	-------------------------	----------------------------	-------------------------------------	--

4. Please **circle** the number to rate how much you agree or disagree with each statement.

4a) I am often trying new and different fruits and vegetables.

Strongly Agree	Agree	Sort of Agree	No Opinion	Sort of Disagree	Disagree	Strongly Disagree
7	6	5	4	3	2	1

4b) It makes me nervous to eat a fruit or vegetable that I've never tried before.

Strongly Agree	Agree	Sort of Agree	No Opinion	Sort of Disagree	Disagree	Strongly Disagree
7	6	5	4	3	2	1

4c) If I don't know what a fruit or vegetable is, I won't try it.

Strongly Agree	Agree	Sort of Agree	No Opinion	Sort of Disagree	Disagree	Strongly Disagree
7	6	5	4	3	2	1

4d) At school, I will try a new fruit or vegetable.

Strongly Agree	Agree	Sort of Agree	No Opinion	Sort of Disagree	Disagree	Strongly Disagree
7	6	5	4	3	2	1

4e) I don't like to eat fruits or vegetables that I have never had before.

Strongly Agree	Agree	Sort of Agree	No Opinion	Sort of Disagree	Disagree	Strongly Disagree
7	6	5	4	3	2	1

4f) I am very picky about the foods I will eat.

Strongly Agree	Agree	Sort of Agree	No Opinion	Sort of Disagree	Disagree	Strongly Disagree
7	6	5	4	3	2	1

4g) I will eat almost anything.

Strongly Agree	Agree	Sort of Agree	No Opinion	Sort of Disagree	Disagree	Strongly Disagree
7	6	5	4	3	2	1

5a) Please circle the fruits and vegetables that you think are GROWN IN BC	5b) Please circle all of the fruits and vegetables you have tried at SCHOOL	5c) Please circle all of the fruits and vegetables you have tried at HOME
 Apples	 Apples	 Apples
 Bell Peppers	 Bell Peppers	 Bell Peppers
 Carrots	 Carrots	 Carrots
 Blueberries	 Blueberries	 Blueberries
 Broccoli	 Broccoli	 Broccoli
 Cabbage	 Cabbage	 Cabbage
 Cauliflower	 Cauliflower	 Cauliflower
 Peaches	 Peaches	 Peaches
 Mini Cucumbers	 Mini Cucumbers	 Mini Cucumbers
 Lettuce	 Lettuce	 Lettuce
 Mandarin Oranges	 Mandarin Oranges	 Mandarin Oranges
 Pears	 Pears	 Pears
 Plums	 Plums	 Plums
 Tomatoes	 Tomatoes	 Tomatoes
 Kiwi	 Kiwi	 Kiwi

APPENDIX G: Monthly Reporting Logs: Observation Themes

1. First time trying item was positive
2. New fruits and vegetables have been introduced to students
3. Program fills nutrition gap/students in need/low income
4. Students and staff participate well
5. Students are excited about produce deliveries/ask when fruits and vegetables arrive
6. Ripple effect of program at home
7. Program facilitators are enthusiastic (e.g. teachers, student helpers, volunteers)
8. Students are curious about snacks/ask questions
9. Students are grateful for snack (vocalized program appreciation)
10. Students ate more fruits and vegetables than normal/asked for more fruits and vegetables
11. Students have increased acceptance of fruits and vegetables/Student had a favorite item
12. Students did not enjoy produce/ mixed reviews of snack
13. Students enjoy fruit and vegetable snack/ Impact on children of different circumstances
14. Students learned about fruits and vegetables /local food/healthy eating/preserving /gardening
15. Teachers enjoy snack
16. Teachers are involved in health eating messages/teaching about fruits and vegetables
17. No/few leftovers
18. Use/share left over snacks (with other classes, meal programs, preserving)
19. Snack program is easy
20. Students more willing to try
21. Students enjoy sensations of snack (taste, smell, texture)
22. Long term impact of program

APPENDIX H: Full Analysis and Report on Impact Observations from Monthly Reporting Logs (September 2012 - February 2013)

Monthly Reporting Logs

During Fall 2012, we worked with AITC to add an evaluation item to the regular monthly reporting logs that schools were already completing. Through these logs, we invited contributions of first-hand observations of the program's impact within the schools:

*Evaluation is an important part of this program. To help us understand what students know and like about fruits and vegetables and how this changes over the year, please tell us about your observations of the program at your school. You can contribute an observation of the program impact as often as you like ... every month, or just once in the school year. Please share one significant observation made this month that shows the impact of the program on the students at your school. **This month we observed ...***

AITC submitted the impact observation data to Context regularly for review and thematic analysis. Between September 2012 and February 2013, we reviewed the monthly logs and thematically analyzed the 435 submitted observations. Early in the process, we identified 37 theme areas. Later, we collapsed and combined themes to make the data organization and analysis process more manageable. In the end, we assigned observations to 22 theme areas (Table 2). Some observations were assigned to more than one theme area. For example, an observation could have highlighted students' excitement for a snack as well as increased willingness to try produce.

Table 2: Monthly Reporting Logs: Observation Themes

1. First time trying item was positive
2. New fruits and vegetables have been introduced to students
3. Program fills nutrition gap/students in need/low income
4. Students and staff participate well
5. Students are excited about produce deliveries/ask when fruits and vegetables arrive
6. Ripple effect of program at home
7. Program facilitators are enthusiastic (e.g. teachers, student helpers, volunteers)
8. Students are curious about snacks/ask questions
9. Students are grateful for snack (vocalized program appreciation)
10. Students ate more fruits and vegetables than normal/asked for more fruits and vegetables
11. Students have increased acceptance of fruits and vegetables/Student had a favorite item
12. Students did not enjoy produce/ mixed reviews of snack
13. Students enjoy fruit and vegetable snack/ Impact on children of different circumstances
14. Students learned about fruits and vegetables /local food/healthy eating/preserving /gardening
15. Teachers enjoy snack

16. Teachers are involved in health eating messages/teaching about fruits and vegetables
17. No/few leftovers
18. Use/share left over snacks (with other classes, meal programs, preserving)
19. Snack program is easy
20. Students more willing to try
21. Students enjoy sensations of snack (taste, smell, texture)
22. Long term impact of program

Analysis of Monthly Reporting Logs

Data from the monthly reporting logs showed that schools frequently reported observations related to program outcomes and impacts (table below). For example, schools reported 310 observations related to the impact area “increased acceptability, exposure, and willingness to try fruits and vegetables.” These observations were categorized into seven theme areas (e.g. “students have increased acceptance of fruit and vegetable snacks,” “students enjoy the fruit and vegetable snacks,” “new fruit and vegetables were introduced to students,” “students were more willing to try fruit and vegetable snacks,” etc.) supporting achievement of this outcome.

Schools reported 37 observations related to the impact of “increased awareness of local fruits and vegetables for students and teachers.” These observations were categorized into two theme areas: “students learn about fruits and vegetables, healthy eating and local food” and “teachers are involved in healthy eating messages and/or teaching about fruit and vegetables.”

Schools also reported 48 observations which related to the impact of “increased availability of local fruits and vegetables in BC schools.” These observations were categorized into two theme areas: “the BCSFVNP fills a nutrition gap” and “[we] use or share left over snacks with other classes or meal programs.” Again, providing support for the achievement of these objectives.

The most commonly reported observations related to students enjoyment (or lack of enjoyment), excitement and curiosity for the program (see table below). For example, “students enjoy fruit and vegetable snacks” received the highest frequency of observations (97 counts), followed by “students are excited about produce deliveries and/or ask when fruit and vegetable snacks will arrive” (78 counts) and “students are curious about fruit and vegetable snacks and/or ask questions” (44 counts). “Students did not enjoy produce and/or mixed reviews of the fruit and vegetable snack” also received a high frequency of observations (27 counts). Several theme areas have not been described below because they did not have a high frequency of observations.

Theme	Number of Observations	Example
OUTCOME: Increased acceptability, exposure, and willingness to try fruits and vegetables.		
Increased acceptability:		
Students have	24	We believe students attitudes are changing; they are

increased acceptance of fruit and vegetable snacks		<p>more positive about fruits and vegetables as snacks. - <i>Berkshire Park Elementary</i></p> <p>There was some worry that these small tomatoes would become projectiles throughout the school. Fortunately, they were all consumed with no evidence of misuse anywhere. -<i>Mark R. Isfeld Secondary School</i></p> <p>A few groans with carrots (hoping for something more exciting) but they still ate them! -<i>Reynolds Secondary School</i></p>
Students enjoy the fruit and vegetable snacks	97	<p>Students enjoyed the berries and ate them throughout the day like candy! Thank you. -<i>Wagalus School</i></p> <p>The plums were "just ripe" and extremely tasty. Students who hadn't tried the plums before were eating and enjoying them!! -<i>Fort Nelson Secondary</i></p> <p>Based on feedback from the teachers, the plums were very well received at our school, the children really enjoyed them! -<i>Larson Elementary</i></p> <p>The peaches were delicious. Many students were asking for more. Enjoyed by all! -<i>Departure Bay School</i></p>
Students are excited about produce deliveries / ask when fruit and vegetable snacks will arrive	78	<p>Many of the children are really excited to receive the fruit and can hardly wait to eat it. - <i>Fairview Elementary</i></p> <p>At the high school level, it is always amazing how excited the students are about receiving the fruit. I have heard teacher after teacher comment how thrilled the kids are to receive something like plums and how surprised they are when they hear it. Thanks so much! -<i>Sa-Hali Secondary</i></p> <p>Children are very excited to see what's in the yellow bins. -<i>Ecole Simon Cunningham Elementary</i></p> <p>The kids were very excited to see the blueberries. They disappeared quickly. -<i>Discovery Elementary</i></p>
Students did not enjoy produce / mixed reviews of the fruit and vegetable snack	27	<p>In one division not a single package was eaten. I found that odd. Perhaps seven year olds don't like pears. -<i>Braefoot Elementary School</i></p> <p>[Peppers were] a love hate item the kids who liked it loved it and the kids who did not like it hated it. -<i>Crescent Park Elementary</i></p> <p>While our primary to grade fours enjoyed this product, it wasn't as well received by our older students. -<i>Port Kells Elementary</i></p>
Increased exposure:		
New fruit and	24	Our school has a high Indo-Canadian population so,

vegetables were introduced to students		<p>for some students, some of the fruits and vegetables that they are being served, they haven't had before. -<i>Senator Reid Elementary</i></p> <p>We actually have students that have never had a blueberry till now. We all look forward and get excited on delivery day. Thank you again. -<i>West Langley Elementary</i></p> <p>A few more children tried kiwi that have never tried it and they liked it. This program is a wonderful way to introduce new and a variety of fruits and vegetables. -<i>ntamtqen snm'a?m'aya?tn</i></p>
Increased willingness to try:		
Students were more willing to try fruit and vegetable snacks	16	<p>We have noticed that over time, students are more willing to taste and finish eating the fruits and vegetables (especially the fruits). -<i>Berkshire Park Elementary</i></p> <p>More kids were willing to try the peaches, or to take one with them than last time. -<i>Learn at Home Nanaimo</i></p> <p>As this was our second delivery (ever!) we found students are now understanding the program and are more willing to try the fruit, rather than the hesitation they had last time. -<i>Ecole Panorama Ridge Secondary</i></p> <p>Even though the grapes were not popular with the kids. Many of them had never seen them before but were willing to try them. -<i>Harry Hooge Elementary</i></p>
Students are curious about fruit and vegetable snacks / ask questions	44	<p>The kids are curious when they see the yellow bins. They ask: "What are we getting today?" -<i>Sir John Franklin Elementary</i></p> <p>The students were actually asking when the fruit & veggie program would start. They look forward to trying out the fruits and vegetables. -<i>Fort Fraser Elementary</i></p>
OUTCOME: Increased awareness of local fruits and vegetables (students and teachers).		
Students learn about fruits and vegetables, healthy eating and local food	21	<p>The students and staff really enjoy the fact sheet about the fruit and vegetables. The most interesting so far was the bosc pear fact sheet. -<i>Pacific Coast School</i></p> <p>Introduced the idea of BC as a place where fruits grow. Introduced blueberries to K's as a healthy snack idea. -<i>Westwood Elementary</i></p> <p>We froze some of the berries so the students learned about storing food and we cooked with some (muffins). -<i>Walker Development Centre</i></p>

		That the students were unaware that we used to only get Japanese mandarins. The info sheets are very helpful. - <i>Tsay Keh Dene School</i>
Teachers are involved in healthy eating messages and/or teaching about fruit and vegetables	16	<p>[The] grade one teacher has integrated this product into her classroom by doing a whole unit on fruit with the kids. What is the same about all fruit? Tally of number of children in the class like fruit. The kids brought in examples of seeds as this is the common factor in all fruits. -<i>Ecole Sherwood Park Elementary</i></p> <p>I sent out with the plums to each class, a copy of the information on the plums you sent us, many teachers said that it was a great teaching tool. - <i>Minnekhada Middle School</i></p> <p>What a positive and happy program this is. Seeing the kids faces and the teachers involved in spreading the healthy eating message - it's terrific! -<i>Simon Fraser Elementary</i></p>
OUTCOME: Increased availability of local fruits and vegetables in BC schools.		
BCSFVNP fills a nutrition gap	24	<p>Sometimes kids haven't brought enough food for lunch and it so happens that we have extra fruit or veggies left over from earlier in the week. The kids really appreciate getting a piece of fruit or a veggie when they would otherwise be hungry. -<i>Phoenix Elementary</i></p> <p>Some students are in real need of fruit in the morning...some kids do not eat breakfast for one reason or another. It is so good to have the healthy fruit and veggies for the kids that need it. -<i>Osoyoos Secondary School</i></p> <p>I have a few students in class who have challenges in the home, and come to school hungry. It was so nice to be able to offer blueberries...they were just so happy as they ate them. -<i>Osoyoos Secondary School</i></p> <p>One of the rooms in our school is a work area for students with behaviour issues. These kids sometimes come to school without proper breakfast or lunches and we endeavor to provide snacks for them as needed. I send any fruit/vegetables that are left over to this room (as well as their initial allotment) and it always disappears quickly. -<i>Samuel Robertson Technical Secondary School</i></p>
Use or share left over snacks with other classes or meal programs	24	Berries were a bit ripe and we couldn't get through them fast enough, so we froze and dried a bunch to last us through the year. Because we have a small school, we often end up preserving some of the produce you send. It is a great learning opportunity for the students. - <i>Vavenby Elementary</i>

		<p>We had lots of left over plums that we shared with the onsite daycare centre and the staff! The children overall seemed to thoroughly enjoy the plums that were offered as the first delivery, and the teachers seemed to love that we were starting this program. - <i>ASIA Abbotsford School of Integrated Arts: North Poplar</i></p> <p>The apples were lovely! We had some extra so the kindergarten and grade one students had the opportunity to spend some time in the kitchen making apple sauce for snack. Thank you from all the students at Nanoose Bay Elementary for you fabulous program! -<i>Nanoose Bay Elementary</i></p>
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