Gary Hoyer and Chinh Do

# Generating Success for Farm to School

George Brown College,
Toronto Ontario Canada
May 2020

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Appendices

# Findings Summary

Canada faces a range of increasingly complex health challenges across all socio-economic groups. Farm to School programs have been presented as a method to promote health and wellness for children who will eventually become healthy adults. These programs bring sustainable local food into schools and provide students with hands-on learning opportunities that foster food and nutrition literacy, all while strengthening the local food system and enhancing school and community connectedness.

There is an abundance of scientific literature on the advantages of school nutrition interventions and the benefits of regular nutritious meals, especially breakfast, and the advantages of student food literacy education, but a smaller body of evidence-based research on Farm to School (F2S).

The findings indicate improved health and wellness and enhanced academic performance for students. This research investigates the diverse conditions necessary to expand and enhance programs. The goal is to aggregate and integrate existing information and data and conduct analysis of the value chain of the diverse Farm to School programs operating throughout Ontario and Canada, documenting diverse initiatives and processes, best practices and policy.

An additional aspect of our efforts, presented separately, was an initiative to develop healthy local food snack recipes, and use them, accompanied by insights on food security, systems and healthy diets, as resources for food literacy workshops that were delivered to middle and secondary school students in the Greater Toronto area. You can find our Cookbook and Kitchen Manual here and our Theory Workshop Resources here.

Primary research data, a questionnaire, structured interviews, and observations were used to analyze and benchmark best practices. Data analysis was performed on existing research via an exhaustive review of relevant evidence-based literature on the benefits of a healthy diet and food literacy skills for students and the value of supporting local agriculture. This was linked to F2S programs and activities and demonstrated their merits by association.

Schools are in a unique position to provide students with opportunities to achieve health and wellness and academic, career, and adult success. This paper demonstrated that providing students with a healthy diet of locally produced food and food literacy education would help to form the cornerstones of a healthy community, environmentally, socially, and culturally. Improvements to student nutrition through a universal healthy school food program will likely translate into health and educational benefits that drive larger economic gains. Adding Farm to School initiatives will offer more benefits to students, the community, and the local economy. On this basis, it is recommended that universal healthy school food programs be instituted across Canada, complemented with a F2S approach.

# Introduction

This paper presents the research from the project Generating Success for Farm to School. It is divided into two parts.

Part one presents first-hand research and analysis of survey results from Farm to School stakeholders, in Ontario and across Canada. The survey investigates the diverse conditions necessary to support Farm to School (F2S) programs to establish best practices for stakeholders that can lead to the expansion and enhancement of activities. A review of personal interviews with several F2S contributors is included. Information about our school workshops is also included in this section.

The second part of this paper presents a comprehensive review of existing evidence-based research literature on the benefits for children and students of a healthy diet, nutritious meals, and food literacy education that relate to Farm to School activities and school meal programs. It also describes Farm to School, its activities, challenges, and opportunities.

Since there is an abundance of scientific literature on the advantages of school nutrition interventions and the benefits of regular nutritious meals and especially breakfast, and the advantages of student food literacy education, but a smaller body of evidence-based research on F2S, this section connects these analogous activities with the evidence-based outcomes of the former.

Part Two, Section 1, 2.1 presents research, specifically excerpts and analysis, from a comprehensive review of evidence-based research on the benefits of a healthy diet. It demonstrates how health and wellness, improved academic achievement, and positive community results are outcomes of food security and good eating habits and why schools are the optimal venues for supporting student health and wellness. School meal programs are reviewed for their evidence-based attributes. This paper links these benefits to their analogous Farm to School activities and separately appraises F2S

on activities that relate to local food, food literacy, and farmer and community connections that build local economies.
Part Two, Section Two, 2.2 reviews the three pillars that comprise Farm to School's framework. It describes its history, activities, and benefits and how these activities can dovetail with school meals and help provide and support the benefits of a healthy diet, food literacy, and a vibrant community.

The challenges of establishing a fully funded national cost-shared universal healthy school food program and of enhancing and expanding a Farm to School approach are examined.

The conclusions and recommendations of this section, based on the findings of this review of literature, advocate in favour of a universal school meal program combined with Farm to School activities. Both are necessary, without nutritious food and a good food literacy education, including the hands-on learning of F2S, children's health and well-being and academic success will likely suffer. A national cost-shared universal school meal program will provide access to healthy food for students and Farm to School activities will buttress and enhance those benefits as they connect the community.

Part Two, Section Three (2.3), like Section 2.1 reviews scientific literature, but investigates food and health interventions in schools. It looks at why schools may be optimal venues for supporting student health and wellness and academic success. This section attempts to link these interventions to those that would result from a national cost-shared universal school meal program coupled with a F2S approach as most of the activities are mutual and would likely produce many of the same benefits.

Part Two, Section Four (2.4) advocates for and recommends a fully-funded national cost-shared universal healthy school food program combined with F2S Programs based on twenty years of scholarly research that has established that School Meal Programs

(breakfast programs were well researched) significantly improve the cognitive abilities and learning capacities of children. It also examines local food policy, regional hubs, and describes how F2S can connect communities.

Part Two, Section Five (2.5) presents the conclusions reached by this review of literature.

# Part One

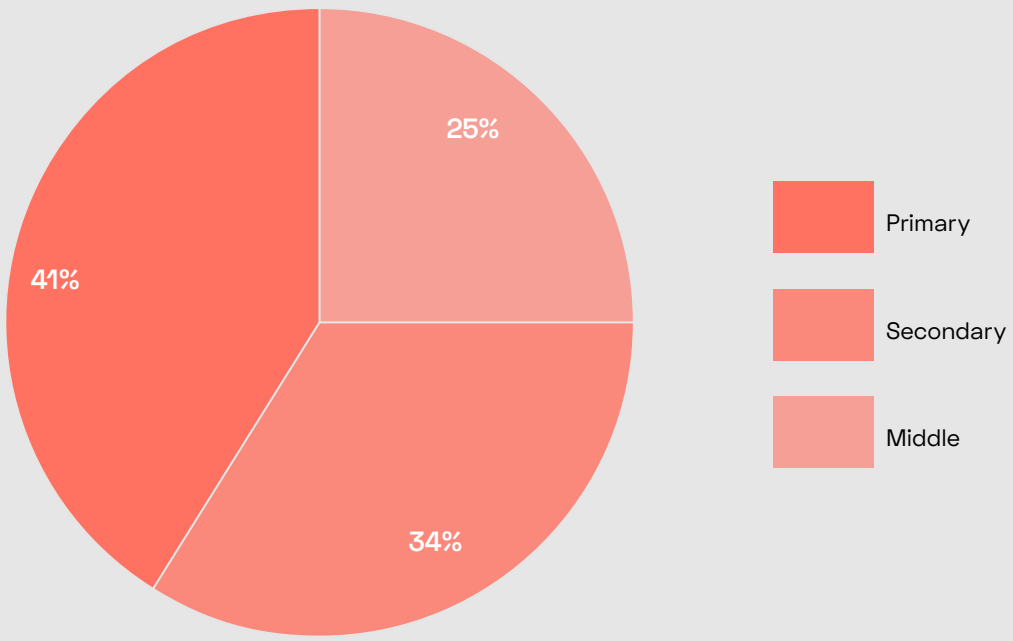
# First-Hand Research:
# Survey Results and Interviews of Farm to School Stakeholders

A survey was designed to gather basic information about what F2S activities schools and other stakeholders are engaged in, what they are looking to achieve, what challenges they face, and what factors contribute to their success. The survey was disseminated to F2S stakeholders across Ontario, British Colombia and the rest of Canada through our project partners, Sustain Ontario, Farm to Cafeteria Canada, and Ecosource.

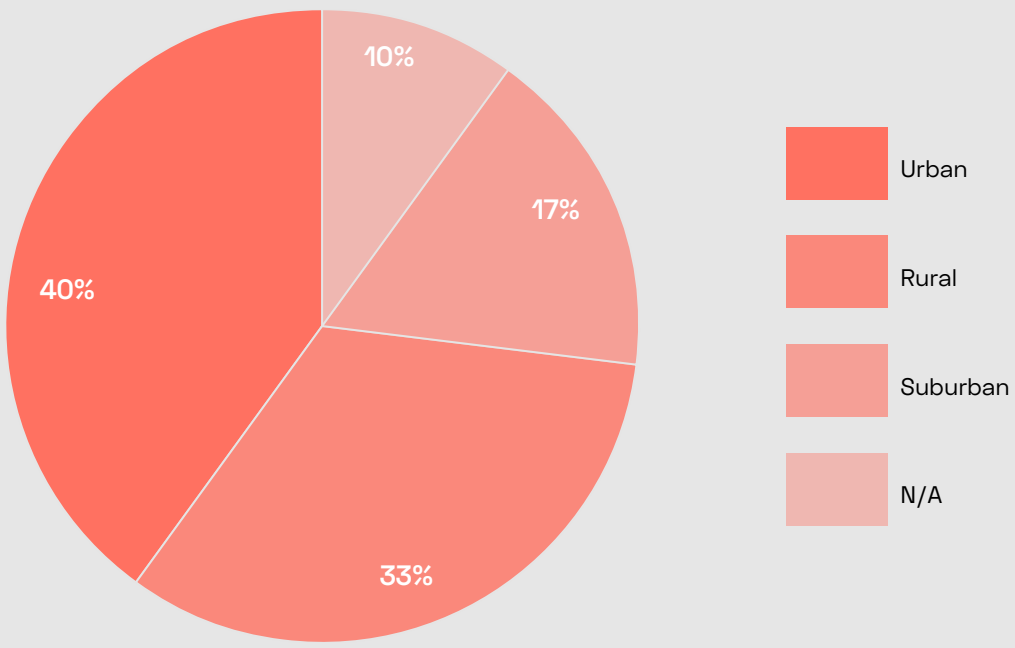
## Survey Charts & Summary

There were 62 respondents to our survey, and we conducted nine interviews. Although the survey sample is small, we believe some of the insights are significant. Respondents included: teachers, parents, school administrators, local farmers, food service managers/ school meal coordinators, local F2S advocates, and others.

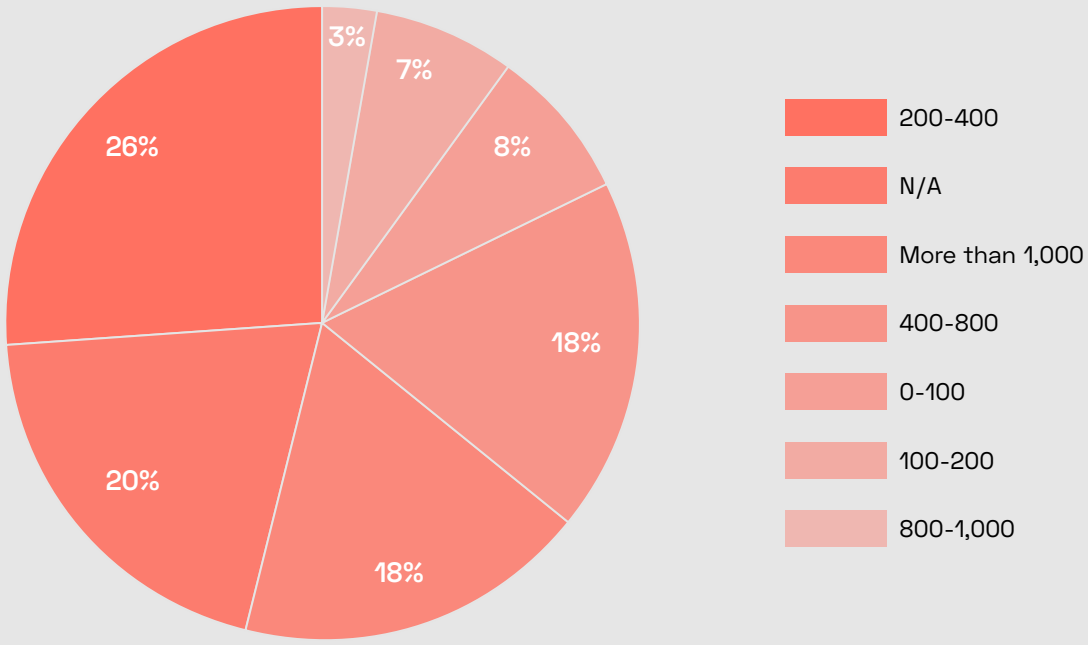
The survey questions and graphically presented results can be found in Appendix 1. A question by question summary follows, many preceded by the question's graph:



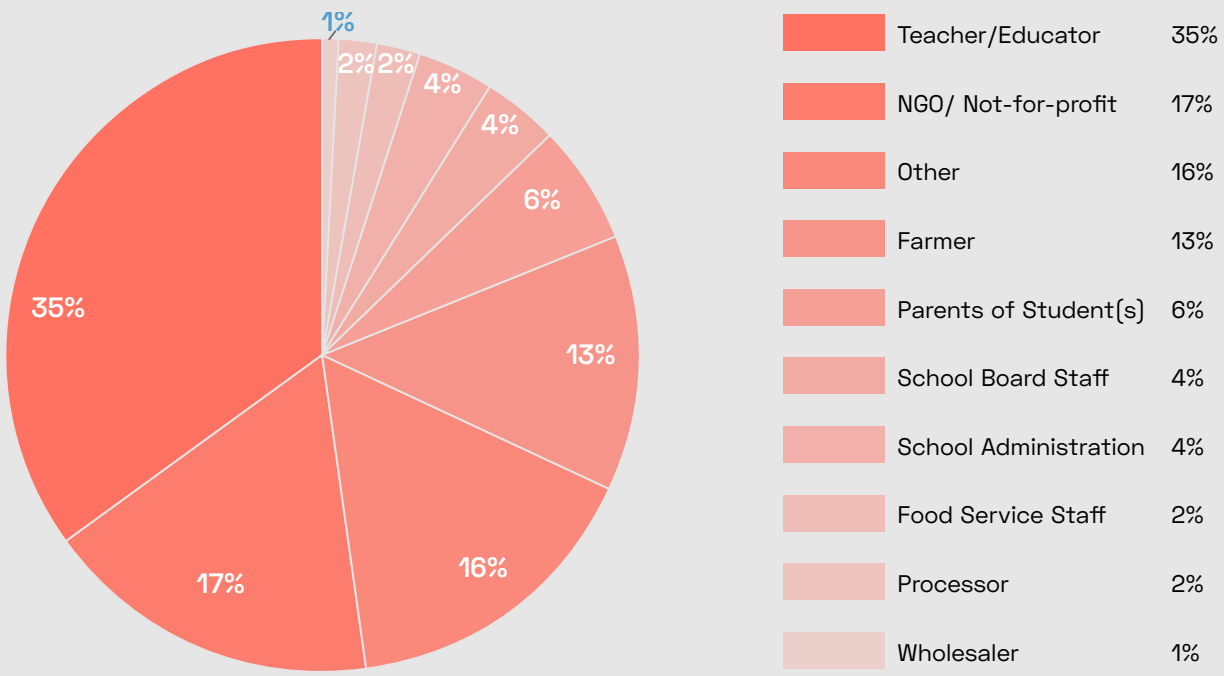

Question (Q) 1 What is your school type?
Response (R) School levels were 41% primary, 25% middle, and 34% secondary.




(Q2) What type of setting is your school in?
(R) School settings were 40% urban, 33% rural, and 17% suburban. The school's type and setting may have a significant effect on F2S activities.




(Q3) How many students are enrolled at your school?
(R) Student population varied significantly with schools of 200-400 the most prominent at 26%. Combining schools of 200-800 includes 46% of respondents. Large schools over 1,000 students comprise 18% and under 200 students combined for 115%.



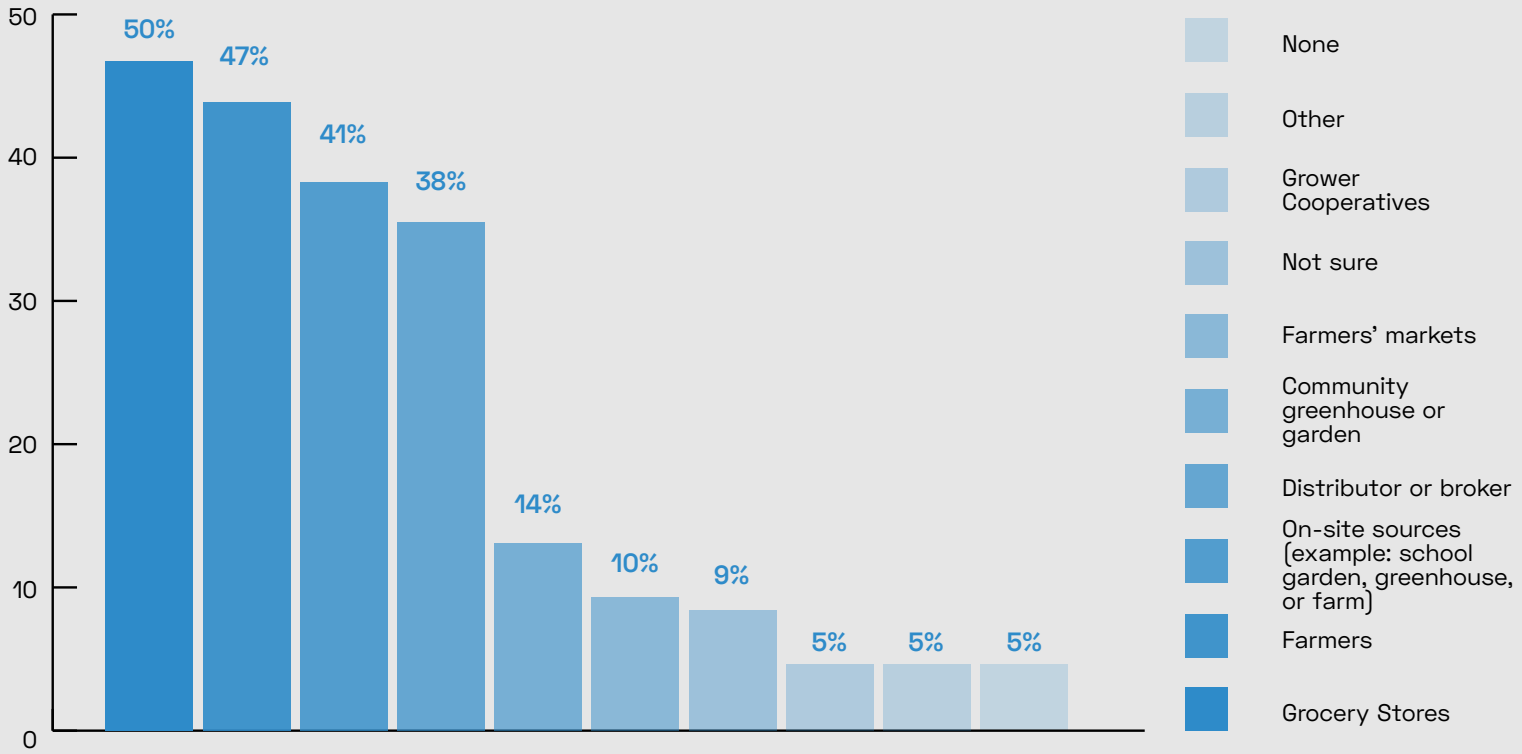

(Q4) What is your role with Farm to School?
(R) Regarding the role of respondents, teachers represented 35% of respondents, NGO personnel 17%, farmers and processors 13%,

school board staff and administrators combined for 8%, parents 6%, food service staff and wholesalers 3%, and others 16%. Others were stakeholders who generally participated in some F2S activities.

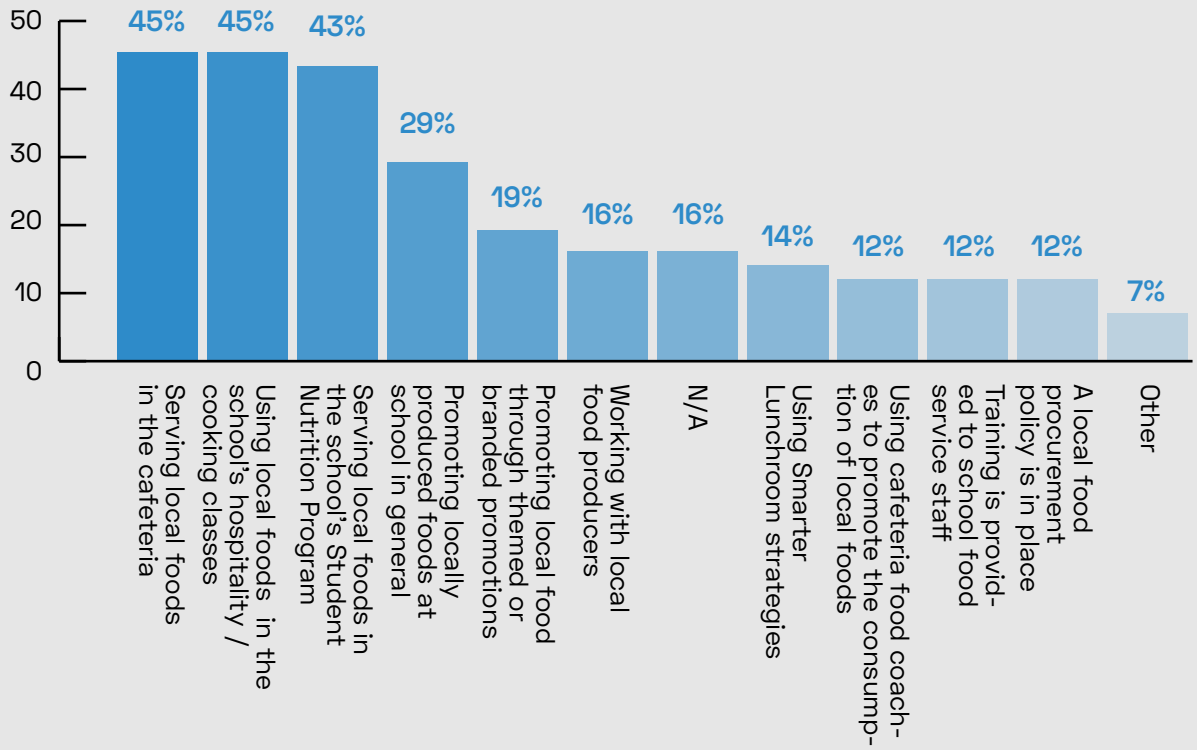
(Q5) Who are the F2S champions at your school?
(R) Having a F2S champion was thought to be critical to the success of F2S programs. Our survey allowed respondents to classify their champions choosing potentially as many as were offered.

Teachers were cited as the primary champions. All specific categories showed significant participation as champions, even the two unspecified categories. They included non-specific individuals (2), a respondent representing a non-profit community centre (1), a home and school (1) (not specified), a daycare worker (1), and a custodial (1) (perhaps someone in custodial care of a student).

From our research NGO personnel are often described as champions of F2S and are key agents for animating activities.

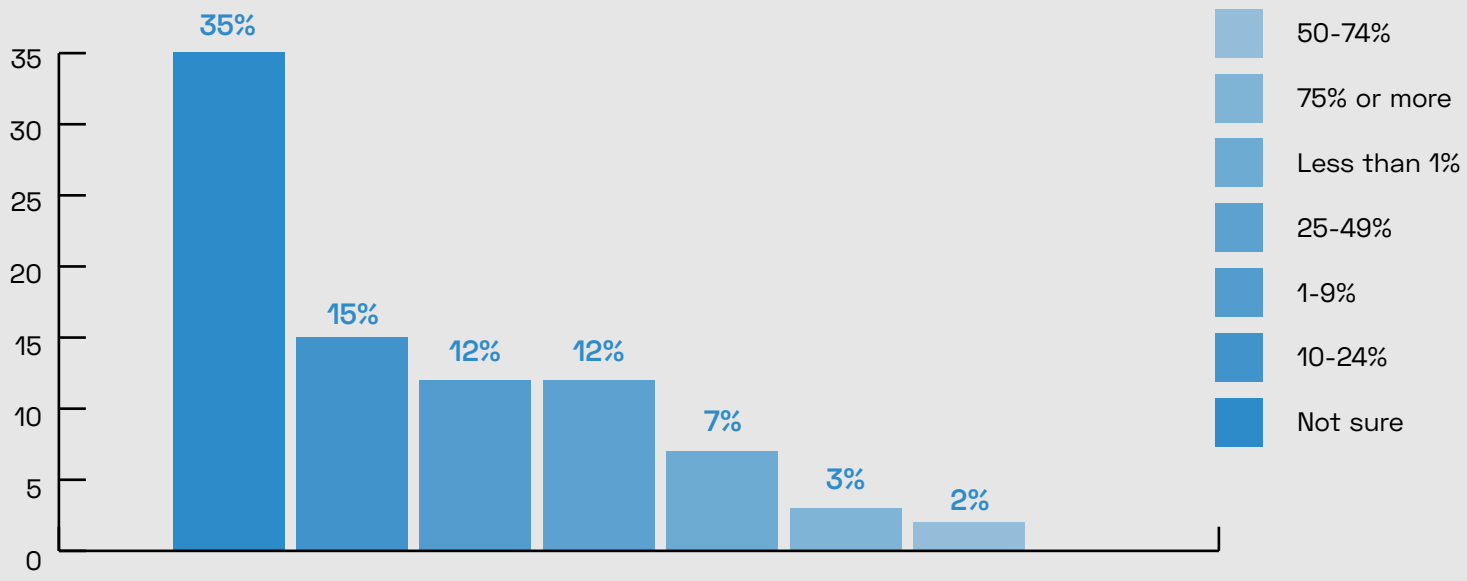



(Q6) What sources provide local food for your school (if any)?
(R) For sources providing local food, the survey allowed for multiple responses. The most reported source for procuring local food was from grocery stores with buying directly farmers a close second. On-site sources, primarily school gardens, and distributors were both substantial sources. In Ontario, local food is becoming more readily obtainable, especially with the assistance of proponents/stakeholders such as 100 Kilometer Foods and Greenbelt, but cost and scale are still considerable constraints for F2S practitioners.




(Q7) What activities do you undertake to procure or provide local food in your school?

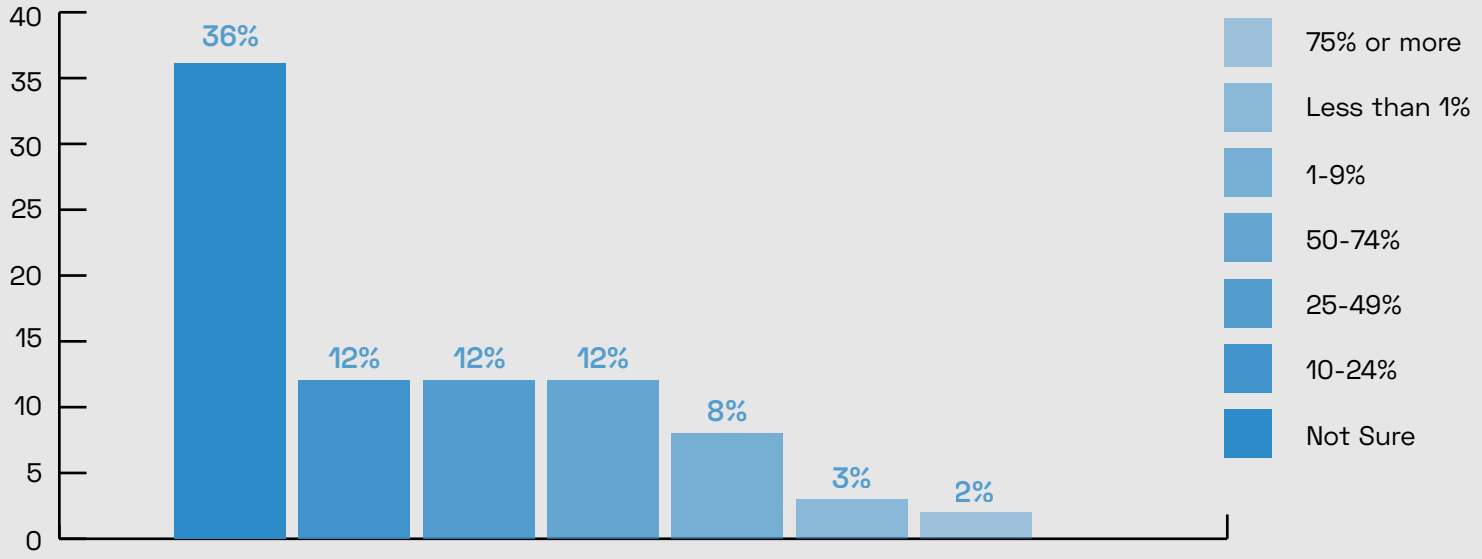
(R) There were four charts created for question #7, please see Appendix 1, charts 7a, 7b, and 7c. There were a range of activities undertaken. Schools are supporting and serving local food.



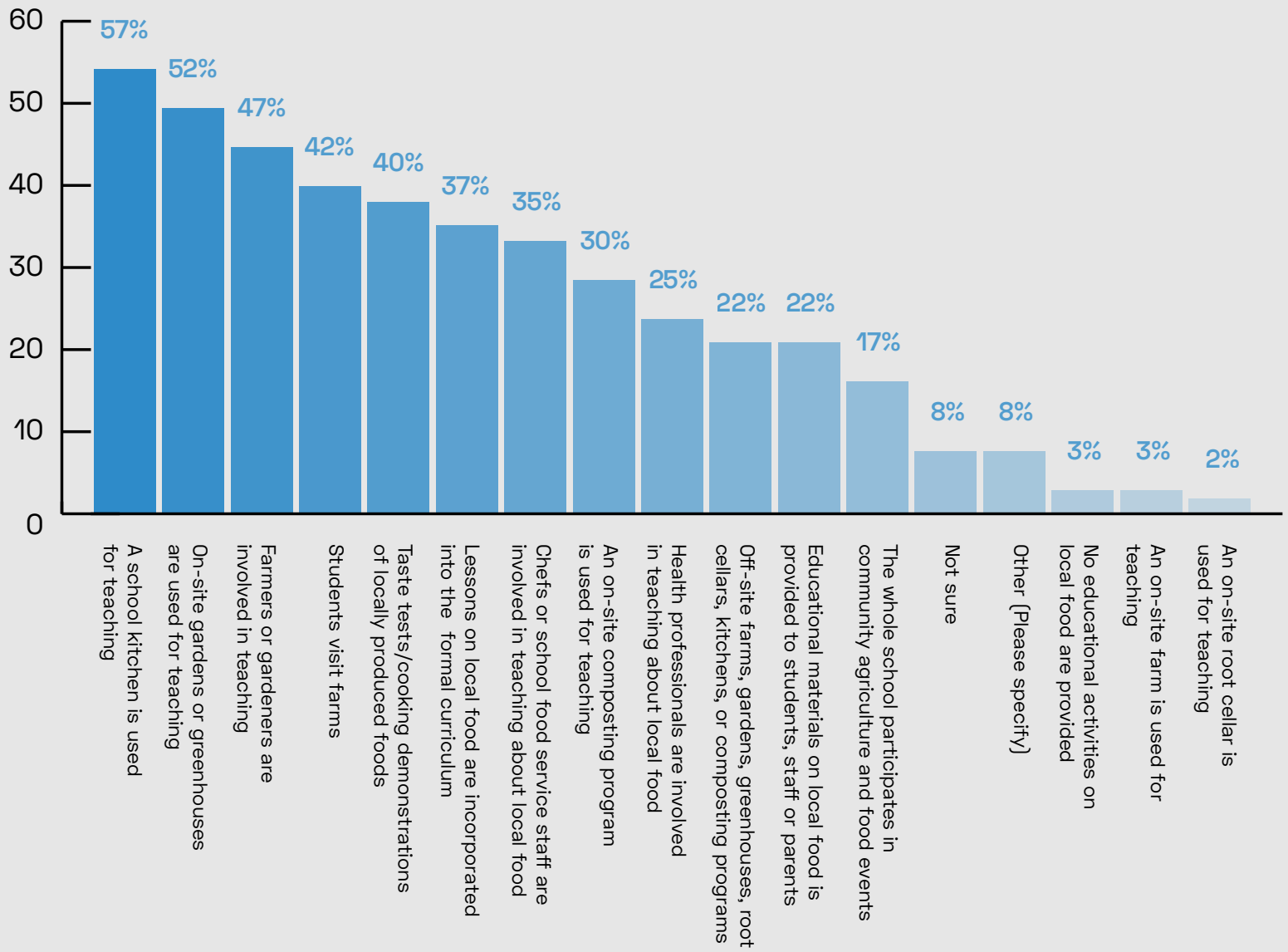

(Q8) Please estimate what percentage of your school's total annual food budget is spent on food grown and processed within 150 km or 100 miles of your school.

(R) Regarding the percentage of the Total Annual Food Budget Spent on Food Grown and Processed within 150 km or 100 miles of your school, only 2% of respondents procured 50%, or more, local food. The largest single percent was between 10-24% local procurement.

Middle schools did a bit better on local procurement (please see the additional filtered chart for Q8 in Appendix 1). Changing the definition of local to a wider scope, perhaps regional, or provincial will likely alter results. Also, with increasing availability of local food, it would be interesting to look at local food procurement as a horizontal analysis over the next several years.




(Q9) Please estimate what percentage of your school's total annual food budget is spent on food grown and processed within your province.
(R) When local is defined as provincial, results change, but perhaps not as much as one might expect. 12% reported that they purchased between 50 and 74% local and 36% were not sure. These statistics may be revealing difficulty identifying provenance and possibly constraints in the availability of local food, or the ability to procure it.



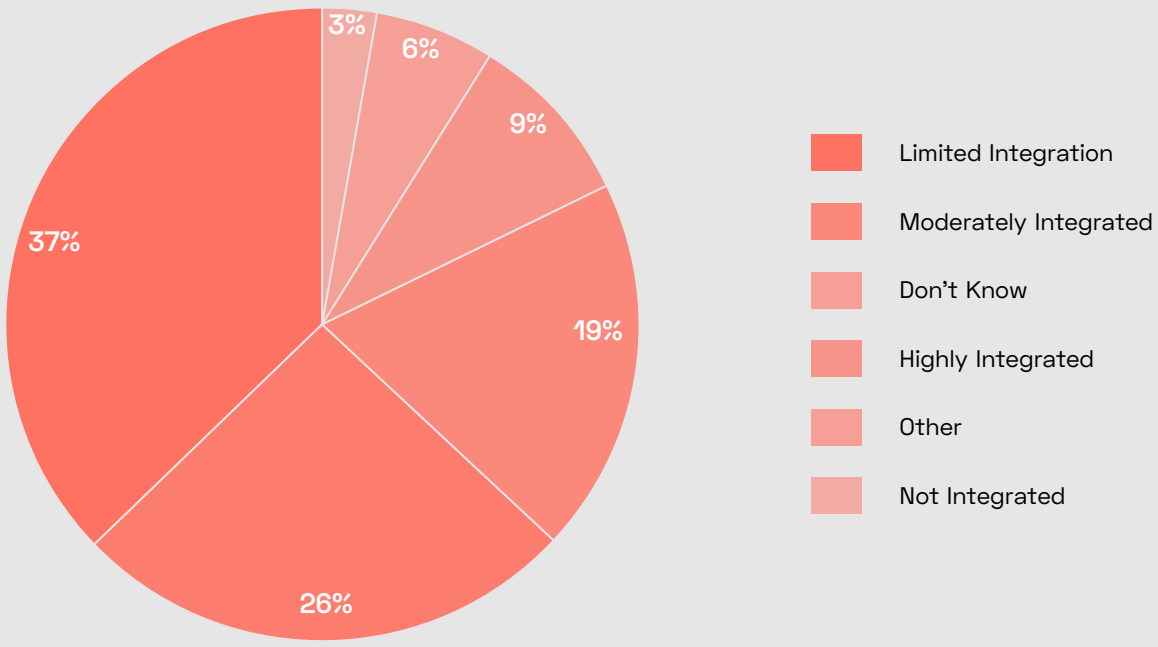

(Q10) What educational activities do you undertake to help students learn about local food?

(R) There are a range of educational activities that are well represented in the response to this question. School kitchens used for teaching, on-site school gardens and greenhouses used for teaching, farmers or gardeners involved in teaching, student farm visits, lessons on local food, and taste test and cooking demonstrations are all large categories.

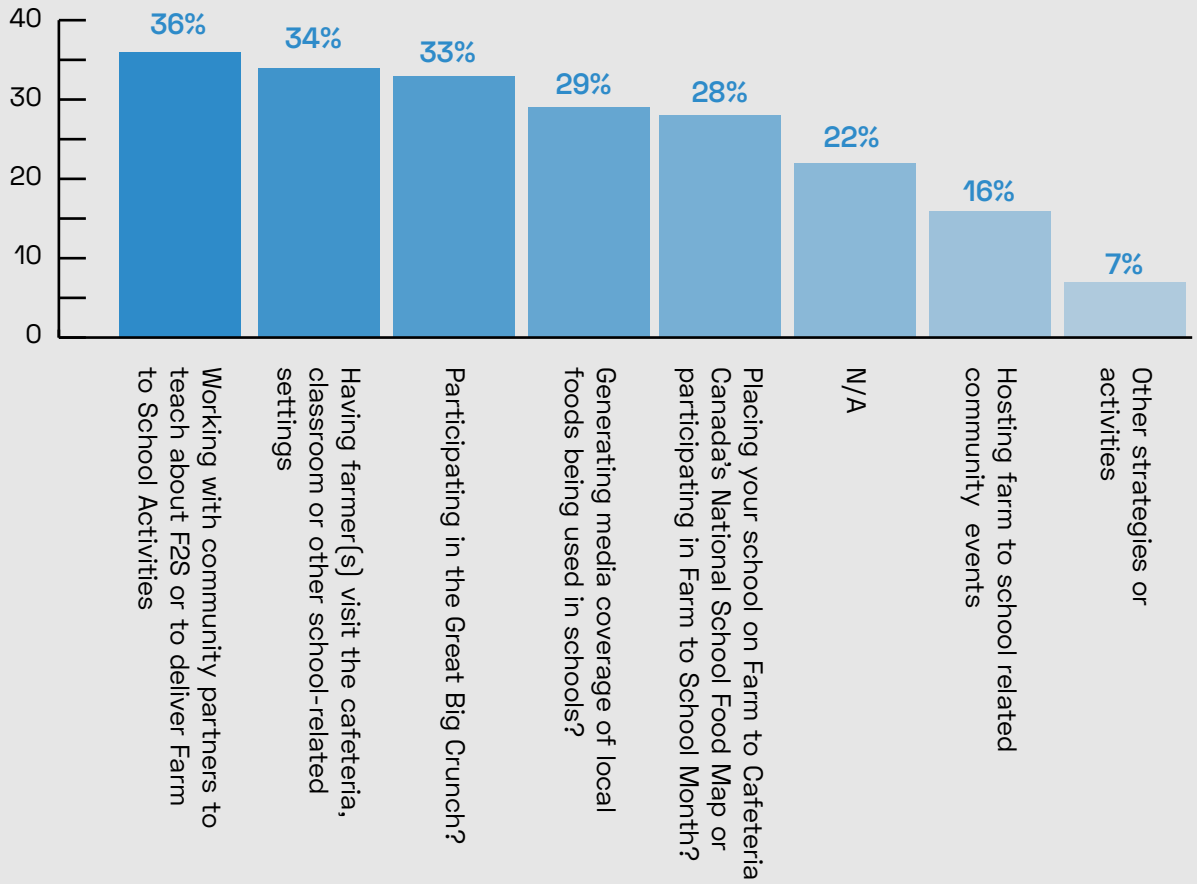
When the question is filtered for types of schools, school kitchens used for teaching, on-site school gardens and greenhouses used for teaching, chef or staff involved in teaching about local food, and taste test and cooking demonstrations are all significant in secondary schools

who may have more opportunity to teach food literacy or culinary curriculum whether it's through a culinary Specialist High Skills Major (SHSM), a self-catered cafeteria, or some other method (please see the additional filtered charts for Q10 in Appendix 1). This is well supported by the extent to which secondary schools have a kitchen classroom. Prominent for primary schools are student farm visits and farmers and gardeners involved in teaching. Teaching with an on-site composting program plays a role in middle schools. Chef or staff involved in teaching about local food has little inclusion for primary and middle schools, but again is significant in secondary schools who may have more opportunities as described above.

When the same question is also filtered with school size, on-site gardens are still significant. The charts seem to illustrate differences especially regarding school kitchens and having a farmer teaching in the garden.



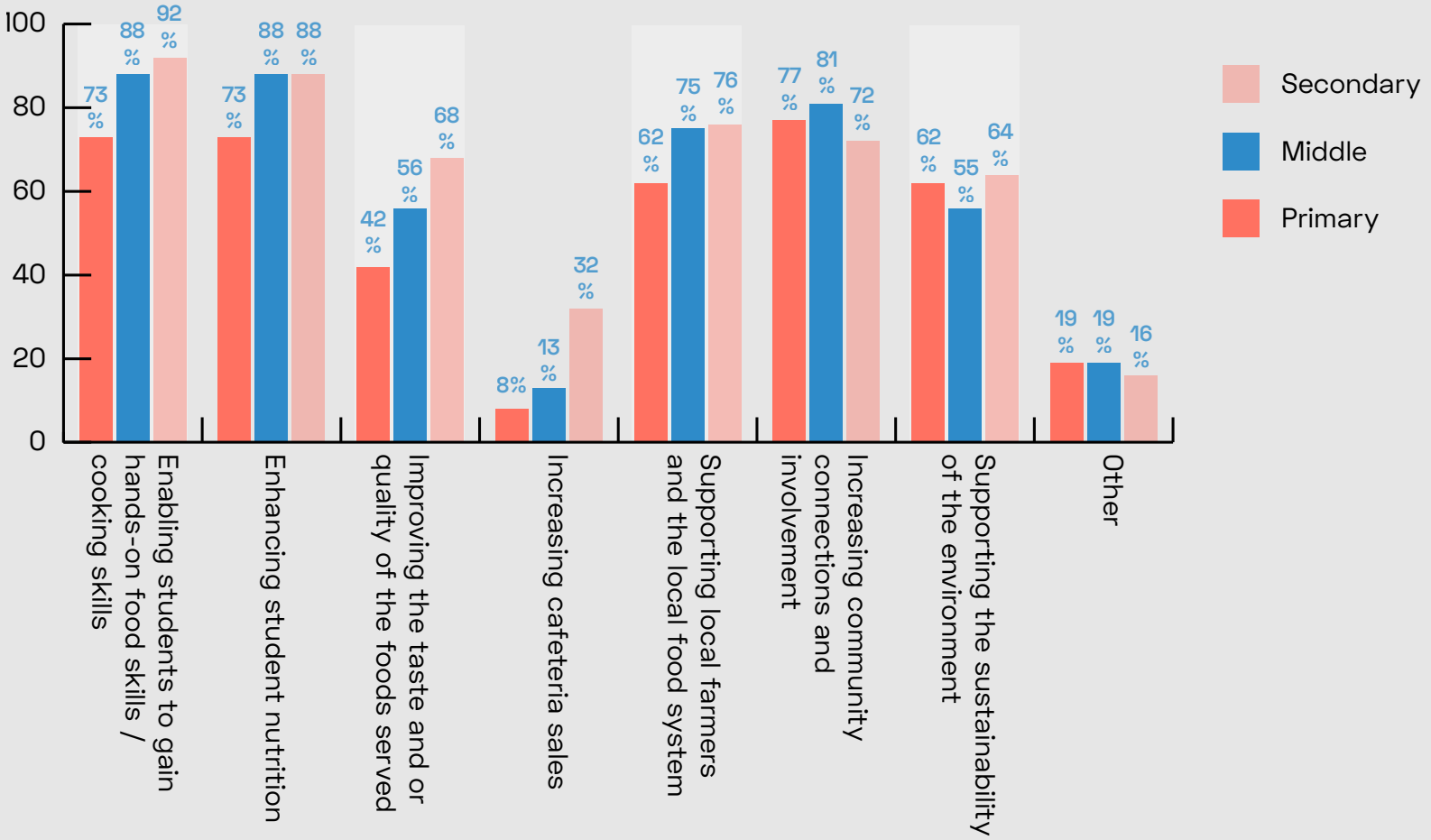

(Q11) To what extent are food, nutrition and sustainable food system topics being integrated into lessons at school?
(R) Responses indicate that food, nutrition and sustainable food system topics are being integrated into curriculum and lessons at a limited to moderate amount. Chart 11a shows a fair amount of uniformity between school types.




(Q12) What activities do you undertake to establish strong relationships with farmers, community members, and supportive organizations?
(R) Analysis of activities to establish strong relationships with farmers, community members, and supportive organizations shows that most respondents are involved in connecting the community with F2S activities. When filtering for type of school, although most of the same conclusions can be reached, middle schools lead the others types significantly as the school type most involved in hosting school related community events (please see the additional filtered chart for Q12 in Appendix 1).

(Q13) Are there connection strategies you would like to execute, but have not been able to develop?
(R) When asked about connection strategies, communication and building connections between stakeholders were listed as crucial. As in all initiatives, however, support from the top, in this case administration, is also necessary for success.

(Q14) In general, what do you consider the most important variables for the success of a F2S program across the three pillars of: Hands-On Learning; Healthy, Local Food in Schools; and School and Community Connections.
(R) Those who responded indicated that advocacy (for gaining support and alignment, engagement and commitment, especially from administration), establishing connections, ensuring that local foods produced are what students will want, and resources are the most important variables for the success of a F2S program.



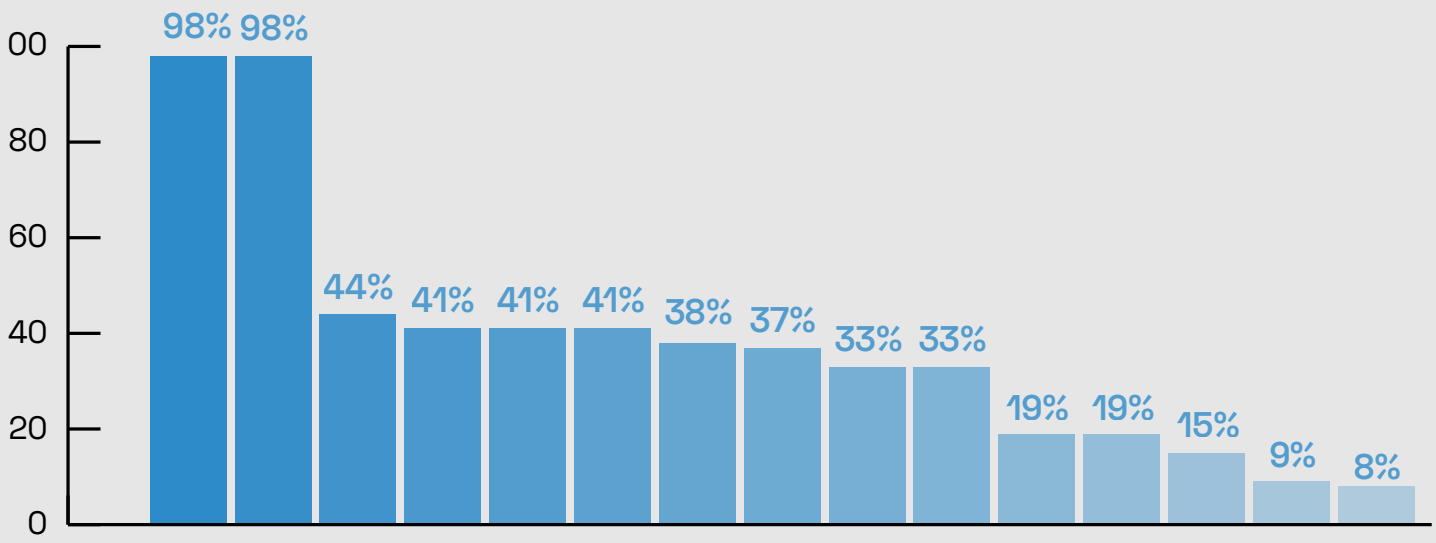

(Q15) What are the prime goals and objectives of your F2S initiatives?
(R) Overall, the goals for F2S activities offered by the survey were important across all school types except for increasing sales. Food literacy and nutrition are the most important, with cooking skills,

part of food literacy, a priority across school types.

For middle schools, increasing community connections had a slightly higher priority than it did for the other types, although food literacy, nutrition, and student skills were also important.

When goals were filtered by school population, large primary and middle schools with student populations more than 1,000 cited the majority of the listed goals as important.

(Q16) What barriers have you experienced in developing or enhancing F2S activities?
(R) Respondents described many barriers to developing or enhancing F2S activities. Barriers included a lack of local food availability, high cost, deficiency of preparation skills, insufficient funding, scarcity of support from administrators and boards as well as from contract caterers, lack of resources, insufficient awareness and commitment – all issues that must be addressed by those responsible to deliver quality food literacy education and healthy local meals.




(Q17) What were the most important factors that helped you develop effective F2S activities?
(R) The two most cited factors that helped develop effective F2S activities were increasing participation in school meals and lowering their cost to students. Also included as important were improved staff and student knowledge of local food, increasing environmental sustainability and greater community support for school meals.

The comments reveal that grants, relationships with a great contract caterer, dedicated staff and a F2S champion were cited as instrumental in developing and supporting F2S activities.

(Q18) What were the most important factors to Develop or Maintain F2S activities?
(R) The responses regarding assistance needed to further develop

or maintain F2S activities included, funding and commitment from the full spectrum of stakeholders: students, school boards, administrators, teachers, community members, and more resources.

(Q19) What assistance would you wish for or require, if any, to further develop or maintain (your school's) F2S activities?
(R) Other important comments included assistance, for example in developing menus that students like and receiving more support. Please see Appendix 1 for all comments.

(Q20) Please share a local food success story.
(R) There were many success stories including developing salad bars where students consume more fruits and vegetables, students beginning to cook at home, raising awareness of eating local food, starting a school market garden, and connecting curriculum to a school garden. To read all the great success F2S champions achieved please go to Appendix 1.

(Q21) Please add any additional comments:
(R) One additional comment mentioned the need for slow cultural change with awareness for each community and school dynamic. See Appendix 1 for all comments.

(Q22-29) These questions dealt with the school's favorite local food for main dishes, snacks, beverages, and desserts, and prices of and types of promotions for local foods. Please see Appendix 1 for details.

(Q30) Is there other information that was not asked for that you think is important to relate?
(R) One comment described that their program was able to focus on local and in-season as they deal with farmers with great cold cellars and year-long availability through greenhouse use. The second comment described their cafeteria offering a different full-course menu every Monday, for $4.00. Students and volunteers help with prep.

This is possible as they have someone who organizes the weekly event, handles purchasing, and does much of the work executing lunch. Two other comments described their offerings. Please see Appendix 1 for details.

## Survey Conclusion and Key Findings

- → The school's type and setting may have a significant effect on F2S activities.
- → A variety of stakeholders were represented with teachers and NGO personnel the two largest groups of respondents.
- → Champions are thought to be critical to instigating and continuing successful F2S activities and teachers were cited as primary champions.
- → Buying from grocery stores or directly from farmers were the most popular methods for procuring local food followed by on-site sources, primarily school gardens.
- → Serving local food in cafeterias, school nutrition programs and hospitality/cooking classes were cited as the most prominent methods of serving local food in schools.
- → Very few responding schools procured 50%, or more, local food. The largest group procured between 10-24% local food. Middle schools seemed to do a bit better on local procurement than primary or secondary.
- → The three largest categories of educational activities included student farm visits, farmers or gardeners involved in teaching, and on-site school gardens and greenhouses used for teaching.
- → Most respondents indicated some degree of integration of food security and literacy topics into the curriculum.
- → Respondents seemed to be involved with connecting the community to F2S activities. Every respondent hosted a school related community event(s).
- → The most important variables for success were obtaining support, alignment of activities, engagement of students, connecting with

the community, and commitment, especially from the administration. Also cited as important were connecting with students and ensuring that local foods produced are those students will want.

- → In terms of goals for F2S activities, food literacy and nutrition were cited most often.
- → Barriers were plentiful and included: insufficient awareness and commitment, difficulties procuring local food, high cost of local foods, lack of preparation skills, lack of resources, insufficient funding, lack of support and leadership from administrators, school boards, and contract caterers.
- → The most effective way to animate F2S activities were to improve staff and student knowledge of local food and food skills.
- → Success stories described students consuming more fruits and vegetables, beginning to cook at home, enhanced awareness of eating local food, starting a school market garden, and connecting curriculum to F2S activities.

**Interview Comments and Analysis**

As a follow-up, respondents were asked to take part in a follow up in-depth interview to capture additional lessons they had learned and provide nuanced and detailed information about how they are making their F2S activities successful.

Interviews were conducted with nine respondent volunteers. They included teachers, NGO staff, and a district health worker. Their comments were aggregated and are summarized below.

Procurement challenges with local food:

- → Price;
- → Availability;
- → Scale;
- → Distribution;
- → Forecasting quantities needed.

General Challenges:

- → Funding;
- → Hard to work together with farmers - seasons are different;
- → Had difficulty trying to run a CSA to schools from their gardens – tough;
- → See most support for schools from NGOs, and not enough from school boards or administrators;
- → Feel that teachers need NGOs for support and resources, because the school does not provide enough;
- → Difficult to find community partners;
- → Trying to get - Aquaponic and Tower Garden.

## F2S Activities:

Teacher F2S champions were already involved with healthy eating and started activities at their schools with grant money. The money paid for an industrial dishwasher and tables and have committed to hosting two salad bars a week at school. They received a donation from Whole Foods / Whole Kids. They also received Green Apple Grants, which they found easy to obtain. These are some of the activities they mentioned during interviews:

- → Had a professional cook demonstrate healthy chicken recipes;
- → Harvested 200lb of fresh produce from their garden;
- → Conducted a food and nutrition class for all levels - they work in groups on one stove;
- → They produce healthy food e.g. kale soup;
- → Have an emergency food box at local stores so shoppers can donate;
- → Run a camp in summer for grade 12 - lower level - teach cooking;
- → Work with Just Food Farms locally who work with at risk youth / teach literacy;
- → Involved with local food store - host annual vegetable race;
- → Work with senior's home and daycare on the school garden, summer students who work in the garden are supervised by seniors – the garden built at wheel chair height;

- → Work with local farms - get eggs delivered and seconds in season;
- → Since many of their students are from low income families, they do not sell food - everything is free for students;
- → They cook for 7 & 8th graders for a salad bar;
- → Prepare free samples to entice students to buy;
- → Run a free introduction for 8 weeks;
- → Each week another grade gets free salad;
- → He (the teacher) works the salad bar to educate and encourage participation;
- → Starting outdoor garden this spring;
- → Their next project is healthy eating in the curriculum;
- → They want to change the environment - move from cake for celebrations to healthy local foods;
- → They have a greenhouse and a garden;
- → Buys CSA boxes but finds them expensive;
- → Makes salsa and preserves in the fall - but mostly freezes food.

### Food Literacy:

- → Students cook for other students and learn about food and cooking;
- → Ran an event from September 25 & 26 that brought in farmers for talks about food;
- → Contracted farmers for whole animals;
- → Works with 2 organic farmers - they deliver in mid-May and September;
- → Food literacy needed for students and teachers.

### Grants:

- → Another 3-year federal grant of $50k was used to create a school garden, inside tower gardens, and a salad table;
- → Farm to Cafeteria Grants for Salad Bar;

### Suggestions from teachers:

- → Give sufficient quantity - don’t charge for meals;
- → Make meals and snacks healthy and use real ingredients kids like;

- → Let them know cooking is easy;
- → Get away from processed and fast foods – due to their efforts, they see less QSR and Tim Bits in school than before;
- → Breakeven is important;
- → Use a POS system for metrics;
- → Determine usage increase over a two-year period;
- → Important to operate at a sustainable level.

### Suggestions from NGOs:

- → Find school champions at school boards;
- → Communicate strategy;
- → Work on procurement strategies;
- → Consider environment factors;
- → Recruit and work directly with teachers and cafe workers;
- → Always combine literacy with procurement.

### Important Success factors:

- → Determine where you want to be in 2 years;
- → Make programs more sustainable;
- → Add more literacy;
- → Operate a cafeteria as full time as possible;
- → Add catering for self-sustainability;
- → Administration must be on board;
- → The school board must see F2S as a priority;
- → Her observations (the teacher): sees an increase of sales for healthy local foods in school;
- → Sees improvement in student success and attitude;
- → Find local food;
- → Find teachers/staff who are committed;
- → Take field trips to farmer's markets;
- → She (the teacher) thinks the benefits to students lie down the road - long term - in terms of food literacy, healthy eating, lifestyle, community;
- → Likes the exposure to different foods and different cultures -

many of her rural kids are not exposed to different foods like city kids, e.g., shawarmas.

### Observations, Outcomes, and Comments:

- → Improved health;
- → Better behaviour and academic performance - less tardiness;
- → Less aggression/problems;
- → Believe good food/diet connects to 3 type of health: physical, emotional, psychological;
- → Believes all 3 F2S pillars are necessary;
- → Food Share is an active nutrition partner;
- → It's not enough to connect to local food - more is needed;
- → If you're hungry and can't access sufficient or regular healthy food you are at risk;
- → It's about opportunities, literacy, wellness, relationship, trust, and comfort;
- → Believes the more pieces the better, but you have to start somewhere;
- → Works with 2 French high schools on a F2S grant from F2CC - on a team - sees a bigger change and better connection with a school garden they started - it's a community garden with partners of an elder centre and two-day cares;
- → She feels the partnership is a key for success;
- → Sees the salad bar become more successful when the teachers and staff participate;
- → Finds the rural school has more buy-in, closer connection to teachers and each other, less outside fast-food competition than the urban school;
- → Kids knowing where food comes from;
- → She runs a class that makes food for the cafeteria;
- → They butcher their own whole pigs and sides of beef;
- → The cafeteria has become a classroom;
- → They make money on foodservice - $12,000 last year;
- → She has 100 kids in two semesters in her classes, many who need

to improve food literacy.

## Examples of success

Interview respondents described their successes. Dickson Grove School in Toronto has an all-volunteer, self-operated, self-sustaining lunch program, 3 times a week, run by volunteer staff, faculty, and students. Students do all the cooking and serving. Equity is maintained, as the meals are pay if you can. Confidentiality is upheld so that who is paying is kept discreet. Students help volunteer chefs cook multicultural menus.
Families actually come to school - parents and their small children and have breakfast with their kids who are at school and the other students - they have a mid-morning meal and a paid hot lunch - prepared and served by students.

They served 1,500 meals in one month. They have applied for grant money for next year's lunch program to expand and help to pay some volunteers.

A Simcoe County District School Board teacher and her partner run a program for kids 16 years plus in a two-room school house. It's called Where's the Food – Sassy Snacks (WTF-Sassy Snacks). It is a social entrepreneurship project for their students who are at-risk teens. They partner with Karma Project, Good Food Box, Student Nutrition Program and once a month they procure 250 pounds of vegetables and fruit which their students process for distribution to 4 local elementary schools, things such as crudité and healthy fruit and vegetable snacks. They have a food handler on site and the primary schools they service do not, so they require processed foods. FoodShare Barrie and Home Depot have also donated.
Their programs run four semesters a year and they teach equity, justice, food security, marketing and branding. They also work with Karma House in Simcoe who runs a community garden. The kids

tend it once a week and get summer jobs there. They helped install beds and plant donated fruit trees from FruitShare Barrie.

WTF's main issues are PROCUREMENT and SUSTAINABILITY. They wished they received more support from the board since the project would (will) not exist without them. They are also working on a project that would have their kids helping to run a YMCA cafe in Barrie. For more about the Karma Project see: www.thekarmaprojectinc.com

A retired teacher and farmer cites her biggest challenges for F2S as:
→ A lack of volunteers;
→ The cost of products and the lack of resources;
→ Access - making food nutritional and local.

She provides students with free apples and free cereal and milk with bananas access (they don't use sugar). She loves that in Brantford they have a program where each student gets a glass of milk everyday - someone bequeathed a fund to the school(s)

She would like to see a partnership with the Ministry of Health, Education, and Dairy Farmers, stating that dairy farmers give to Food Banks, why not give to schools? She also wants to add food literacy into 7th grade curriculum and offer adult food literacy/ cooking classes.

They do a great event: Bite of Brant - in April at the Hereford Fairgrounds. It has been going on for 24 years now. At the event 1000 grade 5 students participate over 2.5 days. Each student attends a half day, there are 10 stations, they milk a fake cow, grind grain, make pizza, grind apples, make juice (not pasteurized to drink), and have a great learning experience.

## Conclusion

The interviews revealed a wealth of information that is worth re-

viewing. Certain themes were prominent.
F2S champions displayed ingenuity creating successful activities, probably out of necessity, due to receiving little support. In some cases, proponents starting with one activity were able to enhance and expand them.
Positive outcomes of activities undertaken were readily observed. Hands-on learning encouraged student engagement and helped build skills. Providing students with more healthy local foods, education across the full spectrum of food literacy and food security knowledge including food justice, systems, nutrition, and cooking should be increased, both informally and formally, and integrated into curriculum.
Despite the difficult challenges of instituting and sustaining F2S activities, our interviewees managed to overcome them by perseverance, support, and collaboration.
The key take-away from these conversations is that building consensus for these activities, including support from policymakers, administrators, and the entire community of stakeholders is key to their success and sustainability.

Other programs that NGOs are involved in include:

- → Morning meals – community delivery and animation – working with parents and volunteers – skill and capacity building;
- → Field to table – literacy – in-class – and skill development for students and teachers;
- → Advocating for cafeterias.

# Part Two

## Review of Literature

# Section 2.1
# Healthy Food and Diet

## Introduction

This section reviews research on health, nutrition, and diet for children and students. It discusses the benefits of healthy eating, particularly a healthy breakfast and the deleterious effects of an unhealthy diet and lifestyle. These benefits apply to health and wellness and academic achievement providing an enhanced quality of life that persists into adulthood due to acquired information and childhood habits formed. Farm to School activities, healthy school meals, and school environments are investigated.
Part two, and other parts of this paper link evidence-based research on the beneficial outcomes of healthy eating and food literacy for children and adolescents with a Farm to School approach and a National school Food program.

## Connecting Farm to School with Peer-Reviewed Research that Correlates Healthy School Meals with Positive Outcomes

As mentioned, when scanning for evidence-based studies on the effects of Farm to School activities for students and the community, the authors found limited literature to directly connect F2S to greater levels of student success academically, physically, or psychologically. However, they did find an immense amount of evidence-based research that connects the beneficial outcomes of healthy eating and food literacy for children and adolescents. Since F2S fundamentally supports nutrition, healthy eating, and food literacy, this section will include a thorough review of scientific literature that indicates these benefits accruing from nutritious school meals, especially breakfast, and by association, link them to F2S.

For the purposes of this paper, a universal healthy school food program will be linked both directly and indirectly to health and wellness and academic benefits and F2S activities will be linked to all

three types of benefits that are listed below. These benefits have been extensively and independently researched (many through studies on student nutrition, healthy eating and diet, school interventions, and school meal programs) and include three major categories:

- → Health and wellness for students;
- → Improved academic performance for students;
- → Enhanced local economic activity.

There are sub-benefits of each group:

**Health and Wellness Outcomes**

1. Prevention of developing chronic health conditions;
2. Diabetes prevention;
3. Heart disease prevention;
4. Increase in vegetable and fruit consumption;
5. Improved physical activity - feeling of wellness/perception of improved health;
6. Improved Food Literacy;
7. A brighter outlook for a healthy adulthood.

**Academic Outcomes**

1. Improved academic performance/less disruption in the classroom;
2. Increased percent of students graduating;
3. Improved class attendance/less absenteeism;
4. Improved classroom behavior;
5. Less students at-risk/reduced suspensions;
6. Increased percent of students applying to and going to college or university.

**Community Outcomes:**

1. Increased local agricultural activity/potential for local economic growth;
2. Improvements to the local food supply chain;
3. Improved food security;
4. Increased CSA activity;
5. Increase in local foods served in school cafeterias and community awareness about and interest in purchasing local foods;
6. Improved acceptance of healthier school meals among the community;
7. Increase in opportunities to combat racial and economic inequities in the school food system;
8. Increase in support from parents and community for healthier school meals.

(Croom, et al., 2006; Farm to School, n.d.; Giancatarino & Noor, 2014; healthycanadians.gc.ca, n.d.; Schmidt, et al., 2006; United States Department of Agriculture, Food and Nutrition Services. The Farm to School Census, 2016; USDA Office, 2015).

It is important to note that, in terms of health and wellness and academic achievement, these benefits only accrue to students who consume adequate amounts of the food and nutrients necessary to sustain them and that during this research it became apparent that may be a critical issue for some.

# The Importance of Understanding Healthy Eating and Access to Healthy Food

## The Benefits of Healthy Eating

An excellent definition of eating comes from Raine, 2005:
"Eating is a socially constructed act that is embedded not only in individual perspectives of healthy eating drawn from dietary guidance and marketing of products but also in physical and economic environments that determine what food is available to us and at what cost" (Raine 2005, p.S11).

According to Lillico et al., (2014), healthy eating in childhood and adolescence is important for proper growth and development and to prevent various health conditions. It may also reduce the risk of chronic illness developing later in life. Access to healthy food is vital and school meals and F2S activities should play important roles.

Eating breakfast is of great importance for adolescents (Edefonti et al., 2014). Children who skip or cannot access breakfast are less likely to meet the recommended daily allowances of numerous vitamins and minerals, including vitamin D and calcium (Nicklas et al., 2004; Peters, et al., 2012) A healthy lunch and snacks are also vital (Food Research and Action Center, (n.d.); Harvard School of Public Health, (n.d.); Hernandez, et al. (2019)).

Health Canada (2015) found that healthy eating is important for the healthy development of children and youth and to reduce the risk of chronic disease later in life (Lillico, et al., 2014; Public Health Agency of Canada [PHAC], 2012). Poor eating behaviours that begin during the teenage years may carry on into adulthood, creating the potential for a wide variety of eating-related concerns (Vereecken, 2005). Adolescents' eating behaviours are connected to their emotional health. Those who eat unhealthy foods tend to have greater psychological distress (Jacka, et. al., 2013). In an analysis of five waves

of the Canadian Community Health Survey (CCHS), which collects data from individuals 12 years of age and older, lower fruit and vegetable intake was related to increased risk of depression and distress (McMartin et al., 2013).

Understanding healthy eating goes beyond having a simple knowledge of food to factors that influence what and how much is eaten, such as where and when foods are consumed. The offerings in fast food restaurants, for example, tend to be of low nutritional value although a recent United States Department of Agriculture (2015) systematic review concluded that there was limited evidence that eating in fast food restaurants was related to body weight for children and adolescents. However, there was moderate evidence of this connection for adults (Kirkpatrick et al., 2014). There are also schools that offer foods of low value.

Eating a poor diet can:

- → Increase the risk of diabetes, high blood pressure, heart disease, cancer, iron deficiency, and dental caries;
- → Increase risks of lung, esophageal, stomach, colorectal, and prostate cancers.

(Centers for Disease Control and Prevention, 2011a)

Lower dietary quality and undernutrition are increased with hunger and food insecurity (i.e., reduced food intake and disrupted eating patterns due to a lack of household income and other resources for food). Undernutrition can negatively affect overall health, cognitive development, and school performance (Centers for Disease Control and Prevention, 2011a).

Healthy eating helps individuals achieve and maintain a healthy body weight, consume important nutrients, and reduce the risk of developing adverse health conditions.

Since adolescent eating habits shape adult ones, student food literacy education and a healthy diet should have a clear and positive impact on adult health outcomes.

According to a report by the Centers for Disease Control and Prevention:

Eating a healthy breakfast is associated with improved cognitive function (especially memory), reduced absenteeism, and improved mood.

Adequate hydration may also improve cognitive function in children and adolescents, which is important for learning. Most youth do not consume the recommended amount of water.

Empty calories from added sugars and solid fats contribute to 40% of daily calories for children and adolescents age 2–18 years—affecting the overall quality of their diets. Approximately half of these empty calories come from six sources: soda, fruit drinks, dairy desserts, grain desserts, pizza, and whole milk.

Between 2003 and 2010, total fruit intake and whole fruit intake among children and adolescents increased. However, most youth still do not meet fruit and vegetable recommendations.

Between 2001 and 2010, consumption of sugar-sweetened beverages among children and adolescents decreased, but still accounts for 10% of total caloric intake.

(CDC, n.d.)

The Canadian study Health Behaviour in School-aged Children (2015) found that at least one-third of boys and girls reported eating neither fruits nor vegetables at least once daily despite the associated physical, developmental, and mental health benefits they provide. Students who indicated they ate fruits and/or vegetables at least once a day, however, has increased over survey years (Health Canada, 2015; McMartin et al., 2013; Vereecken, 2005). Fewer than half of Grade 9 and 10 girls said they ate breakfast every school day. By Grade 10, only 70% of boys and 68% of girls stated that they ate breakfast both days on the weekend (compared to 83% of boys and 85% of girls in Grade 6) although there is evidence that not eating breakfast may increase the risks of nutrition-

al inadequacies (Nicklas et al., 2004; Peters, et al, 2012) and cognitive impairments (Adolphus, et al., 2013). Eating at fast-food restaurants at least once per week increased between Grade 8 and Grade 9 for both boys and girls, which is noteworthy given that the nutritional value of fast food meals are generally low (Kirkpatrick et al., 2014).

A 2015 survey by Health Canada also indicated an increase of children who did not eat fruits and vegetables daily, in fact, almost half (46%) of boys and more than one third (37%) of girls reported eating neither vegetables nor fruits once per day. 34% of boys and 42% of girls reported eating both fruits and vegetables once per day or more. Some of these behaviours may be attributable to the food environments that surround young people and the availability and affordability of fruits and vegetables. Reports of soft drink and candy consumption have decreased over time, and reported daily consumption of potato chips, diet soft drinks, and energy drinks was quite low. This is consistent with Canada's Food Guide's recommendations on reducing the intake of foods high in fats, sugar, sodium, or calories (Health Canada, 2019).

According to a soon to be released study mentioned by The Coalition for Healthy School Food (2020), students who participated in a meal program scored higher for overall diet quality than those who did not because of an inclusion of recommended nutritious foods and less minimally nutritious foods. Students who did not participate in meal programs consumed about 1/3 of their calories from minimally nutritious foods, "about double that of meal program student lunches." (The Coalition for Healthy School Food, 2020).

School could be a focus of healthy eating efforts, facilitating a better diet for students since they are generally required to attend school until at least age 16 (varying by province and territory). The Centers for Disease Control and Prevention (CDC) in the U.S. reported that schools are in a unique position to provide students with opportunities to learn about and practice healthy eating behaviors (Centers for Disease Control and Prevention, 2011a). The results of school nutrition interventions will be presented in another section.

## Health Related Quality of Life – Preventing Chronic Disease

In the last two decades, there has been an increase in risk factors for childhood chronic disease across North America and other parts of the world. There is a growing body of evidence to support the health and well-being and student success benefits of healthy eating and an active lifestyle for children and adolescents (Healthline, 2016). However, many surveys of Canadian children have found that they are not, on average, consuming the number of servings of nutritious foods recommended by Canada's Food Guide (Dietitians of Canada, 2010; ICBC, 2019; The Coalition for Healthy School Food, Why it Matters, n.d.).

There are many potential causal factors for the increased risk of chronic disease occurring in the young. Behavioural factors may include eating foods high in sugar, and energy-rich foods (Centers for Disease Control and Prevention, 2016). Environmental factors are seen in various settings at home, in school, and in the community. A community's lack of accessibility and affordability of healthy food can also affect the nutrition of children (Centers for Disease Control and Prevention, 2016). Making healthy options for meals and snacks available for children at home and school should be priorities. Marketing of food to children is a multi-billion-dollar industry and many of the foods represented are not healthy options both at home and at school. Children spend most of their time at school, so the school can promote healthy food choices and physical activity.

The home food environment plays a crucial role in child food preference and eating habits. What types of food and how much is made available in the home can positively or negatively affect healthy eating habits from a very young age (Kral & Faith, 2009). At home, parent-child interaction is crucial as parents can influence their children's food choices and motivate them to have a healthy lifestyle. Research shows that eating habits developed at a young age continue into

adulthood, though they are susceptible to change during adolescence (Van Cauwenberghe, et al., 2010).

A heightened risk of health issues including cardiovascular diseases, high blood pressure, and increased cholesterol levels may be the outcome for children who eat poorly and do not have a healthy lifestyle (Van Cauwenberghe, et al., 2010). For children, it may also increase the risk of having insulin-resistant type 2 diabetes. Children may have high-risk respiratory problems such as asthma (Pulgaron and Delamater, 2015).

## Healthy Eating and Academic Performance

### Key Findings of Healthy Eating

Since F2S fundamentally supports nutrition, healthy eating, and food literacy, this section will include a thorough review of scientific literature that indicates the benefits accruing from nutritious school meals. Benefits include enhanced health and wellness and academic success. This section links those benefits with F2S since their activities are so closely related. This leads to the possibility that providing universal school meals in conjunction with F2S activities will provide students with nearly an optimal amount of these types of benefits.

### The Benefits of a Healthy Breakfast

The impact of school breakfasts on children's health and learning has been studied extensively. There has been less research into the beneficial affects of a healthy lunch and snacks, but their benefits can be linked to breakfast's as a healthy diet provides part of a holistic framework for well-being.

Researchers at the Harvard School of Public Health and Harvard Medical School analyzed scientific research on these variables and concluded that "serving breakfast to school children who don't get it elsewhere significantly improves their cognitive or mental abilities, enabling them to be more alert, pay better attention, and to do better on reading, math, and other standardized test scores. Children

who eat breakfast are sick less often, have fewer problems associated with hunger (such as dizziness, lethargy, stomach aches, and earaches), and do significantly better than their non-breakfasted peers in terms of cooperation, discipline, and interpersonal behaviours" (Brown, Beardslee, & Prothrow-Stith, 2008).

As mentioned, schools are in a unique position to provide students with opportunities to learn about and practice healthy eating behaviors (School Health Guidelines to Promote Healthy Eating and Physical Activity, 2011). Several researchers indicated that eating a healthy breakfast is associated with improved cognitive function (especially memory), reduced absenteeism, and improved mood (Hoyland, et al., 2009; Rampersand, et al., 2005; Taras, 2005). Others mentioned that adequate hydration may also improve cognitive function in children and adolescents, important conditions for learning (Benton & Burgess, 2009; Edmonds & Burford, 2009; Edmonds & Jeffes, 2009; Kempton, et al., 2011; Popkin, et al., 2010).

Another review of the literature by Levine, et al., 1989 illustrated the following: Skipping breakfast and experiencing hunger impairs children's ability to learn.

- → Eating breakfast at school helps improve children's academic performance.
- → School breakfasts improve student behaviour and learning environments.
- → Breakfast in classroom programs and programs offering free breakfast to all children in the cafeteria yield other positive results for health and learning.
- → Beliefs about breakfast can influence participation in school breakfasts.
- → School breakfasts can improve children's nutrition.

(Levine, et al., 1989)

Other studies reached similar conclusions including a review of literature by J.M. Murphy who found a correlation between consuming a regular breakfast and student success (Murphy, et al., 1998, 2001, 2005).

**More Evidence of the Benefits of Breakfast - Feeding Our Future TDSB**
Feeding Our Future was a 2012 two-year research program by the Toronto District School Board that provided a healthy morning meal to about 6,000 students in four middle schools (Grades 6 to 8) and three secondary schools (Toronto District School Board, 2012). One of the objectives of this project was to determine the impact of the program on student health, behaviour, attendance, attention, and achievement. The interviews, conducted at the end of the first year of the implementation of the program, of school administrators, teachers, and school and program staff indicated numerous benefits resulting from eating morning meals including:

→ Improved student behaviour or attitude;
→ Reduced tardiness;
→ Reduced incidence of disciplinary problems;
→ Improved ability to stay on task.
(Toronto District School Board, 2012)

Overall findings indicated that Grade 7 and 8 students who ate morning meals most days in the school week achieved better results on their learning skills (i.e., excellent or good) compared to those students who ate in the morning on only one to two days per week, or who never ate in the morning.

Differences were noticeable in the areas of independent work (70% vs. 56%), initiative (65% vs. 51%), problem solving (66% vs. 53%), and class participation (72% vs. 60%).

The information from report card data for the Grade 7 and 8 students showed significant differences. In the case of reading, 61% of students who ate the morning meal on most days in a school week achieved or exceeded the provincial standard (Levels 3 and 4) com-

pared to half (50%) of the students who ate morning meals on only a few days or not at all.

The students (28%) who ate morning meals at least three days in a school week did better in science, compared to nearly half (44%) of those students who ate morning meals only one to two days or who never ate them.

Secondary school students who ate morning meals on most days during a school week were on-track for graduation by accumulating enough credits and achieved better scores in Mathematics than those who ate morning meals on fewer days during the school week or who never ate in the morning.

Most students indicated that the program fulfilled their basic needs and improved their well-being. Students who ate morning meals on most days during a school week were more likely to rate their health as excellent or good (75% vs. 58%) and to indicate that their health had improved since the last school year (63% vs. 45%). Students who ate morning meals on most days during a school week were less likely to be suspended and more likely to come to school regularly (Toronto District School Board, 2012).

The findings, in general suggest that school breakfast programs providing access to a healthy morning meal to all students in their classrooms can be a valuable intervention measure to facilitate student success and well-being and promote positive social interaction and community-building (Toronto District School Board, 2012).

Combining the benefits that became apparent in this study with access to healthy fruits and vegetables, food literacy, hands-on learning, and community connections that F2S activities provide would likely increase, expand, and extend these benefits to also improve their future health and well-being.

## Food insecurity

Ashiabi and O'Neal found food insecurity to be negatively associated with outcomes for school-aged children. They include poor

psychosocial outcomes, an increase in mental health issues, and impaired cognitive development. Studies have shown that children experiencing household food insecurity are at risk of behavioural and emotional issues that also affect their ability to be engaged in school (2008).

The negative association between food insecurity and academic achievement for students in a Westernized context are consistent with existing literature (Jyoti et al., 2005; Perez-Escamilla, et al., 2012; Saha, et.al., 2010; Shankar, et al., 2017). Using cross-sectional data from the National Health and Nutrition Examination Survey, Alaimo et al. (2001) found that children aged 6–11 years in the USA experiencing food insufficiency in the household had decreased scores in both reading and arithmetic and were also more likely to repeat a grade. Jyoti et al., (2005) using data from a large, longitudinal study of American children, found that the presence of food insecurity resulted in impaired performance in reading and mathematics as well as consistent delays in reading ability throughout the schooling trajectory. The negative association between food insecurity and schooling outcomes has also been observed in children in pre-school as well as in university students experiencing food insecurity. This suggests a consistent, negative association between food insecurity and academic achievement throughout the life trajectory (Belachew, et al., 2011; Duong, et al., 2015; Farahbakhsh, et al., 2017; Hannum, et al., 2014; Kimbro & Denney, 2015).

Food insecurity has also been shown to compromise dietary intake potentially resulting in malnutrition and, subsequently, poor academic achievement (Burrows et al. 2016; Frongillo, et al., 2006; Perez-Escamilla, et al., 2012; Taras, 2005;). Two studies, by Maxwell & Cole, (2007) and Schisterman et al., (2009) found that low food security had a strong, negative association with academic achievement and that higher diet quality had a strong independent association with academic achievement. While these analyses cannot completely quantify the direct effects of food insecurity with academic achievement, they provide insight on the potential mediating

effect of diet (Maxwell & Cole, 2007; Schisterman, et al., 2009).

Children from food-insecure households are also less likely to get along with peers, are at higher risk of hyperactivity and are more likely to see a psychologist during their formative years (Alaimo, et al., 2001; Melchior, et al., 2012). Children from food-insecure households are more likely to have high rates of absenteeism and tardiness (Belachew, et al., 2011; Murphy, et al., 1998). Parents in food-insecure households are also more likely to experience high levels of stress and adverse mental health, which may influence their ability to care for and support their children in academic pursuits (Ashiabi, 2005; Whitaker, et al., 2006). Young children who are experiencing food insecurity may also experience negative cognitive skill development, laying the foundation for poor academic achievement when they enter formal schooling (Jacknowitz, et al., 2012; Saha, et al., 2010).

According to Tarasuk et al. (2014), food security is an important issue that has shown no signs of decreasing in Nova Scotia and in Canada and found in 2015 that there were no provincial or federal initiatives in place that had the explicit goal of reduction of food insecurity among Canadians (Tarasuk, et al. 2015).

Further research to elucidate a link between food insecurity and academic achievement in Canadian children and youth is merited. Nevertheless, the problem is severe as nearly one million children, almost one in four, say they go to school without breakfast and overwhelming evidence points to the need for remediation (Breakfast Club of Canada, n.d.). A universal healthy school food programs, enhanced with a Farm to School approach, would give students access to healthy fresh foods, creating the conditions for them to receive all associated benefits.

# Section 2.2
# Farm to School

## Introduction

Part Two Section Two describes Farm to School, its activities and benefits. F2S in Canada is often framed as comprising three pillars: healthy local food, food literacy and hands-on learning, and school and community connectedness (Farm to Cafeteria Canada, n.d.). This framework is described and detailed. Appendix 2 reviews the history of Farm to School.

## Defining Farm to School

What is Farm to School? Farm to School is an approach. It includes activities and programs that endeavor to bring healthy local and sustainable foods into schools, provide food literacy resources and hands-on learning opportunities to schools and students, and connect the community of stakeholders including students, faculty, school administrators, foodservice workers, parents of students, farmers, food distributors and processors, policymakers, interested NGOs and others. F2S efforts are also underway for hospitals, Post-Secondary education campuses, and other public institutions (Farm to Cafeteria Canada, 2018b.)

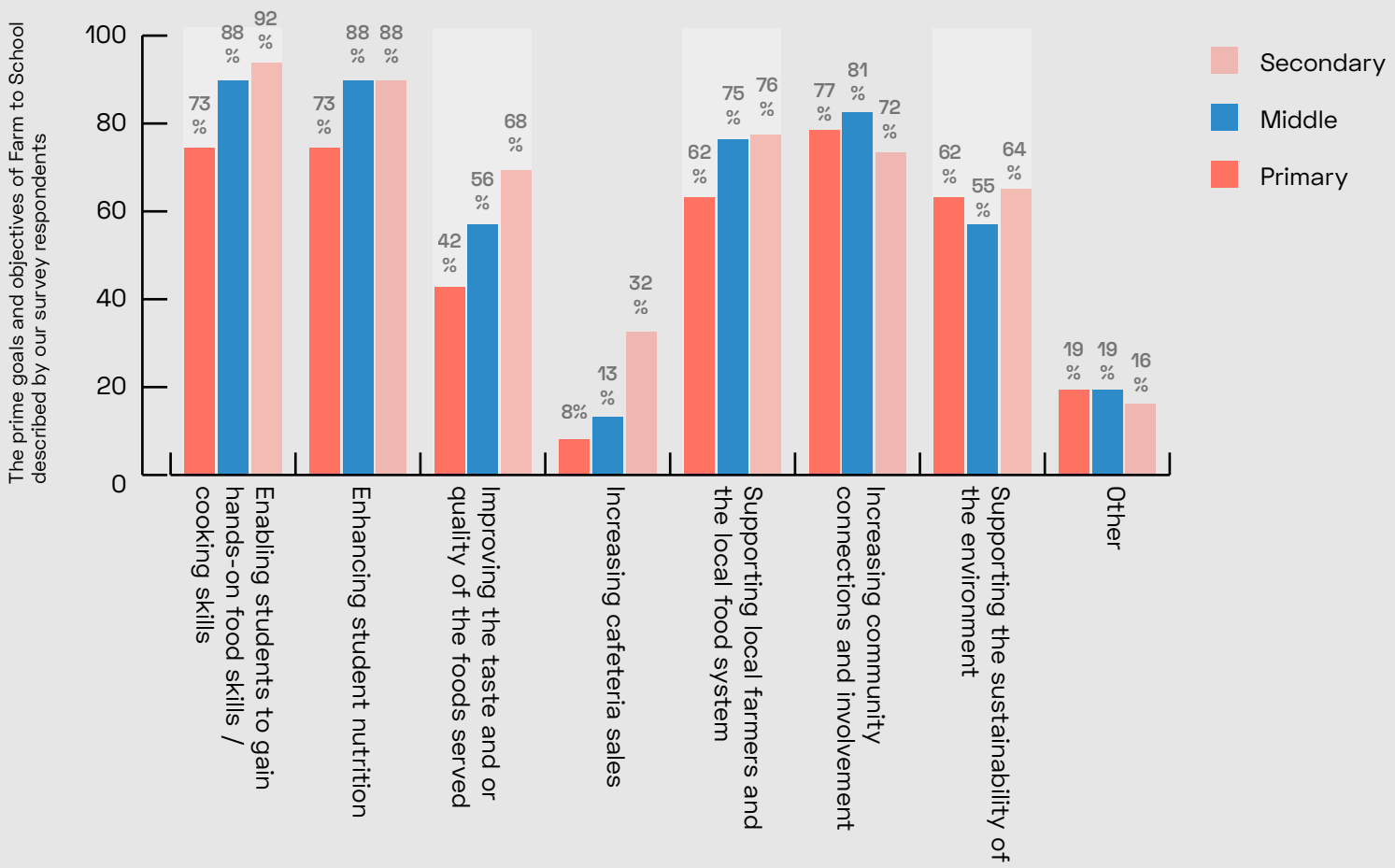
According to the Farm to Cafeteria Canada and the National Farm to School Network in the United States:

> Farm to school enriches the connection communities have with fresh, healthy food and local food producers by changing food purchasing and education practices at schools and early care and education sites.
>
> Students gain access to healthy, local foods as well as hands-on and theoretical education opportunities such as school gardens, cooking lessons and field trips to farms, and healthy diet and nutrition curriculum. Farm to school empowers children and their families to make informed food choices while strengthening the local economy and contributing to vibrant communities.

Farm to school implementation differs by location but always includes one or more of the following:

- → Procurement: Healthy local foods are purchased, promoted and served in the cafeteria or as a snack or taste-test;
- → Education: Students participate in education activities related to agriculture, food, diet, health and nutrition;
- → School gardens: Students engage in hands-on learning through gardening;
- → Strengthening community economies through local food procurement and connecting communities through activities designed to engage all stakeholders.

(Farm to School, n.d.; Farm to Cafeteria Canada, n.d.-a)




In Canada F2S often constitutes initiatives led by organizations such as Farm to Cafeteria Canada and Farm to School British Colum-

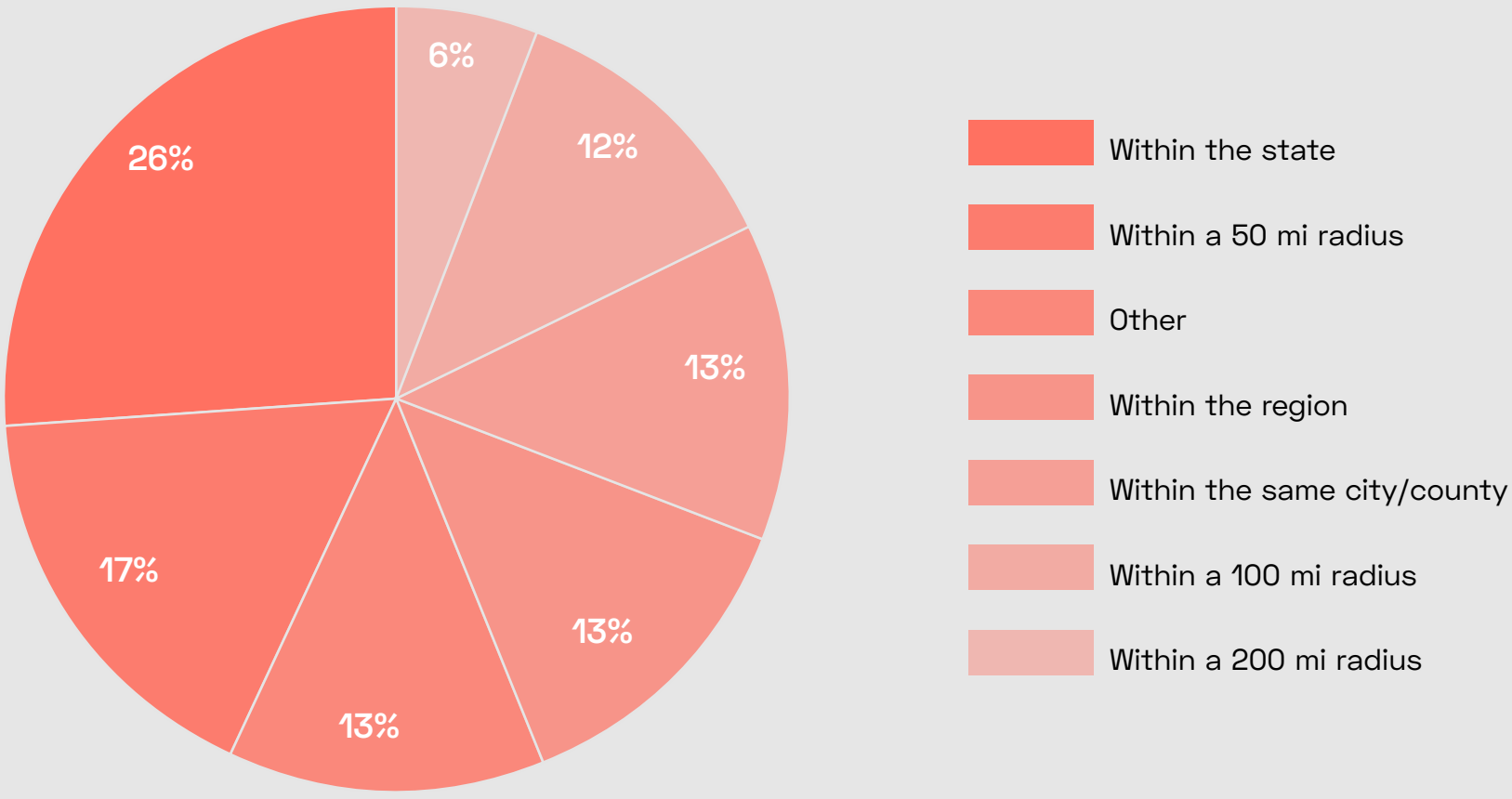
bia or that offer guidance about a framework, while other schools take on F2S initiatives on their own or with organizations that have more specific goals than the broad framework of F2S, such as aiming for hyper-local food from school gardens. These schools may not have as much guidance about the F2S framework as those working with an NGO. See Farm to Cafeteria Canada for more information: http://www.farmtocafeteriacanada.ca/our-work/farm-to-school-canada/

This paper recognizes F2S as constituting three aligned pillars:

1. Healthy Local Food;
2. Hands-on Learning and Food Literacy;
3. School and Community Connectedness.

Healthy local food, the first pillar, has no universally accepted definition and groups may define the term differently depending on the unique geography and climate where a school is located, and on the abundance of local food producers and manufacturers in the area. Many schools define local as within a certain number of kilometers from the school, within the county, or the province or even country.

The graphic below shows how Census respondents with farm to school programs define local in the U.S. (Farm to School, n.d.)




Food literacy also has multiple definitions, but can be described as an understanding of food, its importance to health and well-being, and appreciation of all aspects, from growing, to tasting, to cooking, to sharing food and food knowledge with others. It refers to understanding food as it relates to health and well-being, nutrition, theory, and preparation (Nowak et al., 2012). Hands on learning for students includes working in the school garden, greenhouse, kitchen, or classroom. It may also include taking field trips to local farms, forests, and shores (Farm to Cafeteria Canada, n.d.).

School and Community Connectedness refers specifically to the involvement of local farmers, producers, parents, and others along the local food supply chain and to the involvement of the community at large in advocating and participating in local food availability and procurement and food literacy efforts.

# Benefits of Farm to School

According to a study from 2000:
Farm to School provides an immense amount of benefits for students and the community. Student nutrition is improved with increases in healthy food consumption such as fresh fruits and vegetables. Food literacy provides a base for health and wellness where food knowledge improves habits and willingness to try new foods and make healthier choices, it engages educators and parents, reduces food waste, can provide more sustainable choices, and increases the community's acceptance, affinity and relationship to local food. Local food and food literacy both lead to increased agricultural and associated economic investment and output
(Farm to School, n.d.).

A review of literature from both peer- and non-peer reviewed reports cited the most common benefits of F2S programs as an increase in fruit and vegetable consumption in children (Berlin, et al., 2010). They are also widely touted as promising a range of economic, health and academic benefits including:

- → Support for local farmers (increasing their profits), the community, and the economy;
- → Higher quality food in schools;
- → Improved diets;
- → Increases in student knowledge about nutrition;
- → Increased participation in school meal programs;
- → Improved school public relations.

(Aftosmes, 2011)

# Section 2.2.1
# F2S: Food Literacy; Hands-on Learning; School and Community Connectedness

## Introduction

This subsection examines two of the three pillars of Farm to School. It surveys both food literacy, hands-on learning and School and Community Connectedness and the impact of local food on the local economy. Food literacy, its components, how it links to adolescent well-being, and how that often translates to healthy adulthoods for students is assessed. It also surveys how local food connects community stakeholders and strengthens local economies through F2S activities.

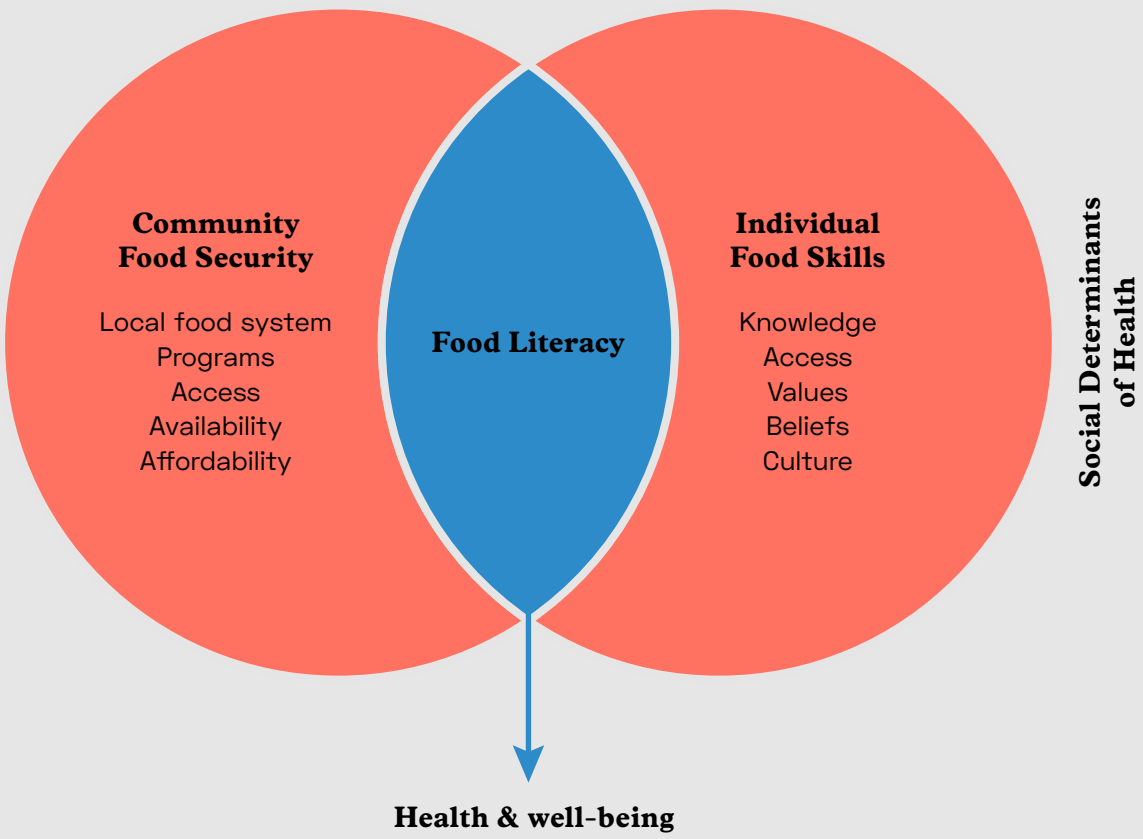
The authors believe that examining these pillars illustrates the importance of combining food literacy with universal school meals and healthy local food. Without knowing about food, nutrition, cooking and eating, growing, consuming and handling food, nutritious school meals and healthy local food consuming local food would have little context for students and would not lead to sustained health and well-being. Since understanding food depends on not just individual factors, but on cultural and social factors as well, connecting the school with the local community, not just through local food purchasing, but by a more widely collaborative effort, leads to a better understanding of food and builds the networks necessary for the community to grow and thrive.

## Food Literacy and Hands-on Learning

Characteristics of the built environment can also encourage or discourage behaviours that lead to a healthy lifestyle (Gilliland et al., 2012). Research has found that individuals living in low-income neighborhoods, as well as school-aged children, are at a heightened risk of developing unhealthy eating habits. This is potentially due to increased exposure to fast-food outlets, and decreased access to grocery stores or markets, known as “food deserts” (Health Canada, 2018; Lee, 1982). This is a difficult issue to address. One way to help reverse the current trend of poor diet and unhealthy eating habits,

even in this type of environment, according to Nowak, et al., 2012) is to increase children's food literacy, something that will serve them well throughout their life. He also mentioned that the majority of school-aged children lack the knowledge of where their food comes from and how food is produced and why healthy food is important for maintaining a healthy lifestyle. Overcoming this illiteracy can be achieved by introducing food skill development at an early age, expanding a child's food preferences, introducing them to the foods and flavours of diverse cultures, and increasing their basic cooking skills (Ibid).

Cullen, et al., (2015) present a framework for food literacy below where community food security and food skills interconnect. As the three pillars of F2S indicate, food literacy includes elements of both health promotion and sustainable food systems.




(Cullen et al. 2015, p 144).

## Defining Food Literacy

In their Farm to School Regional Hubs report, Wittman & Powell (2015) define food literacy as "...encompassing the knowledge, skills, and practices that enable citizens to participate more effectively in the construction of a sustainable food system, including through food choices and waste management, as well as through participation in the development of food policy".

Other definitions range from a narrow understanding of food literacy as the ability to read food messages, to broad interpretations aimed at empowerment and self-efficacy concerning food and nutrition, and from simple cooking skills to life skills and education towards understanding food as something dependent on cultural, social and individual factors (Vidgen & Gallegos, 2011).

In their study, Block et al. view the present preoccupation with food, nutrition, cooking or kitchen literacy as partly caused by a concern of the loss of knowledge of food and nutrition and the obesogenic society and partly deskilling or the loss of cooking competencies. They and others view food literacy in a broad sense, as food deals with nutrition, producing, cooking and eating; but also, with growing, consuming and handling foods (Caraher & Lang, 1998).

An example of the concern for this loss of competencies is the book by Ann Vileisis entitled Kitchen Literacy, with the subtitle: How we lost knowledge of where food comes from and why we need to get it back (Vileisis, 2008). Educational examples reasoned in this concern of lost knowledge of how food is grown, produced or cooked are witnessed in many local school food gardens and/or cooking projects in western societies. Due to urbanization and estrangement from a rural agricultural lifestyle, students grow vegetables at school and visit farms to learn about food and how food is produced and gets to their tables (Food Literacy Center, 2013; Nowak et al., 2012; Rawl, et al., 2008; Thonney & Bisogni, 2006; Wistoft et al., 2011).

The evaluation work conducted by Wistoft et al., (2011) states that "school gardens today are a compensation of the alienation from nature and foods, which features (in) the life of many children- and grown-ups, but also an offer of presence and fellowship in a limited time" (p. 12).

An American project called Food, Land and People has been carried out as a teaching project of 55 lesson units based on a conceptual framework and developed because of a "growing lack of agricultural knowledge" (Powell & Agnew, 2011 ), and consumer deskilling seen as a lack of basic food knowledge (Jaffe & Gertler, 2005).

Schnögl et al. (2006), define food literacy as: 'Knowing where our food comes from; knowing what happens to it, how to cook it, and how to prepare it' (p. 3). They find that 'food literacy should extend beyond cooking', as this is to oversimplify the concept. Therefore, they use a term from Caraher and Lang (1999), saying that 'food literacy needs to be framed as an essential life skill, irrespective of social class, which empowers an individual to take control over what they eat and make use of nutrition recommendations for better health' (p. 7).

Fordyce-Voorham (2011) conducted an interview study of 51 professionals within the food area (teachers, dieticians, nutritionists and chefs), who were asked to identify essential food skills for students. Food literacy came out as one subtheme seen by nearly all as 'a critical component to include in a skill-based healthful eating program. Food literacy was seen mainly as an individual's ability to read, understand, and act upon labels on fresh, canned, frozen, processed and takeout food.' (p. 119). The necessary food skills were both consumer skills and meal skills, which incorporate all stages of food preparation and cooking. The acquisition of skills 'refers to practical classes in schools involving food preparation and cooking' - part of a hands-on approach (p. 116).

## Food Literacy and Hands-on Nutrition Education

According to Chenhall (2010), the loss of food preparation skills is increasing and is leading Canadians to eat more pre-prepared foods and take-out in lieu of cooking with whole foods. The confirmation that processed, pre-prepared and convenience foods are being purchased, 'assembled' and consumed across population subgroups daily support their normalization. Since the eating patterns of individuals and families have changed in this way the potential lack of transference of basic, traditional or 'from scratch' cooking and food preparation skills from parents (primarily mothers) to children and adolescents, which has traditionally been the primary mode of learning has been compromised. Without the opportunity to observe and practice basic or 'from scratch' cooking and food preparation skills at home, children and adolescents will not be equipped with the necessary skills to make informed choices within an increasingly complex food environment. In addition, the dependence on convenience foods will only proliferate as skills continue to diminish. This presents another reason why food literacy and hands-on learning is crucial now to engage students in learning about food and food systems. It is hoped they will be able to make informed decisions about health and the environment and are empowered to make change (Chenhall, 2010).

Canadian children are losing opportunities to learn food skills according to Colatruglio & Slater (2016). This significantly impacts health as there is a correlation between the frequency of adolescents' participation in food preparation and the quality of their diets. This problem may continue into adulthood: one American study of young adults aged 19-23 found that most did not engage in food preparation on a weekly basis (Lyon, et al., 2003). Health impacts of inadequate food skills disproportionately affect disenfranchised populations. Research has found a correlation between cooking skills and food security in Canadian families (Larson & Story, 2011). Research by Garcia et al. (2016) suggests that lack of confidence and poor cooking skills contribute to lower fruit and vegetable in-

take in groups of low socioeconomic status. Healthy food access, variety, and choice in the home food environment can be influenced by the level of food knowledge, food skills confidence, healthy eating habits, and the financial means of parents. Food knowledge and skills programs for parents have the potential to positively affect the health of their children in the long term (Winkler & Turrell, 2009).

In their study 'Building Food Literacy and Positive Relationships with Healthy Food in Children Through School Gardens' Nowack et al. (2012) discuss the importance of food literacy. They describe it as: "the relative ability to basically understand the nature of food and how it is important to you, and how you are able to gain information about food, process it, analyze it, and act upon it" (p. 392). In their study, Nowack et al. analyzed the impact of a multidisciplinary intervention which introduced gardening, cooking, science and social studies to increase food literacy. Their findings reveal "children will broaden their diet and value food more strongly when they are encouraged to enjoy all aspects of it, from growing, to tasting, to sharing it with others" (p. 392).

Nowak et al., (2012) also describe how Slow Food Denver, a grassroots organization, believes that to reverse the trend of children contracting food-related diseases, children must increase their food literacy to understand food and the benefits of a healthy diet. They refer to the definition of food literacy from Vidgen & Gallegos (2011) and reason that school gardens fill the gap in school children's lack of necessary knowledge and skills of where food comes from, and why good food is an important part of health. The program encompasses the growing of fruits and vegetables, taste education and cooking in the school cafeteria. The gardening includes all aspects of producing foods and is built on the active participation of the students. The taste education is designed to broaden food references and carry out experiments with cooking and flavouring so 'they form personal opinions about food and learn that, even at their age, they can create dishes they enjoy eating' (Nowak et

al., 2012, p. 393). In the cafeteria portion of the program, students are becoming part of the food supply chain for the school lunch program. They gain an appreciation of the hard work and effort of farmers and the safety concerns of all people that handle food from the farm to their school' (Nowak et al., 2012).

Incorporating food literacy in F2S activities contributes to achieving objectives laid out in the Ontario government's Foundations for a Healthy School. This provincial document recommends starting a school fruit and vegetable garden as part of promoting healthy eating, (Ontario Ministry of Education, 2016). Studies show that children who participated in after school gardening activities were more likely to increase their food literacy and consumption of fruits and vegetables, practices that contribute to a foundation for a healthy adulthood (Hermann et al., 2006).
According to Jones, et al., (2015) local sustainable food education can be linked to the Ontario school curriculum in various ways. It can be applied to Grade 9 & 10 Science, Geography and Civics classes around topics such as Sustainable Ecosystems and Human Activities; Climate Change; Global Connections; and Human Environment Interactions. Grade 10 and 12 Food and Nutrition classes examine food supply and global food issues, as well as the economic, social and political factors that affect food production. These are powerful opportunities to discuss the health, environmental and economic benefits of eating locally and sustainably (Jones, et al., 2015; Ontario Ministry of Education, n.d.; Ontario Ministry of Education, 2014).

Environmental Factors at School and Integrating Stakeholders
According to the World Health Organization, a pleasant eating environment in school should provide enough space and comfortable surroundings for socializing during meal times and for the enjoyment of food which in turn enhances mental, social and physical health (World Health Organization EMRO / UNCF Middle East, 1998).

School food services need to be integrated into and coordinated with health and nutrition education to reinforce messages on healthy eating, ensuring consistent nutrition support. The school cafeteria provides a place for students to practice healthy eating (Journal of the American Dietetic Association, 2003). Therefore, the school canteen needs to offer a variety of healthy food choices and limit or eliminate, the availability of food with low nutritional value (Santos, 1996; Victoria State Government, 2018) to help students apply skills taught in the classroom (Morbidity and Mortality Weekly Report, 1996). The food supply at the school canteen should be based on national, cultural, or regional dietary guidelines if these apply to children. Local stores, businesses or farmers can be involved in providing nutritious food and/or food from school gardens could be used to keep costs low and to collaborate with different sectors in the community (Arnhold, 1997; Metcalf Foundation, 2008).

In addition to offering nutritious food choices, food service personnel can also be involved in other components of F2S programs The Morbidity and Mortality Weekly Report (1996) of the
Centers for Disease Control and Prevention in the U.S. offers some examples of how the activities of food service personnel can contribute include:

- Visiting classrooms and explaining how they make sure meals meet the standards of the dietary guidelines;

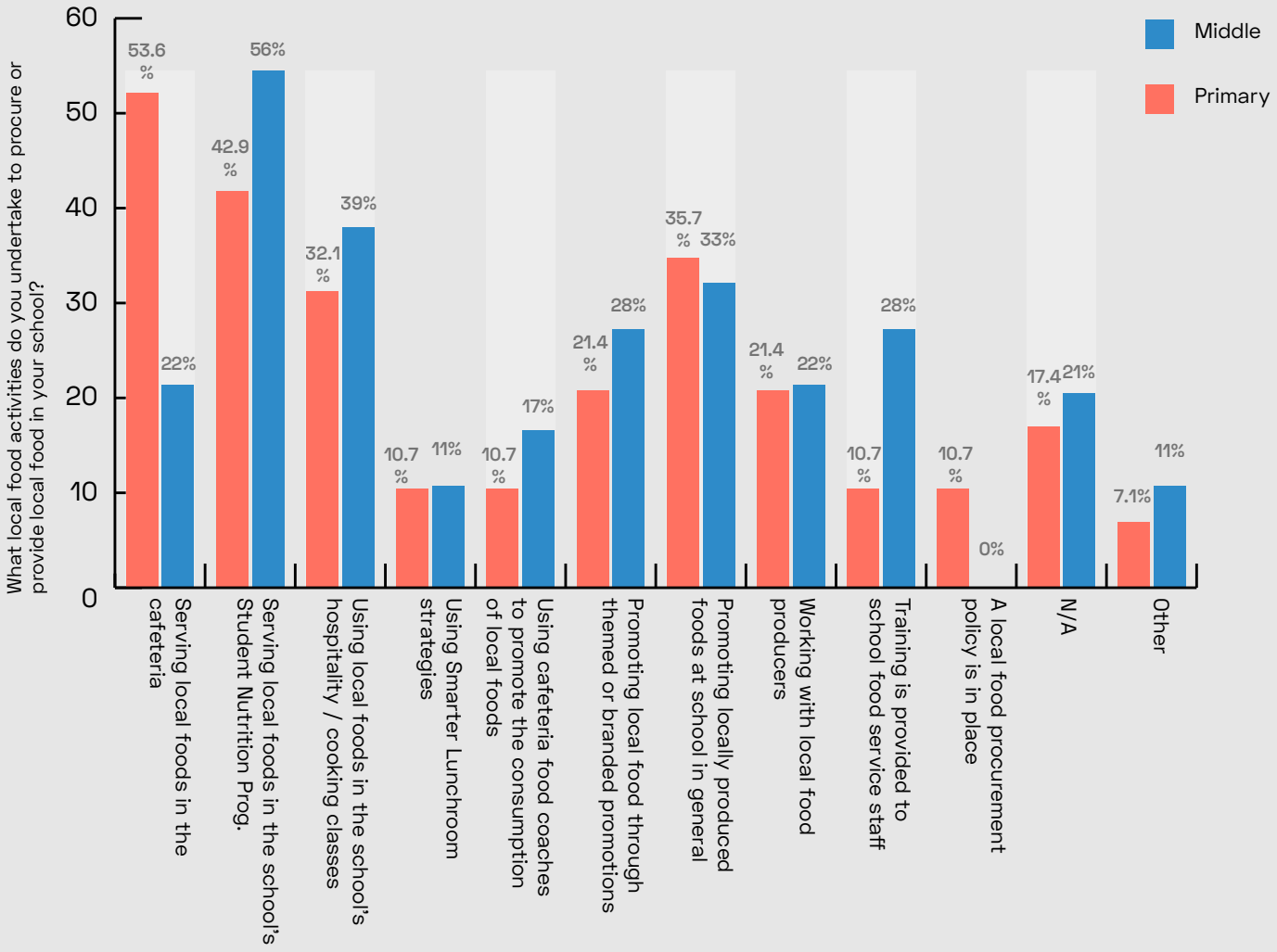
- → Inviting classes to visit the cafeteria kitchen and learn how to prepare healthy;
- → meals involving students in planning the school menu and preparing recipes;
- → Providing culinary training;
- → Offering foods that reinforce classroom lessons (e.g. whole grain foods to reinforce a lesson on dietary fibre);
- → Posting in the cafeteria, or where children eat, information and guidance about nutrition and its value to health;
- → Displaying nutrition information about available foods;
- → Giving students opportunities to practice food analysis and selection skills;
- → Involving parents, family, and community;
- → Evaluating efforts and making improvements.

(Morbidity and Mortality Weekly Report, 1996)

Engaging students in agriculture by actively participating in a school garden, arranging field trips to farms, and having local farmers present to a class are other activities that can be arranged by faculty and staff. Involving foodservice personnel in these activities, if possible, may also benefit everyone.

## Local Food and Farm to School

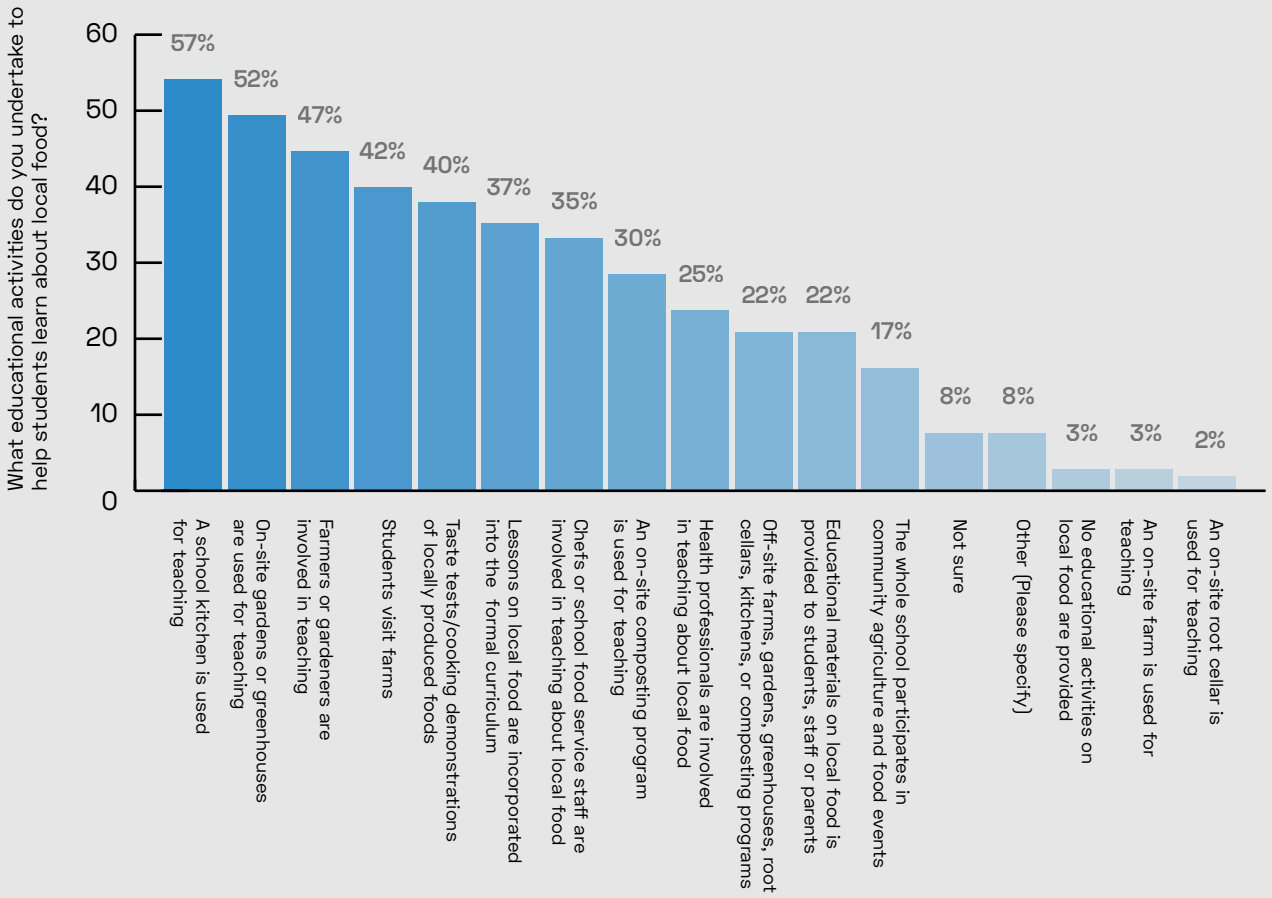
Farm to School activities and programs across North America take many forms, including procurement of locally produced foods for school meals, school gardens, food skills development, harvest festivals and other celebrations, and field trips to farms. While there is growing evidence of the effects of Farm to School efforts in Canada (e.g., Rojas et al. 2011), a robust literature assessing the development, implementation, and success of these programs has developed in the U.S, where Farm to School initiatives have been active since the 1990s (e.g., Heiss et al. 2014; Matts et al. 2015).




As of 2012, there were over 40,000 U.S. schools involved (Farm to School Census, 2015). While there are multiple motivations for the initiation and expansion of farm to school programs, two are dominant: promoting positive health outcomes and contributing to sustainable local and regional food systems, including supporting local agricultural economies and fostering environmental sustainability. Farm to School initiatives have the potential to combat obesity and other health issues by promoting healthy eating among children (Bontrager et al., 2014), both through the direct provision of healthy foods, and the promotion of food literacy among school children and their families (Moss et al. 2013). School gardens are effective in increasing food literacy (Davis et al., 2015).

Farm to School initiatives can provide expanded and more stable markets for local agricultural products, particularly those grown by

small- and medium-scale farmers (Conner et al., 2008; Izumi et al., 2010). In addition to the environmental benefits involved in shortening supply chains and reducing the distance that food travels, Farm to School initiatives often seek to involve farms that employ environmentally sustainable agriculture practices (Conner et al., 2011; Vallianatos et al., 2004).

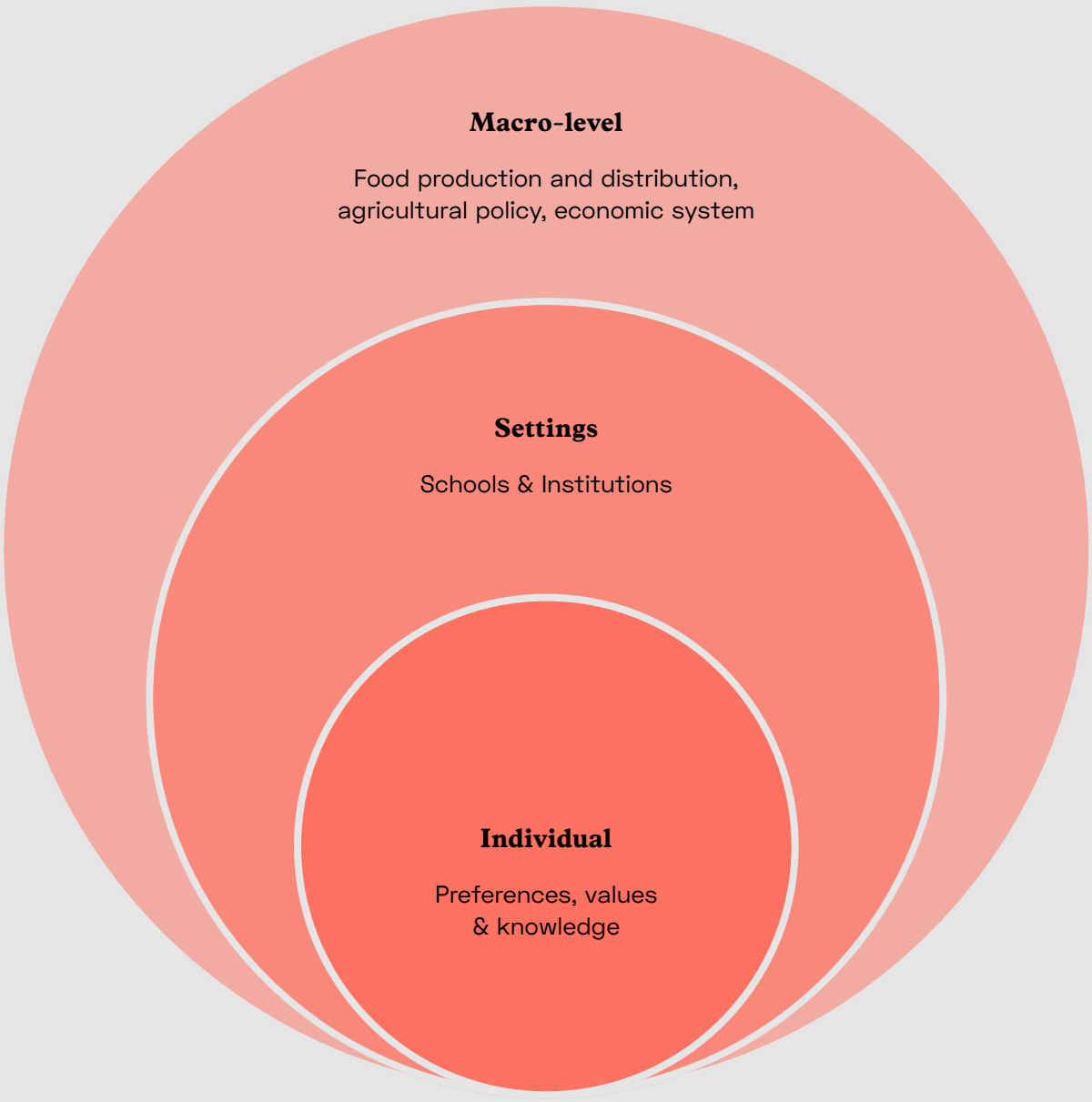



Joshi & Feenstra's (2008) preliminary list of factors that contribute to the success of Farm to School programs in the United States and broadly defined success as including leadership of those working directly with the programs and of program champions, partnerships that include diverse stakeholders who support the program both from within and outside of school districts, and creativity in using financial, social, and physical assets.

### Agriculture's Connection to Healthy Communities

The figure below illustrates a modified ecological framework of

healthy food and eating environments and displays the connections between local agriculture's role for local school meals and F2S activities and its influence on schools, institutions and individual food choices. It also exhibits food literacy, specifically individual knowledge, preference, and perceptions and the availability of healthy food, and physical and economic access to healthy food.




Macro – level Food production and distribution, agricultural policy, economic system; Settings Schools and institutions; Individual Preferences, values, and knowledge (Powell, et al., 2016).

The British Colombia Provincial Health Services Authority's 2016 study to determine the link between agriculture and health found the most direct connection is that agriculture provides the major

source of food that supports the recommendations outlined in Eating Well with Canada's Food Guide. The connection between health and agriculture is more complex. Studies provide somewhat contradictory evidence as to whether, or not, local or organic foods are healthier although recent findings in the British Journal of Nutrition have studies that found increased Omega-3s and antioxidants in organic foods and lower levels of pesticides and other harmful compounds (Crinnion, 2010). Healthfulness, however, is only one aspect of people's decision making. The perception that local food is safer, fresher, and better-tasting seems to influence consumer's decisions to buy local food and consume fresh fruits and vegetables. Local agriculture should also increase food security. Public health programs such as farm-to-school that connect farm-fresh foods to schools may also contribute to healthy eating both at school and at home if it increases the consumption of more fruits and vegetables. The availability of culturally appropriate foods also influences consumption of potentially healthier foods (Powell, et al., 2016).

Resilient food systems across Canada indicates a resilient food system could help mitigate the effects of negative factors on food security, and support access to, and availability of, healthy foods, particularly fruit and vegetables. Employing the knowledge that British Colombia has gained regarding food self-sufficiency and the expected impact of climate change on food production could be used to improve agricultural planning nationally.

Agriculture also affects various determinants of health such as the economy and the physical environment. Agriculture has a significant impact on GDP and provides thousands of employment opportunities across most of Canada. Farms. It can also provide greenspace which may positively influence mental and physical health. This evidence review highlights the need for further research into the connections between agriculture and health. The strength of the evidence varies depending on the topic and while there is strong evidence for some topics, there is either a lack of or inconclusive, evidence for others. For example, more research is required

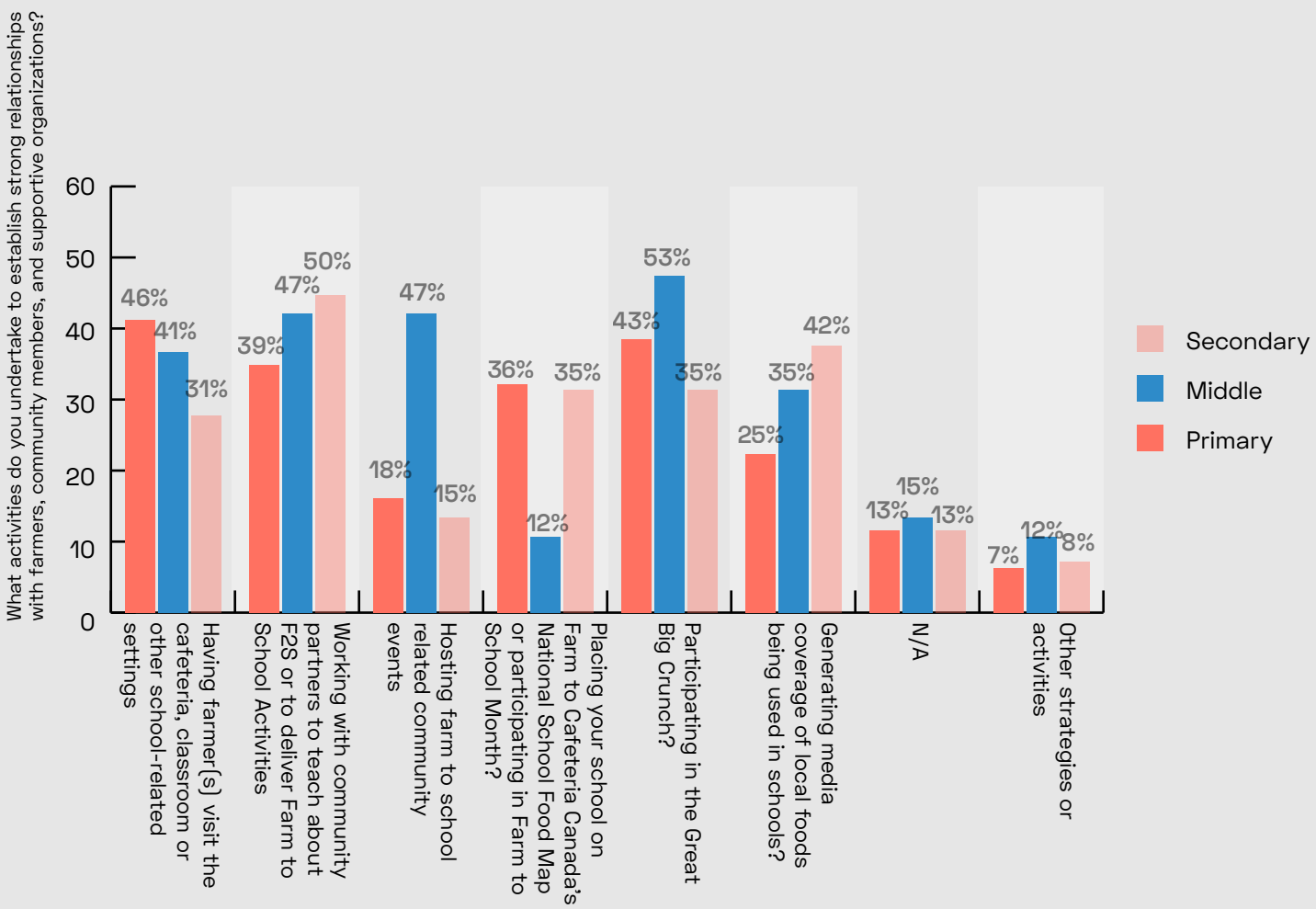
to determine the impact of farm-to-institution programs on health, behaviours, and farm income. Also, many cite a lack of evidence on how, or whether, organic versus conventional food in the diet affects health, so more research should be conducted on this issue (Powell et al., 2016).

**Farmer Benefits of F2S**

Activists and academics are increasingly advocating for public procurement of locally grown food as a key market opportunity for farmers. In both Canada and the United States, linking farmers directly, or indirectly with school cafeterias through farm to school programs are among efforts that advocates say can boost rural economies. A Farm to Cafeteria Canada report, Benefits of Farm to School – Evidence from Canada states that F2S increases business and income for local farmers as they gain access to new markets and new business opportunities (Farm to Cafeteria Canada, 2018a). In their study, an empirical analysis of farmers' perspectives of farm to school programs, Izumi et al., (2010) explore why farmers participate in these efforts. The data presented are part of a larger study exploring the opportunities and challenges of farm to school programs located in the United States from the perspectives of farmers, food service professionals, and food distributors. Their findings suggest that farmers sold their products to schools for two primary reasons: to diversify their marketing strategies and to contribute to social benefits through direct action. The concepts of embeddedness, market-based, and economic instrumentalism provide a framework for understanding their participation in farm to school programs. The findings also provide insight into the kind of support necessary to sustain long-term connections between farmers and school foodservice professionals (Izumi et al., 2010). As advocates seek to institutionalize public procurement of locally grown foods, locally grown foods, farmers' needs and motivations must be considered.

### Supply Issues: Farmers

The Farm to School movement has emphasized purchases from small-scale and midscale farmers who need to diversify their markets to remain viable. As with Food Service Directors (FSDs), it took risk-taking farmers to push this new market. In California, farmers acted as both suppliers and local brokers, consolidating products from other farmers and delivering to the school district. Most farmers have been enthusiastic and positive about participating in Farm to School. Aside from the desire to create new market outlets, they are pleased to know that their fresh, healthy, good-tasting product is reaching children, and that this has the potential to reeducate children about agriculture. They also cite building relationships as a strong factor in participating in Farm to School. They tended to see these efforts as a way to create synergy between the educational institutions, agriculture, and community, with the added potential benefit of additional sales through other venues (Feenstra & Ohmart, 2005) and an opportunity for them to tell their story and to strengthen their name and brand identity along the supply chain. Data about the economic advantages to farmers in Farm to School programs have been sparse.




Evaluations from a review of the evidence by Velazquez, et al., (2017), suggest that income generated through the school food services market amounts to between 2% and 5% of their overall sales. For some very small operators who have established direct relationships either with a food service director or a small distributor, the percentage of income from Farm to School accounts has been larger (Velazquez, et al., 2017). Even though total and individual sales were modest, most participating farmers were initially enthusiastic about the program (Omart, 2002). Some farmers have sustained their relationships and strengthened them by hosting farm visits for school children and acting as guest speakers at schools.

Future research is required to understand the advantages accruing to farmers in Farm to School market channels. It should also assess other changes farmers might make as a result of a farm-to-school programs such as planting patterns and marketing venues, product diversification, and the likelihood of expanding institutional sales to include other local institutions. Amberly Ruetz, a former OSNP practitioner and Arrell Food Scholar at the University

of Guelph, and her PhD adviser John Smithers are researching the economic impact of the spread of F2S activities and student nutrition programs throughout Ontario. Their research will examine the farm-to-school phenomenon as an agri-food value chain and assess how these programs might evolve to expand the scope and sustainability of local food systems in Ontario (Reutz and Smithers, 2018).

For more information on the history and processes of farmer/FSD relationships and channels please see Appendix 3: Farmer and Food Service Director Relations.- Strengthening Communities and Local Economies.

## Food Hubs

The concept of a "hub" is used widely throughout food systems literature. Some hubs function as aggregation and distribution centres for local food (e.g. the Vancouver Local Food Hub and FoodShare's Good Food Program in Toronto). Others serve as community centres with food preparation and processing facilities and educational programs, e.g. The Stop in Toronto (Farm Folk City Folk, 2016; Fridman & Lenters, 2013; Johnston and Baker, 2005). A common thread in food hub development in Canada is the development of "connections and collaborative capacity" for building social capital and strong community bonds (Blay-Palmer et al., 2013).

Toronto's FoodShare, a charitable non-profit, is a useful case study of a hub organization facilitating local food initiatives related to food literacy, procurement, and nutrition. FoodShare works on several types of community food security issues and programs. School nutrition and Farm to School efforts are among its main areas of focus. FoodShare also advocates for a federal universal healthy school food program, and conducts school-based programs in four main areas:

- → a School Nutrition program that coordinates efforts to provide healthy food to students at school;
- → a Bulk Produce Program for Schools and Community Groups delivers “locally grown and seasonal produce when available” on a weekly basis to the sites of school nutrition programs;
- → the Good Food Café program although now closed “modeled a universal and healthy school cafeteria,” with made from scratch meals served in schools;
- → and the Field to Table Schools program focuses on experiential education, including student-run school market gardens and cooking classes.

(FoodShare, 2015)

FoodShare’s school nutrition program is supported by parent donations, private organizations and foundations, and funding from the City of Toronto and the provincial government (FoodShare, 2015). Farm to School programs and food hubs across North America seek to build capacity and networks to support food literacy and sustainable food systems. While there are commonalities, such initiatives are necessarily adapted to the environments and needs of their locations.

As described in Section II, Joshi et al. (2008) outline three key factors for successful implementation of Farm to School programs: leadership, partnerships, and creativity. Farm to School Regional Animators have provided essential leadership by assembling diverse and often disconnected stakeholders and by empowering champions of Farm to School efforts within individual schools and in their broader regions. Hubs have fostered the development of several types of partnerships: with food systems organizations and networks that the Hubs are embedded in; between individual schools and community members and groups, between schools, and among varied community organizations. Hubs have helped to foster creativity in operating and supporting Farm to School programs by encouraging schools and community groups to look for innovative program

expansion opportunities and to develop solutions to challenges related to policies, facilities, schedules and other hurdles (Wittman & Powell, 2015).

A strong focus on institutional procurement in Farm to School programs in the United States is tied to the existence of a national school food program. Such a universal school feeding program is not present at the national level in Canada. If it is instituted throughout the country it would likely bring numerous benefits, potentially saving billions in future health care and social assistance costs while generating billions for the economy as Brown states in his 2008 U.S. study of the SBP (Brown, et al., 2008).

**Farm to School: Linking the Community with Local Food**

An excellent example of F2S activities comes from Farm to Cafeteria Canada. In Haida Gwaii, an archipelago island off the Northern British Columbia Coast, the local Foods to School Learning Circle program was able to explicitly show linkages from farm, sea and land to plate. The community has come together to transform the systems in bringing local food and cultural traditions into schools. “We are essentially supporting our communities to take charge of what our kids are eating and teaching them self-sufficiency through hands-on learning and respect for where their food comes from”, says Kiku Dhanwant, Local Foods to School Learning Circle Coordinator (Farm to Cafeteria Canada, 2016). Two food pantries were established as new food hubs.

Students involved in the Nourishing School Communities programs demonstrated positive attitudes and beliefs about eating healthy and local foods. Students also learned more about local food systems and enhanced their food skills including growing, preparing and tasting healthy local foods.

Positive attitudes and beliefs towards local foods, gardening and healthy eating were also observed in program staff, teachers and parents.

Positive behaviour change was demonstrated in several of the programs and practices. For instance, students in Haida Gwaii schools were found to eat a high proportion of local foods including deer, fish, and berries. In addition, students from the YMCA after-school program in Moncton, New Brunswick reported eating fewer salty snacks after the program was implemented. Finally, there was a positive relationship between student's meeting the national guidelines for eating fruits and vegetables and the Farm to school salad Bar program at St. Bonaventure's College in St. John's Newfoundland and Labrador. The salad bar program at St. Bonaventure's College was the first of its kind in NL and where possible, the food was locally sourced from Lester's Farm. The partners involved are hopeful that the salad bar will inspire similar initiatives in schools across NL and are eager to provide mentorship and educational opportunities to enhance Farm to School capacity for the province (Farm to Cafeteria Canada, n.d.).

**Farm to School, Healthy Local Food and the Community**

Few studies explore the relationship between farm-to-school programs and changes in the community, such as participation in community events, partnerships, leadership development in the community, and social networks. However, three studies that incorporated a parent education component with the farm-to-school program have reported positive changes in parental behaviors, knowledge, and attitudes. Of these, one reported a slight increase in parental ease and interest in encouraging their children to eat healthy snacks and meals, and 90% of parents self-reported positive changes in grocery shopping patterns, cooking at home, and conversations with their children about food choices. The same study also reported an increase in parental knowledge and awareness about the importance of healthy foods and good nutrition for their

families. A second study revealed that 32% of parent respondents believed that their family diet had improved due to their child's participation in the farm to school program. 32% reported buying more local foods. 45% were willing to pay more for the school's hot lunch if it contained food from local farms and 90% believed that lessons on food, farms, and nutrition would (positively) affect children's' long-term food choices. The third study reported that after a year of participation in the farm-to-school program, 97% of parents self-reported that they believe buying locally grown foods was "important" or "somewhat important" (Joshi, et al., 2008).

The results of a Farm to Cafeteria Canada survey from 2013 revealed that there is significant activity underway to bring local food into institutions and there is a keen appetite to increase these activities. Many respondents indicated they would like to increase their activities around local food and results indicate that interest in local food is widespread but that activities are not consistent across the three settings of schools, campuses, and healthcare (Farm to Cafeteria Canada, 2013). The report recognized that different settings may be at different stages in program development and will need implementation approaches tailored to their needs.

Respondents identified common themes when asked about supports, partners, benefits, barriers, and needs. The importance of relationships and access to food and food quality were key considerations for all three settings. Liability and contract concerns were common for campuses and healthcare facilities while funding concerns were more common for schools. It is also noteworthy that while "local food" was defined as "food grown and processed within your province or territory", numerous respondents defined "local food" in various ways in their settings.

F2S aims to improve local food economies, local food environments, enhance the health and nutrition of individuals, preserve farmland,

and revitalize communities through the support of local and sustainable agriculture (Bagdonis et al., 2009; Vallianatos et al., 2004). F2S activities may be motivated in part by a desire to strengthen local economies and to support local farmers and fishers (Vallianatos et al., 2004). They may have also be motivated by concerns about rising fuel prices, food costs, climate change and the capacity of food systems to provide the basic nutrition needs of the population, now and into the future.

Farm to cafeteria (and F2S) programs increase access to and consumption of local and sustainably produced foods - particularly fresh fruits and vegetables (Public Health Association of BC, 2012), which, in turn, contributes to community food security and local sustainable farming and food systems. Farm to cafeteria programs in schools can support nutrition and wellness policies (Bagdonis et al., 2009), and identify areas for policy change and support (Public Health Association of BC, 2012). Educational activities help build better knowledge and awareness about gardening, agriculture, healthy eating, local food and seasonality, and have the potential to create new educational foci and standards (Bagdonis et al., 2009).

In Canada, because it may be difficult to source and procure affordable and adequate amounts of local food throughout the year, many diverse groups at national, regional, and local levels are working hard and creatively to make it possible to bring healthy, local and sustainable foods into public institutions.

In his study of Sustainable Agriculture and Health, Dr. Hamm (2008) summarized that:

It is reasonable to argue that achieving either national public health goals or preservation of our natural resources is increasingly difficult as isolated goals. There is, however, ample evidence to indicate the potential for synergistic benefits through the linkage of these goals.

In addition, there is evidence for community economic development potential embedded in this beneficial linkage. In other words, shifting from a focus on the food supply to a focus on enhancing sustainability of the food system with greater localization of the food source provides a myriad of opportunities linking the realms of public health, sustainable agriculture, environmental stewardship, and economic development. The issue does not seem to be one of "if" there is potential but rather what degree of creativity can be brought to the task of maximizing the opportunity.

This research paper's review of the literature indicates that Farm to School programs and activities can help to realize these goals of vibrant and sustainable local food systems.

# Section 2.3
# Positive Interventions: the role of the Community, Province, and Nation

## Introduction

Part Two Section Three reviews scientific literature concerning food and health interventions in schools and examines why schools are the optimal venues for supporting student health and wellness and academic success. There is significant evidence that food and nutrition health interventions in schools have provided many benefits for students. Benefits include enhanced health and wellness, the potential for a healthy adulthood, heightened learning potential, and improved academic outcomes.

This section of the paper links these interventions with universal school meals and F2S approaches as they mirror many of the activities that take place, thereby producing many of the same benefits.

### Why we should focus our efforts through schools

The World Health Organization Information Series on School Health presents good arguments on why we should focus our efforts through schools:

Schools provide the most effective and efficient way to reach large portions of the population, including young people, school personnel, families and community members. Students can be reached at influential stages in their lives, during childhood and adolescence when lifelong nutritional patterns are formed (Morbidity and Mortality Weekly, 1996). Children at every successive year from the earliest grade through secondary school can be addressed. Schools have been given the mandate and responsibility to enhance all aspects of development and maturation of children and youth under qualified guidance. Furthermore, schools also provide a setting to introduce nutrition information and technologies to the community and can lead the community in advocating policies and services that promote good nutrition (World Health Organization, 1996b). No other setting than schools offers these opportunities on as equal a basis.

The importance of healthy nutrition during childhood and adolescence present reasons why communities and schools both need and will benefit from nutrition interventions and health promotion programs. They also provide reasons to justify decisions to increase support for such efforts.

A review of some of the World Health Organization's (1996c) arguments supporting good childhood nutrition that schools can provide, along with a good diet at home, follow:

→ **Good nutrition strengthens the learning potential and well-being of children.**

Good health and nutrition are required to achieve one's full educational potential because nutrition affects intellectual development and learning ability. Multiple studies report significant findings between the nutritional status and cognitive test scores or school performance. Consistently, children with more adequate diets score higher on tests of factual knowledge than those with less adequate nutrition. For instance, studies in Honduras, Kenya and the Philippines show that the academic performance and mental ability of pupils with good nutritional status are significantly higher than those of pupils with poor nutritional status, independent of family income, school quality and teacher ability.

→ **Good nutrition in early life enables healthy adulthood and ageing.**

Among well-nourished people, acute disease and illness tend to be less frequent, less severe and of shorter duration thus providing increased capacities to perform daily activities. Good nutrition also fosters mental, social and physical well-being throughout life. Healthy nutrition can also contribute to a more comfortable life by helping young people to develop healthy teeth and gums. Thus, good nutrition during childhood helps to lay the foundation for a healthy adulthood. A healthy diet can also contribute to lower morbidity rates for adults. For instance, it is likely that youth is a unique

time to acquire the strongest possible bones to decrease the risk of osteoporosis in old age. Thus, it is important to enable children to establish or reinforce personal skills, healthy perceptions and useful knowledge of nutrition to promote their own health and the health of those they care for. It is beneficial to teach persons healthy eating patterns when they are young since eating patterns are established early in life and are difficult to change once they are developed during youth.

→ **Healthy nutrition contributes to decreasing the risks of today's leading health problems.**

Studies show that early indicators of chronic disease begin in youth. An unhealthy diet tends to continue in adulthood, again, potentially contributing to persistent illnesses. Furthermore, the hardening of arteries and high blood cholesterol levels, which make a major contribution to coronary heart disease, are influenced by nutrition and lifestyle. Thus, adequate nutrition and physical activity are likely to have long-term health benefits in reducing the growing number of diet-related, non-communicable diseases.

→ **Education and good nutrition strengthen the economy.**

People who are well-nourished may have improved educational outcomes that could lead to higher incomes and greater contributions to the national economy. Furthermore, implementing essential public health programs, including nutrition and health education and micronutrient supplementation, have been estimated to reduce a considerable amount of the disease burden in low- and middle-income populations. For example, using conservative assumptions, the benefits of investing in school feeding may far exceed the costs. In addition, nutrition interventions can contribute to reducing the substantial health care costs for nutrition-related chronic diseases and for productivity losses due to nutrition-related health problems.

→ **Nutrition interventions improve children's health, learning potential and school attendance.**

Good health and nutrition are needed for concentration, regular school attendance and optimum class performance. Existing research makes a convincing case that nutrition and health interventions will improve school performance. For instance, studies in multiple countries show that the academic performance and mental ability of pupils with good nutritional status are significantly higher than those of pupils with poor nutritional status. This and other evidence of the positive impact of good nutrition has been so convincing that the United Nations Sub-Committee on Nutrition recommends health and nutrition programs among efforts to increase school enrolment and learning.

→ **Schools are vitally important settings through which to promote good nutrition and provide nutrition interventions.**

Schools offer more effective, efficient and equal opportunities than any other setting to promote health and healthy eating. They reach young people at a critical age of development in which lifestyles, including eating patterns, are developed, tested and adapted in schools and through social interactions between students, teachers, parents and others. Lower grade levels, such as primary school, provide excellent opportunities because eating habits are formed early in life. In addition, schools have the potential to reach not only students but also staff, teachers, parents and community members, including young people not attending school. A Health-Promoting School provides a means to develop and manage nutrition interventions in cooperation with parents and students.

The WHO also views schools as an ideal setting to promote health and healthy nutrition for several reasons:

→ Schools reach a high proportion of children and adolescents;
→ Schools provide opportunities to practice healthy eating

and food safety;

- → Schools can teach students how to resist unhealthy social pressures since eating is a socially learned behaviour that is influenced by social pressures;
- → Skilled personnel are available to provide follow-up and guidance after appropriate training of students, teachers and other service personnel;
- → Evaluations show that school-based nutrition education can improve eating behaviours of young persons.

(World Health Organization, 1996)

## Nutrition Interventions: Improving Health and Well-Being

Although there have been studies to the contrary, evidence for many years has supported the contention that well-managed nutrition education programs can bring about behaviour changes that contribute to improved nutritional well-being. For instance, a study of students by Fung et al., (2012) attending APPLE Schools in Alberta after they introduced a Comprehensive School Health program to improve student diets and activity levels concluded that students were eating more fruits and vegetables, consuming fewer calories, were more physically active. These changes contrasted with what was observed among students elsewhere in the province not involved in this type of program (Fung et al., 2012).

Studies in the United States have also documented that carefully designed and implemented comprehensive health education curricula can prevent certain adverse health behaviours including dietary patterns that cause disease. Students in behaviourally based health and nutrition education programs have shown significant favourable changes in blood cholesterol, blood pressure and body fat. Thus, a focus on behaviour is considered a key determinant in the success of nutrition education programs (World Health Organization, 1996d).

Schools can provide interventions to improve nutrition in ways that are highly cost-effective and can prevent or greatly reduce health problems and consequences of malnutrition and foster the positive effects of nutrition.

Compared with various public health approaches, school health programs that provide safe and low-cost health service interventions, such as screening and health education, are shown by research to be one of the most cost-effective investments a nation can make to improve health. Furthermore, among the most cost-effective investments in health are programs that include expanded micronutrient supplementation and increased knowledge about nutrition. To illustrate, a nutrition education program in Indonesia, which was based on behavioural change, showed a considerably greater impact at notably lower cost than other types of interventions to which it was compared (World Health Organization, 1996a).

School feeding programs increase food availability to schoolchildren who need adequate food while promoting long-term development through support and education. Numerous evaluations of school feeding programs have reported improved attendance and achievement. School feeding programs also aid in decreasing hunger, which directly helps children concentrate on their studies (World Health Organization, 1996a).

The World Health Organization study, (1996a) also found that nutrition interventions in schools benefit the entire community. Although the study included many developing countries, their studies findings are relevant for developed nations as well. This is commensurate with F2S activities and outcomes. School health education concerning good nutrition also serves to inform families and other community members about ways to promote well-being and prevent malnutrition. For instance, educating children about good eating habits has the potential to enhance the nutrition and health status of their younger siblings whom they may take care of as well as of other family members that learn concomitantly with their children. Involving parents in nutrition interventions at the elementary school level has been shown to enhance the eating behaviour of both students and parents. Research also shows that school health education interventions can be considerably strengthened by complementary community-wide strategies. Thus, schools can be the centre for community enhancement projects that include programs to improve the health and nutritional status of the community (World Health Organization, 1996b).

Schools also provide a setting to introduce new health information and technologies to the community. For instance, the establishment of school canteens offering healthy food choices and practicing good food safety is a way to demonstrate how to improve facilities in communities. For example, best practices in product procurement, processes, equipment, marketing, promotions, and customer education can be shared between school facilities and those in the Broader Public Sector and vice versa. Furthermore, partnerships between schools, organizations and businesses can benefit both the school and the community, if the partnership is mutually beneficial.

The WHO described these goals, which are aligned with those of a Farm to School approach and quality school meal programs, as:

- Gaining the full health and educational potential of food and nutrition sources for students and other members of the school, family and community;
- Applying the school's full organizational potential to improve the nutritional status of students, staff, families and community members;
- Laying a foundation of lifelong healthy eating based on favourable experiences, sufficient skills and confidence in one's capacity to practice a healthy lifestyle.

(World Health Organization, 1996b)

The goals are then broken down into specific outcome and process objectives so that everyone clearly understands what needs to be done, when and why. Outcome objectives are established to define in measurable terms what is to be achieved through the interventions regarding the health status of participants; and changes in knowledge, attitudes, beliefs, behaviours and conditions related to health and nutrition status. Thus, they help define and determine the success of the school-based nutrition interventions (World Health Organization, 1996c).

## School Interventions

Children spend most of their time in school. Hence, school plays an important role in the life of the child. There are many strategies for school-based interventions. Some interventions focus on nutrition-based or physical-based aspects of a healthy lifestyle independently, while others jointly focus on both aspects of nutrition and physical activity (World Health Organization, 1996c). In both cases, to provide improved outcomes for children. Hence, schools

can encourage kids to make a healthy food choice like reducing the intake of carbonated drinks or sugary foods, encourage kids to drink healthy fruit juices, water, and consume vegetables and fruits. Schools which provide healthy meals can have nutritious food items with an emphasis on a balanced diet (Rahman et al., 2011). Schools can involve kids in physical activity by strategies like lengthening the time of physical activity, involving them in moderate to vigorous physical activity for short durations, encouraging them to walk or active commuting, and taking stairs instead of elevators. According to Hutchinson (2010), kids should be encouraged to participate in various physical activities like games and dance groups with more emphasis on non-competitiveness. Some school-based programs along with the help of community members can help to promote physical education skills and healthy nutrition among children, with a focus on implementing this education for maintaining long-term healthy behavior. Classroom-based health education can make older children and teens aware of eating a nutritious diet and engaging in regular physical activity (Hutchinson, 2010).

Preventive programs are conducted to promote healthy eating and to modify the social and behavioral aspects that may lead to chronic illness. Some of the preventive programs revolve around educating the general population about healthy nutrition and providing information about health problems associated with an unhealthy diet (Pott et al., 2009). Health care professionals can advise their patients, especially parents, about healthy child nutrition, preventing chronic diseases, and the benefits of breastfeeding among newborn children (Centers for Disease Control and Prevention, 2011b). School Boards across Canada are taking actions to improve student nutrition by restricting access to and advertisements of unhealthy foods.

Due to the multitude of factors that determine student health and the complexity of determining exact casual factors a 2006 review of school-based health interventions determined that not all interventions were successful. However, the majority, 17 out of 25 intervention studies, were effective in creating healthier outcomes for

children (Doak, et al., 2006). Some interventions targeting physical activity through physical education along with nutritional education worked in creating positive health conditions. Interventions targeting physical activity education and television viewing were also seen to be successful in this review study (Doak et al., 2006).

Based on their review of 19 studies, Wang and Stewart (2013) concluded that "nutrition promotion programs using the Health Promoting School (HPS) approach (known in Canada as the Comprehensive School Health approach), either partially or fully, can be effective" (p.17). Similarly, from a Canadian perspective, McKenna (2010) concluded from her review of the literature that "behaviourally focused nutrition education, especially when combined with food services and other initiatives, may affect students' eating habits positively". However, despite these encouraging results, for about half of the schools surveyed, the administrator reported that the school did not have committees to oversee policies and practices concerning physical activity and healthy eating. For a similar percentage of schools, the administrators indicated that the school did not have an improvement plan for the current school year regarding physical activity and healthy eating.

In the 2014 National Report, of HBSC in Canada: A Focus on Relationships stated that school climate and family support were consistently related to higher fruit consumption frequency, lower soft drink consumption frequency, lower likelihood of eating in a fast food restaurant, and a lower likelihood of going to bed or school hungry because there was insufficient food. Interestingly, they also noted that community support, that mitigated insufficient food, was also consistently related to the same beneficial outcomes (Health Canada, 2015).

Financial and labour investment in these interventions is also crucial. All the intervention-based programs need monitoring of progress and sustainability over many years, which may be costly.

In today's world of economic problems funding for such programs is limited (Hutchinson, 2010). School-based intervention programs require much work on budgeting and planning as the cost of educating the teachers about the program and providing facilities and infrastructure to conduct physical activities may be enormous and perhaps prohibitive (Hutchison, 2010).

These reports indicate that a multi-faceted approach may be warranted. Affecting change in eating habits may well require a complex web of interactions (Raine, 2005; Taylor et al., 2005). Providing healthy universal school meals would be extremely effective in delivering similar benefits to the best nutrition interventions along with the delivery of F2S activities across all three pillars. This approach would incorporate parents, teachers, and community members in addressing the individual and collective determinants associated with healthy eating.

**Establishing School Environments that Support Health and Wellness**

As mentioned, Farm to School and school meal programs support and enhance student health and wellness by providing activities across the spectrum of the three pillars of healthy local food, food literacy, and school and community connectedness.

The best school meal approaches, historically, have provided not just nutritious meals, but have enhanced the school environment. One of the examples of this is the School Meal Program in British Columbia. It started in the 1991-1992 school year and had a positive effect on students' school performance and health. Important objectives of the School Meal Program are to promote a healthy school environment, reinforce healthy eating, a physically active lifestyle, and self-esteem, and promote nutrition education in the classroom (British Columbia, Social Equity Branch, 1996).

In two evaluations: parents, teachers, and administrators reported that students who ate a nutritious meal at school every day:

- → concentrated better;
- → attended school more regularly;
- → were less aggressive;
- → showed improved classroom and school behavior;
- → were less anxious;
- → coped more effectively with stress and were more alert;
- → took more responsibility for their actions;
- → showed better manners and social skills;
- → learned how to handle food safely;
- → learned about new foods;
- → learned about healthy eating.

(British Columbia, Social Equity Branch, 1996)

School teachers, administrators, program staff, health professionals, students, parents, volunteers, community members, and outside organizations all contributed to its success.

School Meal Programs and food literacy activities can provide a model for healthy eating and nutrition. Schools can contribute to this by:

- → sending healthy eating messages home in school newsletters;
- → having nutritional themes on special event days (for example, vegetarian meals on World Food Day);
- → Teaching safe food handling.

(British Columbia, Social Equity Branch, 1996)

In the US, research by the Centre for Disease Control (CDC) shows that students who participate in school meal programs consume more milk, fruits, and vegetables during meal times and have a better intake of certain nutrients, such as calcium and fiber, than non-participants.

Eating breakfast at school is associated with better attendance rates, fewer missed school days, and better test scores (CDC, 2018).

Farm to School approaches (in Canada)must mimic those results as they are specifically designed to offer students more fruit and vegetables and work to ensure nutrition requirements are met for all students even if they receive school breakfast and lunch (Hyslop, 2014).

## Results of Interventions

### International Interventions

In 2012 the World Health Organization (WHO) developed the School Policy Framework: Implementation of the Global Strategy on Diet, Physical Activity and Health (World Health Organization, 2012). It provided guidance to Member States on how to implement policies that promote healthy eating and physical activity in the school setting through changes in the environment, behaviour and education (Borys, et al. 2012).

They reported on worldwide interventions. The majority of these health promoting prevention activities took place in primary and secondary schools (Hercberg, et al., 2008). One hundred and seven peer-reviewed articles provided information on 55 interventions, mostly from North America. Minimal research came from low- or middle-income countries, although 14 interventions targeted disadvantaged communities within high-income countries. Common among the reviewed studies were comprehensive, multi-component programs with interventions targeting the school environment and its food services and classroom curriculum. Many interventions combined diet and physical activity and encouraged parental involvement (Hercberg, et al., 2008).

Nearly all the school-based studies showed positive psychosocial and behavioural outcomes although only a few measured clinical outcomes. Positive psychosocial changes were reported from 28 interventions. Behaviour was positively improved in 49 of the inter-

ventions, ranging from an increase in fruit and vegetable consumption to the number of minutes of physical activity and many interventions reported positive physical and clinical changes although 6 studies reported no changes (Katan, 2009).

Success in school health facilitation can be measured in at least two dimensions, changes in the school environment (policies, culture, school spirit) and changes at the level of the student (gains in healthy eating, physical activity, academic achievement and self-esteem).

They summarized that school-based interventions show consistent improvements in knowledge and attitudes, behaviour and, when tested, physical and clinical outcomes. Although results were not uniformly positive, there is strong evidence to show that schools should include a healthy diet and physical activity component in the curriculum taught by trained teachers; ensure parental involvement; provide a supportive environment; include food service with healthy choices; and offer a physical activity program (Katan, 2009).

In France and 500 communities around the world, the Ensemble Prevenons l'Obesite Des Enfants (EPODE) program is being used to promote healthier lifestyles (Borys, 2012). This program goes beyond the school to involve the whole community. Instead of a school coordinator, a local project manager mobilizes community stakeholders. Project managers come from various backgrounds depending upon the country and the focus of the initiative. (Borys et al., 2012). The CDC also states that a full-time or part-time school health coordinator is critical for the success of a coordinated approach to school health (CDC, 2011b).

The Ontario Ministry of Health mimicked the EPODE approach and supported the Healthy Kids Community Challenge for four years in 45 communities - each year focusing on one theme; being more active, drinking more water, eating more vegetables and fruit, reducing screen time (Ontario Agency for Health Protection and Promotion (Public Health Ontario), 2019)

## Results of Canadian Interventions

Interventions in Canada have been numerous. An example comes from a 2005 study by Veugelers and Fitzgerald who found that School-based healthy eating and physical activity programs provide a great opportunity to enhance the future health and well-being of children because they can reach almost all children. Other studies found evidence that interventions may:

1. Enhance learning and provide social benefits (Ebbeling, et al., 2002).
2. Enhance health during critical periods of growth and maturation (Dietz, 2004).
3. Lower the risk for chronic diseases in adulthood (Sherry & Deitz, 2004);.
4. Help to establish healthy behaviors at an early age that will lead to lifelong healthy habits (Tremblay, et al., 2002).

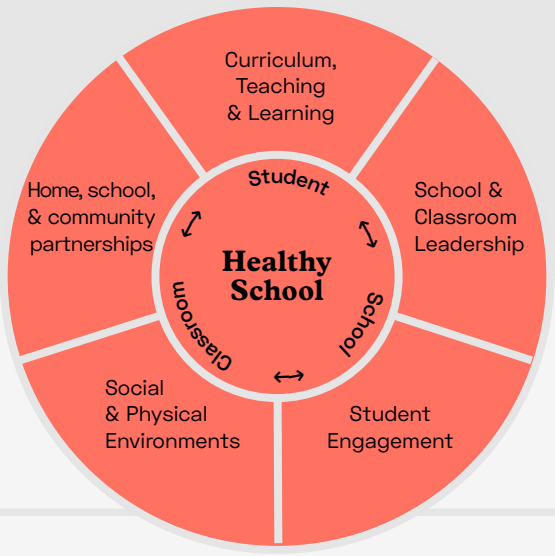
The effectiveness of school-based healthy eating and physical activity programs is critical to evidence-based health policy and may justify the broader implementation of successful programs. Veugelers and Fitzgerald's study added to the knowledge base by demonstrating the effectiveness of some programs and the absence of effectiveness of others: Students from schools with a program consistent with the CDC recommendations for school-based healthy eating programs, such as Annapolis Valley Health Promoting Schools Project or AVHPSP, exhibited healthy eating behaviours. However, students from schools that provide only healthy menu alternatives did not fare better than students from schools without programs. Various factors may have contributed to the latter finding. The magnitude of the difference between AVHPSP schools and schools offering healthy menu alternatives suggests that children in the latter group insufficiently choose healthy foods if they are offered and that school initiatives should follow integrated approaches (such as the former) if they are to be effective (Veugelers & Fitzgerald, 2005). Their finding that school programs are effective in promoting healthy diet and lifestyle

supports the need for broader implementation of successful programs, which will reduce the numbers of chronic disease and health care spending (Veugelers & Fitzgerald, 2005).

Other examples supporting these findings come from APPLE Schools (a project promoting healthy living for everyone in schools) which instituted an innovative health promotion program that improved the lives of more than 19,000 students annually in 63 schools across northern Alberta through healthy eating, physical activity, and mental health. They implemented nutrition and physical activity policies in their schools, documented improvements in fruit and vegetable intake and activity levels (Fung et al., 2012).

Action Schools! BC also showed increases in their students' heart health, bone health, dietary requirement awareness, and academic performance (Propel, Centre for Population Health Impact , 2012). They found academic performance increases to be a reassuring finding, since adding physical activity may allow less time for other curriculum.

Strategies for activities integrated in a healthy school approach can bring benefits. This Foundations for a Healthy School Resource presents a good overview:




| Integrated Approach | Health-related topics | Positive School Climate |
|---|---|---|
| Key to building a strong foundation is the use of an integrated approach to address a range of health-related topics. | This resource provides many sample strategies and activities related to six curriculum-linked, health-related topics. A school may choose to address these topics and related living skills in its efforts to become healthier.<br>→ Physical activity<br>→ Healthy Eating<br>→ Personal safety & Injury prevention<br>→ Growth & development<br>→ Mental Health<br>→ Substance Use, Addictions & Related Behaviours | Collectively, strategies and activities undertaken within these areas also contribute to a positive school climate, which is also key to a healthy school. |

The full Foundations for a Healthy School resource has more information including sample strategies and activities that can be used at the school, in the classroom or among students. Available at: at: http://www.edu.gov.on.ca/eng/healthyschools/foundations.html (Foundations for a Healthy School, 2014)

**Family and Community Involvement – Strengthening Interventions**

Programs will be more successful when schools encourage broad participation at all stages: planning, budgeting, and evaluating. Parents, students, and the community are vital to interventions, school meals and F2S Programs and activities. Along with staff, trustees, and health and education professionals, they provide advice and guidance. Carolyn Webb of Sustain Ontario suggests that “Often programs are coordinated by volunteers (especially in elementary schools) – community members have a huge role to play in a lot of implementation. Sharing expertise is also important (e.g. farmers or gardeners in a classroom)” (C. Webb, personal correspondence, September 13, 2018).

Schools can increase involvement by making others aware of the value, benefits, and costs of the program. It is also important to celebrate the success of the program within the community.
Schools can send regular newsletters to parents and feature the program in local media.

Some enlist the assistance of service and professional groups. Parents can explain the program to others, gain the support of new families, and actively endorse the program within the community. In some districts, parents and community members form an advisory committee for the program.

Researchers have suggested that the efficacy of interventions can be strengthened with the inclusion of peers. Friends are crucial to development in adolescents, and teens' health behavior is often similar to that of their peers. This underlines the importance of providing community-based interventions. Community Food Centres Canada's (CFCC) Theory of Change proposes that healthy food skills, knowledge and attitudes are key to promoting healthier eating habits among both children and adults (CFC Canada, 2013). Community Food Centres and other community food security organizations offer hands-on cooking and gardening programs that help people build the skills, knowledge and confidence necessary to feed themselves a healthy diet and that empower people to take as much control over their health and nutrition as possible within the context of their circumstances. Greater self-efficacy and confidence in the kitchen and garden combined with healthy food knowledge and skills can improve the quality of one's diet. While Community Food Centres and other community food security organizations offer much-needed services, supports and programs, only government policies addressing income security, housing, health, agriculture and other underlying issues can affect widespread change. The government also has an important role to play in solving the problems of food insecurity and poverty, diet-related illness and our unsustainable food system (CFC Canada, 2013).

## Conclusion

Although not unanimously supported, an ample number of evidence-based studies conclude that school food interventions promote well-being. There is overwhelming evidence that properly executed interventions, food literacy education, and good school meal programs are critical for student's health and academic performance and that these programs, and by association Farm to School activities, provide the opportunity for students to both eat well and learn about health, nutrition, food, and cooking. It seems apparent that schools are the optimal place for a student to receive breakfast, snacks, and lunch, food literacy skills, and associated benefits.

# Section 2.4
# Advocating for a Fully Funded National School Food Program with a F2S Approach

## Introduction

More than twenty years of scholarly research has established that School Meal Programs significantly improve the cognitive abilities and learning capacities of children. Due to this significant amount of research on the positive effects of healthy meals and snacks on the health and well-being and academic success of students, part four reviews literature on the cognitive, educational, behavioural, psychological, and social benefits of school meal programs. The intent is to link school meal programs to F2S as they have mutual aims of providing healthy meals in school. This section also reviews public policy and the challenges of expanding Farm to School activities. Based on the findings of this review of literature a recommendation is made advocating for a national universal healthy school meal program that includes F2S activities that also support food literacy and community participation.

## Cognitive and Educational Benefits of School Meal Programs

Matched controlled studies since the 1980s in the U.S. indicate that low-income children who receive school breakfasts do significantly better on a variety of indicators than their low-income peers who go without breakfasts. Significantly, the better outcomes associated with school breakfast includes both educational preparedness and performance (attendance, energy, alertness, memory) and educational outcome measures (math scores, grades, reading ability), improved attendance and less tardiness.

## Behavioral and Psychosocial Benefits

In addition to mental processing (readiness to learn) and physical health, research has established that students who participate in School Breakfast Programs have been found to have fewer discipline problems, manifest less aggression and violence, and show significant improvements in social behavior and general psychosocial functioning. This body of research corresponds to reports of teachers and other school officials who note that when children enter their classrooms having had breakfast, their classes run more smoothly, behavior is better and inter-personal dynamics are calmer. Examples of psychosocial well-being include:

- In a sample of inner-city schools in two states, Murphy, et al. found that as participation in the School Breakfast Program increased, both child and teacher ratings of specific psychosocial problems significantly decreased (Murphy et al., 1998).
- A group of Harvard-led researchers found that when inner-city children received school breakfast they exhibited “significant improvements in psychosocial functioning”, discipline, and social behavior (Kleinman et al., 2002).
- Researchers tracking the Minnesota universal free breakfast program found that participation correlated with benefits in social behaviors on several indices. This research also found a corresponding decrease in discipline problems directly corresponding to participation in the breakfast program (Walhstrom & Begalle, 1999).
- The federal Centers for Disease Control and Prevention found “strong evidence” that school-based programs, including school breakfast, “decrease rates of violence and aggressive behavior among school-aged children (CDC, 2018).
- In a national study, food insufficient children (those reporting that they often did not get enough to eat) were more likely than their other low-income peers to have been suspended

from school and have had difficulty getting along with other children (Alaimo, et al., 2001).

For additional research on the cognitive and educational benefits of school meal programs, please see Appendix 4.

## Lessons from the U. S.

While the highly significant effect of the relationship of breakfast to positive student outcomes is now borne out by a strong body of scholarly research, the importance of feeding children so they will be able to learn is something long known. The outcomes drawn from a body of evidence of more than 100 published research articles, concluded that the evidence provided the scientific basis for concluding that the U. S. federal School Breakfast Program (SBP) is highly effective in terms of providing children with a stronger basis to learn in school, eat more nutritious diets, and lead more healthy lives both emotionally and physically. While no single study necessarily provides a uniquely definitive assessment of the program's benefits, and while some studies occasionally reach differing conclusions, the combined and quite consistent message of this body of research is that serving children breakfast at school significantly improves their cognitive or mental abilities. Breakfast enables them to be more alert, pay better attention, and to do better in terms of reading, math and other standardized test scores. Children getting breakfast at school are also sick less often, have fewer problems associated with hunger, such as dizziness, lethargy, stomachaches and earaches, and do significantly better than their peers who do not get a school breakfast in terms of cooperation, discipline and inter-personal behaviors (Briefel, et al., 2009; Story, et al., 2009).

In the U.S., virtually all school districts in the nation already offer the National School Lunch Program, but over 10 million eligible children do not receive it. Achieving more participation by schools in the

SBP is a key challenge. The study found that full utilization of the SBP in U.S. school districts increases cost efficiency. When schools do not provide breakfast to children, the loss of return on educational investment becomes a hidden tax paid by the local district and community. Some states, for example, lose tens of millions of dollars a year in federal funding by not fully utilizing the SBP. Altogether, states lose an estimated half a billion dollars annually in school breakfast funding from Congress. A second hidden tax that is paid when schools do not provide children with a school breakfast comes in the form of poorer educational outcomes. America pays an estimated $90 billion annually when some of its people go hungry; money that is spent or lost due to more illness, lethargy, lost productivity, or poorer educational outcomes on the part of children. Of this amount, nearly $10 billion represents the costs of poorer education-related outcomes such as greater absenteeism and more grade retention related to hunger (Brown, et al., 2008).

More than $65 billion of the $90 billion total is paid for poorer health and psychosocial dysfunction, a significant proportion of it for conditions among children from households that do not get enough to eat. The researchers conclude that the scientific evidence indicates that full participation by all U.S. school districts in the federally funded SBP would be a win for children and a win for the nation (Brown et al., 2008).

The lessons learned from the U.S. can be applied in Canada. Improvements to student nutrition through a universal healthy school food program could translate into health and educational benefits that themselves drive larger economic gains. Adding in the benefits of F2S to the equation offers further enhancement of benefits to students, the community, and the local economy.

Although this paper refers repeatedly to the benefits of a nutritious breakfast, it is merely due to the significant amount of evidence-based research available. If children have the security of break-

fast as well as lunch and a snack, the benefits may well be enhanced.

In Canada, a universal meal program coupled with a F2S approach would positively impact all students, their health and wellness, and the ability to learn and provide them with food literacy skills that may offer lifelong benefits. It would also support local farmers and producers. The Coalition for Healthy School Food is advocating for a 'school food program' – whereby all schools will eventually serve a healthy meal or snack every day. According to the Coalition for Healthy School Food, targeted school food programs that are offered only to students whose families meet a low-income threshold may increase parental resistance and reduce student participation because of the associated stigma. But "a universal school food program would provide equitable and dignified access to healthy food for children and provide some support to low-income families" (The Coalition for Healthy School Food, Frequently asked questions, n.d.).

The Coalition encourages a wide range of innovative foodservice models, ranging from breakfast to lunch as well as snacks and grab-and-go models, to be most respectful of the specific needs and particular circumstances of each specific region and school community." (Food Secure Canada, n.d.). Fortunately, there have been recent indications that the federal government may be interested in starting a program.

## Local Food – School Food and Beverage Policy

The Ontario Ministry of Education's School Food and Beverage Policy recognizes the role local food plays in healthy eating. It recommends offering "Ontario grown, produced, and/or manufactured food and beverages when available and practical …" (Ontario Ministry of Education, 2009).

As well, the recommendation to "be environmentally conscientious" can be applied to the purchase and consumption of local sustainable foods, indicating products grown using environmentally and socially responsible practices. Board-wide Environmental Policy

Incorporating local sustainable food into schools is in line with the Ministry of Education's 2009 progressive environmental policy document, "Acting Today, Shaping Tomorrow" (Ontario Ministry of Education, 2009).

Included in this document is the mandate for all school boards in the province to create board-wide environmental policies and guiding principles. When the Peel District School Board (PDSB) created its Environmental Policy framework, it enshrined a commitment to local food with a Guiding Principle that it expected staff, students and Board departments to demonstrate a commitment to purchasing locally grown food for use and sale in schools and other Board facilities (Peel District School Board, 2009).

Their policy framework for environmental education in Ontario sets out goals for implementing environmental education. One of the goals, Environmental Leadership, emphasizes the importance of establishing and promoting responsible environmental practices throughout the education system. To achieve this goal, school boards are encouraged to "develop environmentally responsible purchasing practices, while considering quality, price and service." Implementing a local sustainable food procurement policy will be a significant step in displaying environmental leadership and modeling the recommended approach of education, paired with action that reinforces the formal curriculum (Ontario Ministry of Education, 2009). The Ministry of Education's policy also asks boards to offer educational experiences to staff and teachers about local food systems and to find ways to incorporate more local food options into cafeterias and formal food contracts.

## Recent Momentum in Canada

Since its founding in 2013 the 100 plus-group Coalition for Healthy School Food has been stepping up calls for a national school food

program that would enable schools to support healthier eating and its associated benefits. They contend that most school systems in Canada lack the funding and infrastructure to support healthy meals and many schools are places where students can still regularly buy food with little to no nutritional value. Our current system contributes to illness that all three levels of government spend hundreds of billions of dollars to treat and prevent every year. Bill Jeffery of the Centre for Health Science and Law says that "Public institutions that serve the educational needs of children and youth need public investments to create health-promoting environments. Installing a strong conflict of interest safeguards to, for instance, prevent food companies from influencing nutrition standards or procurement rules is the key to a successful program" (The Coalition for Healthy School Food, 2018).

According to former coalition coordinator Carolyn Webb, "Studies show that only one-third of our students eat enough fruits and vegetables, one-third of primary students and two-thirds of secondary students go to school without a nutritious breakfast, and one-quarter of calories consumed by children are from foods not recommended in Canada's Food Guide," (The Coalition for Healthy School Food, 2018). According to Food Secure Canada, "Young people that participate in healthy school food programs show a higher intake of fruits and vegetables, increased physical and mental health, and better educational outcomes" (Food Secure Canada, 2018).

On June 14, 2018, Art Eggleton took a step toward the Coalition for Healthy School Food's vision. He tabled a motion, no. 358, in the Canadian Senate. It proposed "that the Senate urge the government to initiate consultations with the provinces, territories, Indigenous people, and other interested groups to develop an adequately funded national cost-shared universal nutrition program with the goal of ensuring healthy children and youth who, to that end, are educated in issues relating to nutrition and provided with a nutritious meal daily in a program with appropriate safeguards to ensure the independent oversight of food procurement, nutrition standards, and

governance (Food Secure Canada, 2018)".

In the House of Commons, on Monday, May 6, 2019, Member of Parliament, Julie Dabrusin read the petition from the Coalition for Healthy School Food which calls on the Minister of Health to implement an adequately-funded national cost-shared universal healthy school food program.

Then on Tuesday, May 7, MP and NDP health critic, Don Davies introduced a private member's bill, Bill C-446, for a national school food program, titled 'An Act to develop a national school food program for children' (SustainOntario, 2019).

Except for Canada, all G8 countries globally fund a school meal program. Other jurisdictions that also support school meals include Finland, Brazil, South Africa, India, the United Kingdom, and dozens more (Food Secure Canada, 2018).

According to the Global Burden of Disease project, the 48,000 Canadian deaths attributed to poor nutrition in 2016 rivals the number of deaths caused by tobacco and alcohol combined. If public support for better nourished Canadians starts with school children they can help influence the purchasing and eating behaviours of the whole family, bringing lessons learned in school to home life (Food Secure Canada, 2018).

Perhaps Senator Eggleton's motion and MP Davies' private member's bill and Food Secure Canada's work will lead a sustained movement toward universal school meals that will improve health, educational, and behavioural outcomes for Canadian children and youth.

## Challenges for Farm to School, Programs and Policy

There are many challenges for F2S, for example, lack of commitment, resources, or a school champion, cost, availability of local products, lack of delivery or distribution, lack of storage, lack of local identification of foods, the school calendar does not align well with summer harvest/seasonality, the easy availability of inexpen-

sive unhealthy foods near schools, required skills not available, issues with incorporating food literacy into the curriculum, maintaining a school garden especially in summer (Ecosource, 2015). Also see, Part 1, Summary of Survey Charts Question 16.

The rewards are worth overcoming the challenges. The benefits to students, staff, families, farmers, and the community call for an expansion and enhancement of Farm to School activities.

There are also many challenges to implementing universal healthy school meal programs complemented with F2S activities that connect local foods and food literacy to health and wellness and the community, but it is imperative to overcome them. Good F2S programs promote and provide the whole spectrum of food literacy activities and education. When students are nourished and ready to learn and are engaged in the discovery of food and food systems, they tend to make informed decisions about health and the environment and are empowered to make a change.
In order to ensure the best future universal healthy school food program in Canada, at a national level, we must create and establish common vision, value, and mission statements to guide program development. Standards must be created and disseminated. At the Provincial and local levels, where delivery occurs, alignment with the overarching vision and standards must be maintained while the strategies, tactics, operations, and processes used to achieve these goals can be adapted to suit each local constituency.

Although policy contributions to institutional change can be clear, their influences on individual behavior change are indirect at best (Joshi, et al. 2008; Rush & Knowlden, 2014). Policies have the potential to guide program direction and program outcomes can help inform best practices and craft relevant policies. Presenting an informed, evidenced-based argument for universal healthy school meal and farm to school programs and unifying advocates across the country to reach out to policymakers is one way to affect decision-makers and make these initiatives a reality.

# Section 2.5
# Conclusions

Many Canadian stakeholders recognize Farm to School as constituting three aligned pillars:

- → Healthy Local Food
- → Hands-on Learning and Food Literacy
- → School and Community Connectedness

Farm to School enables students to access healthy, local foods and educational opportunities such as school gardens, cooking lessons and farm field trips. It empowers children and their families to make informed food choices and strengthens the local economy, contributing to vibrant communities (Farm to Cafeteria Canada, n.d.).

Our research reviewed the literature of three types of benefits that have been extensively and independently researched (improvements) and verified: health and wellness for students; improved academic performance for students; and the local economy. The majority of section two comes from studies on school meal programs and food and health interventions and this paper links the proven benefits of these studies to F2S approaches, which they mirror to a significant degree and warrant this connection.

There were multiple sub-benefits for each group of benefits and the first pillar of F2S, healthy local food aligns with healthy eating, which helps children and students achieve and maintain a good body weight, consume important nutrients, and reduce the risk of developing adverse health conditions. Healthy eating in childhood and adolescence is important for proper growth and development and to prevent various adverse health conditions. It may also reduce the risk of becoming overweight as an adult. Access to healthy food is vital and school meals and F2S activities should play important roles as all children can receive these benefits at school.

A nutritious diet and F2S activities, such as salad bars, food literacy education, and community involvement will likely assist in mitigating chronic health issues, improving the health and well-being of students.

One aspect of children's health and learning that has been studied extensively is the impact of school breakfasts. Eating breakfast is of great importance for children and adolescents. Researchers have concluded that serving breakfast to school children, who don't get it elsewhere, significantly improves their cognitive abilities, enabling them to be more alert, pay better attention, and to do better on reading, math, and other standardized test scores. School officials note that when children enter their classrooms having had breakfast, their classes run more smoothly, behavior is better and inter-personal dynamics are calmer. There is a psychosocial manifestation of well-being. Children who eat breakfast are also sick less often, have fewer problems associated with hunger (such as dizziness, lethargy, stomach-aches, and earaches), and do significantly better than their non-breakfasted peers in terms of attendance, cooperation, discipline, and interpersonal behaviours.

In addition, research has shown that children experiencing food insufficiency in the household had consistent delays in reading ability, decreased scores in both reading and arithmetic, and were more likely to repeat a grade. Research on the positive effects of breakfast for food insufficient children concluded that they receive the same benefits described above.

Some researchers suggest the alignment of the second pillar, hands-on learning and food literacy, will help children to eat well and stay healthy. The majority of school-aged children lack the knowledge of where their food comes from, how it is produced, and why healthy food is important for maintaining a healthy lifestyle.

By introducing food literacy at an early age, children will be more inclined toward healthy eating habits. Incorporating food literacy in school activities will contribute to achieving objectives laid out in the Ontario government's Foundations for a Healthy School. Studies show that children who participated in after school gardening activities and salad bars were more likely to increase their food literacy and consume more fruits and vegetables, practices that contribute to a foundation for a healthy adulthood.

Farm to School programs that educate students about local food security and food systems can be linked to the school curriculum in various ways. It can be applied to Grade 9 & 10 Science, Geography and Civics classes around topics such as Sustainable Ecosystems and Human Activities; Climate Change; Global Connections; and Human Environment Interactions. Grade 10 & 12 Food and Nutrition classes examine food supply and global food issues, as well as the economic, social and political factors that affect food production. These are powerful opportunities to discuss the health, environmental and economic benefits of eating locally and sustainability.

Expanding the scale and availability of local food across Canada's food systems would assist our food security, and support access to, and availability of, healthy foods, particularly fruit and vegetables. In addition to influencing healthy eating and food security, strong local agriculture affects determinants of health such as the economy and the physical environment. Agriculture has an impact on GDP and provides employment opportunities. Farms can also provide green space, which may positively influence mental and physical health. There is a need for further research into the connections between agriculture and health, in particular, to determine the impact of farm-to-institution programs on health, behaviours, and farm income and to determine how, or whether, organic versus conventional diets affect health.

Farm to school and farm to cafeteria programs increase access to and consumption of local and sustainably produced foods - particularly fresh fruits and vegetables that in turn, contribute to community food security and local sustainable farming and food systems. These benefits align with the school and community connectedness pillar.

This paper believes that environmental, social, and cultural dictates and responsibilities form the cornerstones of a healthy community. Local sustainable food production ensures foods are produced locally in a manner that benefits the environment, social and cultural

norms, and relevant regional economies. According to Craik (2010), a shift to local food requires a seismic shift and demands a coalition. The authors believe this type of shift applies to instituting school meal programs too. It requires the involvement of every stakeholder in the education and food distribution systems – from federal, provincial, and municipal governments, Ministry and board representatives, food service providers, farmers, teachers, students, parents and NGOs. It requires a change in priorities to ensure universal healthy food programs for students and changes in food contracts and requests for proposals to see local sustainable food language and targets incorporated into contracts, as well as education opportunities that see students connecting to the local food system and understanding their impact on it (Craik, 2010, p. 12).

This shift is worth the effort, coupling universal school meals with the tenets of Farm to School will provide strategies to bring the benefits of healthy eating to our children and our communities.

There are many challenges for establishing and sustaining school meal programs and F2Sactivities. Who administers them and how is the focus on nutrition healthy local food and food literacy imbedded?

There is a need in Canada to connect and unify advocates and stakeholders in areas of health and child nutrition, school meal programs and Farm to School as individuals and groups often work in isolation. There is also a need to continue to verify, through evidence-based research, how Farm to School activities and universal school meal programs achieve significant benefits for students that far outweigh the costs and complexities of instituting them, especially in a Canadian context.

The responsibilities of providing students the fuel, tools and skills to achieve health and wellness and academic, career, and adult success can be met by instituting universal healthy school food programs complemented with F2S activities. Social responsibilities and environmental stewardship form the cornerstones of these imperatives. As mentioned previously, this kind of seismic shift demands a coalition. It requires the involvement of every stakeholder – from the federal government, Provincial Ministry and regional and local representatives, farmers, teachers, students, food service providers, parents and NGOs. It requires new thinking in our social contract and educational opportunities that see students connecting to vibrant local food systems and understanding their relationship with them.

Schools are in a unique position to provide students with opportunities to learn about and practice healthy eating behaviors. Improvements to student nutrition through a universal healthy school food program could translate into health and educational benefits that drive larger economic gains. Adding Farm to School initiatives will offer more benefits to students, the community, and the local economy. We must work to affect engagement and policy and make this a reality.

# References

Adolphus, K., Lawton, & C.L., Dye, L. (2013). “The effects of breakfast on behavior and academic performance in children and adolescents.” Frontiers in Human Neuroscience, 7/425. doi: 10.3389/fnhum.2013.00425

Aftosmes, A. (2011). “Impact of Farm-to-School Programs.” Harvard School of Public Health. Department of Nutrition. With input from: Kirsten Davison, PhD., Associate Professor. Harvard School of Public Health. Retrieved from: https://catalyst.harvard.edu/pdf/chirp/Farm_to_School.pdf

Alaimo, K., Olson, C. M., & Frongillo Jr., E. A. (2001). “Food Insufficiency and American school- aged children’s cognitive, academic, and psychosocial development.” Pediatrics, 108, 44–53. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/11433053.

Arnhold, W. (1997). “Healthy Eating for Young People in Europe: Nutrition Education in Health-Promoting School.” Ministerium für Frauen, Bildung, Weiterbildung und Sport des Landes Schleswig-Holstein, Europäische Kommission.

Ashiabi, G. (2005). “Household food insecurity and children’s school engagement.” Journal of Children and Poverty, 11, 3–17. DOI: 10.1080/10796120420000333027

Ashiabi, G., & O’Neal, K. K. (2008). “A framework for understanding the association between food insecurity and children’s developmental outcomes.” Children Development Perspectives, 2, 71–77. Retrieved from https://doi.org/10.1111/j.1750-8606.2008.00049.x

Bagdonis, J. M., Hinrichs, C. C., & Schafft, K. A. (2009). “The emergence and framing of farm-to-school initiatives: civic engagement, health and local agriculture.” Agriculture and Human Values, 26: 107-119. Retrieved from: https://doi.org/10.1007/s10460-008-9173-6

Belachew, T., Hadley, C., Lindstrom, D., Gebremariam, A., Lachat, C., & Kolsteren, P. (2011) "Food insecurity, school absenteeism and educational attainment of adolescents in Jimma Zone Southwest Ethiopia: a longitudinal study." Nutrition Journal, 10, 29. doi: 10.1186/1475-2891-10-29

Benton D., & Burgess N. (2009). "The Effect of the Consumption of Water on the Memory and Attention of Children." Appetite, 53:143–146. doi: 10.1016/j.appet.2009.05.006.

Berlin, L., Kodolinsky, J., Nelson, A., & Norris, K. (2010). "Farm-to-school: implications for child nutrition." Opportunities for Agriculture Working Paper. F. S. R. Collaborative, University of Vermont Center for Rural Studies. Retrieved from: https://scholarworks.uvm.edu/cgi/viewcontent.cgi?article=1000&context=fsagriculture

Bhattacharya, J., Currie, J., & Haider, S. (2006). "Breakfast of Champions? The Nutritional Effects of the School Breakfast Program." Journal of Human Resources, 41(3):445-466. doi: 10.3386/w10608.

Blay-Palmer, Landman, K., Knezevic, I., & Hayhurst, R. (2013). "Constructing Resilient, Transformative Communities through Sustainable 'Food Hubs.'" Local Environment 18(5): 521–28. doi: 10.1080/13549839.2013.797156

Block, L. G., Grier, S. A., Childers, T. L., Davis, B., Ebert, J. E. J., Kumanyika, S., Laczniak, R. N., Machin, J. E., Motley, C. M., Peracchio, L., Pettigrew, S., Scott, M., & Van Ginkel Bieshaar, M. N. G. (2011). "From nutrients to nurturance: A conceptual introduction to food well-being." Journal of Public Policy and Marketing, 30(1), 5-13. Retrieved from: https://doi.org/10.1509/jppm.30.1.5

Bontrager Yoder, A. B., Liebhart, J. L., McCarty, D. J., Meinen, A., Schoeler, D., Vargas, C., & LaRowe, T. (2014). “Farm to Elementary School Programming Increases Access to Fruits and Vegetables and Increases Their Consumption among Those with Low Intake.” Journal of Nutrition Education and Behavior, 46(5): 341–49. doi: 10.1016/j.jneb.2014.04.297.

Borys J. M., L., Bodo, Y., Jebb, S. A., Seidell, J. C., Summerbell, C., Richard, M., Visscher, T. L., Raffin, S., Swinburn, & the EEN Study Group. (2012). “EPODE approach for childhood obesity prevention: methods, progress and international development.” Obesity Reviews. 13(4):299-315. doi: 10.1111/j.1467-789X.2011.00950.x.

Breakfast Club of Canada. (n.d.). “The Cause”. Retrieved from Breakfast Club of Canada: http://www.breakfastclubcanada.org/ourneeds/

Briefel, R., Crepinsek, M., Cabili, C., Wilson, A., & Gleason, P. (2009). “School food environments and practices affect dietary behaviors of US public school children.” Journal of the American Dietetic Association, 109(2), Supplement, Pages S91-S107. doi: 10.1016/j.jada.2008.10.059.

British Columbia, Social Equity Branch. (1996). “Investing in All Our Children: A Handbook of Social Equity Programs British Columbia.” British Columbia Government Publications Monthly Checklist, 27(9). Retrieved from: http://www.llbc.leg.bc.ca/public/pubdocs/bcdocs2018/264635/investing.pdf

Brown, J. L., Beardslee, W. H., & Prothrow-Stith, D. (2008). “Impact of School Breakfast on Children’s Health and Learning: An analysis of the scientific research.” Retrieved from: http://us.stop-hunger.org/files/live/sites/stophunger-us/files/HungerPdf/Impact%20of%20School%20Breakfast%20Study_tcm150-212606.pdf

Burrows, T., Goldman, S., Pursey, K., & Lim, R. (2016). "Is there an association between dietary intake and academic achievement: a systematic review?" Journal of Human Nutrition and Dietetics 30, 117–140. doi: 10.1111/jhn.12407

Caraher, M., & Lang, T, (1998). "Access to healthy foods: Part II. Food poverty and shopping deserts: What are the implications for health promotion policy and practice?" Health Education Journal, 57(3), 202-211. Retrieved from: https://doi.org/10.1177/0017896998057003O3

Caraher, M., Dixon, P., Lang, T., & Carr-Hill, R. (1999). "The state of cooking in England: the relationship of cooking skills to food choice." British Food Journal, 101(8), 590-609. doi: 10.1108/00070709910288289

CBC. (2019). "The dark side of Canada's new food guide — many Canadians can't follow it." Retrieved from: https://www.cbc.ca/news/health/canada-food-guide-school-food-program-1.4975302

CDC. (n.d.). "Childhood Nutrition Facts." CDC: Centers for Disease Control and Prevention. Retrieved from: https://www.cdc.gov/healthyschools/nutrition/facts.htm

CDC. (2018). "School Meals." CDC: Centers for Disease Control and Prevention. Retrieved from: https://www.cdc.gov/healthyschools/npao/schoolmeals.htm

Centers for Disease Control and Prevention. (n.d.). "Defining Childhood Obesity." Retrieved from: https://www.cdc.gov/obesity/childhood/defining.html

Centers for Disease Control and Prevention. (2011a). "CDC grand rounds: Childhood obesity in the United States." Morbidity and Mortality Weekly Report, 60(02):42–46. Retrieved from: https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6002a2.htm

Centers for Disease Control and Prevention. (2011b). "School health guidelines to promote healthy eating and physical activity." MMWR, 2011;60(RR05):1–76. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/21918496

Centers for Disease Control and Prevention. (2016). "Overweight and obesity; childhood overweight and obesity, contributing factors." Retrieved from: http://www.cdc.gov/obesity/childhood/causes.html

CFC Canada. (2013). "The Importance of Healthy Eating for Canadian Children and Teens." Retrieved from: https://cfccanada.ca/CMSPages/GetFile.aspx?guid=758f87b0-73a3-4cc8-b383-6e80b36175ce

Chenhall, C. (2010). "Improving Cooking and Food Preparation Skills: A Synthesis of the Evidence to Inform Program and Policy Development." Government of Canada. Retrieved from: https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/fn-an/alt_formats/pdf/nutrition/child-enfant/cfps-acc-synthes-eng.pdf

The Coalition for Healthy School Food. (n.d.). "Why it Matters." Retrieved from: https://www.healthyschoolfood.ca/why-it-matters

Colatruglio, S., & Slater, J. (2016). "Challenges to acquiring and using food literacy: Perspectives of young Canadian adults." Canadian Food Studies, 3(1), pp. 96–118. doi: 10.15353/cfs-rcea.v3i1.72, ISSN: 2292-3071

Conner, D., Knudson, W. A., Hamm, M. W., & Peterson, H. C. (2008).

"The Food System as an Economic Driver: Strategies and Applications for Michigan." Journal of Hunger & Environmental Nutrition, 3(4): 371–83. Retrieved from: https://doi.org/10.1080/19320240802528849

Conner, D., Nowak, A. Berkenkamp, J., van Soelen Kim, J., Liquori, T., Hamm, M. W., & Feenstra, G. (2011). "Value Chains for Sustainable Procurement in Large School Districts: Fostering Partnerships." Agricultural and Resource Economics Review, 1(4): 100-113. doi: https://doi.org/10.5304/jafscd.2011.014.005

Craik, S. (2010). "The caf goes local!" Journal for Activism in Science & Technology Education, 2(1), p. 12. Retrieved from: https://jps.library.utoronto.ca/index.php/jaste/article/view/21190/17262

Crinnion W. J. (2010). "Organic foods contain higher levels of certain nutrients, lower levels of pesticides, and may provide health benefits for the consumer." Alternative medicine review: a journal of clinical therapeutic, 15(1), 4–12.

Croom, E., Nasrana, R., & Kolodinsky, J. (2003). "Growing Farms, Growing Minds: The Burlington School Food Project, Year One Evaluation." Center for Rural Studies, Vermont University.

Cueto, S. (2001). "Breakfast and performance." Public Health Nutrition, 4(6a). doi: 10.1079/phn2001233

Cullen, T., Hatch, J. Martin, W., Higgins, J. W., & Sheppard, R. (2015). "Food Literacy: Definition and Framework for Action." Canadian Journal of Dietetic Practice and Research, 76(3): 1–6. Retrieved from: https://doi.org/10.3148/cjdpr-2015-010

Davis, J. N., Spaniol, M. R., & Somerset, S. (2015). "Sustenance and Sustainability: Maximizing the Impact of School Gardens on

Health Outcomes." Public Health Nutrition, 18(13): 2358-2367. doi: 10.1017/S1368980015000221.

Dietitians of Canada (2010). "Advertising of Food and Beverages to Children: Position of Dietitians of Canada." Dietitians of Canada. Retrieved from https://doi.org/10.3148/71.4.2010.208

Dietz, W. H. (2004). "Overweight in childhood and adolescence." New England Journal of Medicine, 350:855–857. DOI: 10.1056/NEJMp048008

Doak, C. M., Visscher, T. L. S., Renders, C. M., & Seidell, J. C. (2006). "The prevention of overweight and obesity in children and adolescents: A review of interventions and programs." Obesity Review, 7:111–36. doi: 10.1111/j.1467-789X.2006.00234.x

Duong, M. C., Mora-Plazas, M., Marin, C., & Villamor, E. (2015). "Vitamin B-12 Deficiency in Children is Associated with Grade Repetition and School Absenteeism, Independent of Folate, Iron, Zinc, or Vitamin A, Status Biomarkers." The Journal of Nutrition, 145, 1541–1548. DOI: 10.3945/jn.115.211391

Ebbeling, C. B, Pawlak, D. B., & Ludwig, D. S. (2002). "Childhood obesity: public-health crisis, common sense cure." Lancet, 360:473–482. DOI: 10.1016/S0140-6736(02)09678-2

Ecosource. (2015). "Alternative Avenues for Local Food in Schools: Ingredients for Success." Retrieved from: http://ecosource.ca/wp-content/uploads/Alternative-Avenues-to-Local-Food-in-School.pdf

Edefonti, V., Rosato, V., Parpinel, M., Nebbia, G., Fiorica, L., Fossali, E., Ferraroni, M., Decarli, A., & Agnostoni, C. (2014). "The effect of breakfast composition and energy contribution on cognitive and academic performance: A systematic review." American Journal

of Clinical Nutrition, ajcn-083683. doi: 10.3945/ajcn.114.083683

Edmonds, C. J., & Jeffes, B. (2009). "Does Having a Drink Help You Think? 6 to 7-year-old children show improvements in cognitive performance from baseline to test after having a drink of water." Appetite, 53:469–472. doi: 10.1016/j.appet.2009.10.002

Edmonds, C.J., & Burford D. (2009). "Should Children Drink More Water? The effects of drinking water on cognition in children." Appetite, 52:776–779. doi: 10.1016/j.appet.2009.02.010

Farahbakhsh, J, Hanbazaza, M., Ball, G. D. C., Farmer, A. P., Maximova, K., & Willows, N.D. (2017). "Food insecure student clients of a university-based food bank have compromised health, dietary intake and academic quality." Nutrition & Dietetics, 74, 67–73. Retrieved from: https://doi.org/10.1111/1747-0080.12307

Farm Folk City Folk. (2016). "Vancouver Local Food Hub: From Farm to Chopping Block." Past Projects. Retrieved from: https://www.farmfolkcityfolk.ca/ourwork/past-projects/vancouver-local-food-hub-from-farm-to-chopping-block/

Farm to Cafeteria Canada. (n.d.). "Farm to School." Retrieved from: http://www.farmtocafeteriacanada.ca/wp-content/uploads/2014/08/F2S_Aboutus_EN.pdf

Farm to Cafeteria Canada. (2013). "Local Foods: Canadian Schools, Campuses, and Health Care Facilities Speak Up." Retrieved from: http://www.farmtocafeteriacanada.ca/wp-content/uploads/2013/10/Report-Local-Foods-Canadian-schools-campuses-and-health-care-facilities-speak-up-2013.pdf

Farm to Cafeteria Canada. (2016). "Impact Report 2013-2016." Retrieved from: http://www.farmtocafeteriacanada.ca/wp-content/

uploads/2017/10/NSC_Report-2017_EN_online.pdf

Farm to Cafeteria Canada. (2018a). “Benefits of Farm to School – Evidence from Canada.” Retrieved from: http://www.farmtocafeteriacanada.ca/wp-content/uploads/ImpactBenefits-Sheet-2018_online_EN.pdf

Farm to Cafeteria Canada. (2018b). “Farm to School: Dig In.” Retrieved from: http://www.farmtocafeteriacanada.ca/wp-content/uploads/2014/08/GettingStartedF2S_EN.pdf

Farm to School. (n.d.). “How ‘Local’ is Defined. The Farm to School Census.” Retrieved from: https://farmtoschoolcensus.fns.usda.gov/sites/default/files/overview_definitions_of_local_%5Bv2%5D.jpg

Feenstra G., & Ohmart, J. (2011). “Evaluation of the Davis Joint Unified School District’s Efforts to Increase Farm Fresh Food in School Meals: Measure Q Report 2010–2011.” Unpublished report. UC Sustainable Agriculture Research and Education Program: Davis, CA. Retrieved from https://asi.ucdavis.edu/sites/g/files/dgvnsk5751/files/inline-files/DJUSDFarmtoScholEval2010-2011.pdf

Feenstra, G., & Ohmart, J. (2003-2011). “Yolo County Farm to School Evaluation: Reports to Davis Farm to School 2003–2004; 2004–2005; 2008–2009; 2009–2010; 2010–2011.” UC Sustainable Agriculture Research and Education Program, Davis, CA.

Feenstra, G., & Ohmart, J. (2005). “A Report of UC Sustainable Agriculture Research & Education Program.” Yolo County Farm to School Evaluation Report (Davis Joint Unified School District

data), October, Davis, CA. Retrieved from http://www.farmto-school.org/resources-main/yolo-county-farm-to-school-evaluation-report

Fontaine, K. R., Redden, D. T., Wang, C., Westfall, A. O., & Allison, D. B. (2003). "Years of life lost due to obesity." JAMA Network, 289:187–193. doi: 10.1001/jama.289.2.187

Food Literacy Center. (2013). Retrieved from: http://foodliteracy-center.org/

Food Research and Action Center. (n.d.). "National School Lunch Program." Retrieved from: https://frac.org/programs/national-school-lunch-program

Food Secure Canada. (2018). "Senator Art Eggleton tables motion calling on federal government to launch a national nutrition program for children and youth." Retrieved from: https://foodsecurecanada.org/resources-news/news-media/press-releases/media-releease-senator-art-eggleton-tables-motion-calling

Food Secure Canada. (n.d.). "The coalition for healthy school food is calling on provincial and federal leaders to work together to feed school children." Retrieved from: https://foodsecurecanada.org/resources-news/news-media/coalition-healthy-school-food-calls-national-school-nutrition-program

FoodShare. (2015). "Schools." Retrieved from: http://www.foodshare.net/schools.

Fordyce-Voorham, S. (2011). "Identification of essential food skills for skill-based healthful eating programs in secondary schools."

Journal of nutrition education and behaviour, 43(2), 116-122. DOI: 10.1016/j.jneb.2009.12.002

Foundations for a Healthy School. 2014. Retrieved from: http://www.edu.gov.on.ca/eng/healthyschools/resourceF4HS.pdf

Fridman, J., & Lenters, L. (2013). "Kitchen as Food Hub: Adaptive Food Systems Governance in the City of Toronto." Local Environment 18(5): 543–56. Retrieved from: https://doi.org/10.1080/13549839.2013.788487

Frongillo, E. A., Jyoti, D. F., & Jones, S. J. (2006). "Food Stamp Program participation is associated with better academic learning among school children." The Journal of Nutrition 136, 1077–1080. Retrieved from: https://doi.org/10.1093/jn/136.4.1077

Fung, C., Khule, S., Lu, C., Purcell, M., Schwartz, M., Storey, K., & Veugelers, P. J. (2012). "From 'best practice' to 'next practice': the effectiveness of school-based health promotion in improving healthy eating and physical activity and preventing childhood obesity." International Journal of Behavioral Nutrition and Physical Activity, 9:27. doi: 10.1186/1479-5868-9-27

Garcia, A. L., Reardon, R., McDonald, M., & Vargas-Garcia, E. J. (2016). "Community Interventions to Improve Cooking Skills and Their Effects on Confidence and Eating Behaviour". Curr Nutr Rep, 5(4):315–322. doi:10.1007/s13668-016-0185-3

Giancatarino, A., & Noor, S. (2014). "Building the Case for Racial Equity in the Food System." Center for Social Inclusion. Retrieved from https://www.centerforsocialinclusion.org/wp-content/uploads/2014/07/Building-the-Case-for-Racial-Equity-in-the-Food-System.pdf

Gilliland, J. A., Rangel, C. Y., Healy, M. A., Tucker, P., Loebach, J. E.,

Hess, P. M., He, M., Irwin, J. D., & Wilk, P. (2012). “Linking child-hood obesity to the built environment: A multi-level analysis of home and school neighbourhood factors associated with body mass index.” Canadian Journal of Public Health, 103(3), S15. DOI: 10.1007/BF03403830

Graham, H., Feenstra, G., Evans, A. M., & Zidenberg-Cherr, S. (2004). “Davis school program supports life-long healthy eating habits in children.” California Agriculture, 58(4):200-205. Retrieved from: https://doi.org/10.3733/ca.v058n04p200.

Hamm, M. W. (2008). “Linking Sustainable Agriculture and Public Health: Opportunities for Realizing Multiple Goals.” Journal of Hunger & Environmental Nutrition, 3:2-3, 169-185. Retrieved from: https://doi.org/10.1080/19320240802243241

Hannum, E., Liu, J., & Frongillo, E. (2014). “Poverty, food insecurity and nutritional deprivation in rural China: Implications for chil-dren’s literacy achievement.” International Journal of Education Development, 34, 90–97. doi: 10.1016/j.ijedudev.2012.07.003

Harvard School of Public Health. (n.d.). The Nutrition Source. “Why School Meals Matter.” Retrieved from: https://www.hsph.harvard.edu/nutritionsource/2016/09/20/why-school-meals-matter/

Health Canada. (2015). “Health Behaviour in School-aged Chil-dren (HBSC) in Canada: Focus on Relationships.” Government of Canada. Retrieved from: http://www.healthycanadians.gc.ca/publications/science-research-sciences-recherches/health-be-haviour-children-canada-2015-comportements-sante-jeunes/index-eng.php

Health Canada. (2018). “Measuring the Food Environment in Canada.” Government of Canada. Retrieved from: https://opha.on.ca/Resource-Documents/measuring-food-environment-canada.aspx-?ext=.pdf

Health Canada. (2019). “Canada’s Food Guide.” Government of Canada. Retrieved from: https://food-guide.canada.ca/en/

Healthline. (2016). “Childhood Obesity.” Retrieved from: https://www.healthline.com/health/weight-loss/weight-problems-in-children

Heiss, S. N., Sevoian, N. K., Conner, D., & Berlin, L. (2014). “Farm to Institution Programs: Organizing Practices That Enable and Constrain Vermont’s Alternative Food Supply Chains.” Agriculture and Human Values, 32(1): 87–97. Retrieved from: https://doi.org/10.1007/s10460-014-9527-1

Hercberg S, Chat-Yung, S., & Chaulia, M. (2008). “The French National Nutrition and Health Program: 2001–2006–2010.” Int J Public Health, 53:68–77. doi: 10.1007/s00038-008-7016-2

Hermann, J. R., Parker, S. P., Brown, B. J., Siewe, Y. J., Denney, B. A., & Walker, S. J. (2006). “After-School Gardening Improves Children’s Reported Vegetable Intake and Physical Activity.” Journal of Nutrition Education and Behaviour, 38, 201-202. doi: https://doi.org/10.1016/j.jneb.2006.02.002

Hernandez, K., Engler-Stringer, R., Kirk, S., Wittman, H., & McNicholl, S. (2019). “The Case for a Canadian National School Food Program.” Canadian Food Studies, Volume 5. doi: 10.15353/cfs-rcea.v5i3.260

Hoyland A., Dye, L., & Lawton, C. L. (2009). “A Systematic Review of the Effect of Breakfast on the Cognitive Performance of Children and Adolescents.” Nutrition Research Reviews, 22:220–243.

doi: 10.1017/S0954422409990175

Hutchinson, G. (2010). “Tackling obesity through school-based interventions.” British Journal of School Nursing, 5:335–7. Retrieved from: https://doi.org/10.12968/bjsn.2010.5.7.78284

Hyslop, K. (2014). “Does Canada Need a National School Food Program?” Retrieved from: https://thetyee.ca/News/2014/10/13/Canada-School-Food-Program/

Izumi, B. T., Wright, D. W., & Hamm, M. W. (2010). “Market Diversification and Social Benefits: Motivations of Farmers Participating in Farm to School Programs.” Journal of Rural Studies, 26(4): 374–82. Retrieved from: https://doi.org/10.1016/j.jrurstud.2010.02.002

Jacka, F. N., Rothon, C., Taylor, S., Berk, M., & Stansfeld, S. A. (2013). “Diet quality and mental health problems in adolescents from East London: A prospective study.” Social Psychiatry and Psychiatric Epidemiology, 48, 1297-1306. doi: 10.1007/s00127-012-0623-5

Jacknowitz, A., Morrissey, T. W., & Brannegan, A. (2012). “Food insecurity across the first five years: triggers of onset and exit.” Children and Youth Services Review, 53, 24–33. doi: 10.1016/j.childyouth.2015.03.012

Jaffe, J., & Gertler, M. (2005). “Victual vicissitudes: Consumer deskilling and the (gendered) transformation of food systems.” Agriculture and Human Values, 23(2), 143-162. doi: 10.1007/s10460-005-6098-1

Johnston, J., & Baker, L. (2005). “Eating Outside the Box: FoodShare’s Good Food Box and the Challenge of Scale.” Agriculture and Human Values, 22(3): 313–25. Retrieved from: https://doi.org/10.1007/s10460-005-6048-y

Jones, C., Mitchell, J., & Bailey, C. (2015). Alternative avenues for local foods in schools: Ingredients for success. Ontario. Retrieved from http://www.farmtocafeteriacanada.ca/2017/11/alternative-avenues-to-local-food-in-schools-ingredients-for-success/

Joshi, A., Azuma, A. M., & Feenstra, G. (2008). "Do Farm-to-School Programs Make a Difference?" Findings and Future Research Needs, Journal of Hunger & Environmental Nutrition, 3:2-3, 229-246, doi: 10.1080/19320240802244025

Journal of the American Dietetic Association. (2003). "Position of the American Dietetic Association, Society for Nutrition Education, and American School Food Service Association—Nutrition services: An essential component of comprehensive school health programs." Retrieved from: https://doi.org/10.1016/S0002-8223(03)00163-9

Jyoti, D. F., Frongillo, E. A., & Jones, S. J. (2005) "Food insecurity affects school children's academic performance, weight gain, and social skills." The Journal of Nutrition, 135(12), December 2005, Pages 2831–2839. Retrieved from: https://doi.org/10.1093/jn/135.12.2831

Katan. M. B. (2009) "Weight-loss diets for the prevention and treatment of obesity." New England Journal of Medicine, 360:923–925. doi: 10.1056/NEJMe0810291

Kempton, M. J., Ettinger, U., Foster, R., Williams, S. C., Calvert, G. A., Hampshire, A., Zelaya, F. O., O'Gorman, R. L., McMorris, T., Owen, A. M., & Smith, M. S. (2011). "Dehydration Affects Brain Structure and Function in Healthy Adolescents." Human Brain Mapping, 32:71–79. doi: 10.1002/hbm.20999

Kennedy, E., & Davis, C. (1998). “U.S. Department of Agriculture School Breakfast Program.” American Journal of Clinical Nutrition, 67(Suppl):798S-803S. Retrieved from: https://doi.org/10.1093/ajcn/67.4.798S

Kimbro, R.T., & Denney, J. T. (2015). “Transitions into food insecurity associated with behavioral problems and worse overall health among children.” Health Affairs (Millwood) 34, 1949–1955. Retrieved from: https://doi.org/10.1377/hlthaff.2015.0626

Kirkpatrick, S. I., Reedy, J., Kahle, L. L., Harris, J. L., Ohri-Vachaspati, P., & Krebs-Smith, S. M. (2014). “Fast-food menu offerings vary in dietary quality but are consistently poor.” Public Health Nutrition, 17, 924-931. doi: 10.1017/S136898001200556

Kleinman, R. E., Hall, S., Green, H., Korzec-Ramirez, D., Patton, K., Pagano, M.E., & Murphy, J. M. (2002). “Diet, breakfast, and academic performance in children” Annals of Nutrition & Metabolism, 46, Suppl 1, pages 24-30. doi: 10.1159/000066399

Kral, T.V.E., & Faith, M.S. (2009). “Influences on child eating and weight development from a behavioural genetic perspective.” Journal Pediatric Psychology, 34(6): 596-605. doi: 10.1093/jpepsy/jsn037

Larson, N. I., & Story, M. T. (2011). “Food insecurity and weight status among US children and families: A review of the literature.” American Journal of Preventive Medicine, 40, 166-173. doi: 10.1016/j.amepre.2010.10.028

Lee, H. (1982). “The role of local food availability in explaining obesity risk among young school-aged children.” Social Science & Medicine, 74:1193-1203. doi: 10.1016/j.socscimed.2011.12.036

Levine, A. S., Tallman, J. R., Grace, M. K., Parker, S. A., Billington, C. J., & Levitt, M. D. (1989). “Effect of breakfast cereals on short-term food intake.” American Journal of Clinical Nutrition, 50. Retrieved from: https://www.ncbi.nlm.nih.gov/pubmed/2556910

Lillico, H. G.,Hammond, D., Manske, S., & Murnaghan, D. (2014). “The prevalence of eating behaviours among Canadian youth using cross-sectional school-based surveys.” Journal of Negative Results in Biomedicine, 14, 1-12. doi:10.1186/1471-2458-14-323

Lyon, P., Colquhoun, A., & Alexander, E. (2003). “Deskilling the domestic kitchen: national tragedy or the making of a modern myth?” Food Service Technology, 3: 167-175. 33. Retrieved from: https://doi.org/10.1111/j.1471-5740.2003.00078.x

Matts, C., Conner, D., Fisher, C., & Tyler, S. (2015). “Farmer Perspectives of Farm to Institution in Michigan: 2012 Survey Results of Vegetable Farmers.” Renewable Agriculture and Food Systems, January 1–12. Retrieved from: https://doi.org/10.1017/S1742170514000465

Maxwell, S. E., & Cole, D. A. (2007). “Bias in cross-sectional analyses of longitudinal mediation.” Psychological Methods, 12, 23–44. doi: 10.1037/1082-989X.12.1.23

McKenna, M. L. (2010). “Policy options to support healthy eating in schools.” Canadian Journal of Public Health/ Revue Canadienne de Sante’e Publique, 101(8), S14-S17. ISSN 1920-7476. doi: 10.1007/BF03405619

McMartin, S. E., Jacka, F. N., & Colman, I. (2013). “The association between fruit and vegetable consumption and mental health disorders: evidence from five waves of a national survey of Canadians.” Preventive Medicine, 56, 225-230. doi: 10.1016/j.ypmed.2012.12.016

Melchior, M., Chastang, J.-F., Falissard, B., Galéra, C., Tremblay, R. E., Côté, S. M., & Boivin, M. (2012). "Food insecurity and children's mental health: a prospective birth cohort study." PLoS One 7, e52615. Retrieved from: https://doi.org/10.1371/journal.pone.0052615

Metcalf Foundation. (2008). "Food Connects Us All Sustainable Local Food in Southern Ontario." Retrieved from: https://metcalffoundation.com/site/uploads/2011/05/food-connects-us-all.pdf

Meyers, A. F. (1989). "Under-nutrition, hunger, and learning in children." Nutrition News, 52(2), 5-7. Retrieved from http://agris.fao.org/agris-search/search.do?recordID=US9193109

Morbidity and Mortality Weekly Report. (1996). "Guidelines for School Health Programs to Promote Lifelong Healthy Eating, 1996". MMWR, 14 June 1996, 45(RR9): 1-41. Retrieved from: https://www.cdc.gov/mmwr/preview/mmwrhtml/00042446.htm

Moss, A., Smith, S., Null, D., Roth, S. L., & Tragoudas, U. (2013). "Farm to School and Nutrition Education: Positively Affecting Elementary School-Aged Children's Nutrition Knowledge and Consumption Behavior." Childhood Obesity, 9(1): 51–56. DOI: 10.1089/chi.2012.0056

Murphy, J. M., Drake, J. E., & Weineke, K. M. (2005). "Academics & Breakfast Connection Pilot: Final Report on New York's Classroom Breakfast Project." Nutrition Consortium of New York State. Albany, New York. Retrieved from: https://www.gotbreakfast.org/news/NYS_bkfastinclass_studyresults_ABCfinal.pdf

Murphy, J. M., Pagano, M., & Bishop, S. J. (2001). "Impact of a Universally Free, In-Classroom School Breakfast Program on Achievement; Results from the Abell Foundation's Baltimore Breakfast Challenge Program." Massachusetts General Hospital, Boston, MA.

Murphy, J. M., Pagano, M., Nachmani, J., Sperling, P., Kane, S., & Kleinman, R. (1998). "The Relationship of School Breakfast to Psychosocial and Academic Functioning: Cross-sectional and longitudinal observations in an inner-city sample." Archives of Pediatric and Adolescent Medicine, 152, 899-907. doi: 10.1001/archpedi.152.9.899

National Farm to School Network. (2017). "The Benefits of Farm to School." Retrieved from: www.farmtoschool.org/Resources/BenefitsFactSheet.pdf

National Farm to School Network. (n.d.). "About Farm to School." Retrieved from: http://www.farmtoschool.org/about/what-is-farm-to-school

Navaneelan, T., & Teresa, J. (2014). "Adjusting the scales: Obesity in the Canadian population after correcting for respondent bias." Statistics Canada. Retrieved from: https://www150.statcan.gc.ca/n1/en/pub/82-624-x/2014001/article/11922-eng.pdf?st=uByClefN

Neumark-Sztainer, D., & Hannan, P. (2000). "Weight-related behaviors among adolescent girls and boys: results from a national survey." Arch Pediatric Adolescent Medicine, 154:569–577. doi: 10.1001/archpedi.154.6.569

Nicklas, T. A., O'Neil, C., & Myers, L. (2004). "The importance of breakfast consumption to nutrition of children, adolescents, and young adults." Nutrition Today, 39(1), 30-39. doi: 10.1097/00017285-200401000-00009

Nowak, A. J., Kolouch, G., Schneyer, L., & Roberts, K. H. (2012). "Building Food Literacy and Positive Relationships with Healthy Food in Children through School Gardens." Childhood Obesity, 8(4), 392-5.

doi: 10.1089/chi.2012.0084

Obesity Canada. (n.d.) "Obesity in Canada." Retrieved from: https://obesitycanada.ca/obesity-in-canada/

Ohmart, J., & Feenstra, G. (2004). "'Plate tectonics': Do farm-to-school programs shift student diets." Sustainable Agriculture. S. A. R. A. E. Program, University of California. Retrieved from: https://asi.ucdavis.edu/sites/g/files/dgvnsk5751/files/in-line-files/newsletters-fall2004-vol16no3.pdf

Ontario Ministry of Education. (n.d.). "Healthy Schools: Foundations for a Healthy School." Retrieved from: http://www.edu.gov.on.ca/eng/healthyschools/foundations.html

Ontario Agency for Health Protection and Promotion (Public Health Ontario), Lee J, Laxer RE, Harrington DW. A media analysis of the Healthy Kids Community Challenge Theme 3. Toronto, ON: Queen's Printer for Ontario.

Ontario Ministry of Education. (2009). "Acting Today, Shaping Tomorrow". Retrieved from: http://www.edu.gov.on.ca/eng/teachers/enviroed/action.html

Ontario Ministry of Education. (2009). "School Food and Beverage Policy." Retrieved from: http://www.edu.gov.on.ca/eng/healthyschools/policy.html

Ontario Ministry of Education. (2014). "Foundations for a Healthy School Promoting well-being is part of Ontario's Achieving Excellence Vision." Retrieved from: http://www.edu.gov.on.ca/eng/healthyschools/resourceF4HS.pdf

Peel District School Board. (2009). "Policies and Regulation, Policy

74." Retrieved from: http://www.peelschools.org/trustees/board-policies/Documents/Policy%2074.pdf

Peeters, A., Barendregt, J. J., Willekens, F., Mackenbach, J. P., Al Mamun, A., Bonneux, L., & NEDCOM-the Netherlands Epidemiology and Demography Compression of Morbidity Research Group. (2003). "Obesity in adulthood and its consequences for life expectancy: a life-table analysis." Ann Intern Med, 2003; 138:24–32. doi: 10.7326/0003-4819-138-1-200301070-00008

Perez-Escamilla, R., & Vianna, R. P. T. (2012). "Food insecurity and the behavioral and intellectual development of children: a review of the evidence." Journal of Applied Research on Children: Informing Policy for Child at Risk, 3, 9. Retrieved from: https://files.eric.ed.gov/fulltext/EJ1189045.pdf

Pollitt, E. (1995). "Does breakfast make a difference in school?" Journal of the American Dietetic Association, 95, 1134-1139. Retrieved from: https://doi.org/10.1016/S0002-8223(95)00306-1

Popkin, B. M., D'Anci, K. E., & Rosenberg, I. H. (2010). "Water, Hydration, and Health." Nutrition Reviews, 68(8):439–458. doi: 10.1111/j.1753-4887.2010.00304.x

Poppendieck, J. (2010). "Free for All: Fixing School Food in America." Berkeley and Los Angeles: University of California Press. ISBN: 9780520269880.

Pott W., Albayrak, Ö., Hedebrand, J., & Pauli-Pott, U. (2009). "Treating childhood obesity: Family background variables and the child's success in a weight-control intervention." International Journal of Eating Disorders, 42:284-9. Retrieved from: https://doi.org/10.1002/eat.20655

Powell, D. V. & Agnew, D. M. (2011). "Assessing Agricultural Literacy Elements of Project Food Land and People in K-5 Using the Food and Fiber Systems Literacy Standards." Journal of Agricultural Education, 52(1), 155-170. Retrieved from: http://www.jae-online.org/attachments/article/1538/52.1.155.Powell.pdf

Powell, L. J., Newman, L., Kurrein, M., Ostry, A., & Morrison, D. (2016). "Agriculture's Connection to Health: A summary of the evidence relevant to British Columbia." Retrieved from: http://www.bccdc.ca/pop-public-health/Documents/AgConnectiontoHealth_FullReport_April2016.pdf

Propel Centre for Population Health Impact. (2012). "Case Profile: APPLE Schools. Waterloo, Ontario." Propel Centre for Population Health Impact, University of Waterloo.

Public Health Agency of Canada (PHAC). (2012). "Curbing childhood obesity: A federal, provincial and territorial framework for action to promote healthy weights." Government of Canada. Retrieved from https://www.canada.ca/en/public-health/services/health-promotion/healthy-living/curbing-childhood-obesity-federal-provincial-territorial-framework.html

Public Health Association of BC. (2012). "A Fresh Crunch in School Lunch: The BC Farm to School Guide – 2nd Edition." Retrieved from: http://www.farmtocafeteriacanada.ca/wp-content/uploads/2014/12/F2Sguide-2nd-edition-singles.pdf

Rahman T, Cushing, R. A., & Jackson, R. J. (2011). "Contributions of built environment to childhood obesity." Mount Sinai Journal of Medicine, 78:49–57. doi:10.1002/msj.20235

Raine, K. D. (2005). "Determinants of Healthy Eating in Canada: An Overview and Synthesis." Canadian Journal of Public Health, 96,

S8–S14. doi:10.1007/BF03405195

Rampersaud, G.C., Pereira, M. A., Girard, B. L., Adams, J., & Metzl, J. D. (2005). “Breakfast Habits, Nutritional Status, Body Weight, and Academic Performance in Children and Adolescents.” Journal of the American Dietetic Association, 105:43–760. doi: 10.1016/j.jada.2005.02.007

Rawl, R., Kolasa, K. M., Lee, J., & Whetstone, L. M. (2008). “A learn and serve nutrition program: The food literacy partners program.” Journal of nutrition education and behavior, 40(1), 49-51. doi: https://doi.org/10.1016/j.jneb.2007.04.372

Rojas, R. W., Valleym W., Mansfield, B., & Orrego, E. (2011). “Toward Food System Sustainability through School Food System Change: Think & Eat Green @ School and the Making of a Community.” University Research Alliance. Sustainability, 3(12): 763–88. doi: 10.3390/su3050763

Ruetz, A., & Smithers, J. (2018). “‘Farm-to-school’ movement takes root in Canada.” The Conversation. Retrieved from http://theconversation.com/farm-to-school-movement-takes-root-in-canada-101635

Rush, S. E., & Knowlden, A.P. (2014). “Systematic review of school and community-based fruit and vegetable interventions for minority children.” Pediatric Health, Medicine and Therapeutics, (5): 111-126. doi: https//doi.org/10.2147/PHMT.S56206

Saha, K. K., Tofail, F., Frongillo, E. A., Rasmussen, K. M., Arifeen, S. E., Persson, L.- Å., Huda, S. N., & Hamadani, J. (2010). “Household food security is associated with early childhood language development: results from a longitudinal study in rural Bangladesh.” Child Care Health Dev, 36, 309–316. doi: 10.1111/j.1365-2214.2009.01049.x

Santos R. D. D. (1996). “No junk food in the school canteen,” World Health Magazine. July-August 1996, 49(4):23. Retrieved from: https://apps.who.int/iris/bitstream/handle/10665/330506/WH-1996-Jul-Aug-p23-eng.pdf?sequence=1&isAllowed=y

Schisterman, E. F., Cole, S. R., & Platt, R. W. (2009). “Overadjustment bias and unnecessary adjustment in epidemiologic studies.” Epidemiology, 20, 488–495. doi: 10.1097/EDE.0b013e3181a819a1.

Schmidt, M. C., Kolodinsky, J., & Symans, C. (2006). The Burlington School Food Project, Final Evaluation Report.” Center for Rural Studies, Vermont University. Retrieved from https://www.uvm.edu/sites/default/files/media/BSFP_finaleval06.pdf

Schnögl, S., Zehetgruber, R., Danninger, S., Setzwein, M., Wenk, R., Freudenberg, M., Müller, M., & Groeneveld, M. (2009). “Savoury dishes for adult education and counseling.” Food Literacy Report with guidelines and toolbox. Retrieved from: food-literacy.org

Serecon Management, Consulting Ltd. (2005). “Consumer Food Trends to 2020: A Long-Range Consumer Outlook.” Agriculture and Agri-Food Canada, pp 1-113. Retrieved from https://publicentrale-ext.agr.gc.ca/pub_view-pub_affichage-eng.cfm?publication_id=12467E

Shankar, P., Chung, R., & Frank, D. A. (2017) “Association of food insecurity with children’s behavioral, emotional, and academic outcomes: a systematic review.” J Dev Behav Pediatr, 38, 135–150. doi: 10.1097/DBP.0000000000000383.

Sherry, B. & Dietz, W.H. (2004). “Pediatric overweight: an overview.” In: Bray GA, Bouchard C, eds. Handbook of Obesity. New York, NY: Marcel Dekker Inc. 117–134. Retrieved from https://www.researchgate.net/publication/329543711_Pediatric_overweight_An_over-

view

Story, M., Nanney, M. S., & Schwatrz, M. B. (2009). “Schools and obesity prevention: creating school environments and policies to promote healthy eating and physical activity.” Milbank Q, 87(1): 71-100. doi: 10.1111/j.1468-0009.2009.00548.x

Sustain Ontario. (2019). “National School Food Program Presented in House of Commons.” Retrieved from: https://sustainontario.com/2019/05/07/national-school-food-program-presented-in-house-of-commons/

Taras, H. (2005). “Nutrition and Student Performance at School.” Journal of School Health, 75:199-213. doi:10.1111/j.1746-1561.2005.00025.x

Tarasuk V., Cheng J., de Oliveira, C., Dachner, N., Gunerson, C., & Kurdyak, P. (2015). “Association between household food insecurity and annual health care costs.” Can Med Assoc J., 187(14): E429-E36. doi: https://doi.org/10.1503/cmaj.150234

Tarasuk, V., Mitchell, A., & Dachner, N. (2014.) “Household Food Insecurity in Canada, 2014.” PROOF. Retrieved from: https://proof.utoronto.ca/wp-content/uploads/2016/04/Household-Food-Insecurity-in-Canada-2014.pdf

Taylor, J. P., Evers, S., & McKenna, M. (2005). “Determinants of healthy eating in children and youth.” Canadian Journal of Public Health, S20–S26. Retrieved from: https://pdfs.semanticscholar.org/e4e6/009c72e94eb8537738b308ee9175c55df3bf.pdf

The Coalition for Healthy School Food, (n.d.). Frequently asked questions. Retrieved from: https://www.healthyschoolfood.ca/faq

The Coalition for Healthy School Food. (n.d.). “Why it Matters.” Retrieved from: https://www.healthyschoolfood.ca/why-it-matters

The Coalition for Healthy School Food. (2018). “Celebrating Senator Eggleton’s Motion for a National Nutrition Program!” Retrieved from: https://www.healthyschoolfood.ca/blog/celebrating-senator-eggleton-s-motion-for-a-national-nutrition-program

The Coalition for Healthy School Food. (2020). “Health Benefits of School Food Programs: An Overview of Canadian Research.” Retrieved from: https://www.healthyschoolfood.ca/post/health-benefits-of-school-food-programs-an-overview-of-canadian-research

Thonney, P. F., & Bisogni, C. A. (2006). “Cooking up fun! A youth development strategy that promotes independent food skills.” Journal of Nutrition Education and Behaviour, 38(5), 321-323. doi: https://doi.org/10.1016/j.jneb.2006.03.007

Toronto District School Board. (2012). “Feeding Our Future: The First-And Second-Year Evaluation”. Retrieved from: http://www.tdsb.on.ca/Portals/0/Elementary/docs/SupportingYou/EvaluationFOF-Program19Mar12.pdf

Tremblay, M.S., Katzmarzyk, P. T., & Willms, J. D. (2002). “Temporal trends in overweight and obesity in Canada, 1981–1996.” Int J Obes Relat Metab Disord, 26(4):538–543. Retrieved from: https://www.ncbi.nlm.nih.gov/pubmed/12075581

U.S. Department of Agriculture-Food and Nutrition Service. (n.d). Retrieved from: https://www.fns.usda.gov/

United States Department of Agriculture Office of Communications. (2015). “New USDA Data Show Growing Farm to School Efforts Help to Reduce Plate Waste, Increase Student Participation in

Healthier School Meals Program." Retrieved from: https://www.fns.usda.gov/pressrelease/2015/029215

United States Department of Agriculture. (2015). "What is the relationship between eating out and take- away meals and body weight in children and adults." Dietary Guidelines Advisory Committee Systematic Reviews. Retrieved from: https://nesr.usda.gov/what-relationship-between-eating-out-andor-take-away-meals-and-body-weight-children-and-adults

United States Department of Agriculture. (2016). "The Farm to School Cencus. Schools serving, kids eating healthier school meals." Retrieved from: https://farmtoschoolcensus.fns.usda.gov/schools-serving-kids-eating-healthier-school-meals

United States Department of Agriculture. (n.d.). "The Farm to School Census." Retrieved from: https://farmtoschoolcensus.fns.usda.gov/

Vallianatos, M., Gottlieb, R., & Hasse, M. A. (2004). "Farm-to-School: Strategies for Urban Health, Combating Sprawl, and Establishing a Community Food Systems Approach." Journal of Planning Education and Research ,23(4): 414–23. Retrieved from: https://doi.org/10.1177/0739456X04264765

Van Cauwenberghe, E., Maes, L., Spittaels, H., van Lenthe, F. J., Brug, J., Oppert, J.-M., & De Boureaudhuij, I. D. (2010). "Effectiveness of school-based interventions in Europe to promote healthy nutrition in children and adolescents: Systematic review of published and 'grey' literature." British Journal of Nutrition,103(6), 781-797. doi:10.1017/S0007114509993370

Velazquez, C. E., Black, J. L., & Potvin Kent, M. (2017). "Food and Beverage Marketing in Schools: A Review of the Evidence." Int J Environ Res Public Health, Sep; 14(9): 1054. DOI: 10.3390/

ijerph14091054.

Vereecken, C. A. (2005). “Eating habits. HBSC Research Protocol for 2005/06 Survey.” Section 2. Scientific rationales for focus areas.

Veugelers, P.J, & Fitzgerald, A.L. (2005). “Effectiveness of School Programs in Preventing Childhood Obesity: A Multilevel Comparison”. American Journal of Public Health, 95(3):432-435. doi: 10.2105/AJPH.2004.045898

Victoria State Government. (2018). “Healthy eating – School Food Services. Education and Training.” Retrieved from: https://www.education.vic.gov.au/school/principals/spag/health/Pages/healthyeating.aspx

Vidgen, H. A., & Gallegos, D. (2011). “What is food literacy and does it influence what we eat: a study of Australian food experts.” Queensland University of Technology. Brisbane, Australia. Retrieved from: https://eprints.qut.edu.au/45902/1/45902P.pdf

Vidgen, H. A., & Gallegos, D. (2014). “Defining Food Literacy and Its Components.” Appetite, 76. Elsevier Ltd: 50–59. doi: 10.1016/j.appet.2014.01.010

Vileisis, A. (2008). “Kitchen literacy: How we lost knowledge of where food comes from and why we need to get it back”. Washington: Island Press/Shearwater Books.

Wahlstrom, K. L., & Begalle, M. S. (1999). “More than test scores: results of the universal school breakfast pilot in MN”. Topics in Clinical Nutrition, 15, 17-29. Retrieved from: https://journals.lww.com/topicsinclinicalnutrition/Abstract/1999/12000/More_Than_Test_Scores__Results_of_the_Universal.4.aspx

Walter, L. (2008). A Review of: “Kitchen Literacy: How we Lost Knowledge of where Food Comes from and why we Need to get it Back”, Food and Foodways, 16:2, 166-169, doi: 10.1080/07409710802132072

Wang, D., & Stewart, D. (2013). “The implementation and effectiveness of school-based nutrition promotion programs using a health-promoting schools approach: A systematic review.” Public Health Nutrition, 16, 1082-1100. doi:10.1017/S1368980012003497

Whitaker, R. C., Phillips, S. M., & Orzol, S. M. (2006). “Food insecurity and the risks of depression and anxiety in mothers and behavior problems in their preschool-aged children.” Pediatrics, 118, e859–e868. doi: 10.1542/peds.2006-0239

Winkler, E. & Turrell, G. (2009). “Confidence to cook vegetables and the buying habits of Australian households.” Journal of the American Dietetic Association, 109: 1759- 1768. doi: 10.1016/j.jada.2010.03.007

Wistoft, K., Otte, C. R., Stovgaard, M., & Breiting, S. (2011). “Haver til Maver-et studie af engagement, skolehaver og naturformidling,” Institut for Uddannelse og Pædagogik Århus Universitet. Retrieved from: https://www.natursekken.no/c1890933/binfil/download2.php?tid=1890932

Wittman, H., & Powell, L. (2015). “Farm to School Regional Hubs - Pilot Program in British Columbia - Process and Implementation Evaluation.” Retrieved from: https://farmtoschool.phabc.org/wp-content/uploads/sites/3/2015/10/F2SBC-Hubs-Eval-Final.pdf

World Health Organization EMRO / UNCF Middle East. (1988). “Teacher’s Resource Book Unit 6: Prototype Action-oriented School Health Curriculum.” Unit 6. Alexandria: UN/WHO. Retrieved from:

https://apps.who.int/iris/handle/10665/120034

World Health Organization. (1996a). “Promoting health through schools. Global School Health Initiative & World Health Organization.” Health Education and Promotion Unit. Retrieved from: https://apps.who.int/iris/handle/10665/63367

World Health Organization. (1996b). “The status of school health. Global School Health Initiative & World Health Organization.” Health Education and Promotion Unit. Retrieved from: https://apps.who.int/iris/handle/10665/63364

World Health Organization. (1996c). “WHO Information Series on School Health.” Retrieved from: https://www.who.int/school_youth_health/resources/information_series/en/

World Health Organization. (1996d). “WHO Information Series on School Health Document Four. Healthy Nutrition: An Essential Element of a Health-Promoting School.” Retrieved from: http://www.who.int/school_youth_health/media/en/428.pdf?ua=1

World Health Organization. (2012). “Population-based approaches to childhood obesity prevention.” Retrieved from: http://www.who.int/dietphysicalactivity/childhood/WHO_new_childhoodobesity_PREVENTION_27nov_HR_PRINT_OK.pdf

World Health Organization. (2018). “Obesity and Overweight – Key Facts.” Retrieved from: https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight

## Additional Material Researched, Not Cited In-Text

Al Khateeb, M. (1996). “Eastern Mediterranean: an action-oriented curriculum.” World Health, 49(4), 7. World Health Organization. Retrieved from: https://apps.who.int/iris/handle/10665/330493

Allen, P., & Guthman, J. (2006). “From ‘old school’ to ‘farm-to-school’: neoliberalization from the ground up.” Agriculture and Human Values, 23(4): 401-415. Retrieved from: https://doi.org/10.1007/s10460-006-9019-z

American Medical Association (AMA). (2009). “Sustainable Food (Resolution 405, A-08).” Retrieved from: https://www.ama-assn.org/sites/ama-assn.org/files/corp/media-browser/public/about-ama/councils/Council%20Reports/council-on-science-public-health/a09-csaph-sustainable-food.pdf

Azum, A. M., Fisher, A., & Gottlieb, R. (2001). “Healthy farms, healthy kids: Evaluating the barriers and opportunities for farm-to-school programs.” Venice, CA: Community Food Security Coalition. DOI: 10.1007/s10460-006-9019-z

Bates, H., & Eccles, K. (2008). “Wellness Curricula to Improve the Health of Children and Youth: A Review and Synthesis of Related Literature.” Alberta Education. ISBN 978-0-7785-6475-1. Retrieved from: http://www.assembly.ab.ca/lao/library/egovdocs/2008/aled/171318.pdf

Bellows, B. C., Dufour, R., & Bachman, J. (2003). “Bringing local food to local institutions: A resource guide for farm-to-school and farm-to-institution programs.” Fayetteville, Ark.: ATTRA, National Sustainable Agriculture Information Service. Retrieved from: http://ngfn.org/resources/ngfn-database/knowledge/farmto-school.pdf

Ben-Sefer, E., Ben-Natan, M., & Ehrenfeld, M. (2009). "Childhood obesity: Current literature, policy and implications for practice." International Nursing Review, 56:166–73. Retrieved from https://doi.org/10.1111/j.1466-7657.2008.00708.x

Benn, J. (2009). "Practical wisdom, understanding of coherence and competencies for everyday life." International Journal of Home Economics, 2, p. 2-14. Retrieved from https://pure.au.dk/portal/da/publications/practical-wisdom-understanding-of-coherence-and-competencies-for-everyday-life(26fe76d0-72c8-11de-9e37-000ea68e967b).html

Benn, J. (2009). "Youngsters' conceptions of food: educational and curricular perspectives." University of Helsinki. Food in Contemporary Society, p. 35-44. Retrieved from https://helda.helsinki.fi/bitstream/handle/10138/16007/fics_ejulkaisu.pdf?sequenc#page=36

Benton, D., & Parker P. Y. (1998). "Breakfast, blood glucose and cognition." American Journal of Clinical Nutrition (Suppl), 67(4):772S-778S. DOI: 10.1093/ajcn/67.4.772S.

Berkenkamp, J. (2006). "Making the farm/school connection: Opportunities and barriers to greater use of locally-grown produce in public schools." Department of Applied Economics, University of Minnesota, St. Paul/Minneapolis, MN. Retrieved from: https://lib.dr.iastate.edu/cgi/viewcontent.cgi?article=1153&context=leopold_pubspapers

Bevans, K. B., Sanchez, B. Teneralli R., & Forrest, C. B. (2011). "Children's eating behavior: the importance of nutrition standards for foods in schools." J Sch Health, 81(7): 424-429. doi: 10.1111/j.1746-1561.2011.00611.x

Bickel, G., Nord, M., Price, C., Hamilton, W., & Cook, J. (2000). "Guide to Measuring Household Food Security, Revised 2000." Alexandria, VA: US Department of Agriculture, Food and Nutrition Service. Retrieved from: https://fns-prod.azureedge.net/sites/default/files/FSGuide.pdf

Blumberg, S.J., Bialostosky, K., Hamilton, W. L., & Briefel, R. R. (1999). "The effectiveness of a short form of the Household Food Security Scale." Am J Public Health, 89, 1231–1234. doi: 10.2105/ajph.89.8.1231

Briefel,. R. R., Crepinsek, M. K., Cabili, C., & Wilson, A. (2018). "School Food Environments and Practices Affect Dietary Behaviors of US Public School Children." Journal of the American Dietetic Association, 109(2 Suppl):S91-107. doi: 10.1016/j.jada.2008.10.059

Brillinger, R., Ohmart, J., & Feenstra, G. (2003). "The Crunch Lunch Manual: A Case study of the Davis Joint Unified School District farmers market Salad Bar Pilot Program." Davis, California. University of California Sustainable Agriculture Research and Education Program. Retrieved from: http://www.farmtoschool.org/resources-main/the-crunch-lunch-manual-a-case-study-of-the-davis-joint-unified-school-district-farmers-market-salad

Broughton, M. A., Janssen, P., Hertzman, C., & Innis, S. M. (2006). "Predictors and outcomes of household food insecurity among inner city families with preschool children in Vancouver." Canadian Journal of Public Health, 97(3): 214-216. doi: 10.1007/BF03405588

Bublitz, M. G., Peracchio, L. A., Andreasen, Kees, J., Kidwell, B., Miller, E. G., Motley, C. M., Peter, P., Rajagopal, P., Scott, M. L., & Vallen, B. (2012). "The quest for eating right: Advancing food well-being." Journal of Consumer Research, 19, 1-7. Retrieved from: https://

www.researchgate.net/publication/266288368_The_Quest_for_Eating_Right_Advancing_Food_Well-being_AUTHORS

Cade, J.,Upmeier, H., Calvert, C., & Greenwood, D. (1999). "Cost of a healthy diet: Analysis from the UK Women's Cohort study." Public Health Nutrition, 2:505-12. doi:10.1017/s1368980099000683

Campbell, K., Waters, E., O'Meara, S., & Summerbell, C. (2001). "Interventions for preventing obesity in childhood. A Systematic review." Obesity reviews: an official journal of the International Association for the Study of Obesity, 2. 149-57. DOI: 10.1046/j.1467-789x.2001.00035.x

Canadian Dental Association (CDA). (2015). "Your oral health." Retrieved from: http://www.cda-adc.ca/en/oral_health/index.asp

Carbone, E. T., & Zoellner, J. M. (2012). "Nutrition and health literacy: a systematic review to inform nutrition research and practice." Journal of the Academy of Nutrition and Dietetics, 112(2), 254-265. doi: 10.1016/j.jada.2011.08.042

Cardwell, V. B. (2005). "Literacy: What Level for Food, Land, Natural Resources, and Environment?" Journal of Natural Resources and Life Sciences Education, 34, 112-117. Retrieved from: https://www.agronomy.org/files/jnrlse/issues/2005/e05-0014k.pdf

Center for Health Promotion and Disease Prevention. (2008-2009). "Farm to school evaluation toolkit." University of North Carolina at Chapel Hill. Center for Health Promotion and Disease Prevention. Retrieved from: https://www.cias.wisc.edu/wp-content/uploads/2011/09/8-evaluate-your-work.pdf

Centers for Disease Control and Prevention. (2004). "Obesity Still a Major Problem, New Data Show." Retrieved from: https://www.

cdc.gov/nchs/pressroom/04facts/obesity.htm

Chakravarthy M. V., & Booth F.W. (2003). "Inactivity and inaction: we can't afford either." Archives of Pediatrics and Adolescent Medicine, 157:731–732. doi: 10.1001/archpedi.157.8.731

Chomitz, V. R., McGowan, R. J., Wendel, J. M., Williams, S. A., Cabral, H. J., King, S. E., Olcott, D. B., Cappello, M., Breen, S., & Hacker, K. A. (2010). "Healthy Living Cambridge Kids: a community-based participatory effort to promote healthy weight and fitness." Obesity (Silver Spring), 18 Suppl 1: S45-53. doi: 10.1038/oby.2009.431

Clancy, K. (2006). "Greener Pastures: How Grass-fed Beef and Milk Contribute to Healthy Eating." Cambridge Union of Concerned Scientists. Retrieved from: https://www.agrireseau.net/bovins-boucherie/documents/greener-pastures.pdf

Cole, T. J., Belizzi, M. C., Flegal, K. M., & Dietz, W. D. (2000). "Establishing a standard definition for child overweight and obesity worldwide: international survey." BMJ 320, 1240–1243. Retrieved from: https://doi.org/10.1136/bmj.320.7244.1240

Dietary Guidelines Advisory Committee. (2015). "Scientific Report of the 2015 Dietary Guidelines Advisory Committee: Advisory Report to the Secretary of Health and Human Services and the Secretary of Agriculture." Department of Health and Human Services, Washington, DC. DOI: 10.3945/an.115.011684

Douglas, M. (1972). "Deciphering a meal." Daedalus, 61-81. Retrieved from https://www.jstor.org/stable/i20024053

Douglas, M., & Nicod, M. (1974). "Taking the biscuit: the structure

of British meals." New Society, 30(637), 744·747. Retrieved from https://web.stanford.edu/class/linguist62n/douglas001.pdf

Drewnowski, A., Rehm, C. D., & Constant, F. (2013). "Water and beverage consumption among children age 4–13y in the United States: analyses of 2005–2010 NHANES data." Nutrition Journal, 12(1):85. Retrieved from: https://nutritionj.biomedcentral.com/track/pdf/10.1186/1475-2891-12-85

Evers, T. (2008). "Building Skills for Health Literacy - Nutrition." Wisconsin Dep. of Public Instruction, Madison. Retrieved from: https://dpi.wi.gov/sites/default/files/imce/sspw/pdf/hehealthlit-nutrition.pdf

Faught, E. L., Williams, P. L., Willows, N.D., Asbridge, M., & Veugelers, P. J. (2017). "The association between food insecurity and academic achievement in Canadian school-aged children." Public Health Nutrition, 20(15), 2778-2785. doi:10.1017/S1368980017001562

Feenstra, G., & Ohmart, J. (2012). "The evolution of the school food and farm to school movement in the united states: Connecting childhood health, farms, and communities." Childhood Obesity, 8(4), 280-9. doi: 10.1089/chi.2012.0023.

Feenstra, G., Kim, J. V. S., Ohmart, J., Conner, D., & Abate, G. (2011). "School Food Learning Lab in Saint Paul, Minnesota: A Case Study of Procurement Change in Action." School Food Focus, a program of Public Health Solutions. Retrieved from: https://asi.ucdavis.edu/sites/g/files/dgvnsk5751/files/inline-files/SchoolFoodLearningLabStPaul_2011.pdf

Fleming P., & Paxton A. (2010). "Evaluation for Transformation: A Cross-Sectoral Evaluation Framework for Farm to School." Retrieved from: http://www.farmtoschool.org/Resources/Evalua-

tion_Transformation_FINAL-Web.pdf

Fonseca, H., Palmeira, A. L., Martins, S. C., Falcato, L., & Quaresma, A. (2014). "Managing pediatric obesity: a multidisciplinary intervention including peers in the therapeutic process." BMC Pediatrics, 14(89): 1-8. Retrieved from: https://bmcpediatr.biomedcentral.com/articles/10.1186/1471-2431-14-89

Food Nutrition Service. (2011). "National School Lunch Program. School Food Service Account Revenue Amendments Related to the Healthy, Hunger-Free Kids Act of 2010." Retrieved from: https://www.federalregister.gov/documents/2011/06/17/2011-14926/national-school-lunch-program-school-food-service-account-revenue-amendments-related-to-the-healthy

Freedman, D. S., Khan, L. K., Serdula, M. K., Dietz, W. H., Srinivasan, S. R., & Berenson, G. S. (2005). "The relation of childhood BMI to adult adiposity: The Bogalusa Heart Study." Pediatrics, January, 115:2227. DOI: 10.1542/peds.2004-0220

Government of Canada. (n.d.). "Canada's Food Guide-Healthy Eating Resources." Retrieved from: https://food-guide.canada.ca/en/healthy-eating-resources/

Government of Canada. (n.d.). "History of Canada's Food Guides from 1942 to 2007." Retrieved from: https://www.canada.ca/en/health-canada/services/canada-food-guide/about/history-food-guide.html

Gregoire, M. B., & Strohbehn, C. (2002). "Benefits and obstacles to purchasing food from local growers and producers." Journal of Child Nutrition and Management, 26(1), Retrieved from:

https://schoolnutrition.org/uploadedFiles/5_News_and_Publications/4_The_Journal_of_Child_Nutrition_and_Management/Spring_2002/7-gregoire.pdf

Gundersen, C., & Ziliak, J. P. (2015). "Food insecurity and health outcomes." Health Aff (Millwood) 34(11), 1830–1839. doi: 10.1377/hlthaff.2015.0645

Harris, Diane M., Seymour, J., Grummer-Strwan, L., Cooper, A., Collins, B., DiSogra, L., Marshall, A., & Evans, N. (2012). "Let's move salad bars to schools: a public-private partnership to increase student fruit and vegetable consumption." Childhood Obesity (Formerly Obesity and Weight Management), 8.4, 294-297. doi: 10.1089/chi.2012.0094

Hay, D. I. (2000). "School-based Feeding Programs A GOOD CHOICE FOR CHILDREN?" Retrieved from: https://foodsecurecanada.org/sites/foodsecurecanada.org/files/hay_-_2000.pdf

Hedley, A. A., Ogden, C. L., Johnson, C. L., Carroll, M. D., Curtin, L. R., & Flegal, K. M. (2004). "Prevalence of overweight and obesity among US children, adolescents, and adults, 1999–2002." JAMA, 291:2847–2850. doi: 10.1001/jama.291.23.2847

Institute of Medicine. (2005). "Preventing Childhood Obesity: Health in the Balance." Washington, DC: The National Academies Press. doi: 10.17226/11015

Izumi, B. T., Alaimo, K., & Hamm, M. W. (2010). "Farm-to-school programs: perspectives of school food service professionals." J Nutr Educ Behav, 42(2): 83-91. doi: 10.1016/j.jneb.2008.09.003

Izumi, B. T., O. S. Rostant, Moss M. J., & Hamm, M. W. (2006). "Results from the 2004 Michigan Farm-to-School Survey." J Sch Health,

76(5): 169-174. doi:10.1111/j.1746-1561.2006.00090.x

Joint Consortium for School Health. (n.d.). "Comprehensive School Health framework." Retrieved from: https://www.jcsh-cces.ca/about-us/comprehensive-school-health-framework/

Joshi, A., & Azuma, A. M. (2009). "Bearing fruit: farm-to-school program evaluation resources and recommendations". Retrieved from: http://www.farmtoschool.org/Resources/Bearing_Fruit.pdf

Joshi, A., & Beery, M. (2007). "A growing movement: A decade of farm to school in California." Center for Food & Justice, The Urban & Environmental Policy Institute, Occidental College, 1-31. Retrieved from: https://scholar.oxy.edu/cgi/viewcontent.cgi?article=1381&context=uep_faculty

Joshi, A., Beery, M., & Kalb, M. (2006). "Going Local: Paths to Success for Farm to School Programs." Occidental College, Urban and Environmental Policy Institute, Center for Food and Justice, National Farm to School Program: Los Angeles, CA. Retrieved from: http://www.nhfarmtoschool.org/uploads/5/9/6/5/5965715/goinglocal.pdf

Kaiser, L. L., & Townsend, M. S. (2005). "Food Insecurity Among US Children: Implications for Nutrition and Health. "Topics in Clinical Nutrition, 20: 313–320. Retrieved from: DOI: 10.1097/00008486-200510000-00004

Kanekar A., & Sharma M. (2008). "Meta-analysis of school-based childhood obesity interventions in the U.K. and U.S." Int Q Community Health Educ, 29:241–56. doi: 10.2190/IQ.29.3.d

Kaplan, S. L. (2006). "Good bread is back: a contemporary History of French bread, the way itis made, and the people who make it."

Duke University Press. ISBN: 0822338335

Karnik, S., & Kanekar, A. (2012). "Childhood Obesity: A Global Public Health Crisis." International Journal of Preventive Medicine, 3(1), 1–7. Retrieved from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3278864/

Katzmarzyk, P.T., & Ardern, C. I. (2004). "Overweight and Obesity Mortality Trends in Canada, 1985-2000," Canadian Journal of Public Health, 95: pp. 16-20. Available at: https://www.jstor.org/stable/41993755?seq=1

Kiekbusch, I. (2004). "Improving Health Literacy-A key priority for enabling good health in Europe." Paper presented at the European Health Forum Gastein. Retrieved from: https://www.infosihat.gov.my/images/Bahan_Rujukan/He_Ict/Improving_Health_literacy.pdf

Kiekbusch, I. (2008). "Health literacy: an essential skill for the twenty-first century." Health Education, 108(2), 101-104. doi: 10.1108/09654280810855559

Kiekbusch. I. S. (2008). "Health Literacy: addressing the health and education divide." In: Health Promotion International, 16(3), 289-297. doi: 10.1093/heapro/16.3.289

Kim, S., Haines, P. S., Siega-Riz, A. M., & Popkin, B. M. (2003). "The Diet Quality Index-International (DQI-I) provides an effective tool for cross-national comparison of diet quality as illustrated by China and the United States." J Nutr, 133, 3476–3484. doi: 10.1093/jn/133.11.3476

Kimura, A. H. (2010). "Food education as food literacy: privatized and gendered food knowledge in contemporary Japan." Agriculture and Human Values, 28(4), 465-482. DOI: 10.1007/s10460-010-

9286-6

Kirkpatrick, S. I., & Tarasuk, V. (2008). “Food insecurity is associated with nutrient inadequacies among Canadian adults and adolescents.” Journal of Nutrition, 138, 604-612. doi: 10.1093/jn/138.3.604

Krauss, R. M., Winston, M., Fletcher, B. J., & Grundy, S. M. (1998). “Obesity impact on cardiovascular disease.” Circulation, 98.14 (1998): 1472-1476. Retrieved from: https://www.ncbi.nlm.nih.gov/pubmed/9760304

Krebs-Smith, S. M., Guenther, P. M., Subar, A. F., Kirkpatrick, S. I., & Dodd, K. W. (2010). “Americans Do Not Meet Federal Dietary Recommendations.” Journal of Nutrition, 140:1832–1838. doi: 10.3945/jn.110.124826

Kulick, M. (2005). “Healthy Food, Healthy Hospitals, Healthy Communities.” Institute for Agriculture and Trade Policy. Retrieved from: https://www.iatp.org/sites/default/files/258_2_72927.pdf

Lifshitz F. (2008). “Obesity in Children.” Journal of Clinical Research in Pediatric Endocrinology. 1(2):53-60. doi:10.4008/jcrpe.v1i2.35.

Lifshitz, F. (2002). “Commentary: Soft drinks replacing healthier alternatives in American diet.” AAP News. 20:36–37.

Markey, C. N. (2010). “Invited Commentary: Why Body Image is Important to Adolescent Development.” J Youth Adolescence, 39, 1387–1391. Retrieved from: https://doi.org/10.1007/s10964-010-9510-0

Marmot, M (2005). “Social determinants of health inequalities.” Lancet ,365, (9464), 1099–1104. doi: 10.1016/S0140-6736(05)71146-6

McAleese, J. D., & Rankin, L. L. (2007). "Garden-based nutrition education affects fruit and vegetable consumption in sixth-grade adolescents." Journal of the American Dietetic Association, 107:662-665. doi: 10.1016/j.jada.2007.01.015

McBride, B. B., Brewer, C. A., Berkovitz, A. R., & Borrie, W. T. (2013). "Environmental literacy, ecological literacy, ecoliteracy: What do we mean and how did we get here?" Ecosphere, 4(5), art67. Retrieved from: https://doi.org/10.1890/ES13-00075.1

McCullum, C., Desjardins, E., Kraak, V. I., Lapido, P., & Costello, H. (2005). "Evidence-based strategies to build community food security." Journal of the American Dietetic Association, 105(2), 278-283. doi: 10.1016/j.jada.2004.12.015

McMartin, S.E., Willows, N.D., Colman, I., Ohinmaa, A., Sroey, K., & Veugelers, P. J. (2013). "Diet Quality and Feelings of Worry, Sadness or Unhappiness in Canadian Children." Revue Canadienne De Santé Publique, 104(4). Canadian Public Health Association. Retrieved from: https://era.library.ualberta.ca/items/20f4d2ac-4d23-4ecc-930f-16e38356b6cc/download/26ef4566-ebba-4e93-924b-bfb-f4b83b213

Meyers, A. F., Sampson, A. E., Weitzman, M., Rogers, B. L., & Kayne, H. (1989). "School breakfast program and school performance." American Journal of Diseases of Children, 143, 1234-1239. DOI: 10.1001/archpedi.1989.02150220142035

Mikkonen, J., & Raphael, D. (2010). "Social Determinants of Health: The Canadian Facts." Toronto: York University School of Health Policy and Management. Retrieved from https://www.thecanadianfacts.org

Mond, J., van den Berg, P., Boutelle, K., Hannan, P., & Neumark-Stain-

er, D. (2011). “Obesity, Body Dissatisfaction, and Emotional Well-Being in Early and Late Adolescence: Findings from the Project EAT Study.” Journal of Adolescent Health, 48(4): 373-378. doi: 10.1016/j.jadohealth.2010.07.022

Nanney, M. S., Johnson, S., Elliot, M. B., & Haire-Joshu, D. (2007). “Frequency of eating homegrown produce is associated with higher intake among parents and their preschool-aged children in rural Missouri.” J Am Diet Association, 107(4): 577-584. doi: 10.1016/j.jada.2007.01.009

National Sleep Foundation. (2015). “Children and Sleep.” Retrieved from: http://sleepfoundation.org/sleep-topics/children-and-sleep

Nazarea, V. D. (2006). “Cultural memory and biodiversity.” University of Arizona Press.

Ng, S.-L., Bednar, C., & Longley, C. (2010). “Challenges, benefits and strategies of implementing a farm-to-cafeteria program in college and university foodservice.” Journal of Foodservice Management & Education, 4(1), Pages 22-27. Retrieved from: https://www.fsmec.org/wp-content/uploads/2011/09/NgBednarLongley2010.pdf

Ogden, C., & Carroll, M. (2010). “Prevalence of obesity among children and adolescents: United States, trends 1963-1965 through 2007-2008.” Centers for Disease Control and Prevention, National Center for Health Statistics. Retrieved from: https://www.cdc.gov/nchs/data/hestat/obesity_child_07_08/obesity_child_07_08.pdf

Ohmart, J. (2002). “Direct Marketing to Schools—A New Opportunity for Family Farmers.” UC Sustainable Agriculture Research and Education Program, Davis, Calif. Retrieved from: https://asi.ucda-

vis.edu/sites/g/files/dgvnsk5751/files/inline-files/DirectMarketing_Schools_2002_1.pdf

Olshansky, S.J., Passaro, D. J., Hershow, R. C., Layden, J., Carnes, B. A., Brody, J., Hayflick, L., Butler, R. N., Allison, D. B., & Ludwig, D. S. (2005). "A potential decline in life expectancy in the United States in the 21st century." New England Journal of Medicine, 352:1138–1145. doi: 10.1056/NEJMsr043743

Padyani, P., Kanetkar, V., Varangu, L., Wylie-Toal, B., & Blay-Palmer, A. (2013). "Report on Food Provision in Ontario's Hospitals and Long-Term Care Facilities: The Challenges and Opportunities of Incorporating Local Foods." Report for the University of Guelph/Ontario Ministry of Agriculture, Food and Rural Affairs Partnership. Retrieved from: https://www.greenhealthcare.ca/Coalition-OMAFRA-Summary.pdf

Peeters, A., Barendregt, J. J., Willekens, F., Mackenbach, J. P., Al Mamun, A., Bonneux, L., & NEDCOM-the Netherlands Epidemiology and Demography Compression of Morbidity Research Group. (2003). "Obesity in adulthood and its consequences for life expectancy: a life-table analysis." Ann Intern Med, 2003; 138:24–32. doi: 10.7326/0003-4819-138-1-200301070-00008

PROOF: Food Security Policy Research. (n.d.). "Household Food Insecurity in Canada." Retrieved from: http://proof.utoronto.ca/food-insecurity/

Public Health Agency of Canada and Canadian Institute for Health Information. (2011). "Obesity in Canada." Retrieved from: https://secure.cihi.ca/free_products/Obesity_in_canada_2011_en.pdf

Public Health Association of British Columbia. (2012). "Farm to Cafeteria: BC Communities Share Paths to Success." Retrieved from:

https://phabc.org/wp-content/uploads/2015/08/F2C-PathsTo-Success-singles-web.pdf

Ralston, K., J., Buzby, J., & Guthrie, J. (2003). "A healthy school meal environment food assistance research brief." Food Assistance and Nutrition Research Report, USDA. Retrieved from: https://pdfs.semanticscholar.org/6c1a/aa7e545d34deb402ba47e50f-fb986df83750.pdf

Rao, D. P., Kropak, E., Do, M. T., Roberts, K. C., & Jayaraman, G. C. (2016). "Childhood overweight and obesity trends in Canada." Health Promotion and Chronic Disease Prevention in Canada: Research, Policy and Practice, 36(9), 194–198. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5129778/

Reedy, J., & Krebs-Smith, S. M. (2010). "Dietary Sources of Energy, Solid fats, and Added Sugars Among Children and Adolescents in the United States." Journal of the American Dietetic Association, 110: 1477–1484. doi: 10.1016/j.jada.2010.07.010.

Richard, J. (2017). "One in Five Canadian Children are at Risk of Going Back to School Hungry." Toronto Sun. Retrieved from: http://torontosun.com/2017/08/31/one-in-five-canadian-children-are-at-risk-of-going-back-to-school-hungry/wcm/83c958d8-ff33-44cc-b368-0f183a3bd5eb

Rickman, J. C., Barrett, D. M., & Bruhn, C. M. (2007). "Nutritional comparison of fresh, frozen and canned fruits and vegetables." Journal of the Science of Food and Agriculture, 87:930-944. Retrieved from: http://ucce.ucdavis.edu/files/datastore/234-779.pdf

Slusser, W. M, Cumberland, W. G., Browdy, B. L., Lange, L., & Neumann, C. (2007). "A school salad bar increases frequency of fruit and vegetable consumption among children living in

low-income households." Public Health Nutrition. doi: 10.1017/S1368980007000444

Somerset, S., & Markwell, K. (2009). "Impact of a school-based food garden on attitudes and identification skills regarding vegetables and fruit: a 12-month intervention trial." Public Health Nutrition, 12.02: 214-221. doi: 10.1017/S1368980008003327.

Sriram, U., & Tarasuk, V. (2015). "Changes in household food insecurity rates in Canadian metropolitan areas from 2007 to 2012." Can J Public Health, 106, e322–e327. doi: 10.17269/cjph.106.4893.

Stone, M. K, & Barlow, Z. (2009). "Smart by Nature: Schooling for Sustainability." The Center for Ecoliteracy, 1st ed. Healdsburg, CA: Watershed Media. Pp. 3–15, 122–127. Retrieved from: https://www.ecoliteracy.org/sites/default/files/uploads/shared_files/ecoliteracy-post-carbon-reader2010.pdf

Story, M., Neumark-Sztainer, D., Perry, C. L., & Larson, N. I. (2006). "Food preparation by young adults is associated with better diet quality." Journal of the American Dietetic Association, 106(12): 2001-2007. 35. doi: 10.1016/j.jada.2006.09.008

The Food Trust. (2007). "Kindergarten Initiative Evaluation Report, February 2007." Philadelphia, PA. Retrieved from: http://www.centertrt.org/content/docs/Intervention_Documents/Intervention_Materials/Kindergarten_Initiative/KI_Evaluation/2006-200__KI_Evaluation__Report.pdf

Tropp, D., & Olowolayemo, S. (2000). "How Local Farmers and School Food Service Buyers Are Building Alliances." Washington, DC: United States Department of Agriculture, Agricultural Marketing Ser-

vice. Retrieved from: https://files.eric.ed.gov/fulltext/ED450983.pdf

UNESCO Institute for Statistics. (2013). “Toward universal learning: What every child should learn.” Centre for Universal Education at Brookings. Retrieved from: https://www.brookings.edu/wp-content/uploads/2016/06/LMTFRpt1TowardUnivrslLearning.pdf

United States Department of Agriculture, National Agricultural Statistics Service. (1997). “Usual Planting and Harvesting Dates for U.S. Field Crops.” Retrieved from: https://swat.tamu.edu/media/90113/crops-typicalplanting-harvestingdates-by-states.pdf

United States Department of Agriculture. (2016). “Results from the 2015 USDA Farm to School Census.” Retrieved from: https://content.govdelivery.com/accounts/USFNS/bulletins/13cbf51

United States Department of Agriculture. (n.d.). “What is my plate?” Retrieved from ChooseMyPlate.gov: https://www.choosemyplate.gov/MyPlate

United States Department of Health and Human Services and US Department of Agriculture. (2015). “2015–2020 Dietary Guidelines for Americans.” 8th Edition. Retrieved from: http://health.gov/dietaryguidelines/2015/guidelines/.

Vaisman,N., Voet, H., Akivis, A., & Vakil, E. (1996). “Effect of breakfast timing on the cognitive functions of elementary school students.” Archives of Pediatric and Adolescent Medicine, 150. doi: 10.1001/archpedi.1996.02170350091016

Vallianatos, M., Gottlieb, R., & Haase, M. A. (2004). “Farm-to-school strategies for urban health, combating sprawl, and establishing a community food systems approach.” Journal of Planning Edu-

cation and Research, 23.4: 414-423. Retrieved from: https://doi.org/10.1177/0739456X04264765

Vermont Feed. (n.d.). "Connecting Classrooms, Cafeterias & Communities: A Guide to Building Integrated Farm to School Programs." Retrieved from: https://vtfeed.org/resources/connecting-classrooms-cafeterias-communities-guide-building-integrated-farm-school

Vogt, R. A., & Kaiser, L. L. (2006). "Perceived barriers and proposed solutions to farm-to-school programs in California." Journal of Nutrition Education and Behavior, 38(4): S50.

Vogt, R. A., & Kaiser, L. L. (2008). "Still a time to act: a review of institutional marketing of regionally grown food." Agriculture and Human Values, 25: 241-255. Retrieved from: https://doi.org/10.1007/s10460-007-9106-9

Waters, E., de Silva-Sanigorski, A., Hall, B. J., Brown, T., Campbell, K. J., Gao, Y., Armstrong, R., Prosser, L. & Summerbell, C. D. (2011). "Interventions for preventing obesity in children." Cochrane Database of Systematic Reviews, (12). Art. No.: CD001871. doi: 10.1002/14651858.CD001871.pub3.

Wesnes K. A., Pincock C., Richardson, D., Helm, G., & Hails, S. (2003). "Breakfast reduces declines in attention and memory over the morning in school children." Appetite, 41(3):329-31. doi: 10.1016/j.appet.2003.08.009

White House Task Force on Childhood Obesity. (2010). "Solving the problem of childhood obesity within a generation." Technical Report. Retrieved from: https://letsmove.obamawhitehouse.ar-

chives.gov/sites/letsmove.gov/files/TaskForce_on_Childhood_Obesity_May2010_FullReport.pdf

Wilkins, J., Mouillesseaux-Kunzman, H., Graham, M., Bacelli, B., & Goodsell, M. (2007). "Farm to School in the Northeast: Making the Connection for Healthy Kids and Healthy Farms: A Toolkit for Extension Educators and other Community Leaders." Cornell Farm to School Program, NY Farms!, and the New York School Nutrition Association: Ithaca, NY, Retrieved from: https://www.realfoodchallenge.org/resources/implementation-product-shift-resources/farm-to-school-toolkit-for-the-northeast/

Willett, W. (2013). Nutritional Epidemiology. 3rd Edition. New York: Oxford University Press. Google Scholar | PubMed. ISBN: 9780199754038.

World Food Programme. (2013). "2013-State of School Feeding Worldwide." World Food Programme. Retrieved from: https://documents.wfp.org/stellent/groups/public/documents/communications/wfp257481.pdf?_ga=2.121013384.1000053876.1582936648-2081653439.1582936648

World Health Organization. (1998). "WHO Information Series on School Health - Document 4 - Healthy Nutrition: An Essential Element of a Health-Promoting School." Retrieved from: https://apps.who.int/iris/bitstream/handle/10665/63907/WHO_HPR_HEP_98.3.pdf?sequence=1&isAllowed=y

World Health Organization. (2003). "Diet, nutrition and the prevention of chronic diseases." Report of the Joint WHO and FAO Expert Consultation. WHO technical report series 916, 1-60. Retrieved from: https://apps.who.int/iris/bitstream/handle/10665/42665/WHO_TRS_916.pdf;jsessionid=2485847DA7BBB1F3378B1568633BF3DA?sequence=1

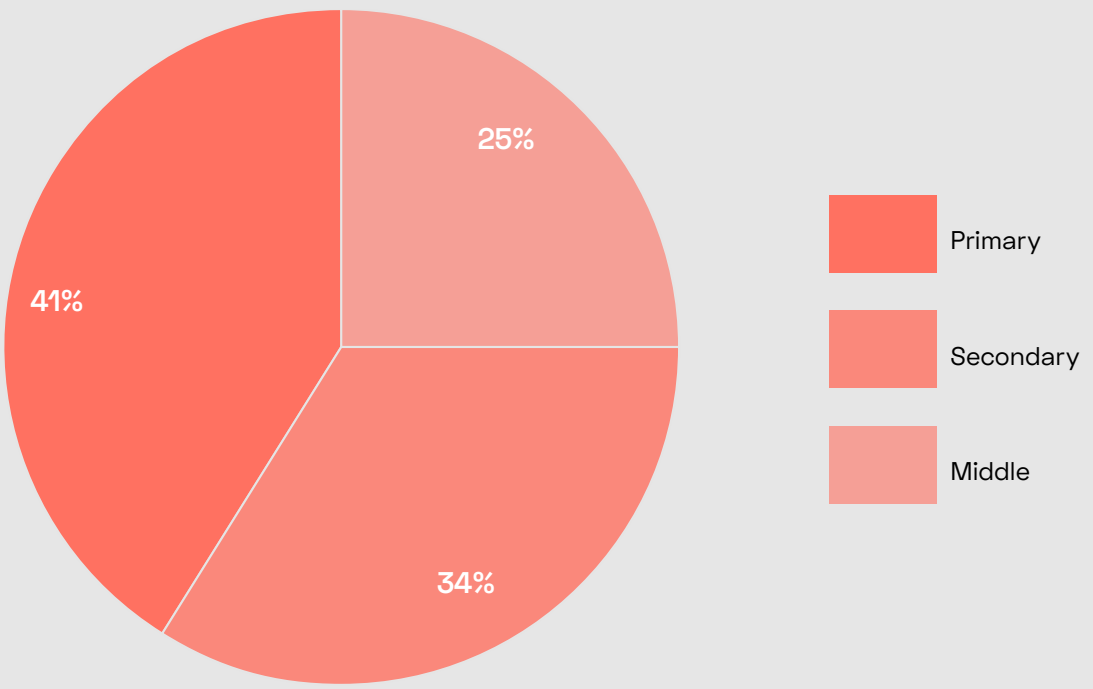
World Health Organization. (2009). “Interventions on diet and physical activity: what works: summary report.” Geneva: World Health Organization. Retrieved from: https://apps.who.int/iris/bitstream/handle/10665/44140/9789241598248_eng.pdf?sequence=1

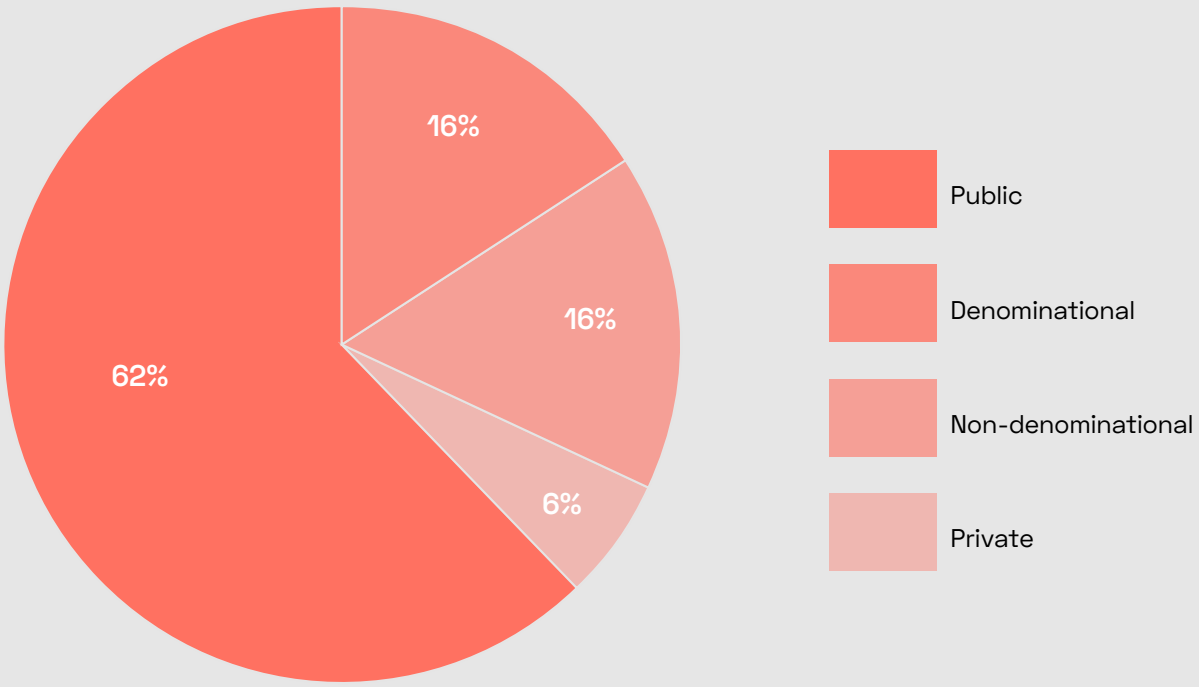
Wu, X. Y., Ohinmaa, A., & Veugelers, P. J. (2012). “Diet quality, physical activity, body weight and health-related quality of life among grade 5 students in Canada.” Public Health Nutrition, Jan;15(1):75-81. Retrieved from: https://doi.org/10.1017/S1368980011002412

# Appendices

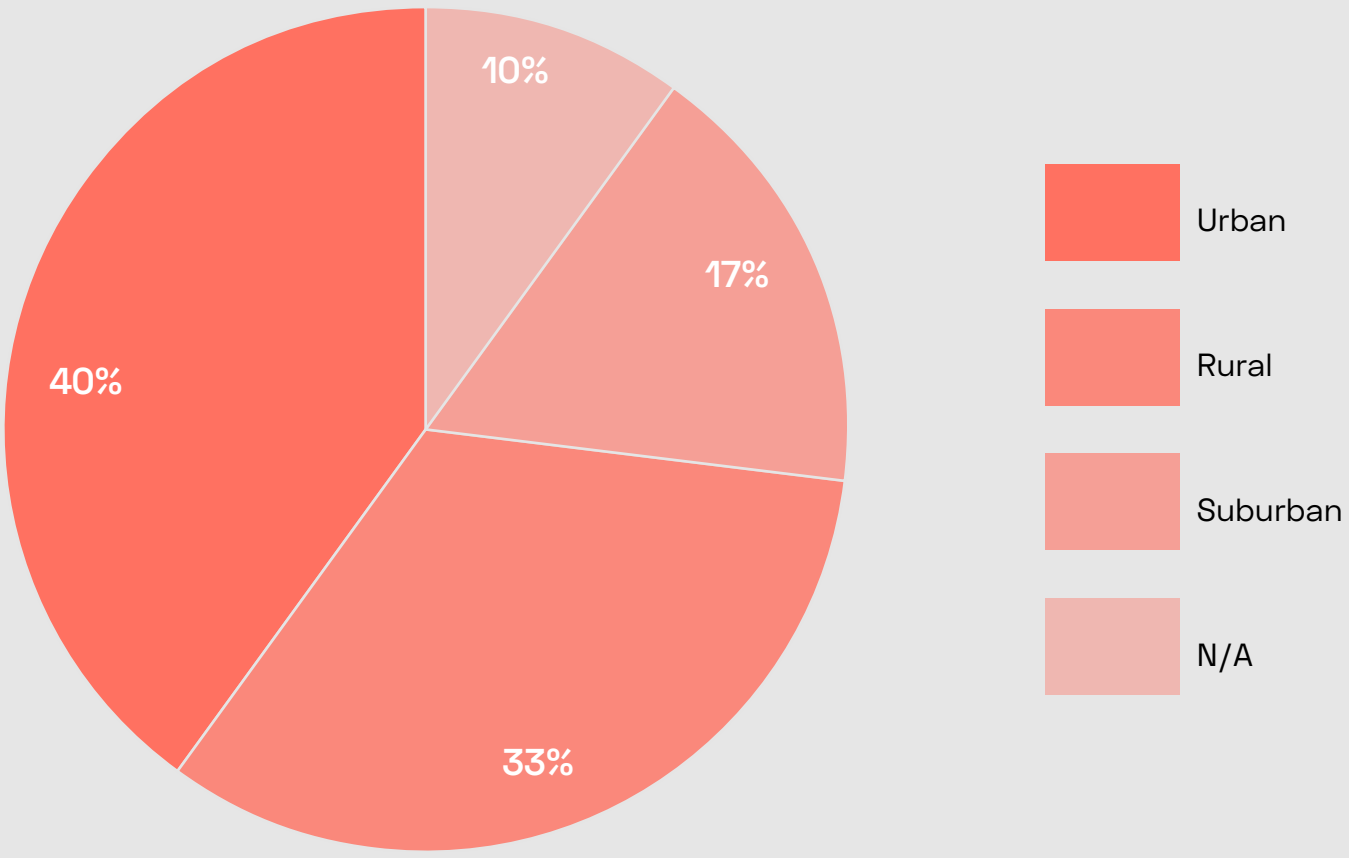
# Appendix 1
# Survey Charts & Comments SSHRC Survey Charts & Analysis Aug 2019 (complete set)

## Q #1 What is your school type?

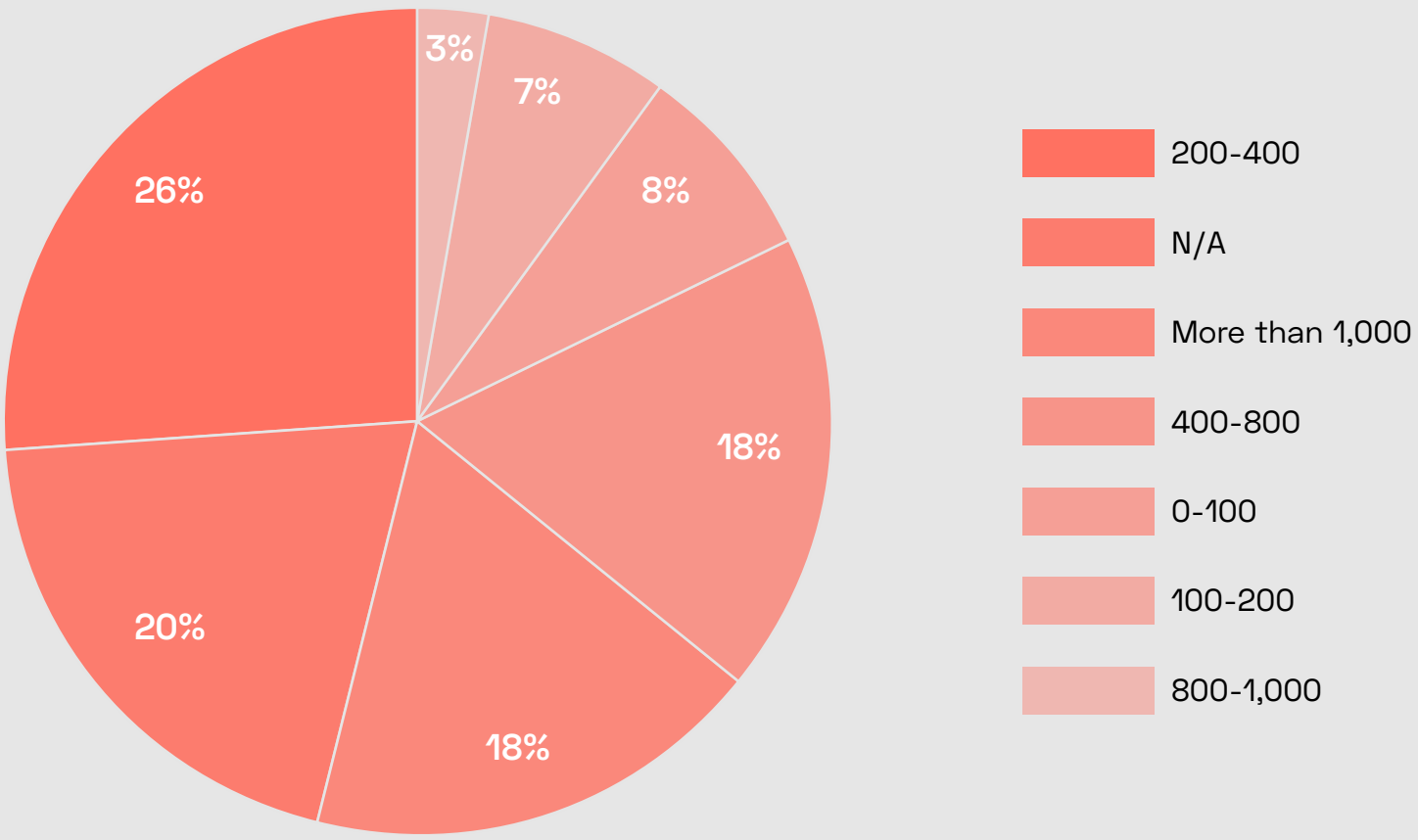


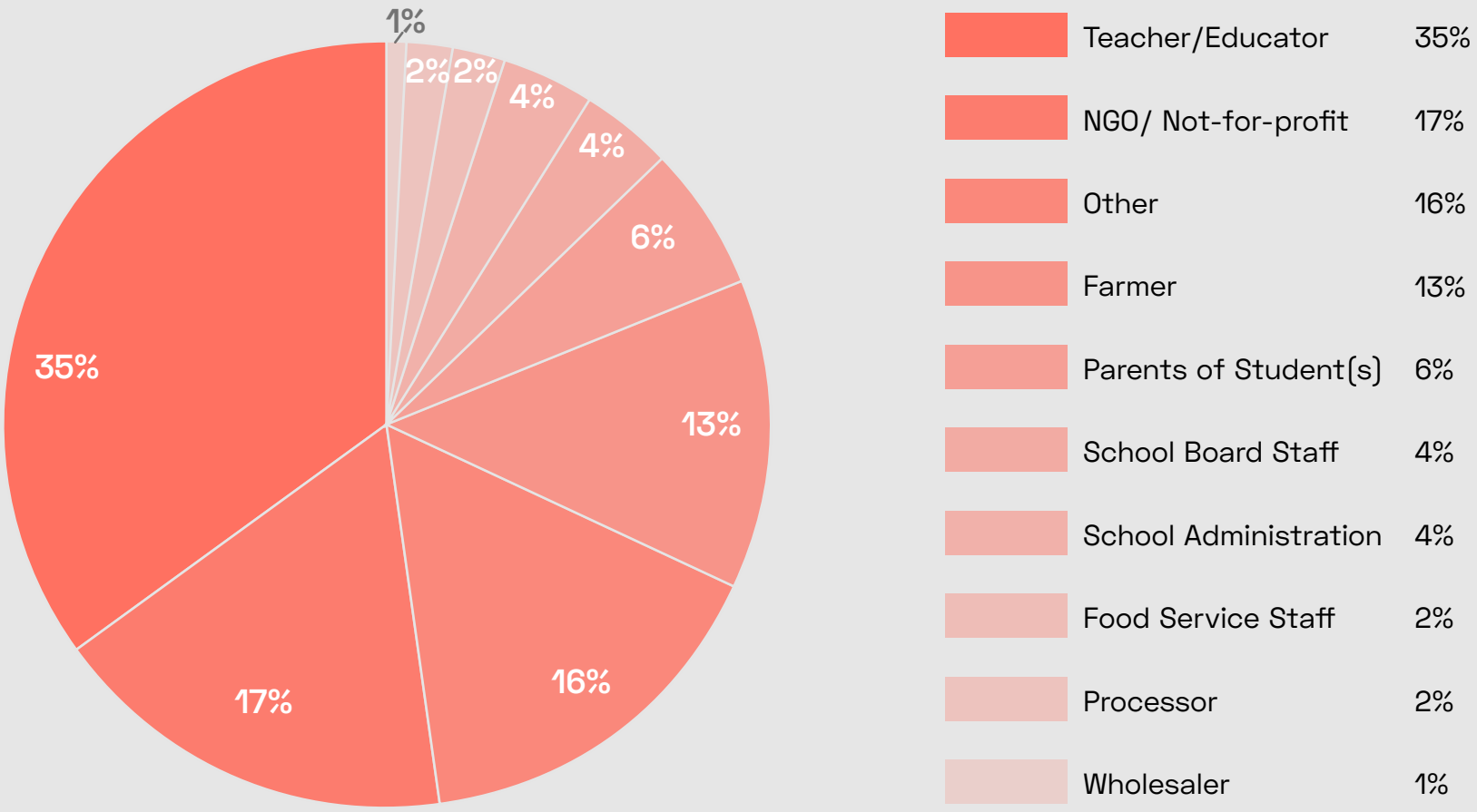
## Q #2 What type of setting is your school in?



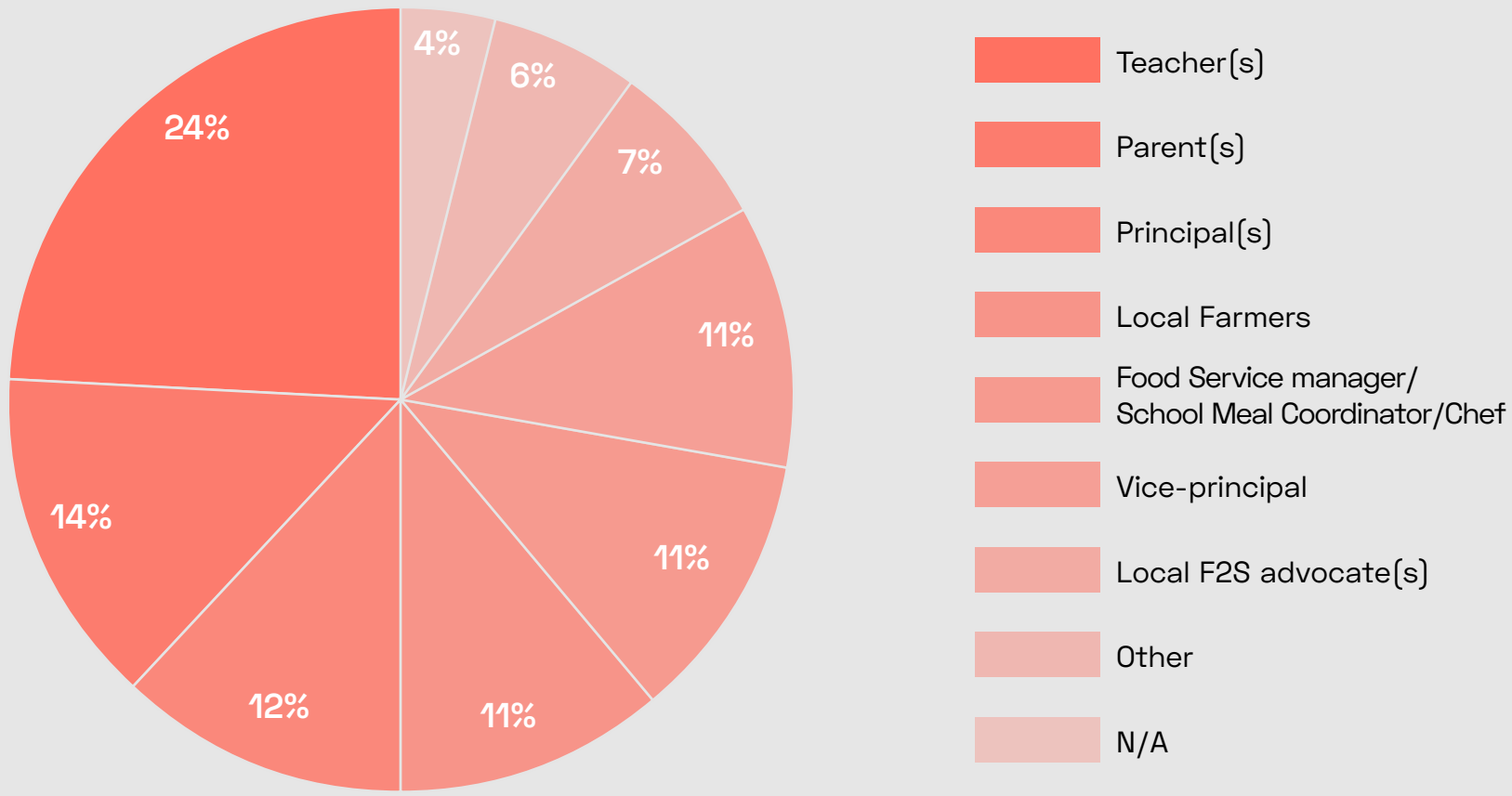

## Q #3 How many students are enrolled at your school?



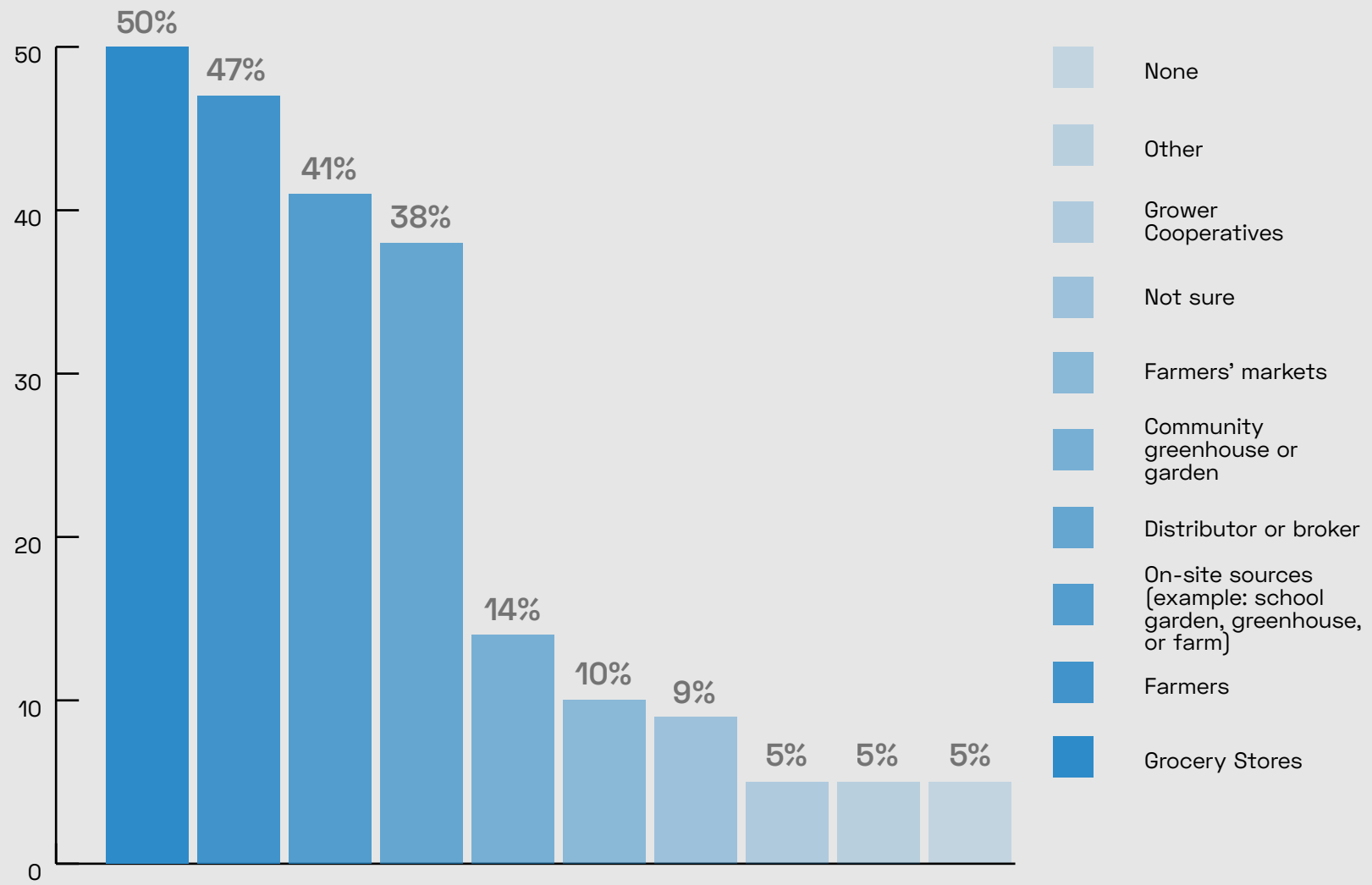
## Q #4 What is your role with Farm to School?



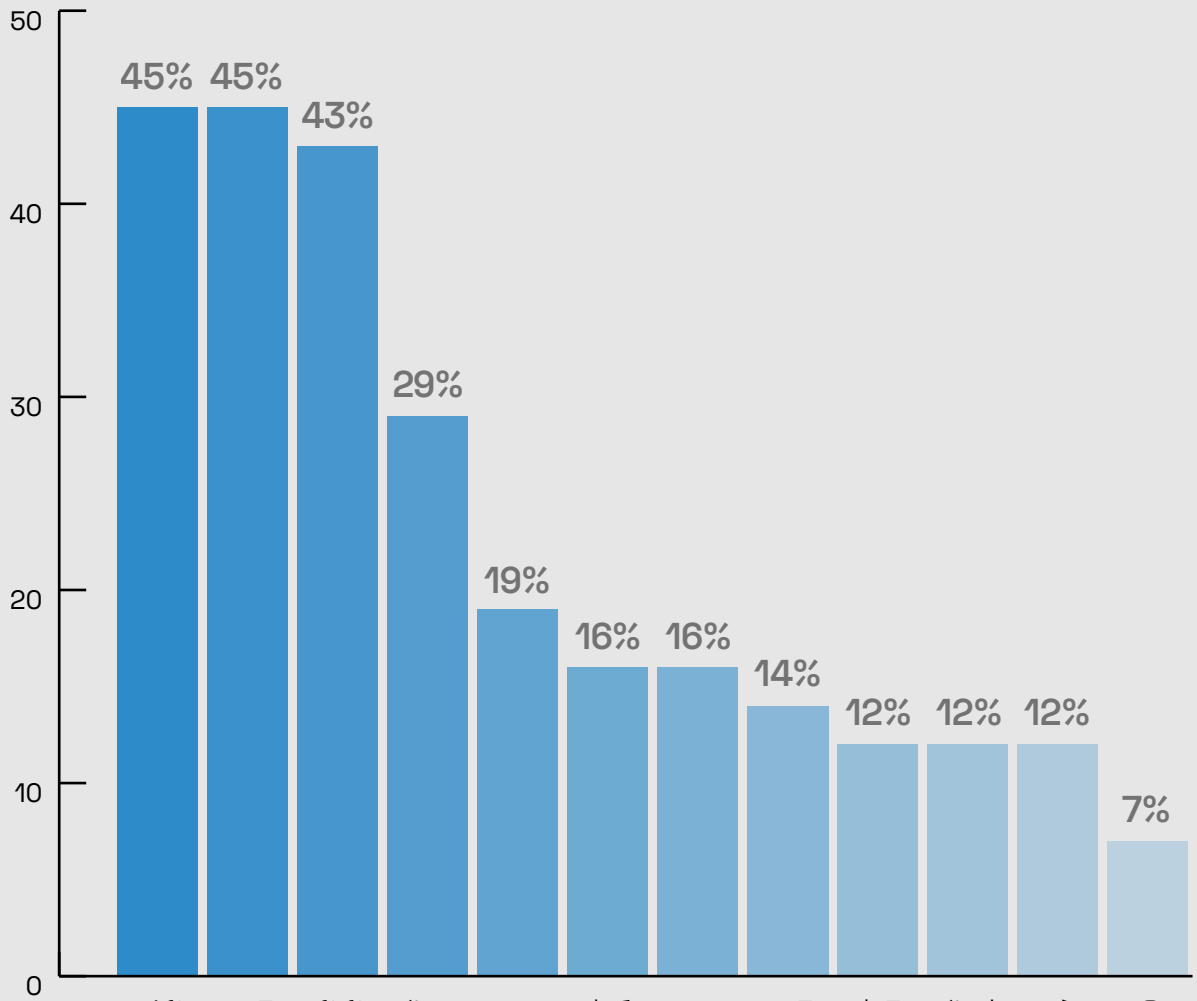

## Q #5 Who are the F2s champions at your school?



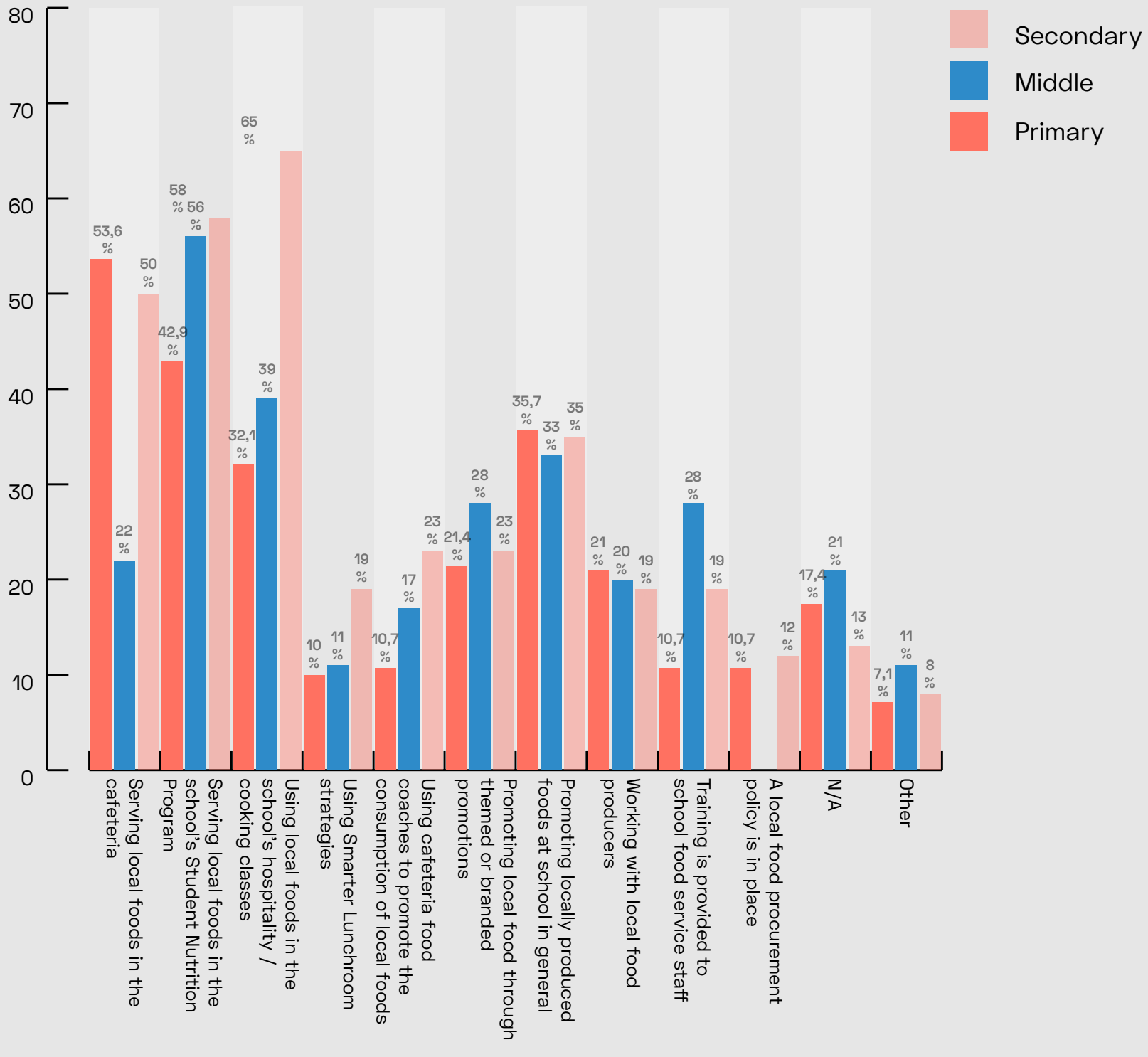
# Q #6 What sources provide local food for your school (if any)?



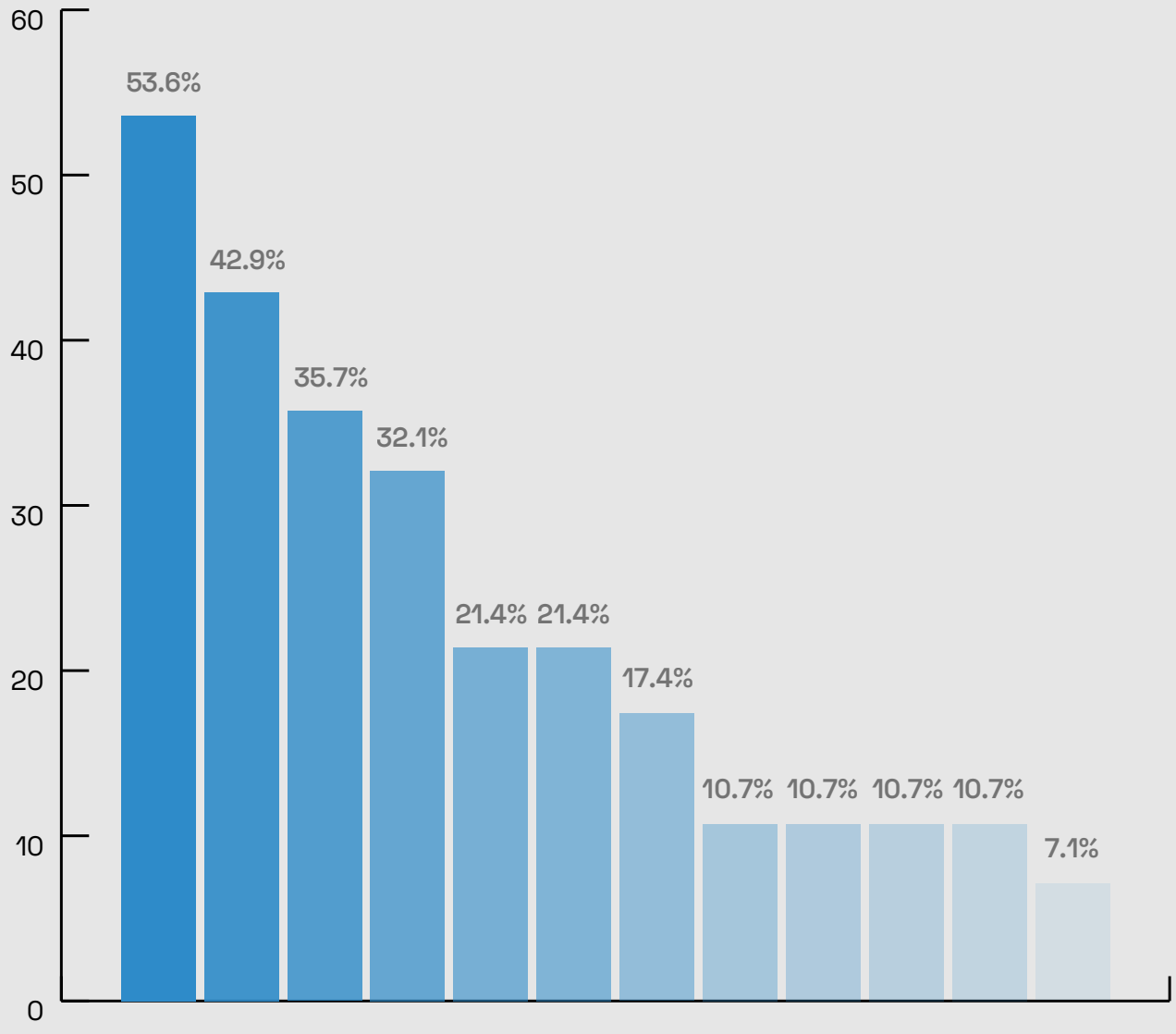
# Q #7 What local food activities do you undertake to procure or provide local food in your school?



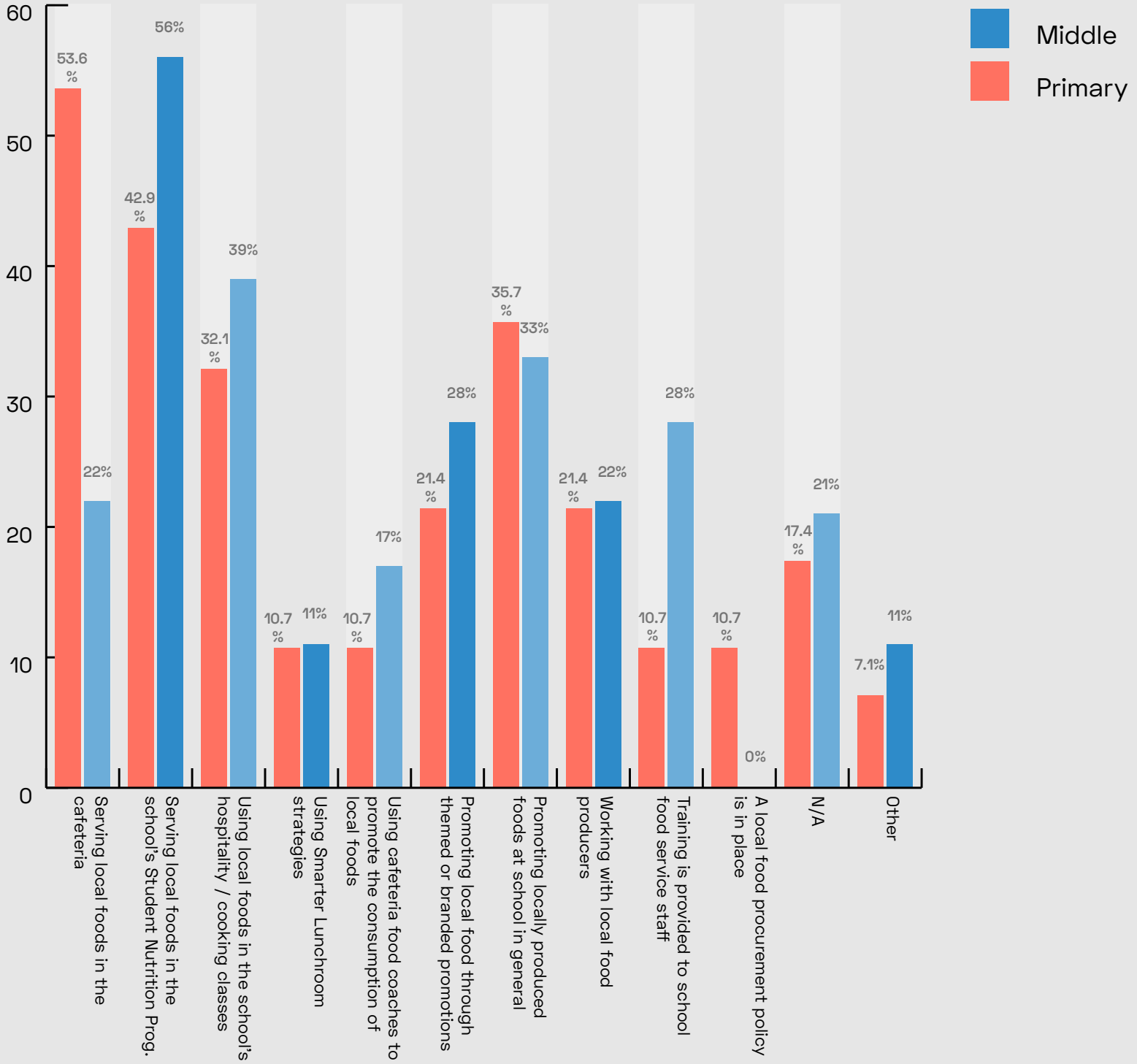
# Q #7a Local Food Activities by School Type



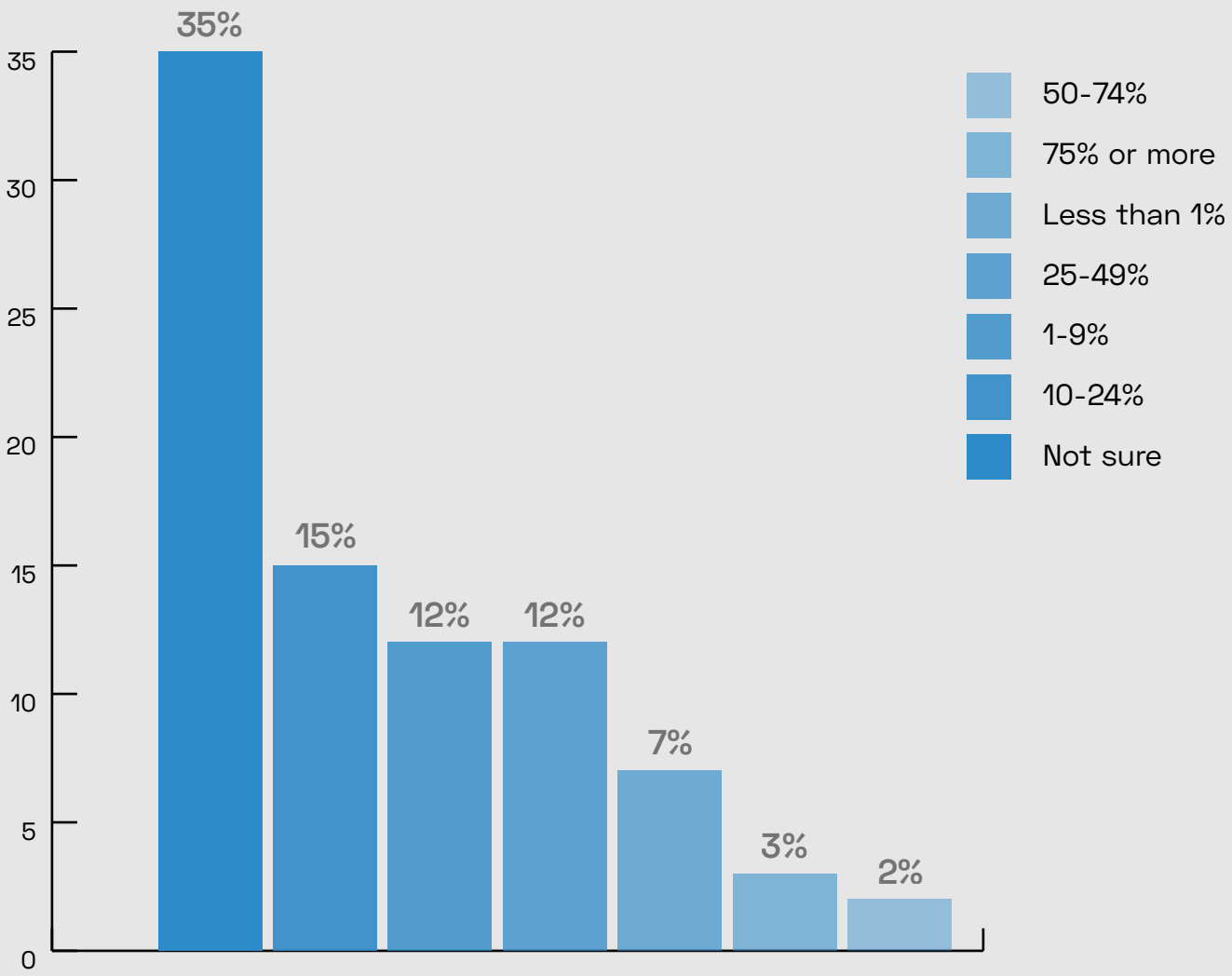
# Q #7b Primary School Local Food Activities



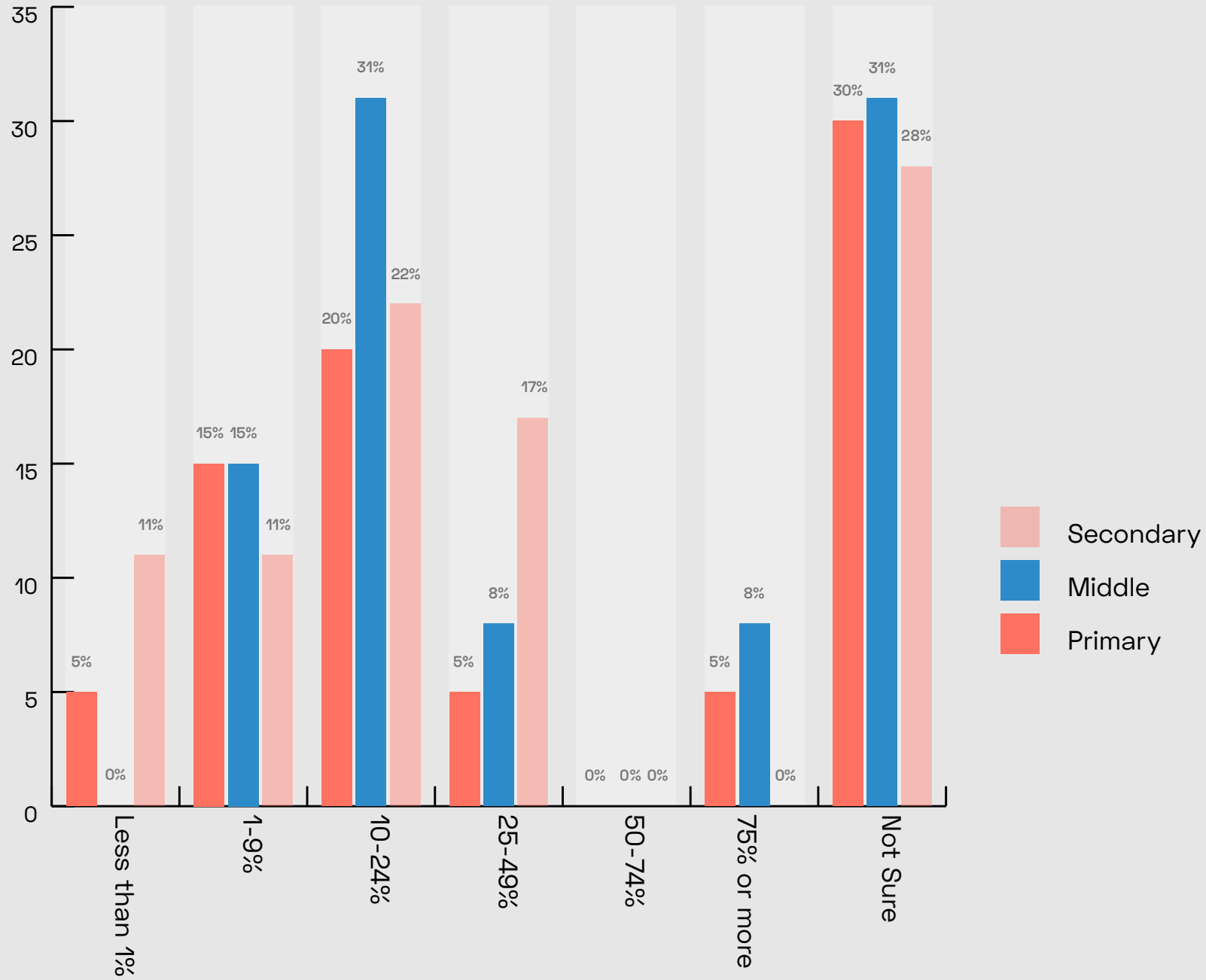
# Q #7c Local Food Activities by School Type, Primary & Middle School



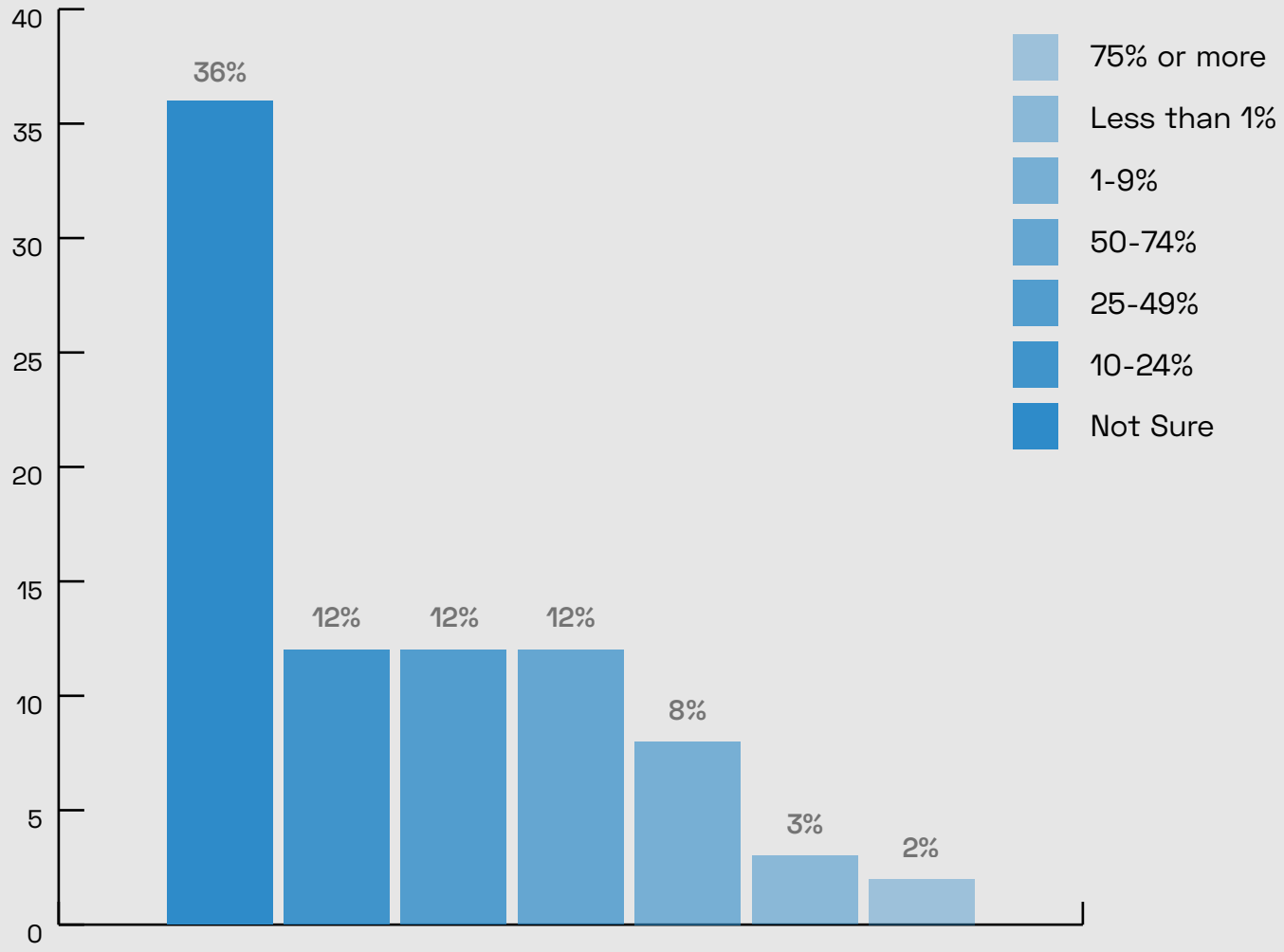
# Q #8 Please estimate what percentage of your school's total annual food budget is spent on food grown and processed within 150 km or 100 miles of your school.



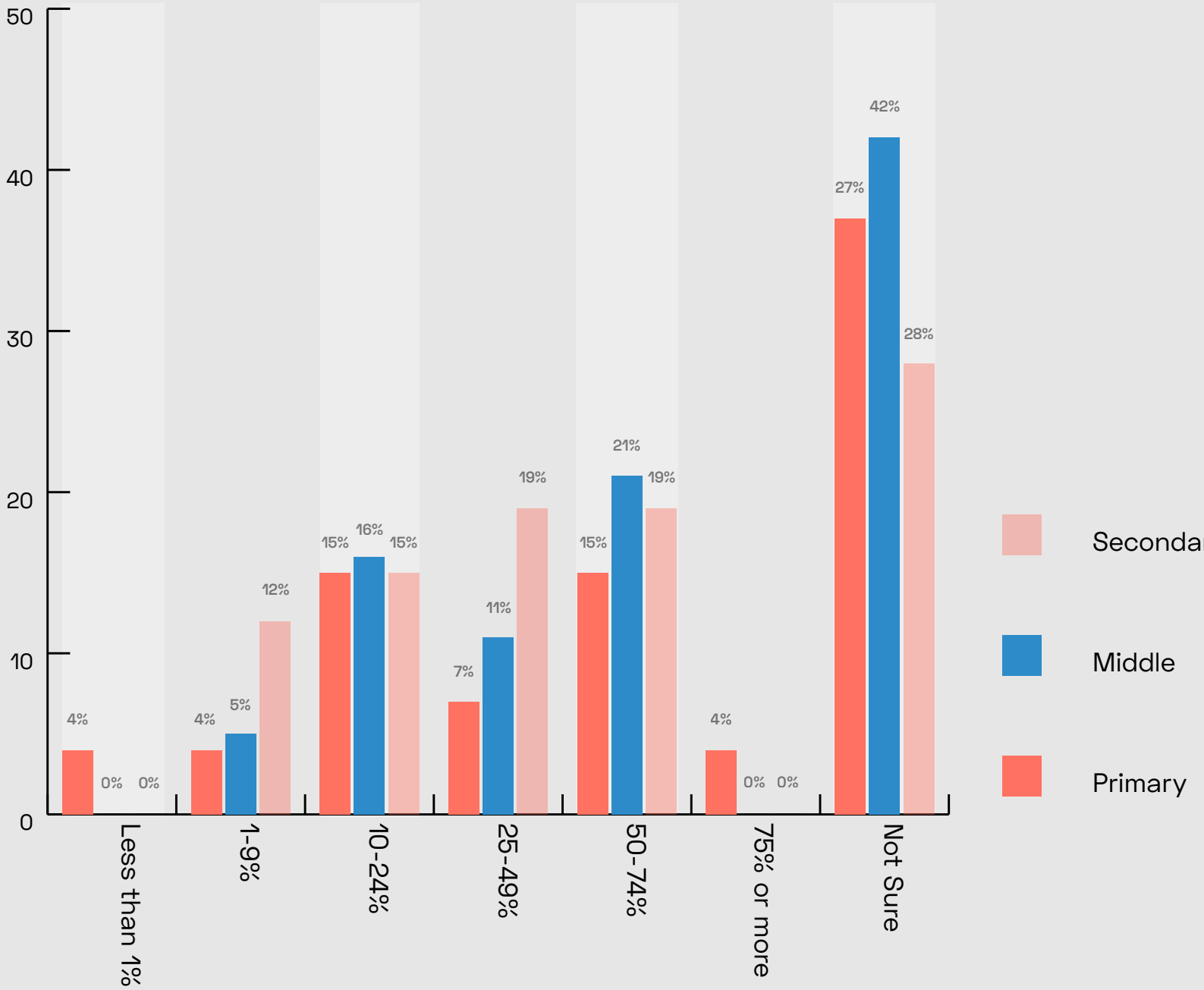
# Q #8a Percentage of the Total Annual Farm Budget Spent on Food Grown and Processed within 150 km or 100 miles of the School by School Type.



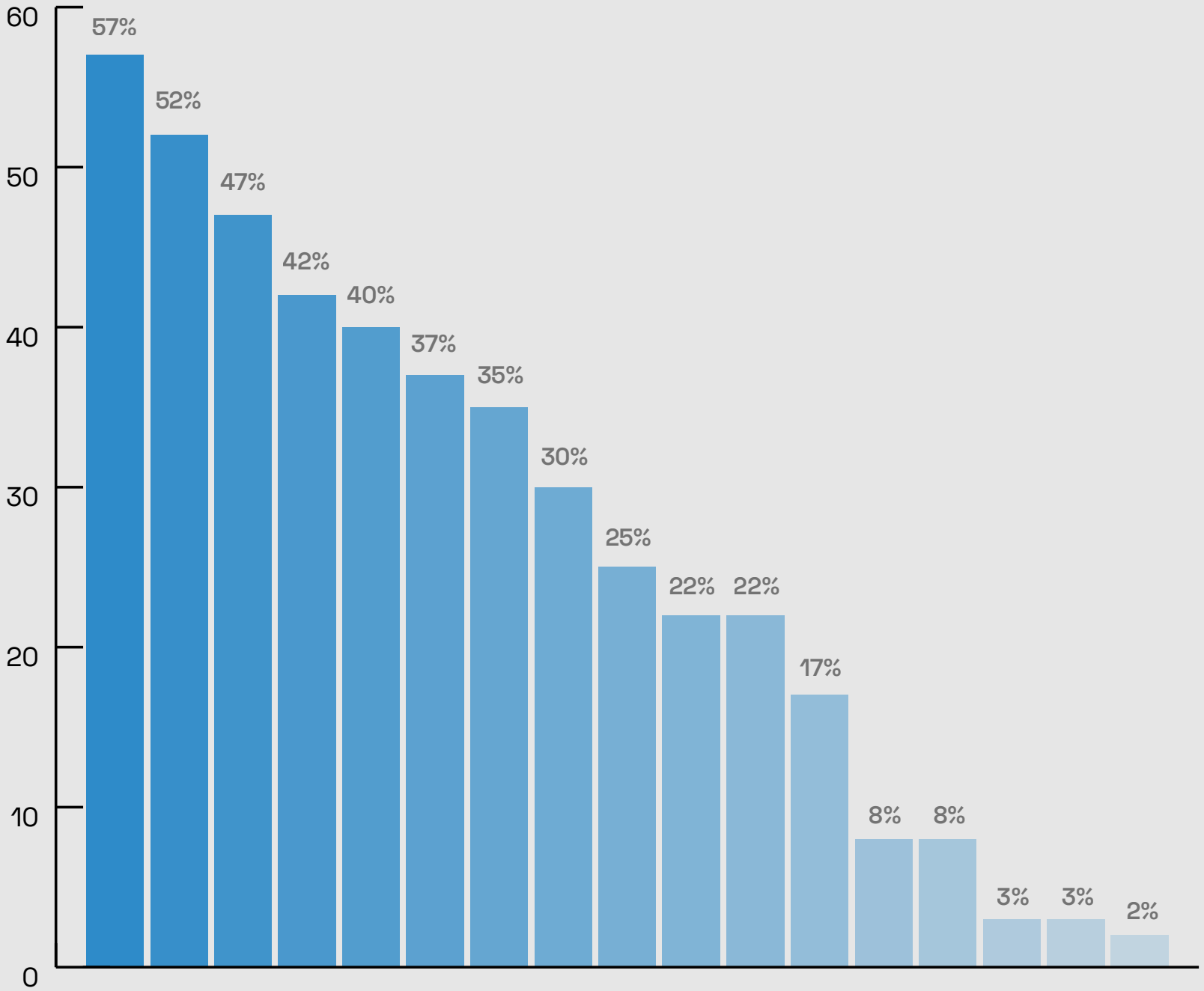
# Q #9 Please estimate what percentage of your school's total annual food budget is spent on food grown and processed within your province or territory.



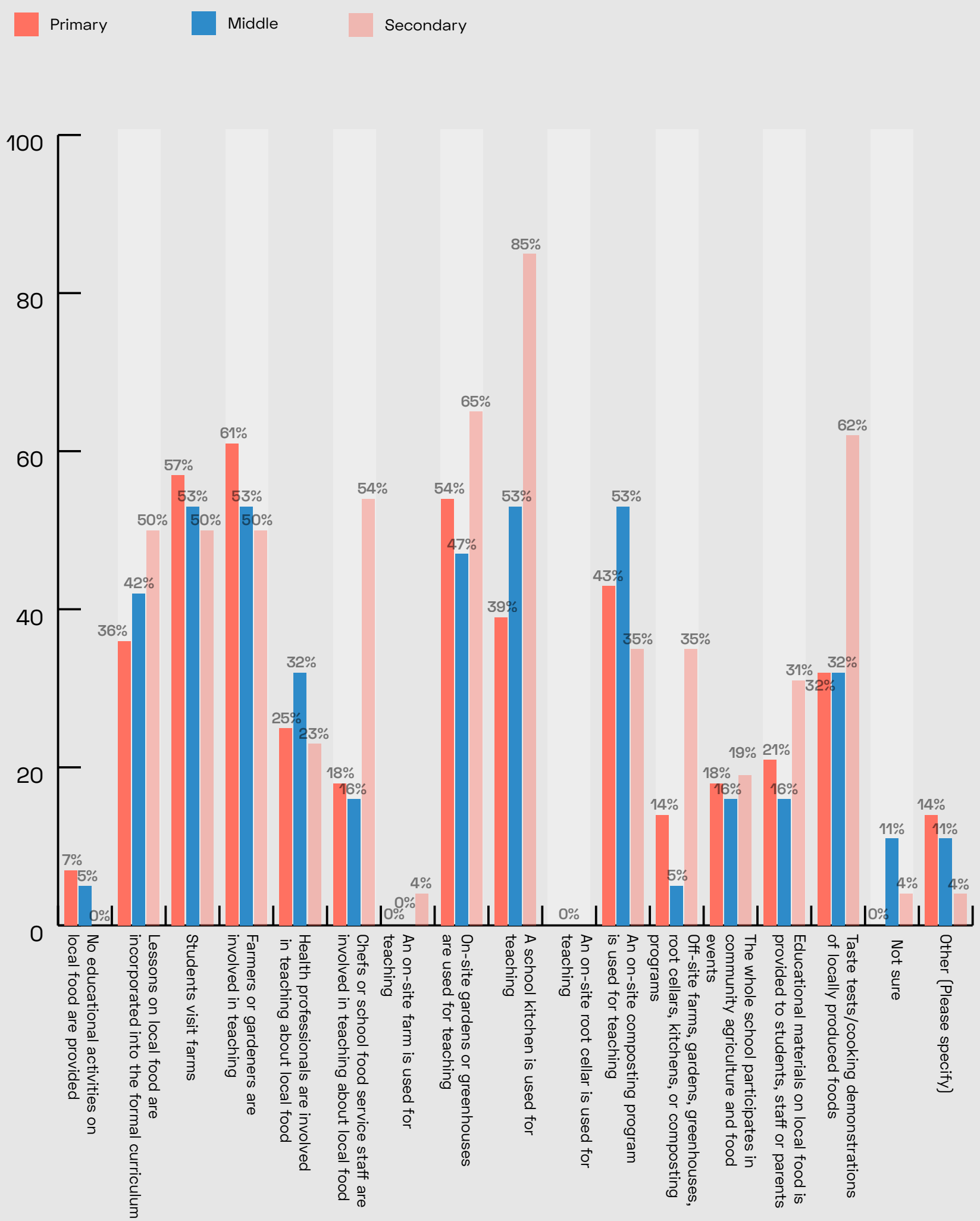
# Q #9a Percentage of the Total Annual Food Budget Spent on Food Grown and Processed within The Province or Territory by School Type



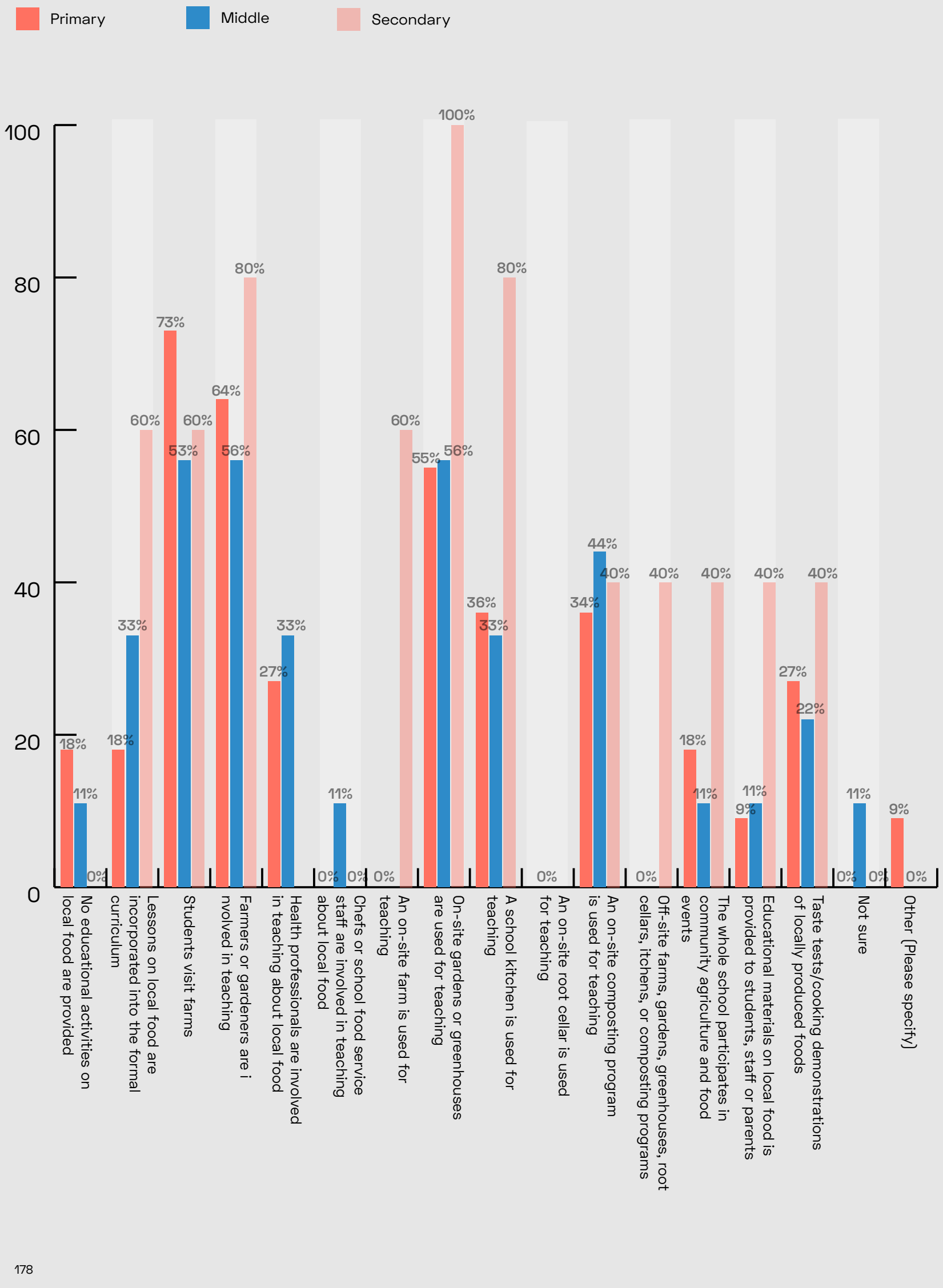
# Q #10 What educational activities do you undertake to help students learn about local food?



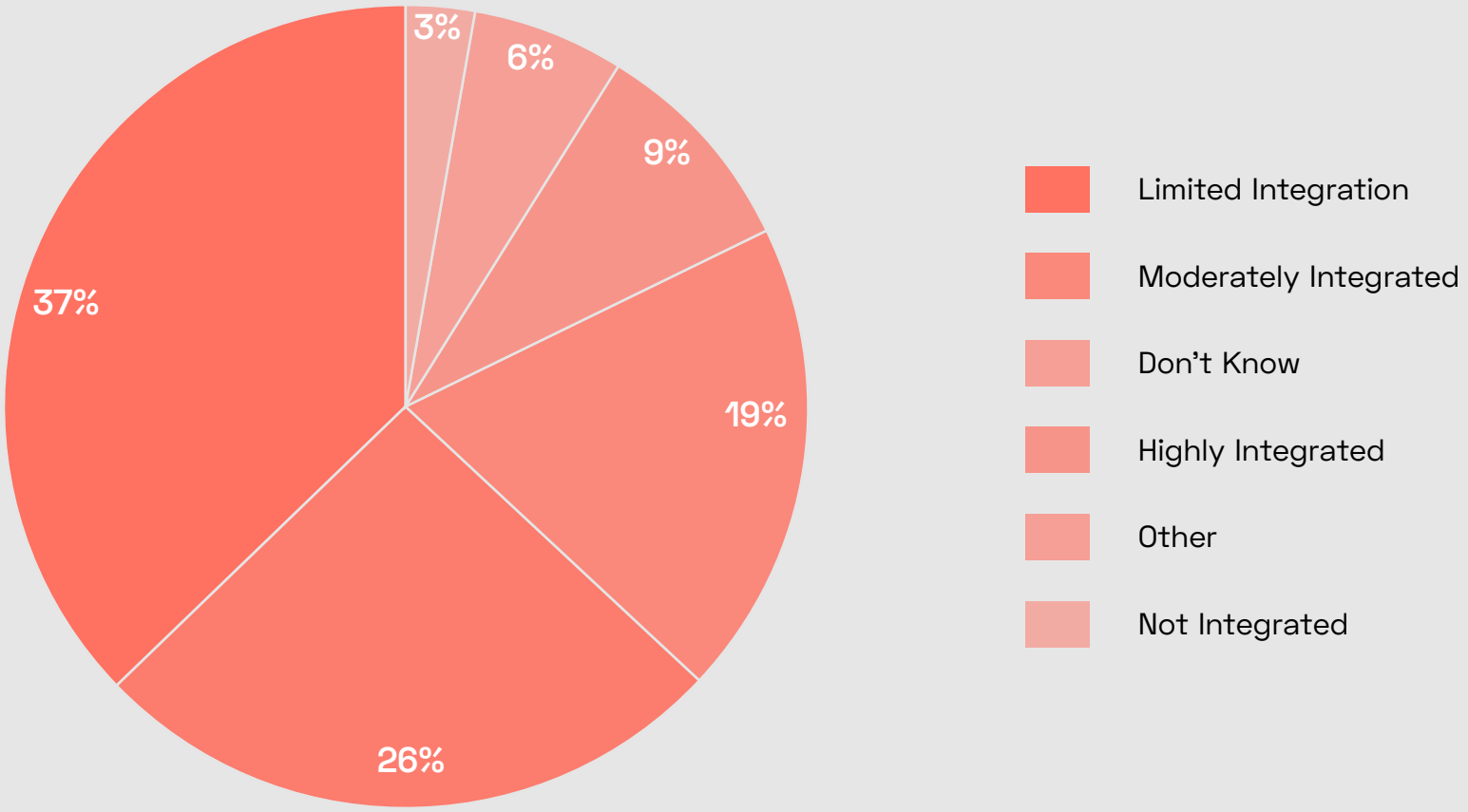
# Q #10a Educational Activities by School Type



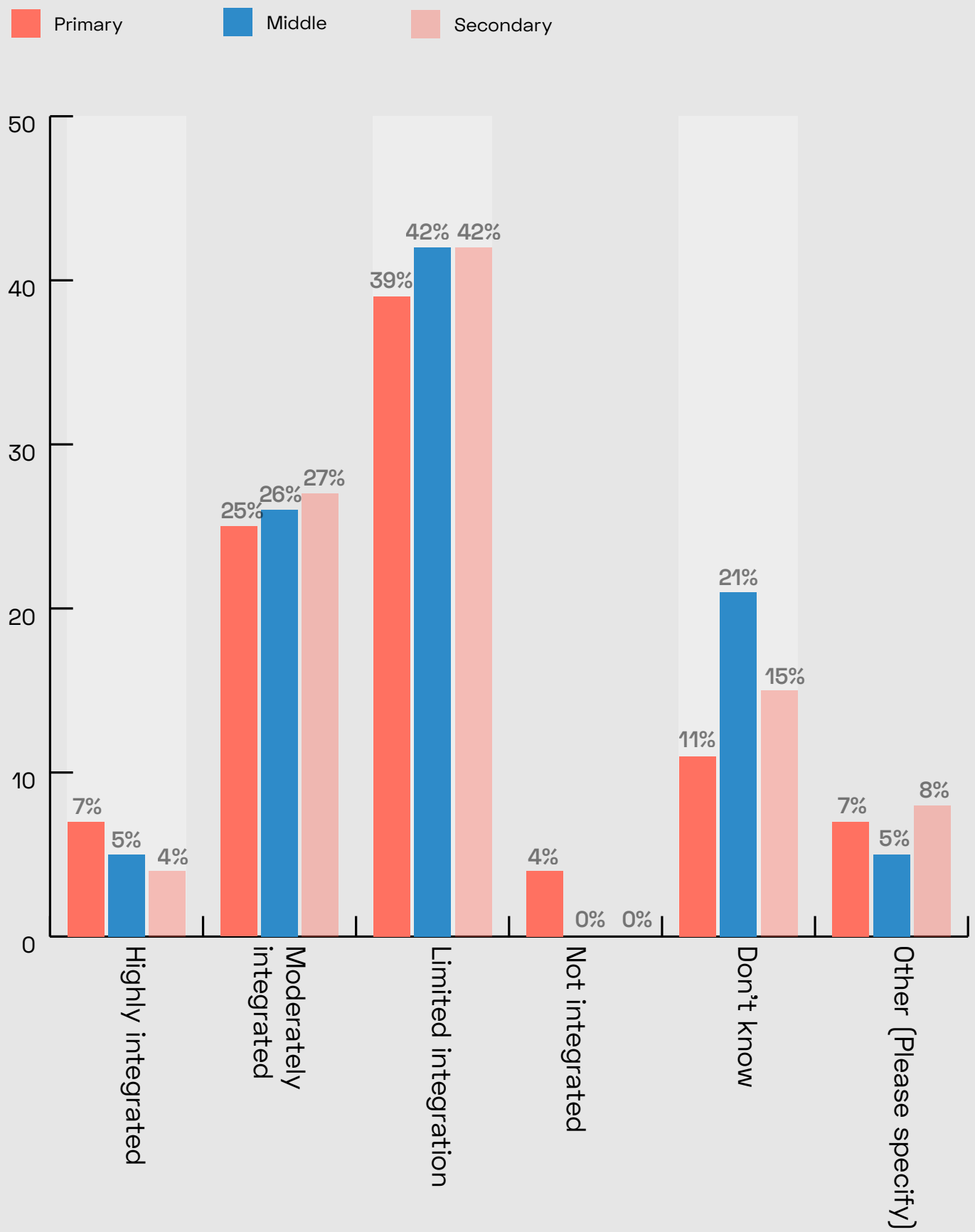
# Q #10b Educational Activities by School Type, Schools of 200 – 400 Students



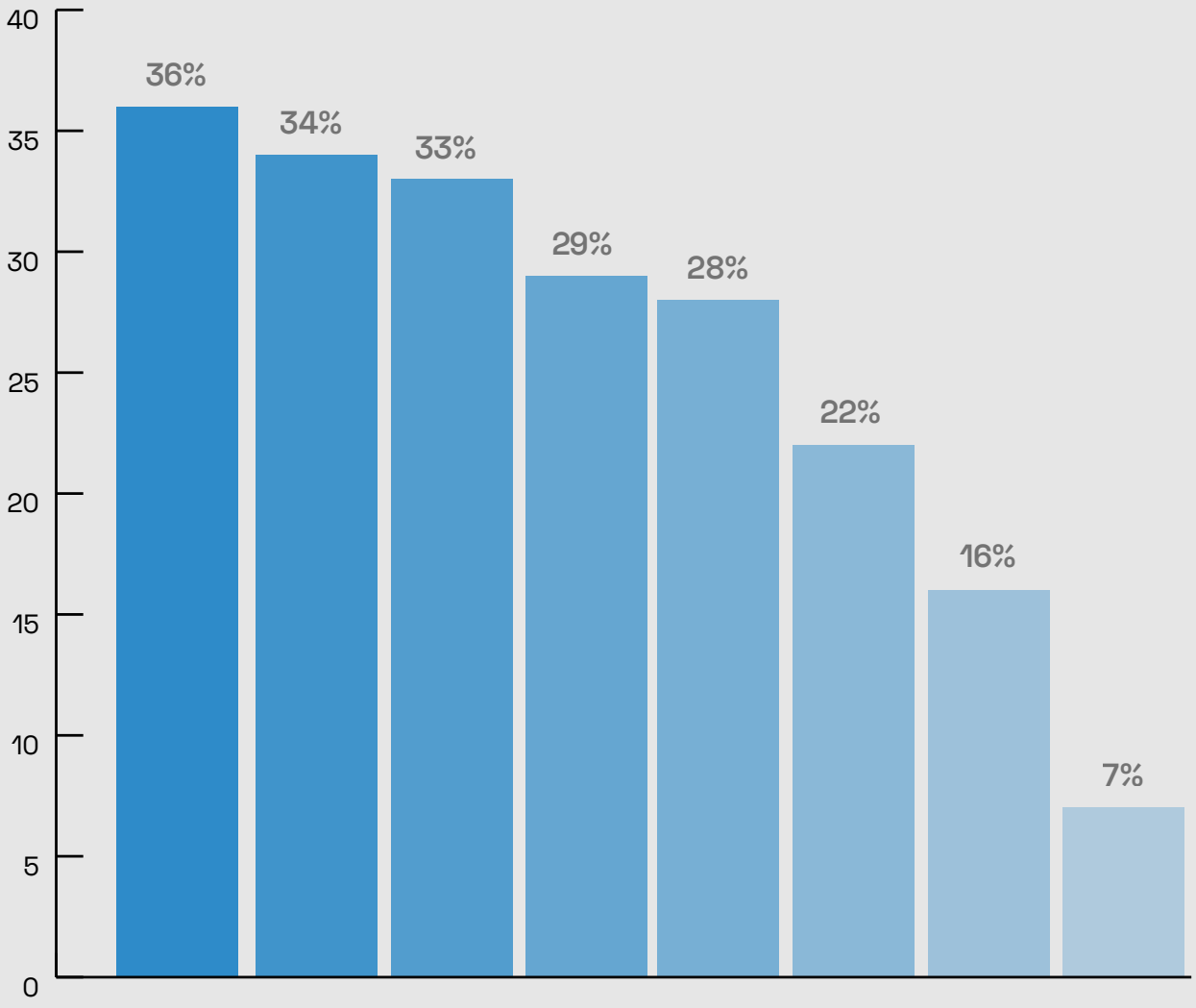
# Q #11 To what extent are food, nutrition and sustainable food system topics being integrated into lessons at school?



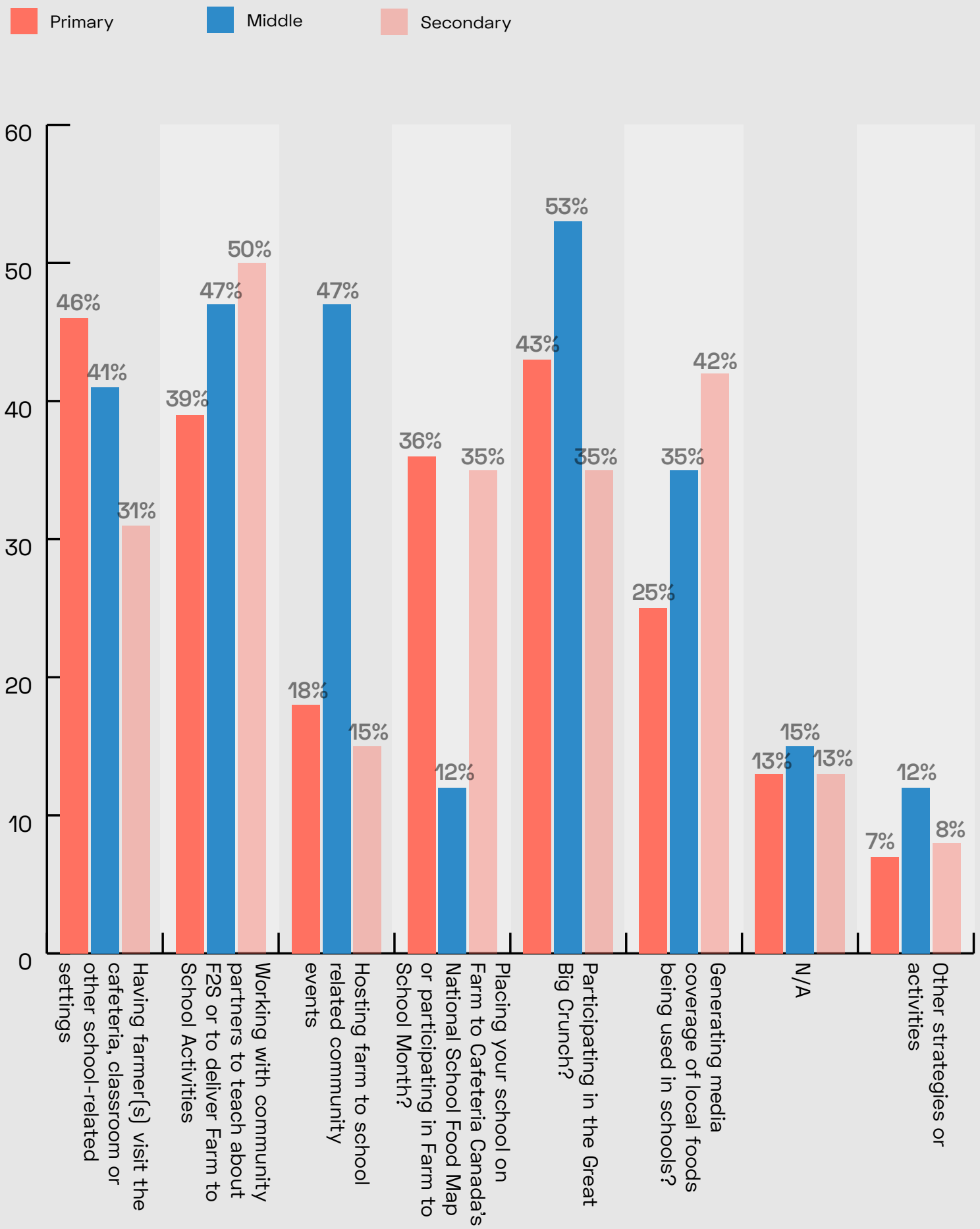
# Q #11a Food, nutrition and sustainable food system topics being integrated into lessons at school by School Type



# Q #12 What activities do you undertake to establish strong relationships with farmers, community members, and supportive organizations?



# Q #12a Activities to establish strong relationships with farmers, community members, and supportive organizations by School Type



## Q #13 Are there connection strategies you would like to execute, but have not been able to develop?

### Comments

1 Would love to see more integration of Farm to School and local foods within the curriculum. To do this effectively requires in-service, and time. As of yet, both have been asked for. One of the problems at our school is the F2S lead is a teacher, not an administrator. Therefore, everything needs to be vetted through admin before it can be realized.
2 Having farmers visit classrooms
3 Expand number of farmers involved. More communication with cafeteria food provider
4 Examine garden space off school property to grow and prepare fresh produce
5 I would like to see us buying snack food for students from locally grown produce, but we have not undertaken that initiative - yet.
6 Advocacy
7 Creating a coop for high school students which include working on a farm or community garden
8 We are implementing some new strategies this year with a new salad bar
9 More connections between farmers and schools.
10 More curriculum connections
11 As a community non-profit, we would like to engage more local schools to attend our program
12 Local food purchasing agreements with local farm for breakfast, lunch, and after school snack program and cooking programs to partner with our garden program
13 Regular farm/forest partnership for students as regular part of curriculum
14 Annual ag awareness program for grade 5 classes
15 Too many to be listed
16 Local food tastings, local food procurement agreement

17 Looking for model/best practice for introduction and integration

18 I like the idea of having farmers visit the school and speak to the students. I like the idea of adding experiences that are unique and taught by experts in our courses.

19 Yes. I would like to strengthen the classroom connections to make it easier for more teachers to teach local food. I would also like to have more ready-made materials handy for users of our salad bar and nutrition programs.

20 absolutely, we are currently working towards further integrating the school gardens as an experiential learning tool to support curriculum at all grade levels, but our organization is very small and underfunded, so it is taking longer than we would like.

21 integrate local foods more into Student Nutrition Programs, delivery and preparation time is a challenge

22 I'm at a community college with a fab culinary arts school and am working on that

## Q #14 In general, what do you consider the most important variables for the success of a F2S program across the three pillars of: Hands-On Learning; Healthy, Local Food in Schools; and School and Community Connections.

### Comments

School teachers, administrators, school foodservice workers

1 Teacher education and commitment
2 Local food in schools
3 Gradual Cultural Change: start with Healthy Options that are more familiar to students then move gradually to more local; options have to be economical and something students will eat."
4 "School gardens & Composting, Hands on Ag Clubs, Kids in the Kitchen, Gardening Clubs- developing partnerships to lead the above.
5 Access to people power (e.g., volunteers), support from the school's administration, and teacher interest.
6 All three pillars are essential. Experiential learning with the food cycle is key.
7 By in from the school principal or engaged teacher.
8 Having a coordinator who can manage making connections with local producers and a certified kitchen where the food can be prepared.
9 Connections - educating
10 The most important variables for the success of a F2S program across each of the 3 pillars would be financial support for hands on learning to cover costs like transportation and supplies, consistently to carry the experience from start to finish; mandated procurement policies to demand that local foods are grown and purchased during the season and processed for use during the off season also; scheduled, consistent time allotted for the partnership connection to take place between the front end users

of this initiative (students and teachers, not administration or in addition to administration).

11 Local food in schools and the important role in our economy and society

12 Volunteers, procurement, money

13 Of the three, from the lens of a teacher, hands-on learning is almost always the most important variable but all three are important in the broader context of creating a better program all-round.

14 Student engagement; Developing a relationship with local producers and dealing with billing

15 School and Community Connections

NGOs

1 All of the above

2 Teacher engagement and commitment

3 School and community connections, making connections and partnerships with important stakeholders, organizations and community members that strengthen the number and voice of farm to school

4 Funding, school leadership esp. chef/teacher & senior administrator

5 Our small school does not have a cafeteria or food services. Nutrition support programs such as ours usually fail when a volunteer leader burns out or leaves Our independent organization run by volunteers takes the onus off working teachers.

6 Question is unclear. If you are asking which of the three pillars we are most closely aligned with it would be the Hands-On Learning. As for variables that create success, in terms of school gardens it is support from administration, use by teachers, and parent support, in that order, that create the most successful school gardens.

7 Access to experts in F2S initiatives to deliver or educate

8 Dedicated volunteers or coordinators to keep the message front and centre at council meetings, with the principal and staff, and to keep coming up with creative offerings and materials for all

audiences.

9 Teacher champions open to taking the time out of their classroom and curriculum for local food literacy to have a place.

### Farmers, processors

10 “School board commitment alignment of goals with school board strategic objectives - what are the board wide plans? Integration with provincial curriculum goals”

11 Educated and motivated kitchen staff, engaged students who helped grow the food, engaged, educated and motivated parents.

12 The need for a paradigm shift among the general public to recognize the importance of creating a healthy food culture in schools.

### Parents & Community Members

1 Local food champion being selected amongst school staff (in addition to parent volunteers), who can focus on many ways to bring F2S initiatives to our school. Buy-in from school administrators.

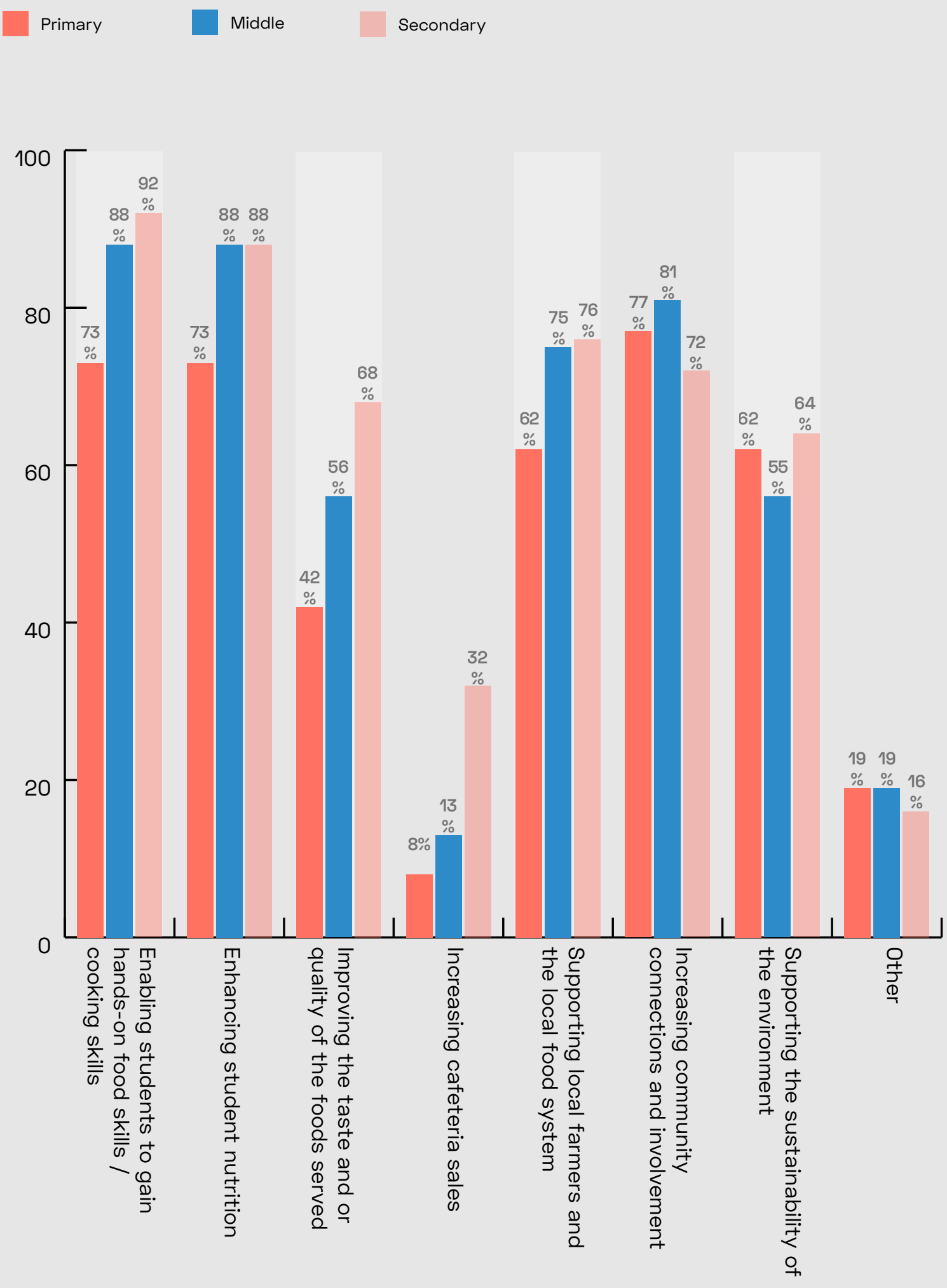
### Others

1 Hands-on learning

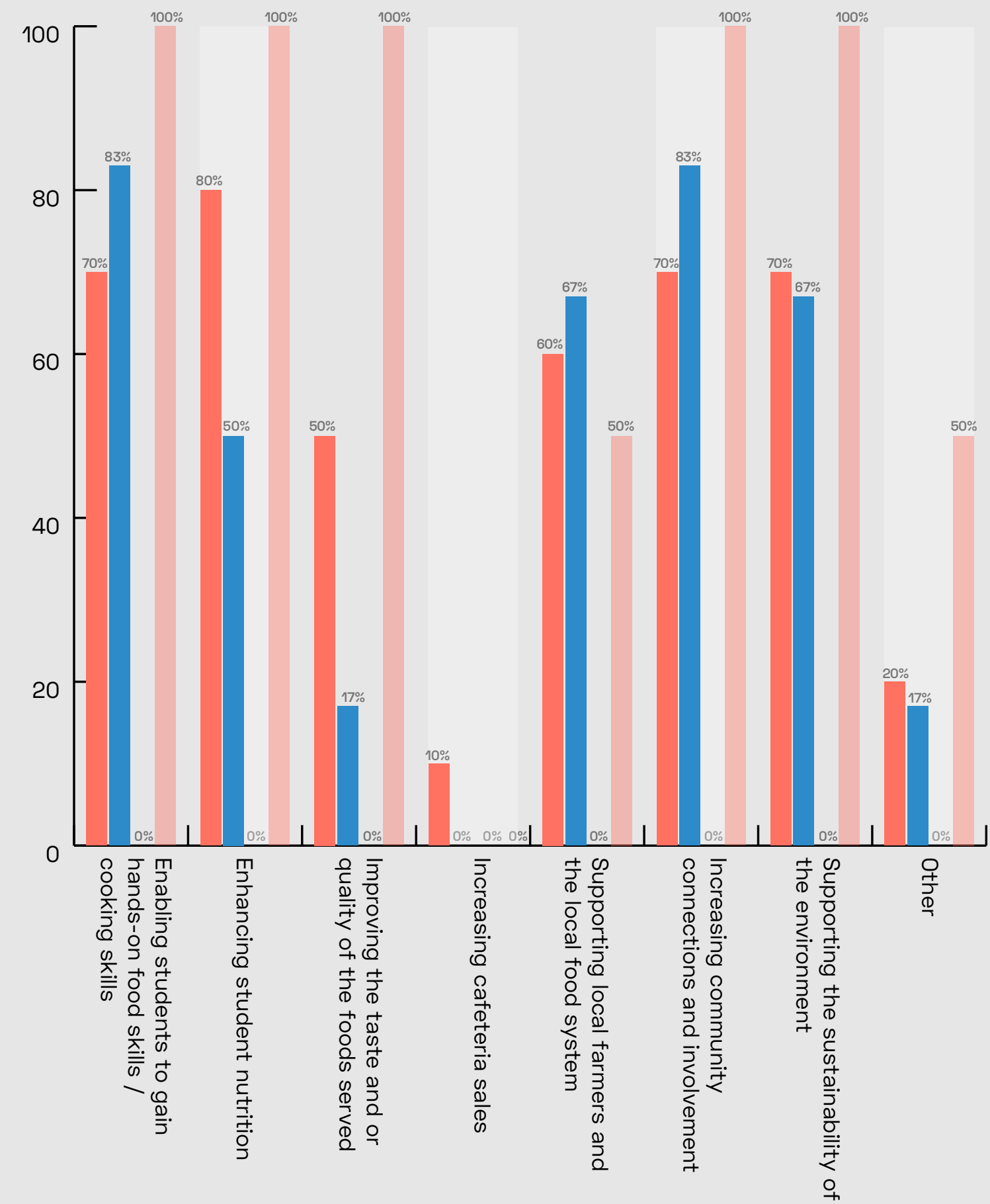
2 Relationships between various stakeholders

3 Long term it must be supported by local boards and not rely on ‘champion’ teachers, parents and outside organizations

# Q #15 What are the prime goals and objectives of your F2S initiatives?



# Q #15a Prime Goals and Objectives.
## F2S Goals (%) at Primary Schools by Student Population



# Q #16 What barriers have you experienced in developing or enhancing F2S activities?

## Comments

### School teachers, administrators, school foodservice workers

1 School Board Policies, Costs
2 Product availability and delivery
3 Procuring local food that is labeled as local.
4 Food cost and available delivery dates to school.
5 The system in place is not adapted to our needs. We have a greenhouse and gardens and we want to sell the produce to our cafeteria, but we must first modify our recipes, and this seems to be a big problem (and lack of flexibility) for the system in place that is in charge of our school cafeteria. A lack of food skills and training in preparing real local whole food is lacking for the cafeteria staff.
6 Our school service provider has not been a strong supporter of the program, which has obvious drawbacks. We are working to find an alternative solution. As the first, and so far only F2S program in our province we are also often inventing the wheel. Getting local farm produce into the cafeteria is therefore a task of having to prove what is possible.
7 $$$. Rural, northern areas are much harder to service than more urban ones. Also, it's a LOT of work for a few staff to take on.
8 Time. As an educator this is over and above my mandate. We need someone at a district level helping to coordinate
9 Board policy and the cafeteria contract limiting what and how food is distributed
10 "Transportation to have fresh foods at low costs; Parents willing to purchase local food items on the menu; Time to incorporate local food and nutrition in curriculum"
11 It is challenging to take a class of students into our school's garden with one adult (teacher).

12 Long term funding sources
13 Lack of kitchen space in schools; Lack of volunteers or paid staff to help run local food events
14 We have no cafeteria, teachers have little extra time to undertake developing lessons and making connections.
15 Financial constraints
16 Slow to act. Ideas are plentiful, however putting the HR and finances into play are easier said than done.
17 Initially, lack of interest in our event by teachers. This year registrations came in quickly and we have a waiting list.
18 Volunteers, procurement, money
19 SO many. Mostly getting colleagues on board and engaging the school board to work more collaboratively with us to help the program flourish
20 Students choosing to go elsewhere for fast food options. Paying for local produce, cash is not an option.

## NGOs

1 Lack of funding; competing agendas
2 Having the school community understand the benefits of F2S initiatives and the link with the curriculum. Having access to fresh, local produce in the winter months
3 Teachers do not have enough time
4 Please refer to the publication, Alternative Avenues to Local Food in Schools at www.ecosource.ca/publications where we studied the challenges and opportunities to local food in schools.
5 As a non-profit organization, supporting F2S activities, the economic climate in the province has proven to be a barrier in various schools and programs as other issues related to cost savings take priority.
6 Lack of teacher time. Lack of student interest.
7 As an off-site field trip, we have had trouble finding classes that are able to drive the students out to attend the full program; are now planning to split time between on- and off-site lessons.

8 Continued funding
9 One school where we started a garden made us hunt down a caretaker in order to water. We pulled out.
10 Develop F2S activities
11 Waning volunteer interest and a busy roster of student clubs, which limit how much we can do outside of serving the foods, i.e. food literacy activities, engaging students during lunch/recess.
12 Cafeteria being contracted out to large corporation (e.g. Aramark) which inhibits ability to run another food option during lunch. Cafeteria staff turn-over, lack of skill and need of training. Lack of Teacher champion time for integration of local food literacy into curriculum.

### Farmers, processors

1 Sustained funding for capacity development and community outreach
2 Kitchen staff are overwhelmed and not thoroughly supported. All talk but no concrete steps for ensuring follow through.
3 (1) professional development for teachers that are already too busy trying to fulfill their existing curriculum outcomes. (2) Trying to maximize food production with having enough space and tools for each student to work hands on within the garden classroom.

### Parents, community members

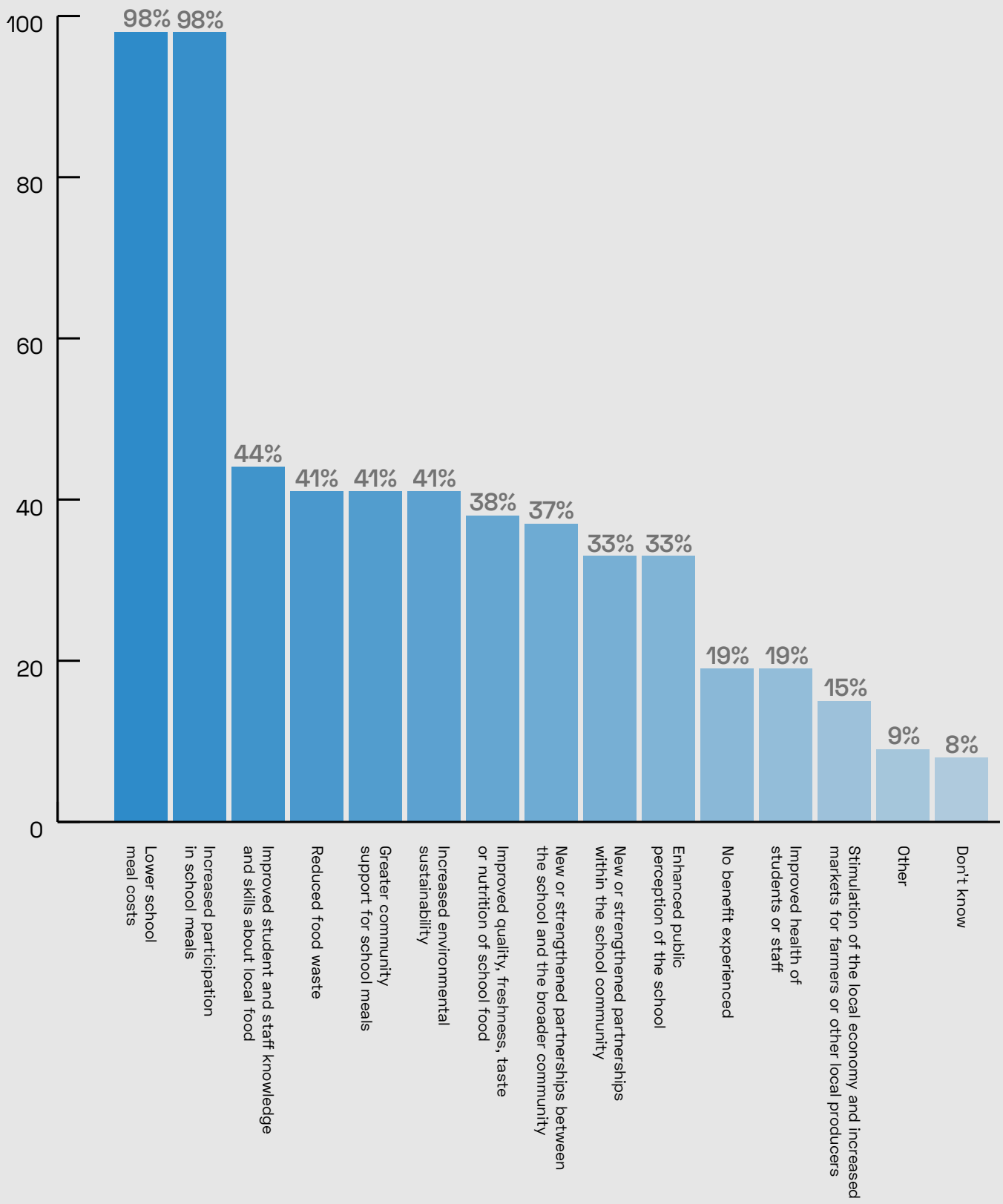
1 Lack of time by teaching staff; Competition with current curriculum - needs to become part of school curriculums
2 Finding Volunteers
3 Seasonality of produce available
4 Cost, availability, low socio-economic area - parents not educated about healthy foods in general

## Others

1 Costs, delivery, isolation, weather-seasonality of veg during school year

2 Funding for garden facilitators to provide garden and cooking programming. I believe this is too big a job for a teacher within the demands of their already very busy day

## Q #17 What were the most important factors that helped you develop effective F2S activities?



## Q #17 Comments on above question

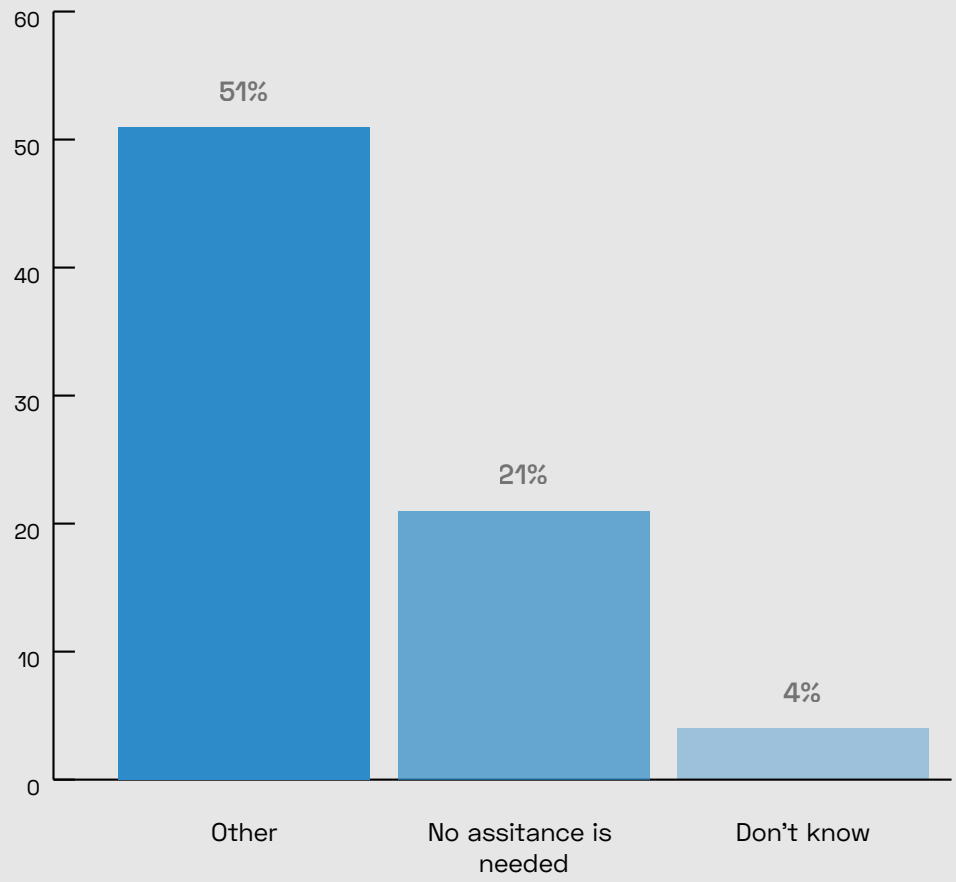
1 Assistance from Ecosource
2 Having a great relationship with the school catering company Pina Foods.
3 Dedicated staff.
4 Our SHSM in agriculture has been a leading influence.
5 One very motivated teacher and two full-time project coordinators provided by a community organization.
6 The F2S program at our school has required us to learn on our feet. But our partnerships with Lester's Farm Market and Food First NL have been integral. As well, there are a number of community supporters who are invested in making this program work.
7 Having a community organization support the work; -Always combining food literacy with local food procurement. -Again, see the Alternative Avenues Report.
8 Receiving the F2S/Whole Kids Foundation Grant School and community champions;
9 Research/evaluation.
10 Too soon to determine.
11 Student access to healthy food.
12 Many interested staff and students, and several very helpful grants!
13 Staff commitment to the initiative; Funding through various grants that covered infrastructure, kitchen equipment, training, etc.
14 My own initiative in approaching local farmers.
15 Community partner accessing funding and running schoolyard farm youth employment programs in partnership with the teachers/schools.
16 I'd like to say "improved health of students or staff" but we have no metrics on this. I'd also add "increased mental health of students and staff"

# Q #18 What Were The Most Important Factors to Develop or Maintain F2S?

## Comments

1 Eliciting student voice
2 A positive attitude that with the right partners and time and money the F2S initiative can reshape how and why we do what we do, to increase the benefit of many not just a few.
3 The opportunity to help students and teachers gain an appreciation for the source of local foods and to dispel myths and misconceptions.
4 A volunteer approached us and is fully engaged in the programming.
5 Access to funding and framework for implementing the program
6 The amount of produce that can be grown in our facility
7 Who is hosting the program, the cost, the time commitment, the location.
8 Assistance from Ecosource
9 Dedicated staff
10 Too soon to determine
11 Student access to healthy food
12 My own initiative in approaching local farmers
13 Volunteers committed to nutrition support. We also hire a part-time coordinator who does food planning and purchasing.
14 school willingness to partner with us
15 A supportive community; a local non-profit whose mandate was to make local food connections; the availability of the Farm to Cafeteria Salad Bar Grants, and the prevalence of online materials to help with coordination, administration and promotion, as well as suggested activities and lesson plans.
16 There seems to be a lot support within the community for our program and a prevailing sentiment that school gardens are an important element that has been lacking in our education system.
17 We had a trial program in a small community garden and the success of this, coupled with the incredible vision and support of the Vice-Principal

# Q #19: What assistance would you wish for or require, if any, to further develop or maintain (your school's) F2S activities?




## Comments

### School teachers, administrators, school foodservice workers

1. Leadership from school board that encourages admin to support initiatives
2. A reliable local food source and promotional materials
3. Further information on programs and funding
4. Financial support, flexibility and support from our cafeteria service provider (or we will run independently)
5. It would be great to have a school food service provider who is keen on the F2S program, in meeting its requirements and even extending them. Further, I would love to see more schools in NL

interested in F2S. Then we could become part of a movement, perhaps even network to share resources.

6 Access to 'ready to use' lessons/ handouts, etc. Area specific food sourcing support

7 Given that we are a small school with limited financial resources, grant funding has been a critical element of the success of our program. Although we will be able to sustain the level of programming and activities that we currently run, additional grand funding would be required to go much beyond this.

8 Money

9 Policies at the provincial/district level on accountability for school nutrition

10 Funding and support for getting started with an in-school cafeteria program.

11 Provincial support

12 More funding.

13 We need a "director" for the program, someone in a paid position who can make connections with local producers and with cooks to make the food for our students.

14 Successful grant applications for transportation, materials, wages for dedicated staff (inclusive of paid co-op students), perhaps even capital.

15 Money, volunteer, procurement challenges

16 Funding, more buy-in from colleagues, school board agreement

17 Help setting up connections with local food providers.

18 I am always open to support and suggestions in the community.

19 Further information on programs and funding

### NGOs

1 Funding, continuing advocacy efforts

2 Curriculum connections, how to

3 Further information on programs and funding

4 Greater financial investment for community organizations that support schools.

5 There have been recent discussions around the desire to have a F2S coordinator at one of the schools we work with.
6 Funding to promote our programs in the schools and to hire more people to go into the schools to promote our programs and how they can help teachers.
7 Increased local awareness of the availability of our program
8 funding
9 We would not turn down anything.
10 Fundraising. We have no core funding, everything is project-driven, and to stay at the same schools for decades is less fundable than starting new school gardens, which is an unsustainable situation
11 Funding; local support; schoolboard support
12 Keep the online resources and suggestions coming! It's hard to maintain creativity for promotion and education when time is limited and the priority is just to serve local foods. A yearly calendar of "food dates" would be helpful, preferably for Ontario (or avail. by province) as we often find things sneaking up on us, like ON Ag week, kale day, Fresh From the Farm Fundraiser, World Milk Day, et cetera.

### Farmers, processors

1 Funding!

### Parents, community members

1 Maintaining program is costly so $ towards purchase of local food would enhance program.

### Others

1 Would like to research other successful models, feel there should be pressure put on government to institute food literacy in the curriculum and to make school gardens a priority. It fits with so many of their learning objectives

# Q #20: Do you have any other important information to relate?

## Comments

### School teachers, administrators, school foodservice workers

1 Assistance in developing menus that reflect what students will eat and the F2S program can support based on $.
2 Our community ambassador, Sam (Vancouver area), is excellent at sharing information to those of us involved in school gardening.
3 I answered these questions based on my daughter's school which is also one of the schools that I run Farm to School programs in. We also run Farm to School programs in 7 other Dufferin County Schools.
4 We have no funding through our school division for this initiative. Our deputy superintendent, who is supposed to have this portfolio, is not responding to our inquiries and our suggestions.
5 The Province of Ontario should make Agriculture a mandatory course in High School. If it is compulsory, then the agri-food connection which is so vital to economic sustainability and human nutrition will be considered mandatory and necessary in our community.
6 There are several ag awareness events organized by various counties across the province which helps students gain an appreciation for local foods.
7 We are a school that has SHSM in both the culinary arts and green industries so going farm to cafeteria is a logical connection.

### NGOs

1 We actually work with 3-6 local schools, so have given average information for the questions that we are able to answer, and responded "Not sure" to questions we don't have information for.
2 We provide a sit-down breakfast before every school day to about 10% of the school population, plus healthy snacks avail-

able throughout the school, and simple lunches available in the school office fridge for anyone who forgets theirs

3 School gardens are complex places, and relate to more than food, so while they fit nicely with F2S they also spill over into more general outdoor education, nature awareness etc. It feels like too much for us, as a school gardening group, to also take on procurement. I'm sure that some people in procurement would feel the same about school gardens. If F2S can bring us all together, great.

4 It would be great to have a F2S brand package from F2CC, with a concise go-to set of resources for salad bar, like signage, facts on specific seasonal veg/fruits, forms for where the food is from, posters for promotion, et cetera, editable so we can modify with local details. I have a hard time finding these things easily and piecemeal selection gives an inconsistent look. A mountain of options has been shared, thank you, but it's overwhelming to try and choose from those.

### Parents, community members

1 Our program is very small here so it can be managed pretty easily. We provide a salad bar once per week and try to use as much local food when available.

# Q #21: Please share your success stories

## Comments

School teachers, administrators, school foodservice workers

1 Started a student led group “Cafeteria revolution Group”. Goals are to educate about healthy eating and local foods. Our goal is to be identified as a Healthy School through OPHEA.

2 We have had success with our farm to cafeteria taco salad bar and have had some students eat from the salad bar whenever it is available.

3 NL currently imports over 90% of its fruit and vegetables consumed. Consequently, we have the lowest consumption of either in Canada. So, connecting students to the local food economy, seeing that through what they eat can be a statement economically, but also for the environment has been very empowering for the school community. People who are paying attention have noticed a difference, would like our school to become an example of what is possible. F2S does require resources to get up and running, and yet the equation is fairly simple and straightforward. School partners with farm to provide local, nutrient-dense whole produce in cafeterias. Which makes for salad bar awesomeness!

4 Many of our students tell us that they have begun to appreciate and cook their own food as a result of our healthy eating program

5 lordrobertsgarden.wordpress.com - our school garden’s blog

6 Please visit our website: www.hffa.ca/farmtoschool

7 The Environmental Society has hosted a “hundred Mile Meal” to raise awareness of eating local food.

8 We have signed up to be part of Food Rescue

9 Developing partnership between a community organization, Small Scale Farms and myself, a local farmer/teacher, that is mutually beneficial and will continue to support student learning.

10 Bite of Brant program for Grade 5 classes in Brantford area in April

11 We are an off-campus program that caters to the communi-

ty's most at risk and vulnerable youth. We prep about 2 hundred pounds of fresh fruit and vegetables for 4 local elementary schools the 4th Tuesday of every month. We also did a potato day at the local elementary school show casing the potato (games, food, fun) and our students had a super time preparing and running the event with the elementary students. We also hosted a special day at our location with representatives from each local elementary school and we focused on healthy foods and food fun. We had a smoothie bike and we planted herbs. Everyone had a blast.

12 I was invited to get produce directly from a local farmers market and use the product to create samples and a live demo one Saturday at the Famer's market. The students love it. We did a trial run, decided on our menu and made food in advance to bring for the sampling. We also did a live demo. It was a fantastic experience for the students, and it taught the students and the visitors to the farmer's market how amazing local food can be.

## NGOs

1 http://foodshare.net/program/schoolgrown/

2 http://www.farmtocafeteriacanada.ca/farm-to-school/

3 Sutherland School market garden was built. There is student involvement from the garden club. Last year some of the produce was sold back to the cafeteria and it introduced fresh greens to the students. There is an amazing teacher, our champion, who supports and promotes the school market garden.

4 We purchase apples (a large part of our snack program) directly from a local orchard. Most of our other supplies are from local grocery stores, which often source food locally. We also sometimes use a local supplier who specializes in connecting local food producers to retail markets.

5 Children in one of our early programs ate a snack of Asian Pears, saved the seed and planted it. Ten years passed, and now there are Asian Pear trees producing in the school gardens!

## Farmers, processors

1 “We have a partnership with an alternate high school in Ottawa and they have taken our program’s workshops, their curriculum connections established by our program and turned this into a credit for students finishing their high school diploma. This is the school that has seen increased attendance connected to the garden program/credit.

# Q #22: Please add any additional comments.

**School teachers, administrators, school foodservice workers**

1 I support 6 schools directly and supervise all District Community Coordinators. I am working first to involve students in growing, preparing, learning, WE are trying to offer healthy choices. Don't think we should push local too hard- healthy first and education piece. We need to make slow cultural change and be aware of each individual community and school dynamic. Most successful has been having a school Home & School take over the cafeteria lunch food service.

2 Thank you for doing this research. We are really keen to hear about the results.

3 Looking forward to moving our school in supporting and eating locally produced food from almost zero to 100%

4 The class workshop was very impactful - inspired many students to pursue culinary arts in their education path

5 When foodies are looking for links to curriculum, I suggest that gardening provides the most, at least in Ontario. I am looking for support from Public Health nurses and other municipal bodies, to help with the summer gap in school gardens. For ourselves, not so necessary as we can hire summer staff through the federal jobs program, but for individual schools it would be more necessary to have a summer partner to maximize the season. Alternatively, they can plan their crops to mature in spring and fall, use mulch over summer, have families take home planters, have families sign up to water, etc.

6 Thank you for doing this research and for supporting local food in schools! Keep up the great work! I hope this isn't submitted too late to be useful.

# Q #23: What are your school's five most popular local food main dish items?

## Comments

1 1. Salads; 2. Chicken; 3. Sauces; 4. Soups; 5. Beef

2 Apples

3 1. Today's shepherd's pie was a big hit, as cooked by students under guide of local farmer.; 2. Every day is a different meal, depending on what vegetables are around. Not many repeats!

4 1. Homemade pasta with our own tomato sauce from local tomatoes; 2. Burgers made with our local butchered cow; 3. Salad plates with local beets and greens; 4. Taco salad; 5. Sweet potato fries

5 1. Baked potato wedges;2. Tacos using salad bar; 3. Burgers using local beef

6 1. Veggie and tofu stir-fry; 2. Minestrone soup; 3. Frittata; 4. Veggie chili; 5. Fruit salad

7 1. Plant part power smoothie; 2. Uncle Harry's granola; 3. Many of our Local Food Club recipes especially pizza

8 1. Minestrone soup; 2. salad; 3. apple desserts; 4. quesadilla; 5.casserole

9 1. Salad bar; 2. vegetable soup; 3. baked vegetable dishes

10 1. Greek chickpea salad; 2. Italian vegetable barley/;lentil soup; BYO spinach salad; cucumber ranch for Tzatziki Salad; 5. Pesto pasta veggie salad

11 1. labs that students choose that meet criteria (i.e. seasonal foods); 2. vegetable soup; 3. ratatouille; 4. lasagna; 5. pear salad

12 1. salad bar

13 1. Whole gain bagels; 2. Homemade mini pizzas; 3. Grilled cheese; 4. Eggs in various forms; 5. Pancakes with local syrup

14 1. spinach; 2. apples; 3. carrots; 4. beets; 5. onion

15 1. Pulled pork; 2. Sheppard's pie; 3. Moose meat stew

16 1. Fall veggie soup; 2. zucchini loaf; 3. buddha bowl salad; 4. patty pan sauté; 5. carrots

# Q #24: What are your school's most popular local food snack items?

## Comments

1 1. Apples; 2. Local popcorn

2 Weekly salad bars and twice weekly smoothies are popular.

3 Apples

4 1. hummus, tzatziki and whole grain tortilla chips; 2. corn and black bean salsa, guacamole; 3. bolani; 4. apple bites (apple slices with seed butter and granola); 5. oat bran cranberry muffins

5 1. carrots; 2. apples; 3. candy cane beets; 4. hakuri turnips

6 1. apples; 2. veggie platter with dip; 3. strawberries; 4. apple pie; 5. apple crumble

7 1. veggie and dip; 2. sliced fruit

8 1. blueberry streusel muffins; 2. smoothies; 3. pumpkin muffins; 3. chocolate covered strawberries; 4. student choice (meets criteria)

9 1. apples; 2. oranges; 3. pears; 4. bags of various cut-up vegetables

10 1. apples; 2. blueberries; 3. strawberries; 4. carrots; 5.mini peppers

11 1. bread; 2. apples

12 Veggies and roasted red pepper hummus; yogurt parfait with local fruits; 3. muffin tops

13 1.chives; 2.fennel leaves; 4.sorrel; 4.tomatoes

14 1. Apple + Yogurt; 2. Bananas + Granola/Cereal; 3. Mini Carrots + Hummus + Pita/Tortilla; 4. Mini Cucumbers + Cheese; ; 5. Cherry Tomatoes + Pita/Tortilla

## Q #25: 5 What are your school's most popular local food beverage items?

### Comments

1 Milk
2 Water
3 We only offer students milk, water, and fresh fruit smoothies.
4 Hewitt's milk
5 Milk
6 Milk
7 1. Milk; 2. water
8 1. water; 2. smoothies; 3. milk; 4. juice; 5. hot chocolate
9 Smoothies
10 Smoothies
11 Milk; Hot chocolate; fruit juices
12 Milk; cider
13 Tea
14 Milk

## Q #26: What are your school's most popular local food dessert items?

### Comments

1 Fresh strawberries when in season
2 Students are happy to eat any desserts that the foods class makes.
3 1. Apple crisp; 2. Pancakes with local berries
4 1. Fruit Salad; 2. Rhubarb Strawberry Crumble; 3. Oatmeal Raisin Cookies
5 1. ice cream; 2. donuts; 3. cookies; 4. muffins; 5. crumble
6 Fresh fruits
7 Fruits and berries

# Q #27: What are the average prices for local food items at your school?

## Comments

1. 1. Soups $: 1.5$; Main Dishes $: 3.5$; Desserts $: 1$; Snacks $: 1$
2. 1. Soups $: 2$; Appetizers $: 5$; Main Dishes $: 5$; Desserts $: 5$; Snacks $: 1$
3. All $0
4. Soup $: 1; Salads $: 2.00/3.00; Main Dishes $: 4$ max, 3.00$ for salads and wraps; Desserts $: 1$
5. Salads: $2.5; Main Dishes: $5
6. Snack $: 0.25$
7. All $0
8. Soup: $4; Salads: $6; Appetizers: $5; Main Dishes: $8; Desserts: $5; Snacks: $3
9. Salads: $4

# Q #28: How is local food promoted to students?

**Comments**

1 It is not.
2 Through hospitality classes and Cafeteria Revolution group.
3 Mostly through gardening education
4 We brag about where the food comes from when we're giving it to students to eat or to cook with. For example, our herbs and greens are all grown in the classroom and we make sure that they know that.
5 Through our week-long hands-on lessons in classrooms
6 School salad bar. Messages from Eco club
7 Newsletters that come home to students
8 Breakfast food cart for all and lunch delivered to classes
9 We make announcement
10 Through salad bar promotions, announcements, posters, school cash online (to parents)
11 Local food is promoted simply by encouraging students to eat garden fresh produce and the superior taste does all the talking

# Q #29: What local foods are offered?

## Comments

1 1. Salads; 2. Soups; 3. Sauces; 4; Chicken; 5. Cheese; 6. Beef

2 1. Burrito Bowl; 2. Fresh Veggie Soft Rolls; 3. Roast Chicken

3 1. Fresh vegetables from our garden in the fall; 2. Frozen vegetables from our garden through the year; 3. Local eggs; 4. Local produce from the Ottawa Good Food Box; 5. Fresh herbs and greens from classroom Tower Gardens; 6. Weekly gifts from Whole Foods--these vary.

4 1. N/A; 2. soups with local ingredients, sweet potato, potato, tomato; 3. homemade salsa and tomato sauce, made in the fall used on pasta, our pizzas and in our burritos; 4. apple crisp and fruits when available; 5. greens, tomatoes, potatoes, squashes through CSA; 6. herbs, tomatoes, peppers and greens through our greenhouse and garden; 7. local beef and pork which we process into our cafeteria meals; 8. eggs and milk from Hewitt's used for breakfast program and lunch items; 9. cabbages, squashes, sweet peppers for soups, stuffed cabbage and peppers.

5 1. Potatoes; 2. Eggs; 3. Milk; 4. Beef; 5. Chicken; 6. Carrots; 7. Tomatoes; 8. Whole Wheat Rolls

6 1. Local vegetables and fruit (some menu items listed above); 2. Locally grown whole grains (Oats and flour); 3. Eggs; 4. Milk; 5. Locally made products (tortillas, bread, tofu)

7 1. carrots; 2. beets; 3. greens - including sprouts in the winter; 4. cabbage; 5. strawberries; 6. Haruki turnips; 7. celeriac; 8. sweet potatoes; 9. parsnips; 10. apples; 11. kale; 12. garlic

8 1. Salad bar; 2. Greens; 3. Carrots; 4. Potatoes; 5. Onions; 6. Kohlrabi; 7. Kale; 8. Cheese; 9. Some local meat; 10. Milk

9 1. apples; 2. corn; 3. beans; 4. squash; 5. peppers; 6. eggplant; 7. kale; 8. pumpkin; 9. potatoes; 10. tomatoes; 11. zucchini; 12. lettuce greens

10 1. lettuce (grow across the street indoors); 2. potatoes; 3. carrots; 4. apples

11 1.carrots; 2. onions; 3. school garden produce; 4. potatoes

12 Strawberries (spinach salad); 2. lettuce; 3. potatoes (French fries); 4. apples (i.e. pie); 5. pears; 6. mushrooms; 7. beef; 8. carrots; 9. celery; 10. unsure if anything else

13 1. spinach; 2 lettuce; 3 cabbage; 4. microgreens (school grown); 5. carrots; 6. onion; 7. beets; 8. dairy; 9. cucumbers; 10. tomatoes; 11. apples; 12. berries

14 1. Roots Vegetables; 2. honey; 3. beef; 4. pork; 5. apples; 6. blueberries; 7. flour; 8. canola oil; 9. garlic; 10. squash; 11. cheese curds; 12. onions

# Q #30: Other Important Information to Relate

## Comments

1 Within our programs our focus is on local and eating in season. We are fortunate to have farmers with cold storage capabilities and farmers that grow in greenhouses over the winter months.

2 We have a different menu every Monday that includes a salad bar, main course which could be anything from a chicken wrap to spaghetti, a healthy dessert, such as a healthy muffin or black bean brownies, and a glass of milk which we offer for sale to all staff and students for $4.00. Students help prep and serve the meal every Monday. They sign up at the first of year and we rotate through the list. We also have volunteers that come in and help with prep, but this is only possible because we have someone that can organize, purchase and do most of the cooking and prep for the weekly meal.

3 We do not in general cook or create “dishes” or “desserts”. We provide a selection of fresh and other foods for students to use.

4 “Do you have a cafeteria or food prep service at your school?” Programs run by volunteers are a different case - we don’t offer prepared “main dishes” so much as a variety of salad items.

# Appendix 2
# The History of F2S (U.S.)

The National Farm to School Network in the United States describes the idea of F2S originating decades before its inception. It mentions the notion of supporting America's farms while simultaneously feeding hungry school children was part and parcel of the National School Lunch Act, passed by Congress in 1946. It was a way to create a "win–win" between farms and schools. Poppendieck (2010) provides an excellent account of the history of policies that created subsidies for both farmers, through the purchase of agricultural commodities, and school foodservice, through per-meal reimbursements for low-income school children.

Initially, the national policies for widespread purchase, aggregation, and distribution of food to schools made a lot of sense. However, by 1973, world market conditions prevented the USDA from guaranteeing sufficient levels of school commodities, so Congress amended the National School Lunch Act, requiring the USDA to purchase commodities for schools, and by 1994, at least "12 percent of total assistance for the National School Lunch Program [had to] be dispensed to state agencies as commodity foods" (U.S. Department of Agriculture-Food and Nutrition Service, n.d.). Because of these policies, economic benefit from the commodity program accrued more to large farms than to the small-scale and medium-scale farmers. By the mid-1990s, recognizable connections between farms and schools were few and far between. As alternative food and agricultural initiatives expanded from coast to coast in the 1990s, most institutional buyers held back, unable to see how they could make logistics and price points work out. However, a few foodservice pioneers on the east and west coasts began to experiment with pilot Farm to School programs. Their motivations were two-fold: First, to improve children's overall health by providing tastier, fresher, more appealing produce in school cafeterias, with the hope of increasing fruit and vegetable consumption, and second, to create a reliable income stream for struggling small-scale and midscale growers in their region. Sometimes the sales were successful; other times, es-

pecially in larger school districts, the transaction costs were seen as prohibitive. Navigating bidding requirements, writing new specifications, negotiating prices and deliveries, and creating new vendors all take time, and time translates to expense for school foodservice operations (Farm to School, n.d.).

## The First Farm to School Programs Emerge

In 1996, Bob Gottlieb, a parent in the Santa Monica– Malibu Unified School District (SMMUSD) in California and Director of the Urban and Environmental Policy Institute (UEPI) at Occidental College, and Rodney Taylor, SMMUSD's Food Service Director, established the first Farmers' Market Salad Bar with produce from local farmers, a story that is now legendary. Initially skeptical about whether the children would eat more fresh produce, Taylor quickly became a convert and supporter when he saw the initial results. Now, as the director of the Riverside Unified School District, Taylor has replicated and expanded the program. Meanwhile, in the southeastern United States, small farmers in the New North Florida Cooperative began selling washed, cut, ready-to-cook collard greens to the Gadsden County School District in North Florida. Ten years later, the Cooperative was selling to 72 school districts and had served over 1 million children (Aftosmes, 2011). Further north, in Connecticut, the Hartford Food System, a nonprofit organization dedicated to improving food security, helped create sales for local farmers with the Hartford Public Schools (Aftosmes, 2011). Each of these early programs started in different ways and involved different stakeholders. Program reports began to showcase the variety of models, how they worked, and their successes and challenges. Although adopting various definitions, all early "Farm to School" programs included purchases of farm fresh, "local" food—usually produce—for school cafeterias. Local was defined in various ways, from a given radius from the buyer, to the distance a farmer could drive for a day's delivery. (Feenstra & Ohmart, 2003-2011). Many programs also involved school gardens,

composting and recycling, farm tours, and complementary cooking and nutrition/food education in classrooms. In locations where the growing season is long and where fresh, local produce is available much of the year, salad bars were the most popular mode of serving produce to school children. Local, seasonal procurement was and still is one of the unique characteristics of these programs. The notion of "farm-to-school" struck a positive chord with communities nationwide and programs began to multiply. Many instigators of the early school food change programs—nonprofit organizations or informal coalitions of community members—were excited about the possibilities inherent in uniting several goals—childhood health and farm viability for regional producers through the procurement and provision of good food. With a few exceptions, early reports and media focused on the potential benefits of Farm to School programs and highlighted successes. However, it became clear that to be sustainable, these programs needed outside resources to get the work started. In the early 2000s, leaders of some Farm to School programs began to plan more coordinated approaches (Feenstra & Ohmart, 2003-2011). A large USDA research and outreach grant within the Initiative for Future Agriculture and Food Systems consolidated independent efforts across the country and allowed quantitative evaluation tools to be developed. The infusion of resources allowed Farm to School programs to create organizing committees and conduct outreach, training, and technical assistance workshops to spread new models and engage new constituents (Feenstra & Ohmart, 2003-2011).

# Appendix 3
# Farmer and Food Service Directors (FSD; U.S.)

As mentioned, data about the economic advantages to farmers in Farm to School programs has been sparse. Joshi et al., (2008) reported that farmers reported insignificant total and individual sales most participating farmers were initially enthusiastic about F2S programs. Some also conducted farm tours or classroom educational activities. They tended to see these efforts as a way to create synergy between the educational institutions, agriculture, and community, with the added potential benefit of additional sales through other venues (Joshi et al., 2008).

FSDs typically relied on national distributors who offer efficient, streamlined service, a system that allowed districts to provide low-cost meals to students. However, it also contributed to consolidating the food supply, supporting large agricultural and food-processing operations, and making it more difficult for school food buyers to purchase from smaller farms. Trial and error characterized early attempts to establish workable delivery models, and directors had to reevaluate their methods repeatedly. Several early models involved one-on-one contractual arrangements with farmers, but for the most part, individual contracts were not sustainable. Districts had no established system for paying individual accounts to numerous individual farmers and farmers, for their part, were not used to doing business with school districts. Additional obstacles included the substantial time to determine product availability and to plan integration into the district's menu cycle.

To deal with distribution challenges, some districts hired a "forager." This person, either hired by the district or supported through grant money, acted as a liaison between the district and the farmers. The forager's role was to find farmers who wanted to sell to the district, and then to meet with the kitchen manager, provide information about produce availability and volume, and help the manager to think about how to integrate seasonally available local produce into the menu cycle. Ideally, the forager's duties transferred to the district's kitchen manager, an arrangement that supports the institu-

tionalization and sustainability of working with local growers. (Feenstra & Ohmart, 2003–2011).

Soon, local brokers, cooperatives, and nonprofit-supported distribution operations saw potential in working with schools and institutions and began to play a vital role. These entities could source locally, deliver in a timely manner, and assume the responsibilities and liabilities involved. Examples included Growers' Collaborative in California, an LLC affiliated with Community Alliance with Family Farmers and ALBA Organics on California's Central Coast. The New North Florida Cooperative mentioned earlier has also been a successful model. Some of these arrangements worked better than others, but they all became ways in which FSDs could maintain a nontraditional distribution system alongside a traditional one. In some parts of the country, medium-scale and small-scale regional distributors stepped into the space between direct purchasing and large broadline distributors. Four such regionally based food distributors in the Midwest and Northeast worked successfully because the distributors were motivated and committed to local farmers.

Although they still see school accounts as a niche market, they have developed relationships with their school FSDs and have adapted their systems to make it work. Product supplied retains its seasonality and local identity, qualities not common or guaranteed by broadline operations. These regional distributors can act as mediators between schools and farmers and have the potential to help scale up the volume of local produce delivered to school districts. Traditional broad-line distributors have been late in coming on board. It took increasing demand by food service to begin to make changes in this sector. As a result of growing customer demand, some have begun to identify the source(s) of their fresh and/or local product. In this way, large distributors are beginning to develop systems to identify the source and/or name of the farm/farmer on invoices. Distributors are beginning to respond to the needs of the public sector (Feenstra & Ohmart, 2011).

For most farmers, income from the farm-to-school program remained modest and represented less than 5% of total income. For one farmer in one study, sales to the school district for a single popular fruit (kiwi) represented up to 40% of total direct sales (Ohmart & Feenstra, 2004).

Most foods were purchased directly from individual farmers with the exception of the one cooperative. One study provided data about a 3-year contract for in-state farmers to supply a large urban school district with apples (partially processed slices). Although sales averaged $1.4 million/year, it is unclear how many farmers in the state benefited from these sales and through which distribution channels.

One of the key dimensions of farm-to-school programs in the United States is that school cafeterias purchase foods from local growers. The definitions of local, however, are far from consistent, varying from 50–100 miles to statewide to a region. It is therefore difficult to compare results across programs unless a very broad view is taken. Additionally, the term “local” may be associated with other attributes such as “grown on a small-scale family farm” or “directly sold by farmer” or even “sustainably grown” and “organic,” which may or may not be an aspect of the program. In future studies, it will be important to portray all of these dimensions as accurately as possible so the conditions under which successful programs can function best are known. Future research should assess other changes farmers might make as a result of a farm-to-school program such as planting patterns and marketing venues, product diversification, and the likelihood of expanding institutional sales to include other local institutions.

# Appendix 4
# Additional Research on the Cognitive and Educational Benefits of School Meal Programs

According to Hernandez et al. (2020), school meal programs may be able to improve access, quantity, quality and sustainability of foods for school-aged children and youth. School Food programs have the potential to increase student access to, and consumption of, healthy foods. As described in this paper, this may reduce the risk of chronic disease, improve school attendance, behavior, and educational achievement, and improve cognition and mental well-being. Combined with the F2S approach, these programs have the potential to improve food literacy and strengthen local food systems.

There are numerous studies on the beneficial affects of breakfast on school aged children. This appendix highlights that research but since students spend a significant amount of time at school it is important that they also consume healthy lunch and snacks which offer similar benefits (Food Research and Action Center, n.d.; Harvard School of Public Health, 2016). That is why a fully funded Universal School Meal program is so important.

Research studies have found significant improvements in school attendance and tardiness as the result of instituting a breakfast program over a two-year period (Kennedy & Davis, 1998; Wahlstrom & Begalle, 1999). A review of existing breakfast studies in several nations, including the U.S., found that school breakfasts have a positive effect on school concentration, alertness, and energy (Cueto, 2001). In a study of 97 inner-city children both before and after initiation of a School Breakfast Program, Kleinman, et al. (2002) found that nutritional enhancements resulting from breakfast led to “significant improvements in student academic performance” in comprehension, learning, memory. Controlling for other factors, children who received a school breakfast did better on standardized tests (Comprehensive Test of Basic Skills) than did children who did not participate in the breakfast program (Meyers, 1989). In Minnesota, children who received a school breakfast exhibited general improvements in math and reading scores (Wahlstrom & Begalle, 1999).

USDA researchers have found that students consuming breakfast, both school breakfast and at home, have a significantly higher score on the Department's Healthy Eating Index (United States Department of Agriculture, 2016). Among children in low-income households, those who received a school breakfast have "a statistically significant higher Healthy Eating Index (HEI) score (Adolphus et al., 2013). Nutritional consumption scores for low-income children eating school breakfast, as opposed to those who did not receive a meal, were more than twice as high for fruits consumed, and exactly twice as high for milk consumption (Adolphus et al., 2013).

The School Breakfast Program has been shown to build better eating habits among children, particularly insofar as reducing the percentage of calories consumed from fat (Bhattacharya et al., 2006). Breakfast participation also reduces the likelihood of serum micronutrient deficiencies in vitamin C, vitamin E and folate, and increases the likelihood that children will receive recommended intakes of potassium and iron (Bhattacharya et al., 2006). A research summary of studies in various countries, including the U.S. conducted by Cueto (2001) found school meals contributing to improvements in nutritional status, including growth measures such as height and weight gain among poor children.

Numerous studies have reported reductions in childhood illnesses such as headaches and stomachaches, known to associate with hunger. When Minnesota instituted a universal free breakfast program, researchers found significant decreases in complaints of stomachaches and headaches (Wahlstrom & Begalle, 1999).

# Generating Success for Farm to School

We wish to thank our project partner Sustain Ontario, for their support.

A special thank you to Carolyn Webb, coordinator of the Ontario Edible Education Network, for her contributions.

We also would like to thank the Social Sciences and Humanities Research Council for funding this project and Eva Aboagye and the team at Research and Innovation, George Brown College, for their support.

Lastly, we want to express our appreciation to our designer for his creativity and patience, Jacob Lindblad.