RURAL DEVELOPMENT NETWORK

FarmEd Toolkit

CANADIAN AGRICULTURAL PARTNERSHIP
Innovate. Grow. Prosper.

Irvine School
Agriculture Discovery Centre
ADC
A Place to Grow

Alberta

Canada

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Land Acknowledgement

The RDN office is located in **Amiskwaciwâskahikan**, also known as Beaver Hills House or Edmonton. Our **land hosts** are the **Cree, Saulteaux, Niisitapi (Blackfoot), Métis, and Nakota Sioux,** whose traditional lands we live upon today. Our RDN team spans **Turtle Island**. We invite everyone to take a moment to reflect on their own acknowledgement and relationship with the Indigenous Peoples' land you are situated on, and the respectful use of land when cultivating and harvesting products.

ᓀᐦᐃᔭᐤ ᐊᐢᑭᕀ Nêhiyaw-Askiy (Plains Cree), Kelly Lake Metis Settlement Society, Big Stone Cree, Beaver Lake Cree, Očhéthi Šakówiŋ, Ktunaxa ʔamakʔis, Niitsítpiis-stahkoii ᖹᒧᐧᗝᖽᐧ ᓴᐦ ᖹ (Blackfoot / Niitsítapi ᖹᒧᐧᒣᑯ, Secwepemcúl'ecw (Secwépemc), Îyãħé Nakón mąkóce (Stoney), Tsuu T'ina, As'in'i'wa'chi Niy'yaw Askiy (Rocky Mountain Cree), Mountain Métis, Kelly Lake Metis Settlement Society, Beaver, Cree, Akaitcho, Denendeh (Dënësųłiné Nëné), Michif Piyii (Métis), Dene Tha', Dënéndeh.

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Disclaimer

The information shared in this toolkit contains 3rd party resources and presents different viewpoints on various subjects. Readers are encouraged to research the opinions presented and draw their own conclusions.

Available to download at
www.ruraldevelopment.ca

Introduction

1.0 Purpose of the FarmEd Toolkit

Agricultural literacy is commonly defined as possessing knowledge and understanding of the food and fibre system and having the ability to synthesize, analyze, and communicate basic information about agriculture (Frick et al.). Agricultural literacy is becoming increasingly important as the global population increases. Many consumers are unaware of the intricacies and dedication that goes into food production and distribution in Canada. Many of us are fortunate enough to be able to walk into a grocery store and purchase all or most of the ingredients necessary for a healthy breakfast, lunch, and dinner. Amongst other things, COVID-19 has brought light to the fragility of our food supply chain and has provided many consumers with the perspective of individuals or vulnerable communities who experience food insecurity regularly.

Beyond food security, it is important for consumers to have basic knowledge of how food is produced and distributed so decisions regarding human and animal health can easily be made upon purchase, as well as purchasing for environmental sustainability. There is an exorbitant amount of information about the agriculture industry available to the public which is fantastic and equally overwhelming. Public trust issues exist across the food and agriculture industries in Canada; the thought process behind increasing agricultural literacy in youth is to inform them so they are able to make decisions and form opinions based on scientific facts and knowledge surrounding agriculture and food. A younger generation will take what they've learnt into their adult life, as well as taking it home to teach family members and friends which creates a trickle down and trickle up effect of knowledge sharing.

The purpose of this toolkit is to provide those interested in starting an agricultural program at their community school with a compilation of resources, steps, and information from industry experts and others who have gone through the process to make agriculture education accessible to more students. There are many pioneers in the field who have paved the way in terms of integrating agriculture into education so the FarmEd Toolkit doesn't aim to reinvent the wheel, but rather to make the road less traveled a little smoother.

Creating an agricultural education program is not a one size fits all endeavor but the hope is that learning through the experience of others will inspire and help you, the reader, to go ahead with your plans to increase agricultural literacy amongst students, teachers, community members, and every other person involved along the way.

2.0 Intended Audience

The FarmEd Toolkit has been developed for a variety of readers with common goals. The majority of readers will be affiliated with a school whether you are a principal, a teacher, a parent, a school district superintendent, a community member/volunteer at the school, or a student. Other readers may include education stakeholders or agriculture industry stakeholders who would like to learn about the possibilities of integrating agriculture into the education system. This document is meant to demonstrate how this integration can be done, to showcase successful examples, and to assist those in the process.

Planning Stage

1.0 Set Goals & Objectives

Moving past an idea of starting a small-scale farm and/or agriculture education program at your community school can be daunting whether you come from an agricultural background or not. This is because there are a lot of moving parts and many stakeholders involved in the process of integrating education and agriculture or food production.

It is helpful to think of starting your program like you would a business - create a detailed plan that includes an analysis of why you're pursuing this, advantages and disadvantages, and your implementation plan while omitting any threats to the program. This planning process will encourage you to find the answers to your questions and unveil questions you didn't know you had.

The first step in the planning process is asking yourself the questions that may seem obvious but are valuable to have in writing:

1. Why are you personally interested in making this happen?

2. What are you trying to accomplish through this program for your school community? Some examples may include:

- Increased agricultural literacy,
- Increased enrollment,
- Engagement with the community,
- Food security in your community,
- Revenue,
- Alternative learning opportunity for students, and
- Learning opportunities for the staff, parents, and community members.

Once you have written down your goals and objectives for the program in which you would like to put in place, it may be a good idea to think about how they align with the school's mandate and environment. Is your idea of integrating agriculture into education the same as what the school as a whole is interested in doing? It is also important to ask these questions because if for example, you are mainly interested in generating extra revenue for the school you may be disappointed when you are still trying to find funding while generating zero revenue.

This will come into clear focus during the next planning step.

Before moving on to create your vision, we encourage you to consider your role in the agricultural industry through your future programming. By entering into the sphere of agricultural education, the school becomes a representative of the industry. We want to encourage you to prioritize credible information, animal health & welfare, and thus, the integrity of the agriculture sector. Implementing a model farm with industry approved practices and forward thinking in food production will best prepare students for entry into the industry as adults and improve the industry overall.

2.0 Create a Vision

You may personally have a clear idea of what an agriculture education program looks like but creating a vision with the students, who are the focus of your program, will empower them, provide a sense of purpose, and generate student investment. At this point you could do a consultation with the students - create word maps or a vision board, ask them what they may be interested in learning, ask them what their experience is with agriculture, ask them how involved they are willing to be, and provide examples from other schools to demonstrate what may be possible. This will be a fun exercise to look back on once your program becomes more established.

As much as the program is focused on the education and agricultural literacy of the students at the school, it is also very necessary to engage the valued teachers and staff who will be educating the students and will inevitably become involved in other ways. Similarly to the students, it is important to consult the teachers and give them the opportunity to voice opinions, ideas, and concerns about the program. Teachers know the students very well and will be able to help you gauge how interested they are. And beyond student interest, it is worth hearing out the teachers so they are able to build excitement towards the program. The more involved teachers are in the planning process, the easier it will be for them to envision how they can incorporate the experiential learning into the curriculum.

Teachers have a large responsibility to deliver curriculum and meet outcomes and this can become even more overwhelming when teaching multi-grade classes, multiple subjects, and for teachers who are relatively new to teaching. Providing teachers with as much support and access to resources will be essential for the sustainability of your program.

While creating this vision and consulting students, teachers, staff, and other stakeholders remember to document these sessions so you have something to refer to and look back on. We suggest creating word maps or visuals to help you organize and see how your ideas are connected.

Another fun visual activity to do at this stage is to create a logo for your program with the help of the students, staff, and/or community. Creating a logo can help to solidify the vision and get everyone excited about what is to come.

A great example of how to create a logo is to put out a school wide competition for students to design the logo. Irvine School demonstrated this and arrived at a great logo, designed by a grade five student, Devyn Lightbown. **Below is the finished logo.**

3.0 Scaling your School Farm - What are you ready for?

After consulting students and teachers you may have quite an array of imaginative ideas to work with. Now is the time to assess the ideas, prioritize them, and consider what is feasible for your school right now versus what can be worked towards. Your future goals or vision for the program may not meet what your school is capable of right away but you can start small and scale up over time. All schools are unique and have different strengths and weaknesses that will determine what is right for your school. You will need to take an inventory of your current resources and human capital, and compare it to the resources that are needed for your proposed farm. Some of the things you might consider are:

- What kinds of animals you want to have (e.g. broiler chickens, laying chickens, or both);
- What kind of plants do you want to grow, what scale of production;
- What to do with the food produced;
- What infrastructure is required (e.g. water for taps and irrigation);
- How much land is required for pens and fences;
- How much electricity is required for livestock, tools, etc.; and
- Do you have the capacity to uphold policies and procedures (e.g. a farm safety plan)?

4.0 What are the Logistical Roadblocks?

At this point you have a rough idea of where your school can start and you've envisioned where you want to go. Before you dive into the research for your planning process, we want to highlight some potential roadblocks that may reveal themselves when you begin your research. This is not to discourage you before you begin, but to make you aware of them so you don't become overwhelmed while doing your research.

Instead, we want you to begin your research with these barriers in mind so you can earmark certain resources and be better prepared overall. As well, we have included some resources in the research section (5.0) that will provide you with direct answers to help mitigate these roadblocks.

4.1 Lack of Support

The most common issue that many schools run into is a lack of support from either the school division, the teachers and staff, or the community when trying to start a school farm or agriculture program. This is a very situational problem and can occur for a number of reasons but most generally, people are apprehensive to support this type of program because it may be a new concept to them. There are safety, liability, and maintenance concerns associated with introducing livestock, machinery, tools, and other farming or horticulture practices into a school setting. The best and most effective way to combat these issues is to plan and supply all stakeholders with as much information as possible by ensuring that you are ten steps ahead of all of the concerns.

For example, a concern that teachers and staff may have, which was previously mentioned, is the increase of extra work that the program may impose on them. This is a valid concern and the best way to mitigate this is ensuring that policies and procedures are put in place before the program starts so that the extra work or chores are delegated evenly amongst everyone (mainly students) through diligent scheduling. Beyond the worry of an increased workload, teachers will want to know that they are supported if they are being encouraged to integrate experiential learning into their lesson plans. There are resources and activities which link to the Alberta education curriculum further in this Toolkit which are intended to save teachers time and provide a starting point with their students.

There is a network of schools in Alberta with agriculture education programs who are willing to share resources and experiences. There are many fantastic resources for teachers to use but a day of professional development surrounding the program is even more useful to demonstrate how to best use the resources.

There are a number of organizations that facilitate professional development specific to the integration of agriculture into education. Consider reaching out to Agriculture for Life, Inside Education, Classroom Agriculture Program (CAP), or the Rural Development Network to initiate a professional development session with your teachers.

Receiving support from your superintendent and school division is critical to the success of your program. Uptake of agriculture within the education system differs greatly amongst school divisions and as a champion of your agriculture program it is in your best interest to demonstrate to the superintendent and school board the importance of the program and potential positive impact that it will have on the education of students within the division. There are a number of credible studies that have been done to demonstrate the positive impacts of increased agricultural literacy and experiential learning in children and youth. Here is a link to the FarmEd Report, produced by a group of sociology students at Grant MacEwan University for the purpose of this toolkit, to provide information on agricultural literacy and experiential learning.

Cam McKeage, superintendent of Prairie Land School Division in rural Alberta has said that “the key to having support of the school board is the ability to shift attitudes and mindsets around the education system” and one way to do so is to tell the stories of other schools who have implemented programs in rural Alberta such as Altario School in Altario, Alberta; The Farm in Airdrie Alberta; Lacombe Composite High School in Lacombe, Alberta etc.

Once you have further developed your implementation plan, it would be advisable to put together a plan proposal that you can then present to the school board which will help you articulate that you have thoroughly designed a starting point for the program, with room to grow as capacity and funding allows. A comprehensive, detailed planning process will result in less unanswered questions which may motivate your school board to provide support and help you make it happen.

In section 6 of the toolkit, we will go further into planning for implementation and much of the work done during this stage is what you will want to include in a proposal if necessary. This proposal is something that you will be able to deliver to future funding opportunities such as grant applications and sponsors, and community members.

4.2 Maintenance

Many schools have expressed that a key stakeholder in a successful agriculture program at the school is the maintenance staff. These are the wonderful people that will help you when an electrical breaker goes off and you need light for the laying hens, they will give you access to the tool shed, and will be able to turn the outdoor water faucet on in the spring when it's time to plant your seedlings. They are the people who know the school site the best (if your operation is on school property) and should be consulted throughout your implementation planning to provide a critical perspective on logistics specific to your school. Not only is consultation important but our need to ensure that the workload of the maintenance staff does not become unmanageable with the addition of a small-scale farm at the school. The work should be divided equally between students and other willing staff members and volunteers in a schedule that you can show to the maintenance staff. Remembering to include all stakeholders in your planning stage is not only a way to avoid miss-steps, but also an opportunity to get everyone excited about the new developments at the school; and the way you deliver the information is always something to be aware of.

4.3 Registration, Permits & Licensing

Introducing livestock and the necessary buildings and infrastructure for housing and watering will likely require registration, permits, or licenses. You will need to approach your municipality to inquire about permits regarding livestock, depending where your farm site is located. For example, every municipality has its own legislation surrounding raising chickens and bees. As well, every type of livestock in Alberta requires a Premise Identification Number (PID) which is free to acquire and the application is straightforward and attainable. There are links to resources in the research section below which have specific information on how to acquire the PID and chicken legislations in Alberta.

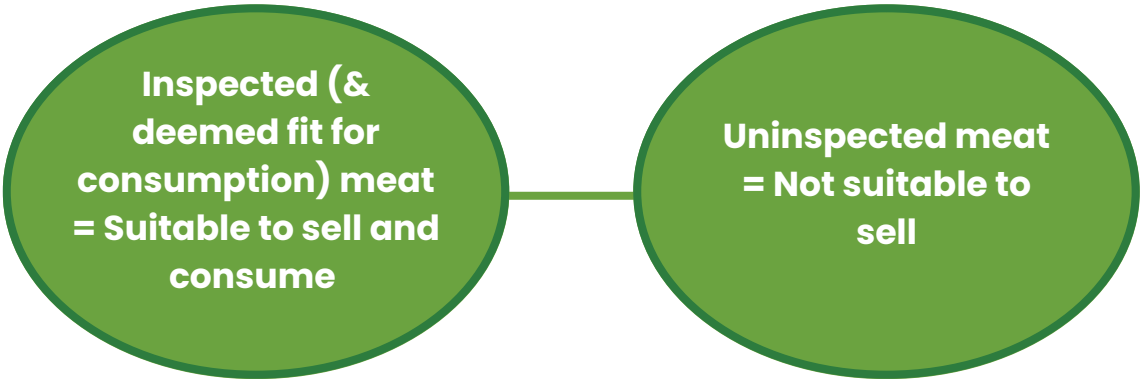
If you are planning to build a structure on site (e.g. a tool shed), you will also need to look into zoning and permits surrounding secondary structures in your municipality. Before building or buying materials, inquire with your municipality and school division what is possible for what you plan to build so you don't have to take down a structure that you and others have worked hard to build.

4.4 Butchering & Processing

If you are planning to introduce livestock into your school program you will be responsible for every stage of life of the animals which includes the butchering or processing. Some schools choose to raise and sell their animals before slaughter but if you plan to have the livestock processed in order to sell the meat, you will need to integrate this into your implementation plan. If you are selling meat it will need to be inspected to ensure it is safe for consumption. In Alberta, it is required that meat sold for human consumption is inspected and slaughtered at a licensed abattoir or inspected by a registered meat inspector and sold to a mobile butcher facility. Although there are other licensed slaughter operations, such as a mobile butcher and an on-farm slaughter operation that allow slaughter of uninspected meat, it cannot be sold to consumers and is only fit for consumption by the producer and their direct household.

These things can get a bit sticky and we do not recommend processing your livestock on-site (at school) to eliminate food safety and liability concerns.

WHEN IN DOUBT:



Because there are a limited number of licensed abattoirs, it is necessary to have these details ironed out before introducing livestock to ensure you will be able to schedule slaughtering at a facility when the animals are "finished". Here is a Directory of Licensed Slaughter Operations in Alberta to help you find an abattoir in your area.

To assist you through this process, you can reach out to a meat inspector in your area to answer questions you may have. Here is a Directory of Appointed Meat Inspectors in Alberta.

4.5 Safety

This may be obvious but safety, and in this case farm safety, is the most important element of your agriculture program plan. Without a farm safety plan and necessary training, you increase the risk of an accident involving students, staff members, anyone else involved in the farm, and animals. Therefore, your school board, community members, education stakeholders, agriculture stakeholders, businesses, and anyone else that you are trying to engage in your program is more likely to support it if there is a safety plan in place.

You might want to have a safety consultant assess the site, assist with development of an emergency response plan, a safety hazard management plan, and recommend an implementation process that will work for the school. The school should also work with the school division's health and safety staff to ensure that the school farm site is meeting occupational health and safety (OHS) requirements. The Occupational Health & Safety School Kit is a resource that school authorities use when creating their OHS plans and may be worth perusing. Remember to include the safety of both humans and animals in your safety plan.

Some examples of key elements in a safety plan include:

- Identification of all hazards on site;
- Controls for hazards;
- Ensuring students, staff, volunteers, guests, and contractors are made aware of the hazards and are oriented and/or trained on how to work safely;
- Creation of a detailed Emergency Response Plan (ERP) for ALL types of training;
- Documentation of all safety and ERP training, including guests and contractors; and
- Training on how to use PPE and how to care and maintain it.

AgSafe Alberta has created the Alberta Farm Safe Plan, a safety planning workbook for farms, that anyone can adapt to their operation. The booklet includes a series of policies, roles and responsibilities, checklists, and fillable forms to help you create your safety plan and documentation.

AgSafe also provides a number of online training courses with respect to farm safety.

Your safety plan and training is something that will need to be revisited every school year, especially if you are making changes to your farming operation. Adhering to a safety plan and committing continuous time and energy to it is a challenge for any operation.

It is easy to become complacent with safety and difficult to notice small details on a daily basis. For example, teachers and staff may not notice every shoelace that is untied, improper use of equipment, or every loose hoodie string. The benefit of having students involved and aware of the safety hazards is that they will notice these details. Encouraging them to speak up about safety violations will prevent possible incidents and give them confidence to do the same in other work settings (Wacowich, 2021).

To include the students in the safety aspect of the program, a Health & Safety Committee could be initiated so that students can take initiative and share the responsibility of ensuring all safety measures are in place and up to date. They can come up with scenarios, drills, and exercises to prepare for real emergency situations. The skills they learn will be useful in the future and will be transferable to many other areas of their lives.

Farmers Care is a free online course that students and staff can all take part in. It is a tool designed to help you pick out realistic ways to prevent hazards and injuries in an agricultural setting (AgSafe). The course includes printable resources, videos, real life stories, a peer discussion board, and a personalized certificate of completion.

Another agriculture safety course option is AGR 3000: Agriculture Safety, delivered through SafeGen as an online course or an in-person format. Students will gain credits for learning how to recognize and assess the hazards and manage the risks of working in agriculture. As well, AGR 3000 is a prerequisite for the Green Certificate Program.

There is more information about the above courses (Farmers Care, AGR 3000, and the Green Certificate Program) in the Teach Section of this toolkit.

4.6 Financial Sustainability

For many agriculture education programs, funding may be the biggest hurdle to overcome.

To implement a long lasting program for current and future students, you will need to address start-up costs *and* operational costs to ensure financial sustainability of your envisioned program. It's time to put on your entrepreneur hat!

Start-up or capital costs can be acquired in various ways and will depend on many factors including your school's financial situation, level of support from your school board, parent and community support, capacity to write grants, and your ability to host fundraising events.

Section 7.0 includes a budget template to help determine start-up costs and annual costs for your agriculture program. You need to have a budget in place to keep track of expenses and revenues, and to have justification for funding that you may be requesting from grant programs, community investors, and sponsors.

Grant funding is a great way to gather start-up capital and to fund growth once your program is established. Applying for grants can be a lot of work and it will be advantageous to determine who will be responsible for this task. You can either designate this role to one experienced grant writer, establish a grant writing group or committee (students can be involved!), outsource or hire an internal grant writer, or seek out an organization (RDN for example) who can assist you. Grant writing off the side of one's desk is a hefty task that we don't recommend as you run the risk of burnout or missed deadlines and opportunities.

To ensure financial sustainability of the program, there are alternative ways to fund operational costs (e.g. animal feed, labor, regular maintenance and repairs, utilities etc.). Some examples include:

- Annual or biannual fundraisers in the community,
- Community and/or corporate sponsorships, and
- Income generation from food sales.

If you choose to sell your harvest, Section 6.7 will walk you through the development of a sales and marketing plan to help you decide how and to whom you want to sell the food that is produced at the school.

5.0 Research

This is the time to research as much as possible in areas such as best practices, selling and marketing your goods, similar programs to yours at other schools, animal welfare, biosecurity, farm safety plans etc.

The time you spend researching will save you time throughout implementation and will help you avoid potential mis-steps. It is very important to know what to expect before introducing livestock for the safety and welfare of animals and the school community.

Below is a compilation of high quality materials that are up to industry standards. Beyond the resources in this document there are thousands of pieces of information in the world. It is important to make sure you are using credible, up-to-date sources of information to implement a program that is up to industry standards in Canada. To do so we suggest.....

5.1 Chickens

Engage a Local Poultry Producer

- A local mentor will be invaluable if you plan on introducing poultry. If you are planning on raising laying hens, we recommend finding an egg farmer and a broiler producer if you plan on raising meat birds.
- If you don't know someone in your area or are unsure of how to find/engage a local producer, feel free to contact RDN for guidance.

Code of Practice for the Care & Handling of Hatching Eggs, Breeders, Chickens, & Turkeys

- The Code of Practice is a nationally developed set of guidelines for care and requirements and recommended practices for meat birds.
- Includes information on flock health, housing, feed & water, euthansia etc.
- Specific to broilers.

Code of Practice for the Care & Handling of Pullets & Laying Hens

- The Code of Practice is a nationally developed set of guidelines for care and requirements and recommended practices for layers.
- Includes information on flock health, housing, feed & water, euthansia etc.
- Specific to pullets & laying hens.

Start Clean - Stay Clean Program Manual

- This manual is a set of guidelines for management practices and operating procedures for laying hens, developed by the Egg Farmers of Canada.
- Includes important information and record/management templates.
- Specific to laying hens.

Raising Chickens in Alberta: a guide for small flock owners

- This document is a fantastic resource for those interested in small flock ownership. It includes information on registering your flock, basic chicken needs, biosecurity, processing meat, the sale of ungraded eggs, etc.
- Relevant to broilers & layers.

Top Ten List of Chores

- A list of the top ten chores for healthy backyard birds, prepared by veterinarians Dr. Mike Petrik, DVM, and Dr. Lorne Cruise, DVM.
- Specific to laying hens.

Premises Identification Program - How to Apply

- A link to information on and applying for a PID account. Every site in Alberta that livestock is housed at needs a PID number. associated with it for traceability and biosecurity purposes.
- Relevant to broilers & layers.

National Avian On-Farm Biosecurity Standard

- National biosecurity guidance for all owners/managers across the poultry sector in Canada.
- Relevant to broilers & layers.

Basic, Better, Best Biosecurity: Best Management Practices for Poultry Production

- A comprehensive, easy to read guide to poultry biosecurity manual for all levels of production.
- Relevant to layers, broilers, turkeys.

Canadian Food Inspection Agency

- Highly Pathogenic Avian Influenza (HPAI) is spreading globally and anyone raising birds (including backyard chickens) should be aware of the signs of HPAI and how to prevent spread.
- The above link will guide you through the process of reporting suspected cases.
- The Alberta CFIA phone number is 1-403-338-5225 for questions or reporting.

5.2 Bees

Check Municipal Bylaws

- Before acquiring bees and/or equipment you need to contact your municipality to confirm if there are any applicable bylaws relating to urban beekeeping in your area.

Registering Your Bees in Alberta

- This is a link to the Alberta Government website. Every person who keeps bees must register them in Alberta and the information and registration form is here.
- Tip: All beekeeper certificates of registration expire on June 29 each year.

Premises Identification Program - How to Apply

- Beekeeping also requires a PID as bees are considered livestock.

Bee Inspired Book

- This book is a great resource for teaching and learning about bees, developed by ABC Bees.
- ABC Bees has offered a **10% discount code** for our FarmEd Network so please use **farmed10** when purchasing your copy!

ABC Bees Workshops

- We *highly* recommend the lead bee person completes a beginners course in beekeeping prior to purchasing bees & equipment. It's ok to not know everything when you first start, learning with the students is encouraged! That being said, a beginner beekeeping course will alleviate common missteps, avoid safety risks, increase the welfare of your bees, and help to break down the imposter syndrome that many of us experience when starting something new.
- Eliese Watson at ABC Bees is a fantastic apiarist and teacher of all things apiculture here in Alberta. Her Level 1 Beekeeping course is a 10 module online course delivered through NAIT. This is a very comprehensive option for anyone who wants to dive deep into small-scale beekeeping.

Honey Bee Pests & Diseases

- This resource was developed by the Alberta government and is a good starting point in understanding bee health and management. It goes through various pests and diseases and how to verify and manage them.
- There is also a downloadable Bee Health App for your mobile phone to help you assess your bees in the field.

Find a Local Producer or Processor in Alberta

- Alberta Beekeepers Commission has a map of local. producers/processors in your area. This may be useful if you are looking for mentorship (which we highly encourage!).

Local Beekeeping Hobby Groups

- Joining a hobby group is very useful for getting quick advice and meeting people in the beekeeping world. This is a link to the Alberta Beekeeping Buy/Sell Forum which has 4.1K members located throughout Alberta.

Honey Grading Regulation

- This resource describes the requirements for grading, packaging, and labeling of honey that is produced and sold in Alberta. It is $3.00 to purchase and well worth it if you are considering selling honey to consumers.

Planting Guide: Planting Forage for Honey Bees in Canada

- This planting guide is a great resource for supporting your bees with a pollinator garden.

5.3 Produce

Garden Survey

- A survey template for students, staff, and/or whomever will be growing in and eating from the garden, to get an idea of what crops to grow.

A Comprehensive Guide to Planting and Seeding Vegetables in Zone 3 & 4 Gardens

- Includes when to sow, practical tips, common pests, and companion plants for each crop.
- Specific to Alberta.

West Coast Seeds Garden Resources

- West Coast Seeds has a resource bank that includes information on everything gardening such as growing, starting seeds, harvesting, soil basics, composting crop rotation etc.

5.4 Composting & Vermiculture

Composting Goes to School

- This resource is an oldie but a goodie which makes sense because composting is nothing new. The visuals are cheesy but the information is relevant and includes information for teachers, the logistics of composting, activities, and how to implement.

T.R.A.D. Worm Industries Ltd. - Vermicomposting

- This organization provides resources for vermicomposting at school and is being implemented at the Irvine Agricultural Discovery Centre, one of the FarmEd pilot schools.
- They provide resources, services, field trips, events etc. in vermicomposting.

5.5 Environmental Farm Plan & Beneficial Management Practices

Alberta Environmental Farm Plan

- This program walks you through the creation of an Environmental Farm Plan (EFP). Having an EFP is free to develop, environmentally responsible, and a great learning opportunity for staff and students.

Beneficial Management Practices

- This document from the Government of Alberta outlines the environmental risks that come with farming and how to implement beneficial management practices to reduce those risks.

5.6 Network with Other School Food Programs

Farm To Cafeteria School Food Map

- This map shows a number of schools with a variety of school food programs including school farms, lunch programs, gardens, salad bars, breakfast programs etc. It shows a great representation of the many different options and structures. We encourage you to reach out to other schools for mentorship, advice, or to simply hear their story.

Practices

6.0 Prepare for Implementation

This planning process is where you will marry your school's vision for the program and all the research that you have done. Organizing your plan into procedures, policies, processes, and templates will simplify implementation and is a pivotal part of creating a sustainable program that can grow with time. This step will also allow you to demonstrate to stakeholders that you have a tangible plan and you will likely have more answers to questions and concerns that they may have.

6.1 Create a Team with Designated Roles

As mentioned previously, one of the first roadblocks that a school may face is a lack of capacity to sustain a school farm and agricultural program. By developing a team structure prior to implementation, you will have the luxury of matching your capacity to your vision before implementing your school farm which will save everyone time and energy in the long run.

Every agriculture education program needs a key school champion or leader, who is passionate about the school community and its relationship to agriculture, and is willing to push things forward. That being said, one person can't do it all and duties should be evenly distributed to avoid burnout. We have consulted many stakeholders of agriculture programs who recommend that a structured role, with outlined responsibilities and a succession plan, is created early on. If the person driving the ship is no longer able to do so or moves on to another position, having outlined roles and responsibilities will make it easier for another person to step in and continue to lead the program.

It is ok if the agriculture program champion/leader/coordinator is a volunteer position but if so, you can still write up an agreement of terms and conditions between this person and the school. Alternatively, you can hire someone to fulfill the coordination and leadership responsibilities, as long as you have access to funding within the school or plan to incorporate their wages into your financial strategy. A job description for this role will help you determine how many hours of work are needed and thus, how much funding for wages is required. We've created a Program Coordinator Job Description Template for your reference and to adapt for your own purposes. You may find that the majority of human resources are needed in the start-up phase to get the program rolling so perhaps a contractor or consultant is the best fit for your school. RDN can assist you with finding the right fit for this role and connect you with a network of consultants, community animators, work integrated learning opportunities, and funding opportunities.

Spreading roles and responsibilities throughout a structured team of leaders, teachers, students, and volunteers will only strengthen the agricultural program. Students are capable of so much and will breathe life into the program as long as they are supported and interested.

For example, Altario School uses a Business Management Model where students are hired for management positions of different areas of their school farm; and teachers and staff assist where necessary. Through this model, the students are responsible for the bulk of the work and decision making on their farm.

Alternatively, Irvine Agriculture Discovery Centre is implementing a Social Enterprise Model which includes a board structure and committees who work together to make decisions. Both of these options are a great way to involve the students in the decision making process and distribute responsibilities. Check out the Operational Structure Document, created by Irvine ADC, to see examples of the Social Enterprise Model (SEM) and the Business Management Model. The Board Roles & Responsibilities is the document that Irvine ADC created once the SEM was put in place.

One of the reasons why the Irvine ADC decided to structure a leadership Board of Directors and a number of committees is to provide students with the opportunity to become involved at a young age as they are able to participate on committees as early as grade 7. Becoming a committee member then prepares students for leadership roles on the Board of Directors in future years, which ensures that board roles of students who are moving on to high school will be filled.

6.2 Farm Safety Plan

This is your chance to create or go over your Alberta Farm Safe Plan before you introduce potential hazards on to the school site. It may seem like a lot to dive into but we can't emphasize the importance of this plan. Besides, it will likely help you gather support

6.3 Apply for Permits and Licenses

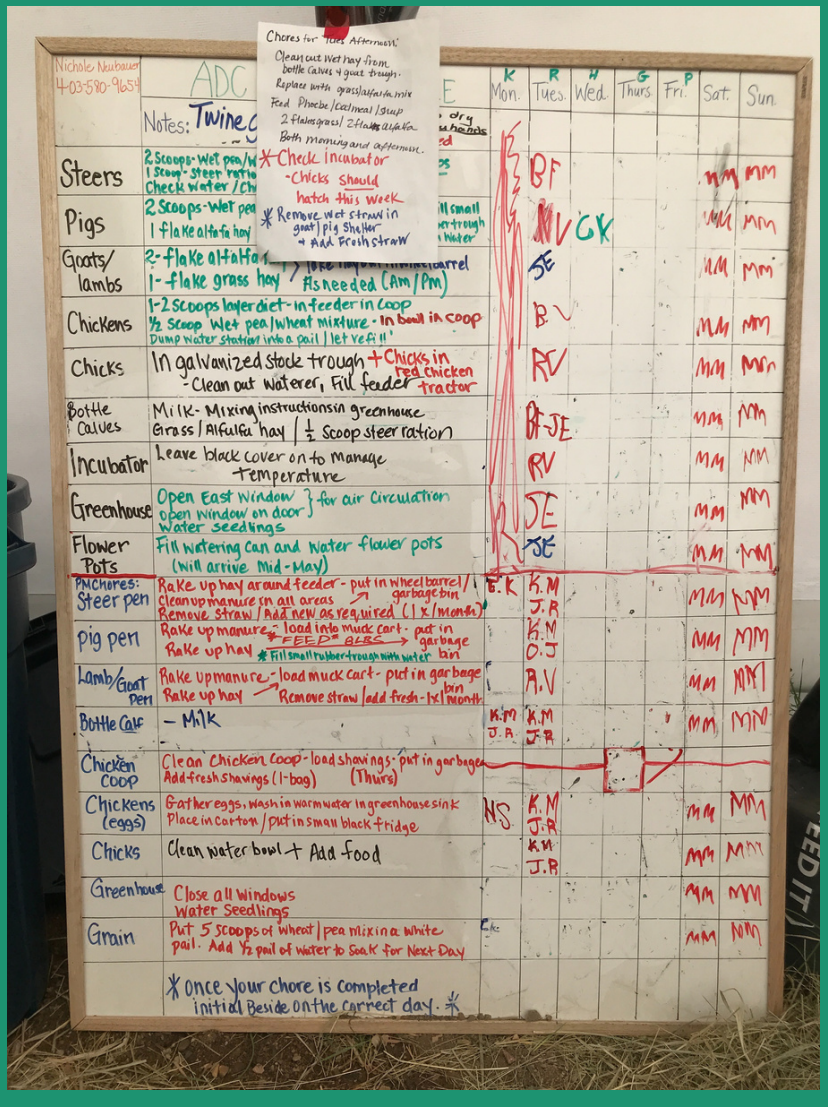
At this point you have an idea of what structures you are building, livestock you are introducing, and have researched the licenses and permits you need to do so. You can either start to apply for what you need or at least make a checklist so you are aware of the fees and information to obtain the documents.

When applying for permits and licenses, consult with whomever you are submitting to about timelines for receiving the paperwork. These things can take time to process, so this information is critical to your implementation timeline.

6.4 Create a Feeding / Watering / Maintenance Schedule

Creating a maintenance schedule can be challenging in a school setting as a site is relatively deserted on weekends, holidays, and throughout the summer and you need to set a schedule during the week that aligns with the course schedule, bus schedule, and the supervision team's schedule. Depending on the program or operation, some schools are able to accomplish chores and maintenance during lunch clubs or options classes.

Schools who have livestock on site, such as Irvine ADC and Altario, have created a morning and afternoon chore schedule for students to complete daily chores when they get off the bus in the morning, before school starts and again at lunch before afternoon classes resume. Each chore session is supervised by rotating staff members or volunteers and are managed by the students in management or board of director roles. At Altario, the students in management positions are assigned to younger students each week whom they mentor through the task list. This is a great way to foster relationship building between students of different ages, as well as include the younger students in the operation which encourages participation as they get older. Below is a picture of the chore board at Irvine ADC for everyone to follow and record what has been done. We've also linked a template of the same Chore Schedule for you to copy and adapt to the needs of your school.



Weekends, holidays, and summer months are more challenging to schedule than simply following a template as it really depends on the community involvement at the school, proximity of the school to where volunteers or students live, and whether the school has funding to provide wages to a summer student or employee. Below is a list of ways that other schools have managed scheduling outside of school hours:

- Irvine has held training sessions for families who have volunteered to do chores and maintenance at the school farm. Once trained, the families are on a rotating weekend and holiday schedule during the school year. This system allows students to demonstrate their hard work and knowledge to their family members.
- The Altario School Farm student general managers are responsible for weekend chores and maintenance. There are two students who rotate and notify school administration when their tasks are completed or otherwise. This is beneficial for students as they are able to earn volunteer hours and credits through this system.
- Many schools reach out to community groups, boards, and clubs such as agricultural societies, volunteer groups, seniors groups, etc. to recruit volunteers who may enjoy working in the school garden, greenhouse, or with livestock over the summer or on weekends. This also provides an opportunity to solidify a volunteer base or facilitate mentorships between community members and students.
- Other schools have applied for summer job grants and wage subsidies to hire a student or employee over the summer months to care for the livestock and gardens, to do necessary maintenance, and to work on educational programming. With the right capacity and skills, this employee may be able to facilitate summer workshops or camps at the school farm as well. If you are interested in applying for grants or subsidies, we advise that you look into them well in advance as many deadlines tend to be as early as the January before the upcoming summer months.

Below is a list of funding examples, specific to jobs:

- Canada Summer Jobs;
- Alberta Jobs Now Program;
- Student Work Placement Program;
- AgriTalent;
- You can also check community initiative grants for wage expense eligibility, the funding does not have to come from a wage specific fund; and
- Here is a Sample Summer Internship Job Posting created by Irvine ADC.

If you are on the lower end of the capacity spectrum and have chickens or other livestock, remember that you have the option to butcher your livestock before the end of the school year or move them to another location over the summer. This will simplify the maintenance and thus, the need for daily animal care and attention at the school.

6.5 Crop Planning

Maybe you've already chosen what you'd like to grow in your garden beds or greenhouse and now is a good time to establish where they should be planted and when. If you are unfamiliar with your local growing zone, try to engage a community member (whether a producer or an avid gardener) who can advise you on a crop plan and schedule. Some valuable advice for beginner growers is not to stress, put seeds or starts in the ground, and keep records of growth and plant wellness so the students (and you) can learn through experience if something doesn't work.

Here is an example of a Plant Growth Log Sheet, a very simple form of record keeping that you can adapt to your plants and learning objectives. There are many other record keeping models such as excel spreadsheets, which you can then adapt into graphs and device applications that will compute data for you. This logging, graphing, and data analysis can be used in a number of subjects and lesson plans.

As well, Farm 2 School BC has a number of fantastic crop planning resources, including the Farm 2 School BC Crop Planning Guide. Although the guide has recommendations for when to plant in British Columbia, it also has an empty template that anyone can use for your area and links to the West Coast Seeds growing info for each crop.

6.6 Biosecurity Procedures & Record Keeping Processes

Reading manuals and documents regarding biosecurity is one thing but this is where it is also very helpful to have local producers as mentors who can simplify the steps that need to be taken. Once you have consulted producers or other industry stakeholders, take time to get your biosecurity procedures in place as well as any record keeping processes. To do this you can:

- Create a checklist of record keeping spreadsheets;
- Create a checklist of necessary equipment;
- Map out where and how the record keeping will take place to make it as easy as possible. For example, will your spreadsheets be on paper or accessible on a device and where will they be kept to ensure they are used regularly; and
- Map out how your biosecurity measures will be put into action regarding equipment storage.

If any equipment is necessary for biosecurity, remember to add it to your list of expenses once you have a budget.

Some examples of record keeping templates include:

- Start Clean - Stay Clean Program Templates;
- Canadian Beekeepers' Practical Handbook to Bee Biosecurity and Food;
- Plant Growth Log Sheet (mentioned above) - A record keeping process for monitoring plant growth/health to learn from the data collected; and
- Composting Activity Log to record temperatures and turning.

6.7 Develop a Sales & Marketing Plan

We've already mentioned a potential logo challenge to kickstart your marketing plan but there are a few more things to think about. We recommend sitting down with your team and discussing what you would like to do with the food you produce in your first year. This will vary in every program but it may be that your yield will be too small to sell. If this is the case, there are still plenty of ways to share the food that will highlight the program. For example you could:

- Donate to a local food bank or food program,
- Use the food in school snack programs,
- Use the food at an end of harvest fundraiser dinner or get together in the community, and
- Use the food to host a cooking class fundraiser.

Even if you are not at the stage of selling food, you can still prepare by developing a SWOT analysis and a target market analysis. These activities are beneficial to the program but also present a great experiential learning opportunity for students. Other marketing efforts can be put towards informing people of what is happening at the school. To do this you can use social media, word of mouth, and local media outlets to share information. A fun and affordable way to create visibility of your farm's "brand" is to get stickers made and give them out in the community.

Once your program is more established, you can think about sales and how you want to distribute goods. Some examples include:

- Having a stand at a farmer's market,
- Setting up a farm stand at the school,
- Selling through a school retail store,
- Selling prepared meals,
- Partnering and selling to local businesses (e.g. restaurants, stores, value-added etc.),
- Having a subscription or a CSA (community supported agriculture) box, and
- Selling through an online store.

The possibilities are quite endless and will vary amongst schools and communities but your initial priority is to get the word out. Making an effort to collect content (photos, videos, testimonials etc.) is useful for marketing and record keeping but is also nice to look back on once your program grows.

7.0 Create a Budget

Please do yourself a favor and start a budget as soon as possible. You need to keep track of forecasted expenses, current expenses, forecasted revenues, and current revenues so you and everyone at the school knows how much money you need, have, and are dreaming of. Having a prepared budget before you start spending money will help you access money from grant funders, investors, donors, and sponsors. If you are proficient with budgeting feel free to create your own with a software that you are comfortable with. We have included a Budget Template to get you started. Please feel free to copy this template and modify it to suit your needs.

Now you have a plan, you know areas where you'll need support, and you've thought about who you'll engage to tap into the necessary support.

8.0 Develop a Written Plan

The one key step before engaging sponsors, donors, external volunteers etc. is to put all of your hard work and planning into a succinct written document that conveys the vision of the program, the plan for implementation, and anything else that you would like external stakeholders to know about the program. For example, think about the audience of the program proposal and try to highlight alignments to their strategic plan and/or objectives to give reason to their support.

The written proposal could take a number of different forms. It could be in the form of a business plan for both internal or external use or it could be more of a sponsorship package (see the business planning template and sponsorship package example below). Either way, you want this plan to be clear, concise, and easy to understand for those who are not involved in the day-to-day operations of the agriculture program. You plan should demonstrate the steps involved and how you plan to execute them. This will inspire others to become involved and generate support for the program.

Small-Scale Community Farming Enterprise Business Planning Template

Sponsorship Package Example

Present and Engage

So you have a plan that your school community is aware of, it's nicely written out, and the funding and support is flowing in, right? Potentially yes, but in some cases no. It's time to put on your sales hat! Inform as many people as possible about your agriculture education program with excitement and passion to get them excited and passionate about it as well.

1.0 Engaging the School Division/School Board

Your school board should be the first stop in stakeholder engagement because the future of the program depends on their support. Submit your detailed plan by explaining the process, going through the budget, providing evidence and information to support the need, and emphasizing the expected outcomes for students and the community. This will demonstrate that it is well thought out, planned, and has objectives that correlate to your school division's strategic plan.

2.0 Engaging the Municipality

Like the school board, your municipal government is very important in the engagement process. Throughout the planning stage, you made yourself aware of permits, regulations, and licenses needed to carry out your project. Hosting a meeting or town hall engagement session will give you the opportunity to show that the school is aware of bylaws and regulations, to answer any questions, and is prepared to work with the community on the plan. Neighborhood livestock tends to fall victim to NIMBYism (not in my backyard) but it doesn't have to if you can show how the program will benefit everyone.

3.0 Community Engagement

To start, operate, and sustain a school farming operation of any size, your community will be the essential piece filling in the gaps that are outside of the school's capacity. Most communities have an abundance of individuals who are willing to volunteer, mentor, attend fundraisers, and connect you with others willing to do the same. This step is also important to determine what the apprehensions and concerns surrounding the program may be. With this knowledge, you may be able to mitigate some issues brought up by the community when developing your plan for implementation.

It will be in your school's best interest to plan a program that will agree with your community, making it more likely for people to jump on board. For example, if the school is surrounded by chicken farms, you may have an easier time finding mentors to help you build chicken coops than a school that is located around zero chicken operations. That being said, everyone is connected to food production (we all have to eat!) so even if agriculture is not the beating heart of your community, there are ways to frame the program that will speak to the community. For example, it is unique for consumers to purchase food that is fresh and locally produced by youth so you could communicate your efforts to revitalize the community while increasing agricultural literacy.

As you start to bring in community stakeholders, be sure to remind everyone involved (including yourself) that the students are at the heart of this operation and preserving their vision and interest in the program takes precedence over those of the adults involved. This will lend to the sustainability of the program as you will need the student investment and participation in program activities.

Before your agriculture program is operational, you can gauge the level of involvement and support from your community by sending out an Expression of Interest Survey. We've created a Sample EOI Community Survey for you to adapt and use in your community. Survey platforms such as Google Forms or Survey Monkey are easy to use and free. You can take the sample below and copy and paste them into an online survey, add in your school/program/contact information, add/subtract questions and email to your community for easy distribution or print off paper copies and hand them out at community events.

The survey can be sent out to a number of email lists and organizations within the community such as:

- Parents of students,
- Local organizations and clubs (e.g. 4H, sport clubs, hobby clubs etc.),
- Local businesses,
- Community league members
- Local agricultural societies

Altario School had great success with community engagement by hosting a community consultation with the KAC (Kirriemuir, Altario, and Compeer) communities. The consultation was an opportunity for community members to express common goals, share ideas, and see where they fit in the future of the community. On the next page is a graphic that was produced during the consultation by Fuselight Creative.

Secure Funding

Although stakeholders are aware of the program and maybe even excited about it, you may still have to reach out to individuals and organizations for financial support. Make it easy for people by having an answer to questions such as “how can I help?” and “how much do you need” and “is there anything in it for me?”. You can try alternatives such as online crowdfunding platforms or even reaching outside of your community to neighboring communities, businesses, and corporations.

Not everyone will be able to provide money so be prepared with a list of donations that would be advantageous (animal feed, fencing, soil, seeds, tools etc.) or have some opportunities to volunteer at the ready (building, weeding, harvesting, etc.).

Implement

At this point, you’ve done a lot of research, planning, and engagement to get your program off the ground so you may be eager for the next step: to break ground! This process will be different for everyone depending on timelines, school scheduling, and the little hiccups you may experience along the way.

We've put together a series of checklists to help you through your implementation, which are meant to be used once you have gauged student/school community interest, created a team, and assessed the school's capacity. Going through the checklists will give you the opportunity to visualize areas where you need more help and to make amendments to your plan.

Poultry

Do your research (refer to the resources section for resources, info, and tips!)

- [ ] Decide what kind of birds you want
- [ ] Laying hens

OR

- [ ] Broilers (meat birds)
- [ ] Speak to your municipality about the poultry bylaws in your area
- [ ] Decide how many birds the school is able to house (bylaw allowance, capacity at the school)
- [ ] Look into registration/permits/licenses needed provincially and municipally
- [ ] Read up on raising birds
- [ ] Decide on a coop/housing design
- [ ] Talk to local poultry producers for advice/information/mentorship
- [ ] Talk to a local vet for advice/information on raising healthy birds
- [ ] Created a budget for raising the number of chickens you plan to have for the first year

Licenses/Permits/Registrations are in place

- [ ] Applied for a PID account
- [ ] Checked in with municipality on bylaws, licenses, and/or permits required for raising chickens at the school
- [ ] Have received written permission from your school board to raise chickens on site

Housing

- [ ] Necessary water infrastructure is in place
- [ ] Have enough space on site for chicken coop(s) and run(s)
- [ ] Have bought or built chicken coop(s) and run(s)
- [ ] Have everything in place for housing:
- [ ]
  - Feeders
  - Waterers
  - Ventilation
  - Heat
  - Light
  - Proper fencing to keep chickens in and predators out
  - Nesting Boxes & bedding
  - Perches
  - Floor litter
  - Dust Bath
  - Coop Sanitizer
  - Shovel(s) for scooping litter
- [ ] Chicken Feed
  - Have the appropriate feed for the age/type of bird
  - Have bins for proper storage (to avoid pests, molding, freezing)
  - Grit, scratch, and oyster shells (oyster shells are specific to laying hens)

Egg Collection (If you are choosing to raise laying hens)

- [ ] Have buckets or something to collect eggs
- [ ] An egg washing station is in place
- [ ] Egg cartons for storage
- [ ] Cold storage to keep eggs in

Other

- [ ] Have a maintenance/feeding/chore schedule in place for when the chickens arrive
- [ ] Have a plan in place for the chickens when school is out
  Butchering/processing has been booked with a local abattoir

OR

- [ ] Have found a summer home for the chickens
- [ ] Have proper biosecurity measures in place to mitigate infection of chickens or other livestock
- [ ] Have a plan for donating/using/selling eggs and/or meat in place

And last but not least

- [ ] Have found a chick/pullet/chicken supplier
- [ ] A schedule is in place for when you will introduce the birds to the school site

Bees

Do your research (refer to the resources section for resources, info, and tips!)

- [ ] Research different types of honey bees and which are available to you
- [ ] Take a beginner's beekeeping course if you are new to beekeeping
  Speak to your municipality about the beekeeping bylaws in your area
- [ ] Decide how many hives the school is able to house (bylaw allowance, capacity at the school)
- [ ] Look into registration/permits/licenses needed provincially and municipally
- [ ] Source where you will get hive boxes from
- [ ] Talk to local honey producers or hobby beekeepers for advice/information/mentorship
- [ ] Create a budget for everything entailed in your beekeeping program for the first year

Licenses/Permits/Registrations are in place

- [ ] Applied for a PID account
- [ ] Checked in with municipality on bylaws, licenses, and/or permits required for keeping bees at the school
- [ ] Have received written permission from your school board to keep bees on site

Getting hives and equipment together

- [ ] Have enough space on site for the bee hives
- [ ] Have acquired the number of hive boxes, frames, and foundations to get you started
- [ ] Have sourced nucs and a queen (may need to be ordered well in advance!)
- [ ] Have an appropriate amount of beekeeping equipment
    - Beekeeping hood(s), suit(s), and gloves
    - Hive tool(s)
    - Smoker(s)
    - Feeder
    - An EPI pen on site and trained user(s)
- [ ] Honey extracting equipment (if you choose to do so at school)
    - Escape Screen
    - Bee brush
    - Bins to move and store frames
    - Straining bin and net
    - Comb Capper
    - Knife or scraper for uncapping
    - Extractor
    - Equipment specific to rendering wax (if you choose to do so, there are many ways to render wax with different tools, you will just want to keep this equipment for wax as it can be messy and hard to get the wax off!)

Other

- [ ] Have a maintenance/feeding/chore schedule in place for when the bees arrive
- [ ] Have a plan in place for the bees when school is out
- [ ] Volunteer schedule for summer months to check on bees and do any maintenance necessary

OR

- [ ] Have found a summer home for the bees
- [ ] Have proper biosecurity measures in place to mitigate infection of hives or other livestock
- [ ] Have a plan for donating/using/selling honey in place

Garden or Garden Boxes

Do your research (refer to the resources section for resources, info, and tips!)

- [ ] Have assessed garden space at the school
- [ ] Have acquired written permission from the school board to make any modifications to the school site or build garden boxes
- [ ] Have sourced soil or equipment to till a plot of land
- [ ] Have decided what to grow
- [ ] Have spoken with your municipality regarding permits/regulations/bylaws
- [ ] Have talked to local producers or gardeners for advice/information/mentorship
- [ ] Have created a watering/maintenance/harvesting schedule for the school year and summer months
- [ ] Have created a budget for the garden for the first year

Getting equipment and materials together

- [ ] Have the water infrastructure needed to water the garden (hoses and/or an irrigation system)
- [ ] Have the equipment to plant, grow, and harvest
  - Soil
  - Materials to build garden boxes if need be
  - Spade(s)
  - Shovel(s)
  - Trowel(s)
  - Hand Cultivator(s)
  - Pitchfork(s)
  - Rake(s)
  - Rain Barrel
  - Wheelbarrow
  - Gardening gloves
  - Planting trays
  - Seeds
  - Washing station for harvesting
- [ ] Have decided what you will do with the produce once harvested (donate, use for a school food program, sell etc.)

Greenhouse

Do your research (refer to the resources section for resources, info, and tips!)

- [ ] Have assessed greenhouse space at the school
- [ ] Have acquired written permission from the school board to make any modifications to the school site and build a greenhouse
- [ ] Have spoken with your municipality regarding permits/regulations/bylaws
- [ ] Have decided on a building design for the greenhouse (size, how many seasons, materials, and heat source)
- [ ] Have developed an education or community program to surrounding the greenhouse
- [ ] Have talked to local greenhouses for advice/information/ mentorship
- [ ] Have created a watering/maintenance/harvesting schedule for the school year and summer months

Have created a budget for the greenhouse for the first year

Building the Greenhouse

- [ ] Have the water infrastructure needed for the greenhouse
- [ ] Have the heating infrastructure needed for the greenhouse
- [ ] A team and/or contractor with the skills to build the greenhouse
- [ ] Have the equipment to build, plant, grow, and harvest
  - Materials to build the greenhouse
  - Materials to build garden boxes, tables, benches, sinks etc. inside the greenhouse
  - Soil
  - Spade(s)
  - Shovel(s)
  - Trowel(s)
  - Rain Barrel
  - Wheelbarrow
  - Gardening gloves
  - Planting trays
  - Seeds
  - Washing station for harvesting
- [ ] Have decided what you will do with the produce/seed starts once harvested (donate, use for a school food program, sell etc.)

Composting

Do your research (refer to the resources section for resources, info, and tips!)

- [ ] Have assessed space and an appropriate location for a compost at the school
- [ ] Have acquired written permission from the school board to implement a composting system
- [ ] Have spoken with your municipality regarding permits/regulations/bylaws
- [ ] Have decided on a design for the compost and type of compost
  - Hot compost
  - Vermicompost
- [ ] Have developed a composting program for the school to easily follow
  - A composting guide for what you can and cannot compost
- [ ] Have created a collection/maintenance/turning schedule for the school year and summer months
- [ ] Have created a budget for the compost for the 1st year

Building the compost and putting it into action

- [ ] Materials to build a compost (depending on your design)
  - Lumber for frame and lid
  - Handle for lid
  - Metal mesh for ventilation and pest protection
- [ ] Buckets for classroom compost collection
- [ ] Pitchfork(s) for turning
- [ ] Shovel(s) for turning
- [ ] Gloves
- [ ] Thermometer to record compost temperature (if hot compost)
- [ ] Sawdust for moisture control
- [ ] Access to water for moisture control

Teach

This section is provided to help you on your journey to integrating agriculture into your curricula, with a focus on grades 7-12 in Alberta. You will find resources, listed below the grade and subject, that link to the Alberta Education Curriculum as well as a section of additional resources from other provinces, countries, and applicable to grades K-12.

Tip: LearnAlberta provides valuable teaching and learning resources. Teachers need to have a district login account or a work login account to access the LearnAlberta website. All material on the website can be accessed as PDF files and printed as needed.

Grade 7 Science

Unit A: Interactions & Ecosystems (Social and Environmental Emphasis)

1. **Project Agriculture: sustainable PRACTICES**
    a. Teaching Guide
        i. Includes full teaching guide with curricular outcomes for every project, activity, and spark questions.
    b. Student View
        i. Correlates with the above teaching outcomes.

2. **Project Agriculture: sustainability MATTERS**
    a. Teaching Guide
        i. Includes full teaching guide with curricular outcomes for every project, activity, and spark questions.
    b. Student View
        i. Correlates with the above teaching outcomes.

3. **Learn Canola: Sustainability & Agriculture: Making Wise Decisions**
    a. Teaching Guide
        i. Includes teaching guide, curricular connections, and an assessment tool which provides the criteria to develop a customized rubric.

4. **LearnAlberta - Tools4Teachers Science 7 Modules**
    a. Teaching Guide
        i. This section provides all of the modules for grade 7 science and requires the textbook ScienceFocus 7.
        ii. Only module 1 is needed for this section.
        iii. Teacher resources section provides assignments and other resources.
    b. Student View
        i. This section provides all of the modules for grade 7 science and requires the textbook ScienceFocus 7.
        ii. Only module 1 is needed for this section plus the correlated assignments.

Unit B: Plants for Food & Fibre

1. **Project Agriculture: food DIVERSITY**
    a. Teaching Guide
        i. Includes full teaching guide with curricular outcomes for every project, activity, and spark questions.

2. **Student View**
    a. Correlates with the above teaching outcomes.

3. **LearnAlberta - Tools4Teachers Science 7 Modules**
    a. Teaching Guide
        i. This section provides all of the modules for grade 7 science and requires the textbook ScienceFocus 7.
        ii. Only module 2 is needed for this section.
        iii. Teacher resources section provides assignments and other resources.
    b. Student View
        i. This section provides all of the modules for grade 7 science and requires the textbook ScienceFocus 7.
        ii. Only module 2 is needed for this section plus the correlated assignments.

Grade 7 Social Studies

7.2 Following Confederation: Canadian Expansions

1. **Project Agriculture: agriculture HISTORIES**
    a. Teaching Guide
        i. Includes full teaching guide with curricular outcomes for every project, activity, and spark questions.
    b. Student View
        i. Correlates with the above teaching outcome.

2. **Project Agriculture: food DEMOCRACY**
    a. Teaching Guide
        i. Includes full teaching guide with curricular outcomes for every project, activity, and spark questions.
    b. Student View
        i. Correlates with the above teaching outcomes.

3. **Ag in the Classroom: Settling in the West**
    - Teaching Guide
        i. Includes full teaching guide, curricular outcomes, and a marking rubric.

Grade 8 Science

Unit B: Cells & Systems

1. **Project Agriculture: food DIVERSITY**
    a. Teaching Guide
        i. Includes full teaching guide with curricular outcomes for every project, activity, and spark questions.
    b. Student View
        i. Correlates with the above teaching outcomes.

2. **LearnAlberta - Tools4Teachers Science 8 Modules**
    a. Teaching Guide
        i. This section provides all of the modules for grade 8 science and requires the textbook ScienceFocus 8.
        ii. Only module 2 is needed for this section.
        iii. Teacher resources section provides assignments and other resources.
    b. Student View
        i. This section provides all of the modules for grade 8 science and requires the textbook ScienceFocus 8.
        ii. Only module 2 is needed for this section plus the correlated assignments.

Unit D: Mechanical Systems

1. **Project Agriculture: sustainable PRACTICES**
    a. Teaching Guide
        i. Includes full teaching guide with curricular outcomes for every project, activity, and spark questions.
    b. Student View
        i. Correlates with the above teaching outcomes.

2. **Project Agriculture: smart AGRICULTURE**
    a. Teaching Guide
        i. Includes full teaching guide with curricular outcomes for every project, activity, and spark questions.
    b. Student View
        i. Correlates with the above teaching outcomes.

3. **Ag in the Classroom: Feeding Our Future**
    a. Teacher View
        i. Includes teaching guide, curricular outcomes, student assignment, and marking rubric.

4. **Ag in the Classroom: Harvest Machines**
    a. Teacher View
        i. Includes teaching guide, curricular outcomes, student assignment, and marking rubric.

5. **LearnAlberta - Tools4Teachers Science 8 Modules**
    a. Teacher View - this section provides all of the modules for grade 8 science and requires the textbook ScienceFocus 8.
        i. Only module 4 is needed for this section.
        ii. Teacher resources section provides assignments and other resources.
    b. Student View - this section provides all of the modules for grade 8 science and requires the textbook ScienceFocus 8.
        i. Only module 4 is needed for this section plus the correlated assignments.

Grade 9 Science

Unit A: Biological Diversity

1. **Project Agriculture: smart AGRICULTURE**
    a. Teaching Guide
        i. Includes full teaching guide with curricular outcomes for every project, activity, and spark questions.
    b. Student View
        i. Correlates with the above teaching outcomes.

2. **Learn Canola: Biotechnology & Biological Diversity: A Question of Balance**
    a. Teacher View
        i. Includes teaching guide, curricular connections, and an assessment tool which provides the criteria to develop a customized rubric.

3. **LearnAlberta - Tools4Teachers Science 9 Modules**
    a. Teacher View - this section provides all of the modules for grade 9 science and requires the textbook ScienceFocus 9.
        i. Only module 1 is needed for this section.
        ii. Teacher resources section provides assignments and other resources.
    b. Student View - this section provides all of the modules for grade 9 science and requires the textbook ScienceFocus 9.
        i. Only module 1 is needed for this section plus the correlated assignments.

Unit C: Environmental Chemistry

1. **Project Agriculture: sustainability MATTERS**
    a. Teaching Guide
        i. Includes full teaching guide with curricular outcomes for every project, activity, and spark questions.
    b. Student View
        i. Correlates with the above teaching outcomes.

2. **LearnAlberta - Tools4Teachers Science 9 Modules**
    a. Teacher View - this section provides all of the modules for grade 9 science and requires the textbook ScienceFocus 9.
        i. Only module 3 is needed for this section.
        ii. Teacher resources section provides assignments and other resources.
    b. Student View - this section provides all of the modules for grade 9 science and requires the textbook ScienceFocus 9.
        i. Only module 3 is needed for this section plus the correlated assignments.

Grade 9 Social Studies

9.2 Issues for Canadians: Economic Systems in Canada and the United States

1. **Project Agriculture: food DEMOCRACY**
    a. Teaching Guide
        i. Includes full teaching guide with curricular outcomes for every project, activity, and spark questions.
    b. Student View
        i. Correlates with the above teaching outcomes.

Grade 10 Science

Unit D: Energy Flow in Global Systems

1. Learn Canola: Climate Change & Agriculture
    a. Teaching Guide
        i. Includes teaching guide, curricular connections, and an assessment tool which provides the criteria to develop a customized rubric.

2. LearnAlberta - Tools4Teachers Science 10 Modules
    a. Teacher View - this section provides all of the modules for grade 10 science and requires the textbook Addison Wesley Science 10.
        i. Only module 4 is needed for this section.
        ii. Teacher resources section provides assignments and other resources.
    b. Student View - this section provides all of the modules for grade 9 science and requires the textbook ScienceFocus 9.
        i. Only module 4 is needed for this section plus the correlated assignments.

Chemistry 20

1. **Learn Canola: Biofuels, Choice or Necessity?**
    a. Teaching Guide
        i. Includes teaching guide, curricular connections, and an assessment tool which provides the criteria to develop a customized rubric.
        ii. This resource addresses concepts in:
        Unit A: The Diversity of Matter & Chemical Bonding
        Unit C: Matter as Solutions, Acids and Bases
        Unit D: Quantitative Relationships in Chemical Changes

Grade 10 Science

Unit D: Energy Flow in Global Systems

1. **Learn Canola: Climate Change & Agriculture**
    a. Teaching Guide
        i. Includes teaching guide, curricular connections, and an assessment tool which provides the criteria to develop a customized rubric.

2. **LearnAlberta - Tools4Teachers Science 10 Modules**
    a. Teacher View - this section provides all of the modules for grade 10 science and requires the textbook Addison Wesley Science 10.
        i. Only module 4 is needed for this section.
        ii. Teacher resources section provides assignments and other resources.
    b. Student View - this section provides all of the modules for grade 9 science and requires the textbook ScienceFocus 9.
        i. Only module 4 is needed for this section plus the correlated assignments.

Chemistry 20

1. **Learn Canola: Biofuels, Choice or Necessity?**
    a. Teaching Guide
        i. Includes teaching guide, curricular connections, and an assessment tool which provides the criteria to develop a customized rubric.
        ii. This resource addresses concepts in:
        Unit A: The Diversity of Matter & Chemical Bonding
        Unit C: Matter as Solutions, Acids and Bases
        Unit D: Quantitative Relationships in Chemical Changes

2. **LearnAlberta - Chemistry 20 Learn Everywhere**
    a. Chemistry 30 Learn EveryWare – Teacher
        i. Unit A: Thermochemical Changes
            - Module 1
            - Module 2
            - Student Package
                - Unit A
                    - Student Module 1
                    - Student Module 2
        ii. Unit C: Chemical Changes of Organic Compounds
            - Module 5
            - Module 6
            - Student Package
                - Unit C
                    - Student Module 5
                    - Student Module 6
    b. Chemistry 30 Learn EveryWare – Student View - can be used online or printed as a workbook

Additional Resources

The following links include a number of useful agriculture education resources, lesson plans, activities, articles, videos etc. They may be linked to provincial curriculums outside of Alberta but we wanted to give you the opportunity to see what other educators across the country are doing/using in their teaching methods. We encourage you to take a look around and use any information or inspiration to link to your curricula if the spirit moves you.

Agriculture for Life

- Agriculture Education resource bank of lesson plans, activities, videos, maps etc.;
- Designed primarily for teachers but some resources have adjacent attachments for students;
- Relevant to grades K-12;
- Specific to Alberta with direct links to curriculum outcomes; and
- Offers professional development programs for teachers in Alberta

Agriculture in the Classroom

- Agriculture Education resource bank of lesson plans, activities, videos, maps etc.;
- A login account is necessary to access resources but it is available to everyone and free of charge to set up. The login and site are very easy to navigate;
- Designed primarily for teachers but some resources have adjacent attachments for students;
- Relevant to grades K-12; and
- Canadian based, with links to all provincial curriculums. You can choose to filter your province so if you are looking at all resources be sure to check which provincial curriculum it is linked to. That being said, feel free to look at resources from other provinces for inspiration and link them to your own curricula accordingly.

AgPal Program & Service Finder

- A national database for agriculture programs, services, grants, education resources etc.;
- Very easy to use and is basically the catch-all of agricultural resources in Canada; and
- Available to everyone.

Inside Education

- An environmental and natural resource bank, including resources specific to agriculture education;
- Relevant to grades K-12;
- Specific to Alberta with direct links to curriculum outcomes; and
- Offers professional development programs for teachers in Alberta, as well as classroom and field programs.

Journey2050

- A platform that provides a virtual farm simulation for students, virtual guest speakers, field trips, games, activities, and agriculture resources;
- Relevant to grades 7-12; and
- A login account is necessary to access resources (for teachers, students do not need an account) but it is available to everyone and free of charge to set up. The login and site are very easy to navigate.

National Center for Agricultural Literacy

- A resource bank for agricultural literacy lesson plans within the Curriculum Matrix, teaching tools, and adjacent agricultural literacy curriculum outcomes;
- *Developed in and specific to the United States* through the US Department of Agriculture (USDA); and
- Relevant to grades K-12.

Nutrients for Life Canada

- A resource bank for educational materials with a focus on soil science and agricultural sustainability;
- Relevant to grades 7-12; and
- Developed for Canadian educators, not specific or linked to a particular provincial curriculum.

Project Agriculture

- Agriculture Education resource bank of lesson plans, activities, videos, maps etc.;
- Relevant to grades K-12;
- Specific to Alberta with direct links to curriculum outcomes; and
- Here is a link to a professional development video to help teachers navigate the website and use the resources as intended.

Career & Technology Studies (CTS)

Career and Technology Studies (CTS) is a provincially authorized curriculum for Alberta secondary schools designed on a pathways model to offer flexible programming using 1-credit courses. The course structure of CTS enables schools to design unique programs that meet the needs of students and draw on community resources (Alberta Education, 2022).

Guide to Career and Technology Studies

This guide is organized into the following four sections: What is CTS?; Implementing CTS; Health and Safety; and Resources.

Under the NAT Cluster: Natural Resources, there are forty-two agriculture courses that lie under introductory, intermediate, and advanced categories. We encourage you to peruse the Course Summaries and the Program of Studies to gain a better understanding of the available curricula.

Below we have compiled a list of CTS courses that are relevant to poultry, beekeeping, gardening, and safety.

CTS Relevant to Poultry

- AGR1010: Intro to Agriculture;
- AGR1040: Intro to Animal Basics;
- AGR2020: Animal Husbandry/Welfare;
- AGR2040: Livestock/Poultry;
- AGR2050: Agrifoods 1; and
- AGR3040: Livestock/Poultry 2.

CTS Relevant to Beekeeping

- AGR1010: Intro to Agriculture; and
- AGR2050: Agrifoods 1.

CTS Relevant to Gardening

- AGR1050: Plant Propagation;
- AGR1055: Gardening;
- AGR2010: Diversity in Agriculture;
- AGR2030: Field Crops 1;
- AGR2050: Agrifoods 1;
- AGR2120: Soil Management 1;
- AGR3120: Soils Management 2; and
- AGR3030: Field Crops 2.

CTS Relevant to Safety

- AGR3000: Agriculture Safety Learn EveryWare - LearnAlberta.

Green Certificate Program

The Green Certificate Program provides students with opportunities to enter a variety of agriculture-related, structured learning pathways as a part of their senior high school program and to earn a credential leading to a career in agribusiness (Government of Alberta, 2022). Generally, students enrolled in the Green Certificate Program will learn on the job, at an agricultural operation and carry out the online course materials off-campus. However, if students have access to agricultural experiential learning at the school (for example, school chicken coops, bee hives, greenhouses etc.) this experience can be put towards the program and teachers, coordinators, or other staff members are able to become trainers and testers. For more information about the Green Certificate Program and available training programs, you can visit the Alberta Green Certificate Program Website.

Locally Developed Courses

School authorities have the flexibility to develop or use locally developed courses (LDCs) to address particular student and/or community needs. These learning opportunities complement, extend and/or expand upon provincial programs of studies.

All LDCs must receive authorization from Alberta Education before implementation.

LDCs may be presented as individual courses or as course sequences.

LDCs can be used to:

- accommodate student needs and interests;
- encourage and support innovative learning and teaching practices;
- address unique community priorities (e.g., language, culture, labour market needs);
- engage students who may be at risk of leaving school early; and
- exposing students to advanced subject matter and learning environments (e.g., Advanced Placement, International Baccalaureate) to promote successful transitions to further education.

Example of LDCs that have been approved in EPSB

Developing Rubrics for Assessment

1. Alberta Assessment Consortium (AAC)
    a. Need to be a member of AAC to access full site - member list
    b. Building better RUBRICS

What is a rubric?
A rubric is a tool used to evaluate student performance. It consists of the following components:

1. criteria – elements/characteristics on which student performance is judged, and which are derived from the learner outcomes;
2. fixed measurement scale that identifies levels of performance, e.g. 4-point scale and/or descriptors such as Excellent, Proficient, Adequate, Limited;and
3. a detailed description of student performance at varying levels of quality.

When should I use a rubric?
Rubrics are most frequently used in assessment situations where we wish to provide specific feedback to students on various aspects of their learning.

Rubrics are only appropriate when it is possible to delineate various levels of quality. If a curriculum outcome is worded in such a way that its achievement is either observable or not, then a rubric would be inappropriate.

For example, a language arts outcome that asks students to print letters from left to right, using lines on a page as a guide would best be assessed by a checklist as there are not discernable levels that describe this skill – students can either do it or they cannot.

Example of RUBRICS and Checklists

Criterion	Excellent	Good	Adequate	Poor
Site Visits Notes	Every site visit includes good and thoughtful notes about that site	Every site has notes, but one or two days are not good/ thoughtful notes OR one day of notes is missing	Every site has notes, but three of four days are not good/ thoughtful notes OR two days of notes are missing	Not every day has good/ thoughtful notes OR more than two days of notes are missing
Class Question	Not every day has good/ thoughtful notes OR more than two days of notes are missing	Is missing answers to no more than 8 questions across the site visits	Is missing answers to no more than 12 questions across the site visits	Is missing answers to more than half of the questions across the site visits
Reflection on Site Visits	Provided thoughtful reflection on each of the six site visits	Provided thoughtful reflection on at least 4 of the site visits OR provided reflection on all six but two or less were not thoughtful	Provided thoughtful reflection on at least 3 of the site visits OR provided reflection on all six, but three were not thoughtful	At least 3 of the site visits OR provided reflection on all, but four or more were not thoughtful

Criterion	Yes	No
All sites have notes		
Sites notes are thorough		
Site notes are thoughtful		
Answers all site questions for all sites		
Provided reflection on each of the 6 site visits		
Reflection on site visits was thoughtful		

Professional Development

There are many outlets for professional development in agriculture education and if you are feeling challenged or overwhelmed throughout the process of integrating agricultural lessons into your curricula we encourage you to seek the help you need. As mentioned above, Agriculture for Life and Inside Education provide PD programs in Alberta. As well, Project Agriculture has created a PD video to walk teachers through the website and how to use the resources available.

Conclusion

The compilation of information, resources, templates, experiences, and advice in this toolkit may not answer every question, put all concerns to rest, or perfectly align with your own process. The objective is to provide bits and pieces to a number of school communities to alleviate some missteps and grievances along the way.

Providing new learning opportunities to students is an immense achievement and an important step forward in education. In addition to the education system, the agriculture and food industries are benefiting with every student who emerges with increased agricultural literacy.

If we can leave you with anything, we want to remind you that the work you and your school community are doing has a very positive impact in countless ways and you are an integral part of the future of our food system. Moving forward in agriculture, food production, and education takes many small steps and can't be done alone so don't forget to grab your team, engage your community, solidify your network, and ask for help and support along the way!

You got this.

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