

## Thinking about Innovation and Technology in Urban Agriculture and Local Food

### Creating an organizing framework

When you think about innovation and technology in urban agriculture and local food it is easy to become a bit overwhelmed. The terms Urban Agriculture and Local Food mean different things to different people. For example, is it about helping me grow a better garden or expanding the distribution of local food beyond weekly farmer's markets, or developing urban farms that can generate both economic and social value or operating larger-scale greenhouses and production facilities or something else? Each of these can, in their own way, be considered to fall under the expansive banner of urban agriculture and local food.

As well, who is responsible for developing and applying new innovations and technologies? Is it the role of researchers, government scientists and extension workers, entrepreneurs, farmers, gardeners? Is innovation and technology to be limited to a select few or is it the purview of all of us?

And what do we mean by innovation and technology anyway? For example, should we limit our thinking to new and novel ideas that may have never been tried before or should it also include local improvisations that are shared informally at a local level, or some other degree of inventiveness?

Before we become frustrated with these unwieldy questions and get caught up in counterproductive debates, it is probably useful to focus our discussion a bit.

Lets begin by asking a simple question - **what is the issue we want to address?** (and there are no end of different issues that deserve our attention!) If we can focus our questions around different issues we can think about innovation and technology in a more precise way.

Here is a simple matrix, using Scale and Activity elements as ways to think about the different elements of urban agriculture and local food, that we can consider, (and with any model we recognize that there are always additional elements as well as overlapping dimensions.)

But from a basic perspective, we can think about urban agriculture and local food at, at least, four different levels of **scale**. For example:

- we may be involved in our own **homes** or apartments in a variety of food consumption and production activities.

	<b>Scale</b>			
Region				X
Community		X	X	X
Neighborhood	X	X	X	
Home	X	X		
	Consume	Grow	Business	System
	<b>Activity</b>			

- as well, we see activities occurring at a **neighbourhood** level. For example this might be a community garden, local farmers market, gardening in public spaces, etc.
- we are increasingly thinking about urban agriculture and local food at a whole **community** level. For example, what are the activities in Calgary, Edmonton, Fort McMurray or Brooks that involve urban agriculture and local food? Some might also view communities from a different lens, such as a specific group of people who are closely connected.
- finally, we can also think about **regional** activities. In particular, as we look at the role of local food producers, who may operate larger commercial farms who are outside of their local community but still closely connected through markets and other resources.

Moving from the scale of urban agriculture and local food to the **activities** themselves we have another set of elements. Here we immediately can see that the four categories of activities are not comprehensive. Limiting the many activities of urban agriculture and local food to only four distinct types involves a number of compromises but it still allows us to focus our attention on the many different examples of technologies and innovations that might be developed and applied to serve each activity. So we can think about activities where:

- people who are involved in the **consumption** of local, healthy foods. Consumption can include both home cooking as well as restaurants. It also involves purchasing and other activities that relate to how we consume our foods.
- we are **growing** food. Here we make the arbitrary distinction between growing and gardening and the food production that occurs at a business level.
- we can think about **business** activities. These may include food production but also food processing, marketing, distribution, etc.
- we can also think about **system** level activities. Developing and sustaining an urban agriculture and local food ecosystem can involve wide range of activities and may involve many different individuals, organizations and sectors. Here we can see the role of different levels of government as well as the private and not-for-profit sectors.

I have placed an X in the places where activities and scale intersect. For example, in the home most of the activities are related to consuming and production. These are indications of likely activities rather than an exhaustive or definitive list, e.g., a home may be the site of a vibrant urban agriculture / local food business, but this is not likely to be the more common location.

Using this matrix allows us to focus our attention and discussions when we think about technology and innovation. For example, when we explore the issues and challenges for home gardeners the ideas and solutions we create would be very different than what we would develop for larger scale farms that are trying to increase production to supply a chain of grocery stores.

There are key challenges and opportunities embedded within each of the elements of the matrix. During the next week I want to explore five questions and use case studies to illustrate different ideas that have been developed (some successful and others less so) to address these challenges. The questions include:

1. How do we encourage people to become more involved in producing their own food?
2. How do we develop innovative and effective ways to better connect consumers with local food producers?
3. Can we develop and apply cheap, easy-to-use, simple tools such as smart sensors to help support local food production?
4. What alternative growing environments can help us develop viable urban agriculture businesses (in an Alberta climate)?
5. If wanted to create an integrated, sustainable local food system, what might it look like?

Innovation involves purposeful change in order to create new products, services and offerings. At times, these changes are small, incremental improvements and, at other times, they are substantive and transformative. At one level innovation involves the application of processes and systems to develop these new offerings; however, innovation also allows us to think differently.

The ability to think differently about innovation and technology is vital as we look at the future of urban agriculture and local food. For the most part, urban agriculture and local food is not the same as traditional agriculture. Not only do we have different products, different markets and, most importantly, different approaches but we are typically dealing with different size and scale realities.

The most useful solutions for urban agriculture and local food are not simply smaller versions of the tools, technologies and methods used in larger-scale, capital-intensive and input-intensive agricultural practices. Innovation, therefore, allows us the opportunity to think differently, to re-conceptualize our approaches. The good news is that, increasingly, being small and having limited resources presents an opportunity not a limitation.